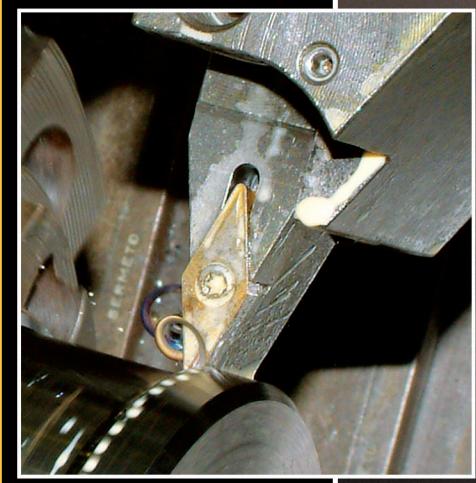


TURNING AND MILLING



CATALOG
CATALOGUE
KATALOG

KIMU

Inserts
Plaquettes
Wendeschneidplatten

A01

Toolholders
Porte-outils
Klemmhalter

B01

Boring bars
Barres d'alésage
Bohrstangen

C01

Automatic lathes
Décolletage
Drehautomaten

D01

Ceramic tools
Outils pour céramique
Keramische - Werkzeuge

E01

Parting & grooving
Tronçonner et rainurer
Stechen und Nuteneinstechen

F01

Threading
Filetage
Werkzeuge zum Gewindedrehen

G01

Drills
Forets
Bohrer

H01

Cartridges
Cartouches
Kurzklemmhalter

I01

Brazed tools
Outils brasés
Gelötete Werkzeuge

J01

Milling cutters
Fraises
Fräser

K01

Solid carbide
Carbure monobloc
Vollhartmetall

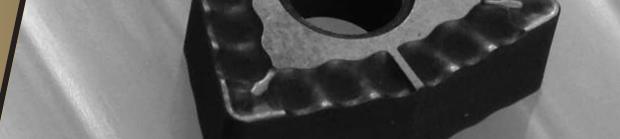
L01

Boring heads
Têtes d'alésage
Bohrköpfe

M01

Arbors & adaptors
Mandrins et Attachements
Dorne und Aufnahmen

N01



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A01

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Ceramic tools

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Arbors & adaptors

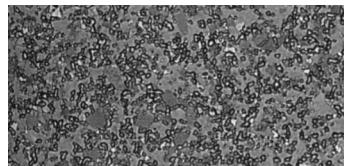
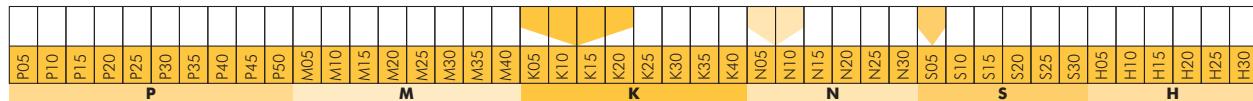


K15K

Finishing grade in the K10 range. This carbide grade is for use on cast iron, aluminium and heat-resistant alloys. This grade works well on cobalt based alloys and synthetic materials and is suitable for finishing on heat-resistant alloys.

Une nuance de finition dans la gamme K10. Cette nuance de carbure s'utilise pour la fonte, l'aluminium et les alliages résistants au chaud. Elle travaille bien dans les alliages avec base de cobalt et les matériaux synthétiques et est appropriée aussi pour la finition en alliages résistants au chaud.

Es ist eine Sorte zum Schlichten, im K10 Bereich. Diese Sorte ist für Guß, Aluminium und hitzebeständige Legierungen geeignet. Sie hat gute Bearbeitungseigenschaften für Kobaltlegierungen und synthetische Materialien und ist für das Schlichten in hitzebeständigen Legierungen besonders gut geeignet.

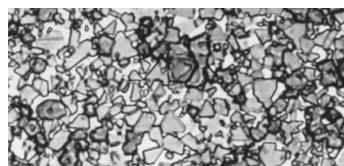
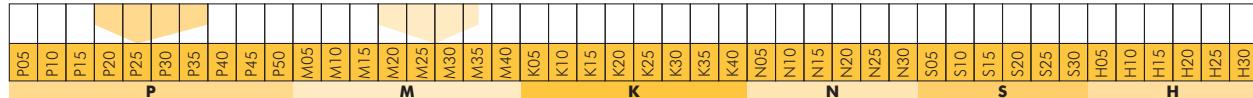


P25K

General purpose uncoated grade in the P30 range. This tough, economical grade is suitable to work carbon steels, alloyed steels, tool steels and stainless steels. P25K provides toughness and resistance to deformation in roughing and semi-finishing applications.

Une nuance non revêtue d'usage général dans la gamme P30. Cette nuance dure et économique est prévue pour usiner l'acier au carbone, l'acier allié, l'acier à outils et l'acier inoxydable. P25K proportionne dureté et résistance à la déformation dans des opérations d'ébauche et semi-finition.

Eine allgemeine unbeschichtete Sorte im P30 Bereich. Diese zähe und wirtschaftliche Sorte ist zur Bearbeitung von Kohlenstoffstahl, legiertem Stahl, Werkzeugstahl und rostfreiem Stahl gut geeignet. P25K hat eine gute Zähigkeit und Verschleißfestigkeit in Schrupp- und mittlere Schlichtarbeiten.

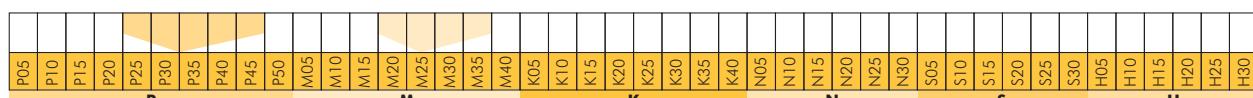


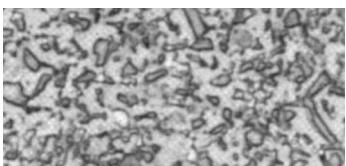
P40K

Roughing grade in the P35 range. This tough grade is for structural, cast and tool steels. It is recommended when toughness is more important than wear resistance.

Une nuance pour l'ébauche dans la gamme P35. Cette nuance dure est pour l'acier de construction, l'acier coulé et l'acier à outils. Recommandé quand la dureté est plus importante que la résistance à l'usure.

Eine Sorte zum Schrappen im P35 Bereich. Diese zähe Sorte ist für Baustahl, Stahlguss und Werkzeugstahl geeignet, insbesonders wenn die Zähigkeit wichtiger als die Verschleißfestigkeit ist.





CK30

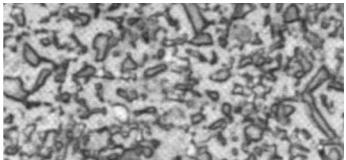
P15 - M10 - K10

CK30 is a newly developed Cermet applicable for a wide range of cutting conditions as a standard grade for general machining of steel. It can successfully be used for a range of cutting speeds from (100 to 200 m/min) with better wear resistance than conventional TiC Cermet. It gives an excellent performance from semi-finish operation of ductile cast iron at cutting speeds of 200 m/min. or less.

CK30 est un Cermet développé récemment, qui s'applique à une large gamme de conditions de coupe comme nuance standard pour l'usinage général de l'acier. Il peut être utilisé avec succès pour une gamme de vitesses de coupe de 100 m/min à 200 m/min avec une meilleure résistance que le Cermet TiC conventionnel. Il est aussi performant pour les opérations de semi-finition et finition pour fonte malléable avec une vitesse de coupe de 200 m/min ou moins. Ce Cermet peut améliorer l'état de surface, plus spécialement en ce qui concerne l'alésage fin, parce qu'il a moins d'affinité avec les pièces à usiner, parce qu'il génère moins d'arête rapportée et il peut s'appliquer avec une large gamme de vitesses de coupe.

Das CK30 ist ein Titan-Nitrid Cermet, das für eine Vielfalt von Schnittdaten geeignet ist, als Standardsorte zum Drehen in Stahl. Es wird mit Erfolg für einen großen Schnittgeschwindigkeitsbereich von 100 m/min. bis 200 m/min. verwendet und hat eine bessere Verschleißfestigkeit als konventionelles TiC Cermet. Es besitzt eine außergewöhnliche Bruchfestigkeit, ohne den Verschleißwiderstand der TiC-Cermets zu mindern. Durch seine Unempfindlichkeit gegen Aufbauschneiden und Kolkverschleiß erreicht man eine sehr gute Oberflächengüte der Werkstücke.

P05	P10	P15	P20	P25	P30	P35	P40	P45	P50	M05	M10	M15	M20	M25	M30	M35	M40	K05	K10	K15	K20	K25	K30	K35	K40	N05	N10	N15	N20	N25	S05	S10	S15	S20	S25	S30	H05	H10	H15	H20	H25	H30
P M K N S H																																										



CK40

P15 - M10 - K10

CK40 is a newly developed Cermet applicable for a wide range of cutting conditions as a standard grade for general machining of steel. It can successfully be used for a range of cutting speeds from (100 to 200 m/min) with better wear resistance than conventional TiC Cermet. It gives an excellent performance from semi-finish to finish operation of ductile cast iron at cutting speeds of 200 m/min. or less.

CK40 est un Cermet développé récemment, qui s'applique à une large gamme de conditions de coupe comme nuance standard pour l'usinage général de l'acier. Il peut être utilisé avec succès pour une gamme de vitesses de coupe de 100 m/min à 200 m/min avec une meilleure résistance que le Cermet TiC conventionnel. Il est aussi performant pour les opérations de semi-finition et finition pour fonte malléable avec une vitesse de coupe de 200 m/min ou moins.

Das CK40 ist ein neu entwickeltes Cermet, das für eine Vielfalt von Schnittdaten geeignet ist, als Standardsorte zum Fräsen in Stahl (Vorschlichten und Feinschlichten bei Nass- und Trockenbearbeitung). Es wird mit Erfolg für einen großen Schnittgeschwindigkeitsbereich von 100 m/min bis 200 m/min. verwendet und hat eine bessere Verschleißfestigkeit als konventionelles TiC Cermet und auch hervorragendes Thermoschockverhalten. Der hohe Bruchwiderstand ermöglicht den Einsatz sowohl bei geringerem Schruppen als auch bei Schlichten von Temperguß bei einer Geschwindigkeit von 200 m/min oder mehr.

P05	P10	P15	P20	P25	P30	P35	P40	P45	P50	M05	M10	M15	M20	M25	M30	M35	M40	K05	K10	K15	K20	K25	K30	K35	K40	N05	N10	N15	N20	N25	S05	S10	S15	S20	S25	S30	H05	H10	H15	H20	H25	H30
P M K N S H																																										

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

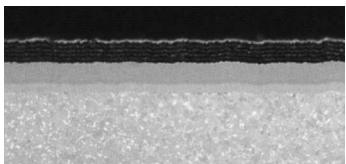
Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors



TIC20

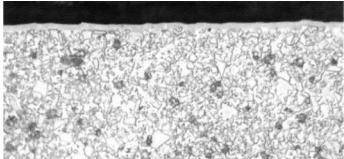
P20 - M20 - K20

General purpose wear resistant grade. It has enriched substrate which has exceptionally good deformation as well as fracture resistance. The multi-layer coating includes aluminium oxide to add additional heat and wear resistance. It is used to machine steel and stainless steel at lower speeds than TIC15.

C'est une nuance générale résistant à l'usure. Elle a un substrat enrichi qui a une déformation exceptionnellement bonne et aussi une résistance à la fracture. Cette nuance multicouches contient de l'oxyde d'aluminium pour ajouter de la chaleur additionnelle et résistance à l'usure. Elle s'utilise pour usiner l'acier et l'acier inoxydable à des vitesses plus basses que la TIC15.

Es ist eine allgemeine verschleißfeste Sorte. Sie enthält ein angereichertes Substrat, das eine hervorragende Verformung und Bruchfestigkeit hat. Die mehrlagige Beschichtung enthält Aluminiumoxyd, um zusätzliche Wärme und Verschleißfestigkeit zu erreichen. Es wird für die Bearbeitung von Stahl und rostfreiem Stahl bei niedrigeren Geschwindigkeiten als TIC15 benutzt.

P05	P10	P15	P20	P25	P30	P35	P40	P45	P50	M05	M10	M15	M20	M25	M30	M35	M40	K05	K10	K15	K20	K25	K30	K35	K40	N05	N10	N15	N20	N25	S10	S15	S20	S25	S30	H05	H10	H15	H20	H25	H30
P										M								K								N					S					H					



TIC25

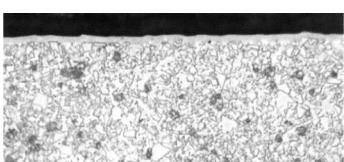
P25 - M20

Coated with TiN-TiC-TiN. Coating thickness 3-5 microns for use on steel, alloyed steel and stainless steel, with or without coolant. With coolant, TIC25 performs well when milling titanium or nickel based alloys, and ductile iron.

Nuance avec revêtement TiN-TiC-TiN. L'épaisseur de la couche est de 3-5 microns, pour une utilisation sur acier, acier allié et acier inoxydable avec ou sans arrosage. Avec arrosage, le TIC25 se comporte bien lors du fraisage de titane ou alliages de nickel et de fer ductile.

Mit TiN-TiC-TiN beschichtet. Die Dicke der Schicht ist 3-5 Mikron. Zur Bearbeitung von Stahl, legierten Stahl und rostfreien Stahl geeignet, mit oder ohne Kühlung. TIC25 hat auch gute Zerspanungsleistung bei der Bearbeitung von Titan- oder Nickel-Legierungen sowie Sphäroguß.

P05	P10	P15	P20	P25	P30	P35	P40	P45	P50	M05	M10	M15	M20	M25	M30	M35	M40	K05	K10	K15	K20	K25	K30	K35	K40	N05	N10	N15	N20	N25	S05	S10	S15	S20	S25	S30	H05	H10	H15	H20	H25	H30
P										M								K								N					S					H						



TIC28

P30 - M30

Micrograin carbide grade enhanced with multilayer PVD coating that offers a lower friction coefficient and a sharper cutting edge. TIC28 is Kimu's first choice for Stainless and alloy steels at low to medium cutting speeds and for unstable machining conditions. The sharp cutting edge achieved by the PVD coating gives the workpiece an excellent surface finish.

La nuance TIC28 est un carbure micrograin amélioré par un revêtement PVD multicouche: elle offre un faible coefficient de friction et une arête de coupe plus affûtée. Cette nuance est le premier choix de la gamme Kimu pour les aciers inoxydables, pour les aciers alliés à basse et moyenne vitesse de coupe, et pour les conditions d'usinage instables. Arête de coupe affûtée obtenue par le revêtement PVD garantit un excellent état de surface de la pièce à usiner.

Hartmetall-Mikrokorn-Sorte, mit einer PVD-Mehrlangenbeschichtung, die einen niedrigeren Reibungskoeffizient und eine scharfere Schneide bietet. Die Sorte TIC28 ist die erste Wahl von Kimu für die Bearbeitung von rostfreiem und legiertem Stahl mit niedrigen oder mittleren Schnittgeschwindigkeiten sowie für instabile Bearbeitungsbedingungen. Die scharfe Schneidkante, die mit der PVD-Beschichtung erreicht wird, erzielt am Werkstück eine ausgezeichnete Oberflächengüte.

P05	P10	P15	P20	P25	P30	P35	P40	P45	P50	M05	M10	M15	M20	M25	M30	M35	M40	K05	K10	K15	K20	K25	K30	K35	K40	N05	N10	N15	N20	N25	N30	S05	S10	S15	S20	S25	S30	H05	H10	H15	H20	H25	H30
P										M								K								N					S					H							

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

Inserts

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Ceramic tools

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Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

TIC30

P30 - M20

General purpose wear resistant turning grade. The multi-layer coating includes aluminium oxide to add additional heat and wear resistance. It is used to machine steel at lower speeds than TIC15. This turning grade is for demanding metal removal operations, including cutting through scale at low speeds through heavy interruption, and problem machining of stainless steel at low speed and poor rigidity.

C'est une nuance générale résistante à l'usure pour tournage. Le revêtement multicouches contient de l'oxyde d'aluminium pour ajouter de la chaleur additionnelle et résistance à l'usure. Elle s'utilise pour usiner l'acier et l'acier inoxydable à des vitesses plus basses que la TIC15. Cette nuance est pour opérations exigeantes d'enlèvement de copeaux, aussi avec coupe interrompue et l'usinage problématique de l'acier inoxydable à une vitesse basse et avec peu de rigidité.

Es ist eine allgemeine verschleißfeste Sorte zum Drehen. Die mehrlagige Beschichtung enthält Aluminiumoxyd, um zusätzliche Wärme und Verschleißfestigkeit zu erreichen. Es wird für die Bearbeitung von Stahl und rostfreiem Stahl bei niedrigeren Geschwindigkeiten als TIC15 benutzt. Diese Sorte ist für Operationen mit großer Spanabfluss geeignet, auch mit unterbrochenen Schnitten und für die problematische Bearbeitung von rostfreiem Stahl bei niedrigen Schnittgeschwindigkeiten und ungünstigen Bedingungen.

P05	P10	P15	P20	P25	P30	P35	P40	P45	P50	M05	M10	M15	M20	M25	M30	M35	M40	K05	K10	K15	K20	K25	K30	K35	K40	N05	N10	N15	N20	N25	S05	S10	S15	S20	S25	S30	H05	H10	H15	H20	H25	H30
P										M								K								N					S						H					

TIC35

M25

New coated grade developed to machine stainless steel and heat-resistance alloys. This grade is only used in combination with the CS chipbreaker. First choice for stainless steel applications.

Nouvelle nuance revêtue pour l'usinage de l'acier inoxydable et des alliages résistants au chaud. Cette nuance est utilisée seulement en combinaison avec le brise-copeaux CS. C'est le premier choix pour les applications en acier inoxydable.

Es ist eine neue beschichtete Sorte für die Bearbeitung von rostfreiem Stahl und hitzebeständigem Legierungen. Diese Sorte wird nur zusammen mit dem CS-Spanbrecher benutzt. Die erste Wahl für Anwendungen in rostfreiem Stahl.

P05	P10	P15	P20	P25	P30	P35	P40	P45	P50	M05	M10	M15	M20	M25	M30	M35	M40	K05	K10	K15	K20	K25	K30	K35	K40	N05	N10	N15	N20	N25	N30	S05	S10	S15	S20	S25	S30	H05	H10	H15	H20	H25	H30
P										M								K								N					S						H						

TK30

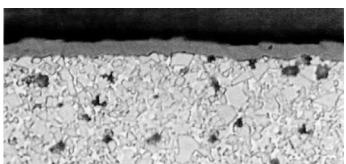
P30 - M30

Tough grade for milling in steel, stainless steel and superalloys. Smooth coating to minimize re-cutting of chips when milling in sticky materials. Excellent grade for tough demanding applications with or without coolant. Ti(C, N).

Nuance dure pour le fraisage en acier, acier inoxydable et superalliages. Revêtement lisse pour réduire au minimum la re-découpe des copeaux quand on fraise des matériaux collants. C'est une nuance excellente pour des applications difficiles avec ou sans arrosage. Ti (C, N)

Zahe Sorte für das Fräsen in Stahl, rostfreiem Stahl und Super-Legierungen. Die glatte Beschichtung reduziert Aufbauschneidenbildung. Hervorragende Sorte für anspruchsvolle Anwendungen, mit oder ohne Kühlmittel. Ti (C, N).

P05	P10	P15	P20	P25	P30	P35	P40	P45	P50	M05	M10	M15	M20	M25	M30	M35	M40	K05	K10	K15	K20	K25	K30	K35	K40	N05	N10	N15	N20	N25	N30	S05	S10	S15	S20	S25	S30	H05	H10	H15	H20	H25	H30
P										M								K								N					S						H						

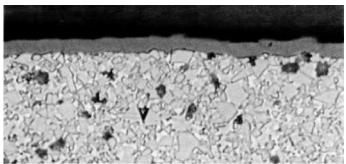


T20L

Carbide coated with TiAlN and lubricity layer PVD coating. It has a lower friction coefficient and a lower cutting energy during finishing. The sharper cutting edge reduces the built-up edge damage and gives the workpiece an excellent surface finish. Recommended for alloyed steel.

P25 - M20

P05	P10	P15	P20	P25	P30	P35	P40	P45	P50	M05	M10	M15	M20	M25	M30	M35	M40	K05	K10	K15	K20	K25	K30	K35	K40	N05	N10	N15	N20	S05	S10	S15	S20	S25	S30	H05	H10	H15	H20	H25	H30
P										M								K								N				S						H					



T40L

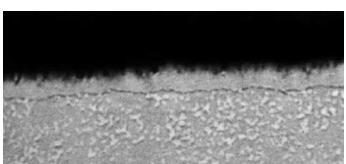
PVD-coated grade for fine to medium rough milling. First choice for milling with small feeds and/or low cutting speeds. Excellent for milling when there is a risk of vibrations and when coolant is used. Recommended for machining superalloys. Multilayer (TiAl)N.

P40 - M30

Nuance revêtue PVD pour l'ébauche fin à moyen. Premier choix pour le fraisage avec des petits avances et / ou une basse vitesse de coupe. Excellent pour le fraisage quand il ya un risque de vibrations et lorsqu'on utilise de l'arrosage. Recommandé pour l'usinage des superalliages. Multicouches (TiAlN).

PVD beschichtete Sorte zum Fräsen (Schruppen und mittlerer Bearbeitung). Erste Wahl zum Fräsen mit kleinen Vorschüben und/oder niedrigen Schnittgeschwindigkeiten. Ausgezeichnet wenn ein Vibrationsrisiko besteht und auch wenn Kühlmittel verwendet wird. Empfohlen zur Bearbeitung von Super-Legierungen. Multi-Schicht TiAlN.

P05	P10	P15	P20	P25	P30	P35	P40	P45	P50	M05	M10	M15	M20	M25	M30	M35	M40	K05	K10	K15	K20	K25	K30	K35	K40	N05	N10	N15	N20	N25	N30	S05	S10	S15	S20	S25	S30	H05	H10	H15	H20	H25	H30
P										M								K								N				S						H							



Z10R

Micrograin grade with an extremely hard single zirconium layer for machining aluminium, copper alloys and plastics.

K10

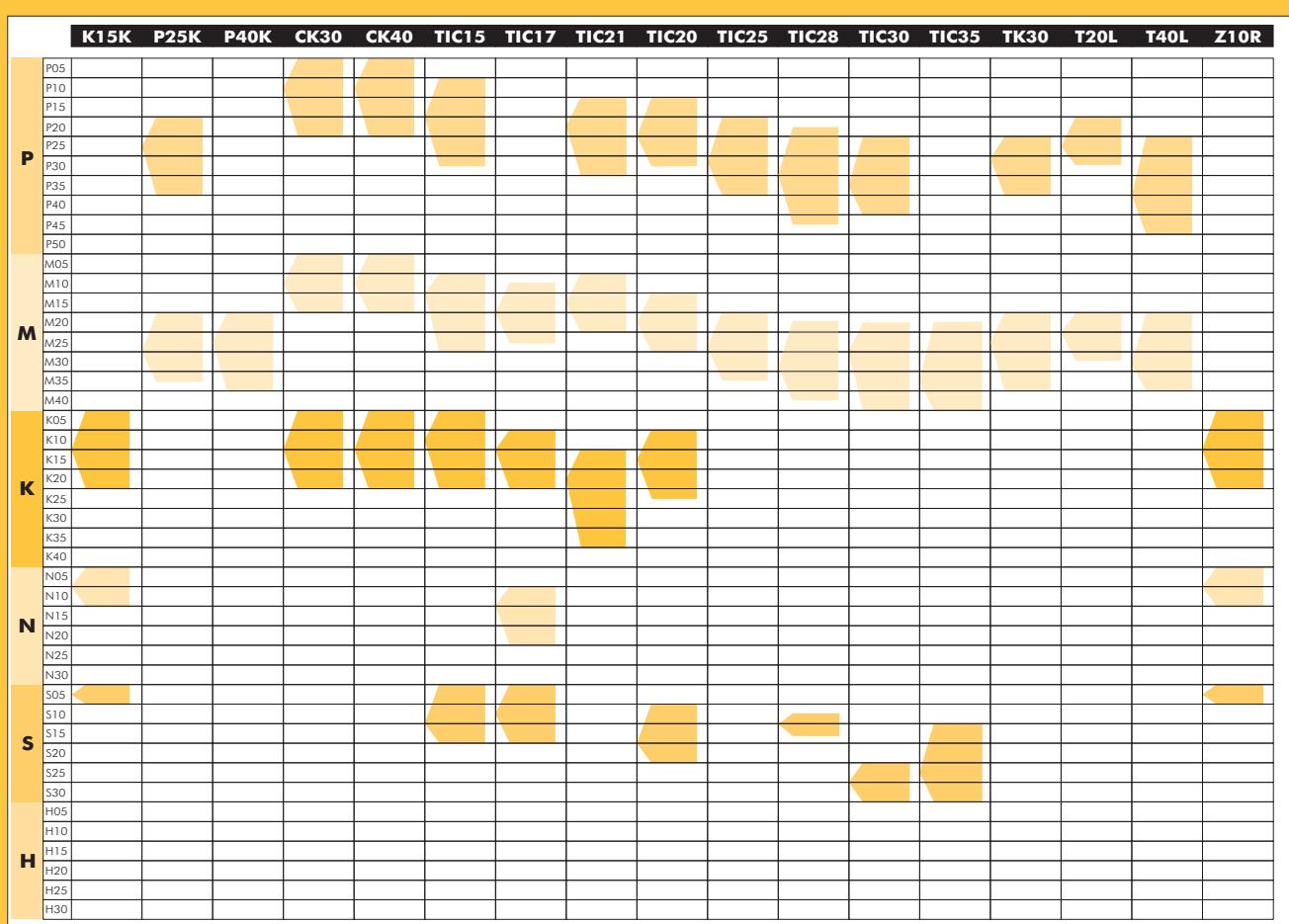
Nuance micrograin avec une seule couche de zircone extrêmement dure. Appropriée pour l'usinage d'aluminium, alliages de cuivre et plastiques.

Mikrokorn Sorte mit einer einzigen, sehr harten Zirkonium Schicht zur Bearbeitung von Aluminium-Legierungen, Kupfer-Legierungen und Kunststoff.

P05	P10	P15	P20	P25	P30	P35	P40	P45	P50	M05	M10	M15	M20	M25	M30	M35	M40	K05	K10	K15	K20	K25	K30	K35	K40	N05	N10	N15	N20	N25	N30	S05	S10	S15	S20	S25	S30	H05	H10	H15	H20	H25	H30
P										M								K								N				S						H							

Inserts

Grade chart



Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

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Solid carbide

Boring heads

Arbors & adaptors

KX1

KX1 is ultimate silicon-nitride material that has been developed to improve the notch wear of the conventional ceramics which contain silicon nitride.

To reduce notch wear amount in machining gray cast iron, the binding intergranular phase of silicon-nitride particles is changed to the higher-melting-point compound. This contributes to high temperature and high pressure sintering, so that the high density can be created.

This material doesn't cover only the conventional silicon-nitride ceramics application range, but also appears excellent performance under even higher speed machining conditions.

Le KX1 est un nitre de silicium qui a été développé pour améliorer la résistance à l'usure des céramiques conventionnelles qui contiennent du nitre de silicium. Pour réduire l'usure dans l'usinage de la fonte grise, la phase reliant intergranulaire des particules du nitre de silicium est changée jusqu'au composant avec le plus haut point de fusion. Cela contribue à la synthétisation à haute température et à haute pression, afin de créer une haute densité.

Ce matériel ne couvre pas seulement la gamme d'application des céramiques conventionnelles de nitre de silicium, mais elle donne aussi un excellent rendement sous des conditions d'usinage à une vitesse encore plus haute.

KX1 ist ein Siliziumnitrid Material, das entwickelt worden ist, um den Kerbverschleiß der konventionellen Keramiken zu verbessern. Um den Kerbverschleiß bei der Bearbeitung von Grauguss zu reduzieren, wurde die Interkorn-Bindephase der Siliziumnitrid-Partikel bis zum höchsten Schmelzpunkt-Verbund geändert. Das hilft beim Sintern bei hohen Temperaturen und hohem Druck, so daß eine hohe Dichte erzeugt wird. Dieses Material deckt nicht nur die Anwendungspalette von konventionellen Siliziumnitrid-Keramiken ab, sondern gibt auch eine hervorragende Leistung selbst bei der Bearbeitung bei höheren Schnittgeschwindigkeiten.

Main components	Major applications	Density g/cm³	Hardness HRA	Bending strength MPa	Young's modulus GPa	Thermal expansion coefficient X10⁻⁶/K	Heat conductivity X10⁻⁶/K
KX1 Si₃N₄	- Highly efficient cutting of gray cast iron	3,2	93,5	1200	320	3,0	29

KC1

KC1 is a highly wear-resistant tool that has been formed into microstructure by adding a trace amount of zirconia (ZrO_2) to highly pure alumina (Al_2O_3), the main component of this tool material.

La KC1 est une nuance extrêmement résistante à l'usure qui a été transformée en microstructure en ajoutant une petite quantité de zircone (ZrO_2) à l'oxyde d'aluminium extrêmement pur (Al_2O_3), le composant principal de ce matériel.

KC1 ist eine hoch verschleißfeste Sorte, die eine Mikrostruktur geworden ist, indem man eine Spurmenge von Zirkonium (ZrO_2) zum Aluminium-Oxyd (Al_2O_3) hinzugefügt hat.

Main components	Major applications	Density g/cm³	Hardness HRA	Bending strength MPa	Young's modulus GPa	Thermal expansion coefficient X10⁻⁶/K	Heat conductivity X10⁻⁶/K
KC1 Al₂O₃	- Semi-finishing and finishing of cast iron - Tube scarfing	4,0	94,0	700	400	7,8	17

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

KC2

This material is well-balanced between wear resistance and fracture resistance, and it works well in wide range of cutting cast iron and the turning of hard materials.

Ce matériel a un bon équilibre entre la résistance à l'usure et à la fracture et travaille bien en l'usinage de la fonte et le tournage des matériaux durs.

Dieses Material hat ein gutes Verhalten zwischen Verschleißfestigkeit und Bruchfestigkeit, und arbeitet gut bei der Bearbeitung von Grauguß und dem Drehen von harten Materialien.

Main components	Major applications	Density g/cm ³	Hardness HRA	Bending strength MPa	Young's modulus GPa	Thermal expansion coefficient X10 ⁻⁶ /K	Heat conductivity X10 ⁻⁶ /K
KC2 Al ₂ O ₃ +TiC	- Semi-finishing and finishing of cast iron - Machining of hardened materials	4,3	94,5	800	420	7,9	21

KC4

Since the finest grain size particle, with high melting point, is composited KC4 improves in both hardness and strength, and it shows superior performance as a special material for machining high-hardened materials.

Les particules micrograin du KC4 ont un point de fusion assez haut. Cela améliore la dureté et la résistance, et montre un excellent rendement en l'usinage des matériaux très endurcis.

Die Feinstkorn-Partikel von Komposit KC4 haben einen hohen Schmelzpunkt. Das verbessert die Härte und die Standzeit und zeigt eine hervorragende Leistung bei der Bearbeitung von hoch gehärteten Materialien.

Main components	Major applications	Density g/cm ³	Hardness HRA	Bending strength MPa	Young's modulus GPa	Thermal expansion coefficient X10 ⁻⁶ /K	Heat conductivity X10 ⁻⁶ /K
KC4 Al ₂ O ₃ +TiC	- Machining of hardened materials	4,6	95,5	1000	420	7,8	25

CBN

This CBN are formed with special ceramic binder based on CBN (Cubic Boron Nitride) particles, and CBN sintered layer is increasing thickness by carbide base.

CBN are high-performance tool materials that have high hardness at room temperature and high temperature and are almost free from chemical reactions against the material to be cut.

Le CBN est formé avec un agent relieur céramique spécial basé en particules de CBN (Nitrate de Bore Cubique), et la couche de CBN syntonisée augmente l'épaisseur de la base de carbure. Le CBN est un matériel à haut rendement, qui a une haute dureté à température ambiante et à haute température, et il est presque libre des réactions chimiques contre le matériel que l'on doit couper avec.

CBN wird mit einem speziellen Keramik-Bindemittel gebildet, das CBN-Partikel (kubisches Bornitrid) enthält. Die gesinterte CBN Schicht liegt auf der Hartmetall-Basis.

CBN sind hochleistende Materialien, die eine hohe Härte bei Raumtemperatur und auch bei hoher Temperatur haben, und fast keine chemische Reaktionen gegen das zu bearbeitendes Material zeigen.

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PKD

PKD consists of a 0,5 mm thick diamond layer, which is inseparably connected to a carbide base. This polycrystalline diamond layer originates at a pressing operation by bonding of smallest diamond grains, supported by a metallic bonding agent. This cutting material also has a very long tool life.

Le PKD se compose d'une couche de diamant d'épaisseur 0,5 millimètres, qui est inséparablement rattachée à une base de carbure. Cette couche de diamant polycristallin s'origine à une opération de pressage, laquelle fait attacher de très petits grains de diamant moyennant un liant métallique. Cette nuance a une très longue durabilité.

PKD besteht aus einer 0,5 mm dicken Diamant-Schicht, die mit einer Hartmetall-Basis untrennbar verbunden ist. Diese polykristalline Diamant-Schicht entsteht bei einer Pressoperation, die sehr kleine Diamant-Körner mit einem metallischen Bindemittel zusammenbindet. Diese Sorte erzielt lange Standzeiten bei der Bearbeitung von Kunststoffen und NE-Metallen.

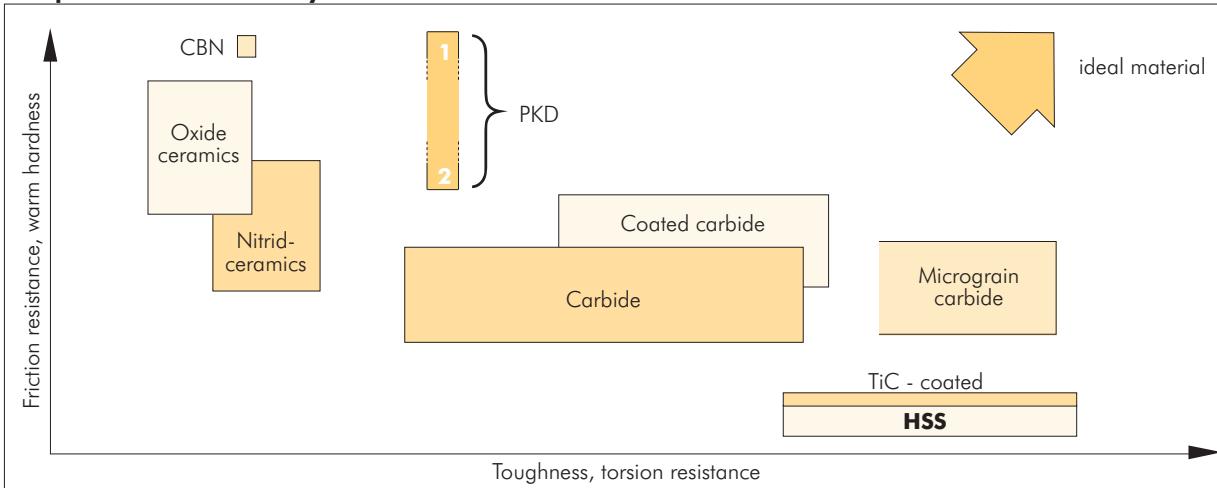
Polycrystalline boron nitride cutting material

Material	Vc = m/min.	Infeed f = mm/U	Depth of cut ap=mm
CBN	- Hardened materials and nitriding steels	60-120	0,03-0,2
	- High temperature and corrosion resistant alloys with high nickel or cobalt content	70-150	0,03-0,15
	- Gray cast iron, especially hard and abrasion resistant types	300-600	0,10-0,5
	- High speed steel (HSS)	60-120	0,03-0,1
	- Metal powder spraying	60-120	2
			1

Polycrystalline diamond cutting material

Material	Vc = m/min.	Infeed f = mm/U	Depth of cut ap=mm
PKD	- Aluminium alloys under 3% SIC	200-2000	0,05-0,4
	- Aluminium alloys up to 12% SIC	150-1000	0,05-0,4
	- Aluminium alloys up to approx 21% SIC	100-800	0,05-0,4
	- Brass, magnesium, zinc alloys	200-2000	0,05-0,4
	- Copper, bronze, lead alloys	200-1000	0,05-0,4
	- Duro and thermoplastics with and without fillers e. g. epoxy resin	100-1000	0,05-0,2
	- Hard papers	200-600	0,10-0,3
	- Hard and soft rubber with and without fillers	100-500	0,10-0,3
	- Graphite and pre-sintered carbide	100-500	0,10-0,4
	- Aluminium oxide, silicon, tungsten	50-180	0,1

Comparison of materials by hardness and resistance



Inserts

Turning

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Ceramic tools

Parting & grooving

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Drills

Cartridges

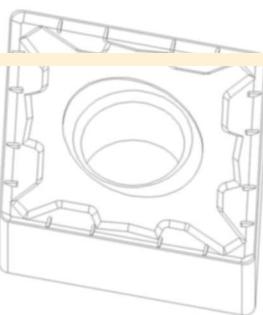
Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

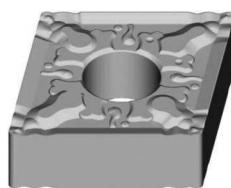


BASIC GEOMETRIES

- CF** - Finishing
- CM** - Medium
- CR** - Roughing
- CS** - Stainless steel

COMPLEMENTARY GEOMETRIES

- CFC** - Finishing Cermet
- CFM** - Finishing Medium
- CMC** - Medium Cermet
- CMF** - Medium Finishing
- CMR** - Medium Roughing



-CF Geometry

CF chipbreakers are engineered for light finishing operations at high speeds in the 0,08 mm to 0,3 mm feed range at depths of cut between (0,2 to 2,5 mm).

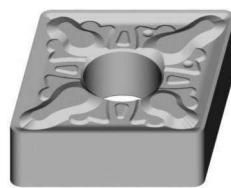
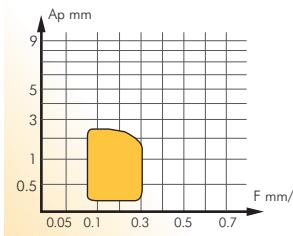
Main application area: Cutting depth (Ap): 0,2 - 2,5 mm
Feed (f): 0,08 - 0,3 mm

Les brise-coapeaux CF ont été dessinés pour des opérations légères de finition à haute vitesse avec une avance de 0,08 à 0,3 mm et une profondeur de coupe de 0,2 à 2,5 mm.

Domaine d'application principal: Profondeur de coupe (Ap): 0,2 - 2,5 mm
Avance (f): 0,08 - 0,3 mm

Die CF Spanbrecher sind für leichte Schlichtoperationen zu hohen Geschwindigkeiten mit einem Vorschub von 0,08 bis 0,3 mm und eine Schnitttiefe von 0,2 bis 2,5 mm entworfen worden.

Haupt-Einsatzbereich: Schnitttiefe (Ap): 0,2 - 2,5 mm
Vorschub (f): 0,08 - 0,3 mm



-CM Geometry

CM chipbreakers provide a positive rake angle with land for high edge strength in medium duty applications on a wide range of materials.

Recommended for general purpose use on all types of steel.

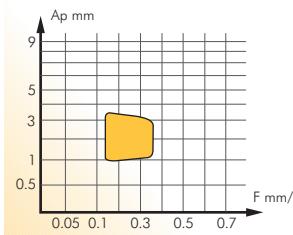
Main application area: Cutting depth (Ap): 1,0 - 3,5 mm
Feed (f): 0,15 - 0,35 mm

Les brise-coapeaux CM proporcionnent un angle de coupe positif, avec une haute résistance de l'arête de coupe pour des usinages moyens dans une large gamme de matériaux.
Recommandé pour des applications générales sur tout type d'acier.

Domaine d'application principal: Profondeur de coupe (Ap): 1,0 - 3,5 mm
Avance (f): 0,15 - 0,35 mm

Die CM Spanbrecher gibt einen positiven Schnittwinkel, mit einer hohen Festigkeit der Schnittkante in mittleren Anwendungen bei einer breiter Palette von Materialien.

Empfohlen für allgemeiner Bearbeitung in allen Stahlsorten.
Haupt-Einsatzbereich: Schnitttiefe (Ap): 1,0 - 3,5 mm
Vorschub (f): 0,15 - 0,35 mm





-CR Geometry

The strongest chipbreaker for double-sided inserts. The CR chipbreaker is suitable for high feed rates and depths of cut that normally require single-sided inserts.

The chipbreaker has a wide negative T land, which gives high edge strength.

Main application area: Cutting depth (Ap): 1,5 - 5 mm
Feed (f): 0,3 - 0,5 mm

C'est le brise-coapeaux le plus résistant pour les plaquettes réversibles.

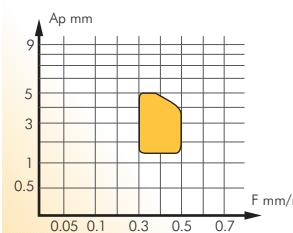
Le brise-coapeaux CR est approprié pour des hauts avances et aussi pour des profondeurs de coupe demandées normalement pour des plaquettes d'une seule face.

Le brise-coapeaux a une large arête négative, laquelle proportionne une haute résistance à l'arête de coupe.

Domaine d'application principal: Profondeur de coupe (Ap): 1,5 - 5 mm
Avance (f): 0,3 - 0,5 mm

Der stärkste Spanbrecher für doppelseitigen Wendeschneidplatten. Der Spanbrecher CR ist für hohe Vorschübe geeignet und auch für Schnitttiefen, die normalerweise einseitigen Wendeschneidplatten benötigen. Der Spanbrecher hat einen negativen breiten Kanten, der eine hohe Kraft zu der Schnittkante gibt.

Haupt-Einsatzbereich: Schnitttiefe (Ap): 1,5 - 5 mm
Vorschub (f): 0,3 - 0,5 mm



-CS Geometry

First choice for stainless steel. CS chipbreaker provides excellent chip control with low cutting forces.

Main application area: Cutting depth (Ap): 0,5 - 4,0 mm
Feed (f): 0,15 - 0,5 mm

C'est le premier choix pour l'acier inoxydable.

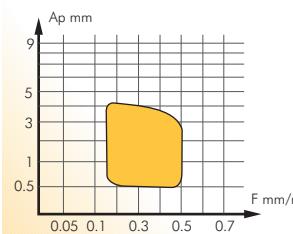
Le brise-coapeaux CS proportionne un contrôle excellent des copeaux avec des basses forces de coupe.

Domaine d'application principal: Profondeur de coupe (Ap): 0,5 - 4,0 mm
Avance (f): 0,15 - 0,5 mm

Erste Wahl für rostfreien Stahl.

Der Spanbrecher CS sorgt für einen hervorragenden Spankontrolle mit niedrigen Schnittkräften.

Haupt-Einsatzbereich: Schnitttiefe (Ap): 0,5 - 4,0 mm
Vorschub (f): 0,15 - 0,5 mm



-CFC Geometry

CFC chipbreakers combined with the performance of Cermets provide for efficient chip control in finishing and light machining operations. Recommended for finishing steels and cast iron.

Main application area: Cutting depth (Ap): 0,2 - 1,5 mm
Feed (f): 0,05 - 0,4 mm

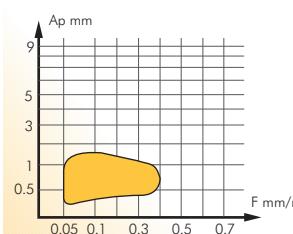
Les brise-coapeaux CFC, ensemble à la performance du Cermet, proportionnent un contrôle efficient des copeaux en opérations de finition et d'usinage léger. Recommandé pour la finition en acier et fonte.

Domaine d'application principal: Profondeur de coupe (Ap): 0,2 - 1,5 mm
Avance (f): 0,05 - 0,4 mm

Die CFC Spanbrecher, zusammen mit der Leistung des Cermets, sorgen für eine wirksame Kontrolle der Späne in Schlicht- und leichte Bearbeitungsoperationen.

Empfohlen zum Schlichten von Stahl und Guß.

Haupt-Einsatzbereich: Schnitttiefe (Ap): 0,2 - 1,5 mm
Vorschub (f): 0,05 - 0,4 mm



Inserts

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Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

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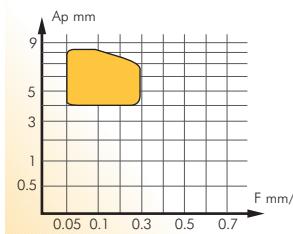
Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors



-CFM Geometry

Double sided insert for semi-finishing and light roughing. 12° Positive cutting angle which reduces the cutting forces on the working piece. Chipbreaker with differential profile which reduces the contact zone and so improves thermal diffusion. Excellent performance in steel and materials which work harden.

Main application area: Cutting depth (Ap): 0,5 - 2,5 mm
Feed (f): 0,05 - 0,25 mm

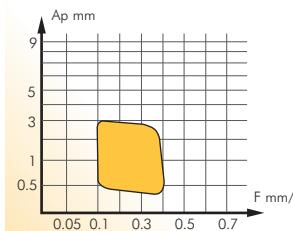
Plaquette réversible pour semi-finition et ébauche légère. Angle de coupe positif de 12°, lequel réduit les forces de coupe sur la pièce à usiner. Brise copeaux avec profil différentiel, lequel réduit la zone de contact et de cette façon améliore la diffusion thermique.

Excellent performance sur les aciers et matériaux qui durcissent quand on les use.

Domaine d'application principal: Profondeur de coupe (Ap): 0,5 - 2,5 mm
Avance (f): 0,05 - 0,25 mm

Doppelseitige Wendeschneidplatte zum mittleren Schlachten und leichtem Schruppen. Positive Spanwinkel 12°, der die Schnittkräfte auf dem Werkstück vermindert. Spanbrecher mit differentiellem Profil, das die Kontaktzone vermindert, und auf diese Weise die thermische Diffusion verbessert. Ausgezeichnete Leistung in Stahl und Materialien, die bei der Bearbeitung härter werden.

Haupt-Einsatzbereich: Schnitttiefe (Ap): 0,5 - 2,5 mm
Vorschub (f): 0,05 - 0,25 mm



-CMC Geometry

Double sided insert for finishing and light roughing. Positive cutting angle and reinforced edge, which ensures a smooth chip control. Optimum resting surface, which ensures maximum stability and effective thermal dissipation. Special geometry for Cermet inserts.

Main application area: Cutting depth (Ap): 0,3 - 3,0 mm
Feed (f): 0,1 - 0,4 mm

Plaquette réversible pour finition et ébauche légère. Angle de coupe positif et arête de coupe renforcé, laquelle assure un bon contrôle des copeaux. Bonne surface d'appui, ce qui assure la maximale stabilité et une dissipation thermique effective. C'est une géométrie spéciale pour le Cermet.

Domaine d'application principal: Profondeur de coupe (Ap): 0,3 - 3,0 mm
Avance (f): 0,1 - 0,4 mm

Doppelseitige Wendeschneidplatte zum Schlachten und leichten Schruppen. Positiver Spanwinkel und verstärkte Schnittkante, die eine reibungslose Spankontrolle gewährleistet. Optimale Schutzphase, die die maximale Stabilität und eine effektive thermische Auflösung gewährleistet. Spezielle Geometrie für Cermet-Wendeschneidplatten.

Haupt-Einsatzbereich: Schnitttiefe (Ap): 0,3 - 3,0 mm
Vorschub (f): 0,1 - 0,4 mm

Inserts**Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors**

-CMF Geometry

CMF chipbreaker provide excellent chip control with low cutting forces and very free cutting action over a broad range of light duty applications.

Recommended for light duty use on carbon, alloy, and stainless steels.

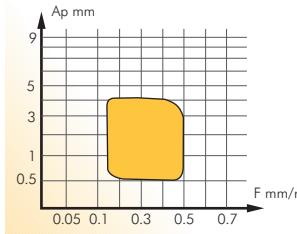
Main application area: Cutting depth (Ap): 0,5 - 4,0 mm
Feed (f): 0,15 - 0,5 mm

Le brise-coapeau CMF proportionne un excellent contrôle des copeaux avec des forces de coupe basses et une action de coupe très appropriée pour une large gamme d'applications légères. Recommandé pour des usages légers sur le carbone, les alliages et les aciers inoxydables.

Domaine d'application principal: Profondeur de coupe (Ap): 0,5 - 4,0 mm
Avance (f): 0,15 - 0,5 mm

Der Spanbrecher CMF sorgt für eine ausgezeichnete Spankontrolle mit niedrigen Schnittkräften und eine sehr positive Spanleistung für eine breite Palette von leichten Anwendungen. Empfohlen für leichte Anwendungen in C-Stähle und rostfreiem Stahl.

Haupt-Einsatzbereich: Schnitttiefe (Ap): 0,5 - 4,0 mm
Vorschub (f): 0,15 - 0,5 mm



-CMR Geometry

Double sided insert for semi-finishing and light roughing. 12° Positive cutting angle which reduces the cutting forces on the working piece. Chipbreaker with differential profile which reduces the contact zone and so improves thermal diffusion.

Excellent performance in steel and materials which work harden.

Main application area: Cutting depth (Ap): 0,5 - 5,0 mm
Feed (f): 0,4 - 0,8 mm

Plaquette réversible pour semi-finition et ébauche légère. Angle de coupe positif de 12°, lequel réduit les forces de coupe sur la pièce à usiner. Brise-coapeux avec profil différentiel, lequel réduit la zone de contact et de cette façon améliore la diffusion thermique.

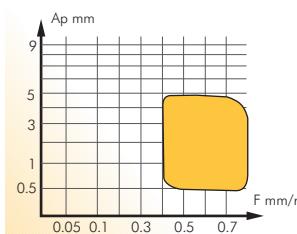
Excellent performance sur les aciers et matériaux qui durcissent quand on les usine.

Domaine d'application principal: Profondeur de coupe (Ap): 0,5 - 5,0 mm
Avance (f): 0,4 - 0,8 mm

Doppelseitige Wendeschneidplatte zum mittleren Schlichten und leichtem Schruppen. Positive Spanwinkel 12°, der die Schnittkräfte auf dem Werkstück vermindert.

Spanbrecher mit differentiellem Profil, das die Kontaktzone vermindert, und auf diese Weise die thermische Diffusion verbessert. Ausgezeichnete Leistung in Stahl und Materialien, die bei der Bearbeitung härter werden.

Haupt-Einsatzbereich: Schnitttiefe (Ap): 0,5 - 5,0 mm
Vorschub (f): 0,4 - 0,8 mm



Inserts

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Parting & grooving

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Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors



..NGP Geometry

For medium duty machining of tough work materials, above all chrome-nickel based alloys.
Minimises tendency for these materials to adhere to the insert.

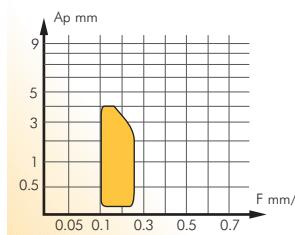
Main application area: Cutting depth (Ap): 0,1 - 4 mm
Feed (f): 0,1 - 0,25 mm

Pour l'usinage moyen de matériaux difficiles à usiner, surtout pour des alliages avec base de chrome et nickel. Elle minimise la tendance de ces matériaux à adhérer à la plaque.

Domaine d'application principal: Profondeur de coupe (Ap): 0,1 - 4 mm
Avance (f): 0,1 - 0,25 mm

Für mittlere Bearbeitung von zu schwer bearbeitenden Materialien, vor allem für Legierungen mit Chrom- und Nickelbasis. Sie minimiert die Neigung dieser Materialien, an der Wendeschneidplatte zu haften.

Haupt-Einsatzbereich: Schnitttiefe (Ap): 0,1 - 4 mm
Vorschub (f): 0,1 - 0,25 mm



..NMA Geometry

Double sided insert for short chipping materials. Strong cutting edge.

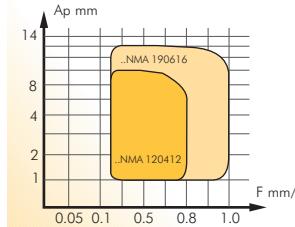
Main application area: Cutting depth (Ap): 1 - 12 mm
Feed (f): 0,2 - 1 mm

Plaque réversible pour matériaux à copeaux courts. Arête de coupe résistante.

Domaine d'application principal: Profondeur de coupe (Ap): 1 - 12 mm
Avance (f): 0,2 - 1 mm

Doppelseitige Wendeschneidplatte für kurzspanige Materialien.
Starke Schnittkante.

Haupt-Einsatzbereich: Schnitttiefe (Ap): 1 - 12 mm
Vorschub (f): 0,2 - 1 mm



..NMM Geometry

Chipbreaker for single-sided inserts. It has a positive cutting edge which gives rise to low cutting forces.

Main application area: Cutting depth (Ap): 2,5 - 6 mm
Feed (f): 0,4 - 0,6 mm

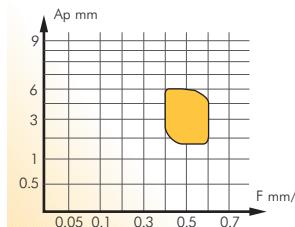
Brise-copeaux pour plaquettes simples.

Il a une arête de coupe positive qui cause des forces de coupe positives.

Domaine d'application principal: Profondeur de coupe (Ap): 2,5 - 6 mm
Avance (f): 0,4 - 0,6 mm

Spanbrecher für einseitige Wendeschneidplatten. Sie hat eine positive Schnittkante für niedrige Schnittkräfte.

Haupt-Einsatzbereich: Schnitttiefe (Ap): 2,5 - 6 mm
Vorschub (f): 0,4 - 0,6 mm





..NMX Geometry

Light duty pos/neg inserts provide excellent chip control in light feed ranges using high positive shear angles. Recommended for machining of steels and other materials.

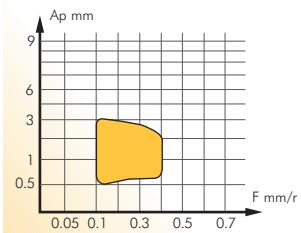
Main application area: Cutting depth (A_p): 0,5 - 3 mm
Feed (f): 0,1 - 0,4 mm

Plaquettes positives/négatives pour usinages légers. Elles proporcionnent un excellent contrôle des copeaux avec des faibles avances en utilisant des angles de coupe très positifs. Recommandées pour l'usinage d'acier et d'autres matériaux.

Domaine d'application principal: Profondeur de coupe (A_p): 0,5 - 3 mm
Avance (f): 0,1 - 0,4 mm

Positive/negative Wendeschneidplatten für leichte und mittlere Bearbeitung. Sie gewährleisten eine hervorragende Spankontrolle bei niedrigen Vorschüben, indem man extrem positive Spanwinkel verwendet. Empfohlen für die Bearbeitung von Stahl und anderen Materialien.

Haupt-Einsatzbereich: Schnittiefe (A_p): 0,5 - 3 mm
Vorschub (f): 0,1 - 0,4 mm



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

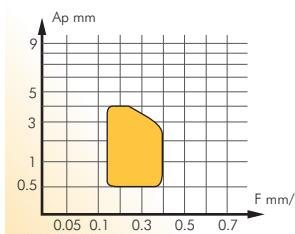
Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors



-03 Geometry

Light to medium-duty machining operations. Low cutting forces and reduced power requirements thanks to positive rake angle. Good chip control over a wide range. Also used on short-chipping cast-iron materials.

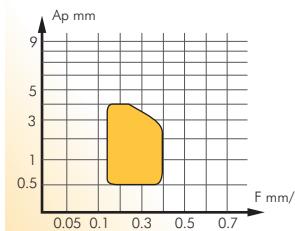
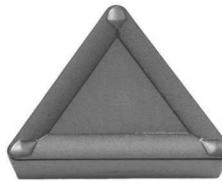
Main application area: Cutting depth (Ap): 0,5 - 4 mm
Feed (f): 0,15 - 0,4 mm

Pour usinages légers et moyens. Grâce à l'angle de coupe positif on a besoin de forces de coupe basses et des basses demandes de force. Très bon contrôle des copeaux dans une vaste gamme. Elle peut être utilisée aussi pour la fonte à copeaux courts.

Domaine d'application principal: Profondeur de coupe (Ap): 0,5 - 4 mm
Avance (f): 0,15 - 0,4 mm

Für leichte bis mittlere Bearbeitungsoperationen. Dank der positiven Schnittwinkel braucht man nur niedrige Schnittkräfte und bei niedriger Antriebsleistung. Sehr gute Spankontrolle in einer breiten Anwendungspalette. Es wird auch in kurzspanendem Guß verwendet.

Haupt-Einsatzbereich: Schnitttiefe (Ap): 0,5 - 4 mm
Vorschub (f): 0,15 - 0,4 mm



-33 Geometry

Geometry providing chip control in the finishing and medium duty range. Positive rake reduces cutting forces and power consumption. Can also be used on low-strength and stainless steels.

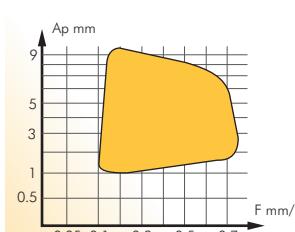
Main application area: Cutting depth (Ap): 0,5 - 4 mm
Feed (f): 0,15 - 0,4 mm

Cette géométrie proportionne un bon contrôle dans les opérations de finition et les usinages moyens. L'arête de coupe positive réduit les forces de coupe et la consommation de force. Elle peut être utilisée aussi sur des aciers à basse résistance.

Domaine d'application principal: Profondeur de coupe (Ap): 0,5 - 4 mm
Avance (f): 0,15 - 0,4 mm

Diese Geometrie erlaubt eine Spankontrolle in Schlicht-Operationen und mittleren Bearbeitungen. Die positive Schnittkante reduziert die Schnittkräfte und benötigt wenig Antriebsleistung. Es kann auch in wenig widerstandsfähige Stähle und in rostfreiem Stahl verwendet werden.

Haupt-Einsatzbereich: Schnitttiefe (Ap): 0,5 - 4 mm
Vorschub (f): 0,15 - 0,4 mm



-AL Geometry

Geometry can be used for turning aluminium, light alloys, non ferrous metals, high-melting metals, plastics, glass fiber reinforced plastics, laminated board, carbon and fine ceramics.

Main application area: Cutting depth (Ap): 1 - 10 mm
Feed (f): 0,1 - 0,75 mm

Cette géométrie peut être utilisée pour le tournage sur aluminium, acier inoxydable, métaux non ferriques, métaux qui fondent facilement, plastiques, fibre de verre, plastiques renforcés, planches laminées, carbone et céramique fine.

Domaine d'application principal: Profondeur de coupe (Ap): 1 - 10 mm
Avance (f): 0,1 - 0,75 mm

Diese Geometrie kann für das Drehen von Aluminium, rostfreien Stählen, Nichteisenmetallen, leicht schmelzbaren Metallen, Kunststoff, Glasfiber, verstärkte Kunststoffe, Walzplatten, Kohle und feiner Keramik verwendet werden.

Haupt-Einsatzbereich: Schnitttiefe (Ap): 1 - 10 mm
Vorschub (f): 0,1 - 0,75 mm



-AP Geometry

Geometry can be used for turning aluminium, light alloys, non ferrous metals, high-melting metals, plastics, glass fiber reinforced plastics, laminated board, carbon and fine ceramics.

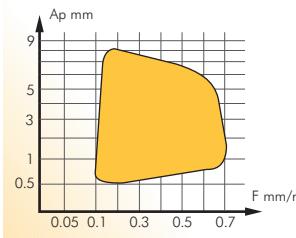
Main application area: Cutting depth (Ap): 0,5 - 8 mm
Feed (f): 0,1 - 0,7 mm

Cette géométrie peut être utilisée pour le tournage sur aluminium, acier inoxydable, métaux non ferriques, métaux qui fondent facilement, plastiques, fibre de verre, plastiques renforcés, planches laminées, carbone et céramique fine.

Domaine d'application principal: Profondeur de coupe (Ap): 0,5 - 8 mm
Avance (f): 0,1 - 0,7 mm

Diese Geometrie kann für das Drehen von Aluminium, rostfreien Stählen, Nichteisenmetallen, leicht schmelzbare Metallen, Kunststoff, Glasfiber, verstärkte Kunststoffe, Walzplatten, Kohle und feine Keramik verwendet werden.

Haupt-Einsatzbereich: Schnittiefe (Ap): 0,5 - 8 mm
Vorschub (f): 0,1 - 0,7 mm



..MW Geometry

Double sided insert for short chipping materials. Strong cutting edge.

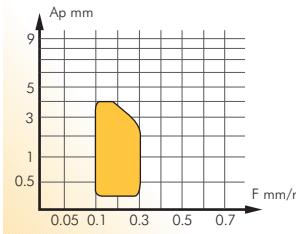
Main application area: Cutting depth (Ap): 0,2 - 4 mm
Feed (f): 0,1 - 0,3 mm

Plaquette réversible pour l'usinage de la fonte. Arête de coupe renforcée.

Domaine d'application principal: Profondeur de coupe (Ap): 0,2 - 4 mm
Avance (f): 0,1 - 0,3 mm

Doppelseitige Wendeschneidplatte für Gußbearbeitung. Verstärkte Schnittkante.

Haupt-Einsatzbereich: Schnittiefe (Ap): 0,2 - 4 mm
Vorschub (f): 0,1 - 0,3 mm



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

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Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

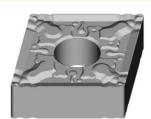
Arbors & adaptors

Basic geometries (steel)

1 - Select geometry



-CFC



-CF



-CM



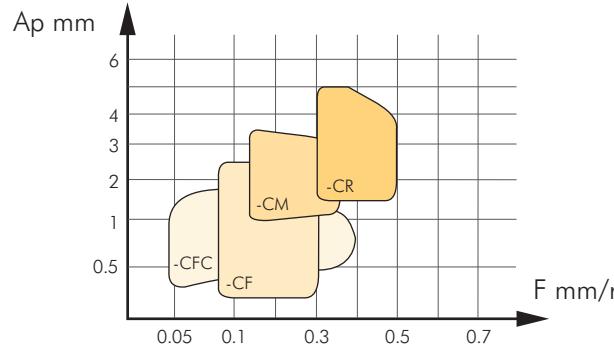
-CR

▼▼▼▼ Super finishing

▼▼▼ Finishing

▼▼ Medium machining

▼ Roughing



2 - Select grade

Cutting condition

- Interrupted cut
- Inconsistent cut
- Consistent cut

▼▼▼▼ Super finishing

▼▼▼ Finishing

▼▼ Medium machining

▼ Roughing

-	TIC30	TIC30	P25K - TIC30
CK30	TIC15	TIC15 - TIC20	TIC20 - TIC30
CK30	TIC15	TIC15	TIC20 - TIC30

3 - Select cutting speed

Proceed to page B.77 for cutting data

Complementary geometries (steel)

1 - Select geometry



-CFM



-CMF



-CMC



..NMX

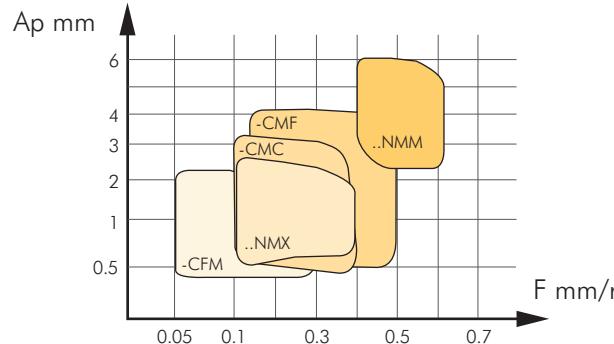


..NMM

▼▼▼ Finishing

▼▼ Medium machining

▼ Roughing



2 - Select grade

Cutting condition

- Interrupted cut
- Inconsistent cut
- Consistent cut

▼▼▼ Finishing

▼▼ Medium machining

▼ Roughing

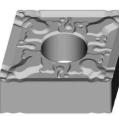
TIC30	TIC30	TIC30
TIC15 - TIC30	CK30 - TIC20 - TIC30	TIC30
TIC15	CK30 - TIC15 - TIC30	TIC30

3 - Select cutting speed

Proceed to page B.77 for cutting data

Basic geometries (Stainless steel)

1 - Select geometry

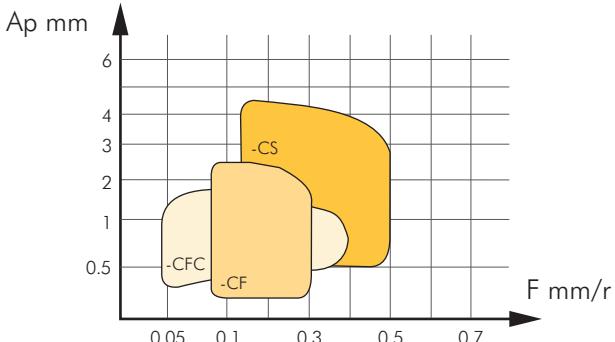
**-CFC****-CF****-CS****-CS****-CS**

▼▼▼▼ Super finishing

▼▼▼ Finishing

▼▼ Medium machining

▼ Roughing



2 - Select grade

Cutting condition

- Interrupted cut
- Inconsistent cut
- Consistent cut

▼▼▼▼ Super finishing

▼▼▼ Finishing

▼▼ Medium machining

▼ Roughing

TIC30 - TIC35

TIC30 - TIC35

TIC30 - TIC35

TIC35

CK30

TIC15 - TIC30 - TIC35

TIC30 - TIC35

TIC35

CK30

TIC15 - TIC30 - TIC35

TIC30 - TIC35

TIC35

3 - Select cutting speed

Proceed to page B.77 for cutting data

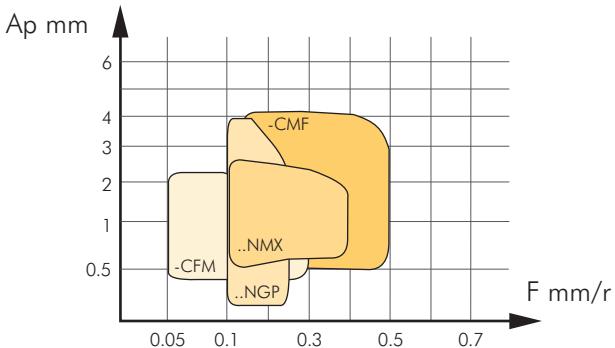
Complementary geometries (Stainless steel)

1 - Select geometry

**-CFM****..NGP****-CMF****..NGP****..NMX**

▼▼▼▼ Finishing

▼▼ Medium machining



2 - Select grade

Cutting condition

- Interrupted cut
- Inconsistent cut
- Consistent cut

▼▼▼ Finishing

▼▼ Medium machining

TIC30

TIC30

TIC17 - TIC30

CK30 - TIC17 - TIC30

TIC17 - TIC30

CK30 - TIC17 - TIC30

3 - Select cutting speed

Proceed to page B.77 for cutting data

Inserts

Automatic lathes
Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

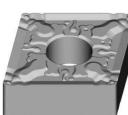
Arbors & adaptors

Basic geometries (Cast iron)

1 - Select geometry



-CFC



-CF



..NMA



-CM



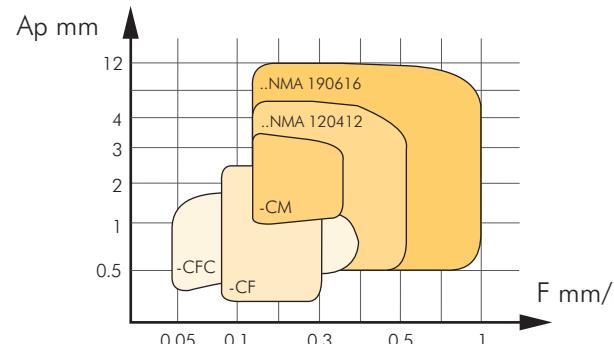
..NMA

▼▼▼▼ Super finishing

▼▼▼ Finishing

▼▼ Medium machining

▼ Roughing



2 - Select grade

Cutting condition

- Interrupted cut
- Inconsistent cut
- Consistent cut

▼▼▼▼ Super finishing

▼▼▼ Finishing

▼▼ Medium machining

▼ Roughing

-	TIC15	TIC15 - TIC17	TIC15 - TIC17
CK30	TIC15	TIC15 - TIC17	TIC15 - TIC17
CK30	TIC15	TIC15 - TIC17	TIC15 - TIC17

3 - Select cutting speed

Proceed to page B.77 for cutting data

Complementary geometries (Cast iron)

1 - Select geometry



..NGP



-CMF



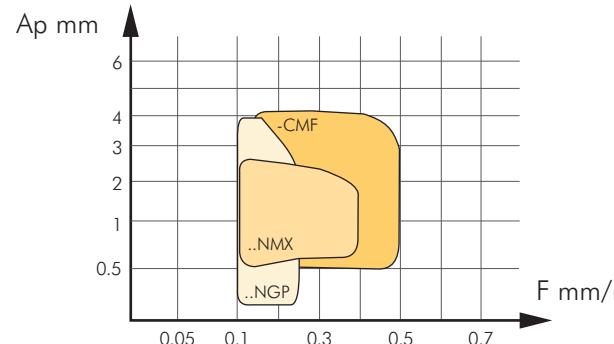
..NMX



..NGP

▼▼▼ Finishing

▼▼ Medium machining



2 - Select grade

Cutting condition

- Interrupted cut
- Inconsistent cut
- Consistent cut

▼▼▼ Finishing

▼▼ Medium machining

TIC15 - TIC17	CK30 - TIC15 - TIC17
CK30 - TIC15 - TIC17	CK30 - TIC15 - TIC17
CK30 - TIC15 - TIC17	CK30 - TIC15 - TIC17

3 - Select cutting speed

Proceed to page B.77 for cutting data

Basic geometries (Non ferrous materials)

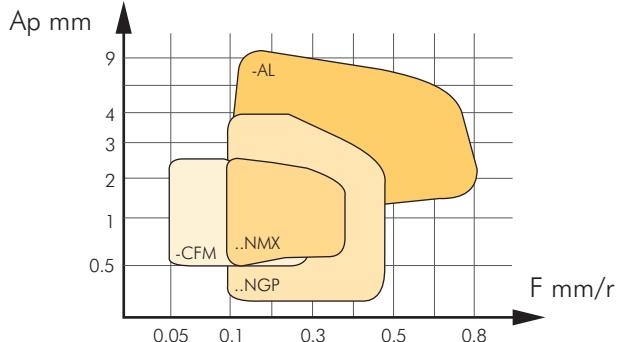
1 - Select geometry



▼▼▼ Finishing

▼▼ Medium machining

▼ Roughing



-AL / -AP



Positive inserts

2 - Select grade

Cutting condition

- Interrupted cut
- Inconsistent cut
- Consistent cut

▼▼▼ Finishing

▼▼ Medium machining

▼ Roughing

K15K - TIC15 - TIC17 - Z10R	CK30 - TIC17 - Z10R	CK30 - TIC17 - Z10R
K15K - TIC15 - TIC17 - Z10R	CK30 - TIC17 - Z10R	CK30 - TIC17 - Z10R
K15K - TIC15 - TIC17 - Z10R	CK30 - TIC17 - Z10R	CK30 - TIC17 - Z10R

3 - Select cutting speed

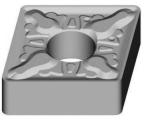
Proceed to page B.77 for cutting data

Basic geometries (Heat resistant alloys)

1 - Select geometry



..NGP



-CM



-CS



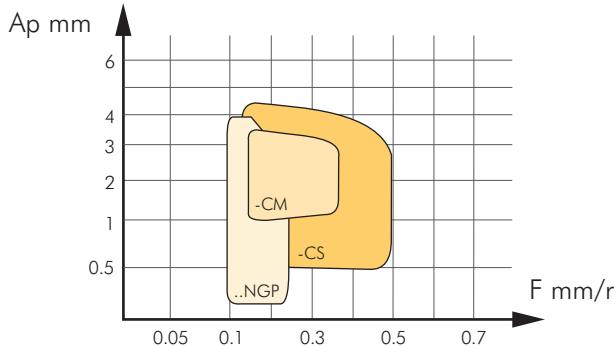
..NGP

-CS

▼▼▼ Finishing

▼▼ Medium machining

▼ Roughing



2 - Select grade

Cutting condition

- Interrupted cut
- Inconsistent cut
- Consistent cut

▼▼▼ Finishing

▼▼ Medium machining

▼ Roughing

TIC17	TIC17 - TIC30 - TIC35	TIC35
TIC17	TIC17 - TIC30 - TIC35	TIC35
TIC17	TIC17 - TIC30 - TIC35	TIC35

3 - Select cutting speed

Proceed to page B.77 for cutting data

Inserts

Automatic lathes
Ceramic tools

Parting & grooving
Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

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Boring heads

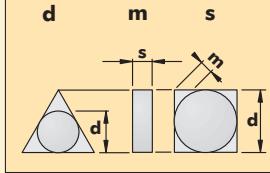
Arbors & adaptors

Insert shape	
	35° V
	55° D
	75° E
	80° C
	86° M
	55° K
	82° B
	85° A
	90° L
	108° P
	120° H
	135° O
	- R
	90° S
	60° T
	80° W

Clearance angle	
	3° A
	5° B
	7° C
	15° D
	20° E
	25° F
	30° G
	0° N
	11° P

Clearance angles not included within the standard for which particular information is necessary.

Tolerances			
0,025	0,005	0,025	A
0,013	0,005	0,025	F
0,025	0,013	0,025	C
0,013	0,013	0,025	H
0,025	0,025	0,025	E
0,025	0,025	0,13	G
0,05-0,15	0,005	0,025	J
0,05-0,15	0,013	0,025	K
0,05-0,15	0,025	0,025	L
0,05-0,15	0,08-0,20	0,13	M
0,05-0,15	0,08-0,20	0,025	N
0,08-0,25	0,13-0,38	0,13	U



Form of top surface	
	N
	R
	F
	A
	M
	G
	W
	T
	Q
	U
	B
	H
	C
	J
Special version	X

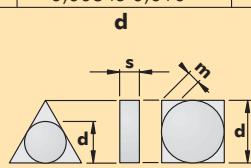
S

E

K

N

A	0,0010	0,0002	0,001
F	0,0005	0,0002	0,001
C	0,0010	0,0005	0,001
H	0,0005	0,0005	0,001
E	0,0010	0,0010	0,001
G	0,0010	0,0010	0,005
J	0,002 to 0,006*	0,0002	0,001
K	0,002 to 0,006*	0,0005	0,001
L	0,002 to 0,006*	0,0010	0,001
M	0,002 to 0,006*	0,003 to 0,008*	0,005
N	0,002 to 0,006*	0,003 to 0,008*	0,001
U	0,003 to 0,010*	0,005 to 0,015*	0,005



* Depends on insert size

Tolerance (inches)

N / R / F	E
A / M / G	D
X	X

IK > 1/4" **IK < 1/4"**

Symbols as above
Changes at inscribed
circle IK < 1/4"

Form of top surface

Edge cutting length			
06	3,96	5/32	03
09	5,56	7/32	05
11	6,35	1/4	06
16	9,52	3/8	09
22	12,7	1/2	12
27	15,8	5/8	15
33	19,0	3/4	19
44	25,4	1	25
mm	mm	inch	mm
I	d	d	I
06 10 16 25			
08 12 20 32			
	I		

Insert thickness			
1/16	1,59	01	
3/32	2,38	02	
1/8	3,18	03	
5/32	3,97	T3	
3/16	4,76	04	
7/32	5,56	05	
1/4	6,35	06	
5/16	7,94	07	
3/8	9,52	09	
inch	mm		
s			

Corner radius			
00	0,0	12	1,2
M0	0,0	16	1,6
02	0,2	20	2,0
04	0,4	24	2,4
08	0,8	32	3,2
Inserts with corner radius			
	r		
Inserts with secondary cutting edge			
A	45°	F	85°
D	60°	P	90°
E	75°		X
Angle of main cutting edge to secondary cutting angle			
A	3°	F	25°
B	5°	G	30°
C	7°	N	0°
D	15°	P	11°
E	20°	Z	Special
Clearance angle			
		α	0°

Cutting edge			
F	Sharp		R
E	Honed		
T	Chamfered		
S	Chamfered and honed		
K	Double-chamfered		
P	Double-chamfered and honed		

Cutting direction			
R			
L			
N			

Cutting edge		Cutting direction	
≤ 1,2	1	0	A
1,4	2	0,08 x 40°	B
2,0	3	0,15 x 15°	C
2,4	4	0,15 x 25°	D
		0,20 x 10°	E
		0,20 x 15°	F
		0,20 x 22°	G
		0,15 x 20°	X

Inserts

Turning

Automatic lathes

Ceramic tools

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

12**03****AF**
04**E****N****- 3****A****4****2****1**

1/4	2
3/8	3
1/2	4
5/8	5
3/4	6
1	8
I	I

Cutting edge length (inch)

1/16	1
1/8	2
3/16	3
1/4	4
5/16	5
3/8	6
s	

Insert thickness (inch)

max. 0,004	0
1/64	1
1/32	2
3/64	3
1/16	4
5/64	5
3/32	6
7/64	7
1/8	8
-	X
	r

Corner radius (inch)

For special forms of the chip groove in the 10° position, manufacturer specific chip grooves and designations can be indicated.

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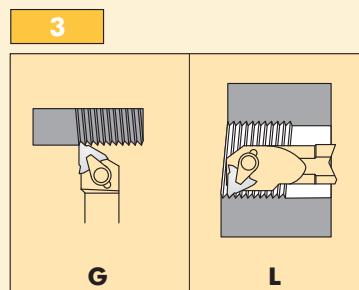
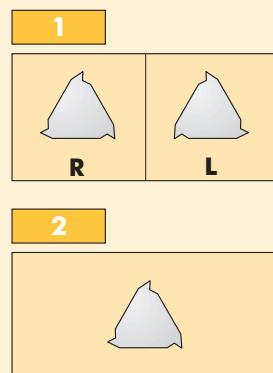
Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

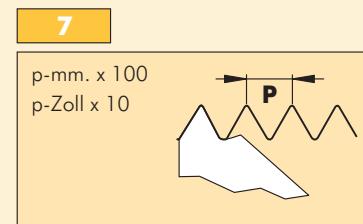
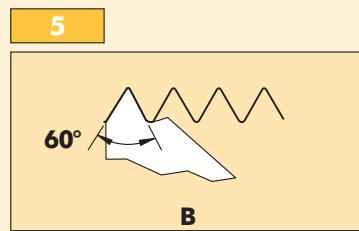
L 166 G - 3 B A 075



6	A ISO mm.
C	SI
L	ISO Inch
K	Whitworth

4

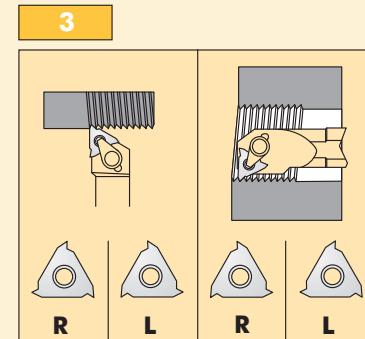
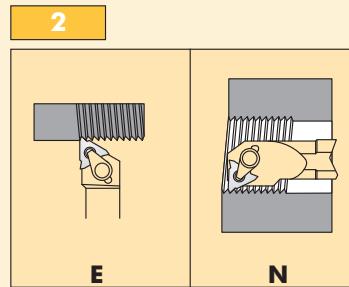
	IC=Inch	D=mm.	
2	1/4	6,35	11
3	3/8	9,52	16
4	1/2	12,70	22



16 E L - AG 55

1

	IC=Inch	d=mm.
06	5/32	3,96
08	3/16	4,76
11	1/4	6,35
16	3/8	9,52
22	1/2	12,70
27	5/8	15,87



4

	mm.	TPI
A	0,5-1,5	48-16
AG	0,5-3,0	48-8
G	1,75-3,0	14-8
N	3,5-5,0	7-5

5

55	Partial profile 55°
60	Partial profile 60°
ISO	ISO metric
UN	American, UN
W	Whitworth, BSW
LG	Groove type LG



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

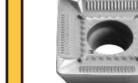
Milling cutters

Solid carbide

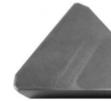
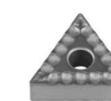
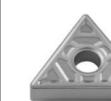
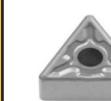
Boring heads

Arbors & adaptors

Inserts	ADM T	ADM W	ADM W-C	ADM W-R	AP F	AP H-T	AP KT
Turning	Rectangular Positive Page A.36	Rectangular Positive Page A.37					
Automatic lathes	AP KT-26	AP L	AP LX	AP MT	AP MT-26	AP MW	
	Rectangular Positive Page A.37	Rectangular Positive Page A.38					
Ceramic tools	CCG T-AL	CCG T-AP	CCK T	CCM T-03	CCM W	CNG P	CN MA
	80° Rhombic Positive Page A.38	80° Rhombic Negative Page A.39	80° Rhombic Negative Page A.39				
Parting & grooving	CNMG -CF	CNMG -CFC	CNMG -CFM	CNMG -CM	CNMG -CMC	CNMG -CMF	CNMG -CMR
	80° Rhombic Negative Page A.39	80° Rhombic Negative Page A.40	80° Rhombic Negative Page A.40	80° Rhombic Negative Page A.40			
Threading	CNMG -CR	CNMG -CS	CNMM				
	80° Rhombic Negative Page A.40	80° Rhombic Negative Page A.40	80° Rhombic Negative Page A.40				
Drills	DCG T-AL	DCG T-AP	DCM T-03	DCM W	DNG P	DN MA	DN MG-CF
	55° Rhombic Positive Page A.41	55° Rhombic Negative Page A.41	55° Rhombic Negative Page A.41	55° Rhombic Negative Page A.42			
Cartridges	DN MG-CFC	DN MG-CFM	DN MG-CM	DN MG-CMC	DN MG-CMF	DN MG-CMR	DN MG-CS
	55° Rhombic Negative Page A.42	55° Rhombic Negative Page A.43	55° Rhombic Negative Page A.43				
Brazed tools	DN MX			EC MT	EP MT	EP MW	EP MX
	55° Rhombic Negative Page A.43			75° Rhombic Positive Page A.43	75° Rhombic Positive Page A.43	75° Rhombic Positive Page A.43	75° Rhombic Positive Page A.44
Milling cutters							
Solid carbide							
Boring heads							
Arbors & adaptors							

FRC  Single-ended insert Page A.44	FRCR  Single-ended insert Page A.44			GXGP-AL  Double-ended Page A.44		KNUX  KNUX Negative Page A.45 
ODMT  Octogonal Positive Page A.45 	ODMW  Octogonal Positive Page A.45 					
RCGT-AL  Round Positive Page A.45 	RCGT-AP  Round Positive Page A.46 	RCMT  Round Positive Page A.46 	RDHW  Round Positive Page A.46 	RDMT  Round Positive Page A.46 	RDMW  Round Positive Page A.46 	RNMG  Round Negative Page A.46 
RPMT  Round Positive Page A.47 	RPMW  Round Positive Page A.47 					
SCGT-AL  Square Positive Page A.47 	SCMT-03  Square Positive Page A.47 	SCMT-39  Square Positive Page A.47 	SCMW  Square Positive Page A.48 	SDMT  Square Positive Page A.48 	SEHT  Square Positive Page A.48 	SEHT-AL  Square Positive Page A.48 
SEHW  Square Positive Page A.48 	SEKN  Square Positive Page A.48 	SEKR  Square Positive Page A.49 	SEMT  Square Positive Page A.49 	SFAN  Square Positive Page A.49 	SNHX  Square Negative Page A.49 	SNKN  Square Negative Page A.49 
SNMA  Square Negative Page A.49 	SNMG-CFM  Square Negative Page A.49 	SNMG-CMR  Square Negative Page A.50 	SNMG-CR  Square Negative Page A.50 	SNMM  Square Negative Page A.50 	SNUN  Square Negative Page A.50 	SOMT  Square Positive Page A.50 
SPKN  Square Positive Page A.50 	SPKR  Square Positive Page A.51 	SPMR-33  Square Positive Page A.51 	SPMT  Square Positive Page A.51 	SPMW  Square Positive Page A.51 	SPUN  Square Positive Page A.51 	

Inserts**Automatic lathes****Ceramic tools****Threading****Cartridges****Brazed tools****Milling cutters****Solid carbide****A29**

Inserts	TCGT-AL  Triangular Positive Page A.51 	TCMT-03  Triangular Positive Page A.52 	TCMT-39  Triangular Positive Page A.52 	TCMW  Triangular Positive Page A.52 	TEKN  Triangular Positive Page A.52 	TNMA  Triangular Negative Page A.52 	TNMG-CF  Triangular Negative Page A.52 
Turning	TNMG-CFC  Triangular Negative Page A.53 	TNMG-CFM  Triangular Negative Page A.53 	TNMG-CM  Triangular Negative Page A.53 	TNMG-CMC  Triangular Negative Page A.53 	TNMG-CMF  Triangular Negative Page A.53 	TNMG-CMR  Triangular Negative Page A.53 	TNMG-CS  Triangular Negative Page A.54 
Automatic lathes	TNMX  Triangular Positive Page A.54 	TPKN  Triangular Positive Page A.54 	TPKR  Triangular Positive Page A.54 	TPMN  Triangular Positive Page A.54 	TPMR-33  Triangular Positive Page A.54 	TPUN  Triangular Positive Page A.55 	TPUX  Triangular Negative Page A.55 
Ceramic tools	VBMT  35° Rhombic Positive Page A.55 	VCGT-AL  35° Rhombic Positive Page A.55 	VCGT-AL  35° Rhombic Positive Page A.55 	VCGT-AP  35° Rhombic Positive Page A.55 	VCGT-AP  35° Rhombic Positive Page A.55 	VCMT-03  35° Rhombic Positive Page A.56 	VNGP  35° Rhombic Negative Page A.56 
Parting & grooving	VNMG  35° Rhombic Negative Page A.56 	VNMG-CMC  35° Rhombic Negative Page A.56 	WCMX  80° Trigon Positive Page A.56 	WNMA  80° Trigon Negative Page A.57 	WNMG-CF  80° Trigon Negative Page A.57 	WNMG-CFM  80° Trigon Negative Page A.57 	WNMG-CM  80° Trigon Negative Page A.57 
Threading	WNMG-CMC  80° Trigon Negative Page A.57 	WNMG-CMF  80° Trigon Negative Page A.57 	WNMG-CMR  80° Trigon Negative Page A.58 	WNMG-CS  80° Trigon Negative Page A.58 			
Drills	HPR  Round Positive Page A.44 	INT  Positive ball nose insert Page A.44 	INW  Positive ball nose insert Page A.45 	MTK  Toroidal insert Page A.45 	RPR  Round Positive Page A.47 	WPR  Round Positive Page A.58 	
Solid carbide	XDKW  High feed Page A.58 	XPMT  Positive insert Page A.58 					
Boring heads							
Arbors & adaptors							

60° - 55° (non topping)

Triangular Negative

Page A.59



Triangular Negative

Page A.59



Triangular Negative

Page A.59



Triangular Negative

Page A.60



Triangular Negative

Page A.60



Triangular Negative

Page A.60



Triangular Negative

Page A.60

Inserts

ISO (full form) BS36

Triangular Negative

Page A.61



Triangular Negative

Page A.61



Triangular Negative

Page A.61



Triangular Negative

Page A.61



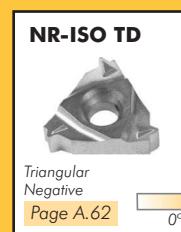
Triangular Negative

Page A.62



Triangular Negative

Page A.62



Triangular Negative

Page A.62

Automatic lathes

UNIFIED (full form) ASME / ANSI B1.1

Triangular Negative

Page A.63



Triangular Negative

Page A.63



Triangular Negative

Page A.63

Threading

WHITWORTH (full form) BS84

Triangular Negative

Page A.63



Triangular Negative

Page A.63



Triangular Negative

Page A.64



Triangular Negative

Page A.64



Triangular Negative

Page A.64



Triangular Negative

Page A.65

Cartridges

**Lock ring groove inserts type LG - Plaquettes pour rainures d'anneaux type LG
- Wendeplatten mit Seegerringe-Nuten (LG Typ)**

Triangular Negative

Page A.65



Triangular Negative

Page A.65



Triangular Negative

Page A.65



Triangular Negative

Page A.65

Brazed tools

ISO

Triangular Positive

Page A.65



Triangular Positive

Page A.66



Triangular Positive

Page A.66



Triangular Positive

Page A.66



Triangular Positive

Page A.66



Milling cutters

Solid carbide

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

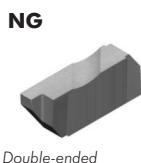
Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

Parting & grooving inserts - Plaquettes pour tronçonner et rainurer - Wendeschneidplatten zum Stechen und Nuteneinstechen

Single-ended
Page A.67Single-ended
Page A.67Single-ended
Page A.67Double-ended
Page A.67Double-ended
Page A.67Double-ended
Page A.67Double-ended
Page A.68Single-ended
Page A.68Single-ended
Page A.68Double-ended
For Parting
Page A.68Double-ended
For Parting (radius)
Page A.69Double-ended
For Threading
Page A.69Triangular
Negative
Page A.69

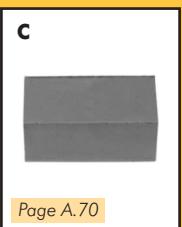
Inserts (Brazed tools) - Plaquettes pour outils brasés - Plättchen für gelötete Werkzeuge



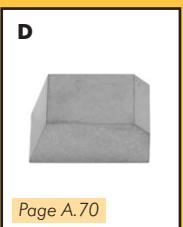
Page A.70



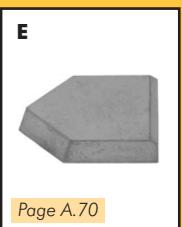
Page A.70



Page A.70



Page A.70



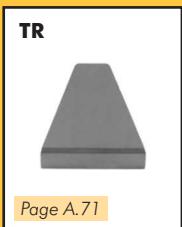
Page A.70



Page A.70



Page A.71



Page A.71

Inserts**Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors**

Inserts (Automatic lathes) - Plaquettes pour décolletage - Drehautomaten-Wendeschneidplatten

Inserts



Standard
grooving
inserts
Page A.72



Grooving and
cut-off inserts
Page A.72



Full radius
grooving inserts
Page A.72



Threading
inserts
Page A.72



Turning
inserts
Page A.72



Copying
inserts
Page A.72

Turning

Automatic
lathes

Ceramic
tools

Parting &
grooving

Threading

Drills

Cartridges

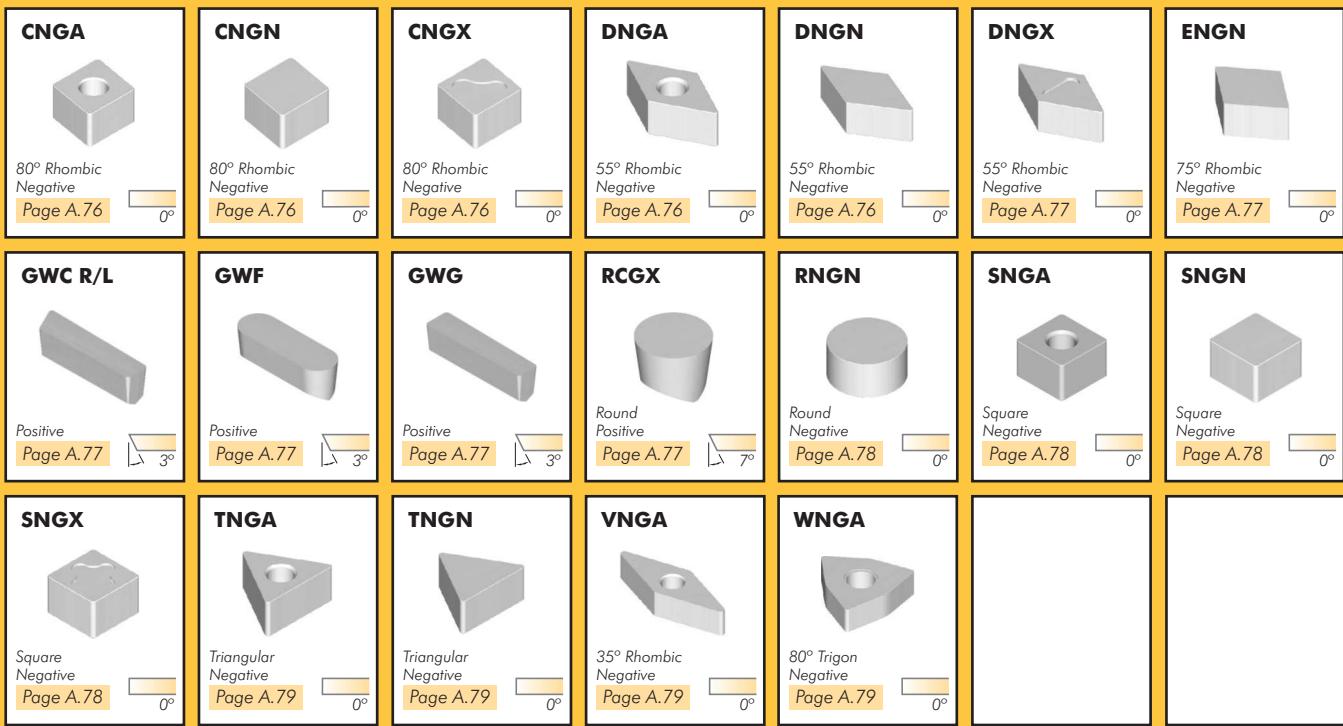
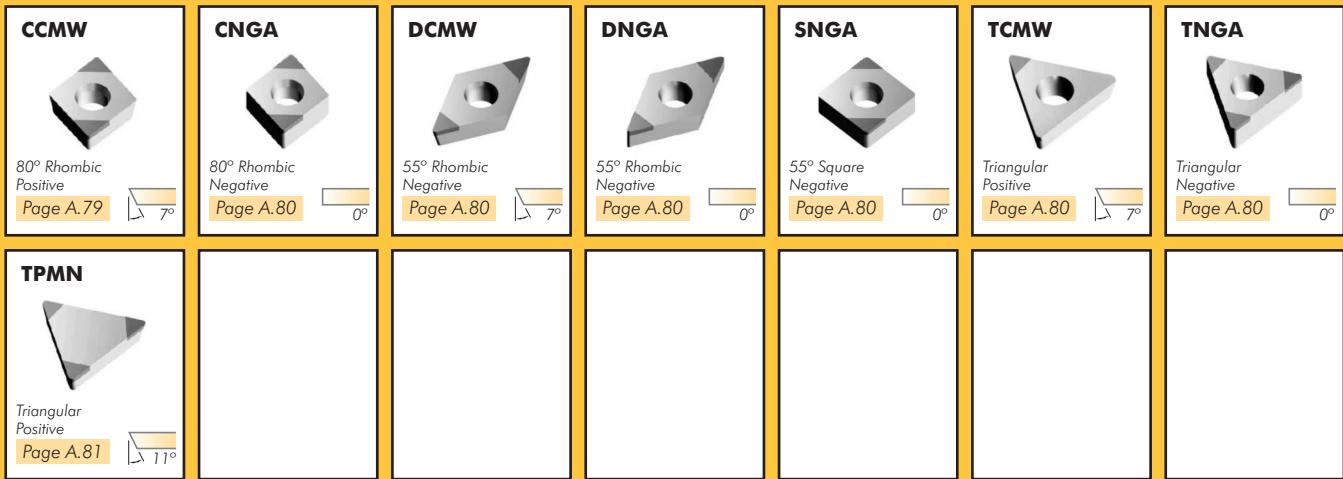
Brazed
tools

Milling
cutters

Solid
carbide

Boring
heads

Arbors &
adaptors

Ceramic inserts - Plaquettes céramiques - Keramische Wendeschneidplatten**CBN/PKD inserts - CBN/PKD plaquettes - CBN/PKD Wendeschneidplatten****Inserts****Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors**

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

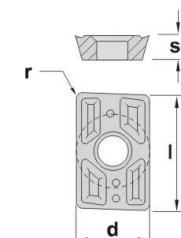
Boring heads

Arbors & adaptors

ADMT



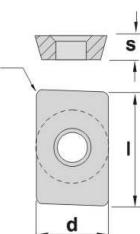
REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TK31	TIC21	TIC25	T20L	T40L	Z10R
ADMT 150308	15,00	3,18	9,52	0,8	•				•	•					
ADMT 1503PDER	15,00	3,18	9,52	-		•				•					



ADMW



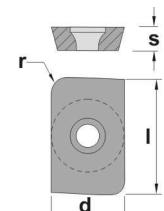
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ADMW 150308E	15,00	3,18	9,52	0,8	•				•	•	○				
ADMW 150308F	15,00	3,18	9,52	0,8	•						○				



ADMW-C



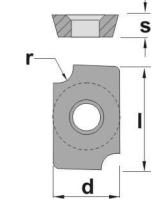
REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC21	TIC25	T20L	T40L	Z10R	
ADMW 1503R1.0-C	15,00	3,18	9,52	1,0						•					
ADMW 1503R1.5-C	15,00	3,18	9,52	1,5						•					
ADMW 1503R2.0-C	15,00	3,18	9,52	2,0						•					
ADMW 1503R2.5-C	15,00	3,18	9,52	2,5						•					
ADMW 1503R3.0-C	15,00	3,18	9,52	3,0						•					
ADMW 1503R3.5-C	15,00	3,18	9,52	3,5						•					
ADMW 1503R4.0-C	15,00	3,18	9,52	4,0						•					
ADMW 1503R4.5-C	15,00	3,18	9,52	4,5						•					
ADMW 1503R5.0-C	15,00	3,18	9,52	5,0						•					
ADMW 1503R6.0-C	15,00	3,18	9,52	6,0						•					



ADMW-R



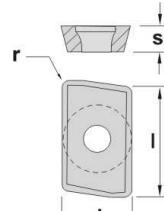
REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC21	TIC25	T20L	T40L	Z10R	
ADMW 1503R1.0	15,00	3,18	9,52	1,0						•					
ADMW 1503R1.5	15,00	3,18	9,52	1,5						•					
ADMW 1503R2.0	15,00	3,18	9,52	2,0						•					
ADMW 1503R2.5	15,00	3,18	9,52	2,5						•					
ADMW 1503R3.0	15,00	3,18	9,52	3,0						•					
ADMW 1503R3.5	15,00	3,18	9,52	3,5						•					
ADMW 1503R4.0	15,00	3,18	9,52	4,0						•					
ADMW 1503R4.5	15,00	3,18	9,52	4,5						•					
ADMW 1503R5.0	15,00	3,18	9,52	5,0						•					



APFT



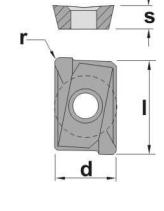
REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC21	TIC25	T20L	T40L	Z10R	
APFT 1604PDTR	16,00	4,76	9,52	-	•					•					



APHT-AL

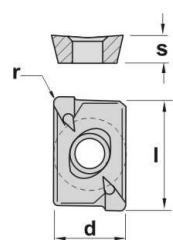


REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC21	TIC25	T20L	T40L	Z10R	
APHT 1003PDFR-AL	9,52	3,18	6,35	-	•										
APHT 1604PDFR-AL	17,00	4,76	9,52	-	•										



APKT

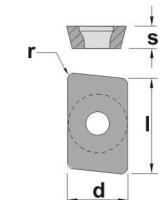
REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	T1C21	T1C25	T1C28	T40L	Z10R
APKT 1003PDR	9,52	3,18	6,35	0,4						•				
APKT 1003PDTR	9,52	3,18	6,35	0,4	•					•	•			
APKT 1604PDR	16,00	4,76	9,52	0,8	•					•	•	•		
APKT 160416	16,00	4,76	9,52	1,6							•			



Inserts

APKT-26

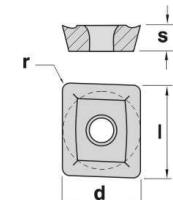
REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	T1C21	T1C25	T20L	T40L	Z10R
APKT 160408E-26	16,66	4,76	9,52	0,8						•	•			



Turning

APLT

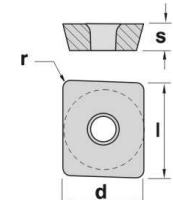
REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	T1C21	T1C25	T20L	T40L	Z10R
APLT 1504ZZR	15,87	4,76	12,70	0,8		•					•			



Parting & grooving

APLX

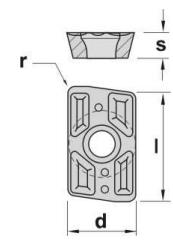
REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	T1C21	T1C25	T20L	T40L	Z10R
APLX 1504ZZR	15,87	4,76	12,70	0,8		○	•				•			



Cartridges

APMT

REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	T1C21	T1C25	T20L	T40L	Z10R
APMT 1604PDER	16,00	4,76	9,52	0,8	•	•								
APMT 200408	20,00	4,76	12,70	0,8		•	•				•	•		



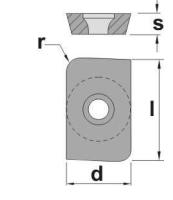
Brazed tools

Milling cutters

Solid carbide

APMT-26

REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	T1C21	T1C25	T20L	T40L	Z10R
APMT 160412E-26	16,66	4,76	9,52	1,2						•				
APMT 160416E-26	16,66	4,76	9,52	1,6						•				
APMT 160424E-26	16,66	4,76	9,52	2,4						•				
APMT 160432E-26	16,66	4,76	9,52	3,2						•				
APMT 160440E-26	16,66	4,76	9,52	4,0						•				
APMT 160448E-26	16,66	4,76	9,52	4,8						•				
APMT 160464E-26	16,66	4,76	9,52	6,4						•				



Boring heads

Arbors & adaptors

• Normally available for immediate delivery

○ Only available in a limited quantity

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

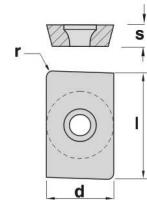
Boring heads

Arbors & adaptors

APMW



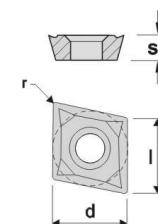
REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TK31	TIC21	TIC25	T20L	T40L	Z10R
APMW 200408E	20,00	4,76	12,70	0,8	●				●						
APMW 200408F	20,00	4,76	12,70	0,8	○										



CCGT-AL



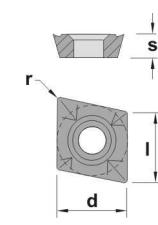
REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TK31	TIC21	TIC25	T20L	T40L	Z10R
CCGT 060202-AL	6,45	2,38	6,35	0,2	●										○
CCGT 060204-AL	6,45	2,38	6,35	0,4	●										○
CCGT 09T302-AL	9,65	3,97	9,52	0,2	●										○
CCGT 09T304-AL	9,65	3,97	9,52	0,4	●										○
CCGT 09T308-AL	9,65	3,97	9,52	0,8	●										○
CCGT 120402-AL	12,90	4,76	12,70	0,2	●										○
CCGT 120404-AL	12,90	4,76	12,70	0,4	●										○
CCGT 120408-AL	12,90	4,76	12,70	0,8	●										○



CCGT-AP



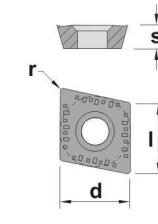
REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC15	TIC17	TIC20	TIC30	TIC35	Z10R
CCGT 060202-AP	6,45	2,38	6,35	0,2	●										○
CCGT 060204-AP	6,45	2,38	6,35	0,4	●										○
CCGT 09T302-AP	9,65	3,97	9,52	0,2	●										○
CCGT 09T304-AP	9,65	3,97	9,52	0,4	●										○
CCGT 09T308-AP	9,65	3,97	9,52	0,8	●										○
CCGT 120402-AP	12,90	4,76	12,70	0,2	●										○
CCGT 120404-AP	12,90	4,76	12,70	0,4	●										○
CCGT 120408-AP	12,90	4,76	12,70	0,8	●										○



CCKT



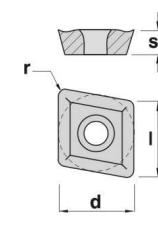
REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC21	TIC25	T20L	T40L	Z10R	
CCKT 060204	6,45	2,38	6,35	0,4						●	●				
CCKT 080308	8,05	3,18	7,94	0,8						●	●				
CCKT 09T308	9,65	4,00	9,52	0,8						●	●				



CCMT-03



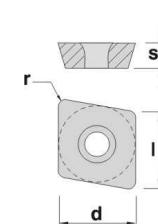
REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC15	TIC17	TIC25	TIC30	TIC35	Z10R
CCMT 060202-03	6,45	2,38	6,35	0,2	●					●					
CCMT 060204-03	6,45	2,38	6,35	0,4	●	●				●					
CCMT 080304-03	8,05	3,18	7,94	0,4	●	●				●					
CCMT 080308-03	8,05	3,18	7,94	0,8		●				●					
CCMT 09T304-03	9,65	3,97	9,52	0,4	●	●				●					
CCMT 09T308-03	9,65	3,97	9,52	0,8	●	●				●					
CCMT 120408-03	12,90	4,76	12,70	0,8	●					●					



CCMW

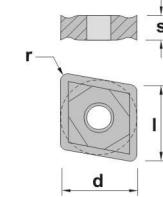


REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC21	TIC25	T20L	T40L	Z10R	
CCMW 060202	6,45	2,38	6,35	0,2	●										
CCMW 060204	6,45	2,38	6,35	0,4	●										
CCMW 080304	8,05	3,18	7,94	0,4	●										
CCMW 09T304	9,65	3,97	9,52	0,4		●									
CCMW 09T308	9,65	3,97	9,52	0,8	●										
CCMW 120408	12,90	4,76	12,70	0,8	●										



CNGP

REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
CNGP 120404	12,90	4,76	12,70	0,4	●									
CNGP 120408	12,90	4,76	12,70	0,8	●									

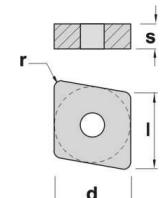


Inserts

Turning

CNMA

REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
CNMA 120408	12,90	4,76	12,70	0,8	●									
CNMA 120412	12,90	4,76	12,70	1,2	○									



Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

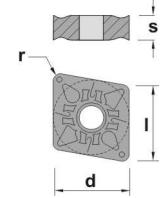
Solid carbide

Boring heads

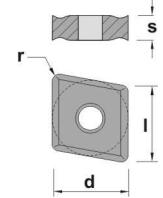
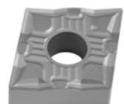
Arbors & adaptors

CNMG-CF

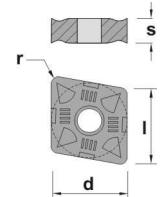
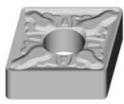
REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
CNMG 120404-CF	12,90	4,76	12,70	0,4	●									

**CNMG-CFC**

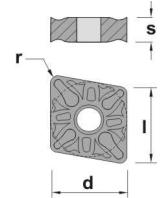
REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
CNMG 120404-CFC	12,90	4,76	12,70	0,4	●									

**CNMG-CFM**

REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
CNMG 120404-CFM	12,90	4,76	12,70	0,4	●									

**CNMG-CM**

REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
CNMG 120408-CM	12,90	4,76	12,70	0,8	●				●	●				



• Normally available for immediate delivery

○ Only available in a limited quantity

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

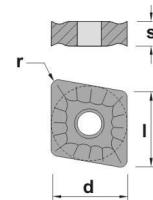
Boring heads

Arbors & adaptors

CNMG-CMC



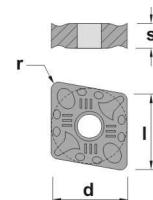
REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
CNMG 120408-CMC	12,90	4,76	12,70	0,8	•									



CNMG-CMF



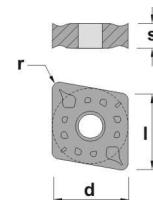
REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
CNMG 120408-CMF	12,90	4,76	12,70	0,8	•	•								



CNMG-CMR



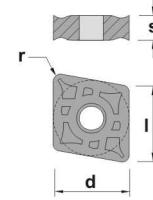
REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
CNMG 090304-CMR	9,65	3,18	9,52	0,4										
CNMG 090308-CMR	9,65	3,18	9,52	0,8										
CNMG 120408-CMR	12,90	4,76	12,70	0,8	•	•	•	•						
CNMG 120412-CMR	12,90	4,76	12,70	1,2										



CNMG-CR



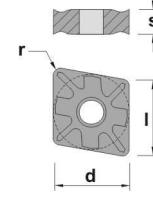
REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
CNMG 120408-CR	12,90	4,76	12,70	0,8										
CNMG 120412-CR	12,90	4,76	12,70	1,2										
CNMG 160608-CR	16,10	6,35	15,88	0,8										
CNMG 160612-CR	16,10	6,35	15,88	1,2										
CNMG 190612-CR	19,30	6,35	19,05	1,2										
CNMG 190616-CR	19,30	6,35	19,05	1,6										



CNMG-CS



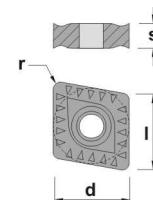
REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
CNMG 090304-CS	9,65	3,18	9,52	0,4										
CNMG 090308-CS	9,65	3,18	9,52	0,8										
CNMG 120404-CS	12,90	4,76	12,70	0,4										
CNMG 120408-CS	12,90	4,76	12,70	0,8										



CNMM

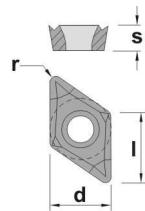


REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
CNMM 120408	12,90	4,76	12,70	0,8										
CNMM 120412	12,90	4,76	12,70	1,2										
CNMM 160612	16,10	6,35	15,88	1,2										
CNMM 190612	19,30	6,35	19,05	1,2										



DCGT-AL

REF.	I	s	d	r	K15K	P25K	P40K	CK30	TIC15	TIC17	TIC20	TIC30	TIC35	Z10R
DCGT 070202-AL	7,75	2,38	6,35	0,2	●				○					
DCGT 070204-AL	7,75	2,38	6,35	0,4	●				○					
DCGT 11T302-AL	11,60	3,97	9,52	0,2	●				○					
DCGT 11T304-AL	11,60	3,97	9,52	0,4	●				○					
DCGT 11T308-AL	11,60	3,97	9,52	0,8	●				○					



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

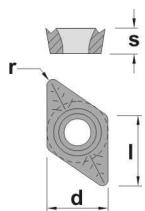
Solid carbide

Boring heads

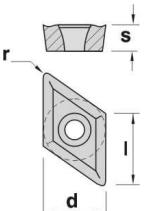
Arbors & adaptors

DCGT-AP

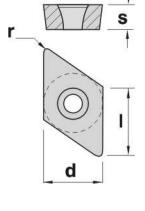
REF.	I	s	d	r	K15K	P25K	P40K	CK30	TIC15	TIC17	TIC20	TIC30	TIC35	Z10R
DCGT 070202-AP	7,75	2,38	6,35	0,2	●				○					
DCGT 070204-AP	7,75	2,38	6,35	0,4	●				○					
DCGT 11T302-AP	11,60	3,97	9,52	0,2	●				○					
DCGT 11T304-AP	11,60	3,97	9,52	0,4	●				○					
DCGT 11T308-AP	11,60	3,97	9,52	0,8	●				○					

**DCMT-03**

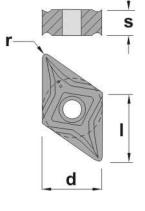
REF.	I	s	d	r	K15K	P25K	P40K	CK30	TIC15	TIC17	TIC20	TIC30	TIC35	Z10R
DCMT 070204-03	7,75	2,38	6,35	0,4	○	●		●	●					
DCMT 11T304-03	11,60	3,97	9,52	0,4	○	●	●	●	●	●	●	●	●	
DCMT 11T308-03	11,60	3,97	9,52	0,8	○	●	●	●	●	●	●	●	●	
DCMT 150408-03	15,50	4,76	12,70	0,8	○	○								

**DCMW**

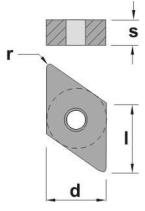
REF.	I	s	d	r	K15K	P25K	P40K	CK30	TIC15	TIC17	TIC20	TIC30	TIC35	Z10R
DCMW 11T304	11,60	3,97	9,52	0,4	●									
DCMW 11T308	11,60	3,97	9,52	0,8	●									
DCMW 150408	15,50	4,76	12,70	0,8	●									

**DNGP**

REF.	I	s	d	r	K15K	P25K	P40K	CK30	TIC15	TIC17	TIC20	TIC30	TIC35	Z10R
DNGP 150404	15,50	4,76	12,70	0,4										
DNGP 150408	15,50	4,76	12,70	0,8					●	●				

**DNMA**

REF.	I	s	d	r	K15K	P25K	P40K	CK30	TIC15	TIC17	TIC20	TIC30	TIC35	Z10R
DNMA 150608	15,50	6,35	12,70	0,8					○					
DNMA 150612	15,50	6,35	12,70	1,2					○					



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○ Only available in a limited quantity

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

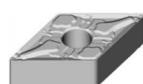
Milling cutters

Solid carbide

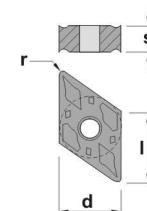
Boring heads

Arbors & adaptors

DNMG-CF



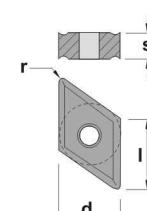
REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
DNMG 150604-CF	15,50	6,35	12,70	0,4	•	•								



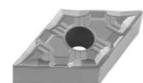
DNMG-CFC



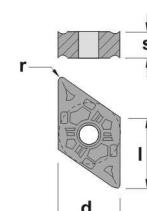
REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
DNMG 150404-CFC	15,50	4,76	12,70	0,4	•									



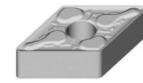
DNMG-CFM



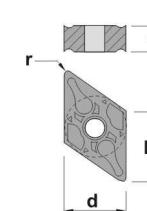
REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
DNMG 150404-CFM	15,50	4,76	12,70	0,4	•									
DNMG 150604-CFM	15,50	6,35	12,70	0,4	•									



DNMG-CM



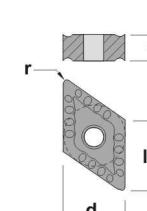
REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
DNMG 150608-CM	15,50	6,35	12,70	0,8	•	•								



DNMG-CMC



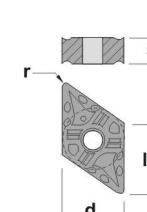
REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
DNMG 150408-CMC	15,50	4,76	12,70	0,8	•									



DNMG-CMF

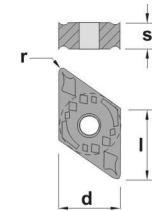


REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
DNMG 150608-CMF	15,50	6,35	12,70	0,8	•	•								



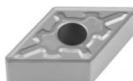
DNMG-CMR

REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
DNMG 110404-CMR	11,60	4,76	9,52	0,4				•						
DNMG 110408-CMR	11,60	4,76	9,52	0,8					•					
DNMG 150408-CMR	15,50	4,76	12,70	0,8					•					
DNMG 150608-CMR	15,50	6,35	12,70	0,8					•					
DNMG 150612-CMR	15,50	6,35	12,70	1,2					•					
DNMG 190608-CMR	19,40	6,35	15,88	0,8					○	○				
DNMG 190612-CMR	19,40	6,35	15,88	1,2					○	○				

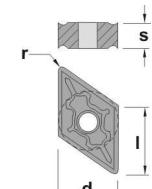


Inserts

Turning

DNMG-CS

REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
DNMG 110404-CS	11,60	4,76	9,52	0,4					•					
DNMG 110408-CS	11,60	4,76	9,52	0,8					•					
DNMG 150604-CS	15,50	6,35	12,70	0,4					•					
DNMG 150608-CS	15,50	6,35	12,70	0,8					•					

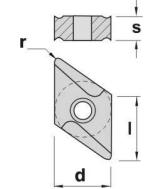


Automatic lathes

Ceramic tools

DNMX

REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
DNMX 150604R-22	6,57	2,38	6,35	0,4					•					
DNMX 150608R-22	8,20	3,18	7,93	0,4					•	•	•			

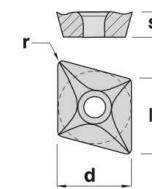


Parting & grooving

Threading

ECMT

REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
ECMT 060204	6,57	2,38	6,35	0,4					•					
ECMT 080304	8,20	3,18	7,93	0,4					•					
ECMT 120404	12,40	4,00	12,00	0,4					○	•				
ECMT 120408	12,40	4,00	12,00	0,8					○	○	•			
ECMT 120412	12,40	4,00	12,00	1,2					○	●				

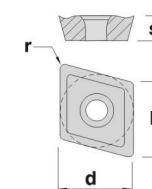


Drills

Cartridges

EPMT

REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
EPMT 080302-30	8,28	3,00	8,00	0,2	○									
EPMT 080304-30	8,28	3,00	8,00	0,4	●				●					
EPMT 080308-30	8,28	3,00	8,00	0,8					●					

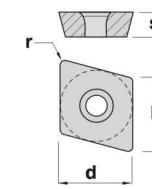


Brazed tools

Milling cutters

EPMW

REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
EPMW 040204	4,92	2,38	4,76	0,4	●				●					
EPMW 080304	8,28	3,00	8,00	0,4		○								
EPMW 080308	8,28	3,00	8,00	0,8		○								



Solid carbide

Boring heads

Arbors & adaptors

● Normally available for immediate delivery

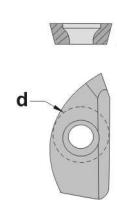
○ Only available in a limited quantity

Inserts	
Turning	
Automatic lathes	
Ceramic tools	
Parting & grooving	
Threading	
Drills	
Cartridges	
Brazed tools	
Milling cutters	
Solid carbide	
Boring heads	
Arbors & adaptors	

REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
EPMX 040204	4,92	2,38	4,76	0,4	•										
FRC 1.6	-	1,60	-	0,15											
FRC 2.2	-	2,20	-	0,20						•	•				
FRC 3.0	-	3,00	-	0,20							•	•			
FRC 4.0	-	4,00	-	0,20						•	•				
FRC 5.0	-	5,00	-	0,30						•	•				
FRC 6.0	-	6,00	-	0,30						•					
FRCR 3.0	-	3,00	-	1,50											
FRCR 4.0	-	4,00	-	2,00						•	•				
FRCR 5.0	-	5,00	-	2,50						•	•				
FRCR 6.0	-	6,00	-	3,00						•	•				
GXGP-AL	REF.	I	s		K15K	P25K	P40K	CK40	TK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
GXGP-253.0-AL	31,00	6,00			•										
GXGP-254.0-AL	31,00	8,00			•										
HPR	REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	T1C21	T1C25	T20L	T40L	Z10R
HPR 10	-	2,40	10,00	-											
HPR 12	-	2,50	12,00	-							•	•			
HPR 16	-	3,00	16,00	-							•	•			
HPR 20	-	3,00	20,00	-							•	•			
HPR 25	-	4,00	25,00	-							•	•			
HPR 32	-	5,00	32,00	-							•				
INT	REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	T1C21	T1C25	T20L	T40L	Z10R
INT 25	-	4,5	12,50	-							•				
INT 32	-	5,6	16,00	-							•	•			
INT 40	-	5,6	20,00	-							•	•			
INT 50	-	7,9	25,00	-							•				

INW

REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	T1C21	T1C25	T20L	T40L	Z10R
INW 25	-	4,5	12,50	-	●									
INW 32	-	5,6	16,00	-		●								
INW 40	-	5,6	20,00	-		●								
INW 50	-	7,9	25,00	-		●								

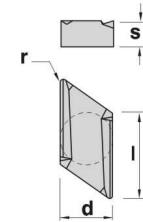


Inserts

Turning

KNUX

REF.	I	s	d	r	K15K	P25K	P40K	CK30	TIC15	TIC17	TIC20	TIC30	TIC35	Z10R
KNUX 160405L-21	16,00	4,76	9,52	0,5	●		●							
KNUX 160405L-32	16,00	4,76	9,52	0,5		●								
KNUX 160405R-21	16,00	4,76	9,52	0,5	●		●							
KNUX 160405R-32	16,00	4,76	9,52	0,5	●		●							
KNUX 160410L-21	16,00	4,76	9,52	1,0		●								
KNUX 160410L-32	16,00	4,76	9,52	1,0		●								
KNUX 160410R-21	16,00	4,76	9,52	1,0		○								
KNUX 160410R-32	16,00	4,76	9,52	1,0	●									



Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

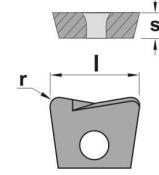
Solid carbide

Boring heads

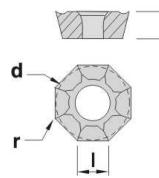
Arbors & adaptors

MTK

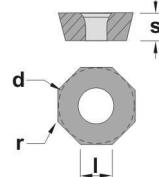
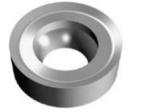
REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC21	TIC25	T20L	T40L	Z10R
MTK 10	10,00	2,60	-	0,60						●				
MTK 12	12,00	3,00	-	1,00						●				
MTK 16	16,00	4,00	-	1,30						●				
MTK 20	20,00	5,00	-	1,60						●				
MTK 25	25,00	6,00	-	2,00						●				

**ODMT**

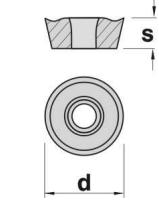
REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC21	TIC25	T20L	T40L	Z10R
ODMT 040408	4,00	4,76	12,70	0,8						●	●			
ODMT 060512	6,00	5,55	16,00	1,2						●	●			

**ODMW**

REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC21	TIC25	T20L	T40L	Z10R
ODMW 040408	4,00	4,76	12,70	0,8						●				
ODMW 060512	6,00	5,55	16,00	1,2						●				

**RCGT-AL**

REF.	I	s	d	r	K15K	P25K	P40K	CK30	TK30	TIC15	TIC17	TIC20	TIC30	TIC35	Z10R
RCGT 0803MO-AL	-	3,18	8,00	-	●						○				
RCGT 1003MO-AL	-	3,18	10,00	-	●						○				



• Normally available for immediate delivery

○ Only available in a limited quantity

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

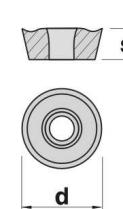
Boring heads

Arbors & adaptors

RCGT-AP



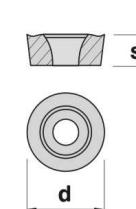
REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
RCGT 0803MO-AP	-	3,18	8,00	-	●									



RCMT



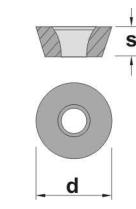
REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
RCMT 0602MO	-	2,38	6,00	-										
RCMT 0803MO	-	3,18	8,00	-										
RCMT 1003MO	-	3,18	10,00	-	●									
RCMT 10T3MO	-	3,97	10,00	-	●									
RCMT 1204MO	-	4,76	12,00	-	○	●								
RCMT 1606MO-30	-	6,35	16,00	-	○									
RCMT 2006MO-30	-	6,35	20,00	-	○									
RCMT 2006MO-34	-	6,35	20,00	-	○									



RDHW



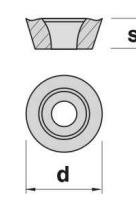
REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	T1C21	T1C25	T20L	T40L	Z10R
RDHW 0702MO	-	2,38	7,00	-						●	●			
RDHW 1003MO	-	3,18	10,00	-						●	●			
RDHW 12T3MO	-	3,97	12,00	-						●	●			
RDHW 1604MO	-	4,76	16,00	-						●	●			
RDHW 2006MO	-	6,35	20,00	-						●	●			



RDMT



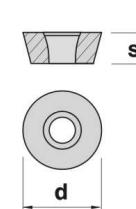
REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	T1C21	T1C25	T20L	T40L	Z10R
RDMT 1003MO	-	3,97	10,00	-										
RDMT 1204MO	-	4,76	12,00	-	●					●				
RDMT 12T3MO	-	3,97	12,00	-							●			
RDMT 1604MO	-	4,76	16,00	-							●			



RDMW



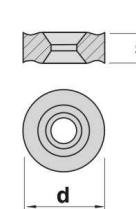
REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	T1C21	T1C25	T20L	T40L	Z10R
RDMW 1003MO	-	3,18	10,00	-								●	●	
RDMW 12T3MO	-	3,97	12,00	-							●	●		
RDMW 1204MO	-	4,76	12,00	-	●					●				
RDMW 1604MO	-	4,76	16,00	-							●			



RNMG

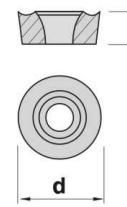


REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
RNMG 090300	-	3,18	9,52	-	○					○				
RNMG 120400	-	4,76	12,70	-	○					○				
RNMG 150600	-	6,35	15,88	-							○			
RNMG 190600	-	6,35	19,05	-							○			
RNMG 250900	-	9,52	25,40	-							○			



RPMT

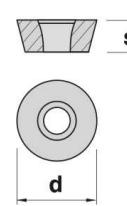
REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC21	TIC25	T20L	T40L	Z10R
RPMT 120400-39	-	4,76	12,70	-	●					●				
RPMT 1204MO	-	4,76	12,70	-	●					●	●	●		



Inserts

RPMW

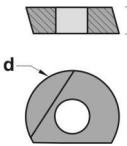
REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC21	TIC25	T20L	T40L	Z10R
RPMW 0802MO	-	2,38	8,00	-	●					●	●			
RPMW 1003MO	-	3,18	10,00	-	●					●	●			
RPMW 1204MO	-	4,76	12,00	-	●					●	●			
RPMW 1204MOT	-	4,76	12,00	-	●					●	●	●		



Automatic lathes

RPR

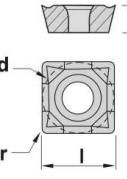
REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC21	TIC25	T20L	T40L	Z10R
RPR 10	-	2,60	10,00	-										
RPR 12	-	3,00	12,00	-						●				
RPR 16	-	4,00	16,00	-						●				
RPR 20	-	5,00	20,00	-						●				
RPR 25	-	6,00	25,00	-						●				
RPR 32	-	7,00	32,00	-						●				



Parting & grooving

SCGT-AL

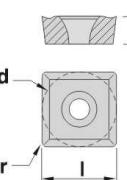
REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC21	TIC25	T20L	T40L	Z10R
SCGT 09T304-AL	9,52	3,97	9,52	0,4	●									
SCGT 09T308-AL	9,52	3,97	9,52	0,8	●									
SCGT 120408-AL	12,70	4,76	12,70	0,8	●									



Cartridges

SCMT-03

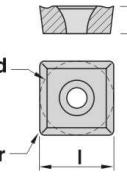
REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC15	TIC17	TIC20	TIC30	TIC35	Z10R
SCMT 09T304-03	9,52	3,97	9,52	0,4	○	●				○					
SCMT 09T308-03	9,52	3,97	9,52	0,8	○	●				●					
SCMT 120408-03	12,70	4,76	12,70	0,8	●					●					
SCMT 120412-03	12,70	4,76	12,70	1,2	●					○					



Brazed tools

SCMT-39

REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC21	TIC25	T20L	T40L	Z10R	
SCMT 09T304-39	9,52	3,97	9,52	0,4	●					○					
SCMT 09T308-39	9,52	3,97	9,52	0,8	○	●				●					
SCMT 120408-39	12,70	4,76	12,70	0,4	●					●					
SCMT 120408-39	12,70	4,76	12,70	0,8	○	●				●					
SCMT 120412-39	12,70	4,76	12,70	1,2	●					○					
SCMT 120612-39	12,70	6,35	12,70	1,2	●					○					



Milling cutters

Solid carbide

• Normally available for immediate delivery ○ Only available in a limited quantity

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

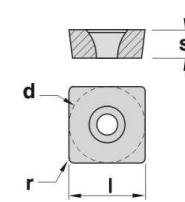
Boring heads

Arbors & adaptors

SCMW



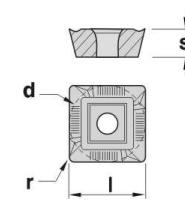
REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC21	TIC25	T20L	T40L	Z10R
SCMW 09T308	9,52	3,97	9,52	0,8	●									
SCMW 120408	12,70	4,76	12,70	0,8	○	○								
SCMW 120412	12,70	4,76	12,70	1,2	○									



SDMT



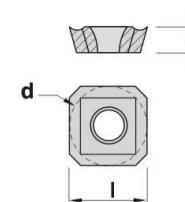
REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC21	TIC25	T20L	T40L	Z10R
SDMT 12T308	13,29	3,97	13,29	0,8					●					



SEHT



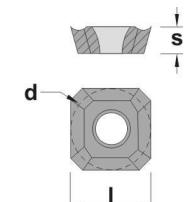
REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC21	TIC25	T20L	T40L	Z10R
SEHT 1204AF-N	12,70	4,76	12,70	-					●	●				



SEHT-AL



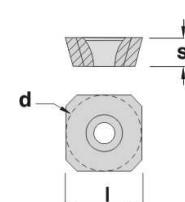
REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC21	TIC25	T20L	T40L	Z10R
SEHT 1204AFFN-AL	12,70	3,18	12,70	-	●							●		



SEHW



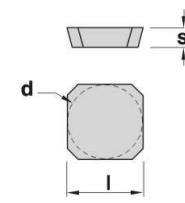
REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC21	TIC25	T20L	T40L	Z10R
SEHW 1204AFEN001	12,70	4,76	12,70	-	●									
SEHW 1204AFSN151	12,70	4,76	12,70	-		●				●	●			



SEKN

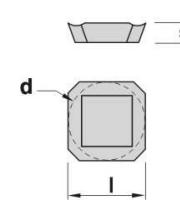


REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC21	TIC25	T20L	T40L	Z10R
SEKN 1203AFEN-3A	12,70	3,18	12,70	-	●									
SEKN 1203AFSN-3D	12,70	3,18	12,70	-		●	●	●	●	●	●	●	●	
SEKN 1204AFEN-3A	12,70	4,76	12,70	-	○									
SEKN 1204AFSN-3D	12,70	4,76	12,70	-		●				●	●			
SEKN 1504AFEN-4A	15,88	4,76	15,88	-	○									
SEKN 1504AFSN-4D	15,88	4,76	15,88	-		●				●	●			



SEKR

REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC21	TIC25	TIC28	T40L	Z10R
SEKR 1203AFN	12,70	3,18	12,70	-										
SEKR 1203AFTN-94	12,70	3,18	12,70	-						•	•			

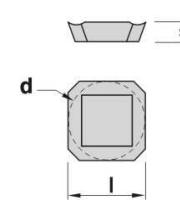


Inserts

Turning

SEMT

REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC21	TIC25	TIC28	T40L	Z10R
SEMT 1204AFTN	12,70	4,76	12,70	-						•				



Automatic lathes

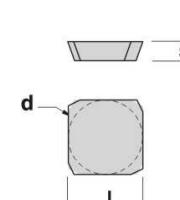
Ceramic tools

Parting & grooving

Threading

SFAN

REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC21	TIC25	TIC28	T40L	Z10R
SFAN 1203EFL	12,70	3,18	12,70	-	○									
SFAN 1203EFR	12,70	3,18	12,70	-	●									



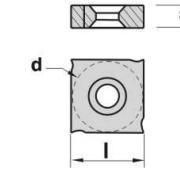
Drills

Cartridges

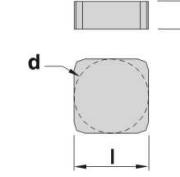
Brazed tools

SNHX

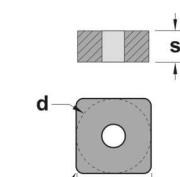
REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC21	TIC25	T20L	T40L	Z10R
SNHX 1102XX	11,00	2,38	11,00	-										
SNHX 1103XX	11,00	2,70	11,00	-						●	●			
SNHX 1203XX	12,70	3,18	12,70	-						●	●			
SNHX 1204XX	12,70	4,50	12,70	-						●	●			
SNHX 1205XX	12,70	5,40	12,70	-						●	●			
SNHX 1207XX	12,70	7,00	12,70	-						●	●			

**SNKN**

REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC21	TIC25	T20L	T40L	Z10R
SNKN 1204ENN	12,70	4,76	12,70	-	○	●								

**SNMA**

REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC21	TIC25	TIC30	TIC35	Z10R
SNMA 120404	12,70	4,76	12,70	0,4										
SNMA 120408	12,70	4,76	12,70	0,8						○				
SNMA 120416	12,70	4,76	12,70	1,6						○				
SNMA 190612	19,05	6,35	19,05	1,2						○				
SNMA 190616	19,05	6,35	19,05	1,6						○				

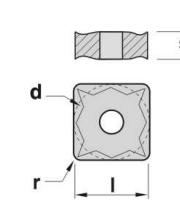


Milling cutters

Solid carbide

SNMG-CFM

REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC15	TIC17	TIC20	TIC30	TIC35	Z10R
SNMG 120404-CFM	12,70	4,76	12,70	0,4						●					



Boring heads

Arbors & adaptors

• Normally available for immediate delivery

○ Only available in a limited quantity

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

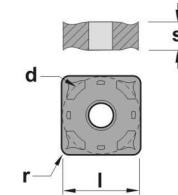
Boring heads

Arbors & adaptors

SNMG-CMR



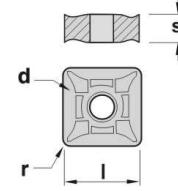
REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
SNMG 120408-CMR	12,70	4,76	12,70	0,4	○	●	●							



SNMG-CR



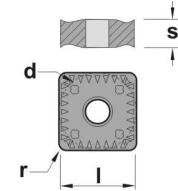
REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
SNMG 120412-CR	12,70	4,76	12,70	1,2	●									
SNMG 150612-CR	15,88	6,35	15,88	1,2		○								
SNMG 190616-CR	19,05	6,35	19,05	1,6		○								



SNMM



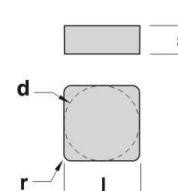
REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
SNMM 190612	19,05	6,35	19,05	1,2										
SNMM 190616	19,05	6,35	19,05	1,6										
SNMM 250724	25,40	7,94	25,40	2,4										



SNUN



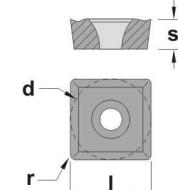
REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC21	TIC25	T20L	T40L	Z10R
SNUN 120408E	12,70	4,76	12,70	0,8	●									
SNUN 120408F	12,70	4,76	12,70	0,8	○									
SNUN 120412E	12,70	4,76	12,70	1,2	●									



SOMT



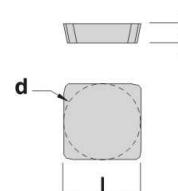
REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC21	TIC25	T20L	T40L	Z10R
SOMT 12M612SN-B	12,70	6,00	12,70	1,2	●									
SOMT 15M612SN-B	15,88	6,00	15,88	1,2	●									



SPKN

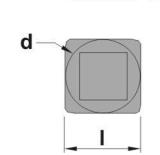


REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC21	TIC25	T20L	T40L	Z10R
SPKN 1203EDER-3A	12,70	3,18	12,70	-	●									
SPKN 1203EDSR-3C	12,70	3,18	12,70	-	●					●	●			
SPKN 1203EDTR	12,70	3,18	12,70	-							●			
SPKN 1504EDSR-2F	15,88	4,76	15,88	-								●		



SPKR

REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC21	TIC25	TIC28	T40L	Z10R
SPKR 1203EDR	12,70	3,18	12,70	-						●				
SPKR 1203EDSR	12,70	3,18	12,70	-						●				

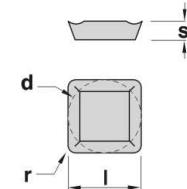


Inserts

Turning

SPMR-33

REF.	I	s	d	r	K15K	P25K	P40K	CK30	TK15	TIC17	TIC20	TIC30	TIC35	Z10R
SPMR 090304-33	9,52	3,18	9,52	0,4					●					
SPMR 090308-33	9,52	3,18	9,52	0,8						●				
SPMR 120304-33	12,70	3,18	12,70	0,4					●					
SPMR 120308-33	12,70	3,18	12,70	0,8	●					●				



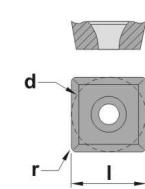
Automatic lathes

Ceramic tools

Parting & grooving

SPMT

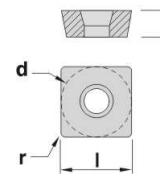
REF.	I	s	d	r	K15K	P25K	P40K	CK30	TK15	TIC17	TIC25	TIC30	TIC35	T40L
SPMT 060304	6,35	3,18	6,35	0,4										●
SPMT 070308	7,94	3,18	7,94	0,8						●				
SPMT 090308	9,52	3,18	9,52	0,8						●				
SPMT 120408	12,70	4,76	12,70	0,8										●



Drills

SPMW

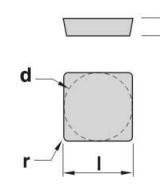
REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC21	TIC25	T20L	T40L	Z10R
SPMW 120408	12,70	4,76	12,70	0,8	○	●				●		●		



Cartridges

SPUN

REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC21	TIC25	T20L	T40L	Z10R
SPUN 090304E	9,52	3,18	9,52	0,4	○					○				
SPUN 090308E	9,52	3,18	9,52	0,8	●					●				
SPUN 090308F	9,52	3,18	9,52	0,8	○									
SPUN 120304E	12,70	3,18	12,70	0,4	●						●			
SPUN 120308E	12,70	3,18	12,70	0,8	●						●			
SPUN 120308F	12,70	3,18	12,70	0,8	●									
SPUN 120312E	12,70	3,18	12,70	1,2	●					●	●	●		
SPUN 120408E	12,70	4,76	12,70	0,8	○									
SPUN 150408E	15,88	4,76	15,88	0,8	○									
SPUN 150412E	15,88	4,76	15,88	1,2	○									
SPUN 190412E	19,05	4,76	19,05	1,2	○									



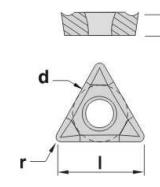
Brazed tools

Milling cutters

Solid carbide

TCGT-AL

REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC21	TIC25	T20L	T40L	Z10R
TCGT 110202-AL	11,00	2,38	6,35	0,2	●								○	
TCGT 110204-AL	11,00	2,38	6,35	0,4	●								○	
TCGT 16T302-AL	16,50	3,97	9,52	0,2	●								○	
TCGT 16T304-AL	16,50	3,97	9,52	0,4	●								○	
TCGT 16T308-AL	16,50	3,97	9,52	0,8	●								○	



Boring heads

Arbors & adaptors

● Normally available for immediate delivery

○ Only available in a limited quantity

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

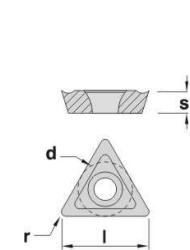
Boring heads

Arbors & adaptors

TCMT-03



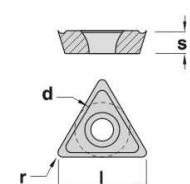
REF.	I	s	d	r	K15K	P25K	P40K	CK30	TIC15	TIC17	TIC25	TIC30	TIC35	Z10R
TCMT 090204-03	9,62	2,38	5,55	0,4	○				●					
TCMT 110204-03	11,00	2,38	6,35	0,4	●	●			●	●	●	●		
TCMT 16T304-03	16,50	3,97	9,52	0,4	○	●			●		●	●		
TCMT 16T308-03	16,50	3,97	9,52	0,8	●	●			●	●	●	●		
TCMT 220408-03	22,00	4,76	12,70	0,8	○									
TCMT 220412-03	22,00	4,76	12,70	1,2	○									



TCMT-39



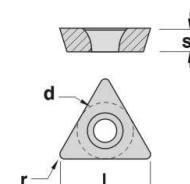
REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC21	TIC25	T20L	T40L	Z10R
TCMT 16T308-39	16,50	3,97	9,52	0,8	●					●	●			
TCMT 16T312-39	16,50	3,97	9,52	1,2		●				●				



TCMW



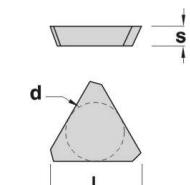
REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC21	TIC25	T20L	T40L	Z10R
TCMW 110204	11,00	2,38	6,35	0,4	○	●						○		
TCMW 16T304	16,50	3,97	9,52	0,4	●							○		
TCMW 16T308	16,50	3,97	9,52	0,8	●	●						○		



TEKN



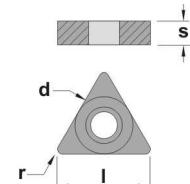
REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC21	TIC25	T20L	T40L	Z10R
TEKN 1603PETR	16,50	3,18	9,52	-	○	●				○				
TEKN 2204PETR	22,00	4,76	12,70	-	●	●				○				



TNMA



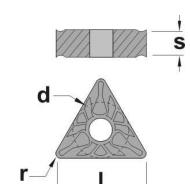
REF.	I	s	d	r	K15K	P25K	P40K	CK30	TIC15	TIC17	TIC20	TIC30	TIC35	Z10R
TNMA 160404	16,50	4,76	9,52	0,4										
TNMA 160408	16,50	4,76	9,52	0,8						○				
TNMA 160412	16,50	4,76	9,52	1,2						○				
TNMA 220408	22,00	4,76	12,70	0,8						○				
TNMA 220412	22,00	4,76	12,70	1,2						○				
TNMA 220416	22,00	4,76	12,70	1,6										



TNMG-CF

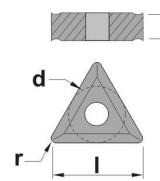


REF.	I	s	d	r	K15K	P25K	P40K	CK30	TIC15	TIC17	TIC20	TIC30	TIC35	Z10R
TNMG 160404-CF	16,50	4,76	9,52	0,4		●			●	●				



TNMG-CFC

REF.	I	s	d	r	K15K	P25K	P40K	CK30	TIC15	TIC17	TIC20	TIC30	TIC35	Z10R
TNMG 160404-CFC	16,50	4,76	9,52	0,4	•									

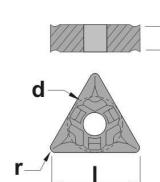


Inserts

Turning

TNMG-CFM

REF.	I	s	d	r	K15K	P25K	P40K	CK30	TIC15	TIC17	TIC20	TIC30	TIC35	Z10R
TNMG 160404-CFM	16,50	4,76	9,52	0,4	•									
TNMG 220404-CFM	22,00	4,76	12,70	0,4	•									

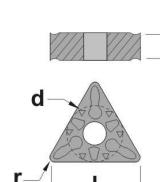


Automatic lathes

Ceramic tools

TNMG-CM

REF.	I	s	d	r	K15K	P25K	P40K	CK30	TIC15	TIC17	TIC20	TIC30	TIC35	Z10R
TNMG 160408-CM	16,50	4,76	9,52	0,8	•									

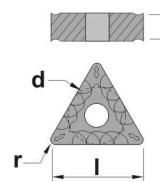


Parting & grooving

Threading

TNMG-CMC

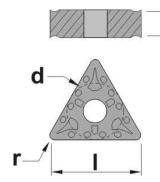
REF.	I	s	d	r	K15K	P25K	P40K	CK30	TIC15	TIC17	TIC20	TIC30	TIC35	Z10R
TNMG 160408-CMC	16,50	4,76	9,52	0,8	•									



Cartridges

TNMG-CMF

REF.	I	s	d	r	K15K	P25K	P40K	CK30	TIC15	TIC17	TIC20	TIC30	TIC35	Z10R
TNMG 160408-CMF	16,50	4,76	9,52	0,8	•									
TNMG 220408-CMF	22,00	4,76	12,70	0,8	•	•	•	•	•	•	•	•	•	

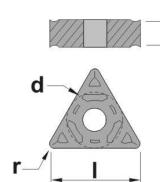


Brazed tools

Milling cutters

TNMG-CMR

REF.	I	s	d	r	K15K	P25K	P40K	CK30	TIC15	TIC17	TIC20	TIC30	TIC35	Z10R
TNMG 160408-CMR	16,50	4,76	9,52	0,8	•				•	•				
TNMG 160412-CMR	16,50	4,76	9,52	1,2							•	•		
TNMG 220408-CMR	22,00	4,76	12,70	0,8	○				•	•				
TNMG 220412-CMR	22,00	4,76	12,70	1,2					•					



Boring heads

Arbors & adaptors

• Normally available for immediate delivery

○ Only available in a limited quantity

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

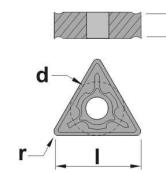
Arbors & adaptors

TNMG-CS



REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
------	---	---	---	---	------	------	------	------	-------	-------	-------	-------	-------	------

TNMG 160404-CS	16,50	4,76	9,52	0,4	•									
TNMG 160408-CS	16,50	4,76	9,52	0,8	•									

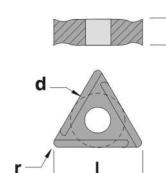


TNMX



REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
------	---	---	---	---	------	------	------	------	-------	-------	-------	-------	-------	------

TNMX 160404 R	16,50	4,76	9,52	0,4	•									
TNMX 160408 R	16,50	4,76	9,52	0,8	•									
TNMX 160404 L	16,50	4,76	9,52	0,4	•									
TNMX 160408 L	16,50	4,76	9,52	0,8	•									

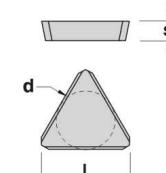


TPKN



REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC21	TIC25	T20L	T40L	Z10R
------	---	---	---	---	------	------	------	------	------	-------	-------	------	------	------

TPKN 1103PPSN-1C	11,00	3,18	6,35	-	•				○					
TPKN 1603PDER-1A	16,50	3,18	9,52	-	•									
TPKN 1603PDSR-1C	16,50	3,18	9,52	-	•			•	•					
TPKN 2204PDER-1A	22,00	4,76	12,70	-	•									
TPKN 2204PDSR-1F	22,00	4,76	12,70	-	•					•	•			

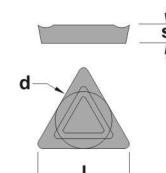


TPKR



REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC21	TIC25	T20L	T40L	Z10R
------	---	---	---	---	------	------	------	------	------	-------	-------	------	------	------

