

## Cutting and Grooving Toolholder