TPKR 1603PPSR	16,50	3,18	9,52	-	•					•	•			
----------------------	-------	------	------	---	---	--	--	--	--	---	---	--	--	--

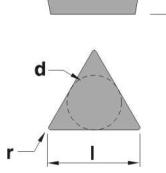


TPMN



REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
------	---	---	---	---	------	------	------	------	-------	-------	-------	-------	-------	------

TPMN 160308	16,50	3,18	9,52	0,8	•									
--------------------	-------	------	------	-----	---	--	--	--	--	--	--	--	--	--

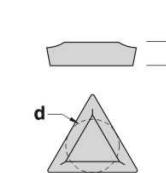


TPMR-33



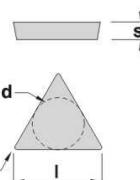
REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
------	---	---	---	---	------	------	------	------	-------	-------	-------	-------	-------	------

TPMR 090204-33	9,62	2,38	5,55	0,4	•				•					
TPMR 110304-33	11,00	3,18	6,35	0,4	•			•	•					
TPMR 110308-33	11,00	3,18	6,35	0,8	•									
TPMR 160304-33	16,50	3,18	9,52	0,4	•			•	•					
TPMR 160308-33	16,50	3,18	9,52	0,8	•			○	•					



TPUN

REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	T1C15	T1C25	T20L	T40L	Z10R
TPUN 110204E	11,00	2,38	6,35	0,4	●					●				
TPUN 110204F	11,00	2,38	6,35	0,4	○									
TPUN 110208E	11,00	2,38	6,35	0,8	●					●				
TPUN 110304E	11,00	3,18	6,35	0,4	●					●				
TPUN 110308E	11,00	3,18	6,35	0,8	●					●				
TPUN 110308F	11,00	3,18	6,35	0,8	○									
TPUN 160304E	16,50	3,18	9,52	0,4	●					○	●			
TPUN 160304F	16,50	3,18	9,52	0,4	●									
TPUN 160308T	16,50	3,18	9,52	0,8	●					●				
TPUN 160308E	16,50	3,18	9,52	0,8	●					○	●			
TPUN 160308F	16,50	3,18	9,52	0,8	●									
TPUN 160312E	16,50	3,18	9,52	1,2	●					●				
TPUN 160312F	16,50	3,18	9,52	1,2	○									
TPUN 220408E	22,00	4,76	12,70	0,8	●					●				
TPUN 220408F	22,00	4,76	12,70	0,8	●									
TPUN 220412E	22,00	4,76	12,70	1,2	●					●				
TPUN 220412F	22,00	4,76	12,70	1,2	●									



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

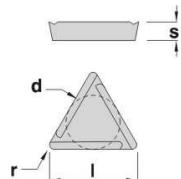
Solid carbide

Boring heads

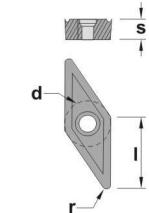
Arbors & adaptors

TPUX

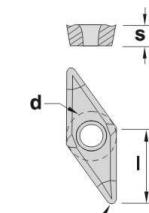
REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	T1C21	T1C25	T20L	T40L	Z10R
TPUX 110304L	11,00	3,18	6,35	0,4	○	●				●				
TPUX 110304R	11,00	3,18	6,35	0,4	○	●				●				
TPUX 160304L	16,50	3,18	9,52	0,4	○	●				●				
TPUX 160304R	16,50	3,18	9,52	0,4	○	●				●				
TPUX 160308L	16,50	3,18	9,52	0,8	○	●				●				
TPUX 160308R	16,50	3,18	9,52	0,8	○	●				●				
TPUX 220408L	22,00	4,76	12,70	0,8	○									
TPUX 220408R	22,00	4,76	12,70	0,8	○	○								

**VBMT**

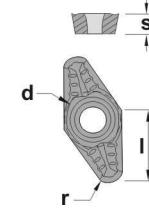
REF.	I	s	d	r	K15K	P25K	P40K	CK30	TIC15	TIC17	TIC20	TIC30	TIC35	Z10R
VBMT 160404	16,50	4,76	9,52	0,4					●					
VBMT 160408	16,50	4,76	9,52	0,8					●					

**VCGT-AL**

REF.	I	s	d	r	K15K	P25K	P40K	CK30	TIC15	TIC17	TIC20	TIC30	TIC35	Z10R
VCGT 160404-AL	16,50	4,76	9,52	0,4	●									
VCGT 160408-AL	16,50	4,76	9,52	0,8	●	●								
VCGT 160412-AL	16,50	4,76	9,52	1,2	●									
VCGT 220530-AL	22,10	5,56	12,70	3,0	●									

**VCGT-AP**

REF.	I	s	d	r	K15K	P25K	P40K	CK30	TIC15	TIC17	TIC20	TIC30	TIC35	Z10R
VCGT 160404-AP	16,50	4,76	9,52	0,4	●									
VCGT 160408-AP	16,50	4,76	9,52	0,8	●									
VCGT 160412-AP	16,50	4,76	9,52	1,2	●									
VCGT 220530-AP	22,10	5,56	12,70	3,0	●									



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○ Only available in a limited quantity

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

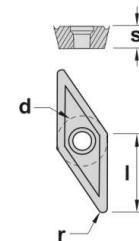
Boring heads

Arbors & adaptors

VCMT-03



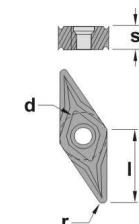
REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
VCMT 110304-03	11,00	3,18	6,35	0,4	•									
VCMT 130304-03	13,00	3,18	8,00	0,4	•									
VCMT 160404-03	16,50	4,76	9,52	0,4	•									
VCMT 160408-03	16,50	4,76	9,52	0,8		•								



VNGP



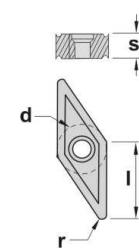
REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
VNGP 160404	16,50	4,76	9,52	0,4	•									
VNGP 160408	16,50	4,76	9,52	0,8	•									



VNMG



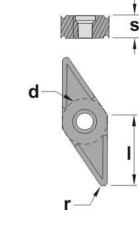
REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
VNMG 160408	16,50	4,76	9,52	0,8	•									
VNMG 220408	22,00	4,76	12,70	0,8	•									



VNMG-CMC



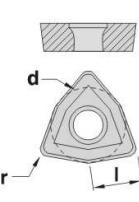
REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
VNMG 160408-CMC	16,50	4,76	9,52	0,4	•									
VNMG 160408-CMC	16,50	4,76	9,52	0,8	•									



WCMX

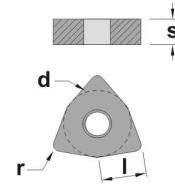


REF.	I	s	d	r	K15K	P25K	P40K	CK40	TK30	TIC21	TIC30	T20L	T40L	Z10R
WCMX 030208	3,46	2,38	5,56	0,8	•									
WCMX 040208	3,99	2,38	6,35	0,8	•									
WCMX 050308	5,07	3,18	7,94	0,8	•									
WCMX 06T308	6,14	3,97	9,52	0,8	•									
WCMX 080408	8,14	4,76	12,70	0,8	•									
WCMX 080412	8,14	4,76	12,70	1,2	•									



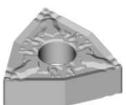
WNMA

REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
WNMA 080408	8,14	4,76	12,70	0,8					○					
WNMA 080412	8,14	4,76	12,70	1,2					○					

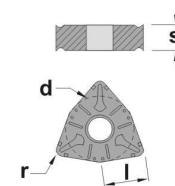


Inserts

Turning

WNMG-CF

REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
WNMG 080404-CF	8,14	4,76	12,70	0,4					●	●				



Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

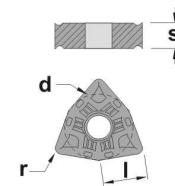
Solid carbide

Boring heads

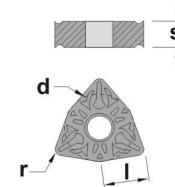
Arbors & adaptors

WNMG-CFM

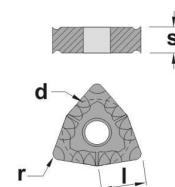
REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
WNMG 080404-CFM	8,14	4,76	12,70	0,4					●					

**WNMG-CM**

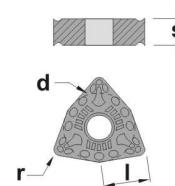
REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
WNMG 080408-CM	8,14	4,76	12,70	0,8					●	●				

**WNMG-CMC**

REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
WNMG 080408-CMC	8,14	4,76	12,70	0,8					●					

**WNMG-CMF**

REF.	I	s	d	r	K15K	P25K	P40K	CK30	T1C15	T1C17	T1C20	T1C30	T1C35	Z10R
WNMG 080408-CMF	8,14	4,76	12,70	0,8					●	●				



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Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

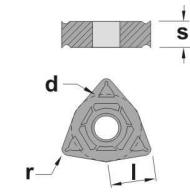
Boring heads

Arbors & adaptors

WNMG-CMR



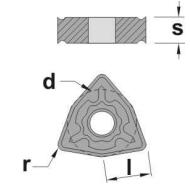
REF.	I	s	d	r	K15K P25K P40K CK30 T1C15 T1C17 T1C20 T1C30 T1C35 Z10R
WNMG 060404-CMR	6,45	4,76	9,52	0,4	•
WNMG 060408-CMR	6,45	4,76	9,52	0,8	•
WNMG 080408-CMR	8,14	4,76	12,70	0,8	• •
WNMG 080412-CMR	8,14	4,76	12,70	1,2	•



WNMG-CS



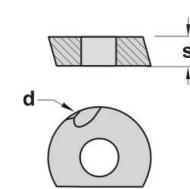
REF.	I	s	d	r	K15K P25K P40K CK30 T1C15 T1C17 T1C20 T1C30 T1C35 Z10R
WNMG 060404-CS	6,45	4,76	9,52	0,4	•
WNMG 060408-CS	6,45	4,76	9,52	0,8	•
WNMG 080404-CS	8,14	4,76	12,70	0,4	• •
WNMG 080408-CS	8,14	4,76	12,70	0,8	• •
WNMG 080412-CS	8,14	4,76	12,70	1,2	•



WPR



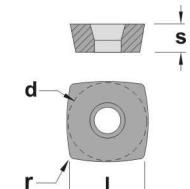
REF.	I	s	d	r	K15K P25K P40K CK40 TK30 T1C15 T1C21 T1C25 T20L T40L Z10R
WPR 10	-	2,50	10	-	•
WPR 12	-	2,50	12	-	•
WPR 16	-	3,00	16	-	• •
WPR 20	-	3,00	20	-	• •
WPR 25	-	4,00	25	-	• •
WPR 32	-	5,00	32	-	• •



XDKW



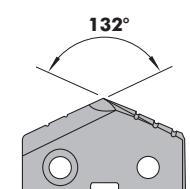
REF.	I	s	d	r	K15K P25K P40K CK40 TK30 T1C21 T1C25 T20L T40L Z10R
XDKW 090430	9,00	3,97	9,00	0,8	•
XDKW 120530	12,50	5,56	12,50	0,8	•



XPMT

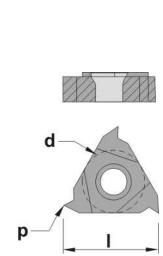


REF.	Metric	Diameter	Inch	s	HS15 T40L
XPMT095	9,50	3/8	2,4	○ ○	
XPMT098	9,80	-	2,4	● ●	
XPMT099	9,92	25/64	2,4	○ ○	
XPMT100	10,00	-	2,4	● ●	
XPMT102	10,20	-	2,4	● ●	
XPMT103	10,32	13/32	2,4	○ ○	
XPMT105	10,50	-	2,4	● ●	
XPMT107	10,72	27/64	2,4	○ ○	
XPMT108	10,80	-	2,4	● ●	
XPMT110	11,00	-	2,4	● ●	
XPMT111	11,11	7/16	2,4	○ ○	
XPMT115	11,50	29/64	2,4	○ ○	
XPMT119	11,91	15/32	2,4	○ ○	
XPMT120	12,00	-	2,4	● ●	
XPMT123	12,30	31/64	2,4	○ ○	
XPMT125	12,50	-	2,4	● ●	
XPMT127	12,70	1/2	2,4	○ ○	
XPMT130	13,00	-	3,2	● ●	
XPMT131	13,10	33/64	3,2	○ ○	
XPMT135	13,50	17/32	3,2	○ ○	
XPMT138	13,89	35/64	3,2	○ ○	
XPMT140	14,00	-	3,2	● ●	
XPMT142	14,29	9/16	3,2	○ ○	
XPMT145	14,50	-	3,2	● ●	
XPMT146	14,68	37/64	3,2	○ ○	
XPMT150	15,00	-	3,2	● ●	
XPMT155	15,50	39/64	3,2	○ ○	
XPMT158	15,88	5/8	3,2	○ ○	
XPMT160	16,00	-	3,2	● ●	
XPMT162	16,27	41/64	3,2	○ ○	
XPMT165	16,50	-	3,2	● ●	
XPMT166	16,67	21/32	3,2	○ ○	
XPMT170	17,00	-	3,2	● ●	
XPMT174	17,46	11/16	3,2	○ ○	
XPMT175	17,50	-	3,2	● ●	



ER-60°

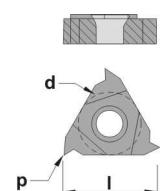
REF.	I	d	p	K15K	P25K	T1C25	T20L
11ER-A60	11,00	6,35	60°		○		
16ER-A60	16,00	9,52	60°		○		
16ER-AG60	16,00	9,52	60°	●	●	○	
16ER-G60	16,00	9,52	60°	●	●	○	
22ER-N60	22,00	12,70	60°	●	●	○	
27ER-S60	27,00	15,87	60°		○		



Inserts

EL-60°

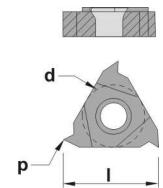
REF.	I	d	p	K15K	P25K	T1C25	T20L
11EL-A60	11,00	6,35	60°		○		
16EL-A60	16,00	9,52	60°		○		
16EL-AG60	16,00	9,52	60°		○		
16EL-G60	16,00	9,52	60°		○		
22EL-N60	22,00	12,70	60°		○		
27EL-S60	27,00	15,87	60°		○		



Automatic lathes

ER-55°

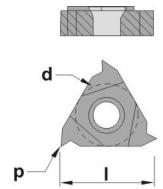
REF.	I	d	p	K15K	P25K	T1C25	T20L
11ER-A55	11,00	6,35	55°		○		
16ER-A55	16,00	9,52	55°		○		
16ER-AG55	16,00	9,52	55°	●	●	○	
16ER-G55	16,00	9,52	55°		○		
22ER-N55	22,00	12,70	55°		○		
27ER-S55	27,00	15,87	55°		○		



Parting & grooving

EL-55°

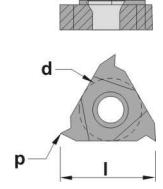
REF.	I	d	p	K15K	P25K	T1C25	T20L
11EL-A55	11,00	6,35	55°		○		
16EL-A55	16,00	9,52	55°		○		
16EL-AG55	16,00	9,52	55°		○		
16EL-G55	16,00	9,52	55°		○		
22EL-N55	22,00	12,70	55°		○		
27EL-S55	27,00	15,87	55°		○		



Cartridges

ER-60° TD

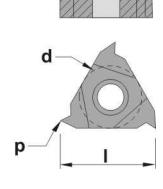
REF.	I	d	p	K15K	P25K	T1C25	T20L
16ER-A60 TD	16,00	9,52	60°		○		
16ER-AG60 TD	16,00	9,52	60°	●	●	○	
16ER-G60 TD	16,00	9,52	60°		○		



Brazed tools

ER-55° TD

REF.	I	d	p	K15K	P25K	T1C25	T20L
16ER-A55 TD	16,00	9,52	55°		○		
16ER-AG55 TD	16,00	9,52	55°	●	●	○	
16ER-G55 TD	16,00	9,52	55°		○		



Milling cutters

• Normally available for immediate delivery

○ Only available in a limited quantity

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

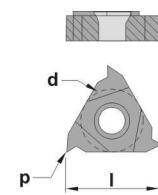
Boring heads

Arbors & adaptors

NR-60°



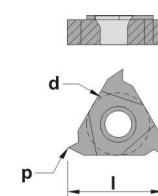
REF.	I	d	p	K15K	P25K	T1C25	T20L
06NR-A60	6,00	3,96	60°	○			
08NR-A60	8,00	4,76	60°	○			
11NR-A60	11,00	6,35	60°	●	○		
16NR-A60	16,00	9,52	60°	○			
16NR-AG60	16,00	9,52	60°	●	○		
16NR-G60	16,00	9,52	60°	○			
22NR-N60	22,00	12,70	60°	●	○		
27NR-S60	27,00	15,87	60°	○			



NL-60°



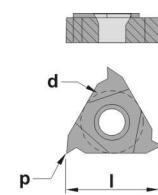
REF.	I	d	p	K15K	P25K	T1C25	T20L
06NL-A60	6,00	3,96	60°	○			
08NL-A60	8,00	4,76	60°	○			
11NL-A60	11,00	6,35	60°	○			
16NL-A60	16,00	9,52	60°	○			
16NL-AG60	16,00	9,52	60°	○			
16NL-G60	16,00	9,52	60°	○			
22NL-N60	22,00	12,70	60°	○			
27NL-S60	27,00	15,87	60°	○			



NR-55°



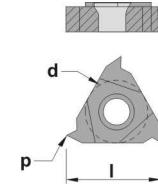
REF.	I	d	p	K15K	P25K	T1C25	T20L
06NR-A55	6,00	3,96	55°	○			
08NR-A55	8,00	4,76	55°	○			
11NR-A55	11,00	6,35	55°	○			
16NR-A55	16,00	9,52	55°	○			
16NR-AG55	16,00	9,52	55°	●	○		
16NR-G55	16,00	9,52	55°	●	○		
22NR-N55	22,00	12,70	55°	○			
27NR-S55	27,00	15,87	55°	○			



NL-55°



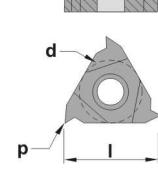
REF.	I	d	p	K15K	P25K	T1C25	T20L
06NL-A55	6,00	3,96	55°	○			
08NL-A55	8,00	4,76	55°	○			
11NL-A55	11,00	6,35	55°	○			
16NL-A55	16,00	9,52	55°	○			
16NL-AG55	16,00	9,52	55°	○			
16NL-G55	16,00	9,52	55°	○			
22NL-N55	22,00	12,70	55°	○			
27NL-S55	27,00	15,87	55°	○			



NR-60° TD



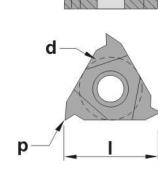
REF.	I	d	p	K15K	P25K	T1C25	T20L
16NR-A60 TD	16,00	9,52	60°	○			
16NR-AG60 TD	16,00	9,52	60°	●	○		
16NR-G60 TD	16,00	9,52	60°	○			

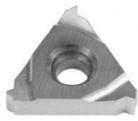


NR-55° TD

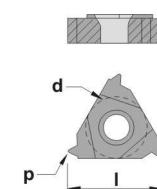


REF.	I	d	p	K15K	P25K	T1C25	T20L
16NR-A55 TD	16,00	9,52	55°	○			
16NR-AG55 TD	16,00	9,52	55°	●	○		
16NR-G55 TD	16,00	9,52	55°	○			



ER-ISO

REF.	I	d	p	K15K	P25K	TIC25	T20L
11ER-030ISO	11,00	6,35	0,30		○		
11ER-040ISO	11,00	6,35	0,40		○		
11ER-045ISO	11,00	6,35	0,45		○		
11ER-050ISO	11,00	6,35	0,50		○		
11ER-060ISO	11,00	6,35	0,60		○		
11ER-070ISO	11,00	6,35	0,70		○		
11ER-075ISO	11,00	6,35	0,75		○		
11ER-080ISO	11,00	6,35	0,80		○		
11ER-100ISO	11,00	6,35	1,00		○		
11ER-125ISO	11,00	6,35	1,25		○		
11ER-150ISO	11,00	6,35	1,50		○		
11ER-175ISO	11,00	6,35	1,75		○		
16ER-075ISO	16,00	9,52	0,75		○		
16ER-100ISO	16,00	9,52	1,00		○		
16ER-125ISO	16,00	9,52	1,25		○		
16ER-150ISO	16,00	9,52	1,50		○		
16ER-175ISO	16,00	9,52	1,75		○		
16ER-200ISO	16,00	9,52	2,00		○		
16ER-250ISO	16,00	9,52	2,50		○		
16ER-300ISO	16,00	9,52	3,00		○		
22ER-350ISO	22,00	12,70	3,50		○		
22ER-400ISO	22,00	12,70	4,00		○		
22ER-450ISO	22,00	12,70	4,50		○		
22ER-500ISO	22,00	12,70	5,00		○		
27ER-500ISO	27,00	15,87	5,00		○		
27ER-550ISO	27,00	15,87	5,50		○		
27ER-600ISO	27,00	15,87	6,00		○		
27ER-800ISO	27,00	15,87	8,00		○		



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

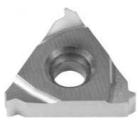
Brazed tools

Milling cutters

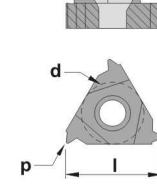
Solid carbide

Boring heads

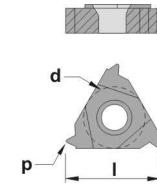
Arbors & adaptors

EL-ISO

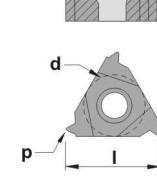
REF.	I	d	p	K15K	P25K	TIC25	T20L
16EL-100ISO	16,00	9,52	1,00		○		
16EL-125ISO	16,00	9,52	1,25		○		
16EL-150ISO	16,00	9,52	1,50		○		
16EL-175ISO	16,00	9,52	1,75		○		
16EL-200ISO	16,00	9,52	2,00		○		
16EL-250ISO	16,00	9,52	2,50		○		
16EL-300ISO	16,00	9,52	3,00		○		
22EL-400ISO	22,00	12,70	4,00		○		

**ER-ISO TD**

REF.	I	d	p	K15K	P25K	TIC25	T20L
16ER-100ISO TD	16,50	9,52	1,00		○		
16ER-125ISO TD	16,50	9,52	1,25		○		
16ER-150ISO TD	16,50	9,52	1,50		○		
16ER-175ISO TD	16,50	9,52	1,75		○		
16ER-200ISO TD	16,50	9,52	2,00		○		
16ER-250ISO TD	16,50	9,52	2,50		○		
16ER-300ISO TD	16,50	9,52	3,00		○		

**EL-ISO TD**

REF.	I	d	p	K15K	P25K	TIC25	T20L
16EL-100ISO TD	16,50	9,52	1,00		○		
16EL-125ISO TD	16,50	9,52	1,25		○		
16EL-150ISO TD	16,50	9,52	1,50		○		
16EL-175ISO TD	16,50	9,52	1,75		○		
16EL-200ISO TD	16,50	9,52	2,00		○		
16EL-250ISO TD	16,50	9,52	2,50		○		
16EL-300ISO TD	16,50	9,52	3,00		○		



• Normally available for immediate delivery

○ Only available in a limited quantity

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

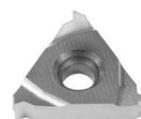
Milling cutters

Solid carbide

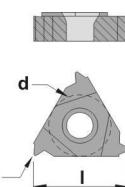
Boring heads

Arbors & adaptors

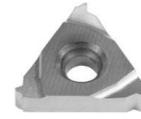
NR-ISO



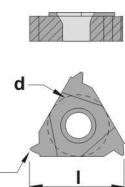
REF.	I	d	p	K15K	P25K	TIC25	T20L
06NR-050ISO	6,00	3,96	0,50	○			
06NR-075ISO	6,00	3,96	0,75	○			
06NR-100ISO	6,00	3,96	1,00	○			
06NR-125ISO	6,00	3,96	1,25	○			
08NR-050ISO	8,00	4,76	0,50	○			
08NR-075ISO	8,00	4,76	0,75	○			
08NR-100ISO	8,00	4,76	1,00	○			
08NR-125ISO	8,00	4,76	1,25	○			
08NR-150ISO	8,00	4,76	1,50	○			
08NR-175ISO	8,00	4,76	1,75	○			
11NR-035ISO	11,00	6,35	0,35	○			
11NR-040ISO	11,00	6,35	0,40	○			
11NR-045ISO	11,00	6,35	0,45	○			
11NR-050ISO	11,00	6,35	0,50	○			
11NR-060ISO	11,00	6,35	0,60	○			
11NR-070ISO	11,00	6,35	0,70	○			
11NR-075ISO	11,00	6,35	0,75	○			
11NR-080ISO	11,00	6,35	0,80	○			
11NR-100ISO	11,00	6,35	1,00	○			
11NR-125ISO	11,00	6,35	1,25	○			
11NR-150ISO	11,00	6,35	1,50	○			
11NR-175ISO	11,00	6,35	1,75	○			
11NR-200ISO	11,00	6,35	2,00	○			
11NR-250ISO	11,00	6,35	2,50	○			
16NR-075ISO	16,00	9,52	0,75	○			
16NR-100ISO	16,00	9,52	1,00	○			
16NR-125ISO	16,00	9,52	1,25	○			
16NR-150ISO	16,00	9,52	1,50	○			
16NR-175ISO	16,00	9,52	1,75	○			
16NR-200ISO	16,00	9,52	2,00	○			
16NR-250ISO	16,00	9,52	2,50	○			
16NR-300ISO	16,00	9,52	3,00	○			
22NR-350ISO	22,00	12,70	3,50	○			
22NR-400ISO	22,00	12,70	4,00	○			
22NR-450ISO	22,00	12,70	4,50	○			
22NR-500ISO	22,00	12,70	5,00	○			
27NR-500ISO	27,00	15,87	5,00	○			
27NR-550ISO	27,00	15,87	5,50	○			
27NR-600ISO	27,00	15,87	6,00	○			
27NR-800ISO	27,00	15,87	8,00	○			



NL-ISO



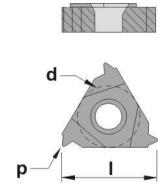
REF.	I	d	p	K15K	P25K	TIC25	T20L
06NL-050ISO	6,00	3,96	0,50				
06NL-075ISO	6,00	3,96	0,75				
06NL-100ISO	6,00	3,96	1,00				
06NL-125ISO	6,00	3,96	1,25				
08NL-050ISO	8,00	4,76	0,50				
08NL-075ISO	8,00	4,76	0,75				
08NL-100ISO	8,00	4,76	1,00				
08NL-125ISO	8,00	4,76	1,25				
08NL-150ISO	8,00	4,76	1,50				
08NL-175ISO	8,00	4,76	1,75				
11NL-100ISO	11,00	6,35	1,00			○	
11NL-150ISO	11,00	6,35	1,50			○	
16NL-100ISO	16,00	9,52	1,00			○	
16NL-125ISO	16,00	9,52	1,25			○	
16NL-150ISO	16,00	9,52	1,50			○	
16NL-175ISO	16,00	9,52	1,75			○	
16NL-200ISO	16,00	9,52	2,00			○	
16NL-250ISO	16,00	9,52	2,50			○	
16NL-300ISO	16,00	9,52	3,00			○	
22NL-400ISO	22,00	12,70	4,00			○	



NR-ISO TD



REF.	I	d	p	K15K	P25K	TIC25	T20L
16NR-100ISO TD	16,50	9,52	1,00	●			
16NR-125ISO TD	16,50	9,52	1,25	●			
16NR-150ISO TD	16,50	9,52	1,50	●			
16NR-175ISO TD	16,50	9,52	1,75	●			
16NR-200ISO TD	16,50	9,52	2,00	●			
16NR-250ISO TD	16,50	9,52	2,50	●			
16NR-300ISO TD	16,50	9,52	3,00	●			



ER-UN

REF.

16ER-11UN
16ER-14UN
16ER-18UN

I

d

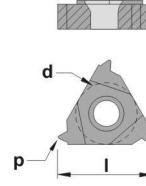
p

K15K

P25K

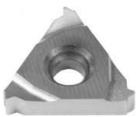
T1C25

T20L



Inserts

Turning

NR-UN

REF.

16NR-20UN
16NR-24UN

I

d

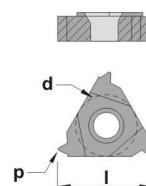
p

K15K

P25K

T1C25

T20L



Automatic lathes

Ceramic tools

ER-W

REF.

11ER-14W
11ER-16W
11ER-18W
11ER-19W
11ER-22W
11ER-24W
11ER-26W
11ER-28W
11ER-40W
11ER-50W
11ER-56W
16ER-8W
16ER-9W
16ER-10W
16ER-11W
16ER-12W
16ER-14W
16ER-16W
16ER-18W
16ER-19W
16ER-20W
16ER-22W
16ER-24W
16ER-26W
16ER-28W
22ER-4W
22ER-4.5W
22ER-5W
22ER-6W
22ER-7W
22ER-8W
27ER-4W
27ER-4.5W

I

d

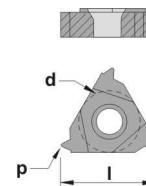
p

K15K

P25K

T1C25

T20L



Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

EL-W

REF.

16EL-11W
16EL-14W
16EL-20W

I

d

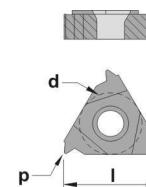
p

K15K

P25K

T1C25

T20L



Boring heads

Arbors & adaptors

• Normally available for immediate delivery

◦ Only available in a limited quantity

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

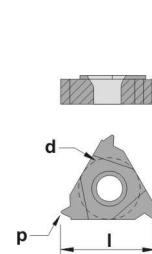
Boring heads

Arbors & adaptors

ER-W TD



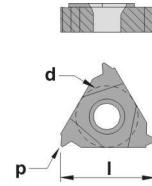
REF.	I	d	p	K15K	P25K	T1C25	T20L
16ER-11W TD	16,50	9,52	11,0	○			
16ER-14W TD	16,50	9,52	14,0	○			
16ER-16W TD	16,50	9,52	16,0	○			



NR-W



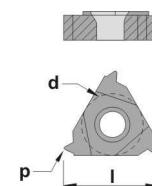
REF.	I	d	p	K15K	P25K	T1C25	T20L
06NR-18W	6,00	3,96	18,0	○			
06NR-19W	6,00	3,96	19,0	○			
06NR-20W	6,00	3,96	20,0	○			
06NR-22W	6,00	3,96	22,0	○			
06NR-26W	6,00	3,96	26,0	○			
08NR-16W	8,00	4,76	16,0	○			
08NR-18W	8,00	4,76	18,0	○			
08NR-19W	8,00	4,76	19,0	○			
08NR-20W	8,00	4,76	20,0	○			
08NR-24W	8,00	4,76	24,0	○			
08NR-28W	8,00	4,76	28,0	○			
11NR-11W	11,00	6,35	11,0	○			
11NR-12W	11,00	6,35	12,0	○			
11NR-14W	11,00	6,35	14,0	○			
11NR-16W	11,00	6,35	16,0	○			
11NR-18W	11,00	6,35	18,0	○			
11NR-19W	11,00	6,35	19,0	○			
11NR-20W	11,00	6,35	20,0	○			
11NR-22W	11,00	6,35	22,0	○			
11NR-24W	11,00	6,35	24,0	○			
11NR-26W	11,00	6,35	26,0	○			
11NR-28W	11,00	6,35	28,0	○			
11NR-32W	11,00	6,35	32,0	○			
11NR-36W	11,00	6,35	36,0	○			
11NR-40W	11,00	6,35	40,0	○			
11NR-48W	11,00	6,35	48,0	○			
16NR-8W	16,00	9,52	8,0	○			
16NR-9W	16,00	9,52	9,0	○			
16NR-10W	16,00	9,52	10,0	○			
16NR-11W	16,00	9,52	11,0	○			
16NR-12W	16,00	9,52	12,0	○			
16NR-14W	16,00	9,52	14,0	○			
16NR-16W	16,00	9,52	16,0	○			
16NR-18W	16,00	9,52	18,0	○			
16NR-19W	16,00	9,52	19,0	○			
16NR-20W	16,00	9,52	20,0	○			
16NR-22W	16,00	9,52	22,0	○			
16NR-24W	16,00	9,52	24,0	○			
16NR-26W	16,00	9,52	26,0	○			
16NR-28W	16,00	9,52	28,0	○			
22NR-4W	22,00	12,70	4,0	○			
22NR-4.5W	22,00	12,70	4,5	○			
22NR-5W	22,00	12,70	5,0	○			
22NR-6W	22,00	12,70	6,0	○			
22NR-7W	22,00	12,70	7,0	○			



NL-W

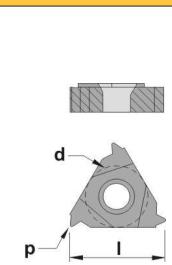


REF.	I	d	p	K15K	P25K	T1C25	T20L
06NL-18W	6,00	3,96	18,0	○			
06NL-20W	6,00	3,96	20,0	○			
06NL-22W	6,00	3,96	22,0	○			
06NL-26W	6,00	3,96	26,0	○			
08NL-16W	8,00	4,76	16,0	○			
08NL-18W	8,00	4,76	18,0	○			
08NL-19W	8,00	4,76	19,0	○			
08NL-20W	8,00	4,76	20,0	○			
08NL-24W	8,00	4,76	24,0	○			
08NL-28W	8,00	4,76	28,0	○			
16NL-11W	16,00	9,52	11,0	○			
16NL-14W	16,00	9,52	14,0	○			
16NL-16W	16,00	9,52	16,0	○			



NR-W TD

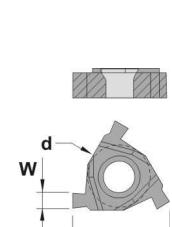
REF.	I	d	p	K15K	P25K	T1C25	T20L
16NR-8W TD	16,50	9,52	8,0		○		
16NR-9W TD	16,50	9,52	9,0		○		
16NR-10W TD	16,50	9,52	10,0		○		
16NR-11W TD	16,50	9,52	11,0	●	○		
16NR-12W TD	16,50	9,52	12,0	○			
16NR-14W TD	16,50	9,52	14,0	●	○		
16NR-16W TD	16,50	9,52	16,0	○			
16NR-18W TD	16,50	9,52	18,0	○			
16NR-19W TD	16,50	9,52	19,0	○			



Inserts

ER-LG

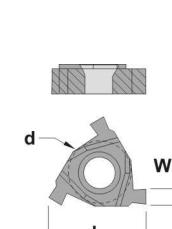
REF.	I	d	W	K15K	P25K	T1C25	T20L
16ER-100LG	16,00	9,52	1,15		●		
16ER-120LG	16,00	9,52	1,35	●			
16ER-150LG	16,00	9,52	1,65	●			
16ER-175LG	16,00	9,52	1,90	●			
16ER-200LG	16,00	9,52	2,15	●			



Automatic lathes

EL-LG

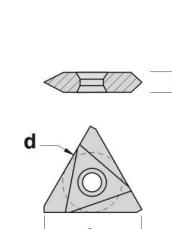
REF.	I	d	W	K15K	P25K	T1C25	T20L
16EL-100LG	16,00	9,52	1,15		●		
16EL-120LG	16,00	9,52	1,35	●			
16EL-150LG	16,00	9,52	1,65	●			
16EL-175LG	16,00	9,52	1,90	●			
16EL-200LG	16,00	9,52	2,15	●			



Parting & grooving

TNMC

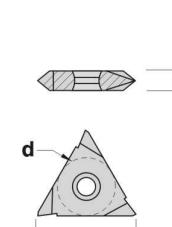
REF.	I	s	d	K15K	P25K	T1C15	T20L
TNMC 1603XX	16,50	3,18	9,52		○	○	
TNMC 2204XX	22,00	4,76	12,70	●	○		



Cartridges

TPMC

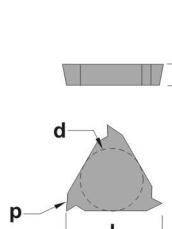
REF.	I	s	d	K15K	P25K	T1C15	T20L
TPMC 1603XX	16,50	3,18	9,52		○		
TPMC 2204XX	22,00	4,76	12,70		○		



Milling cutters

L166G-ISO

REF.	I	s	d	p	K15K	P25K	T1C25	T20L
L166G-3BA075	16,50	3,18	9,52	0,75		○		
L166G-3BA100	16,50	3,18	9,52	1,00		○		
L166G-3BA125	16,50	3,18	9,52	1,25		○		
L166G-3BA150	16,50	3,18	9,52	1,50		○		
L166G-3BA175	16,50	3,18	9,52	1,75		○		
L166G-3BA200	16,50	3,18	9,52	2,00		○		
L166G-3BA250	16,50	3,18	9,52	2,50		○		
L166G-3BA300	16,50	3,18	9,52	3,00		○		



Solid carbide

Boring heads

Arbors & adaptors

• Normally available for immediate delivery

○ Only available in a limited quantity

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

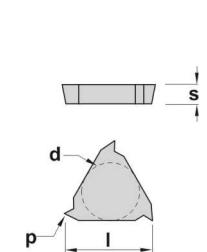
Boring heads

Arbors & adaptors

R166G-ISO



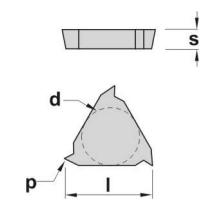
REF.	I	s	d	p	K15K	P25K	T1C25	T20L
R166G-3BA075	16,50	3,18	9,52	0,75	o			
R166G-3BA100	16,50	3,18	9,52	1,00	o			
R166G-3BA125	16,50	3,18	9,52	1,25	o			
R166G-3BA150	16,50	3,18	9,52	1,50	o			
R166G-3BA175	16,50	3,18	9,52	1,75	o			
R166G-3BA200	16,50	3,18	9,52	2,00	o			
R166G-3BA250	16,50	3,18	9,52	2,50	o			
R166G-3BA300	16,50	3,18	9,52	3,00	o			



R166G-B



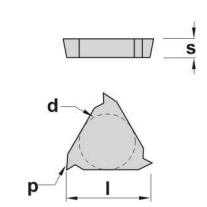
REF.	I	s	d	p	K15K	P25K	T1C25	T20L
R166G-3BK080	16,50	3,18	9,52	08	o			
R166G-3BK160	16,50	3,18	9,52	16	o			



L166L-ISO



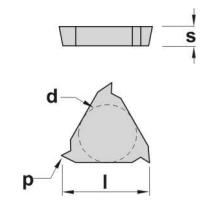
REF.	I	s	d	p	K15K	P25K	T1C25	T20L
L166L-3BA150	16,50	3,18	9,52	1,50	o			
L166L-3BA175	16,50	3,18	9,52	1,75	o			
L166L-3BA200	16,50	3,18	9,52	2,00	o			
L166L-3BA250	16,50	3,18	9,52	2,50	o			
L166L-3BA300	16,50	3,18	9,52	3,00	o			



R166L-ISO

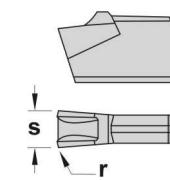


REF.	I	s	d	p	K15K	P25K	T1C25	T20L
R166L-2BA100	11,00	3,18	6,35	1,00	o			
R166L-2BA150	11,00	3,18	6,35	1,50	o			
R166L-3BA150	16,50	3,18	9,52	1,50	o			
R166L-3BA175	16,50	3,18	9,52	1,75	o			
R166L-3BA200	16,50	3,18	9,52	2,00	o			
R166L-3BA250	16,50	3,18	9,52	2,50	o			
R166L-3BA300	16,50	3,18	9,52	3,00	o			
R166L-3BK080	16,50	3,18	9,52	08	o			



MRCN

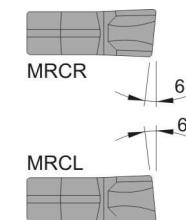
REF.	s	r	K15K	P25K	P40K	T1C15	T1C17	T1C20	T1C30	Z10R	T40L
MRCN 1.6	1,6	0,15	○ ○			●					
MRCN 2.2	2,2	0,20	○ ●			● ○					
MRCN 3.0	3,0	0,20	○ ○			● ○					
MRCN 4.0	4,0	0,20	●			● ○					
MRCN 5.0	5,0	0,30	○ ○			● ○					
MRCN 6.0	6,0	0,40	●								



Inserts

MRCR/L

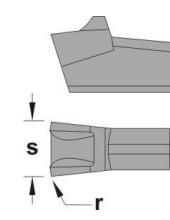
REF.	s	r	K15K	P25K	P40K	T1C15	T1C17	T1C20	T1C30	Z10R	T40L
MRCR 3.0	3,0	0,20				○					
MRCR 4.0	4,0	0,20				○					
MRCL 3.0	3,0	0,20				○					
MRCL 4.0	4,0	0,20				○					



Automatic lathes

MTE

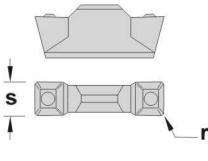
REF.	s	r	K15K	P25K	P40K	T1C15	T1C17	T1C20	T1C30	Z10R	T40L
MTE 3.0	3,0	0,20				○					
MTE 4.0	4,0	0,20				○					



Parting & grooving

MTC

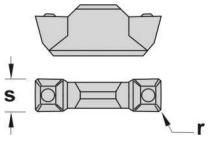
REF.	s	r	K15K	P25K	P40K	T1C15	T1C17	T1C20	T1C30	Z10R
MTC 3.0	3,0	0,15	● ●			○				
MTC 4.0	4,0	0,20	● ●			●				



Drills

MTCJ

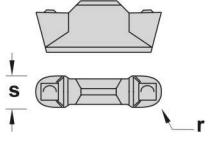
REF.	s	r	K15K	P25K	P40K	T1C15	T1C17	T1C20	T1C30	Z10R
MTCJ 3.0	3,0	0,15	● ●			●				
MTCJ 4.0	4,0	0,20	● ●			●				



Brazed tools

MTR

REF.	s	r	K15K	P25K	P40K	T1C15	T1C17	T1C20	T1C30	Z10R
MTR 3.0	3,0	1,50	○ ○			○				
MTR 3.8	3,8	1,90	○ ○			○				



Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

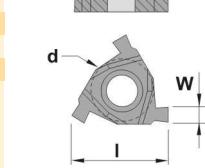
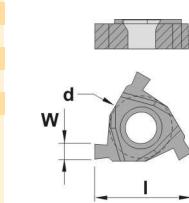
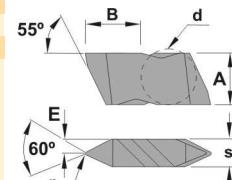
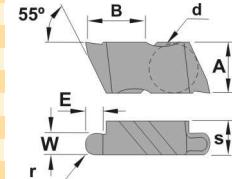
• Normally available for immediate delivery

○ Only available in a limited quantity

Inserts
Plaquettes
Wendeschneidplatten
Turning
Automatic lathes
Ceramic tools
Parting & grooving
Threading
Drills
Cartridges
Brazed tools
Milling cutters
Solid carbide
Boring heads
Arbors & adaptors

MTRJ	REF.	s	r	K15K	P25K	P40K	T1C15	T1C17	T1C20	T1C30	Z10R					
	MTRJ 3.0	3,0	1,50				○									
	MTRJ 3.8	3,8	1,90				○									
PTNT	REF.	s		K15K	P25K	P40K	T1C15	T1C17	T1C20	T1C30	Z10R					
	PTNT 02	2,10		●	●		●									
	PTNT 03	3,10		○	●	●		●								
	PTNT 04	4,10		●	●			●								
	PTNT 05	5,10		○	○			○								
	PTNT 06	6,10		○	○			○								
	PTNT 08	8,10														
	PTNT 09	9,10		○												
PTR/LT	REF.	s		K15K	P25K	P40K	T1C15	T1C17	T1C20	T1C30	Z10R					
	PTRT 03 R8	3,0						○								
	PTRT 04 R8	4,0						○								
	PTLT 03 R8	3,0						○								
	PTLT 04 R8	4,0						○								
NG	REF.	d	A	B	E	r	s	W	K15K	P25K	P40K	T1C15	T1C17	T1C20	T1C30	Z10R
	NG-2031R/L	4,76	5,56	6,86	1,27	0,05	3,81	0,79								
	NG-210R/L	4,76	5,56	6,86	1,27	0,05	3,81	0,99								
	NG2041R/L	4,76	5,56	6,86	1,27	0,05	3,81	1,04								
	NG2047R/L	4,76	5,56	6,86	1,27	0,05	3,81	1,19								
	NG2058R/L	4,76	5,56	6,86	1,27	0,05	3,81	1,47								
	NG2062R/L	4,76	5,56	6,86	2,79	0,05	3,81	1,57								
	NG220R/L	4,76	5,56	6,86	2,79	0,05	3,81	2,01								
	NG2094R/L	4,76	5,56	6,86	2,79	0,05	3,81	2,39								
	NG230R/L	4,76	5,56	6,86	2,79	0,05	3,81	3,00								
	NG2125R/L	4,76	5,56	6,86	2,79	0,05	3,81	3,18								
	NG3031R/L	9,53	8,74	10,29	1,27	0,05	4,95	0,79								
	NG310R/L	9,53	8,74	10,29	1,27	0,05	4,95	0,99								
	NG3047R/L	9,53	8,74	10,29	1,91	0,05	4,95	1,19								
	NG3062R/L	9,53	8,74	10,29	3,05	0,13	4,95	1,57								
	NG3072R/L	9,53	8,74	10,29	3,05	0,13	4,95	1,83								
	NG3078R/L	9,53	8,74	10,29	3,05	0,13	4,95	1,98								
	NG320R/L	9,53	8,74	10,29	3,05	0,13	4,95	2,01								
	NG3088R/L	9,53	8,74	10,29	3,05	0,13	4,95	2,24								
	NG3094R/L	9,53	8,74	10,29	4,57	0,13	4,95	2,39								
	NG3105R/L	9,53	8,74	10,29	4,57	0,13	4,95	2,67								
	NG3110R/L	9,53	8,74	10,29	4,57	0,13	4,95	2,79								
	NG330R/L	9,53	8,74	10,29	4,57	0,13	4,95	3,10								
	NG3122R/L	9,53	8,74	10,29	4,57	0,13	4,95	3,10								
	NG3125R/L	9,53	8,74	10,29	4,57	0,13	4,95	3,18								
	NG3142R/L	9,53	8,74	10,29	4,57	0,13	4,95	3,61								
	NG3156R/L	9,53	8,74	10,29	4,57	0,13	4,95	3,96								
	NG340R/L	9,53	8,74	10,29	4,57	0,13	4,95	4,01								
	NG3178R/L	9,53	8,74	10,29	4,57	0,13	4,95	4,52								
	NG3185R/L	9,53	8,74	10,29	4,57	0,51	4,95	4,70								
	NG3189R/L	9,53	8,74	10,29	4,57	0,51	4,95	4,80								
	NG4125R/L	9,53	11,51	16,15	6,35	0,13	6,48	3,18								
	NG4189R/L	9,53	11,51	16,15	6,35	0,51	6,48	4,80								
	NG450R/L	9,53	11,51	16,15	6,35	0,25	6,48	5,00								
	NG4213R/L	9,53	11,51	16,15	6,35	0,13	6,48	5,41								
	NG4219R/L	9,53	11,51	16,15	6,35	0,51	6,48	5,56								
	NG4250R/L	9,53	11,51	16,15	6,35	0,51	6,48	6,35								
	NG4312R/L	9,53	11,51	16,15	6,35	0,76	6,48	7,92								
	NG6281R/L	9,53	11,51	16,15	6,35	0,76	9,73	7,14								
	NG6312R/L	9,53	11,51	16,15	6,35	0,76	9,73	7,92								
	NG6375R/L	9,53	11,51	16,15	6,35	0,76	9,73	9,53								

NR	REF.	d	A	B	E	r	s	W	K15K	P25K	P40K	TIC15	TIC17	TIC20	TIC30	Z10R
	NR2031R/L	4,76	5,56	6,81	2,79	0,79	3,81	1,57	○							
	NR2047R/L	4,76	5,56	6,79	2,79	1,19	3,81	2,39	○							
	NR2062R/L	4,76	5,56	6,77	2,79	1,57	3,81	3,18	○							
	NR3031R/L	9,53	8,74	10,24	3,81	0,79	4,95	1,57	○							
	NR3047R/L	9,53	8,74	10,22	3,81	1,19	4,95	2,39	○							
	NR3062R/L	9,53	8,74	10,20	3,81	1,57	4,95	3,18	○							
	NR3078R/L	9,53	8,74	10,18	3,81	1,98	4,95	3,96	○							
	NR3094R/L	9,53	8,74	10,16	3,81	2,39	4,95	4,78	○							
	NR4062R/L	9,53	11,51	16,07	6,35	1,57	6,48	3,18	○							
	NR4094R/L	9,53	11,51	10,03	6,35	2,39	6,48	4,78	○							
	NR4125R/L	9,53	11,51	15,98	6,35	3,18	6,48	6,35	○							
NT	REF.	d	A	B	E	r	s		K15K	P25K	P40K	TIC15	TIC17	TIC20	TIC30	Z10R
	NT2R/L	4,76	5,56	6,76	1,91	0,08	3,81		○							
	NT3R/L	9,53	8,74	10,16	2,49	0,13	4,95		○							
	NT4R/L	9,53	11,51	15,98	3,25	0,13	6,48		○							
ER-LG	REF.	I	d	W					K15K	P25K	TIC25					
	16ER-100LG	16,00	9,52	1,15					●							
	16ER-120LG	16,00	9,52	1,35					●							
	16ER-150LG	16,00	9,52	1,65					●							
	16ER-175LG	16,00	9,52	1,90					●							
	16ER-200LG	16,00	9,52	2,15					●							
EL-LG	REF.	I	d	W					K15K	P25K	TIC25					
	16EL-100LG	16,00	9,52	1,15					●							
	16EL-120LG	16,00	9,52	1,35					●							
	16EL-150LG	16,00	9,52	1,65					●							
	16EL-175LG	16,00	9,52	1,90					●							
	16EL-200LG	16,00	9,52	2,15					●							



Inserts

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

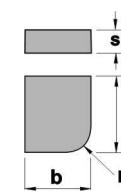
Boring heads

Arbors & adaptors

AB



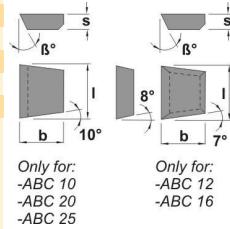
REF.	I	s	b	r	β°	K15K	P25K	P40K	TIC15	TIC17	TIC20	TIC25	TIC30	Z10R
AB 6	6,00	2,50	4,00	2,00	-	•								
AB 8	8,00	3,00	5,00	3,00	-	•								



ABC



REF.	I	s	b	r	β°	K15K	P25K	P40K	TIC15	TIC17	TIC20	TIC25	TIC30	Z10R
ABC 10	11,00	4,00	6,00	-	16°	•	•							
ABC 12	13,00	5,00	8,00	-	18°	•	•	•						
ABC 16	17,00	6,00	10,00	-	18°	•	•	•						
ABC 20	21,00	7,00	12,00	-	16°	•	•	•						
ABC 25	26,00	8,00	14,00	-	16°	•	•	•						



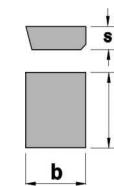
Only for:
-ABC 10
-ABC 20
-ABC 25

Only for:
-ABC 12
-ABC 16

C



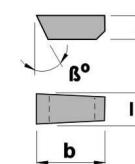
REF.	I	s	b	r	β°	K15K	P25K	P40K	TIC15	TIC17	TIC20	TIC25	TIC30	Z10R
C 7	7,00	2,50	5,00	-	0°	•	•							
C 8	8,00	3,25	5,00	-	0°	•	•	•						
C 10	10,00	4,00	6,00	-	18°	•	•	•						
C 12	12,00	5,00	8,00	-	18°	•	•	•						
C 16	16,00	6,00	10,00	-	18°	•	•	•						
C 20	20,00	7,00	12,00	-	18°	•	•	•						
C 25	25,00	8,00	14,00	-	18°	•	•	•						



D



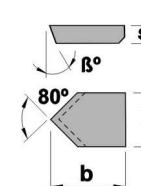
REF.	I	s	b	r	β°	K15K	P25K	P40K	TIC15	TIC17	TIC20	TIC25	TIC30	Z10R
D 3	3,00	3,00	8,00	-	0°	•	•							
D 4	4,00	4,00	10,00	-	14°	•	•	•						
D 5	5,00	5,00	12,00	-	14°	•	•	•						
D 6	6,00	6,00	14,00	-	14°	•	•	•						
D 8	8,00	8,00	16,00	-	14°	•	•	•						
D 10	10,00	10,00	18,00	-	14°	•	•	•						



E



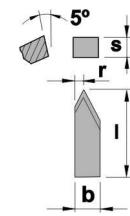
REF.	I	s	b	r	β°	K15K	P25K	P40K	TIC15	TIC17	TIC20	TIC25	TIC30	Z10R
E 5	5,00	3,00	12,00	-	9°	•	•							
E 6	6,00	4,00	14,00	-	9°	•	•	•						
E 8	8,00	4,00	16,00	-	9°	•	•	•						
E 10	10,00	5,00	18,00	-	9°	•	•	•						
E 12	12,00	6,00	20,00	-	9°	•	•	•						



FIL

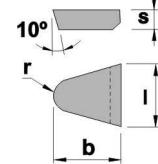


REF.	I	s	b	r	β°	K15K	P25K	P40K	TIC15	TIC17	TIC20	TIC25	TIC30	Z10R
FIL 3,5	12,00	3,50	3,50	1,00	5°	•	•							
FIL 4	14,00	4,00	4,00	1,20	5°	•	•	•						
FIL 5	16,00	5,00	5,00	1,50	5°	•	•	•						
FIL 6	18,00	6,00	6,00	1,80	5°	•	•	•						

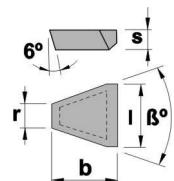


PR

REF.	I	s	b	r	β°	K15K	P25K	P40K	TIC15	TIC17	TIC20	TIC25	TIC30	Z10R
PR 8	8,00	4,00	12,00	1,00	30°	•								
PR 10	10,00	4,00	14,00	1,50	30°	•								
PR 12	12,00	5,00	17,00	2,50	30°	•								

**TR**

REF.	I	s	b	r	β°	K15K	P25K	P40K	TIC15	TIC17	TIC20	TIC25	TIC30	Z10R
TR 16-32	16,00	6,00	21,00	5,00	32°	•								
TR 16-36	16,00	6,00	21,00	4,00	36°	•								
TR 20-32	20,00	6,00	25,00	7,50	32°	•								
TR 20-36	20,00	6,00	25,00	5,80	36°	•								
TR 20-38	20,00	6,00	25,00	7,50	38°	•								



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

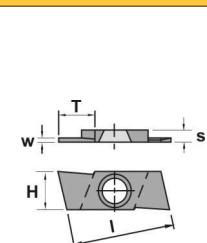
Boring heads

Arbors & adaptors

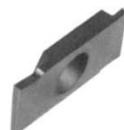
GISG



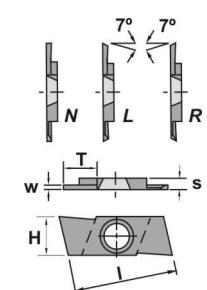
REF.	I	s	H	T	w	K15K	P25K	TIC25	T20L
GISG05R-L	17,00	2,00	7,00	2,54	0,50	•			
GISG07R-L	17,00	2,00	7,00	2,54	0,70	•			
GISG08R-L	17,00	2,00	7,00	2,54	0,80	•			
GISG09R-L	17,00	2,00	7,00	2,54	0,90	•			
GISG11R-L	17,00	2,00	7,00	6,00	1,10	•			
GISG13R-L	17,00	2,00	7,00	6,00	1,30	•			
GISG16R-L	17,00	2,00	7,00	6,00	1,60	•			
GISG185R-L	17,00	2,00	7,00	6,00	1,85	•			



GIGP



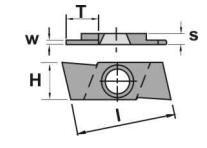
REF.	I	s	H	T	w	K15K	P25K	TIC25	T20L
GIGP10RN	17,00	2,00	7,00	6,00	1,00	•			
GIGP10RR	17,00	2,00	7,00	6,00	1,00	•			
GIGP10LN	17,00	2,00	7,00	6,00	1,00	•			
GIGP10LL	17,00	2,00	7,00	6,00	1,00	•			
GIGP15RN	17,00	2,00	7,00	6,00	1,50	•			
GIGP15RR	17,00	2,00	7,00	6,00	1,50	•			
GIGP15LN	17,00	2,00	7,00	6,00	1,50	•			
GIGP15LL	17,00	2,00	7,00	6,00	1,50	•			
GIGP20RN	17,00	2,00	7,00	6,00	2,00	•			
GIGP20RR	17,00	2,00	7,00	6,00	2,00	•			
GIGP20LN	17,00	2,00	7,00	6,00	2,00	•			
GIGP20LL	17,00	2,00	7,00	6,00	2,00	•			



GIGR



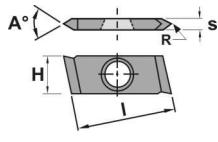
REF.	I	s	H	T	w	K15K	P25K	TIC25	T20L
GIGR10R-L	17,00	2,00	7,00	6,00	1,00	•			
GIGR15R-L	17,00	2,00	7,00	6,00	1,50	•			
GIGR20R-L	17,00	2,00	7,00	6,00	2,00	•			



GIGW



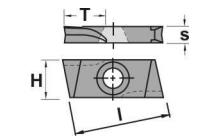
REF.	I	s	H	R	A°	K15K	P25K	TIC25	T20L
GIGW55R-L	17,00	2,00	7,00	0,10	55°	•			
GIGW60R-L	17,00	2,00	7,00	0,10	60°	•			



GIST



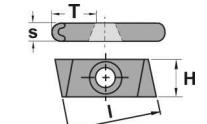
REF.	I	s	H	T	w	K15K	P25K	TIC25	T20L
GIST3R-L	17,00	3,17	7,00	6,00	-	•			



GISC

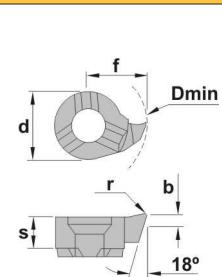


REF.	I	s	H	T	w	K15K	P25K	TIC25	T20L
GISC3R-L	17,00	3,17	7,00	6,00	-	•			



L

REF.	Dmin	b	f	s	d	r	K15K	P25K	TIC25	T20L
LS08.1846.02	7,8	3,3	4,65	3,5	6,0	0,2	•			
LS11.1855.02	9,8	3,9	5,50	4,2	8,0	0,2	•			
LS11.1867.02	11,0	3,9	6,70	4,2	8,0	0,2	•			
LS14.1867.02	13,8	5,0	8,70	5,1	9,0	0,2	•			
LS16.1897.02	15,5	5,0	9,70	5,4	11,0	0,2	•			

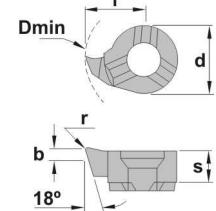


Inserts

Turning

R

REF.	Dmin	b	f	s	d	r	K15K	P25K	TIC25	T20L
RS08.1846.02	7,8	3,3	4,65	3,5	6,0	0,2	•			
RS11.1855.02	9,8	3,9	5,50	4,2	8,0	0,2	•			
RS11.1867.02	11,0	3,9	6,70	4,2	8,0	0,2	•			
RS14.1867.02	13,8	5,0	8,70	5,1	9,0	0,2	•			
RS16.1897.02	15,5	5,0	9,70	5,4	11,0	0,2	•			

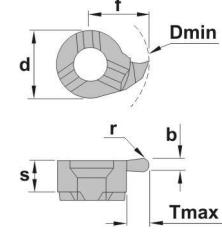


Automatic lathes

Ceramic tools

L

REF.	Dmin	b	r	f	s	d	tmax	K15K	P25K	TIC25	T20L
LS08.008R04	8,0	0,8	0,4	4,8	3,3	6,0	1,0	•			
LS08.012R06	8,0	1,2	0,6	4,8	3,3	6,0	1,0	•			
LS08.018R09	8,0	1,8	0,9	4,8	3,3	6,0	1,0	•			
LS11.008R04	11,0	0,8	0,4	6,7	4,2	8,0	2,3	•			
LS11.012R06	11,0	1,2	0,6	6,7	4,2	8,0	2,3	•			
LS11.018R09	11,0	1,8	0,9	6,7	4,2	8,0	2,3	•			
LS11.020R10	11,0	2,0	1,0	6,7	4,2	8,0	2,3	•			
LS11.030R15	11,0	3,0	1,5	6,7	4,2	8,0	2,3	•			
LS14.012R06	14,0	1,2	0,6	9,0	4,0	9,0	4,0	•			
LS14.018R09	14,0	1,8	0,9	9,0	4,0	9,0	4,0	•			
LS14.020R10	14,0	2,0	1,0	9,0	4,0	9,0	4,0	•			
LS14.022R11	14,0	2,2	1,1	9,0	4,0	9,0	4,0	•			
LS14.030R15	14,0	3,0	1,5	9,0	4,0	9,0	4,0	•			
LS16.018R09	16,0	1,8	0,9	11,0	5,4	11,0	4,3	•			
LS16.022R11	16,0	2,2	1,1	11,0	5,4	11,0	4,3	•			
LS16.030R15	16,0	3,0	1,5	11,0	5,4	11,0	4,3	•			
LS16.040R20	16,0	4,0	2,0	11,0	5,4	11,0	4,3	•			



Parting & grooving

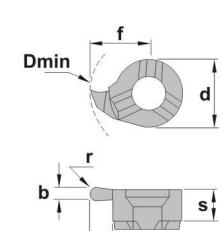
Threading

Drills

Cartridges

R

REF.	Dmin	b	r	f	s	d	tmax	K15K	P25K	TIC25	T20L
RS08.008R04	8,0	0,8	0,4	4,8	3,3	6,0	1,0	•			
RS08.012R06	8,0	1,2	0,6	4,8	3,3	6,0	1,0	•			
RS08.018R09	8,0	1,8	0,9	4,8	3,3	6,0	1,0	•			
RS11.008R04	11,0	0,8	0,4	6,7	4,2	8,0	2,3	•			
RS11.012R06	11,0	1,2	0,6	6,7	4,2	8,0	2,3	•			
RS11.018R09	11,0	1,8	0,9	6,7	4,2	8,0	2,3	•			
RS11.020R10	11,0	2,0	1,0	6,7	4,2	8,0	2,3	•			
RS11.030R15	11,0	3,0	1,5	6,7	4,2	8,0	2,3	•			
RS14.012R06	14,0	1,2	0,6	9,0	4,0	9,0	4,0	•			
RS14.018R09	14,0	1,8	0,9	9,0	4,0	9,0	4,0	•			
RS14.020R10	14,0	2,0	1,0	9,0	4,0	9,0	4,0	•			
RS14.022R11	14,0	2,2	1,1	9,0	4,0	9,0	4,0	•			
RS14.030R15	14,0	3,0	1,5	9,0	4,0	9,0	4,0	•			
RS16.018R09	16,0	1,8	0,9	11,0	5,4	11,0	4,3	•			
RS16.022R11	16,0	2,2	1,1	11,0	5,4	11,0	4,3	•			
RS16.030R15	16,0	3,0	1,5	11,0	5,4	11,0	4,3	•			
RS16.040R20	16,0	4,0	2,0	11,0	5,4	11,0	4,3	•			



Milling cutters

Solid carbide

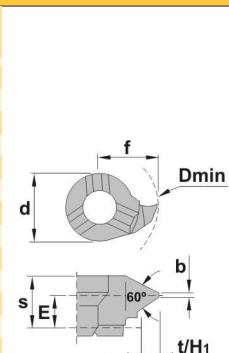
Boring heads

Arbors & adaptors

L



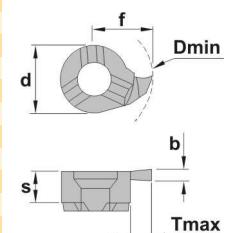
REF.	Dmin	pitch.	t/H1	f	E	s	b	d	K15K	P25K	TIC25	T20L
LS08.0815.01	8,0	1,5/1,75	0,95	4,8	2,5	3,5	0,18	6,0	•			
LS11.1020.01	11,0	2,0	1,08	6,7	3,0	4,3	0,25	8,0	•			
LS11.1325.01	11,0	2,5	1,35	6,7	3,0	4,3	0,31	8,0	•			
LS14.1020.01	14,0	2,0	1,08	9,0	4,2	5,4	0,25	9,0	•			
LS14.1325.01	14,0	2,5	1,35	9,0	4,7	5,4	0,31	9,0	•			
LS16.1325.01	16,0	2,5	1,35	10,2	4,2	5,5	0,31	11,0	•			
LS08.0205.01	8,0	0,5/0,75	0,43	4,8	2,7	3,5	0,06	6,0	•			
LS08.0510.01	8,0	1,0/1,25	0,70	4,8	2,7	3,5	0,12	6,0	•			
LS11.0205.01	11,0	0,5/0,75	0,75	6,7	3,5	4,3	0,06	8,0	•			
LS11.0510.01	11,0	1,0	0,55	6,7	3,5	4,3	0,12	8,0	•			
LS11.0815.01	11,0	1,5	0,81	6,7	3,5	4,3	0,18	8,0	•			
LS14.0510.01	14,0	1,0	0,55	9,0	4,7	5,4	0,12	9,0	•			
LS14.0815.01	14,0	1,5	0,81	9,0	4,5	5,4	0,18	9,0	•			
LS16.0510.01	16,0	1,0	0,55	10,2	4,7	5,5	0,12	11,0	•			
LS16.0815.01	16,0	1,5	0,81	10,2	4,5	5,5	0,18	11,0	•			
LS16.1020.01	16,0	2,0	1,08	10,2	4,2	5,5	0,25	11,0	•			



L



REF.	Dmin	b	f	s	d	tmax	K15K	P25K	TIC25	T20L
LS008.0070	8,0	0,73	4,8	3,3	6,0	1,0	•			
LS008.0080	8,0	0,83	4,8	3,3	6,0	1,0	•			
LS008.0090	8,0	0,93	4,8	3,3	6,0	1,0	•			
LS008.0110	8,0	1,20	4,8	3,3	6,0	1,0	•			
LS008.0130	8,0	1,40	4,8	3,3	6,0	1,0	•			
LS008.0160	8,0	1,70	4,8	3,3	6,0	1,0	•			
LS008.0100	8,0	1,00	4,8	3,3	6,0	1,0	•			
LS008.0150	8,0	1,50	4,8	3,3	6,0	1,0	•			
LS008.0200	8,0	2,00	4,8	3,3	6,0	1,0	•			
LS011.0070	11,0	0,73	6,7	4,2	8,0	1,2	•			
LS011.0080	11,0	0,83	6,7	4,2	8,0	1,3	•			
LS011.0090	11,0	0,93	6,7	4,2	8,0	1,5	•			
LS011.0110	11,0	1,20	6,7	4,2	8,0	2,3	•			
LS011.0130	11,0	1,40	6,7	4,2	8,0	2,3	•			
LS011.0160	11,0	1,70	6,7	4,2	8,0	2,3	•			
LS011.0100	11,0	1,00	6,7	4,2	8,0	2,3	•			
LS011.0150	11,0	1,50	6,7	4,2	8,0	2,3	•			
LS011.0200	11,0	2,00	6,7	4,2	8,0	2,3	•			
LS011.0250	11,0	2,50	6,7	4,2	8,0	2,3	•			
LS011.0300	11,0	3,00	6,7	4,2	8,0	2,3	•			
LS014.0070	14,0	0,73	9,0	5,3	9,0	1,2	•			
LS014.0080	14,0	0,83	9,0	5,3	9,0	1,3	•			
LS014.0090	14,0	0,93	9,0	5,3	9,0	1,5	•			
LS014.0110	14,0	1,20	9,0	5,3	9,0	4,0	•			
LS014.0130	14,0	1,40	9,0	5,3	9,0	4,0	•			
LS014.0160	14,0	1,70	9,0	5,3	9,0	4,0	•			
LS014.0150	14,0	1,50	9,0	5,3	9,0	4,0	•			
LS014.0200	14,0	2,00	9,0	5,3	9,0	4,0	•			
LS014.0250	14,0	2,50	9,0	5,3	9,0	4,0	•			
LS014.0300	14,0	3,00	9,0	5,3	9,0	4,0	•			
LS016.0070	16,0	0,73	10,2	5,4	11,0	1,2	•			
LS016.0080	16,0	0,83	10,2	5,4	11,0	1,3	•			
LS016.0090	16,0	0,93	10,2	5,4	11,0	1,5	•			
LS016.0110	16,0	1,20	10,2	5,4	11,0	4,3	•			
LS016.0130	16,0	1,40	10,2	5,4	11,0	4,3	•			
LS016.0160	16,0	1,70	10,2	5,4	11,0	4,3	•			
LS016.0150	16,0	1,50	10,2	5,4	11,0	4,3	•			
LS016.0200	16,0	2,00	10,2	5,4	11,0	4,3	•			
LS016.0250	16,0	2,50	10,2	5,4	11,0	4,3	•			
LS016.0300	16,0	3,00	10,2	5,4	11,0	4,3	•			
LS016.0350	16,0	3,50	10,2	5,4	11,0	4,3	•			
LS016.0400	16,0	4,00	10,2	5,4	11,0	4,3	•			

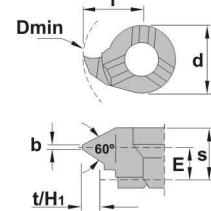


Boring heads

Arbors & adaptors

R

REF.	Dmin	pitch.	t/H1	f	E	s	b	d	K15K	P25K	TIC25	T20L
RS08.0815.01	8,0	1,5/1,75	0,95	4,8	2,5	3,5	0,18	6,0	•			
RS11.1020.01	11,0	2,0	1,08	6,7	3,0	4,3	0,25	8,0	•			
RS11.1325.01	11,0	2,5	1,35	6,7	3,0	4,3	0,31	8,0	•			
RS14.1020.01	14,0	2,0	1,08	9,0	4,2	5,4	0,25	9,0	•			
RS14.1325.01	14,0	2,5	1,35	9,0	4,7	5,4	0,31	9,0	•			
RS16.1325.01	16,0	2,5	1,35	10,2	4,2	5,5	0,31	11,0	•			
RS08.0205.01	8,0	0,5/0,75	0,43	4,8	2,7	3,5	0,06	6,0	•			
RS08.0510.01	8,0	1,0/1,25	0,70	4,8	2,7	3,5	0,12	6,0	•			
RS11.0205.01	11,0	0,5/0,75	0,75	6,7	3,5	4,3	0,06	8,0	•			
RS11.0510.01	11,0	1,0	0,55	6,7	3,5	4,3	0,12	8,0	•			
RS11.0815.01	11,0	1,5	0,81	6,7	3,5	4,3	0,18	8,0	•			
RS14.0510.01	14,0	1,0	0,55	9,0	4,7	5,4	0,12	9,0	•			
RS14.0815.01	14,0	1,5	0,81	9,0	4,5	5,4	0,18	9,0	•			
RS16.0510.01	16,0	1,0	0,55	10,2	4,7	5,5	0,12	11,0	•			
RS16.0815.01	16,0	1,5	0,81	10,2	4,5	5,5	0,18	11,0	•			
RS16.1020.01	16,0	2,0	1,08	10,2	4,2	5,5	0,25	11,0	•			



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

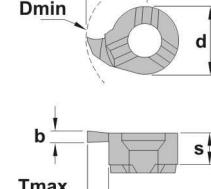
Solid carbide

Boring heads

Arbors & adaptors

R

REF.	Dmin	b	f	s	d	tmax	K15K	P25K	TIC25	T20L
RS008.0070	8,0	0,73	4,8	3,3	6,0	1,0	•			
RS008.0080	8,0	0,83	4,8	3,3	6,0	1,0	•			
RS008.0090	8,0	0,93	4,8	3,3	6,0	1,0	•			
RS008.0110	8,0	1,20	4,8	3,3	6,0	1,0	•			
RS008.0130	8,0	1,40	4,8	3,3	6,0	1,0	•			
RS008.0160	8,0	1,70	4,8	3,3	6,0	1,0	•			
RS008.0100	8,0	1,00	4,8	3,3	6,0	1,0	•			
RS008.0150	8,0	1,50	4,8	3,3	6,0	1,0	•			
RS008.0200	8,0	2,00	4,8	3,3	6,0	1,0	•			
RS011.0070	11,0	0,73	6,7	4,2	8,0	1,2	•			
RS011.0080	11,0	0,83	6,7	4,2	8,0	1,3	•			
RS011.0090	11,0	0,93	6,7	4,2	8,0	1,5	•			
RS011.0110	11,0	1,20	6,7	4,2	8,0	2,3	•			
RS011.0130	11,0	1,40	6,7	4,2	8,0	2,3	•			
RS011.0160	11,0	1,70	6,7	4,2	8,0	2,3	•			
RS011.0100	11,0	1,00	6,7	4,2	8,0	2,3	•			
RS011.0150	11,0	1,50	6,7	4,2	8,0	2,3	•			
RS011.0200	11,0	2,00	6,7	4,2	8,0	2,3	•			
RS011.0250	11,0	2,50	6,7	4,2	8,0	2,3	•			
RS011.0300	11,0	3,00	6,7	4,2	8,0	2,3	•			
RS014.0070	14,0	0,73	9,0	5,3	9,0	1,2	•			
RS014.0080	14,0	0,83	9,0	5,3	9,0	1,3	•			
RS014.0090	14,0	0,93	9,0	5,3	9,0	1,5	•			
RS014.0110	14,0	1,20	9,0	5,3	9,0	4,0	•			
RS014.0130	14,0	1,40	9,0	5,3	9,0	4,0	•			
RS014.0160	14,0	1,70	9,0	5,3	9,0	4,0	•			
RS014.0150	14,0	1,50	9,0	5,3	9,0	4,0	•			
RS014.0200	14,0	2,00	9,0	5,3	9,0	4,0	•			
RS014.0250	14,0	2,50	9,0	5,3	9,0	4,0	•			
RS014.0300	14,0	3,00	9,0	5,3	9,0	4,0	•			
RS016.0070	16,0	0,73	10,2	5,4	11,0	1,2	•			
RS016.0080	16,0	0,83	10,2	5,4	11,0	1,3	•			
RS016.0090	16,0	0,93	10,2	5,4	11,0	1,5	•			
RS016.0110	16,0	1,20	10,2	5,4	11,0	4,3	•			
RS016.0130	16,0	1,40	10,2	5,4	11,0	4,3	•			
RS016.0160	16,0	1,70	10,2	5,4	11,0	4,3	•			
RS016.0150	16,0	1,50	10,2	5,4	11,0	4,3	•			
RS016.0200	16,0	2,00	10,2	5,4	11,0	4,3	•			
RS016.0250	16,0	2,50	10,2	5,4	11,0	4,3	•			
RS016.0300	16,0	3,00	10,2	5,4	11,0	4,3	•			
RS016.0350	16,0	3,50	10,2	5,4	11,0	4,3	•			
RS016.0400	16,0	4,00	10,2	5,4	11,0	4,3	•			



Arbors & adaptors

• Normally available for immediate delivery

• Only available in a limited quantity

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

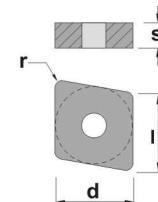
Boring heads

Arbors & adaptors

CNGA



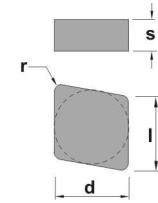
REF.	I	s	d	r	KX1	KC1	KC2	KC4
CNGA 120404	12,90	4,76	12,70	0,4		•	•	
CNGA 120408	12,90	4,76	12,70	0,8	•	•	•	•
CNGA 120412	12,90	4,76	12,70	1,2	•	•	•	•



CNGN



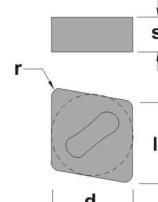
REF.	I	s	d	r	KX1	KC1	KC2	KC4
CNGN 120408	12,90	4,76	12,70	0,8	•	•	•	•
CNGN 120412	12,90	4,76	12,70	1,2	•	•	•	
CNGN 120416	12,90	4,76	12,70	1,6	•	•	•	
CNGN 120708	12,90	7,94	12,70	0,8	•	•	•	
CNGN 120712	12,90	7,94	12,70	1,2	•	•	•	
CNGN 120716	12,90	7,94	12,70	1,6	•	•	•	



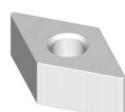
CNGX



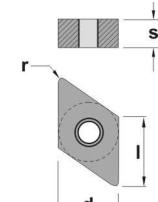
REF.	I	s	d	r	KX1	KC1	KC2	KC4
CNGX 120708	12,90	7,94	12,70	0,8	•	•	•	
CNGX 120712	12,90	7,94	12,70	1,2	•	•	•	
CNGX 120716	12,90	7,94	12,70	1,6	○	○	○	
CNGX 160708	16,10	7,94	15,87	0,8	○	○	○	
CNGX 160712	16,10	7,94	15,87	1,2	○	○	○	
CNGX 160716	16,10	7,94	15,87	1,6	○	○	○	



DNGA



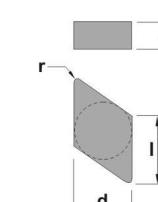
REF.	I	s	d	r	KX1	KC1	KC2	KC4
DNGA 150404	12,90	4,76	12,70	0,4		•	•	
DNGA 150408	12,90	4,76	12,70	0,8	•	•	•	•
DNGA 150412	12,90	4,76	12,70	1,2	•	•	•	•



DNGN

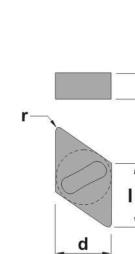


REF.	I	s	d	r	KX1	KC1	KC2	KC4
DNGN 150708	15,50	7,94	12,70	0,8		•	•	
DNGN 150712	15,50	7,94	12,70	1,2		•	•	
DNGN 150716	15,50	7,94	12,70	1,6		•	•	



DNGX

REF.	I	s	d	r	KX1	KC1	KC2	KC4
DNGX 120708	12,20	7,94	10,00	0,8	○			
DNGX 120712	12,20	7,94	10,00	1,2	○			
DNGX 120716	12,20	7,94	10,00	1,6	○			
DNGX 150708	15,50	7,94	12,70	0,8	●			
DNGX 150712	15,50	7,94	12,70	1,2	●			
DNGX 150716	15,50	7,94	12,70	1,6	○			

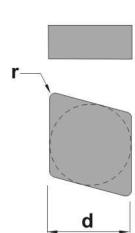


Inserts

Turning

ENGN

REF.	I	s	d	r	KX1	KC1	KC2	KC4
ENGN 130708	13,15	7,94	12,70	0,8	●			
ENGN 130712	13,15	7,94	12,70	1,2	●			
ENGN 130716	13,15	7,94	12,70	1,6	●			
ENGN 130720	13,15	7,94	12,70	2,0	●			

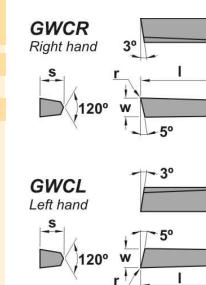


Automatic lathes

Ceramic tools

GWC R/L

REF.	I	s	w	r	KX1	KC1	KC2	KC4
GWC 06R	15,00	7,50	6,00	0,6	○			
GWC 08R	15,00	7,50	8,00	0,6	○			
GWC 06L	15,00	7,50	6,00	0,6	○			
GWC 08L	15,00	7,50	8,00	0,6	○			

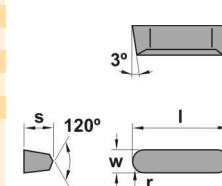


Parting & grooving

Threading

GWF

REF.	I	s	w	r	KX1	KC1	KC2	KC4
GWF 04 M	12,00	5,00	4,00	2,0	○			
GWF 05 M	12,00	5,00	5,00	2,5	○			
GWF 06 M	15,00	7,50	6,00	3,0	○			
GWF 07	15,00	7,50	7,00	3,5	○			
GWF 08	15,00	7,50	8,00	4,0	○			
GWF 10	15,00	7,50	10,00	5,0	○			

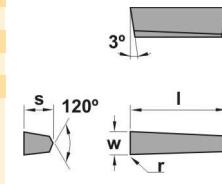


Drills

Cartridges

GWG

REF.	I	s	w	r	KX1	KC1	KC2	KC4
GWG 04 M	12,00	5,00	4,00	0,5	○			
GWG 05 M	12,00	5,00	5,00	0,8	○			
GWG 06 M	15,00	7,50	6,00	0,8	○			
GWG 07	15,00	7,50	7,00	0,8	○			
GWG 08	15,00	7,50	8,00	0,8	○			
GWG 10	15,00	7,50	10,00	0,8	○			

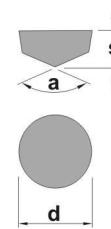


Brazed tools

Milling cutters

RCGX

REF.	s	d	a	KX1	KC1	KC2	KC4
RCGX 060700	7,94	6,35	120°	●			
RCGX 090700	7,94	9,52	120°	●			
RCGX 120700	7,94	12,70	120°	●			
RCGX 151000	10,00	15,87	120°	●			
RCGX 191000	10,00	19,05	120°	●			



Solid carbide

Boring heads

Arbors & adaptors

• Normally available for immediate delivery

○ Only available in a limited quantity

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

RNGN



REF.

s

d

KX1

KC1

KC2

KC4

RNGN 120400

4,76

12,70

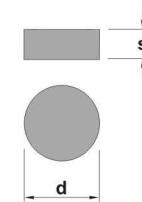
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RNGN 120700

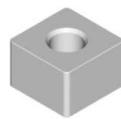
7,94

12,70

•



SNGA



REF.

I

s

d

r

KX1

KC1

KC2

KC4

SNGA 120408

12,70

4,76

12,70

•

SNGA 120412

12,70

4,76

12,70

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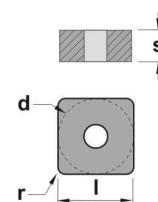
SNGA 120416

12,70

4,76

12,70

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SNGN



REF.

I

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d

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KX1

KC1

KC2

KC4

SNGN 120404

12,70

4,76

12,70

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SNGN 120408

12,70

4,76

12,70

•

SNGN 120412

12,70

4,76

12,70

•

SNGN 120416

12,70

4,76

12,70

•

SNGN 120420

12,70

4,76

12,70

•

SNGN 120424

12,70

4,76

12,70

•

SNGN 120708

12,70

7,94

12,70

•

SNGN 120712

12,70

7,94

12,70

○

SNGN 120716

12,70

7,94

12,70

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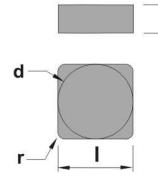
SNGN 120720

12,70

7,94

12,70

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SNGX



REF.

I

s

d

r

KX1

KC1

KC2

KC4

SNGX 120708

12,70

7,94

12,70

•

SNGX 120712

12,70

7,94

12,70

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SNGX 120716

12,70

7,94

12,70

○

SNGX 150708

15,87

7,94

15,87

○

SNGX 150712

15,87

7,94

15,87

○

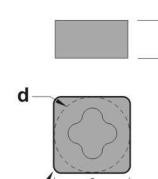
SNGX 150716

15,87

7,94

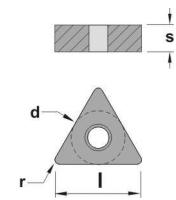
15,87

○



TNGA

REF.	l	s	d	r	KX1	KC1	KC2	KC4
TNGA 160404	9,52	4,76	9,52	0,4		●		
TNGA 160408	9,52	4,76	9,52	0,8	●	●	●	
TNGA 160412	9,52	4,76	9,52	1,2	●		●	
TNGA 160416	9,52	4,76	9,52	1,6	○			

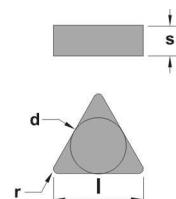


Inserts

Turning

TNGN

REF.	l	s	d	r	KX1	KC1	KC2	KC4
TNGN 160408	9,52	4,76	9,52	0,8	●	●		
TNGN 160412	9,52	4,76	9,52	1,2	●	○		
TNGN 160416	9,52	4,76	9,52	1,6	●	●		
TNGN 160708	9,52	7,94	9,52	0,8		●		
TNGN 160712	9,52	7,94	9,52	1,2		●		
TNGN 160724	9,52	7,94	9,52	2,4		●		



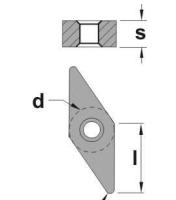
Automatic lathes

Ceramic tools

Parting & grooving

VNGA

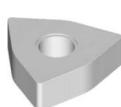
REF.	l	s	d	r	KX1	KC1	KC2	KC4
VNGA 160404	16,50	4,76	9,52	0,4	●			
VNGA 160408	16,50	4,76	9,52	0,8	●			
VNGA 160412	16,50	4,76	9,52	1,2	●			



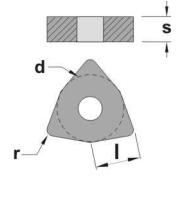
Drills

Cartridges

Brazed tools

WNGA

REF.	l	s	d	r	KX1	KC1	KC2	KC4
WNGA 080408	8,14	4,76	12,70	0,8	●			
WNGA 080412	8,14	4,76	12,70	1,2	●			

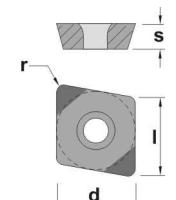


Milling cutters

Solid carbide

CCMW

REF.	l	s	d	r	CBN	PKD
CCMW 060202	6,50	2,38	6,35	0,2	○	
CCMW 060204	6,50	2,38	6,35	0,4	●	
CCMW 09T304	9,70	3,97	9,52	0,4	●	
CCMW 09T308	9,70	3,97	9,52	0,8	●	



Boring heads

Arbors & adaptors

• Normally available for immediate delivery

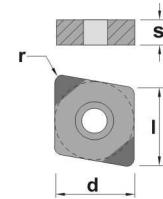
○ Only available in a limited quantity

Inserts
Turning
Automatic lathes
Ceramic tools
Parting & grooving
Threading
Drills
Cartridges
Brazed tools
Milling cutters
Solid carbide
Boring heads
Arbors & adaptors

CNGA



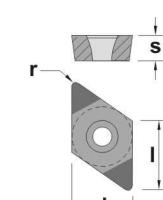
REF.	I	s	d	r	CBN	PKD
CNGA 120404	12,90	4,76	12,70	0,4	●	
CNGA 120408	12,90	4,76	12,70	0,8	●	
CNGA 120412	12,90	4,76	12,70	1,2	○	



DCMW



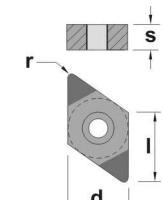
REF.	I	s	d	r	CBN	PKD
DCMW 070202	7,80	2,38	6,35	0,2	○	
DCMW 070204	7,80	2,38	6,35	0,4	●	
DCMW 11T302	11,60	3,97	9,52	0,2	○	
DCMW 11T304	11,60	3,97	9,52	0,4	●	
DCMW 11T308	11,60	3,97	9,52	0,8	●	



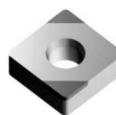
DNGA



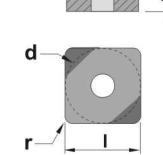
REF.	I	s	d	r	CBN	PKD
DNGA 150404	15,50	4,76	12,70	0,4	●	
DNGA 150408	15,50	4,76	12,70	0,8	●	
DNGA 150412	15,50	4,76	12,70	1,2	○	



SNGA



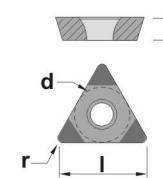
REF.	I	s	d	r	CBN	PKD
SNGA 120404	12,70	4,76	12,70	0,4	○	
SNGA 120408	12,70	4,76	12,70	0,8	○	
SNGA 120412	12,70	4,76	12,70	1,2	○	



TCMW



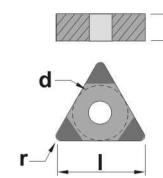
REF.	I	s	d	r	CBN	PKD
TCMW 110204	11,00	2,38	6,35	0,4	●	
TCMW 16T304	16,50	3,97	9,52	0,4	●	
TCMW 16T308	16,50	3,97	9,52	0,8	○	



TNGA

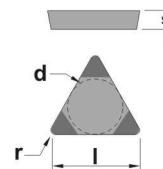


REF.	I	s	d	r	CBN	PKD
TNGA 160404	16,50	4,76	9,52	0,4	●	
TNGA 160408	16,50	4,76	9,52	0,8	●	
TNGA 160412	16,50	4,76	9,52	1,2	○	



TPMN

REF.	I	s	d	r	CBN	PKD
TPMN 110304	11,00	3,18	6,35	0,4	•	
TPMN 110308	11,00	3,18	6,35	0,8	•	
TPMN 160304	16,50	3,18	9,52	0,4	•	
TPMN 160308	16,50	3,18	9,52	0,8	•	
TPMN 160312	16,50	3,18	9,52	1,2	•	



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

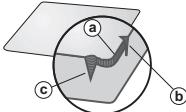
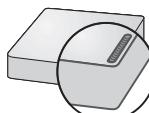
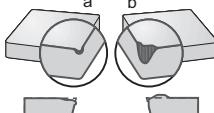
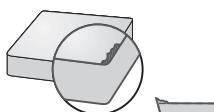
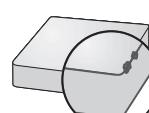
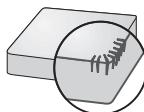
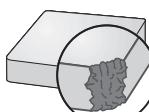
Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

Turning insert wear and tool life

	Problem	Cause and Remedy
Flank and notch wear	<ul style="list-style-type: none"> Rapid flank wear causing poor surface finish or out of tolerance (a). Notch wear causing poor surface finish and risk of edge breakage (b,c) 	<ul style="list-style-type: none"> A too high cutting speed or insufficient wear resistance (a). Oxidation or excessive attrition wear caused by a hard surface (b,c) <p>Reduce the cutting speed. Select a more wear resistant grade. Select an Al₂O₃ coated grade for steel machining. For work hardening materials select a larger lead angle or a more wear resistant grade.</p>
Crater wear	<ul style="list-style-type: none"> Excessive crater wear causing a weakened edge. Cutting edge break through on the trailing edge causes poor surface finish. 	<ul style="list-style-type: none"> Diffusion wear due to too high cutting temperatures on the rake face. <p>Select an Al₂O₃ coated grade. Select a positive insert geometry. Obtain a lower temperature by reducing the feed and speed.</p>
Plastic deformation	<ul style="list-style-type: none"> Plastic deformation (edge depression (a) or flank impression (b)) leading to poor chip control and poor surface finish. Risk of excessive flank wear leading to insert breakage. 	<ul style="list-style-type: none"> A too high cutting temperature in combination with a high pressure. <p>Select a harder grade with better resistance to plastic deformation. (a) Reduce cutting speed. (b) Reduce feed.</p>
Built-up edge	<ul style="list-style-type: none"> Built-up edge (B.U.E.) causing poor surface finish and cutting edge friッtering when the B.U.E. is torn away. 	<ul style="list-style-type: none"> Workpiece material is welded to the insert due to: -low cutting speed. -relative cutting geometry. -"sticky" material, e.g. certain stainless steels and pure aluminium. <p>Increase cutting speed. Select a positive geometry. Increase cutting speed drastically. If tool life turns out to be short, apply coolant in large quantities.</p>
Chip hammering	<ul style="list-style-type: none"> The part of the cutting edge not in cut is damaged through chip hammering. Both the top side and the support for the insert, can be damaged. 	<ul style="list-style-type: none"> The chips are of an excessive length and are deflected against the cutting edge. <p>Change the feed slightly. Select an alternative insert geometry. Change the lead angle of the holder.</p>
Frittering	<ul style="list-style-type: none"> Small cutting edge fractures (frittering) causing poor surface finish and excessive flank wear. 	<ul style="list-style-type: none"> Grade too brittle. Insert geometry too weak. Built-up edge. <p>Select a tougher grade. Select an insert with a stronger geometry. Increase cutting speed or select a positive geometry.</p>
Thermal cracks	<ul style="list-style-type: none"> Small cracks perpendicular to the cutting edge causing frittering and poor surface finish. 	<ul style="list-style-type: none"> Thermal cracks due to temperature variations caused by: -Intermittent machining. -Varying coolant supply. <p>Select a tougher grade with better resistance to thermal shocks. Coolant should be applied copiously or not at all.</p>
Insert breakage	<ul style="list-style-type: none"> Insert breakage that damages not only the insert but also the shim and workpiece. 	<ul style="list-style-type: none"> Grade too brittle. Excessive load on the insert. Insert geometry too weak. Insert size is too small. <p>Select a tougher grade. Reduce the feed and/or the depth of the cut. Select a stronger geometry, preferably a single sided insert. Select a thicker/larger insert.</p>

Usure et longueur de vie de la plaquette de tournage

Problème	Causes et solutions
Usure en dépouille et du rayon 	<ul style="list-style-type: none"> Usure rapide en dépouille qui provoque un état de surface mauvais ou hors tolérance (a). Usure du rayon qui provoque un mauvais état de surface et un risque de rupture des arêtes (b, c). <ul style="list-style-type: none"> Vitesse de coupe trop haute ou bien résistance insuffisante à l'usure (a). Oxydation ou bien usure par attrition excessive causée par une surface dure (b, c). <p>Réduire la vitesse de coupe Choisir une nuance plus résistante à l'usure Choisir une nuance revêtue Al_2O_3 pour usiner l'acier Pour les matériaux qui durcissent quand on les usine, choisir un angle de positionnement plus large ou bien une nuance plus résistante à l'usure.</p>
Usure en cratère 	<ul style="list-style-type: none"> Usure en cratère excessive, qui provoque une arête faible. La rupture de l'arête de coupe par la partie postérieure donne comme résultat un mauvais état de surface. <ul style="list-style-type: none"> Usure par diffusion causée par des températures trop hautes à l'angle de dépouille. <p>Choisir une nuance revêtue Al_2O_3 Choisir une plaquette à géométrie positive Obtenir une température plus basse en faisant diminuer l'avance et la vitesse.</p>
Déformation plastique 	<ul style="list-style-type: none"> Déformation plastique (affaissement de l'arête -a- ou bien renforcement en dépouille -b-) qui provoque un contrôle de copeaux déficient et aussi un mauvais état de surface. Il y a le risque d'usure excessive en dépouille qui conduit à la rupture de la plaquette. <ul style="list-style-type: none"> Une température de coupe trop haute en combinaison avec une haute pression. <p>Choisir une nuance plus tenace offrant une meilleure résistance à la déformation plastique. (a) Réduire la vitesse de coupe (b) Réduire l'avance</p>
Arête rapportée 	<ul style="list-style-type: none"> Arête rapportée qui provoque de mauvais états de surface et des écaillages des arêtes de coupe à cause du collage de matière. <ul style="list-style-type: none"> La matière de la pièce à usiner se colle à la plaquette à cause de: <ul style="list-style-type: none"> - Basse vitesse de coupe - Géométrie de coupe négative - Matière « collante », par exemple quelques aciers inoxydables ou l'aluminium pur: <p>Augmenter la vitesse de coupe Choisir une géométrie positive Augmenter la vitesse de coupe drastiquement. Si la durée de la plaquette est trop courte, appliquez une grande quantité d'arrosage.</p>
Martèlement des copeaux 	<ul style="list-style-type: none"> La partie de l'arête de coupe qui n'est pas utilisée, est endommagée à cause du martèlement des copeaux. Cela peut arriver à la partie supérieure de la plaquette et aussi à son support. <ul style="list-style-type: none"> Les copeaux ont une longueur excessive et sont déviés contre l'arête de coupe. <p>Changer légèrement l'avance Choisir une plaquette avec une géométrie alternative Changer l'angle de positionnement du porte-outils</p>
Écaillage 	<ul style="list-style-type: none"> Petites fractures (écaillage) qui provoquent un mauvais état de surface et une usure excessive en dépouille. <ul style="list-style-type: none"> Nuance trop fragile. Géométrie de la plaquette trop faible. Arête rapportée. <p>Choisir une nuance plus tenace Choisir une plaquette avec une géométrie plus forte Augmenter la vitesse de coupe ou bien choisir une géométrie positive</p>
Fissurage thermique 	<ul style="list-style-type: none"> Petites fissures perpendiculaires à l'arête de coupe et qui provoquent des écaillages et un mauvais état de surface. <ul style="list-style-type: none"> Fissures thermiques provoquées par des variations de température causées par: <ul style="list-style-type: none"> - Usinage intermittent. - Variations de l'arrosage. <p>Choisir une nuance plus tenace offrant une plus grande résistance aux chocs thermiques. L'arrosage devrait s'appliquer en abondance ou bien pas du tout.</p>
Rupture 	<ul style="list-style-type: none"> Rupture de la plaquette qui n'endommage pas seulement la plaquette, mais aussi la sous-plaquette et la pièce à usiner. <ul style="list-style-type: none"> Nuance trop fragile. Trop de charge sur la plaquette. Géométrie de la plaquette trop faible. Dimensions de la plaquette trop petites. <p>Choisir une nuance plus dure Réduire l'avance et/ou la profondeur de coupe Choisir une géométrie renforcée, si possible une plaquette non reversible Choisir une plaquette plus épaisse ou plus large</p>

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

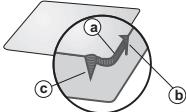
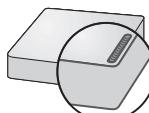
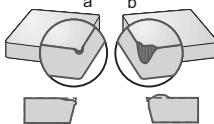
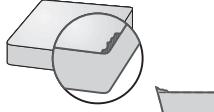
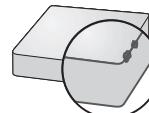
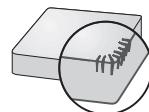
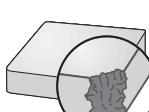
Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

Verschleiß und Standzeit der Dreh-Wendeschneidplatten

	Problem	Ursache und Maßnahmen
Freiflächen-und Kerbverschleiß	<ul style="list-style-type: none"> ★ Schneller Freiflächenverschleiß, was eine schlechte Oberflächengüte oder eine schlechte Maßgenauigkeit verursacht (a) ★ Kerbverschleiß, was eine schlechte Oberflächengüte und Gefahr von Schneidkantenbruch verursacht (b, c) 	<ul style="list-style-type: none"> ★ Zu hohe Schnittgeschwindigkeit oder ungenügende Verschleißfestigkeit (a). ★ Oxidation oder zu hoher Abriebverschleiß wegen einer harten Oberfläche (b, c) <p>Schnittgeschwindigkeit reduzieren Eine verschleißfeste Sorte wählen Eine Al_2O_3 beschichtete Sorte für Stahlbearbeitung wählen Um kaltverfestigendes Material zu bearbeiten, einen kleinen Einstellwinkel oder eine verschleißfeste Sorte wählen</p>
Kolkverschleiß	<ul style="list-style-type: none"> ★ Schneller Kolkverschleiß, was eine schwache Schneidkante verursacht. Die Schneidkante bricht an der Nebenschneide, was eine schlechte Oberflächengüte verursacht. 	<ul style="list-style-type: none"> ★ Diffusionsverschleiß wegen zu hoher Schnitttemperatur im Spanwinkel. <p>Eine Al_2O_3 beschichtete Sorte wählen Eine positive Schneidengeometrie wählen Eine niedrigere Temperatur erreichen, indem man Vorschub und Geschwindigkeit reduziert.</p>
Plastische Verformung	<ul style="list-style-type: none"> ★ Plastische Verformung (a – Schneidkante, b – Freifläche), was schlechterer Spankontrolle und eine schlechte Oberflächengüte verursacht. Es gibt ein Risiko zu übermäßigen Freiflächenverschleiß, was Wendeplattenbruch verursacht. 	<ul style="list-style-type: none"> ★ Zu hohe Schneidtemperatur zusammen mit zu hohem Druck. <p>Eine härtere Sorte mit besserem Widerstand gegen plastische Verformung wählen. Für a) – Schnittgeschwindigkeit reduzieren Für b) – Vorschub reduzieren</p>
Aufbauschneide	<ul style="list-style-type: none"> ★ Schneidenaufbau, was eine schlechte Oberflächengüte und Kantenabschärfen verursacht, wenn man den Schneidenaufbau abreißt. 	<ul style="list-style-type: none"> ★ Das Werkstückmaterial verschweißt sich mit der Wendeplatte wegen: <ul style="list-style-type: none"> - zu niedrige Schnittgeschwindigkeit - negative Schneidengeometrie - klebrig Material, z.B. einige rostfreie Stähle und reines Aluminium <p>Schnittgeschwindigkeit erhöhen Eine positive Schneidengeometrie wählen Schnittgeschwindigkeit drastisch erhöhen und wenn die Dauerhaftigkeit sehr klein ist, Kühlmittel reichlich anwenden</p>
Späneschlag	<ul style="list-style-type: none"> ★ Der nicht schneidende Teil der Schneidkante ist von den Spänen geschlagen und beschädigt. Dadurch können Spanfläche und Plattensitz beschädigt werden. 	<ul style="list-style-type: none"> ★ Die Späne sind zu lang und werden gegen die Schneidkante abgelenkt. <p>Vorschub leicht ändern Eine andere Schneidengeometrie wählen Den Einstellwinkel der Bohrstange ändern</p>
Kantenausbrüche	<ul style="list-style-type: none"> ★ Kleine Ausbrüche längs der Schneidkante, was schlechte Oberflächengüte und schneller Freiflächenverschleiß verursacht. 	<ul style="list-style-type: none"> ★ Zu verschleißfeste Sorte ★ Zu schwache Geometrie ★ Schneidenaufbau <p>Eine zähre Sorte wählen Eine Wendeschneidplatte mit einer stärkeren Geometrie wählen Schnittgeschwindigkeit erhöhen oder eine positive Geometrie wählen</p>
Kammrisse	<ul style="list-style-type: none"> ★ Kleine Risse senkrecht zur Schneidkante, was Kantenabschärfen und schlechte Oberflächengüte verursachen. 	<ul style="list-style-type: none"> ★ Kammrisse wegen Wärmewechselbelastungen aufgrund von: <ul style="list-style-type: none"> - Unterbrochenem Schnitt - Ungleichmäßiger Kühlmittelzufuhr <p>Eine zähre Sorte mit höherem Widerstand gegen Wärmewechselbelastungen wählen Kühlmittel soll reichlich oder überhaupt nicht zugeführt werden</p>
Plattenbruch	<ul style="list-style-type: none"> ★ Plattenbruch, der nicht nur die Wendeplatte selbst, sondern auch den Plattensitz und das Werkstück beschädigt 	<ul style="list-style-type: none"> ★ Zu verschleißfeste Sorte ★ Zu hohe Belastung der Wendeplatte ★ Zu schwache Wendeplattengeometrie ★ Zu kleine Wendeplatte <p>Zähre Sorte wählen Vorschub und/oder Schnitttiefe reduzieren Eine stärkere Geometrie wählen, vorzugsweise eine einseitige Wendeplatte Eine dicke/größere Wendeplatte wählen</p>



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Information technique
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Kodifizierungs-System

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Applications
Anwendungen

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Porte-outils avec fixation type "Dimple lock"
Dimple lock Klemmhalter

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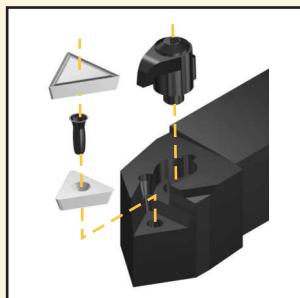
Brazed tools

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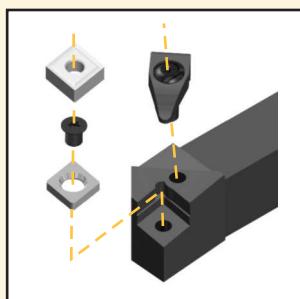
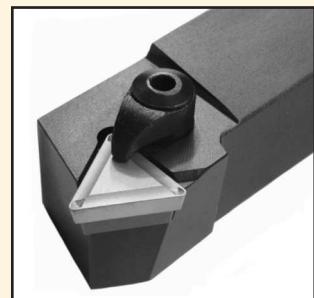


(C) Top clamp / Fixation par bride / Obere Klemmung

The classic positive insert clamping system is designed to hold flat positive inserts, both with additional or sintered chipbreaker.

Ce système classique de fixation de plaquettes positives a été conçu pour fixer les plaquettes plates positives, que ce soit avec brise-coapeaux additionnel que sintérisé.

Dieses klassische Klemmsystem von positiven Wendeplatten erlaubt die Verwendung von allen Wendeplatten dieses Typs, in üblicher Sinterausführung sowohl als auch mit Spanbrecher.

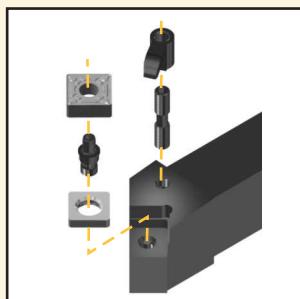
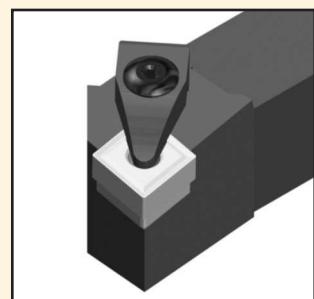


(D) Dimple lock / Fixation type "Dimple lock" / Dimple lock

The "D" clamping system avoids insert movement during high feed or heavily interrupted machining, due to its accurate indexing that holds the insert securely clamped.

Le système de fixation "D" évite le mouvement de la plaquette lors d'une haute avance ou d'un usinage fortement interrompu, grâce à son indexation très exacte, laquelle maintient la plaquette solidement serrée.

Das "D"-Klemmsystem vermeidet die Bewegung der Wendeschneidplatte bei hohem Vorschub oder bei stark unterbrochener Bearbeitung dank der genauen Positionierung, die die Wendeschneidplatte sicher befestigt.

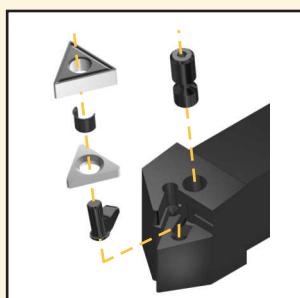


(M-K) Double lock / Double fixation / Doppelte Klemmung

The double lock system offers good rigidity in negative inserts clamping, it is the first choice for center hole negative ceramic and cermet inserts.

Le système de double fixation offre une bonne rigidité pour la fixation de plaquettes négatives. C'est le premier choix pour les plaquettes négatives en céramique ou cermet avec trou central.

Das doppelte Klemmsystem bietet eine gute Unbeweglichkeit bei der Klemmung von negativen Wendeschneidplatten.
Es ist die erste Wahl für negative Keramik-Wendeschneidplatten mit zentralem Loch und auch für Cermet-Wendeschneidplatten.

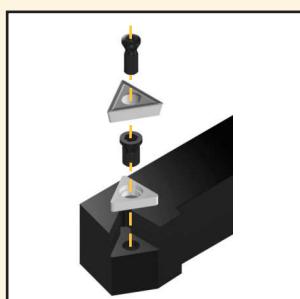
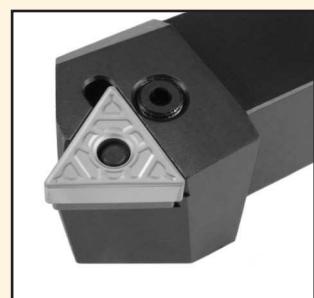


(P) Lever lock / Fixation par levier / Kniehebel Klemmung

The classic lever lock system allows a wide range of applications, it is the first choice for general purpose turning toolholders.

Le système classique de fixation par levier permet une large gamme d'applications. C'est le premier choix pour l'usinage général avec des porte-outils de tournage.

Das klassische Hebel-System erlaubt eine breite Reihe von Anwendungen. Es ist die erste Wahl für allgemeine Drehoperationen.

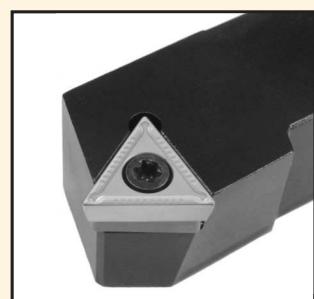


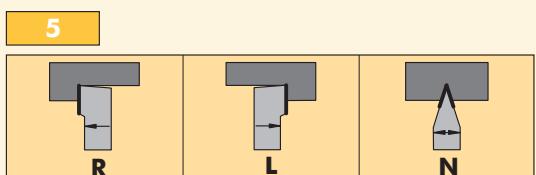
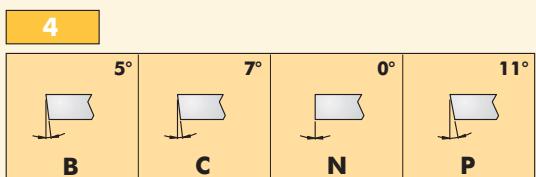
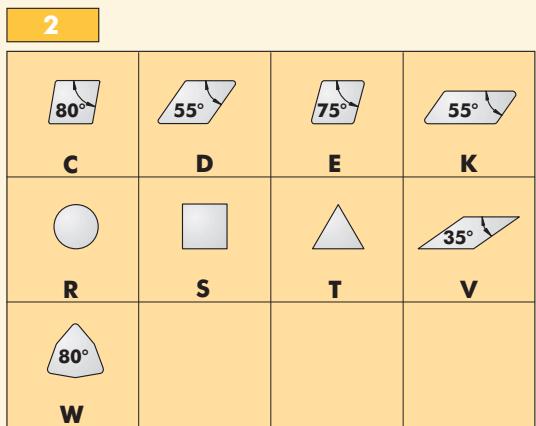
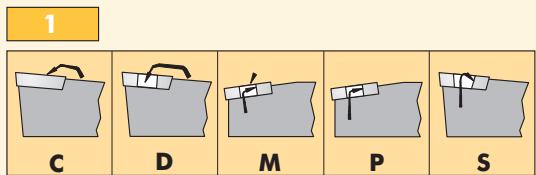
(S) Center screw / Fixation par vis / Zentralschrauben Klemmung

Since the advent of the TORX screw it has been possible to hold with complete safety positive inserts with center hole. Our range covers all the screw fixing permutations.

Dès l'apparition de la vis TORX il est possible de fixer avec sûreté les plaquettes positives avec trou central. Notre gamme couvre toutes les possibilités de fixation avec vis.

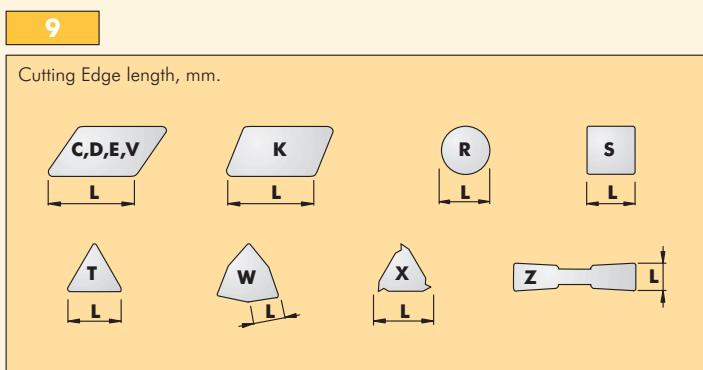
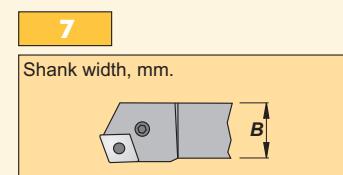
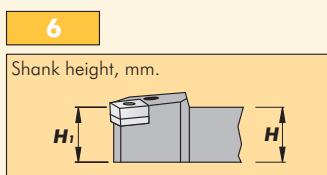
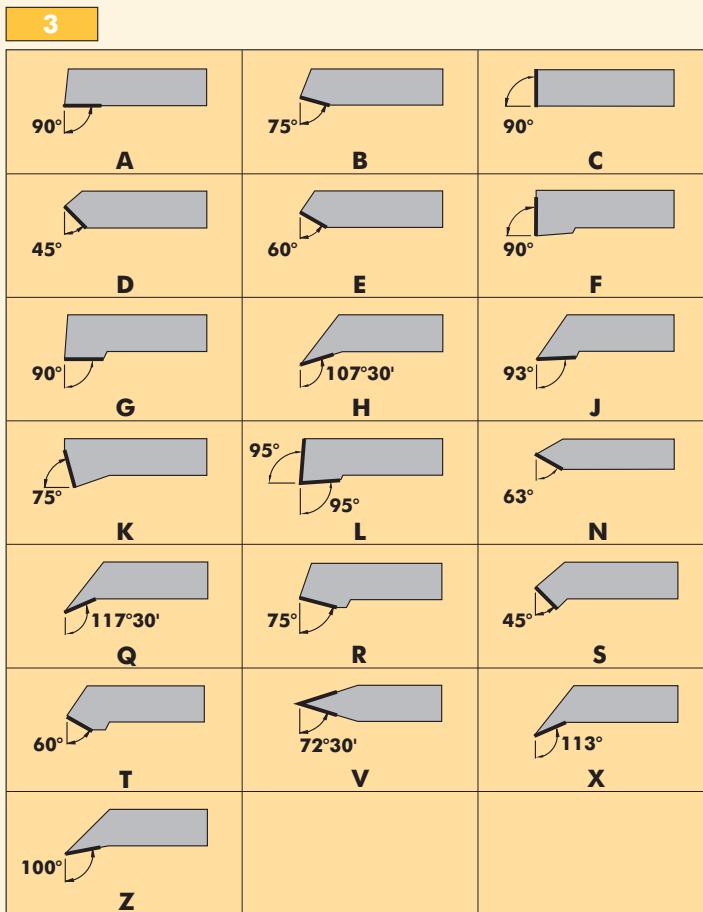
Seit der Einführung der Torx-Schraube ist es möglich, die positiven Wendeschneidplatten mit zentralem Loch zu klemmen. Unser Programm bietet alle Klemmmöglichkeiten mit Schraube.





8

Tool length, mm.	D	P
	60	170
	E	70
	R	200
	F	80
	S	250
	H	100
	T	300
	K	125
	U	350
	L	140
	V	400
	M	150
	X	Special

**Inserts****Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors**

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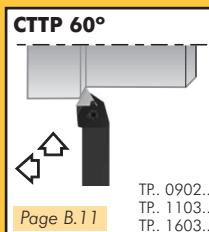
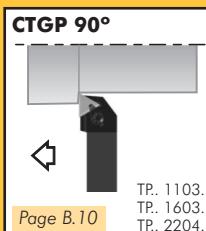
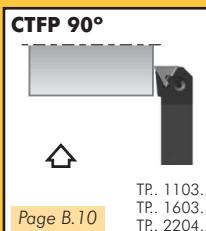
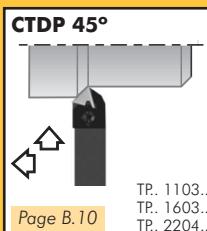
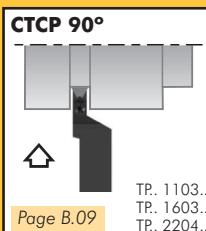
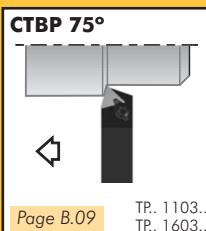
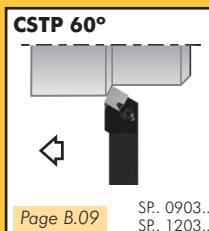
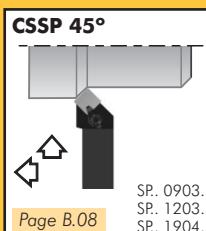
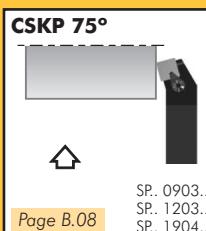
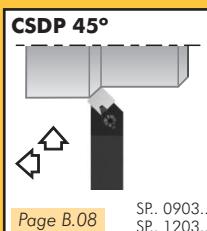
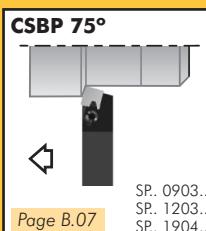
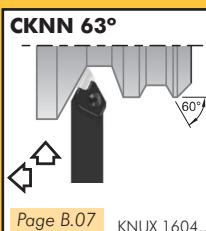
Brazed tools

Milling cutters

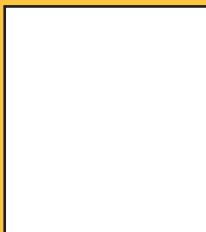
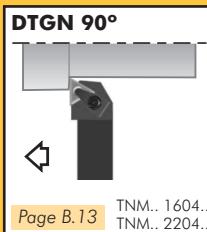
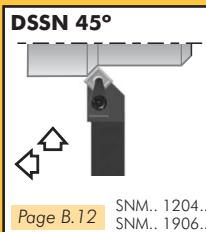
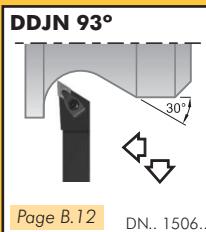
Solid carbide

Boring heads

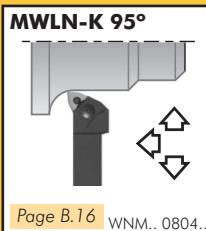
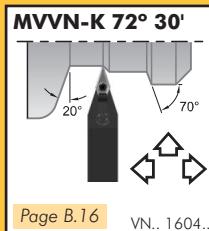
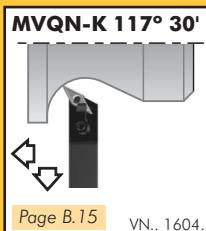
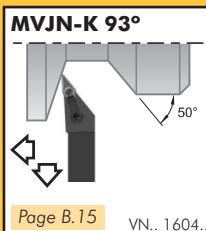
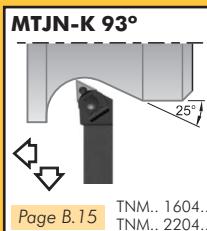
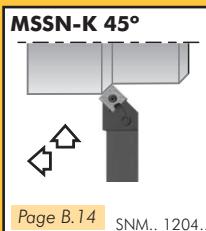
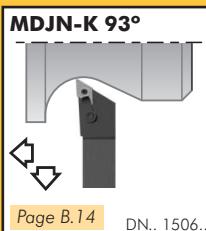
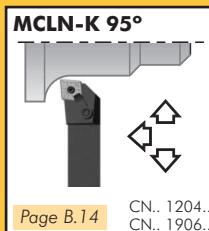
Arbors & adaptors



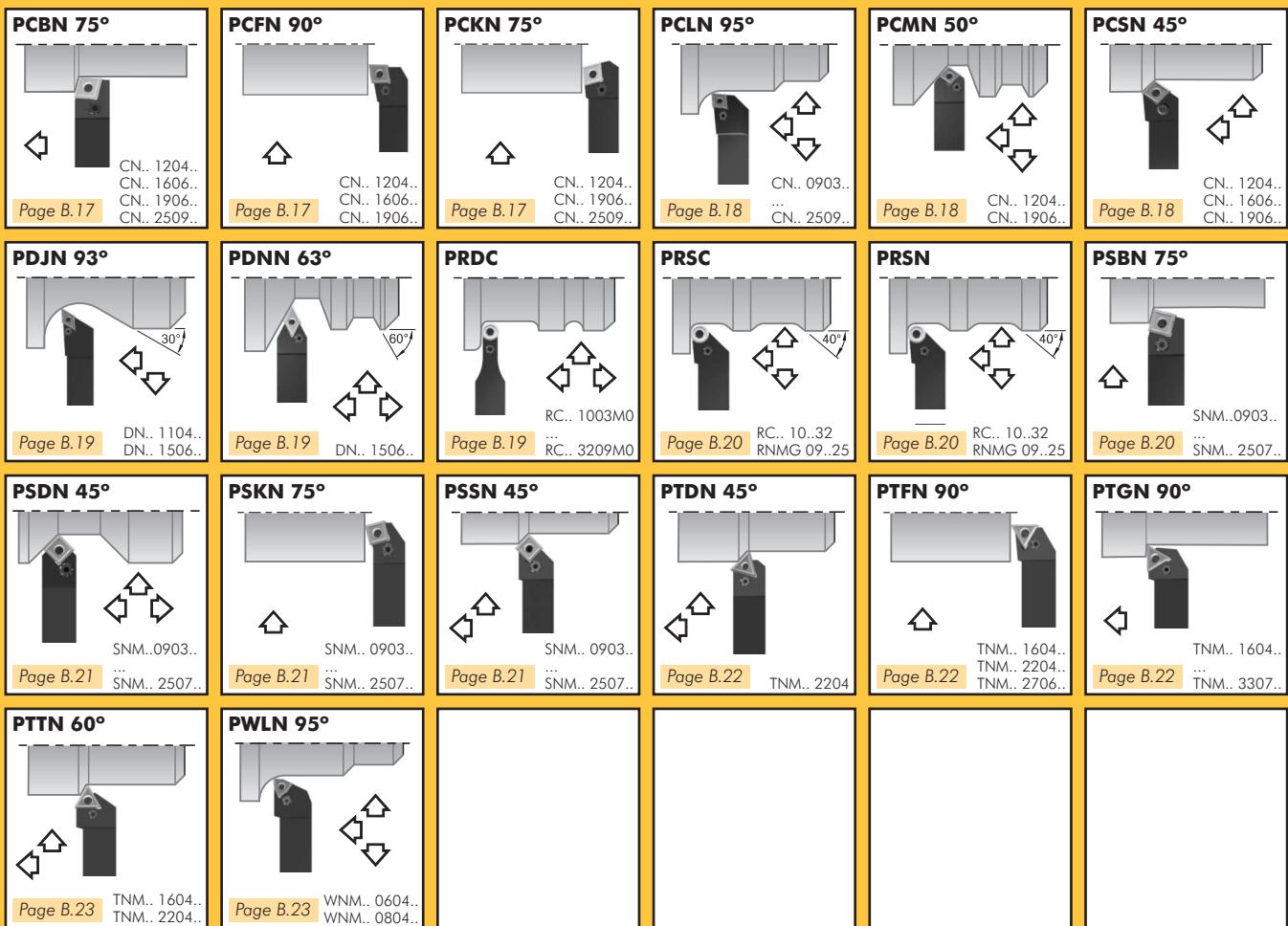
Dimple lock toolholders - Porte-outils fixation type "Dimple lock" - Dimple-Lock Klemmhalter



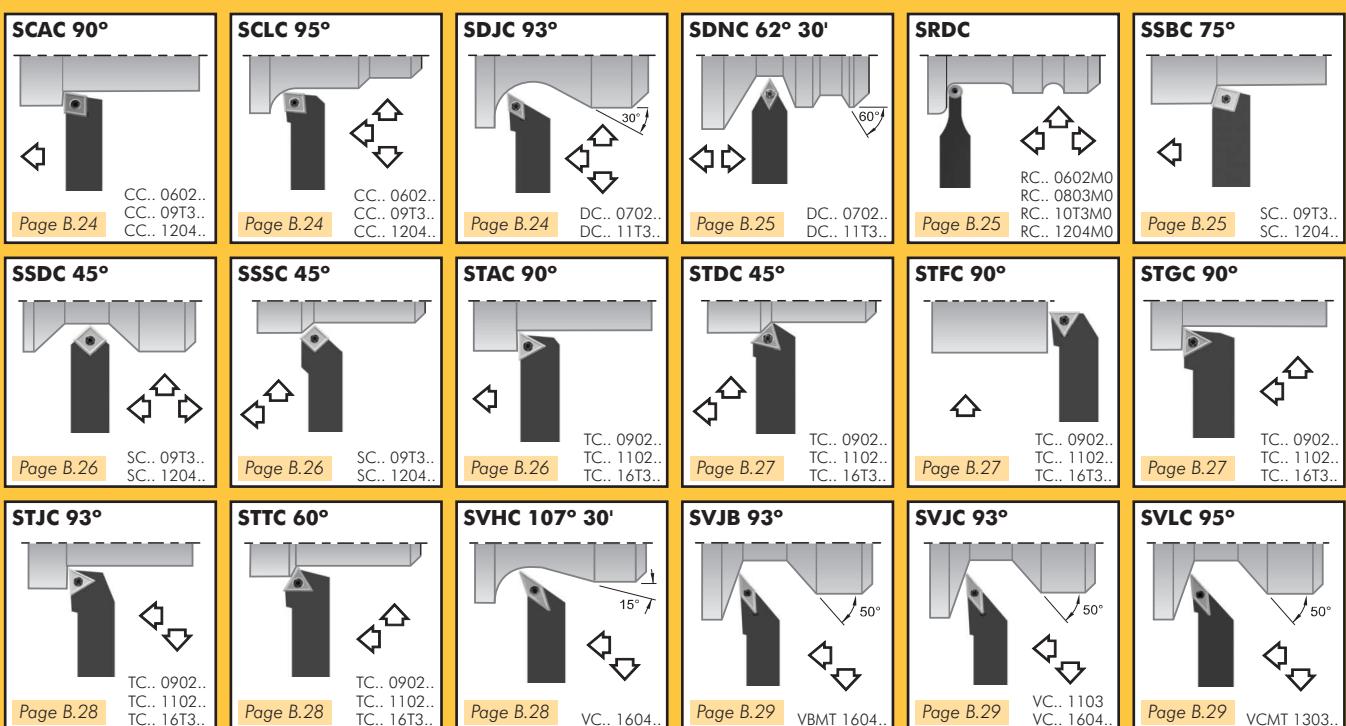
Double lock toolholders - Porte-outils avec double fixation - Klemmhalter mit doppelter Klemmung



Lever lock toolholders - Porte-outils avec levier - Klemmhalter mit Kniehebel-Klemmung



Center screw toolholders - Porte-outils avec vis centrale - Klemmhalter mit Zentralschrauben-Klemmung

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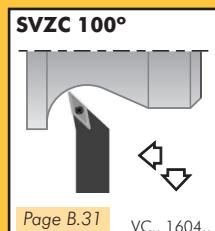
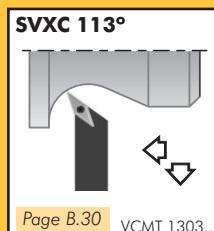
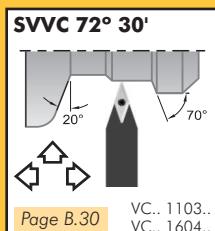
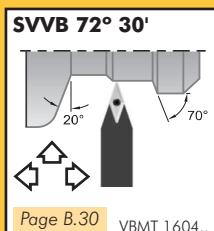
Brazed tools

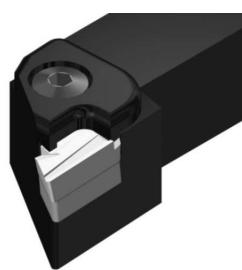
Milling cutters

Solid carbide

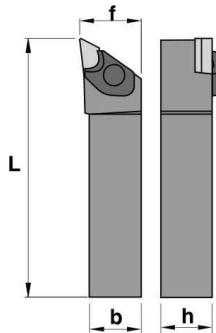
Boring heads

Arbors & adaptors



CKJN 93°

REF.	h	b	L	f	KNUX	Q	W	A	E	S	C	P
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CKJN L 2525 M16	25	25	150	32	1604..	246	169	504	424	495	328	403
CKJN R 2525 M16	25	25	150	32	1604..	237	169	504	424	495	327	403
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Brazed tools

Milling cutters

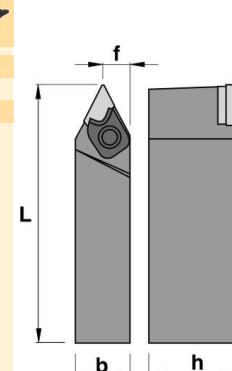
Solid carbide

Boring heads

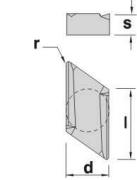
Arbors & adaptors

CKNN 63°

REF.	h	b	L	f	KNUX	Q	W	A	E	S	C	P
CKNN L 4025 R16	40	25	200	14,3	1604..	246	169	504	424	495	328	403
CKNN R 4025 R16	40	25	200	14,3	1604..	237	169	504	424	495	327	403
CKNN L 5032 S16	50	32	250	16,8	1604..	246	169	504	424	495	328	403
CKNN R 5032 S16	50	32	250	16,8	1604..	237	169	504	424	495	327	403



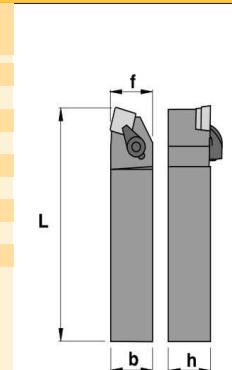
REF.	l	s	d
KNUX 1604.. 05	16,00	4,76	9,52
KNUX 1604.. 10	16,00	4,76	9,52



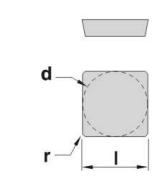
For more information see page: A.45

CSBP 75°

REF.	h	b	L	f	SP.	Q	W	A	E	S	C	P
CSBP R/L 1212 F09	12	12	80	11	0903..	227	525	309	402			
CSBP R/L 1616 H09	16	16	100	13	0903..	227	525	309	402			
CSBP R/L 2020 K09	20	20	125	17	0903..	227	525	309	402			
CSBP R/L 2020 K12	20	20	125	17	1203..	229	503	314	402			
CSBP R/L 2525 M12	25	25	150	22	1203..	229	503	314	402			
CSBP R/L 3225 P12	32	25	170	22	1203..	229	503	314	402			
CSBP R/L 3232 P19	32	32	170	27	1904..	231	504	320	403			
CSBP R/L 4040 S19	40	40	250	35	1904..	231	504	320	403			
CSBP R/L 5050 T19	50	50	300	43	1904..	231	504	320	403			



REF.	l	s	d
SP. 0903..	9,52	3,18	9,52
SP. 1203..	12,70	3,18	12,70
SP. 1904..	19,05	4,76	19,05



For more information see page: A.51

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

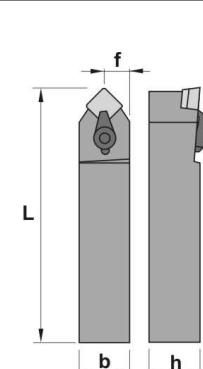
Boring heads

Arbors & adaptors

CSDP 45°



REF.	h	b	L	f	SP..				
CSDP R/L 1010 E09	10	10	70	5,6	0903..	207	525	-	-
CSDP R/L 1212 F09	12	12	80	7,6	0903..	227	525	309	402
CSDP R/L 1616 H09	16	16	100	11,6	0903..	227	525	309	402
CSDP R/L 2020 K12	20	20	125	14,0	1203..	229	503	314	402
CSDP R/L 2525 M12	25	25	150	19,0	1203..	229	503	314	402
CSDP N 1010 E09	10	10	70	5,0	0903..	207	525	-	-
CSDP N 1212 F09	12	12	80	6,0	0903..	227	525	309	402
CSDP N 1616 H09	16	16	100	8,0	0903..	227	525	309	402
CSDP N 2020 K12	20	20	125	10,0	1203..	229	503	314	402
CSDP N 2525 M12	25	25	150	12,5	1203..	229	503	314	402

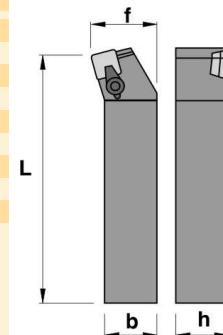


For more information see page: A.51

CSKP 75°

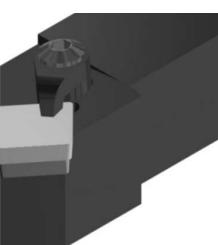


REF.	h	b	L	f	SP..				
CSKP R/L 1212 F09	12	12	80	16	0903..	227	525	309	402
CSKP R/L 1616 H09	16	16	100	20	0903..	227	525	309	402
CSKP R/L 2020 K09	20	20	125	25	0903..	227	525	309	402
CSKP R/L 2020 K12	20	20	125	25	1203..	229	503	314	402
CSKP R/L 2525 M12	25	25	150	32	1203..	229	503	314	402
CSKP R/L 3225 P12	32	25	170	32	1203..	229	503	314	402
CSKP R/L 3232 P19	32	32	170	40	1904..	231	504	320	403
CSKP R/L 4040 S19	40	40	250	50	1904..	231	504	320	403
CSKP R/L 5050 T19	50	50	300	60	1904..	231	504	320	403

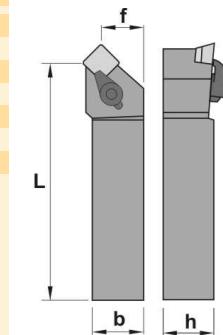


For more information see page: A.51

CSSP 45°

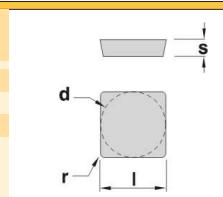


REF.	h	b	L	f	SP..				
CSSP R/L 1212 F09	12	12	80	16	0903..	227	525	309	402
CSSP R/L 1616 H09	16	16	100	20	0903..	227	525	309	402
CSSP R/L 2020 K12	20	20	125	25	1203..	229	503	314	402
CSSP R/L 2525 M12	25	25	150	32	1203..	229	503	314	402
CSSP R/L 3225 P12	32	25	170	32	1203..	229	503	314	402
CSSP R/L 3232 P19	32	32	170	40	1904..	231	504	320	403
CSSP R/L 4040 S19	40	40	250	50	1904..	231	504	320	403



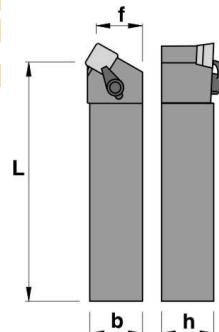
For more information see page: A.51

REF.	h	b	L	f	SP..				
SP.. 0903..	9,52		3,18		9,52				
SP.. 1203..	12,70		3,18		12,70				
SP.. 1904..	19,05		4,76		19,05				



CSTP 60°

REF.	h	b	L	f	SP..	227	525	309	402
CSTP R/L 1616 H09	16	16	100	13	0903..	227	525	309	402
CSTP R/L 2020 K09	20	20	125	17	0903..	227	525	309	402
CSTP R/L 2020 K12	20	20	125	17	1203..	229	503	314	402
CSTP R/L 2525 M12	25	25	150	22	1203..	229	503	314	402



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

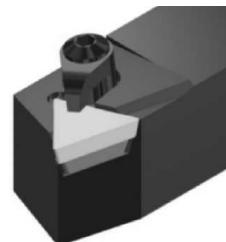
Brazed tools

Milling cutters

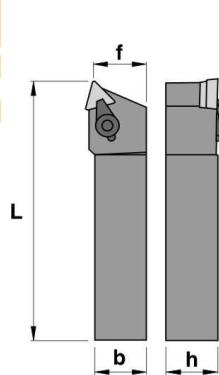
Solid carbide

Boring heads

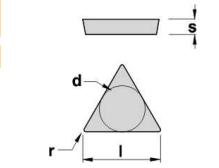
Arbors & adaptors

CTBP 75°

REF.	h	b	L	f	TP..	227	525	-	-
CTBP R/L 1212 F11	12	12	80	11	1103..	227	525	-	-
CTBP R/L 1616 H11	16	16	100	13	1103..	227	525	-	-
CTBP R/L 2020 K16	20	20	125	17	1603..	229	503	317	402
CTBP R/L 2525 M16	25	25	150	22	1603..	229	503	317	402



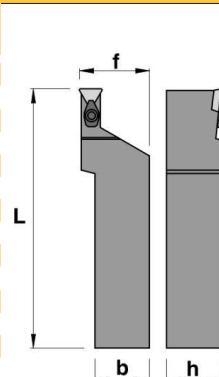
REF.	I	s	d
TP.. 1103..	11,00	3,18	6,35
TP.. 1603..	16,50	3,18	9,52



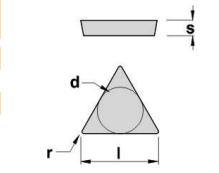
For more information see page: A.54,55

CTCP 90°

REF.	h	b	L	f	TP..	234	525	-	-
CTCP N 1009 E11	10	9	70	11	1103..	234	525	-	-
CTCP N 2009 K11	20	9	125	11	1103..	234	525	-	-
CTCP N 2509 R11	25	9	200	11	1103..	234	525	-	-
CTCP N 2513 R16	25	13	200	16	1603..	235	503	317	402
CTCP N 2518 R22	25	18	200	22	2204..	231	504	324	403
CTCP N 4018 R22	40	18	200	22	2204..	231	504	324	403
CTCP R/L 1212 F11	12	12	80	16	1103..	234	525	-	-
CTCP R/L 1616 H11	16	16	100	20	1103..	234	525	-	-
CTCP R/L 2020 K11	20	20	125	25	1103..	234	525	-	-
CTCP R/L 2525 M11	25	25	150	32	1103..	234	525	-	-
CTCP R/L 3225 P16	32	25	170	32	1603..	235	503	317	402
CTCP R/L 3232 P16	32	32	170	40	1603..	235	503	317	402
CTCP R/L 3225 P22	32	25	170	32	2204..	231	504	324	403
CTCP R/L 3232 P22	32	32	170	40	2204..	231	504	324	403



REF.	I	s	d
TP.. 1103..	11,00	3,18	6,35
TP.. 1603..	16,50	3,18	9,52
TP.. 2204..	22,00	4,76	12,70



For more information see page: A.54,55

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

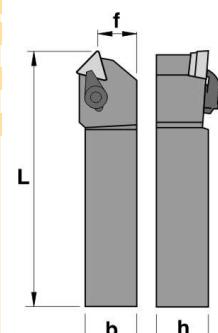
Boring heads

Arbors & adaptors

CTDP 45°

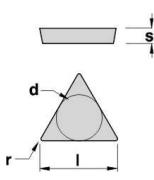


REF.	h	b	L	f	TP..				
CTDP R/L 1212 F11	12	12	80	6,3	1103..	227	525	-	-
CTDP R/L 1616 H11	16	16	100	10,3	1103..	227	525	-	-
CTDP R/L 2020 K16	20	20	125	12,2	1603..	229	503	317	402
CTDP R/L 2525 M16	25	25	150	17,2	1603..	229	503	317	402
CTDP R/L 3232 P16	32	32	170	23,5	1603..	229	503	317	402
CTDP R/L 3232 P22	32	32	170	20,5	2204..	231	504	324	403



REF.	I	s	d
TP.. 1103..	11,00	3,18	6,35
TP.. 1603..	16,50	3,18	9,52
TP.. 2204..	22,00	4,76	12,70

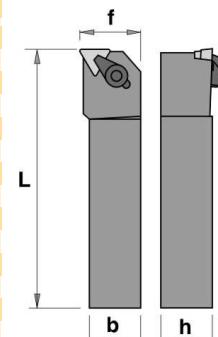
For more information see page: A.54,55



CTFP 90°

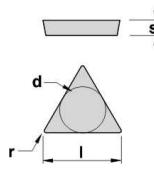


REF.	h	b	L	f	TP..				
CTFP R/L 1010 E11	10	10	70	12	1103..	200	545	-	-
CTFP R/L 1212 F11	12	12	80	16	1103..	227	525	-	-
CTFP R/L 1616 H11	16	16	100	20	1103..	227	525	-	-
CTFP R/L 2020 K11	20	20	125	25	1103..	227	525	-	-
CTFP R/L 2020 K16	20	20	125	25	1603..	229	503	317	402
CTFP R/L 2525 M16	25	25	150	32	1603..	229	503	317	402
CTFP R/L 3225 P16	32	25	170	32	1603..	229	503	317	402
CTFP R/L 3232 P16	32	32	170	40	1603..	229	503	317	402
CTFP R/L 4040 S16	40	40	250	50	1603..	229	503	317	402
CTFP R/L 5050 T16	50	50	300	60	1603..	229	503	317	402
CTFP R/L 3232 P22	32	32	170	40	2204..	231	504	324	403
CTFP R/L 4040 S22	40	40	250	50	2204..	231	504	324	403
CTFP R/L 5050 T22	50	50	300	60	2204..	231	504	324	403

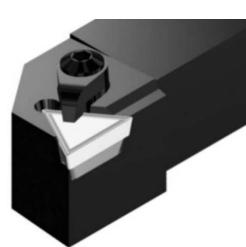


REF.	I	s	d
TP.. 1103..	11,00	3,18	6,35
TP.. 1603..	16,50	3,18	9,52
TP.. 2204..	22,00	4,76	12,70

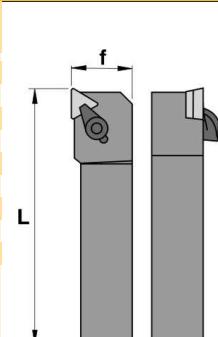
For more information see page: A.54,55



CTGP 90°

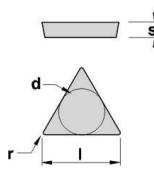


REF.	h	b	L	f	TP..				
CTGP R/L 1010 E11	10	10	70	12	1103..	200	545	-	-
CTGP R/L 1212 F11	12	12	80	16	1103..	207	525	-	-
CTGP R/L 1616 H11	16	16	100	20	1103..	207	525	-	-
CTGP R/L 2020 K11	20	20	125	25	1103..	207	525	-	-
CTGP R/L 2020 K16	20	20	125	25	1603..	209	503	317	402
CTGP R/L 2525 M16	25	25	150	32	1603..	209	503	317	402
CTGP R/L 3225 P16	32	25	170	32	1603..	209	503	317	402
CTGP R/L 3232 P22	32	32	170	40	2204..	231	504	324	403
CTGP R/L 4040 S22	40	40	250	50	2204..	231	504	324	403
CTGP R/L 5050 T22	50	50	300	60	2204..	231	504	324	403



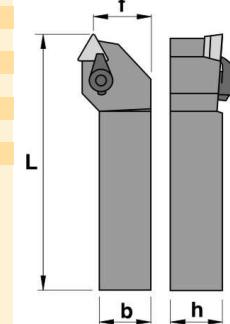
REF.	I	s	d
TP.. 1103..	11,00	3,18	6,35
TP.. 1603..	16,50	3,18	9,52
TP.. 2204..	22,00	4,76	12,70

For more information see page: A.54,55



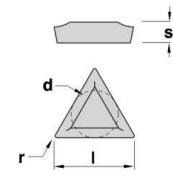
CTTP 60°

REF.	h	b	L	f	TP..	Ø	W	Δ	+
CTTP R/L 0808 D09	8	8	60	7	0902..	200	545	-	-
CTTP R/L 1010 E09	10	10	70	9	0902..	200	545	-	-
CTTP R/L 1010 E11	10	10	70	9	1103..	200	545	-	-
CTTP R/L 1212 F11	12	12	80	11	1103..	227	525	-	-
CTTP R/L 1616 H11	16	16	100	13	1103..	227	525	-	-
CTTP R/L 2020 K11	20	20	125	17	1103..	227	525	-	-
CTTP R/L 2020 K16	20	20	125	17	1603..	229	503	317	402
CTTP R/L 2525 M16	25	25	150	22	1603..	229	503	317	402

**Inserts****Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors**

REF.	l	s	d
TP.. 0902..	9,62	2,38	5,55
TP.. 1103..	11,00	3,18	6,35
TP.. 1603..	16,50	3,18	9,52

For more information see page: A.54,55



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

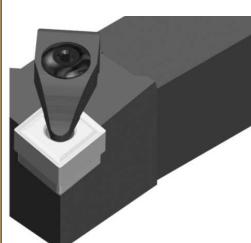
Milling cutters

Solid carbide

Boring heads

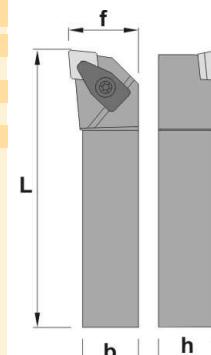
Arbors & adaptors

DCLN 95°



REF.	h	b	L	f	CN..						
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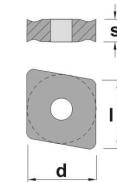
DCLN R/L 2020 K12	20	20	125	25	1204..	ICSN-432	470	242	487	495	504
DCLN R/L 2525 M12	25	25	150	32	1204..	ICSN-432	470	242	487	495	504
DCLN R/L 3232 P12	32	32	170	40	1204..	ICSN-432	470	242	487	495	504
DCLN R/L 3232 P19	32	32	170	40	1906..	369	478	249	487	495	504
DCLN R/L 4040 S19	40	40	250	50	1906..	369	478	249	487	495	504



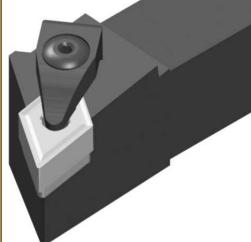
REF.	I	s	d
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CN.. 1204..	12,90	4,76	12,70
CN.. 1906..	19,30	6,35	19,05

For more information see page: A.39/40

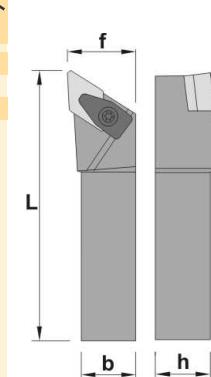


DDJN 93°



REF.	h	b	L	f	DN..					
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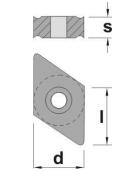
DDJN R/L 2020 K15	20	20	125	25	1506..	IDSN-432	470	242	487	495	504
DDJN R/L 2525 M15	25	25	150	32	1506..	IDSN-432	470	242	487	495	504
DDJN R/L 3232 P15	32	32	170	40	1506..	IDSN-432	470	242	487	495	504



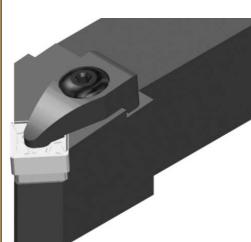
REF.	I	s	d
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DN.. 1506..	15,50	6,35	12,70
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For more information see page: A.42/43

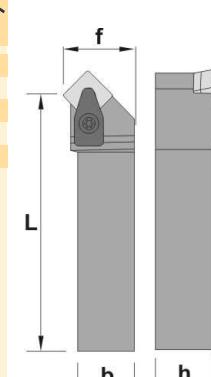


DSSN 45°



REF.	h	b	L	f	SN..					
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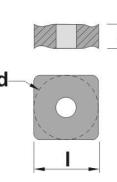
DSSN R/L 2020 K12	20	20	125	25	1204..	ISSN-432	470	242	487	495	504
DSSN R/L 2525 M12	25	25	150	32	1204..	ISSN-432	470	242	487	495	504
DSSN R/L 3225 P12	32	25	170	32	1204..	ISSN-432	470	242	487	495	504
DSSN R/L 3232 P19	32	32	170	40	1906..	359	478	249	487	495	504
DSSN R/L 4040 S19	40	40	250	50	1906..	359	478	249	487	495	504

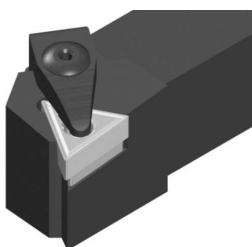


REF.	I	s	d
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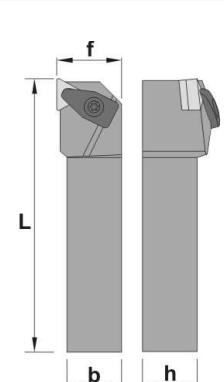
SN.. 1204..	12,70	4,76	12,70
SN.. 1906..	19,05	6,35	19,05

For more information see page: A.50



DTGN 90°

REF.	h	b	L	f	TN..	▲	■	■	■	■	■
DTGN R/L 2020 K16	20	20	125	25	1604..	ITSN-322	465	238	485	496	525
DTGN R/L 2525 M16	25	25	150	32	1604..	ITSN-322	465	238	485	496	525
DTGN R/L 2525 M22	25	25	150	32	2204..	ITSN-433	470	242	487	495	504
DTGN R/L 3232 P22	32	32	170	40	2204..	ITSN-433	470	242	487	495	504



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

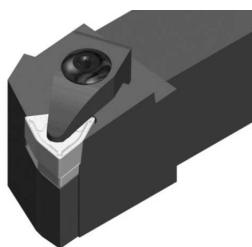
Brazed tools

Milling cutters

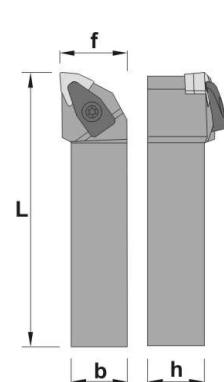
Solid carbide

Boring heads

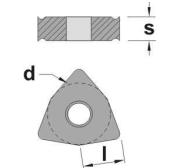
Arbors & adaptors

DWLN 95°

REF.	h	b	L	f	WN..	▲	■	■	■	■	■
DWLN R/L 2020 K08	20	20	125	25	0804..	IWSN-433	470	242	487	495	504
DWLN R/L 2525 M08	25	25	150	32	0804..	IWSN-433	470	242	487	495	504
DWLN R/L 3232 P08	32	32	170	40	0804..	IWSN-433	470	242	487	495	504



REF.	l	s	d
WN.. 0804..	8,14	4,76	12,7



For more information see page: A.57,58

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

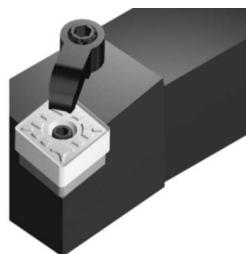
Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

MCLN-K 95°

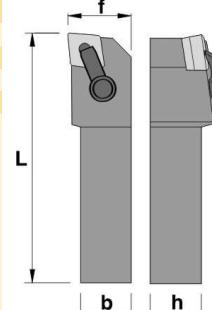


REF.

h b L f CN..



MCLN R/L 2020 L12-K	20	20	125	25	1204..	221	165	503	ICSN-432	446	525
MCLN R/L 2525 M12-K	25	25	150	32	1204..	221	165	503	ICSN-432	446	525
MCLN R/L 3225 P12-K	32	25	170	32	1204..	221	165	503	ICSN-432	446	525
MCLN R/L 2525 M19-K	25	25	150	32	1906..	212	189	504	ICSN-633	468	504
MCLN R/L 3232 P19-K	32	32	170	40	1906..	212	189	504	ICSN-633	468	504



For more information see page: A.39,40

MDJN-K 93°

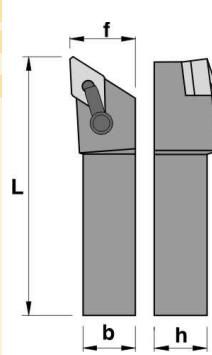


REF.

h b L f DN..



MDJN R/L 2020 K15-K	20	20	125	25	1506..	222	165	503	IDSN-432	456	525
MDJN R/L 2525 M15-K	25	25	150	32	1506..	222	165	503	IDSN-432	456	525
MDJN R/L 3225 P15-K	32	25	170	32	1506..	222	165	503	IDSN-432	456	525



REF.

l s d



DN.. 1506..	15,50	6,35	12,70
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For more information see page: A.42,43

MSSN-K 45°

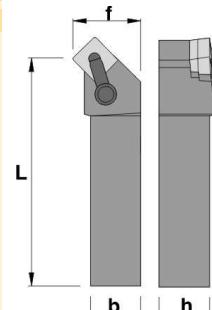


REF.

h b L f SN..



MSSN R/L 2020 K12-K	20	20	125	27	1204..	221	165	503	ISSN-432	446	525
MSSN R/L 2525 M12-K	25	25	150	32	1204..	221	165	503	ISSN-432	446	525



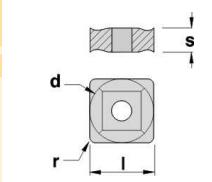
REF.

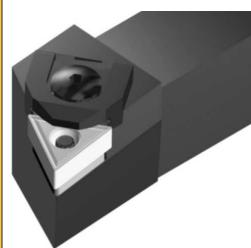
l s d



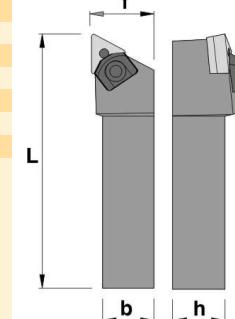
SN.. 1204..	12,70	4,76	12,70
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For more information see page: A.49,50



MTJN-K 93°

REF.	h	b	L	f	TN..	Icon 1	Icon 2	Icon 3	Icon 4
MTJN R/L 2020 K16-K	20	20	125	25	1604..	232	525	341	452 483
MTJN R/L 2525 M16-K	25	25	150	32	1604..	232	525	341	452 483
MTJN R/L 2525 M22-K	25	25	150	32	2204..	219	503	ITSN-433	461 484
MTJN R/L 3225 P22-K	32	25	170	32	2204..	219	503	ITSN-433	461 484
MTJN R/L 3232 P22-K	32	32	170	40	2204..	219	503	ITSN-433	461 484
MTJN R/L 4025 R22-K	40	25	200	32	2204..	219	503	ITSN-433	461 484
MTJN R/L 5032 S22-K	50	32	250	40	2204..	219	503	ITSN-433	461 484



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

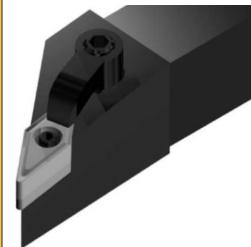
Brazed tools

Milling cutters

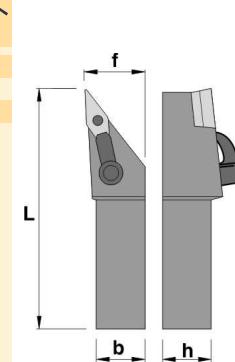
Solid carbide

Boring heads

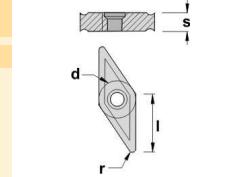
Arbors & adaptors

MVJN-K 93°

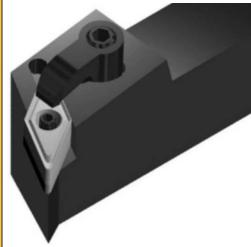
REF.	h	b	L	f	VN..	Icon 1	Icon 2	Icon 3	Icon 4
MVJN R/L 2020 K16-K	20	20	125	25	1604..	266	165	503	IVSN-322 434 502
MVJN R/L 2525 M16-K	25	25	150	32	1604..	266	165	503	IVSN-322 434 502
MVJN R/L 3225 P16-K	32	25	170	32	1604..	266	165	503	IVSN-322 434 502



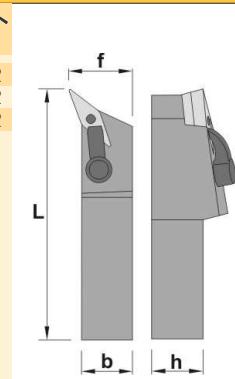
REF.	l	s	d
VN.. 1604..	16,50	4,76	9,52



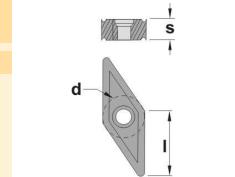
For more information see page: A.56

MVQN-K 117° 30'

REF.	h	b	L	f	VN..	Icon 1	Icon 2	Icon 3	Icon 4
MVQN R/L 2020 K16-K	20	20	125	25	1604..	266	165	503	IVSN-322 434 502
MVQN R/L 2525 M16-K	25	25	150	32	1604..	266	165	503	IVSN-322 434 502
MVQN R/L 3225 P16-K	32	25	170	32	1604..	266	165	503	IVSN-322 434 502



REF.	l	s	d
VN.. 1604..	16,50	4,76	9,52



For more information see page: A.56

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

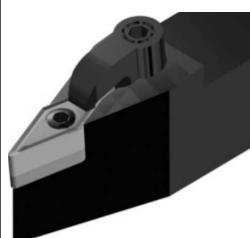
Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

MVVN-K 72° 30'

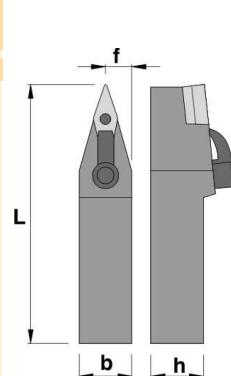


REF.

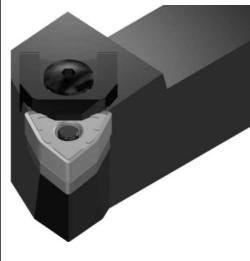
h b L f VN..



MVVN N 2020 K16-K	20	20	125	10,0	1604..	266	165	503	IVSN-322	434	502
MVVN N 2525 M16-K	25	25	150	12,5	1604..	266	165	503	IVSN-322	434	502



MWLN-K 95°



REF.

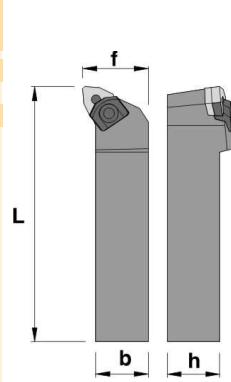
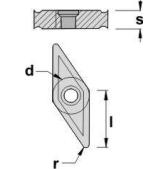
l

s

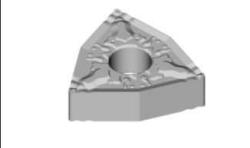
d

VN.. 1604..	16,50	4,76	9,52
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For more information see page: A.56



WN.. 0804..



REF.

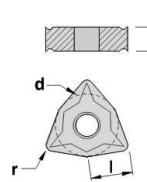
l

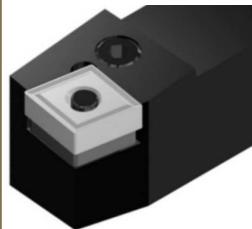
s

d

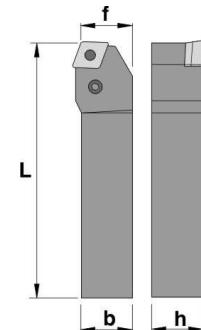
WN.. 0804..	8,14	4,76	12,70
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For more information see page: A.57



PCBN 75°

REF.	h	b	L	f	CN..	812	163	503	302	412	002
PCBN R/L 2020 K12	20	20	125	17	1204..	812	163	503	302	412	002
PCBN R/L 2525 M12	25	25	150	22	1204..	812	163	503	302	412	002
PCBN R/L 2525 M16	25	25	150	22	1606..	816	170	503	366	415	005
PCBN R/L 3225 P16	32	25	170	22	1606..	816	170	503	366	415	005
PCBN R/L 3232 P16	32	32	170	27	1606..	816	170	503	366	415	005
PCBN R/L 3225 P19	32	25	170	22	1906..	819	164	504	369	419	029
PCBN R/L 3232 P19	32	32	170	27	1906..	819	164	504	369	419	029
PCBN R/L 4040 S19	40	40	250	35	1906..	819	164	504	369	419	029
PCBN R/L 4040 S25	40	40	250	41	2509..	825	168	505	365	425	035
PCBN R/L 5050 T25	50	50	300	51	2509..	825	168	505	365	425	035



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

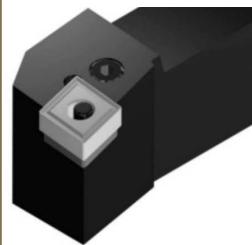
Brazed tools

Milling cutters

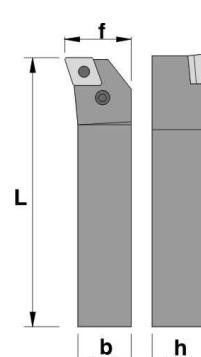
Solid carbide

Boring heads

Arbors & adaptors

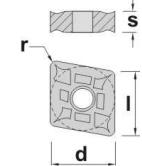
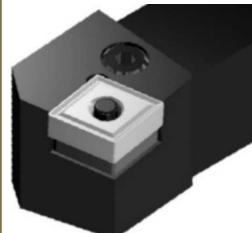
PCFN 90°

REF.	h	b	L	f	CN..	812	163	503	302	412	002
PCFN R/L 2525 M12	25	25	150	32	1204..	812	163	503	302	412	002
PCFN R/L 2525 M16	25	25	150	32	1606..	816	170	503	366	415	005
PCFN R/L 3225 P16	32	25	170	32	1606..	816	170	503	366	415	005
PCFN R/L 3232 P16	32	32	170	40	1606..	816	170	503	366	415	005
PCFN R/L 3225 P19	32	25	170	32	1906..	819	164	504	369	419	029
PCFN R/L 3232 P19	32	32	170	40	1906..	819	164	504	369	419	029
PCFN R/L 4040 S19	40	40	250	50	1906..	819	164	504	369	419	029

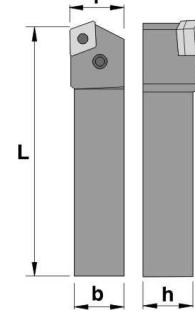


REF.	l	s	d
CN.. 1204..	12,90	4,76	12,70
CN.. 1606..	16,10	6,35	15,88
CN.. 1906..	19,30	6,35	19,05

For more information see page: A.39,40

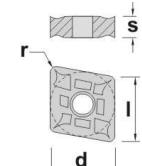
**PCKN 75°**

REF.	h	b	L	f	CN..	812	163	503	302	412	002
PCKN R/L 2020 K12	20	20	125	25	1204..	812	163	503	302	412	002
PCKN R/L 2525 M12	25	25	150	32	1204..	812	163	503	302	412	002
PCKN R/L 3225 P12	32	25	170	32	1204..	812	163	503	302	412	002
PCKN R/L 3232 P19	32	32	170	40	1906..	819	164	504	369	419	029
PCKN R/L 4040 S19	40	40	250	50	1906..	819	164	504	369	419	029



REF.	l	s	d
CN.. 1204..	12,90	4,76	12,70
CN.. 1906..	19,30	6,35	19,05

For more information see page: A.39,40



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

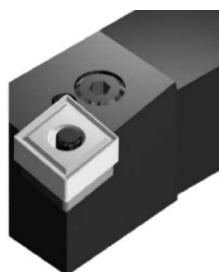
Milling cutters

Solid carbide

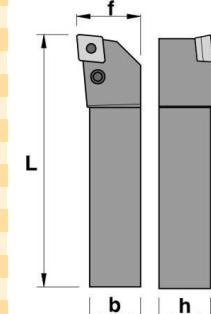
Boring heads

Arbors & adaptors

PCLN 95°

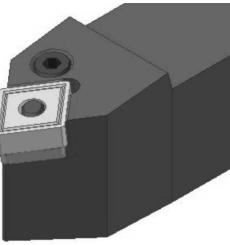


REF.	h	b	L	f	CN..	Diagram
PCLN R/L 1616 H09	16	16	100	20	0903..	
PCLN R/L 2020 K09	20	20	125	25	0903..	
PCLN R/L 2525 M09	25	25	150	32	0903..	
PCLN R/L 1616 H12	16	16	100	20	1204..	
PCLN R/L 2020 K12	20	20	125	25	1204..	
PCLN R/L 2525 M12	25	25	150	32	1204..	
PCLN R/L 3225 P12	32	25	170	32	1204..	
PCLN R/L 3232 P12	32	32	170	40	1204..	
PCLN R/L 2525 M16	25	25	150	32	1606..	
PCLN R/L 3225 P16	32	25	170	32	1606..	
PCLN R/L 4040 S16	40	40	250	50	1606..	
PCLN R/L 2525 M19	25	25	150	32	1906..	
PCLN R/L 3225 P19	32	25	170	32	1906..	
PCLN R/L 3232 P19	32	32	170	40	1906..	
PCLN R/L 4040 S19	40	40	250	50	1906..	
PCLN R/L 4040 S25	40	40	250	50	2509..	
PCLN R/L 5050 T25	50	50	300	60	2509..	

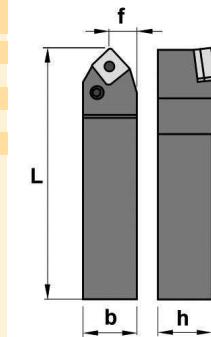


For more information see page: A.39,40

PCMN 50°



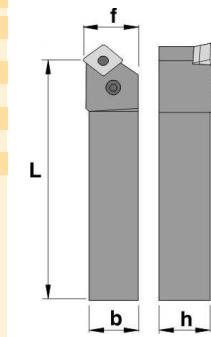
REF.	h	b	L	f	CN..	Diagram
PCMN N 2020 K12	20	20	125	10,0	1204..	
PCMN N 2525 M12	25	25	150	12,5	1204..	
PCMN N 3225 P12	32	25	170	12,5	1204..	
PCMN N 3232 P19	32	32	170	16,0	1906..	
PCMN N 4040 S19	40	40	250	20,0	1906..	



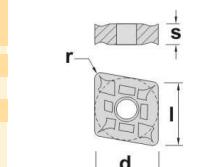
PCSN 45°



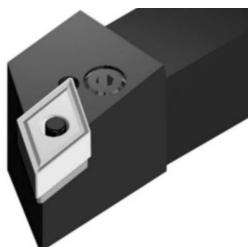
REF.	h	b	L	f	CN..	Diagram
PCSN R/L 2020 K12	20	20	125	25	1204..	
PCSN R/L 2525 M12	25	25	150	32	1204..	
PCSN R/L 2525 M16	25	25	150	32	1606..	
PCSN R/L 3225 P16	32	25	170	32	1606..	
PCSN R/L 3232 P16	32	32	170	40	1606..	
PCSN R/L 3225 P19	32	25	170	32	1906..	
PCSN R/L 3232 P19	32	32	170	40	1906..	
PCSN R/L 4040 S19	40	40	250	50	1906..	



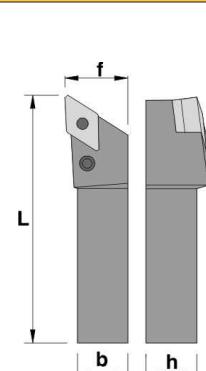
REF.	l	s	d
CN.. 1204..	12,90	4,76	12,70
CN.. 1606..	16,10	6,35	15,88
CN.. 1906..	19,30	6,35	19,05



For more information see page: A.39,40

PDJN 93°

REF.	h	b	L	f	DN..						
PDJN R/L 1616 H11	16	16	100	20	1104..	809	162	525	311	409	009
PDJN R/L 2020 K11	20	20	125	25	1104..	809	162	525	311	409	009
PDJN R/L 2525 M11	25	25	150	32	1104..	809	162	525	311	409	009
PDJN R/L 3225 P11	32	25	170	32	1104..	809	162	525	311	409	009
PDJN R/L 2020 K15	20	16	125	25	1506..	845	172	503	305	412	002
PDJN R/L 2525 M15	25	25	150	32	1506..	845	172	503	305	412	002
PDJN R/L 3225 P15	32	25	170	32	1506..	845	172	503	305	412	002
PDJN R/L 3232 P15	32	32	170	40	1506..	845	172	503	305	412	002
PDJN R/L 4025 R15	40	25	200	32	1506..	845	172	503	305	412	002
PDJN R/L 5032 S15	50	32	250	40	1506..	845	172	503	305	412	002



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

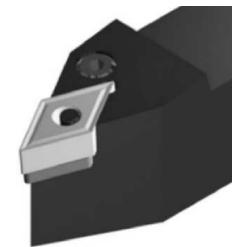
Brazed tools

Milling cutters

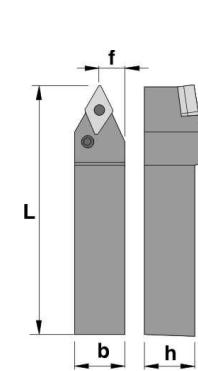
Solid carbide

Boring heads

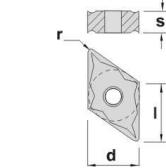
Arbors & adaptors

PDNN 63°

REF.	h	b	L	f	DN..						
PDNN R/L/N 2020 K15	20	20	125	10,0	1506..	845	172	503	305	412	002
PDNN R/L/N 2525 M15	25	25	150	12,5	1506..	845	172	503	305	412	002
PDNN R/L/N 3225 P15	32	25	170	12,5	1506..	845	172	503	305	412	002
PDNN R/L/N 3232 P15	32	32	170	16,0	1506..	845	172	503	305	412	002
PDNN R/L/N 4025 S15	40	25	250	12,5	1506..	845	172	503	305	412	002
PDNN R/L/N 5032 S15	50	32	250	16,0	1506..	845	172	503	305	412	002



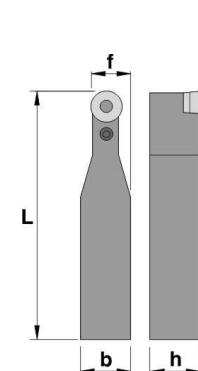
REF.	l	s	d
DN.. 1506..	15,50	6,35	12,70



For more information see page: A.42,43

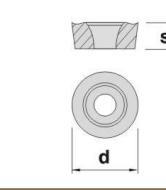
PRDC

REF.	h	b	L	f	RC..						
PRDC N 2020 K10	20	20	125	15,0	1003..	820	175	502	310	410	009
PRDC N 2020 K12	20	20	125	16,0	1204..	822	162	525	303	410	009
PRDC N 2525 M10	25	25	150	18,5	1204..	822	162	525	303	410	009
PRDC N 2525 M12	25	25	150	18,5	1204..	822	162	525	303	410	009
PRDC N 3225 P10	32	25	170	18,5	1204..	822	162	525	303	410	009
PRDC N 3225 P12	32	25	170	18,5	1204..	822	162	525	303	410	009
PRDC N 4025 S12	40	25	250	18,5	1204..	822	162	525	303	410	009
PRDC N 3225 P16	32	25	170	20,5	1606..	826	176	525	386	416	002
PRDC N 3232 P16	32	32	170	24,0	1606..	826	176	525	386	416	002
PRDC N 3232 P20	32	32	170	26,0	2006..	830	178	503	380	415	005
PRDC N 4040 S20	40	40	250	30,0	2006..	830	178	503	380	415	005
PRDC N 4040 S25	40	40	250	32,5	2507..	835	180	504	385	419	029
PRDC N 4040 U25	40	40	350	32,5	2507..	835	180	504	385	419	029
PRDC N 5050 U25	50	50	350	37,5	2507..	835	180	504	385	419	029
PRDC N 5050 V32	50	50	400	41,0	3209..	852	168	505	383	425	035



REF.	l	s	d
RC.. 1003M0	-	3,18	10,00
RC.. 1204M0	-	4,76	12,00
RC.. 1606M0	-	6,35	16,00
RC.. 2006M0	-	6,35	20,00
RC.. 2507M0	-	7,94	25,00
RC.. 3209M0	-	9,52	32,00

For more information see page: A.45,46



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

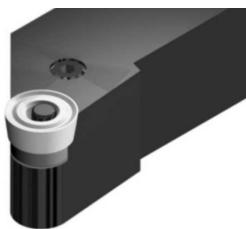
Milling cutters

Solid carbide

Boring heads

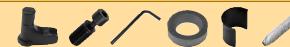
Arbors & adaptors

PRSC

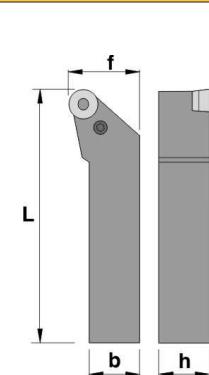


REF.

h b L f RC..



PRSC R/L 2020 K10	20	20	125	25	1003..	820	175	502	310	410	009
PRSC R/L 2525 M10	25	25	150	32	1003..	820	175	502	310	410	009
PRSC R/L 2020 K12	20	20	125	25	1204..	822	162	525	303	410	009
PRSC R/L 2525 M12	25	25	150	32	1204..	822	162	525	303	410	009
PRSC R/L 3225 P10	32	25	170	32	1204..	822	162	525	303	410	009
PRSC R/L 3225 P12	32	25	170	32	1204..	822	162	525	303	410	009
PRSC R/L 2525 M16	25	25	150	32	1606..	826	176	525	386	416	002
PRSC R/L 3225 P16	32	25	170	32	1606..	826	176	525	386	416	002
PRSC R/L 3232 P20	32	32	170	40	2006..	830	178	503	380	415	005
PRSC R/L 4040 S20	40	40	250	50	2006..	830	178	503	380	415	005
PRSC R/L 4040 S25	40	40	250	50	2507..	835	180	504	385	419	029
PRSC R/L 5050 T32	50	50	300	63	3209..	852	168	505	383	425	035



REF.

I

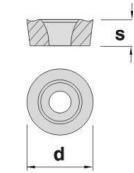
s

d

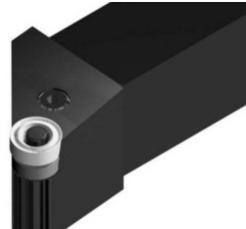


RC.. 1003M0	-	3,18	10,00
RC.. 1204M0	-	4,76	12,00
RC.. 1606M0	-	6,35	16,00
RC.. 2006M0	-	6,35	20,00
RC.. 2507M0	-	7,94	25,00
RC.. 3209M0		9,52	32,00

For more information see page: A.45,46



PRSN

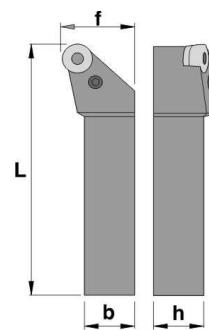


REF.

h b L f RNMG



PRSN R/L 2020 K09	20	20	125	25	0903..	809	162	525	391	410	009
PRSN R/L 2525 M12	25	25	150	32	1204..	812	163	503	393	412	002
PRSN R/L 3225 P15	32	25	170	32	1506..	815	178	503	395	415	005
PRSN R/L 3232 P19	32	32	170	40	1906..	819	164	504	399	419	029
PRSN R/L 4040 S25	40	40	250	50	2509..	825	168	505	396	425	035



REF.

I

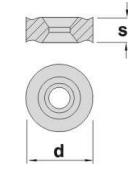
s

d

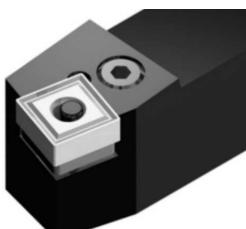


RNMG 090300	-	3,18	9,52
RNMG 120400	-	4,76	12,70
RNMG 150600	-	6,35	15,88
RNMG 190600	-	6,35	19,05
RNMG 250900	-	9,52	25,40

For more information see page: A.46



PSBN 75°

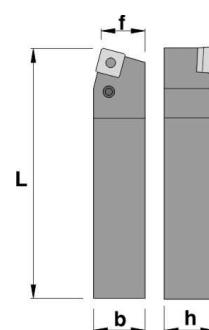


REF.

h b L f SN..



PSBN R/L 1212 F09	12	12	80	11	0903..	805	174	502	-	-	009
PSBN R/L 1616 H09	16	16	100	13	0903..	809	162	525	358	410	009
PSBN R/L 2020 K09	20	20	125	17	0903..	809	162	525	358	410	009
PSBN R/L 2020 K12	20	20	125	17	1204..	812	163	503	313	412	002
PSBN R/L 2525 M12	25	25	150	22	1204..	812	163	503	313	412	002
PSBN R/L 3225 P12	32	25	170	22	1204..	812	163	503	313	412	002
PSBN R/L 2525 M15	25	25	150	22	1506..	816	170	503	355	415	005
PSBN R/L 3232 P15	32	32	170	27	1506..	816	170	503	355	415	005
PSBN R/L 3232 P19	32	32	170	27	1906..	819	164	504	359	419	029
PSBN R/L 4040 S19	40	40	250	35	1906..	819	164	504	359	419	029
PSBN R/L 4040 S25	40	40	250	35	2509..	825	168	505	357	425	035
PSBN R/L 5050 T25	50	50	300	43	2509..	825	168	505	357	425	035



REF.

I

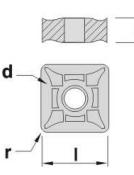
s

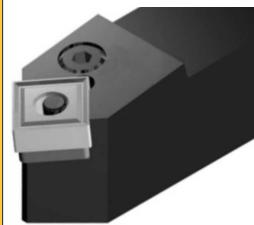
d



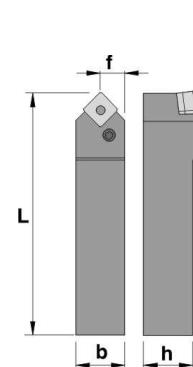
SN.. 0903..	9,52	3,18	9,52
SN.. 1204..	12,70	4,76	12,70
SN.. 1506..	15,88	6,35	15,88
SN.. 1906..	19,05	6,35	19,05
SN.. 2507..	25,40	7,94	25,40

For more information see page: A.49,50



PSDN 45°

REF.	h	b	L	f	SN..						
PSDN N 1010 E09	10	10	70	5,0	0903..	805	174	502	-	-	-
PSDN N 1212 F09	12	12	80	6,0	0903..	805	174	502	-	-	-
PSDN N 1616 H09	16	16	100	8,0	0903..	809	162	525	358	410	009
PSDN N 2020 K12	20	20	125	10,0	1204..	812	163	503	313	412	002
PSDN N 2525 M12	25	25	150	12,5	1204..	812	163	503	313	412	002
PSDN N 3232 P12	32	32	170	16,0	1204..	812	163	503	313	412	003
PSDN N 3225 P19	32	25	170	12,5	1906..	819	164	504	359	419	029
PSDN N 3232 P19	32	32	170	16,0	1906..	819	164	504	359	419	029
PSDN N 4040 S25	40	40	250	25,0	2509..	825	168	505	357	425	035



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

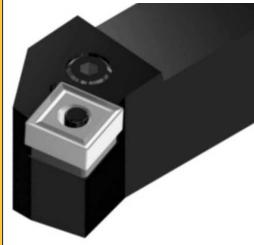
Brazed tools

Milling cutters

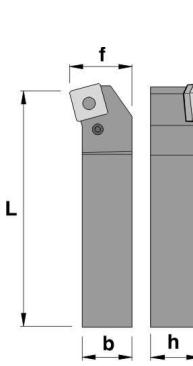
Solid carbide

Boring heads

Arbors & adaptors

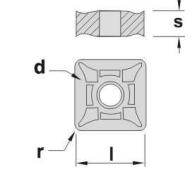
PSKN 75°

REF.	h	b	L	f	SN..						
PSKN R/L 1616 H09	16	16	100	20	0903..	809	162	525	358	410	009
PSKN R/L 2020 K09	20	20	125	25	0903..	809	162	525	358	410	009
PSKN R/L 2020 K12	20	20	125	25	1204..	812	163	503	313	412	002
PSKN R/L 2525 M12	25	25	150	32	1204..	812	163	503	313	412	002
PSKN R/L 3225 P12	32	25	170	32	1204..	812	163	503	313	412	002
PSKN R/L 2525 M15	25	25	150	32	1506..	816	170	503	355	415	005
PSKN R/L 3232 P15	32	32	170	40	1506..	816	170	503	355	415	005
PSKN R/L 3232 P19	32	32	170	40	1906..	819	164	504	359	419	029
PSKN R/L 4040 S19	40	40	250	50	1906..	819	164	504	359	419	029
PSKN R/L 5050 T25	50	50	300	60	2509..	825	168	505	357	425	035

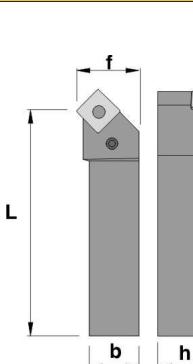


REF.	l	s	d
SN.. 0903..	9,52	3,18	9,52
SN.. 1204..	12,70	4,76	12,70
SN.. 1506..	15,88	6,35	15,88
SN.. 1906..	19,05	6,35	19,05
SN.. 2507..	25,40	7,94	25,40

For more information see page: A.49,50

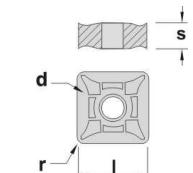
**PSSN 45°**

REF.	h	b	L	f	SN..						
PSSN R/L 1616 H09	16	16	100	20	0903..	809	162	525	358	410	009
PSSN R/L 2020 K09	20	20	125	25	0903..	809	162	525	358	410	009
PSSN R/L 2020 K12	20	20	125	25	1204..	812	163	503	313	412	002
PSSN R/L 2525 M12	25	25	150	32	1204..	812	163	503	313	412	002
PSSN R/L 3225 P12	32	25	170	32	1204..	812	163	503	313	412	002
PSSN R/L 2525 M15	25	25	150	32	1506..	816	170	503	355	415	005
PSSN R/L 3232 P15	32	32	170	40	1506..	816	170	503	355	415	005
PSSN R/L 3232 P19	32	32	170	40	1906..	819	164	504	359	419	029
PSSN R/L 4040 P19	40	40	250	50	1906..	819	164	504	359	419	029
PSSN R/L 5050 T19	50	50	300	60	1906..	819	164	504	359	419	029
PSSN R/L 4040 S25	40	40	250	50	2509..	825	168	505	357	425	035
PSSN R/L 5050 T25	50	50	300	60	2509..	825	168	505	357	425	035



REF.	l	s	d
SN.. 0903..	9,52	3,18	9,52
SN.. 1204..	12,70	4,76	12,70
SN.. 1506..	15,88	6,35	15,88
SN.. 1906..	19,05	6,35	19,05
SN.. 2507..	25,40	7,94	25,40

For more information see page: A.49,50



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

PTDN 45°



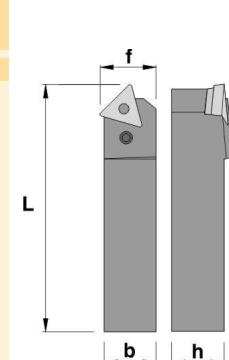
REF.

h b L f TN..



PTDN R/L 2525 M22
PTDN R/L 3225 P22

25	25	150	27	2204..	812	163	503	323	412	002
32	25	170	27	2204..	812	163	503	323	412	002



REF.

I

s

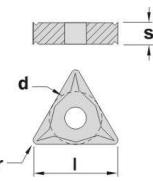
d



TN.. 2204..

22,00	4,76	12,70
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For more information see page: A.52,53



PTFN 90°



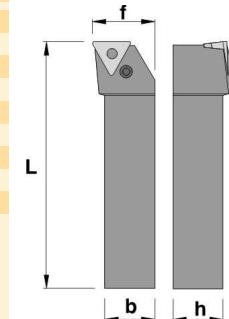
REF.

h b L f TN..



PTFN R/L 1616 H16
PTFN R/L 2020 K16
PTFN R/L 2525 M16
PTFN R/L 3225 P16
PTFN R/L 2525 M22
PTFN R/L 3225 P22
PTFN R/L 3232 P22
PTFN R/L 3232 P27
PTFN R/L 4040 S27

16	16	100	20	1604..	809	162	525	336	409	009
20	20	125	25	1604..	809	162	525	336	409	009
25	25	150	32	1604..	809	162	525	336	409	009
32	25	170	32	1604..	809	162	525	336	409	009
25	25	150	32	2204..	812	163	503	323	412	002
32	25	170	32	2204..	812	163	503	323	412	002
32	32	170	40	2204..	812	163	503	323	412	002
32	32	170	40	2706..	815	178	503	349	415	005
40	40	250	50	2706..	815	178	503	349	415	005



REF.

I

s

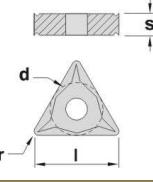
d



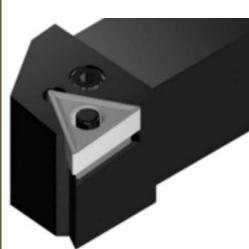
TN.. 1604..
TN.. 2204..
TN.. 2706..

16,50	4,76	9,52
22,00	4,76	12,70
27,00	6,35	15,88

For more information see page: A.52,53,54



PTGN 90°



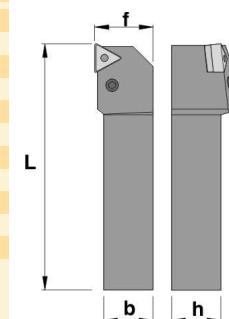
REF.

h b L f TN..



PTGN R/L 1616 H16
PTGN R/L 2020 K16
PTGN R/L 2525 M16
PTGN R/L 3225 P16
PTGN R/L 2525 M22
PTGN R/L 3225 P22
PTGN R/L 3232 P22
PTGN R/L 4040 S22
PTGN R/L 3232 S27
PTGN R/L 4040 S27
PTGN R/L 5050 T33

16	16	100	20	1604..	809	162	525	336	409	009
20	20	125	25	1604..	809	162	525	336	409	009
25	25	150	32	1604..	809	162	525	336	409	009
32	25	170	32	1604..	809	162	525	336	409	009
25	25	150	32	2204..	812	163	503	323	412	002
32	25	170	32	2204..	812	163	503	323	412	002
32	32	170	40	2204..	812	163	503	323	412	002
32	32	170	40	2706..	812	163	503	323	412	002
40	40	250	50	2204..	812	163	503	323	412	002
32	32	170	40	2706..	815	178	503	349	415	005
40	40	250	50	2706..	815	178	503	349	415	005
50	50	300	60	3307..	819	164	504	333	433	029



REF.

I

s

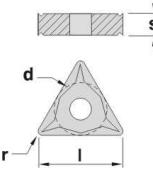
d

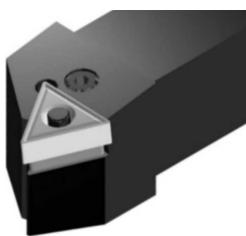


TN.. 1604..
TN.. 2204..
TN.. 2706..
TN.. 3307..

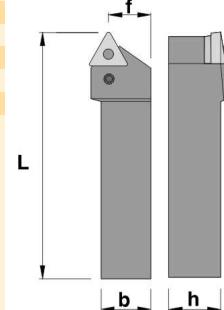
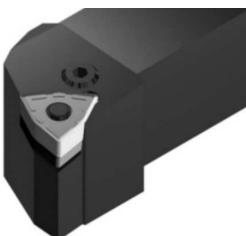
16,50	4,76	9,52
22,00	4,76	12,70
27,00	6,35	15,88
33,00	7,93	19,05

For more information see page: A.52,53,54



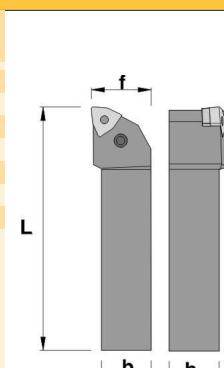
PTTN 60°
REF. **h** **b** **L** **f** **TN..**

PTTN R/L 1616 H16	16	16	100	13	1604..	809	162	525	336	409	009
PTTN R/L 2020 K16	20	20	125	17	1604..	809	162	525	336	409	009
PTTN R/L 2525 M16	25	25	150	22	1604..	809	162	525	336	409	009
PTTN R/L 2525 M22	25	25	150	22	2204..	812	163	503	323	412	002
PTTN R/L 3225 P22	32	25	170	22	2204..	812	163	503	323	412	002

**Inserts****Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors****PWLN 95°**
REF. **h** **b** **L** **f** **WN..**

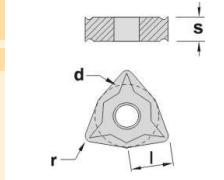
PWLN R/L 1616 H06	16	16	100	20	0604..	809	162	525	307	409	009
PWLN R/L 2020 K06	20	20	125	25	0604..	809	162	525	307	409	009
PWLN R/L 2525 M06	25	25	150	32	0604..	809	162	525	307	409	009
PWLN R/L 2020 K08	20	20	125	25	0804..	812	163	503	308	412	002
PWLN R/L 2525 M08	25	25	150	32	0804..	812	163	503	308	412	002
PWLN R/L 3225 P08	32	25	170	32	0804..	812	163	503	308	412	002
PWLN R/L 3232 P08	32	32	170	40	0804..	812	163	503	308	412	002

For more information see page: A.52,53,54


REF. **I** **s** **d**

WN.. 0604..	6,14	4,76	9,52
WN.. 0804..	8,14	4,76	12,70

For more information see page: A.57,58

**Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors**

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

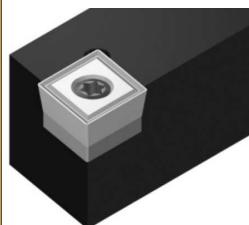
Milling cutters

Solid carbide

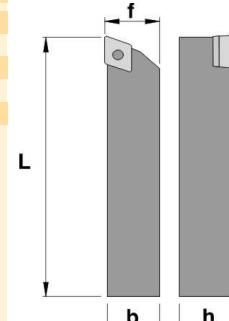
Boring heads

Arbors & adaptors

SCAC 90°

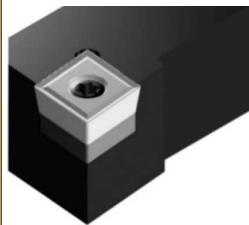


REF.	h	b	L	f	CC..	+	+	+
SCAC R/L 0808 D06	8	8	60	8,5	0602..	125	507	-
SCAC R/L 1010 E06	10	10	70	10,5	0602..	125	507	-
SCAC R/L 1212 F09	12	12	80	12,5	09T3..	140	515	-
SCAC R/L 1616 H09	16	16	100	16,5	09T3..	140	515	-
SCAC R/L 2020 K12	20	20	125	20,5	1204..	196	523	361 195
SCAC R/L 2525 M12	25	25	150	25,5	1204..	196	523	361 195

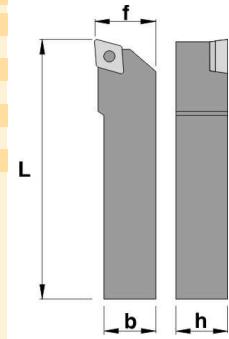


For more information see page: A.38

SCLC 95°



REF.	h	b	L	f	CC..	+	+	+
SCLC R/L 0808 D06	8	8	60	10	0602..	125	507	-
SCLC R/L 1010 E06	10	10	70	12	0602..	125	507	-
SCLC R/L 1212 F09	12	12	80	16	09T3..	140	515	-
SCLC R/L 1616 H09	16	16	100	20	09T3..	140	515	-
SCLC R/L 2020 K09	20	20	125	25	09T3..	140	515	-
SCLC R/L 2020 K12	20	20	125	25	1204..	196	523	361 195
SCLC R/L 2525 M12	25	25	150	32	1204..	196	523	361 195

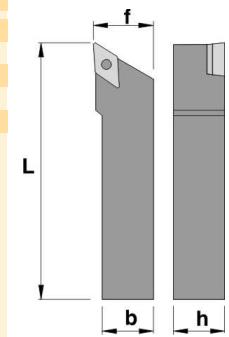


For more information see page: A.38

SDJC 93°

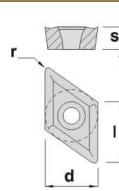


REF.	h	b	L	f	DC..	+	+	+
SDJC R/L 1010 E07	10	10	70	12	0702..	125	507	-
SDJC R/L 1212 F07	12	12	80	16	0702..	125	507	-
SDJC R/L 1212 F11	12	12	80	16	11T3..	140	515	-
SDJC R/L 1616 H11	16	16	100	20	11T3..	133	521	371 194
SDJC R/L 2020 K11	20	20	125	25	11T3..	133	521	371 194
SDJC R/L 2525 M11	25	25	150	32	11T3..	133	521	371 194



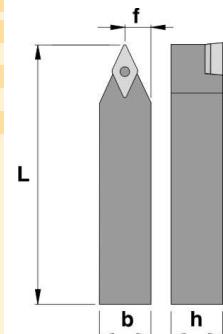
REF.	l	s	d
DC.. 0702..	7,75	2,38	6,35
DC.. 11T3..	11,60	3,97	9,52

For more information see page: A.41



SDNC 62° 30'

REF.	h	b	L	f	DC..	SC..	SC..	SC..
SDNC N 0808 D07	8	8	60	4,0	0702..	125	507	-
SDNC N 1010 E07	10	10	70	5,0	0702..	125	507	-
SDNC N 1212 F07	12	12	80	6,0	0702..	125	507	-
SDNC N 1616 H11	16	16	100	8,0	11T3..	133	521	371 194
SDNC N 2020 K11	20	20	125	10,0	11T3..	133	521	371 194
SDNC N 2525 M11	25	25	150	12,5	11T3..	133	521	371 194



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

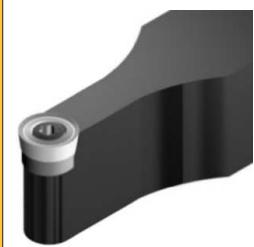
Brazed tools

Milling cutters

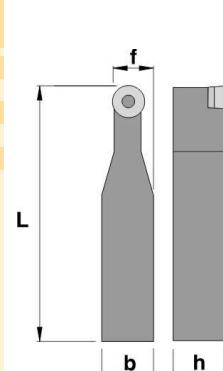
Solid carbide

Boring heads

Arbors & adaptors

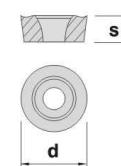
SRDC

REF.	h	b	L	f	RC..	SC..	SC..	SC..
SRDC N 2020 K10	20	20	125	15,0	10T3..	133	521	381 194
SRDC N 2525 M10	25	25	150	17,5	10T3..	133	521	381 194
SRDC N 2020 K12	20	20	125	16,0	1204..	133	521	384 194
SRDC N 2525 M12	25	25	150	18,5	1204..	133	521	384 194
SRDC N 3225 P12	32	25	170	18,5	1204..	133	521	384 194
SRDC N 3232 P12	32	32	170	22,0	1204..	133	521	384 194

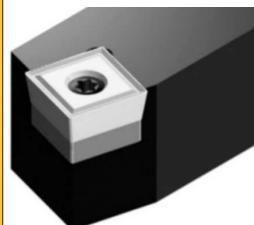


For more information see page: A.41

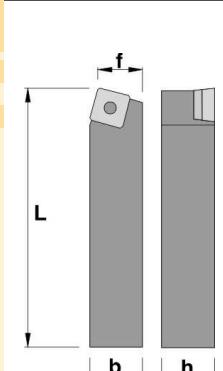
REF.	I	s	d
RC.. 10T3M0	-	3,97	10,00
RC.. 1204M0	-	4,76	12,00



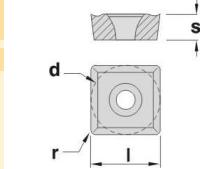
For more information see page: A.45,46

SSBC 75°

REF.	h	b	L	f	SC..	SC..	SC..	SC..
SSBC R/L 1212 F09	12	12	80	11	09T3..	140	515	-
SSBC R/L 1616 H09	16	16	100	13	09T3..	140	515	-
SSBC R/L 2020 K12	20	20	125	17	1204..	196	523	351 195
SSBC R/L 2525 M12	25	25	150	22	1204..	196	523	351 195



REF.	I	s	d
SC.. 09T3..	9,52	3,97	9,52
SC.. 1204..	12,70	4,76	12,70



For more information see page: A.47,48

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

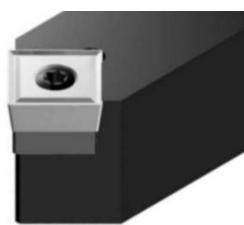
Milling cutters

Solid carbide

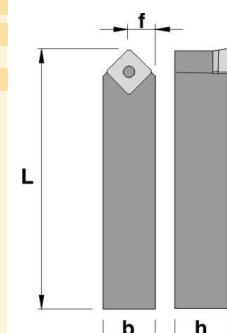
Boring heads

Arbors & adaptors

SSDC 45°

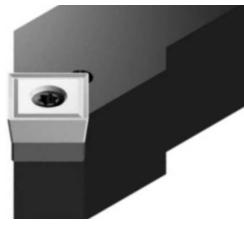


REF.	h	b	L	f	SC..	+	+	+
SSDC N 1212 F09	12	12	80	6,0	09T3..	140	515	-
SSDC N 1616 H09	16	16	100	8,0	09T3..	140	515	-
SSDC N 2020 K12	20	20	125	10,0	1204..	196	523	351
SSDC N 2525 M12	25	25	150	12,5	1204..	196	523	351

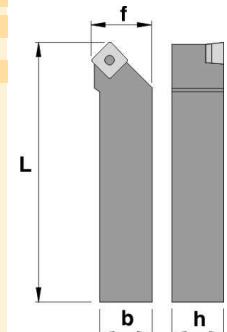


For more information see page: A.47,48

SSSC 45°

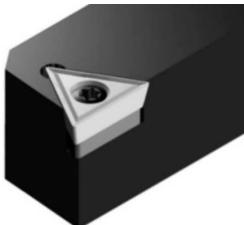


REF.	h	b	L	f	SC..	+	+	+
SSSC R/L 1212 F09	12	12	80	16	09T3..	140	515	-
SSSC R/L 1616 H09	16	16	100	20	09T3..	140	515	-
SSSC R/L 2020 K12	20	20	125	25	1204..	196	523	351
SSSC R/L 2525 M12	25	25	150	32	1204..	196	523	351

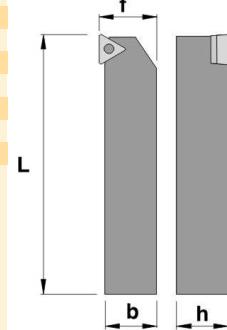


For more information see page: A.47,48

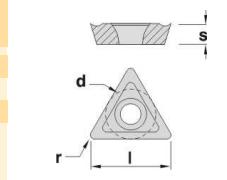
STAC 90°



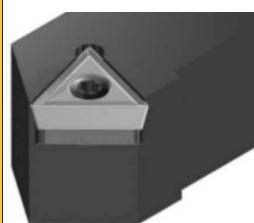
REF.	h	b	L	f	TC..	+	+	+
STAC R/L 0808 D09	8	8	60	8,5	0902..	122	506	-
STAC R/L 1010 E09	10	10	70	10,5	0902..	122	506	-
STAC R/L 1212 F11	12	12	80	12,5	1102..	125	507	-
STAC R/L 1616 H11	16	16	100	16,5	1102..	125	507	-
STAC R/L 1616 H16	16	16	100	16,5	16T3..	133	521	341
STAC R/L 2020 K16	20	20	125	20,5	16T3..	133	521	341
STAC R/L 2525 M16	25	25	150	20,5	16T3..	133	521	341



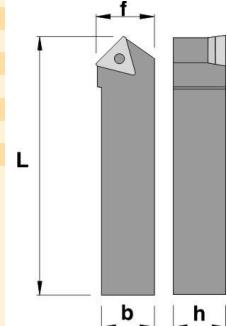
REF.	h	b	L	f	TC..	+	+	+
TC.. 0902..	9,62		2,38		5,55			
TC.. 1102..	11,00		2,38		6,35			
TC.. 16T3..	16,50		3,97		9,52			



For more information see page: A.51,52

STDC 45°

REF.	h	b	L	f	TC..				
STDC R/L 0808 D09	8	8	60	10	0902..	122	506	-	-
STDC R/L 1010 E09	10	10	70	11	0902..	122	506	-	-
STDC R/L 1212 F11	12	12	80	13	1102..	125	507	-	-
STDC R/L 1616 H11	16	16	100	17	1102..	125	507	-	-
STDC R/L 1212 F16	12	12	80	17	16T3..	140	515	-	-
STDC R/L 1616 H16	16	16	100	17	16T3..	133	521	341	194
STDC R/L 2020 K16	20	20	125	22	16T3..	133	521	341	194
STDC R/L 2525 M16	25	25	150	27	16T3..	133	521	341	194



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

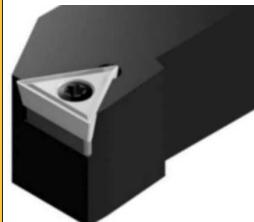
Brazed tools

Milling cutters

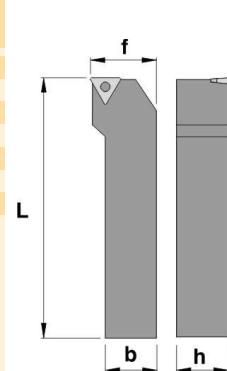
Solid carbide

Boring heads

Arbors & adaptors

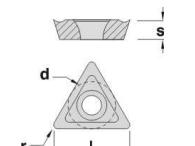
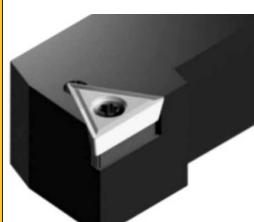
STFC 90°

REF.	h	b	L	f	TC..				
STFC R/L 0808 D09	8	8	60	10	0902..	122	506	-	-
STFC R/L 1010 E09	10	10	70	12	0902..	122	506	-	-
STFC R/L 1212 F11	12	12	80	16	1102..	125	507	-	-
STFC R/L 1616 H11	16	16	100	20	1102..	125	507	-	-
STFC R/L 1212 F16	12	12	80	16	16T3..	140	515	-	-
STFC R/L 1616 H16	16	16	100	20	16T3..	133	521	341	194
STFC R/L 2020 K16	20	20	125	25	16T3..	133	521	341	194
STFC R/L 2525 M16	25	25	150	32	16T3..	133	521	341	194

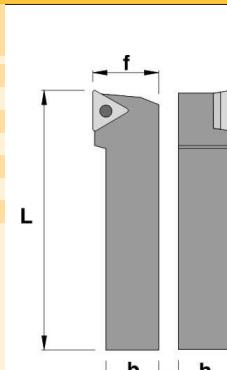


REF.	I	s	d
TC.. 0902..	9,62	2,38	5,55
TC.. 1102..	11,00	2,38	6,35
TC.. 16T3..	16,50	3,97	9,52

For more information see page: A.51,52

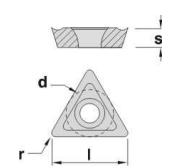
**STGC 90°**

REF.	h	b	L	f	TC..				
STGC R/L 0808 D09	8	8	60	10	0902..	122	506	-	-
STGC R/L 1010 E09	10	10	70	12	0902..	122	506	-	-
STGC R/L 1212 F11	12	12	80	16	1102..	125	507	-	-
STGC R/L 1616 H11	16	16	100	20	1102..	125	507	-	-
STGC R/L 1212 F16	12	12	80	16	16T3..	140	515	-	-
STGC R/L 1616 H16	16	16	100	20	16T3..	133	521	341	194
STGC R/L 2020 K16	20	20	125	25	16T3..	133	521	341	194
STGC R/L 2525 M16	25	25	150	32	16T3..	133	521	341	194



REF.	I	s	d
TC.. 0902..	9,62	2,38	5,55
TC.. 1102..	11,00	2,38	6,35
TC.. 16T3..	16,50	3,97	9,52

For more information see page: A.51,52



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

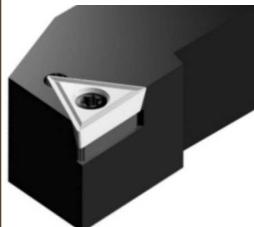
Milling cutters

Solid carbide

Boring heads

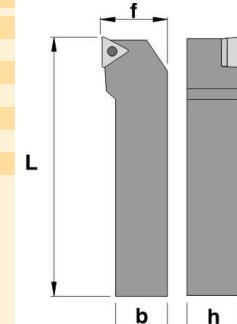
Arbors & adaptors

STJC 93°



REF. h b L f TC..

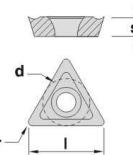
STJC R/L 0808 D09	8	8	60	10	0902..	122	506	-	-
STJC R/L 1010 E09	10	10	70	12	0902..	122	506	-	-
STJC R/L 1212 F11	12	12	80	16	1102..	125	507	-	-
STJC R/L 1616 H11	16	16	100	20	1102..	125	507	-	-
STJC R/L 1212 F16	12	12	80	16	16T3..	140	515	-	-
STJC R/L 1616 H16	16	16	100	20	16T3..	133	521	341	194
STJC R/L 2020 K16	20	20	125	25	16T3..	133	521	341	194
STJC R/L 2525 M16	25	25	150	32	16T3..	133	521	341	194



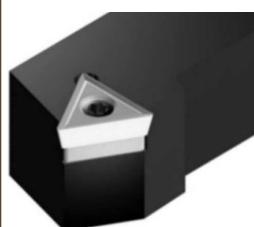
For more information see page: A.51,52

REF. I s d

TC.. 0902..	9,62	2,38	5,55
TC.. 1102..	11,00	2,38	6,35
TC.. 16T3..	16,50	3,97	9,52

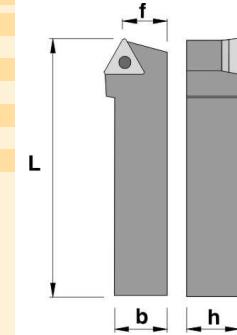


STTC 60°



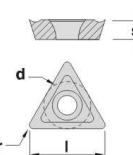
REF. h b L f TC..

STTC R/L 0808 D09	8	8	60	7	0902..	122	506	-	-
STTC R/L 1010 E09	10	10	70	9	0902..	122	506	-	-
STTC R/L 1212 F11	12	12	80	11	1102..	125	507	-	-
STTC R/L 1616 H11	16	16	100	13	1102..	125	507	-	-
STTC R/L 1212 F16	12	12	80	11	16T3..	140	515	-	-
STTC R/L 1616 H16	16	16	100	13	16T3..	133	521	341	194
STTC R/L 2020 K16	20	20	125	17	16T3..	133	521	341	194
STTC R/L 2525 M16	25	25	150	22	16T3..	133	521	341	194



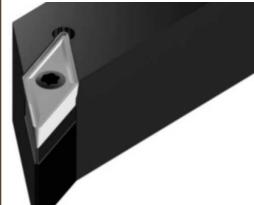
REF. I s d

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TC.. 1102..	11,00	2,38	6,35
TC.. 16T3..	16,50	3,97	9,52



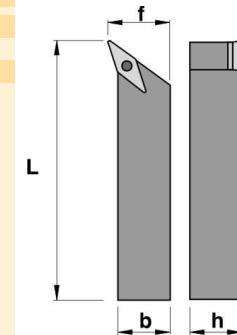
For more information see page: A.51,52

SVHC 107° 30'



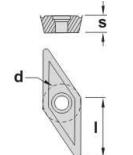
REF. h b L f VC..

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SVHC R/L 2525 M16	25	25	150	32	1604..	133	521	378	194
SVHC R/L 3225 P16	32	25	170	32	1604..	133	521	378	194

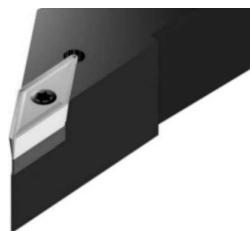


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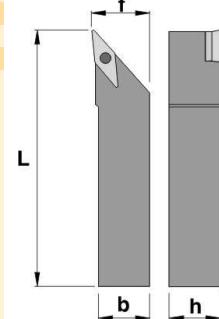
VC.. 1604..	16,50	4,76	9,52
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For more information see page: A.55,56

SVJB 93°
REF. **h** **b** **L** **f** **VBMT**

SVJB R/L 2020 K16	20	20	125	25	1604..	133	521	378	194
SVJB R/L 2525 M16	25	25	150	32	1604..	133	521	378	194
SVJB R/L 3225 P16	32	25	170	32	1604..	133	521	378	194



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

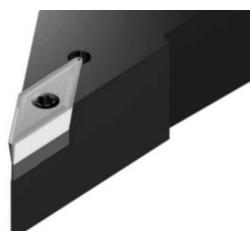
Brazed tools

Milling cutters

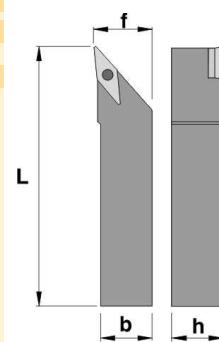
Solid carbide

Boring heads

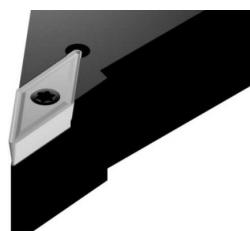
Arbors & adaptors

SVJC 93°
REF. **h** **b** **L** **f** **VC..**

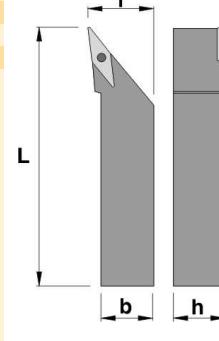
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SVJC R/L 2525 M16	25	25	150	32	1604..	133	521	378	194
SVJC R/L 3225 P16	32	25	170	32	1604..	133	521	378	194



Brazed tools

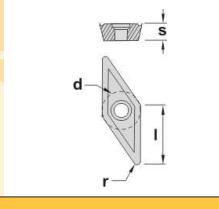
SVLC 95°
REF. **h** **b** **L** **f** **VC..**

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SVLC R/L 2020 K13	20	20	125	25	1303..	130	508
SVLC R/L 2525 M13	25	25	150	32	1303..	130	508


REF. **I** **s** **d**

VC.. 1303..	13,00	3,18	8,00
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For more information see page: A.56



Inserts

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Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

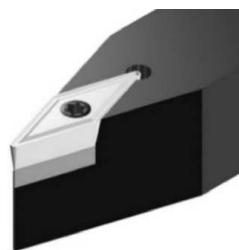
Milling cutters

Solid carbide

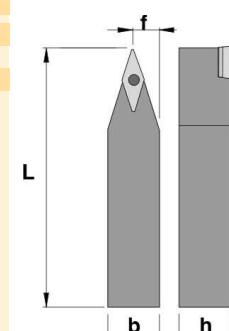
Boring heads

Arbors & adaptors

SVVB 72° 30'

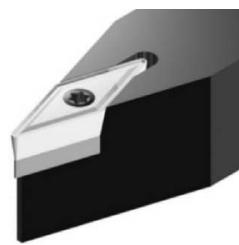


REF.	h	b	L	f	VBMT	+	+	+
SVVB N 2020 K16	20	20	125	10,6	1604..	133	521	378 194
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SVVB N 3225 P16	32	25	170	13,1	1604..	133	521	378 194

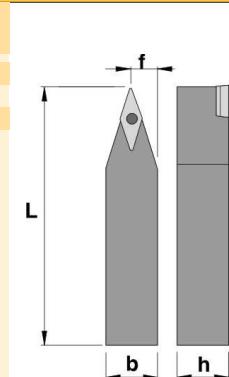


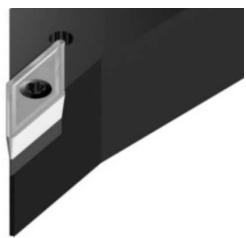
For more information see page: A.55

SVVC 72° 30'

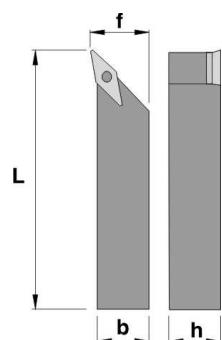


REF.	h	b	L	f	VC..	+	+	+
SVVC N 2020 K16	20	20	125	10,6	1604..	133	521	378 194
SVVC N 2525 M16	25	25	150	13,1	1604..	133	521	378 194
SVVC N 3225 P16	32	25	170	13,1	1604..	133	521	378 194



SVZC 100°

REF.	h	b	L	f	VC..				
SVZC R/L 2020 K16	20	20	125	25	1604..	133	521	378	194
SVZC R/L 2525 M16	25	25	150	32	1604..	133	521	378	194
SVZC R/L 3225 P16	32	25	170	32	1604..	133	521	378	194



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Milling cutters

Solid carbide

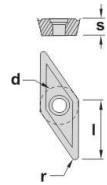
Boring heads

Arbors & adaptors



REF.	l	s	d
VC.. 1604..	16,50	4,76	9,52

For more information see page: A.55,56



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Nominal cutting speed and feed values for toolholders

Material	P	HB	Condition	Cutting speed m/min.						Specific cutting force K, 0,4
				P25K 0.3-0.6-1.2	P40K 0.1 - 0.3	CK30 0.1-0.4-0.8	TIC15 0.1-0.4-0.8	TIC20 0.1-0.4-0.8	TIC30 0.2-0.5-1.2	
Unalloyed steel	125 150 200	C=0.15% C=0.35% C=0.60%	150 115 80 145 105 70 115 90 65		350 280 270 230 240 190	480 345 250 440 315 230 385 275 200	440 300 205 400 275 190 350 240 165	330 230 110 300 210 150 260 185 130	1900 2100 2250	
Low alloyed steel	180 275 300 350	Annealed Hardened Hardened Hardened	90 70 45 65 45 30 60 40 25 50 35 20		300 260 220 140 230 180 220 140	380 265 195 260 180 130 240 165 120 210 145 105	320 220 170 215 150 115 200 135 105 170 120 90	200 140 100 140 100 70 125 90 60 110 75 55	2100 2600 2700 2850	
High alloyed steel	200 325	Annealed Hardened	80 60 45 40 25 20		200 160 200 160	350 230 170 170 110	280 185 135 120 80 60	175 115 80 85 55 40	2600 3900	
Stainless steel	200	Martensitic/Ferritic	110 95 75		270 130	295 240 190	275 210 165	225 180 145	2300	
Steel castings	180 200 225	Unalloyed Low alloyed High alloyed	60 50 35 50 45 30 40 30 20		300 260 230 180 220 140	260 185 145 230 160 120 190 130 95	230 160 120 190 125 85 170 115 80	135 105 75 120 90 60 95 70 55	2000 2500 2700	

Material	M	HB	Condition	Cutting speed m/min.								Specific cutting force K, 0,4
				P25K 0.1-0.3	P40K 0.1-0.3	CK30 0.1-0.3	TIC15 0.1-0.4-0.8	TIC17 0.1-0.3	TIC20 0.1-0.3	TIC30 0.2-0.4-0.6	TIC35 0.2-0.4-0.6	
Stainless steel annealed	180	Austenitic Ni > 8%, Cr 12-25% Austenitic/Ferritic Austenitic/Ferritic, Low S	205 170		240 200 160 130 160 130	180 150 120 180 150 120 180 150 120	600 100 400 100 400 100		190 160 130 190 160 100 140 110	190 160 130 190 160 130 160 130 100	2450	
Heat resistant alloys	200 280 250 350 320	Annealed Aged Annealed Aged Cast					50 20 50 20 40 15 35 20 25 10		40 20 35 15 25 6 15 4 15 4	40 20 35 15 25 8 15 4 15 4	3000 3050 3500 4150 4150	
Titanium alloys	400 950 1050	Ti Cast α, almost α and α+b Aged cast α+b					140 80 45 25 45 25				80 130 15 35 15 35	1530 1675 1690

Material	K	HB	Condition	Cutting speed m/min.						Specific cutting force K, 0,4
				K15K 0.2-0.5-1.0	TIC17 0.2-0.5-1.0	CK30 0.2-0.5	TIC15 0.2-0.5-1.0	TIC20 0.2-0.5-1.0	Z10R 0.2-0.5-1.0	
Hardened steel	350 250	Hardened steel Manganese steel 12%	27 16 10 65 40 16	180 150 110 120 90 60			175 145 100 120 85 50			4500 3600
Malleable cast iron	130 230	Ferritic Pearlitic	105 75 45 80 60 30	250 180 100 160 100 60			225 150 90 155 95 55			1100 1100
Cast iron	180 260	Low tensile strength High tensile strength	135 95 60 95 65 40	180 120 80 140 105 60	300 200 250 180		165 110 70 120 90 55			1100 1500
Nodular SG iron	160 250	Ferritic Pearlitic	115 80 45 80 50 30	220 180 100 150 100 50	250 180 180 120					1100 1800
Chilled cast iron	400		17 11	17 11						3000
Aluminium alloys	60 100	Non heat treatable Heat treatable	1750 1280 800 510 370 250	1750 1280 800 510 370 250					1750 1280 800 510 370 250	500 800
Aluminium alloys (Cast)	75 90	Non heat treatable Heat treatable	460 285 175 300 180 110	460 285 175 300 180 110					460 285 175 300 180 110	750 900
Bronze-Brass alloys	110 90 100	Lead alloys, Pb>1% Brass and bronze Inc. electrolytic copper	610 430 295 310 250 195 225 160 115	610 430 295 310 250 195 225 160 115					610 430 295 310 250 195 225 160 115	700 750 1750
Other materials		Hard plastics Fibre Hard rubber	380 240 190 120 225 160	380 240 190 120 225 160					380 240 190 120 225 160	



Inserts

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Automatic lathes

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Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors



Technical information
Information technique
Technische Auskunft

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Code Key
Système de codification
Kodifizierungs-System

C03

Applications
Applications
Anwendungen

C04

Top Clamping boring bars
Barres d'alésage avec bride supérieure
Bohrstangen mit oberer Pratze

C06

Dimple lock boring bars
Barres d'alésage avec fixation type "Dimple lock"
Dimple lock Bohrstangen

C07

Double lock boring bars
Barres d'alésage avec double fixation
Bohrstangen mit doppelter Klemmung

C08

Lever lock boring bars
Barres d'alésage avec levier
Bohrstangen mit Kniehebel-Klemmung

C10

Center screw boring bars
Barres d'alésage avec vis centrale
Bohrstangen mit Zentralschrauben-Klemmung

C15

Anti-Vibration tools
Outils anti-vibratoires
Schwingungsgedämpfte Bohrstangen

C25

Kits
Kits
Kits

C30

Cutting data
Conditions de coupe
Schnittbedingungen

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C01

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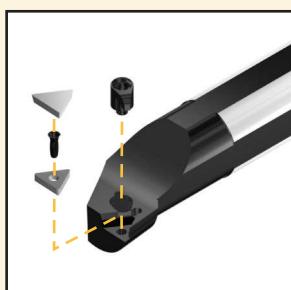
Brazed tools

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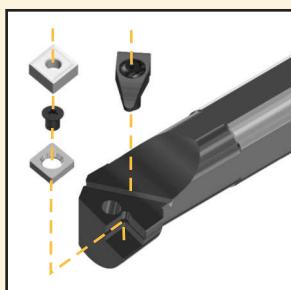


(C) Top clamp / Fixation par bride supérieure / Obere Klemmung

The classic positive insert clamping system is designed to hold flat positive inserts, both with additional or sintered chipbreaker.

Ce système classique de fixation de plaquettes positives a été conçu pour fixer les plaquettes plates positives, que ce soit avec brise copeaux additionnel ou sintérisé.

Dieses klassische Klemmsystem von positiven Wendeplatten erlaubt die Verwendung von allen Wendeplatten dieses Typs, in üblicher Sinterausführung als auch mit Spanbrecher.

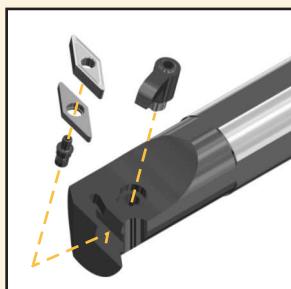


(D) Dimple lock / Fixation type "Dimple lock" / Dimple lock

The "D" clamping system avoid insert movement during high feed or heavily interrupted machining, due to its accurate indexing that holds the insert securely clamped.

Le système de fixation "D" évite le mouvement de la plaquette lors d'une haute avance ou d'un usinage fortement interrompu, grâce à son indexation très exacte, laquelle maintient la plaquette solidement serrée.

Das "D"-Klemmsystem vermeidet die Bewegung der Wendeschneidplatte bei hohem Vorschub oder bei stark unterbrochener Bearbeitung dank der genauen Positionierung, die die Wendeschneidplatte sicher befestigt.



(M-K) Double lock / Double fixation / Doppelte Klemmung

The double lock system offers good rigidity in negative inserts clamping, it is the first choice for center hole negative ceramic and cermet inserts.

Le système de double fixation offre une bonne rigidité pour la fixation de plaquettes négatives. C'est le premier choix pour les plaquettes négatives en céramique ou cermet avec trou centrale.

Das doppelte Klemmsystem bietet eine gute Unbeweglichkeit bei der Klemmung von negativen Wendeschneidplatten.
Es ist die erste Wahl für negative Keramik-Wendeschneidplatten mit zentralem Loch und auch für Cermet-Wendeschneidplatten.

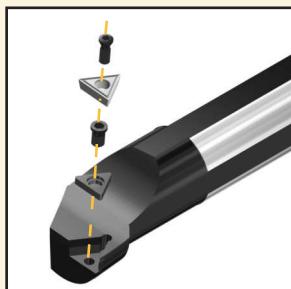


(P) Lever lock / Fixation par levier / Kniehebel-Klemmung

The classic lever lock system allows a wide range of applications, it is the first choice for general purpose turning boring bars.

Le système classique de fixation par levier permet une large gamme d'applications. C'est le premier choix pour l'usinage général avec des porte-outils de tournage.

Das klassische Hebel-System erlaubt eine breite Reihe von Anwendungen. Es ist die erste Wahl für allgemeine Drehoperationen.



(S) Center screw / Fixation par vis / Zentralschrauben-Klemmung

Since the advent of the TORX screw it has been possible to hold with complete safety positive inserts with center hole. Our range covers all the screw fixing permutations.

Dès l'apparition de la vis TORX il est possible de fixer avec sûreté les plaquettes positives avec trou central. Notre gamme couvre toutes les possibilités de fixation avec vis.

Seit der Einführung der Torx-Schraube ist es möglich, die positiven Wendeschneidplatten mit zentralem Loch zu klemmen. Unser Programm bietet alle Klemmmöglichkeiten mit Schraube.



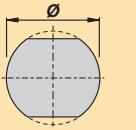
S 25 T S D U C R 11 - EX

1**Type of bar**

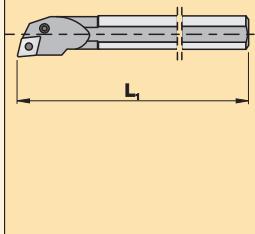
A	Steel shank with internal coolant.	
H	Anti-vibration shank (Heavy metal)	
J	Anti-vibration shank (heavy metal) with internal coolant	
S	Steel shank	

2

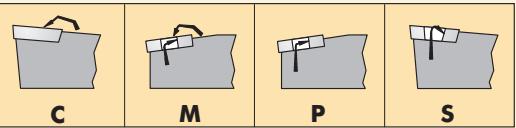
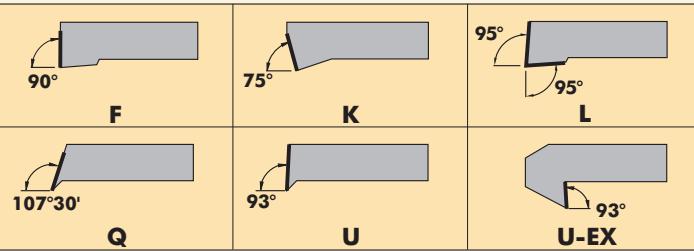
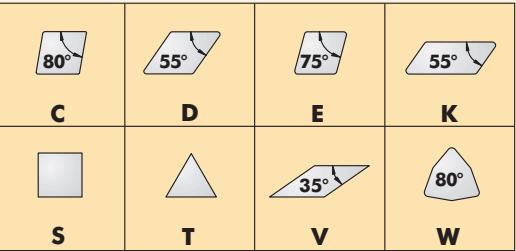
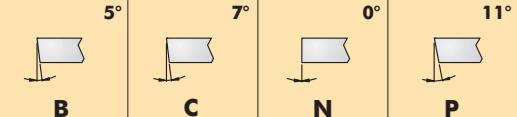
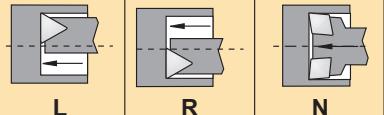
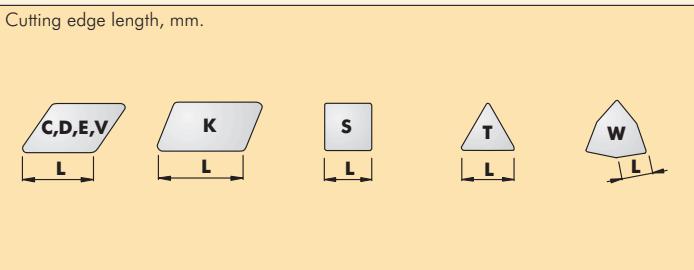
Bar diameter, mm.

**3**

Bar length, mm.



H	100	T	300
J	110	U	350
K	125	V	400
L	140	W	450
M	150	Y	500
Q	180	X	Special
R	200		
S	250		

4**6****5****7****8****9**

Manufacturer's option

Inserts**Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors**

Inserts

Turning

Automatic lathes

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Parting & grooving

Threading

Drills

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Brazed tools

Milling cutters

Solid carbide

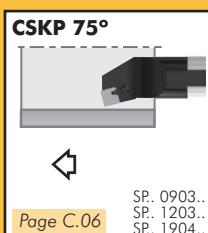
Boring heads

Arbors & adaptors

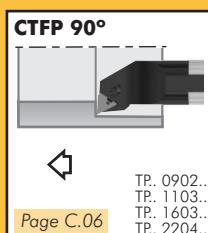
Top Clamping boring bars - Barres d'alésage avec bride supérieure - Bohrstangen mit oberer Pratze



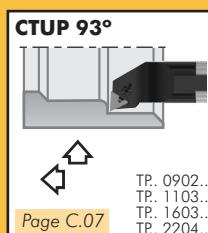
Page C.06 KNUX 1604..



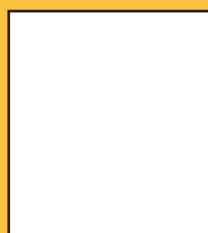
Page C.06 SP. 0903..
SP. 1203..
SP. 1904..



Page C.06



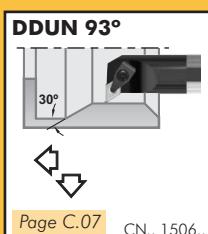
TP. 0902..
TP. 1103..
TP. 1603..
TP. 2204..



Dimple lock boring bars - Barres d'alésage avec fixation type "Dimple lock" - Dimple lock Bohrstangen



Page C.07 CN.. 1204..



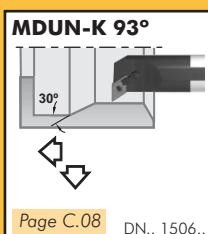
Page C.07 CN.. 1506..



Double lock boring bars - Barres d'alésage avec double fixation - Bohrstangen mit doppelter Klemmung



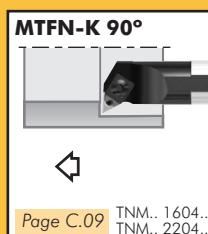
Page C.08 CN.. 1204..



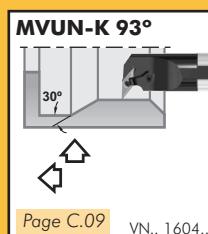
Page C.08 DN.. 1506..



Page C.08 SNM.. 1204..



Page C.09 TNM.. 1604..
TNM.. 2204..

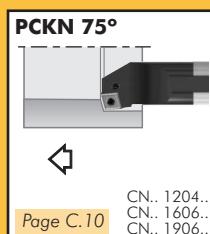


Page C.09 VN.. 1604..

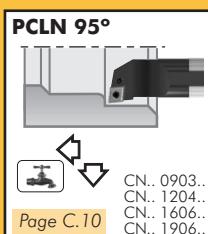


Page C.09 WNM.. 0604..
WNM.. 0804..

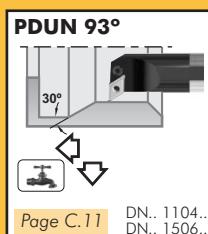
Lever lock boring bars - Barres d'alésage avec levier - Bohrstangen mit Kniehebel-Klemmung



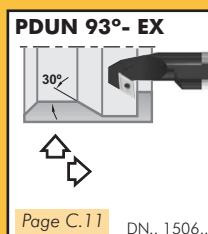
Page C.10 CN.. 1204..
CN.. 1606..
CN.. 1906..



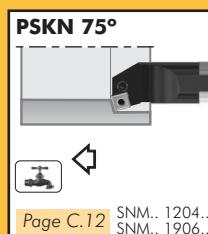
Page C.10 CN.. 0903..
CN.. 1204..
CN.. 1606..
CN.. 1906..



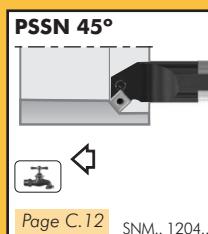
Page C.11 DN.. 1104..
DN.. 1506..



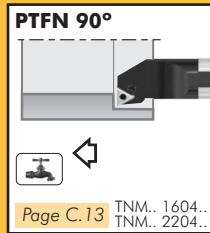
Page C.11 DN.. 1506..



Page C.12 SNM.. 1204..
SNM.. 1906..



Page C.12 SNM.. 1204..



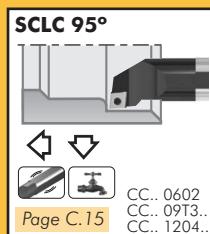
Page C.13 TNM.. 1604..
TNM.. 2204..



Page C.14 WNM.. 0604..
WNM.. 0804..



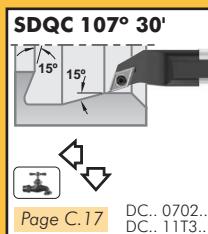
Center screw boring bars - Barres d'alésage avec vis centrale - Bohrstangen mit Zentralschrauben-Klemmung



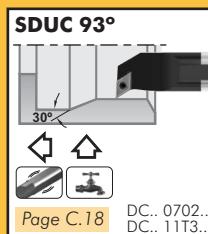
Page C.15 CC.. 0602..
CC.. 09T3..
CC.. 1204..



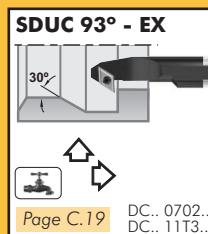
Page C.17 CC.. 0602..
CC.. 09T3..
CC.. 1204..



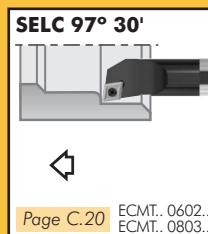
Page C.17 DC.. 0702..
DC.. 11T3..



Page C.18 DC.. 0702..
DC.. 11T3..



Page C.19 DC.. 0702..
DC.. 11T3..



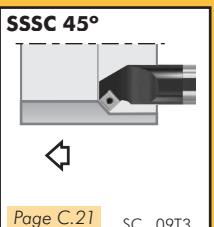
Page C.20 ECMT.. 0602..
ECMT.. 0803..



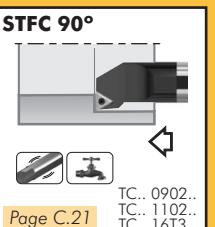
Page C.20 EPM.. 0402..
EPM.. 0803..



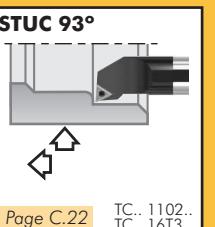
Page C.20 SC.. 09T3..
SC.. 1204..



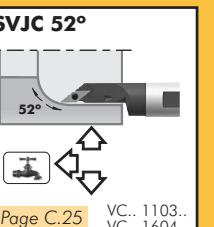
Page C.21 SC.. 09T3..



Page C.21 TC.. 0902..
TC.. 1102..
TC.. 16T3..

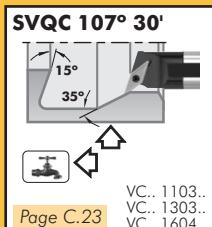


Page C.22 TC.. 1102..
TC.. 16T3..

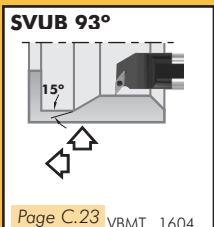


Page C.25 VC.. 1103..
VC.. 1604..

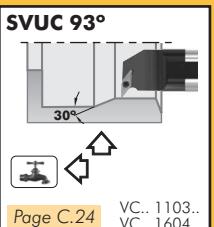
Inserts



Page C.23 VC.. 1103..
VC.. 1303..
VC.. 1604..



Page C.23 VBMT.. 1604..



Page C.24 VC.. 1103..
VC.. 1604..



Turning

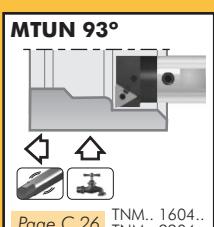
Automatic lathes

Ceramic tools

Anti-vibration tools - Outils anti-vibratoires - Schwingungsgedämpfte Bohrstanzen



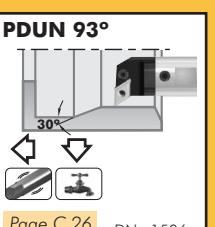
Page C.25



Page C.26 TNM.. 1604..
TNM.. 2204..



Page C.26 CN.. 1204..
CN.. 1606..



Page C.26 DN.. 1506..

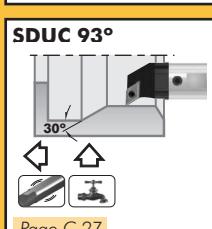


Page C.27 WNM.. 0804..

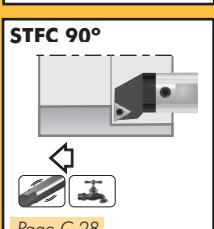


Page C.27 CC.. 09T3..
CC.. 1204..

Parting & grooving



Page C.27 DC.. 11T3..



Page C.28 TC.. 16T3..



Page C.28 16 NR/L..
22 NR/L..



Threading

Drills

Cartridges

Kits - Kits - Kits



Page C.30 CC.. 0602..



Page C.30 CN.. 1506..



Page C.30 DC.. 0702..



Page C.31 TC.. 1102..

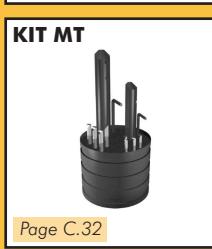


Page C.32

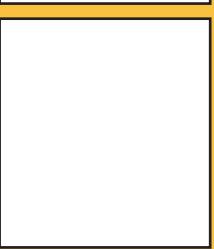
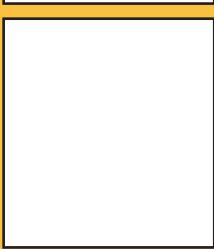


Page C.32

Brazed tools



Page C.32



Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

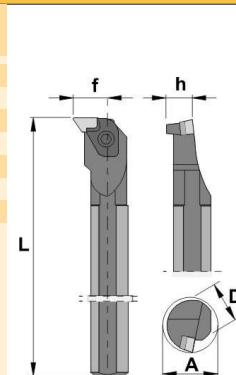
Arbors & adaptors

CKUN 93°



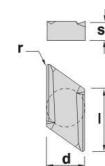
REF. D h L f A KNUX

S25T CKUN L 16	25	11,5	300	20,5	37	1604..	237	169	504	495	421	-	-
S32U CKUN L 16	32	15,0	350	22,0	39	1604..	237	169	504	495	422	327	403
S40V CKUN L 16	40	18,5	400	27,0	48	1604..	237	169	504	495	424	327	403
S50W CKUN L 16	50	23,5	450	35,0	61	1604..	237	169	504	495	424	327	403
S25T CKUN R 16	25	11,5	300	20,5	37	1604..	246	169	504	495	421	-	-
S32U CKUN R 16	32	15,0	350	22,0	39	1604..	246	169	504	495	422	328	403
S40V CKUN R 16	40	18,5	400	27,0	48	1604..	246	169	504	495	424	328	403
S50W CKUN R 16	50	23,5	450	35,0	61	1604..	246	169	504	495	424	328	403



REF. I s d

KNUX 1604..	16,00	4,76	9,52
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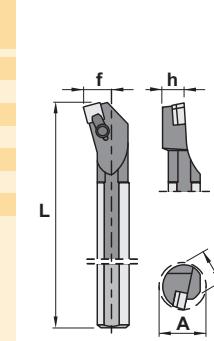
For more information see page: A.45

CSKP 75°



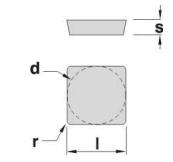
REF. D h L f A SP..

S16R CSKP R/L 09	16	7,5	200	11	20	0903..	207	525	-	-
S20S CSKP R/L 09	20	9,0	250	13	24	0903..	207	525	-	-
S25T CSKP R/L 12	25	11,5	300	17	31	1203..	209	503	-	-
S32U CSKP R/L 12	32	15,0	350	22	39	1203..	209	503	314	402
S40V CSKP R/L 12	40	18,5	400	27	48	1203..	229	503	314	402
S50W CSKP R/L 12	50	23,5	450	35	61	1203..	229	503	314	402
S50W CSKP R/L 19	50	23,5	450	35	61	1904..	231	504	320	403



REF. I s d

SP. 0903..	9,52	3,18	9,52
SP. 1203..	12,70	3,18	12,70
SP. 1904..	19,05	4,76	19,05



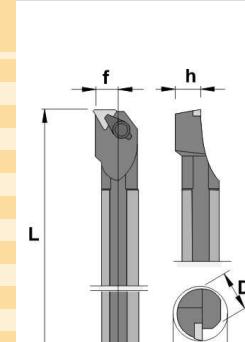
For more information see page: A.51

CTFP 90°



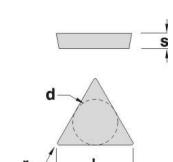
REF. D h L f A TP..

S10M CTFP R/L 09	10	4,5	150	7	13	0902..	200	545	-	-
S12M CTFP R/L 09	12	5,5	150	9	16	0902..	200	545	-	-
S12M CTFP R/L 11	12	5,5	150	9	16	1103..	234	525	-	-
S16R CTFP R/L 11	16	7,5	200	11	20	1103..	207	525	-	-
S20S CTFP R/L 11	20	9,0	250	13	24	1103..	207	525	-	-
S16R CTFP R/L 16	16	7,5	200	11	20	1603..	210	503	-	-
S20S CTFP R/L 16	20	9,0	250	13	24	1603..	210	503	-	-
S25T CTFP R/L 16	25	11,5	300	17	31	1603..	209	503	-	-
S32U CTFP R/L 16	32	15,0	350	22	39	1603..	229	503	317	402
S40V CTFP R/L 16	40	18,5	400	27	48	1603..	229	503	317	402
S50W CTFP R/L 16	50	23,5	450	35	61	1603..	229	503	317	402
S40V CTFP R/L 22	40	18,5	400	27	48	2204..	231	504	324	403
S50W CTFP R/L 22	50	23,5	450	35	61	2204..	231	504	324	403



REF. I s d

TP. 0902..	9,62	2,38	5,55
TP. 1103..	11,00	3,18	6,35
TP. 1603..	16,50	3,18	9,52
TP. 2204..	22,00	4,76	12,70

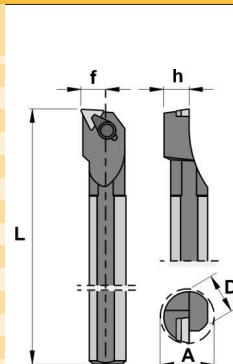


For more information see page: A.54,55

CTUP 93°

REF. D h L f A TP..

S10M CTUP R/L 09	10	4,5	150	7	13	0902..	200	545	-	-
S12M CTUP R/L 09	12	5,5	150	9	16	0902..	200	545	-	-
S12M CTUP R/L 11	12	5,5	150	9	16	1103..	234	525	-	-
S16R CTUP R/L 11	16	7,5	200	11	20	1103..	207	525	-	-
S20S CTUP R/L 11	20	9,0	250	13	24	1103..	207	525	-	-
S16R CTUP R/L 16	16	7,5	200	11	20	1603..	210	503	-	-
S20S CTUP R/L 16	20	9,0	250	13	24	1603..	210	503	-	-
S25T CTUP R/L 16	25	11,5	300	17	31	1603..	209	503	-	-
S32U CTUP R/L 16	32	15,0	350	22	39	1603..	229	503	317	402
S40V CTUP R/L 16	40	18,5	400	27	48	1603..	229	503	317	402
S50W CTUP R/L 16	50	23,5	450	35	61	1603..	229	503	317	402
S40V CTUP R/L 22	40	18,5	400	27	48	2204..	231	504	324	403
S50W CTUP R/L 22	50	23,5	450	35	61	2204..	231	504	324	403



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

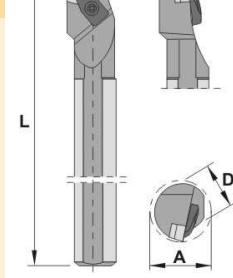
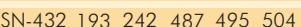
Boring heads

Arbors & adaptors

DCLN 95°

REF. D h L f A CN..

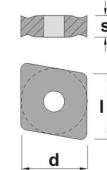
S25T DCLN R/L 12	25	11,5	300	17	31	1204..	ICSN-432	193	242	487	495	504
S32U DCLN R/L 12	32	15,0	350	22	39	1204..	ICSN-432	471	242	487	495	504
S40V DCLN R/L 12	40	18,5	400	27	48	1204..	ICSN-432	470	242	487	495	504



REF. I s d

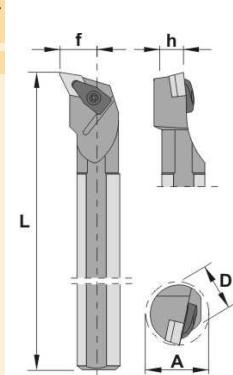
CN.. 1204..	12,90	4,76	12,70
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For more information see page: A.39,40

**DDUN 93°**

REF. D h L f A DN..

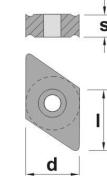
S32U DDUN R/L 15	32	15,0	350	22	39	1506..	IDSN-432	471	242	487	495	504
S40V DDUN R/L 15	40	18,5	400	27	48	1506..	IDSN-432	470	242	487	495	504



REF. I s d

DN.. 1506..	15,50	6,35	12,70
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For more information see page: A.41,42,43



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

MCLN-K 95°

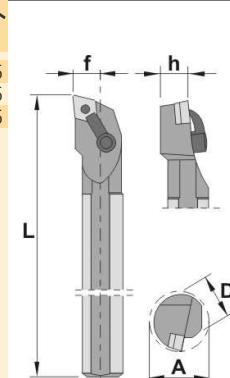


REF.

D h L f A CN..



S25T MCLN R/L 12-K	25	11,5	300	17	31	1204..	221	167	503	ICSN-432 443 525
S23U MCLN R/L 12-K	32	15,0	350	22	39	1204..	221	165	503	ICSN-432 446 525
S40V MCLN R/L 12-K	40	18,5	400	27	48	1204..	221	165	503	ICSN-432 446 525



For more information see page: A.39,40

MDUN-K 93°

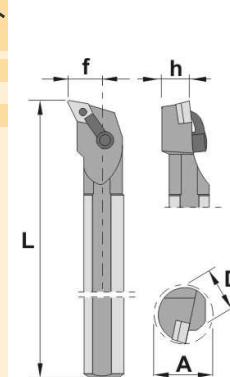


REF.

D h L f A DN..



S25T MDUN R/L 15-K	25	11,5	300	17	31	1506..	222	167	503	IDSN-432 443 525
S32U MDUN R/L 15-K	32	15,0	350	22	39	1506..	222	165	503	IDSN-432 456 525
S40V MDUN R/L 15-K	40	18,5	400	27	48	1506..	222	165	503	IDSN-432 456 525



For more information see page: A.41,42,43

MSKN-K 75°

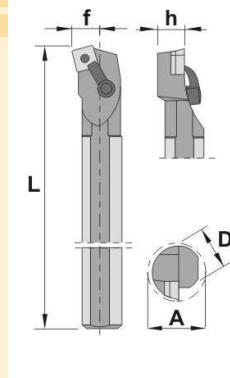


REF.

D h L f A SN..



S32U MSKN R/L 12-K	32	15,0	350	22	39	1204..	221	165	503	ISSN-432 446 525
S40V MSKN R/L 12-K	40	18,5	400	27	48	1204..	221	165	503	ISSN-432 446 525

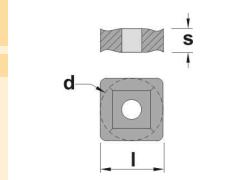


REF.

I s d



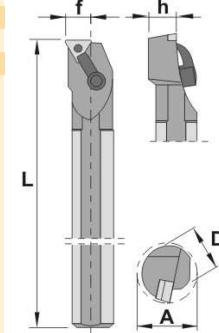
SN.. 1204..	12,70	4,76	12,70
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For more information see page: A.49,50

MTFN-K 90°

REF.	D	h	L	f	A	TN..	Inserts
S25T MTFN R/L 16-K	25	11,5	300	17	31	1604.. 221 165 503	ITSN-322 434 502
S23U MTFN R/L 16-K	32	15,0	350	22	39	1604.. 221 165 503	ITSN-322 434 502
S40V MTFN R/L 16-K	40	18,5	400	27	48	1604.. 221 165 503	ITSN-322 434 502



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

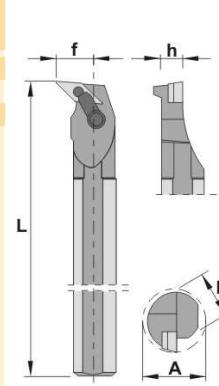
Solid carbide

Boring heads

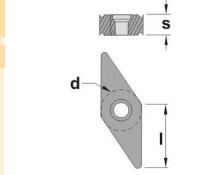
Arbors & adaptors

MVUN-K 93°

REF.	D	h	L	f	A	VN..	Inserts
S25T MVUN R/L 16-K	25	11,5	300	17	31	1604.. 222 503	IVSN-322 167 434 502
S23U MVUN R/L 16-K	32	15,0	350	22	39	1604.. 222 503	IVSN-322 165 434 502
S40V MVUN R/L 16-K	40	18,5	400	27	48	1604.. 222 503	IVSN-322 165 434 502



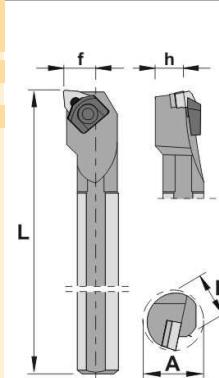
REF.	I	s	d
VN.. 1604..	15,50	4,76	9,52



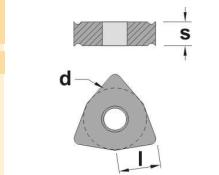
For more information see page: A.56

MWLN-K 95°

REF.	D	h	L	f	A	WN..	Inserts
S25T MWLN R/L 08-K	25	11,5	300	17	31	0804.. 208	IWSN-433 457 525 494
S32U MWLN R/L 08-K	32	15,0	350	22	39	0804.. 208	IWSN-433 461 525 494
S40V MWLN R/L 08-K	40	18,5	400	27	48	0804.. 208	IWSN-433 461 525 494
S50W MWLN R/L 08-K	50	23,5	450	35	61	0804.. 208	IWSN-433 461 525 494



REF.	I	s	d
WN.. 0804..	8,14	4,76	12,70



For more information see page: A.57,58

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

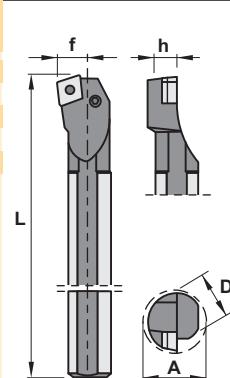
Boring heads

Arbors & adaptors

PCKN 75°



REF.	D	h	L	f	A	CN..					
S25T PCKN R/L 12	25	11,5	300	17	31	1204..	832	171	525	-	-
S32U PCKN R/L 12	32	15,0	350	22	39	1204..	842	173	503	302	412 002
S40V PCKN R/L 12	40	18,5	400	27	48	1204..	812	163	503	302	412 002
S50W PCKN R/L 16	50	23,5	450	35	61	1606..	816	170	503	366	415 005
S50W PCKN R/L 19	50	23,5	450	35	61	1906..	819	164	504	369	419 029

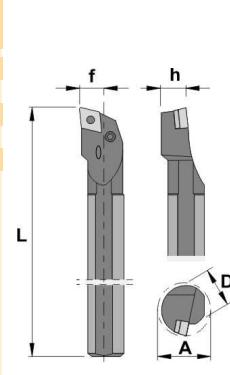


For more information see page: A.39,40

A-PCLN 95°



REF.	D	h	L	f	A	CN..					
A16M PCLN R/L 09	16	7,5	150	11	20	0903..	805	161	502	-	-
A20Q PCLN R/L 09	20	9,0	180	13	25	0903..	805	161	502	-	-
A25R PCLN R/L 12	25	11,5	200	17	31	1204..	832	171	525	-	-
A32S PCLN R/L 12	32	15,0	250	22	39	1204..	832	173	503	302	412 002
A40T PCLN R/L 12	40	18,5	300	27	48	1204..	832	163	503	302	412 002



Characteristics:

Boring bars with internal coolant.

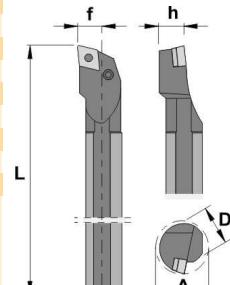
REF.	I	s	d
CN.. 0903..	9,65	3,18	9,52
CN.. 1204..	12,90	4,76	12,70
CN.. 1606..	16,10	6,35	15,88
CN.. 1906..	19,30	6,35	19,05

For more information see page: A.39,40

PCLN 95°

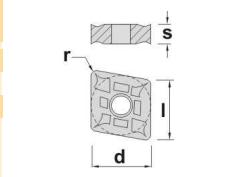


REF.	D	h	L	f	A	CN..					
S16R PCLN R/L 09	16	7,5	200	11	20	0903..	805	161	502	-	-
S20S PCLN R/L 09	20	9,0	250	13	25	0903..	805	161	502	-	-
S25T PCLN R/L 09	25	11,5	300	17	32	0903..	809	171	525	368	409 009
S25T PCLN R/L 12	25	11,5	300	17	31	1204..	832	171	525	-	-
S32U PCLN R/L 12	32	15,0	350	22	39	1204..	842	173	503	302	412 002
S40V PCLN R/L 12	40	18,5	400	27	48	1204..	812	163	503	302	412 002
S50W PCLN R/L 12	50	23,5	450	35	61	1606..	812	163	503	302	412 002
S50W PCLN R/L 16	50	23,5	450	35	61	1606..	816	170	503	366	415 005
S50W PCLN R/L 19	50	23,5	450	35	61	1606..	839	180	504	369	429 029



REF.	I	s	d
CN.. 0903..	9,65	3,18	9,52
CN.. 1204..	12,90	4,76	12,70
CN.. 1606..	16,10	6,35	15,88

For more information see page: A.39,40

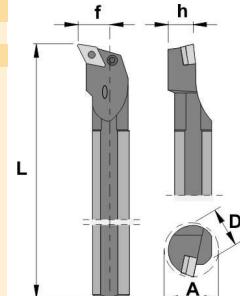


A-PDUN 93°

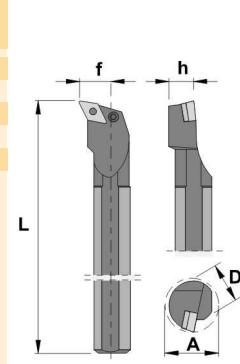
REF.	D	h	L	f	A	DN..						
A25R PDUN R/L 11	25	11,5	200	17	31	1104..	809	162	525	311	409	009
A32S PDUN R/L 15	32	15,0	250	22	39	1506..	845	173	503	305	412	002
A40T PDUN R/L 15	40	18,5	300	27	48	1506..	845	172	503	305	412	002

**Characteristics:**

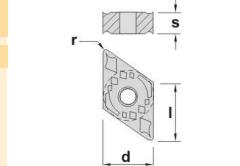
Boring bars with internal coolant.

**Inserts****Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors****PDUN 93°**

REF.	D	h	L	f	A	DN..						
S25T PDUN R/L 11	25	11,5	300	17	32	1104..	809	162	525	311	409	009
S32U PDUN R/L 11	32	15,0	350	22	40	1104..	809	162	525	311	409	009
S32U PDUN R/L 15	32	15,0	350	22	39	1506..	845	173	503	305	412	002
S40V PDUN R/L 15	40	18,0	400	27	48	1506..	845	172	503	305	412	002
S50W PDUN R/L 15	50	23,5	450	35	61	1506...	845	172	503	305	412	002



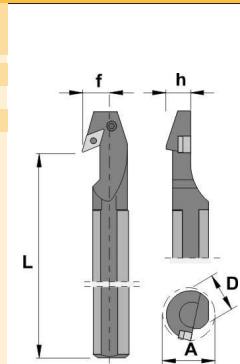
REF.	I	s	d
DN.. 1104..	11,60	4,76	9,52
DN.. 1506..	15,50	6,35	12,70



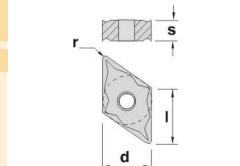
For more information see page: A.41,42,43

PDUN 93°-EX

REF.	D	h	L	f	A	DN..						
S32U PDUN R/L 15-EX	32	15,0	350	22	39	1506..	845	173	503	-	-	-
S40V PDUN R/L 15-EX	40	18,5	400	27	48	1506..	845	172	503	305	412	002
S50W PDUN R/L 15-EX	50	23,5	450	35	61	1506...	845	172	503	305	412	002



REF.	I	s	d
DN.. 1506..	15,50	6,35	12,70



For more information see page: A.41,42,43

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

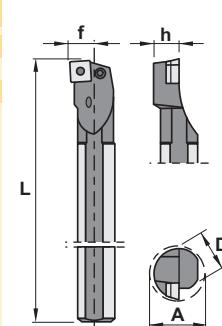
Boring heads

Arbors & adaptors

A-PSKN 75°



REF.	D	h	L	f	A	SN..					
A25R PSKN R/L 12	25	11,5	200	17	31	1204..	832	171	525	-	-
A32S PSKN R/L 12	32	15,0	250	22	39	1204..	842	173	503	313	412 002
A40T PSKN R/L 12	40	18,5	300	27	48	1204..	812	163	503	313	412 002



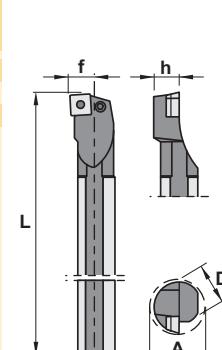
Characteristics:

Boring bars with internal coolant.

PSKN 75°

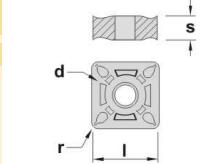


REF.	D	h	L	f	A	SN..					
S25T PSKN R/L 12	25	11,5	300	17	31	1204..	832	171	525	-	-
S32U PSKN R/L 12	32	15,0	350	22	39	1204..	842	173	503	313	412 002
S40V PSKN R/L 12	40	18,5	400	27	48	1204..	812	163	503	313	412 002
S50W PSKN R/L 19	50	23,5	450	35	61	1906..	839	164	504	359	429 029



REF.	I	s	d
SN.. 1204..	12,70	4,76	12,70
SN.. 1906..	19,05	6,35	19,05

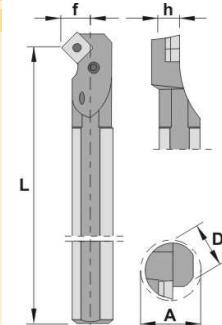
For more information see page: A.49,50



A-PSSN 45°



REF.	D	h	L	f	A	SN..					
A25R PSSN R/L 12	25	11,5	200	17	31	1204..	832	171	525	-	-
A32S PSSN R/L 12	32	15,0	250	22	39	1204..	842	173	503	313	412 002

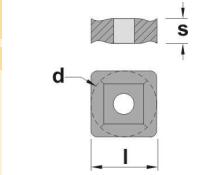


Characteristics:

Boring bars with internal coolant.

REF.	I	s	d
SN.. 1204..	12,70	4,76	12,70

For more information see page: A.49,50



A-PTFN 90°

REF.

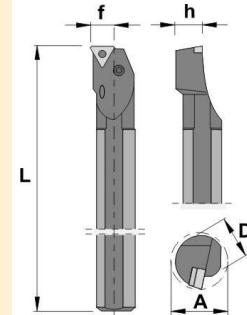
D h L f A TN..


A25R PTFN R/L 16
A32S PTFN R/L 16
A40T PTFN R/L 22

25 11,5 200 17 31 1604.. 836 161 502 - - -

32 15,0 250 22 39 1604.. 809 162 525 336 409 009

40 18,5 300 27 48 2204.. 812 163 503 323 412 002

**Characteristics:**

Boring bars with internal coolant.



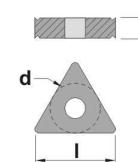
REF.

I s d

TN.. 1604..
TN.. 2204..

16,50 4,76 9,52

22,00 4,76 12,70



For more information see page: A.52,53,54

PTFN 90°

REF.

D h L f A TN..

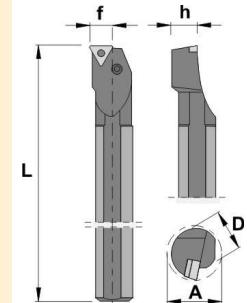

S25T PTFN R/L 16
S32U PTFN R/L 16
S40V PTFN R/L 22
S50W PTFN R/L 22

25 11,5 300 17 31 1604.. 836 161 502 - - -

32 15,0 350 22 39 1604.. 809 162 525 336 409 009

40 18,5 400 27 48 2204.. 812 163 503 323 412 002

50 23,5 450 35 61 2204.. 812 163 503 323 412 002



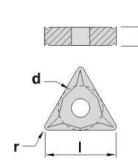
REF.

I s d

TN.. 1604..
TN.. 2204..

16,50 4,76 9,52

22,00 4,76 12,70



For more information see page: A.52,53,54

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

A-PWLN 95°



REF.	D	h	L	f	A	WN..
------	---	---	---	---	---	------

A16M PWLN R/L 06	16	7,5	150	11	20	0604..
A20Q PWLN R/L 06	20	9,0	180	13	27	0604..
A25R PWLN R/L 06	25	11,5	200	17	31	0604..
A25R PWLN R/L 08	25	11,5	200	17	31	0804..
A32S PWLN R/L 06	32	15,0	250	22	39	0604..
A32S PWLN R/L 08	32	15,0	250	22	39	0804..
A40T PWLN R/L 08	40	18,5	300	27	48	0804..



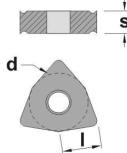
Characteristics:

Boring bars with internal coolant.



REF.	I	s	d
------	---	---	---

WN.. 0604..	6,45	4,76	9,52
WN.. 0804..	8,14	4,76	12,70



For more information see page: A.57,58

PWLN 95°



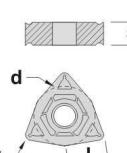
REF.	D	h	L	f	A	WN..
------	---	---	---	---	---	------

S16R PWLN R/L 06	16	7,5	200	11	20	0604..
S20S PWLN R/L 06	20	9,0	250	13	27	0604..
S25T PWLN R/L 06	25	11,5	300	17	31	0604..
S25T PWLN R/L 08	25	11,5	300	17	31	0804..
S32U PWLN R/L 08	32	15,0	350	22	39	0804..
S40V PWLN R/L 08	40	18,5	400	27	48	0804..



REF.	I	s	d
------	---	---	---

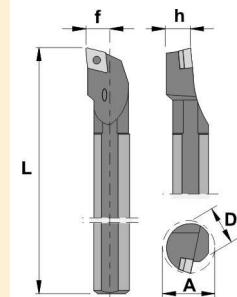
WN.. 0604..	6,45	4,76	9,52
WN.. 0804..	8,14	4,76	12,70



For more information see page: A.57,58

A-SCLC 95°

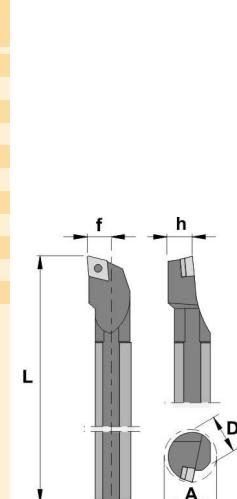
REF.	D	h	L	f	A	CC..				
A08F SCLC R/L 06	8	3,5	80	5	11	0602..	155	507	-	-
A10H SCLC R/L 06	10	4,5	100	7	13	0602..	155	507	-	-
A12K SCLC R/L 06	12	5,5	125	9	16	0602..	155	507	-	-
A16M SCLC R/L 09	16	7,5	150	11	20	09T3..	138	515	-	-
A20Q SCLC R/L 09	20	9,0	180	13	24	09T3..	138	515	-	-
A25R SCLC R/L 09	25	11,5	200	17	31	09T3..	138	515	-	-
A32S SCLC R/L 12	32	15,0	250	22	39	1204..	196	523	361	195
A40T SCLC R/L 12	40	18,5	300	27	48	1204..	196	523	361	195

**Characteristics:**

Boring bars with internal coolant.

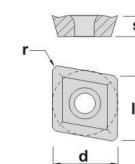
Inserts**Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors****SCLC 95°**

REF.	D	h	L	f	A	CC..				
S08K SCLC R/L 06	8	3,5	125	5	11	0602..	155	507	-	-
S10M SCLC R/L 06	10	4,5	150	7	13	0602..	155	507	-	-
S12M SCLC R/L 06	12	5,5	150	9	16	0602..	155	507	-	-
S12M SCLC R/L 09	12	5,5	150	9	16	09T3..	138	515	-	-
S16R SCLC R/L 09	16	7,5	200	11	20	09T3..	138	515	-	-
S20S SCLC R/L 09	20	9,0	250	13	24	09T3..	138	515	-	-
S25T SCLC R/L 09	25	11,5	300	17	31	09T3..	140	515	-	-
S20S SCLC R/L 12	20	9,0	250	13	24	1204..	150	520	-	-
S25T SCLC R/L 12	25	11,5	300	17	31	1204..	150	520	-	-
S32U SCLC R/L 12	32	15,0	350	22	39	1204..	196	523	361	195
S40V SCLC R/L 12	40	18,5	400	27	48	1204..	196	523	361	195
S50W SCLC R/L 12	50	23,5	450	35	61	1204..	196	523	361	195



REF.	I	s	d
CC.. 0602..	6,45	2,38	6,35
CC.. 09T3..	9,65	3,97	9,52
CC.. 1204..	12,90	4,76	12,70

For more information see page: A.38



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

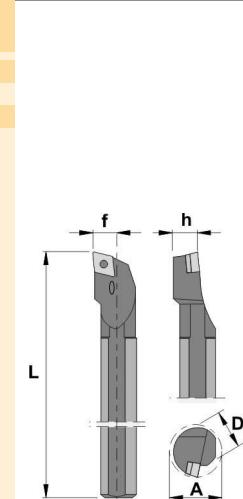
Arbors & adaptors

H-SCLC 95°



REF.	D	h	L	f	A	CC..
------	---	---	---	---	---	------

H08K SCLC R/L 06	8	3,5	125	5	11	0602..
H10M SCLC R/L 06	10	4,5	150	7	13	0602..
H12M SCLC R/L 06	12	5,5	150	9	16	0602..
H16R SCLC R/L 09	16	7,5	200	11	20	09T3..

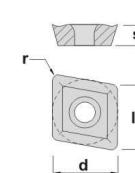


Characteristics:

Boring bars with anti-vibration shank.



REF.	I	s	d
CC.. 0602..	6,45	2,38	6,35
CC.. 09T3..	9,65	3,97	9,52
CC.. 1204..	12,90	4,76	12,70



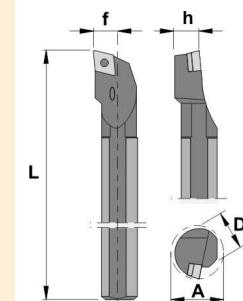
For more information see page: A.38

J-SCLC 95°



REF.	D	h	L	f	A	CC..
------	---	---	---	---	---	------

J08K SCLC R/L 06	8	3,5	125	5	11	0602..
J10M SCLC R/L 06	10	4,5	150	7	13	0602..
J12M SCLC R/L 06	12	5,5	150	9	16	0602..
J16R SCLC R/L 09	16	7,5	200	11	20	09T3..

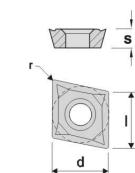


Characteristics:

Boring bars with internal coolant and anti-vibration shank.



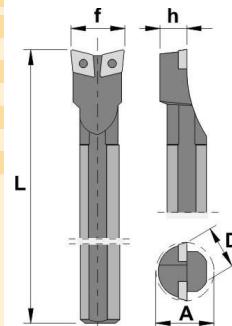
REF.	I	s	d
CC.. 09T3..	9,65	3,97	9,52
CC.. 1204..	12,90	4,76	12,70



For more information see page: A.38

SCLCN 95°

REF.	D	h	L	f	A	CC..
S12M SCLC N 06	12	5,5	150	18	20	0602..
S16R SCLC N 06	16	7,5	200	22	25	0602..
S20S SCLC N 06	20	9,0	250	26	30	0602..
S25T SCLC N 09	25	11,5	300	34	40	09T3..
S32U SCLC N 12	32	15,0	350	44	50	1204..
S40V SCLC N 12	40	18,5	400	54	60	1204..
S50W SCLC N 12	50	23,5	450	62	68	1204..



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

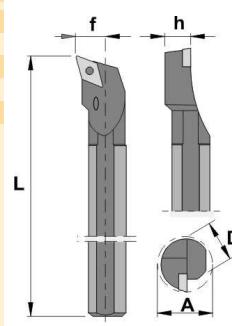
Solid carbide

Boring heads

Arbors & adaptors

A-SDQC 107° 30'

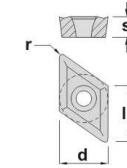
REF.	D	h	L	f	A	DC..
A12K SDQC R/L 07	12	5,5	125	9	16	0702..
A16M SDQC R/L 07	16	7,5	150	11	20	0702..
A20Q SDQC R/L 11	20	9,0	180	13	24	11T3..
A25R SDQC R/L 11	25	11,5	200	17	31	11T3..
A32S SDQC R/L 11	32	15,0	250	22	39	11T3..
A40T SDQC R/L 11	40	18,5	300	27	48	11T3..

**Characteristics:**

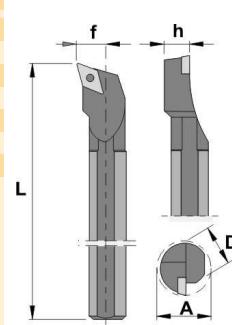
Boring bars with internal coolant.

REF.	I	s	d
DC.. 0702..	7,75	2,38	6,35
DC.. 11T3..	11,60	3,97	9,52

For more information see page: A.41

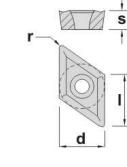
**SDQC 107° 30'**

REF.	D	h	L	f	A	DC..
S10M SDQC R/L 07	10	4,5	150	7	13	0702..
S12M SDQC R/L 07	12	5,5	150	9	16	0702..
S16R SDQC R/L 07	16	7,5	200	11	20	0702..
S20S SDQC R/L 07	20	9,0	250	13	24	0702..
S20S SDQC R/L 11	20	9,0	250	13	24	11T3..
S25T SDQC R/L 11	25	11,5	300	17	31	11T3..
S32U SDQC R/L 11	32	15,0	350	22	39	11T3..
S40V SDQC R/L 11	40	18,5	400	27	48	11T3..



REF.	I	s	d
DC.. 0702..	7,75	2,38	6,35
DC.. 11T3..	11,60	3,97	9,52

For more information see page: A.41



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

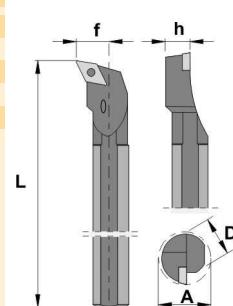
Arbors & adaptors

A-SDUC 93°



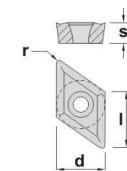
REF. D h L f A DC..

A12K SDUC R/L 07	12	5,5	125	9	16	0702..	125	507	-	-
A16M SDUC R/L 07	16	7,5	150	9	16	0702..	125	507	-	-
A20Q SDUC R/L 11	20	9,0	180	13	24	11T3..	138	515	-	-
A25R SDUC R/L 11	25	11,5	200	17	31	11T3..	140	515	-	-
A32S SDUC R/L 11	32	15,0	250	22	39	11T3..	133	521	371	194
A40T SDUC R/L 11	40	18,5	300	27	48	11T3..	133	521	371	194



Characteristics:

Boring bars with internal coolant.



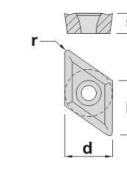
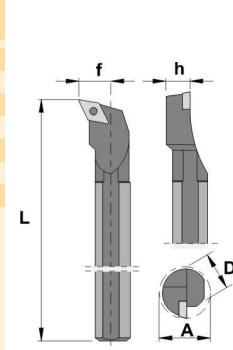
SDUC 93°



REF. D h L f A DC..

S10M SDUC R/L 07	10	4,5	150	7	13	0702..	155	507	-	-
S12M SDUC R/L 07	12	5,5	150	9	16	0702..	125	507	-	-
S16R SDUC R/L 07	16	7,5	200	11	20	0702..	125	507	-	-
S20S SDUC R/L 07	20	9,0	250	13	24	0702..	125	507	-	-
S20S SDUC R/L 11	20	9,0	250	13	24	11T3..	140	515	-	-
S25T SDUC R/L 11	25	11,5	300	17	31	11T3..	140	515	-	-
S32U SDUC R/L 11	32	15,0	350	22	39	11T3..	133	521	371	194
S40V SDUC R/L 11	40	18,5	400	27	48	11T3..	133	521	371	194

For more information see page: A.41

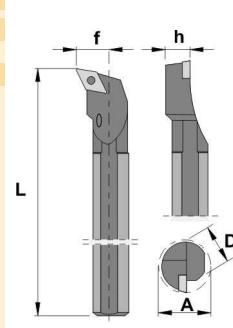


H-SDUC 93°



REF. D h L f A DC..

H10M SDUC R/L 07	10	4,5	150	7	13	0702..	155	507		
H12M SDUC R/L 07	12	5,5	150	9	16	0702..	125	507		
H16R SDUC R/L 07	16	7,5	200	11	20	0702..	125	507		



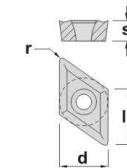
Characteristics:

Boring bars with anti-vibration shank.

REF. I s d

DC.. 0702..	7,75	2,38	6,35
DC.. 11T3..	11,60	3,97	9,52

For more information see page: A.41

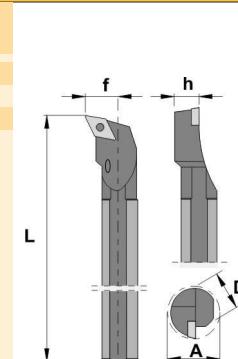


J-SDUC 93°

REF.	D	h	L	f	A	DC..		
J10M SDUC R/L 07	10	4,5	150	7	13	0702..	155	507
J12M SDUC R/L 07	12	5,5	150	9	16	0702..	125	507
J16R SDUC R/L 07	16	7,5	200	11	20	0702..	125	507

**Characteristics:**

Boring bars with internal coolant and anti-vibration shank.



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

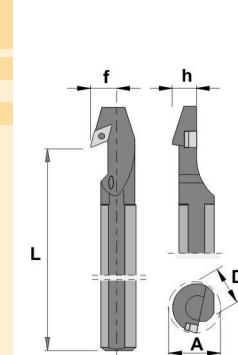
Arbors & adaptors

A-SDUC 93°-EX

REF.	D	h	L	f	A	DC..		
A12K SDUC R/L 07-EX	12	5,5	125	9	16	0702..	125	507
A16M SDUC R/L 07-EX	16	7,5	150	11	20	0702..	125	507
A20Q SDUC R/L 11-EX	20	9,0	180	13	24	11T3..	140	515
A25R SDUC R/L 11-EX	25	11,5	200	17	31	11T3..	140	515

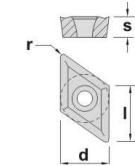
**Characteristics:**

Boring bars with internal coolant.

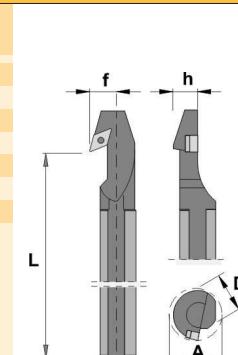


REF.	I	s	d
DC.. 0702..	7,75	2,38	6,35
DC.. 11T3..	11,60	3,97	9,52

For more information see page: A.41

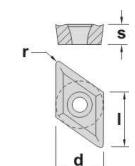
**SDUC 93°-EX**

REF.	D	h	L	f	A	DC..			
S12M SDUC R/L 07-EX	12	5,5	150	9	16	0702..	125	507	- -
S16R SDUC R/L 07-EX	16	7,5	200	11	20	0702..	125	507	- -
S20S SDUC R/L 07-EX	20	9,0	250	13	24	0702..	125	507	- -
S20S SDUC R/L 11-EX	20	9,0	250	13	24	11T3..	140	515	- -
S25T SDUC R/L 11-EX	25	11,5	300	17	31	11T3..	140	515	- -
S32U SDUC R/L 11-EX	32	15,0	350	22	39	11T3..	133	521	371 194
S40V SDUC R/L 11-EX	40	18,5	400	27	48	11T3..	133	521	371 194



REF.	I	s	d
DC.. 0702..	7,75	2,38	6,35
DC.. 11T3..	11,60	3,97	9,52

For more information see page: A.41



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

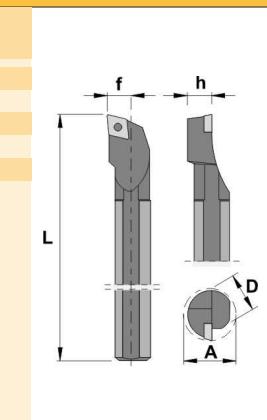
Arbors & adaptors

SELC 95°



REF. D h L f A ECMT

S08K SELC R/L 06	8	7	125	5	11	0602..	155 507
S10M SELC R/L 06	10	9	150	7	13	0602..	155 507
S12M SELC R/L 08	12	11	150	9	16	0803..	148 508
S16R SELC R/L 08	16	15	200	11	20	0803..	148 508
S20S SELC R/L 08	20	18	250	13	24	0803..	130 508



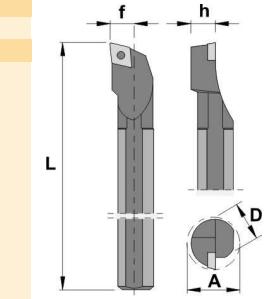
For more information see page: A.43

SELP 95°



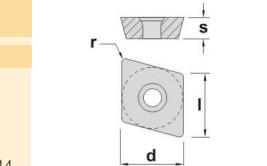
REF. D h L f A EP..

S08K SELP R/L 04	8	3,5	125	5	11	0402..	121 506
S10M SELP R/L 08	10	4,5	150	7	13	0803..	138 515
S12M SELP R/L 08	12	5,5	150	9	16	0803..	138 515
S16R SELP R/L 08	16	7,5	200	11	20	0803..	138 515



REF. I s d

EP. 0402..	4,92	2,38	4,76
EP. 0803..	8,28	3,00	8,00



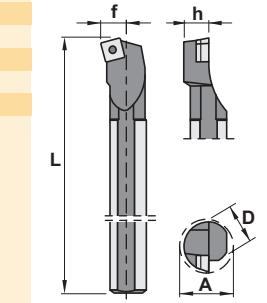
For more information see page: A.43,44

SSKC 75°



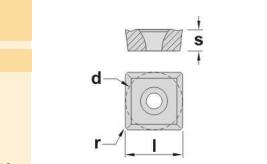
REF. D h L f A SC..

S16R SSKC R/L 09	16	7,5	200	11	20	09T3..	138 515	-	-
S20S SSKC R/L 09	20	9,0	250	13	24	09T3..	140 515	-	-
S25T SSKC R/L 09	25	11,5	300	17	31	09T3..	140 515	-	-
S32U SSKC R/L 12	32	15,0	350	22	39	1204..	196 523	351	195
S40V SSKC R/L 12	40	18,5	400	27	48	1204..	196 523	351	195
S50W SSKC R/L 12	50	23,5	450	35	61	1204..	196 523	351	195



REF. I s d

SC.. 09T3..	9,52	3,97	9,52
SC.. 1204..	12,70	4,76	12,70



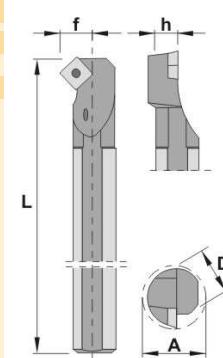
For more information see page: A.47,48

A-SSSC 45°

REF.	D	h	L	f	A	SC..		
A16M SSSC R/L 09	16	7,5	150	11	20	09T3..	138	515
A20Q SSSC R/L 09	20	9,0	180	13	24	09T3..	138	515
A25R SSSC R/L 09	25	11,5	200	17	31	09T3..	140	515

**Characteristics:**

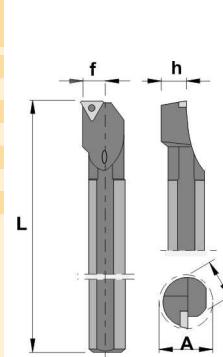
Boring bars with internal coolant.

**Inserts****Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors****A-STFC 90°**

REF.	D	h	L	f	A	TC..
A10H STFC R/L 09	10	4,5	100	7	13	0902..
A12K STFC R/L 11	12	5,5	125	9	16	1102..
A16M STFC R/L 11	16	7,5	150	11	20	1102..
A20Q STFC R/L 11	20	9,0	180	13	24	1102..
A25R STFC R/L 16	25	11,5	200	17	31	16T3..
A32S STFC R/L 16	32	15,0	250	22	39	16T3..
A40T STFC R/L 16	40	18,5	300	27	48	16T3..

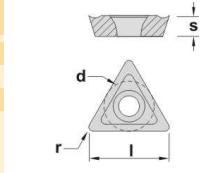
**Characteristics:**

Boring bars with internal coolant.

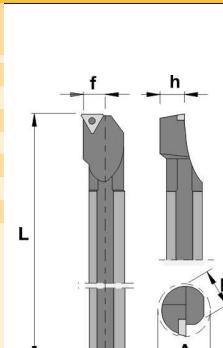


REF.	I	s	d
TC.. 0902..	9,62	2,38	5,55
TC.. 1102..	11,00	2,38	6,35
TC.. 16T3..	16,50	3,97	9,52

For more information see page: A.51,52

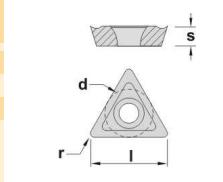
**STFC 90°**

REF.	D	h	L	f	A	TC..
S10M STFC R/L 09	10	4,5	150	7	13	0902..
S12M STFC R/L 09	12	5,5	150	9	16	0902..
S12M STFC R/L 11	12	5,5	150	9	16	1102..
S16R STFC R/L 11	16	7,5	200	11	20	1102..
S20S STFC R/L 11	20	9,0	250	13	24	1102..
S25T STFC R/L 16	25	11,5	300	17	31	16T3..
S32U STFC R/L 16	32	15,0	350	22	39	16T3..
S40V STFC R/L 16	40	18,5	400	27	48	16T3..



REF.	I	s	d
TC.. 0902..	9,62	2,38	5,55
TC.. 1102..	11,00	2,38	6,35
TC.. 16T3..	16,50	3,97	9,52

For more information see page: A.51,52



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

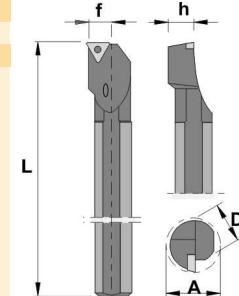
Arbors & adaptors

H-STFC 90°



REF.	D	h	L	f	A	TC..
------	---	---	---	---	---	------

H10M STFC R/L 09	10	4,5	150	7	13	0902..	122	506
H12M STFC R/L 11	12	5,5	150	9	16	1102..	125	507
H16R STFC R/L 11	16	7,5	200	11	20	1102..	138	515



Characteristics:

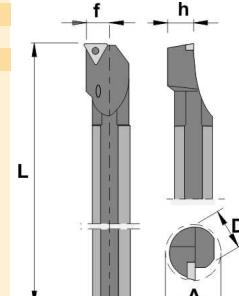
Boring bars with anti-vibration shank.

J-STFC 93°



REF.	D	h	L	f	A	TC..
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J10M STFC R/L 07	10	4,5	150	7	13	0902..	122	506
J12M STFC R/L 07	12	5,5	150	9	16	1102..	125	507
J16R STFC R/L 07	16	7,5	200	11	20	1102..	138	515



Characteristics:

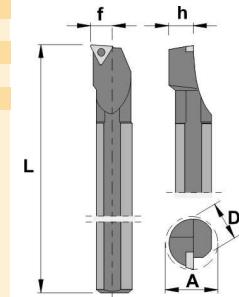
Boring bars with internal coolant and anti-vibration shank.

STUC 93°



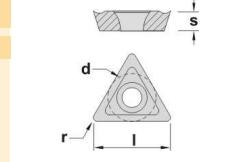
REF.	D	h	L	f	A	TC..
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S12M STUC R/L 11	12	5,5	150	9	16	1102..	125	507	-	-
S16R STUC R/L 16	16	7,5	200	11	20	16T3..	140	515	-	-
S20S STUC R/L 16	20	9,0	250	13	24	16T3..	140	515	-	-
S25T STUC R/L 16	25	11,5	300	17	31	16T3..	140	515	-	-
S32U STUC R/L 16	32	15,0	350	22	39	16T3..	133	521	341	194



REF.	I	s	d
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TC.. 1102..	11,00	2,38	6,35
TC.. 16T3..	16,50	3,97	9,52



For more information see page: A.51,52

A-SVQC 107° 30'

REF.

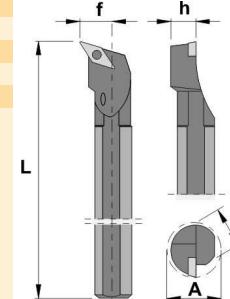
D h L f A VC..



A16M SVQC R/L 11	16	7,5	150	11	20	1103..	125	507	-	-
A20Q SVQC R/L 11	20	9,0	180	13	24	1103..	125	507	-	-
A25R SVQC R/L 16	25	11,5	200	17	31	1604..	133	521	378	194
A32S SVQC R/L 16	32	15,0	250	22	39	1604..	133	521	378	194
A40T SVQC R/L 16	40	18,5	300	27	48	1604..	133	521	378	194

**Characteristics:**

Boring bars with internal coolant.



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

SVQC 107° 30'

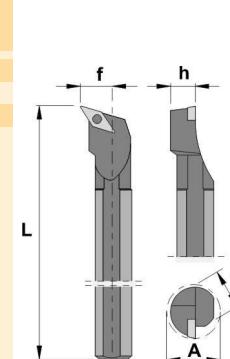
REF.

D h L f A VC..



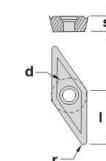
S16R SVQC R/L 13	16	7,5	200	13	22	1303..	130	508	-	-
S20S SVQC R/L 13	20	9,0	250	13	24	1303..	130	508	-	-
S25T SVQC R/L 16	25	11,5	300	17	31	1604..	140	515	-	-

For more information see page: A.55,56



REF.

I s d



VC.. 1303..	13,00	3,18	8,00
VC.. 1604..	16,50	4,76	9,52

For more information see page: A.55,56

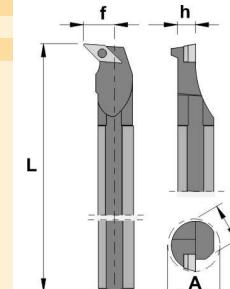
SVUB 93°

REF.

D h L f A VBMT

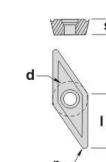


S25T SVUB R/L 16	25	11,5	300	17	31	1604..	140	515	-	-
S32U SVUB R/L 16	32	15,0	350	22	39	1604..	133	521	378	194
S40V SVUB R/L 16	40	18,5	400	27	48	1604..	133	521	378	194



REF.

I s d



VBMT 160408	16,50	4,76	9,52
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For more information see page: A.55

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

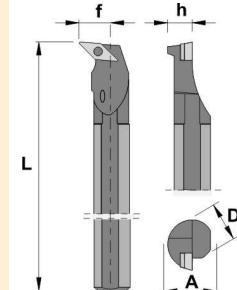
Arbors & adaptors

A-SVUC 93°



REF. D h L f A VC..

A16M SVUC R/L 11	16	7,5	150	11	20	1103..	125	507	-	-
A20Q SVUC R/L 11	20	9,0	180	13	24	1103..	125	507	-	-
A25R SVUC R/L 16	25	11,5	200	17	31	1604..	133	521	378	194
A32S SVUC R/L 16	32	15,0	250	22	39	1604..	133	521	378	194
A40T SVUC R/L 16	40	18,5	300	27	48	1604..	133	521	378	194



Characteristics:
Boring bars with internal coolant.

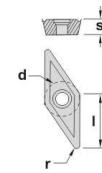
REF.

I

s

d

VC.. 1604..	16,50	4,76	9,52
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For more information see page: A.55,56

SVUC 93°



REF.

D

h

L

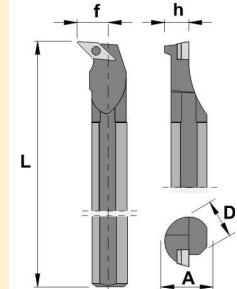
f

A

VC..

VC..

S25T SVUC R/L 16	25	11,5	300	17	31	1604..	140	515	-	-
S32U SVUC R/L 16	32	15,0	350	22	39	1604..	133	521	378	194
S40V SVUC R/L 16	40	18,5	400	27	48	1604..	133	521	378	194



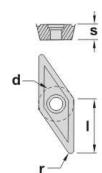
REF.

I

s

d

VC.. 1604..	16,50	4,76	9,52
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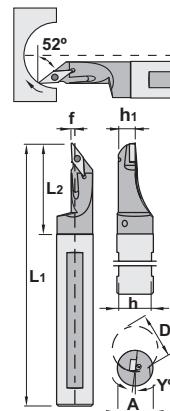
For more information see page: A.55,56

A-SVJC 52°

REF.	D	h	h1	L1	L2	A	f	γ°	VC..	Ø	Length
A16M SVJC R/L 11	16	15	7,5	150	30	22	2	6	1103..	125	507
A20Q SVJC R/L 11	20	18	9,0	180	38	25	2	5	1103..	125	507
A25R SVJC R/L 16	25	23	11,5	200	44	28	2	4	1604..	140	515

**Characteristics:**

Boring bars with internal coolant.



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

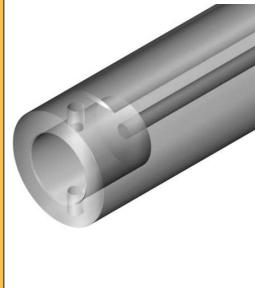
Brazed tools

Milling cutters

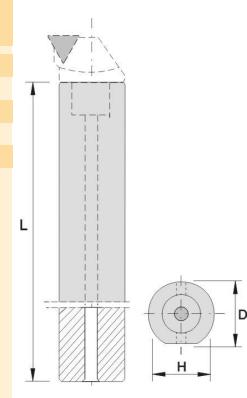
Solid carbide

Boring heads

Arbors & adaptors

JX

REF.	D	L	H
J20X	20	225	19
J25X	25	270	24
J32X	32	320	31
J40X	40	370	38
J50X	50	510	48
J60X	60	610	58



For more information see page: A.55,56



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

MTUN 93°



REF.

D L f A TN..

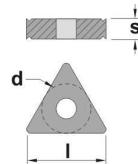
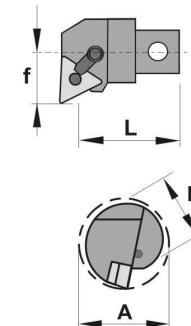


A32X MTUN R/L 16-K	32	30	22	40	1604..	221	503	336	165	434	502
A40X MTUN R/L 16-K	40	30	17	50	1604..	221	503	336	165	434	502
A50X MTUN R/L 16-K	50	30	35	63	1604..	221	503	336	165	434	502
A50X MTUN R/L 22	50	40	35	63	2204..	202	505	ITSN-433	484	461	-
A60X MTUN R/L 22	60	40	43	80	2204..	202	505	ITSN-433	484	461	-



Characteristics:

Boring bars with internal coolant and anti-vibration shank.



For more information see page: A.52,53,54

PCLN 95°



REF.

D L f A CN..

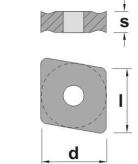
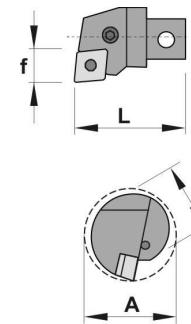


A25X PCLN R/L 12	25	25	17	32	1204..	832	171	525	-	-	-
A32X PCLN R/L 12	32	30	22	40	1204..	842	173	503	302	412	002
A40X PCLN R/L 12	40	30	27	50	1204..	812	163	503	302	412	002
A50X PCLN R/L 12	50	30	35	63	1204..	812	163	503	302	412	002
A50X PCLN R/L 16	50	40	35	63	1606..	816	170	503	366	415	005
A60X PCLN R/L 16	60	40	43	80	1606..	816	170	503	366	415	005



Characteristics:

Boring bars with internal coolant and anti-vibration shank.



For more information see page: A.39,40

PDUN 93°



REF.

D L f A DN..

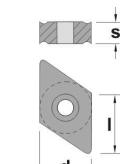
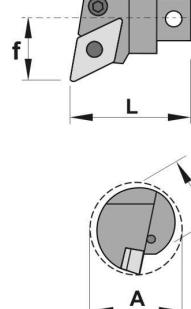


A32X PDUN R/L 15	32	30	22	40	1506..	845	173	503	305	412	002 IDSN-432
A40X PDUN R/L 15	40	30	27	50	1506..	845	172	503	305	412	002 IDSN-432
A50X PDUN R/L 15	50	40	35	63	1506..	845	172	503	305	412	002 IDSN-432
A60X PDUN R/L 15	60	40	43	80	1506..	845	172	503	305	412	002 IDSN-432



Characteristics:

Boring bars with internal coolant and anti-vibration shank.



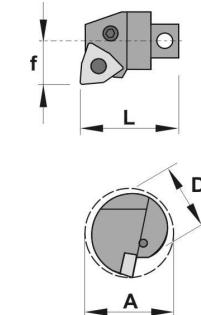
For more information see page: A.41,42,43

PWLN 95°

REF.	D	L	f	A	WN..					
A32X PWLN R/L 08	32	30	22	40	0804..	842	173	503	308	412 002
A40X PWLN R/L 08	40	30	27	50	0804..	812	163	503	308	412 002
A50X PWLN R/L 08	50	40	35	63	0804..	812	163	503	308	412 002
A60X PWLN R/L 08	60	40	43	80	0804..	812	163	503	308	412 002

**Characteristics:**

Boring bars with internal coolant and anti-vibration shank.



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

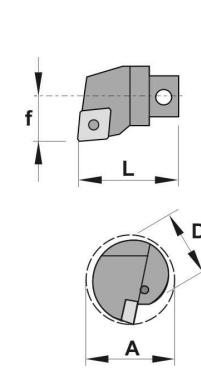
Arbors & adaptors

SCLC 95°

REF.	D	L	f	A	CC..					
A20X SCLC R/L 09	20	25	13	25	09T3..	138	515	-	-	
A25X SCLC R/L 09	25	25	17	32	09T3..	138	515	-	-	
A32X SCLC R/L 12	32	30	22	40	1204..	196	523	361	195	
A40X SCLC R/L 12	40	30	27	50	1204..	196	523	361	195	
A50X SCLC R/L 12	50	40	35	63	1204..	196	523	361	195	
A60X SCLC R/L 12	60	40	43	80	1204..	196	523	361	195	

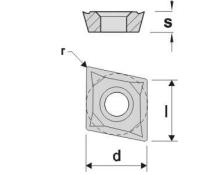
**Characteristics:**

Boring bars with internal coolant and anti-vibration shank.



REF.	I	s	d
CC.. 09T3..	9,65	3,97	9,52
CC.. 1204..	12,90	4,76	12,70

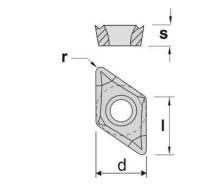
For more information see page: A.38

**SDUC 93°**

REF.	D	L	f	A	DC..					
A20X SDUC R/L 11	20	25	13	25	11T3..	140	515	-	-	
A25X SDUC R/L 11	25	25	17	32	11T3..	140	515	-	-	
A32X SDUC R/L 11	32	30	22	40	11T3..	133	521	371	194	
A40X SDUC R/L 11	40	30	27	50	11T3..	133	521	371	194	
A50X SDUC R/L 11	50	40	35	63	11T3..	133	521	371	194	
A60X SDUC R/L 11	60	40	43	80	11T3..	133	521	371	194	

REF.	I	s	d
DC.. 11T3..	11,60	3,97	9,52

For more information see page: A.41



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

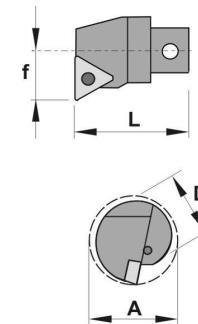
Boring heads

Arbors & adaptors

STFC 90°



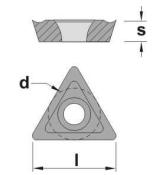
REF.	D	L	f	A	TC..				
A20X STFC R/L 16	20	25	13	25	16T3..	140	515	-	-
A25X STFC R/L 16	25	25	17	32	16T3..	140	515	-	-
A32X STFC R/L 16	32	30	22	40	16T3..	133	521	341	194
A40X STFC R/L 16	40	30	27	50	16T3..	133	521	341	194
A50X STFC R/L 16	50	40	35	63	16T3..	133	521	341	194
A60X STFC R/L 16	60	40	43	80	16T3..	133	521	341	194



Characteristics:

Boring bars with internal coolant and anti-vibration shank.

REF.	I	s	d
TC.. 16T3..	16,50	3,97	9,52

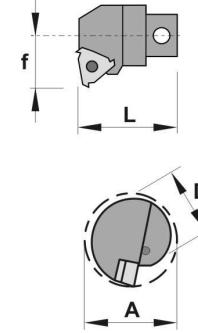


For more information see page: A.51,52

SXFN 90°



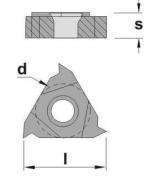
REF.	D	L	f	A	N R/L				
A20X SXFN R/L 16	20	25	13,4	18	16 NR/L..	SA3T	530	YE3	YI3 SY3
A25X SXFN R/L 16	25	25	16,3	22,6	16 NR/L..	SA3	530	YE3	YI3 SY3
A32X SXFN R/L 16	32	30	19,6	19,6	16 NR/L..	SA3	530	YE3	YI3 SY3
A25X SXFN R/L 22	25	25	17,2	32	22 NR/L..	SA4	520	YE4	YI4 SY4
A32X SXFN R/L 22	32	32	21,5	40	22 NR/L..	SA4	520	YE4	YI4 SY4
A40X SXFN R/L 22	40	32	25,8	50	22 NR/L..	SA4	520	YE4	YI4 SY4
A50X SXFN R/L 22	50	40	31,4	63	22 NR/L..	SA4	520	YE4	YI4 SY4
A60X SXFN R/L 22	60	40	36,4	80	22 NR/L..	SA4	520	YE4	YI4 SY4



Characteristics:

Boring bars with internal coolant and anti-vibration shank.

REF.	I	s	d
16 NR/L..	16,50	3,18	9,52
22 NR/L..	22,00	4,76	12,70



For more information see page: A.60



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

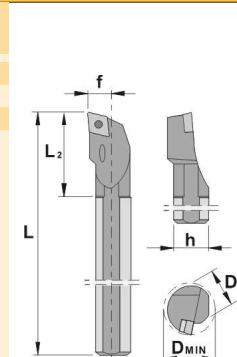
Boring heads

Arbors & adaptors

KIT SCLC 95°



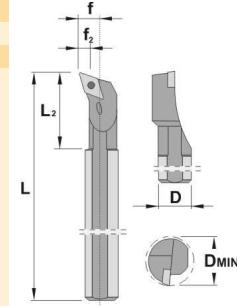
REF.	D	L	L ₂	f	D _{MIN}	h	CC..
A0608H SCLC R/L 06	8	100	25	4	8	7	0602..
A0810J SCLC R/L 06	10	110	32	6	12	9	0602..
A1012K SCLC R/L 06	12	125	38	7	14	11	0602..
A1216M SCLC R/L 06	16	150	50	9	18	15	0602..



KIT SDQC 107° 30'



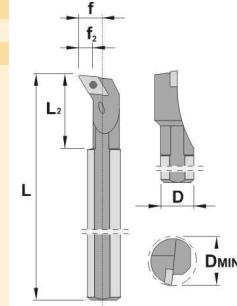
REF.	D	L	L ₂	f	f ₂	D _{MIN}	DC..
A0810J SDQC R/L 07	10	110	32	7	3	12,5	0702..
A1012K SDQC R/L 07	12	125	38	9	3	15,5	0702..
A1216M SDQC R/L 07	16	150	50	11	3	19,5	0702..



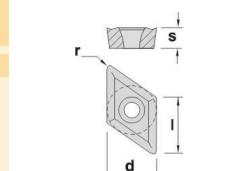
KIT SDUC 93°



REF.	D	L	L ₂	f	f ₂	D _{MIN}	DC..
A0810J SDUC R/L 07	10	110	32	7	3	12,5	0702..
A1012K SDUC R/L 07	12	125	38	9	5	15,5	0702..
A1216M SDUC R/L 07	16	150	50	11	5	19,5	0702..



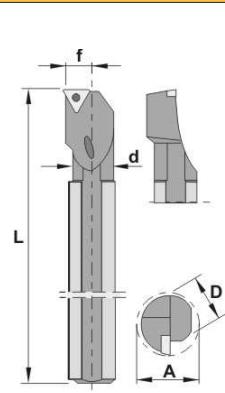
REF.	I	s	d
DC.. 0702..	9,52	2,38	6,35



For more information see page: A.41

KIT STFC 90°

REF.	D	d	L	f	A	h	TC..		
A0810J STFC R/L 11	10	8	110	7	12,5	9	1102..	155	507
A1012K STFC R/L 11	12	10	125	9	15,5	11	1102..	125	507
A1216M STFC R/L 11	16	12	150	11	19,5	15	1102..	125	507



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

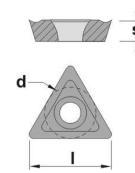
Boring heads

Arbors & adaptors



REF.	I	s	d
TC.. 1102..	11,00	2,38	6,35

For more information see page: A.51,52



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

KIT MT-12



REF.	L	d	e	d1		
00.30.12.04	100	12	2,35	2,5 - 4,2	157	525

REF.	L	d	B	r	DMIN
CTI 0402 AR	15	4	0,8	0,2	4,2
CTI 0402 BR	15	4	0,8	0,2	4,2
CTI 0400 CR	15	4	0,8	-	M5
CTI 0410 DR	15	4	1	-	4,2

KIT MT-16



REF.	L	d	e	d1		
00.30.16.06	120	16	2,8	8,2	156	503

REF.	L	d	B	r	DMIN
CTI 0602 AR	20	6	1,8	0,2	6,2
CTI 0602 BR	20	6	1,8	0,2	6,2
CTI 0600 CR	20	6	1,8	-	M8
CTI 0615 DR	20	6	1,5	-	6,2

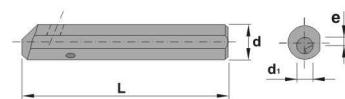
KIT MT



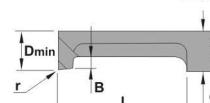
REF.	L	d	e	d1		
00.30.12.04	100	12	2,35	2,5 - 4,2	157	525
00.30.16.06	120	16	2,80	8,2	156	503

REF.	L	d	B	r	DMIN
CTI 0402 AR	15	4	0,8	0,2	4,2
CTI 0402 BR	15	4	0,8	0,2	4,2
CTI 0400 CR	15	4	0,8	-	M5
CTI 0410 DR	15	4	1	-	4,2
CTI 0602 AR	20	6	1,8	0,2	6,2
CTI 0602 BR	20	6	1,8	0,2	6,2
CTI 0600 CR	20	6	1,8	-	M8
CTI 0615 DR	20	6	1,5	-	6,2

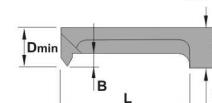
00.30.12.04
00.30.16.06



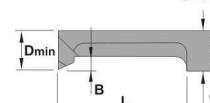
CTI 0402 AR
CTI 0602 AR



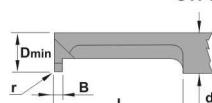
CTI 0400 CR
CTI 0600 CR



CTI 0402 BR
CTI 0602 BR



CTI 0410 DR
CTI 0615 DR



Nominal cutting speed and feed values for boring bars

Material	P	HB	Condition	Cutting speed m/min.						Specific cutting force K _{0,4}
				P25K	P40K	CK30	TIC15	TIC20	TIC30	
				0.3-0.6-1.2	0.1 - 0.3	0.1-0.4-0.8	0.1-0.4-0.8	0.2-0.5-1.2		
Unalloyed steel	125 150 200	C=0.15% C=0.35% C=0.60%	150 115 80 145 105 70 115 90 65		350 280 270 230 240 190	480 345 250 440 315 230 385 275 200	440 300 205 400 275 190 350 240 165	330 230 110 300 210 150 260 185 130	1900 2100 2250	
Low alloyed steel	180 275 300 350	Annealed Hardened Hardened Hardened	90 70 45 65 45 30 60 40 25 50 35 20		300 260 220 140 230 180 220 140	380 265 195 260 180 130 240 165 120 210 145 105	320 220 170 215 150 115 200 135 105 170 120 90	200 140 100 140 100 70 125 90 60 110 75 55	2100 2600 2700 2850	
High alloyed steel	200 325	Annealed Hardened	80 60 45 40 25 20		200 160 200 160	350 230 170 170 110	280 185 135 120 80 60	175 115 80 85 55 40	2600 3900	
Stainless steel	200	Martensitic/Ferritic	110 95 75		270 130	295 240 190	275 210 165	225 180 145	2300	
Steel castings	180 200 225	Unalloyed Low alloyed High alloyed	60 50 35 50 45 30 40 30 20		300 260 230 180 220 140	260 185 145 230 160 120 190 130 95	230 160 120 190 125 85 170 115 80	135 105 75 120 90 60 95 70 55	2000 2500 2700	

Material	M	HB	Condition	Cutting speed m/min.								Specific cutting force K _{0,4}
				P25K	P40K	CK30	TIC15	TIC17	TIC20	TIC30	TIC35	
				0.1-0.3	0.1-0.3	0.1-0.4-0.8	0.1-0.3	0.2-0.4-0.6	0.2-0.4-0.6	0.2-0.4-0.6	0.2-0.4-0.6	
Stainless steel annealed	180	Austenitic Ni > 8%, Cr 12-25% Austenitic/Ferritic Austenitic/Ferritic, Low S	205 170		240 200 160 130 160 130	180 150 120 180 150 120 180 150 120	600 100 400 100 400 100		190 160 130 190 160 100 140 110	190 160 130 190 160 130 160 130 100		2450
Heat resistant alloys	200 280 250 350 320	Annealed Aged Annealed Aged Cast					50 20 50 20 40 15 35 20 25 10		40 20 35 15 25 6 15 4 15 4	40 20 35 15 25 8 15 4 15 4	3000 3050 3500 4150 4150	
Titanium alloys	400 950 1050	Ti Cast α, almost α and α+β Aged cast α+β					140 80 45 25 45 25			80 130 15 35 15 35	1530 1675 1690	

Material	K	HB	Condition	Cutting speed m/min.						Specific cutting force K _{0,4}	
				K15K	TIC17	CK30	TIC15	TIC20	Z10R		
				0.2-0.5-1.0	0.2-0.5-1.0	0.2-0.5	0.2-0.5-1.0	0.2-0.5-1.0	0.2-0.5-1.0		
Hardened steel	350 250	Hardened steel Manganese steel 12%	27 16 10 65 40 16	180 150 110 120 90 60			175 145 100 120 85 50			4500 3600	
Malleable cast iron	130 230	Ferritic Pearlitic	105 75 45 80 60 30	250 180 100 160 100 60			225 150 90 155 95 55			1100 1100	
Cast iron	180 260	Low tensile strength High tensile strength	135 95 60 95 65 40	180 120 80 140 105 60	300 200 250 180	165 110 70 120 90 55				1100 1500	
Nodular SG iron	160 250	Ferritic Pearlitic	115 80 45 80 50 30	220 180 100 150 100 50	250 180 180 120					1100 1800	
Chilled cast iron	400		17 11	17 11						3000	
Aluminium alloys	60 100	Non heat treatable Heat treatable	1750 1280 800 510 370 250	1750 1280 800 510 370 250					1750 1280 800 510 370 250	500 800	
Aluminium alloys (Cast)	75 90	Non heat treatable Heat treatable	460 285 175 300 180 110	460 285 175 300 180 110					460 285 175 300 180 110	750 900	
Bronze - Brass alloys	110 90 100	Lead alloys, Pb>1% Brass and bronze Inc. electrolytic copper	610 430 295 310 250 195 225 160 115	610 430 295 310 250 195 225 160 115					610 430 295 310 250 195 225 160 115	700 750 1750	
Other materials		Hard plastics Fibre Hard rubber	380 240 190 120 225 160	380 240 190 120 225 160					380 240 190 120 225 160		

- Inserts
- Automatic lathes
- Ceramic tools
- Parting & grooving
- Threading
- Drills
- Cartridges
- Brazed tools
- Milling cutters
- Solid carbide
- Boring heads
- Arbors & adaptors

Code key
Système de codification
Kodifizierungs-System

D02

Applications
Applications
Anwendungen

D03

Microturn
Microturn
Microturn

D04

Center screw toolholders
Porte-outils avec vis centrale
Klemmhalter mit Zentralschrauben-Klemmung

D08

Other applications
Autres applications
Andere Anwendungen

D11

Cutting data
Conditions de coupe
Schnittbedingungen

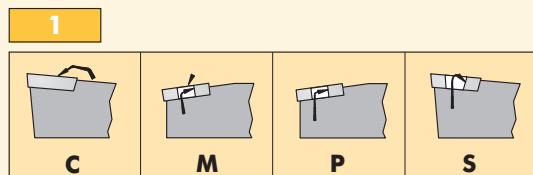
D12

D01

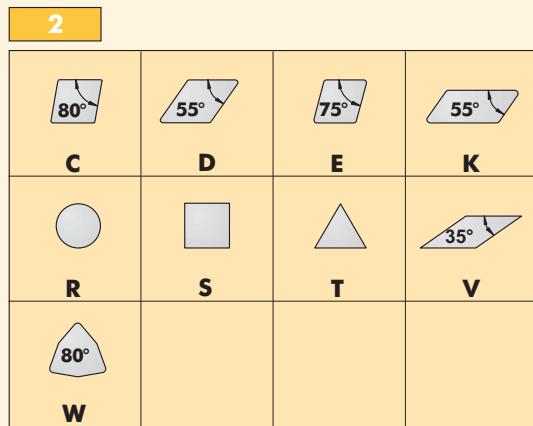
Inserts

S	C	A	C	R	12	12	M	09
1	2	3	4	5	6	7	8	9

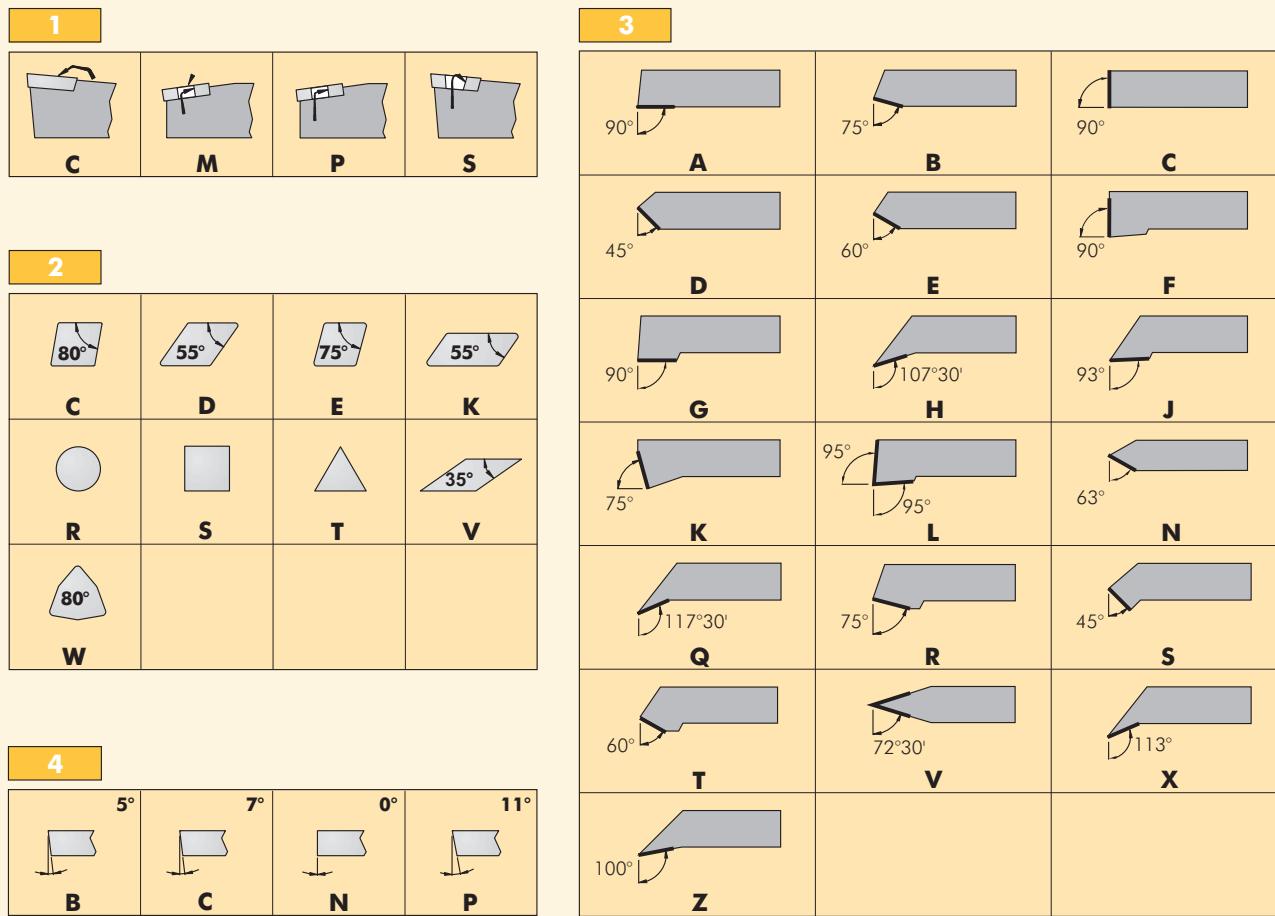
Turning



Automatic lathes



Ceramic tools



Parting & grooving

Threading

Cartridges

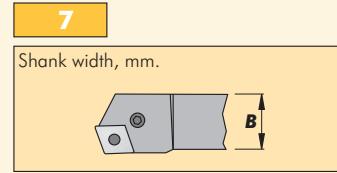
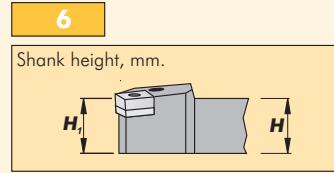
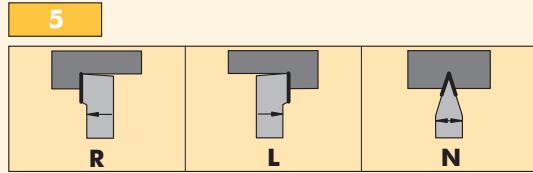
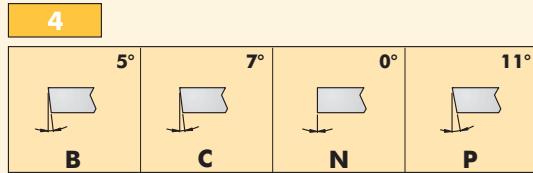
Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

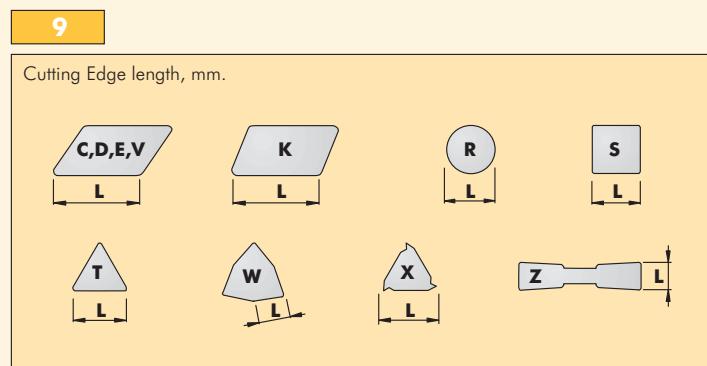


8

Tool length, mm.

D 60	P 170
E 70	R 200
F 80	S 250
H 100	T 300
K 125	U 350
L 140	V 400
M 150	X Special

L indicates the total length of the tool.



Microturn - Microturn - Microturn

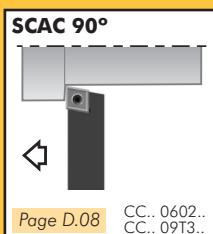
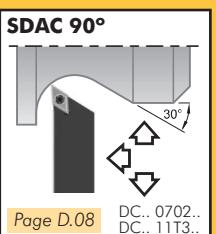
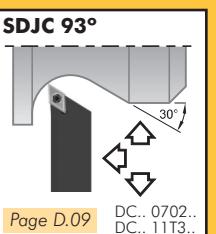
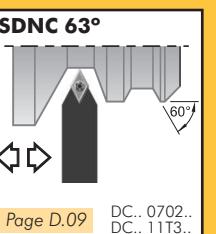
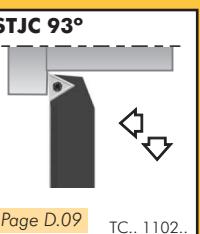
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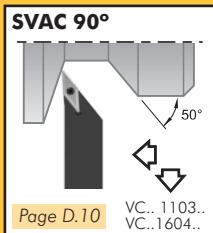
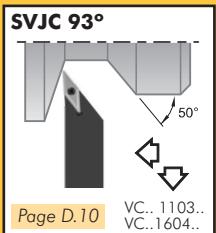
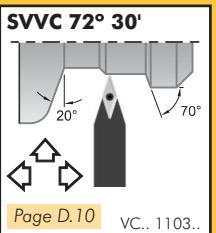
Page D.06



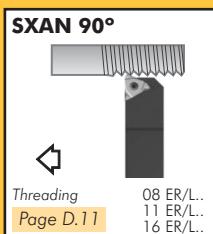
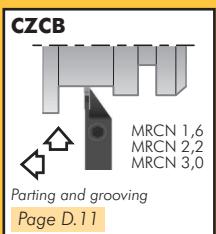
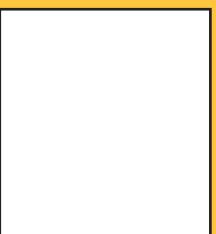
Page D.07

**Inserts****Turning****Center screw toolholders - Porte-outils avec vis centrale - Klemmhalter mit Zentralschrauben-Klemmung**Page D.08 CC.. 0602..
CC.. 09T3..Page D.08 CC.. 0602..
CC.. 09T3..Page D.08 DC.. 0702..
DC.. 11T3..Page D.09 DC.. 0702..
DC.. 11T3..Page D.09 DC.. 0702..
DC.. 11T3..

Page D.09 TC.. 1102..

Ceramic tools**Parting & grooving****Threading**Page D.10 VC.. 1103..
VC.. 1604..Page D.10 VC.. 1103..
VC.. 1604..

Page D.10 VC.. 1103..

**Other applications - Autres applications - Andere Anwendungen**Threading
Page D.11Parting and grooving
Page D.11**Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors**

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

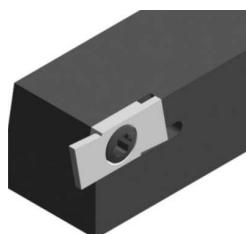
Milling cutters

Solid carbide

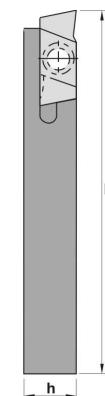
Boring heads

Arbors & adaptors

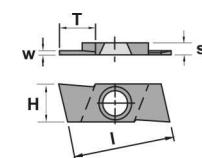
STHE



REF.	h	h1	B	L	f	GI..		
STHER/L0808M07	8	8	8	150	8	GI..	130	508
STHER/L1010M07	10	10	10	150	10	GI..	130	508
STHER/L1212M07	12	12	12	150	12	GI..	130	508
STHER/L1616M07	16	16	16	150	16	GI..	130	508



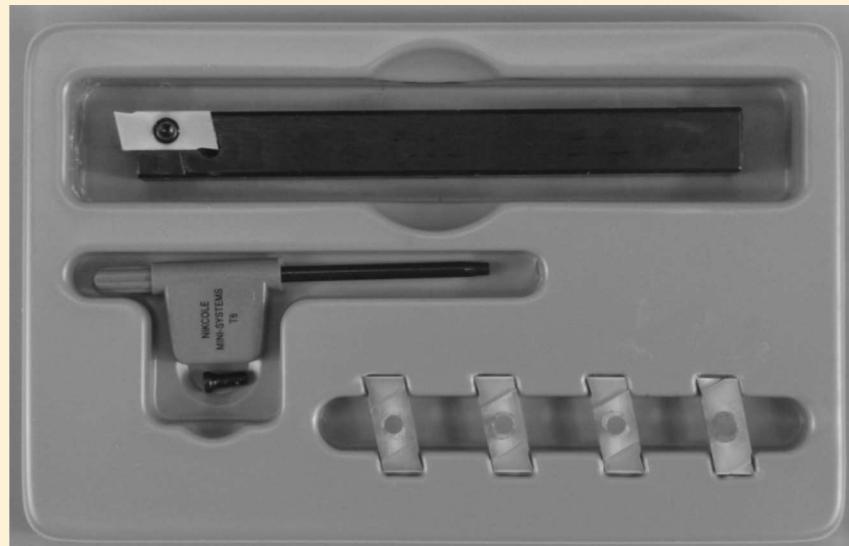
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GI..	17,00	2,00	7,00



For more information see page: A.72

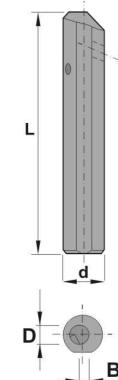
KIT STHE

REF.	Holder	Inserts
KIT STHER08	STHER0808M07	GISG09R GISG11R GISG13R GISG16R GISG185R GIGP20RN GIGW55R GIGW60R GIST3R GISC3R
KIT STHEL08	STHEL0808M07	GISG09L GISG11L GISG13L GISG16L GISG185L GIGP20LN GIGW55L GIGW60L GIST3L GISC3L
KIT STHER10	STHER1010M07	GISG09R GISG11R GISG13R GISG16R GISG185R GIGP20RN GIGW55R GIGW60R GIST3R GISC3R
KIT STHEL10	STHEL1010M07	GISG09L GISG11L GISG13L GISG16L GISG185L GIGP20LN GIGW55L GIGW60L GIST3L GISC3L
KIT STHER12	STHER1212M07	GISG09R GISG11R GISG13R GISG16R GISG185R GIGP20RN GIGW55R GIGW60R GIST3R GISC3R
KIT STHEL12	STHEL1212M07	GISG09L GISG11L GISG13L GISG16L GISG185L GIGP20LN GIGW55L GIGW60L GIST3L GISC3L
KIT STHER16	STHER1616M07	GISG09R GISG11R GISG13R GISG16R GISG185R GIGP20RN GIGW55R GIGW60R GIST3R GISC3R
KIT STHEL16	STHEL1616M07	GISG09L GISG11L GISG13L GISG16L GISG185L GIGP20LN GIGW55L GIGW60L GIST3L GISC3L

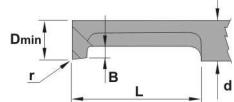


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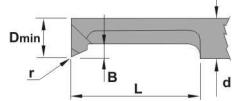
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00.30.12.04	100	12	2,35	2,5 / 4,2	04..	157	525
00.30.16.06	120	16	2,80	8,2	06..	156	503

**Inserts****Turning****Automatic lathes****AR**

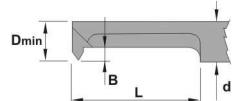
REF.	L	d	B	Dmin	r
CTI 0402 AR	15	4	0,8	4,2	0,2
CTI 0602 AR	20	6	1,8	6,2	0,2

**Turning tool****Ceramic tools****Parting & grooving****Threading****BR**

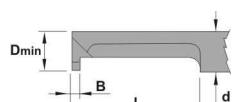
REF.	L	d	B	Dmin	r
CTI 0402 BR	15	4	0,8	4,2	0,2
CTI 0602 BR	20	6	1,8	6,2	0,2

**Copying tool****Cartridges****CR**

REF.	L	d	B	Dmin	r
CTI 0400 CR	15	4	0,8	M5	-
CTI 0600 CR	20	6	1,8	M8	-

**Threading tool****Brazed tools****Milling cutters****Solid carbide****DR**

REF.	L	d	B	Dmin	r
CTI 0410 DR	15	4	1,0	4,2	-
CTI 0615 DR	20	6	1,8	6,2	-

**Grooving tool****Boring heads****Arbors & adaptors**

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

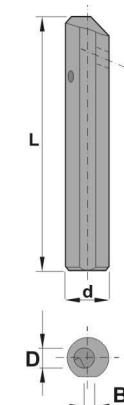
Boring heads

Arbors & adaptors

KIT MT12



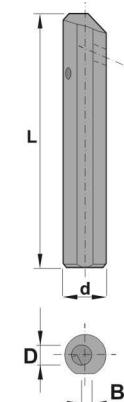
REF.	L	d	B	D	r		
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CTI 0402 AR	15	4	0,8	4,2	0,2		
CTI 0402 BR	15	4	0,8	4,2	0,2		
CTI 0404 CR	15	4	0,8	M5	-		
CTI 0410 DR	15	4	1,0	4,2	-		



KIT MT16



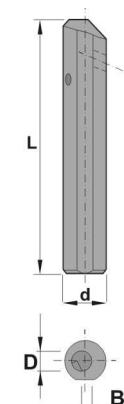
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CTI 0602 AR	20	6	1,8	6,2	0,2		
CTI 0602 BR	20	6	1,8	6,2	0,2		
CTI 0600 CR	20	6	1,8	M8	-		
CTI 0615 DR	20	6	1,8	6,2	-		



KIT MT



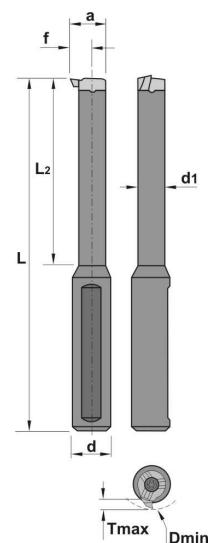
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00.30.16.06	120	16	2,80	8,2	-	156	503
CTI 0402 AR	15	4	0,8	4,2	0,2		
CTI 0602 AR	20	6	1,8	6,2	0,2		
CTI 0402 BR	15	4	0,8	4,2	0,2		
CTI 0602 BR	20	6	1,8	6,2	0,2		
CTI 0400 CR	15	4	0,8	M5	-		
CTI 0600 CR	20	6	1,8	M8	-		
CTI 0410 DR	15	4	1,0	4,2	-		
CTI 0615 DR	20	6	1,8	6,2	-		



608.00
611.00
614.00
616.00



REF.	D _{min}	d	d ₁	L	L ₂	a	f	T _{max}	R/LS..	Image
608.0012.2 HM	8	12	6	90	30	7,8	4,8	1,0	R/LS08	706 508
611.0012.2 HM	11	12	8	110	42	10,7	6,7	2,3	R/LS11	735 530
614.0012.2 HM	14	12	-	110	45	13,8	9,0	4,0	R/LS14	734 515
616.0012.2 HM	16	12	11	130	56	15,7	10,2	4,3	R/LS16	745 520



KIT 608...616

REF.	Holder	Inserts				
KIT 6080012	608.0012.2 HM	RS008.0090	RS008.0110	RS008.0130	RS008.0160	RS08.0815.01
KIT 6110012	611.0012.2 HM	RS011.0090	RS011.0110	RS011.0130	RS011.0160	RS11.0815.01
KIT 6140012	614.0012.2 HM	RS014.0090	RS014.0110	RS014.0130	RS014.0160	RS14.0815.01
KIT 6160012	616.0012.2 HM	RS016.0090	RS016.0110	RS016.0130	RS016.0160	RS16.0815.01



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

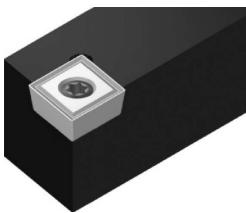
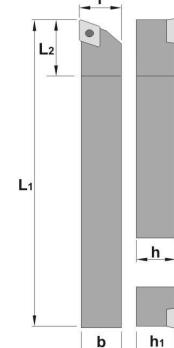
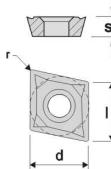
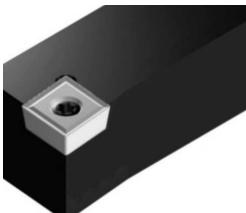
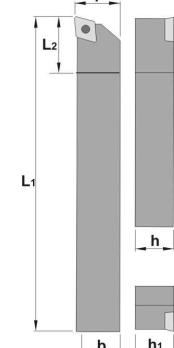
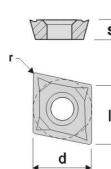
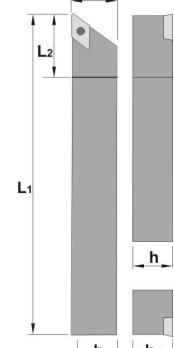
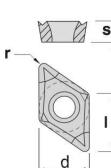
Brazed tools

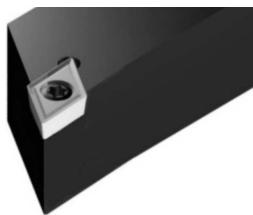
Milling cutters

Solid carbide

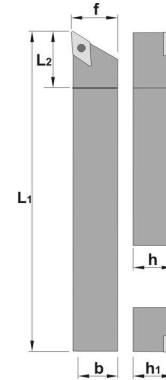
Boring heads

Arbors & adaptors

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	REF. I s d	CC.. 0602.. 6,45 2,38 6,35 CC.. 09T3.. 9,65 3,97 9,52	
		For more information see page: A.38	
<h3>SCLC 95°</h3> 	REF. h=h1 b L1 L2 f CC..  	SCLC R/L 0808 M06 8 8 150 8 8 0602.. 125 507 SCLC R/L 1010 M06 10 10 150 10 10 0602.. 125 507 SCLC R/L 1212 M06 12 12 150 12 12 0602.. 125 507 SCLC R/L 1616 M06 16 16 150 16 16 0602.. 125 507 SCLC R/L 1212 M09 12 12 150 12 12 09T3.. 140 515 SCLC R/L 1616 M09 16 16 150 16 16 09T3.. 140 515	
	REF. I s d	CC.. 0602.. 6,45 2,38 6,35 CC.. 09T3.. 9,65 3,97 9,52	
		For more information see page: A.38	
<h3>SDAC 90°</h3> 	REF. h=h1 b L1 L2 f DC..  	SDAC R/L 0808 M07 8 8 150 12,7 8 0702.. 125 507 SDAC R/L 1010 M07 10 10 150 15,0 10 0702.. 125 507 SDAC R/L 1212 M07 12 12 150 15,0 12 0702.. 125 507 SDAC R/L 1616 M07 16 16 150 16,0 16 0702.. 125 507 SDAC R/L 1212 M11 12 12 150 18,0 12 11T3.. 140 515 SDAC R/L 1616 M11 16 16 150 20,0 16 11T3.. 140 515	
	REF. I s d	DC.. 0702.. 7,75 2,38 6,35 DC.. 11T3.. 11,60 3,97 9,52	
		For more information see page: A.41	

SDJC 93°

REF.	$h=h_1$	b	L1	L2	f	DC..		
SDJC R/L 0808 M07	8	8	150	8	8	0702..	125	507
SDJC R/L 1010 M07	10	10	150	10	10	0702..	125	507
SDJC R/L 1212 M07	12	12	150	12	12	0702..	125	507
SDJC R/L 1616 M07	16	16	150	16	16	0702..	125	507
SDJC R/L 1212 M11	12	12	150	12	12	11T3..	140	515
SDJC R/L 1616 M11	16	16	150	16	16	11T3..	140	515



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

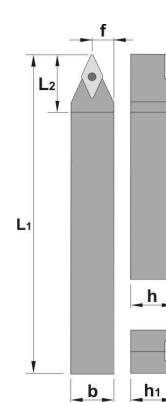
Solid carbide

Boring heads

Arbors & adaptors

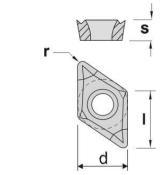
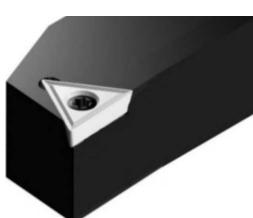
SDNC 63°

REF.	$h=h_1$	b	L1	L2	f	DC..		
SDNC N 1010 M07	10	10	150	15	5,2	0702..	125	507
SDNC N 1212 M11	12	12	150	21	6,2	11T3..	140	515
SDNC N 1616 M11	16	16	150	21	8,6	11T3..	140	515

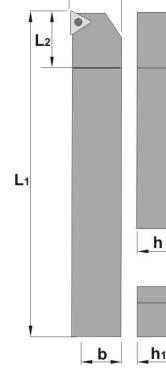


REF.	I	s	d
DC.. 0702..	7,75	2,38	6,35
DC.. 11T3..	11,60	3,97	9,52

For more information see page: A.41

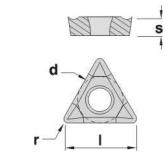
**STJC 93°**

REF.	$h=h_1$	b	L1	L2	f	TC..		
STJC R/L 1010 M11	10	10	150	16	10	1102..	125	507
STJC R/L 1212 M11	12	12	150	16	12	1102..	125	507
STJC R/L 1616 M11	16	16	150	16	16	1102..	125	507



REF.	I	s	d
TC.. 1102..	11,00	2,38	6,35

For more information see page: A.51,52



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

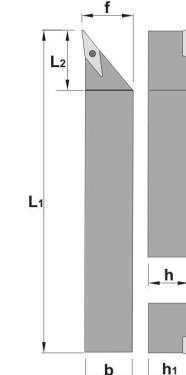
Boring heads

Arbors & adaptors

SVAC 90°



REF.	$h=h_1$	b	L1	L2	f	VC..		
SVAC R/L 0808 M11	8	8	150	26	8	1103..	125	507
SVAC R/L 1010 M11	10	10	150	26	10	1103..	125	507
SVAC R/L 1212 M11	12	12	150	26	12	1103..	125	507
SVAC R/L 1616 M11	16	16	150	26	16	1103..	125	507
SVAC R/L 1212 M16	12	12	150	40	12	1604..	140	515
SVAC R/L 1616 M16	16	16	150	40	16	1604..	140	515

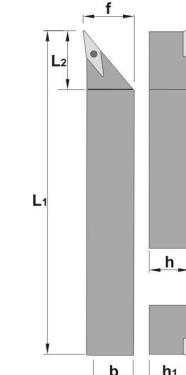


For more information see page: A.55,56

SVJC 93°

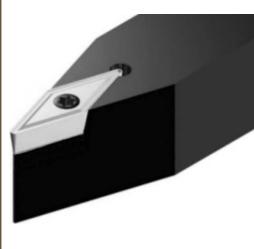


REF.	$h=h_1$	b	L1	L2	f	VC..		
SVJC R/L 0808 M11	8	8	150	26	8	1103..	125	507
SVJC R/L 1010 M11	10	10	150	26	10	1103..	125	507
SVJC R/L 1212 M11	12	12	150	26	12	1103..	125	507
SVJC R/L 1616 M11	16	16	150	26	16	1103..	125	507
SVJC R/L 1212 M16	12	12	150	40	12	1604..	140	515
SVJC R/L 1616 M16	16	16	150	40	16	1604..	140	515

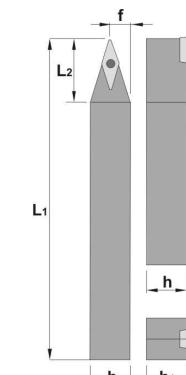


For more information see page: A.55,56

SVVC 72° 30'

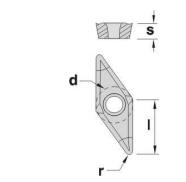


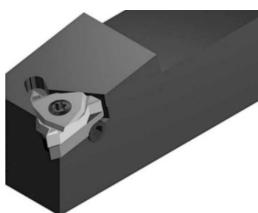
REF.	$h=h_1$	b	L1	L2	f	VC..		
SVVC N 0808 M11	8	8	150	21	4,3	1103..	125	507
SVVC N 1010 M11	10	10	150	21	5,3	1103..	125	507
SVVC N 1212 M11	12	12	150	21	6,3	1103..	125	507
SVVC N 1616 M11	16	16	150	21	8,3	1103..	125	507



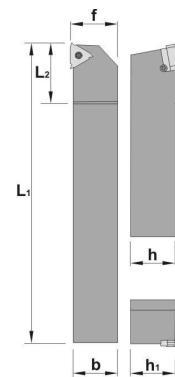
For more information see page: A.55,56

REF.	I	s	d
VC.. 1103..	11,00	3,18	6,35



SXAN 90°

REF.	$h=h_1$	b	L1	L2	f	ER/L..					
SXAN R/L 0808 M08	8	8	150	20	8	08	125	507	-	-	-
SXAN R/L 1010 M08	10	10	150	20	10	08	125	507	-	-	-
SXAN R/L 1212 M11	12	12	150	20	12	11	125	507	-	-	-
SXAN R/L 1616 M16	16	16	150	20	16	16	133	515	436	435	203



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

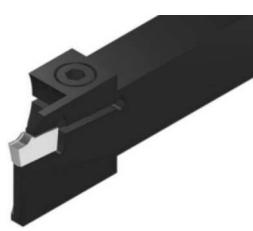
Brazed tools

Milling cutters

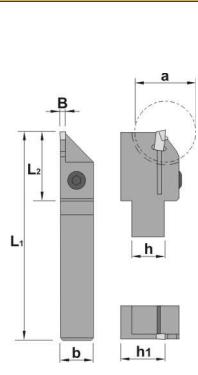
Solid carbide

Boring heads

Arbors & adaptors

CZCB

REF.	h	b	L1	L2	h1	B	a	MRCN		
CZCB R/L 1010 J01	10	10	110	25	21	1,6	22	1,6	107	504
CZCB R/L 1010 J02	10	10	110	25	21	2,2	22	2,2	107	504
CZCB R/L 1212 J01	12	12	110	25	21	1,6	22	1,6	107	504
CZCB R/L 1212 J02	12	12	110	25	21	2,2	22	2,2	107	504
CZCB R/L 1612 J02	16	12	110	29	21	2,2	32	2,2	199	505
CZCB R/L 1612 J03	16	12	110	29	21	3,0	32	3,0	199	505
CZCB R/L 2016 K03	20	16	125	35	30	3,0	42	3,0	109	505
CZCB R/L 2016 K04	20	16	125	35	30	4,0	42	4,0	109	505
CZCB R/L 2016 K05	20	16	125	35	30	5,0	42	5,0	109	505
CZCB R/L 2016 K06	20	16	125	35	30	6,0	42	6,0	109	505
CZCB R/L 2520 M03	25	20	150	50	30	3,0	80	3,0	109	505
CZCB R/L 2520 M04	25	20	150	50	30	4,0	80	4,0	109	505
CZCB R/L 2520 M05	25	20	150	50	30	5,0	80	5,0	109	505
CZCB R/L 2520 M06	25	20	150	50	30	6,0	80	6,0	109	505

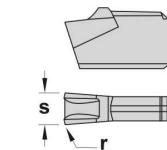


For more information see page: A.59



REF.	s	r
MRCN 1,6	1,6	0,15
MRCN 2,2	2,2	0,20
MRCN 3,0	3,0	0,20
MRCN 4,0	4,0	0,20
MRCN 5,0	5,0	0,30
MRCN 6,0	6,0	0,40

For more information see page: A.67



Solid carbide

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Nominal cutting speed and feed values for automatic lathes

Material	P	HB	Condition	Cutting speed m/min.						Specific cutting force K _{0,4}
				P25K	P40K	CK30	TIC15	TIC20	TIC30	
				0.3-0.6-1.2	0.1 - 0.3	0.1-0.4-0.8	0.1-0.4-0.8	0.2-0.5-1.2	0.2-0.5-1.2	
Unalloyed steel	125 150 200	C=0.15% C=0.35% C=0.60%	150 115 80 145 105 70 115 90 65			350 280 270 230 240 190	480 345 250 440 315 230 385 275 200	440 300 205 400 275 190 350 240 165	330 230 110 300 210 150 260 185 130	1900 2100 2250
Low alloyed steel	180 275 300 350	Annealed Hardened Hardened Hardened	90 70 45 65 45 30 60 40 25 50 35 20			300 260 220 140 230 180 220 140	380 265 195 260 180 130 240 165 120 210 145 105	320 220 170 215 150 115 200 135 105 170 120 90	200 140 100 140 100 70 125 90 60 110 75 55	2100 2600 2700 2850
High alloyed steel	200 325	Annealed Hardened	80 60 45 40 25 20			200 160 200 160	350 230 170 170 110	280 185 135 120 80 60	175 115 80 85 55 40	2600 3900
Stainless steel	200	Martensitic/Ferritic	110 95 75			270 130	295 240 190	275 210 165	225 180 145	2300
Steel castings	180 200 225	Unalloyed Low alloyed High alloyed	60 50 35 50 45 30 40 30 20			300 260 230 180 220 140	260 185 145 230 160 120 190 130 95	230 160 120 190 125 85 170 115 80	135 105 75 120 90 60 95 70 55	2000 2500 2700

Material	M	HB	Condition	Cutting speed m/min.								Specific cutting force K _{0,4}
				P25K	P40K	CK30	TIC15	TIC17	TIC20	TIC30	TIC35	
				0.1-0.3	0.1-0.3	0.1-0.4-0.8	0.1-0.3	0.2-0.4-0.6	0.2-0.4-0.6	0.2-0.4-0.6	0.2-0.4-0.6	
Stainless steel annealed	180	Austenitic Ni > 8%, Cr 12-25% Austenitic/Ferritic Austenitic/Ferritic, Low S	205 170		240 200 160 130 160 130	180 150 120 180 150 120 180 150 120	600 100 400 100 400 100		190 160 130 190 160 100 140 110	190 160 130 190 160 130 160 130 100		2450
Heat resistant alloys	200 280 250 350 320	Annealed Aged Annealed Aged Cast						50 20 50 20 40 15 35 20 25 10		40 20 35 15 25 6 15 4 15 4	40 20 35 15 25 8 15 4 15 4	3000 3050 3500 4150 4150
Titanium alloys	400 950 1050	Ti Cast a, almost a and a+b Aged cast a+b						140 80 45 25 45 25			80 130 15 35 15 35	1530 1675 1690

Material	K	HB	Condition	Cutting speed m/min.						Specific cutting force K _{0,4}
				K15K	TIC17	CK30	TIC15	TIC20	Z10R	
				0.2-0.5-1.0	0.2-0.5-1.0	0.2-0.5	0.2-0.5-1.0	0.2-0.5-1.0	0.2-0.5-1.0	
Hardened steel	350 250	Hardened steel Manganese steel 12%	27 16 10 65 40 16	180 150 110 120 90 60			175 145 100 120 85 50			4500 3600
Malleable cast iron	130 230	Ferritic Pearlitic	105 75 45 80 60 30	250 180 100 160 100 60			225 150 90 155 95 55			1100 1100
Cast iron	180 260	Low tensile strength High tensile strength	135 95 60 95 65 40	180 120 80 140 105 60	300 200 250 180		165 110 70 120 90 55			1100 1500
Nodular SG iron	160 250	Ferritic Pearlitic	115 80 45 80 50 30	220 180 100 150 100 50	250 180 180 120					1100 1800
Chilled cast iron	400			17 11	17 11					3000
Aluminium alloys	60 100	Non heat treatable Heat treatable	1750 1280 800 510 370 250	1750 1280 800 510 370 250					1750 1280 800 510 370 250	500 800
Aluminium alloys (Cast)	75 90	Non heat treatable Heat treatable	460 285 175 300 180 110	460 285 175 300 180 110					460 285 175 300 180 110	750 900
Bronze - Brass alloys	110 90 100	Lead alloys, Pb>1% Brass and bronze Inc. electrolytic copper	610 430 295 310 250 195 225 160 115	610 430 295 310 250 195 225 160 115					610 430 295 310 250 195 225 160 115	700 750 1750
Other materials		Hard plastics Fibre Hard rubber	380 240 190 120 225 160	380 240 190 120 225 160					380 240 190 120 225 160	



Inserts

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Solid carbide

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Arbors & adaptors



Technical information
Information technique
Technische Auskunft

E02

Applications
Applications
Anwendungen

E03

Toolholders
Porte-outils
Klemmhalter

E04

Boring bars
Barres d'alésage
Bohrstangen

E10

E01

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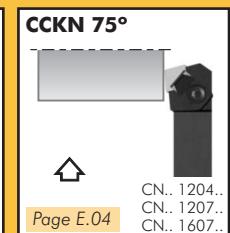
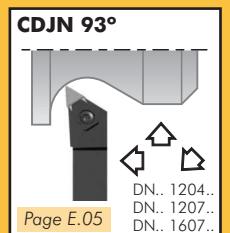
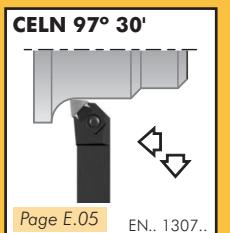
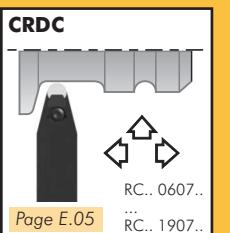
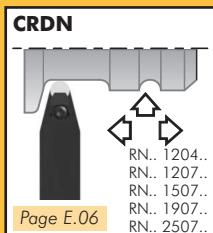
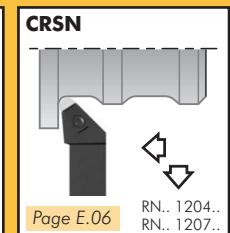
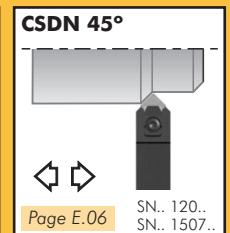
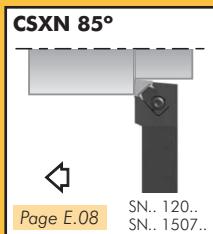
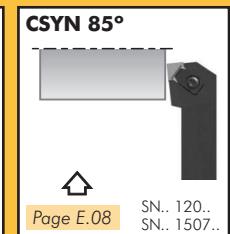
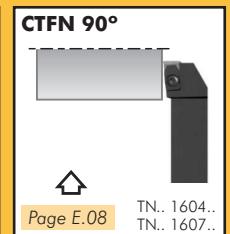
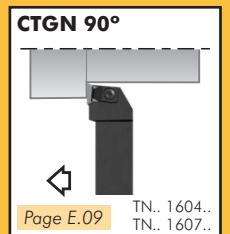
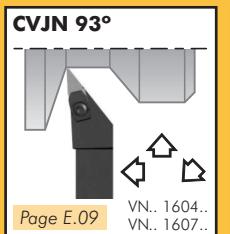
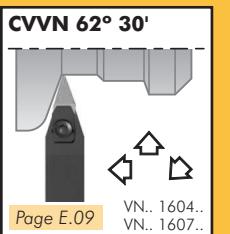
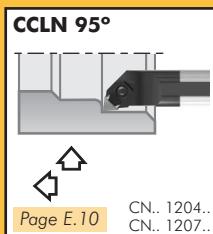
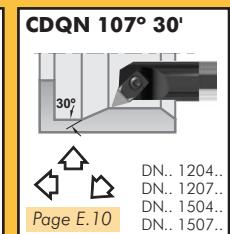
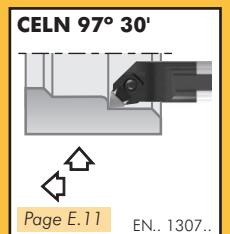
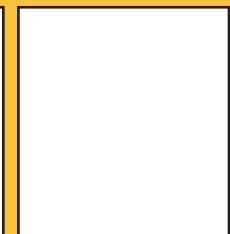
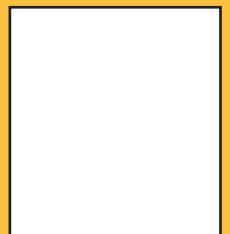
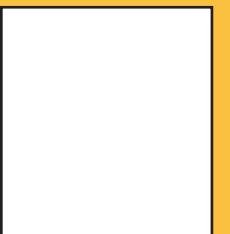
Arbors & adaptors

CX



CD



Toolholders - Porte-outils - Klemmhalter**CCBN 75°****CCKN 75°****CCLN 95°****CDJN 93°****CELN 97° 30'****CRDC****Inserts****CRDN****CRSN****CSDN 45°****CSKN 75°****CSRN 75°****CSSN 45°****Turning****CSXN 85°****CSYN 85°****CTFN 90°****CTGN 90°****CVJN 93°****CVVN 62° 30'****Ceramic tools****Parting & grooving****Threading****Boring bars - Barres d'alésage - Bohrstangen****CCLN 95°****CDQN 107° 30'****CDUN 93°****CELN 97° 30'****CSKN 75°****CSSN 45°****Drills****Cartridges****CSYN 85°****CTFN 90°****CTGN 90°****CVVN 62° 30'****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors**

Inserts

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Parting & grooving

Threading

Drills

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Brazed tools

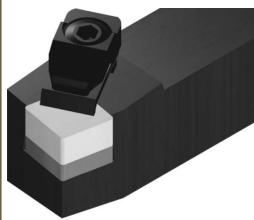
Milling cutters

Solid carbide

Boring heads

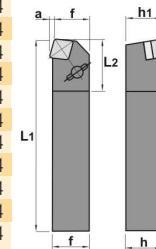
Arbors & adaptors

CCBN 75°



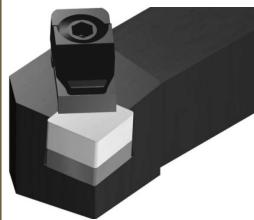
REF. $h=h_1$ b L_1 L_2 f a CN..

CCBN R/L 2525 M12-4CD	25	25	150	32	3,10	1204..	ICSN-454 470	944 247	-	504	
CCBN R/L 2525 M12-7CD	25	25	150	32	3,10	1207..	ICSN-434 470	944 247	-	504	
CCBN R/L 3225 P12-4CD	32	25	170	32	3,10	1204..	ICSN-454 470	944 247	-	504	
CCBN R/L 3225 P12-7CD	32	25	170	32	3,10	1207..	ICSN-434 470	944 247	-	504	
CCBN R/L 2525 M16-CD	25	25	150	35	27	3,82	1607..	ICSN-533 472	944 247	-	504
CCBN R/L 3225 P16-CD	32	25	170	35	27	3,82	1607..	ICSN-533 472	944 247	-	504
CCBN R/L 2525 M12-4CX	25	25	150	32	3,10	1204..	ICSN-454 470	-	-	271 504	
CCBN R/L 2525 M12-7CX	25	25	150	32	3,10	1207..	ICSN-434 470	-	-	271 504	
CCBN R/L 3225 P12-4CX	32	25	170	32	3,10	1204..	ICSN-454 470	-	-	271 504	
CCBN R/L 3225 P12-7CX	32	25	170	32	3,10	1207..	ICSN-434 470	-	-	271 504	
CCBN R/L 2525 M16-CX	25	25	150	35	27	3,82	1607..	ICSN-533 472	-	-	245 504
CCBN R/L 3225 P16-CX	32	25	170	35	27	3,82	1607..	ICSN-533 472	-	-	245 504



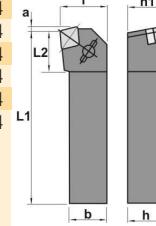
For more information see page: A.76

CCKN 75°



REF. $h=h_1$ b L_1 L_2 f a CN..

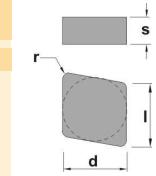
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CCKN R/L 2525 M12-7CD	25	25	150	29	32	3,10	1207..	ICSN-434 470	944 247	-	504
CCKN R/L 3225 P12-4CD	32	25	170	29	32	3,10	1204..	ICSN-454 470	944 247	-	504
CCKN R/L 3225 P12-7CD	32	25	170	29	32	3,10	1207..	ICSN-434 470	944 247	-	504
CCKN R/L 2525 M12-4CX	25	25	150	29	32	3,10	1204..	ICSN-454 470	-	-	271 504
CCKN R/L 2525 M12-7CX	25	25	150	29	32	3,10	1207..	ICSN-434 470	-	-	271 504
CCKN R/L 3225 P12-4CX	32	25	170	29	32	3,10	1204..	ICSN-454 470	-	-	271 504
CCKN R/L 3225 P12-7CX	32	25	170	29	32	3,10	1207..	ICSN-434 470	-	-	271 504



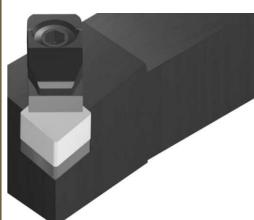
For more information see page: A.76

REF. I s d

CN.. 1204..	12,90	4,76	12,70
CN.. 1207..	12,90	7,94	12,70

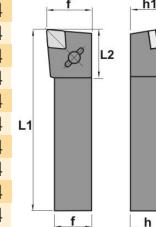


CCLN 95°



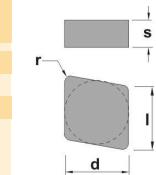
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CCLN R/L 2525 M12-7CD	25	25	150	35	32	1207..	ICSN-434 470	944 247	-	504
CCLN R/L 3225 P12-4CD	32	25	170	35	32	1204..	ICSN-454 470	944 247	-	504
CCLN R/L 3225 P12-7CD	32	25	170	35	32	1207..	ICSN-434 470	944 247	-	504
CCLN R/L 2525 M16-CD	25	25	150	35	32	1607..	ICSN-533 472	944 247	-	504
CCLN R/L 3225 P16-CD	32	25	170	35	32	1607..	ICSN-533 472	944 247	-	504
CCLN R/L 2525 M12-4CX	25	25	150	35	32	1204..	ICSN-454 470	-	-	245 504
CCLN R/L 2525 M12-7CX	25	25	150	35	32	1207..	ICSN-434 470	-	-	245 504
CCLN R/L 3225 P12-4CX	32	25	170	35	32	1204..	ICSN-454 470	-	-	245 504
CCLN R/L 3225 P12-7CX	32	25	170	35	32	1207..	ICSN-434 470	-	-	245 504
CCLN R/L 2525 M16-CX	25	25	150	35	32	1607..	ICSN-533 472	-	-	252 504
CCLN R/L 3225 P16-CX	32	25	170	35	32	1607..	ICSN-533 472	-	-	252 504



REF. I s d

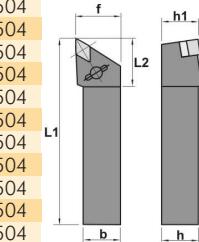
CN.. 1204..	12,90	4,76	12,70
CN.. 1207..	12,90	7,94	12,70
CN.. 1607..	16,10	7,94	15,88



For more information see page: A.76

CDJN 93°

REF.	$h=h_1$	b	L1	L2	f	DN..	Inserts
CDJN R/L 2525 M12-4CD	25	25	150	38	32	1204..	IDSN-354 465 946 243 - 504
CDJN R/L 2525 M12-7CD	25	25	150	38	32	1207..	IDSN-334 465 946 243 - 504
CDJN R/L 3225 P12-4CD	32	25	170	38	32	1204..	IDSN-354 465 946 243 - 504
CDJN R/L 3225 P12-7CD	32	25	170	38	32	1207..	IDSN-334 465 946 243 - 504
CDJN R/L 2525 M15-CD	25	25	150	38	32	1507..	IDSN-432 470 946 247 - 504
CDJN R/L 3225 P15-CD	32	25	170	38	32	1507..	IDSN-432 470 946 247 - 504
CDJN R/L 2525 M12-4CX	25	25	150	38	32	1204..	IDSN-354 465 - - 245 504
CDJN R/L 2525 M12-7CX	25	25	150	38	32	1207..	IDSN-334 465 - - 245 504
CDJN R/L 3225 P12-4CX	32	25	170	38	32	1204..	IDSN-354 465 - - 245 504
CDJN R/L 3225 P12-7CX	32	25	170	38	32	1207..	IDSN-334 465 - - 245 504
CDJN R/L 2525 M15-CX	25	25	150	38	32	1507..	IDSN-432 470 - - 252 504
CDJN R/L 3225 P15-CX	32	25	170	38	32	1507..	IDSN-432 470 - - 252 504



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

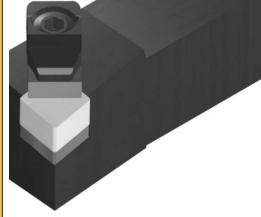
Brazed tools

Milling cutters

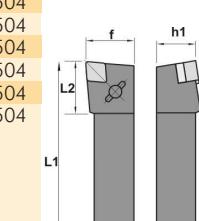
Solid carbide

Boring heads

Arbors & adaptors

CELN 97° 30'

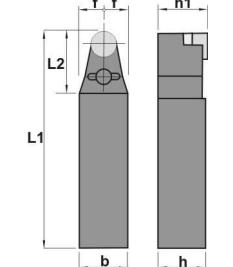
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CELN R/L 2020 K13-CD	20	20	125	32	25	1307..	IESN-432 471 944 243 - 504
CELN R/L 2525 M13-CD	25	25	150	32	32	1307..	IESN-432 470 944 243 - 504
CELN R/L 3225 P13-CD	32	25	170	32	32	1307..	IESN-432 470 944 243 - 504
CELN R/L 2020 K13-CX	20	20	125	32	25	1307..	IESN-432 471 - - 245 504
CELN R/L 2525 M13-CX	25	25	150	32	32	1307..	IESN-432 470 - - 245 504
CELN R/L 3225 P13-CX	32	25	170	32	32	1307..	IESN-432 470 - - 245 504



Cartridges

CRDC

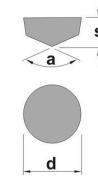
REF.	$h=h_1$	b	L1	L2	f	RGX	Inserts
CRDC N 2525 M06-CD	25	25	150	20	12,5	0607..	300 492 241 475 525
CRDC N 2525 M09-CD	25	25	150	20	12,5	0907..	387 125 229 - 503
CRDC N 3225 P09-CD	32	25	170	20	12,5	0907..	387 125 229 - 503
CRDC N 2525 M12-CD	25	25	150	25	12,5	1207..	388 130 229 - 503
CRDC N 3225 P12-CD	32	25	170	25	12,5	1207..	388 130 229 - 503
CRDC N 2525 M15-CD	25	25	150	30	12,5	1510..	389 130 (x2) 244 - 504
CRDC N 3225 P15-CD	32	25	170	30	12,5	1510..	389 130 (x2) 244 - 504
CRDC N 2525 P19-CD	25	25	170	42	12,5	1910..	390 130 (x2) 244 - 504
CRDC N 3225 P19-CD	32	32	170	42	16,0	1910..	390 130 (x2) 244 - 504
CRDC N 3232 P25-CD	32	32	170	45	16,0	2512..	335 130 (x2) 247 - 504



Milling cutters

REF.	a	s	d
RCGX 0607..	120°	7,94	6,35
RCGX 0907..	120°	7,94	9,52
RCGX 1207..	120°	7,94	12,70
RCGX 1510..	120°	10,00	15,87
RCGX 1910..	120°	10,00	19,05
RCGX 2512..	140°	12,00	25,40

For more information...: A.77



Solid carbide

E05

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

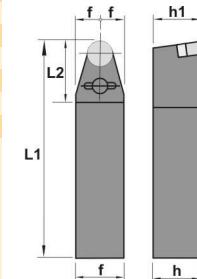
Arbors & adaptors

CRDN



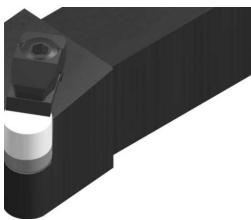
REF. h=h1 b L1 L2 f RNGN

CRDN N 2525 M12-4CD	25	25	150	32	12,5	1204..	IRSN-45	470	243	944	504
CRDN N 2525 M12-7CD	25	25	150	32	12,5	1207..	IRSN-43	470	243	944	504
CRDN N 3225 P12-4CD	32	25	170	32	12,5	1204..	IRSN-45	470	243	944	504
CRDN N 3225 P12-7CD	32	25	170	32	12,5	1207..	IRSN-43	470	243	944	504
CRDN N 2525 M15-7CD	25	25	150	32	12,5	1507..	IRSN-53	472	247	944	504
CRDN N 3225 P15-7CD	32	25	170	32	12,5	1507..	IRSN-53	472	247	944	504
CRDN N 3225 P19-7CD	32	25	170	32	12,5	1907..	399	478	247	944	504
CRDN N 3232 P25-7CD	32	32	170	32	16,0	2507..	396	498	247	944	504



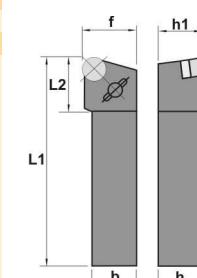
For more information see page: A.78

CRSN



REF. h=h1 b L1 L2 f RNGN

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CRSN R/L 2525 M12-7CD	25	25	150	28	32	1207..	IRSN-43	470	243	944	504
CRSN R/L 3225 P12-4CD	32	25	170	28	32	1204..	IRSN-45	470	243	944	504
CRSN R/L 3225 P12-7CD	32	25	170	28	32	1207..	IRSN-43	470	243	944	504



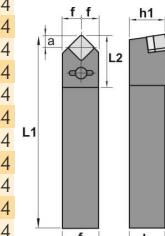
For more information see page: A.78

CSDN 45°



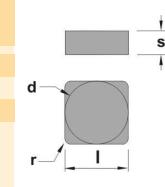
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CSDN N 2525 M12-7CD	25	25	150	35	12,5	8,32	1207..	ISSN-432	470	944	247	-	504
CSDN N 3225 P12-4CD	32	25	170	35	12,5	8,32	1204..	ISSN-452	470	944	247	-	504
CSDN N 3225 P12-7CD	32	25	170	35	12,5	8,32	1207..	ISSN-432	470	944	247	-	504
CSDN N 2525 M15-CD	25	25	150	38	12,5	10,23	1507..	ISSN-533	472	944	247	-	504
CSDN N 3225 P15-CD	32	25	170	38	12,5	10,23	1507..	ISSN-533	472	944	247	-	504
CSDN N 2525 M12-4CX	25	25	150	35	12,5	8,32	1204..	ISSN-452	470	-	-	245	504
CSDN N 2525 M12-7CX	25	25	150	35	12,5	8,32	1207..	ISSN-432	470	-	-	245	504
CSDN N 3225 P12-4CX	32	25	170	35	12,5	8,32	1204..	ISSN-452	470	-	-	245	504
CSDN N 3225 P12-7CX	32	25	170	35	12,5	8,32	1207..	ISSN-432	470	-	-	245	504
CSDN N 2525 M15-CX	25	25	150	38	12,5	10,23	1507..	ISSN-533	472	-	-	245	504
CSDN N 3225 P15-CX	32	25	170	38	12,5	10,23	1507..	ISSN-533	472	-	-	245	504

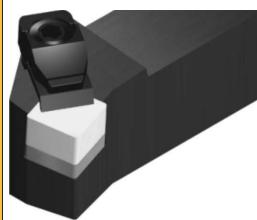


REF. I s d

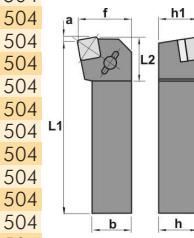
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SN.. 1207..	12,70	7,94	12,70
SN.. 1507..	15,87	7,94	15,87



For more information see page: A.78

CSKN 75°

REF.	$h=h_1$	b	L_1	L_2	f	a	SN..	
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CSKN R/L 2525 M12-7CD	25	25	150	27	32	3,06	1207..	ISSN-432 470 944 247 - 504
CSKN R/L 3225 P12-4CD	32	25	170	27	32	3,06	1204..	ISSN-452 470 944 247 - 504
CSKN R/L 3225 P12-7CD	32	25	170	27	32	3,06	1207..	ISSN-432 470 944 247 - 504
CSKN R/L 2525 M15-CD	25	25	150	28	32	3,77	1507..	ISSN-533 472 944 247 - 504
CSKN R/L 3225 P15-CD	32	25	170	28	32	3,77	1507..	ISSN-533 472 944 247 - 504
CSKN R/L 2525 M12-4CX	25	25	150	27	32	3,06	1204..	ISSN-452 470 - - 245 504
CSKN R/L 2525 M12-7CX	25	25	150	27	32	3,06	1207..	ISSN-432 470 - - 245 504
CSKN R/L 3225 P12-4CX	32	25	170	27	32	3,06	1207..	ISSN-452 470 - - 245 504
CSKN R/L 3225 P12-7CX	32	25	170	27	32	3,06	1207..	ISSN-432 470 - - 245 504
CSKN R/L 2525 M15-CX	25	25	150	28	32	3,77	1507..	ISSN-533 472 - - 245 504
CSKN R/L 3225 P15-CX	32	25	170	28	32	3,77	1507..	ISSN-533 472 - - 245 504
CSKN R/L 4040 P15-CX	40	40	170	28	50	3,77	1507..	ISSN-533 472 - - 245 504



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

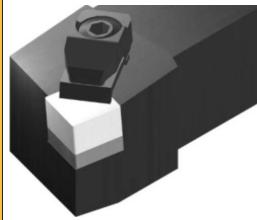
Brazed tools

Milling cutters

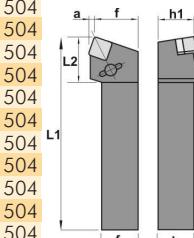
Solid carbide

Boring heads

Arbors & adaptors

CSRN 75°

REF.	$h=h_1$	b	L_1	L_2	f	a	SN..	
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CSRN R/L 2525 M12-7CD	25	25	150	32	27	3,06	1207..	ISSN-434 470 944 247 - 504
CSRN R/L 3225 P12-4CD	32	25	170	32	27	3,06	1204..	ISSN-454 470 944 247 - 504
CSRN R/L 3225 P12-7CD	32	25	170	32	27	3,06	1207..	ISSN-434 470 944 247 - 504
CSRN R/L 2525 M15-CD	25	25	150	34	27	3,77	1507..	ISSN-534 472 944 247 - 504
CSRN R/L 3225 P15-CD	32	25	170	34	27	3,77	1507..	ISSN-534 472 944 247 - 504
CSRN R/L 3232 P19-CD	32	32	170	34	35	4,50	1907..	359 478 944 247 - 504
CSRN R/L 4040 P19-CD	40	40	170	34	43	4,50	1907..	359 478 944 247 - 504
CSRN R/L 2525 M12-4CX	25	25	150	32	27	3,06	1204..	ISSN-454 470 - - 245 504
CSRN R/L 2525 M12-7CX	25	25	150	32	27	3,06	1207..	ISSN-434 470 - - 245 504
CSRN R/L 3225 P12-4CX	32	25	170	32	27	3,06	1204..	ISSN-454 470 - - 245 504
CSRN R/L 3225 P12-7CX	32	25	170	32	27	3,06	1207..	ISSN-434 470 - - 245 504
CSRN R/L 2525 M15-CX	25	25	150	34	27	3,77	1507..	ISSN-534 472 - - 245 504
CSRN R/L 3225 P15-CX	32	25	170	34	27	3,77	1507..	ISSN-534 472 - - 245 504

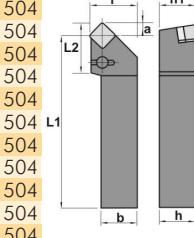


Cartridges

Brazed tools

CSSN 45°

REF.	$h=h_1$	b	L_1	L_2	f	a	SN..	
CSSN R/L 2525 M12-4CD	25	25	150	35	32	8,32	1204..	ISSN-454 470 944 247 - 504
CSSN R/L 2525 M12-7CD	25	25	150	35	32	8,32	1207..	ISSN-434 470 944 247 - 504
CSSN R/L 3225 P12-4CD	32	25	170	35	32	8,32	1204..	ISSN-454 470 944 247 - 504
CSSN R/L 3225 P12-7CD	32	25	170	35	32	8,32	1207..	ISSN-434 470 944 247 - 504
CSSN R/L 2525 M15-CD	25	25	150	37	32	10,23	1507..	ISSN-534 472 944 247 - 504
CSSN R/L 3225 P15-CD	32	25	170	37	32	10,23	1507..	ISSN-534 472 944 247 - 504
CSSN R/L 3232 P19-CD	32	32	170	37	32	12,50	1907..	359 478 944 247 - 504
CSSN R/L 4040 P19-CD	40	40	170	37	32	12,50	1907..	359 478 944 247 - 504
CSSN R/L 2525 M12-4CX	25	25	150	35	32	8,32	1204..	ISSN-454 470 - - 245 504
CSSN R/L 2525 M12-7CX	25	25	150	35	32	8,32	1207..	ISSN-434 470 - - 245 504
CSSN R/L 3225 P12-4CX	32	25	170	35	32	8,32	1204..	ISSN-454 470 - - 245 504
CSSN R/L 3225 P12-7CX	32	25	170	35	32	8,32	1207..	ISSN-434 470 - - 245 504
CSSN R/L 2525 M15-CX	25	25	150	37	32	10,23	1507..	ISSN-534 472 - - 245 504
CSSN R/L 3225 P15-CX	32	25	170	37	32	10,23	1507..	ISSN-534 472 - - 245 504



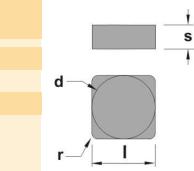
Milling cutters

Solid carbide

Boring heads

REF.	$h=h_1$	b	L_1	L_2	f	a	SN..	
SN.. 1204..	12,70		4,76			12,70		
SN.. 1207..	12,70		7,94			12,70		
SN.. 1507..	15,87		7,94			15,87		

For more information see page: A.78



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

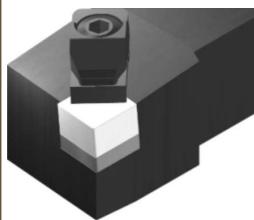
Milling cutters

Solid carbide

Boring heads

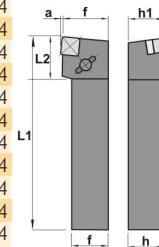
Arbors & adaptors

CSXN 85°



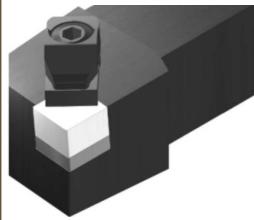
REF. $h=h_1$ b L_1 L_2 f a SN..

CSXN R/L 2525 M12-4CD	25	25	150	30	32	1,03	1204..	ISSN-452 470	944	247	-	504
CSXN R/L 2525 M12-7CD	25	25	150	30	32	1,03	1207..	ISSN-432 470	944	247	-	504
CSXN R/L 3225 P12-4CD	32	25	170	30	32	1,03	1204..	ISSN-452 470	944	247	-	504
CSXN R/L 3225 P12-4CD	32	25	170	30	32	1,03	1207..	ISSN-432 470	944	247	-	504
CSXN R/L 2525 M15-CD	25	25	150	33	32	1,38	1507..	ISSN-533 472	944	247	-	504
CSXN R/L 3225 P15-CD	32	25	170	33	32	1,38	1507..	ISSN-533 472	944	247	-	504
CSXN R/L 2525 M12-4CX	25	32	150	30	32	1,03	1204..	ISSN-452 470	-	-	245	504
CSXN R/L 2525 M12-7CX	25	40	150	30	32	1,03	1207..	ISSN-432 470	-	-	245	504
CSXN R/L 3225 P12-4CX	32	25	170	30	32	1,03	1204..	ISSN-452 470	-	-	245	504
CSXN R/L 3225 P12-7CX	32	25	170	30	32	1,03	1207..	ISSN-432 470	-	-	245	504
CSXN R/L 2525 M15-CX	25	25	150	33	32	1,38	1507..	ISSN-533 472	-	-	245	504
CSXN R/L 3225 P15-CX	32	25	170	33	32	1,38	1507..	ISSN-533 472	-	-	245	504



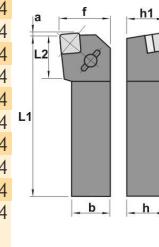
For more information see page: A.78

CSYN 85°



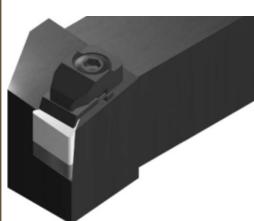
REF. $h=h_1$ b L_1 L_2 f a SN..

CSYN R/L 2525 M12-4CD	25	25	150	27	32	1,03	1204..	ISSN-452 470	944	247	-	504
CSYN R/L 2525 M12-7CD	25	25	150	27	32	1,03	1207..	ISSN-432 470	944	247	-	504
CSYN R/L 3225 P12-4CD	32	25	170	27	32	1,03	1204..	ISSN-452 470	944	247	-	504
CSYN R/L 3225 P12-7CD	32	25	170	27	32	1,03	1207..	ISSN-432 470	944	247	-	504
CSYN R/L 2525 M15-CD	25	25	150	27	32	1,38	1507..	ISSN-533 472	944	247	-	504
CSYN R/L 3225 P15-CD	32	25	170	27	32	1,38	1507..	ISSN-533 472	944	247	-	504
CSYN R/L 2525 M12-4CX	25	32	150	27	32	1,03	1204..	ISSN-452 470	-	-	245	504
CSYN R/L 2525 M12-7CX	25	40	150	27	32	1,03	1207..	ISSN-432 470	-	-	245	504
CSYN R/L 3225 P12-4CX	32	25	170	27	32	1,03	1204..	ISSN-452 470	-	-	245	504
CSYN R/L 3225 P12-7CX	32	25	170	27	32	1,03	1207..	ISSN-432 470	-	-	245	504
CSYN R/L 2525 M15-CX	25	25	150	27	32	1,38	1507..	ISSN-533 472	-	-	245	504
CSYN R/L 3225 P15-CX	32	25	170	27	32	1,38	1507..	ISSN-533 472	-	-	245	504



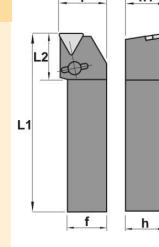
For more information see page: A.78

CTFN 90°



REF. $h=h_1$ b L_1 L_2 f TNGN

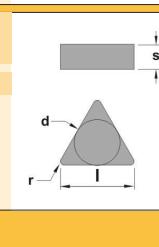
CTFN R/L 2525 M16-4CD	25	25	150	29	32	1604..	ITSN-342 465	946	243	504
CTFN R/L 2525 M16-7CD	25	25	150	29	32	1607..	ITSN-322 465	946	243	504
CTFN R/L 3225 P16-4CD	32	25	170	29	32	1604..	ITSN-342 465	946	243	504
CTFN R/L 3225 P16-7CD	32	25	170	29	32	1607..	ITSN-322 465	946	243	504

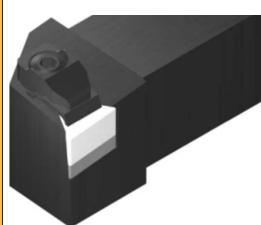


REF. I s d

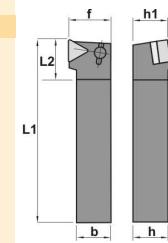
TNGN 1604..	16,50	4,76	9,52
TNGN 1607..	16,50	7,94	9,52

For more information see page: A.79



CTGN 90°

REF.	$h=h_1$	b	L1	L2	f	TNGN	Icon 1	Icon 2	Icon 3	Icon 4	Icon 5
CTGN R/L 2525 M16-4CD	25	25	150	20	32	1604..	ITSN-342 465	946	243	504	
CTGN R/L 2525 M16-7CD	25	25	150	20	32	1607..	ITSN-322 465	946	243	504	
CTGN R/L 3225 P16-4CD	32	25	170	20	32	1604..	ITSN-342 465	946	243	504	
CTGN R/L 3225 P16-7CD	32	25	170	20	32	1607..	ITSN-322 465	946	243	504	



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

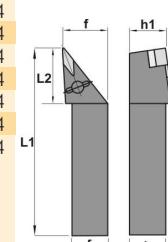
Solid carbide

Boring heads

Arbors & adaptors

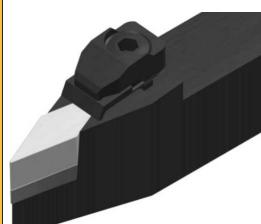
CVJN 93°

REF.	$h=h_1$	b	L1	L2	f	VN..	Icon 1	Icon 2	Icon 3	Icon 4	Icon 5
CVJN R/L 2525 M16-4CD	25	25	150	41	32	1604..	IVSN-342 465	946	247	-	504
CVJN R/L 2525 M16-7CD	25	25	150	41	32	1607..	IVSN-322 465	946	247	-	504
CVJN R/L 3225 P16-4CD	32	25	170	41	32	1604..	IVSN-342 465	946	247	-	504
CVJN R/L 3225 P16-7CD	32	25	170	41	32	1607..	IVSN-322 465	946	247	-	504
CVJN R/L 2525 M16-4CX	25	25	150	41	32	1604..	IVSN-342 465	-	-	248	504
CVJN R/L 2525 M16-7CX	25	25	150	41	32	1607..	IVSN-322 465	-	-	248	504
CVJN R/L 3225 P16-4CX	32	25	170	41	32	1604..	IVSN-342 465	-	-	248	504
CVJN R/L 3225 P16-7CX	32	25	170	41	32	1607..	IVSN-322 465	-	-	248	504

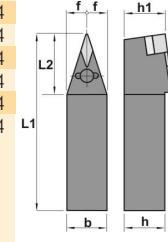


For more information see page: A.79

Cartridges

CVVN 62° 30'

REF.	$h=h_1$	b	L1	L2	f	VN..	Icon 1	Icon 2	Icon 3	Icon 4	Icon 5
CVVN N 2525 M16-4CD	25	25	150	45	12,5	1604..	IVSN-342 465	946	247	-	504
CVVN N 2525 M16-7CD	25	25	150	45	12,5	1607..	IVSN-322 465	946	247	-	504
CVVN N 3225 P16-4CD	32	25	170	45	12,5	1604..	IVSN-342 465	946	247	-	504
CVVN N 3225 P16-7CD	32	25	170	45	12,5	1607..	IVSN-322 465	946	247	-	504
CVVN N 2525 M16-4CX	25	25	150	45	12,5	1604..	IVSN-342 465	-	-	248	504
CVVN N 2525 M16-7CX	25	25	150	45	12,5	1607..	IVSN-322 465	-	-	248	504
CVVN N 3225 P16-4CX	32	25	170	45	12,5	1604..	IVSN-342 465	-	-	248	504
CVVN N 3225 P16-7CX	32	25	170	45	12,5	1607..	IVSN-322 465	-	-	248	504

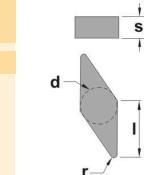


Milling cutters

Solid carbide

REF.	$h=h_1$	b	L1	L2	f	VN..	Icon 1	Icon 2	Icon 3	Icon 4	Icon 5
VN.. 1604..	16,50					4,76					9,52
VN.. 1607..	16,50					7,94					9,52

For more information see page: A.79



Arbors & adaptors

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

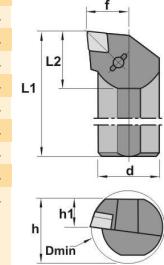
Arbors & adaptors

CCLN 95°



REF. d h1 L1 L2 f h Dmin CN..

S32S CCLN R/L 12-7CD	32	15,0	250	40	22	30	40	1207..	-	-	944	247	-	504
S40T CCLN R/L 12-4CD	40	18,5	300	35	27	37	70	1204..	IDSN-354	450	944	247	-	504
S40T CCLN R/L 12-7CD	40	18,5	300	35	27	37	70	1207..	IDSN-334	450	944	247	-	504
S50U CCLN R/L 12-4CD	50	23,5	350	38	32	47	70	1204..	IDSN-454	470	944	247	-	504
S50U CCLN R/L 12-7CD	50	23,5	350	38	32	47	70	1207..	IDSN-434	470	944	247	-	504
S32S CCLN R/L 12-7CX	32	15,0	250	40	22	30	40	1207..	-	-	-	-	245	504
S40T CCLN R/L 12-4CX	40	18,5	300	35	27	37	70	1204..	IDSN-454	471	-	-	245	504
S40T CCLN R/L 12-7CX	40	18,5	300	35	27	37	70	1207..	IDSN-334	471	-	-	245	504
S50U CCLN R/L 12-4CX	50	23,5	350	38	32	47	70	1204..	IDSN-454	470	-	-	245	504
S50U CCLN R/L 12-7CX	50	23,5	350	38	32	47	70	1207..	IDSN-434	470	-	-	245	504



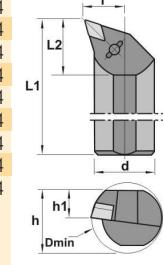
For more information see page: A.76

CDQN 107° 30'



REF. d h1 L1 L2 f h Dmin DN..

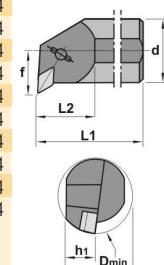
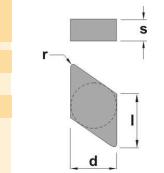
S32S CDQN R/L 12-7CD	32	15,0	250	40	22	30	50	1207..	-	-	944	243	-	504
S40T CDQN R/L 12-4CD	40	18,5	300	35	27	37	70	1204..	IDSN-354	450	944	243	-	504
S40T CDQN R/L 12-7CD	40	18,5	300	35	27	37	70	1207..	IDSN-334	450	944	243	-	504
S50U CDQN R/L 15-4CD	50	23,5	350	38	32	47	70	1504..	IDSN-452	470	944	247	-	504
S50U CDQN R/L 15-7CD	50	23,5	350	38	32	47	70	1507..	IDSN-432	470	944	247	-	504
S32S CDQN R/L 12-7CX	32	15,0	250	40	22	30	50	1207..	-	-	-	-	245	504
S40T CDQN R/L 12-4CX	40	18,5	300	35	27	37	70	1204..	IDSN-354	450	-	-	245	504
S40T CDQN R/L 12-7CX	40	18,5	300	35	27	37	70	1207..	IDSN-334	450	-	-	245	504
S50U CDQN R/L 15-4CX	50	23,5	350	38	32	47	70	1504..	IDSN-452	470	-	-	252	504
S50U CDQN R/L 15-7CX	50	23,5	350	38	32	47	70	1507..	IDSN-432	470	-	-	252	504



For more information see page: A.76

REF. I s d

DN.. 1204..	12,20	4,76	10,00
DN.. 1207..	12,20	7,94	10,00
DN.. 1504..	15,50	4,76	12,70
DN.. 1507..	15,50	7,94	12,70

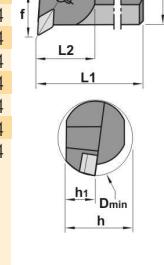


CDUN 93°



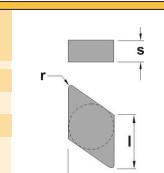
REF. d h1 L1 L2 f h Dmin DN..

S32S CDUN R/L 12-7CD	32	15,0	250	40	22	30	40	1207..	-	-	946	243	-	504
S40T CDUN R/L 12-4CD	40	18,5	300	50	27	37	70	1204..	IDSN-354	450	946	243	-	504
S40T CDUN R/L 12-7CD	40	18,5	300	50	27	37	70	1207..	IDSN-334	450	946	243	-	504
S50U CDUN R/L 15-4CD	50	23,5	350	50	32	47	70	1504..	IDSN-452	470	946	247	-	504
S50U CDUN R/L 15-7CD	50	23,5	350	50	32	47	70	1507..	IDSN-432	470	946	247	-	504
S32S CDUN R/L 12-7CX	32	15,0	250	40	22	30	40	1207..	-	-	-	-	245	504
S40T CDUN R/L 12-4CX	40	18,5	300	50	27	37	70	1204..	IDSN-354	450	-	-	245	504
S40T CDUN R/L 12-7CX	40	18,5	300	50	27	37	70	1207..	IDSN-334	450	-	-	245	504
S50U CDUN R/L 15-4CX	50	23,5	350	50	32	47	70	1504..	IDSN-452	470	-	-	252	504
S50U CDUN R/L 15-7CX	50	23,5	350	50	32	47	70	1507..	IDSN-432	470	-	-	252	504



REF. I s d

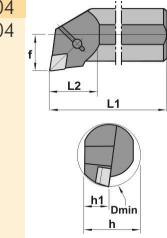
DN.. 1204..	12,20	4,76	10,00
DN.. 1207..	12,20	7,94	10,00
DN.. 1504..	15,50	4,76	12,70
DN.. 1507..	15,50	7,94	12,70



For more information see page: A.76

CELN 97° 30'

REF.	d	h1	L1	L2	f	h	Dmin	EN..	Icons
S40T CELN R/L 13-CD	40	18,5	300	32	27	37	50	1307..	IESN-432 471 944 247 - 504
S50U CELN R/L 13-CD	50	23,5	350	32	35	47	63	1307..	IESN-432 470 944 247 - 504
S40T CELN R/L 13-CX	40	18,5	300	32	27	37	50	1307..	IESN-432 471 - - 245 504
S50U CELN R/L 13-CX	50	23,5	350	32	35	47	63	1307..	IESN-432 470 - - 245 504



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

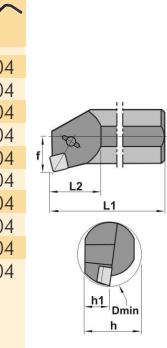
Solid carbide

Boring heads

Arbors & adaptors

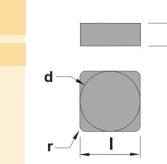
CSKN 75°

REF.	d	h1	L1	L2	f	h	Dmin	SN..	Icons
S32S CSKN R/L 12-7CD	32	15,0	250	40	22	30	40	1207..	- - - 944 247 - 504
S40T CSKN R/L 12-4CD	40	18,5	300	67	27	37	70	1204..	ISSN-452 471 944 247 - 504
S40T CSKN R/L 12-7CD	40	18,5	300	67	27	37	70	1207..	ISSN-432 471 944 247 - 504
S50U CSKN R/L 12-4CD	50	23,5	350	67	35	47	70	1204..	ISSN-452 470 944 247 - 504
S50U CSKN R/L 12-7CD	50	23,5	350	67	35	47	70	1207..	ISSN-432 470 944 247 - 504
S32S CSKN R/L 12-7CX	32	15,0	250	40	22	30	40	1207..	- - - 245 504
S40T CSKN R/L 12-4CX	40	18,5	300	67	27	37	70	1204..	ISSN-452 471 - - 245 504
S40T CSKN R/L 12-7CX	40	18,5	300	67	27	37	70	1207..	ISSN-432 471 - - 245 504
S50U CSKN R/L 12-4CX	50	23,5	350	67	35	47	70	1204..	ISSN-452 470 - - 245 504
S50U CSKN R/L 12-7CX	50	23,5	350	67	35	47	70	1207..	ISSN-432 470 - - 245 504



Ceramic tools

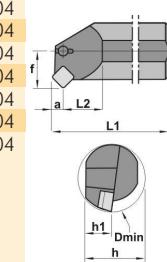
REF.	I	s	d
SN.. 1204..	12,70	4,76	12,70
SN.. 1207..	12,70	7,94	12,70



For more information see page: A.78

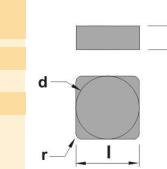
CSSN 45°

REF.	d	h1	L1	L2	f	h	Dmin	SN..	Icons
S32S CSSN R/L 12-7CD	32	15,0	250	40	22	30	40	1207..	- - - 944 247 - 504
S40T CSSN R/L 12-4CD	40	18,5	300	50	27	37	70	1204..	ISSN-452 471 944 247 - 504
S40T CSSN R/L 12-7CD	40	18,5	300	50	27	37	70	1207..	ISSN-432 471 944 247 - 504
S50U CSSN R/L 15-7CD	50	23,5	350	50	32	47	70	1507..	ISSN-533 472 944 247 - 504
S32S CSSN R/L 12-7CX	32	15,0	250	40	22	30	40	1207..	- - - 245 504
S40T CSSN R/L 12-4CX	40	18,5	300	50	27	37	70	1204..	ISSN-452 471 - - 245 504
S40T CSSN R/L 12-7CX	40	18,5	300	50	27	37	70	1207..	ISSN-432 471 - - 245 504
S50U CSSN R/L 15-7CX	50	23,5	350	50	32	47	70	1507..	ISSN-533 472 - - 245 504



Solid carbide

REF.	I	s	d
SN.. 1204..	12,70	4,76	12,70
SN.. 1207..	12,70	7,94	12,70
SN.. 1507..	15,87	7,94	15,87



For more information see page: A.78

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

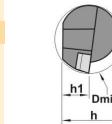
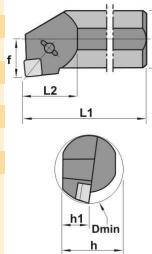
CSYN 85°



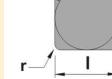
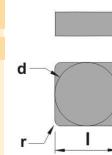
REF. d h1 L1 L2 f h D_{min} SN..



S32S CSYN R/L 12-7CD	32	15,0	250	40	22	30	40	1207..	-	-	944	247	-	504
S40T CSYN R/L 12-4CD	40	18,5	300	67	27	37	70	1204..	ISSN-452	471	944	247	-	504
S40T CSYN R/L 12-7CD	40	18,5	300	67	27	37	70	1207..	ISSN-432	471	944	247	-	504
S50U CSYN R/L 12-4CD	50	23,5	350	67	35	47	70	1204..	ISSN-452	470	944	247	-	504
S50U CSYN R/L 12-7CD	50	23,5	350	67	35	47	70	1207..	ISSN-432	470	944	247	-	504
S32S CSYN R/L 12-7CX	32	15,0	250	40	22	30	40	1207..	-	-	-	-	245	504
S40T CSYN R/L 12-4CX	40	18,5	300	67	27	37	70	1204..	ISSN-452	471	-	-	245	504
S40T CSYN R/L 12-7CX	40	18,5	300	67	27	37	70	1207..	ISSN-432	471	-	-	245	504
S50U CSYN R/L 12-4CX	50	23,5	350	67	35	47	70	1204..	ISSN-452	470	-	-	245	504
S50U CSYN R/L 12-7CX	50	23,5	350	67	35	47	70	1207..	ISSN-432	470	-	-	245	504



REF.	I	s	d
SN.. 1204..	12,70	4,76	12,70
SN.. 1207..	12,70	7,94	12,70



For more information see page: A.78



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

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Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

Applications
Applications
Anwendungen

F02

Toolholders
Porte-outils
Klemmhalter

F03

Boring bars
Barres d'alésage
Bohrstangen

F07

Tool blocks
Blocs porte-lames
Trägerwerkzeuge

F08

Blades
Lames
Stechschwerter

F08

Top Notch Tools
Outils Notch
Notch-Werkzeuge

F10

Cutting cata
Conditions de coupe
Schnittbedingungen

F12

F01

Toolholders - Porte-outils - Klemmhalter

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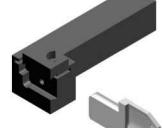
F02

CZGB



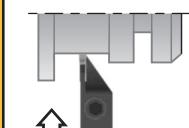
Page F.03 MTE 03/04
MRCN 03/04

CZFB



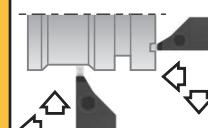
Page F.03 MTE 03/04
MRCN 03/04

CZCB



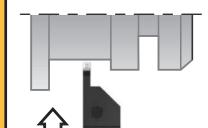
Page F.05
MRCN 1,6
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MRCN 6,0

CZCF



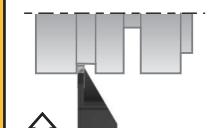
Page F.05
MTC 3,0
MTC 4,0
MTR 3,0
MTR 3,8

CZCP



Page F.05
MTC 3,0
MTC 4,0
MTR 3,0
MTR 3,8

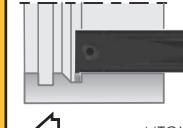
XLCF



Page F.06 PTNT 02
PTNT 03
PTNT 04

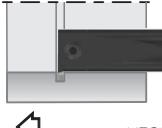
Boring bars - Barres d'alésage - Bohrstangen

CZGF



Page F.07
MTCJ 3,0
MTCJ 4,0
MTRJ 3,0
MTRJ 3,8

CZGB



Page F.07
MTCJ 3,0
MTCJ 4,0
MTRJ 3,0
MTRJ 3,8

Tool blocks - Blocs porte-lames - Trägerwerkzeuge

KPTS



Page F.08

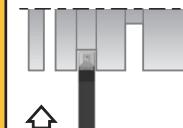
DPTS



Page F.08

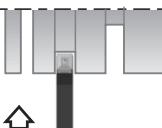
Blades- Lames - Stechschwerter

KRCFN



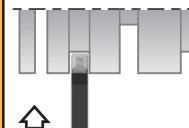
Page F.08
MRCN 2,2
...
MRCN 6,0

KLCFN



Page F.08
PTNT 02
...
PTNT 09

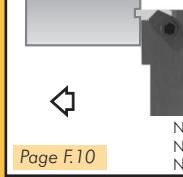
KLCTN



Page F.09
PTNT 02
...
PTNT 06

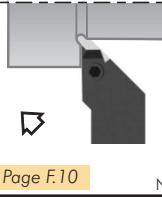
Top Notch Tools - Outils Notch - Notch-Werkzeuge

NE 93°



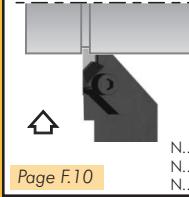
Page F.10
N.. 2
N.. 3
N.. 4

NR 45°



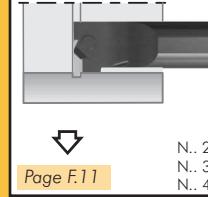
Page F.10
N.. 3

NS 93°

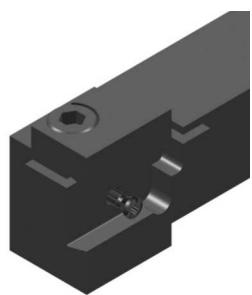


Page F.10
N.. 2
N.. 3
N.. 4

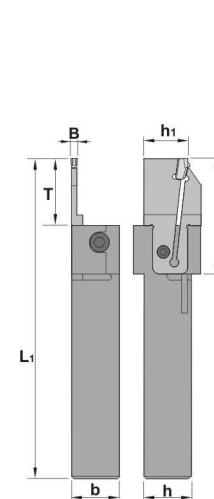
NNTO 93°



Page F.11
N.. 2
N.. 3
N.. 4

CZGB

REF.	h	b	L1	L2	h1	B	T	Insert
CZGB R/L 2020 M34	20	20	150	53	20	3-4	25-30	466 505
CZGB R/L 2525 M34	25	25	150	53	25	3-4	25-30	466 505
CZGB R/L 3232 P34	32	32	170	53	32	3-4	25-30	466 505



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

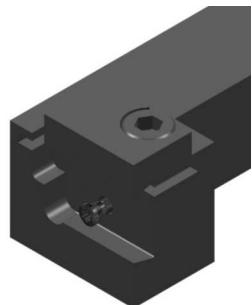
Brazed tools

Milling cutters

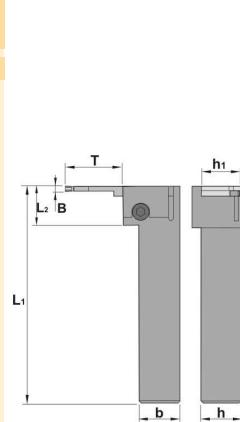
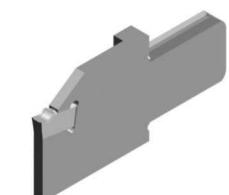
Solid carbide

Boring heads

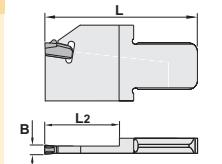
Arbors & adaptors

CZFB

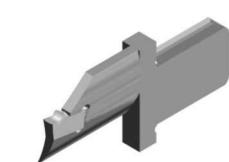
REF.	h	b	L1	L2	h1	B	T	Insert
CZFB R/L 2525 M34	25	25	150	25	25	3-4	25-30	466 505
CZFB R/L 3232 P34	32	32	170	25	32	3-4	25-30	466 505

**CZXB 00**

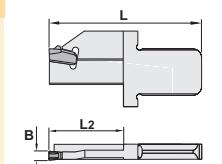
REF.	L	L2	B	Insert size
CZXB R/L 00X03	53	25	3	MRCN 03
CZXB R/L 00X04	53	25	4	MRCN 04



Solid carbide

CZXB 40-50

REF.	L	L2	B	Ø Range	Insert size
CZXB R/L 4050X03	53	20	3	40-50	MTE 03
CZXB R/L 4050X04	53	20	4	40-50	MTE 04



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

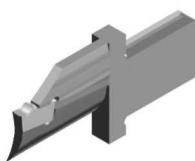
Milling cutters

Solid carbide

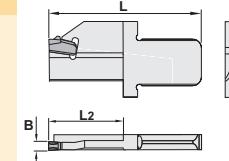
Boring heads

Arbors & adaptors

CZXB 50-65



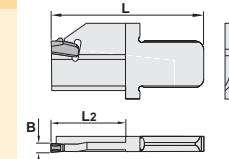
REF.	L	L2	B	Ø Range	Insert size
CZXB R/L 5065X03	53	20	3	50-65	MTE 03
CZXB R/L 5065X04	53	20	4	50-65	MTE 04



CZXB 65-92



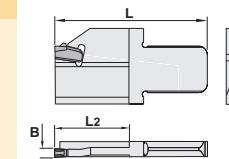
REF.	L	L2	B	Ø Range	Insert size
CZXB R/L 6592X03	53	20	3	65-92	MTE 03
CZXB R/L 6592X04	53	20	4	65-92	MTE 04



CZXB 90-122



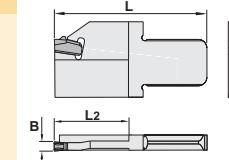
REF.	L	L2	B	Ø Range	Insert size
CZXB R/L 90122X03	53	25	3	90-122	MTE 03
CZXB R/L 90122X04	53	25	4	90-122	MTE 04



CZXB 120-160



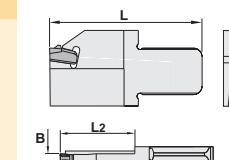
REF.	L	L2	B	Ø Range	Insert size
CZXB R/L 120160X03	53	25	3	120-160	MTE 03
CZXB R/L 120160X04	53	25	4	120-160	MTE 04



CZXB 150-500



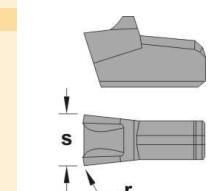
REF.	L	L2	B	Ø Range	Insert size
CZXB R/L 150500X03	53	25	3	150-500	MTE 03
CZXB R/L 150500X04	53	25	4	150-500	MTE 04

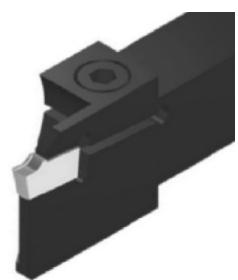


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MTE/MRCN 04	4,0	0,20

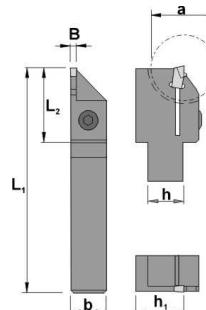
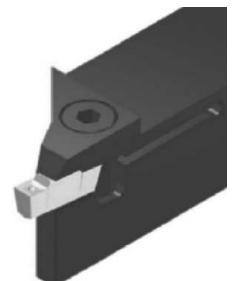
MTE

MRCN

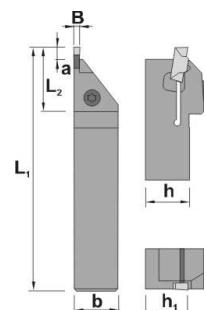
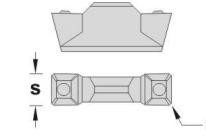
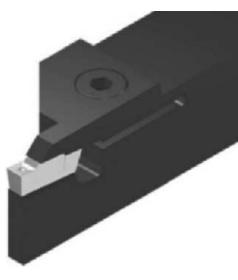


CZCB

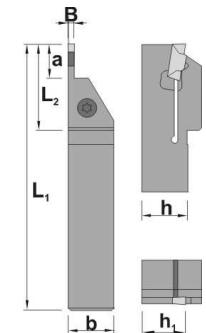
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CZCB R/L 1010 J02	10	10	110	25	21	2,2	22	2,2
CZCB R/L 1212 J01	12	12	110	25	21	1,6	22	1,6
CZCB R/L 1212 J02	12	12	110	25	21	2,2	22	2,2
CZCB R/L 1612 J02	16	12	110	29	21	2,2	32	2,2
CZCB R/L 1612 J03	16	12	110	29	21	3,0	32	3,0
CZCB R/L 2016 K03	20	16	125	35	30	3,0	42	3,0
CZCB R/L 2016 K04	20	16	125	35	30	4,0	42	4,0
CZCB R/L 2016 K05	20	16	125	35	30	5,0	42	5,0
CZCB R/L 2016 K06	20	16	125	35	30	6,0	42	6,0
CZCB R/L 2520 M03	25	20	150	50	30	3,0	80	3,0
CZCB R/L 2520 M04	25	20	150	50	30	4,0	80	4,0
CZCB R/L 2520 M05	25	20	150	50	30	5,0	80	5,0
CZCB R/L 2520 M06	25	20	150	50	30	6,0	80	6,0

**Inserts****Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors****CZCF**

REF.	h	b	L1	L2	B	a	MT..
CZCF R/L 1616 H34	16	16	100	24	3-4	4,5	3,0-4,0
CZCF R/L 2020 K34	20	20	125	24	3-4	4,5	3,0-4,0
CZCF R/L 2525 M34	25	25	150	24	3-4	4,5	3,0-4,0

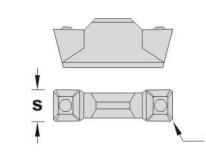
**Cartridges****CZCP**

REF.	h	b	L1	L2	B	a	MT..
CZCP R/L 1616 H34	16	16	100	30	3-4	12	3,0-4,0
CZCP R/L 2020 K34	20	20	125	30	3-4	12	3,0-4,0
CZCP R/L 2525 M34	25	25	150	30	3-4	12	3,0-4,0



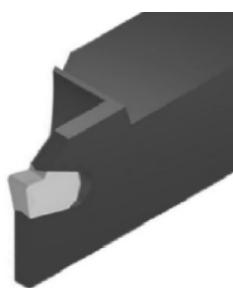
REF.	s	r
MT.. 3,0	3,0	0,15
MT.. 4,0	4,0	0,20
MT.. 3,0	3,0	1,50
MT.. 3,8	3,8	1,90

For more information see page: A.67

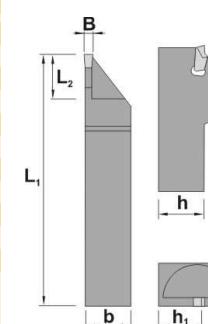


Inserts

XLCF



REF.	$h=h_1$	b	L1	L2	B	PTNT	
XLCF R/L 1010 J02	10	10	110	18	2	02	532
XLCF R/L 1210 J02	12	10	110	18	2	02	532
XLCF R/L 1212 J02	12	12	110	18	2	02	532
XLCF R/L 1612 J03	16	12	110	20	3	03	532
XLCF R/L 1612 J04	16	12	110	20	4	04	532
XLCF R/L 2012 K03	20	12	125	20	3	03	532
XLCF R/L 2012 K04	20	12	125	20	4	04	532
XLCF R/L 2020 K03	20	20	125	20	3	03	532
XLCF R/L 2020 K04	20	20	125	20	4	04	532
XLCF R/L 2525 M03	25	25	150	20	3	03	532
XLCF R/L 2525 M04	25	25	150	20	4	04	532



Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

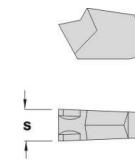
Solid carbide

Boring heads

Arbors & adaptors

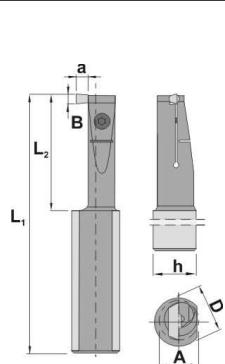
REF.	s
PTNT 02	2,10
PTNT 03	3,10
PTNT 04	4,10

For more information see page: A.68

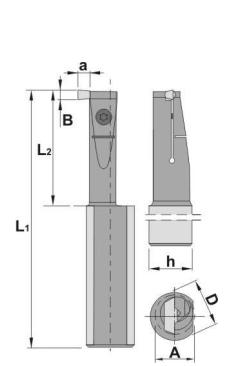


CZGF

REF.	D	A	h	L1	L2	B	a	MT..			
S20R CZGF R/L 34	20	16,5	18	200	40	3-4	5	3,0-4,0	150	520	-
S25R CZGF R/L 34	25	25,0	23	200	50	3-4	5	3,0-4,0	-	-	179 504
S32S CZGF R/L 34	32	30,0	30	250	60	3-4	5	3,0-4,0	-	-	179 504

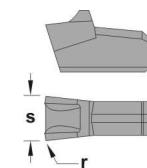
**Inserts****Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors****CZGB**

REF.	D	A	h	L1	B	a	MCRN				
S16M CZGB R/L 03	16	16	15	150	3	4	3,0	150	520	-	-
S20R CZGB R/L 03	20	20	18	200	3	6	3,0	150	520	-	-
S25S CZGB R/L 03	25	25	23	250	3	8	3,0	-	-	179	504
S20R CZGB R/L 04	20	20	18	200	4	6	4,0	-	-	179	504
S25S CZGB R/L 04	25	25	23	250	4	8	4,0	-	-	179	504



REF.	s	r
MRCN 3,0	3,0	0,20
MRCN 4,0	4,0	0,20

For more information see page: A.67

**Solid carbide****Boring heads****Arbors & adaptors**

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

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Milling cutters

Solid carbide

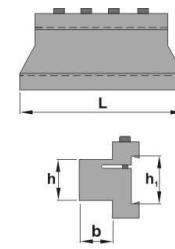
Boring heads

Arbors & adaptors

KPTS



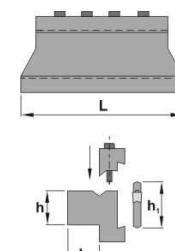
REF.	h1	L	h	b		
KPTS 1916	19	76	16	16	100	504
KPTS 2616	26	87	16	16	101	505
KPTS 2620	26	87	20	20	101	505
KPTS 2625	26	87	25	25	101	505
KPTS 3220	32	100	20	20	101	505
KPTS 3225	32	110	25	25	101	505
KPTS 3232	32	120	32	32	101	505
KPTS 5250	52	135	50	50	102	506



DPTS



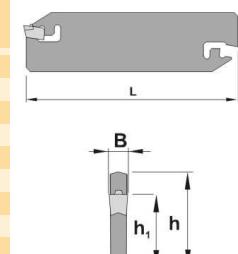
REF.	h1	L	h	b		
DPTS 1916	19	76	16	16	100	292
DPTS 2620	26	87	20	20	101	295
DPTS 2625	26	87	25	25	101	295
DPTS 3220	32	100	20	20	101	296
DPTS 3225	32	110	25	25	101	297
DPTS 3232	32	120	32	32	101	298
DPTS 5250	52	135	50	50	102	299
						506



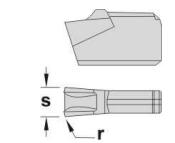
KRCFN



REF.	h	L	h1	B	MRCN	
KRCF N 1901 X02	19	86	15,4	2,2	2,2	533
KRCF N 2601 J02	26	110	21,4	2,2	2,2	533
KRCF N 2602 J03	26	110	21,4	3,0	3,0	533
KRCF N 2603 J04	26	110	21,4	4,0	4,0	533
KRCF N 2604 J05	26	110	21,4	5,0	5,0	533
KRCF N 2605 J06	26	110	21,4	6,0	6,0	533
KRCF N 3202 M03	32	150	25,0	3,0	3,0	533
KRCF N 3203 M04	32	150	25,0	4,0	4,0	533
KRCF N 3204 M05	32	150	25,0	5,0	5,0	533
KRCF N 3205 M06	32	150	25,0	6,0	6,0	533

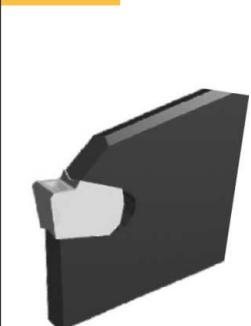


REF.	s	r
MRCN 2,2	2,2	0,2
MRCN 3,0	3,0	0,2
MRCN 4,0	4,0	0,2
MRCN 5,0	5,0	0,3
MRCN 6,0	6,0	0,4

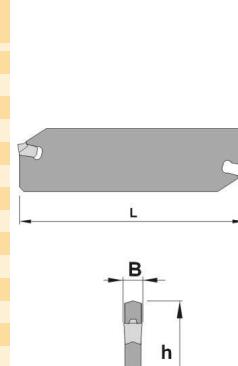


For more information see page: A.67

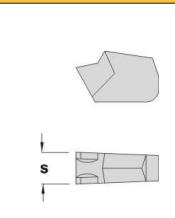
KLCFN



REF.	h	L	B	PTNT	
KLCF N 1901 X02	19	86	2,1	02	532
KLCF N 2601 J02	26	110	2,1	02	532
KLCF N 2602 J03	26	110	3,1	03	532
KLCF N 2603 J04	26	110	4,1	04	532
KLCF N 2604 J05	26	110	5,1	05	532
KLCF N 2605 J06	26	110	6,1	06	532
KLCF N 3201 M02	32	150	2,1	02	532
KLCF N 3202 M03	32	150	3,1	03	532
KLCF N 3203 M04	32	150	4,1	04	532
KLCF N 3204 M05	32	150	5,1	05	532
KLCF N 3205 M06	32	150	6,1	06	532
KLCF N 3207 M08	32	150	8,1	08	532
KLCF N 3208 M09	32	150	9,1	09	532
KLCF N 5207 X08	53	190	8,1	08	532
KLCF N 5208 X09	53	190	9,1	09	532
KLCF N 5307 X08	53	260	8,1	08	532
KLCF N 5308 X09	53	260	9,1	09	532



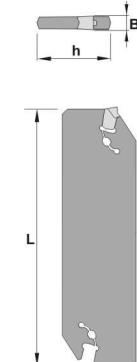
REF.	s
PTNT 02	2,10
PTNT 03	3,10
PTNT 04	4,10
PTNT 05	5,10
PTNT 06	6,10
PTNT 08	8,10
PTNT 09	9,10



For more information see page: A.68

KLCTN

REF.	h	L	B	PTNT	
KLCT N 1901 X02	19	86	2,1	02	532
KLCT N 2601 J02	26	110	2,1	02	532
KLCT N 2602 J03	26	110	3,1	03	532
KLCT N 2603 J04	26	110	4,1	04	532
KLCT N 2604 J05	26	110	5,1	05	532
KLCT N 2605 J06	26	110	6,1	06	532
KLCT N 3201 M02	32	150	2,1	02	532
KLCT N 3202 M03	32	150	3,1	03	532
KLCT N 3203 M04	32	150	4,1	04	532
KLCT N 3204 M05	32	150	5,1	05	532
KLCT N 3205 M06	32	150	6,1	06	532

**Inserts****Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors****F09**

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

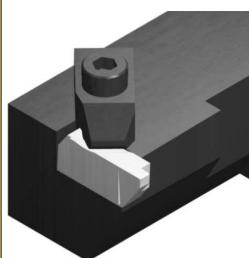
Milling cutters

Solid carbide

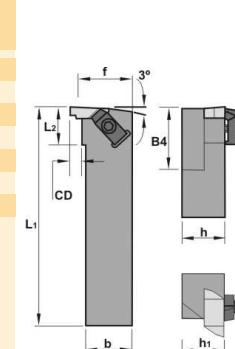
Boring heads

Arbors & adaptors

NE 93°

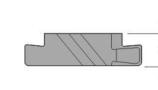


REF.	h-h1	b	L1	L2	f	N..	TF	TF	474
NE R/L 1616 H02	16	16	100	25,40	20	2	TF-75	TF-74	474
NE R/L 2020 K02	20	20	125	25,40	25	2	TF-75	TF-74	474
NE R/L 2525 M02	25	25	150	25,40	32	2	TF-75	TF-74	474
NE R/L 2525 M03	25	25	150	50,80	32	3	TF-73	TF-72	475
NE R/L 3225 P03	32	25	170	50,80	32	3	TF-73	TF-72	475
NE R/L 2525 M04	25	25	150	50,80	35	4	TF-73	TF-72	475
NE R/L 3225 P04	32	25	170	50,80	35	4	TF-73	TF-72	475
NE R/L 3232 P04	32	32	170	50,80	40	4	TF-73	TF-72	475

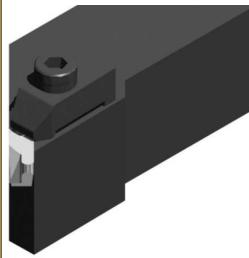


For more information see page: A.68,69

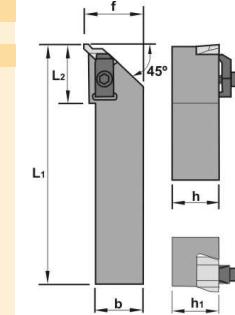
REF.	D	A	T
N.. 2	4,76	5,56	3,81
N.. 3	9,53	8,74	4,95
N.. 4	9,53	11,51	6,48



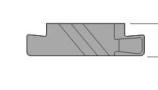
NR 45°



REF.	h-h1	b	L1	L2	f	N..	TF	TF	475
NR R/L 2020 K03	20	20	125	32	25	3	TF-73	TF-72	475
NR R/L 2525 M03	25	25	150	32	32	3	TF-73	TF-72	475
NR R/L 3225 P03	32	25	170	32	32	3	TF-73	TF-72	475

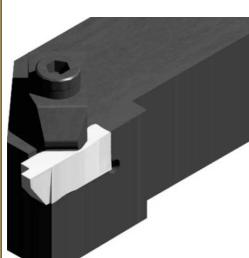


REF.	D	A	T
N.. 3	9,53	8,74	4,95

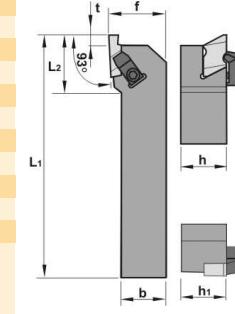


For more information see page: A.68,69

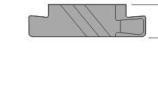
NS 93°



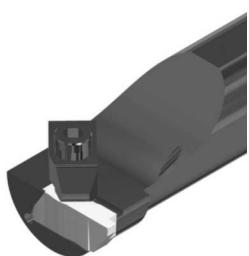
REF.	h-h1	b	L1	L2	f	N..	TF	TF	474
NS R/L 1010 E02	10	10	70	6,35	14	2	TF-74	TF-75	-
NS R/L 1212 F02	12	12	80	6,35	16	2	TF-74	TF-75	-
NS R/L 1616 H02	16	16	100	6,35	20	2	TF-74	TF-75	-
NS R/L 2020 K02	20	20	125	6,35	25	2	TF-74	TF-75	-
NS R/L 2525 M02	25	25	150	6,35	32	2	TF-74	TF-75	-
NS R/L 2020 K03	20	20	125	9,65	25	3	TF-72	TF-73	-
NS R/L 2525 M03	25	25	150	9,65	32	3	TF-72	TF-73	-
NS R/L 3225 P03	32	25	170	9,65	32	3	TF-72	TF-73	-
NS R/L 3232 P03	32	32	170	9,65	40	3	TF-72	TF-73	-
NS R/L 2525 M04	25	25	150	9,65	32	4	TF-72	TF-73	321 185 475
NS R/L 3225 P04	32	25	170	9,65	32	4	TF-72	TF-73	321 185 475
NS R/L 3232 P04	32	32	170	9,65	40	4	TF-72	TF-73	321 185 475



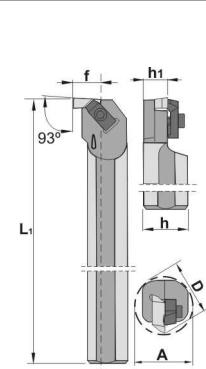
REF.	D	A	T
N.. 2	4,76	5,56	3,81
N.. 3	9,53	8,74	4,95
N.. 4	9,53	11,51	6,48



For more information see page: A.68,69

NNTO 93°

REF.	D	h	h1	L1	f	A	N..	TF	TF	474
A12M-NNTO R/L 02	12	11	5,5	150	11	18,5	2	TF-147	TF-146	474
A16M-NNTO R/L 02	16	15	7,5	150	11	22,0	2	TF-75	TF-74	474
A20Q-NNTO R/L 02	20	18	9,0	180	13	26,0	2	TF-75	TF-74	474
A25R-NNTO R/L 02	25	23	11,5	200	17	34,0	2	TF-75	TF-74	474
A25R-NNTO R/L 03	25	23	11,5	200	17	34,0	3	TF-73	TF-72	475
A32S-NNTO R/L 03	32	30	15,0	250	22	44,0	3	TF-73	TF-72	475
A40T-NNTO R/L 03	40	37	18,5	300	27	54,0	3	TF-73	TF-72	475
A40T-NNTO R/L 04	40	37	18,5	300	27	54,0	4	TF-73	TF-72	475
A50U-NNTO R/L 04	50	47	23,5	350	35	70,0	4	TF-73	TF-72	475



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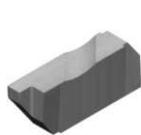
Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors



REF.	D	A	T
N.. 2	4,76	5,56	3,81
N.. 3	9,53	8,74	4,95
N.. 4	9,53	11,51	6,48

For more information see page: A.68,69



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Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

Nominal cutting speed for parting

Material	HB	Condition	Basic qualities			Specific cutting force N/mm ²
			TIC30	P25K	K15K	
Unalloyed steel	125	C=0.15%	200-150	160-120		1900
	150	C=0.35%	190-140	150-110		2100
	200	C=0.60%	170-120	130-90		2250
Low alloyed steel	180	Annealed	180-130	140-100		2100
	275	Hardened	160-110	120-80		2600
	300	Hardened	150-100	110-70		2700
	350	Hardened	140-90	90-60		2850
High alloyed steel	200	Annealed	110-90	70-60		2600
	325	Hardened	70-50	45-30		3900
Stainless steel	200	Martensitic/Ferritic	170-120	130-90		2300
Steel	180	Unalloyed	130-90	100-60		2000
	200	Low alloyed	115-75	90-50		2500
	225	High alloyed	100-60	80-40		2700
Stainless steel annealed	180		170-120	130-90	100-60	2450
Heat resistant alloys	200	Annealed			50-30	3000
	280	Aged	Iron base		40-20	3050
	250	Annealed			30-20	3500
	350	Agest	Ni or Co base		20-10	4150
	320	Cast			20-10	4150
Titanium alloys	400	Ti				1520
	950	Cast α , almost α and α + β				1675
	1050	Aged cast α + β				1690
Hardened steel	220	Hardened steel				4500
	250	Manganese steel 12%				
Malleable cast iron	130	Ferritic	140-110		100-80	1100
	230	Pearlitic	100-70		70-50	1100
Cast iron	180	Low tensile strength	110-85		80-60	1100
	260	High tensile strength	100-70		70-50	1500
Nodular SG iron	160	Ferritic	100-70		70-50	1100
	250	Pearlitic	85-60		60-40	1800
Aluminium alloys	60	Non heat treatable	1500	1500	1000	500
	100	Heat treatable	500	500	420	800
Aluminium alloys (cast)	75	Non heat treatable	1500	1500	1000	750
	90	Heat treatable	750	750	650	900
Bronze-Brass alloys	110	Lead alloys, Pb>1%	300	300	300	700
	90	Brass, red brass	200	200	200	750
	100	Bronze and lead-free copper	150	150	150	1750

Nominal cutting speed for grooving

Material	HB	Condition	External			Internal / Axial			Specific cutting force N/mm²		
			TIC30	P25K	K15K	TIC30	P25K	K15K			
Unalloyed steel	P	125	C=0.15%	200-150	160-120		140-105	110-85		1900	
		150	C=0.35%	190-140	150-110		135-100	105-80		2100	
		200	C=0.60%	170-120	130-90		120-85	90-60		2250	
Low alloyed steel		180	Annealed	180-130	140-100		125-90	100-70		2100	
		275	Hardened	160-110	120-80		110-80	85-55		2600	
		300	Hardened	150-100	110-70		105-70	80-50		2700	
		350	Hardened	140-90	90-60		100-60	60-45		2850	
High alloyed steel	200	Annealed	110-90	70-60		80-60	50-45		2600		
	325	Hardened	70-50	45-30		80-35	32-20		3900		
Stainless steel	200	Martensitic/Ferritic	170-120	130-90		120-85	90-60		2300		
Steel	180	Unalloyed	130-90	100-60		90-60	70-45		2000		
	200	Low alloyed	115-75	90-50		80-50	60-35		2500		
	225	High alloyed	100-60	80-40		70-45	55-30		2700		
Stainless steel annealed	M	180		170-120	130-90	100-60	120-85	90-60	70-45	2450	
Heat resistant alloys		200	Annealed	Iron base		50-30			50-30	3000	
		280	Aged			40-20			40-20	3050	
		250	Annealed			30-20			30-20	3500	
		350	Agest			20-10			20-10	4150	
Titanium alloys		400	Ti	Ni or Co base		175				1520	
		950	Cast α , almost α and $\alpha + \beta$			72				1675	
		1050	Aged cast $\alpha + \beta$			65				1690	
Hardened steel	K	220	Hardened steel							4500	
		250	Manganese steel 12%								
Malleable cast iron	130	Ferritic	140-110			100-80	100-80		100-80	1100	
	230	Pearlitic	100-70			70-50	70-50		70-50	1100	
Cast iron	180	Low tensile strength	110-85			80-60	80-60		80-60	1100	
	260	High tensile strength	100-70			70-50	70-50		70-50	1500	
Nodular SG iron	160	Ferritic	100-70			70-50	70-50		70-50	1100	
	250	Pearlitic	85-60			60-40	60-45		60-40	1800	
Aluminium alloys	60	Non heat treatable	1500	1500	1000	1050	1050		700	500	
	100	Heat treatable	500	500	420	350	350		300	800	
Aluminium alloys (cast)	75	Non heat treatable	1500	1500	1000	1050	1050		700	750	
	90	Heat treatable	750	750	650	525	525		460	900	
Bronze-Brass alloys	110	Lead alloys, Pb>1%	300	300	300	210	210		210	700	
	90	Brass, red brass	200	200	200	140	140		140	750	
	100	Bronze and lead-free copper	150	150	150	105	105		105	1750	

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Nominal cutting speed for profiling

Material	HB	Condition	Basic qualities			Specific cutting force N/mm²			
			TIC30	P25K	K15K				
Unalloyed steel	P	125	C=0.15%	200	160	1900 2100 2250			
		150	C=0.35%	190	150				
		200	C=0.60%	170	130				
Low alloyed steel		180	Annealed	180	140	2100 2600 2700 2850			
		275	Hardened	160	120				
		300	Hardened	150	110				
		350	Hardened	140	90				
High alloyed steel	200	Annealed	130	100	2600 3900				
		325	Hardened	100	60				
Stainless steel	200	Martensitic/Ferritic	170	130		2300			
Steel	180	Unalloyed	130	100	2000 2500 2700				
		200	Low alloyed	115	90				
		225	High alloyed	100	70				
Stainless steel annealed	M	180		170	120	100	2450		
Heat resistant alloys		200	Annealed	Iron base		60	3000 3050 3500 4150 4150		
		280	Aged			50			
		250	Annealed			30			
		350	Agest			20			
		320	Cast			20			
Titanium alloys	400	Ti				175	1520 1675 1690		
		950	Cast α , almost α and $\alpha + \beta$			72			
		1050				65			
Hardened steel	K	220	Hardened steel	Manganese steel 12%			4500		
		250							
Malleable cast iron	130	Ferritic	140	110		100	1100 1100		
		Pearlitic				70			
Cast iron	180	Low tensile strength	110	100		100	1100 1500		
		260	High tensile strength			70			
Nodular SG iron	160	Ferritic	100	85		100	1100 1800		
		250	Pearlitic			70			
Aluminium alloys	60	Non heat treatable	1500	500		1000	500 800		
		100	Heat treatable			420			
Aluminium alloys (cast)	75	Non heat treatable	1500	750		450	750 900		
		90	Heat treatable			300			
Bronze-Brass alloys	110	Lead alloys, Pb>1%	300	200		300	700 750 1750		
		Brass, red brass				200			
		Bronze and lead-free copper				150			



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**Arbors &
adaptors**



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Applications
Anwendungen

G02

External threading
Filetage extérieur
Außen-Gewindedrehen

G03

Internal threading
Filetage intérieur
Innen-Gewindedrehen

G06

Technical information
Information technique
Technische Auskunft

G09

G01

External threading - Filetage extérieur - Außen-Gewindedrehen

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22 ER/L..
27 ER/L..

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R/L 166G-4..

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22 ER/L..
27 ER/L..

16 ER/L..
22 ER/L..
27 ER/L..

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Automatic lathes



Ceramic tools

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TNMC 1603..
TNMC 2204..
TNMC 2204..

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R/L 166-3..
R/L 166-4..

Page G.05

Parting & grooving



Threading

Page G.06

11 NR/L..
22 NR/L..

Page G.07

16 NR/L..
22 NR/L..
27 NR/L..

Page G.07

16 NR/L..
22 NR/L..
27 NR/L..

TNMC 1603..
TNMC 2204..

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TPMC 1603..
TPMC 2204..

R/L 166-2..
R/L 166-3..
R/L 166-4..

Page G.08

Drills

Cartridges

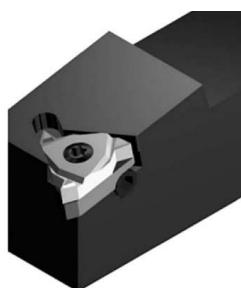
Brazed tools

Milling cutters

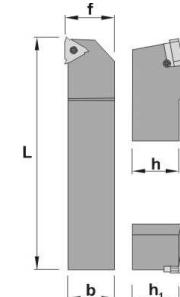
Solid carbide

Boring heads

Arbors & adaptors

SXAN 90°

REF.	h-h1	b	L	f	ER/L						
SXAN R/L 0808 M08	8	8	150	8	08	125	507	-	-	-	-
SXAN R/L 1010 M08	10	10	150	10	08	125	507	-	-	-	-
SXAN R/L 1212 M11	12	12	150	12	11	125	507	-	-	-	-
SXAN R/L 1616 H16	16	16	100	16	16	133	515	436	435	203	
SXAN R/L 1616 M16	16	16	150	16	16	133	515	436	435	203	
SXAN R/L 2020 K16	20	20	125	20	16	133	515	436	435	203	
SXAN R/L 2525 M16	25	25	150	25	16	133	515	436	435	203	
SXAN R/L 3232 P16	32	32	170	32	16	133	515	436	435	203	
SXAN R/L 2525 M22	25	25	150	25	22	141	515	343	346	204	
SXAN R/L 3232 P22	32	32	170	32	22	141	515	343	346	204	



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

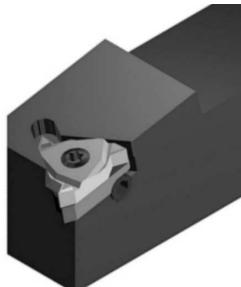
Brazed tools

Milling cutters

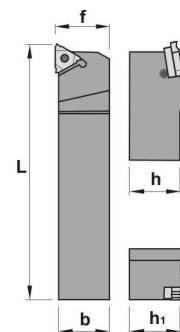
Solid carbide

Boring heads

Arbors & adaptors

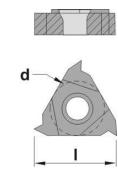
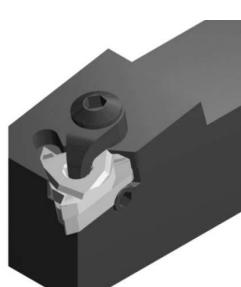
STAN 90°

REF.	h-h1	b	L	f	ER/L						
STAN R/L 1616 H16	16	16	100	16	16	SA3	530	YE3	YI3	SY3	
STAN R/L 2020 K16	20	20	125	20	16	SA3	530	YE3	YI3	SY3	
STAN R/L 2525 M16	25	25	150	25	16	SA3	530	YE3	YI3	SY3	
STAN R/L 3232 P16	32	32	170	32	16	SA3	530	YE3	YI3	SY3	
STAN R/L 2525 M22	25	25	150	25	22	SA4	520	YE4	YI4	SY4	
STAN R/L 3232 P22	32	32	170	32	22	SA4	520	YE4	YI4	SY4	
STAN R/L 4040 R22	40	40	200	40	22	SA4	520	YE4	YI4	SY4	
STAN R/L 3232 P27	32	32	170	32	27	SA5	552	YE5	YI5	SY5	
STAN R/L 4040 R27	40	40	200	40	27	SA5	552	YE5	YI5	SY5	
STAN R/L 5050 S27	50	50	250	50	27	SA5	552	YE5	YI5	SY5	

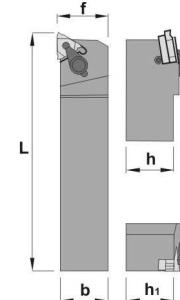


REF.	I	d
16 ER/L..	16,00	9,52
22 ER/L..	22,00	12,70
27 ER/L..	27,50	15,88

For more information see page: A.59

**CTAN 90°**

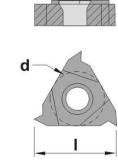
REF.	h-h1	b	L	f	ER/L						
CTAN R/L 2020 K16	20	20	125	20	16	214	515	YE3	YI3	SY3	SA3
CTAN R/L 2525 M16	25	25	150	25	16	214	515	YE3	YI3	SY3	SA3
CTAN R/L 3232 P16	32	32	170	32	16	214	515	YE3	YI3	SY3	SA3
CTAN R/L 2525 M22	25	25	150	25	22	215	515	YE4	YI4	SY4	SA4
CTAN R/L 3232 P22	32	32	170	32	22	215	515	YE4	YI4	SY4	SA4
CTAN R/L 4040 R22	40	40	200	40	22	215	515	YE4	YI4	SY4	SA4
CTAN R/L 3232 P27	32	32	170	32	27	217	552	YE5	YI5	SY5	SA5
CTAN R/L 4040 R27	40	40	200	40	27	217	552	YE5	YI5	SY5	SA5
CTAN R/L 5050 S27	50	50	250	50	27	217	552	YE5	YI5	SY5	SA5



Optional

REF.	I	d
16 ER/L..	16,00	9,52
22 ER/L..	22,00	12,70
27 ER/L..	27,50	15,88

For more information see page: A.59



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

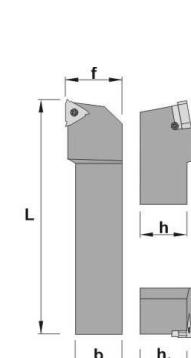
Boring heads

Arbors & adaptors

SXGN 90°



REF.	h-h1	b	L	f	ER/L	133	515	436	435	203
SXGN R/L 1212 F16	12	12	80	16	16	133	515	436	435	203
SXGN R/L 1616 H16	16	16	100	20	16	133	515	436	435	203
SXGN R/L 2020 K16	20	20	125	25	16	133	515	436	435	203
SXGN R/L 2525 M16	25	25	150	32	16	133	515	436	435	203
SXGN R/L 3232 P16	32	32	170	40	16	133	515	436	435	203
SXGN R/L 2525 M22	25	25	150	32	22	141	515	343	346	204
SXGN R/L 3232 P22	32	32	170	40	22	141	515	343	346	204

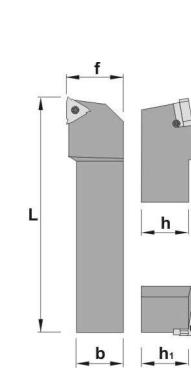


For more information see page: A.59

STXN 90°



REF.	h-h1	b	L	f	ER/L	SA3	530	YE3	YI3	SY3
STXN R/L 1212 F16	12	12	80	16	16	SA3	530	YE3	YI3	SY3
STXN R/L 1616 H16	16	16	100	20	16	SA3	530	YE3	YI3	SY3
STXN R/L 2020 K16	20	20	125	25	16	SA3	530	YE3	YI3	SY3
STXN R/L 2525 M16	25	25	150	25	16	SA3	530	YE3	YI3	SY3
STXN R/L 3232 P16	32	32	170	40	16	SA3	530	YE3	YI3	SY3
STXN R/L 2525 M22	25	25	150	32	22	SA4	520	YE4	YI4	SY4
STXN R/L 3232 P22	32	32	170	40	22	SA4	520	YE4	YI4	SY4
STXN R/L 4040 R22	40	40	200	50	22	SA4	520	YE4	YI4	SY4
STXN R/L 2525 M27	25	25	150	32	27	SA5	552	YE5	YI5	SY5
STXN R/L 3232 P27	32	32	170	40	27	SA5	552	YE5	YI5	SY5
STXN R/L 4040 R27	40	40	200	50	27	SA5	552	YE5	YI5	SY5
STXN R/L 5050 S27	50	50	250	60	27	SA5	552	YE5	YI5	SY5



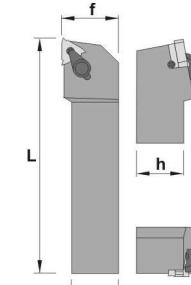
For more information see page: A.59

CTXN 90°



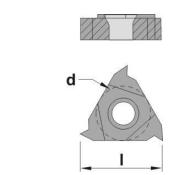
REF.	h-h1	b	L	f	ER/L	214	515	YE3	YI3	SY3	SA3
CTXN R/L 1212 F16	12	12	80	16	16	214	515	YE3	YI3	SY3	SA3
CTXN R/L 1616 H16	16	16	100	20	16	214	515	YE3	YI3	SY3	SA3
CTXN R/L 2020 K16	20	20	125	25	16	214	515	YE3	YI3	SY3	SA3
CTXN R/L 2525 M16	25	25	150	32	16	214	515	YE3	YI3	SY3	SA3
CTXN R/L 3232 P16	32	32	170	40	16	214	515	YE3	YI3	SY3	SA3
CTXN R/L 2525 M22	25	25	150	32	22	215	515	YE4	YI4	SY4	SA4
CTXN R/L 3232 P22	32	32	170	40	22	215	515	YE4	YI4	SY4	SA4
CTXN R/L 4040 R22	40	40	200	50	22	215	515	YE4	YI4	SY4	SA4
CTXN R/L 2525 M27	25	25	150	32	27	217	552	YE5	YI5	SY5	SA5
CTXN R/L 3232 P27	32	32	170	40	27	217	552	YE5	YI5	SY5	SA5
CTXN R/L 4040 R27	40	40	200	50	27	217	552	YE5	YI5	SY5	SA5
CTXN R/L 5050 S27	50	50	250	60	27	217	552	YE5	YI5	SY5	SA5

Optional



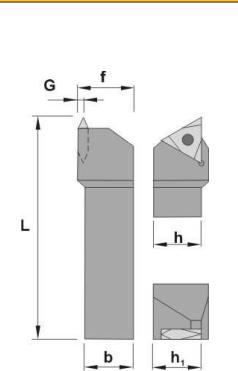
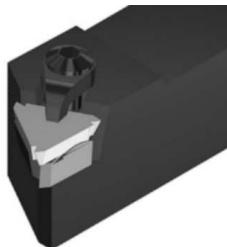
REF.	h-h1	b	L	f	ER/L	16	515	YE3	YI3	SY3
16 ER/L..	16,00					16	515	YE3	YI3	SY3
22 ER/L..	22,00					22	515	YE3	YI3	SY3
27 ER/L..	27,50					27,50	515	YE3	YI3	SY3

For more information see page: A.59

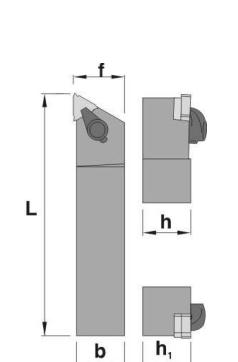


STCN 90°

REF.	h-h1	b	L	f	G	T..MC		
STCN R/L 1212 F16	12	12	80	16	1,59	1603..	198	502
STCN R/L 1616 H16	16	16	100	19	1,59	1603..	198	502
STCN R/L 2020 K16	20	20	125	22	1,59	1603..	198	502
STCN R/L 2525 M16	25	25	150	32	1,59	1603..	198	502
STCN R/L 3232 P16	32	32	170	38	1,59	1603..	198	502
STCN R/L 2020 K22	20	20	125	22	2,38	2204..	197	525
STCN R/L 2525 M22	25	25	150	32	2,38	2204..	197	525
STCN R/L 3225 P22	32	25	170	32	2,38	2204..	197	525
STCN R/L 3232 P22	32	32	170	38	2,38	2204..	197	525
STCN R/L 2525 M27	25	25	150	32	2,38	2704..	491	503
STCN R/L 3232 P27	32	32	170	38	2,38	2704..	491	503

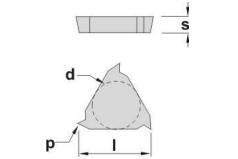
**Inserts****Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors****CXAP 90°**

REF.	h-h1	b	L	f	R/L				
CXAP R/L 2016 K16	20	16	125	17	166-3..	229	503	318 R/L	403
CXAP R/L 2020 K16	20	20	125	21	166-3..	229	503	318 R/L	403
CXAP R/L 2525 M16	25	25	150	26	166-3..	229	503	318 R/L	403
CXAP R/L 3225 P16	32	25	170	26	166-3..	229	503	318 R/L	403
CXAP R/L 3232 P16	32	32	170	33	166-3..	229	503	318 R/L	403
CXAP R/L 2525 M22	25	25	150	26	166-4..	231	504	330 R/L	403
CXAP R/L 3225 P22	32	25	170	26	166-4..	231	504	330 R/L	403
CXAP R/L 3232 P22	32	32	170	33	166-4..	231	504	330 R/L	403



REF.	I	s	d
R/L 166G-3..	16,50	3,18	9,52
R/L 166G-4..	22,00	4,76	12,70

For more information see page: A.65,66



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

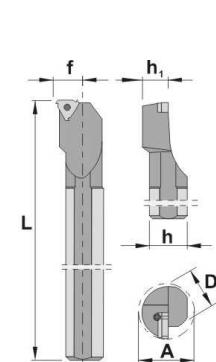
Boring heads

Arbors & adaptors

SXFN 90°



REF.	D	h	L	f	A	NR/L	Image 1	Image 2	Image 3	Image 4
S10K SXFN R/L 11	10	9	125	7,3	13	11	125	507	-	-
S16M SXFN R/L 11	16	15	150	8,9	16	11	125	507	-	-
S16M SXFN R/L 16	16	15	150	11,5	20	16	137	530	-	-
S20Q SXFN R/L 16	20	18	180	13,4	24	16	447	515	435	436
S25S SXFN R/L 16	25	23	250	16,3	29	16	131	515	435	436
S32T SXFN R/L 16	32	30	300	19,6	36	16	131	515	435	436
S40T SXFN R/L 16	40	37	300	23,8	44	16	131	515	435	436
S20Q SXFN R/L 22	20	18	180	15,6	27	22	141	515	-	-
S25S SXFN R/L 22	25	23	250	17,2	32	22	141	515	346	343
S32T SXFN R/L 22	32	30	300	21,5	39	22	141	515	346	343
S40T SXFN R/L 22	40	37	300	25,8	47	22	141	515	346	343

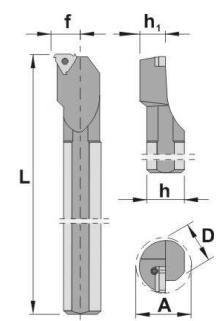


For more information see page: A.60

H-SXFN 90°



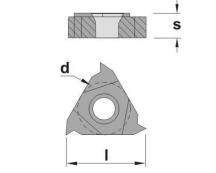
REF.	D	h	L	f	A	NR/L	Image 1	Image 2
H10K SXFN R/L 11	10	4,5	125	7,3	13	11	125	507
H16M SXFN R/L 11	16	7,5	150	8,9	16	11	125	507
H16M SXFN R/L 16	16	7,5	200	11,5	20	16	137	530



Characteristics:
Boring bars with anti-vibration shank.



REF.	I	d
11 NR/L..	11,00	6,35
16 NR/L..	16,00	9,52

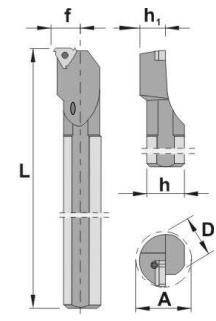


For more information see page: A.60

J-SXFN 90°



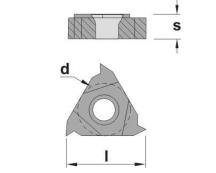
REF.	D	h	L	f	A	NR/L	Image 1	Image 2
J10K SXFN R/L 11	10	4,5	125	7,3	13	11	125	507
J16M SXFN R/L 11	16	7,5	150	8,9	16	11	125	507
J16M SXFN R/L 16	16	7,5	150	11,5	20	16	137	530



Characteristics:
Boring bars with internal coolant and anti-vibration shank.



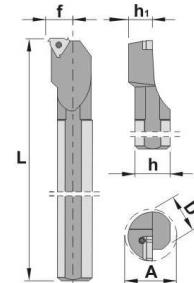
REF.	I	d
11 NR/L..	11,00	6,35
16 NR/L..	16,00	9,52



For more information see page: A.60

STXN 90°

REF.	D	h	h1	L	f	A	NR/L	Inserts
S16M STXN R/L 16	16	15	7,5	150	11,5	20	16	SN3 530 - - -
S20Q STXN R/L 16	20	18	9,0	180	13,4	24	16	SN3 530 YI3 YE3 SY3
S25R STXN R/L 16	25	23	11,5	200	16,3	29	16	SA3 530 YI3 YE3 SY3
S32S STXN R/L 16	32	30	15,0	250	19,6	36	16	SA3 530 YI3 YE3 SY3
S40T STXN R/L 16	40	37	18,5	300	23,8	44	16	SA3 530 YI3 YE3 SY3
S20Q STXN R/L 22	20	18	9,0	180	15,6	27	22	SN4 520 - - -
S25R STXN R/L 22	25	23	11,5	200	17,2	32	22	SA4 520 YI4 YE4 SY4
S32S STXN R/L 22	32	30	15,0	250	21,5	39	22	SA4 520 YI4 YE4 SY4
S40T STXN R/L 22	40	37	18,5	300	25,8	47	22	SA4 520 YI4 YE4 SY4
S32S STXN R/L 27	32	30	15,0	250	22,4	40	27	SA5 552 YI5 YE5 SY5
S40T STXN R/L 27	40	37	18,5	300	26,4	48	27	SA5 552 YI5 YE5 SY5
S50U STXN R/L 27	50	47	23,5	350	31,4	58	27	SA5 552 YI5 YE5 SY5
S60V STXN R/L 27	60	57	28,5	400	36,4	69	27	SA5 552 YI5 YE5 SY5



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

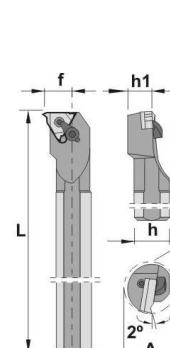
Solid carbide

Boring heads

Arbors & adaptors

CTXN 90°

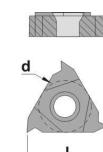
REF.	D	h	h1	L	f	A	NR/L	Inserts
S20Q CTXN R/L 16	20	18	9,0	180	13,0	18,0	16	214 515 YI3 YE3 SY3 SN3
S25R CTXN R/L 16	25	23	11,5	200	17,0	22,6	16	214 515 YI3 YE3 SY3 SA3
S32S CTXN R/L 16	32	30	15,0	250	22,0	29,0	16	214 515 YI3 YE3 SY3 SA3
S40T CTXN R/L 16	40	37	18,5	300	27,0	36,0	16	214 515 YI3 YE3 SY3 SA3
S25R CTXN R/L 22	25	23	11,5	200	17,0	22,6	22	215 515 YI4 YE4 SY4 SA4
S32S CTXN R/L 22	32	30	15,0	250	22,0	29,0	22	215 515 YI4 YE4 SY4 SA4
S40T CTXN R/L 22	40	37	18,5	300	27,0	36,0	22	215 515 YI4 YE4 SY4 SA4
S32S CTXN R/L 27	32	30	15,0	250	22,4	40,0	27	217 552 YI5 YE5 SY5 SA5
S40T CTXN R/L 27	40	37	18,5	300	26,4	48,0	27	217 552 YI5 YE5 SY5 SA5
S50U CTXN R/L 27	50	47	23,5	350	31,4	58,0	27	217 552 YI5 YE5 SY5 SA5
S60V CTXN R/L 27	60	58	29,0	400	36,4	69,0	27	217 552 YI5 YE5 SY5 SA5



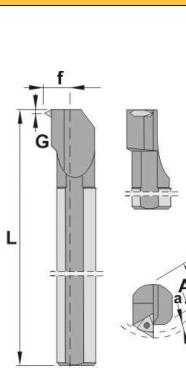
Optional

REF.	I	d
16 NR/L..	16,00	9,52
22 NR/L..	22,00	12,70
27 NR/L..	27,00	15,87

For more information see page: A.60

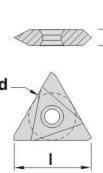
**STGN 90°**

REF.	D	L	f	A	a	T	G	TNMC
S32U STGN R/L 16	32	350	21,0	50,4	45	2,7	1,59	1603.. 198 211 166 502
S40V STGN R/L 16	40	400	25,0	60,4	55	2,7	1,59	1603.. 193 211 166 502
S32U STGN R/L 22	32	350	21,0	78,2	70	4,1	2,38	2204.. 197 211 166 525
S40V STGN R/L 22	40	400	25,0	78,2	70	4,1	2,38	2204.. 197 211 166 525
S50W STGN R/L 22	50	450	36,5	78,2	70	4,1	2,38	2204.. 197 211 166 525
S40V STGN R/L 27	40	400	25,0	60,4	55	6,0	3,18	2704.. 491 211 166 503
S50W STGN R/L 27	50	450	36,5	78,2	70	6,0	3,18	2704.. 491 211 166 503



REF.	I	s	d
TNMC 1603..	16,50	3,18	9,52
TNMC 2204..	22,00	4,76	12,70
TNMC 2704..	27,00	4,76	15,88

For more information see page: A.65



Arbors & adaptors

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

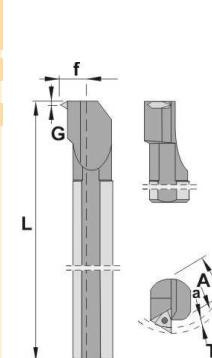
Arbors & adaptors

STGP 90°



REF.	D	L	f	A	a	T	G	TPMC
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S25T STGP R/L 16	25	300	17,5	50,4	45	2,7	1,59	1603..	198	211	166	502
S32U STGP R/L 16	32	350	20,5	50,4	45	2,7	1,59	1603..	198	211	166	502
S40V STGP R/L 22	40	400	25,0	78,2	70	4,1	2,38	2204..	197	211	166	525
S50W STGP R/L 22	50	450	36,5	78,2	70	4,1	2,38	2204..	197	211	166	525



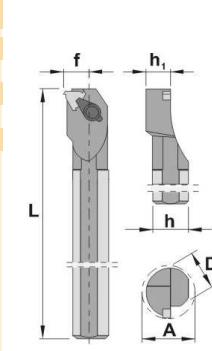
For more information see page: A.65

CXFP 90°



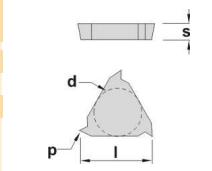
REF.	D	h-h1	L	f	A	R/L
------	---	------	---	---	---	-----

S16R CXFP R/L 11	16	7,5	200	11	20	166-2..	207	525
S20S CXFP R/L 11	20	9,0	250	13	24	166-2..	207	525
S20S CXFP R/L 16	20	9,0	250	13	24	166-3..	209	503
S25T CXFP R/L 16	25	11,5	300	17	31	166-3..	209	503
S32U CXFP R/L 16	32	15,0	350	22	39	166-3..	229	503
S40V CXFP R/L 22	40	18,5	400	27	38	166-4..	231	504



REF.	I	s	d
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R/L 166L-2..	11,00	3,18	6,35
R/L 166L-3..	16,50	3,18	9,52
R/L 166L-4..	22,00	4,76	12,70



For more information see page: A.66

Cutting data

Material	Cutting speed m/min. (Ft/min) Tool grade		
	P25K	K15K	TIC25
Low and medium carbon steel	120-80 (390-260)		250-210 (820-690)
High carbon steel	110-70 (360-230)		210-150 (690-490)
Alloyed tool steel and heat-treatment steels	100-70 (360-230)		180-140 (590-460)
Stainless steels	100-70 (360-230)	90-70 (295-230)	140-110 (460-360)
Cast-iron HB 180-250		90-70 (295-230)	
Non-Ferrous metals		180-120 (590-390)	

Nº of passes		
P mm	TPI	Nº of passes
0,50	48,0	4 - 6
0,75	32,0	4 - 7
1,00	24,0	4 - 8
1,25	20,0	5 - 9
1,50	16,0	6 - 10
1,75	14,0	7 - 12
2,00	12,0	7 - 12
2,50	10,0	8 - 14
3,00	8,0	10 - 18
3,50	7,0	11 - 18
4,00	6,0	11 - 18
4,50	5,5	11 - 19
5,00	5,0	12 - 20
5,50	4,5	12 - 20
6,00	4,0	12 - 20
8,00	3,0	15 - 24

General recommendations :

- Threading speeds should normally be a minimum of 80% to 90% of turning speeds being used to machine the same component. (Assuming grades are compatible).
- Check helix angle and number of passes shown in charts before starting.
- Ensure centre height is correct.
- When there is a problem consult the following recommendations and change only one variable at time. This will help to be sure of the original problem.
- Do not use flank infeed on work hardening materials.

Component problems

	Problem	Cause and remedy
Pitch error (on CNC machines)	★ Starting too close to workpiece ★ Saddle speed towards chuck is excessive	★ Start cycle further back from workpiece. ★ Reduce speed by 10% until correct.
Thread torn on one side only	★ Incorrect helix angle in toolholder.	★ Check helix chart. ★ Reassemble with correct anvil. ★ Check centre height.
Thread torn on both sides	★ Running too slow. ★ Built up edge.	★ Increase cutting speed. ★ Check center height. ★ Use coated grade. ★ Compare thread speed with turning speed.
Long dangerous swarf	★ Incorrect chipbreaker geometry. ★ Incorrect method of infeed.	★ Use Kimu (TD) chipbreaker. ★ Use different infeed method.
Vibration chatter marks on both flanks	★ Poor stability. ★ Excessive overhang.	★ Renew anvil to support insert. ★ Check tool clamping. ★ Reduce tool overhang. ★ Check rigidity of setup.
Shallow threads Problem with gauging	★ Insert not cresting. ★ Incorrect effective diameter.	★ Check machined diameters. ★ Excessive tool wear or chipped on nose see remedies above.

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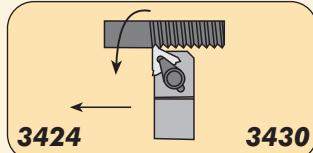
Boring heads

Arbors & adaptors

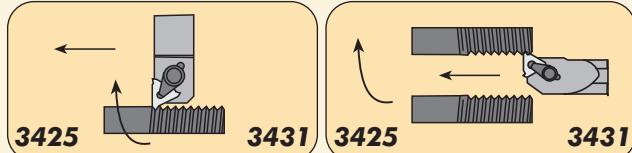
Helix chart

Feed direction towards the chuck

RH Thread - RH Tool

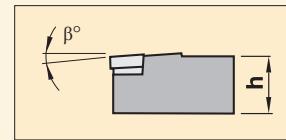


LH Thread - LH Tool



Anvil to give correct helix

Insert size	+3°	+2°	+1°	+0°
16R	3424+3	3424+2	3424+1	3424
16L	3425+3	3425+2	3425+1	3425
22R	3430+3	3430+2	3430+1	3430
22L	3431+3	3431+2	3431+1	3431



Lead in mm

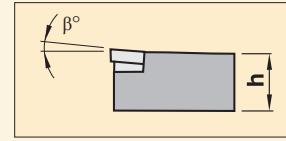
Diameter mm

Anvil to give correct helix

Insert size	-3°	-2°	-1°	0°
16R	3424-3	3424-2	3424-1	3424
16L	3425-3	3425-2	3425-1	3425
22R	3430-3	3430-2	3430-1	3430
22L	3431-3	3431-2	3431-1	3431

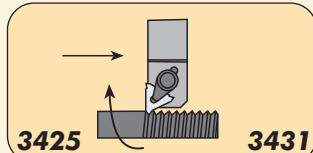
Lead in mm

Diameter mm

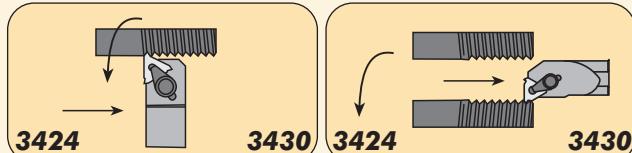


Feed direction away from the chuck

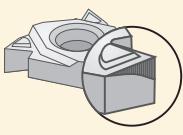
RH Thread - RH chuck



LH Thread - LH Tool



Threading insert wear and tool life

Problem	Cause and Remedy
Rapid flank wear 	<ul style="list-style-type: none"> ★ Cutting speed too high. ★ Lack of coolant. ★ Infeed per pass too small - too many passes ★ Incorrect grade. <ul style="list-style-type: none"> ☆ Reduce the cutting speed. ☆ Increase the coolant supply. ☆ Increase the depth of infeed for the smallest infeed depths - reduce the number of passes. ☆ Select a more wear resistant grade.
Edge frittering 	<ul style="list-style-type: none"> ★ Instability of workholding and/or tool set-up. <ul style="list-style-type: none"> ☆ Check rigidity of operation. ☆ Select a tougher grade.
Edge spalling 	<ul style="list-style-type: none"> ★ Intermittent coolant supply. <ul style="list-style-type: none"> ☆ Position coolant flow and/or increase coolant supply.
Uneven flank wear 	<ul style="list-style-type: none"> ★ Incorrect method of infeed. ★ Incorrect angle of inclination. <ul style="list-style-type: none"> ☆ In case of flank infeed use modified flank infeed. Decrease infeed angle 3-5°. ☆ Correct the angle on inclination according to the diagram.
Excessive plastic deformation 	<ul style="list-style-type: none"> ★ Infeed per pass too big - too few passes. ★ Lack of coolant. ★ Cutting speed too high. ★ Incorrect grade. ★ Excessive stock removal from crest. <ul style="list-style-type: none"> ☆ Decrease the depth of infeed for the biggest depths. - Increase the number of passes. ☆ Increase coolant supply. ☆ Reduce the cutting speed. ☆ Select a harder grade. ☆ Check the volume of the material above the crest.
Insert breakage 	<ul style="list-style-type: none"> ★ Instability. ★ Lack of chip control. ★ Excessive plastic deformation. ★ Intermittent or inadequate coolant supply ★ Incorrect preparation of the operation <ul style="list-style-type: none"> ☆ Check rigidity of operation. ☆ Select a tougher grade. Select modified flank infeed. ☆ Machine with same infeed per pass. ☆ Direct coolant flow and/or increase coolant supply. ☆ Check dimension of blank.
Shallow thread profile	<ul style="list-style-type: none"> ★ Wrong centre height. ★ Insert not cresting. ★ Excessive tool wear. <ul style="list-style-type: none"> ☆ Adjust cutting edge height. ☆ Check dimension of blank. ☆ Change insert earlier.
Incorrect thread profile	<ul style="list-style-type: none"> ★ Incorrect tool setting. <ul style="list-style-type: none"> ☆ Correct tool setting.
Lack of chip control	<ul style="list-style-type: none"> ★ Incorrect depth of infeed per pass ★ Radial infeed. <ul style="list-style-type: none"> ☆ Adjust cutting edge height. ☆ Check dimension of blank. ☆ Change insert earlier.
Bad surface finish	<ul style="list-style-type: none"> ★ Cutting speed too low. ★ Incorrect angle of inclination. ★ Flank infeed. <ul style="list-style-type: none"> ☆ Increase the cutting speed. ☆ Correct the angle of inclination according to diagram. ☆ Use modified flank infeed or radial infeed.

Inserts**Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors**

Inserts

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Usure et longueur de vie de la plaquette de filetage

Problème

Causes et solutions

Usure rapide en dépouille



- ★ Vitesse de coupe trop élevée.
- ★ Manque d'arrosage.
- ★ Pénétration par passe trop faible - trop de passes.
- ★ Nuance incorrecte.

- ☆ Réduire la vitesse de coupe.
- ☆ Augmenter le débit de l'arrosage.
- ☆ Augmenter la profondeur de la pénétration en diminuant le nombre de passes.
- ☆ Choisir une nuance plus résistante à l'usure.

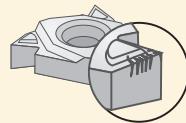
Ecaillage de l'arête



- ★ Rigidité insuffisante de la pièce à usiner et/ou de la machine.

- ☆ Contrôler la rigidité de l'opération.
- ☆ Choisir une nuance plus tenace.

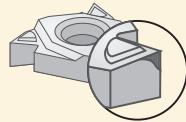
Fissuration thermique



- ★ Arrosage irrégulier.

- ☆ Contrôler le débit de l'arrosage et/ou l'appliquer de façon plus abondante.

Usure en dépouille irregulière



- ★ Méthode de pénétration pas correcte.
- ★ Angle d'inclinaison pas correcte.

- ☆ Dans le cas de pénétration oblique, utiliser une pénétration oblique modifiée, diminuer l'angle de plongée 3-5°.
- ☆ Corriger l'angle d'inclinaison d'accord avec le diagramme ci-joint.

Déformation plastique excessive



- ★ Pénétration par passe trop forte - trop peu de passes.
- ★ Arrosage insuffisant.
- ★ Vitesse de coupe trop élevée.
- ★ Nuance incorrecte.
- ★ La pointe de la plaquette enlève trop de matériel.

- ☆ Diminuer la profondeur de pénétration en augmentant le nombre de passes.
- ☆ Augmenter le débit d'arrosage.
- ☆ Réduire la vitesse de coupe.
- ☆ Choisir une nuance plus dure.
- ☆ Contrôler le matériel sur la pointe.

Rupture



- ★ Instabilité.
- ★ Manque de contrôle des copeaux.
- ★ Déformation plastique excessive.
- ★ Arrosage irrégulier ou insuffisant.
- ★ Préparation incorrecte de l'opération.

- ☆ Contrôler la rigidité de l'opération.
- ☆ Choisir une nuance plus dure. Utiliser une pénétration oblique modifiée.
- ☆ Usiner avec la même pénétration par passe.
- ☆ Contrôler le débit de l'arrosage et/ou augmenter l'arrosage.
- ☆ Contrôler les dimensions de la plaquette.

Profile de filet superficiel

- ★ Hauteur de centre incorrecte.
- ★ La plaquette ne taille pas.
- ★ Usure excessive de l'arête.

- ☆ Réglér la hauteur de centre de l'outil.
- ☆ Contrôler les dimensions de la plaquette.
- ☆ Changer la plaquette plus tôt.

Profile de filet incorrect

- ★ Fixation de l'outil incorrecte.

- ☆ Régler la fixation de l'outil.

Manque de contrôle des copeaux

- ★ Profondeur de pénétration par passe incorrecte.
- ★ Pénétration radiale.

- ☆ Ajuster la hauteur de l'arête de coupe.
- ☆ Contrôler les dimensions de la pièce.
- ☆ Changer la plaquette plus tôt.

Mauvais état de surface

- ★ Vitesse de coupe insuffisante.
- ★ Angle d'inclinaison incorrect.
- ★ Pénétration oblique.

- ☆ Augmenter la vitesse de coupe.
- ☆ Corriger l'angle d'inclinaison selon le diagramme.
- ☆ Utiliser une pénétration oblique modifiée ou bien une pénétration radiale.

Inserts**Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors**

Verschleiß und Standzeit der Wendeplatte zum Gewindedrehen

	Problem	Ursache und Maßnahmen
Schneller Freiflächenverschleiß	<ul style="list-style-type: none"> ★ Zu hohe Schnittgeschwindigkeit. ★ Mangel an Kühlmittel. ★ Zustellungstiefe pro Durchgang zu niedrig – zu viele Durchgänge. ★ Nicht korrekte Plattsorte. 	<ul style="list-style-type: none"> ★ Schnittgeschwindigkeit reduzieren. ★ Kühlmittelzufuhr erhöhen. ★ Für kleine Zustellungen, die Zustellungstiefe erhöhen - Anzahl Durchgänge reduzieren. ★ Eine Sorte mit höherem Widerstand gegen Verschleißfestigkeit wählen.
Absplittern der Schneidkante	<ul style="list-style-type: none"> ★ Instabilität des Werkstückes und/oder des Werkzeuges. 	<ul style="list-style-type: none"> ★ Stabilität der Operation kontrollieren. ★ Eine härtere Sorte wählen.
Kammrisse	<ul style="list-style-type: none"> ★ Unterbrochene Kühlmittelzufuhr. 	<ul style="list-style-type: none"> ★ Kühlmittel kontrollieren und/oder Zufuhr erhöhen.
Ungleichmäßiger Freiflächenverschleiß	<ul style="list-style-type: none"> ★ Falsche Methode der Flankenzustellung. ★ Falscher Neigungswinkel der Wendeplatte. 	<ul style="list-style-type: none"> ★ Zustellmethode ändern. Zustellwinkel 3-5° vermindern. ★ Neigungswinkel gemäß Diagramm ändern.
Übermäßige plastische Verformung	<ul style="list-style-type: none"> ★ Zustellungstiefe pro Durchgang zu groß - zu wenige Durchgänge. ★ Mangel an Kühlmittel. ★ Zu hohe Schnittgeschwindigkeit. ★ Nicht korrekte Plattsorte. ★ Zuviel Materialabnahme an der Wendeplattenspitze. 	<ul style="list-style-type: none"> ★ Zustellungstiefe reduzieren - Anzahl der Durchgänge erhöhen. ★ Kühlmittelzufuhr erhöhen. ★ Schnittgeschwindigkeit reduzieren. ★ Eine härtere Sorte wählen. ★ Materialmenge an der Wendeplattenspitze kontrollieren.
Plattenbruch	<ul style="list-style-type: none"> ★ Instabilität. ★ Unkontrollierte Späne. ★ Übermäßige plastische Verformung. ★ Unterbrochene oder ungeeignete Kühlmittelzufuhr. ★ Falsche Hartmetallsorte. 	<ul style="list-style-type: none"> ★ Stabilität der Operation kontrollieren. ★ Eine härtere Sorte wählen. Modifizierte Flankenzustellung wählen. ★ Bearbeiten mit derselben Zustellung per Steigung. ★ Kühlmittelzufuhr kontrollieren und/oder Zufuhr erhöhen. ★ Die Abmessung der Wendeplatte kontrollieren.
Zu kleines Gewindeprofil	<ul style="list-style-type: none"> ★ Falsche Spitzenhöhe. ★ Plattenbruch. ★ Übermäßiger Verschleiß. 	<ul style="list-style-type: none"> ★ Schneidkantenhöhe einstellen. ★ Die Abmessung der Wendeplatte kontrollieren. ★ Wendeplatte früher wechseln.
Mangelhaftes Gewindeprofil	<ul style="list-style-type: none"> ★ Falsche Werkzeug/Wendeplattenkombination. 	<ul style="list-style-type: none"> ★ Richtige Werkzeug/Wendeplattenkombination wählen.
Schlechte Spankontrolle	<ul style="list-style-type: none"> ★ Falsche Tiefe der Zustellung per Steigung. ★ Radiale Zustellung. 	<ul style="list-style-type: none"> ★ Schneidkantenhöhe einstellen. ★ Die Abmessung der Wendeplatte kontrollieren. ★ Wendeplatte früher wechseln.
Schlechte Oberflächengüte	<ul style="list-style-type: none"> ★ Zu niedrige Schnittgeschwindigkeit. ★ Nicht korrekter Neigungswinkel. ★ Flankenzustellung. 	<ul style="list-style-type: none"> ★ Schnittgeschwindigkeit erhöhen. ★ Neigungswinkel gemäß Diagramm korrigieren. ★ Modifizierte Flankenzustellung oder radiale Zustellung verwenden.

Drills
Forets
Bohrer

H02

Trepanning drills
Forets pour trépannage
Kernbohrer

H05

Technical information
Information technique
Technische Auskunft

H06

Cutting data
Conditions de coupe
Schnittbedingungen

H08

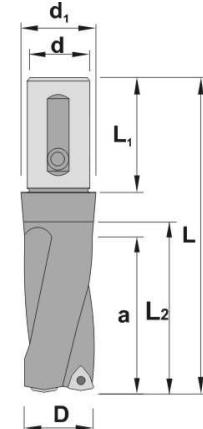
H01

Inserts

215



REF.	D	L	L1	L2	a	d	d1	WCMX		
215.017,5	17,5	108	55	39	35	25	40	0302..	129	507
215.018	18	108	55	40	36	25	40	0302..	129	507
215.018,5	18,5	113	55	41	37	25	40	0302..	129	507
215.019	19	113	55	42	38	25	40	0302..	129	507
215.020	20	113	55	44	40	25	40	0302..	129	507
215.022	22	123	55	48	44	25	40	0402..	125	507
215.024	24	123	55	52	48	25	40	0402..	125	507
215.025	25	123	55	54	50	25	40	0402..	125	507
215.026	26	133	55	56	52	32	40	0503..	103	509
215.027	27	133	55	58	54	32	40	0503..	103	509
215.028	28	133	55	60	56	32	40	0503..	103	509
215.029	29	133	55	62	58	32	40	0503..	103	509
215.030	30	133	55	64	60	32	40	0503..	103	509
215.031	31	153	60	66	62	40	50	06T3..	137	530
215.032	32	153	60	68	64	40	50	06T3..	137	503
215.034	34	153	60	73	68	40	50	06T3..	137	503
215.035	35	153	60	75	70	40	50	06T3..	137	503
215.038	38	163	60	80	76	40	50	06T3..	137	503
215.039	39	163	60	82	78	40	50	06T3..	137	503
215.040	40	163	60	84	80	40	50	06T3..	137	503
215.042	42	193	65	89	84	40	60	0804..	104	515
215.043	43	193	65	91	86	40	60	0804..	104	515
215.045	45	193	65	95	90	40	60	0804..	104	515
215.048	48	193	65	101	96	40	60	0804..	104	515
215.049	49	213	65	103	98	40	60	0804..	104	515
215.050	50	213	65	105	100	40	60	0804..	104	515
215.052	52	213	65	110	104	40	60	0804..	104	515
215.054	54	213	65	114	108	40	60	0804..	104	515
215.055	55	213	65	116	110	40	60	0804..	104	515



Automatic lathes
Ceramic tools

Parting & grooving

Threading
Drills

Cartridges
Brazed tools

Milling cutters

Solid carbide
Boring heads

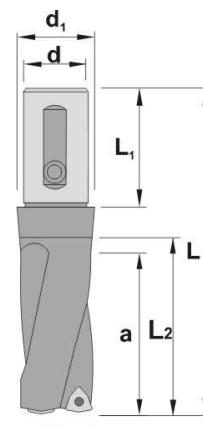
Arbors & adaptors

For more information see page: A.56

216



REF.	D	L	L1	L2	a	d	d1	WCMX		
216.017,5	17,5	122	50	56	53	25	32	0302..	129	507
216.018	18	123	50	57	54	25	32	0302..	129	507
216.018,5	18,5	125	50	59	56	25	32	0302..	129	507
216.019	19	126	50	60	57	25	32	0302..	129	507
216.020	20	131	50	64	60	25	32	0302..	129	507
216.022	22	142	55	69	66	25	40	0402..	125	507
216.024	24	150	55	76	72	25	40	0402..	125	507
216.025	25	154	55	79	75	25	40	0402..	125	507
216.026	26	157	55	81	78	32	40	0503..	103	509
216.027	27	160	55	84	81	32	40	0503..	103	509
216.028	28	164	55	87	84	32	40	0503..	103	509
216.029	29	167	55	90	87	32	40	0503..	103	509
216.030	30	172	55	94	90	32	40	0503..	103	509
216.031	31	181	60	97	93	40	50	06T3..	137	530
216.032	32	184	60	100	96	40	50	06T3..	137	530
216.034	34	191	60	106	102	40	50	06T3..	137	530
216.035	35	195	60	109	105	40	50	06T3..	137	530
216.038	38	206	60	118	114	40	50	06T3..	137	530
216.039	39	209	60	121	117	40	50	06T3..	137	530
216.040	40	213	60	124	120	40	50	06T3..	137	530
216.042	42	225	65	130	126	40	60	0804..	104	515
216.043	43	229	65	133	129	40	60	0804..	104	515
216.045	45	237	65	140	135	40	60	0804..	104	515
216.048	48	248	65	149	144	40	60	0804..	104	515
216.049	49	251	65	152	147	40	60	0804..	104	515
216.050	50	255	65	155	150	40	60	0804..	104	515
216.052	52	262	65	161	156	40	60	0804..	104	515
216.054	54	269	65	167	162	40	60	0804..	104	515
216.055	55	274	65	171	165	40	60	0804..	104	515

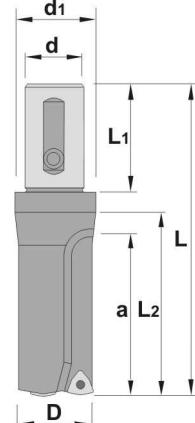


REF.	D	L	L1	L2	a	d	d1	WCMX		
WCMX 0302..	3,46		2,38			5,56				
WCMX 0402..	3,99		2,38			6,35				
WCMX 0503..	5,07		3,18			7,94				
WCMX 06T3..	6,14		3,97			9,52				
WCMX 0804..	8,14		4,76			12,70				

For more information see page: A.56

226

REF.	D	L	L1	L2	a	d	d1	WCMX		
226.017,5	17,5	103	50	39	35	25	32	0302..	129	507
226.018	18	103	50	40	36	25	32	0302..	129	507
226.018,5	18,5	103	50	41	37	25	32	0302..	129	507
226.019	19	103	50	42	38	25	32	0302..	129	507
226.020	20	103	50	44	40	25	32	0302..	129	507
226.022	22	123	55	48	44	25	40	0402..	125	507
226.024	24	123	55	52	48	25	40	0402..	125	507
226.025	25	123	55	54	50	25	40	0402..	125	507
226.026	26	133	55	56	52	32	40	0503..	103	509
226.027	27	133	55	58	54	32	40	0503..	103	509
226.028	28	133	55	60	56	32	40	0503..	103	509
226.029	29	133	55	62	58	32	40	0503..	103	509
226.030	30	133	55	64	60	32	40	0503..	103	509
226.031	31	153	60	66	62	40	50	06T3..	137	530
226.032	32	153	60	68	64	40	50	06T3..	137	530
226.034	34	153	60	73	68	40	50	06T3..	137	530
226.035	35	153	60	75	70	40	50	06T3..	137	530
226.038	38	163	60	80	76	40	50	06T3..	137	530
226.039	39	163	60	82	78	40	50	06T3..	137	530
226.040	40	163	60	84	80	40	50	06T3..	137	530
226.042	42	193	65	89	84	40	60	0804..	104	515
226.043	43	193	65	91	86	40	60	0804..	104	515
226.045	45	193	65	95	90	40	60	0804..	104	515
226.048	48	193	65	101	96	40	60	0804..	104	515
226.049	49	213	65	103	98	40	60	0804..	104	515
226.050	50	213	65	105	100	40	60	0804..	104	515
226.052	52	213	65	110	104	40	60	0804..	104	515
226.054	54	213	65	114	108	40	60	0804..	104	515
226.055	55	213	65	116	110	40	60	0804..	104	515



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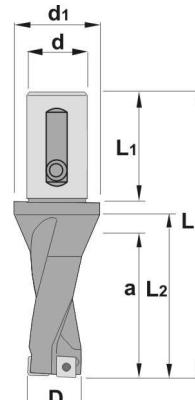
Solid carbide

Boring heads

Arbors & adaptors

232

REF.	D	L	L1	L2	a	d	d1	SPMT		
232.015	15	120	55	56	45	25	40	0603..	125	507
232.016	16	121	55	56	48	25	40	0603..	125	507
232.017	17	127	55	54	51	25	40	0603..	125	507
232.017,5	17,5	127	55	56	53	25	40	0603..	125	507
232.018	18	128	55	57	54	25	40	0603..	125	507
232.018,5	18,5	130	55	59	56	25	40	0603..	125	507
232.019	19	131	55	60	57	25	40	0603..	125	507
232.020	20	136	55	64	60	25	40	0603..	125	507
232.022	22	142	55	69	66	25	40	0703..	125	507
232.024	24	150	55	76	72	25	40	0703..	125	507
232.025	25	154	55	79	75	25	40	0703..	125	507
232.026	26	162	55	81	78	32	50	0903..	103	530
232.027	27	165	55	84	81	32	50	0903..	103	530
232.028	28	169	55	87	84	32	50	0903..	103	530
232.029	29	172	55	90	87	32	50	0903..	103	530
232.030	30	177	55	94	90	32	50	0903..	103	530
232.031	31	186	65	97	93	40	60	0903..	103	530
232.032	32	189	65	100	96	40	60	0903..	103	530
232.034	34	196	65	106	102	40	60	0903..	103	530
232.035	35	200	65	109	105	40	60	1204..	150	520
232.038	38	211	65	118	114	40	60	1204..	150	520
232.039	39	214	65	121	117	40	60	1204..	150	520
232.040	40	218	65	124	120	40	60	1204..	150	520
232.042	42	225	65	130	126	40	60	1204..	150	520
232.043	43	229	65	133	129	40	60	1204..	150	520
232.045	45	237	65	140	135	40	60	1204..	150	520

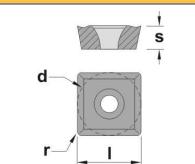


Arbors & adaptors



REF.	I	s	d
SPMT 0603..	6,35	3,18	6,35
SPMT 0703..	7,94	3,18	7,94
SPMT 0903..	9,52	3,18	9,52
SPMT 1204..	12,70	4,76	12,70

For more information see page: A.51



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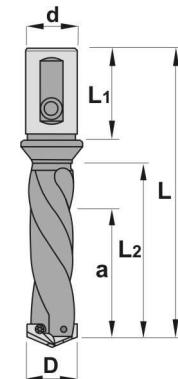
Boring heads

Arbors & adaptors

258



REF.	D	L	L1	L2	a	d	XPMT	Mounting
258.009,5	9,50 ~ 11,0	120,0	42	50	35	20	095 ~ 110	440 506
258.011,5	11,5 ~ 12,7	125,0	42	55	40	20	115 ~ 127	441 506
258.013	13,0 ~ 17,5	140,0	42	65	53	20	130 ~ 175	155 507
258.015	15,5 ~ 17,5	140,0	42	75	53	20	150 ~ 175	155 507

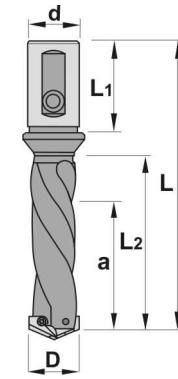


For more information see page: A.58

259



REF.	s
XPMT 095 ~ XPMT 110	2,4
XPMT 115 ~ XPMT 127	2,4
XPMT 130 ~ XPMT 175	3,2
XPMT 150 ~ XPMT 175	3,2

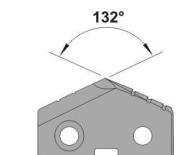


H04



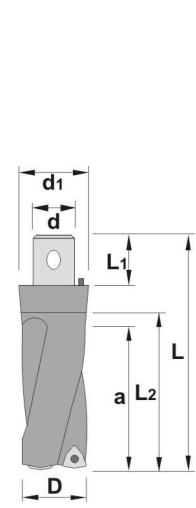
REF.	s
XPMT 095 ~ XPMT 110	2,4
XPMT 115 ~ XPMT 127	2,4
XPMT 130 ~ XPMT 175	3,2
XPMT 150 ~ XPMT 175	3,2

For more information see page: A.58



228

REF.	D	L	L1	L2	a	d	d1	WCMX		
228.017,5	17,5	92	20	56	53	20	32	0302..	129	507
228.018	18	93	20	57	54	20	32	0302..	129	507
228.018,5	18,5	95	20	59	56	20	32	0302..	129	507
228.019	19	96	20	60	57	20	32	0302..	129	507
228.020	20	101	20	64	60	20	32	0302..	129	507
228.022	22	112	25	69	66	24	42	0402..	125	507
228.024	24	120	25	76	72	24	42	0402..	125	507
228.025	25	124	25	79	75	24	42	0402..	125	507
228.026	26	132	30	81	78	28	50	0503..	103	509
228.027	27	135	30	84	81	28	50	0503..	103	509
228.028	28	139	30	87	84	28	50	0503..	103	509
228.029	29	142	30	90	87	28	50	0503..	103	509
228.030	30	147	30	94	90	28	50	0503..	103	509
228.031	31	161	40	97	93	36	68	06T3..	137	530
228.032	32	164	40	100	96	36	68	06T3..	137	530
228.034	34	171	40	106	102	36	68	06T3..	137	530
228.035	35	175	40	109	105	36	68	06T3..	137	530
228.038	38	186	40	118	114	36	68	06T3..	137	530
228.039	39	189	40	121	117	36	68	06T3..	137	530
228.040	40	193	40	124	120	36	68	06T3..	137	530



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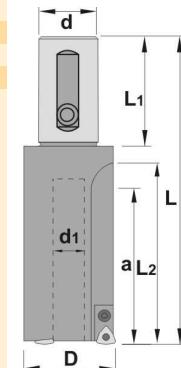
Solid carbide

Boring heads

Arbors & adaptors

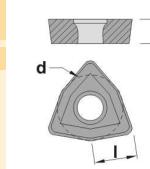
474Trepanning drills
Forets por trépannage
Kernbohrer

REF.	D	L	L1	L2	a	d	d1	WCMX		
474.060	60	260	65	160	150	40	24	06T3..	466	530
474.065	65	275	65	175	165	40	29	06T3..	466	530
474.070	70	285	65	185	175	40	34	06T3..	466	530
474.075	75	300	65	200	190	40	39	06T3..	466	530
474.080	80	310	65	210	200	40	44	06T3..	466	530
474.085	85	325	65	225	215	40	49	06T3..	466	530
474.090	90	335	65	235	225	40	54	06T3..	466	530
474.095	95	350	65	250	240	40	59	06T3..	466	530
474.100	100	360	65	260	250	40	64	06T3..	466	530



REF.	I	s	d
WCMX 06T3..	6,14	3,97	9,52

For more information see page: A.56

**H05**

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Boring heads

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Drills for indexable inserts - Forets pour plaquettes amovibles - Bohrer für Wendeschneidplatten



A concave surface is not normally recommended because there is the possibility that the tool turns away from the centre. Feed should be reduced to 1/3 of the recommended.

L'attaque sur une surface concave n'est pas recommandé car il y a la possibilité que la pièce à usiner se déplace du centre. L'avance devrait être réduite à 1/3 de celui que l'on recommande.

Eine konkave Oberfläche ist normalerweise nicht empfohlen, weil die Möglichkeit besteht, daß der Bohrer von der Mitte abgelenkt wird. Der Vorschub sollte auf 1/3 des empfohlenen Wertes vermindert werden.



The surface of the tool to be drilled on should be preferably even. If the angles exceed 2°, feed should be reduced to 1/3 of the recommended.

La surface de la pièce qui doit être percée devrait être de préférence plate. Si les angles surpassent 2°, l'avance devrait être réduite à 1/3 de celui que l'on recommande.

Die Anbohrfläche sollte wenn möglich eben sein. Wenn die Winkel mehr als 2° betragen, sollte man den Vorschub beim Anbohren auf 1/3 des empfohlenen Wertes vermindern.



If the starting surface is an uneven surface of the component, feed should be reduced so that the chip of the cutting edges can be avoided. The same can also happen at the wayout from the tool.

Si la surface à usiner est une surface irrégulière, l'avance devrait être réduite de façon que l'on puisse éviter la casse des arêtes de coupe. La même chose peut passer aussi à la sortie de l'outil.

Wenn man ab einer ungleichmäßigen Oberfläche beginnt, muß der Vorschub beim Anbohren reduziert werden, so daß ein Ausbröckeln der Schneidkante verhindert werden kann. Das gleiche kann auch beim Durchbohren passieren.



When working with a hole made beforehand, this should not be bigger than 1/4 of th final size, because the tool could turn away.

Quand on usine un trou qui a été percé préalablement, celui-ci ne devrait pas être plus grand que 1/4 de la dimension finale, parce que la pièce à usiner pourrait se déplacer.

Wenn man in einem Werkstück bohrt, die schon angebohrt ist, darf diese vorgebohrte Bohrung nicht größer als 1/4 des gewünschten Enddurchmessers sein, da der Bohrer sonst von der Mitte abgelenkt wird.



There is the possibility to drill sets of more than one piece.

Il existe la possibilité de percer des pièces empilées.

Es ist möglich, mehrere übereinanderliegende Werkstücke zu bohren.



When the tool has a crossed hole, which is 1/4 bigger than the diameter of the drill, feed should be reduced when going through it.

Quand la pièce à usiner a un trou transversal qui est plus de 1/4 plus grand que le diamètre du foret, l'avance devrait être réduite lors du passage à travers de celui-ci.

Wenn das Werkstück eine Querbohrung von mehr als 1/4 des Bohrerdurchmessers hat, muß der Vorschub vermindert werden, wenn man durch dieser Bohrung bohrt.



Drilling with drill-holders with housing for cutting fluid supply

Percer avec attachement à adduction de liquide réfrigérant

Bohren mit Halter mit Kühlmittelgehäuse

When a drillholder with a housing supplier of cutting fluid is used, it has to have a fixed top so as to avoid that the housing turns around. If it is the case that the cutting fluid has some dirty rests, this could lock the rotary housing and, consequently, the supplier tube will roll up around it, which can cause a serious accident. If it is the case that the drillholder has not been used for a long time, check if it turns round in the housing before the spindle starts working.

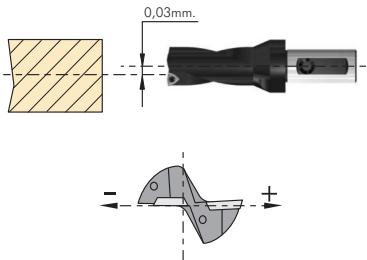
Quand on utilise un attachement à adduction de liquide réfrigérant, il doit avoir une butée à la partie supérieure pour empêcher la rotation du raccord tournant.

Dans le cas où le liquide réfrigérant a quelques particules de métal, cela pourrait bloquer le raccord tournant, et en conséquence, le tube distributeur du liquide réfrigérant s'enroulerait autour de celui-ci. Cela pourrait provoquer un grave accident.

Dans le cas où l'attachement n'a pas été utilisé depuis longtemps, vérifier qu'il tourne sans difficulté dans le raccord, avant de mettre la machine en route.

Wenn man einen Halter mit Kühlmittelgehäuse verwendet, muß eine Arretierung vorhanden sein, die das Rotieren des Gehäuses verhindert. Falls das Kühlmittel durch Spanpartikel schmutzig ist, könnte das Gehäuse blockieren und in diesem Fall würde das Gehäuse die Zuleitung mit sich ziehen, und ein ernster Unfall könnte die Folge sein.

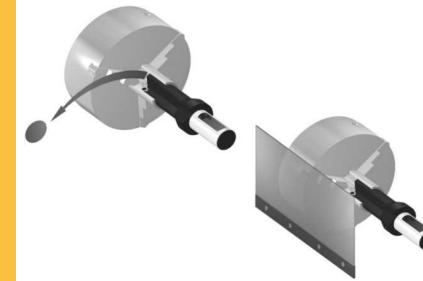
Wenn ein Halter mit Kühlmittelgehäuse längere Zeit nicht verwendet worden ist, muß vor Inbetriebnahme der Maschine geprüft werden, ob sich der Halter im Gehäuse leicht drehen läßt.



Fixed drills

Forets fixes

Nichtrotierende Bohrer



Drilling of through-holes

Perçage de trous traversants

Bohren von Durchgangsbohrungen

The axis of the tool should not be deviated from the centre of the piece more than 0,03 mm. so that the pointed tolerances are acquired.

The tool should be assembled in a way that the face of the central insert goes parallel to the cross movement axis of the machine.

L'axe de l'outil ne devrait pas être dévié de plus de 0,03 mm. du centre de la pièce, pour pouvoir obtenir les tolérances prévues.

L'outil devrait être monté de manière que la face de la plaque centrale soit parallèle à l'axe de mouvement transversal de la machine.

Die Werkzeugachse darf nicht mehr als 0,03 mm. von der Mitte des Werkstücks abgelenkt sein, damit man die angegebenen Toleranzen erreichen kann.

Der Bohrer muß so positioniert werden, daß die Schneidkante der Mittelplatte parallel zur X-Achse der Maschine liegt.

When through-holes are drilled a disk is produced after the drill has finished the hole. This disk is often thrown away at high speed through the dish claws and can cause injuries and accidents. In order to avoid this accident, a suitable safety has to be placed around the dish.

Quand on perce un trou traversant il se forme un disque lorsque le foret a débouché le trou. Ce disque est souvent éjecté à grande vitesse à travers des mors du mandrin, et peut occasionner des blessures et des dommages.

Pour éviter tout accident, il faut prévoir une protection adéquate autour du mandrin.

Wenn man Durchgangsbohrungen bohrt, entsteht beim Austritt des Bohrers aus dem Werkstück eine Scheibe, die oft mit hoher Geschwindigkeit aus dem Spannfutter geschleudert wird und Schaden und Verletzungen verursachen kann. Um dies zu verhindern, muß eine Schutzabdeckung um das Spannfutter vorhanden seien.

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Material	HB	Condition	D mm.	Feed mm./Rev.	Cutting speed m./min.
Unalloyed steel P	90-200	Non-hardened 0,05-0,25% C	17,5-25,4 26,0-30,0 31,0-41,3 42,0-80,0	0,04-0,08 0,06-0,10 0,08-0,12 0,08-0,12	100-250
Unalloyed steel	125-225 150-225 180-225	Non-hardened 0,25-0,55% C Non-hardened 0,55-0,80% C High carbon & carbon tool steel	17,5-25,4 26,0-30,0 31,0-41,3 42,0-80,0	0,04-0,12 0,09-0,19 0,11-0,20 0,14-0,25	100-250
Low alloyed steel	150-260	Non-hardened	17,5-25,4 26,0-30,0 31,0-41,3 42,0-80,0	0,08-0,12 0,09-0,16 0,11-0,20 0,14-0,22	90-250
Low alloyed steel	220-400	Hardened	17,5-25,4 26,0-30,0 31,0-41,3 42,0-80,0	0,06-0,10 0,08-0,15 0,08-0,15 0,11-0,20	80-220
High alloyed steel	150-250 150-250	Annealed Annealed HSS	17,5-25,4 26,0-30,0 31,0-41,3 42,0-80,0	0,08-0,12 0,09-0,18 0,11-0,22 0,14-0,25	100-220
High alloyed steel	250-350 250-400	Hardened tool steel Hardened steel	17,5-25,4 26,0-30,0 31,0-41,3 42,0-80,0	0,08-0,12 0,09-0,15 0,11-0,17 0,12-0,20	90-200
Stainless steel	150-270	Ferritic, Martensitic 13-25% Cr	17,5-25,4 26,0-30,0 31,0-41,3 42,0-80,0	0,04-0,12 0,10-0,16 0,11-0,18 0,11-0,18	90-190
Steel castings	150-270	Unalloyed	17,5-25,4 26,0-30,0 31,0-41,3 42,0-80,0	0,05-0,08 0,06-0,10 0,09-0,15 0,11-0,18	100-230
Steel castings	90-225	Low alloyed (alloying elements < 5%)	17,5-25,4 26,0-30,0 31,0-41,3 42,0-80,0	0,08-0,12 0,09-0,15 0,12-0,20 0,14-0,22	90-200
Stainless steel M	150-250	Austenitic Ni > 8%, 18-25% Cr	17,5-25,4 26,0-30,0 31,0-41,3 42,0-80,0	0,04-0,12 0,10-0,16 0,11-0,18 0,11-0,18	70-150
Malleable cast iron K	110-145	Ferritic (short chipping)	17,5-25,4 26,0-30,0 31,0-41,3 42,0-80,0	0,11-0,18 0,14-0,22 0,17-0,27 0,18-0,30	90-200
Malleable cast iron	150-270	Pearlitic (long chipping)	17,5-25,4 26,0-30,0 31,0-41,3 42,0-80,0	0,09-0,15 0,11-0,19 0,12-0,20 0,14-0,22	80-180
Grey cast iron	150-220	Low tensile strength	17,5-25,4 26,0-30,0 31,0-41,3 42,0-80,0	0,09-0,15 0,14-0,22 0,15-0,25 0,18-0,30	80-180
Grey cast iron	200-330	High tensile strength	17,5-25,4 26,0-30,0 31,0-41,3 42,0-80,0	0,09-0,15 0,12-0,20 0,14-0,22 0,15-0,25	70-150
Nodular cast iron	125-230	Ferritic	17,5-25,4 26,0-30,0 31,0-41,3 42,0-80,0	0,09-0,15 0,14-0,22 0,15-0,25 0,17-0,28	80-180
Nodular cast iron	200-300	Pearlitic	17,5-25,4 26,0-30,0 31,0-41,3 42,0-80,0	0,09-0,15 0,12-0,20 0,14-0,22 0,15-0,30	70-150
Aluminium alloys	75-150 40-100 70-125	Wrought, solution treated & aged Cast Cast, solution treated & aged	17,5-25,4 26,0-30,0 31,0-41,3 42,0-80,0	0,08-0,12 0,11-0,17 0,17-0,27 0,17-0,27	150-375
Copper and copper alloys	50 - 160	Free cutting alloys (pb>1%) Brass and leaded bronzes (pb<1%)	17,5-25,4 26,0-30,0 31,0-41,3 42,0-80,0	0,09-0,15 0,09-0,15 0,15-0,25 0,15-0,25	80-160

Material	HB	Condition	D mm.	Cutting speed m/min	Feed mm/Rev
Unalloyed steel	P	90-200	60-100	150-250	0,08-0,12
		125-225		100-250	0,11-0,18
		150-225		100-250	0,11-0,18
		180-225		100-250	0,11-0,18
Low alloyed steel	150-260 220-400	Non-hardened Hardened	60-100	100-250 100-220	0,11-0,18 0,08-0,12
High alloyed steel		150-250	60-100	100-220	0,11-0,19
		150-250		100-220	0,11-0,19
		250-350		100-200	0,11-0,18
		250-400		100-200	0,11-0,17
Stainless steel	150-270	Ferritic, Martensitic 13-25%Cr	60-100	100-200	0,11-0,17
Steel castings	90-225 150-250	Unalloyed Low alloyed (< 5%)	60-100	100-200 100-150	0,12-0,20 0,11-0,17

Stainless steel	M	150-270	Austenitic Ni > 8%, 18-25% Cr	60-100	100-230	0,09-0,15
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Malleable cast iron	K	110-145 150-270	Ferritic (short chipping) Pearlitic (long chipping)	60-100 60-100	100-200 90-180	0,17-0,27 0,12-0,20
Grey cast iron		150-220 200-300	Low tensile strength High tensile strength	60-100 60-100	90-180 90-150	0,15-0,25 0,14-0,22
Nodular cast iron		125-230 200-300	Ferritic Pearlitic	60-100 60-100	100-180 90-150	0,15-0,25 0,14-0,22
Aluminium alloys		75-150 40-100 70-125	Wrought, solution treated & aged Cast Cast, solution treated & aged	60-100 60-100 60-100	150-375 150-375 150-375	0,17-0,27 0,17-0,27 0,17-0,27
Copper and copper alloys		50-160	Free cutting alloys (pb>1%) Brass and leaded bronzes (pb<1%)	60-100	100-160	0,15-0,25

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors



Code Key
Système de codification
Kodifizierungs-System

|02

Applications
Applications
Anwendungen

|03

Top clamp cartridges
Cartouches avec bride supérieure
Kurzklemmhalter mit oberer Pratze

|04

Lever lock cartridges
Cartouches avec levier
Kurzklemmhalter mit Kniehebel

|06

Center screw cartridges
Cartouches avec vis centrale
Kurzklemmhalter mit Mittelschraube

|09

|01

Inserts



Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

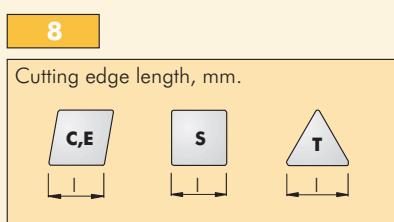
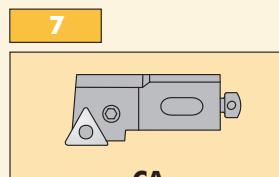
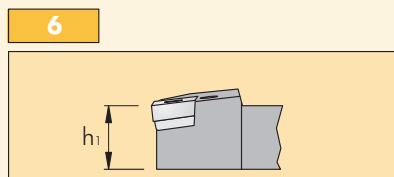
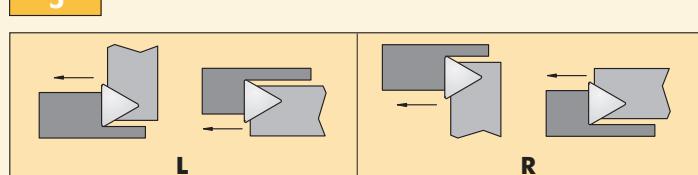
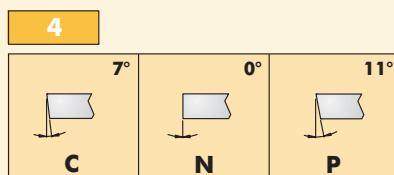
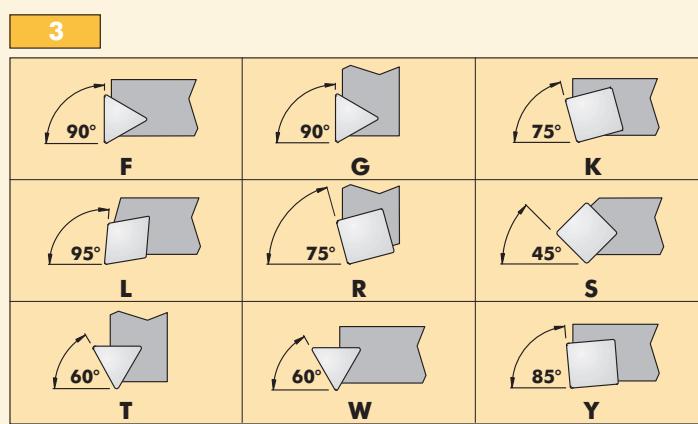
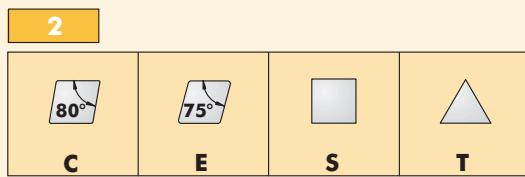
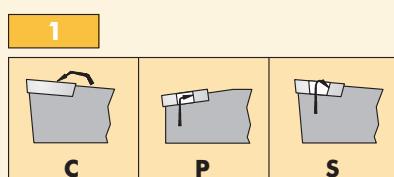
Brazed tools

Milling cutters

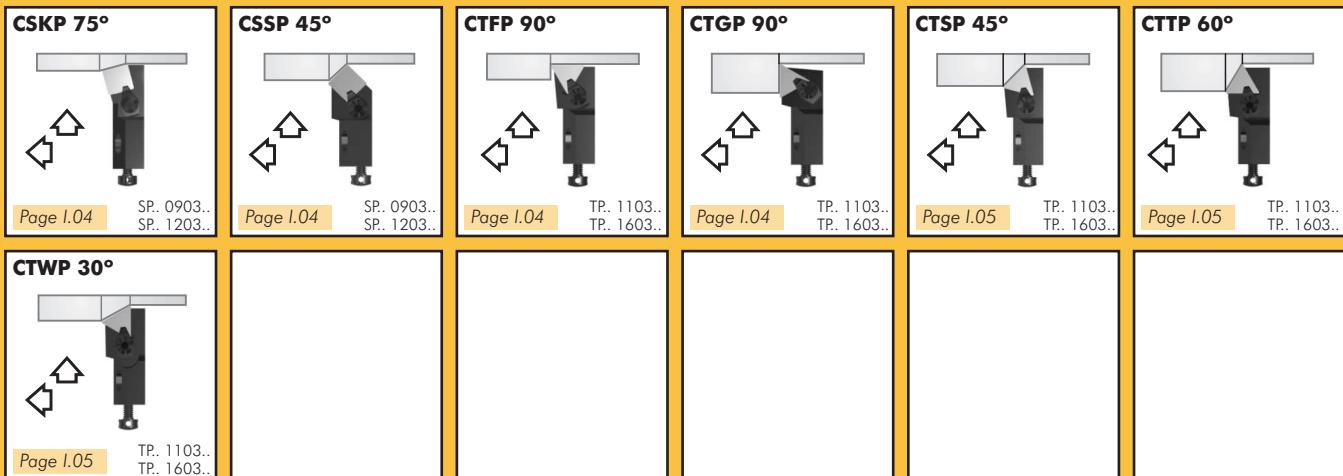
Solid carbide

Boring heads

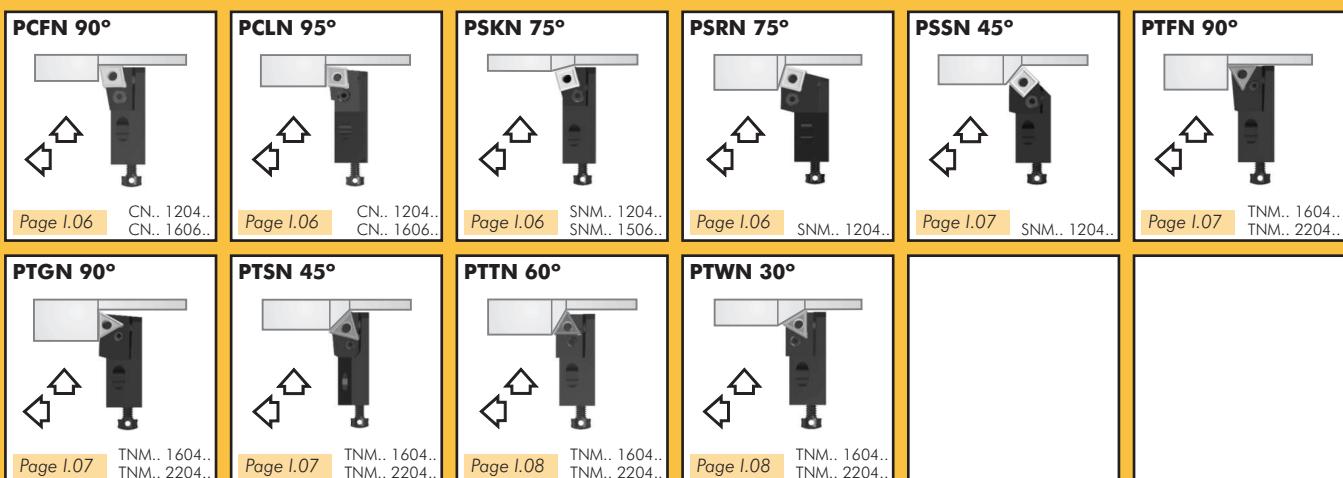
Arbors & adaptors



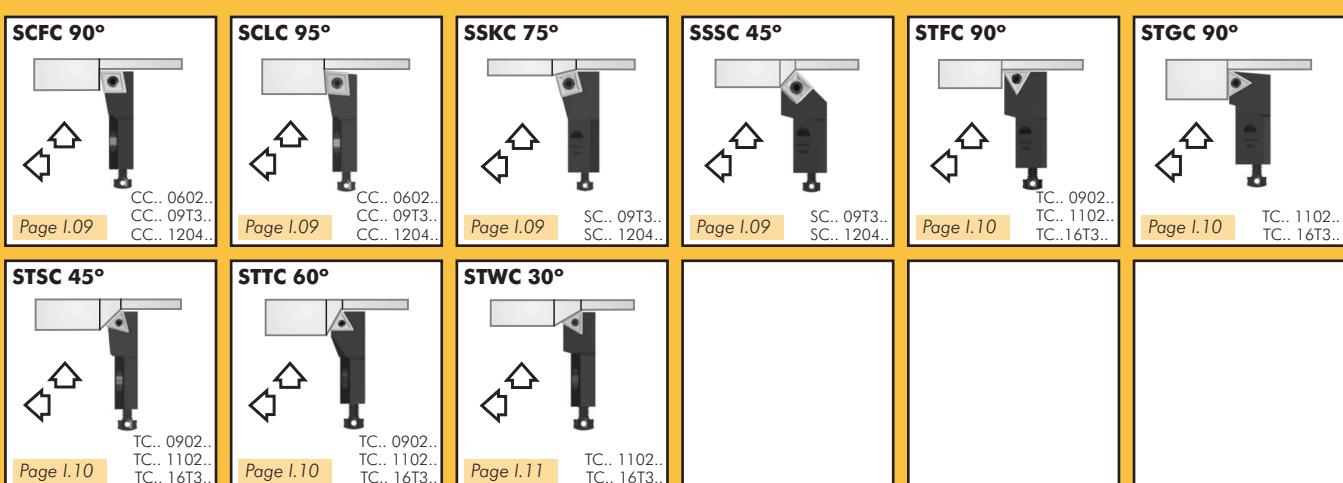
Top clamp cartridges - Cartouches avec bride supérieure - Kurzklemmhalter mit oberer Pratze



Lever lock cartridges - Cartouches avec levier - Kurzklemmhalter mit Kniehebel



Center screw cartridges - Cartouches avec vis centrale - Kurzklemmhalter mit Mittelschraube

**Inserts****Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors**

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

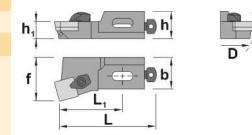
Boring heads

Arbors & adaptors

CKSP 75°



REF.	D	h	h1	L	L1	f	b	SP..
CSKP R/L 10CA-09	40	15	10	50	30	14	11	0903..
CSKP R/L 12CA-12	50	20	12	55	35	20	16	1203..
CSKP R/L 16CA-12	55	25	16	63	38	25	20	1203..

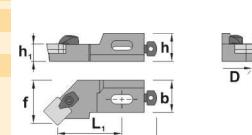


For more information see page: A.51

CSSP 45°



REF.	D	h	h1	L	L1	f	b	SP..
CSSP R/L 10CA-09	40	15	10	44	24	14	11	0903..
CSSP R/L 12CA-12	50	20	12	47	27	20	16	1203..
CSSP R/L 16CA-12	55	25	16	53	28	25	20	1203..

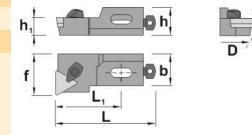


For more information see page: A.51

CTFP 90°



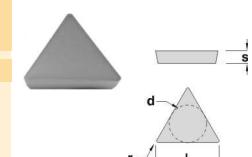
REF.	D	h	h1	L	L1	f	b	TP..
CTFP R/L 10CA-11	40	15	10	50	30	14	11	1103..
CTFP R/L 12CA-16	50	20	12	55	35	20	16	1603..
CTFP R/L 16CA-16	55	25	16	63	38	25	20	1603..



CTFP R/L 10CA-11

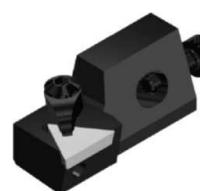


REF.	I	s	d
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TP.. 1603..	16,50	3,18	9,52

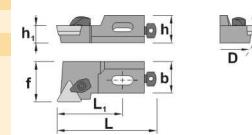


For more information see page: A.54,55

CTGP 90°



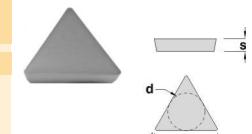
REF.	D	h	h1	L	L1	f	b	TP..
CTGP R/L 10CA-11	40	15	10	50	30	14	11	1103..
CTGP R/L 12CA-16	50	20	12	55	35	20	16	1603..
CTGP R/L 16CA-16	60	25	16	63	38	25	20	1603..



CTGP R/L 10CA-11



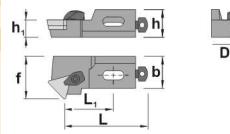
REF.	I	s	d
TP.. 1103..	11,00	3,18	6,35
TP.. 1603..	16,50	3,18	9,52



For more information see page: A.54,55

CTSP 45°

REF.	D	h	h1	L	L1	f	b	TP..
CTSP R/L 10CA-11	40	15	10	44	24	14	11	1103..
CTSP R/L 12CA-16	50	20	12	47	27	20	16	1603..
CTSP R/L 16CA-16	55	25	16	53	28	25	20	1603..

**Inserts**

REF.

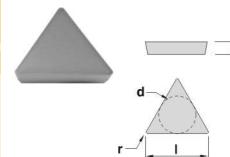


REF.

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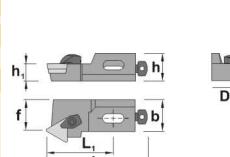
d

TP.. 1103.. 11,00 3,18 6,35**TP.. 1603..** 16,50 3,18 9,52

For more information see page: A.54,55

CTTP 60°

REF.	D	h	h1	L	L1	f	b	TP..
CTTP R/L 10CA-11	40	15	10	50	30	9	11	1103..
CTTP R/L 12CA-16	50	20	12	55	35	13	16	1603..
CTTP R/L 16CA-16	55	25	16	63	38	15	20	1603..

**Ceramic tools**

REF.

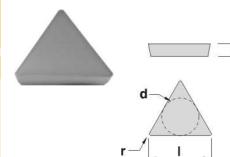


REF.

I

s

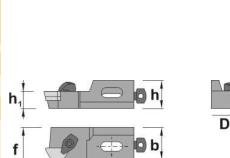
d

TP.. 1103.. 11,00 3,18 6,35**TP.. 1603..** 16,50 3,18 9,52

For more information see page: A.54,55

CTWP 30°

REF.	D	h	h1	L	L1	f	b	TP..
CTWP R/L 10CA-11	40	15	10	44	24	14	11	1103..
CTWP R/L 12CA-16	50	20	12	47	27	20	16	1603..
CTWP R/L 16CA-16	55	25	16	53	28	25	20	1603..

**Cartridges**

REF.

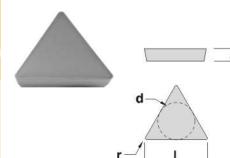


REF.

I

s

d

TP.. 1103.. 11,00 3,18 6,35**TP.. 1603..** 16,50 3,18 9,52

For more information see page: A.54,55

Brazed tools**Milling cutters****Solid carbide****Boring heads****Arbors & adaptors**

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

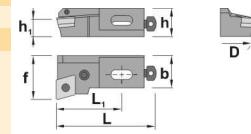
Boring heads

Arbors & adaptors

PCFN 90°



REF.	D	h	h1	L	L1	f	b	CN..
PCFN R/L 16CA-12	60	25	16	63	38	25	20	1204..
PCFN R/L 20CA-12	70	30	20	70	40	25	20	1606..
PCFN R/L 25CA-16	100	35	25	100	50	32	25	1606..

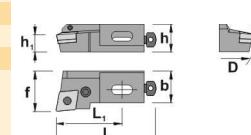


For more information see page: A.39,40

PCLN 95°



REF.	D	h	h1	L	L1	f	b	CN..
PCLN R/L 16CA-12	60	25	16	63	38	25	20	1204..
PCLN R/L 20CA-12	70	30	20	70	40	25	20	1204..
PCLN R/L 25CA-16	100	35	25	100	50	32	25	1606..

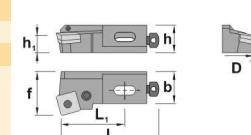


For more information see page: A.39,40

PSKN 75°



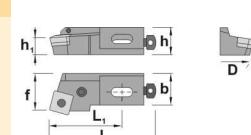
REF.	D	h	h1	L	L1	f	b	SNM..
PSKN R/L 12CA-12	50	20	12	55	35	20	16	1204..
PSKN R/L 16CA-12	60	25	16	63	38	25	20	1204..
PSKN R/L 20CA-12	70	30	20	70	40	25	20	1204..
PSKN R/L 25CA-15	100	35	25	100	50	32	25	1506..



PSRN 75°



REF.	D	h	h1	L	L1	f	b	SNM..
PSRN R/L 16CA-12	60	25	16	63	38	25	25	1204..
PSRN R/L 20CA-12	70	30	20	70	40	25	25	1204..

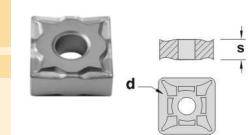


PSRN R/L 16CA-12



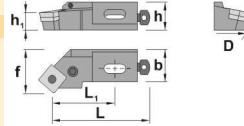
REF.	I	s	d
SNM.. 1204..	12,70	4,76	12,70
SNM.. 1506..	15,88	6,35	15,88

For more information see page: A.49,50



PSSN 45°

REF.	D	h	h1	L	L1	f	b	SNM..
PSSN R/L 12CA-12	50	20	12	47	27	20	16	1204..
PSSN R/L 16CA-12	60	25	16	53	28	25	20	1204..
PSSN R/L 20CA-12	70	30	20	60	30	25	20	1204..



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

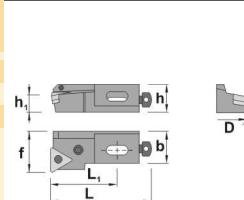
Solid carbide

Boring heads

Arbors & adaptors

PTFN 90°

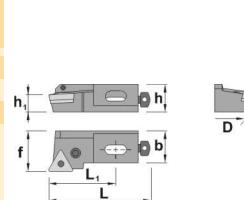
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PTFN R/L 16CA-16	60	25	16	63	38	25	20	1604..
PTFN R/L 20CA-22	70	30	20	70	40	25	20	2204..
PTFN R/L 25CA-22	100	35	25	100	50	32	25	2204..



For more information see page: A.49,50

PTGN 90°

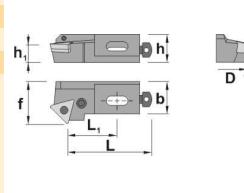
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PTGN R/L 16CA-16	60	25	16	63	38	25	20	1604..
PTGN R/L 20CA-22	70	30	20	70	40	25	20	2204..



For more information see page: A.52,53,54

PTSN 45°

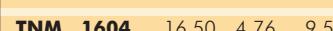
REF.	D	h	h1	L	L1	f	b	TNM..
PTSN R/L 12CA-16	50	20	12	47	27	20	16	1604..
PTSN R/L 16CA-16	60	25	16	53	28	25	20	1604..
PTSN R/L 20CA-22	70	30	20	60	30	25	20	2204..
PTSN R/L 25CA-22	100	35	25	67	37	32	25	2204..



For more information see page: A.52,53,54

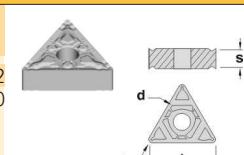
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PTSN R/L 12CA-16	836 161 502	-	-	118 157	-	525 286 186	504
PTSN R/L 16CA-16	809 162 525	336	409	119 156	009	525 288	190 505
PTSN R/L 20CA-22	812 163 503	323	412	119 156	002	503 288	190 505
PTSN R/L 25CA-22	812 163 503	323	412	120 158	002	504 290	191 526

REF.

TNM.. 1604..	16,50	4,76	9,52
TNM.. 2204..	22,00	4,76	12,70

For more information see page: A.52,53,54



Inserts

Turning

Automatic lathes

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Threading

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Cartridges

Brazed tools

Milling cutters

Solid carbide

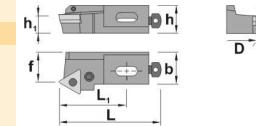
Boring heads

Arbors & adaptors

PTTN 60°



REF.	D	h	h1	L	L1	f	b	TNM..
PTTN R/L 12CA-16	50	20	12	55	55	13	16	1604..
PTTN R/L 16CA-16	60	25	16	63	38	15	20	1604..
PTTN R/L 20CA-22	70	30	20	70	40	15	20	2204..



REF.



PTTN R/L 12CA-16	836	161	502	-	-	118	157	-	525	286	186	504
PTTN R/L 16CA-16	809	162	525	336	409	119	156	009	525	288	190	505
PTTN R/L 20CA-22	812	163	503	323	412	119	156	002	503	288	190	505

REF.

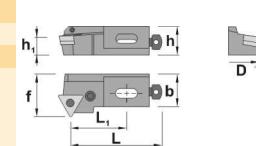
REF.	I	s	d
TNM.. 1604..	16,50	4,76	9,52
TNM.. 2204..	22,00	4,76	12,70

For more information see page: A.52,53,54

PTWN 30°



REF.	D	h	h1	L	L1	f	b	TNM..
PTWN R/L 12CA-16	50	20	12	47	27	20	16	1604..
PTWN R/L 16CA-16	60	25	16	53	28	25	20	1604..
PTWN R/L 20CA-22	70	30	20	60	30	25	20	2204..



REF.



PTWN R/L 12CA-16	836	161	502	-	-	118	157	-	525	286	186	504
PTWN R/L 16CA-16	809	162	525	336	409	119	157	009	525	288	190	505
PTWN R/L 20CA-22	812	163	503	323	412	119	156	002	503	288	190	505

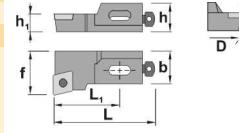
REF.

REF.	I	s	d
TNM.. 1604..	16,50	4,76	9,52
TNM.. 2204..	22,00	4,76	12,70

For more information see page: A.52,53,54

SCFC 90°

REF.	D	h	h1	L	L1	f	b	CC..
SCFC R/L 06CA-06	20	6	6	25	15	10	6	0602..
SCFC R/L 08CA-06	25	8	8	27	16	12	7	0602..
SCFC R/L 10CA-09	30	14	10	42	24	14	10	09T3..
SCFC R/L 12CA-12	40	16	12	47	35	20	14	1204..



Inserts

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Threading

Drills

Brazed tools

Milling cutters

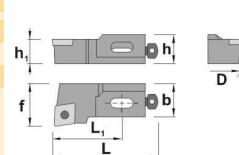
Solid carbide

Boring heads

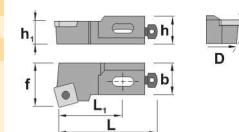
Arbors & adaptors

SCLC 95°

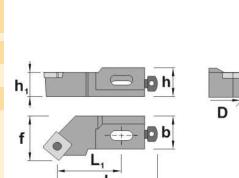
REF.	D	h	h1	L	L1	f	b	CC..
SCLC R/L 06CA-06	20	6	6	25	15	10	6	0602..
SCLC R/L 08CA-06	25	8	8	27	16	12	7	0602..
SCLC R/L 10CA-09	30	14	10	44	24	14	10	09T3..
SCLC R/L 12CA-12	40	16	12	47	35	20	14	1204..

**SSKC 75°**

REF.	D	h	h1	L	L1	f	b	SC..
SSKC R/L 10CA-09	30	14	10	50	30	14	10,0	09T3..
SSKC R/L 12CA-12	40	16	12	55	35	20	14,0	1204..
SSKC R/L 16CA-12	50	20	16	63	38	25	17,5	1204..

**SSSC 45°**

REF.	D	h	h1	L	L1	f	b	SC..
SSSC R/L 10CA-09	30	14	10	44	24	14	10,0	09T3..
SSSC R/L 12CA-12	40	16	12	47	27	20	14,0	1204..
SSSC R/L 16CA-12	50	20	16	53	28	25	17,5	1204..



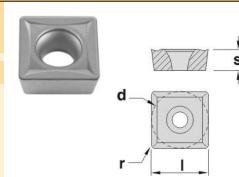
REF.


SSSC R/L 10CA-09
SSSC R/L 12CA-12
SSSC R/L 16CA-12
SSSC R/L 10CA-09
SSSC R/L 12CA-12
SSSC R/L 16CA-12
SSSC R/L 10CA-09
SSSC R/L 12CA-12
SSSC R/L 16CA-12

REF.


SC.. 09T3..
SC.. 1204..
SC.. 09T3..
SC.. 1204..
SC.. 09T3..
SC.. 1204..

For more information see page: A.47,48



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Solid carbide

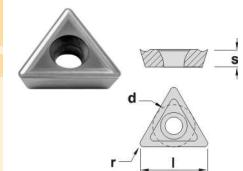
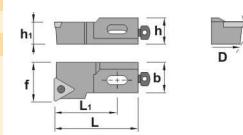
Boring heads

Arbors & adaptors

STFC 90°



REF.	D	h	h1	L	L1	f	b	TC..
STFC R/L 08CA-11	25	8	8	36	15	10	7,0	1102..
STFC R/L 10CA-11	30	14	10	50	30	14	10,0	1102..
STFC R/L 12CA-16	40	16	12	55	35	20	14,0	16T3..
STFC R/L 16CA-16	50	20	16	63	38	25	17,5	16T3..

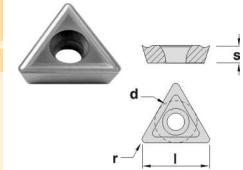
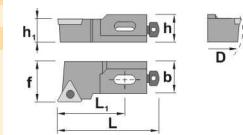


For more information see page: A.51,52

STGC 90°



REF.	D	h	h1	L	L1	f	b	TC..
STGC R/L 10CA-11	30	14	10	50	30	14	10,0	1102..
STGC R/L 12CA-16	40	16	12	55	35	20	14,0	16T3..
STGC R/L 16CA-16	50	20	16	63	38	25	17,5	16T3..

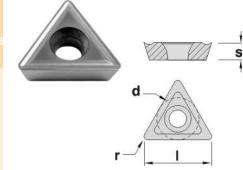
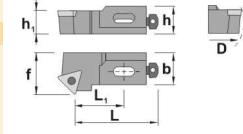


For more information see page: A.51,52

STSC 45°



REF.	D	h	h1	L	L1	f	b	TC..
STSC R/L 08CA-11	25	8	8	27	16	10	7,0	1102..
STSC R/L 10CA-11	30	14	10	44	24	14	10,0	1102..
STSC R/L 12CA-16	40	16	12	47	27	20	14,0	16T3..
STSC R/L 16CA-16	50	20	16	53	28	25	17,5	16T3..

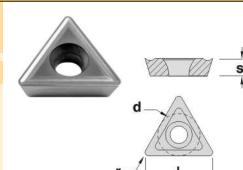
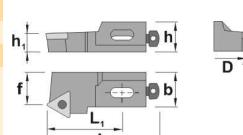


For more information see page: A.51,52

STTC 60°



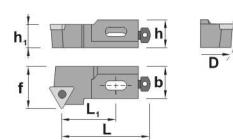
REF.	D	h	h1	L	L1	f	b	TC..
STTC R/L 08CA-11	25	8	8	27	15	6	7,0	1102..
STTC R/L 10CA-11	30	14	10	50	30	9	10,0	1102..
STTC R/L 12CA-16	40	16	12	55	35	13	14,0	16T3..
STTC R/L 16CA-16	50	20	16	63	38	15	17,5	16T3..



For more information see page: A.51,52

STWC 60°

REF.	D	h	h1	L	L1	f	b	TC..
STWC R/L 08CA-11	25	8	8	27	16	10	7,0	1102..
STWC R/L 10CA-11	30	14	10	44	24	14	10,0	1102..
STWC R/L 12CA-16	40	16	12	47	27	20	14,0	16T3..
STWC R/L 16CA-16	50	20	16	53	28	25	17,5	16T3..



REF.

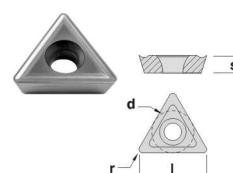


STWC R/L 08CA-11	125	507	116	153	515	294	184	525
STWC R/L 10CA-11	125	507	118	154	502	286	192	504
STWC R/L 12CA-16	140	515	118	157	525	286	186	504
STWC R/L 16CA-16	140	515	119	157	525	288	190	505

REF.

TC.. 1102..	11,00	2,38	6,35
TC.. 16T3..	16,50	3,97	9,52

For more information see page: A.51,52



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Uncoated inserts / Plaquettes non revêtues / Unbeschichtete Sorten

K15K

A finishing grade in the K10 range. This carbide grade is for use on cast iron, aluminium and heat-resistant alloys. This grade works well on cobalt based alloys and synthetic materials and is suitable for finishing on heat-resistant alloys.

Une nuance de finition dans la gamme K10. Cette nuance de carbure s'utilise pour la fonte, l'aluminium et les alliages résistants au chaud. Elle travaille bien dans les alliages avec base de cobalt et les matériaux synthétiques et est appropriée aussi pour la finition en alliages résistants au chaud.

Es ist eine Sorte zum Schlichten, im K10 Bereich. Diese Sorte ist für Guß, Aluminium und hitzebeständige Legierungen geeignet. Es hat gute Bearbeitungseigenschaften für Kobaltlegierungen und synthetische Materialien und ist für Schlichten in hitzebeständigen Legierungen besonders gut geeignet.

P25K

A general purpose uncoated grade in the P30 range. This tough, economical grade is for machining of carbon steels, alloy steels, tool steels and stainless steels. P25K provides toughness and resistance to deformation in roughing and semi-finishing operations.

Une nuance non revêtue d'usage général dans la gamme P30. Cette nuance dure est économique et prévue pour usiner l'acier au carbone, l'acier allié, l'acier à outils et l'acier inoxydable. P25K proportionne dureté et résistance à la déformation dans des opérations d'ébauche et semi-finition.

Eine allgemeine unbeschichtete Sorte im P30 Bereich. Diese zähe und wirtschaftliche Sorte ist zur Bearbeitung von Kohlenstoffstahl, legiertem Stahl, Werkzeugstahl und rostfreiem Stahl gut geeignet. P25K hat eine gute Zähigkeit und Verschleißfestigkeit für Schrupp- und mittlere Schlichtarbeiten.

Grinding / Affûtage / Schleifen

In order to obtain a satisfactory result, it is necessary to have a steady grinding table or holder which can be set to the required angle by means of a graduated scale and by non-vibrating small spindles.

Rough grinding is normally carried out using a silicon carbide grinding wheel. The finish grind or lapping must always be made using a diamond wheel.

Longer life of the cutting edge and less breakage justify the increased cost of correct grinding.

The grinding wheel must be kept clean to ensure that cutting capacity is maintained.

Whenever possible, always grind perpendicular to the cutting edge.

Pour obtenir un résultat satisfaisant, il est nécessaire d'avoir une table d'affûtage ou bien un porte-outils ferme qui puissent être placés à l'angle exigé au moyen d'une échelle graduée et par des petits axes non vibrants. L'affûtage d'ébauche se réalise normalement en utilisant une meule en carbure de silicium. L'affûtage de finition ou rodage doit se faire toujours en utilisant une meule en diamant.

Une vie plus longue de l'arête de coupe et moins casses justifient le haut coût d'un affûtage correcte.

La meule d'affûtage doit être maintenue propre pour garantir que la capacité de coupe est maintenue.

Dans la mesure du possible, affûtez toujours de façon perpendiculaire à l'arête de coupe.

Um ein erfolgreiches Ergebnis zu bekommen, braucht man stabile Auflagetische oder Halter, die man mit Hilfe eines Gradmessers im gewünschten Winkel einstellen kann, sowie schwingungsfreie Spindeln.

Zum Grobschleifen kann man eine Siliziumskarbidscheibe verwenden.

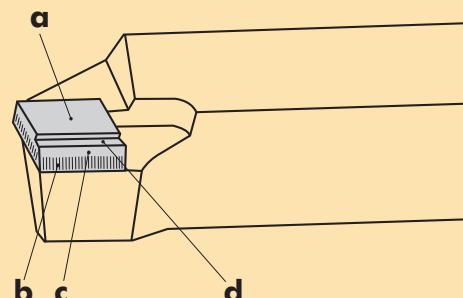
Aber zum Feinschleifen und Lappen muß man immer eine Diamantscheibe verwenden.

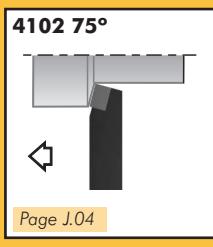
Längere Standzeit der Schneiden und wenige Kantenausbrüche gleichen die höheren Kosten von einem korrekten Schleifen aus.

Die Schleifscheibe muß man sauber halten, denn das beeinflußt wesentlich die Schneidleistung.

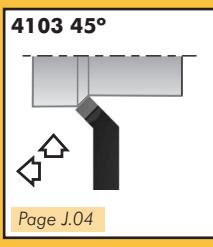
Wenn möglich, immer gegen die Schneidkante schleifen.

- a.- Top face / Face supérieure / Spanflächen
- b.- Secondary clearances / Dépouilles secondaires / Freiflächen
- c.- Lapped primary clearances / Dépouilles primaires affûtées / Läppfassen
- d.- Chipbreaker groove / Rainure du brise-copeaux / Spanleitstufe

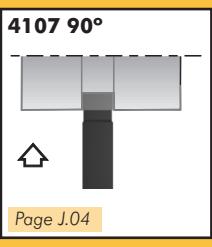


Toolholders - Porte-outils - Drehmeissel

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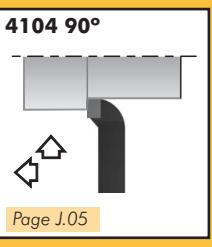
Page J.04



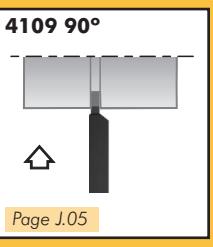
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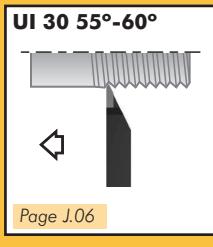
Page J.05



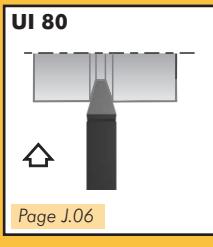
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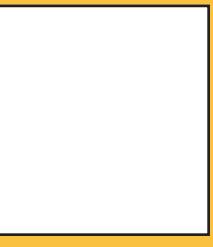
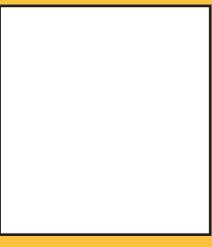
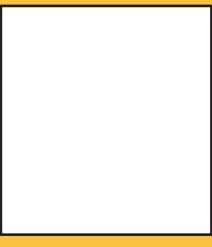
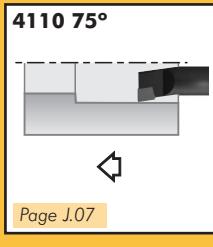
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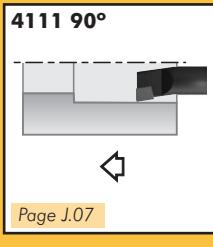
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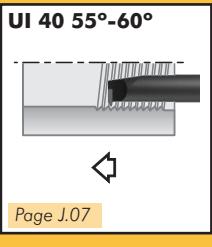
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**Boring bars - Barres d'alésage - Innendrehmeissel**

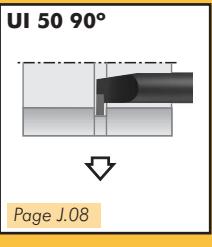
Page J.07



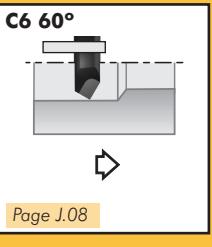
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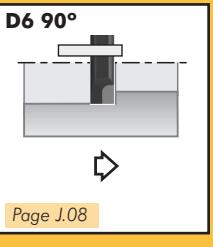
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Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

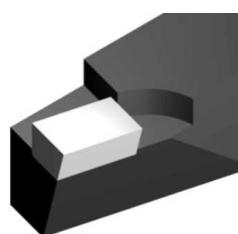
Milling cutters

Solid carbide

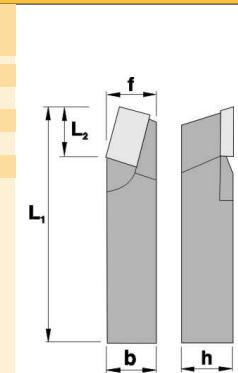
Boring heads

Arbors & adaptors

4102 75°



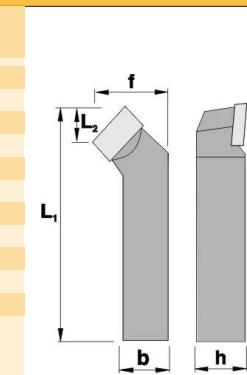
REF.	h	b	L	f	L ₂	ABC	K ₃	P ₆
4102 1616 R/L K3	16	16	110	10	11	12	•	
4102 1616 R/L P6	16	16	110	10	11	12		•
4102 2020 R/L K3	20	20	125	12	15	16	•	
4102 2020 R/L P6	20	20	125	12	15	16		•
4102 2525 R/L K3	25	25	140	15	18	20	•	
4102 2525 R/L P6	25	25	140	15	18	20		•



4103 45°



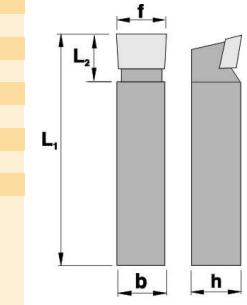
REF.	h	b	L	f	L ₂	..C	K ₃	P ₆
4103 1010 R/L K3	10	10	90	14	8	8	○	
4103 1010 R/L P6	10	10	90	14	8	8	○	
4103 1212 R/L K3	12	12	100	17	10	10	○	
4103 1212 R/L P6	12	12	100	17	10	10	•	
4103 1616 R/L K3	16	16	110	22	12	12	•	
4103 1616 R/L P6	16	16	110	22	12	12	•	
4103 2020 R/L K3	20	20	125	28	16	16	•	
4103 2020 R/L P6	20	20	125	28	16	16	•	
4103 2525 R/L K3	25	25	140	35	20	20	•	
4103 2525 R/L P6	25	25	140	35	20	20	•	
4103 3232 R/L K3	32	32	170	44	25	25	•	
4103 3232 R/L P6	32	32	170	44	25	25	•	



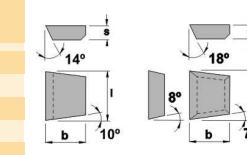
4107 90°

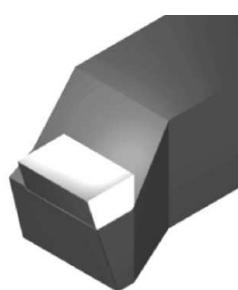


REF.	h	b	L	f	L ₂	ABC	K ₃	P ₆
4107 1010 N K3	10	10	90	10	10	10	○	
4107 1010 N P6	10	10	90	10	10	10	○	
4107 1212 N K3	12	12	100	12	12	12	○	
4107 1212 N P6	12	12	100	12	12	12	○	
4107 1616 N K3	16	16	110	16	16	16	○	
4107 1616 N P6	16	16	110	16	16	16	○	
4107 2020 N K3	20	20	125	20	20	20	○	
4107 2020 N P6	20	20	125	20	20	20	○	
4107 2525 N K3	25	25	140	25	25	25	○	
4107 2525 N P6	25	25	140	25	25	25	○	

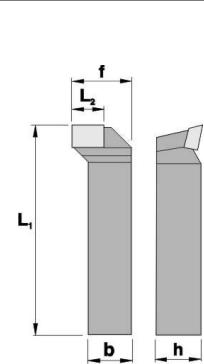


REF.	h	b	L	f	L ₂	ABC	K ₃	P ₆
ABC 10	11	6						
ABC 12	13	8						
ABC 16	17	10						
ABC 20	21	12						
ABC 25	26	14						



4108 90°

REF.	h	b	L	f	L2	ABC	K3	P6
4108 1616 R/L K3	16	16	110	24	12	12	○	
4108 1616 R/L P6	16	16	110	24	12	12	○	
4108 2020 R/L K3	20	20	125	30	16	16	○	
4108 2020 R/L P6	20	20	125	30	16	16	○	



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

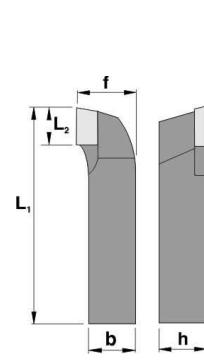
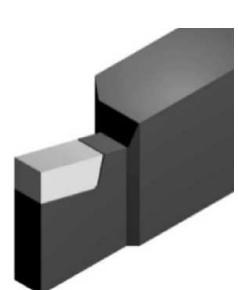
Solid carbide

Boring heads

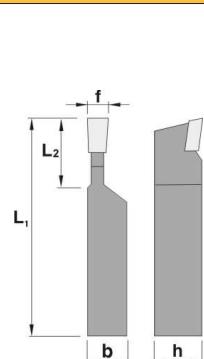
Arbors & adaptors

4104 90°

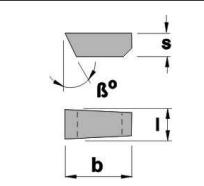
REF.	h	b	L	f	L2	..C	K3	P6
4104 1010 R/L K3	10	10	90	14	8	8	○	
4104 1010 R/L P6	10	10	90	14	8	8	○	
4104 1212 R/L K3	12	12	100	17	10	10	○	
4104 1212 R/L P6	12	12	100	17	10	10	●	
4104 1616 R/L K3	16	16	110	22	12	12	●	
4104 1616 R/L P6	16	16	110	22	12	12	●	
4104 2020 R/L K3	20	20	125	28	16	16	●	
4104 2020 R/L P6	20	20	125	28	16	16	●	
4104 2525 R/L K3	25	25	140	35	20	20	●	
4104 2525 R/L P6	25	25	140	35	20	20	●	
4104 3232 R/L K3	32	32	170	44	25	25	●	
4104 3232 R/L P6	32	32	170	44	25	25	●	

**4109 90°**

REF.	h	b	L	f	L2	D	K3	P6
4109 1208 R/L K3	12	8	100	3	12	3	○	
4109 1208 R/L P6	12	8	100	3	12	3	●	
4109 1610 R/L K3	16	10	110	4	14	4	●	
4109 1610 R/L P6	16	10	110	4	14	4	●	
4109 2012 R/L K3	20	12	125	5	16	5	●	
4109 2012 R/L P6	20	12	125	5	16	5	●	
4109 2516 R/L K3	25	16	140	6	20	6	●	
4109 2516 R/L P6	25	16	140	6	20	6	●	
4109 3220 R/L K3	32	20	170	8	25	8	●	
4109 3220 R/L P6	32	20	170	8	25	8	●	
4109 4025 R/L K3	40	25	200	10	32	10	●	
4109 4025 R/L P6	40	25	200	10	32	10	●	



REF.	I	b	s
D 3	3	8	3
D 4	4	10	4
D 5	5	12	5
D 6	6	14	6
D 8	8	16	8
D 10	10	18	10



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○ Only available in a limited quantity

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

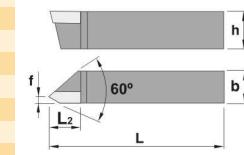
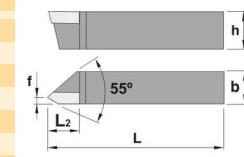
Boring heads

Arbors & adaptors

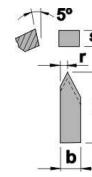
UI 30 55° 60°



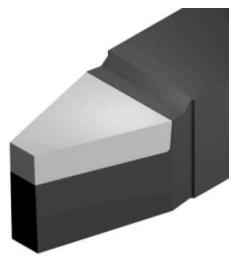
REF.	h	b	L	f	L ₂	FIL	∅	∅
UI 30 55° 1212 R K3	12	12	100	1,8	12	3,5	○	
UI 30 55° 1212 R P6	12	12	100	1,8	12	3,5	○	
UI 30 55° 1616 R K3	16	16	110	2,0	14	4	○	
UI 30 55° 1616 R P6	16	16	110	2,0	14	4	●	
UI 30 55° 2020 R K3	20	20	125	2,5	16	5	○	
UI 30 55° 2020 R P6	20	20	125	2,5	16	5	●	
UI 30 55° 2525 R K3	25	25	140	3,0	18	6	○	
UI 30 55° 2525 R P6	25	25	140	3,0	18	6	●	
UI 30 60° 1212 R K3	12	12	100	1,8	12	3,5	●	
UI 30 60° 1212 R P6	12	12	100	1,8	12	3,5	●	
UI 30 60° 1616 R K3	16	16	110	2,0	14	4	●	
UI 30 60° 1616 R P6	16	16	110	2,0	14	4	●	
UI 30 60° 2020 R K3	20	20	125	2,5	16	5	●	
UI 30 60° 2020 R P6	20	20	125	2,5	16	5	●	
UI 30 60° 2525 R K3	25	25	140	3,0	18	6	●	
UI 30 60° 2525 R P6	25	25	140	3,0	18	6	●	



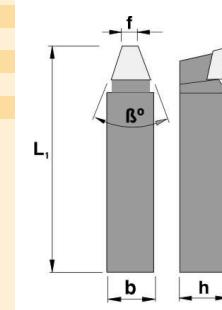
REF.	I	b	s
FIL 3,5	12	1,0	3,5
FIL 4	14	1,2	4,0
FIL 5	16	1,5	5,0
FIL 6	18	1,8	6,0



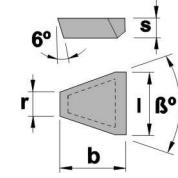
UI 80



REF.	h	b	L	f	β°	TR	∅	∅
UI 80 34° 2516 K3	25	16	170	4,2	34°	16-3..	○	
UI 80 36° 2516 K3	25	16	170	3,7	36°	16-3..	○	
UI 80 38° 2516 K3	25	16	170	3,1	38°	16-3..	○	
UI 80 34° 3220 K3	32	20	200	6,2	34°	20-3..	○	
UI 80 36° 3220 K3	32	20	200	5,5	36°	20-3..	○	
UI 80 38° 3220 K3	32	20	200	4,9	38°	20-3..	○	

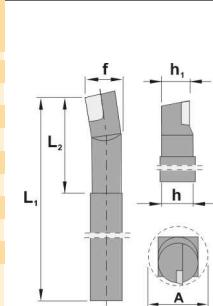


REF.	I	b	s
TR 16-34	21	16	6
TR 16-36	21	16	6
TR 16-38	21	16	6
TR 20-34	25	20	6
TR 20-36	25	20	6
TR 20-38	25	20	6



4110 75°

REF.	$h=b$	h_1	L	b_2	L_2	f	A	..C	K	P6
4110 1010 R K3	10	8,0	150	3,8	50	14	18	7	o	
4110 1010 R P6	10	8,0	150	3,8	50	14	18	7	o	
4110 1212 R K3	12	9,6	180	4,8	63	17	21	8	o	
4110 1212 R P6	12	9,6	180	4,8	63	17	21	8	o	
4110 1616 R K3	16	12,8	210	5,7	80	22	27	10	o	
4110 1616 R P6	16	12,8	210	5,7	80	22	27	10	o	
4110 2020 R K3	20	16,0	250	7,6	100	28	34	12	o	
4110 2020 R P6	20	16,0	250	7,6	100	28	34	12	o	
4110 2525 R K3	25	20,0	300	9,5	125	35	43	16	o	
4110 2525 R P6	25	20,0	300	9,5	125	35	43	16	o	



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

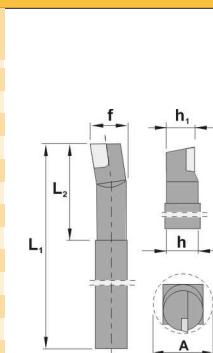
Solid carbide

Boring heads

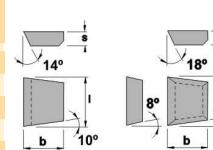
Arbors & adaptors

4111 90°

REF.	$h=b$	h_1	L	b_2	L_2	f	A	..C	K	P6
4111 0808 R K3	8	6,4	125	3,1	40	11	14	7	•	
4111 0808 R P6	8	6,4	125	3,1	40	11	14	7	•	
4111 1010 R K3	10	8,0	150	4,0	50	14	18	7	•	
4111 1010 R P6	10	8,0	150	4,0	50	14	18	7	•	
4111 1212 R K3	12	9,6	180	5,1	63	17	21	8	•	
4111 1212 R P6	12	9,6	180	5,1	63	17	21	8	•	
4111 1616 R K3	16	12,8	210	6,2	80	22	27	10	•	
4111 1616 R P6	16	12,8	210	6,2	80	22	27	10	•	
4111 2020 R K3	20	16,0	250	8,3	100	28	34	12	•	
4111 2020 R P6	20	16,0	250	8,3	100	28	34	12	•	
4111 2525 R K3	25	20,0	300	10,0	125	35	43	16	•	
4111 2525 R P6	25	20,0	300	10,0	125	35	43	16	•	
4111 3232 R K3	32	25,6	355	12,0	160	44	52	20	•	
4111 3232 R P6	32	25,6	355	12,0	160	44	52	20	•	



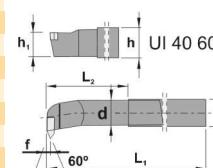
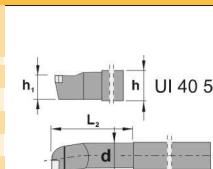
REF.	I	b	s
C 6	6	4,0	2,5
C 8	8	5,0	3,0
ABC 10	11	6,0	4,0
ABC 12	13	8,0	5,0
ABC 16	17	10,0	6,0
ABC 20	21	12,0	7,0



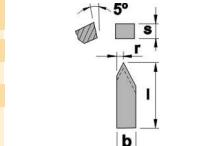
Only for ABC 12, ABC 16

UI 40 55°

REF.	d	$h=b$	L	L_2	f	FIL	K3	P6
UI 40 55° 1010 R K3	10	10	100	26	1,8	3,5	o	
UI 40 55° 1010 R P6	10	10	100	26	1,8	3,5	o	
UI 40 55° 1212 R K3	12	12	110	26	1,8	3,5	o	
UI 40 55° 1212 R P6	12	12	110	26	1,8	3,5	o	
UI 40 55° 1616 R K3	16	16	140	33	2,0	4	o	
UI 40 55° 1616 R P6	16	16	140	33	2,0	4	o	
UI 40 55° 2020 R K3	20	20	160	41	2,0	4	o	
UI 40 55° 2020 R P6	20	20	160	41	2,0	4	o	
UI 40 60° 1010 R K3	10	10	100	26	1,8	3,5	•	
UI 40 60° 1010 R P6	10	10	100	26	1,8	3,5	•	
UI 40 60° 1212 R K3	12	12	110	26	1,8	3,5	•	
UI 40 60° 1212 R P6	12	12	110	26	1,8	3,5	•	
UI 40 60° 1616 R K3	16	16	140	33	2,0	4	•	
UI 40 60° 1616 R P6	16	16	140	33	2,0	4	•	
UI 40 60° 2020 R K3	20	20	160	41	2,0	4	•	
UI 40 60° 2020 R P6	20	20	160	41	2,0	4	•	
UI 40 60° 2525 R K3	25	25	180	49	2,5	5	•	
UI 40 60° 2525 R P6	25	25	180	49	2,5	5	•	



REF.	I	b	s
FIL 3,5	12	3,5	3,5
FIL 4	14	4,0	4,0
FIL 5	16	5,0	5,0



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Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

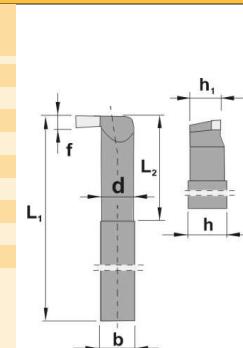
Boring heads

Arbors & adaptors

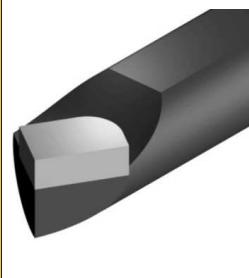
UI 50 90°



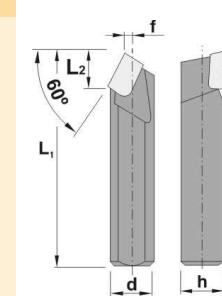
REF.	d	h=b	L	L ₂	f	D	K ₃	P ₆
UI 50 90° 1010 R K3	10	10	140	52	3	3	•	
UI 50 90° 1010 R P6	10	10	140	52	3	3		•
UI 50 90° 1212 R K3	12	12	160	56	4	4	•	
UI 50 90° 1212 R P6	12	12	160	56	4	4		•
UI 50 90° 1616 R K3	16	16	180	63	5	5	•	
UI 50 90° 1616 R P6	16	16	180	63	5	5		•
UI 50 90° 2020 R K3	20	20	210	80	6	6	•	
UI 50 90° 2020 R P6	20	20	210	80	6	6		•
UI 50 90° 2525 R K3	25	25	250	100	8	8	•	
UI 50 90° 2525 R P6	25	25	250	100	8	8		•



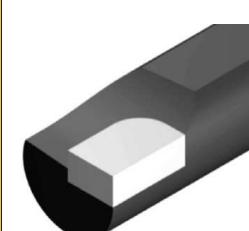
C6 60°



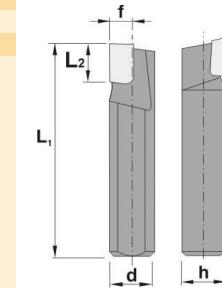
REF.	d	h	L	L ₂	f	C	K ₃	P ₆
C 6-08	8	7,0	24	6,5	0	7	•	
C 6-10	10	8,5	50	6,5	0	8	•	



D6 90°



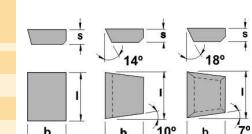
REF.	d	h	L	L ₂	f	..C	K ₃	P ₆
D 6-8	8	7,0	24	7,0	1,9	7	•	
D 6-10	10	8,5	50	8,0	4,6	8	•	
D 6-12	12	10,5	60	10,0	5,6	10	•	
D 6-16	16	14,0	90	12,0	7,6	12	•	



ABC 10



REF.	I	b	s
C 7	6	4,0	2,5
C 8	8	5,0	3,0
ABC 10	11	6,0	4,0
ABC 12	13	8,0	5,0



Only for ABC 12, ABC 16



Inserts

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Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

Face milling cutters - Fraises à surfacer - Planfräser

Technical information - Information technique - Technische Auskunft	K02
Applications - Applications - Anwendungen	K03
Face milling cutters - Fraises à surfacer - Planfräser	K04
Cutting data - Conditions de coupe - Schnittbedingungen	K11

Square shoulder cutters - Fraises à dresser - Eckfräser

Technical information - Information technique - Technische Auskunft	K12
Applications - Applications - Anwendungen	K13
Face square shoulder cutters - Fraises à surfacer et à dresser - Plan-und Eckfräser	K14
Cutting data - Conditions de coupe - Schnittbedingungen	K27

Slot cutters - Fraises disque - Scheibenfräser

Technical information - Information technique - Technische Auskunft	K29
Applications - Applications - Anwendungen	K30
Slot cutters - Fraises disque - Scheibenfräser	K31
Cutting data - Conditions de coupe - Schnittbedingungen	K36

Porcupine cutters - Fraises hérisson - Igelfräser

Applications - Applications - Anwendungen	K37
Porcupine cutters - Fraises hérisson - Igelfräser	K38
Cutting data - Conditions de coupe - Schnittbedingungen	K41

Specific applications and kits - Applications spécifiques et kits - Spezifische Anwendungen und Kits

Applications - Applications - Anwendungen	K42
Specific applications and kits - Applications spécifiques et kits - Spezifische Anwendungen und Kits	K43

Profile milling - Fraisage de profils - Profilfräsen

Technical information - Information technique - Technische Auskunft	K56
Applications - Applications - Anwendungen	K57
Roughing ball nose - Fraises hémisphériques pour ébauche - Kugelbahnfräser zum Schruppen	K58
Finishing ball nose - Fraises hémisphériques pour finition - Kugelbahnfräser zum Schlichten	K60
Toroidal cutters - Fraises toroidales - Kopierfräser	K62
High feed - Grande avance - Hoher Vorschub	K65
Round inserts - Fraises avec plaquettes rondes - Fräser mit runden Wendeschneidplatten	K68
Aluminium die cutting - Fraisage de moules en aluminium - Fräser für Aluminium-Legierungen	K72

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

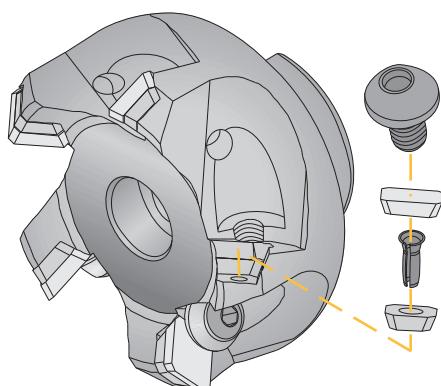
Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

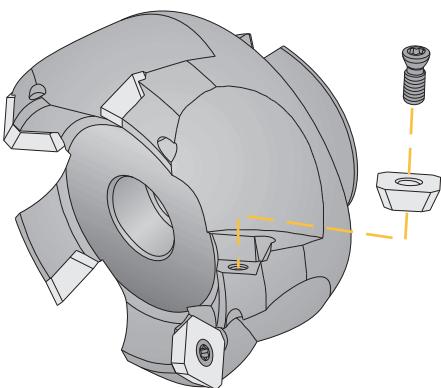


C Clamp / Fixation C / C-Klemmung

This classic positive insert clamping system allows the use of all models presenting this geometry, both with additional chipbreaker and sintered.

Ce système classique de fixation de plaquettes positives permet d'utiliser toutes les plaquettes de cette géométrie, que ce soit avec brise copeaux additionnel que sintérisé.

Dieses klassische Klemmsystem von positiven Wendeschneidplatten erlaubt die Verwendung von allen Wendeplatten dieses Typs, in üblicher Sinterausführung sowohl als auch mit Spanbrecher.

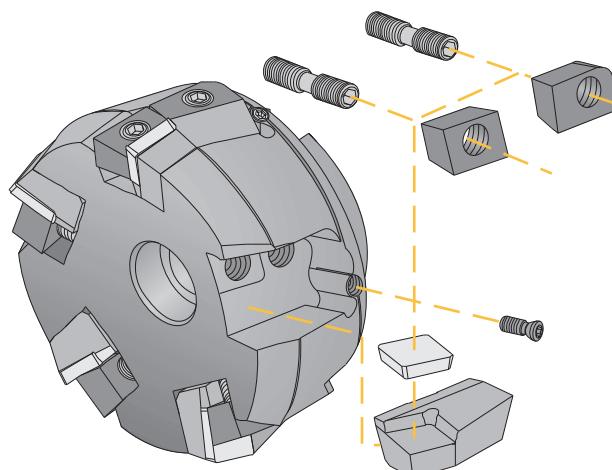


Screw clamping / Fixation par vis / Schraubenklemmung

Since the advent of the Torx screw it has been possible to hold with complete safety positive inserts with centre hole. Our range covers all the screw clamping permutations.

Dès l'apparition de la vis TORX il est possible de fixer avec sûreté les plaquettes positives avec trou central. Notre gamme couvre toutes les possibilités de fixation avec vis.

Seit der Einführung der TORX-Schraube ist es möglich, die positiven Wendeschneidplatten mit zentralem Loch zu klemmen. Unser Programm bietet alle Klemmmöglichkeiten mit Schraube.

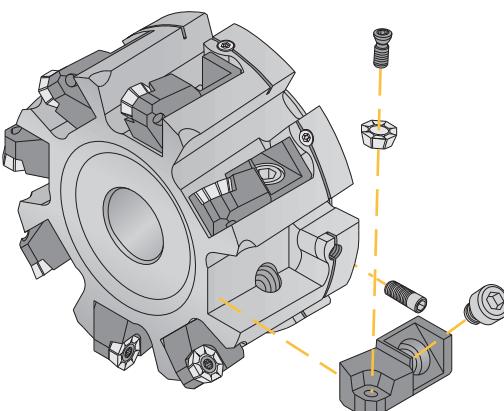


Wedge clamping / Fixation par coin / Spannkeilklemmung

Heavy duty work require good fixation, for this purpose we have designed our wedge clamping system, one of the safest available.

Les travaux lourds ont besoin d'une bonne fixation, c'est pour cela que nous avons dessiné notre système de fixation par coin. Il est un des plus sûrs de tous ceux qui existent.

Schwere Zerspanungsarbeiten benötigen eine gute Klemmung; dafür haben wir unser Spannkeil-Klemmsystem, das eines der sichersten ist.



Cartridge system / Système à cartouches / Kassetten-System

Cartridge system for heavy duty work with positive center hole inserts. The axial regulation screw allows a perfect adjustment for super-finishing applications.

Système à cartouches pour travaux lourds avec plaquettes positives à trou centrale. La vis de régulation axiale permet un réglage parfait pour les opérations de super-finition.

Kassettensystem für schwere Arbeiten, mit positiven Wendeplatten mit Zentralloch. Die axiale Verstellschraube erlaubt eine perfekte Einstellung für Super-Schlichtarbeiten.

Face milling cutters - Fraises à surfacer - Planfräser



131 75°
General application 75°



300-301 75°
General application 75°



171 75°
Deep cutting 75°



631 45°
Chamfering 45°



632 45°
Chamfering 45°



141 45°
Facing and chamfering 45°

Inserts



239 45°
Chamfering 45°



240 45°
Chamfering 45°



241 45°
Chamfering 45°



271 45°
Facing and chamfering 45°



191 45°
First choice 45°

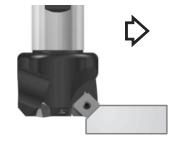


341-342 45°
General application 45°

Automatic lathes



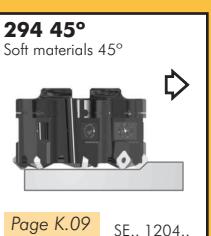
214 45°
Facing and chamfering 45°



291 45°
Soft materials 45°



293 45°
Soft materials 45°



294 45°
Soft materials 45°



292 42°
Multipurpose milling 42°

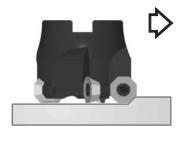


295 42°
Multipurpose milling 42°

Ceramic tools



296 42°
Multipurpose milling 42°



297 42°
Multipurpose milling 42°



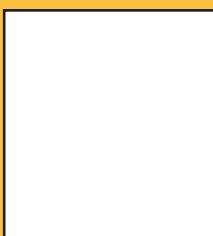
298 42°
Multipurpose milling 42°



299 42°
Multipurpose milling 42°



300 42°
Multipurpose milling 42°

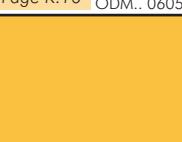


301 42°
Multipurpose milling 42°

Parting & grooving



302 42°
Multipurpose milling 42°



303 42°
Multipurpose milling 42°



304 42°
Multipurpose milling 42°



305 42°
Multipurpose milling 42°



306 42°
Multipurpose milling 42°



307 42°
Multipurpose milling 42°

Threading



308 42°
Multipurpose milling 42°



309 42°
Multipurpose milling 42°



310 42°
Multipurpose milling 42°



311 42°
Multipurpose milling 42°



312 42°
Multipurpose milling 42°



313 42°
Multipurpose milling 42°

Cartridges



314 42°
Multipurpose milling 42°



315 42°
Multipurpose milling 42°



316 42°
Multipurpose milling 42°



317 42°
Multipurpose milling 42°



318 42°
Multipurpose milling 42°



319 42°
Multipurpose milling 42°

Brazed tools



320 42°
Multipurpose milling 42°



321 42°
Multipurpose milling 42°



322 42°
Multipurpose milling 42°



323 42°
Multipurpose milling 42°



324 42°
Multipurpose milling 42°



325 42°
Multipurpose milling 42°

Milling cutters



326 42°
Multipurpose milling 42°



327 42°
Multipurpose milling 42°



328 42°
Multipurpose milling 42°



329 42°
Multipurpose milling 42°



330 42°
Multipurpose milling 42°



331 42°
Multipurpose milling 42°

Solid carbide



332 42°
Multipurpose milling 42°



333 42°
Multipurpose milling 42°



334 42°
Multipurpose milling 42°



335 42°
Multipurpose milling 42°



336 42°
Multipurpose milling 42°



337 42°
Multipurpose milling 42°

Boring heads



338 42°
Multipurpose milling 42°



339 42°
Multipurpose milling 42°



340 42°
Multipurpose milling 42°



341 42°
Multipurpose milling 42°



342 42°
Multipurpose milling 42°



343 42°
Multipurpose milling 42°

K03

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

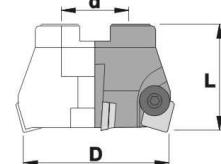
Boring heads

Arbors & adaptors

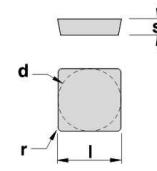
131 75°



REF.	D	d	L	Z	SP..					
131.050.Z=3	50	22	40	3	1203..	206	504	-	-	910
131.050	50	22	40	4	1203..	206	504	-	-	910
131.063	63	27	50	4	1203..	206	504	312	103	912
131.080	80	27	50	5	1203..	206	504	312	103	912
131.100	100	32	50	6	1203..	206	504	312	103	917
131.125	125	40	63	6	1203..	206	504	312	103	920
131.160	160	40	63	7	1203..	206	504	312	103	952
131.200	200	60	63	8	1203..	206	504	312	103	956



REF.	I	s	d
SPUN 1203..	12,70	3,18	12,70

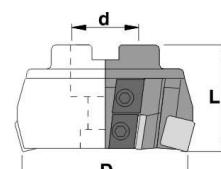


For more information see page: A.50,51

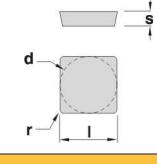
300-301 75°



REF.	D	d	L	Z	SP..					
300.080	80	27	50	5	1203..	647	648	177	522	694 912
300.100	100	32	50	7	1203..	647	648	177	522	694 920
300.125	125	40	63	8	1203..	647	648	177	522	694 -
300.160	160	40	63	10	1203..	647	648	177	522	694 952
300.200	200	60	63	12	1203..	647	648	177	522	694 956
300.250	250	60	63	16	1203..	647	648	177	522	694 956
300.315	315	60	63	20	1203..	647	648	177	522	694 956
300.400	400	60	63	26	1203..	647	648	177	522	694 956
300.500	500	60	63	34	1203..	647	648	177	522	694 956
301.100	100	32	50	7	1504..	639	640	177	522	615 917
301.125	125	40	63	8	1504..	639	640	177	522	615 -
301.160	160	40	63	10	1504..	639	640	177	522	615 952
301.200	200	60	63	12	1504..	639	640	177	522	615 956
301.250	250	60	63	16	1504..	639	640	177	522	615 956
301.315	315	60	63	20	1504..	639	640	177	522	615 956
301.400	400	60	63	26	1504..	639	640	177	522	615 956
301.500	500	60	63	34	1504..	639	640	177	522	615 956



REF.	I	s	d
SP. 1203..	12,70	3,18	12,70
SP. 1504..	15,88	4,76	15,88

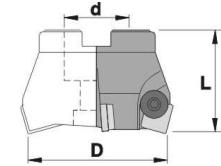


For more information see page: A.50,51

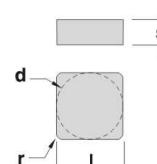
171 75°



REF.	D	d	L	Z	SNUN					
171.050	50	22	40	3	1204..	206	504	-	-	910
171.063	63	27	50	4	1204..	206	504	332	103	912
171.080	80	27	50	5	1204..	206	504	332	103	916
171.100	100	32	50	6	1204..	206	504	332	103	916



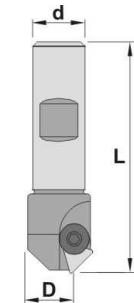
REF.	I	s	d
SNUN 1204..	12,70	4,76	12,70



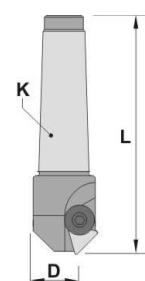
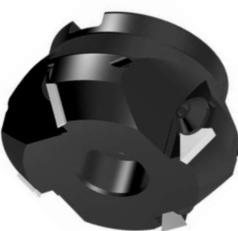
For more information see page: A.49,50

631 45°

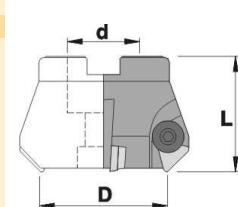
REF.	D	d	L	Z	TPUN	●	/
631.016	16	12	80	1	1103..	205	503
631.020	20	20	85	1	1103..	205	503
631.032	32	20	90	2	1603..	206	504
631.040	40	20	90	3	1603..	206	504

**Inserts****Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors****632 45°**

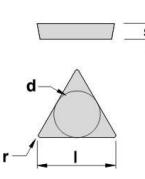
REF.	D	K	L	Z	TPUN	●	/
632.032	32	MK3	125	2	1603..	206	504
632.040	40	MK3	125	3	1603..	206	504
632.050	50	MK3	125	3	1603..	206	504

**Parting & grooving****Threading****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors****141 45°**

REF.	D	d	L	Z	TPUN	●	/	▲	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
141.040	40	27	40	3	1603..	206	504	-	-	-	-	-	-	-	-	-	-	-	912
141.050	50	27	40	4	1603..	206	504	-	-	-	-	-	-	-	-	-	-	-	912
141.063	63	27	50	4	1603..	206	504	316	103	912	-	-	-	-	-	-	-	-	-

**Milling cutters****Solid carbide****Boring heads****Arbors & adaptors**

REF.	I	s	d
TPUN 1603..	16,50	3,18	9,52



For more information see page: A.55

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

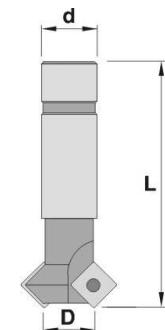
Boring heads

Arbors & adaptors

239 45°

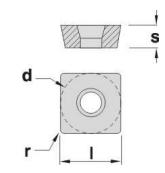


REF.	D	d	L	Z	SPM..		
239.005	6,5	20	110	1	1204..	159	520
239.020	20,0	25	125	2	1204..	159	520



For more information see page: A.51

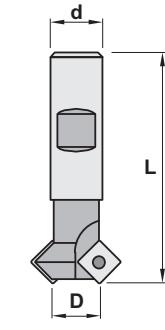
REF.	I	s	d
SPM.. 1204..	12,70	4,76	12,70



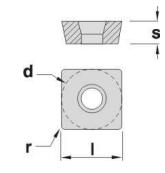
240 45°



REF.	D	d	L	Z	SPM..		
240.005	6,5	25	110	1	1204..	159	520
240.020	20,0	25	110	2	1204..	159	520



REF.	I	s	d
SPM.. 1204..	12,70	4,76	12,70

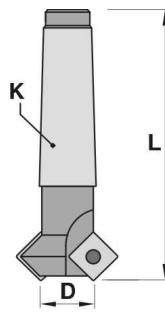


For more information see page: A.51

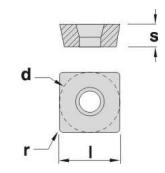
241 45°



REF.	D	K	L	Z	SPM..		
241.005	6,5	MK3	125	1	1204..	159	520
241.020	20,0	MK3	125	2	1204..	159	520



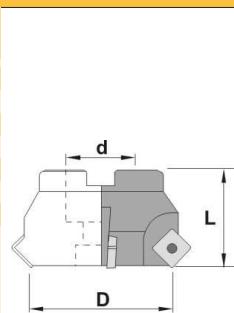
REF.	I	s	d
SPM.. 1204..	12,70	4,76	12,70



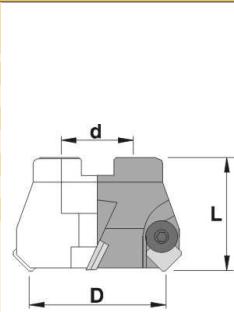
For more information see page: A.51

271 45°

REF.	D	d	L	Z	SC..			
271.040	40	16	40	4	1204..	150	522	108
271.050	50	22	40	4	1204..	150	522	910
271.063	63	27	50	5	1204..	150	522	912
271.080	80	32	50	6	1204..	150	522	916
271.100	100	40	50	7	1204..	150	522	-
271.125	125	40	63	8	1204..	150	522	-
271.160	160	40	63	9	1204..	150	522	952
271.200	200	60	63	11	1204..	150	522	956

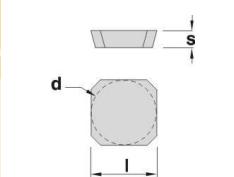
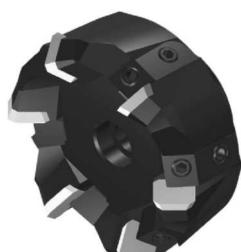
**Inserts****Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors****191 45°**

REF.	D	d	L	Z	SEKN			
191.050	50	22	40	4	1203..	226	504	352
191.063	63	22	50	5	1203..	226	504	352
191.080	80	27	50	6	1203..	226	504	352
191.100	100	32	50	6	1203..	226	504	352
191.125	125	40	63	7	1203..	226	504	352
191.160	160	40	63	8	1203..	226	504	352
191.200	200	60	63	10	1203..	226	504	352

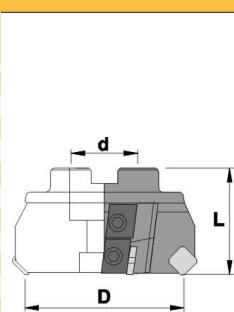


REF.	I	s	d
SEKN 1203..	12,70	3,18	12,70

For more information see page: A.48

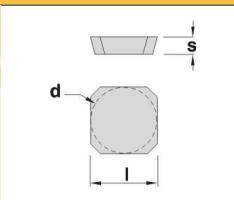
**341-342 45°**

REF.	D	d	L	Z	SEK..			
341.080	80	27	50	6	1203..	460	604	605
341.100	100	32	50	8	1203..	460	604	605
341.125	125	40	63	8	1203..	460	604	605
341.160	160	40	63	10	1203..	460	604	605
341.200	200	60	63	12	1203..	460	604	605
341.250	250	60	63	16	1203..	460	604	605
342.080	80	27	50	6	1504..	460	608	609
342.100	100	32	50	8	1504..	460	608	609
342.125	125	40	63	8	1504..	460	608	609
342.160	160	40	63	10	1504..	460	608	609
342.200	200	60	63	12	1504..	460	608	609
342.250	250	60	63	16	1504..	460	608	609



REF.	I	s	d
SEK.. 1203..	12,70	3,18	12,70
SEK.. 1504..	15,88	4,76	15,88

For more information see page: A.48,49



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

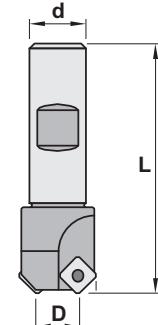
Arbors & adaptors

K08

214 45°



REF.	D	d	L	Z	SE..		
214.032	32	32	125	2	1204..	159	520
214.040	40	32	125	3	1204..	159	520

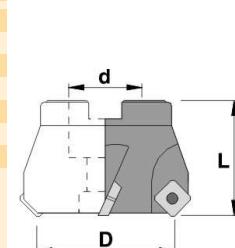


For more information see page: A.48,49

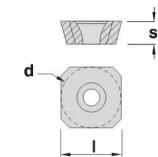
291 45°



REF.	D	d	L	Z	SE..			
291.050	50	22	40	4	1204..	159	522	910
291.063	63	22	50	5	1204..	159	522	910
291.080	80	27	50	6	1204..	159	522	912
291.100	100	32	50	6	1204..	159	522	917
291.125	125	40	63	7	1204..	159	522	-
291.160	160	40	63	8	1204..	159	522	952
291.200	200	60	63	10	1204..	159	522	956



REF.	I	s	d
SEH.. 1204..	12,70	4,76	12,70
SEMT 1204AFTN	12,70	4,76	12,70

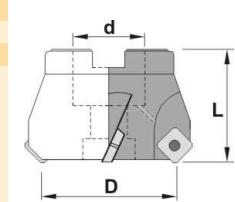


For more information see page: A.48,49

293 45°

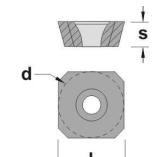


REF.	D	d	L	Z	SE..			
293.050	50	22	40	4	1204..	159	522	910
293.063	63	22	50	5	1204..	159	522	910
293.080	80	27	50	6	1204..	159	522	912
293.100	100	32	50	6	1204..	159	522	917
293.125	125	40	63	7	1204..	159	522	-



Internal coolant system

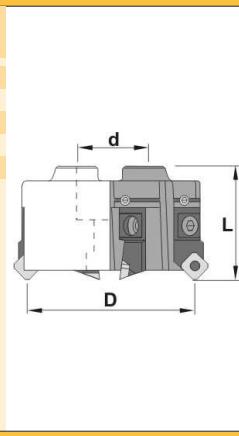
REF.	I	s	d
SEH.. 1204..	12,70	4,76	12,70
SEMT 1204AFTN	12,70	4,76	12,70



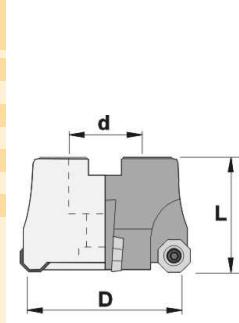
For more information see page: A.48,49

294 45°

REF.	D	d	L	Z	SE..	159	522	674	187	460	952
294.160	160	40	63	10	1204..	159	522	674	187	460	952
294.200	200	60	63	12	1204..	159	522	674	187	460	956
294.250	250	60	63	16	1204..	159	522	674	187	460	956
294.315	315	60	63	20	1204..	159	522	674	187	460	956
294.400	400	60	63	22	1204..	159	522	674	187	460	956
294.500	500	60	63	28	1204..	159	522	674	187	460	956

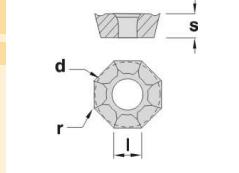
**Inserts****Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors****292 42°**

REF.	D	d	L	Z	ODM..	140	535	108
292.040	40	16	40	4	0404..	140	535	108
292.050	50	22	40	4	0404..	140	535	910
292.063	63	27	50	5	0404..	140	535	912
292.080	80	32	50	6	0404..	140	535	916
292.100	100	40	50	7	0404..	140	535	-
292.125	125	40	63	7	0404..	140	535	-
292.160	160	40	63	8	0404..	140	535	952
292.200	200	60	63	10	0404..	140	535	956

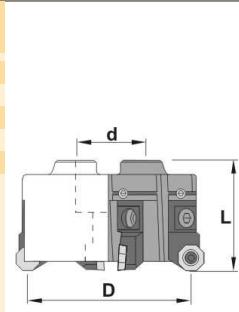


REF.	I	s	d
ODM.. 0404..	4,0	4,76	12,70

For more information see page: A.45

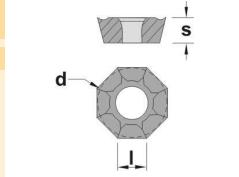
**295 42°**

REF.	D	d	L	Z	ODM..	140	535	685	187	460
295.160	160	40	63	10	0404..	140	535	685	187	460
295.200	200	60	63	12	0404..	140	535	685	187	460
295.250	250	60	63	16	0404..	140	535	685	187	460
295.315	315	60	63	20	0404..	140	535	685	187	460
295.400	400	60	63	22	0404..	140	535	685	187	460
295.500	500	60	63	28	0404..	140	535	685	187	460



REF.	I	s	d
ODM.. 0404..	4,00	4,76	12,70

For more information see page: A.45



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

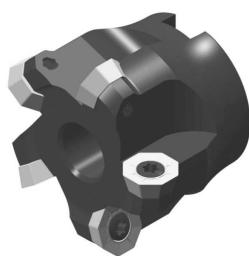
Milling cutters

Solid carbide

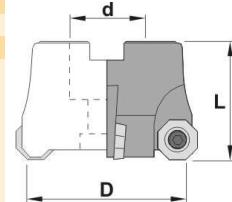
Boring heads

Arbors & adaptors

296 42°



REF.	D	d	L	Z	ODM..			
296.063	63	27	50	-	0605..	155	522	912
296.080	80	32	50	-	0605..	155	522	917
296.100	100	40	50	-	0605..	155	522	-
296.125	125	40	63	8	0605..	155	522	-
296.160	160	40	63	10	0605..	155	522	952
296.200	200	60	63	12	0605..	155	522	956

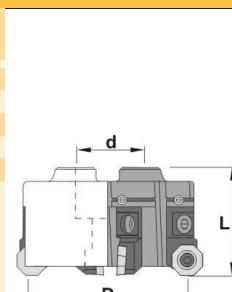


For more information see page: A.45

297 42°

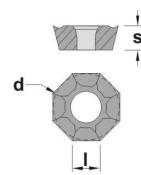


REF.	D	d	L	Z	ODM..			
297.160	160	40	63	10	0605..	159	522	686
297.200	200	60	63	12	0605..	159	522	686
297.250	250	60	63	16	0605..	159	522	686
297.315	315	60	63	20	0605..	159	522	686
297.400	400	60	63	22	0605..	159	522	686
297.500	500	60	63	28	0605..	159	522	686



REF.	I	s	d
ODM.. 0605..	6,00	5,55	16,00

For more information see page: A.45



Cutting data for face milling cutters

Material	P	HB	Condition	Cutting speed m/min.				
				TIC25	TIC21	TIC28	P25K	P40K
				0.3-0.2-0.1	0.3-0.2-0.1	0.3-0.2-0.1	0.4-0.2-0.1	0.4-0.2-0.1
Unalloyed steel	110	C<0.25%	250-300-390	250-350-450	140-160-180	180-250-310	100-130-160	
	150	C<0.80%	155-180-255	100-120-165	120-140-150	120-145-205	65-85-100	
	310	C<1.40%	135-165-210	75-110-135	80-90-100	95-130-170	50-75-85	
Low alloyed steel	125-225 220-450	Hardened	170-200-250 110-130-150	100-120-165 55-75-95	120-140-160 90-120-140	120-160-200 70-100-120	95-85-105 40-55-65	
High alloyed steel	150-250 250-300	Hardened	170-200-250 110-130-150	90-115-150 60-75-90	60-80-90 55-60-70	110-140-180 65-90-120	60-80-90 40-50-60	
High alloyed steel	150-250	Rapid steel (HSS)	130-160-195	75-105-130	60-65-70	90-125-155	50-60-75	
	250-350	Hardened Hardened tool steel				70-95-120	30-40-50	
Stainless steel	150-270	Ferritic, Martensitic	155-180-250	110-150-190	130-180-220	120-165-210	80-105-130	
Steel castings	150 150-250 160-200	Unalloyed Low alloyed High alloyed	140-180-250 125-150-190 90-110-130	80-120-150 70-100-120 55-70-80	60-80-90 55-60-70	100-145-180 90-120-150 65-90-100	60-75-95 50-65-80 35-45-55	
Stainless steel castings	150-250	Ferritic, martensitic		50-80	60-65-70	50-70-80	30-40-50	
Material	M	HB	Condition	Cutting speed m/min.				
				TIC25	TIC21	TIC28	K15K	P25K
				0.4-0.2-0.1	0.3-0.2-0.1	0.4-0.2-0.1	0.2-0.1	0.4-0.2-0.1
Stainless steel annealed	150-220	Austenitic	180-220-280	80-150-220	130-180-220			150-240-300
Steel castings	200	Stainless, austenitic		40-70	80-120-160			50-60
Iron, nickel and cobalt base castings	180-300 220-300 220-300			40-100	70-120-140	20-40 20-40 10-20		
Titanium alloys	300-400				40-80			
Material	K	HB	Condition	Cutting speed m/min.				
				TIC21	TIC25	TIC28	K15K	P25K
				0.3-0.2-0.1	0.4-0.2-0.1	0.4-0.2-0.1	0.2-0.1	0.4-0.2-0.1
Tempered steel	HCR 50-65							15-20-30
Stainless steel castings	250	Manganese steel 12-14% Mn					12-18-20	
Malleable cast iron	110-145 200-230	Short chipping Long chipping	200-300 150-200		180-330	65-80-95 50-65-80	100-125-150 90-115-135	
Grey cast iron	180 260	Low tensile strength High tensile strength	200-400 150-350		130-240 110-200	70-95-120 50-70-90	85-120-155 70-90-115	
Nodular cast iron	160 250	Ferritic Pearlitic	100-250 100-180	100-130 90-110	70-140 60-120	50-65-80 45-60-70	70-90-115 65-80-100	
Chilled cast iron	HCR 40-60							
Aluminium alloys	60-100 75-110	Non cast Cast				500-2100 400-2000		
Aluminium with high contents of Si		10-14% Si 14-16% Si 16-18% Si				200-1000 110-200		

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Solid carbide

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Turning

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Drills

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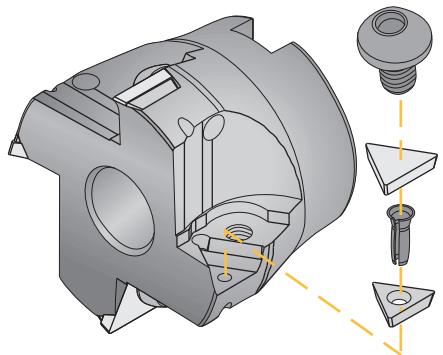
Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

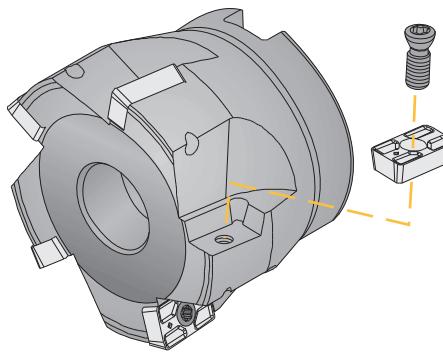


C Clamp / Fixation C / C-Klemmung

This classic positive insert clamping system allows the use of all models presenting this geometry, both with additional chipbreaker and sintered.

Ce système classique de fixation de plaquettes positives permet d'utiliser toutes les plaquettes de cette géométrie, que ce soit avec brise copeaux additionnel que sintérisé.

Dieses klassische Klemmsystem von positiven Wendeschneidplatten erlaubt die Verwendung von allen Wendeplatten dieser Geometrie, sowohl mit zusätzlichem als auch mit gesintertem Spanbrecher.

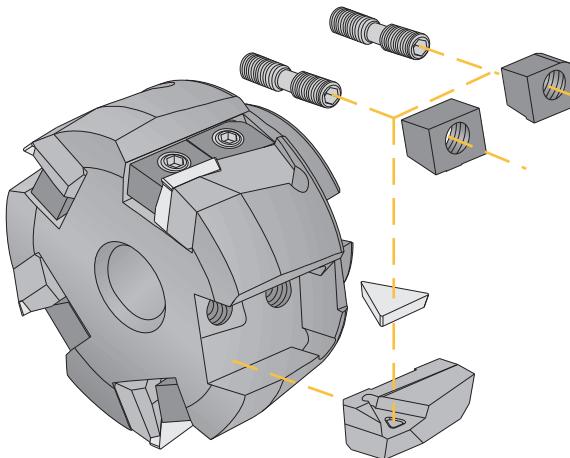


Screw clamping / Fixation par vis / Schraubenklemmung

Since the advent of the Torx screw it has been possible to hold with complete safety positive inserts with centre hole. Our range covers all the screw clamping permutations.

Dès l'apparition de la vis TORX il est possible de fixer avec sûreté les plaquettes positives avec trou central. Notre gamme couvre toutes les possibilités de fixation avec vis.

Seit der Einführung der TORX-Schraube ist es möglich, die positiven Wendeschneidplatten mit zentralem Loch mit Sicherheit zu klemmen. Unser Programm bietet alle Klemm-Möglichkeiten mit Schraube.

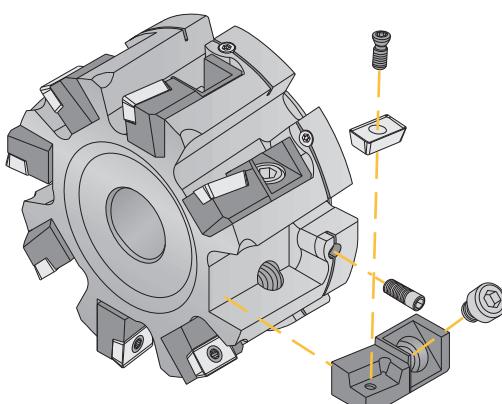


Wedge clamping / Fixation par coin / Spannkeilklemmung

Heavy duty work require good fixation, for this purpose we have designed our wedge clamping system, one of the safest available.

Les travaux lourds ont besoin d'une bonne fixation, c'est pour cela que nous avons dessiné notre système de fixation par coin. Il est un des plus sûrs de tous ceux qui existent.

Schwere Zerspanungsarbeiten benötigen eine gute Klemmung; dafür haben wir unser Spannkeil-Klemmsystem, das eines des sichersten ist.



Cartridge system / Système à cartouches / Kassetten-System

Cartridge system for heavy duty work with positive center hole inserts. The axial regulation screw allows a perfect adjustment for super-finishing applications.

Système à cartouches pour travaux lourds avec plaquettes positives à trou centrale. La vis de régulation axiale permet un réglage parfait pour les opérations de super-finition.

Kassettenystem für schwere Arbeiten, mit positiven Wendeplatten mit Zentralloch. Die axiale Verstellschraube erlaubt eine perfekte Einstellung für Super-Schliffarbeiten.

Square shoulder cutters - Fraises à surfacer et à dresser - Plan-und Eckfräser

101-102 90° General application 90° View details Page K.14 TP.. 1102.. TP.. 1103.. TP.. 1603..	111-112 90° General application 90° View details Page K.14 TP.. 1103.. TP.. 1603..	119-120-121 90° General application 90° View details Page K.14 TP.. 1103.. TP.. 1603.. TP.. 2204..	311-312 90° General application 90° View details Page K.15 TP.. 1603.. TP.. 2204..	264 90° General application 90° View details Page K.15 TC.. 16T3..	266 90° General application 90° View details Page K.15 TC.. 16T3..
261 90° General application 90° View details Page K.16 TC.. 16T3..	340 90° Square and facing 90° View details Page K.16 SPM.. 1204..	152 90° Square and facing 90° View details Page K.16 SDMT 12T3..	245 90° Square and facing 90° View details Page K.17 SDMT 12T3..	280-281 90° General application 90° View details Page K.17 CC.. 0602.. CC.. 09T3..	282-283 90° General application 90° View details Page K.17 CC.. 0602.. CC.. 09T3..
284-285-286 90° General application 90° View details Page K.18 CC.. 0602.. CC.. 0803.. CC.. 09T3..	334 90° General application 90° View details Page K.18 CC.. 09T3..	337 90° General application 90° View details Page K.18 CC.. 0602.. CC.. 09T3..	335 90° General application 90° View details Page K.19 CC.. 0602.. CC.. 09T3..	336 95° General application 95° View details Page K.19 CC.. 09T3..	304-314 Multi-function centre-cutting end mill View details Page K.19 CCKT 0602.. CCKT 1204..
338 Multi-function centre-cutting end mill View details Page K.20 CCKT 0602.. CCKT 1204..	104 90° First choice 90° View details Page K.20 AP.. 1003..	109 90° First choice 90° View details Page K.20 AP.. 1003..	110 90° First choice 90° View details Page K.21 AP.. 1003..	124 90° First choice 90° View details Page K.21 AP.. 1003..	105 90° First choice 90° View details Page K.21 AP.. 1003..
118 90° First choice 90° View details Page K.22 AP.. 1003..	114 90° First choice 90° View details Page K.22 AP.. 1604..	113 90° First choice 90° View details Page K.22 AP.. 1604..	115 90° First choice 90° View details Page K.23 AP.. 1604..	262-263 90° Slot and side milling 90° View details Page K.23 AP.. 1003.. AP.. 1604..	222 90° First choice 90° View details Page K.23 AP.. 1604..
432 90° First choice 90° View details Page K.24 AP.. 1604..	242 90° First choice 90° View details Page K.24 AP.. 1604..	106 90° Soft materials 90° View details Page K.24 AD.. 1503..	201 90° Soft materials 90° View details Page K.25 AD.. 1503..	126 90° Soft materials 90° View details Page K.25 AD.. 1503..	205-225 90° Milling and boring 90° View details Page K.25 AD.. 1503..
231 90° Soft materials 90° View details Page K.26 AD.. 1503..	223 90° Deep cutting 90° View details Page K.26 AP.. 2004..	243 90° Deep cutting 90° View details Page K.26 AP.. 2004..			

Inserts**Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors**

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

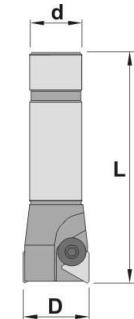
Boring heads

Arbors & adaptors

101-102 90°



REF.	D	d	L	Z	TP..		
101.016	16	16	100	1	1102..	205	503
101.020	20	20	100	2	1103..	205	503
101.025	25	20	110	2	1103..	205	503
101.032	32	25	110	3	1103..	205	503
101.040	40	25	110	4	1103..	205	503
102.020	20	20	100	1	1603..	206	504
102.032	32	25	110	2	1603..	206	504
102.040	40	25	-	3	1603..	206	504

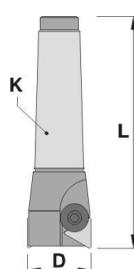


For more information see page: A.54,55

111-112 90°



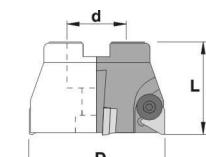
REF.	D	K	L	Z	TP..		
111.020	20	MK3	125	2	1103..	205	503
111.025	25	MK3	125	2	1103..	205	503
111.032	32	MK3	125	3	1103..	205	503
111.040	40	MK3	125	4	1103..	205	503
112.032	32	MK3	125	2	1603..	206	504
112.040	40	MK3	125	3	1603..	206	504



119-120-121 90°



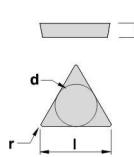
REF.	D	d	L	Z	TP..				
119.040	40	16	40	4	1103..	205	503	-	-
119.050	50	22	40	4	1103..	205	503	-	-
120.040	40	16	40	3	1603..	206	504	-	-
120.050.Z=3	50	22	40	3	1603..	206	504	-	-
120.050	50	22	40	4	1603..	206	504	-	-
120.063	63	22	50	4	1603..	206	504	316	103
120.080	80	27	50	5	1603..	206	504	316	103
120.100	100	32	50	6	1603..	206	504	316	103
120.125	125	40	63	6	1603..	206	504	316	103
120.160	160	40	63	7	1603..	206	504	316	103
120.200	200	60	63	8	1603..	206	504	316	103
121.063	63	22	50	3	2204..	216	504	322	104
121.080	80	27	50	4	2204..	216	504	322	104
121.100	100	32	50	5	2204..	216	504	322	104
121.125	125	40	63	6	2204..	216	504	322	104
121.160	160	40	63	7	2204..	216	504	322	104
121.200	200	60	63	8	2204..	216	504	322	104



TP. 1103.. - 1603.. - 2204..



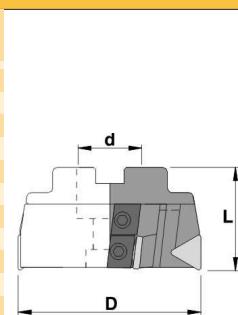
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TP. 1103..	11,00	3,18	6,35
TP. 1603..	16,50	3,18	9,52
TP. 2204..	22,00	4,76	12,70



For more information see page: A.54,55

311-312 90°

REF.	D	d	L	Z	TP..	631	633	181	535	652	108
311.050	50	16	50	5	1603..	631	633	181	535	652	108
311.063	63	22	50	6	1603..	631	633	181	535	652	910
311.080	80	27	50	5	1603..	602	603	177	522	616	912
311.100	100	32	50	7	1603..	602	603	177	522	616	916
311.125	125	40	63	7	1603..	602	603	177	522	616	-
311.160	160	40	63	9	1603..	602	603	177	522	616	952
311.200	200	60	63	11	1603..	602	603	177	522	616	956
311.250	250	60	63	15	1603..	602	603	177	522	616	956
312.080	80	27	50	5	2204..	634	635	177	522	622	912
312.100	100	32	50	7	2204..	634	635	177	522	622	916
312.125	125	40	63	7	2204..	634	635	177	522	622	-
312.160	160	40	63	9	2204..	634	635	177	522	622	952
312.200	200	60	63	11	2204..	634	635	177	522	622	956
312.250	250	60	63	15	2204..	634	635	177	522	622	956



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

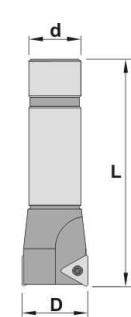
Solid carbide

Boring heads

Arbors & adaptors

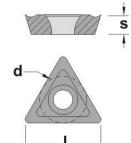
264 90°

REF.	D	d	L	Z	TC..	138	515
264.016	16	20	110	1	16T3..	138	515
264.020	20	20	110	1	16T3..	138	515
264.025	25	25	110	2	16T3..	140	515
264.032	32	32	125	2	16T3..	140	515
264.040	40	32	125	3	16T3..	140	515

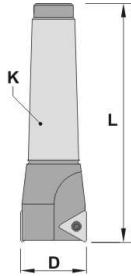


REF.	I	s	d
TC.. 16T3..	16,50	3,97	9,52

For more information see page: A.51,52

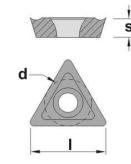
**266 90°**

REF.	D	K	L	Z	TC..	140	515
266.025	25	MK3	125	2	16T3..	140	515
266.032	32	MK3	125	2	16T3..	140	515
266.040	40	MK3	125	3	16T3..	140	515



REF.	I	s	d
TC.. 16T3..	16,50	3,97	9,52

For more information see page: A.51,52



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

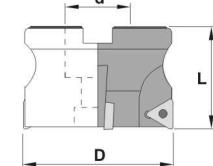
Boring heads

Arbors & adaptors

261 90°



REF.	D	d	L	Z	TC..			
261.040	40	16	40	3	16T3..	140	535	108
261.050	50	22	40	4	16T3..	140	535	910
261.063	63	27	50	5	16T3..	140	535	912
261.080	80	32	50	6	16T3..	140	535	916
261.100	100	40	50	7	16T3..	140	535	920
261.125	125	40	63	8	16T3..	140	535	-
261.160	160	40	63	10	16T3..	140	535	952

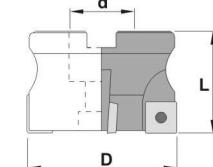


For more information see page: A.51, 52

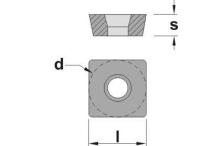
340 90°



REF.	D	d	L	Z	SPM..			
340.040	40	16	40	3	1204..	159	522	108
340.050	50	22	40	4	1204..	159	522	910
340.063	63	27	50	5	1204..	159	522	912
340.080	80	27	50	6	1204..	159	522	912
340.100	100	32	50	8	1204..	159	522	916
340.125	125	40	63	8	1204..	159	522	-
340.160	160	40	63	10	1204..	159	522	952
340.200	200	60	63	12	1204..	159	522	956
340.250	250	60	63	16	1204..	159	522	956

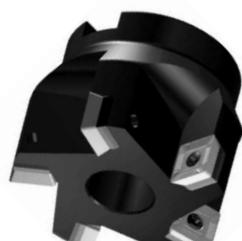


REF.	I	s	d
SPM.. 1204..	12,70	4,76	12,70

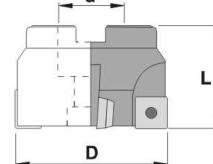


For more information see page: A.51

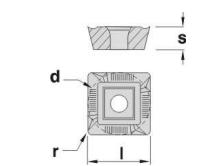
152 90°



REF.	D	d	L	Z	SDMT			
152.040	40	16	40	3	12T3..	133	535	-
152.050	50	22	40	4	12T3..	133	535	350
152.063	63	27	50	5	12T3..	133	535	350
152.080	80	27	50	6	12T3..	133	535	350
152.100	100	32	50	7	12T3..	133	535	350
152.125	125	40	63	8	12T3..	133	535	350
152.160	160	40	63	10	12T3..	133	535	350
152.200	200	60	63	12	12T3..	133	535	350
152.250	250	60	63	16	12T3..	133	535	350



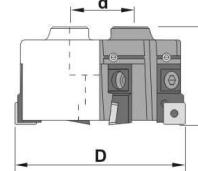
REF.	I	s	d
SDMT 12T3..	13,29	3,97	13,29



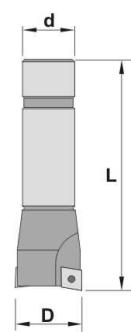
For more information see page: A.48

245 90°

REF.	D	d	L	Z	SDMT	•	•	•	•	•	•
245.160	160	40	63	10	12T3..	187	133	535	625	194	460
245.200	200	60	63	12	12T3..	187	133	535	625	194	460
245.250	250	60	63	16	12T3..	187	133	535	625	194	460
245.315	315	60	63	20	12T3..	187	133	535	625	194	460
245.400	400	60	63	22	12T3..	187	133	535	625	194	460
245.500	500	60	63	28	12T3..	187	133	535	625	194	460

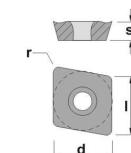
**Inserts****Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors****280-281 90°**

REF.	D	d	L	Z	CC..	•	•
280.012	12	16	110	1	0602..	155	507
280.016	16	20	110	2	0602..	155	507
280.020	20	20	110	3	0602..	155	507
281.020	20	20	110	2	09T3..	138	515
281.025	25	25	110	2	09T3..	138	515
281.032	32	32	125	3	09T3..	140	515
281.040	40	32	125	4	09T3..	140	515



For more information see page: A.48

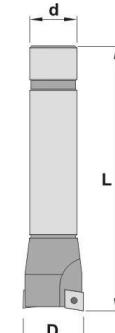
REF.	I	s	d
CC.. 0602..	6,45	2,38	6,35
CC.. 09T3..	9,65	3,97	9,52



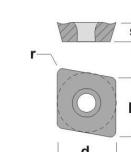
For more information see page: A.38

282-283 90°

REF.	D	d	L	Z	CC..	•	•
282.016	16	20	175	2	0602..	155	507
282.020	20	20	200	3	0602..	155	507
283.020	20	20	200	2	09T3..	138	515
283.025	25	25	250	2	09T3..	138	515
283.032	32	32	250	3	09T3..	140	515



REF.	I	s	d
CC.. 0602..	6,45	2,38	6,35
CC.. 09T3..	9,65	3,97	9,52



For more information see page: A.38

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

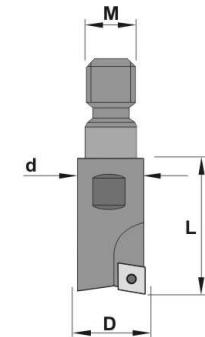
Arbors & adaptors

284-285-286 90°



REF. D d L M Z CC..

284.015	15	14	23	M8	2	0602..	155	507
284.016	16	14	23	M8	2	0602..	155	507
284.020	20	18	30	M10	3	0602..	155	507
285.020	20	18	30	M10	2	0803..	148	508
285.025	25	21	35	M12	2	0803..	148	508
286.032	32	29	43	M16	3	09T3..	138	515
286.045	45	29	43	M16	4	09T3..	140	515



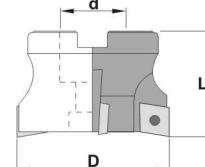
For more information see page: A.38

334 90°



REF. D d L Z CC..

334.040	40	16	40	5	09T3..	138	535	108
334.050	50	22	40	5	09T3..	138	535	910
334.052	52	22	40	5	09T3..	138	535	910
334.063	63	27	50	6	09T3..	140	535	912
334.066	66	27	50	6	09T3..	140	535	912
334.080	80	27	50	7	09T3..	140	535	912



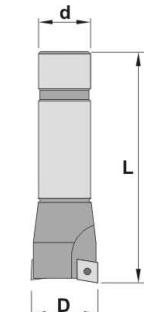
For more information see page: A.38

337 90°



REF. D d L Z CC..

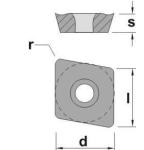
337.016	16	20	150	2	0602..	155	507
337.020	20	20	175	3	0602..	155	507
337.025	25	25	175	2	09T3..	138	515
337.032	32	32	175	3	09T3..	140	515



For more information see page: A.38

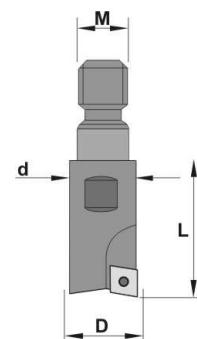
REF. I s d

CC.. 0602..	6,45	2,38	6,35
CC.. 09T3..	9,65	3,97	9,52

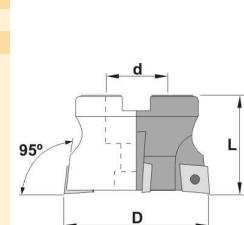


335 90°

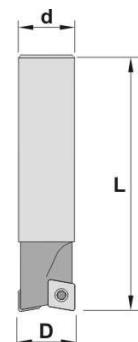
REF.	D	d	M	L	Z	CC..		
335.015	15	14	M8	23	2	0602..	155	507
335.016	16	14	M8	23	2	0602..	155	507
335.020	20	18	M10	30	3	0602..	155	507
335.025	25	21	M12	35	2	09T3..	138	515
335.032	32	29	M16	43	3	09T3..	138	515
335.045	45	29	M16	43	4	09T3..	140	515

**Inserts****Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors****336 95°**

REF.	D	d	L	Z	CC..			
336.052	52	22	40	5	09T3..	138	535	910
336.066	66	27	50	6	09T3..	140	535	912
336.080	80	27	50	7	09T3..	140	535	912

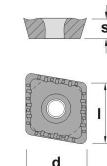
**Parting & grooving****Threading****Cartridges****Brazed tools****304-314**

REF.	D	d	L	Z	CCKT			
304.012	12	16	100	1	060204	155	-	507
304.016	16	16	100	2	060204 / 080308	155	148	507
304.020	20	20	125	2	080308 / 09T308	148	138	508
304.025	25	25	125	2	09T308 / 120408	138	159	515
314.012	12	16	150	1	060204	155	-	507
314.016	16	16	175	2	060204 / 080308	155	148	507
314.020	20	20	175	2	080308 / 09T308	148	138	508
314.025	25	25	200	2	09T308 / 120408	138	159	515

**Milling cutters****Solid carbide****Boring heads****Arbors & adaptors**

REF.	I	s	d
CCKT 0602..	6,45	2,38	6,35
CCKT 0803..	8,05	3,18	7,94
CCKT 09T3..	9,65	3,97	9,52
CCKT 1204..	12,90	4,76	12,70

For more information see page: A.38



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

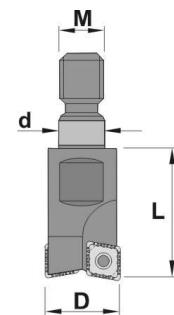
Boring heads

Arbors & adaptors

338



REF.	D	d	L	M	Z	CCKT		
338.012	12	14	23	M8	1	060204	155	-
338.016	16	14	23	M8	2	060204 / 080308	155	148
338.020	20	18	30	M10	2	080308 / 09T308	148	138
338.025	25	21	35	M12	2	09T308 / 120408	138	144

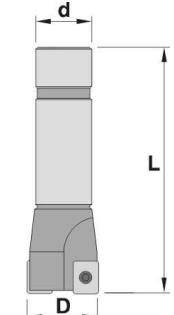


For more information see page: A.38

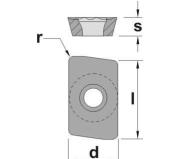
104 90°



REF.	D	d	L	Z	AP..		
104.010	10	16	110	1	1003..	155	507
104.012	12	16	110	1	1003..	155	507
104.014	14	16	110	1	1003..	155	507
104.016	16	20	110	2	1003..	155	507
104.018	18	20	110	2	1003..	125	507
104.020	20	20	125	3	1003..	125	507
104.022	22	20	125	3	1003..	125	507
104.025	25	25	125	4	1003..	125	507
104.028	28	25	125	4	1003..	125	507



REF.	I	s	d
AP. 1003..	9,52	3,18	6,35

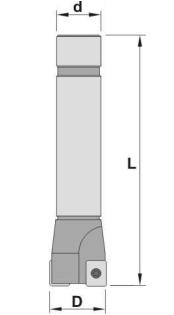


For more information see page: A.36,37

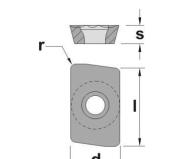
109 90°



REF.	D	d	L	Z	AP..		
109.016	16	20	175	2	1003..	155	507
109.020	20	20	200	3	1003..	125	507



REF.	I	s	d
AP. 1003..	9,52	3,18	6,35

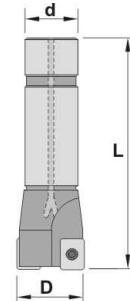


For more information see page: A.36,37

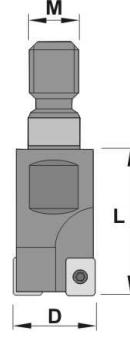
110 90°

REF.	D	d	L	Z	AP..		
110.012	12	16	110	1	1003..	155	507
110.016	16	20	110	2	1003..	155	507
110.020	20	20	125	3	1003..	125	507
110.025	25	25	125	4	1003..	125	507

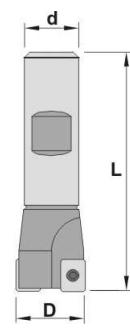
Internal coolant system

**Inserts****Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors****124 90°**

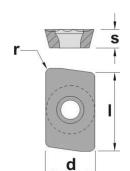
REF.	D	M	L	Z	AP..		
124.016	16	M8	23	2	1003..	155	507
124.020	20	M10	30	3	1003..	125	507
124.025	25	M12	35	3	1003..	155	507

**For more information see page: A.36,37****105 90°**

REF.	D	d	L	Z	AP..		
105.012	12	16	90	1	1003..	155	507
105.016	16	20	90	2	1003..	155	507
105.020	20	20	95	3	1003..	125	507
105.025	25	25	95	4	1003..	125	507

**For more information see page: A.36,37**

REF.	I	s	d
AP. 1003..	9,52	3,18	6,35

**For more information see page: A.36,37**

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

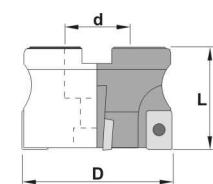
Boring heads

Arbors & adaptors

118 90°



REF.	D	d	L	Z	AP.		
118.032	32	16	40	5	1003..	125	517 108
118.040	40	16	40	6	1003..	125	517 108
118.050	50	22	40	7	1003..	125	517 910
118.063	63	22	50	9	1003..	125	517 910

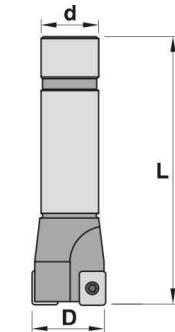


For more information see page: A.36,37

114 90°



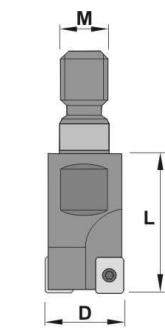
REF.	D	d	L	Z	AP.		
114.020	20	20	200	1	1604..	138	515
114.025	25	25	200	2	1604..	138	515
114.032	32	32	250	3	1604..	140	515
114.040	40	32	250	4	1604..	140	515



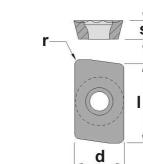
113 90°



REF.	D	M	L	Z	AP.		
113.025	25	M12	35	2	1604..	138	515
113.032	32	M16	43	3	1604..	140	515



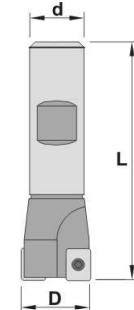
REF.	I	s	d
AP. 1604..	17,00	4,76	9,52



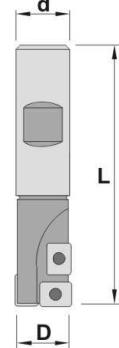
For more information see page: A.36,37

115 90°

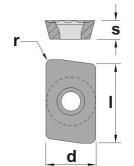
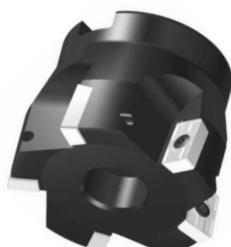
REF.	D	d	L	Z	AP..		
115.020	20	20	100	1	1604..	138	515
115.025	25	25	100	2	1604..	138	515
115.032	32	32	110	3	1604..	140	515
115.040	40	32	110	4	1604..	140	515

**Inserts****Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors****262-263 90°**

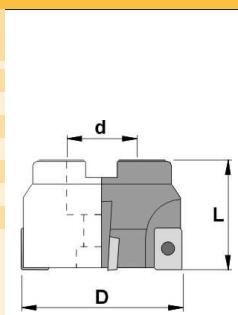
REF.	D	d	L	Z	AP..		
262.020	20	20	90	1+1	1003..	155	507
262.025	25	25	110	1+1	1003..	155	507
263.032	32	32	125	1+1	1604..	138	515
263.040	40	32	125	1+1	1604..	138	515



For more information see page: A.36,37

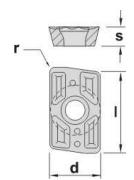
Cartridges**222 90°**

REF.	D	d	L	Z	AP..		
222.040	40	16	40	4	1604..	140	535 108
222.050	50	22	40	5	1604..	140	535 910
222.063	63	27	50	6	1604..	140	535 912
222.080	80	27	50	7	1604..	140	535 912
222.100	100	32	50	8	1604..	140	535 916
222.125	125	40	63	8	1604..	140	535 -
222.160	160	40	63	9	1604..	140	535 952



For more information see page: A.36,37

REF.	I	s	d
AP. 1604..	17,00	4,76	9,52



For more information see page: A.36,37

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

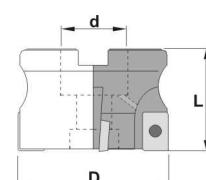
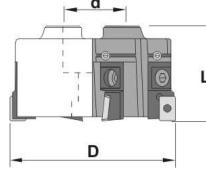
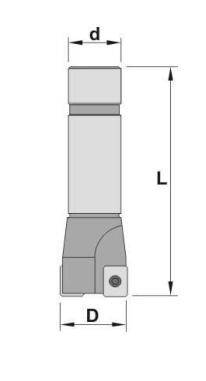
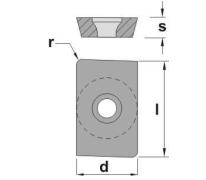
Brazed tools

Milling cutters

Solid carbide

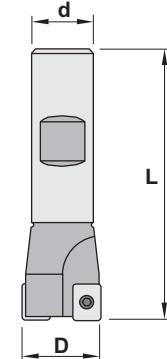
Boring heads

Arbors & adaptors

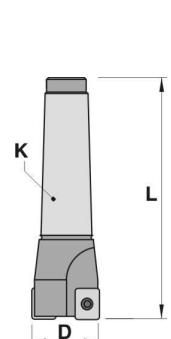
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		432.040	40	16	40	4	1604..	140 535 108
		432.050	50	22	40	5	1604..	140 535 910
		432.063	63	27	50	6	1604..	140 535 912
		432.080	80	27	50	7	1604..	140 535 912
		432.100	100	32	50	8	1604..	140 535 916
								
		 Internal coolant system						
242 90°		REF.	D	d	L	Z	AP..	    
		242.160	160	40	63	10	1604..	140 535 630 187 460 952
		242.200	200	60	63	12	1604..	140 535 630 187 460 956
		242.250	250	60	63	16	1604..	140 535 630 187 460 956
		242.315	315	60	63	20	1604..	140 535 630 187 460 956
		242.400	400	60	63	22	1604..	140 535 630 187 460 956
		242.500	500	60	63	28	1604..	140 535 630 187 460 956
								
106 90°		REF.	D	d	L	Z	ADM..	 
		106.016	16	20	110	1	1503..	138 515
		106.020	20	20	110	1	1503..	138 515
		106.025	25	25	110	2	1503..	138 515
		106.032	32	32	125	3	1503..	138 515
		106.040	40	32	125	4	1503..	138 515
		106.050	50	32	125	4	1503..	140 515
								
ADM.. 1503..		REF.	I	s	d			   
		ADM.. 1503..	15,00	3,18	9,52			
								
For more information see page: A.36,37								

201 90°

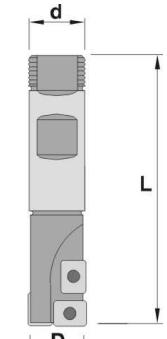
REF.	D	d	L	Z	ADM..		
201.016	16	20	100	1	1503..	138	515
201.020	20	20	100	1	1503..	138	515
201.025	25	25	100	2	1503..	138	515
201.032	32	32	100	3	1503..	138	515
201.040	40	32	100	4	1503..	138	515
201.050	50	32	100	4	1503..	140	515

**Inserts****Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors****126 90°**

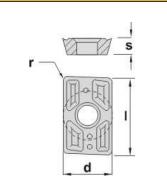
REF.	D	K	L	Z	ADM..		
126.020	20	MK3	125	1	1503..	138	515
126.025	25	MK3	125	2	1503..	138	515
126.032	32	MK3	125	3	1503..	138	515
126.040	40	MK3	125	4	1503..	138	515
126.050	50	MK3	125	4	1503..	140	515

**Parting & grooving****Threading****Cartridges****Brazed tools****205-225 90°**

REF.	D	d	L	Z	ADM..		
205.029	29	25	100	1+1	1503..	138	515
205.032	32	32	100	1+1	1503..	138	515
205.040	40	32	100	1+1	1503..	138	515
225.029	29	25	150	1+1	1503..	138	515
225.032	32	32	175	1+1	1503..	138	515
225.040	40	32	175	1+1	1503..	138	515

**Milling cutters****Solid carbide**

REF.	I	s	d
ADM.. 1503..	15,00	3,18	9,52



For more information see page: A.36

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

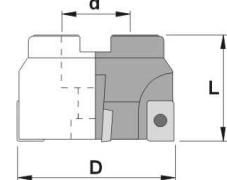
Arbors & adaptors

231 90°



REF.	D	d	L	Z	ADM..
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231.040	40	16	40	4	1503..
231.050	50	22	40	5	1503..
231.063	63	27	50	6	1503..
231.080	80	32	50	6	1503..
231.100	100	40	50	8	1503..



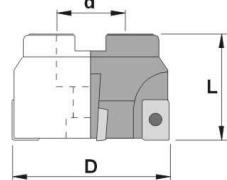
For more information see page: A.36

223 90°



REF.	D	d	L	Z	AP..
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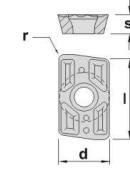
223.040	40	16	40	3	2004..
223.050	50	22	40	4	2004..
223.063	63	22	50	5	2004..
223.080	80	27	50	6	2004..
223.100	100	32	50	6	2004..
223.125	125	40	63	8	2004..



For more information see page: A.36

REF.	I	s	d
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AP. 2004..	20,00	4,76	12,70
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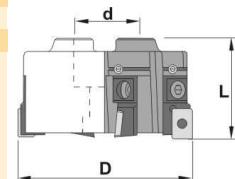


243 90°



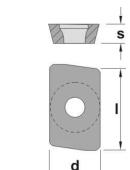
REF.	D	d	L	Z	AP..
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243.160	160	40	63	10	2004..
243.200	200	60	63	12	2004..
243.250	250	60	63	16	2004..
243.315	315	60	63	20	2004..
243.400	400	60	63	22	2004..
243.500	500	60	63	28	2004..



REF.	I	s	d
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AP. 2004..	20,00	4,76	12,70
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For more information see page: A.37,38

Cutting data for facing square shoulder cutters

Material	P	HB	Condition	Cutting speed m/min.				
				TIC25	TIC21	TIC28	P25K	P40K
					0.3-0.2-0.1	0.3-0.2-0.1	0.3-0.2-0.1	0.4-0.2-0.1
Unalloyed steel	110 150 310	C<0.25% C<0.80% C<1.40%		250-300-390 155-180-255 135-165-210	250-350-450 100-120-165 75-110-135	140-160-180 120-140-150 80-90-100	180-250-310 120-145-205 95-130-170	100-130-160 65-85-100 50-75-85
Low alloyed steel	125-225 220-450	Hardened		170-200-250 110-130-150	100-120-165 55-75-95	120-140-160 90-120-140	120-160-200 70-100-120	95-85-105 40-55-65
High alloyed steel	150-250 250-300	Hardened		140-170-225 90-110-150	90-115-150 60-75-90	60-80-90 55-60-70	110-140-180 65-90-120	60-80-90 40-50-60
High alloyed steel	150-250 250-350	Rapid steel (HSS) Hardened Hardened tool steel		130-160-195	75-105-130	60-65-70	90-125-155 70-95-120	50-60-75 30-40-50
Stainless steel	150-270	Ferritic, Martensitic		155-180-250	110-150-190	130-180-220	120-165-210	80-105-130
Steel castings	150 150-250 160-200	Unalloyed Low alloyed High alloyed		140-180-250 125-150-190 90-110-130	80-120-150 70-100-120 55-70-80	60-80-90 55-60-70	100-145-180 90-120-150 65-90-100	60-75-95 50-65-80 35-45-55
Stainless steel castings	150-250	Ferritic, martensitic			50-80	60-65-70	50-70-80	30-40-50

Material	M	HB	Condition	Cutting speed m/min.				
				TIC25	TIC21	TIC28	K15K	P25K
					0.4-0.2-0.1	0.3-0.2-0.1	0.4-0.2-0.1	0.2-0.1
Stainless steel annealed	150-220	Austenitic		180-220-280	80-150-220	130-180-220		150-240-300
Steel castings	200	Stainless, austenitic			40-70	80-120-160		50-60
Iron, nickel and cobalt base castings	180-300 220-300 220-300				40-100	70-120-140	20-40 20-40 10-20	
Titanium alloys	300-400					40-80		

Material	K	HB	Condition	Cutting speed m/min.				
				TIC21	TIC25	TIC28	K15K	P25K
					0.3-0.2-0.1	0.4-0.2-0.1	0.3-0.2-0.1	0.2-0.1
Tempered steel	HCR 50-65							
Stainless steel castings	250	Manganese steel 12-14% Mn					12-18-20	15-20-30
Malleable cast iron	110-145 200-230	Short chipping Long chipping	200-300 150-200			180-330	65-80-95 50-65-80	100-125-150 90-115-135
Grey cast iron	180 260	Low tensile strength High tensile strength	200-400 150-350			130-240 110-200	70-95-120 50-70-90	85-120-155 70-90-115
Nodular cast iron	160 250	Ferritic Pearlitic	100-250 100-180	100-130 90-110	70-140 60-120		50-65-80 45-60-70	70-90-115 65-80-100
Chilled cast iron	HCR 40-60							
Aluminium alloys	60-100 75-110	Non cast Cast					500-2100 400-2000	
Aluminium with high contents of Si		10-14% Si 14-16% Si 16-18% Si					200-1000 110-200	

Inserts

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Cutting data for Drill-Mill cutters

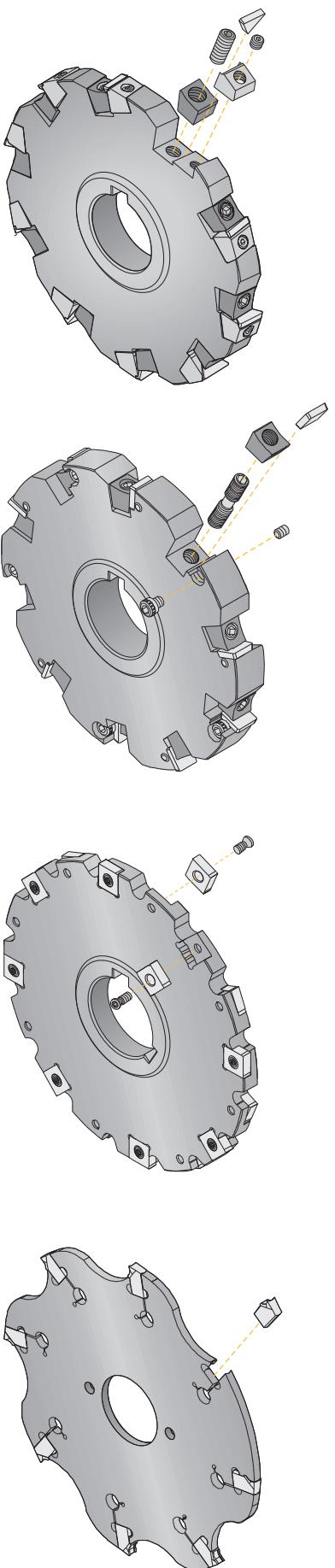
Material	P	HB	Condition	Tool diameter (D mm.)	Basic qualities				Feed/tooth complete slot f ₂
					TIC25	P25K	P40K	K15K	
Unalloyed steel		110 170 250	C<0,25% C<0,8% C<1,4%	12-16 20 25 32 40	180-230 120-150 100-140 70-110	150-200 80-120 60-100	100-150 80-120 60-100		0,02-0,11 0,11-0,14 0,12-0,18 0,15-0,21 0,18-0,24
Low alloyed steel		125-225 220-450	Annealed Hardened	12-16 20 25 32 40	100-150 60-110	90-140 60-110	70-110 45-80		0,02-0,11 0,11-0,14 0,12-0,18 0,15-0,21 0,18-0,24
High alloyed steel		150-250 250-500	Annealed Hardened	12-16 20 25 32 40	80-120	80-120 50-80	60-100 40-70		0,02-0,11 0,11-0,14 0,12-0,18 0,15-0,21 0,18-0,24
Stainless steel		150-270	Ferritic/Martensitic	12-16 20 25 32 40	120-160	100-130	60-100		0,02-0,11 0,11-0,14 0,12-0,18 0,15-0,21 0,18-0,24
Steel castings		150 150-220 160-200	Unalloyed Low alloyed High alloyed	12-16 20 25 32 40		80-110 50-90 50-80	70-100 40-80 40-70		0,02-0,11 0,11-0,14 0,12-0,18 0,15-0,21 0,18-0,24
Stainless steel castings		200	Ferritic/Martensitic	12-16 20 25 32 40	50-80	40-70	35-60		0,02-0,11 0,11-0,14 0,12-0,18 0,15-0,21 0,18-0,24

Material	M	HB	Condition	Tool diameter (D mm.)	Basic qualities				Feed/tooth complete slot f ₂
					TIC25	P25K	P40K	K15K	
Stainless steel		150-220	Austenitic	12-16 20 25 32 40	80-160	70-130	55-90		0,02-0,11 0,11-0,14 0,12-0,18 0,15-0,21 0,18-0,24
Stainless steel castings		200	Austenitic	12-16 20 25 32 40	40-70	40-60	35-55		0,02-0,11 0,11-0,14 0,12-0,18 0,15-0,21 0,18-0,24

Material	K	HB	Condition	Tool diameter (D mm.)	Basic qualities				Feed/tooth complete slot f ₂
					TIC25	P25K	P40K	K15K	
Malleable cast iron		110-145 200-230	Short chipping Long chipping	12-16 20 25 32 40				90-120 80-100	0,02-0,11 0,11-0,14 0,12-0,18 0,15-0,21 0,18-0,24
Grey cast iron		180 260	Low tensile strength High tensile strength	12-16 20 25 32 40				60-120 50-100	0,02-0,11 0,11-0,14 0,12-0,18 0,15-0,21 0,18-0,24
Nodular cast iron Spheroidal graphite		160 250	Ferritic Pearlitic	12-16 20 25 32 40				50-80 40-70	0,02-0,11 0,11-0,14 0,12-0,18 0,15-0,21 0,18-0,24
Aluminium		60-150 40-180	Forged Cast	12-16 20 25 32 40				300-500 250-450	0,02-0,11 0,11-0,14 0,12-0,18 0,15-0,21 0,18-0,24
Bronze-brass alloys		60-150		12-16 20 25 32 40				80-120	0,02-0,11 0,11-0,14 0,12-0,18 0,15-0,21 0,18-0,24

	D/a _e	50	40	20	10	5	2,5	2	1,5	1
		f ₁	4,5	4	3	2	1,5	1	1	1

When you trace a contour (side peripheral milling), you must multiply the f₂ value of a complete slot (see table) by the correction factor f₁ corresponding to the relationship D/a_e (milling cutter diameter/radial cutting depth) in order to get a suitable feed.



Wedge clamping / Fixation par coin / Spannkeilklemmung

This classic positive insert clamping system allows the use of all models presenting this geometry, both with additional chipbreaker and sintered.

Ce système classique de fixation de plaquettes positives permet d'utiliser toutes les plaquettes de cette géométrie, que ce soit avec brise-copeaux additionnel que sintérisé.

Dieses klassische Klemmsystem von positiven Wendeschneidplatten erlaubt die Verwendung von allen Wendeplatten dieses Typs, un üblicher Sinterausführung sowohl als auch mit Spanbrecher.

Wedge clamping / Fixation par coin / Spannkeilklemmung

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Dieses klassische Klemmsystem von positiven Wendeschneidplatten erlaubt die Verwendung von allen Wendeplatten dieses Typs, un üblicher Sinterausführung sowohl als auch mit Spanbrecher.

Screw clamping / Fixation par vis / Schraubenklemmung

Since the advent of the Torx screw it has been possible to hold with complete safety positive inserts with centre hole. Our range covers all the screw fixing permutations.

Dès l'apparition de la vis TORX il est possible de fixer avec sûreté les plaquettes positives avec trou central. Notre gamme couvre toutes les possibilités de fixation avec vis.

Seit der Einführung der TORX-Schraube ist es möglich, die positiven Wendeschneidplatten mit zentralem Loch zu klemmen. Unser Programm bietet alle Klemmmöglichkeiten mit Schraube.

Spring action / Action à ressort / Federklemmung

The inserts are retained by a clamping/spring action into a fixed insert seat.

Les plaquettes sont fixées dans le logement par moyen d'une action de serrage à ressort.

Die Wendeschneidplatten werden durch die Andruckkraft des Körpers im Plattsitz gehalten.

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Parting & grooving

Threading

Drills

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Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

Slot cutters - Fraise disque - Scheibenfräser

Inserts



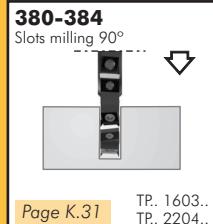
CC.. 0602..
... CC.. 1204..

Page K.31



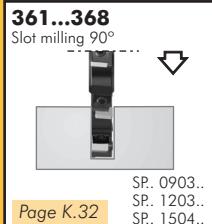
CC.. 0602..
... CC.. 1204..

Page K.31



TP.. 1603..
TP.. 2204..

Page K.31



SR.. 0903..
SP.. 1203..
SP.. 1504..

Page K.32



SP.. 1203..

Page K.32



RP.. 0802MO

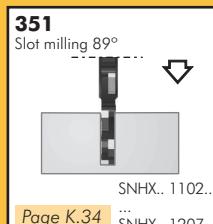
Turning



Page K.33 RP.. 1003MO



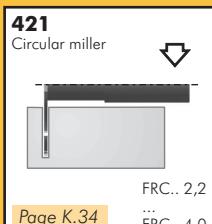
Page K.33 RP.. 1204MO



SNHX.. 1102..

... SNHX.. 1207..

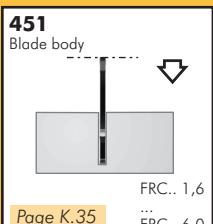
Page K.34



FRC.. 2,2

... FRC.. 4,0

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FRC.. 1,6

... FRC.. 6,0

Page K.35

Automatic lathes

Parting & grooving

Threading

Drills

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Milling cutters

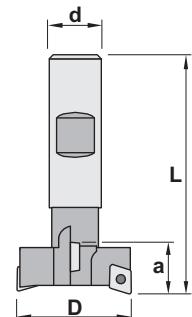
Solid carbide

Boring heads

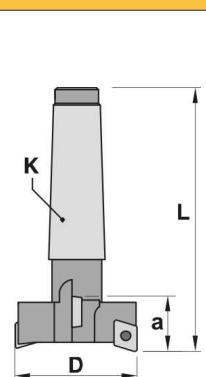
Arbors & adaptors

218

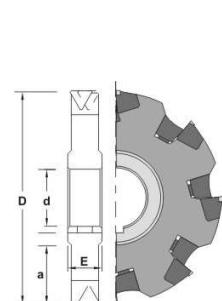
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218.025	25	25	85	11	2+2	0602..	125	507
218.032	32	25	95	14	2+2	0803..	130	508
218.040	40	25	105	18	2+2	09T3..	140	515
218.050	50	32	120	22	2+2	1204..	150	520

**Inserts****Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors****219**

REF.	D	K	L	a	Z	CC..	♂	↙
219.025	25	MK3	125	11	2+2	0602..	125	507
219.032	32	MK3	125	14	2+2	0803..	130	508
219.040	40	MK3	134	18	2+2	09T3..	140	515
219.050	50	MK4	165	22	2+2	1204..	150	520

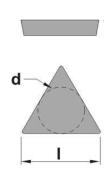
**Parting & grooving****Threading****Cartridges****Brazed tools****380-384**

REF.	D	d	E	a	Z	TP..	♂	↙	↙	↙	↙	↙	↙	↙
380.100	100	27	18	28	6	1603..	128	204	600	610	662	663	504	503
380.125	125	32	18	39	8	1603..	128	204	600	610	662	663	504	503
380.126	125	32	20	39	8	1603..	128	204	600	610	662	663	504	503
380.127	125	32	22	39	8	1603..	128	204	600	610	662	663	504	503
380.128	125	32	24	39	8	1603..	128	204	600	610	662	663	504	503
380.160	160	40	18	49	10	1603..	128	204	600	610	662	663	504	503
380.161	160	40	20	49	10	1603..	128	204	600	610	662	663	504	503
380.162	160	40	22	49	10	1603..	128	204	600	610	662	663	504	503
380.163	160	40	24	49	10	1603..	128	204	600	610	662	663	504	503
380.200	200	50	18	60	12	1603..	128	204	600	610	662	663	504	503
380.201	200	50	20	60	12	1603..	128	204	600	610	662	663	504	503
380.202	200	50	22	60	12	1603..	128	204	600	610	662	663	504	503
380.250	250	50	22	86	16	1603..	128	204	600	610	662	663	504	503
380.315	315	50	26	114	20	1603..	128	204	600	610	662	663	504	503
384.315	315	50	34	114	16	2204..	128	486	601	611	664	665	504	505
384.400	400	50	34	150	20	2204..	128	486	601	611	664	665	504	505

**Milling cutters****Solid carbide****Boring heads****Arbors & adaptors**

REF.	I	s	d
TP.. 1603..	16,50	3,18	9,52
TP.. 2204..	22,00	4,76	12,70

For more information see page: A.54,55



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

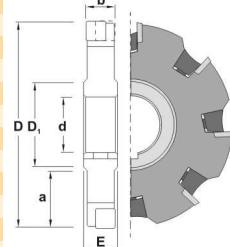
Boring heads

Arbors & adaptors

361...368 90°

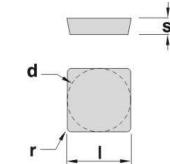


REF.	D	b	d	D1	E	a	Z	SP..							
361.050	50	10	16	28	12	10	6	0903..	111	114	154	636	637	535	509
361.063	63	10	22	35	12	12	6	0903..	111	114	154	636	637	535	509
361.080	80	10	22	35	12	20	8	0903..	112	114	154	613	614	535	509
361.100	100	10	27	41	12	28	10	0903..	112	114	154	613	614	535	509
362.100	100	12	27	41	14	28	10	0903..	112	124	154	613	614	535	509
363.100	100	14	27	41	16	28	10	0903..	112	124	154	613	614	535	509
361.125	125	10	32	48	12	39	12	0903..	110	114	154	613	614	535	509
362.125	125	12	32	48	14	39	12	0903..	110	124	154	613	614	535	509
363.125	125	14	32	48	16	39	12	0903..	110	124	154	613	614	535	509
361.160	160	10	40	58	12	49	14	0903..	110	114	154	613	614	535	509
362.160	160	12	40	58	14	49	14	0903..	110	124	154	613	614	535	509
363.160	160	14	40	58	16	49	14	0903..	110	124	154	613	614	535	509
364.080	80	16	22	35	18	20	6	1203..	127	126	157	600	610	-	504
364.100	100	16	27	41	18	28	8	1203..	128	126	157	600	610	-	504
364.125	125	16	32	48	18	39	10	1203..	128	126	157	600	610	-	504
365.125	125	18	32	48	20	39	10	1203..	128	105	157	600	610	-	504
366.125	125	20	32	48	22	39	10	1203..	128	105	157	600	610	-	504
364.160	160	16	40	58	18	49	12	1203..	128	126	157	600	610	-	504
365.160	160	18	40	58	20	49	12	1203..	128	105	157	600	610	-	504
366.160	160	20	40	58	22	49	12	1203..	128	105	157	600	610	-	504
364.200	200	16	50	72	18	60	16	1203..	128	126	157	600	610	-	504
365.200	200	18	50	72	20	60	16	1203..	128	105	157	600	610	-	504
366.200	200	20	50	72	22	60	16	1203..	128	105	157	600	610	-	504
366.250	250	20	50	72	22	86	20	1203..	128	105	157	600	610	-	504
367.250	250	24	50	72	26	86	20	1203..	128	105	157	600	610	-	504
367.315	315	24	50	72	26	114	24	1203..	128	105	157	600	610	-	504
368.315	315	30	50	72	32	114	20	1504..	128	115	156	601	611	-	504
368.400	400	30	50	72	32	150	24	1504..	128	115	156	601	611	-	504



REF.	I	s	d
SP.. 0903..	9,52	3,18	9,52
SP.. 1203..	12,70	3,18	12,70
SP.. 1504..	15,88	4,76	15,88

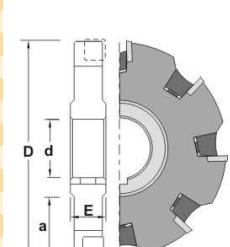
For more information see page: A.50,51



390

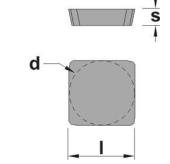


REF.	D	d	E	a	Z	SP..								
390.100.L	100	27	18	28	7	1203..	128	126	157	-	610	504	525	
390.100.R	100	27	18	28	7	1203..	128	126	157	600	-	504	525	
390.125.L	125	32	22	39	8	1203..	128	126	157	-	610	504	525	
390.125.R	125	32	22	39	8	1203..	128	126	157	600	-	504	525	
390.160.L	160	40	22	49	10	1203..	128	126	157	-	610	504	525	
390.160.R	160	40	22	49	10	1203..	128	126	157	600	-	504	525	
390.200.L	200	50	22	60	12	1203..	128	126	157	-	610	504	525	
390.200.R	200	50	22	60	12	1203..	128	126	157	600	-	504	525	
390.250.L	250	50	22	86	16	1203..	128	126	157	-	610	504	525	
390.250.R	250	50	22	86	16	1203..	128	126	157	600	-	504	525	
390.315.L	315	50	26	114	20	1203..	128	126	157	-	610	504	525	
390.315.R	315	50	26	114	20	1203..	128	126	157	600	-	504	505	



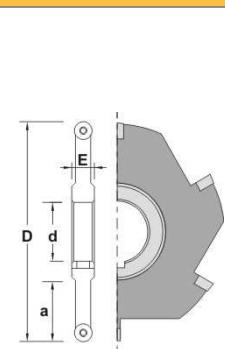
REF.	I	s	d
SP.. 1203..	12,70	3,18	12,70

For more information see page: A.50,51

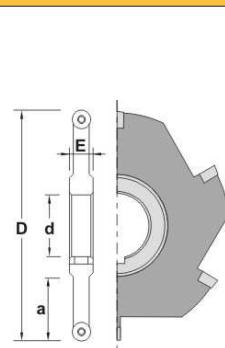


150

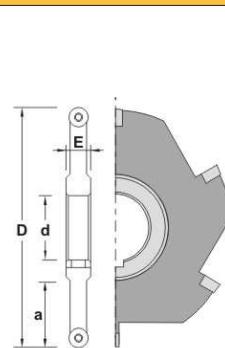
REF.	D	d	E	a	Z	RPMW		
150.050	50	16	10	10	5	0802MO	130	518
150.063	63	22	10	12	6	0802MO	130	518
150.080	80	22	10	20	7	0802MO	130	518
150.100	100	27	10	28	8	0802MO	130	518
150.125	125	32	10	39	9	0802MO	130	518
150.160	160	40	10	49	10	0802MO	130	518
150.200	200	50	10	60	12	0802MO	130	518

**Inserts****Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors****153**

REF.	D	d	E	a	Z	RPMW		
153.050	50	16	12	10	5	1003MO	138	535
153.063	63	22	12	12	5	1003MO	140	535
153.080	80	22	12	20	6	1003MO	140	535
153.100	100	27	12	28	7	1003MO	140	535
153.125	125	32	12	39	8	1003MO	140	535
153.160	160	40	12	49	9	1003MO	140	535
153.200	200	50	12	60	10	1003MO	140	535
153.250	250	50	12	86	12	1003MO	140	535

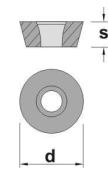
**Cartridges****Brazed tools****159**

REF.	D	d	E	a	Z	RPMW		
159.080	80	22	14	20	6	1204MO	140	535
159.100	100	27	14	28	7	1204MO	140	535
159.125	125	32	14	39	8	1204MO	140	535
159.160	160	40	14	49	9	1204MO	140	535
159.200	200	50	14	60	10	1204MO	140	535
159.250	250	50	14	86	12	1204MO	140	535

**Milling cutters****Solid carbide**

REF.	I	s	d
RPMW 1204MO	-	4,76	12,00

For more information see page: A.47

**Arbors & adaptors**

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

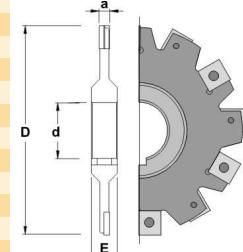
Boring heads

Arbors & adaptors

351 90°

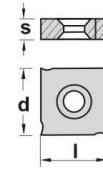


REF.	D	d	a	E	Z	SNHX		
351.100	100	27	4	12	12	1102..	135	517
351.101	100	27	5	12	12	1103..	136	517
351.102	100	27	6	12	10	1203..	145	535
351.103	100	27	8	12	10	1245..	147	535
351.104	100	27	10	12	10	1205..	146	535
351.105	100	27	12	16	10	1207..	143	535
351.125	125	32	4	12	14	1102..	135	517
351.126	125	32	5	12	14	1103..	136	517
351.127	125	32	6	12	12	1203..	145	535
351.128	125	32	8	12	12	1245..	147	535
351.129	125	32	10	12	12	1205..	146	535
351.130	125	32	12	16	12	1207..	143	535
351.161	160	40	5	12	18	1103..	135	517
351.162	160	40	6	12	16	1203..	145	535
351.163	160	40	8	12	16	1245..	147	535
351.164	160	40	10	12	16	1205..	146	535
351.165	160	40	12	16	16	1207..	143	535
351.202	200	50	6	12	18	1203..	145	535
351.203	200	50	8	12	18	1245..	147	535
351.204	200	50	10	12	18	1205..	146	535
351.205	200	50	12	16	18	1207..	143	535
351.250	250	50	6	12	24	1203..	145	535
351.251	250	50	8	12	24	1245..	147	535
351.252	250	50	10	12	24	1205..	146	535
351.253	250	50	12	16	24	1207..	143	535

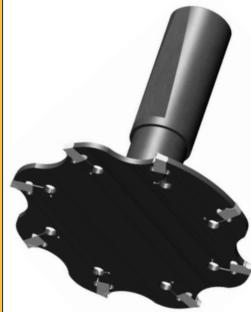


REF.	I	s	d
SNHX 1102XX	11,00	2,38	11,00
SNHX 1103XX	11,00	2,70	11,00
SNHX 1203XX	12,70	3,18	12,70
SNHX 12045XX	12,70	4,50	12,70
SNHX 1205XX	12,70	5,40	12,70
SNHX 1207XX	12,70	7,00	12,70

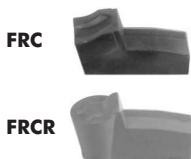
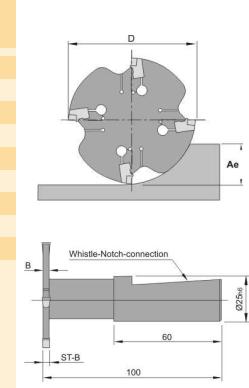
For more information see page: A.49



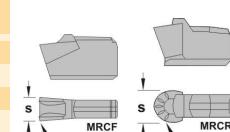
421



REF.	D	B	ST-B	Ae	Rev max	Z	FRC..
421.063	63	1,8	2,2	20	1250	4	2,2
421.064	63	2,4	3,0	20	1250	4	3,0
421.065	63	3,0	4,0	20	1250	4	4,0
421.080	80	1,8	2,2	26	1000	5	2,2
421.081	80	2,4	3,0	26	1000	5	3,0
421.082	80	3,0	4,0	26	1000	5	4,0
421.100	100	1,8	2,2	36	800	8	2,2
421.101	100	2,4	3,0	36	800	8	3,0
421.102	100	3,0	4,0	36	800	8	4,0



REF.	s	r
FRC 2,2	2,2	0,20
FRC 3,0	3,0	0,20
FRC 4,0	4,0	0,20
FRCR 3,0	3,0	1,50
FRCR 4,0	4,0	2,00



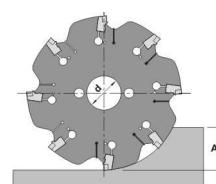
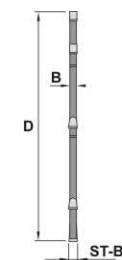
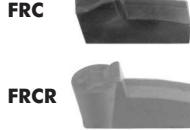
For more information see page: A.44

Boring heads

Arbors & adaptors

451

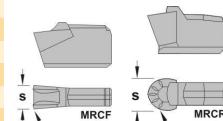
REF.	D	B	ST-B	Ae	Rev max. min-1	Z	FRC..	↙
451.080	80	1,2	1,6	22	1000	4	1,6	533
451.081	80	1,8	2,2	22	1000	4	2,2	533
451.082	80	2,4	3,0	22	1000	4	3,0	533
451.083	80	3,0	4,0	22	1000	4	4,0	533
451.084	80	4,4	5,0+6,0	22	1000	4	5,0-6,0	533
451.100	100	1,2	1,6	28	800	8	1,6	533
451.101	100	1,8	2,2	28	800	8	2,2	533
451.102	100	2,4	3,0	28	800	8	3,0	533
451.103	100	3,0	4,0	28	800	8	4,0	533
451.104	100	4,4	5,0+6,0	28	800	8	5,0-6,0	533
451.125	125	1,2	1,6	40	650	10	1,6	533
451.126	125	1,8	2,2	40	650	10	2,2	533
451.127	125	2,4	3,0	40	650	10	3,0	533
451.128	125	3,0	4,0	40	650	10	4,0	533
451.129	125	4,4	5,0+6,0	40	650	10	5,0-6,0	533
451.160	160	2,4	3,0	49	500	15	3,0	533
451.161	160	3,0	4,0	49	500	15	4,0	533
451.162	160	4,4	5,0+6,0	49	500	15	5,0-6,0	533
451.163	200	2,4	3,0	63	400	20	3,0	533
451.164	200	3,0	4,0	63	400	20	4,0	533
451.165	200	4,4	5,0+6,0	63	400	20	5,0-6,0	533
451.250	250	2,4	3,0	88	300	24	3,0	533
451.251	250	3,0	4,0	88	300	24	4,0	533
451.252	250	4,4	5,0+6,0	88	300	24	5,0-6,0	533

**Inserts****Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors**

REF.	s	r
FRC 1,6	1,6	0,15
FRC 2,2	2,2	0,20
FRC 3,0	3,0	0,20
FRC 4,0	4,0	0,20
FRC 5,0	5,0	0,30
FRC 6,0	6,0	0,30
FRCR 3,0	3,0	1,50
FRCR 4,0	4,0	2,00
FRCR 5,0	5,0	2,50
FRCR 6,0	6,0	3,00

FRCR

For more information see page: A.44



Inserts

Turning

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Boring heads

Arbors & adaptors

Cutting data for slot side and face milling cutters

Cutting speed nominal values

Material	P	HB	Basic qualities				
			TIC25	P25K	K15K	T40L	
Cutting speed m/min.							
Unalloyed steel	90-250	100-210	80-180				
Low alloyed steel	130-400	50-150	50-140				
High alloyed steel	150-500	30-90	40-90				
Martensitic, stainless steel ferritic	150-270	100-200	80-130		40-80		
Steel castings	150-200	60-130	40-90				

Material	M	HB	Basic qualities				
			TIC25	P25K	K15K	T40L	
Cutting speed m/min.							
Austenitic, stainless steel	150-270	80-180	50-120			20-50	
Titanium	300-450				20-80		

Material	K	HB	Basic qualities				
			TIC25	P25K	K15K	T40L	
Cutting speed m/min.							
Malleable cast iron	110-230			60-90			
Grey cast iron	180-260			80-120			
Nodular cast iron	160-250			60-80			
Aluminium alloys				200-600			
Bronze and brass alloys	60-150			70-150			

Feed nominal values / Valeurs nominales de l'avance / Nennwerte der Schnittgeschwindigkeit

Depending on the milling cutter situation and in relationship with its diameter and the cutting depth, the average chip thickness (h_m) can considerably vary, but it will always be smaller than the feed per tooth. When you mill a groove, the feed is distributed between two stepped inserts, which are symmetrically spaced one at each side of the milling cutter, forming together the slot. Therefore, when you use the formulae, the z value (number of teeth) must always be divided by two.

En dépendant de la situation de la fraise et en relation avec son diamètre et la profondeur de coupe, l'épaisseur moyenne du copeau (h_m) peut varier considérablement, mais elle sera toujours plus petite que l'avance par dent. Quand on use un canal, l'avance est distribuée entre deux plaquettes échelonnées, qui sont espacées une de chaque côté de la fraise, en formant la rainure ensemble. C'est pour cela que quand on utilise les formules, la valeur z (nombre de dents) doit être toujours divisée par deux.

Die durchschnittliche Spandicke (h_m) kann erheblich variieren, es kommt auf der Situation des Fräzers und seine Beziehung mit dem Durchmesser und die Schnitttiefe an, aber sie wird immer kleiner als dem Vorschub pro Zahn sein. Wenn man eine Nut fräst, ist der Vorschub zwischen zwei gestuften Wendeplatten ausgeteilt, eine auf jeder Seite des Fräzers, die zusammen die Nute bilden. Deswegen muß der Wert z (Zähnezahl) immer durch zwei geteilt werden, wenn man diese Formel verwendet.

Cutting data for slot side and face milling cutters

Cutting speed nominal values - hm 0,05-0,12

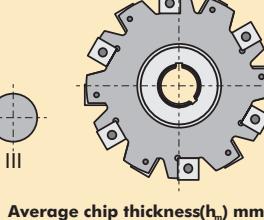
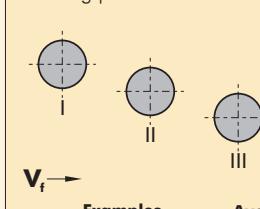
Material	P	HB	TIC25			P25K		T40L	
			Cutting speed m/min.						
Unalloyed steel	110-310	140-240	130-250			70-135			
Low alloyed steel	125-450	130-210	85-180			45-80			
High alloyed steel	150-500	120-80	60-120			30-65			
Stainless	150-270					40-90			
Steel castings	150-250	130-210	55-115			25-60			

Material	M	HB	T40L			K15K	
			Cutting speed m/min.				
Austenitic, stainless steel			40-90				
Titanium						20-80	

Material	K	HB	K15K			P25K	
			Cutting speed m/min.				
Malleable cast iron	110-230		60-90			55-100	
Grey cast iron	180-260		80-120			60-120	
Nodular cast iron-S. graphite	160-250		60-80			40-80	
Aluminium alloys	30-100		200-600				
Bronze and brass alloys	60-150		70-150				

Machining example

Working piece

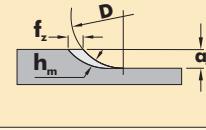


Example I: $f_z \sim h_m$

Example III: $f_z = h_m \sqrt{\frac{D}{a_e}}$

Example II: f_z must be calculated between examples I and II

f_z = Feed per tooth
 D = Milling cutter diameter
 a_e = Radial cutting depth
 h_m = Average chip thickness



Feed nominal values

The chip average thickness (h_m) must be 0,10mm. This corresponds to a feed per tooth of 0,3mm in most of the operations made by a side and face milling cutter. If the radial cutting depth (a_e) is too small compared with the milling cutter diameter, use the following formula:

L'épaisseur moyenne du copeau (h_m) doit être 0,10 mm. Cela correspond à une avance par dent de 0,3 mm à la majorité des opérations faites avec une fraise pour rainurer. Si la profondeur de coupe radiale (a_e) est trop petite comparée avec le diamètre de la fraise, utiliser la formule suivante:

Die durchschnittliche Dicke der Späne (h_m) muß 0,10 mm sein. Das entspricht einem Vorschub pro Zahn von 0,3 mm, gültig für die meisten Anwendungsfälle für einen Nutenfräser. Falls die Radialschnitttiefe (a_e) zu klein im Vergleich mit dem Fräserdurchmesser ist, sollte man folgende Formel verwenden:

$$f_z = 0,10 \sqrt{\frac{D}{a_e}}$$

NOTE: In order to calculate the table feeds, use the halfth of the inserts in a three cut milling cutter and a face milling cutter in order to get the effective number of teeth.

NOTE : Pour calculer les avances par table, utiliser la moitié des plaquettes dans une fraise à trois tailles et dans une fraise à surface, pour pouvoir obtenir le nombre effectif de dents.

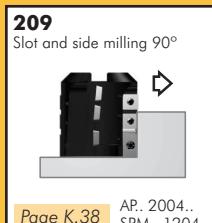
BEMERKUNG : Um den Vorschub zu berechnen, beachten Sie, daß Sie bei einem dreiseitig schneidenden Werkzeug die halbe Zähnezahl und bei einem einseitig schneidenden Werkzeug die volle Zähnezahl verwenden müssen.

Table feed = rpm x number of effective teeth x fz

Avance par table = rpm x nombre effectif de dents x fz

Frästisch-Vorschub = rpm x effektive Zähnezahl x fz

Porcupine milling cutters - Fraises hérisson - Igelfräser



209
Slot and side milling 90°



Page K.38 AP. 2004..
SPM.. 1204..



249
Slot and side milling 90°



Page K.38 SC.. 09T3..
SC.. 1204..



207
Slot and side milling 90°



Page K.38 SC.. 09T3..
SC.. 1204..



217
Slot and side milling 90°



Page K.39 SC.. 09T3..
SC.. 1204..



227
Slot and side milling 90°



Page K.39 SC.. 09T3..
SC.. 1204..



204
Slot and side milling 90°



CC.. 0602..
CC.. 0803..
CC.. 09T3..



373-374
Slot and side milling 90°



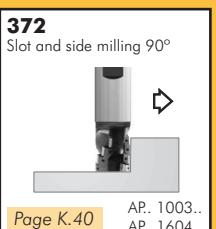
Page K.40 AP. 1604..



332-333
Slot and side milling 90°



Page K.40 AP. 1604..



372
Slot and side milling 90°



Page K.40 AP. 1003..
AP. 1604..

Inserts

Turning

Automatic lathes

Ceramic tools

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Solid carbide

Boring heads

Arbors & adaptors

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

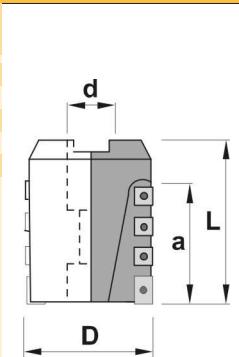
Boring heads

Arbors & adaptors

209



REF.	D	d	L	a	Z	AP..	SPM..			
209.050	50	22	70	48	1+2	2004..(1)	1204..(11)	159	522	910
209.063	63	27	70	58	2+2	2004..(2)	1204..(10)	159	522	912
209.080	80	32	80	68	3+2	2004..(2)	1204..(16)	159	522	916
209.100	100	40	90	78	3+3	2004..(3)	1204..(21)	159	522	920
209.125	125	40	100	88	4+4	2004..(4)	1204..(32)	159	522	-

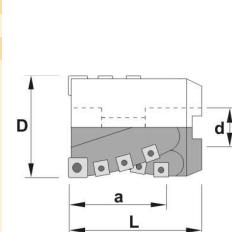


For more information see page: A.37,38,51

249



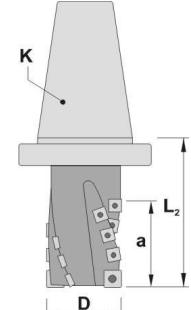
REF.	D	L	d	a	Z	SC..					
249.063	63	80	27	65	2+2	2+18	150	522	140	535	912
249.080	80	90	32	75	2+3	2+22	150	522	140	535	916
249.100	100	100	40	85	3+3	3+36	150	522	140	535	920
249.125	125	110	40	95	4+4	4+52	150	522	140	535	-



207

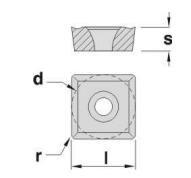


REF.	D	K	L ₂	a	Z	SC..				
207.040	40	40	105	60	1+2	1+13	140	535	150	522
207.050	50	40	105	65	1+2	1+14	140	535	150	522
207.043	40	50	123	70	1+2	1+14	140	535	150	522
207.053	50	50	128	75	1+2	1+16	140	535	150	522
207.063	63	50	133	80	2+2	2+22	140	535	150	522
207.081	80	50	138	85	2+3	2+28	140	535	150	522
207.100	100	50	148	95	3+3	3+39	140	535	150	522



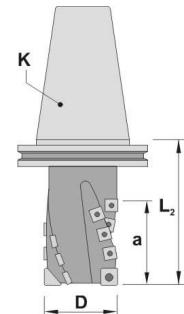
REF.	I	s	d
SC.. 09T3..	9,52	3,97	9,52
SC.. 1204..	12,70	4,76	12,70

For more information see page: A.47,48

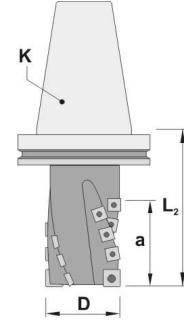


217

REF.	D	K	L ₂	a	Z	SC..	•	•	•	•
217.040	40	40	105	60	1+2	1+13	140	535	150	522
217.050	50	40	105	65	1+2	1+14	140	535	150	522
217.043	40	50	123	70	1+2	1+14	140	535	150	522
217.053	50	50	128	75	1+2	1+16	140	535	150	522
217.063	63	50	133	80	2+2	2+22	140	535	150	522
217.081	80	50	138	85	2+3	2+28	140	535	150	522
217.100	100	50	148	95	3+3	3+39	140	535	150	522

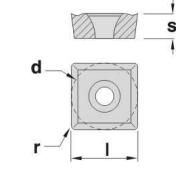
**Inserts****Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors****227**

REF.	D	K	L ₂	a	Z	SC..	•	•	•	•
227.040	40	40	105	60	1+2	1+13	140	535	150	522
227.050	50	40	105	65	1+2	1+14	140	535	150	522
227.043	40	50	123	70	1+2	1+14	140	535	150	522
227.053	50	50	128	75	1+2	1+16	140	535	150	522
227.063	63	50	133	80	2+2	2+22	140	535	150	522
227.081	80	50	138	85	2+3	2+28	140	535	150	522
227.100	100	50	148	95	3+3	3+39	140	535	150	522

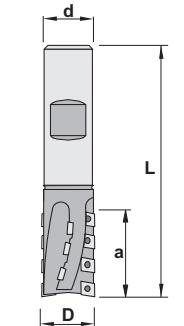


REF.	I	s	d
SC.. 09T3..	9,52	3,97	9,52
SC.. 1204..	12,70	4,76	12,70

For more information see page: A.47,48

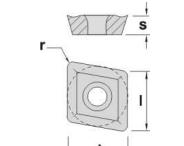
**204**

REF.	D	d	L	a	Z	CC..	•	•
204.025	25	25	125	30	2+2	0602..(12)	125	517
204.026	25	25	125	43	2+2	0602..(16)	125	517
204.032	32	32	130	30	2+2	0803..(12)	130	518
204.033	32	32	130	43	2+2	0803..(16)	130	518
204.040	40	32	130	30	2+2	09T3..(10)	140	535
204.041	40	32	130	43	2+2	09T3..(12)	140	535



REF.	I	s	d
CC.. 0602..	6,45	2,38	6,35
CC.. 0803..	8,05	3,18	7,94
CC.. 09T3..	9,65	3,97	9,52

For more information see page: A.38



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

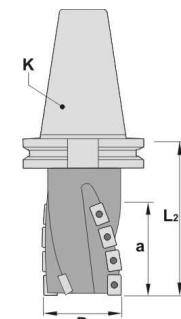
Boring heads

Arbors & adaptors

373-374



REF.	D	K	L ₂	a	Z	AP..	
373.050	50	40	105	65	3	1604..	140 535
374.050	50	50	105	65	3	1604..	140 535
374.063	63	50	130	65	3	1604..	140 535
374.080	80	50	140	80	3	1604..	140 535

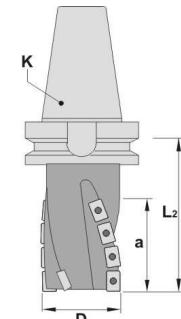


For more information see page: A.36,37

332-333



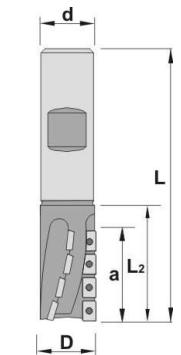
REF.	I	s	d
AP. 1604..	16,00	4,76	9,52



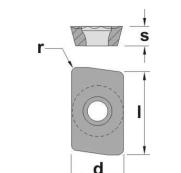
372



REF.	D	L	L ₂	d	a	Z	AP..
372.025	25	110	50	25	37	2	1003.. 155 507
372.032	32	125	55	32	45	2	1604.. 138 515
372.040	40	125	65	32	50	3	1604.. 138 515



REF.	I	s	d
AP. 1003..	9,52	3,18	6,35
AP. 1604..	16,00	4,76	9,52



For more information see page: A.36,37

Cutting data for porcupine milling cutters

Material	P	HB	Condition	Tool diameter D mm.	Basic qualities				Feed/tooth complete slot f_2
					TIC25	TIC21	P25K	K15K	
Unalloyed steel		110 170 250	C<0,25% C<0,8% C<1,4%	20-32 40-50	250-300 150-200 100-150		150-200 100-140 70-110		0,12-0,22 0,15-0,39
Low alloyed steel		125-225 220-450	Annealed Hardened	20-32 40-50	150-200 90-140	100-150 60-110	90-140 60-110		0,10-0,21 0,15-0,34
High alloyed steel		150-250 250-500	Annealed Hardened	20-32 40-50	130-170 90-120	80-120	80-120 50-80		0,10-0,21 0,15-0,34
Stainless steel		150-270	Martensitic/Ferritic	20-32 40-50	140-190	120-160	100-130		0,12-0,22 0,15-0,34
Steel castings		150 150-220 160-200	Unalloyed Low alloyed High alloyed	20-32 40-50	130-170 110-150 80-120		80-110 50-90 50-80		0,12-0,22 0,15-0,34
Stainless steel castings		200	Martensitic/Ferritic	20-32		50-80			0,10-0,21 0,15-0,34

Material	HB	Condition	Tool diameter D mm.	Basic qualities				Feed/tooth complete slot f_2
				TIC25	TIC21	P25K	K15K	
Stainless steel	150-220	Austenitic	20-32 40-50		80-160	70-130		0,12-0,23 0,15-0,37
Stainless steel castings	200	Austenitic	20-32 40-50		40-70	40-60		0,10-0,21 0,15-0,34
Heat resistant alloys	140-300	Annealed or treated solution	20-32				15-25	0,05-0,07
Nickel or cobalt base	300-475	Aged	40-50				12-20	0,07-0,10
Titanium alloys	300-340 320-380	Annealed or treated solution	20-32 40-50				40-80 30-60	0,07-0,10 0,10-0,15

Material	K	HB	Condition	Tool diameter D mm.	Basic qualities				Feed/tooth complete slot f_2
					TIC25	TIC21	P25K	K15K	
Malleable cast iron		110-145 200-230	Short chipping Long chipping	20-32 40-50				60-80 50-70	0,12-0,23 0,15-0,37
Grey cast iron		180 260	Low tensile strength High tensile strength, alloyed	20-32 40-50				70-100 50-80	0,12-0,23 0,15-0,37
Nodular cast iron Spheroidal graphite		160 250	Ferritic Pearlitic	20-32 40-50				40-60 30-50	0,10-0,21 0,15-0,34
Aluminium alloys		60-150 40-180	Forged Cast	20-32 40-50				300-500 250-450	0,23-0,39 0,31-0,60
Bronze-brass alloys		60-150		20-32 40-50				80-120	0,15-0,31 0,23-0,39

	D/a_e	50	40	20	10	5	2,5	2	1,5	1
	f₁	4,5	4	3	2	1,5	1	1	1	1

When you trace a contour (side peripheral milling), you must multiply the f_2 value of a complete slot (see table) by the correction factor f_1 corresponding to the relationship D/a_e (millig cutter diameter/radial cutting depth) in order to get a suitable feed.

Quand on trace un contour (fraisage latéral périphérique), on doit multiplier la valeur f_2 (voir table) par le facteur de correction f_1 correspondant à la relation D/a_e (diamètre de la fraise/profondeur de coupe radiale) pour pouvoir obtenir une avance appropriée.

Wenn man eine Kontur fräst (seitlich-peripherisches Fräsen), muß man den f_2 Wert von einer kompletten Nut (siehe Tabelle) durch den Korrekturfaktor f_1 , welcher die Beziehung D/a_e entspricht (Durchmesser des Fräisers/Radiale Schnitttiefe) multiplizieren, damit man einen geeigneten Vorschub erhält.

Inserts

Turning

Automatic lathes

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

Specific applications - Applications spécifiques - Spezifische Anwendungen

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

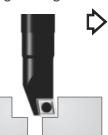
Solid carbide

Boring heads

Arbors & adaptors

224-234

Spot facing milling cutters

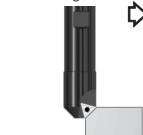


Page K.43

CC.. 0602..
CC.. 09T3..

624

Chamfering cutters

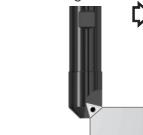


Page K.44

TC.. 1102..

724

Chamfering cutters



Page K.44

TC.. 1102..

200

Face and square 90°



Page K.46

AP.. 1003..

262

Face and square 90°



Page K.46

AP.. 1003..

116

Convexe milling cutters



Page K.48

ADM.. 1503..

231

Concave milling cutters

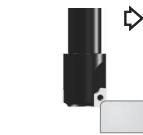


Page K.49

ADM.. 1503..

235

Concave milling cutters



Page K.49

ADM.. 1503..

162-163-164

Chamfering cutters



Page K.51

TC.. 1102..
TC.. 16T3..

125-128

Chamfering cutters



Page K.52

ADM.. 1503..

135-136

Chamfering cutters



Page K.52

ADM.. 1503..

174-175

Chamfering cutters



Page K.53

SC.. 1204..

304-314

Multi-function

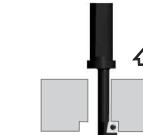


Page K.53

CCKT 0602..
CCKT 1204..

961

Back draft spot facing

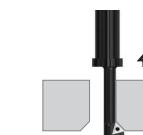


Page K.55

CC.. 0602..
CC.. 09T3..

962

Back draft countersink



Page K.55

CC.. 0602..
CC.. 1102..

Kits - Kits - Kits

KIT MAXICUT

Spot facing milling cutters



Page K.43

CC.. 0602..
CC.. 09T3..

KIT MINICUT

Chamfering cutters



Page K.45

TC.. 1102..

KIT 200

Face and square 90°



Page K.47

AP.. 1003..

KIT 231

Concave milling cutters



Page K.50

ADM.. 1503..

KIT MULTICUT

Chamfering cutters



Page K.51

TC.. 1102..
TC.. 16T3..

KIT CCKT

Multi-function

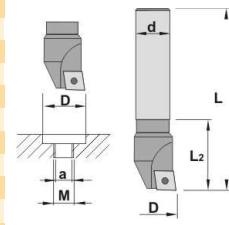


Page K.54

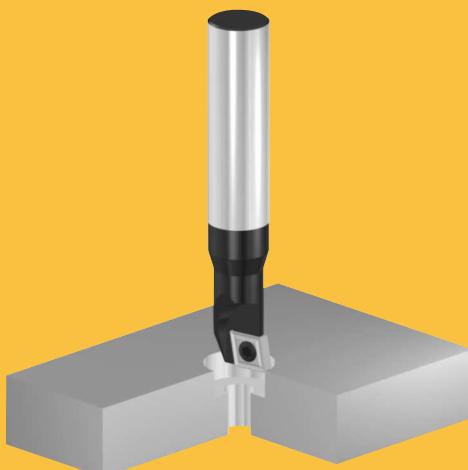
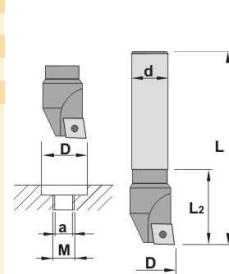
CCKT 0602..
CCKT 1204..

224-234

REF.	D	L	d	a	L2	Z	CC..	Spur	Flute
224.010	10	85	12	4	15	1	0602..	155	507
224.011	11	85	12	4	15	1	0602..	155	507
224.012	12	85	12	4	15	1	0602..	155	507
224.013	13	85	12	5	15	1	0602..	155	507
224.014	14	85	12	5	19	1	0602..	155	507
224.015	15	85	12	5	19	1	0602..	155	507
224.016	16	85	12	5	19	1	0602..	155	507
234.017	17	95	16	5	30	1	09T3..	138	515
234.018	18	95	16	5	30	1	09T3..	138	515
234.019	19	95	16	5	32	1	09T3..	138	515
234.020	20	95	16	5	32	1	09T3..	138	515
234.022	22	95	16	6	32	1	09T3..	138	515
234.025	25	95	16	8	32	1	09T3..	138	515
234.026	26	95	16	8	32	1	09T3..	138	515
234.028	28	95	16	10	32	1	09T3..	138	515
234.030	30	95	16	10	32	1	09T3..	138	515
234.032	32	95	16	12	32	1	09T3..	138	515
234.033	33	95	16	12	32	1	09T3..	138	515

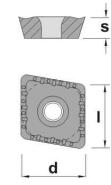
**Inserts****Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors****KIT MAXICUT**

REF.	D	d	a	L	L2	M	Z	CC..	Spur	Flute
224.011	11	12	4	85	15	M6	1	0602..	155	507
224.014	14	12	5	85	19	M8	1	0602..	155	507
234.017	17	16	5	95	30	M10	1	09T3..	138	515
234.019	19	16	5	95	32	M12	1	09T3..	138	515
234.022	22	16	6	95	32	M14	1	09T3..	138	515
234.025	25	16	8	95	32	M16	1	09T3..	138	515



REF.	I	s	d
CC.. 0602..	6,45	2,38	6,35
CC.. 09T3..	9,65	3,97	9,52

For more information see page: A.38



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

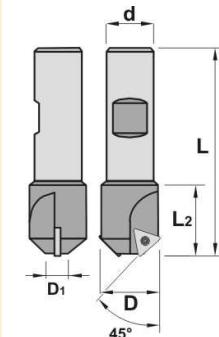
Arbors & adaptors

624



REF. D D1 L L2 d Z TC..

624.016	16	1,2	70	24	12	1	1102..	155	507
624.021	21	8,5	90	30	20	2	1102..	155	507

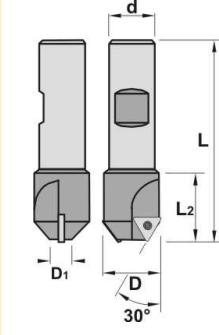


724



REF. D D1 L L2 d Z TC..

724.016	16	5,4	70	24	12	1	1102..	155	507
724.026	26	15,8	90	30	20	2	1102..	155	507

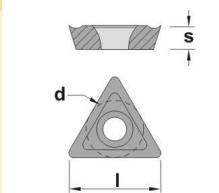


TC.. 1102..



REF. I s d

TC.. 1102..	11,00	2,38	6,35
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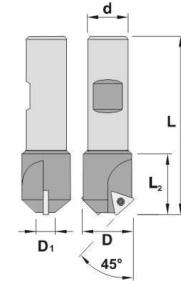


For more information see page: A.51,52

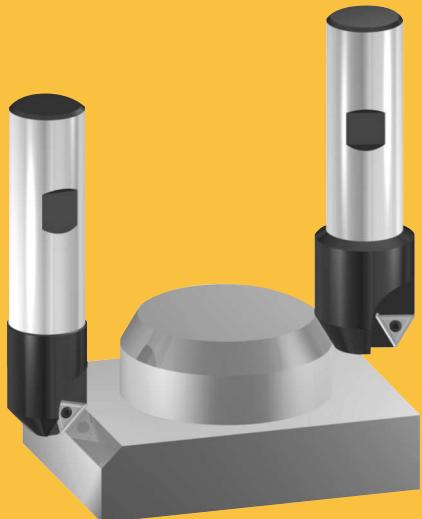
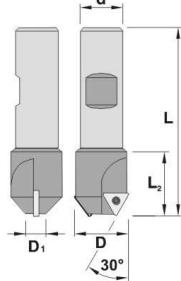
KIT MINICUT

REF.	D ₁	D	L	L ₂	d	Z	TC..	Image
624.016	1,2	16	70	24	12	1	1102..	155 507
624.021	8,5	21	90	30	20	2	1102..	155 507
724.016	5,4	16	70	24	12	1	1102..	155 507
724.026	15,8	26	90	30	20	2	1102..	155 507

624

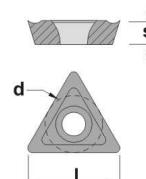


724



REF.	I	s	d
TC.. 1102..	11,00	2,38	6,35

For more information see page: A.51,52

**Solid carbide****Boring heads****Arbors & adaptors**

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

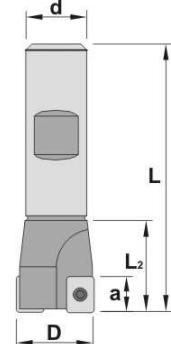
Boring heads

Arbors & adaptors

200



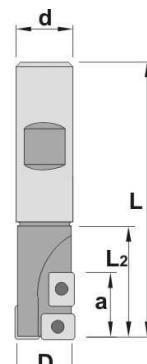
REF.	D	L	d	a	L ₂	Z	AP.	Tool holder	Wrench
200.012	12	85	16	10	25	1	1003..	155	507
200.016	16	85	16	10	25	2	1003..	155	507
200.020	20	90	20	10	30	3	1003..	155	507



262

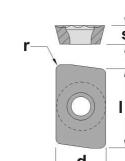


REF.	I	s	d
AP. 1003..	9,52	3,18	6,35



For more information see page: A.36,37

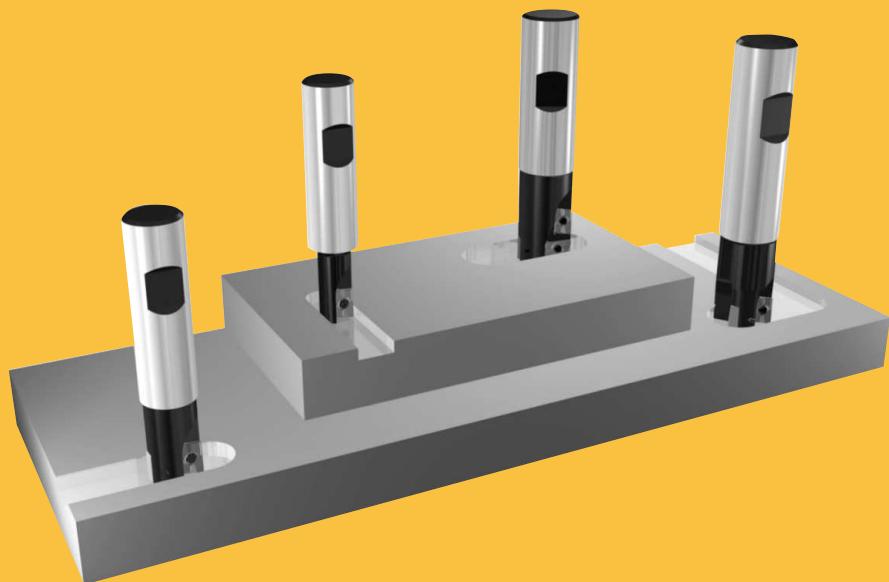
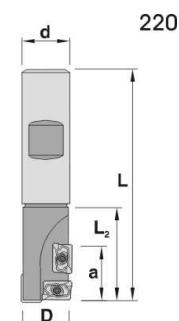
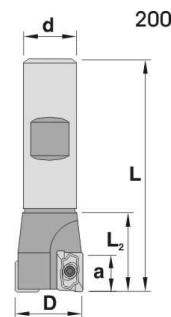
REF.	I	s	d
AP. 1003..	9,52	3,18	6,35



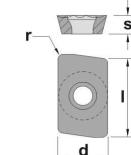
For more information see page: A.36,37

KIT 200

REF.	D	d	a	L	L2	Z	AP..		
200.012	12	16	10	85	25	1	1003..	155	507
200.016	16	16	10	85	25	2	1003..	155	507
200.020	20	20	10	90	30	3	1003..	155	507
262.020	20	20	19	90	35	1+1	1003..	155	507



REF.	I	s	d
AP. 1003..	9,52	3,18	6,35



For more information see page: A.36,37

Inserts**Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors**

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

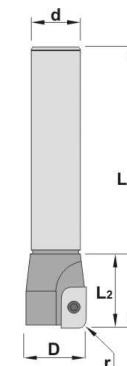
Boring heads

Arbors & adaptors

116



REF.	D	L	d	L2	rmin	rmax	Z	ADMW		
116.01601	16	120	20	35	1,0	3,0	1	1503R1.0/2.5	138	515
116.01603	16	120	20	35	3,5	6,0	1	1503R3.0/6.0	138	515

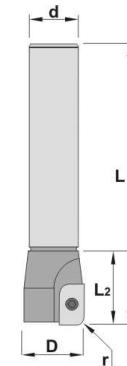


KIT 116



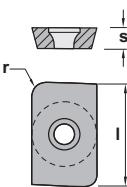
REF.	D	L	d	L2	rmin	rmax	Z	ADMW		
116.01601	16	120	20	35	1,0	3,0	1	1503R1.0/2.5	138	515
116.01603	16	120	20	35	3,5	6,0	1	1503R3.0/6.0	138	515

For more information see page: A.36



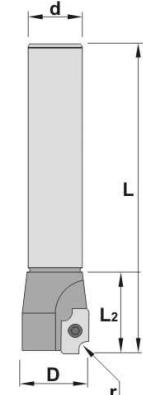
REF.	r	s	d
ADMW 1503R1.0-C	1,00	3,18	9,52
ADMW 1503R1.5-C	1,50	3,18	9,52
ADMW 1503R2.0-C	2,00	3,18	9,52
ADMW 1503R2.5-C	2,50	3,18	9,52
ADMW 1503R3.0-C	3,00	3,18	9,52
ADMW 1503R3.5-C	3,50	3,18	9,52
ADMW 1503R4.0-C	4,00	3,18	9,52
ADMW 1503R4.5-C	4,50	3,18	9,52
ADMW 1503R5.0-C	5,00	3,18	9,52
ADMW 1503R6.0-C	6,00	3,18	9,52

For more information see page: A.36

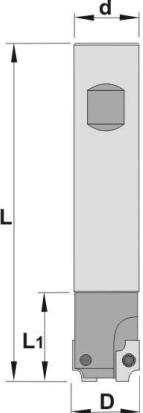


231

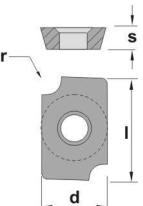
REF.	D	L	d	L2	r _{min}	r _{max}	Z	ADMW		
231.1701	17	120	16	30	1,0	2,5	1	1503R1.0/2.5	138	515
231.1703	17	120	16	30	3,0	5,0	1	1503R3.0/5.0	138	515

**Inserts****Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors****235**

REF.	D	L	d	L1	r _{min}	r _{max}	Z	ADMW		
235.02201	22	120	20	35	1,0	2,5	2	1503R1.0/2.5	138	515
235.02203	22	120	20	40	3,0	5,0	2	1503R3.0/5.0	138	515

**Arbors & adaptors**

REF.	r	s	d
ADMW 1503R1.0	1.0	3,18	9,52
ADMW 1503R1.5	1.5	3,18	9,52
ADMW 1503R2.0	2.0	3,18	9,52
ADMW 1503R2.5	2.5	3,18	9,52
ADMW 1503R3.0	3.0	3,18	9,52
ADMW 1503R3.5	3.5	3,18	9,52
ADMW 1503R4.0	4.0	3,18	9,52
ADMW 1503R4.5	4.5	3,18	9,52
ADMW 1503R5.0	5.0	3,18	9,52



For more information see page: A.36

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

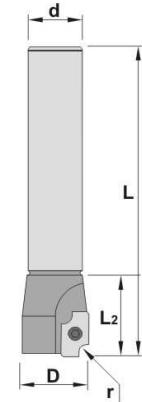
Solid carbide

Boring heads

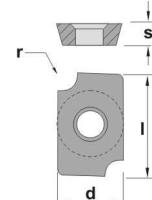
Arbors & adaptors

KIT 231

REF.	D	d	L	L ₂	r _{min}	r _{max}	Z	ADMW		
231.1701	17	16	120	30	1,0	2,5	1	1503R1.0/2.5	138	515
231.1703	17	16	120	30	3,0	5,0	1	1503R3.0/5.0	138	515



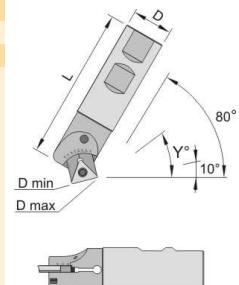
REF.	r	s	d
ADMW 1503R1.0	1.0	3,18	9,52
ADMW 1503R1.5	1.5	3,18	9,52
ADMW 1503R2.0	2.0	3,18	9,52
ADMW 1503R2.5	2.5	3,18	9,52
ADMW 1503R3.0	3.0	3,18	9,52
ADMW 1503R3.5	3.5	3,18	9,52
ADMW 1503R4.0	4.0	3,18	9,52
ADMW 1503R4.5	4.5	3,18	9,52
ADMW 1503R5.0	5.0	3,18	9,52



For more information see page: A.36

162-163-164

REF.	D	L	Y	Dmin	Dmax	Z	TC..	Image 1	Image 2	Image 3	Image 4
162.020	20	100	10° - 80°	5	20	1	1102..	621	125	445	507
163.025	25	100	10° - 80°	5	23	1	16T3..	626	140	476	515
164.025	25	175	10° - 80°	5	23	1	16T3..	626	140	476	515



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

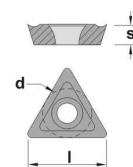
Boring heads

Arbors & adaptors

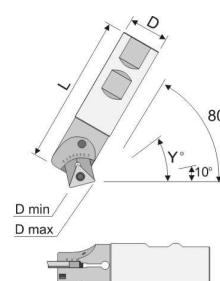


REF.	I	s	d
TC.. 1102..	11,00	2,38	6,35
TC.. 16T3..	16,50	3,97	9,52

For more information see page: A.51,52

**KIT MULTICUT**

REF.	D	L	Y	DMIN	DMAX	TC..	Image 1	Image 2	Image 3	Image 4
162.020	20	100	10°	5	26	1102..	621	125	507	
	20	100	20°	8	27	1102..	621	125	507	
	20	100	30°	10	27	1102..	621	125	507	
	20	100	40°	13	27	1102..	621	125	507	
	20	100	45°	14	27	1102..	621	125	507	
	20	100	50°	15	27	1102..	621	125	507	
	20	100	60°	17	26	1102..	621	125	507	
	20	100	70°	19	25	1102..	621	125	507	
	20	100	80°	20	24	1102..	621	125	507	
163.025	25	100	10°	5	32	16T3..	626	140	515	
	25	100	20°	6	33	16T3..	626	140	515	
	25	100	30°	7	34	16T3..	626	140	515	
	25	100	40°	10	33	16T3..	626	140	515	
	25	100	45°	11	33	16T3..	626	140	515	
	25	100	50°	13	32	16T3..	626	140	515	
	25	100	60°	16	31	16T3..	626	140	515	
	25	100	70°	19	29	16T3..	626	140	515	
	25	100	80°	23	27	16T3..	626	140	515	



Milling cutters

Solid carbide

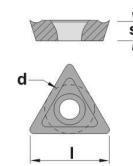
Boring heads

Arbors & adaptors



REF.	I	s	d
TC.. 1102..	11,00	2,38	6,35
TC.. 16T3..	16,50	3,97	9,52

For more information see page: A.51,52



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

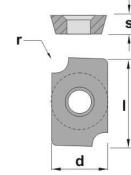
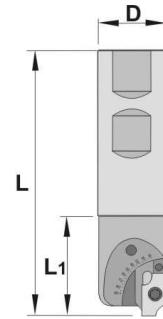
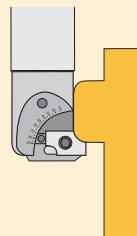
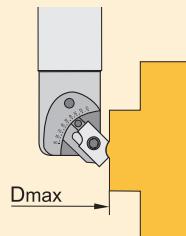
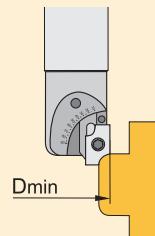
Solid carbide

Boring heads

Arbors & adaptors

125-128

REF.	D	L	L1	Dmin	Dmax	Z	ADMW				
125.025	25	104	37	26,5	33,0	1	1503	695	140	476	515
128.025	25	178	37	26,5	33,0	1	1503	695	140	476	515

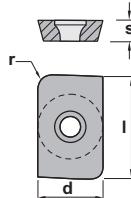
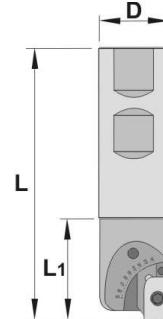
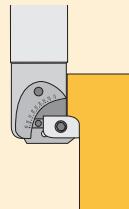
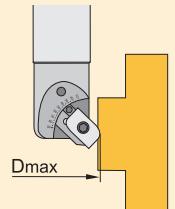
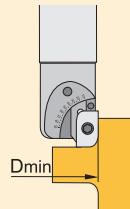


REF.	r	s	d
ADMW 1503R1.0	1,0	3,18	9,52
ADMW 1503R1.5	1,5	3,18	9,52
ADMW 1503R2.0	2,0	3,18	9,52
ADMW 1503R2.5	2,5	3,18	9,52
ADMW 1503R3.0	3,0	3,18	9,52
ADMW 1503R3.5	3,5	3,18	9,52
ADMW 1503R4.0	4,0	3,18	9,52
ADMW 1503R4.5	4,5	3,18	9,52
ADMW 1503R5.0	5,0	3,18	9,52

For more information see page: A.36

135-136

REF.	D	L	L1	Dmin	Dmax	Z	ADMW				
135.025	25	104	37	26,5	34,0	1	1503	696	140	476	515
136.025	25	178	37	26,5	34,0	1	1503	696	140	476	515

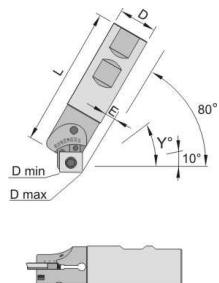
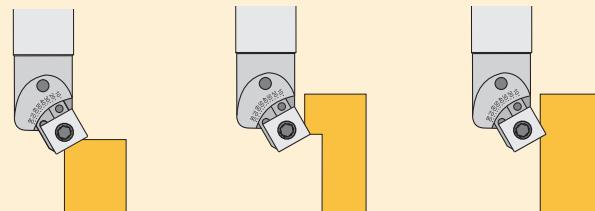


REF.	r	s	d
ADMW 1503R1.0-C	1,0	3,18	9,52
ADMW 1503R1.5-C	1,5	3,18	9,52
ADMW 1503R2.0-C	2,0	3,18	9,52
ADMW 1503R2.5-C	2,5	3,18	9,52
ADMW 1503R3.0-C	3,0	3,18	9,52
ADMW 1503R3.5-C	3,5	3,18	9,52
ADMW 1503R4.0-C	4,0	3,18	9,52
ADMW 1503R4.5-C	4,5	3,18	9,52
ADMW 1503R5.0-C	5,0	3,18	9,52
ADMW 1503R6.0-C	6,0	3,18	9,52

For more information see page: A.36

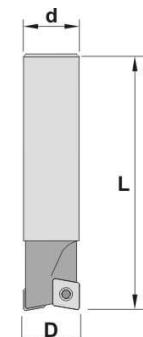
174-175

REF.	D	L	Y	Dmin	Dmax	Z	SC..				
174.025	29	101	10°	7,5	30,0	1	1204..	697	734	476	520
175.025	29	176	20°	10,0	32,0	1	1204..	697	734	476	520
				30°	13,0	32,5					
				40°	16,5	33,5					
				45°	17,5	33,5					
				50°	19,0	33,5					
				60°	22,0	33,5					
				70°	24,5	32,5					
				80°	27,0	31,0					

**Inserts****Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors****304-314**

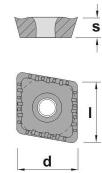
REF.	D	d	L	Z	CCKT					
304.012	12	16	100	1	060204	155	-	507	-	
304.016	16	16	100	2	060204 / 080308	155	148	507	508	
304.020	20	20	125	2	080308 / 09T308	148	138	508	515	
304.025	25	25	125	2	09T308 / 120408	138	144	515	-	
314.012	12	16	150	1	060204	155	-	507	-	
314.016	16	16	175	2	060204 / 080308	155	148	507	508	
314.020	20	20	175	2	080308 / 09T308	148	138	508	515	
314.025	25	25	200	2	09T308 / 120408	138	144	515	-	

For more information see page: A.47,48

**Arbors & adaptors**

REF.	I	s	d
CCKT 0602..	6,45	2,38	6,35
CCKT 0803..	8,05	3,18	7,94
CCKT 09T3..	9,65	3,97	9,52
CCKT 1204..	12,90	4,76	12,70

For more information see page: A.38



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

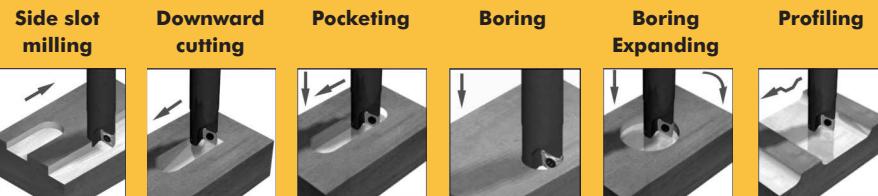
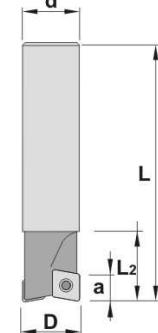
Boring heads

Arbors & adaptors

KIT CCKT

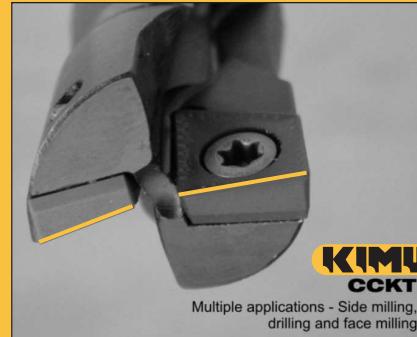


REF.	D	d	L	L ₂	a	Z	CCKT				
304.012	12	16	100	25	5,0	1	060204	155	-	507	-
304.016	16	16	100	25	5,0	2	060204/080308	155	148	507	508
304.020	20	20	125	32	7,0	2	080308/09T308	148	138	508	515
304.025	25	25	125	40	7,6	2	09T308/120408	138	144	515	520



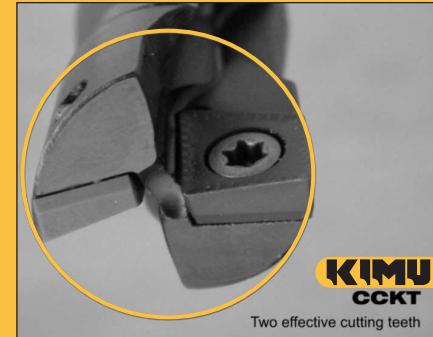
KIMU
CCKT

Extra clearance for
downward applications



KIMU
CCKT

Multiple applications - Side milling,
drilling and face milling

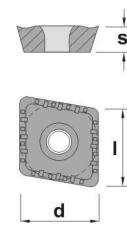


KIMU
CCKT

Two effective cutting teeth



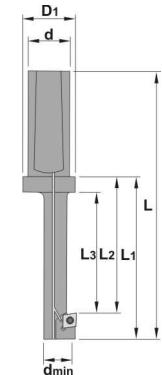
REF.	I	s	d
CCKT 0602..	6,45	2,38	6,35
CCKT 0803..	8,05	3,18	7,94
CCKT 09T3..	9,65	4,00	9,52
CCKT 1204..	12,90	4,76	12,70



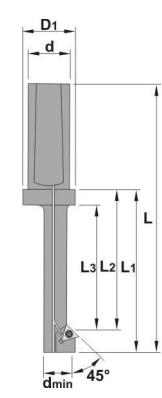
For more information see page: A.38

961

REF.	D	d _{min}	d	L	L ₁	L ₂	L ₃	D ₁	Z	CC..	
961.018	18	10,5	20	112	62	47	40	25	1	0602..	155 507
961.020	20	13,0	20	113	63	52	45	25	1	0602..	155 507
961.024	24	15,0	20	118	68	57	50	25	1	0602..	155 507
961.026	26	17,0	20	128	78	67	60	25	1	0602..	125 507
961.030	30	19,0	20	138	88	77	70	25	1	0602..	125 507
961.033	33	21,0	20	152	102	82	75	25	1	09T3..	138 515

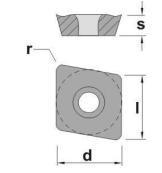
**Inserts****Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors****962**

REF.	D	d _{min}	d	L	L ₁	L ₂	L ₃	D ₁	Z	CC../TC..	
962.015	15	10	20	105	55	42	35	25	1	0602..	155 507
962.020	20	14	20	110	60	47	40	25	1	0602..	155 507
962.023	23	17	20	120	70	57	50	25	1	1102..	125 507
962.027	27	21	20	140	90	77	70	25	1	1102..	125 507
962.031	31	24	20	150	100	87	80	25	1	1102..	125 507



REF.	I	s	d
CC.. 0602..	6,45	2,38	6,35
TC.. 1102..	11,00	2,38	6,35

For more information see page: A.38,51,52



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

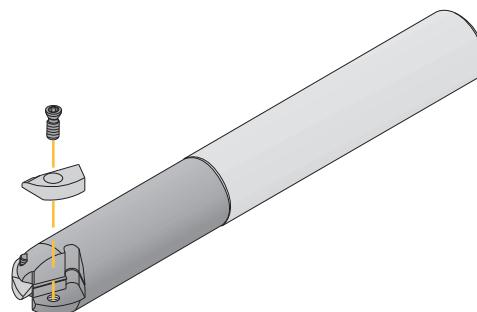
Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

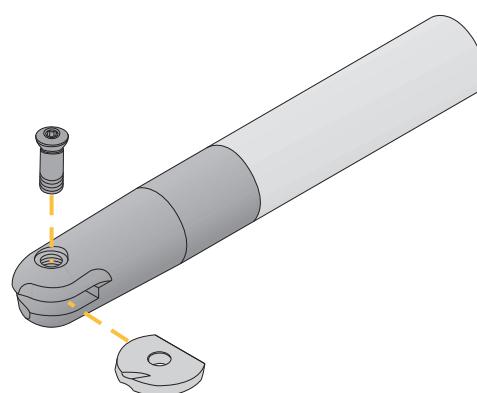


Screw clamping / Fixation par vis / Schraubenklemmung

Since the advent of the Torx screw it has been possible to hold with complete safety positive inserts with center hole. Our range covers all the screw clamping permutations.

Dès l'apparition de la vis TORX il est possible de fixer avec sûreté les plaquettes positives avec trou central. Notre gamme couvre toutes les possibilités de fixation avec vis.

Seit der Einführung der TORX-Schraube ist es möglich, die positiven Wendeschneidplatten mit zentralem Loch mit Sicherheit zu klemmen. Unser Programm bietet alle Klemmmöglichkeiten mit Schraube.

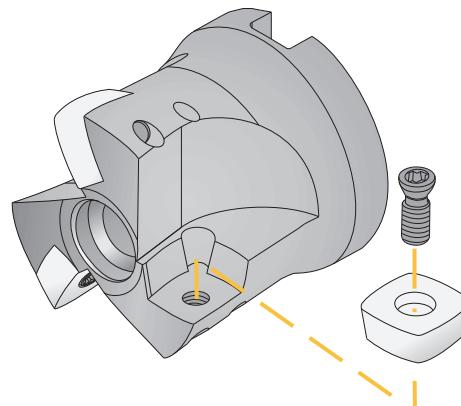


Center screw clamping / Fixation par vis centrale / Zentral-Schraubenklemmung

Grinded high accuracy center screws ensures that the insert is firmly fixed. This clamping system is only used for finishing applications.

Des vis centrales rectifiées de précision garantissent que la plaque soit solidement fixée. Ce système de serrage est uniquement utilisé pour les applications de finition.

Die geschliffene, hochgenaue Zentralschraube garantiert, daß die Wendeschneidplatte fest geklemmt ist. Dieses Klemmsystem wird nur für Schlicht-Operationen verwendet.

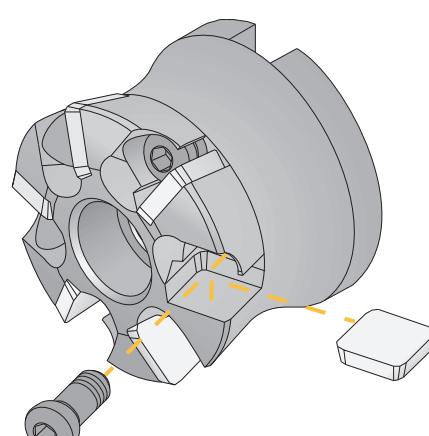


Double clamping / Double fixation / Doppelte Klemmung

Heavy duty work require good fixation, for this purpose we have designed our double clamping system, one of the safest available.

Les travaux lourds exigent une bonne fixation, pour ce but nous avons conçu notre système de double fixation, l'une des plus sûrs disponibles.

Eine Schwerlastarbeit benötigt eine gute Klemmung. Dafür haben wir unsere doppelte Klemmung entworfen, eine der sichersten, die es gibt.



Wedge screw / Viscale support / Keilschraube

This easy and clean clamping system has been designed for the high feed cutters with flat inserts. The wedge screw clamping system offers good chip evacuation and easy use.

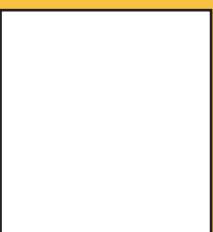
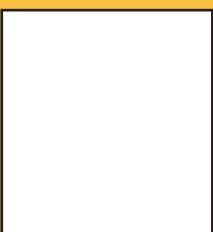
Ce système de serrage facile et propre a été conçu pour les fraises à grande avance avec des plaquettes plates. Le système de serrage avec la viscale support offre une bonne évacuation des copeaux et une utilisation facile.

Dieses einfache und saubere Klemmsystem ist für die Hoher-Vorschub-Fräser mit flachen Wendeschneidplatten entworfen worden. Das Keilschrauben-Klemmsystem bietet eine gute Spanabfuhr und eine einfache Verwendung.

Profile milling - Fraisage de profils - Profilfräsen

Inserts

Roughing ball base - Fraises hémisphériques pour ébauche - Kugelbahnfräser zum Schrappen



Turning

Finishing ball nose - Fraises hémisphériques pour finition - Kugelbahnfräser zum Schlichten

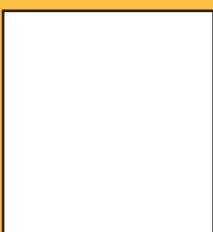


Automatic lathes

Toroidal cutters - Fraises toroidales - Kopierfräser

High feed - Grande avance - Hoher Vorschub

Ceramic tools



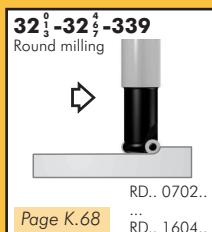
Parting & grooving

Threading

Drills

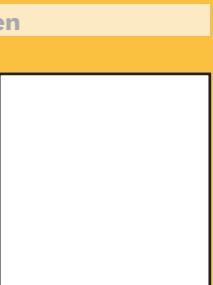
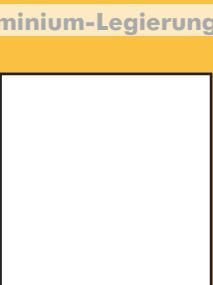
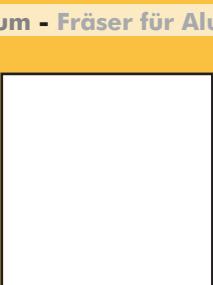
Round inserts - Fraises avec plaquettes rondes - Fräser mit runden Wendeschneidplatten

Cartridges



Brazed tools

Milling cutters



Solid carbide

Boring heads

Arbors & adaptors

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

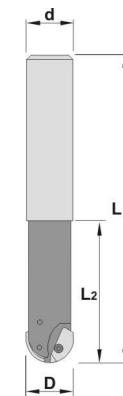
Boring heads

Arbors & adaptors

354-355

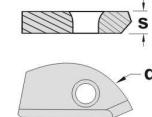


REF.	D	d	L	L ₂	Z	IN..		
354.025	25	25	115	57	2	25	131	535
354.032	32	32	115	57	2	32	159	522
355.025	25	25	150	76	2	25	131	535
355.032	32	32	150	76	2	32	159	522



REF.	I	s	d
IN.. 25	-	4,5	12,5
IN.. 32	-	5,6	16,0

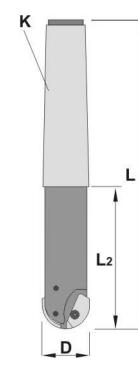
For more information see page: A.44,45



356

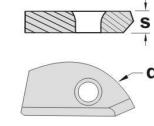


REF.	D	K	L	L ₂	Z	IN..		
356.032	32	4	228	119	2	32	159	522
356.040	40	5	231	95	2	40	150	522
356.050	50	5	231	95	2	50	490	562



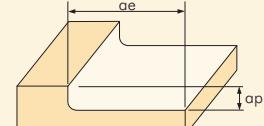
REF.	I	s	d
IN.. 32	-	5,6	16,0
IN.. 40	-	5,6	20,0
IN.. 50	-	7,9	25,0

For more information see page: A.44,45



Recommended cutting conditions

Slotting

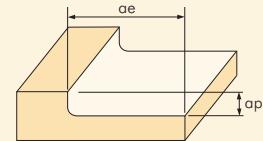


Material	m/min Cutting Speed	mm/tooth Feed rate	$\varnothing 20$		$\varnothing 25$		$\varnothing 30$		$\varnothing 40$	
			min ⁻¹	mm/min						
Carbon Steels (200 HB)	150-250	0,06-0,2	3500	440	2800	550	2330	720	1430	440
			Vc=220m/min				ap=0,3D			
			3180	330	2550	450	2120	420	1270	340
Alloy Steels (200-250 HB)	150-230	0,05-0,2	Vc=200m/min				Vc=160m/min			
			ap=0,3D				ap=0,3D			
			2070	110	1660	210	1380	180	870	170
Alloy Steels (25-35 HRC)	100-160	0,03-0,15	Vc=130m/min				Vc=110m/min			
			ap=0,3D				ap=0,3D			
			1100	50	890	80	740	80	560	100
Hardened Steels Pre-Harden Steels (40-45 HRC)	60-120	0,02-0,13	Vc=70m/min				ap=0,3D			
			ap=0,3D				ap=0,3D			
			3500	440	2800	660	2330	540	1430	540
Cast Iron (150HB)	140-240	0,06-0,2	Vc=220m/min				Vc=180m/min			
			ap=0,3D				ap=0,3D			
			ap=0,3D				ap=0,3D			

Note

- These conditions are for general guidance; in actual machining conditions adjust the parameters according to your actual machine and work-piece conditions.
- For long type please reduce speed and feed by 70%.
- In case of using Long Shank Type, no relation to diameters, basic conditions are:
 $n=700\text{min}^{-1}$ $Vf=210\text{m/min}$ $ap=0,1\text{D}$ $ae=0,3\text{D}$

Recommended cutting conditions



Side Milling

Material	m/min Actual Maximum Cutting Speed	mm/tooth Feed rate	Ø 20		Ø 25		Ø 32		Ø 40	
			min ⁻¹	mm/min	min ⁻¹	mm/min	min ⁻¹	mm/min	min ⁻¹	mm/min
Carbon Steels (200 HB)	150-250	0,15-0,6	3500	4200	2800	3360	2330	2800	1430	1720
			Vc=220m/min ap<=1,0mm ae=0,3D		Vc=220m/min ap=0,5mm ae=0,3D		Vc=200m/min ap=0,5mm ae=0,3D		Vc=200m/min ap=0,5mm ae=0,3D	
Alloy Steels (200-250 HB)	120-200	0,15-0,6	3180	3820	2550	3060	2120	2550	1270	1530
		0,08-0,3	3180	540	2550	660	2120	530	1270	410
Alloy Steels (25-35 HRC)	60-120	0,08-0,6	2070	2500	1660	2000	1380	1650	870	1050
		0,05-0,3	2070	440	1660	540	1380	460	870	330
Alloy Steels Pre-Harden Steels (40-45 HRC)	50-100	0,07-0,6	1110	1330	890	1070	740	900	560	670
		0,05-0,3	1110	150	890	200	740	200	560	100
Cast Iron (150HB)	120-240	0,15-1,2	3500	4200	2800	3360	2230	2800	1430	1720
		0,1-0,3	3500	650	2800	900	2230	900	1430	540

Note

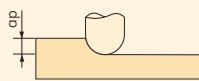
- The cutting data in the table show conditions for VB30=0,3mm (flank wear 30min tool-life). Overhang is the length below the chuck (l b)

- RPM for high-speed machines is calculated using the following formula: Revolution Speed = $\frac{500 \times \text{Actual Maximum Cutting Speed}}{\pi \times \sqrt{2 \times R \times ap-ap^2}}$

- Actual Maximum Cutting Speed:

ap=0,5mm and 1mm

Maximum Cutting Speed at boundary of contact part with work material under the above recommended cutting condition



- Cutting conditions on high-speed machine tools are recommended for contouring path milling.

- 3-5° slant milling is recommended for pocketing using a 70% feed rate, please reduce slant angle below 3° for harder materials. Please use machine guards when cutting steel due to flying chips.

Deep Side Milling

Material	m/min Cutting Speed	mm/tooth Feed rate	Ø 20		Ø 25		Ø 30		Ø 40	
			min ⁻¹	mm/min						
Carbon Steels (200 HB)	120-200	0,08-0,2	2700	420	2160	530	1800	440	1110	420
			Vc=170m/min				Vc=140m/min			
Alloy Steels (200-250 HB)	120-200	0,06-0,2	2550	320	2040	430	1700	350	1270	410
			Vc=160m/min				Vc=130m/min			
Alloy Steels (25-35 HRC)	100-160	0,05-0,15	1750	220	1400	330	1170	270	790	300
			Vc=110m/min				Vc=100m/min			
Hardened Steels Pre-Harden Steels (40-45 HRC)	60-120	0,04-0,13	960	70	760	100	640	100	480	90
			Vc=60m/min				ap=1,2D ae=0,1D			
Cast Iron (150HB)	140-220	0,08-0,2	2700	420	2160	530	1800	440	1110	420
			Vc=170m/min				Vc=140m/min			

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

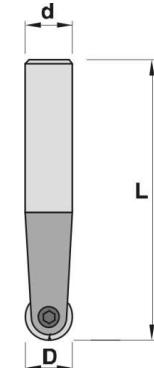
Boring heads

Arbors & adaptors

236-237



REF.	D	d	L	Z	HPR		
236.010	10	12	105	2	10	152	535
236.012	12	16	105	2	12	132	522
236.016	16	20	105	2	16	134	522
236.020	20	25	125	2	20	139	522
236.025	25	32	125	2	25	142	537
236.032	32	32	125	2	32	160	537
237.010	10	12	150	2	10	152	535
237.012	12	16	160	2	12	132	522
237.016	16	20	180	2	16	134	522
237.020	20	25	200	2	20	139	522
237.025	25	32	220	2	25	142	537
237.032	32	32	250	2	32	160	537

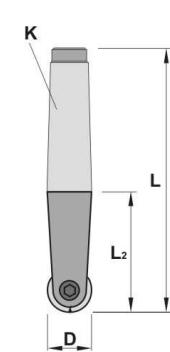


For more information see page: A.44

853-854



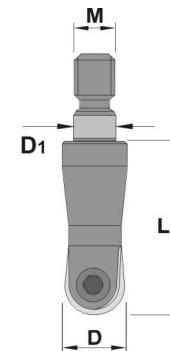
REF.	D	K	L	L ₂	Z	HPR	
853.020	20	3	190	115	2	20	139 522
854.025	25	4	215	135	2	25	142 537
854.032	32	4	268	160	2	32	160 535



856



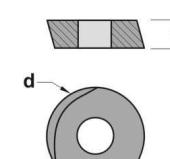
REF.	D	L	M	D ₁	Z	HPR	
856.010	10	23	M6	6,5	2	10	152 515
856.012	12	23	M6	6,5	2	12	132 520
856.016	16	30	M8	8,5	2	16	134 520
856.020	20	35	M10	10,5	2	20	139 520
856.025	25	40	M12	12,5	2	25	142 537



REF.



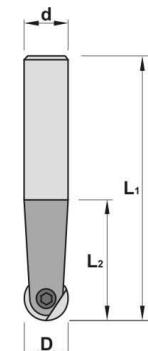
REF.	I	s	d
HPR 10	-	2,40	10,00
HPR 12	-	2,50	12,00
HPR 16	-	3,00	16,00
HPR 20	-	3,00	20,00
HPR 25	-	4,00	25,00



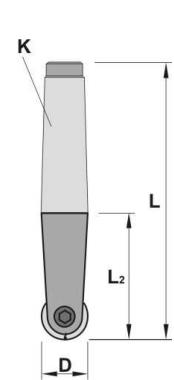
For more information see page: A.44

880-881

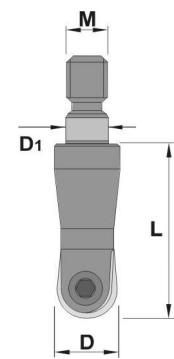
REF.	D	L ₁	d	L ₂	Z	RPR		
880.010	10	105	10	50	2	10	463	518
880.012	12	105	12	50	2	12	464	510
880.016	16	105	16	50	2	16	469	535
880.020	20	125	20	70	2	20	139	522
880.025	25	125	25	70	2	25	142	537
880.032	32	125	32	70	2	32	160	537
881.010	10	150	10	80	2	10	463	518
881.012	12	160	12	90	2	12	464	510
881.016	16	180	16	100	2	16	469	535
881.020	20	200	20	120	2	20	139	522
881.025	25	220	25	140	2	25	142	537
881.032	32	250	32	160	2	32	160	537

**Inserts****Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors****883-884**

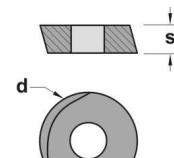
REF.	D	L	K	L ₂	Z	RPR		
883.020	20	190	3	115	2	20	139	522
884.025	25	215	4	135	2	25	142	537
884.032	32	268	4	160	2	32	160	537

**Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****886**

REF.	D	L	M	D ₁	Z	RPR		
886.010	10	23	M6	6,5	2	10	463	508
886.012	12	23	M6	6,5	2	12	464	530
886.016	16	30	M8	8,5	2	16	469	515
886.020	20	30	M10	10,5	2	20	139	520
886.025	25	35	M12	12,5	2	25	142	537

**Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads**

REF.	I	s	d
RPR 10	-	2,60	10,00
RPR 12	-	3,00	12,00
RPR 16	-	4,00	16,00
RPR 20	-	5,00	20,00
RPR 25	-	6,00	25,00



For more information see page: A.47

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

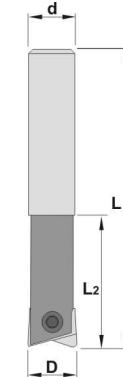
Arbors & adaptors

K62

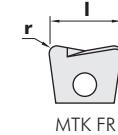
891



REF.	D	L	d	L2	Z	MTK		
891.012	12	110	12	53	2	12	464	518
891.016	16	125	16	63	2	16	469	510
891.020	20	140	20	75	2	20	479	535
891.025	25	180	25	90	2	25	142	537



REF.	I	r
MTK 12	12,00	1,00
MTK 16	16,00	1,30
MTK 20	20,00	1,60
MTK 25	25,00	2,00

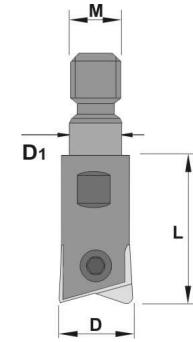


For more information see page: A.45

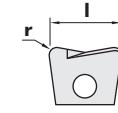
896



REF.	D	L	M	D1	Z	MTK		
896.010	10	23	M6	6,5	2	10	463	508
896.012	12	23	M6	6,5	2	12	464	530
896.016	16	30	M8	8,5	2	16	469	515
896.020	20	30	M10	10,5	2	20	479	520
896.025	25	35	M12	12,5	2	25	142	537



REF.	I	r
MTK 10	10,00	0,60
MTK 12	12,00	1,00
MTK 16	16,00	1,30
MTK 20	20,00	1,60
MTK 25	25,00	2,00



For more information see page: A.45

K62

Recommended cutting conditions

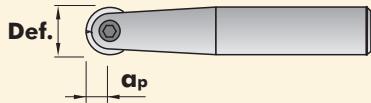
Material	m/min Cutting speed	mm/tooth Feed rate	Ø8		Ø10		Ø12		
			min ⁻¹	mm/min	min ⁻¹	mm/min	min ⁻¹	mm/min	
Carbon Steels Alloy Steels (30 HRC)	100-200	0,2-0,3	6370	2550	5090	2040	4240	1700	
			Vc=160m/min fz=0,2mm/tooth ap=0,025D ae=0,1D						
Carbon Steels Alloy Steels (30-40 HRC)	80-150	0,2-0,3	4770	1910	3820	1530	3180	1270	
			Vc=120m/min fz=0,2mm/tooth ap=0,025D ae=0,1D						
Die Tool Steels Pre-Harden Steels (30-40 HRC)	70-100	0,1-0,15	3180	640	2550	510	2120	420	
			Vc=80m/min fz=0,1mm/tooth ap=0,025D ae=0,1D						
Hardened Steels (55-65 HRC)	200-250	0,2-0,4	9150	3660	7320	2930	6100	2440	
			Vc=230m/min fz=0,2mm/tooth ap=0,01D ae=0,02D						
Cast Iron	100-200	0,3-0,4	6730	3820	5090	3050	4240	2550	
			Vc=160m/min fz=0,3mm/tooth ap=0,025D ae=0,1D						

Material	m/min Cutting speed	mm/tooth Feed rate	Ø16		Ø20		Ø25		Ø30(32)	
			min ⁻¹	mm/min	min ⁻¹	mm/min	min ⁻¹	mm/min	min ⁻¹	mm/min
Carbon Steels Alloy Steels (30 HRC)	100-200	0,2-0,3	2400	1600	2550	1300	2050	1030	1700	850
			Vc=160m/min fz=0,25mm/tooth ap=0,05D ae=0,1D							
Carbon Steels Alloy Steels (30-40 HRC)	80-150	0,2-0,3	1600	1200	1910	955	1530	765	1280	640
			Vc=120m/min fz=0,25mm/tooth ap=0,05D ae=0,1D							
Die Tool Steels Pre-Harden Steels (30-40 HRC)	70-100	0,1-0,15	3200	385	1280	310	1020	245	850	205
			Vc=80m/min fz=0,12mm/tooth ap=0,05D ae=0,1D							
Hardened Steels (55-65 HRC)	200-250	0,2-0,4	4575	2740	3660	2200	2930	1760	2440	1460
			Vc=230m/min fz=0,3mm/tooth ap=0,01D ae=0,02D							
Cast Iron	100-200	0,3-0,4	3200	2240	2550	1790	2050	1440	1700	1190
			Vc=160m/min fz=0,35mm/tooth ap=0,05D ae=0,1D							

Note

- According to the machining situation, refer to the table above to determine the cutting conditions.
- Be sure to practice safety instructions and precautions such as wearing glasses and safety shoes, and placing safety covers when you use this tool. Because this tool can be broken during machining so failure to follow these instructions may cause personal injury.
- Never attempt to modify the carbide shank holder. Use the value for the depth of cut (ap) when the carbide shank holder is used.

$$n = \frac{Vc \cdot 1000}{\pi \cdot Def.} \text{ (Rev/min)}$$

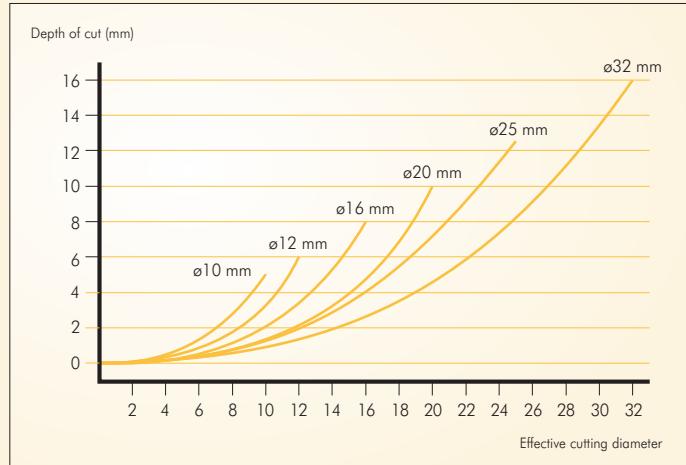


N = Spindle speed (Rev/min.)

Vc = Cutting speed

Def. = Effective cutting diameter

a_p = Max. Depth of cut (mm)



Inserts

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Recommended cutting conditions

Material	m/min Cutting speed	mm/tooth Feed rate	Ø10		Ø12	
			min ⁻¹	mm/min	min ⁻¹	mm/min
Carbon Steels Alloy Steels (30 HRC)	100-200	0,1-0,2	5090	2040	4240	1700
			Vc=160m/min fz=0,2mm/tooth ap=0,025D ae=0,1D			
Carbon Steels Alloy Steels (30-40 HRC)	80-150	0,1-0,2	3820	1530	3180	1270
			Vc=120m/min fz=0,2mm/tooth ap=0,025D ae=0,1D			
Die Tool Steels Pre-Harden Steels (30-40 HRC)	70-100	0,05-0,1	2550	510	2120	420
			Vc=80m/min fz=0,1mm/tooth ap=0,025D ae=0,1D			
Hardened Steels (55-65 HRC)	130-180	0,05-0,1	5090	1020	4240	850
			Vc=160m/min fz=0,1mm/tooth ap=0,01D ae=0,02D			
Cast Iron	100-200	0,2-0,3	5090	3050	4240	2550
			Vc=160m/min fz=0,3mm/tooth ap=0,025D ae=0,1D			

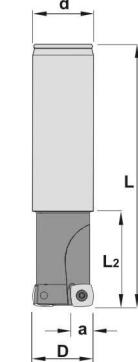
Material	m/min Cutting speed	mm/tooth Feed rate	Ø16		Ø20		Ø25		Ø30(32)	
			min ⁻¹	mm/min						
Carbon Steels Alloy Steels (30 HRC)	100-200	0,1-0,2	3200	1600	2550	1300	2050	1030	1700	850
Vc=160m/min fz=0,25mm/tooth ap=0,05D ae=0,1D										
Carbon Steels Alloy Steels (30-40 HRC)	80-150	0,1-0,2	2400	1200	1910	955	1530	765	1280	640
Vc=120m/min fz=0,25mm/tooth ap=0,05D ae=0,1D										
Die Tool Steels Pre-Harden Steels (30-40 HRC)	70-100	0,05-0,1	1600	385	1280	310	1020	245	850	205
Vc=80m/min fz=0,12mm/tooth ap=0,05D ae=0,1D										
Hardened Steels (55-65 HRC)	130-180	0,05-0,1	3180	950	2550	760	2040	610	1700	510
Vc=160m/min fz=0,15mm/tooth ap=0,01D ae=0,02D										
Cast Iron	100-200	0,2-0,3	3200	2240	2550	1790	2050	1440	1700	1190
Vc=160m/min fz=0,35mm/tooth ap=0,05D ae=0,1D										

Note

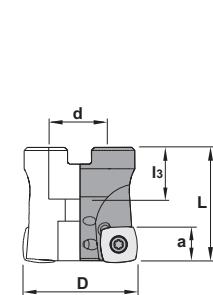
- According to the machining situation, refer to the table above to determine the cutting conditions.
- Be sure to practice safety instructions and precautions such as wearing glasses and safety shoes, and placing safety covers when you use this tool.
- Because this tool can be broken during machining so failure to follow these instructions may cause personal injury.
- Never attempt to modify the carbide shank holder. Use the value for the depth of cut (ap) when the carbide shank is used.
- Mill diameters D=8~12mm:ap<=0,05D.
- Mill diameters D=16~32mm:ap<=0,1D.
- PCA12M grade is suitable for not so high speed machining.

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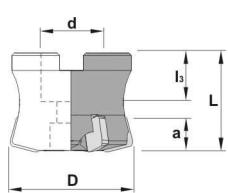
REF.	D	L	L ₂	d	a	Z	XDKW		
165.020	20	110	35	20	13	2	090430	451	530
165.025	25	110	40	25	13	2	090430	451	530
165.032	32	125	40	32	13	3	090430	451	530

**Inserts****Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors****166**

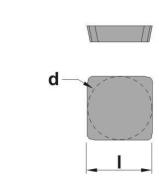
REF.	D	L	d	l ₃	a	Z	XDKW		
166.040	40	40	16	20	14	4	120530	138	535
166.050	50	40	22	22	14	5	120530	140	535
166.063	63	50	27	25	14	6	120530	140	535
166.080	80	50	27	25	14	7	120530	140	535

**Cartridges****140**

REF.	D	L	d	l ₃	a	Z	SP..				
140.050	50	40	22	20	9	5	1203..	666	112	535	103
140.063	63	50	27	22	9	5	1203..	666	112	535	103
140.080	80	50	32	25	9	6	1203..	666	112	535	103
140.100	100	50	40	29	9	7	1203..	666	112	535	103
								312	312	911	912
								312	312	917	920

**Solid carbide****SP.. 1203..**

REF.	I	s	d
SP.. 1203..	12,70	3,18	12,70



For more information see page: A.50,51

Inserts

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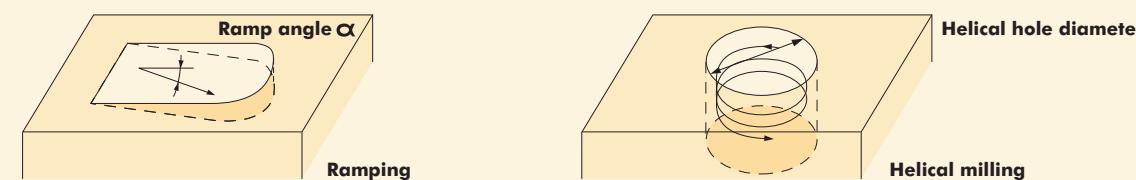
Solid carbide

Boring heads

Arbors & adaptors

Processing by direct milling is also possible

Since the cutting flutes do not extend to the center, there are limitations on the ramp angle and hole diameter, but as shown below, processing by direct milling without a pilot hole is possible for ramping and helical milling.



Tool diameter	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
Maximum ramp angle α	7°	4,5°	3°	1,7°	1°	1°
Hole diameter	Ø44-61	Ø61-76	Ø80-96	Ø107-122	Ø142-156	Ø179-195

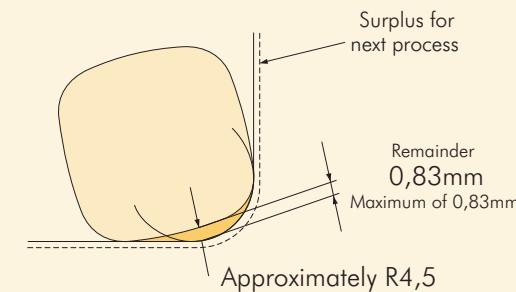
Note -The ramp angle α should be set within the ranges listed above. Use at ramp angles of 1° or less recommended.

-For hole diameters outside the ranges listed above, a pilot hole should be drilled before milling.

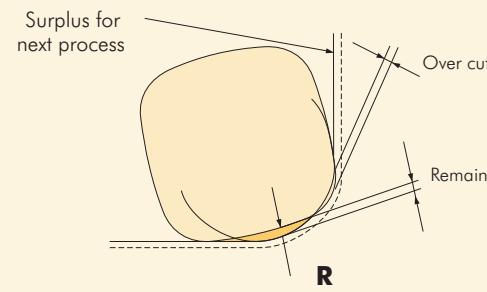
Method for defining conditions of insert tip programmatically

For roughing processing, please create a program with corner R values close to those shown as references below.

When corner R is set to 4,5

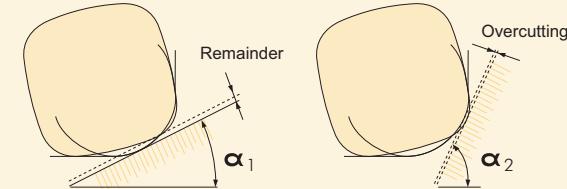
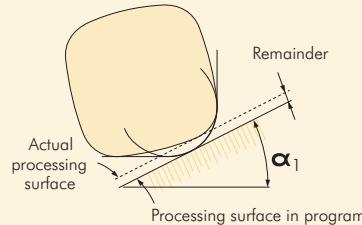


When corner R is set larger



Normally, you should create a program with an input corner R of approximately 4,5. At an approximate input corner R of 4,5, there is no overcutting.

Although overcutting occurs when the approximate R is set to higher values, if the overcutting is within the surplus for the next process, there is no problem with the processing shape and the amount of remainder can be suppressed.



Approximate input corner R	R4,5	R5,1	R5,5	R5,8	R6,1	R6,4
Remainder	0,83 ($\alpha_1=22,1^\circ$)	0,66 ($\alpha_1=20,3^\circ$)	0,55 ($\alpha_1=19^\circ$)	0,47 ($\alpha_1=17,9^\circ$)	0,39 ($\alpha_1=16,7^\circ$)	0,32 ($\alpha_1=15,4^\circ$)
Overtaking	-	0,1 ($\alpha_2=73,4^\circ$)	0,2 ($\alpha_2=67,7^\circ$)	0,3 ($\alpha_2=64,7^\circ$)	0,4 ($\alpha_2=62,3^\circ$)	0,5 ($\alpha_2=60,5^\circ$)

Note

- Overcutting and remainder vary according to the processing shape. The values in the table above are maximum values.

- The values of α shown are the slopes of the processing surfaces when overcutting and remainder are at their maximum respective values.

For example, when a program is created with an approximate R of 5,1:

Remainder of around 0,66mm is left when the slope of the processing surface is approximately 20,3°, and when the slope of the processing surface is approximately 73,4°, about 0,1mm of overcutting occurs. At areas with other slopes, the overcutting and remainder values are below these values.

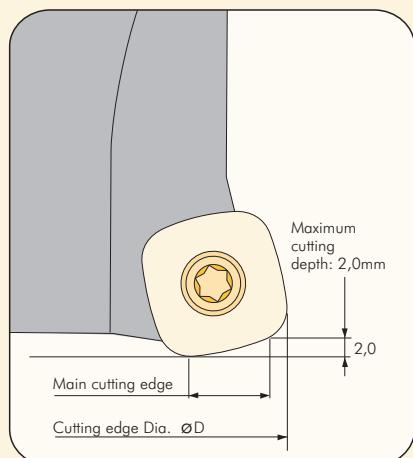
Recommended cutting conditions

Material	Cutting speed Vc (m/min)	Per-flute feed rate fz (mm/tooth)	Ø 20 (2 flutes)			Ø 25 (2 flutes)			Ø 32 (2 flutes)			Ø 40 (3 flutes)		
			Rotation speed min⁻¹	Feed rate mm/min	Q value cm/min³	Rotation speed min⁻¹	Feed rate mm/min	Q value cm/min³	Rotation speed min⁻¹	Feed rate mm/min	Q value cm/min³	Rotation speed min⁻¹	Feed rate mm/min	Q value cm/min³
General Structural Steels (200 HB)	180-200	0,6-1,5	2860	3430	69	2290	2750	69	1790	5370	171	1430	6400	256
	90-150	0,6-2,0	1430	1720	34	1150	1380	34	895	2690	86	720	3240	130
Carbon Steels Alloy Steels (30 HRC)	180-200	0,6-1,5	2860	3430	69	2290	2750	69	1790	5370	171	1430	6400	256
	90-150	0,6-2,0	1430	1720	34	1150	1380	34	895	2690	86	720	3240	130
Carbon Steels Alloy Steels (30-45 HRC)	80-120	0,4-0,8	1430	1430	29	1150	1150	29	895	1430	45	720	1730	69
						Vc=90m/min fz=0,8mm/tooth ap=1,0mm ae=1,0D								
Alloy Steels (45-50 HRC)	70-120	0,02-0,6	1590	630	6	1270	510	6	995	600	19	790	710	28
						Vc=100m/min fz=0,3mm/tooth ap=1,0mm ae=1,0D								
Alloy Steels (50-55 HRC)	70-100	0,05-0,2	1110	660	6	890	530	6	700	280	9	550	330	13
						Vc=70m/min fz=0,2mm/tooth ap=0,5mm ae=1,0D								
Alloy Steels (55-60 HRC)	50-100	0,05-0,2	1110	440	4	890	360	4	700	280	5	550	330	7
						Vc=70m/min fz=0,2mm/tooth ap=1,0mm ae=1,0D								
Cast Iron	180-200	0,8-2,0	2860	4580	92	2290	3670	92	1790	7160	344	1430	8580	515
	90-150					Vc=180m/min fz=2,0mm/tooth ap=1,5mm ae=1,0D								
			1430	2290	57	1150	1840	58	895	3580	172	720	4320	259
						Vc=90m/min fz=2,0mm/tooth ap=1,5mm ae=1,0D								
Material	Cutting speed Vc (m/min)	Per-flute feed rate fz (mm/tooth)	Ø 50 (4 flutes)			Ø 63 (4 flutes)			Ø 80 (5 flutes)			Ø 100 (6 flutes)		
			Rotation speed min⁻¹	Feed rate mm/min	Q value cm/min³	Rotation speed min⁻¹	Feed rate mm/min	Q value cm/min³	Rotation speed min⁻¹	Feed rate mm/min	Q value cm/min³	Rotation speed min⁻¹	Feed rate mm/min	Q value cm/min³
General Structural Steels (200 HB)	180-200	0,6-1,5	1150	6900	510	910	5500	520	720	5400	650	570	5130	770
	90-150	0,6-2,0				Vc=180m/min fz=1,5mm/tooth ap=1,5mm ae=1,0D								
Carbon Steels Alloy Steels (30 HRC)	180-200	0,6-1,5	1150	6900	510	910	5500	520	720	5400	650	570	5130	770
	90-150	0,6-2,0				Vc=90m/min fz=1,5mm/tooth ap=1,5mm ae=1,0D								
Carbon Steels Alloy Steels (30-45 HRC)	80-120	0,4-0,8	570	3420	257	455	2730	258	360	2700	325	290	2610	390
						Vc=90m/min fz=1,5mm/tooth ap=1,5mm ae=1,0D								
Alloy Steels (45-50 HRC)	70-120	0,02-0,6	570	3420	257	455	2730	258	360	2700	325	290	2610	390
						Vc=100m/min fz=0,3mm/tooth ap=1,0mm ae=1,0D								
Alloy Steels (50-55 HRC)	70-100	0,05-0,2	440	350	9	350	280	9	270	270	11	220	260	13
						Vc=70m/min fz=0,2mm/tooth ap=0,5mm ae=1,0D								
Alloy Steels (55-60 HRC)	50-100	0,05-0,2	310	62	1,5	250	50	1,5	200	50	2,0	160	48	2,4
						Vc=50m/min fz=0,05mm/tooth ap=0,5mm ae=1,0D								
Cast Iron	180-200	0,8-2,0	1150	9200	920	910	7280	920	720	7200	1150	570	6840	1370
	90-150					Vc=180m/min fz=2,0mm/tooth ap=2,0mm ae=1,0D								
			570	4560	456	455	3640	459	360	3600	576	290	3840	696
						Vc=90m/min fz=2,0mm/tooth ap=2,0mm ae=1,0D								

Note

- Select the best cutting condition when working, referring to above list.
(If the overhang is 3D or less, the recommended cutting speed is
Vc=180-200m/min; 3D or more: Vc=90-130m/min.)

- Thick and heavy chips are generated by using this tool. Be sure to remove them with air blow in order to avoid any breakage by blocking with chips.
The recommended method is "Spindle center through" when blowing air. (Pay attention when removing chips in cavity work with the machining center <vertical type>.)



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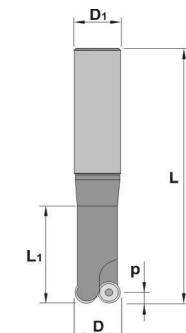
Boring heads

Arbors & adaptors

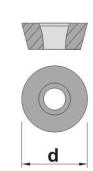
32¹₃-32⁴₇-339



REF.	D	L	D ₁	L ₁	p	Z	RD..		
320.015	15	100	20	40	3,5	2	0702MO	155	507
321.015	15	150	20	40	3,5	2	0702MO	155	507
320.016	16	100	20	40	3,5	2	0702MO	155	507
321.016	16	150	20	40	3,5	2	0702MO	155	507
323.020	20	100	20	40	5,0	2	1003MO	462	515
324.020	20	150	20	40	5,0	2	1003MO	462	515
326.025	25	125	25	50	6,0	2	12T3MO	462	515
327.025	25	180	25	60	6,0	2	12T3MO	462	515
326.032	32	125	32	50	6,0	3	12T3MO	462	515
327.032	32	180	32	60	6,0	3	12T3MO	462	515
339.032	32	180	32	60	8,0	2	1604MO	144	515



REF.	I	s	d
RD.. 0702MO	-	2,38	7,00
RD.. 1003MO	-	3,18	10,00
RD.. 12T3MO	-	3,97	12,00
RD.. 1604MO	-	4,76	16,00

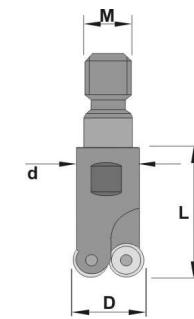


For more information see page: A.46

32²₈-330



REF.	D	L	M	d	Z	RD..		
322.016	16	23	M8	14	2	0702MO	155	507
325.020	20	30	M10	18	2	1003MO	462	515
325.025	25	35	M12	21	3	1003MO	462	515
325.035	35	43	M16	29	4	1003MO	462	515
325.042	42	43	M16	29	5	1003MO	462	515
328.025	25	43	M12	21	2	12T3MO	462	515
328.032	32	43	M16	29	3	12T3MO	462	515
328.035	35	43	M16	29	3	12T3MO	462	515
328.042	42	43	M16	29	4	12T3MO	462	515
330.032	32	43	M16	29	2	1604MO	144	515



REF.	I	s	d
RD.. 0702MO	-	2,38	7,00
RD.. 1003MO	-	3,18	10,00
RD.. 12T3MO	-	3,97	12,00
RD.. 1604MO	-	4,76	16,00

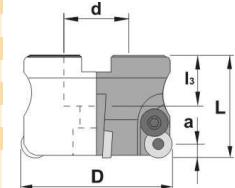


For more information see page: A.46

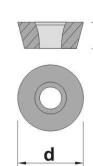
329-331



REF.	D	d	L	l ₃	a	Z	RD..		
329.052	52	22	50	20	6	5	12T3..	131	239
329.066	66	27	50	22	6	6	12T3..	131	239
329.080	80	27	50	22	6	7	12T3..	131	239
331.052	52	22	50	20	8	4	1604..	144	220
331.066	66	27	50	22	8	5	1604..	144	220
331.080	80	27	50	22	8	6	1604..	144	220
331.100	100	32	55	25	8	7	1604..	144	220
331.125	125	40	55	30	8	8	1604..	144	220
331.160	160	40	55	30	8	9	1604..	144	220



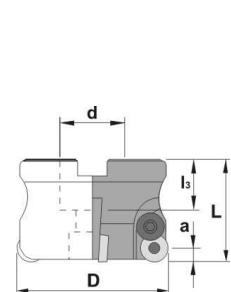
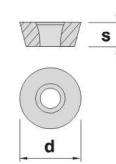
REF.	I	s	d
RD.. 12T3MO	-	3,97	12,00
RD.. 1604MO	-	4,76	16,00



For more information see page: A.46

251

REF.	D	d	L	l ₃	Z	RPM..					
251.040	40	16	40	18	3	1204M0	205	503	140	535	108
251.050	50	22	40	20	4	1204M0	205	503	140	535	910
251.063	63	27	50	22	5	1204M0	205	503	140	535	912
251.080	80	32	50	25	6	1204M0	205	503	140	535	917
251.100	100	40	50	30	7	1204M0	205	503	140	535	920
251.125	125	40	63	30	7	1204M0	205	503	140	535	-
251.160	160	40	63	30	8	1204M0	205	503	140	535	952

**Inserts****Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors**

For more information see page: A.47



REF.	I	s	d
RPM.. 1204M0	-	4,76	12,70

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

Recommended cutting conditions

Material	m/min Cutting Speed	mm/tooth Feed rate	Ø12 - Ø20			Ø24 - Ø25			Ø32 - Ø35		
			min ⁻¹	mm/min	cm ³ /min	min ⁻¹	mm/min	cm ³ /min	min ⁻¹	mm/min	cm ³ /min
Mild Steels (200 HB)	150-250	0,3-0,8	3980	3180	28,6	3180	2540	28,6	2490	2990	43,1
			V _c =250m/min	f _z =0,4mm/tooth	ap=1,5mm	ae=0,3D					
			3980	3180	47,7	3180	2540	47,6	2490	2990	71,8
Carbon Steels Alloy Steels (30 HRC)	120-230	0,3-0,8	V _c =250m/min	f _z =0,4mm/tooth	ap=1,5mm	ae=0,5D					
			3180	2540	22,9	2550	2040	23	1990	2390	34,4
			V _c =200m/min	f _z =0,4mm/tooth	ap=1,5mm	ae=0,3D					
Carbon Steels Alloy Steels (30-40 HRC)	100-200	0,2-0,6	3180	2540	38,1	2550	2040	38,3	1990	2390	57,4
			V _c =200m/min	f _z =0,4mm/tooth	ap=1,5mm	ae=0,5D					
			2390	960	8,6	1910	760	8,6	1490	890	12,8
Carbon Steels Alloy Steels (40-45 HRC)	60-150	0,15-0,3	V _c =150m/min	f _z =0,2mm/tooth	ap=1,5mm	ae=0,3D					
			2390	1430	21,5	1910	1150	21,6	1490	1340	32,2
			V _c =150m/min	f _z =0,3mm/tooth	ap=1,5mm	ae=0,5D					
Carbon Steels Alloy Steels (45-50 HRC)	60-100	0,15-0,3	1590	480	2,9	1270	380	2,9	990	450	4,3
			V _c =100m/min	f _z =0,15mm/tooth	ap=1mm	ae=0,3D					
			1590	640	6,4	1270	510	6,4	990	590	9,4
Alloy Steels (50-60 HRC)	50-100	0,05-0,2	V _c =100m/min	f _z =0,2mm/tooth	ap=1mm	ae=0,5D					
			1270	380	2,3	1020	310	2,3	800	360	3,5
			V _c =80m/min	f _z =0,15mm/tooth	ap=1mm	ae=0,3D					
Stainless Steels	150-240	0,2-0,8	1270	380	3,8	1020	310	3,9	800	360	5,8
			V _c =80m/min	f _z =0,15mm/tooth	ap=1mm	ae=0,5D					
			1110	220	1,3	890	170	1,2	690	200	1,9
Cast Iron	100-220	0,3-1,0	V _c =70m/min	f _z =0,1mm/tooth	ap=1mm	ae=0,3D					
			1110	220	2,2	890	170	2,1	690	200	3,2
			V _c =70m/min	f _z =0,1mm/tooth	ap=1mm	ae=0,5D					
Stainless Steels	150-240	0,2-0,8	3180	1590	14,3	2550	1280	14,4	1990	1490	21,5
			V _c =200m/min	f _z =0,25mm/tooth	ap=1,5mm	ae=0,3D					
			2860	1716	25,7	2290	1370	25,7	1790	1610	38,6
Cast Iron	100-220	0,3-1,0	V _c =180m/min	f _z =0,3mm/tooth	ap=1,5mm	ae=0,5D					
			2860	2290	20,6	2290	1830	20,6	1790	2150	31
			V _c =180m/min	f _z =0,4mm/tooth	ap=1,5mm	ae=0,3D					
Cast Iron	100-220	0,3-1,0	2860	2860	42,9	2290	2290	42,9	1790	2690	64,6
			V _c =180m/min	f _z =0,5mm/tooth	ap=1,5mm	ae=0,5D					

Material	Ø40 - Ø42 (R6)			Ø50 - Ø52 (R6)			Ø40 - Ø42 (R8)			Ø50 - Ø52 (R8)		
	min ⁻¹	mm/min	cm ³ /min	min ⁻¹	mm/min	cm ³ /min	min ⁻¹	mm/min	cm ³ /min	min ⁻¹	mm/min	cm ³ /min
Mild Steels (200 HB)	1990	2990	71,8	1590	3180	95,4	1990	1990	47,8	1590	2390	71,7
	V _c =250m/min	f _z =0,5mm/tooth	ap=2mm	ae=0,3D			V _c =250m/min	f _z =0,5mm/tooth	ap=2mm	ae=0,3D		
	1990	4780	191,2	1590	5090	254,5	1990	3180	159	1590	3820	238,8
Carbon Steels Alloy Steels (30 HRC)	1590	1910	45,8	1270	2030	60,9	1590	1270	30,5	1270	1520	45,6
	V _c =200m/min	f _z =0,4mm/tooth	ap=2mm	ae=0,3D			V _c =200m/min	f _z =0,4mm/tooth	ap=2mm	ae=0,3D		
	1590	2860	114,4	1270	3050	152,5	1590	1910	95,5	1270	2290	143,1
Carbon Steels Alloy Steels (30-40 HRC)	1190	710	17	960	770	23,1	1190	480	11,5	960	580	17,4
	V _c =150m/min	f _z =0,2mm/tooth	ap=2mm	ae=0,3D			V _c =150m/min	f _z =0,2mm/tooth	ap=2mm	ae=0,3D		
	1190	1070	42,8	960	1150	57,5	1190	950	47,5	960	1150	71,9
Carbon Steels Alloy Steels (40-45 HRC)	800	360	6,5	640	380	8,6	800	240	4,3	640	290	6,5
	V _c =100m/min	f _z =0,15mm/tooth	ap=1,5mm	ae=0,3D			V _c =100m/min	f _z =0,15mm/tooth	ap=1,5mm	ae=0,3D		
	800	480	14,4	640	510	19,1	800	320	12,8	640	380	19
Carbon Steels Alloy Steels (45-50 HRC)	V _c =100m/min	f _z =0,2mm/tooth	ap=1,5mm	ae=0,5D			V _c =100m/min	f _z =0,2mm/tooth	ap=2mm	ae=0,5D		
	640	290	3,5	510	310	4,7	640	220	4	510	260	5,9
	V _c =80m/min	f _z =0,15mm/tooth	ap=1mm	ae=0,3D			V _c =80m/min	f _z =0,17mm/tooth	ap=1,5mm	ae=0,3D		
Carbon Steels Alloy Steels (45-50 HRC)	640	330	6,6	510	350	8,8	640	260	7,8	510	310	11,6
	V _c =80m/min	f _z =0,17mm/tooth	ap=1mm	ae=0,5D			V _c =80m/min	f _z =0,2mm/tooth	ap=1,5mm	ae=0,5D		
	550	160	1,9	440	170	2,5	550	110	1,3	440	130	1,9
Alloy Steels (50-60 HRC)	V _c =70m/min	f _z =0,1mm/tooth	ap=1mm	ae=0,3D			V _c =70m/min	f _z =0,1mm/tooth	ap=1mm	ae=0,3D		
	550	160	3,2	440	170	4,2	550	110	2,2	440	130	3,2
	V _c =70m/min	f _z =0,1mm/tooth	ap=1mm	ae=0,5D			V _c =70m/min	f _z =0,1mm/tooth	ap=1mm	ae=0,5D		
Stainless Steels	1590	1430	34,3	1270	1520	45,6	1590	950	22,8	1270	1140	34,2
	V _c =200m/min	f _z =0,3mm/tooth	ap=2mm	ae=0,3D			V _c =200m/min	f _z =0,3mm/tooth	ap=2mm	ae=0,3D		
	1430	2150	86	1150	2300	115	1430	1720	86	1150	2070	129,4
Cast Iron	V _c =180m/min	f _z =0,5mm/tooth	ap=2mm	ae=0,5D			V _c =180m/min	f _z =0,6mm/tooth	ap=2,5mm	ae=0,5D		
	1430	2150	51,6	1150	2300	69	1430	1430	34,3	1150	1730	51,9
	V _c =180m/min	f _z =0,5mm/tooth	ap=2mm	ae=0,3D			V _c =180m/min	f _z =0,5mm/tooth	ap=2mm	ae=0,3D		
Cast Iron	1430	3430	137,2	1150	3680	184	1430	2290	114,5	1150	2760	172,5
	V _c =180m/min	f _z =0,8mm/tooth	ap=2mm	ae=0,5D			V _c =180m/min	f _z =0,8mm/tooth	ap=2,5mm	ae=0,5D		

Note

-In this table, cutting conditions indicate regular type conditions for flank wear to be 0,3mm in 30 minutes.

-The following formula shows the chip removal volume (Q) per unit time.

$$Q(\text{cm}^3/\text{min}) = ap(\text{mm}) \times ae(\text{mm}) \times Vf(\text{mm}/\text{min}) / 1000$$

-In the case of slotting, feed speed could be down to 70% of the whole.

-This table shows starting points of general cutting conditions. Please adjust according to rigidity of machine tools, tooling, conditions of work-pieces and so on.

-In steel exceeding 60HRC, such as dice steel between the colds, please set the sending (f_z) value per one edge about 1/2.

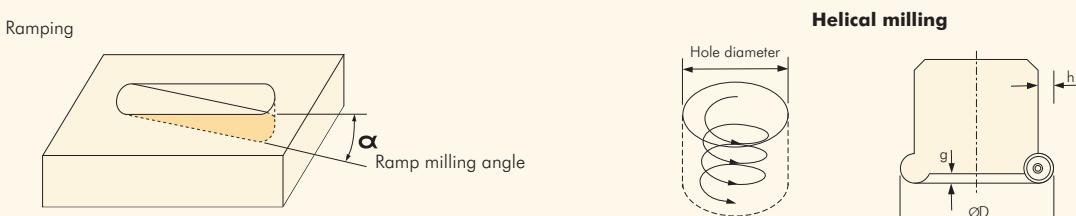
Recommended cutting conditions

Material	m/min Cutting Speed	mm/tooth Feed rate	Ø 63 (R6)			Ø 80 (R6)			Ø 100 (R6)		
			min ⁻¹	mm/min	cm ³ /min	min ⁻¹	mm/min	cm ³ /min	min ⁻¹	mm/min	cm ³ /min
Mild Steels (200 HB)	150-250	0,3-0,8	3780	142,9	-	-	-	-	-	-	-
			Vc=250m/min	fz=0,5mm/tooth	ap=2mm	ae=0,3D					
			1260	6050	381,2	1000	4800	384	800	3200	320
Carbon Steels Alloy Steels (30 HRC)	120-230	0,3-0,8	Vc=250m/min	fz=0,8mm/tooth	ap=2mm	ae=0,5D					
			1010	2420	91,5	-	-	-	-	-	-
			Vc=200m/min	fz=0,4mm/tooth	ap=2mm	ae=0,3D					
Carbon Steels Alloy Steels (30-40 HRC)	100-200	0,2-0,6	1010	3640	229,3	800	2880	230,4	640	1920	192
			Vc=200m/min	fz=0,6mm/tooth	ap=2mm	ae=0,5D					
			760	910	34,4	-	-	-	-	-	-
Carbon Steels Alloy Steels (40-45 HRC)	60-150	0,15-0,3	Vc=150m/min	fz=0,2mm/tooth	ap=2mm	ae=0,3D					
			760	1370	86,3	600	1080	86,4	480	720	72
			Vc=150m/min	fz=0,3mm/tooth	ap=2mm	ae=0,5D					
Carbon Steels Alloy Steels (45-50 HRC)	60-100	0,15-0,3	510	460	13	-	-	-	-	-	-
			Vc=100m/min	fz=0,15mm/tooth	ap=1,5mm	ae=0,3D					
			510	610	28,8	400	480	28,8	320	320	24
Carbon Steels Alloy Steels (50-60 HRC)	50-100	0,05-0,2	Vc=100m/min	fz=0,2mm/tooth	ap=1,5mm	ae=0,5D					
			400	360	6,8	-	-	-	-	-	-
			Vc=80m/min	fz=0,15mm/tooth	ap=1mm	ae=0,3D					
Alloy Steels (50-60 HRC)	50-100	0,05-0,2	400	410	12,9	320	330	13,2	250	210	10,5
			Vc=80m/min	fz=0,17mm/tooth	ap=1mm	ae=0,5D					
			350	210	3,9	270	160	3,8	220	110	3,3
Stainless Steels	150-240	0,2-0,8	Vc=70m/min	fz=0,1mm/tooth	ap=1mm	ae=0,3D					
			350	210	6,6	270	160	6,4	220	110	5,5
			Vc=70m/min	fz=0,1mm/tooth	ap=1mm	ae=0,5D					
Cast Iron	100-220	0,3-1,0	1010	1820	68,8	-	-	-	-	-	-
			Vc=200m/min	fz=0,3mm/tooth	ap=2mm	ae=0,3D					
			910	2730	172	720	2160	172,8	570	1430	143
Cast Iron	100-220	0,3-1,0	Vc=180m/min	fz=0,5mm/tooth	ap=2mm	ae=0,5D					
			910	2730	103,2	-	-	-	-	-	-
			Vc=180m/min	fz=0,5mm/tooth	ap=2mm	ae=0,3D					
			910	4370	275,3	720	3460	276,8	570	2280	228
			Vc=180m/min	fz=0,8mm/tooth	ap=2mm	ae=0,5D					

Field Data

Ramping, Helical Milling, Feeding toward Z-AXIS

There are restrictions to Ramp angle (α) and cutting depth (g) toward Z-axis because of designs of cutting edge.



ØD	Ø40	Ø50 Ø52	Ø63 Ø66	Ø80	Ø100	Ø125 - Ø160
Recommended α	Below 3 degrees					
h	2,5	2,5	2,5	2,5	2,5	2,5
g	3,7	3,3	5,5	5,5	5,5	5,5
Helical hole diameter	60-78	77-100	101-124	135-158	175-198	248-255

Note

-Chips may be shattered. The wearing of safety glasses and the guard are required in the vicinity of machining.

Inserts
Turning

Automatic lathes

Ceramic tools
Parting & grooving

Threading
Drills

Cartridges
Brazed tools

Milling cutters
Solid carbide

Boring heads
Arbors & adaptors

Inserts

Turning

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Solid carbide

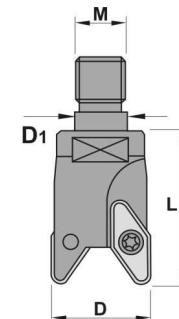
Boring heads

Arbors & adaptors

144



REF.	D	L	M	D1	Z	VC..		
144.015	15	35	M8	8,5	2	1103..	125	507
144.020	20	35	M10	10,5	2	1103..	125	507
144.025	25	50	M12	12,5	2	1604..	140	515
144.032	32	50	M16	17,0	2	2205..	150	520
144.042	42	50	M16	17,0	3	2205..	150	520

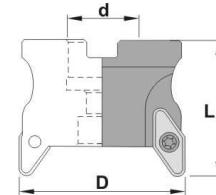


For more information see page: A.55

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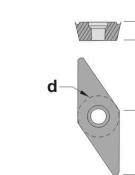


REF.	D	d	L	Z	VC..			
244.042	42	16	55	3	2205..	150	520	108
244.052	52	22	55	3	2205..	150	520	910
244.066	66	27	55	4	2205..	150	520	912
244.080	80	27	55	5	2205..	150	520	912



REF.	I	s	d
VC.. 2205..	22,10	5,56	12,70

For more information see page: A.55



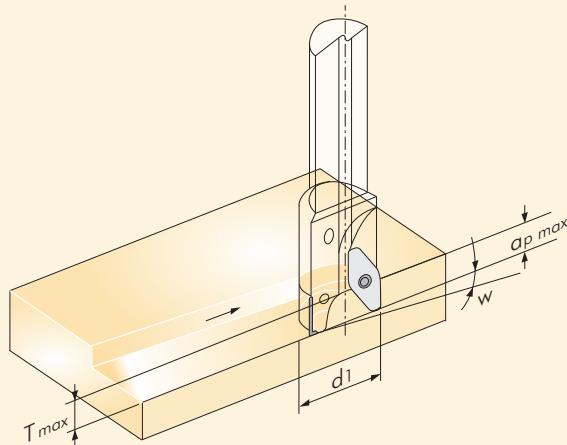
Recommended cutting conditions

Material	Cutting Speed		
	Z10R Vc (mm/min)	K15K Vc (mm/min)	
Aluminium alloys	Rm < 280 N/mm ²	1500	1000
	Rm < 280 N/mm ²	1000	800
Copper alloys	Long chipping	300	250
Thermoplastics			300
Aluminium alloys	Si < 12 %	100	800
	Si > 12 %	200	
Copper alloys	Short chipping	500	400
Magnesium alloys			400
Duroplastics		200	150

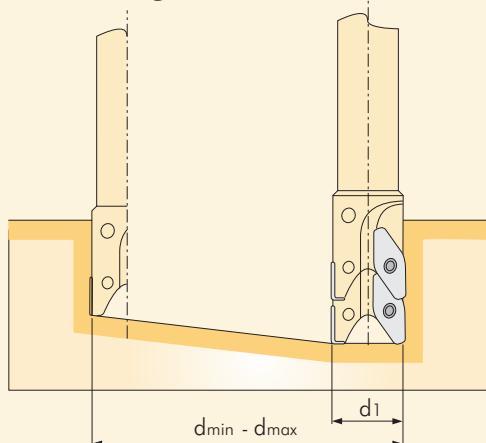
Maximum feed per tooth f _t (mm/z) in mm		
VCGT 1103..	VCGT 1604..	VCGT 2205..
0,25	0,35	0,5
0,2	0,3	0,4

Further application recommendations

Pocket milling and axial plunging



Circular milling



Helix angle W1 max and internal depth of cut Tmax

	VCGT 110304-ALM	VCGT 160412-ALM	VCGT 220530-ALM
a _p max	10	13,5	15
T max	6	8	9
W1 max in Grad degree			
15			
20	25		
25		24	
32			22
42			15
52			12
66			9
80			7

d1 mm	dmin mm	dmax mm
15	15	15
20	20	20
25	25	25
32	32	32
42	42	42
52	52	52
66	66	66
80	80	80

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Applications
Applications
Anwendungen

L02

End mills
Fraises en carbure monobloc
Vollhartmetallfräser

L04

Torus end mills
Fraises toroidales en carbure monobloc
Toroidale Vollhartmetallfräser

L09

Contour end mills
Fraises en carbure monobloc pour faire des contours
Vollhartmetall-Kontourfräser

L11

Ball nose end mills
Fraises en carbure monobloc avec bout hémisphérique
Vollhartmetall-Kugelbahnfräser

L12

Drills
Forets
Spiralbohrer

L17

Others
Autres
Andere

L21

Tungsten carbide burrs
Limes rotatives
Rotierfräser

L23

Technical information
Information technique
Technische Auskunft

L26

L01

End mills - Fraises en carbure monobloc - Vollhartmetallfräser

Inserts

6020 2 Flutes	6021 2 Flutes	6120 2 Flutes (Long)	7405 2 Flutes	7415 2 Flutes (Long)	6915 2 Flutes
					
Page L.04	Page L.04	Page L.04	Page L.05	Page L.05	Page L.05
6030 3 Flutes	6031 3 Flutes	6130 3 Flutes (Long)	6040 4 Flutes	6041 4 Flutes	6140 4 Flutes (Long)
					
Page L.06	Page L.06	Page L.06	Page L.07	Page L.07	Page L.07
6137 6/8 Flutes	6197 6/8 Flutes	6060 6 Flutes			
					
Page L.08	Page L.08	Page L.08			

Turning

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Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

6231 2 Flutes	6241 2 Flutes	6327 2 Flutes	6337 2 Flutes (Long)	6427 4 Flutes	6437 4 Flutes (Long)
					
Page L.09	Page L.09	Page L.10	Page L.10	Page L.10	Page L.11
7965 2 Flutes	7975 2 Flutes with front out				
					
Page L.11	Page L.11				

6320 2 Flutes	6321 2 Flutes	6420 2 Flutes (Long)	9645 2 Flutes	6955 2 Flutes (Long)	7597 2 Flutes
					
Page L.12	Page L.12	Page L.12	Page L.13	Page L.13	Page L.13
6330 3 Flutes	6331 3 Flutes	6430 3 Flutes	6340 4 Flutes	6341 4 Flutes	6440 4 Flutes
					
Page L.14	Page L.14	Page L.14	Page L.15	Page L.15	Page L.15



6521
2 Flutes



6541
4 Flutes

Page L.16



7020
Hard-metal twist drills
2 Flutes

Page L.17



7030
Hard-metal twist drills
3 Flutes

Page L.18



7120
Hard-metal twist drills
2 Flutes (Long)

Page L.18



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

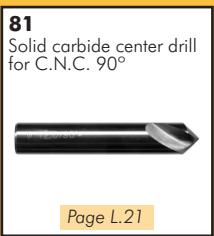
Arbors & adaptors

Drills - Forets - Spiralbohrer

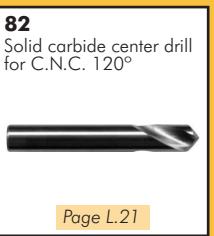


80
Solid carbide center drill

Parting & grooving



81
Solid carbide center drill
for C.N.C. 90°



82
Solid carbide center drill
for C.N.C. 120°



83
Solid carbide
Countersinks



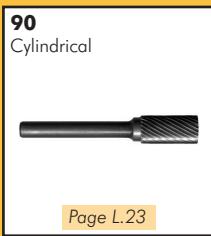
84
Solid carbide
Countersinks



85
Centerless ground
carbide

Threading

Tungsten carbide burrs - Limes rotatives - Rotierfräser



90
Cylindrical

Drills



91
Cylindrical round top



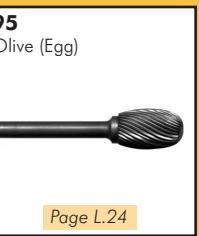
92
Tree radius nose



93
Tree pointed



94
Cone



95
Olive (Egg)

Cartridges



96
Ball

Brazed tools



97
Inverted one



98
Deburring 60°



99
Deburring 90°

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

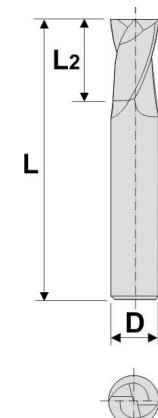
Boring heads

Arbors & adaptors

6020



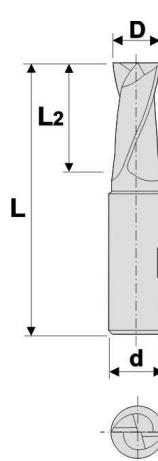
REF.	D	d	L ₂	L	K10	TiAIN
602001	1	-	5	40	○	
602002	2	-	8	40	●	
602003	3	-	12	40	●	
602004	4	-	12	40	●	
602005	5	-	14	50	●	
602006	6	-	16	50	●	
602007	7	-	20	60	●	
602008	8	-	20	60	●	
602009	9	-	20	60	●	
602010	10	-	22	70	●	
602011	11	-	22	70	●	
602012	12	-	22	70	●	
602013	13	-	25	75	●	
602014	14	-	25	75	●	
602015	15	-	25	75	●	
602016	16	-	28	80	●	
602018	18	-	28	80	●	
602020	20	-	35	100	●	
602022	22	-	35	100	○	
602025	25	-	35	100	○	
602030	30	-	35	100	○	
602032	32	-	35	100	○	



6021



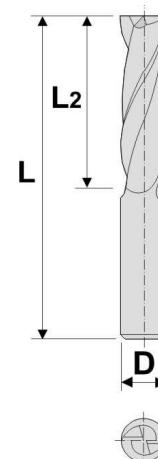
REF.	D	d	L ₂	L	K10	TiAIN
602102	2	6	6	50	○	
602103	3	6	7	57	○	
602104	4	6	8	57	○	
602105	5	6	10	57	○	
602106	6	6	10	57	○	
602107	7	8	13	63	○	
602108	8	8	16	63	○	
602109	9	10	16	72	○	
602110	10	10	19	72	○	
602111	11	12	22	83	○	
602112	12	12	22	83	○	
602113	13	14	22	83	○	
602114	14	14	22	83	○	
602115	15	16	26	92	○	
602116	16	16	26	92	○	
602118	18	18	26	92	○	
602120	20	20	32	104	○	
602122	22	25	32	104	○	
602125	25	25	32	104	○	
602130	30	32	32	104	○	
602132	32	32	32	104	○	



6120



REF.	D	d	L ₂	L	K10	TiAIN
612003	3	-	25	60	○	
612004	4	-	25	60	○	
612005	5	-	30	70	○	
612006	6	-	30	70	○	
612007	7	-	35	80	○	
612008	8	-	35	80	○	
612010	10	-	45	100	○	
612012	12	-	45	100	○	
612014	14	-	45	100	○	
612016	16	-	45	100	○	
612018	18	-	45	100	○	
612020	20	-	55	125	○	
612022	22	-	55	125	○	
612025	25	-	55	125	○	
612030	30	-	55	125	○	
612032	32	-	55	125	○	



☆ Not suitable ★ Suitable ● Especially suitable

Steels
≤ 400 N/mm² ≤ 850 N/mm² ≤ 1.100 N/mm² ≤ 1.300 N/mm² > 1.450 N/mm²

INOX
≤ 850 N/mm²

INOX
> 850 N/mm²

CAST IRON
●

Ti
☆

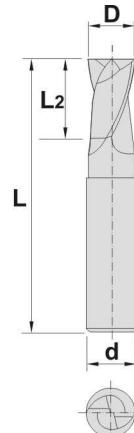
Cu, Ms
☆

Al
★

Plastics
☆

7405

REF.	z	D	d	L	L2	K10	TAIN
740503	2	3	6	57	4	○	
740504	2	4	6	57	5	○	
740505	2	5	6	57	7	○	
740506	2	6	6	57	7	○	
740508	2	8	8	63	9	○	
740510	2	10	10	72	11	○	
740512	2	12	12	83	12	○	
740516	2	16	16	92	16	○	
740520	2	20	20	104	20	○	
740525	2	25	25	106	25	○	



☆ Not suitable ★ Suitable ◆ Especially suitable

Steels			
<400 N/mm ²	<850 N/mm ²	<1.100 N/mm ²	<1.300 N/mm ²
☆	☆	☆	☆

INOX	
< 850 N/mm ²	> 850 N/mm ²
★	★

INOX	
< 850 N/mm ²	> 850 N/mm ²
★	★

CAST IRON	
☆	☆

Ti
☆

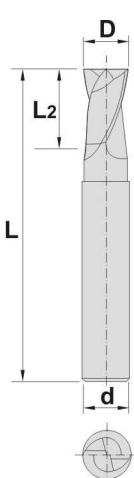
Cu, Ms
◆

Al
★

Plastics
★

7415

REF.	z	D	d	L	L2	K10	TAIN
741506	2	6	6	80	7	○	
741508	2	8	8	80	9	○	
741510	2	10	10	100	11	○	
741512	2	12	12	100	12	○	
741516	2	16	16	100	16	○	
741520	2	20	20	125	20	○	
741525	2	25	25	150	25	○	



☆ Not suitable ★ Suitable ◆ Especially suitable

Steels			
<400 N/mm ²	<850 N/mm ²	<1.100 N/mm ²	<1.300 N/mm ²
☆	☆	☆	☆

INOX	
< 850 N/mm ²	> 850 N/mm ²
★	★

INOX	
< 850 N/mm ²	> 850 N/mm ²
★	★

CAST IRON	
☆	☆

Ti
☆

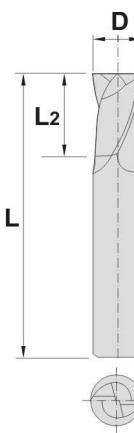
Cu, Ms
◆

Al
★

Plastics
★

6915

REF.	z	D	L	L2	K10	TAIN
691501	2	1	38	5	○	
691501,5	2	1,5	38	5	○	
691502	2	2	38	8	○	
691502,5	2	2,5	38	8	○	
691503	2	3	38	12	○	
691504	2	4	40	12	○	
691505	2	5	50	14	○	
691506	2	6	50	16	○	
691508	2	8	63	20	○	
691510	2	10	72	22	○	
691512	2	12	73	22	○	
691514	2	14	75	25	○	
691516	2	16	82	28	○	
691518	2	18	84	28	○	
691520	2	20	104	35	○	



☆ Not suitable ★ Suitable ◆ Especially suitable

Steels			
<400 N/mm ²	<850 N/mm ²	<1.100 N/mm ²	<1.300 N/mm ²
☆	☆	☆	☆

INOX	
< 850 N/mm ²	> 850 N/mm ²
★	★

INOX	
< 850 N/mm ²	> 850 N/mm ²
★	★

CAST IRON	
☆	☆

Ti
☆

Cu, Ms
◆

Al
★

Plastics
★

Inserts**Automatic lathes****Parting & grooving****Threading****Brazed tools****Milling cutters****Boring heads****L05**

• Normally available for immediate delivery

○ Only available in a limited quantity

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

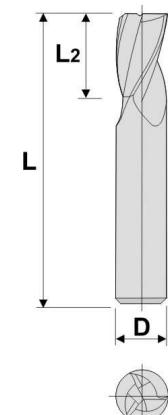
Boring heads

Arbors & adaptors

6030



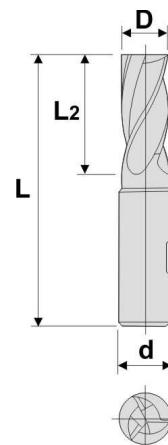
REF.	D	d	L ₂	L	K10	TiAIN
603001	1	-	5	40	○	
603002	2	-	8	40	●	
603003	3	-	12	40	●	
603004	4	-	12	40	●	
603005	5	-	14	50	●	
603006	6	-	16	50	●	
603007	7	-	20	60	●	
603008	8	-	20	60	●	
603009	9	-	20	60	●	
603010	10	-	22	70	●	
603011	11	-	22	70	●	
603012	12	-	22	70	●	
603013	13	-	25	75	●	
603014	14	-	25	75	●	
603015	15	-	25	75	●	
603016	16	-	28	80	●	
603018	18	-	28	80	●	
603020	20	-	35	100	●	
603022	22	-	35	100	○	
603025	25	-	35	100	○	
603030	30	-	35	100	○	
603032	32	-	35	100	○	



6031



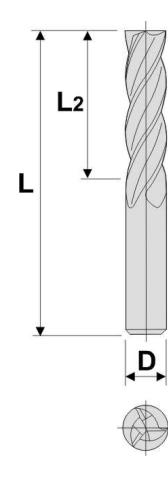
REF.	D	d	L ₂	L	K10	TiAIN
603102	2	6	6	50	○	
603103	3	6	7	57	○	
603104	4	6	8	57	○	
603105	5	6	10	57	○	
603106	6	6	10	57	○	
603107	7	8	13	63	○	
603108	8	8	16	63	○	
603109	9	10	16	72	○	
603110	10	10	19	72	○	
603111	11	12	22	83	○	
603112	12	12	22	83	○	
603113	13	14	22	83	○	
603114	14	14	22	83	○	
603115	15	16	26	92	○	
603116	16	16	26	92	○	
603118	18	18	26	92	○	
603120	20	20	32	104	○	
603122	22	25	32	104	○	
603125	25	25	32	104	○	
603130	30	32	32	104	○	
603132	32	32	32	104	○	



6130



REF.	D	d	L ₂	L	K10	TiAIN
613003	3	-	25	60	○	
613004	4	-	25	60	○	
613005	5	-	30	70	○	
613006	6	-	30	70	○	
613007	7	-	35	80	○	
613008	8	-	35	80	○	
613010	10	-	45	100	○	
613012	12	-	45	100	○	
613014	14	-	45	100	○	
613016	16	-	45	100	○	
613018	18	-	45	100	○	
613020	20	-	55	125	○	
613022	22	-	55	125	○	
613025	25	-	55	125	○	
613030	30	-	55	125	○	
613032	32	-	55	125	○	



☆ Not suitable ★ Suitable ● Especially suitable

Steels
<400 N/mm²
<850 N/mm²
<1.100 N/mm²

INOX
< 45 HRC
< 850 N/mm²

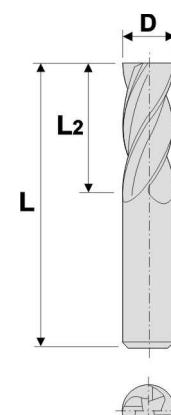
INOX
> 45 HRC
> 850 N/mm²

CAST IRON
Ti
Cu, Ms

Al
Plastics

6040

REF.	D	d	L ₂	L	K10	TiAIN
604001	1	-	5	40	○	
604002	2	-	8	40	●	
604003	3	-	12	40	●	
604004	4	-	12	40	●	
604005	5	-	14	50	●	
604006	6	-	16	50	●	
604007	7	-	20	60	●	
604008	8	-	20	60	●	
604009	9	-	20	60	●	
604010	10	-	22	70	●	
604011	11	-	22	70	●	
604012	12	-	22	70	●	
604013	13	-	25	75	●	
604014	14	-	25	75	●	
604015	15	-	25	75	●	
604016	16	-	28	80	●	
604018	18	-	28	80	●	
604020	20	-	35	100	●	
604022	22	-	35	100	○	
604025	25	-	35	100	○	
604030	30	-	35	100	○	
604032	32	-	35	100	○	



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

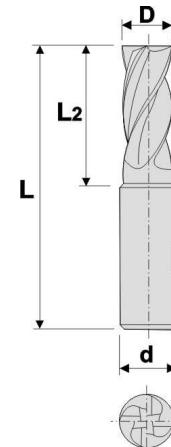
Solid carbide

Boring heads

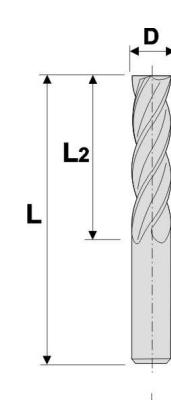
Arbors & adaptors

6041

REF.	D	d	L ₂	L	K10	TiAIN
604102	2	6	6	50	○	
604103	3	6	7	57	○	
604104	4	6	8	57	○	
604105	5	6	10	57	○	
604106	6	6	10	57	○	
604107	7	8	13	63	○	
604108	8	8	16	63	○	
604109	9	10	16	72	○	
604110	10	10	19	72	○	
604111	11	12	22	83	○	
604112	12	12	22	83	○	
604113	13	14	22	83	○	
604114	14	14	22	83	○	
604115	15	16	26	92	○	
604116	16	16	26	92	○	
604118	18	18	26	92	○	
604120	20	20	32	104	○	
604122	22	25	32	104	○	
604125	25	25	32	104	○	
604130	30	32	32	104	○	
604132	32	32	32	104	○	

**6140**

REF.	D	d	L ₂	L	K10	TiAIN
614003	3	-	25	60	○	
614004	4	-	25	60	○	
614005	5	-	30	70	○	
614006	6	-	30	70	○	
614007	7	-	35	80	○	
614008	8	-	35	80	○	
614010	10	-	45	100	○	
614012	12	-	45	100	○	
614014	14	-	45	100	○	
614016	16	-	45	100	○	
614018	18	-	45	100	○	
614020	20	-	55	125	○	
614022	22	-	55	125	○	
614025	25	-	55	125	○	
614030	30	-	55	125	○	
614032	32	-	55	125	○	



★ Not suitable ★ Suitable ★ Especially suitable

Steels
 <400 N/mm² <850 N/mm² <1.100 N/mm² <1.300 N/mm² >4.5 HRC
 ★ ★ ★ ★ ★

INOX
 <850 N/mm² ★

INOX
 >850 N/mm² ★

CAST IRON
 ★

Ti
 ★

Cu, Ms
 ★

Al
 ★

Plastics
 ★

• Normally available for immediate delivery

○ Only available in a limited quantity

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

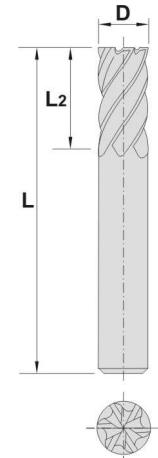
Boring heads

Arbors & adaptors

6137



REF.	z	D	L	L2	K10	TIAN
613706	6	6	60	20	○	
613708	6	8	80	25	○	
613710	6	10	80	30	○	
613712	6	12	100	36	○	
613716	6	16	106	46	○	
613720	8	20	125	60	○	
613725	8	25	150	75	○	



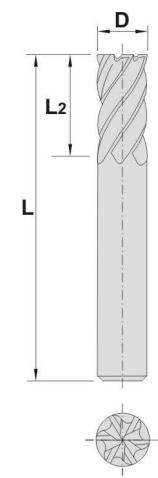
☆ Not suitable ★ Suitable ⚡ Especially suitable

Steels <400 N/mm ²	Steels <850 N/mm ²	Steels <1.100 N/mm ²	Steels <1.300 N/mm ²	Steels >45 HRC	INOX < 850 N/mm ²	INOX > 850 N/mm ²	CAST IRON	Ti	Cu, Ms	Al	Plastics
☆	☆	★	★	★	★	☆	★	☆	☆	☆	☆

6197



REF.	z	D	L	L2	K10	TIAN
619706	6	6	60	20	○	
619708	6	8	80	25	○	
619710	6	10	80	30	○	
619712	6	12	100	36	○	
619716	6	16	106	46	○	
619720	8	20	125	60	○	
619725	8	25	150	75	○	



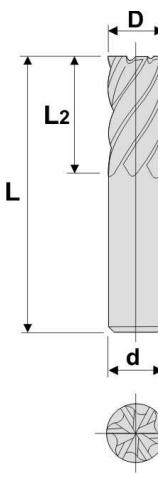
☆ Not suitable ★ Suitable ⚡ Especially suitable

Steels <400 N/mm ²	Steels <850 N/mm ²	Steels <1.100 N/mm ²	Steels <1.300 N/mm ²	Steels >45 HRC	INOX < 850 N/mm ²	INOX > 850 N/mm ²	CAST IRON	Ti	Cu, Ms	Al	Plastics
☆	☆	★	★	★	★	☆	★	☆	☆	☆	☆

6060



REF.	D	d	L2	L	K10	TIAN
606003	3	-	12	40	○	
606004	4	-	12	40	○	
606005	5	-	14	50	○	
606006	6	-	16	50	○	
606007	7	-	20	60	○	
606008	8	-	20	60	○	
606009	9	-	20	60	○	
606010	10	-	22	70	○	
606011	11	-	22	70	○	
606012	12	-	22	70	○	
606014	14	-	25	75	○	
606016	16	-	28	80	○	
606018	18	-	28	80	○	
606020	20	-	35	100	○	
606022	22	-	35	100	○	
606025	25	-	35	100	○	

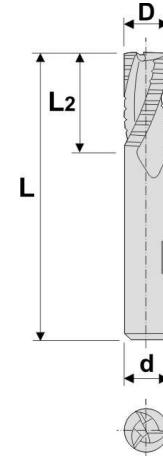


☆ Not suitable ★ Suitable ⚡ Especially suitable

Steels <400 N/mm ²	Steels <850 N/mm ²	Steels <1.100 N/mm ²	Steels <1.300 N/mm ²	Steels >45 HRC	INOX < 850 N/mm ²	INOX > 850 N/mm ²	CAST IRON	Ti	Cu, Ms	Al	Plastics
☆	☆	★	★	★	★	☆	★	☆	☆	★	☆

6231

REF.	D	d	L ₂	L	K10	TiAIN
623103	3	6	8	57	○	
623104	4	6	11	57	○	
623105	5	6	13	57	○	
623106	6	6	13	57	○	
623108	8	8	19	63	○	
623110	10	10	22	72	○	
623112	12	12	26	83	○	
623114	14	14	26	83	○	
623116	16	16	32	92	○	
623118	18	18	32	92	○	
623120	20	20	38	104	○	
623122	22	25	38	104	○	
623125	25	25	38	104	○	
623130	30	32	38	104	○	
623132	32	32	38	104	○	



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

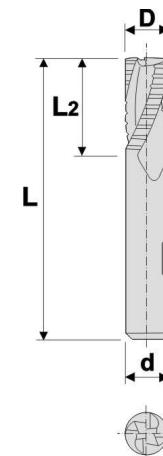
Solid carbide

Boring heads

Arbors & adaptors

6241

REF.	D	d	L ₂	L	K10	TiAIN
624103	3	6	8	57	○	
624104	4	6	11	57	○	
624105	5	6	13	57	○	
624106	6	6	13	57	○	
624108	8	8	19	63	○	
624110	10	10	22	72	○	
624112	12	12	26	83	○	
624114	14	14	26	83	○	
624116	16	16	32	92	○	
624118	18	18	32	92	○	
624120	20	20	38	104	○	
624122	22	25	38	104	○	
624125	25	25	38	104	○	
624130	30	32	38	104	○	
624132	32	32	38	104	○	



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

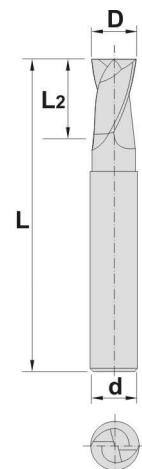
Boring heads

Arbors & adaptors

6327



REF.	z	D	d	L	L2	K10	TIAIN
632703	2	3	6	57	4	○	
632704	2	4	6	57	5	○	
632705	2	5	6	57	6	○	
632706	2	6	6	57	7	○	
632708	2	8	8	63	9	○	
632710	2	10	10	72	11	○	
632712	2	12	12	83	12	○	
632716	2	16	16	92	16	○	
632718	2	18	18	92	18	○	
632720	2	20	20	104	20	○	



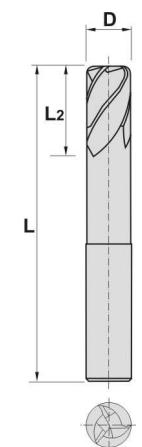
☆ Not suitable ★ Suitable ⚡ Especially suitable

Steels	INOX	INOX	CAST IRON	Ti	Cu, Ms	Al	Plastics
<400 N/mm ² ☆	<850 N/mm ² ☆	<1.100 N/mm ² ★	<1.300 N/mm ² ★	>45 HRC ★	< 850 N/mm ² ★	> 850 N/mm ² ★	

6337



REF.	z	D	L	L2	K10	TIAIN
633706	2	6	80	7	○	
633708	2	8	80	9	○	
633710	2	10	100	11	○	
633712	2	12	120	12	○	
633716	2	16	160	16	○	



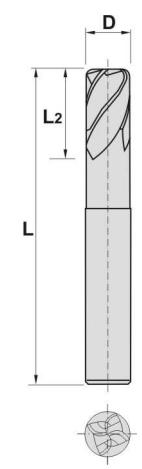
☆ Not suitable ★ Suitable ⚡ Especially suitable

Steels	INOX	INOX	CAST IRON	Ti	Cu, Ms	Al	Plastics
<400 N/mm ² ☆	<850 N/mm ² ☆	<1.100 N/mm ² ★	<1.300 N/mm ² ★	>45 HRC ★	< 850 N/mm ² ★	> 850 N/mm ² ★	

6427



REF.	z	D	L	L2	K10	TIAIN
642706	4	6	57	7	○	
642708	4	8	63	9	○	
642710	4	10	72	11	○	
642712	4	12	83	12	○	
642716	4	16	92	16	○	
642718	4	18	92	18	○	
642720	4	20	104	20	○	

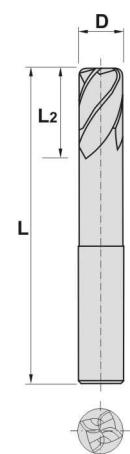


☆ Not suitable ★ Suitable ⚡ Especially suitable

Steels	INOX	INOX	CAST IRON	Ti	Cu, Ms	Al	Plastics
<400 N/mm ² ☆	<850 N/mm ² ☆	<1.100 N/mm ² ★	<1.300 N/mm ² ★	>45 HRC ★	< 850 N/mm ² ★	> 850 N/mm ² ★	

6437

REF.	z	D	L	L2	K10	TiAIN
643706	4	6	80	7	○	
643708	4	8	80	9	○	
643710	4	10	100	11	○	
643712	4	12	120	12	○	
643716	4	16	160	16	○	



☆ Not suitable ★ Suitable ◉ Especially suitable

Steels			
<400 N/mm ²	<850 N/mm ²	<1.100 N/mm ²	<1.300 N/mm ²
☆	☆	★	★

INOX < 850 N/mm ²	INOX > 850 N/mm ²
★	☆

CAST IRON
★

Ti
★

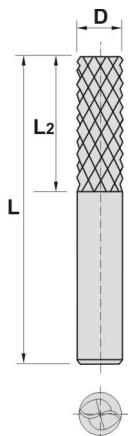
Cu, Ms
☆

Al
☆

Plastics
☆

7965

REF.	z	D	L	L2	K10	TiAIN
796502	2	2	38	10	○	
796503	2	3	38	12	○	
796504	2	4	40	15	○	
796505	2	5	50	16	○	
796506	2	6	50	18	○	
796508	2	8	63	25	○	
796510	2	10	72	30	○	
796512	2	12	73	30	○	
796514	2	14	75	30	○	
796516	2	16	82	30	○	
796518	2	18	84	32	○	
796520	2	20	104	35	○	



☆ Not suitable ★ Suitable ◉ Especially suitable

Steels			
<400 N/mm ²	<850 N/mm ²	<1.100 N/mm ²	<1.300 N/mm ²
☆	☆	★	★

INOX < 850 N/mm ²	INOX > 850 N/mm ²
★	☆

CAST IRON
★

Ti
☆

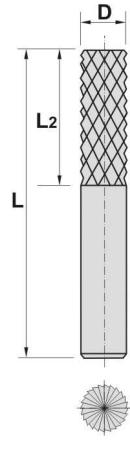
Cu, Ms
☆

Al
☆

Plastics
★

7975

REF.	z	D	L	L2	K10	TiAIN
797502	2	2	38	10	○	
797503	2	3	38	12	○	
797504	2	4	40	15	○	
797505	2	5	50	16	○	
797506	2	6	50	18	○	
797508	2	8	63	25	○	
797510	2	10	72	30	○	
797512	2	12	73	30	○	
797514	2	14	75	30	○	
797516	2	16	82	30	○	
797518	2	18	84	32	○	
797520	2	20	104	35	○	



☆ Not suitable ★ Suitable ◉ Especially suitable

Steels			
<400 N/mm ²	<850 N/mm ²	<1.100 N/mm ²	<1.300 N/mm ²
☆	☆	★	★

INOX < 850 N/mm ²	INOX > 850 N/mm ²
★	☆

CAST IRON
★

Ti
☆

Cu, Ms
☆

Al
☆

Plastics
★

Solid carbide
Carbure monobloc
Vollhartmetall

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

• Normally available for immediate delivery

○ Only available in a limited quantity

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

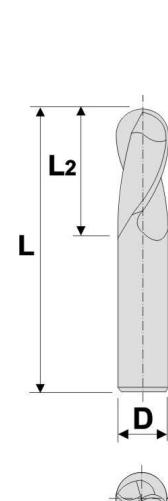
Boring heads

Arbors & adaptors

6320



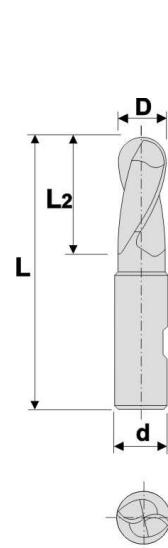
REF.	D	d	L ₂	L	K10	TiAIN
632001	1	-	5	40	○	
632002	2	-	8	40	●	
632003	3	-	12	40	●	
632004	4	-	12	40	●	
632005	5	-	14	50	●	
632006	6	-	16	50	●	
632007	7	-	20	60	●	
632008	8	-	20	60	●	
632009	9	-	20	60	●	
632010	10	-	22	70	●	
632011	11	-	22	70	●	
632012	12	-	22	70	●	
632013	13	-	25	75	○	
632014	14	-	25	75	○	
632015	15	-	25	75	○	
632016	16	-	28	80	○	
632018	18	-	28	80	○	
632020	20	-	35	100	○	
632022	22	-	35	100	○	
632025	25	-	35	100	○	
632030	30	-	35	100	○	
632032	32	-	35	100	○	



6321



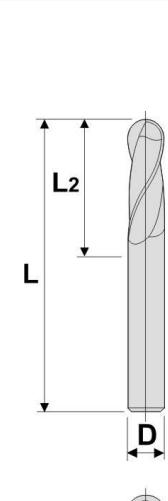
REF.	D	d	L ₂	L	K10	TiAIN
632102	2	6	6	50	○	
632103	3	6	7	57	○	
632104	4	6	8	57	○	
632105	5	6	10	57	○	
632106	6	6	10	57	○	
632107	7	8	13	63	○	
632108	8	8	16	63	○	
632109	9	10	16	72	○	
632110	10	10	19	72	○	
632111	11	12	22	83	○	
632112	12	12	22	83	○	
632113	13	14	22	83	○	
632114	14	14	22	83	○	
632115	15	16	26	92	○	
632116	16	16	26	92	○	
632118	18	18	26	92	○	
632120	20	20	32	104	○	
632122	22	25	32	104	○	
632125	25	25	32	104	○	
632130	30	32	32	104	○	
632132	32	32	32	104	○	



6420



REF.	D	d	L ₂	L	K10	TiAIN
642003	3	-	25	60	●	
642004	4	-	25	60	●	
642005	5	-	30	70	●	
642006	6	-	30	70	●	
642007	7	-	35	80	●	
642008	8	-	35	80	●	
642010	10	-	45	100	●	
642012	12	-	45	100	●	
642014	14	-	45	100	○	
642016	16	-	45	100	●	
642018	18	-	45	100	○	
642020	20	-	55	125	●	
642022	22	-	55	125	○	
642025	25	-	55	125	○	
642030	30	-	55	125	○	
642032	32	-	55	125	○	



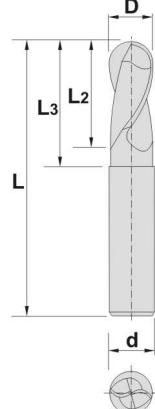
☆ Not suitable ★ Suitable ● Especially suitable

Steels INOX CAST IRON Ti Cu, Ms Al Plastics

<400 N/mm² <850 N/mm² <1.100 N/mm² <1.300 N/mm² H-45 HRC <850 N/mm² >850 N/mm²

6945

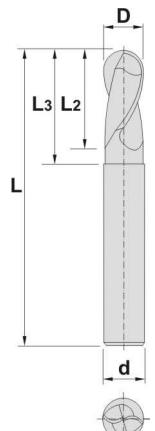
REF.	z	D	d	L	L ₂	L ₃	K10	TAIN
694502	2	2	6	57	4	6	○	
694503	2	3	6	57	6	9	○	
694504	2	4	6	57	8	12	○	
694505	2	5	6	57	10	15	○	
694506	2	6	6	57	12	20	○	
694508	2	8	8	63	16	20	○	
694510	2	10	10	72	20	31	○	
694512	2	12	12	83	24	37	○	
694516	2	16	16	92	32	43	○	
694520	2	20	20	104	40	53	○	



☆ Not suitable ★ Suitable ◆ Especially suitable

**6955**

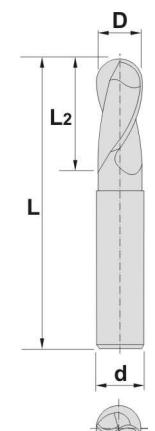
REF.	z	D	d	L	L ₂	L ₃	K10	TAIN
695502	2	2	6	80	4	12	○	
695503	2	3	6	80	6	15	○	
695504	2	4	6	80	8	18	○	
695505	2	5	6	80	10	25	○	
695506	2	6	6	80	12	30	○	
695508	2	8	8	80	16	35	○	
695510	2	10	10	100	20	40	○	
695512	2	12	12	120	24	50	○	
695516	2	16	16	160	32	55	○	
695520	2	20	20	160	40	60	○	



☆ Not suitable ★ Suitable ◆ Especially suitable

**7597**

REF.	z	D	d	L	L ₂	K10	TAIN
759702	2	2	6	80	6	○	
759703	2	3	6	80	7	○	
759704	2	4	6	80	8	○	
759705	2	5	6	80	10	○	
759706	2	6	6	80	10	○	
759708	2	8	8	100	16	○	
759710	2	10	10	120	19	○	
759712	2	12	12	120	22	○	
759716	2	16	16	160	26	○	
759720	2	20	20	160	32	○	
759725	2	25	25	160	32	○	



☆ Not suitable ★ Suitable ◆ Especially suitable

**Solid carbide****Carbure monobloc****Vollhartmetall****Inserts****Automatic lathes****Parting & grooving****Threading****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors**

• Normally available for immediate delivery

• Only available in a limited quantity

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

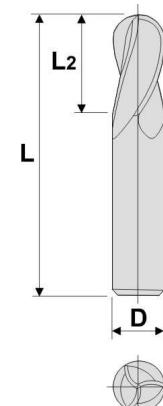
Boring heads

Arbors & adaptors

6330



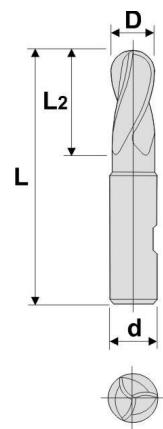
REF.	D	d	L ₂	L	K10	TIAN
633001	1	-	5	40	○	
633002	2	-	8	40	○	
633003	3	-	12	40	○	
633004	4	-	12	40	○	
633005	5	-	14	50	○	
633006	6	-	16	50	○	
633007	7	-	20	60	○	
633008	8	-	20	60	○	
633009	9	-	20	60	○	
633010	10	-	22	70	○	
633011	11	-	22	70	○	
633012	12	-	22	70	○	
633013	13	-	25	75	○	
633014	14	-	25	75	○	
633015	15	-	25	75	○	
633016	16	-	28	80	○	
633018	18	-	28	80	○	
633020	20	-	35	100	○	
633022	22	-	35	100	○	
633025	25	-	35	100	○	
633030	30	-	35	100	○	
633032	32	-	35	100	○	



6331



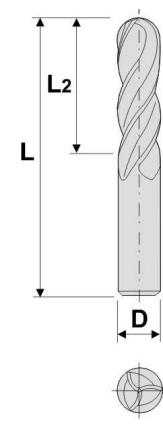
REF.	D	d	L ₂	L	K10	TIAN
633102	2	6	6	50	○	
633103	3	6	7	57	○	
633104	4	6	8	57	○	
633105	5	6	10	57	○	
633106	6	6	10	57	○	
633107	7	8	13	63	○	
633108	8	8	16	63	○	
633109	9	10	16	72	○	
633110	10	10	19	72	○	
633111	11	12	22	83	○	
633112	12	12	22	83	○	
633113	13	14	22	83	○	
633114	14	14	22	83	○	
633115	15	16	26	92	○	
633116	16	16	26	92	○	
633118	18	18	26	92	○	
633120	20	20	32	104	○	
633122	22	25	32	104	○	
633125	25	25	32	104	○	
633130	30	32	32	104	○	
633132	32	32	32	104	○	



6430



REF.	D	d	L ₂	L	K10	TIAN
643003	3	-	25	60	○	
643004	4	-	25	60	○	
643005	5	-	30	70	○	
643006	6	-	30	70	○	
643007	7	-	35	80	○	
643008	8	-	35	80	○	
643010	10	-	45	100	○	
643012	12	-	45	100	○	
643014	14	-	45	100	○	
643016	16	-	45	100	○	
643018	18	-	45	100	○	
643020	20	-	55	125	○	
643022	22	-	55	125	○	
643025	25	-	55	125	○	
643030	30	-	55	125	○	
643032	32	-	55	125	○	



Steels
<400 N/mm²
<850 N/mm²
● ● ● ● ●

INOX
<1.100 N/mm²
●

INOX
>1.300 N/mm²
●

CAST IRON
<45 HRC
●

Ti
●

Cu, Ms
●

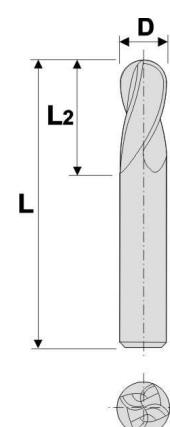
Al
●

Plastics
●

☆ Not suitable ★ Suitable ● Especially suitable

6340

REF.	D	d	L ₂	L	K10	TiAIN
634001	1	-	5	40	•	
634002	2	-	8	40	•	
634003	3	-	12	40	•	
634004	4	-	12	40	•	
634005	5	-	14	50	•	
634006	6	-	16	50	•	
634007	7	-	20	60	•	
634008	8	-	20	60	•	
634009	9	-	20	60	•	
634010	10	-	22	70	•	
634011	11	-	22	70	•	
634012	12	-	22	70	•	
634013	13	-	25	75	•	
634014	14	-	25	75	•	
634015	15	-	25	75	•	
634016	16	-	28	80	•	
634018	18	-	28	80	•	
634020	20	-	35	100	•	
634022	22	-	35	100	•	
634025	25	-	35	100	•	
634030	30	-	35	100	•	
634032	32	-	35	100	•	



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

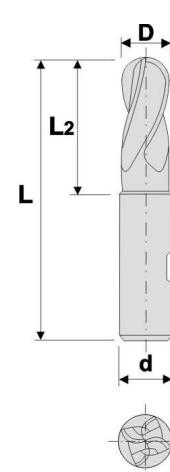
Solid carbide

Boring heads

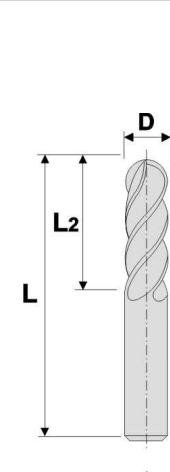
Arbors & adaptors

6341

REF.	D	d	L ₂	L	K10	TiAIN
634102	2	6	6	50	○	
634103	3	6	7	57	○	
634104	4	6	8	57	○	
634105	5	6	10	57	○	
634106	6	6	10	57	○	
634107	7	8	13	63	○	
634108	8	8	16	63	○	
634109	9	10	16	72	○	
634110	10	10	19	72	○	
634111	11	12	22	83	○	
634112	12	12	22	83	○	
634113	13	14	22	83	○	
634114	14	14	22	83	○	
634115	15	16	26	92	○	
634116	16	16	26	92	○	
634118	18	18	26	92	○	
634120	20	20	32	104	○	
634122	22	25	32	104	○	
634125	25	25	32	104	○	
634130	30	32	32	104	○	
634132	32	32	32	104	○	

**6440**

REF.	D	d	L ₂	L	K10	TiAIN
644003	3	-	25	60	○	
644004	4	-	25	60	○	
644005	5	-	30	70	○	
644006	6	-	30	70	○	
644007	7	-	35	80	○	
644008	8	-	35	80	○	
644010	10	-	45	100	○	
644012	12	-	45	100	○	
644014	14	-	45	100	○	
644016	16	-	45	100	○	
644018	18	-	45	100	○	
644020	20	-	55	125	○	
644022	22	-	55	125	○	
644025	25	-	55	125	○	
644030	30	-	55	125	○	
644032	32	-	55	125	○	



★ Not suitable ★ Suitable ★ Especially suitable

Steels <400 N/mm ²	<850 N/mm ²	<1.100 N/mm ²	<1.300 N/mm ²	>45 HRC
★	★	★	★	★

INOX < 850 N/mm ²	> 850 N/mm ²
★	★

CAST IRON
★

Ti
★

Cu, Ms
★

Al
★

Plastics
★

• Normally available for immediate delivery

• Only available in a limited quantity

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

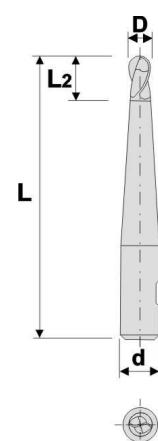
Boring heads

Arbors & adaptors

6521



REF.	D	d	L ₂	L	K10	TIAN
652103	3	6	4	57	●	
652104	4	6	5	57	●	
652105	5	8	6	63	●	
652106	6	8	6	63	●	
652108	8	10	10	72	●	
652110	10	12	12	73	●	



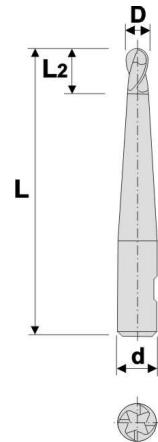
☆ Not suitable ★ Suitable ☀ Especially suitable

Steels <400 N/mm ²	<850 N/mm ²	<1.100 N/mm ²	<1.300 N/mm ²	>45 HRC	INOX < 850 N/mm ²	INOX > 850 N/mm ²	CAST IRON	Ti	Cu, Ms	Al	Plastics
☆	☆	☆	★	★	★	★	○	★	☆	☆	☆

6541



REF.	D	d	L ₂	L	K10	TIAN
654104	4	8	6	100	●	
654105	5	8	6	63	○	
654105L	5	8	6	100	●	
654106	6	8	6	63	○	
654106L	6	10	9	100	●	
654108	8	10	10	72	○	
654108L	8	10	12	100	●	
654110	10	12	12	73	○	
654110L	10	12	15	100	●	
654112	12	16	15	150	●	

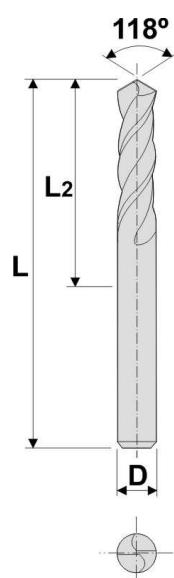


☆ Not suitable ★ Suitable ☀ Especially suitable

Steels <400 N/mm ²	<850 N/mm ²	<1.100 N/mm ²	<1.300 N/mm ²	>45 HRC	INOX < 850 N/mm ²	INOX > 850 N/mm ²	CAST IRON	Ti	Cu, Ms	Al	Plastics
☆	☆	☆	★	★	★	★	○	★	☆	☆	☆

7020

REF.	D	L ₂	L	K10	TiAIN
702000.5	0,5	6	26	•	
702000.6	0,6	6	26	•	
702000.7	0,7	6	26	•	
702000.8	0,8	6	26	•	
702000.9	0,9	6	26	•	
702001.0	1,0	6	26	•	
702001.1	1,1	7	28	•	
702001.2	1,2	8	30	•	
702001.3	1,3	8	30	•	
702001.4	1,4	9	32	•	
702001.5	1,5	9	32	•	
702001.6	1,6	10	34	•	
702001.7	1,7	10	34	•	
702001.8	1,8	11	36	•	
702001.9	1,9	11	36	•	
702002.0	2,0	12	38	•	
702002.1	2,1	12	38	•	
702002.2	2,2	13	40	•	
702002.3	2,3	13	40	•	
702002.4	2,4	14	43	•	
702002.5	2,5	14	43	•	
702002.6	2,6	14	43	•	
702002.7	2,7	16	46	•	
702002.8	2,8	16	46	•	
702002.9	2,9	16	46	•	
702003.0	3,0	16	46	•	
702003.1	3,1	18	49	•	
702003.2	3,2	18	49	•	
702003.3	3,3	18	49	•	
702003.4	3,4	20	52	•	
702003.5	3,5	20	52	•	
702003.6	3,6	20	52	•	
702003.7	3,7	20	52	•	
702003.8	3,8	22	55	•	
702003.9	3,9	22	55	•	
702004.0	4,0	22	55	•	
702004.1	4,1	22	55	•	
702004.2	4,2	22	55	•	
702004.3	4,3	24	58	•	
702004.4	4,4	24	58	•	
702004.5	4,5	24	58	•	
702004.6	4,6	24	58	•	
702004.7	4,7	24	58	•	
702004.8	4,8	26	62	•	
702004.9	4,9	26	62	•	
702005.0	5,0	26	62	•	
702005.1	5,1	26	62	•	
702005.2	5,2	26	62	•	
702005.3	5,3	26	62	•	
702005.4	5,4	28	66	•	
702005.5	5,5	28	66	•	
702005.6	5,6	28	66	•	
702005.7	5,7	28	66	•	
702005.8	5,8	28	66	•	
702005.9	5,9	28	66	•	
702006.0	6,0	28	66	•	
702006.1	6,1	31	70	•	
702006.2	6,2	31	70	•	
702006.3	6,3	31	70	•	
702006.4	6,4	31	70	•	
702006.5	6,5	31	70	•	
702006.6	6,6	31	70	•	
702006.7	6,7	31	70	•	
702006.8	6,8	34	74	•	
702006.9	6,9	34	74	•	
702007.0	7,0	34	74	•	
702007.1	7,1	34	74	•	
702007.2	7,2	34	74	•	
702007.3	7,3	34	74	•	
702007.4	7,4	34	74	•	
702007.5	7,5	34	74	•	
702007.6	7,6	36	79	•	
702007.7	7,7	36	79	•	
702007.8	7,8	36	79	•	
702007.9	7,9	36	79	•	
702008.0	8,0	36	79	•	
702008.1	8,1	36	79	•	
702008.2	8,2	36	79	•	
702008.3	8,3	36	79	•	
702008.4	8,4	36	79	•	
702008.5	8,5	36	79	•	
702008.6	8,6	40	84	•	



Inserts

Turning
Automatic lathes
Ceramic toolsParting & grooving
ThreadingDrills
CartridgesBrazed tools
Milling cuttersSolid carbide
Boring heads

Arbors & adaptors

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

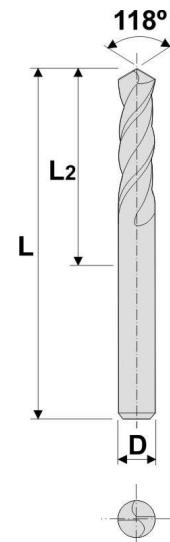
Boring heads

Arbors & adaptors

7020



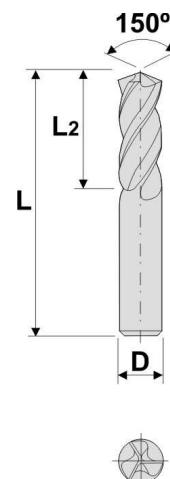
REF.	D	L ₂	L	K10	TiAIN
702008.7	8,7	40	84	•	
702008.8	8,8	40	84	•	
702008.9	8,9	40	84	•	
702009.0	9,0	40	84	•	
702009.1	9,1	40	84	•	
702009.2	9,2	40	84	•	
702009.3	9,3	40	84	•	
702009.4	9,4	40	84	•	
702009.5	9,5	40	84	•	
702009.6	9,6	43	86	•	
702009.7	9,7	43	86	•	
702009.8	9,8	43	86	•	
702009.9	9,9	43	86	•	
702010.0	10,0	43	86	•	
702010.2	10,2	43	86	•	
702010.5	10,5	43	86	•	
702011.0	11,0	47	95	•	
702011.5	11,5	47	95	•	
702012.0	12,0	51	102	•	
702012.5	12,5	51	102	•	
702013.0	13,0	51	102	•	
702013.5	13,5	54	107	•	
702014.0	14,0	54	107	•	
702014.5	14,5	56	111	•	
702015.0	15,0	56	111	•	
702015.5	15,5	58	115	•	
702016.0	16,0	58	115	•	
702016.5	16,5	60	119	•	
702017.0	17,0	60	119	•	
702017.5	17,5	62	123	•	
702018.0	18,0	62	123	•	
702018.5	18,5	64	127	•	
702019.0	19,0	64	127	•	
702019.5	19,5	66	131	•	
702020.0	20,0	66	131	•	



7030

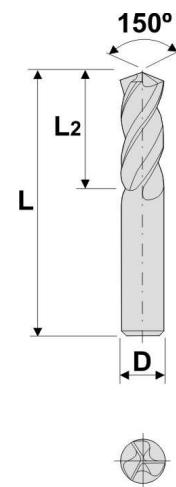


REF.	D	L ₂	L	K10	TiAIN
703003.0	3,0	16	46	○	
703003.1	3,1	18	49	○	
703003.2	3,2	18	49	○	
703003.3	3,3	18	49	○	
703003.4	3,4	20	52	○	
703003.5	3,5	20	52	○	
703003.6	3,6	20	52	○	
703003.7	3,7	20	52	○	
703003.8	3,8	22	55	○	
703003.9	3,9	22	55	○	
703004.0	4,0	22	55	•	
703004.1	4,1	22	55	○	
703004.2	4,2	22	55	○	
703004.3	4,3	24	58	○	
703004.4	4,4	24	58	○	
703004.5	4,5	24	58	○	
703004.6	4,6	24	58	○	
703004.7	4,7	24	58	○	
703004.8	4,8	26	62	○	
703004.9	4,9	26	62	○	
703005.0	5,0	26	62	•	
703005.1	5,1	26	62	○	
703005.2	5,2	26	62	○	
703005.3	5,3	26	62	○	
703005.4	5,4	28	66	○	
703005.5	5,5	28	66	○	
703005.6	5,6	28	66	○	
703005.7	5,7	28	66	○	
703005.8	5,8	28	66	○	
703005.9	5,9	28	66	○	
703006.0	6,0	28	66	•	
703006.1	6,1	31	70	○	
703006.2	6,2	31	70	○	
703006.3	6,3	31	70	○	
703006.4	6,4	31	70	○	
703006.5	6,5	31	70	○	



7030

REF.	D	L ₂	L	K10	TiAIN
703006.6	6,6	31	70	○	
703006.7	6,7	31	70	○	
703006.8	6,8	34	74	○	
703006.9	6,9	34	74	○	
703007.0	7,0	34	74	●	
703007.1	7,1	34	74	○	
703007.2	7,2	34	74	○	
703007.3	7,3	34	74	○	
703007.4	7,4	34	74	○	
703007.5	7,5	34	74	○	
703007.6	7,6	36	79	○	
703007.7	7,7	36	79	○	
703007.8	7,8	36	79	○	
703007.9	7,9	36	79	○	
703008.0	8,0	36	79	●	
703008.1	8,1	36	79	○	
703008.2	8,2	36	79	○	
703008.3	8,3	36	79	○	
703008.4	8,4	36	79	○	
703008.5	8,5	36	79	○	
703008.6	8,6	40	84	○	
703008.7	8,7	40	84	○	
703008.8	8,8	40	84	○	
703008.9	8,9	40	84	○	
703009.0	9,0	40	84	●	
703009.1	9,1	40	84	○	
703009.2	9,2	40	84	○	
703009.3	9,3	40	84	○	
703009.4	9,4	40	84	○	
703009.5	9,5	40	84	○	
703009.6	9,6	43	89	○	
703009.7	9,7	43	89	○	
703009.8	9,8	43	89	○	
703009.9	9,9	43	89	○	
703010.0	10,0	43	89	●	
703010.2	10,2	43	89	○	
703010.5	10,5	43	89	○	
703011.0	11,0	47	95	●	
703011.5	11,5	47	95	○	
703012.0	12,0	51	102	●	
703012.5	12,5	51	102	○	
703013.0	13,0	51	102	●	
703013.5	13,5	54	107	○	
703014.0	14,0	54	107	●	
703014.5	14,5	56	111	○	
703015.0	15,0	56	111	●	
703015.5	15,5	58	115	○	
703016.0	16,0	58	115	●	
703016.5	16,5	60	119	○	
703017.0	17,0	60	119	●	
703017.5	17,5	62	123	○	
703018.0	18,0	62	123	●	
703018.5	18,5	64	127	○	
703019.0	19,0	64	127	●	
703019.5	19,5	66	131	○	
703020.0	20,0	66	131	●	



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

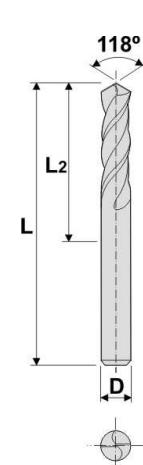
Solid carbide

Boring heads

Arbors & adaptors

7120

REF.	D	L ₂	L	K10	TiAIN
712001.0	1,0	12	34	●	
712001.1	1,1	14	36	○	
712001.2	1,2	16	38	○	
712001.3	1,3	16	38	○	
712001.4	1,4	18	40	○	
712001.5	1,5	18	40	○	
712001.6	1,6	20	43	○	
712001.7	1,7	20	43	○	
712001.8	1,8	22	46	○	
712001.9	1,9	22	46	○	
712002.0	2,0	24	49	●	
712002.1	2,1	24	49	○	
712002.2	2,2	28	53	○	
712002.3	2,3	28	53	○	
712002.4	2,4	30	57	○	
712002.5	2,5	30	57	○	
712002.6	2,6	30	57	○	
712002.7	2,7	33	60	○	
712002.8	2,8	33	60	○	
712002.9	2,9	33	60	○	
712003.0	3,0	33	60	●	
712003.1	3,1	33	65	○	



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Inserts

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Solid carbide

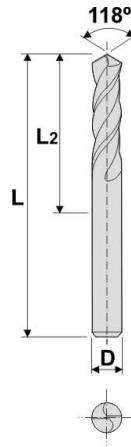
Boring heads

Arbors & adaptors

7120

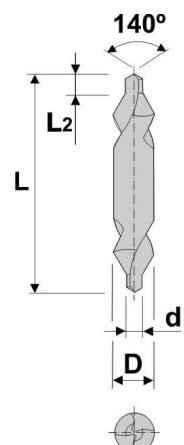


REF.	D	L ₂	L	K10	TIAN
712003.2	3,2	36	65	○	
712003.3	3,3	36	65	○	
712003.4	3,4	36	70	○	
712003.5	3,5	39	70	○	
712003.6	3,6	39	70	○	
712003.7	3,7	39	70	○	
712003.8	3,8	43	75	○	
712003.9	3,9	43	75	○	
712004.0	4,0	43	75	●	
712004.1	4,1	43	75	○	
712004.2	4,2	43	75	○	
712004.3	4,3	47	80	○	
712004.4	4,4	47	80	○	
712004.5	4,5	47	80	○	
712004.6	4,6	47	80	○	
712004.7	4,7	47	80	○	
712004.8	4,8	52	86	○	
712004.9	4,9	52	86	○	
712005.0	5,0	52	86	●	
712005.1	5,1	52	86	○	
712005.2	5,2	52	86	○	
712005.3	5,3	52	86	○	
712005.4	5,4	57	93	○	
712005.5	5,5	57	93	○	
712005.6	5,6	57	93	○	
712005.7	5,7	57	93	○	
712005.8	5,8	57	93	○	
712005.9	5,9	57	93	○	
712006.0	6,0	57	93	●	
712006.1	6,1	63	101	○	
712006.2	6,2	63	101	○	
712006.3	6,3	63	101	○	
712006.4	6,4	63	101	○	
712006.5	6,5	63	101	○	
712006.6	6,6	63	101	○	
712006.7	6,7	63	101	○	
712006.8	6,8	69	109	○	
712006.9	6,9	69	109	○	
712007.0	7,0	69	109	●	
712007.1	7,1	69	109	○	
712007.2	7,2	69	109	○	
712007.3	7,3	69	109	○	
712007.4	7,4	69	109	○	
712007.5	7,5	69	109	○	
712007.6	7,6	75	117	○	
712007.7	7,7	75	117	○	
712007.8	7,8	75	117	○	
712007.9	7,9	75	117	○	
712008.0	8,0	75	117	●	
712008.1	8,1	75	117	○	
712008.2	8,2	75	117	○	
712008.3	8,3	75	117	○	
712008.4	8,4	75	117	○	
712008.5	8,5	75	117	○	
712008.6	8,6	81	125	○	
712008.7	8,7	81	125	○	
712008.8	8,8	81	125	○	
712008.9	8,9	81	125	○	
712009.0	9,0	81	125	●	
712009.1	9,1	81	125	○	
712009.2	9,2	81	125	○	
712009.3	9,3	81	125	○	
712009.4	9,4	81	125	○	
712009.5	9,5	81	125	○	
712009.6	9,6	87	133	○	
712009.7	9,7	87	133	○	
712009.8	9,8	87	133	○	
712009.9	9,9	87	133	○	
712010.0	10,0	87	133	●	
712010.2	10,2	87	133	○	
712010.5	10,5	87	133	○	
712010.8	10,8	94	142	○	
712011.0	11,0	94	142	●	
712011.5	11,5	94	142	○	
712012.0	12,0	101	151	●	
712012.5	12,5	101	151	○	
712013.0	13,0	101	151	●	
712013.5	13,5	108	160	○	
712014.0	14,0	108	160	●	
712014.5	14,5	114	169	○	
712015.0	15,0	114	169	●	
712015.5	15,5	120	178	○	
712016.0	16,0	120	178	●	



80

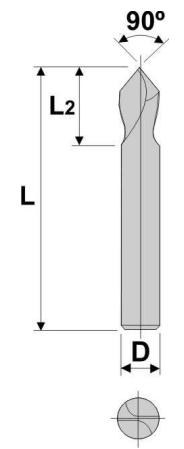
REF.	D	d	L ₂	L	K10	TiAIN
800000.80	3,15	0,80	1,3	38	●	
800001.00	3,15	1,00	1,6	38	●	
800001.25	3,15	1,25	1,9	38	●	
800001.60	4,00	1,60	2,4	38	●	
800002.00	5,00	2,00	2,9	50	●	
800002.50	6,00	2,50	3,6	50	●	
800003.15	8,00	3,15	4,4	60	○	
800004.00	10,00	4,00	5,6	60	○	
800005.00	12,00	5,00	6,0	60	○	



☆ Not suitable ★ Suitable ◆ Especially suitable

**81**

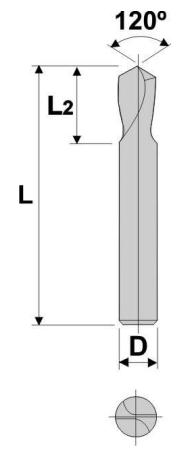
REF.	D	d	L ₂	L	K10	TiAIN
810006	6	-	16	50	●	
810008	8	-	20	60	●	
810010	10	-	22	70	●	
810012	12	-	22	70	●	
810014	14	-	25	75	○	
810016	16	-	25	80	○	
810020	20	-	30	100	○	



☆ Not suitable ★ Suitable ◆ Especially suitable

**82**

REF.	D	d	L ₂	L	K10	TiAIN
820006	6	-	16	50	●	
820008	8	-	20	60	●	
820010	10	-	22	70	●	
820012	12	-	22	70	●	
820014	14	-	25	75	○	
820016	16	-	25	80	○	
820020	20	-	30	100	○	



☆ Not suitable ★ Suitable ◆ Especially suitable



● Normally available for immediate delivery

○ Only available in a limited quantity

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

Inserts

Turning

Automatic lathes

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Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

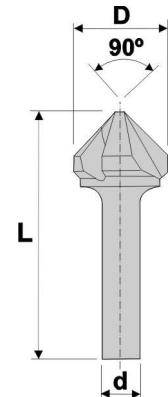
Boring heads

Arbors & adaptors

83



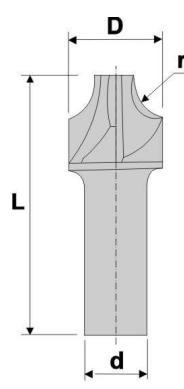
REF.	D	d	L	z	K10	TiAIN
833005.3	5,3	6	50	3	○	
833005.8	5,3	6	50	3	○	
833006.3	6,3	6	50	3	○	
833007.3	7,3	6	50	3	○	
833008.3	8,3	6	50	3	○	
833009.4	9,4	8	50	3	○	
833010.4	10,4	6	50	3	○	
833012.4	12,4	8	56	3	○	
833013.4	13,4	8	60	3	○	
833014.4	14,4	8	60	3	○	
833016.4	16,4	10	60	3	○	
833019.5	19,5	10	60	3	○	
833020.5	20,5	10	60	3	○	
833025.0	25,0	10	67	3	○	
833031.0	31,0	12	71	3	○	



84



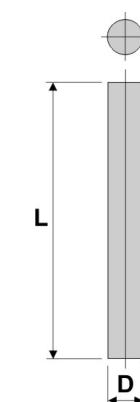
REF.	D	d	r	L	z	K10	TiAIN
844001.00	8,0	8	1,00	50	4	●	
844001.25	8,0	8	1,25	50	4	○	
844001.50	10,0	10	1,50	50	4	○	
844001.75	10,0	10	1,75	50	4	○	
844002.00	12,0	12	2,00	50	4	●	
844002.25	12,0	12	2,25	50	4	○	
844002.50	12,0	12	2,50	50	4	○	
844003.00	14,0	12	3,00	55	4	●	
844003.50	16,0	12	3,50	55	4	○	
844004.00	16,0	12	4,00	60	4	●	
844004.50	18,0	12	4,50	60	4	○	
844005.00	20,0	16	5,00	65	4	●	
844006.00	21,0	16	6,00	65	4	●	
844008.00	26,5	20	8,00	70	4	●	
844010.00	32,0	20	10,00	70	4	○	
844012.00	38,0	20	12,00	75	4	○	

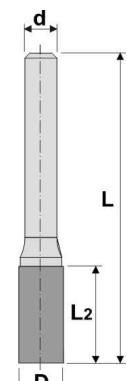
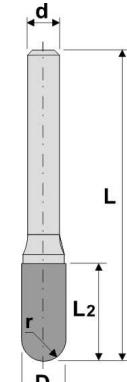
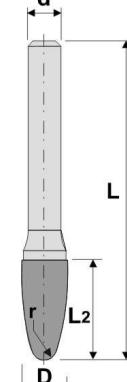
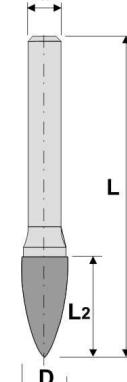


85



REF.	D	L	K10	TiAIN
850002	2	100	●	
850003	3	100	●	
850004	4	100	●	
850005	5	100	●	
850006	6	100	●	
850007	7	100	●	
850008	8	100	●	
850009	9	100	●	
850010	10	100	●	
850011	11	100	●	
850012	12	100	●	
850014	14	100	○	
850016	16	100	○	
850018	18	100	○	
850020	20	100	○	



90	<i>Straight 900</i> 	REF.	D	d	L	L2	r	K10	TiAIN		
		90003	3	3	40	14	-	•			
90	<i>Crossed 901</i> 	90006	6	3	44	14	-	•			
		90008	8	6	63	18	-	•			
		90010	10	6	65	20	-	•			
		90012	12	6	70	25	-	•			
		90016	16	8	70	25	-	•			
		90106	3	3	44	14	-	•			
		90108	6	6	63	18	-	•			
		90110	10	6	65	20	-	•			
		90112	12	6	70	25	-	•			
		90116	16	8	70	25	-	•			
91	<i>Straight 910</i> 	REF.	D	d	L	L2	r	K10	TiAIN		
91	<i>Crossed 911</i> 	91003	3	3	40	14	1,5	•			
		91006	6	3	44	14	3,0	•			
		91008	8	6	63	18	4,0	•			
		91010	10	6	65	20	5,0	•			
		91012	12	6	70	25	6,0	•			
		91016	16	8	70	25	8,0	•			
		91106	6	3	44	14	3,0	•			
		91108	8	6	63	18	4,0	•			
		91110	10	6	65	20	5,0	•			
		91112	12	6	70	25	6,0	•			
		91116	16	8	70	25	8,0	•			
92	<i>Straight 920</i> 	REF.	D	d	L	L2	r	K10	TiAIN		
92	<i>Crossed 921</i> 	92003	3	3	40	12	0,8	•			
		92006	6	3	44	14	1,5	•			
		92008	8	6	61	16	2,0	•			
		92010	10	6	65	20	2,5	•			
		92012	12	6	70	25	3,0	•			
		92016	16	8	70	25	5,0	•			
		92106	6	3	44	14	1,5	•			
		92108	8	6	61	16	2,0	•			
		92110	10	6	65	20	2,5	•			
		92112	12	6	70	25	3,0	•			
		92116	16	8	70	25	5,0	•			
93	<i>Straight 930</i> 	REF.	D	d	L	L2	r	K10	TiAIN		
93	<i>Crossed 931</i> 	93003	3	3	40	12	-	•			
		93006	6	3	44	14	-	•			
		93008	8	6	62	16	-	•			
		93010	10	6	65	20	-	•			
		93012	12	6	70	25	-	•			
		93016	16	8	70	27	-	•			
		93106	6	3	44	14	-	•			
		93108	8	6	62	16	-	•			
		93110	10	6	65	20	-	•			
		93112	12	6	70	25	-	•			
		93116	16	8	70	27	-	•			

Inserts

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Threading

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Cartridges

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Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

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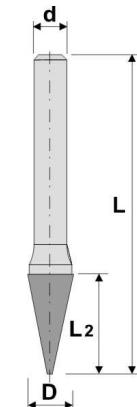
Straight 940



Crossed 941



REF.	D	d	L	L ₂	r	K10	TiAIN
94003	3	3	50	12	-	•	
94006	6	3	44	14	-	•	
94008	8	6	62	16	-	•	
94010	10	6	63	18	-	•	
94012	12	6	65	20	-	•	
94016	16	8	70	25	-	•	
94106	6	3	44	14	-	•	
94108	8	6	62	16	-	•	
94110	10	6	63	18	-	•	
94112	12	6	65	20	-	•	
94116	16	8	70	25	-	•	



95

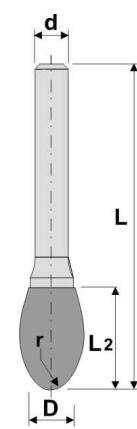
Straight 950



Crossed 951



REF.	D	d	L	L ₂	r	K10	TiAIN
95003	3	3	40	6	1,2	•	
95006	6	3	39	9	2,5	•	
95008	8	6	59	14	3,7	•	
95010	10	6	61	16	4,0	•	
95012	12	6	65	20	5,0	•	
95016	16	8	70	25	6,5	•	
95106	6	3	39	9	2,5	•	
95108	8	6	59	14	3,7	•	
95110	10	6	61	16	4,0	•	
95112	12	6	65	20	5,0	•	
95116	16	8	70	25	6,5	•	



96

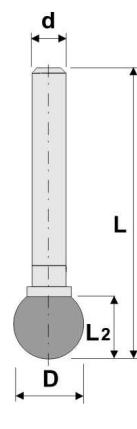
Straight 960



Crossed 961



REF.	D	d	L	L ₂	r	K10	TiAIN
96003	3	3	40	3	-	•	
96006	6	3	35	5	-	•	
96008	8	6	52	7	-	•	
96010	10	6	54	9	-	•	
96012	12	6	56	11	-	•	
96016	16	8	59	14	-	•	
96106	6	3	35	5	-	•	
96108	8	6	52	7	-	•	
96110	10	6	54	9	-	•	
96112	12	6	56	11	-	•	
96116	16	8	59	14	-	•	



97

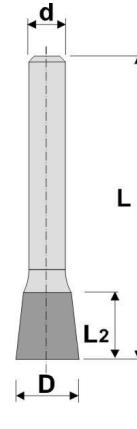
Straight 970



Crossed 971

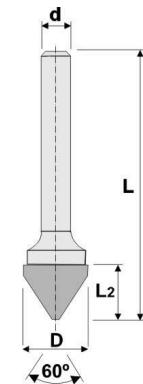


REF.	D	d	L	L ₂	r	K10	TiAIN
97003	3	3	40	3	-	•	
97006	6	3	36	6	-	•	
97008	8	6	53	8	-	•	
97010	10	6	55	10	-	•	
97012	12	6	57	12	-	•	
97016	16	8	60	15	-	•	
97106	6	3	36	6	-	•	
97108	8	6	53	8	-	•	
97110	10	6	55	10	-	•	
97112	12	6	57	12	-	•	
97116	16	8	60	15	-	•	

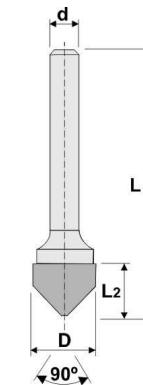


98

REF.	D	d	L	L ₂	r	K10	TIAN
98006	6	6	50	6	-	•	
98008	8	6	53	8	-	•	
98010	10	6	55	10	-	•	
98012	12	6	57	12	-	•	
98016	16	6	61	16	-	•	

**99**

REF.	D	d	L	L ₂	r	K10	TIAN
99006	6	6	50	6	-	•	
99008	8	6	53	8	-	•	
99010	10	6	55	10	-	•	
99012	12	6	57	12	-	•	
99016	16	6	61	16	-	•	

**Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors**

Inserts

Turning

Automatic lathes

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Solid carbide

Boring heads

Arbors & adaptors

Cutting data for solid carbide

Material	Condition	Feed rate S=mm/2 Ø						Coolant	Cutting speed m/min
		2-3	4-6	7- 10	11-15	16-20	21-32		
Structural steel	R.400/600	0.015	0.02	0.03	0.04	0.05	0.07	Emulsion	60-80
	R.600/1000	0.01	0.015	0.02	0.03	0.04	0.06		40-60
	R.1000/1400	0.01	0.01	0.02	0.03	0.04	0.06		30-50
Tool steel	HB 230 HB 230/285	0.01 0.01	0.01 0.01	0.02 0.02	0.03 0.03	0.04 0.04	0.06 0.06	Emulsion	30-50 30-40
Stainless steel	Cr. Mo Cr. Ni	0.01 0.01	0.01 0.01	0.02 0.02	0.03 0.02	0.04 0.03	0.04 0.05	Emulsion cutting oil	30-50 20-40
Semi-steel	To 220	0.01	0.02	0.04	0.06	0.07	0.09	Dry-emulsion	80-100
Malleable cast iron	Over 220	0.01	0.02	0.03	0.04	0.05	0.07	Dry-emulsion	60-90
Cast steel	R. 800	0.01	0.02	0.03	0.04	0.05	0.07	Emulsion	70-130
Titanium and titanium alloys	456	0.01	0.02	0.02	0.03	0.04	0.06	Emulsion	30-60
Aluminium & alloys	10% Si 18% Si	0.02 0.01	0.03 0.02	0.05 0.03	0.07 0.05	0.10 0.07	0.12 0.10	Emulsion	500-800 250-500
Brass, copper, bronze	456	0.01	0.02	0.03	0.05	0.07	0.10	Dry-emulsion	140-250
Layered plastics	456	0.02	0.03	0.05	0.07	0.10	0.13	Dry with suction	100-200

Cutting data for solid carbide drills

Material	Condition	Feed rate S=mm/2 Ø				Coolant	Cutting speed m/min
		1 - 3	4 - 7	8 - 13	14 - 20		
Structural steel	R.800	0.01-0.03	0.02-0.05	0.05-0.08	0.08-0.12	Emulsion	80-100
	R.800-1000	0.01-0.03	0.02-0.04	0.04-0.07	0.07-0.10		70-100
	R.1000-1200	0.01-0.02	0.02-0.03	0.03-0.06	0.06-0.08		60-90
Tool steel HRC 20/30	HB 230 HB 230/285	0.01-0.02 0.01-0.02	0.02-0.03 0.02-0.03	0.03-0.06 0.03-0.04	0.06-0.08 0.04-0.07	Emulsion	30-40 20-30
Steel HRC 50		0.005-0.01	0.01-0.02	0.02-0.03	0.03	Emulsion	8-12
Stainless steel	To 230	0.01-0.02	0.02-0.05	0.05-0.08	0.08-0.10	Emulsion	25-40
Semi-steel	To 285	0.02	0.03-0.06	0.06-0.09	0.10-0.16	Dry	60-90
Malleable cast iron	R. 700	0.02	0.02-0.04	0.04-0.08	0.09-0.15	Dry	70-100
Cast steel		0.01-0.02	0.02-0.05	0.05-0.08	0.08-0.14	Emulsion	60-90
Titanium & titanium alloys		0.005-0.01	0.01-0.03	0.04-0.08	0.8-0.10	Emulsion cutting oil	30-60
Aluminium & alloys	10% Si 12% Si	0.03-0.06 0.01-0.04	0.06-0.08 0.04-0.06	0.08-0.13 0.06-0.09	0.14-0.20 0.09-0.12	Emulsion	100-140 50-60
Brass, Copper, Bronze		0.03-0.06	0.06-0.10	0.10-0.15	0.15-0.20	Dry	60-120
Layered plastics		0.02-0.04	0.04-0.06	0.06-0.08	0.08-0.12	Dry	60-120

Cutting data for tungsten carbide burrs

Material	Condition	HB	Kind of teeth		Cutting speed m/min
			Straight cut	Crossed cut	
Unalloyed steel	C<0,25% C<1<0,80% C,40%	110-310	● ● ●	● ● ●	800-1200 800-1200 800-1200
Low alloyed steel	Annealed Hardened	125-225 220-450	●	● ●	700-1000 600-800
High alloyed steel	Annealed Hardened	150-250 250-500	●	● ●	600-800 600-800
High alloyed steel	Annealed high speed steel (HSS) Hardened tool steel	150-250 250-350	●	● ●	600-800 600-800
Stainless steel	Ferritic-martensitic	150-270	●	●	600-800
Steel casting	Unalloyed Low alloyed High alloyed	150-250	● ● ●	● ● ●	600-800 600-800 600-800
Stainless steel	Austenitic	150-270	●	●	600-800
Stainless steel castings	Ferritic-Martensitic Austenitic Manganese steel	200 200 250	● ● ●	● ● ●	400 300 160
Malleable cast iron	Ferritic - Short chip Pearlitic - Long chip	110-145 200-230	● ●	● ●	750 650
Grey cast iron	High traction resistant Low traction resistant	180 260	● ●	● ●	950 700
Nodular cast iron	Ferritic Pearlitic	160 250	● ●	● ●	650 550
Shell cast iron		400	●	●	160

The indicated data are recommended for manual applications, with a strength of 5-25 N. Increase the cutting speed for light deburring. For heavy operations, for instance by a robot, the cutting speed must be reduced.

Les conditions indiquées sont recommandées pour les applications manuelles avec une force de 5-25 N. Augmenter la vitesse de coupe pour les ébavurages légers. Pour les opérations pesantes, par exemple moyennant un robot, on doit réduire la vitesse de coupe.

Die angegebene Bedingungen sind für manuellen Anwendungen mit einer Kraft von 5-25 N empfohlen. Für leichten Entgraten, die Schnittgeschwindigkeit erhöhen. Für schwere Operationen, z.B. mit einem Roboter, muß die Schnittgeschwindigkeit reduziert werden.

Straight cutting flutes burrs

- Best surface finishing.
- Maximum chip removal in soft materials.
- Excellent tool life.
- Produce needle chips.
- État de surface optimale.
- Maximum enlèvement de copeaux dans des matériaux mous.
- Excellente vie de l'outil.
- Produit des copeaux à forme d'aiguille.
- Optimale Oberflächengüte.
- Maximale Spanabfuhr in weiche Materialien.
- Ausgezeichnete Standzeit.
- Sie produzieren nagelförmige Späne.



Crossed cutting flutes burrs

- Allow a lower spindle speed.
- Smoother operation, even allow speeds.
- High chip removal in hard and soft materials.
- Produce short and rounded chips.
- Permet une vitesse de l'axe plus basse.
- Opérations plus douces.
- Grand enlèvement de copeaux dans des matériaux durs et mous.
- Produit des copeaux courts et arrondis.
- Sie erlaubt eine niedrigere Drehzahl.
- Weichere Operationen.
- Hohe Spanabfuhr in harte und weiche Materialien.
- Sie produzieren kurze und runde Späne.



Type 90



Surfaces and smooth edges

Type 91



Radius and surfaces

Type 92



General shapes

Type 93



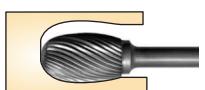
Curved shapes with narrow spaces

Type 94



Narrow spaces

Type 95



Complicated shapes

Type 96



Welded shapes and holes in curved surfaces

Type 97



Inverted cone shape

Type 98



30° Degrees chamfering

Type 99



45° Degrees chamfering

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Milling cutters

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Boring heads

Arbors & adaptors



Technical information
Information technique
Technische Auskunft

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Applications
Anwendungen

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Boring heads
Têtes d'alésage
Bohrköpfe

M04

Arbors for boring heads
Attachements pour têtes d'alésage
Dorne für Bohrköpfe

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Kits
Kits

M10

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Conditions de coupe
Schnittbedingungen

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M01

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

Boring heads

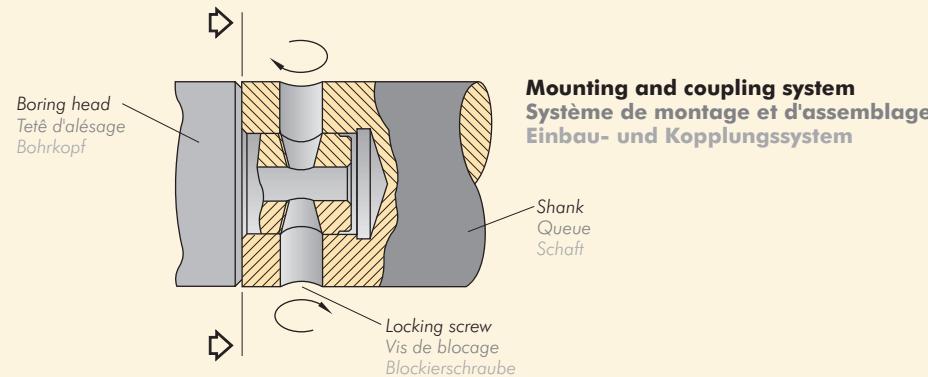
The boring heads are made of Nickel-Chrome alloy steel, with a core toughness of 113,786 to 128,000 lbs/in². All the component parts of the head are heat treated to prolong life and minimise wear on moving parts. The slides are precision ground and close tolerances are maintained in order that the heads provide and maintain accuracy of adjustment throughout their working life. The micrometer adjusting screw of the "finishing heads" has a ground precision thread.

Têtes d'alésage

Les têtes d'alésage sont faites en acier allié de nickel-chrome, avec une dureté de base de 113.786 à 128.000 lbs/in². Tous les éléments qui composent la tête ont été soumis au traitement thermique pour prolonger la vie de l'outil et minimiser l'usure des parties mobiles. Les parties mobiles sont rectifiées de précision et des tolérances très étroites sont maintenues afin que les têtes proportionnent et maintiennent l'exactitude d'ajustement pendant toute leur vie d'outil. La vis de réglage micrométrique des têtes à aléser pour finition a un filet rectifié de précision.

Bohrköpfe

Die Bohrköpfe werden aus Nickel-Chrom-Legierungsstahl gemacht, der eine Kernhärte von 113.786 von 128.000 lbs/m² hat. Alle Bauteile des Köpfes sind warmbehandelt, um das Werkzeugsleben zu verlängern und um den Verschleiß von den bewegenden Teilen zu minimieren. Die Gleitblöcke sind präzisionsgeschliffen und nahe Toleranzen werden eingehalten, damit die Bohrköpfe die Verstellbarkeitsgenauigkeit während des ganzen Werkzeugslebens einhalten. Die mikrometrische Verstellschraube der Bohrköpfe zum Schlichten hat eine präzisionsgeschliffene Gewinde.



Adjustable boring bar - Têtes d'alésage réglables - Verstellbare Bohrstangen



66¹/₂
Adjustable boring bar

CC.. 0602..
TC.. 1102..
TC.. 16T3..

Page M.06

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

M03

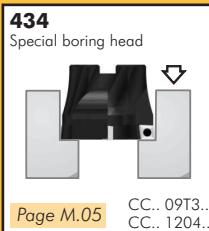
Special boring heads - Têtes d'alésage spéciales - Sonder-Bohrköpfe



433
Special boring head



Page M.05 CC.. 09T3..



434
Special boring head



Page M.05 CC.. 09T3.. CC.. 1204..

Boring heads - Têtes d'alésage - Bohrköpfe



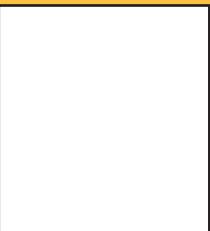
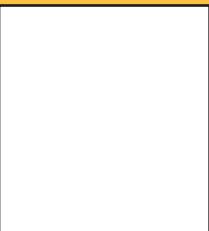
97^{.71}/_{.73}
Boring head



SCLC
Tools for boring heads



STFC
Tools for boring heads



63¹/₄.⁷⁰/_{.74}
Roughing boring heads

CC.. 0602..
CC.. 09T3..
CC.. 1204..



6344.^{.75}
Roughing boring heads

Page M.06 CC.. 1204..



64¹/₄.^{.70}
Roughing boring heads

CC.. 0602..
CC.. 09T3..
CC.. 1204..



6444.^{.75}
Finishing boring heads

Page M.07 CC.. 1204..



6634.^{.72}
Finishing boring heads

Page M.07 TC.. 16T3..



6634.^{.75}
Finishing boring heads

Page M.08 TC.. 16T3..

Arbors for boring heads - Attachements pour têtes d'alésage - Aufnahmen für Bohrköpfe



60.^{.16}/_{.40} DIN 2080
Arbors for boring heads



60.^{.43}/_{.45} DIN 2080
Arbors for boring heads

Page M.09



60.^{.47}/_{.48} DIN 69871/A
Arbors for boring heads

Page M.09



60.^{.49}/_{.50} MAS BT
Arbors for boring heads

Page M.09



60.^{.62}/_{.64}
Arbors for boring heads

Page M.10



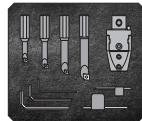
60.^{.70}/_{.73}
Arbors for boring heads

Page M.10

Kits - Kits - Kits



KIT 97



Page M.10



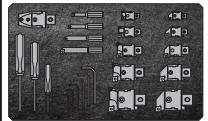
KIT 7072



Page M.11



KIT 7074



Page M.11

Boring heads

Arbors & adaptors

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

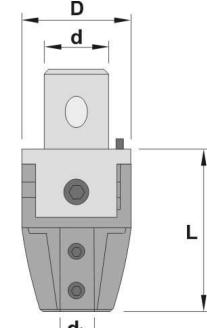
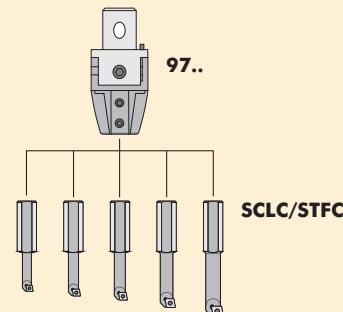
Boring heads

Arbors & adaptors

97. .71 .73



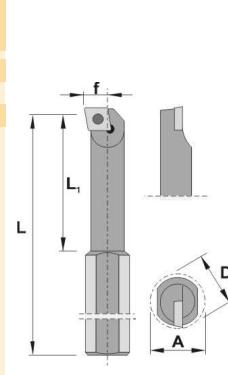
REF.	D	L	d	d1	Ø MIN	Ø MAX	Inserts	Adaptors	Arbors	Collars
97.71.08	27	50	15	8	10	21	101	505	504	503
97.72.08	32	58	20	8	10	21	101	505	504	503
97.72.10	32	58	20	10	13	25	101	505	504	503
97.73.10	42	70	24	10	13	29	101	505	504	503
97.73.12	42	70	24	12	16	34	101	505	504	503
97.73.16	42	70	24	16	20	38	101	505	504	503



SCLC

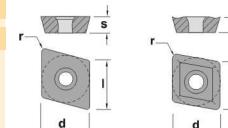


REF.	D	L	L1	f	Bore Range MIN	Bore Range MAX	CC..	Inserts	Adaptors
S0816F SCLC R 06	16	80	35	4	10	28	0602..	155	507
S1016G SCLC R 06	16	90	45	6	13	31	0602..	155	507
S1216H SCLC R 06	16	100	57	7	16	34	0602..	155	507
S1616I SCLC R 09	16	110	73	9	20	38	09T3..	138	515



REF.	I	s	d
CC.. 0602..	6,45	2,38	6,35
CC.. 09T3..	9,65	3,97	9,52

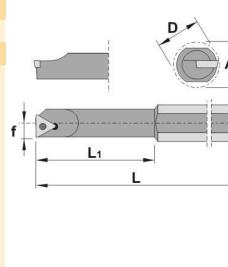
For more information see page: A.38



STFC

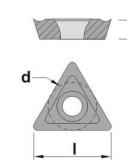


REF.	D	L	L1	f	Bore Range MIN	Bore Range MAX	TC..	Inserts	Adaptors
S0816F STFC R 09	16	80	35	5	10	28	0902..	122	506
S1016G STFC R 09	16	90	45	6	13	31	0902..	122	506
S1216H STFC R 09	16	100	57	7	16	34	0902..	122	506
S1616I STFC R 09	16	110	73	9	20	38	0902..	122	506
S1616I STFC R 16	16	110	73	11	20	38	16T3..	155	515



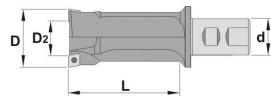
REF.	I	s	d
TC.. 0602..	9,62	2,38	5,55
TC.. 16T3..	16,50	3,97	9,52

For more information see page: A.51,52

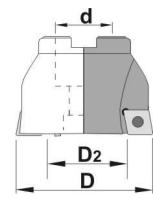


433

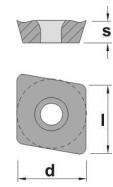
REF.	Z	D	D ₂	d	L	CC..	Sp	Sw
433.040	3	40	20	25	105	09T3..	140	535
433.045	3	45	25	25	105	09T3..	140	535
433.050	3	50	30	25	105	09T3..	140	535
433.055	3	55	35	25	105	09T3..	140	535

**Inserts****Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors****434**

REF.	Z	D	D ₂	d	CC..	Sp	Sw
434.060	3	60	40	16	09T3..	140	535
434.065	3	65	45	22	09T3..	140	535
434.070	3	70	50	22	09T3..	140	535
434.075	3	75	55	27	1204..	150	522
434.080	3	80	60	27	1204..	150	522
434.085	3	85	65	32	1204..	150	522
434.090	3	90	70	32	1204..	150	522
434.095	3	95	75	32	1204..	150	522
434.100	3	100	80	32	1204..	150	522
434.105	3	105	85	40	1204..	150	522
434.110	3	110	90	40	1204..	150	522
434.115	3	115	95	40	1204..	150	522
434.120	3	120	100	40	1204..	150	522
434.125	3	125	105	40	1204..	150	522
434.130	3	130	110	40	1204..	150	522
434.135	3	135	115	40	1204..	150	522
434.140	3	140	120	40	1204..	150	522
434.145	3	145	125	40	1204..	150	522
434.150	3	150	130	40	1204..	150	522
434.155	3	155	135	40	1204..	150	522

**Milling cutters****Solid carbide****Boring heads****Arbors & adaptors**

REF.	I	s	d
CC.. 09T3..	9,65	3,97	9,52
CC.. 1204..	12,90	4,76	12,70



For more information see page: A.38

Inserts

Turning

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Drills

Cartridges

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Milling cutters

Solid carbide

Boring heads

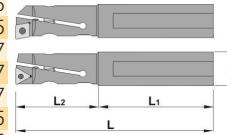
Arbors & adaptors

66¹₂



REF.	L	L1	L2	d	Ø MIN	Ø MAX	CC../TC..	Image 1	Image 2	Image 3	Image 4
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661.1215	105	70	35	12	12	15	CC.. 0602..	159	153	155	-	545	520	507
661.1520	110	60	50	16	15	20	CC.. 0602..	481	404	155	404	502	552	507
661.2025	120	60	60	20	20	25	TC.. 1102..	478	437	125	437	525	552	507
661.2530	140	70	70	25	25	30	TC.. 16T3..	739	737	140	737	525/505	-	515
661.3035	160	70	90	25	30	35	TC.. 16T3..	741	737	140	738	525/526	-	515
662.1215	175	145	30	12	12	15	CC.. 0602..	159	153	155	-	545	520	507
662.1520	175	125	50	16	15	20	CC.. 0602..	481	404	155	404	502	552	507
662.2025	200	140	60	20	20	25	TC.. 1102..	478	437	125	437	525	552	507
662.2530	200	130	70	25	25	30	TC.. 16T3..	739	737	140	737	525/505	-	515
662.3035	200	110	90	25	30	35	TC.. 16T3..	741	737	140	738	525/526	-	515



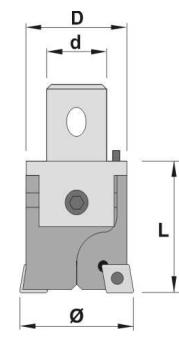
For more information see page: A.38,51,52

63.14.⁷⁰₇₄



REF.	D	L	d	Ø MIN	Ø MAX	CC..	Image 1	Image 2	Image 3
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6314.70.2430	22	34	12	24	30	0602..	155	517	503	502
6334.71.2940	27	42	15	29	40	09T3..	140	535	504	502
6334.72.3950	32	45	20	39	50	09T3..	140	535	504	525
6344.73.4965	42	56	24	49	65	1204..	150	522	505	503
6344.74.6382	54	56	28	63	82	1204..	150	522	506	503

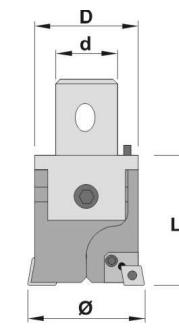


6344.⁷⁵₇₇



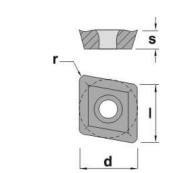
REF.	D	L	d	Ø MIN	Ø MAX	CC..	Image 1	Image 2	Image 3
------	---	---	---	-------	-------	------	---------	---------	---------

6344.75.080102	68	86	36	80	102	1204..	150	522	508	504	641
6344.76.100125	85	100	50	100	125	1204..	150	522	508	505	641
6344.77.125160	110	100	60	125	160	1204..	150	522	508	505	641
6344.77.160220	145	100	60	160	220	1204..	150	522	508	505	641



REF.	I	s	d
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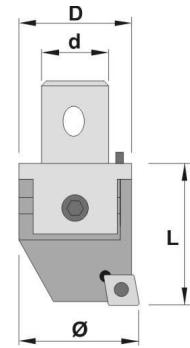
CC.. 1204..	12,90	4,76	12,70
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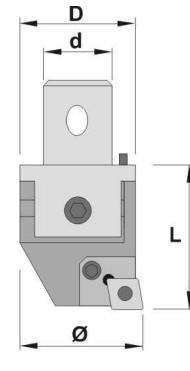
For more information see page: A.38

64.14.^{.70}_{.74}

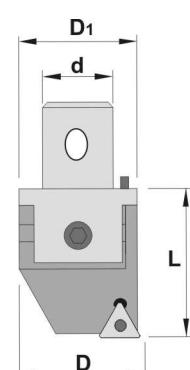
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6414.70.2430	22	34	12	24	30	0602..	155 517 503 502
6434.71.2940	27	42	15	29	40	09T3..	140 535 504 502
6434.72.3950	32	45	20	39	50	09T3..	140 535 504 525
6444.73.4965	42	56	24	49	65	1204..	150 522 505 503
6444.74.6382	54	56	28	63	82	1204..	150 522 506 503

**Turning****6444.^{.75}_{.77}**

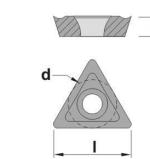
REF.	D	L	d	Ø MIN	Ø MAX	CC..	Ceramic tools
6444.75.080102	68	86	36	80	102	1204..	150 522 508 504 641
6444.76.100125	85	100	50	100	125	1204..	150 522 508 505 641
6444.77.125160	110	100	60	125	160	1204..	150 522 508 505 641
6444.77.160220	145	100	60	160	220	1204..	150 522 508 505 641

**Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors****6634.^{.72}_{.74}**

REF.	D1	L	d	Ø MIN	Ø MAX	TC..	Inserts
6634.72.3950	32	45	20	39	50	16T3..	140 535 504 525
6634.73.4965	42	56	24	49	65	16T3..	150 522 505 503
6634.74.6382	54	66	28	63	82	16T3..	150 522 526 503

**Arbors & adaptors**

REF.	I	s	d
TC.. 16T3..	16,50	3,97	9,52



For more information see page: A.51,52

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

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Solid carbide

Boring heads

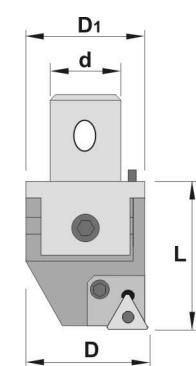
Arbors & adaptors

M08

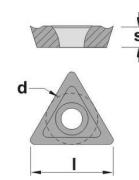
6634.75



REF.	D1	L	d	Ø MIN	Ø MAX	TC..	150	522	508	504	624
6634.75.080102	68	86	36	80	102	16T3..	150	522	508	504	624
6634.76.100125	85	100	50	100	125	16T3..	150	522	508	505	642
6634.77.125160	110	100	60	125	160	16T3..	150	522	508	505	642
6634.77.160220	145	100	60	160	220	16T3..	150	522	508	505	642



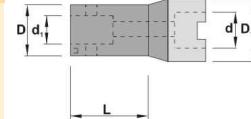
REF.	I	s	d
TC.. 16T3..	16,50	3,97	9,52



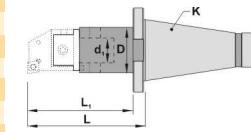
For more information see page: A.51,52

60.¹⁶₄₀

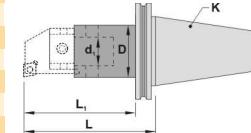
REF.	D	D ₁	L	d ₁	d
60.16.70	22	32	90	12	16
60.16.71	27	32	90	15	16
60.22.73	42	40	130	24	22
60.27.74	54	48	120	28	27
60.32.75	68	58	130	36	32
60.40.76	85	70	120	50	40

**Inserts****Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors****60.⁴³₄₅**

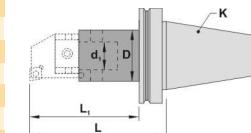
REF.	K	D	L	L ₁	d ₁
60.43.70.100	30	22	115	100	12
60.43.71.100	30	27	115	100	15
60.43.72.100	30	32	115	100	20
60.44.70.100	40	22	115	100	12
60.44.71.100	40	27	115	100	15
60.44.72.100	40	32	115	100	20
60.44.73.160	40	42	175	160	24
60.44.74.160	40	54	175	160	28
60.44.75.160	50	68	176	160	36
60.45.70.100	50	22	119	100	12
60.45.71.100	50	27	119	100	15
60.45.72.130	50	32	149	130	20
60.45.73.160	50	42	179	160	24
60.45.74.160	50	54	179	160	28
60.45.75.200	50	68	220	200	36
60.45.76.200	50	85	221	200	50
60.45.77.260	50	100	281	260	60

**60.⁴⁷₄₈**

REF.	K	D	L	L ₁	d ₁
60.47.70.100	40	22	115	100	12
60.47.71.100	40	27	115	100	15
60.47.72.100	40	32	115	100	20
60.47.73.160	40	42	175	160	24
60.47.74.160	40	54	175	160	28
60.47.75.160	40	68	176	160	36
60.48.70.100	50	22	119	100	12
60.48.71.100	50	27	119	100	15
60.48.72.130	50	32	149	130	20
60.48.73.160	50	42	179	160	24
60.48.74.160	50	54	179	160	28
60.48.75.200	50	68	220	200	36
60.48.76.200	50	85	221	200	50
60.48.77.260	50	100	281	260	60

**60.⁴⁹₅₀**

REF.	K	K ₁	L	L ₁	d ₁
60.49.70.100	40	22	115	100	12
60.49.71.100	40	27	115	100	15
60.49.72.100	40	32	115	100	20
60.49.73.160	40	42	175	160	24
60.49.74.160	40	54	175	160	28
60.49.75.160	40	68	176	160	36
60.50.70.100	50	22	119	100	12
60.50.71.100	50	27	119	100	15
60.50.72.130	50	32	149	130	20
60.50.73.160	50	42	179	160	24
60.50.74.160	50	54	179	160	28
60.50.75.200	50	68	220	200	36
60.50.76.200	50	85	221	200	50
60.50.77.260	50	100	281	260	60

**Arbors & adaptors**

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Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

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Milling cutters

Solid carbide

Boring heads

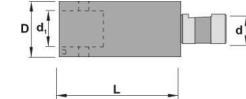
Arbors & adaptors

M10

60.⁶²₅₄



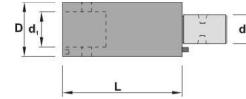
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60.64.71	27	20	52	15
60.64.72	32	20	52	20
60.64.73	42	25	60	24



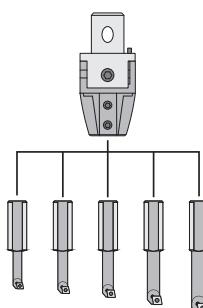
60.⁷⁰₇₃



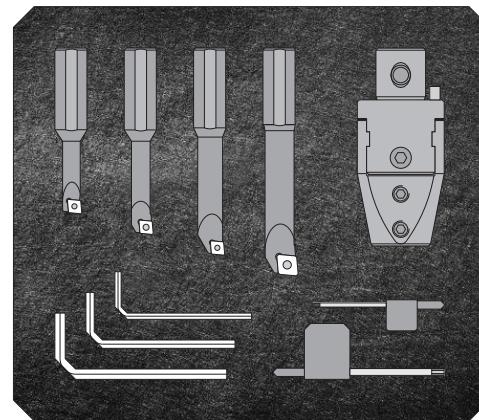
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60.72.72.35	32	20	35	20
60.72.72.52	32	20	52	20
60.73.73.40	42	24	40	24
60.73.73.60	42	24	60	24



KIT 97



REF.	Boring head	Boring bars	Bore Range	
			MIN	MAX
97.SCLC	97.73.16	S0816F SCLC R 06 S1016G SCLC R 06 S1216H SCLC R 06 S1616I SCLC R 09	10 13 16 20	28 31 34 38
97.STFC	97.73.16	S0816F STFC R 09 S1016G STFC R 09 S1216H STFC R 09 S1616I STFC R 09 S1616I STFC R 16	10 13 16 20 20	28 31 34 38 38



KIT 7072

REF.	Roughing boring head	Finishing boring head	Boring head	Boring bars	Bore Range MIN	Range MAX
SET 7072	6314.70.2430	6414.70.2430	97.73.16	S0816F SCLC R 06	10	28
	6334.71.2940	6434.71.2940		S1016G SCLC R 06	13	31
	6334.72.3950	6434.72.3950		S1216H SCLC R 06	16	34
				S1616I SCLC R 09	20	38

Inserts

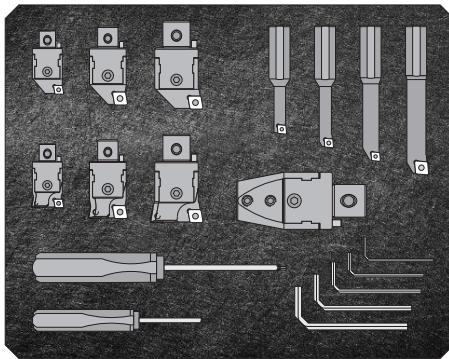
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toolsParting &
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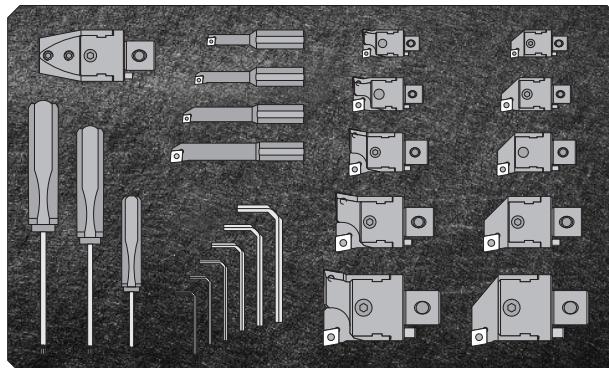
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Cartridges

Brazed
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cuttersSolid
carbideBoring
headsArbors &
adaptors**KIT 7074**

REF.	Roughing boring head	Finishing boring head	Boring head	Boring bars	Bore Range MIN	Range MAX
SET 7074	6314.70.2430	6414.70.2430	97.73.16	S0816F SCLC R 06	10	28
	6334.71.2940	6434.71.2940		S1016G SCLC R 06	13	31
	6334.72.3950	6434.72.3950		S1216H SCLC R 06	16	34
	6344.73.4965	6444.73.4965				
	6344.74.6382	6444.74.6382		S1616I SCLC R 09	20	38



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Cutting data for boring heads

Material	Head size	Diameter	Finishing heads			Roughing heads		
			Cutting Speed	Feed	Cutting Depth	Cutting Speed	Feed	Cutting Depth (max)
Plain carbon steel	22	24 ÷ 30	110 - 140	0,05 - 0,15	0,05 - 0,30	100 - 130	0,15 - 0,25	4,2
	27	29 ÷ 40	115 - 150	0,05 - 0,15	0,05 - 0,30	105 - 140	0,15 - 0,30	5,7
	32	39 ÷ 50	115 - 150	0,05 - 0,15	0,06 - 0,35	105 - 150	0,20 - 0,30	5,7
	42 - 54 - 68	49 ÷ 102	115 - 150	0,10 - 0,20	0,06 - 0,35	105 - 150	0,25 - 0,35	6,3
	85 - 110 - 145	100 ÷ 220	115 - 150	0,10 - 0,20	0,07 - 0,50	105 - 150	0,30 - 0,40	6,3
Alloy steels	22	24 ÷ 30	100 - 130	0,05 - 0,15	0,05 - 0,30	90 - 120	0,15 - 0,25	4,2
	27	29 ÷ 40	110 - 140	0,05 - 0,15	0,05 - 0,30	100 - 130	0,15 - 0,30	5,7
	32	39 ÷ 50	110 - 150	0,05 - 0,15	0,06 - 0,35	100 - 130	0,20 - 0,30	5,7
	42 - 54 - 68	49 ÷ 102	110 - 150	0,10 - 0,20	0,06 - 0,35	100 - 130	0,25 - 0,35	6,3
	85 - 110 - 145	100 ÷ 220	110 - 150	0,10 - 0,20	0,07 - 0,50	100 - 130	0,30 - 0,40	6,3
Stainless steels	22	24 ÷ 30	70 - 100	0,07 - 0,15	0,12 - 0,35	60 - 90	0,12 - 0,20	4,2
	27	29 ÷ 40	80 - 110	0,07 - 0,15	0,12 - 0,35	70 - 100	0,15 - 0,25	5,7
	32	39 ÷ 50	80 - 110	0,07 - 0,15	0,20 - 0,50	70 - 100	0,15 - 0,25	5,7
	42 - 54 - 68	49 ÷ 102	80 - 110	0,10 - 0,20	0,20 - 0,50	70 - 100	0,20 - 0,30	6,3
	85 - 110 - 145	100 ÷ 220	80 - 110	0,12 - 0,20	0,25 - 0,75	70 - 100	0,25 - 0,35	6,3
Cast iron	22	24 ÷ 30	70 - 110	0,07 - 0,15	0,12 - 0,35	60 - 110	0,20 - 0,30	4,2
	27	29 ÷ 40	80 - 115	0,07 - 0,15	0,12 - 0,35	60 - 110	0,25 - 0,35	5,7
	32	39 ÷ 50	80 - 115	0,07 - 0,15	0,20 - 0,50	60 - 110	0,25 - 0,35	5,7
	42 - 54 - 68	49 ÷ 102	80 - 115	0,12 - 0,20	0,20 - 0,50	60 - 110	0,30 - 0,45	6,3
	85 - 110 - 145	100 ÷ 220	80 - 115	0,12 - 0,20	0,25 - 0,75	60 - 110	0,30 - 0,45	6,3
Aluminium and aluminium alloys	22	24 ÷ 30	150 - 300	0,05 - 0,15	0,12 - 0,35	120 - 300	0,20 - 0,30	4,2
	27	29 ÷ 40	150 - 360	0,10 - 0,20	0,12 - 0,35	150 - 370	0,25 - 0,35	5,7
	32	39 ÷ 50	150 - 360	0,10 - 0,20	0,20 - 0,50	150 - 370	0,25 - 0,35	5,7
	42 - 54 - 68	49 ÷ 102	150 - 360	0,10 - 0,20	0,20 - 0,50	150 - 370	0,30 - 0,45	6,3
	85 - 110 - 145	100 ÷ 220	150 - 360	0,10 - 0,25	0,25 - 0,75	150 - 370	0,30 - 0,45	6,3
Titanium	22	24 ÷ 30	30 - 40	0,07 - 0,15	0,12 - 0,35	25 - 35	0,12 - 0,20	4,2
	27	29 ÷ 40	30 - 45	0,07 - 0,15	0,12 - 0,35	30 - 40	0,15 - 0,25	5,7
	32	39 ÷ 50	30 - 45	0,07 - 0,15	0,20 - 0,50	30 - 40	0,15 - 0,25	5,7
	42 - 54 - 68	49 ÷ 102	30 - 45	0,10 - 0,20	0,20 - 0,50	30 - 40	0,20 - 0,30	6,3
	85 - 110 - 145	100 ÷ 220	30 - 45	0,10 - 0,20	0,25 - 0,75	30 - 40	0,20 - 0,35	6,3
High tempered alloys	22	24 ÷ 30	30 - 40	0,07 - 0,15	0,12 - 0,35	25 - 35	0,12 - 0,20	4,2
	27	29 ÷ 40	30 - 45	0,07 - 0,15	0,12 - 0,35	30 - 40	0,15 - 0,25	5,7
	32	39 ÷ 50	30 - 45	0,07 - 0,15	0,20 - 0,50	30 - 40	0,15 - 0,25	5,7
	42 - 54 - 68	49 ÷ 102	30 - 45	0,10 - 0,20	0,20 - 0,50	30 - 40	0,20 - 0,30	6,3
	85 - 110 - 145	100 ÷ 220	30 - 45	0,10 - 0,20	0,25 - 0,75	30 - 40	0,20 - 0,35	6,3



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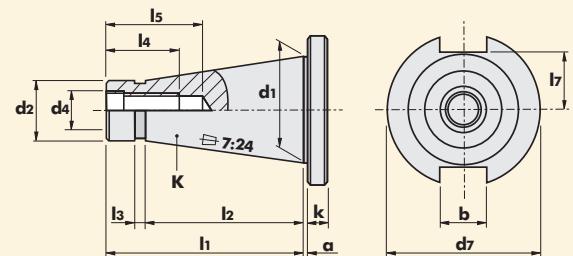
Milling cutters

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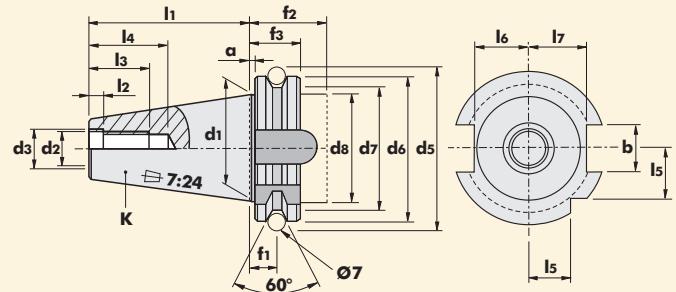
Arbors & adaptors

DIN 2080



K	a ±0,2	b H12	d1	d2	d4	d7	k	l	l2	l3	l4	l5 min	l7 max
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40	1,6	16,1	44,45	25,3	M16	63,0	10	93,4	65,4	5	32	42,5	22,5
45	3,2	19,3	57,15	32,4	M20	80,0	12	106,8	82,8	6	40	52,5	29,0
50	3,2	25,7	69,85	39,6	M24	97,5	12	126,8	101,8	8	47	61,5	35,3
60	3,2	25,7	107,95	60,2	M30	156,0	16	206,8	161,8	10	59	76,0	60,0

DIN 69871/A





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Automatic lathes



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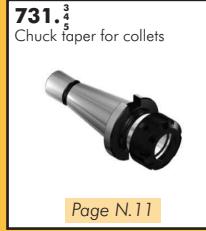
Ceramic tools



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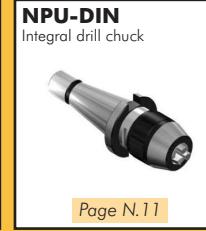
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Parting & grooving

Threading

Drills



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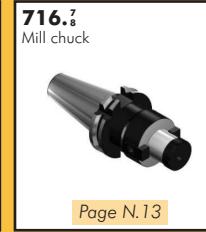
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Cartridges



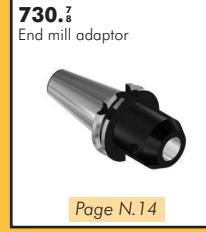
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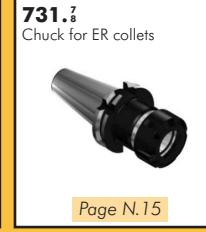
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Brazed tools

Milling cutters

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MAS BT

710.0 Cooling fluid supply unit 	021 Reducing bushings 	706.0 Modular mill adaptor 	716.0L Mill chuck (Long) 	716.0 Mill chuck 	722.0 ISO Taper adaptor 
723.0 Mill adaptor 	726.0 Drill adaptor 	728.0 Drill chuck adaptor 	730.0 End mill adaptor 	731.0 Chuck for ER collets 	734.0 Strong hold milling chucks 
737.0 Quick change tapping heads 	HX-BT Drill chuck with hexagonal key lock system 	NPU-BT Integral drill chuck 	PS-BT High precision drill chuck 		
Page N.17	Page N.17	Page N.17	Page N.18	Page N.18	Page N.18
Page N.19	Page N.19	Page N.19	Page N.19	Page N.20	Page N.20
Page N.20	Page N.20	Page N.21	Page N.21		

Inserts**Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****HSK**

506.0 Modular mill adaptor 	516 Mill chuck 	518 Mill chuck 	526 Drill adaptor 	530 End mill adaptor 	531 Chuck for ER collets 
Page N.22	Page N.22	Page N.22	Page N.22	Page N.23	Page N.23
533 Blank boring bars 	535.0 Shrink fit chucks 	HS-HSK Drill chuck with hexagonal key lock system 	NPU-HSK Drill chuck 		
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Drills**Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors****DIN 228/A - 228/B**

CR Drill chucks 	E Drill sleeves 	HX-MT Drill chuck with hexagonal key lock system 	SPS-MT Drill chuck 	700.0 Chuck for ER collets 	
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831
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HX-R8
Drill chuck with hexagonal key lock system

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NPU-R8
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HX-CIL
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NPU-CIL
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6 1/2-0
Modular cylindric shank

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6 3/4-6.0
Modular Morse shank

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61°
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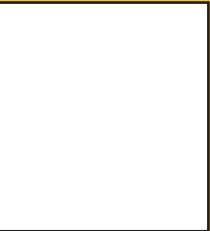
ER
Collets

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C
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SP DIN 238
Keyless drill chucks

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SPX DIN 238
Keyless drill chucks

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CK CHUCK
Keyless drill chucks

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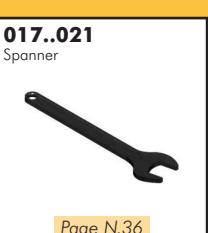
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Clamping nuts-ER collets

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Clamping nuts-C collets

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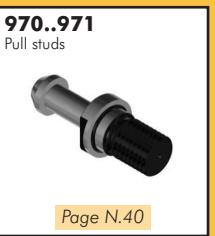
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Pull studs



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Reducing bushings



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SER
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KIT 731
Mill chuck



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662.0 (CLS)
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KIT C32
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02_⁷⁰₈₀



REF.	Types	DIN 2080	DIN 69871/A	MAS BT	HSK	CAPTO	KM
02.30.70		30	30	X	50	C5	50
02.30.80		X	X	30	X	X	X
02.40.70		40	40	40	63	C6	63
02.50.70		50	50	50	100	X	X

DIN
2080

DIN
69871/A

MAS BT

HSK

CAPTO

KM



02_⁷¹₈₁



REF.	Types	DIN 2080	DIN 69871/A	MAS BT	HSK	CAPTO	KM
02.30.71		30	30	X	50	C5	50
02.30.81		X	X	30	X	X	X
02.40.71		40	40	40	63	C6	63
02.50.71		50	50	50	100	X	X

DIN
2080

DIN
69871/A

MAS BT

HSK

CAPTO

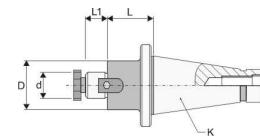
KM



**716.³₄⁵**

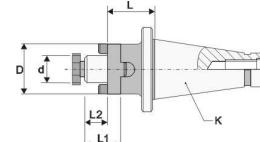
REF.	K	d	D	L	L ₁
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716.322	30	22	40	35	19
716.327	30	27	48	35	21
716.332	30	32	58	35	24
716.416	40	16	32	37	17
716.422	40	22	40	37	19
716.427	40	27	48	37	21
716.432	40	32	58	37	24
716.440	40	40	70	38	27
716.460	40	60	128	30	40
716.516	50	16	32	40	17
716.522	50	22	40	40	19
716.527	50	27	48	40	21
716.532	50	32	58	40	24
716.540	50	40	70	40	27
716.560	50	60	128	30	40

DIN 2080

**Inserts****Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors****718.⁴₅**

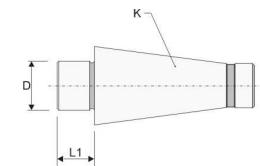
REF.	K	d	D	L	L ₁	L ₂
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718.422	40	22	40	52	31	19
718.427	40	27	48	52	33	21
718.432	40	32	58	52	38	24
718.440	40	40	70	52	41	27
718.516	50	16	32	55	27	17
718.522	50	22	40	55	31	19
718.527	50	27	48	55	33	21
718.532	50	32	58	55	38	24
718.540	50	40	70	55	41	27

DIN 2080

**719.⁴₅**

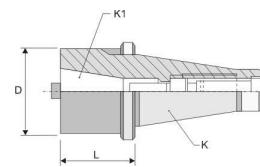
REF.	K	L ₁	D
719.440	40	30	40
719.560	50	40	60

DIN 2080

**722.⁴₅**

REF.	K	K ₁	D	L
722.430	40	30	50	50
722.540	50	40	63	50

DIN 2080

**Arbors & adaptors**



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

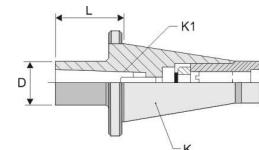
Arbors & adaptors

723.³₄⁵



REF.	K	K1	D	L
723.302	30	MK2	32	50
723.303	30	MK3	40	76
723.402	40	MK2	32	50
723.403	40	MK3	40	65
723.404	40	MK4	48	95
723.503	50	MK3	40	65
723.504	50	MK4	48	65

DIN 2080

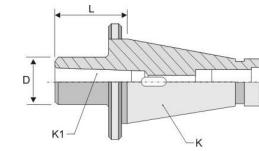


726.³₄⁵



REF.	K	K1	D	L
726.302	30	MK2	32	50
726.303	30	MK3	40	76
726.401	40	MK1	25	50
726.402	40	MK2	32	50
726.403	40	MK3	40	65
726.404	40	MK4	48	95
726.503	50	MK3	48	65
726.504	50	MK4	63	70

DIN 2080

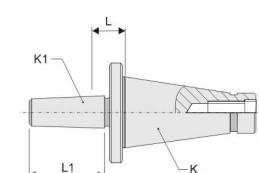


728.³₄⁵



REF.	K	K1	L	L1
728.312	30	B12	15	18,5
728.316	30	B16	15	24,0
728.318	30	B18	15	32,0
728.412	40	B12	17	18,5
728.416	40	B16	17	24,0
728.418	40	B18	17	32,0
728.516	50	B16	20	24,0
728.518	50	B18	20	32,0

DIN 2080

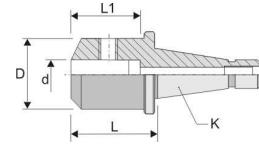


730.⁴₅



REF.	K	d	D	L	L1
730.410	40	10	35	50	39
730.412	40	12	42	50	44
730.416	40	16	48	63	47
730.420	40	20	52	63	49
730.425	40	25	65	80	54
730.432	40	32	72	80	58
730.516	50	16	48	63	47
730.520	50	20	52	63	49
730.525	50	25	65	80	54
730.532	50	32	72	80	58

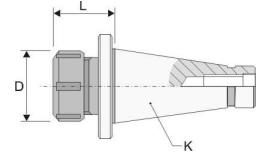
DIN 2080



**731.₃⁴₅**

REF.	K	L	D	SIZE OF COLLETS	CLAMPING NUT	COLLET
731.316	30	38	24	1-10	090	ER16
731.320	30	38	32	1-13	091	ER20
731.325	30	39	42	1-16	092	ER25
731.332	30	50	50	2-20	093	ER32
731.416	40	50	24	1-10	090	ER16
731.420	40	50	34	1-13	091	ER20
731.425	40	50	42	1-16	092	ER25
731.432	40	50	50	2-20	093	ER32
731.432L	40	120	50	2-20	093	ER32
731.440	40	56	63	4-30	094	ER40
731.440L	40	120	63	4-30	094	ER40
731.532	50	70	50	2-20	093	ER32
731.532L	50	100	50	2-20	093	ER32
731.540	50	70	63	4-30	094	ER40
731.540L	50	100	63	4-30	094	ER40

DIN 2080



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

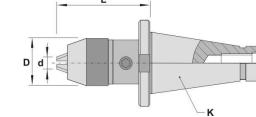
Boring heads

Arbors & adaptors

HX-DIN

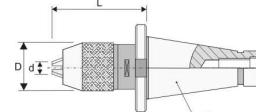
REF.	d	K	LMIN	LMAX	D
HX10-DIN40	0-10	40	72	81	43
HX13-DIN40	1-13	40	86	97	53
HX16-DIN40	3-16	40	88	99	57
HX10-DIN50	0-10	50	74	83	43
HX13-DIN50	1-13	50	89	101	53
HX16-DIN50	3-16	50	92	103	57

DIN 2080

**NPU-DIN**

REF.	d	K	LMIN	LMAX	D
NPU13-DIN40	1-13	40	78	89	48
NPU16-DIN40	3-16	40	90	101	55
NPU13-DIN50	1-13	50	74	85	48
NPU16-DIN50	3-16	50	72	83	55

DIN 2080





Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

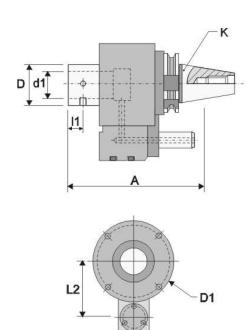
Arbors & adaptors

710.⁷₈



REF.	K	d ₁	A	D	D ₁	l ₁	l ₂	
710.725	40	25	152	45	95	15	65	166
710.732	40	32	152	48	95	16	65	166
710.832	50	32	152	48	95	16	80	166
710.840	50	40	166	58	110	17	80	166

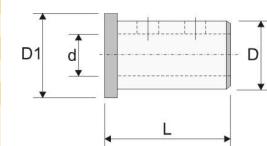
DIN 69871/A



021



REF.	D	d	D ₁	L
021.25.16	25	16	33	55
021.25.20	25	20	33	55
021.32.16	32	16	40	60
021.32.20	32	20	40	60
021.32.25	32	25	40	60
021.40.16	40	16	48	65
021.40.20	40	20	48	65
021.40.25	40	25	48	65
021.40.32	40	32	48	65

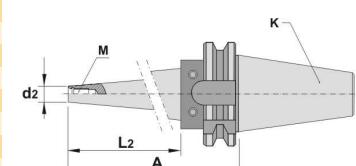


706.⁴₅ L



REF.	K	L ₂	A	d ₂	M
706.4.10	40	50	70	18,0	M10
706.4.10L120	40	100	120	18,0	M10
706.4.10L200	40	158	200	18,0	M10
706.4.10L250	40	202	250	18,0	M10
706.4.10L300	40	258	300	18,0	M10
706.4.12	40	50	70	21,0	M12
706.4.12L120	40	100	120	21,0	M12
706.4.12L200	40	158	200	21,0	M12
706.4.12L250	40	202	250	21,0	M12
706.4.12L300	40	258	300	21,0	M12
706.4.16	40	50	70	29,0	M16
706.4.16L120	40	100	120	29,0	M16
706.4.16L200	40	158	200	29,0	M16
706.4.16L250	40	208	250	29,0	M16
706.4.16L300	40	252	300	29,0	M16
706.5.12	50	50	70	21,0	M12
706.5.12L120	50	100	120	21,0	M12
706.5.12L250	50	197	250	21,0	M12
706.5.12L300	50	247	300	21,0	M12
706.5.12L400	50	347	400	21,0	M12
706.5.16	50	100	120	29,0	M16
706.5.16L170	50	150	170	29,0	M16
706.5.16L250	50	197	250	29,0	M16
706.5.16L300	50	247	300	29,0	M16
706.5.16L400	50	347	400	29,0	M16
706.5.16L500	50	417	500	29,0	M16

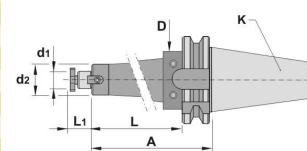
DIN 69871/A



**716. L**

REF.	K	D	A	L	L ₁	d ₁	d ₂
716.7.16L150	40	50	150	131	36	16	36
716.7.16L200	40	50	200	181	36	16	36
716.7.16L250	40	50	250	231	36	16	36
716.7.16L300	40	50	300	281	36	16	36
716.7.22L150	40	50	150	131	19	22	44
716.7.22L200	40	50	200	181	19	22	44
716.7.22L250	40	50	250	231	19	22	44
716.7.22L300	40	50	300	281	19	22	44
716.7.27L150	40	50	150	131	21	27	54
716.7.27L200	40	50	200	181	21	27	54
716.7.27L250	40	50	250	231	21	27	54
716.7.27L300	40	50	300	281	21	27	54
716.8.16L150	50	80	150	131	36	16	36
716.8.16L200	50	80	200	181	36	16	36
716.8.16L250	50	80	250	231	36	16	36
716.8.16L300	50	80	300	281	36	16	36
716.8.16L400	50	80	400	381	36	16	36
716.8.22L200	50	80	200	181	19	22	44
716.8.22L250	50	80	250	231	19	22	44
716.8.22L300	50	80	300	281	19	22	44
716.8.22L400	50	80	400	381	19	22	44
716.8.22L500	50	80	500	481	19	22	44
716.8.27L200	50	80	200	181	21	27	54
716.8.27L250	50	80	250	231	21	27	54
716.8.27L300	50	80	300	281	21	27	54
716.8.27L400	50	80	400	381	21	27	54
716.8.27L500	50	80	500	481	21	27	54
716.8.32L200	50	80	200	181	24	32	54
716.8.32L250	50	80	250	231	24	32	54
716.8.32L300	50	80	300	281	24	32	54
716.8.32L400	50	80	400	381	24	32	54
716.8.32L500	50	80	500	481	24	32	54

DIN 69871/A



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

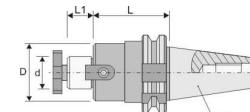
Threading

Drills

716.8

REF.	K	d	D	L	L ₁
716.716	40	16	32	44	17
716.722	40	22	40	44	19
716.727	40	27	48	44	21
716.732	40	32	58	59	24
716.740	40	40	70	59	27
716.816	50	16	32	44	17
716.822	50	22	40	44	19
716.827	50	27	48	47	21
716.832	50	32	58	47	24
716.840	50	40	70	59	27
716.860	50	60	128	75	40

DIN 69871/A



Cartridges

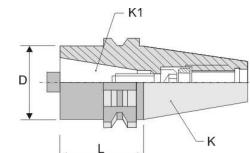
Brazed tools

Milling cutters

722.8

REF.	K	K ₁	D	L
722.840	50	40	70	63

DIN 69871/A



Solid carbide

Boring heads

Arbors & adaptors



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

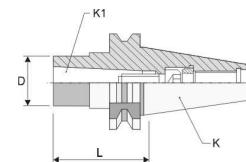
Arbors & adaptors

723.⁷₈



REF.	K	K1	D	L
723.702	40	MK2	32	50
723.703	40	MK3	40	70
723.704	40	MK4	48	95
723.803	50	MK3	40	65
723.804	50	MK4	48	70

DIN 69871/A

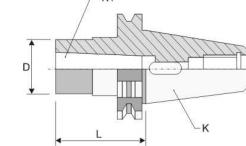


726.⁷₈



REF.	K	K1	D	L
726.701	40	MK1	25	50
726.702	40	MK2	32	50
726.703	40	MK3	40	70
726.704	40	MK4	48	95
726.803	50	MK3	40	65
726.804	50	MK4	48	95

DIN 69871/A

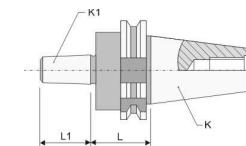


728.⁷₈



REF.	K	K1	L	L1
728.712	40	B12	25	18,5
728.716	40	B16	25	24,0
728.718	40	B18	25	32,0
728.816	50	B16	25	24,0
728.818	50	B18	25	32,0

DIN 69871/A

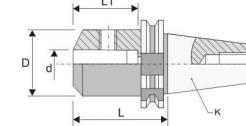


730.⁷₈



REF.	K	d	D	L	L1
730.710	40	10	35	50	39
730.712	40	12	42	50	44
730.716	40	16	48	63	47
730.720	40	20	52	63	49
730.725	40	25	65	100	54
730.732	40	32	72	100	58
730.816	50	16	48	63	47
730.820	50	20	52	63	49
730.825	50	25	65	80	54
730.832	50	32	72	100	58

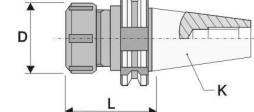
DIN 69871/A



**731.⁷**

REF.	K	L	D	SIZE OF COLLETS	CLAMPING NUT	COLLET
731.716	40	60	28	1-10	090	ER16
731.720	40	70	34	1-13	091	ER20
731.725	40	70	42	1-16	092	ER25
731.732	40	70	50	2-20	093	ER32
731.732L	40	120	50	2-20	093	ER32
731.740	40	56	63	4-30	094	ER40
731.740L	40	120	63	4-30	094	ER40
731.832	50	70	50	2-20	093	ER32
731.832L	50	100	50	2-20	093	ER32
731.840	50	70	63	4-30	094	ER40
731.840L	50	120	63	4-30	094	ER40

DIN 69871/A



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

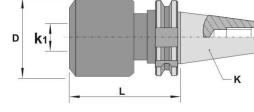
Boring heads

Arbors & adaptors

734.⁸

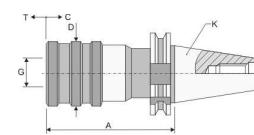
REF.	K	K1	D	L
734.720	40	20	54	105
734.732	40	32	72	105
734.832	50	32	72	105

DIN 69871/A

**737.⁷**

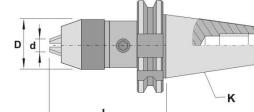
REF.	K	N°	G	Ø	A	D	C	T		
737.712	40	1	19	M4-M12	60	36	9	9	71XX	75XX
737.720	40	2	31	M8-M20	92	53	15	9	72XX	76XX
737.733	40	3	48	M14-M33	138	78	24	9	73XX	77XX
737.812	50	1	19	M4-M12	60	36	9	9	71XX	75XX
737.820	50	2	31	M8-M20	92	53	15	9	72XX	76XX
737.833	50	3	48	M14-M33	138	78	24	9	73XX	77XX

DIN 69871/A

**HX-ID**

REF.	K	d	D	L _{MIN}	L _{MAX}
HX10-ID40	40	0-10	43	77	85,5
HX10-ID40/R	40	0-10	43	77	85,5
HX13-ID40	40	1-13	53	91	103,0
HX13-ID40/R	40	1-13	53	91	103,0
HX16-ID40	40	3-16	57	94	105,0
HX16-ID40/R	40	3-16	57	94	105,0
HX10-ID50	50	0-10	43	79	87,5
HX10-ID50/R	50	0-10	43	79	87,5
HX13-ID50	50	1-13	53	93	105,0
HX13-ID50/R	50	1-13	53	93	105,0
HX16-ID50	50	3-16	57	96	107,0
HX16-ID50/R	50	3-16	57	96	107,0

DIN 69871/A



N15



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

NPU-ID



REF.

d

K

L_{MIN}

L_{MAX}

D

NPU13-ID40
NPU16-ID40
NPU13-ID50
NPU16-ID50

1-13
 3-16

40
 50

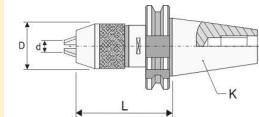
80
 78

91
 89

48
 48

55
 55

DIN 69871/A



PS-ID



REF.

d

K

L_{MIN}

L_{MAX}

D

PS13-ID40
PS13-ID50

1-13

40

78

89

48

1-13

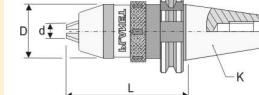
50

74

85

48

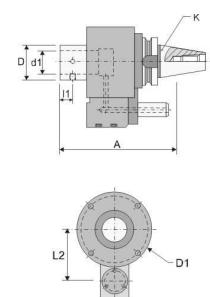
DIN 69871/A



**710.º**

REF.	K	d1	A	D	D1	I1	I2	
710.925	40	25	152	45	95	15	65	166
710.932	40	32	152	48	95	16	65	166
710.032	50	32	152	48	95	16	80	166
710.040	50	40	166	58	110	17	80	166

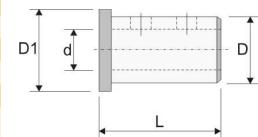
MAS BT

**Inserts****Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading**

Drills

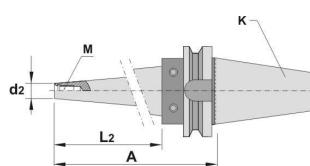
021

REF.	D	d	D1	L
021.25.16	25	16	33	55
021.25.20	25	20	33	55
021.32.16	32	16	40	60
021.32.20	32	20	40	60
021.32.25	32	25	40	60
021.40.16	40	16	48	65
021.40.20	40	20	48	65
021.40.25	40	25	48	65
021.40.32	40	32	48	65

**Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****706.º**

REF.	K	L2	A	d2	M
706.9.10	40	50	80	18,0	M10
706.9.10L130	40	100	130	18,0	M10
706.9.10L200	40	158	200	18,0	M10
706.9.10L250	40	208	250	18,0	M10
706.9.10L300	40	258	300	18,0	M10
706.9.12	40	50	80	21,0	M12
706.9.12L130	40	100	130	21,0	M12
706.9.12L200	40	158	200	21,0	M12
706.9.12L250	40	208	250	21,0	M12
706.9.12L300	40	258	300	21,0	M12
706.9.16	40	50	80	29,0	M16
706.9.16L130	40	100	130	29,0	M16
706.9.16L200	40	158	200	29,0	M16
706.9.16L250	40	208	250	29,0	M16
706.9.16L300	40	258	300	29,0	M16
706.0.12	50	100	140	21,0	M12
706.0.12L190	50	150	190	21,0	M12
706.0.12L200	50	197	250	21,0	M12
706.0.12L250	50	247	300	21,0	M12
706.0.12L300	50	347	400	21,0	M12
706.0.16	50	100	140	29,0	M16
706.0.16L190	50	150	190	29,0	M16
706.0.16L250	50	197	250	29,0	M16
706.0.16L300	50	247	300	29,0	M16
706.0.16L400	50	347	400	29,0	M16
706.0.16L500	50	447	500	29,0	M16

MAS BT

**Arbors & adaptors**



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

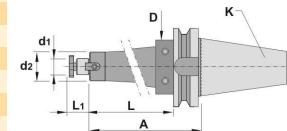
Arbors & adaptors

716.ºL



REF.	K	D	A	L	L1	d1	d2
716.9.16L150	40	50	150	116	36	16	36
716.9.16L200	40	50	200	166	36	16	36
716.9.16L250	40	50	250	216	36	16	36
716.9.16L300	40	50	300	266	36	16	36
716.9.22L150	40	50	150	116	19	22	44
716.9.22L200	40	50	200	166	19	22	44
716.9.22L250	40	50	250	216	19	22	44
716.9.22L300	40	50	300	266	19	22	44
716.9.27L150	40	50	150	116	21	27	54
716.9.27L200	40	50	200	166	21	27	54
716.9.27L250	40	50	250	216	21	27	54
716.9.27L300	40	50	300	266	21	27	54
716.0.16L150	50	80	150	112	36	16	36
716.0.16L200	50	80	200	162	36	16	36
716.0.16L250	50	80	250	212	36	16	36
716.0.16L300	50	80	300	262	36	16	36
716.0.16L400	50	80	400	362	36	16	36
716.0.22L200	50	80	200	162	19	22	44
716.0.22L250	50	80	250	212	19	22	44
716.0.22L300	50	80	300	262	19	22	44
716.0.22L400	50	80	400	362	19	22	44
716.0.22L500	50	80	500	462	19	22	44
716.0.27L200	50	80	200	162	21	27	54
716.0.27L250	50	80	250	212	21	27	54
716.0.27L300	50	80	300	262	21	27	54
716.0.27L400	50	80	400	362	21	27	54
716.0.27L500	50	80	500	462	21	27	54
716.0.32L200	50	80	200	162	24	32	54
716.0.32L250	50	80	250	212	24	32	64
716.0.32L300	50	80	300	262	24	32	64
716.0.32L400	50	80	400	362	24	32	64
716.0.32L500	50	80	500	462	24	32	64

MAS BT

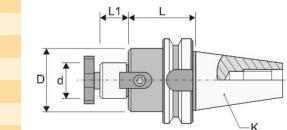


716.º



REF.	K	d	D	L	L1
716.916	40	16	32	44	17
716.922	40	22	40	44	19
716.927	40	27	48	47	21
716.932	40	32	58	50	24
716.940	40	40	70	52	27
716.016	50	16	32	55	17
716.022	50	22	40	55	19
716.027	50	27	48	58	21
716.032	50	32	58	61	24
716.040	50	40	70	63	27
716.060	50	60	128	25	40

MAS BT

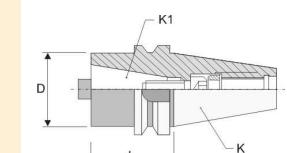


722.0



REF.	K	K1	D	L
722.040	50	40	78	70

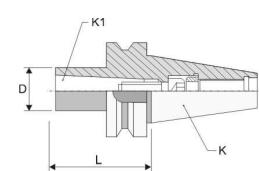
MAS BT



**723.º**

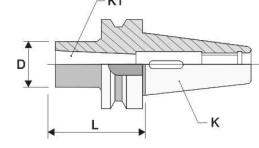
REF.	K	K1	D	L
723.902	40	MK2	32	50
723.903	40	MK3	40	70
723.904	40	MK4	48	95
723.003	50	MK3	40	65
723.004	50	MK4	48	70

MAS BT

**Inserts****Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors****726.º**

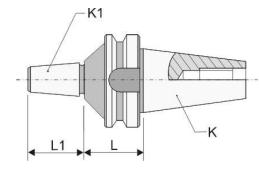
REF.	K	K1	D	L
726.901	40	MK1	25	50
726.902	40	MK2	32	50
726.903	40	MK3	40	70
726.904	40	MK4	48	95
726.003	50	MK3	40	65
726.004	50	MK4	48	95

MAS BT

**728.º**

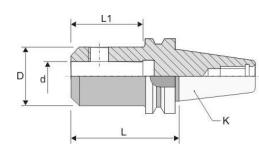
REF.	K	K1	L	L1
728.912	40	B12	32	18,5
728.916	40	B16	32	24,0
728.918	40	B18	32	32,0
728.016	50	B16	43	24,0
728.018	50	B18	43	32,0

MAS BT

**730.º**

REF.	K	d	D	L	L1
730.910	40	10	35	63	39
730.912	40	12	42	63	44
730.916	40	16	48	63	47
730.920	40	20	52	63	49
730.925	40	25	65	90	54
730.932	40	32	72	100	58
730.016	50	16	48	80	47
730.020	50	20	52	80	49
730.025	50	25	65	100	54
730.032	50	32	72	105	58

MAS BT



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

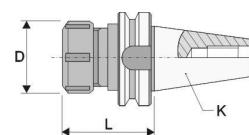
Arbors & adaptors

731.º



REF.	K	L	D	SIZE OF COLLETS	CLAMPING NUT	COLLET
731.916	40	60	28	1-10	090	ER16
731.920	40	70	34	1-13	091	ER20
731.925	40	70	42	1-16	092	ER25
731.932	40	70	50	2-20	093	ER32
731.932L	40	135	50	2-20	093	ER32
731.940	40	80	63	4-30	094	ER40
731.940L	40	135	63	4-30	094	ER40
731.032	50	80	50	2-20	093	ER32
731.032L	50	120	50	2-20	093	ER32
731.040	50	80	63	4-30	094	ER40
731.040L	50	120	63	4-30	094	ER40

MAS BT

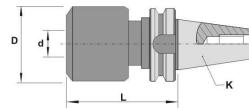


734.º



REF.	K	d	D	L
734.920	40	20	54	105
734.932	40	32	72	105
734.032	50	32	72	105

MAS BT

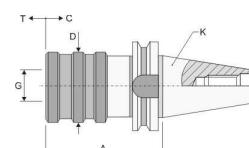


737.º



REF.	K	Nº	G	Ø	A	D	C	T	71XX	75XX
737.912	40	1	19	M3-M12	60	36	9	9	71XX	75XX
737.920	40	2	31	M8-M20	92	53	15	9	72XX	76XX
737.933	40	3	48	M14-M33	138	78	24	9	73XX	77XX
737.012	50	1	19	M3-M12	60	36	9	9	71XX	75XX
737.020	50	2	31	M8-M20	92	53	15	9	72XX	76XX
737.033	50	3	48	M14-M33	138	78	24	9	73XX	77XX

MAS BT

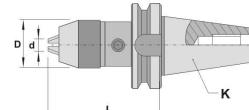


HX-BT



REF.	d	K	LMIN	LMAX	D
HX10-BT40	0-10	40	77	85,5	43
HX10-BT40/R	0-10	40	77	85,5	43
HX13-BT40	1-13	40	91	103,0	53
HX13-BT40/R	1-13	40	91	103,0	53
HX16-BT40	3-16	40	94	105,0	57
HX16-BT40/R	3-16	40	94	105,0	57
HX10-BT50	0-10	50	79	87,5	43
HX13-BT50	1-13	50	93	105,0	53
HX13-BT50/R	1-13	50	93	105,0	53
HX16-BT50	3-16	50	96	107,0	57
HX16-BT50/R	3-16	50	96	107,0	57

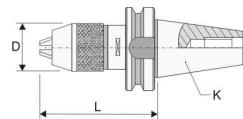
MAS BT



**NPU-BT**

REF.	d	K	L _{MIN}	L _{MAX}	D
NPU13-BT40	1-13	40	78	89	48
NPU16-BT40	3-16	40	90	101	55
NPU13-BT50	1-13	50	74	85	48
NPU16-BT50	3-16	50	72	83	55

MAS BT

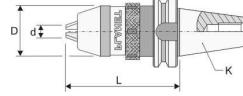


Inserts

PS-BT

REF.	d	K	L _{MIN}	L _{MAX}	D
PS13-BT40	1-13	40	78	89	48
PS16-BT40	3-16	40	90	101	55
PS13-BT50	1-13	50	74	85	48
PS16-BT50	3-16	50	72	83	55

MAS BT



Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

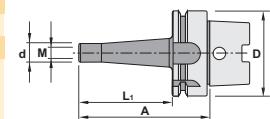
Arbors & adaptors

506.₄₅



REF.	D	L1	A	d	M
506.4.06	40	25	50	9,8	M6
506.4.06L	40	75	100	9,8	M6
506.4.08	40	25	50	12,8	M8
506.4.08L	40	75	100	12,8	M8
506.5.08	50	25	55	12,8	M8
506.5.06L	50	75	105	12,8	M8
506.5.10	50	25	55	12,8	M10
506.5.10L	50	75	105	12,8	M10

HSK

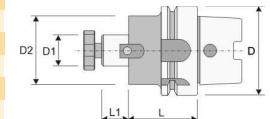


516



REF.	D	L	L1	D1	D2
516.522	50	60	19	22	50
516.527	50	60	21	27	60
516.622	63	50	19	22	50
516.627	63	60	21	27	60
516.632	63	60	24	32	70
516.640	63	60	27	40	89
516.122	100	50	19	22	50
516.127	100	50	21	27	60
516.132	100	50	24	32	70

HSK-DIN 138

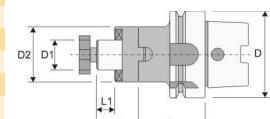


518



REF.	D	L	L1	L2	D1	D2
518.516	50	40	17	27	16	32
518.522	50	38	19	31	22	40
518.527	50	53	21	33	27	48
518.532	50	51	24	38	32	58
518.616	63	50	17	27	16	32
518.622	63	48	19	31	22	40
518.627	63	48	21	33	27	48
518.632	63	46	24	38	32	58
518.640	63	56	27	41	40	70
518.116	100	50	17	27	16	32
518.122	100	48	19	31	22	40
518.127	100	48	21	33	27	48
518.132	100	46	24	38	32	58
518.140	100	56	27	41	40	70

HSK

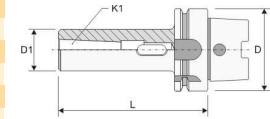


526



REF.	D	L	D1	K1
526.501	50	100	25	MK1
526.502	50	120	32	MK2
526.503	50	140	40	MK3
526.601	63	100	25	MK1
526.602	63	120	32	MK2
526.603	63	140	40	MK3
526.604	63	160	48	MK4
526.101	100	110	25	MK1
526.102	100	120	32	MK2
526.103	100	150	40	MK3
526.104	100	170	48	MK4
526.105	100	200	63	MK5

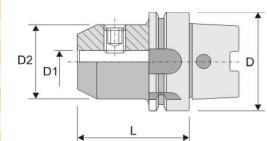
HSK-DIN 228B



**530**

REF.	D	L	D1	D2
530.506	50	65	6	25
530.508	50	65	8	28
530.510	50	65	10	35
530.512	50	80	12	42
530.514	50	80	14	44
530.516	50	80	16	48
530.518	50	80	18	50
530.520	50	80	20	52
530.606	63	65	6	25
530.608	63	65	8	28
530.610	63	65	10	35
530.612	63	80	12	42
530.614	63	80	14	44
530.616	63	80	16	48
530.618	63	80	18	50
530.620	63	80	20	52
530.625	63	110	25	65
530.632	63	110	32	72
530.106	100	80	6	25
530.108	100	80	8	28
530.110	100	80	10	35
530.112	100	80	12	42
530.114	100	80	14	44
530.116	100	100	16	48
530.118	100	100	18	50
530.120	100	100	20	52
530.125	100	100	25	65
530.132	100	100	32	72

HSK-DIN 1835B



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

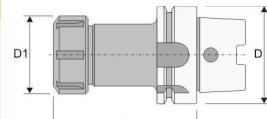
Threading

Drills

531

REF.	D	L	D1	COLLET	SIZE OF COLLETS
531.532	50	100	50	ER32	2-20
531.632	63	100	50	ER32	2-20
531.640	63	120	63	ER40	3-26
531.132	100	100	50	ER32	3-20
531.140	100	120	63	ER40	3-26

HSK-DIN 6499



Cartridges

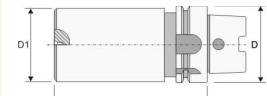
Brazed tools

Milling cutters

533

REF.	D	L	D1
533.563	50	200	63
533.680	63	250	80
533.600	63	250	100

HSK



Solid carbide

Boring heads

Arbors & adaptors



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

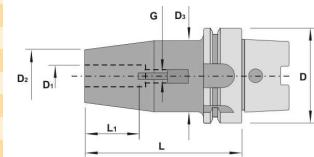
Boring heads

Arbors & adaptors

535



REF.	D	D1	D2	L	L1	G
535.4.06	40	6	21	80	36	M5
535.4.08	40	8	21	80	36	M6
535.4.10	40	10	24	80	42	M8
535.4.12	40	12	24	90	47	M10
535.4.14	40	14	28	90	47	M10
535.4.16	40	16	28	90	50	M12
535.5.06	50	6	21	80	36	M5
535.5.08	50	8	21	80	36	M6
535.5.10	50	10	24	85	42	M8
535.5.12	50	12	24	90	47	M10
535.5.14	50	14	28	90	47	M10
535.5.16	50	16	28	95	50	M12
535.5.18	50	18	33	95	50	M12
535.5.20	50	20	33	100	52	M16
535.6.06L80	63	6	21	80	36	M5
535.6.06L120	63	6	21	120	36	M5
535.6.06L160	63	6	21	160	36	M5
535.6.08L80	63	8	21	80	36	M6
535.6.08L120	63	8	21	120	36	M6
535.6.08L160	63	8	21	160	36	M6
535.6.08L160	63	8	21	160	36	M6
535.6.10L85	63	10	24	85	42	M8
535.6.10L120	63	10	24	120	42	M8
535.6.10L160	63	10	24	160	42	M8
535.6.12L90	63	12	24	90	47	M10
535.6.12L120	63	12	24	120	47	M10
535.6.12L160	63	12	24	160	47	M10
535.6.14	63	14	27	90	47	M10
535.6.16	63	16	27	95	50	M12
535.6.18	63	18	33	95	50	M12
535.6.20	63	20	33	100	52	M16
535.6.25	63	25	44	115	58	M20
535.6.32	63	32	44	120	58	M20
535.8.06	80	6	21	85	36	M5
535.8.08	80	8	21	85	36	M6
535.8.10	80	10	24	90	42	M8
535.8.12	80	12	24	95	47	M10
535.8.14	80	14	28	95	47	M10
535.8.16	80	16	28	100	50	M12
535.8.18	80	18	33	100	50	M12
535.8.20	80	20	33	105	52	M16
535.8.25	80	25	44	115	58	M20
535.8.32	80	32	44	120	58	M20
535.1.06	100	6	21	85	36	M5
535.1.08	100	8	21	85	36	M6
535.1.10	100	10	24	90	42	M8
535.1.12	100	12	24	95	47	M10
535.1.14	100	14	28	95	47	M10
535.1.16	100	16	28	100	50	M12
535.1.18	100	18	33	100	50	M12
535.1.20	100	20	33	105	52	M16
535.1.25	100	25	44	115	58	M20
535.1.32	100	32	44	120	58	M20

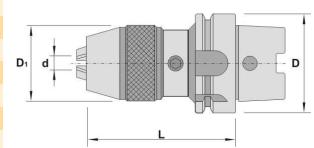


HX-HSK



REF.	D	d	D1	LMIN	LMAX
HX13-HSK50	50	1-13	53	116,0	127,0
HX13-HSK50/R	50	1-13	53	116,0	127,0
HX16-HSK50	50	3-16	57	119,0	131,0
HX16-HSK50/R	50	3-16	57	119,0	131,0
HX13-HSK63	63	1-13	53	115,0	126,0
HX13-HSK63/R	63	1-13	53	115,0	126,0
HX16-HSK63	63	3-16	57	117,5	129,5
HX16-HSK63/R	63	3-16	57	117,5	129,5
HX13-HSK100	100	1-13	53	108,5	119,5
HX13-HSK100/R	100	1-13	53	108,5	119,5
HX16-HSK100	100	3-16	57	111,0	123,0
HX16-HSK100/R	100	3-16	57	111,0	123,0

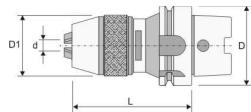
HSK/A-AD



**NPU-HSK**

REF.	D	L	D1	d
NPU13-HSK50	50	108	44	1-13
NPU13-HSK63	63	110	44	1-13
NPU13-HSK100	100	134	49	1-13

HSK

**Inserts****Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors**



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

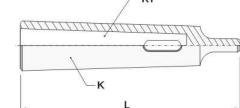
Arbors & adaptors

CR



REF.	K	K1	L
CR-2x1	MK2	MK1	92
CR-3x1	MK3	MK1	99
CR-3x2	MK3	MK2	112
CR-4x2	MK4	MK2	124
CR-4x3	MK4	MK3	140
CR-5x3	MK5	MK3	156
CR-5x4	MK5	MK4	171

DIN 228/B

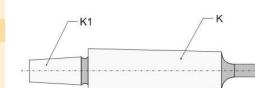


E



REF.	K	K1
E-12/2	MK2	B-12
E-16/2	MK2	B-16
E-18/2	MK2	B-18
E-16/3	MK3	B-16
E-18/3	MK3	B-18
E-16/4	MK4	B-16
E-18/4	MK4	B-18

DIN 228/B

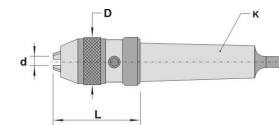


HX-MT



REF.	d	K	D	L _{MIN}	L _{MAX}
HX13-MT-2	1-13	MT-2	53	95,5	106,5
HX16-MT-2	3-16	MT-2	57	98,0	107,0
HX13-MT-3	1-13	MT-3	53	95,5	106,5
HX16-MT-3	3-16	MT-3	57	98,0	107,0
HX13-MT-4	1-13	MT-4	53	95,5	106,5
HX16-MT-4	3-16	MT-4	57	98,0	107,0

DIN 228/B

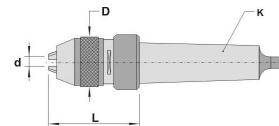


SPS-MT



REF.	d	K	D	L _{MIN}	L _{MAX}
SPS13-MT3	1-13	MK3	48	80	92
SPS16-MT3	3-16	MK3	54	85	96
SPS16-MT4	3-16	MK4	54	85	96

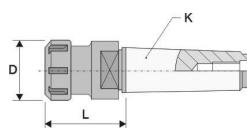
DIN 228/B



**700.³₄**

REF.	K	L	D	SIZE OF COLLETS	CLAMPING NUT	COLLET
700.332	MK3	70	50	2-20	093	ER32
700.340	MK3	80	63	4-30	093	ER40
700.432	MK4	60	50	2-20	093	ER32
700.440	MK4	81	63	4-30	094	ER40

DIN 228/A

**Inserts****Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors**



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

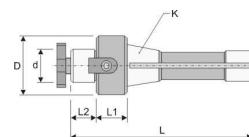
Arbors & adaptors

816



REF.	K	d	D	L	L1	L2
816.016	R8	16	32	137	25	17
816.022	R8	22	41	137	25	19
816.027	R8	27	43	137	25	21
816.032	R8	32	64	143	25	24
816.040	R8	40	70	143	25	27

R-8

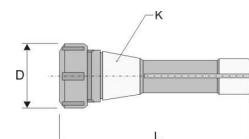


831



REF.	K	L	D	SIZE OF COLLETS	CLAMPING NUT	COLLET
831.016	R8	133	28	0.5-10	090	ER16
831.032	R8	133	50	2-20	093	ER32
831.040	R8	143	63	4-30	094	ER40

R-8

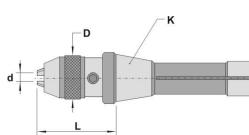


HX-R8



REF.	d	K	LMIN	LMAX	D
HX13-R8	1-13	R8	95,0	106,0	53
HX16-R8	3-16	R8	97,0	109,5	57

R-8

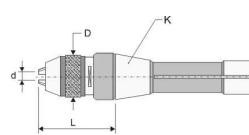


NPU-R8



REF.	d	K	LMIN	LMAX	D
NPU08-R8	0-13	R8	65	72	37

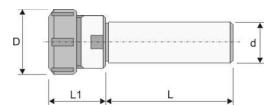
R-8



**031**

REF.	d	D	L	L1	SIZE OF COLLETS	CLAMPING NUT	COLLET
031.616	16	22	160	30	1-10	090	ER16
031.216	20	22	160	30	1-10	090	ER16
031.232	20	50	100	53	2-20	093	ER32
031.532	25	50	100	53	2-20	093	ER32
031.332	32	50	100	53	2-20	093	ER32
031.340	32	63	130	53	4-30	094	ER40
031.432	40	50	120	53	2-20	093	ER32
031.440	40	63	120	60	4-30	094	ER40

DIN 1835-A



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

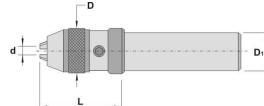
Boring heads

Arbors & adaptors

HX-CIL

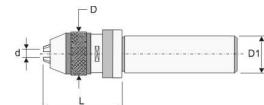
REF.	d	D1	LMIN	LMAX	D
HX13-CIL-20	1-13	20	92,5	103,5	53
HX16-CIL-20	3-16	20	95,0	107,0	57
HX13-CIL-25	1-13	25	92,5	103,5	53
HX16-CIL-25	3-16	25	95,0	107,0	57
HX13-CIL-32	1-13	32	92,5	103,5	53
HX16-CIL-32	3-16	32	95,0	107,0	57
HX13-CIL-40	1-13	40	92,5	103,5	53
HX16-CIL-40	3-16	40	95,0	107,0	57

DIN 1835-A

**NPU-CIL**

REF.	d	D1	LMIN	LMAX	D
NPU08-CIL25	0-8	25	66	72	37
NPU13-CIL32	1-13	32	66	72	37
NPU16-CIL40	3-16	40	83	94	55

DIN 1835-A



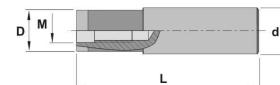


Inserts

6⁰⁶₂₆.0



REF.	d	L	M	D
606.010	20	125	M10	18
606.012	25	125	M12	21
606.006HD	12	125	M6	10
606.008HD	16	125	M8	14
616.006HD	12	150	M6	10
616.008HD	16	150	M8	14
616.010HD	20	150	M10	18
616.012HD	25	150	M12	21
626.010HD	20	200	M10	18
626.012HD	25	200	M12	21



Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

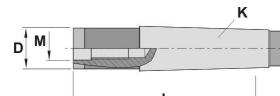
Boring heads

Arbors & adaptors

6³₄₆.0



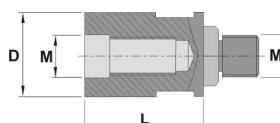
REF.	K	L	M	D
636.008	30	125	M8	14
636.010	30	125	M10	18
636.012	30	125	M12	21
646.016	40	154	M16	29



60⁰₁



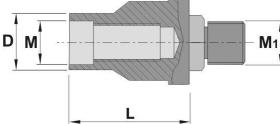
REF.	D	L	M	M1
600.808	14	30	8	8
601.010	18	35	10	10
601.212	21	40	12	12
601.616	29	40	16	16



61⁰₁

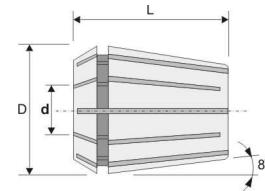


REF.	D	L	M	M1
610.810	14	30	8	10
611.012	18	35	10	12
611.216	21	40	12	16
610.812	14	40	8	12
611.016	18	60	10	16



**ER**

REF.	L	D	d
ER1601	27	17,5	01
ER1602	27	17,5	02
ER1603	27	17,5	03
ER1604	27	17,5	04
ER1605	27	17,5	05
ER1606	27	17,5	06
ER1607	27	17,5	07
ER1608	27	17,5	08
ER1609	27	17,5	09
ER1610	27	17,5	10
ER2001	31	21	01
ER2002	31	21	02
ER2003	31	21	03
ER2004	31	21	04
ER2005	31	21	05
ER2006	31	21	06
ER2007	31	21	07
ER2008	31	21	08
ER2009	31	21	09
ER2010	31	21	10
ER2011	31	21	11
ER2012	31	21	12
ER2013	31	21	13
ER2501	35	26	01
ER2502	35	26	02
ER2503	35	26	03
ER2504	35	26	04
ER2505	35	26	05
ER2506	35	26	06
ER2507	35	26	07
ER2508	35	26	08
ER2509	35	26	09
ER2510	35	26	10
ER2511	35	26	11
ER2512	35	26	12
ER2513	35	26	13
ER2514	35	26	14
ER2515	35	26	15
ER2516	35	26	16
ER3202	40	33	02
ER3203	40	33	03
ER3204	40	33	04
ER3205	40	33	05
ER3206	40	33	06
ER3207	40	33	07
ER3208	40	33	08
ER3209	40	33	09
ER3210	40	33	10
ER3211	40	33	11
ER3212	40	33	12
ER3213	40	33	13
ER3214	40	33	14
ER3215	40	33	15
ER3216	40	33	16
ER3217	40	33	17
ER3218	40	33	18
ER3219	40	33	19
ER3220	40	33	20
ER4003	46	41	03
ER4004	46	41	04
ER4005	46	41	05
ER4006	46	41	06
ER4007	46	41	07
ER4008	46	41	08
ER4009	46	41	09
ER4010	46	41	10
ER4011	46	41	11
ER4012	46	41	12
ER4013	46	41	13
ER4014	46	41	14
ER4015	46	41	15
ER4016	46	41	16
ER4017	46	41	17
ER4018	46	41	18
ER4019	46	41	19
ER4020	46	41	20
ER4021	46	41	21
ER4022	46	41	22
ER4023	46	41	23
ER4024	46	41	24
ER4025	46	41	25
ER4026	46	41	26

**Inserts****Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors**



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

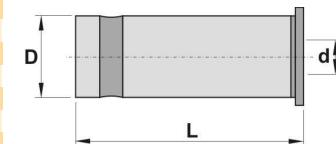
Boring heads

Arbors & adaptors

C



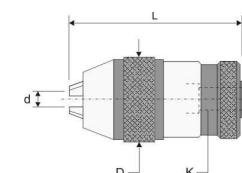
REF.	d	D	L
C2006	6	20	55
C2008	8	20	55
C2010	10	20	55
C2012	12	20	55
C2016	16	20	55
C3206	6	32	65
C3208	8	32	65
C3210	10	32	65
C3212	12	32	65
C3216	16	32	65
C3220	20	32	65
C3225	25	32	65



SP DIN238



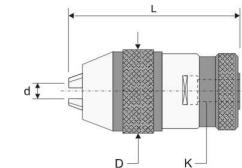
REF.	d	K	LMIN	LMAX	D
SP08-B12	0-8	B12	67	67	37
SP10-B12	0-10	B12	81	81	41
SP10-B16	0-10	B16	81	81	41
SP13-B16	1-13	B16	88	88	46
SP16-B16	3-16	B16	95	95	55
SP16-B18	3-16	B18	95	95	55



SPX DIN238



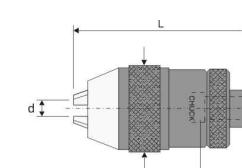
REF.	d	K	LMIN	LMAX	D
SPX08-B12	0-8	B12	67	67	37
SPX13-B16	1-13	B16	88	88	46
SPX16-B16	3-16	B16	95	95	55
SPX16-B18	3-16	B18	95	95	55



CK CHUCK

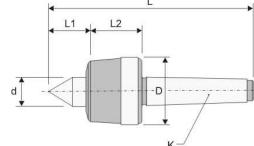


REF.	d	K	LMIN	LMAX	D
CK08-B12	0-8	B12	61	68	34
CK10-B12	0-10	B12	73	80	39
CK13-B16	1-13	B16	86	95	44
CK16-B16	3-16	B16	102	115	51
CK16-B18	3-16	B18	102	115	51
CK20-B18	5-20	B18	127	140	64

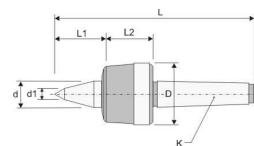


**RN**

REF.	K	D	d	L ₁	L ₂	L
R-200-N	MK2	42	18	24	35	128
R-300-N	MK3	49	22	29	47	163
R-400-N	MK4	63	30	35	52	196
R-500-N	MK5	85	35	48	64	250

**Inserts****Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors****RC**

REF.	K	D	d	d ₁	L ₁	L ₂	L
R-300-C	MK3	49	22	10	38	47	174
R-400-C	MK4	63	30	11	46	52	207
R-500-C	MK5	85	35	18	64	64	266

**Arbors & adaptors**



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

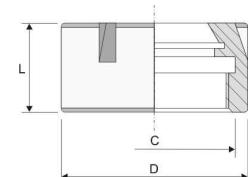
Boring heads

Arbors & adaptors

090..091



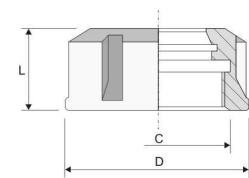
REF.	L	C	D	COLLET
090	18	M19x1	22	ER16
091	19	M24x1	28	ER20



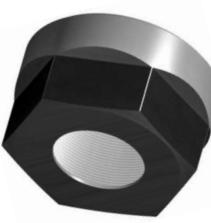
092..094



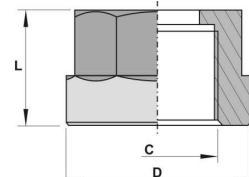
REF.	L	C	D	COLLET
092	20,0	M32x1,5	42	ER25
093	22,3	M40x1,5	50	ER32
094	25,3	M50x1,5	63	ER40



095..096



REF.	L	C	D	COLLET
095	17	M22x1,5	28	ER16
096	19	M25x1,5	34	ER20



017..021



CLAMPING NUTS

017	2190
021	2191

**014..022****REF.** CLAMPING NUTS

014	-
015	-
016	090
020	091
022	-

**Inserts****025..040****REF.** CLAMPING NUTS

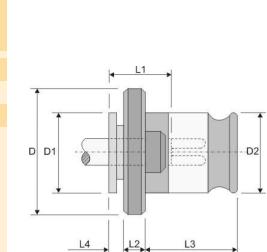
025	092
032	093
040	094

**Turning****KX****REF.** **h** **L** **H**

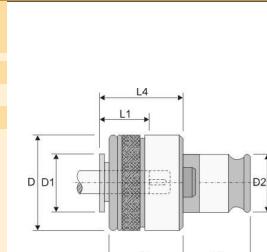
KX-12	9	100	100
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**Parting & grooving****71..73****REF.** **THREAD RANGE** **D** **D1** **D2** **L1** **L2** **L3** **L4**

71XX	M3-M12	30	19	19	17	4	21,5	7
72XX	M8-M20	48	30	31	30	5	35,0	11
73XX	M14-M33	70	48	48	44	6	55,5	14

**Brazed tools****75..77****REF.** **THREAD RANGE** **D** **D1** **D2** **L1** **L2** **L3** **L4**

75XX	M3-M12	30	19	19	17	25	21,5	25
76XX	M8-M20	48	30	31	30	31	35,0	34
77XX	M14-M33	70	48	48	44	41	55,5	45

**Solid carbide****Boring heads****Arbors & adaptors**

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

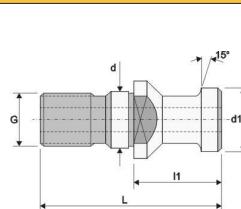
Table of adaptors

DIN	Ø x □	DIN 352	DIN 5156/5157	DIN 371	DIN 374	DIN 376	DIN 371	DIN 374/376
01	2,5 x 2,1	M1/1,8		M 1/1,8	M3,5	M3,5	1/16" Nr. 0/1	
02	2,8 x 2,1	M2 M2,2 M2,5		M2 M2,2 M2,5	M4	M4	3/32" Nr. 2 Nr. 3	
03	3,5 x 2,7	M3		M3	M5	M5	1/8" Nr. 4 Nr. 5	
04	4 x 3	M3,5		M3,5	M5,5	M5,5	Nr. 6	
05	4,5 x 3,4	M4		M4	M6	M6	5/32" Nr. 8	
06	5,5 x 4,3	-			M7	M7		
07	6 x 4,9	M4,5 M5 M6 M7 M8	G 1/16"	M4,5 M5 M6	M8	M8	Nr. 10/12 3/16" 7/32"	1/4" 5/16"
08	7 x 5,5	M10	G 1/8"	M7	M10	M10	1/4"	3/8"
09	8 x 6,2	M1		M8	M11	M11	5/16"	7/16"
10	9 x 7	M12		M9	M12	M12	3/8"	1/2"
11	10 x 8			M10				
12	11 x 9	M14	G 1/4"		M14	M14		9/16"
13	12 x 9	M16	G 3/8"		M16	M16		5/8"
14	14 x 11	M18			M18	M18		11/16" 3/4"
15	16 x 12	M20	G 1/2"		M20	M20		13/16"
16	18 x 14,5	M22 M24	G 5/8"		M22 M24	M22 M24		7/8" 15/16"
17	20 x 16	M27	G 3/4"		M27	M27		1"
18	22 x 18	M30	G 7/8"		M30	M30		1 1/8"
19	25 x 20	M33	G 1"		M33	M33		1 1/4"
20	28 x 22	M36	G 1 1/8 "		M36	M36		1 3/8"
21	32 x 24	M39 M42	G 1 1/4 "		M39 M42	M39 M42		1 1/2" 1 5/8"
22	36 x 29	M45 M48	G 1 3/8" G 1 1/2"		M45 M48	M45 M48		1 3/4" 1 7/8"

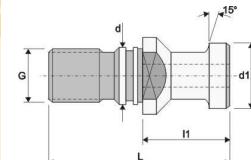
ISO 529	Ø x □	M - MF		UNC - UNF		BSW - BSF		BA Reduced Shank
		Reduced Shank	Reinforced Shank	Reduced Shank	Reinforced Shank	Reduced Shank	Reinforced Shank	
30	2,24 x 1,8	M3		Nr. 5		1/8		
31	2,5 x 2,0	M3,5	M1/2	Nr. 6	Nr. 0 Nr. 1			Nr. 11 Nr. 10 Nr. 9
32	2,8 x 2,24		M2,2 M2,5		Nr. 2 Nr. 3			Nr. 8 Nr. 7 Nr. 6
33	3,15 x 2,5	M4	M3	Nr. 8	Nr. 4 Nr. 5		1/8	Nr. 5
34	3,55 x 2,8	M4,5	M3,5	Nr. 10	Nr. 6	3/16		Nr. 4
35	4,0 x 3,15	M5	M4	Nr. 12		7/32		
36	4,5 x 3,55	M6	M4,5	1/4	Nr. 8	1/4		Nr. 3
37	5,0 x 4,0		M5		Nr. 10		3/16	Nr. 2
38	5,6 x 4,5	M7			Nr. 12	9/32	7/32	Nr. 1
39	6,3 x 5,0	M8	M6	5/16	1/4	5/16	1/4	Nr. 0
40	7,1 x 5,6	M9	M7	3/8		3/8	9/32	
41	8,0 x 6,3	M10	M8	7/16	5/16	7/16	5/16	
42	9,0 x 7,1	M12	M9	1/2		1/2		
43	10 x 8,0		M10			3/8	3/8	
43	11,2 x 9,0	M14		9/16		9/16		
44	12,5 x 10	M16		5/8		5/8		
45	14 x 11	M18 M20		3/4		11/16 3/4		
46	16 x 12,5	M22		7/8		7/8		
47	18 x 14	M24		1		1		
47	20 x 16	M27 M30		1 1/8		1 1/8		
48	22,4 x 18	M33		1 1/4		1 1/4		
49	25 x 20	M36		1 3/8		1 3/8		
49	28 x 22,4	M39 M42		1 1/2		1 1/2		
50	31,5 x 25	M45 M48		1 3/4		1 3/4		
51	35,5 x 28	M52		2		2		

**960..961****FORM A**

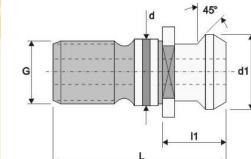
REF.	K	G	d	d1	L	l1
960	40	M16	17	19	54	26
961	50	M24	25	28	74	34

**Inserts****962..963****FORM B**

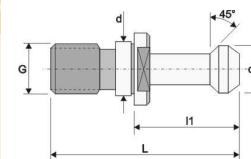
REF.	K	G	d	d1	L	l1
962	40	M16	17	19	54	26
963	50	M24	25	28	74	34

**Automatic lathes****964..965****FORM B**

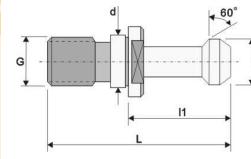
REF.	K	G	d	d1	L	l1
964	40	M16	17	18,95	44,5	16,40
965	50	M24	25	29,10	65,5	25,55

**Ceramic tools****966..967****TYPE I**

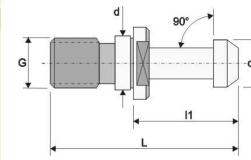
REF.	K	G	d	d1	L	l1
966	40	M16	17	15	60	35
967	50	M24	25	23	85	45

**Threading****968..969****TYPE II**

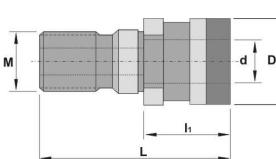
REF.	K	G	d	d1	L	l1
968	40	M16	17	15	60	35
969	50	M24	25	23	85	45

**Cartridges****970..971****TYPE III**

REF.	K	G	d	d1	L	l1
970	40	M16	17	15	60	35
971	50	M24	25	23	85	45

**Milling cutters****097..099**

REF.	M	d	D	l1	L
097	M16	M16	25,00	53	25
098	M16	M16	25,00	56	28
099	M24	M24	39,29	68	25

**Solid carbide****Arbors & adaptors**



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

SER



REF. SIZE OF COLLETS

SER16	ER16= 1-2-3-4-5-6-7-8-9-10
SER20	ER20= 1-2-3-4-5-6-7-8-9-10-11-12-13
SER25	ER25= 1-2-3-4-5-6-7-8-9-10-11-12-13-14-15-16
SER32	ER32= 3-4-5-6-7-8-9-10-11-12-13-14-15-16-17-18-19-20
SER40	ER40=-4-5-6-7-8-9-10-11-12-13-14-15-16-17-18-19-20-21-22-23-24-25-26

KIT 731



REF. CHUCK COLLET SIZE OF COLLETS CLAMPING NUT

KIT 731.316	731.316	ER16	10 (1-10)	090
KIT 731.320	731.320	ER20	12 (2-13)	091
KIT 731.325	731.325	ER25	15 (2-16)	092
KIT 731.332	731.332	ER32	18 (3-20)	093
KIT 731.340	731.340	ER40	23 (4-26)	094
KIT 731.432	731.432	ER32	18 (3-20)	093
KIT 731.440	731.440	ER40	23 (4-26)	094
KIT 731.532	731.532	ER32	18 (3-20)	093
KIT 731.540	731.540	ER40	23 (4-26)	094
KIT 731.732	731.732	ER32	18 (3-20)	093
KIT 731.740	731.740	ER40	23 (4-26)	094
KIT 731.832	731.832	ER32	18 (3-20)	093
KIT 731.840	731.840	ER40	23 (4-26)	094
KIT 731.932	731.932	ER32	18 (3-20)	093
KIT 731.940	731.940	ER40	23 (4-26)	094
KIT 731.032	731.032	ER32	18 (3-20)	093
KIT 731.040	731.040	ER40	23 (4-26)	094

**662.0**

REF.	C	d	L	L
662.006	6	12	150	20
662.008	8	15	150	20
662.010	10	18	150	20
662.012	12	20	150	20

**CUTTING CONDITIONS SUGGESTED
CONDITIONS DE COUPE SUGGÉRÉES
EMPFOHLENE SCHNITTBEDINGUNGEN**

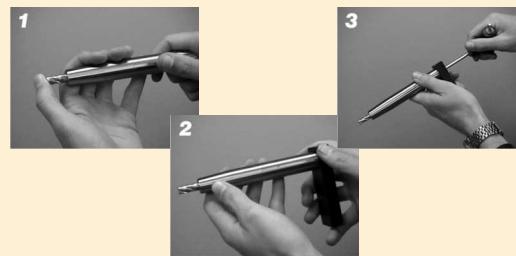
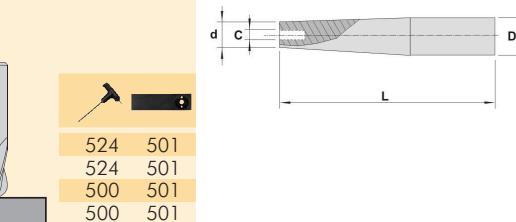
REF.	A	B			
662.006	6	0,05 x Z	524	501	
662.008	8	0,05 x Z	524	501	
662.010	10	0,05 x Z	500	501	
662.012	12	0,05 x Z	500	501	

Instructions / Instructions / Instruktionen:

To obtain from CLS extensions a proper operation is very important to insert the end mill completely. CLS handle could get damaged due to a bad end mill position.

Pour obtenir un fonctionnement correcte des rallonges CLS il est très important d'introduire totalement la fraise. Une mauvaise collocation peut provoquer l'endommagement du rallonge CLS.

Um von den CLS-Verlängerungen eine richtige Operation zu bekommen, ist es sehr wichtig, den Hartmetallfräser völlig einzufügen. Der CLS Griff könnte wegen einer schlechten Positionierung des Hartmetallfräisers beschädigt werden.


**INCORRECT
INCORRECTE
FALSCH**

**CORRECT
CORRECTE
RICHTIG**
KIT C32
REF. **Composition**

KIT BT40 C20	1 49.40.34.20 + 5 collets c20:	6, 8, 10, 12, 16
KIT TC40 C20	1 47.40.34.20 + 5 collets c20:	6, 8, 10, 12, 16
KIT BT40 C32	1 49.40.34.32 + 7 collets c32:	6, 8, 10, 12, 16, 20, 25
KIT TC40 C32	1 47.40.34.32 + 7 collets c32:	6, 8, 10, 12, 16, 20, 25
KIT BT50 C32	1 49.50.34.32 + 7 collets c32:	6, 8, 10, 12, 16, 20, 25
KIT TC50 C32	1 47.50.34.32 + 7 collets c32:	6, 8, 10, 12, 16, 20, 25

Inserts**Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors**

Reference list of materials
Liste de référence des matières
Werkstoff-Liste

O02

Spare parts
Pièces détachées
Ersatzteile

O08

Alphanumeric index
Index alphanumérique
Alphanumerisches Inhalt

O23

O01

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

Reference list of materials (Steels)

ISO	Germany		U.S.A.	Japan	Spain	U.K.		Sweden	France	Italy
	W.-nr.	DIN	AISI/SAE	JIS	UNE	BS	EN	SS	AFNOR	UNI
P	1.0038	RSI.37-2	A570.36	STKM 12A;C	-	4360 40 C	-	131	E 24-2 Ne	-
	1.0038	GS-CK16	1115	-	-	030A04	1A	1325	-	-
	1.0116	St.37-3	A573-81 65	-	F.111	4360 40 B	-	1312	E 24-U	Fe37-3
	1.0401	C15	1015	-	F.112	080M15	-	1350	CC12	C15C16
	1.0402	C22	1020	-	11SMn28	050A20	2C/2D	1450	CC20	C20C21
	1.0715	9SMn28	1213	SUM22	11SMnPb28	230M07	-	1912	S250	CF9S Mn28
	1.0718	9SMnPb28	12L13	SUM22L	10SPb20	-	-	1914	S250Pb	CF9S MnPb28
	1.0722	10SPb20	-	-	12SMn35	-	-	-	10PbF2	CF10Pb20
	1.0736	9SMn36	1215	-	12SMnPb36	240M07	1B	-	S300	CF9S Mn36
	1.0737	9SMnPb36	12L14	-	C15K	-	-	1926	S300Pb	CF9MnPb36
	1.1141	Ck15	1015	S15C	-	080M15	32C	1370	XC12	C16
	1.1158	CK25	1025	S25C	-	-	-	-	-	-
	1.8900	SiE 380	A572-60	-	-	4360 55 E	-	2145	-	FeE390KG
	-	17 MnV 6	A572-60	-	-	4360 55 E	-	2142	NFA 35-501 E36	-
	1.0501	C35	1035	-	F.113	060A35	-	1550	CC35	C35
	1.0503	C45	1045	-	F.114	080M46	-	1650	CC45	C45
	1.0726	35S20	1140	-	F210G	212M36	8M	1657	35MF4	-
	1.1157	40Mn4	1039	-	-	150M36	15	-	35M5	-
	1.1167	36Mn5	1335	SMn438(H)	36Mn5	-	-	2120	40M5	-
	1.1170	28Mn6	1330	SCMn1	-	150M28	14A	-	20M5	C28Mn
P	1.1183	Cf35	1035	S35C	-	060A35	-	1572	XC38TS	C36
	1.1191	Ck45	1045	S45C	C45K	080M46	-	1672	CX42	C45
	1.1213	Cf53	1050	S50C	-	060A52	-	1674	XC48TS	C53
	1.0535	C55	1055	-	-	070M55	-	1655	-	C55
	1.0601	C60	1060	-	-	080A62	43D	-	CC55	C60
	1.1203	Ck55	1055	S55c	C55K	070M55	-	-	XC55	C50
	1.1221	Ck60	1060	S58C	-	080A62	43D	1678	XC60	C60
	1.1274	CK 101	1095	-	F-5117	060A96	-	1870	XC100	-
	1.1545	C105W1	W 1	SK 3	F-5118	BW1A	-	1880	Y105	C36KU
	1.1545	C105W1	W210	SUP4	F.515	BW2	-	2900	Y120	C120KU
P	1.0144	St.44-2	A573-81	SM400A;B;C	-	4360 43C	-	1412	E28-3	-
	1.0570	St.52-3	-	SM490A;B;YA;YB	-	4360 50B	-	2132	E36-3	Fe52BFN/Fe52CFN
	1.0841	St.52-3	5120	-	F.431	150 M 19	-	2172	20 MC 5	Fe52
	1.0904	55Si7	9255	-	56Si7	250A53	45	2085	55S7	55Si8
	1.0961	60SiCr7	9262	-	60SiCr8	-	-	-	60SC7	60SiCr8
	1.3505	100Cr	52100	SUJ2	F.131	534A99	31	2258	100C6	100Cr6
	1.5415	15Mo3	ASTM A204Gr.A	-	16Mo3	1501-240	-	2912	15D3	16Mo3KW
	1.5423	16Mo5	4520	-	16Mo5	1503-245-420	-	-	-	16Mo5
	1.5622	14Ni6	ASTM A350LF5	-	15Ni6	-	-	-	16N6	14Ni6
	1.6523	21NiCrMo2	8620	SNCM220(H)	20NiCrMo2	805M20	362	2506	20NCD2	20NiCrMo2
	1.6546	40NiCrMo22	8740	SNCM240	40NiCrMo2	311-Type7	-	-	-	40NiCrMo2(KB)
	1.6587	17CrNiMo6	-	-	14NiCrMo13	820A16	-	-	18NCD6	-
	1.7015	15Cr3	5015	SCr415(H)	-	523M15	-	-	12C3	-
	1.7045	42Cr4	5140	SCR440	42Cr4	-	-	2245	-	-
	1.7176	55Cr3	5155	SUP9(A)	-	527A60	48	-	55C3	-
	1.7262	15CrMo5	-	SCM415(H)	12CrMo4	-	-	2216	12CD4	-
	1.7335	13CrMo4 4	ASTM A182F11;F12	-	14CrMo45	1501-620Gr27	-	-	15CD3.5	14CrMo4 5
	1.7380	10CrMo9 10	ASTM A182F22	-	TU.H	1501-622Gr31;45	-	2218	12CD9, 10	12CrMo9, 10

Reference list of materials (Steels)

ISO	Germany		U.S.A.	Japan	Spain	U.K.		Sweden	France	Italy
	W.-nr.	DIN	AISI/SAE	JIS	UNE	BS	EN	SS	AFNOR	UNI
P Low alloyed steel	1.7715	14MoV6 3	-	-	13MoCrV6	1503-660-440	-	-	-	-
	1.8515	31 CeMo 12	-	-	F-1712	722 M 24	-	2240	-	30CrMo12
	1.8523	39CrMoV13 9	-	-	-	897M39	-	-	30 CD 12	36CrMoV12
	1.7039	34MoCrS4 G	L1	-	-	524A14	40C	2092	-	105WCR 5
	1.5419	20MoCrS4	8620	-	F520.S	605A32	-	2108	-	-
	1.7228	55NiCrMoV6G	-	-	-	823M30	-	2512	-	653M31
	1.7139	16MnCr5	-	-	-	-	33	2127	-	-
	-	31NiCrMo134	-	-	F-1270	830M31	-	2534	-	-
	1.271	50NiCr13	L6	-	F-528	-	-	2550	55NCV6	-
	1.5710	36NiCr6	3135	SNC236	-	640A35	111A	-	35NC6	-
	1.5732	14NiCr10	3415	SNC415(H)	15NiCr11	-	-	-	14NC11	16NiCr11
	1.5752	14NiCr14	3415,3310	SNC815(H)	-	655M13,A12	36A	-	12NC15	-
	1.0904	55Si7	9255	-	-	-	-	2090	55S7	-
	1.6511	36CrNiMo4	9840	-	35NiCrMo4	816M40	110	-	40NCD3	38NiCrMo4(KB)
	1.6582	35CrNiMo6	4340	-	-	817M40	24	2541	35NCD6	35NiCrMo6(KB)
	1.7033	34Cr4	5132	SCr430(H)	35Cr4	530A32	18B	-	32C4	34Cr4(KB)
	1.7035	41Cr4	5140	SCr440(H)	42Cr4	530A40	18	-	42C4	41Cr4
	1.7131	16MnCr5	511	-	16MnCr5	(527M20)	-	251	16MC5	16MnCr5
	1.7218	25CrMo4	5130	SCM420,SCM430	55Cr3	1717CDS110	-	2225	25CD4	25CrMo4(KB)
	1.7220	34CrMo4	4137,4135	SCM432,SCCRM3	34CrMo4	708A37	19B	2234	35CD4	35CrMo4
	1.7223	41CrMo4	4140,4142	SCM440	42CrMo4	708M40	19A	2244	42CD4TS	41CrMo4
	1.7225	42CrMo4	4140	SCM440(H)	42CrMo4	708M40	19A	2244	42CD4	42CrMo4
	1.7361	32CrMo12	-	-	F.124.A	722M24	40B	2240	30CD12	32CrMo12
	1.8159	50CrV4	6150	SUP10	51CrV4	735A50	47	2230	50CV4	50CrV4
	1.8509	41CrAlMo7	-	-	41CrAlMo7	905M39	41B	2940	40CAD6,12	41CrAlMo7
	1.2067	100Cr6	L3	-	100Cr6	BL3	-	-	Y100C6	-
	1.2419	105WCr6	-	SKS31,SKS2,SKS3	105WCr5	-	-	2140	105WC13	10WCr6
	1.2713	55NiCrMoV6	L6	SKT4	F.520.S	-	-	-	55NCDV7	-
P High alloyed steel	1.5662	X8Ni9	ASTM A353	-	XBNi09	1501-509,510	-	-	-	X10Ni9
	1.5680	12Ni19	2515	-	-	-	-	-	Z18N5	-
	1.6657	14NiCrMo134	-	-	14NiCrMo131	832M13	36C	-	-	15NiCrMo131
	1.2080	X210Cr12	D3	SKD1	X210Cr12	BD3	-	-	Z200C12	X210Cr13KU
	1.2083	-	-	-	-	-	-	2314	-	X250Cr12KU
	1.2344	X40CrMoV5 1	H13	SKD61	X40CrMoV5	BH13	-	2242	Z40CDV5	X35CrMoV05KU
	1.2363	X100CrMoV5 1	A2	SKD12	X100CrMoV5	BA2	-	2260	Z100CDV5	X40CrMoV511KU
	1.2436	X210CrW12	-	SKD2	X210CrW12	-	-	2312	-	X100CrMoV511KU
	1.2542	45WCrV7	S1	-	45WCrSi8	BS1	-	2710	-	X215CrW12 1KU
	1.2581	X30wCrV9 3	H21	SKD5	X30wCrV9	BH21	-	-	Z30WCV9	45WCrV8KU
	1.2601	X165CrMoV 12	-	-	X160CrMoV12	-	-	2310	-	X28W09KU
	1.4718	X45GrSi93	HW3	SUH1	F322	401S45	52	-	Z45CS9	X160CrMoV12
	1.3343	S6-5-2	D3	SUH3	-	4959BA2	-	2715	Z40CSD10	F322
	1.3343	S6/5/2	M 2	SKH 51	F-5603	BM 2	-	2722	Z 85 WDCV	-
	1.3243	S6/5/2/	M 35	SKH 55	F-5613	BM 35	-	2723	6-5-2-5	F-5603
	1.3348	S2/9/2	M 7	-	F-5607	-	-	2782	-	F-5607
	1.2379	X210Cr12 G	HNV3	-	-	-	-	2736	-	-
P Steel castings	-	-	-	-	-	-	-	2223	-	-
	1.3401	G-X210Mn12	-	SCMnH/1	X120Mn12	Z120M12	-	-	Z120M12	XG120Mn12
	1.3401	-	-	SEMn H1	F-8251	BW 10	-	2183	2120 M12	Gx120 Mn12

Inserts

Turning

**Automatic
lathes**

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

**Solid
carbide**

Boring heads

Arbors & adaptors

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

Reference list of materials (Stainless steels)

ISO	Germany		U.S.A. AISI/SAE	Japan JIS	Spain UNE	U.K.		Sweden	France AFNOR	Italy UNI
	W.-nr.	DIN				BS	EN			
M	1.4000	X7Cr13	403	SUS403	F.3110	403S17	-	2301	Z6Cr13	X6Cr13
	1.4001	X7Cr14	-	-	F.8401	-	-	-	-	-
	1.4005	X12CrS13	416	SUS416	F.3411	416 S 21	-	2380	Z11CF13	X12CrS 13
	1.4016	X8Cr17	430	SUS430	F.3113	430S15	960	2320	Z8C17	X8Cr17
	1.4006	X10Cr13	410	SUS410	F.3401	410S21	56A	2302	Z10C14	X12Cr13
	-	X8Cr17	430	SUS430	F.3113	430S17	60	2320	Z8C17	X8Cr17
	1.4034	X46Cr13	-	SUS420J2	F.3405	420S45	56D	2304	Z40CM	X40Cr14
	-	-	-	-	-	-	-	-	Z38C13M	-
	1.4003	-	405	-	-	405S17	-	-	Z8CA12	X6CrAl13
	1.4021	-	420	-	-	420S37	-	2303	Z20C13	X20Cr13
	1.4057	X22CrNi17	431	SUS431	F.3427	431S29	57	2321	Z15Cn16.02	X16CrNi16
	1.4104	X12CrMo17	430F	SUS430F	F.3117	-	-	2383	Z10CF17	X10CrS17
	1.4113	X6CrMo17	434	SUS434	-	434S17	-	2325	Z8CD17.01	X8CrMo17
	1.4313	X5CrNi13 4	CA6-NM	SCS5	-	425C11	-	2385	Z4CND13.4M	(G)X6CrNi304
	1.4724	X10CrA113	405	SUS405	F.311	403S17	-	-	Z10C13	X10CrA112
	1.4742	X10CrA118	430	SUS430	F.3113	430S15	60	-	Z10CAS18	X8Cr17
	1.4747	X80CrNiSi20	HNV6	SUH4	F.320B	443S65	59	-	Z80CSN20.02	X80CrSiNi20
	1.4762	X10CrA124	446	SUH446	-	-	-	2322	Z10CAS24	X16Cr26
	1.4871	X53CrMnNiN21 9	EV8	SUH35, SUH36	-	349S54	-	-	Z52CMN21.09	X53CrMnNiN219
	1.4521	X1CrMoTi18 2	S44400	-	-	-	-	2326	-	-
	1.4922	X20CrMoV12-1	-	-	-	-	-	2317	-	X20CrMoNi 12 01
	1.4542/-	-	630	-	-	-	-	-	Z7CNU17-04	-
	1.4548	-	-	-	-	-	-	-	-	-
M	1.4306	-	304L	-	-	304S11	-	2352	Z2CrNi18 11	X2CrNi18 11
	1.4350	X5CrNi189	304	SUS304	F.3551	304S31	58E	2332/2333	Z6CN18.09	X5CrNi18 10
	-	-	-	-	F.3541	-	-	-	-	-
	-	-	-	-	F.3504	-	-	-	-	-
	1.4305	X12CrNiS18 8	303	SUS303	F.3508	303S21	58M	2346	Z10CNF 18.09	X10CrNiS 18.09
	1.4301	X5CrNi189	304	SUS304	F.3551	304S15	58E	2332	Z6CN18.09	X5CrNi18 10
	-	-	-	SUS304L	-	304C12	-	2333	Z3CN19.10	-
	1.4306	X2CrNi18 9	304L	SCS19	F.3503	304S12	-	2352	Z2CrNi18 10	X2CrNi18 11
	1.4310	X12CrNi17 7	301	SUS301	F.3517	-	-	2331	Z12CN17.07	X12CrNi17 07
	1.4311	X2CrNiN18 10	304LN	SUS304LN	-	304S62	-	2371	Z2CN18.10	-
	1.4401	X5CrNiMo18 10	316	SUS316	F.3543	316S16	58J	2347	Z6CND17.11	X5CrNiMo17 12
	1.4429	X2CrNiMoN18 13	316LN	SUS316LN	-	-	-	2375	Z2CND17.13	-
	1.4404	-	316L	-	-	316S13	-	2348	Z2CND17-12	X2CrNiMo1712
	1.4435	X2CrNiMo18 12	316L	SCS16	-	316S13	-	2353	Z2CND17.12	X2CrNiMo17 12
	-	-	-	SUS316L	-	-	-	-	-	-
	1.4436	-	316	-	-	316S33	-	2343	Z6CND18-12-03	X8CrNiMo1713
	-	-	-	-	-	-	-	2347	-	-
	1.4438	X2CrNiMo18 16	317L	SUS317L	-	317S12	-	2367	Z2 NCDU25-20	X2CrNiMo18 16
	1.4539	X1NiCrMo	UNS V 0890A	-	-	-	-	2562	Z6CNT18.10	-
	1.4541	X10CrNiTi18 9	321	SUS321	F.3553	321S12	58B	2337	-	X6CrNiTi18 11
	-	-	-	-	F.3523	-	-	-	Z6CNNb18.10	-
	1.4550	X10CrNb18 9	347	SUS347	F.3552	347S17	58F	2338	-	X6CrNiNb18 11
	-	-	-	-	F.3524	-	-	-	-	-
	1.4571	X10CrNiMoTi18 10	316Ti	-	F.3535	320S17	58J	2350	Z6NDT17.12	X6CrNiMoNb17 13
	1.4583	X10CrNiMoNb 18 12	318	-	-	-	-	-	Z6CNDNb17 13B	-
	1.4828	X15CrNiSi20 12	309	SUH309	-	309S24	-	-	Z15CNS20.12	X6CrNi25 20

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

Reference list of materials (Stainless steels)

ISO	Germany		U.S.A.	Japan	Spain	U.K.		Sweden	France	Italy
	W.-nr.	DIN	AISI/SAE	JIS	UNE	BS	EN	SS	AFNOR	UNI
M Stainless steel (Austenitic)	1.4845	X12CrNi25 21	310S	SUH310	F.331	310S24	-	2361	Z12CN25 20	-
	1.4406	X10CrNi18.08	308	SCS17	F.8414	301S21	58C	2370	Z1NCDU25.20	-
	1.4418	X4 CrNiMo16 5	-	-	-	-	-	2387	Z6CND16-04-01	X2CrNiMo1712
	1.4568 / 1.4504	-	17-7PH	-	-	316S111	-	-	Z8CNA17-07	-
	1.4563	-	NO8028	-	-	-	-	2584	Z1NCDU31-27-03	-
	-	-	S31254	-	-	-	-	2378	Z1CNDU20-18-06AZ	-
M Stainless steel (Austenitic / Ferritic (Duplex))	1.4417	X2CrNiMoSi19 5	S31500	-	-	-	-	2376	-	-
	-	X8CrNiMo27 5	S32900	-	-	-	-	2324	-	-
	-	X2CrNi23 4	S322304	-	-	-	-	2327	Z2CN23-04AZ	-
	-	-	-	-	-	-	-	2328	-	-
	-	X2CrNiMoN22 53	S31803	-	-	-	-	2377	Z2CND22-05-03	-

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Reference list of materials (Castings)

ISO	Germany	U.S.A.	Japan	Spain	U.K.		Sweden	France	Italy
	W.-nr.	DIN	AISI/SAE	JIS	UNE	BS	EN	AFNOR	UNI
K Malleable cast iron	-	-	-	FCMB310	-	8 290/6	-	0814	MN 32-8
	-	GTS-35	32510	FCMW330	-	B 340/12	-	0815	MN 35-10
	0.8145	GTS-45	40010	FCMW370	-	P 440/7	-	0852	Mn 450
	0.8155	GTS-55	50005	FCMP490	-	P 510/4	-	0854	GMN 45
	-	GTS-65	70003	FCMP540	-	P 570/3	-	0858	GMN 55
	0.8165	GTS-65-02	A220-70003	FCMP590	-	P570/3	-	0856	MP 50-5
	0.8170	GTS-70-02	A220-80002	FCMP690	-	P690/2	-	0862	MP 60-3
K Cast iron	-	-	-	-	-	-	-	0100	-
	-	GG10	No 20 B	FC100	-	-	-	0110	Ft 10 D
	0.6015	GG15	No 25 B	FC150	FG 15	Grade 150	-	0115	Ft 15 D
	0.6020	GG20	No 30 B	FC200	-	Grade 220	-	0120	Ft 20 D
	0.6025	GG25	No 35 B	FC250	FG25	Grade 260	-	0125	G 20
	-	-	No 40 B	-	-	-	-	-	G 25
	0.6030	GG30	No 45 B	FC300	FG30	Grade 300	-	0130	Ft 30 D
	0.6035	GG35	No 50 B	FC350	FG35	Grade 350	-	0135	G 30
	0.6040	GG40	No 55 B	-	-	Grade 400	-	0140	Ft 35 D
	0.6660	GGL-NiCr202	A436 Type 2	-	-	L-NiCuCr202	-	0523	G 35
K Nodular SG iron	0.7040	GGG 40	60-40-18	FCD400	FGE 38-17	SNG 420/12	-	0717-02	FCS 400-12
	-	GGG 40.3	-	-	-	SNG 370/17	-	0717-12	GS 370-17
	0.7033	GGG 35.3	-	-	-	-	-	0717-15	FGS 370-17
	0.7050	GGG 50	80-55-06	FCD500	FGE 50-7	SNG 500/7	-	0727-02	-
	0.7660	GGG-NiCr202	A43D2	-	-	Grade S6	-	0776	GS 500
	-	GGG 60	-	FCD600	-	SNG 600/3	-	0732-03	S-NC 202
	0.7070	GGG 70	100-70-03	FCD700	FGS 70-2	SNG 700/2	-	0737-01	FGS 600-3

Reference list of materials (Non ferrous materials)

ISO	Germany	U.S.A.	Japan	Spain	U.K.		Sweden	France	Italy
	W.-nr.	DIN	AISI/SAE	JIS	UNE	BS	EN	AFNOR	UNI
N Non ferrous materials	3.2373	G-AISI9MGWA	SC64D	C4BS	-	-	-	4251	A-STG
	-	G-ALMG5	GD-AISI12	AC4A	-	LM5	-	4252	A-SU12
	-	-	356.1	A5052	-	LM25	-	4244	-
	-	GD-AISi12	A413.0	A6061	-	-	-	4247	-
	-	GD-AISi8Cu3	A380.1	A7075	-	LM24	-	4250	-
	-	G-AISi12(Cu)	A413.1	ADC12	-	LM20	-	4260	-
	-	G-AISi12	A413.2	-	-	LM6	-	4261	-
	-	G-AISi10Mg(Cu)	A360.2	-	-	LM9	-	4253	-

Reference list of materials (Heat resistant super-alloys)

ISO	Germany		U.S.A.	Japan	Spain	U.K.		Sweden	France	Italy
	W.-nr.	DIN	AISI/SAE	JIS	UNE	BS	EN	SS	AFNOR	UNI
S Heat resistant super-alloys	1.4864	X12NiCrSi36 16	330	SUH330	-	-	-	-	Z12NCS35.16	F-3313
	1.4865	G-X40NiCrSi38 18	-	SCH15	-	330C11	-	-	-	XG50NiCr39 19
	2.4603	-	5390A	-	-	-	-	-	NC22FeD	-
	2.4856	NiCr22Mo9Nb	5666	-	-	-	-	-	NC22FeDNB	-
	2.4630	NiCr20Ti	-	-	-	HR5,203-4	-	-	NC20T	-
	LW2.4662	NiFe35Cr14MoTi	5660	-	-	-	-	-	ZSNCDT42	-
	LW2.4670	S-NiCr13Al6MoNb	5391	-	-	3146-3	-	-	NC12AD	-
	LW2.4668	NiCr19Fe19NbMo	5383	-	-	HR8	-	-	NC19eNB	-
	2.4375	NiCu30Al	4676	-	-	3072-76	-	-	-	-
	2.4631	NiCr20TiAk	-	-	-	Hr401,601	-	-	NC20TA	-
	2.4973	NiCr19Co11MoTi	AMS 5399	-	-	-	-	-	NC19KDT	-
	LW2.4668	NiCr19Fe19NbMo	AMS 5544	-	-	-	-	-	NC20K14	-
	LW2.4674	NiCo15Cr10MoAlTi	AMS 5397	-	-	-	-	-	-	-
	LW2.4964	CoCr20W15Ni	5537C	-	-	-	-	-	KC20WN	-
	-	CoCr22W14Ni	AMS 5772	-	-	-	-	-	KC22WN	-
S Titanium alloys	-	TiAl5Sn2.5	AMS R54520	-	-	TA14/17	-	-	T-A5E	-
	-	TiAl6V4	AMS R56400	-	-	TA10-13/TA28	-	-	T-A6V	-
	-	TiAl6V4ELI	AMS R56401	-	-	TA11	-	-	-	-
	-	TiAl4MoSn4Si0.5	-	-	-	-	-	-	-	-

Reference list of materials (Hardened materials)

ISO	Germany		U.S.A.	Japan	Spain	U.K.		Sweden	France	Italy
	W.-nr.	DIN	AISI/SAE	JIS	UNE	BS	EN	SS	AFNOR	UNI
H Hardened materials	1.4108	X100CrMo13	440A	C4BS	-	-	-	-	-	-
	1.4111	X110CrMoV15	610	AC4A	-	-	-	-	-	-
	-	X65CrMo14	0-2	AC4A	-	-	-	-	-	-

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors

Screws (Torx) - Vis (Torx) - Schrauben (Torx)

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

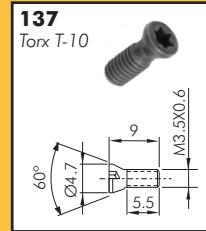
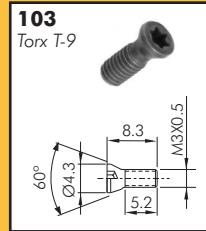
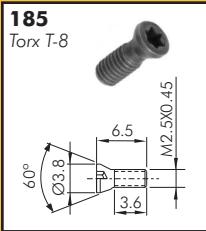
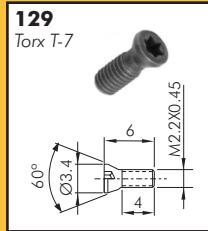
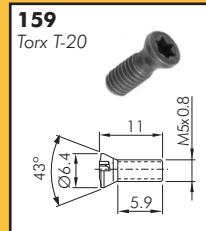
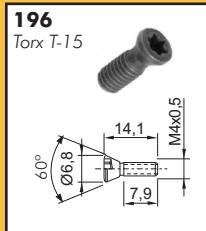
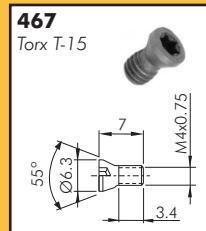
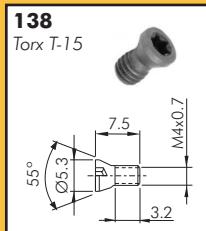
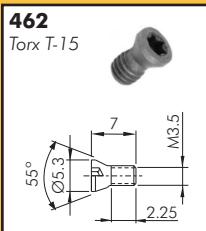
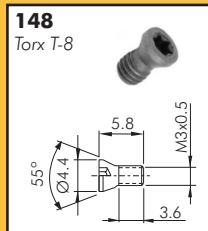
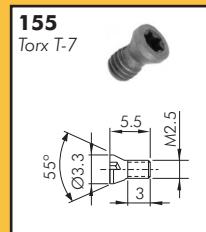
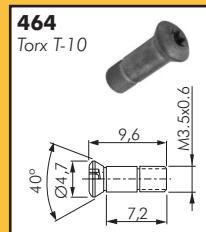
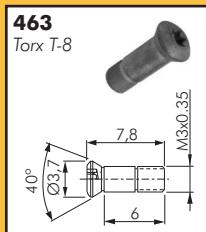
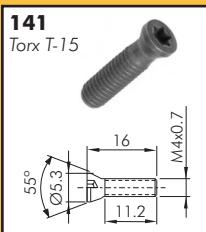
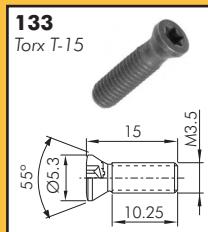
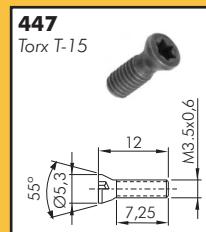
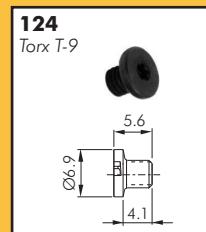
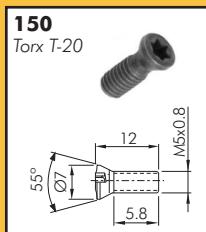
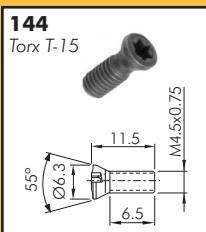
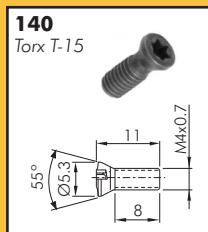
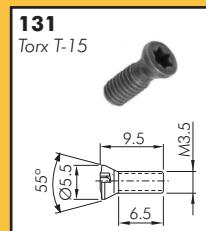
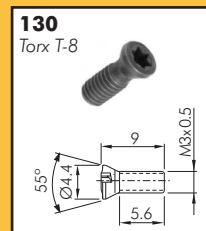
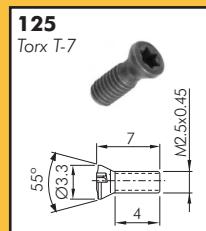
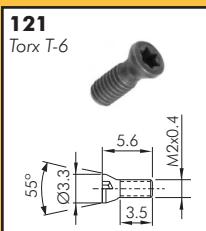
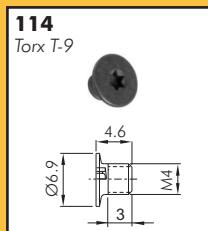
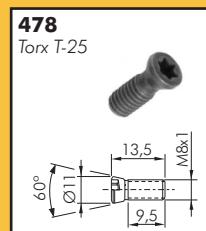
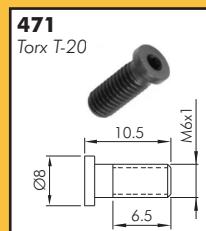
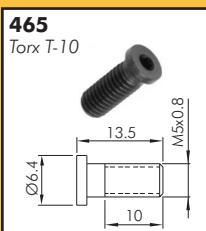
Brazed tools

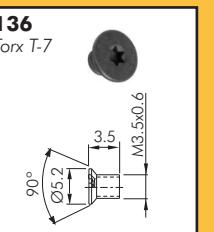
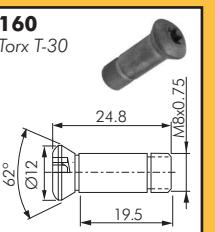
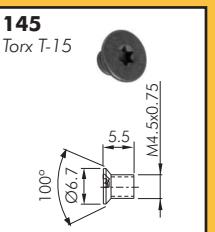
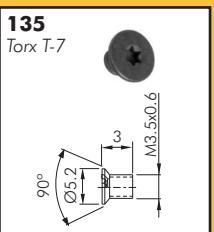
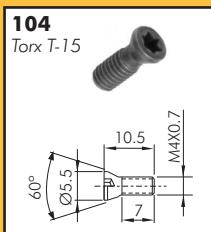
Milling cutters

Solid carbide

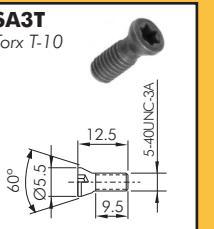
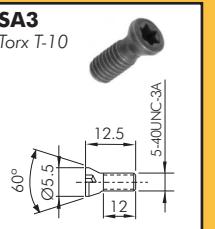
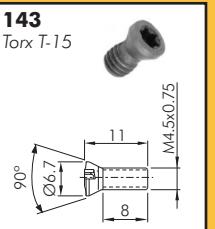
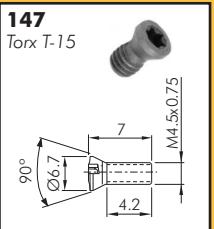
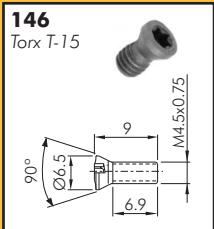
Boring heads

Arbors & adaptors

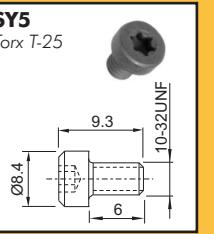
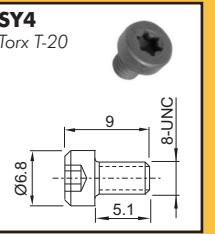
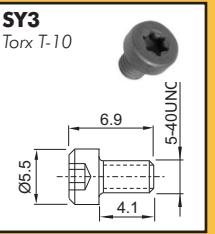
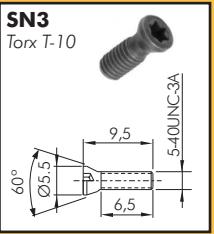
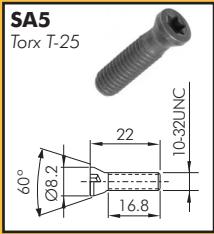
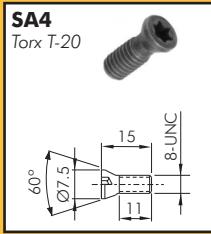




Inserts

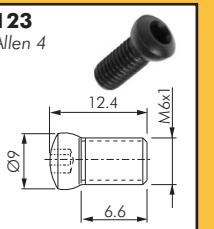
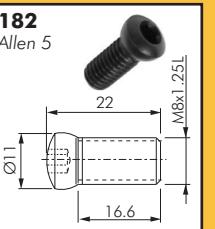
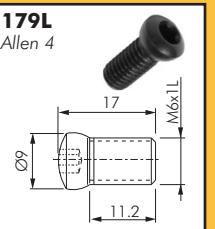
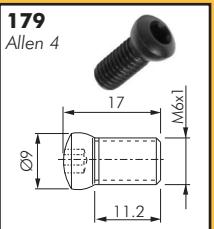
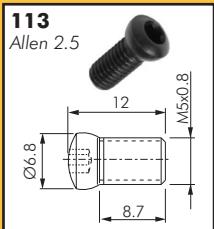
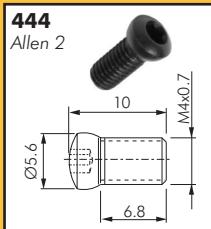


Automatic lathes

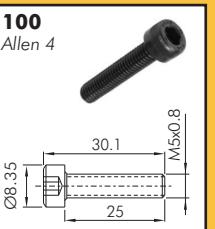
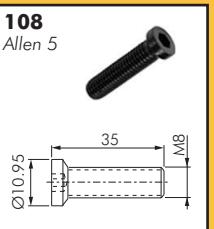
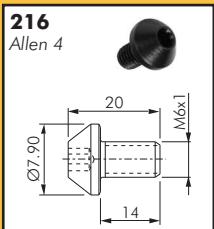
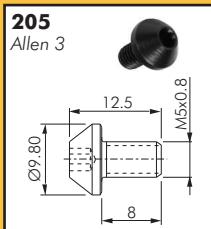


Ceramic tools

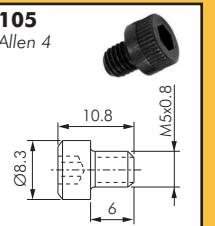
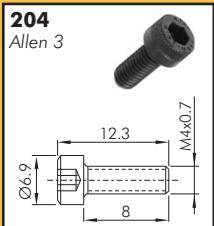
Screws (Allen) - Vis (Allen) - Schrauben (Allen)



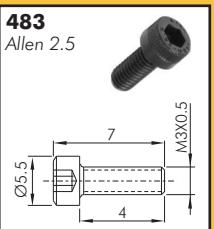
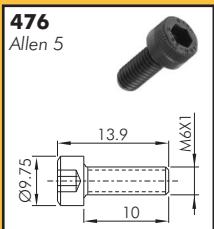
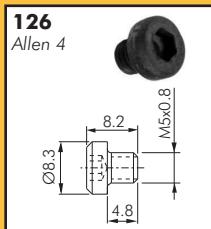
Drills



Cartridges



Brazed tools



Milling cutters

O09

Solid carbide

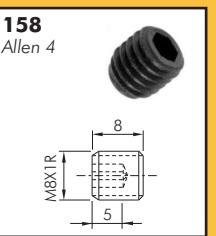
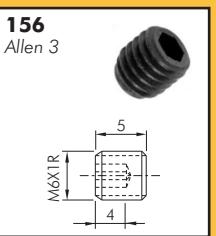
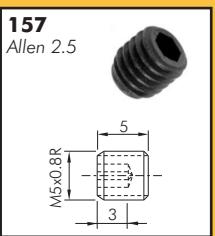
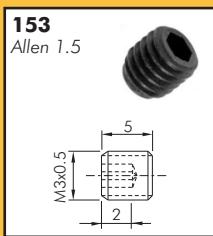
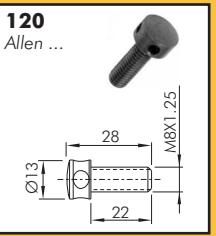
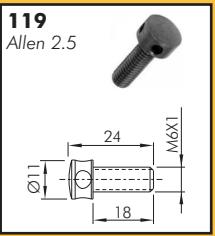
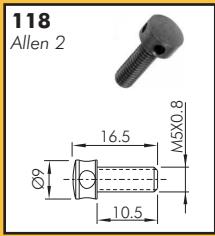
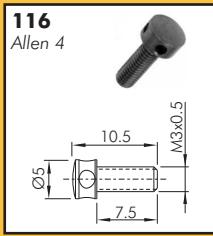
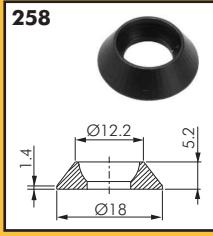
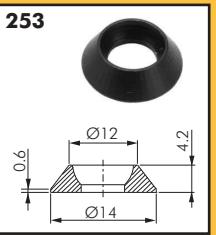
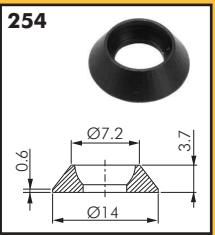
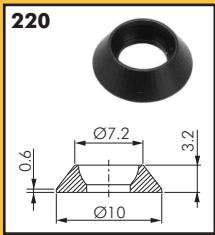
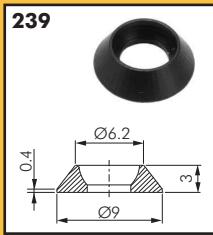
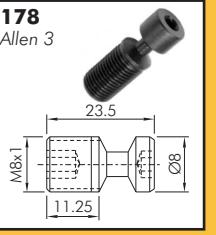
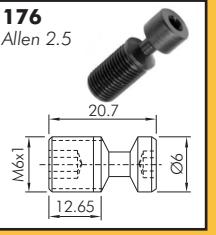
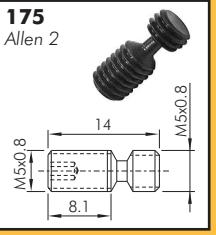
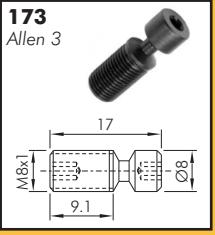
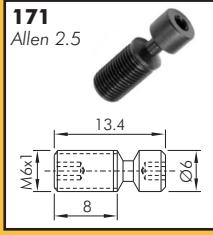
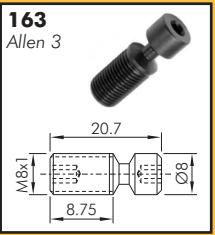
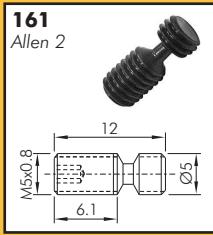
Arbors & adaptors

Boring heads

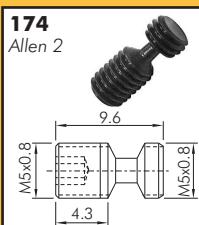
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Turning	184 Allen 2.5 	186 Allen 4 	190 Allen 5 	191 Allen 6 	493 Allen 2 	494 Allen 2.5
Automatic lathes	192 Allen 4 	107 Allen 4 	109 Allen 5 	487 Allen 4 	485 Allen 2.5 	199 Allen 5
Ceramic tools	198 Allen 2 	197 Allen 2.5 	491 Allen 3 	741 Allen 6 	910 Allen 8 	911 Allen 7
Parting & grooving	912 Allen 10 	916 Allen 14 	917 Allen 12 	920 Allen 14 	952 Allen 10 	956 Allen 14
Threading	912 Allen 10 	916 Allen 14 	917 Allen 12 	920 Allen 14 	952 Allen 10 	956 Allen 14
Drills	912 Allen 10 	916 Allen 14 	917 Allen 12 	920 Allen 14 	952 Allen 10 	956 Allen 14
Cartridges	110 Torx T-15 	177 Torx T-20 	165 Allen 3 	128 Allen 4 	189 Allen 4 	111 Torx T-15
Brazed tools	181 Torx T-15 	167 Allen 3 	112 Torx T-15 	127 Allen 4 		
Milling cutters	181 Torx T-15 	167 Allen 3 	112 Torx T-15 	127 Allen 4 		
Solid carbide	110 Torx T-15 	177 Torx T-20 	165 Allen 3 	128 Allen 4 	189 Allen 4 	111 Torx T-15
Boring heads	181 Torx T-15 	167 Allen 3 	112 Torx T-15 	127 Allen 4 		
Arbors & adaptors	181 Torx T-15 	167 Allen 3 	112 Torx T-15 	127 Allen 4 		

Clamp screws - Vis de fixation - Schrauben für Spannung

Solid carbide	110 Torx T-15 	177 Torx T-20 	165 Allen 3 	128 Allen 4 	189 Allen 4 	111 Torx T-15
Boring heads	181 Torx T-15 	167 Allen 3 	112 Torx T-15 	127 Allen 4 		
Arbors & adaptors	181 Torx T-15 	167 Allen 3 	112 Torx T-15 	127 Allen 4 		

Screws - Vis - Schrauben**Inserts****Turning****Automatic lathes****Ceramic tools****Parting & grooving****Threading****Drills****Cartridges****Brazed tools****Milling cutters****Solid carbide****Boring heads****Arbors & adaptors****Adj. Screws - Vis réglables - Einstellbare Schrauben****Washers - Rondelles - Federscheiben****Lever lock system / Screws - Vis pour fixation par levier - Schrauben für Kniehebel-Klemmung**

Inserts



Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

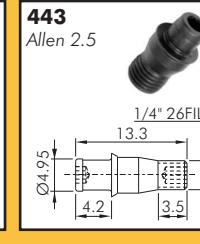
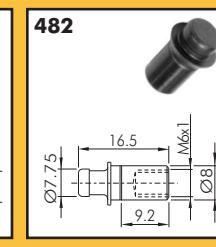
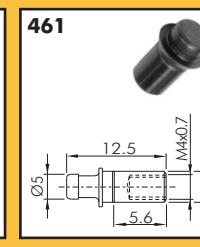
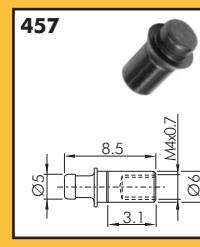
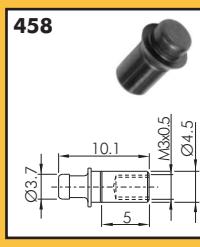
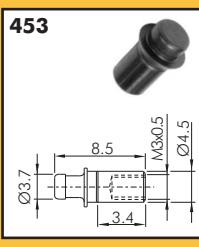
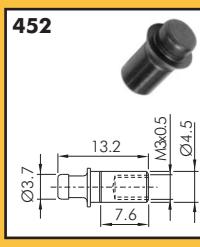
Brazed tools

Milling cutters

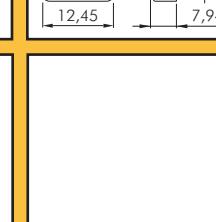
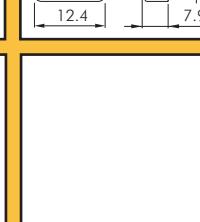
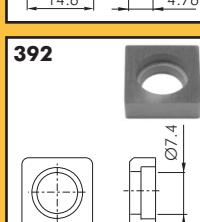
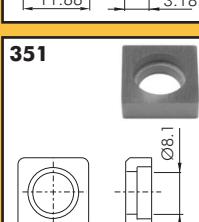
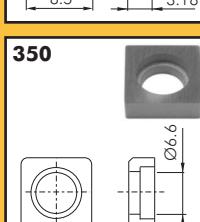
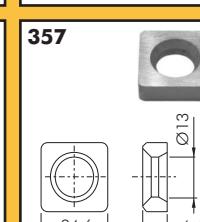
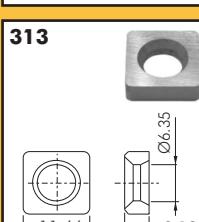
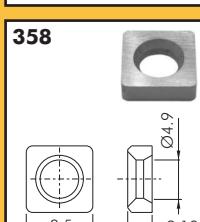
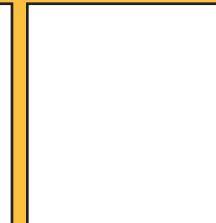
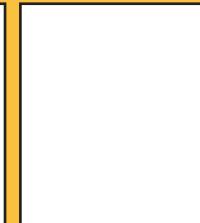
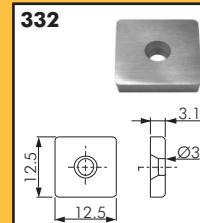
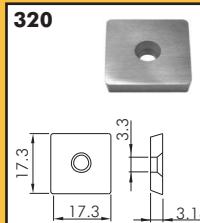
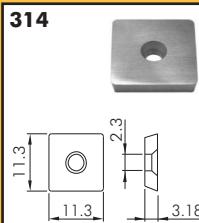
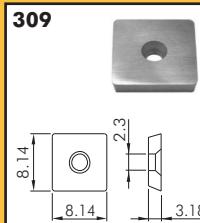
Solid carbide

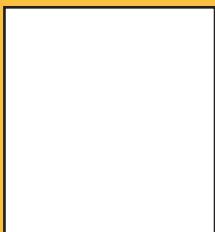
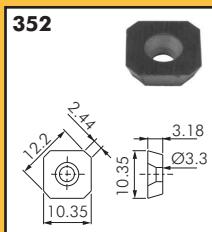
Boring heads

Arbors & adaptors

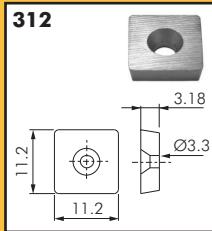


Square / Shim seats - Sous-plaquettes carrées - Quadratische Unterlegplatten



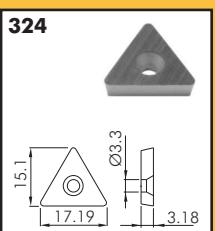
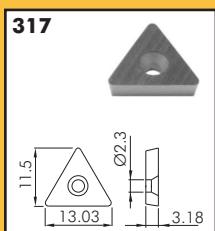
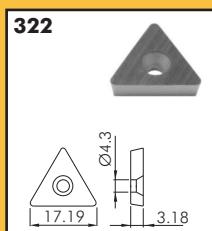


Inserts

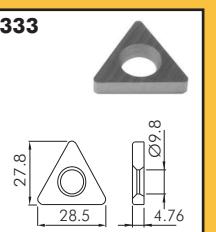
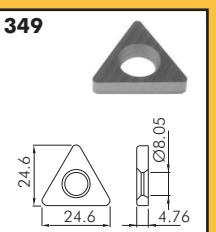
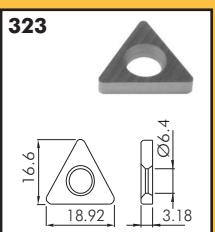
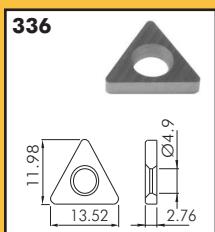
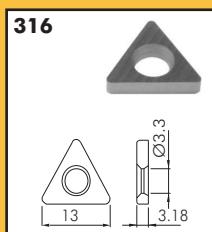


Automatic lathes

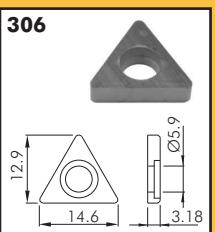
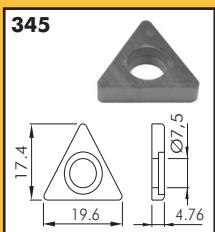
Triangular / Shim seats - Sous-plaquettes triangulaires - Dreieckige Unterlegplatten



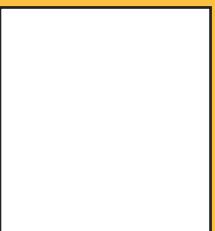
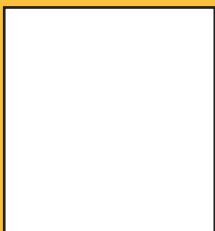
Parting & grooving



Drills



Cartridges



Brazed tools



Milling cutters



Solid carbide



Boring heads

Arbors & adaptors

O13

Seats - Cales supports et cartouches - Kassetten

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

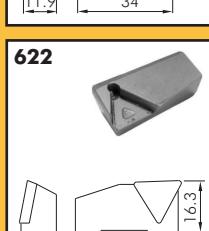
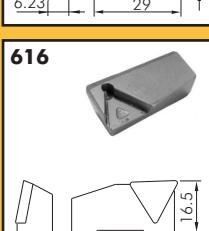
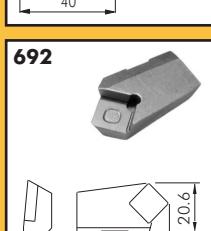
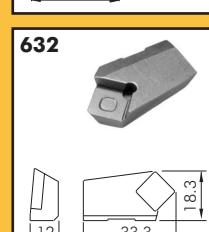
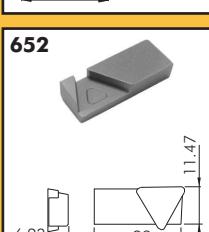
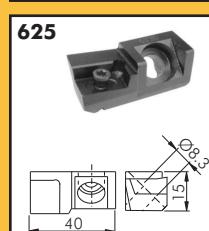
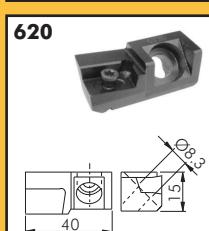
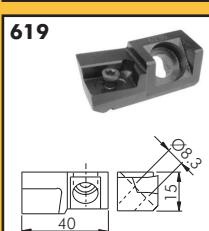
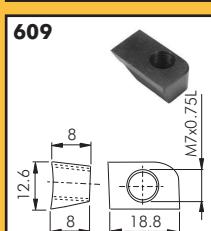
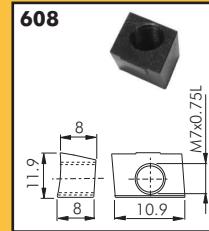
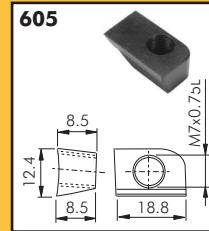
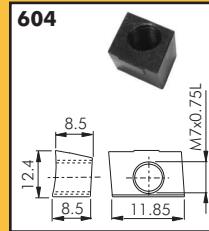
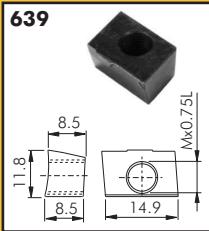
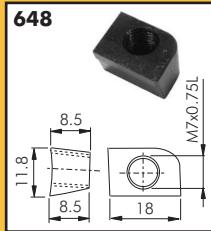
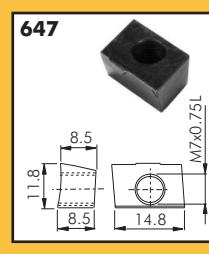
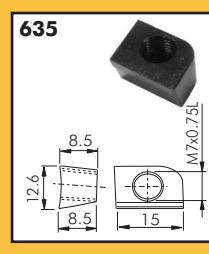
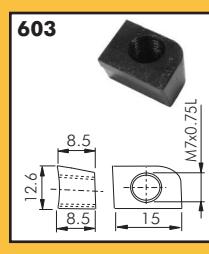
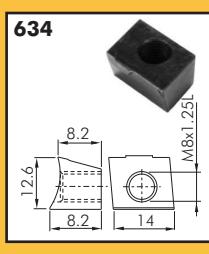
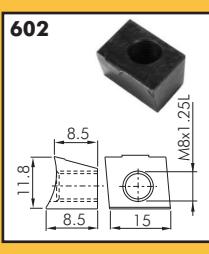
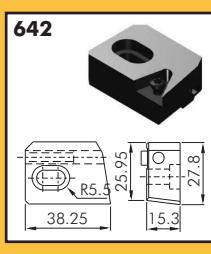
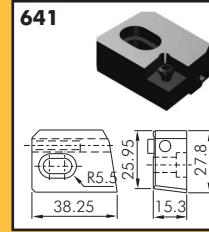
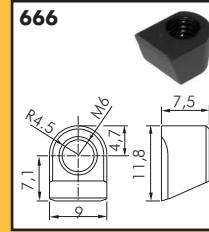
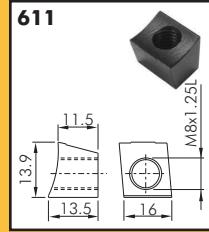
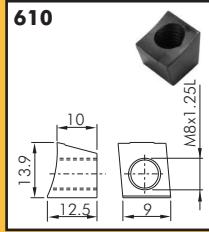
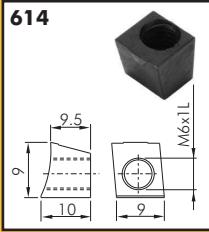
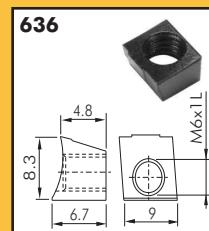
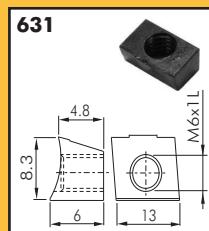
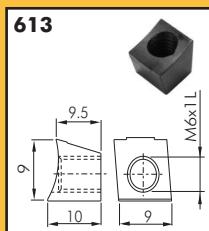
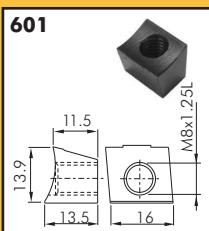
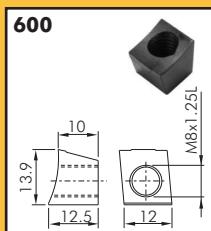
Brazed tools

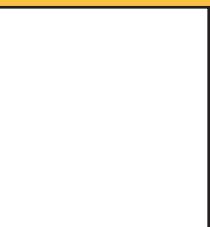
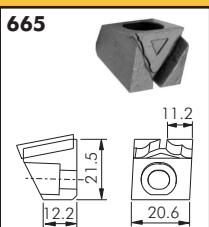
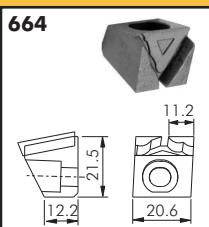
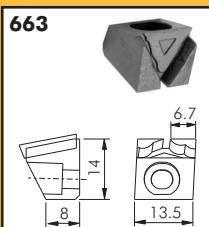
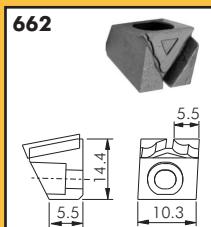
Milling cutters

Solid carbide

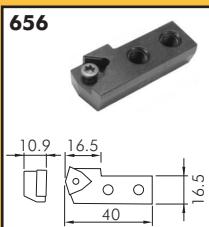
Boring heads

Arbors & adaptors

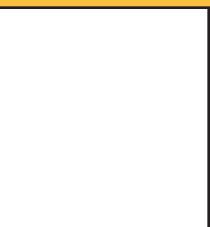
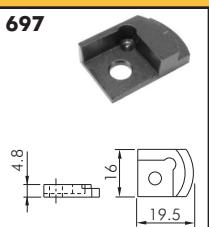
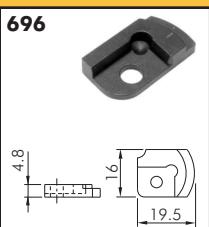
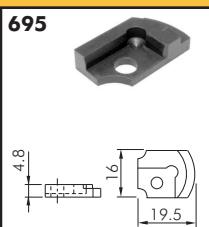
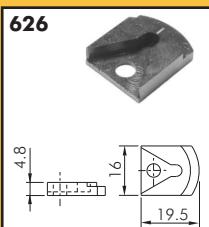
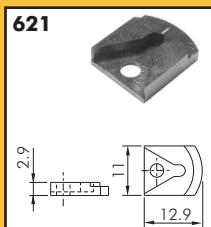




Inserts

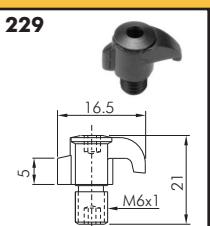
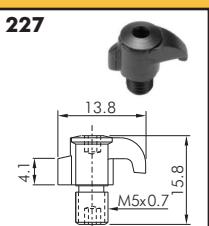
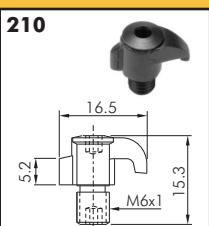
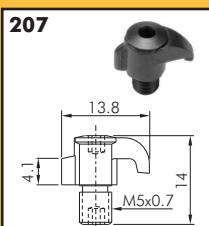
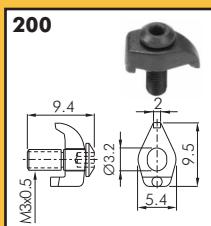


Automatic lathes

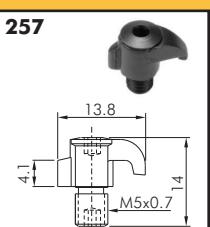
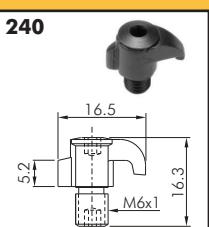
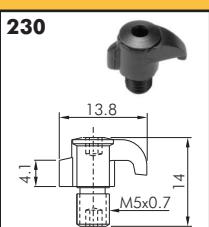
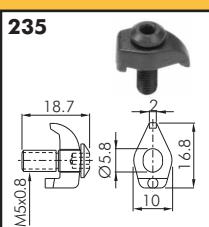
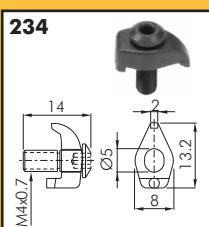
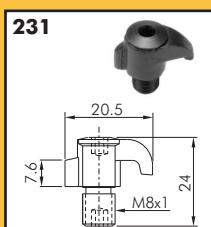


Ceramic tools

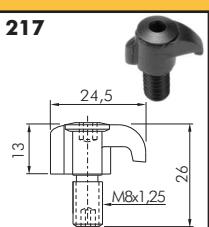
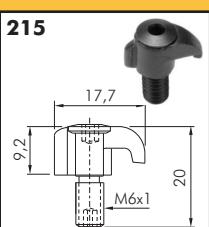
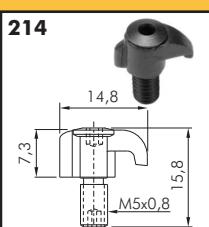
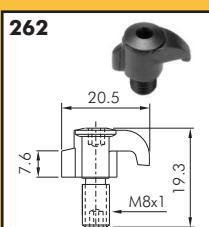
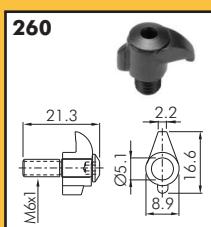
Top clamp (C) system / Clamps - Brides (Système C) - Pratze (System C)



Cartridges



Brazed tools



Milling cutters

Solid carbide

Arbors & adaptors

Boring heads

Wedge clamp (M-K) system / Clamps - Brides (Système M-K) - Pratze (System M-K)

Inserts

Turning

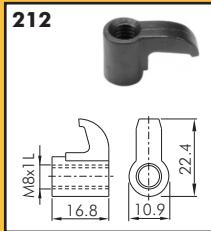
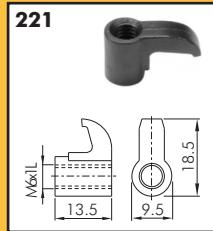
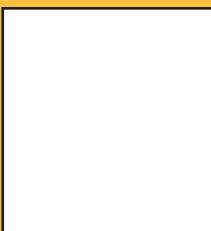
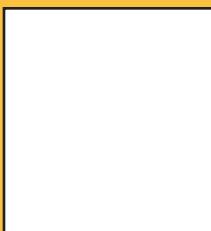
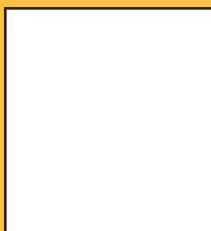
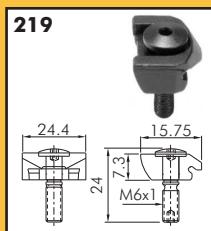
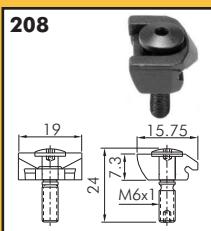
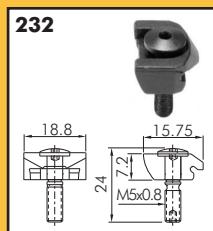
Automatic lathes

Ceramic tools

Parting & grooving

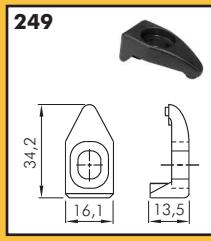
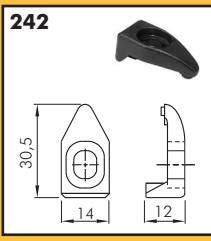
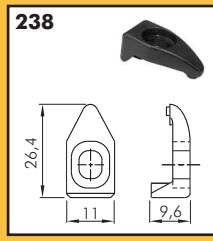
Threading

Drills



Dimple lock / Clamps - Brides pour "Dimple lock" - Dimple Lock Pratzen

KNUX / Clamps - Brides KNUX - KNUX Pratzen



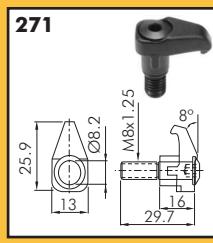
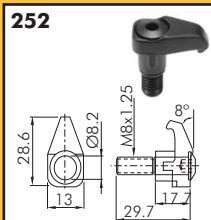
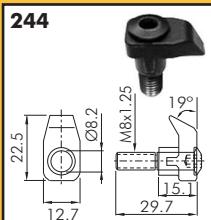
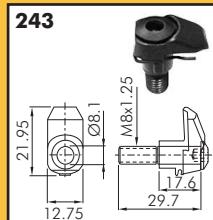
Ceramic tools / Clamps - Brides pour outils céramiques - Pratzen für keramische Werkzeuge

Cartridges

Brazed tools

Milling cutters

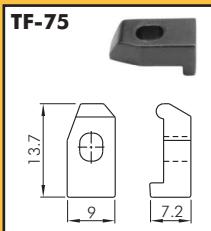
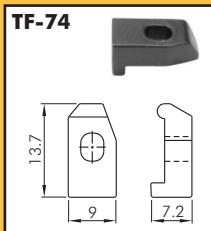
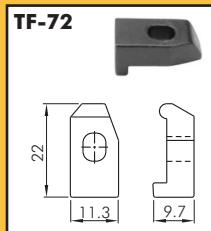
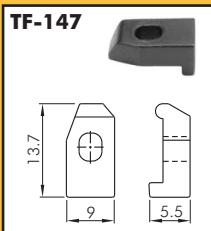
Solid carbide

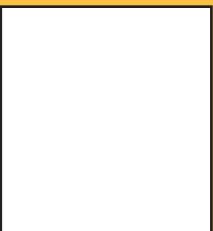
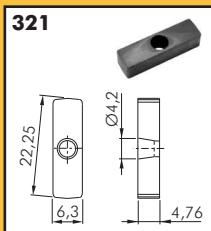
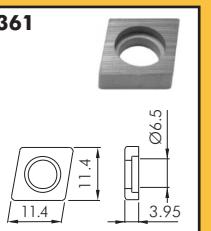
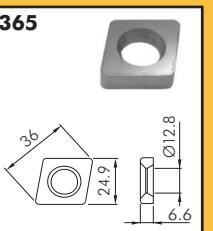
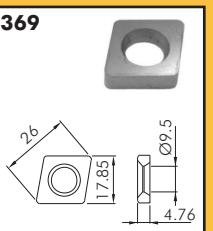
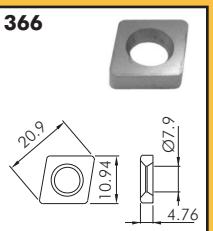
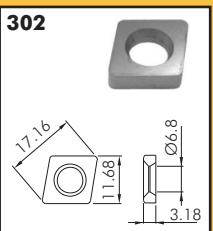
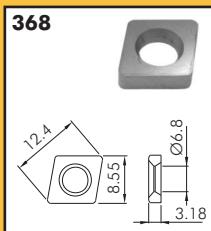
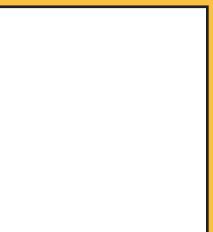
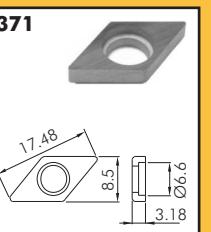
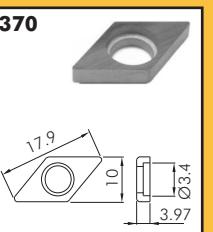
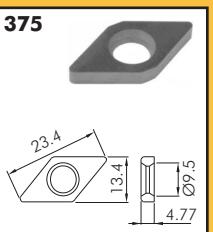
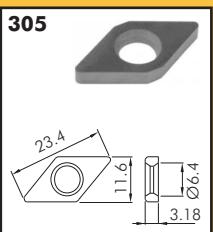
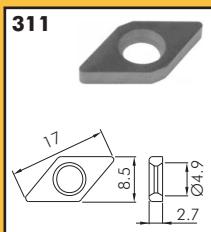
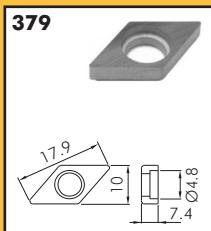


Notch tools / Clamps - Brides pour outils "Notch" - Pratze für Notch-Werkzeuge

Boring heads

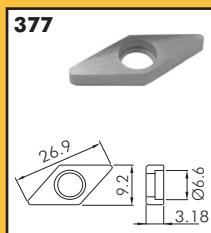
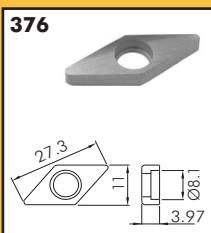
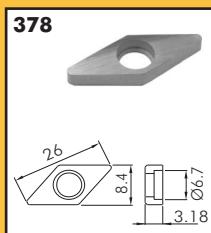
Arbors & adaptors



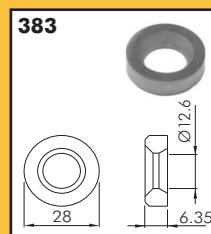
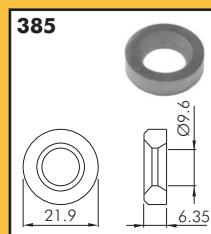
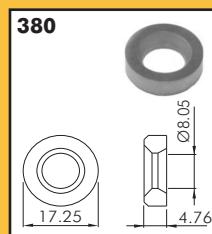
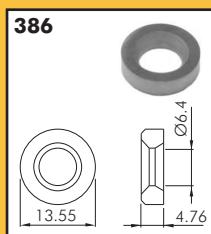
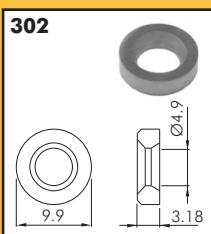
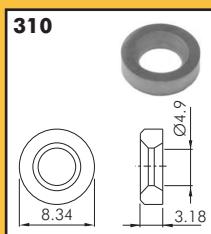
Shim seat - Sous-plaquette - Unterlegplatte**Inserts****80° Rhombic / Shim seats - Sous-plalettes rhombiques 80° - 80° rhombische Unterlegplatten****Automatic lathes****Parting & grooving****75° Rhombic / Shim seats - Sous-plalettes rhombiques 75° - 75° rhombische Unterlegplatten****Drills****Cartridges****55° Rhombic / Shim seats - Sous-plalettes rhombiques 55° - 55° rhombische Unterlegplatten****Solid carbide****Boring heads****Arbors & adaptors**

35° Rhombic / Shim seats - Sous-plaquettes rhombiques 35° - 35° rhombische Unterlegplatten

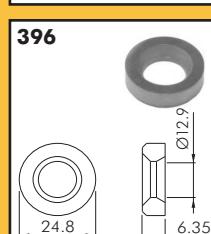
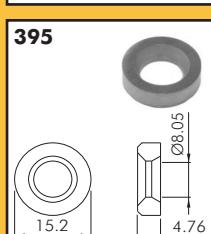
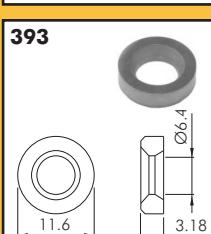
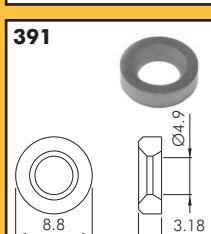
Inserts



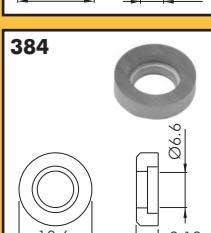
Turning



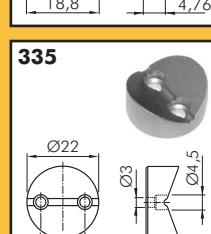
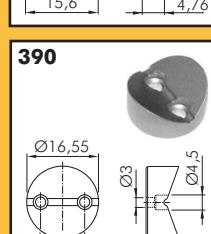
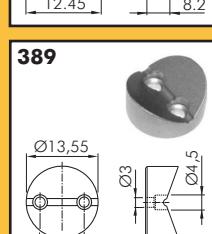
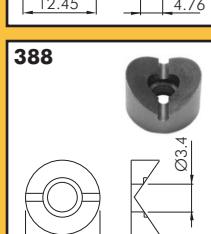
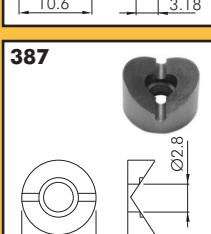
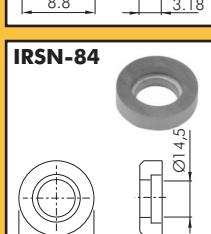
Automatic lathes



Ceramic tools



Parting & grooving



Cartridges

Brazed tools

Drills

Brazed tools

Drills

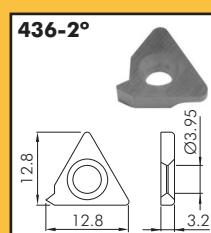
Drills

Drills

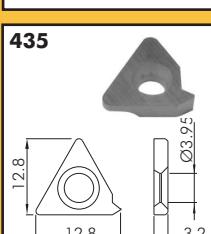
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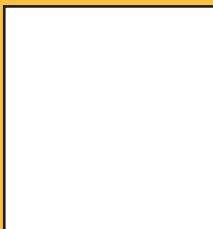
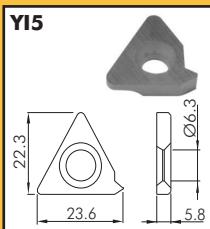
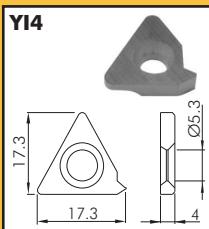
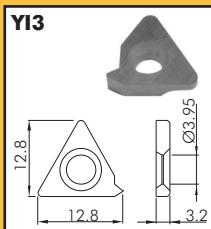
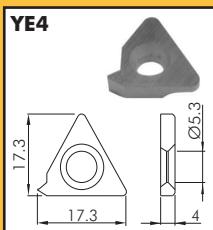
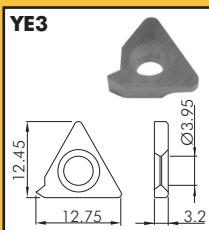
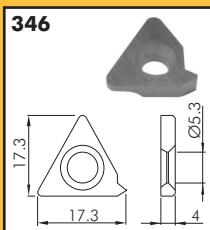
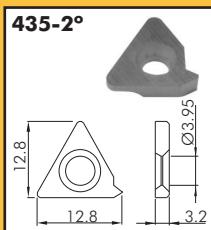
Drills

Milling cutters

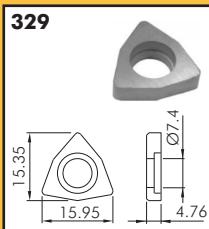
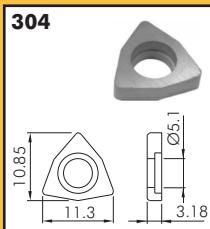
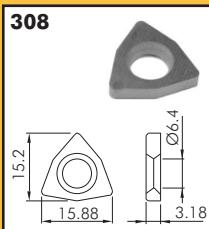
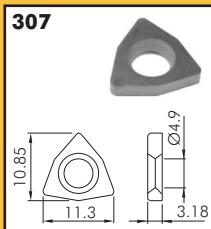


Boring heads

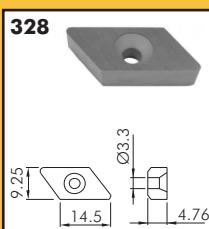
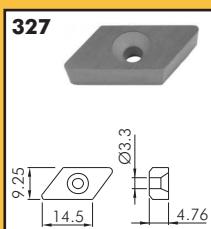




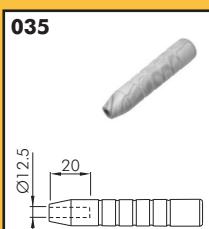
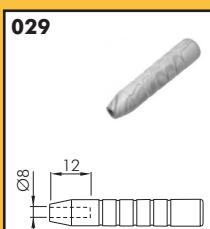
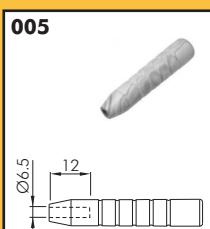
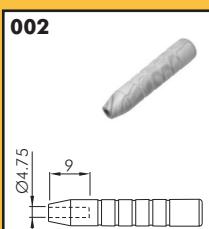
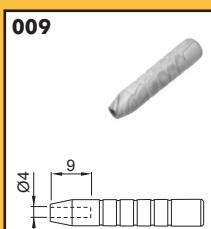
Trigon / Shim seats - Sous-plaquettes trigones - Trigon Unterlegplatten



KNUX/ Shim seats - Sous-plaquettes pour plaquettes KNUX - Unterlegplatten für KNUX-Wendeplatten



Others - Autres - Andere



Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

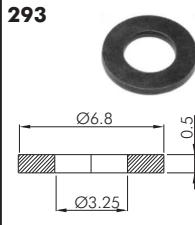
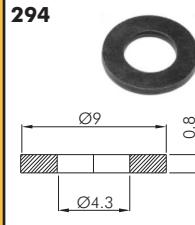
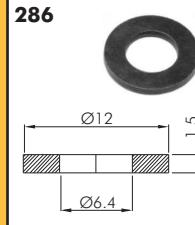
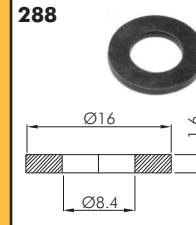
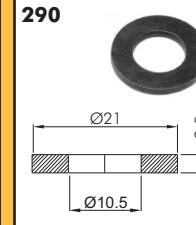
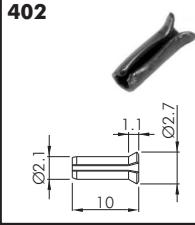
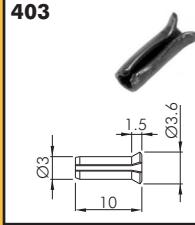
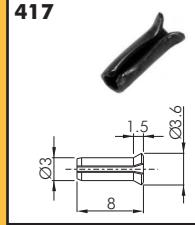
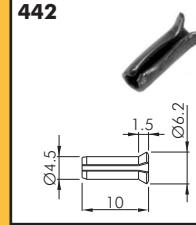
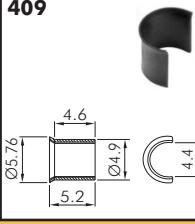
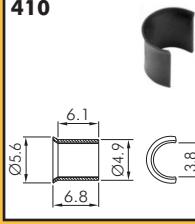
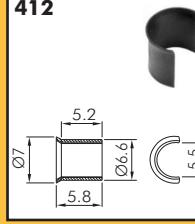
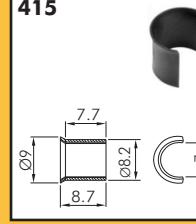
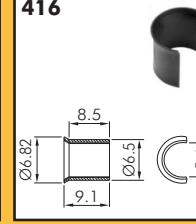
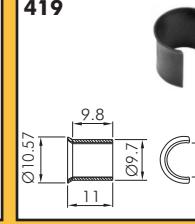
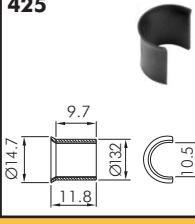
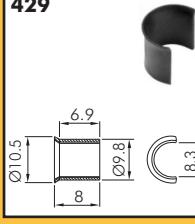
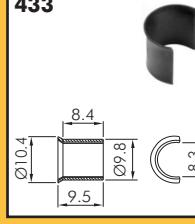
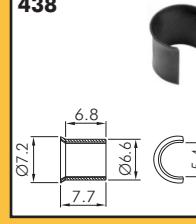
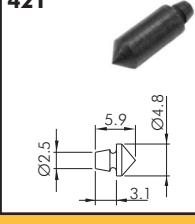
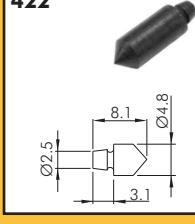
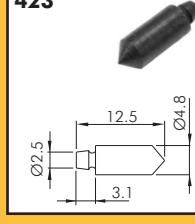
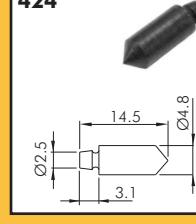
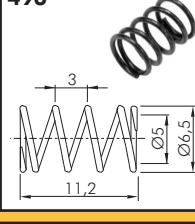
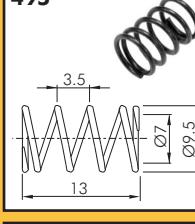
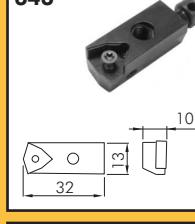
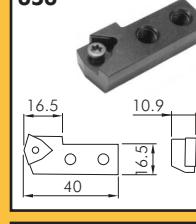
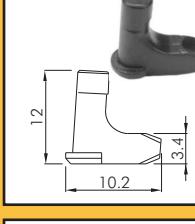
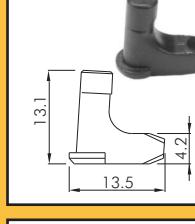
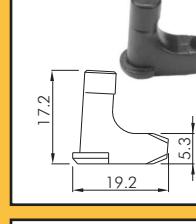
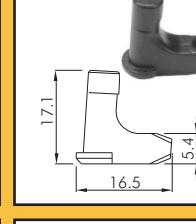
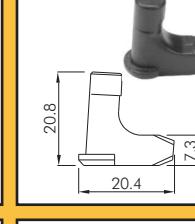
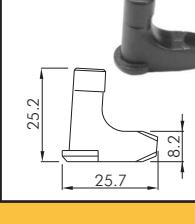
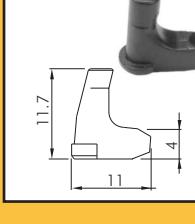
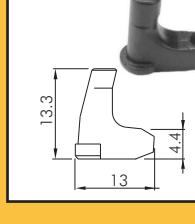
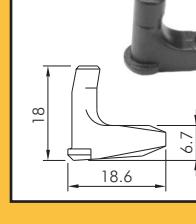
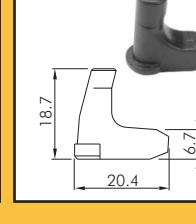
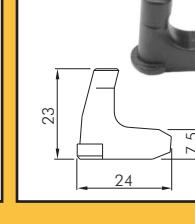
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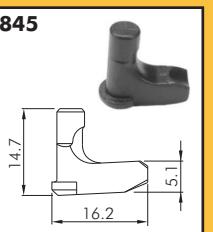
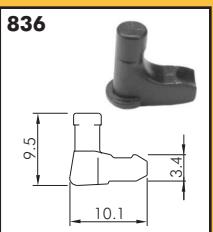
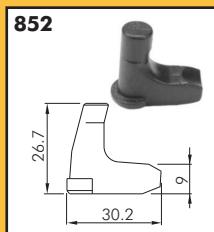
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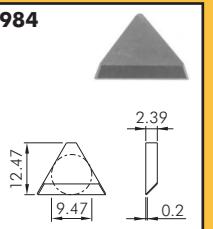
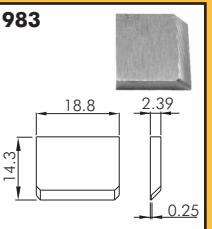
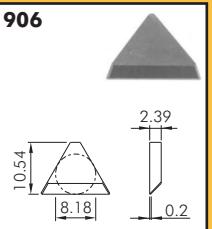
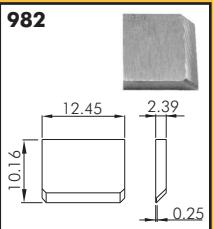
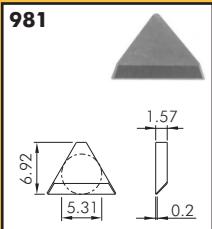
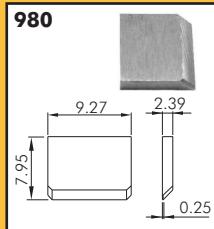
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Arbors & adaptors

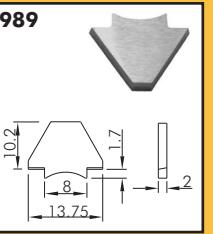
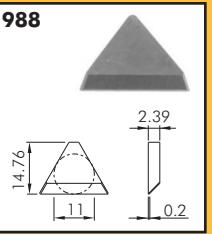
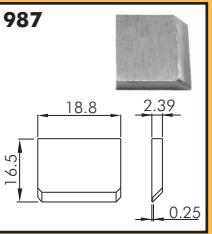
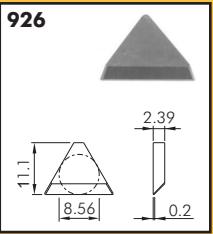
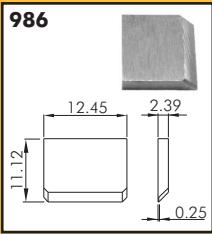
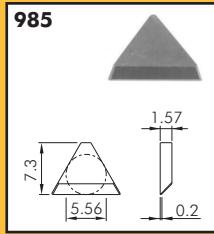
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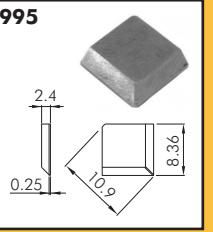
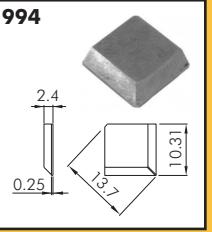
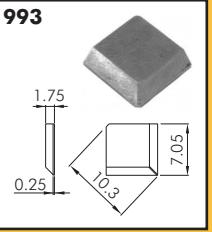
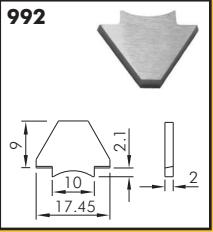
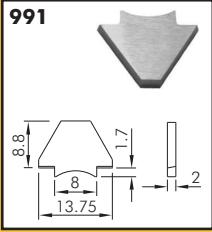
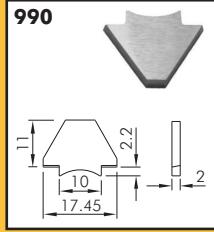
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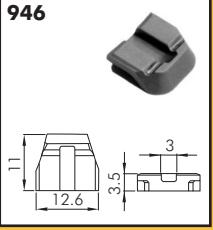
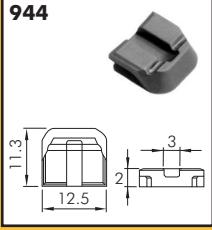
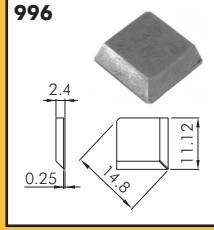
Automatic lathes



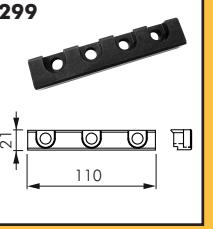
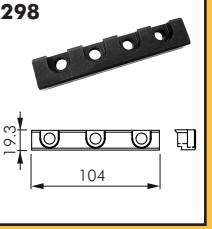
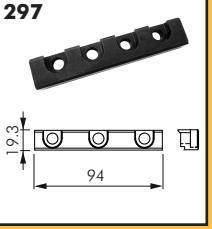
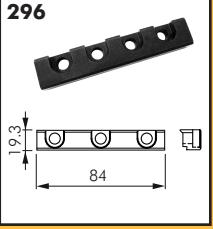
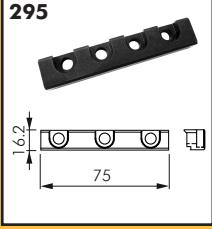
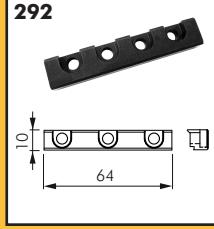
Ceramic tools



Parting & grooving



Cartridges

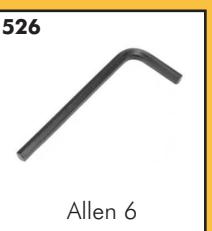


Brazed tools

Milling cutters

Solid carbide

Allen Wrenches - Clés Allen - Allen Schlüssel



Boring heads

Arbors & adaptors

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Solid carbide

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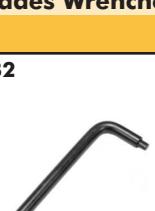
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Allen 5

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Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

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Milling cutters

Solid carbide

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Conditions of sale:

All sales are made in accordance with our standard conditions of sale, current at the time orders are accepted. Specifications and prices subject to change without notice.

Product warranty:

KIMU Mecànic will repair or replace any of its products, which in its judgement, are found to be defective in material or workmanship. All claims must be made in writing within thirty days after receipt of product. No claims for labor or damages will be allowed. In no event shall KIMU Mecànic be liable for consequential or special damages of any kind.

Special tool quotation:

Orders for special tools must be confirmed in writing before manufacturing can begin. Special items and non-stock standard items cannot be cancelled or returned for exchange or credit.

Delivery terms:

Barcelona. Full transportation costs will be charged to the buyer. Specify shipment to be made by other than regular means of transportation.

Claims:

Claims for loss in transit must be made against the transportation company. The foregoing shall constitute the sole and exclusive remedies of the customer and are in lieu of all other warranties, expressed, implied or statutory, including but not limited to any implied warranty of merchantability or fitness.

Returns:

No merchandise will be accepted for return after 30 days of shipment. All returns must be pre-paid and must be accompanied by our Return Goods Authorization (RGA) number. This number must appear on the outside of the box. Merchandise must be received in good condition or will be refused.

Conditions de vente:

Toutes les ventes sont en accord avec nos conditions générales de vente, en vigueur au moment d'accepter les commandes. Les spécifications et les prix sont sujets à changement sans préavis.

Garantie de produit:

KIMU Mecànic réparera ou remplacera tout produit qui soit considéré défectueux en ce qui concerne le matériel et la fabrication. Toutes les réclamations doivent être faites par écrit maximum trente jours après la réception du produit. Aucune réclamation pour le travail ou les dommages ne sera permise. KIMU Mecànic ne sera en aucun cas responsable pour les dommages importants ou spéciaux de n'importe quelle sorte.

Offres d'outils spéciaux:

Les commandes pour les outils spéciaux doivent être confirmées par écrit avant que la fabrication puisse commencer. Les articles spéciaux et les articles standards non-stockés ne peuvent pas être annulés ou retournés pour échange ou crédit.

Conditions de livraison:

Barcelone. Les frais de transport complets seront chargés à l'acheteur. Si le transport doit être fait par un autre moyen qui ne soit pas l'habituel, cela devra être spécifié.

Réclamations:

Les réclamations pour pertes pendant le transit doivent être faites contre la compagnie de transport. Cela constituera le remède seul et exclusif du client et est à la place de toutes les autres garanties, exprimées, impliquées ou statutaires, en incluant, mais non limitées à n'importe quelle garantie implicite de valeur marchande ou d'aptitude.

Retours:

Aucune marchandise ne sera acceptée pour le retour après 30 jours de l'expédition. Tous les retours doivent être envoyés en port payé et doivent être accompagnés par notre numéro d'Autorisation de Retour de Marchandises (RGA). Ce numéro doit apparaître sur l'extérieur de la boîte. Les marchandises doivent être reçues en bon état ou seront refusées.

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KIMU Mecànica, S.A.**Verkaufsbedingungen:**

Alle Verkäufe werden in Übereinstimmung mit unseren Standard-Lieferbedingungen gemacht, die gültig waren wenn die Bestellungen akzeptiert worden sind. Spezifizierungen und Preise können ohne Benachrichtigung geändert werden.

Produktgarantie:

KIMU Mecànica wird die Produkte ersetzen oder reparieren, die ihrer Meinung nach, einen Defekt der Materialien oder der Herstellung haben. Alle Ansprüche müssen schriftlich innerhalb von dreißig Tagen nach der Einnahme des Produktes erhoben werden. Kein Anspruch auf die Arbeit oder Schäden wird erlaubt. In keinem Fall wird KIMU Mecànica für Folgeschäden jeder Art verantwortlich sein.

Angebote für Sonderwerkzeuge:

Die Bestellungen von Sonderwerkzeuge müssen schriftlich bestätigt werden, bevor Herstellung beginnen kann. Sonderwerkzeuge und nicht auf Lager liegende Standardwerkzeuge können nicht storniert oder für den Austausch oder Kredit zurückgegeben werden.

Liefersbedingungen:

Alle Transportkosten sind vom Käufer zu bezahlen. Der Käufer muß den Verkäufer informieren, wenn er eine Sendung durch einem anderen Transportmittel gemacht werden muß, das nicht das gewöhnliche ist.

Einsprüche:

Ansprüche auf den Verlust während der Fahrt müssen gegen die Transport-Gesellschaft erhoben werden. Das Vorstehende soll die alleinigen und exklusiven Hilfsmittel des Kunden einsetzen und wird anstatt aller anderen Garantien (ausgedrückt, einbezogen oder gesetzlich, einschließlich, aber nicht beschränkt auf jede implizierte Garantie der Marktfähigkeit oder Eignung) angewendet.

Rückgaben:

Keine Waren werden für die Rückgabe 30 Tagen nach dem Versanddatum akzeptiert. Alle Rückgaben müssen frei Haus geschickt werden und mit unserer Rückgabe-Genehmigungsnummer (RGA) begleitet werden. Diese Nummer muss auf der Außenseite des Kartons erscheinen. Waren müssen in gutem Zustand erhalten werden oder werden verweigert.

KIMU Mecàníc, S.A.

This catalog contains information and specifications concerning cutting tools sold by KIMU Mecàníc. Although some of the cutting tools made from carbides are very tough and resist breakage, most are brittle and special safety precautions are required when using them.

Small fragment and chips may be thrown from a cutting tool when a fracture occurs. Since these fragments or chips are thrown at very high speeds and are very hot, contact with the skin or eyes could cause severe injury. Also, the grinding of these cutting tools will produce fine carbide and cobalt or nickel dust which may be harmful to the lungs. Listed below are some suggestions on how to minimize the potential for injury while using cutting tools.

For more information about the product hazards and safety precautions that must be taken to minimize the possibility of injury while using cutting tools, please call your KIMU Mecàníc Sales Engineer.

KIMU Mecàníc has no control over use of these cutting tools. The user must determine the suitability of these tools in its particular application.

WARNING: Very hot chip fragments may be thrown from cutting tools at very high speeds. These chips can cause severe burns, cuts or punctures to the skin, or damage to the eyes. The following are some of the safety precautions that must be followed by operators and observers while using cutting tools:

1. Make sure that the insert size and shape are adequate for use to which it is being put.
2. Chip control is necessary to prevent a continuous chip catching in the workpiece.
3. Chips are very hot and have sharp edges and should not be moved by hand.
4. Turn off the machine whenever chips are removed or when the cutting tools are changed.
5. Do not use air hoses to blow chips away from the machine.
6. To prevent tool breakage use the correct size toolholder.
7. Make sure that the overhang on the toolholder is as short as possible. Too much overhang can result in chatter and tool breakage.
8. To prevent the workpiece from coming loose during use, be sure the workpiece is tight and secure in its holder.
9. Overloading of tungsten carbide cutting tools may cause fractures of these tools.
10. A slug may be ejected at high speeds during drilling.

To protect the operator and observer from possible flying objects which could result in severe injury, the following protective devices should be worn or used while using cutting tools:

1. Wear hard hats.
2. Wear safety glasses with side shields.
3. Wear closed shoes with steel toes.
4. Keep protective enclosure on machine in place during operation.

WARNING: Grinding or finishing carbide produces fine carbide and cobalt or nickel dust. This dust may cause injury to the lungs. Operators and observers must take the following safety precautions to minimize the possibility of such injury:

1. Use with adequate ventilation.
2. Maintain the dust or mist level below recommended levels.
3. Avoid breathing dust or mist. If not possible, wear appropriate respirators, particularly when grinding tungsten carbide.
4. Minimize prolonged skin contact.
5. Wash hands thoroughly after handling.

WARNING: Use of cutting fluids and work materials create hazards. Be careful at all times.

1. Keep the cutting fluid clean so no particles can be carried back across the workpiece and possibly scratch it.
2. Cutting fluids may catch on fire when exposed to high temperatures generated during cutting.
3. Work materials such as aluminium, magnesium, uranium and titanium are flammable and could catch on fire.
4. Cutting fluids should be treated or replaced to reduce bacterial levels which may cause illness.

-WARNING-

Speeds, Feeds and Grade information within this catalogue are for reference only. If the operator does not feel safe using our speeds, feeds and grades, then the operator should use what is comfortable to him or her. KIMU Mecàníc is not responsible for any damage or injury that occurs using the speeds, feeds and grades information within catalogue.

**Conditions, terms, and prices are subject to change without notice.
Any typographical or other error in this catalogue is subject to correction.**

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Ce catalogue contient des renseignements et des spécifications concernant les outils coupants vendus par KIMU Mecànica. Bien que certains des outils coupants faits en carbure sont très durs et résistent la casse, la plupart est fragile et les précautions de sécurité spéciales sont requises lors de leur utilisation.

Quand une fracture se produit, des petits fragments et des copeaux peuvent être lancés d'un outil coupant.. Étant donné que ces fragments ou copeaux sont projetés à des vitesses très élevées et sont très chauds, le contact avec la peau ou les yeux peut provoquer des blessures graves. En outre, l'affûtage de ces outils de coupe peut produire des fines poussières de carbure, cobalt ou nickel, qui peuvent être nocives pour les poumons. Veuillez trouver ci-dessous quelques suggestions sur la façon de minimiser les risques de blessures lors de l'utilisation des outils de coupe.

Pour plus de renseignements sur les hasards du produit et les précautions de sécurité qui doivent être prises pour minimiser la possibilité de blessures lors de l'utilisation des outils de coupe, s'il vous plaît appelez votre ingénieur de ventes chez KIMU Mecànica.

KIMU Mecànica n'a aucun contrôle sur l'utilisation de ces outils coupants. L'utilisateur doit déterminer la convenance de ces outils pour son utilisation particulière.

AVERTISSEMENT: Des fragments de copeaux très chauds peuvent être lancés des outils de coupe à des vitesses très élevées. Ces copeaux peuvent provoquer des brûlures sévères, des coupures ou des ponctions à la peau, ou des dommages aux yeux. Voici quelques précautions de sécurité qui doivent être suivies par l'opérateur et les observateurs lors de l'utilisation des outils de coupe:

1. Assurez-vous que les dimensions et la forme de la plaque sont appropriées pour l'utilisation à laquelle vous la destinez.
2. Le contrôle des copeaux est nécessaire pour empêcher que les copeaux soient continuellement pris dans la pièce à usiner.
3. Les copeaux sont très chauds et ont des bords pointus, pourtant ils ne devraient pas être déplacés avec les mains.
4. Éteignez la machine chaque fois que les copeaux soient enlevés ou quand les outils coupants soient changés.
5. N'utilisez pas de tuyaux d'air pour enlever les copeaux de la machine.
6. Pour prévenir la cassure de l'outil, veuillez utiliser un outil de dimensions correctes.
7. Assurez-vous que le surplomb de l'outil soit le plus court possible. Un surplomb trop grand peut provoquer des vibrations et la fracture de l'outil.
8. Pour empêcher que la pièce à usiner se desserre pendant l'utilisation, vérifiez que la pièce à usiner est bien serrée et sûre à sa place.
9. La surcharge des outils coupants en carbure de tungstène peut provoquer des fractures de ces outils.
10. Un disque peut être éjecté à grande vitesse pendant le forage.

Pour protéger l'opérateur et l'observateur des possibles objets volants qui pourraient entraîner des blessures graves, les dispositifs de protection suivants doivent être portés ou utilisés lors de l'utilisation des outils coupants:

1. Portez des casques de sécurité.
2. Portez des lunettes de sécurité avec des protections latérales.
3. Portez des chaussures fermées avec des pointes d'acier.
4. Tenez la clôture protectrice en place sur la machine pendant l'opération.

AVERTISSEMENT: L'affûtage ou la finition de carbure peut produire des fines poussières de carbure, cobalt ou nickel. Ces poussières peuvent produire des blessures aux poumons. Les opérateurs et les observateurs doivent prendre les précautions de sécurité suivantes afin de minimiser la possibilité de ces blessures:

1. Utilisez avec une ventilation adéquate.
2. Maintenez le niveau de la poussière ou du brouillard au-dessous des niveaux recommandés.
3. Évitez de respirer la poussière ou le brouillard. Si ce n'est pas possible, portez des masques appropriés, en particulier quand vous affûtez du carbure de tungstène.
4. Minimisez le contact prolongé avec la peau.
5. Lavez-vous les mains soigneusement après la manipulation.

AVERTISSEMENT: L'utilisation des fluides de coupe et de matériel de travail, créent des risques. Soyez prudent en tout temps.

1. Tenez les fluides propres de sorte que aucune particule ne puisse être reportée en arrière à travers la pièce à usiner et éventuellement la rayer.
2. Les fluides de coupe peuvent prendre feu quand ils sont exposés aux hautes températures produites pendant l'usinage.
3. Les matières telles que l'aluminium, le magnésium, l'uranium et le titane sont inflammables et pourraient prendre feu.
4. Les fluides de coupe devraient être traités ou remplacés pour réduire les niveaux bactériens qui pourraient provoquer des maladies.

-AVERTISSEMENT-

Les renseignements sur les vitesses, les avances et les nuances indiqués dans ce catalogue sont seulement indicatifs. Si l'opérateur ne se sent pas sûr en utilisant nos vitesses, avances et nuances, alors il devrait utiliser ce qui est confortable pour lui. KIMU Mecànica n'est pas responsable des dommages ou blessures qui se produisent en utilisant les vitesses, avances et renseignements des nuances dans le catalogue.

**Les conditions, les termes et les prix sont sujets à changements sans préavis.
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Turning

Dieser Katalog enthält Information und Spezifizierungen bezüglich Schneidwerkzeugen, die durch KIMU Mecàníc verkauft sind. Obwohl einige der aus Hartmetall gemachten Schneidwerkzeuge sehr zäh sind und Brechung widerstehen, sind die meisten spröde, und spezielle Sicherheitsvorsichtsmaßnahmen sind erforderlich, wenn man sie verwendet.

Kleine Bruchstücke und Späne können von einem Schneidwerkzeug geworfen werden, wenn ein Bruch vorkommt. Da diese Bruchstücke oder Späne mit sehr hohen Geschwindigkeiten geworfen werden und sehr heiß sind, können sie strenge Verletzungen verursachen wenn sie mit der Haut oder mit den Augen in Verbindung treten. Außerdem wird der Schleifen dieser Schneidwerkzeuge feines Karbid- und Kobalt- oder Nickel-Staub erzeugen, der für die Lungen schädlich sein kann. Verzeichnet unten sind einige Vorschläge darauf, wie man das Potenzial für Verletzungen minimiert, wenn man Schneidwerkzeuge verwendet.

Für mehr Information über die Produktgefahren und Sicherheitsvorsichtsmaßnahmen, die genommen werden müssen, um die Möglichkeit der Verletzung zu minimieren, wenn Sie Schneidwerkzeuge verwenden, rufen Sie bitte Ihren KIMU Mecàníc Verkaufsspezialisten an.

KIMU Mecàníc hat keine Kontrolle über den Gebrauch dieser Schneidwerkzeuge. Der Benutzer muss die Eignung dieser Werkzeuge in seiner besonderen Anwendung bestimmen.

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WARNUNG: Sehr heiße Span-Bruchstücke können von den Schneidwerkzeugen mit sehr hohen Geschwindigkeiten geworfen werden. Diese Späne können strenge Brandwunden, Schnitte oder Einstiche zur Haut verursachen, oder den Augen beschädigen. Folgend sind einige der Sicherheitsvorsichtsmaßnahmen, denen von Maschinenbedienern und Beobachtern gefolgt werden müssen, wenn sie Schneidwerkzeuge verwenden:

1. Stellen Sie sicher, dass die Größe und Form der Wendeschneidplatte für den Gebrauch entsprechend sind, zu dem gestellt worden sind.
2. Span-Kontrolle ist notwendig, um zu verhindern, daß die Späne dauernd im Werkstück greifen.
3. Späne sind sehr heiß und haben scharfe Ränder und sollten nicht mit der Hand berührt werden.
4. Schalten Sie die Maschine ab, immer wenn die Späne entfernt werden, oder wenn die Schneidwerkzeuge gewechselt werden.
5. Verwenden Sie keine Luftschräuche, um die Späne von der Maschine wegzublasen.
6. Um Werkzeug-Brechung zu verhindern, verwenden Sie die richtigen Größe des Werkzeughalter.
7. Stellen Sie sicher, daß die Auskragung auf dem Werkzeughalter so kurz wie möglich ist. Zuviele Auskragung kann Schwingungen und Werkzeug-Brechung verursachen.
8. Um zu vermeiden, daß das Werkstück lose während des Gebrauchs wird, überprüfen Sie, daß das Werkstück fest und sicher geklemmt ist.
9. Die Überbelastung von Hartmetall-Schneidwerkzeugen kann Brüche dieser Werkzeuge verursachen.
10. Ein Klumpen kann mit hohen Geschwindigkeiten während des Bohrens geworfen werden.

Um den Maschinenbediener und Beobachter von möglichen fliegenden Gegenständen zu schützen, die Verletzungen verursachen könnten, sollten die folgenden Schutzgeräte getragen oder verwendet werden, wenn man Schneidwerkzeuge verwendet:

1. Tragen Sie harte Hüte.
2. Tragen Sie Sicherheitsbrille mit Seitenschildern.
3. Tragen Sie geschlossene Schuhe mit Stahlspitzen.
4. Behalten Sie die Schutzwand der Maschine im Platz während der Operation.

WARNUNG: Hartmetall schleifen oder fertigen erzeugt feines Karbid- und Kobalt- oder Nickel-Staub. Dieser Staub kann Verletzungen zu den Lungen verursachen. Maschinenbediener und Beobachter müssen die folgenden Sicherheitsvorsichtsmaßnahmen nehmen, um die Möglichkeit solcher Verletzung zu minimieren:

1. Verwenden Sie es mit der entsprechenden Lüftung.
2. Behalten Sie den Staub oder das Nebel-Niveau unter des empfohlenen Niveaus.
3. Vermeiden Sie, den Staub oder das Nebel zu atmen. Wenn nicht möglich, dann verwenden Sie Atemschutzmasken, besonders wenn Sie Karbid schleifen.
4. Minimieren Sie den verlängerten Hautkontakt.
5. Waschen Sie sich die Hände gründlich nach dem Berühren.

WARNUNG: Der Gebrauch von Schneidflüssigkeiten und Arbeitsmaterialien schafft Gefahren. Seien Sie zu jeder Zeit sorgfältig.

1. Halten Sie die Schneidflüssigkeit sauber, sodaß keine Partikeln das Werkstück kratzen können.
2. Schneidflüssigkeiten können im Brand geraten, wenn sie zu den hohen Temperaturen ausgestellt werden, die beim Schneiden erzeugt werden sind.
3. Arbeitsmaterialien wie Aluminium, Magnesium, Uran und Titan sind feuergefährlich und konnten im Brand geraten.
4. Schneidflüssigkeiten sollten behandelt oder ersetzt werden, um das Bakterienniveau zu reduzieren, die Krankheiten verursachen können.

-WARNUNG-

Informationen über Geschwindigkeiten, Vorschübe und Sorten innerhalb dieses Katalogs sind nur als Hinweis zu benutzen. Wenn der Maschinenbediener sich nicht sicher fühlt, indem er unsere Geschwindigkeiten, Vorschübe und Sorten verwendet, dann sollte der Maschinenbediener verwenden, was am bequemster zu ihm oder ihr ist. Kimu Mecàníc ist für jeden Schaden oder Verletzung nicht verantwortlich, die vorkommen kann, wenn man die Informationen über Geschwindigkeiten, Vorschübe und Sorten verwendet, die in diesem Katalog sind.

**Bedingungen, Fristen und Preise sind Änderungen vorbehalten.
Irgendwelcher typografischer oder anderer Fehler in diesem Katalog ist der Korrektur unterworfen.**

Inserts

Turning

Automatic lathes

Ceramic tools

Parting & grooving

Threading

Drills

Cartridges

Brazed tools

Milling cutters

Solid carbide

Boring heads

Arbors & adaptors





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TURNING AND MILLING



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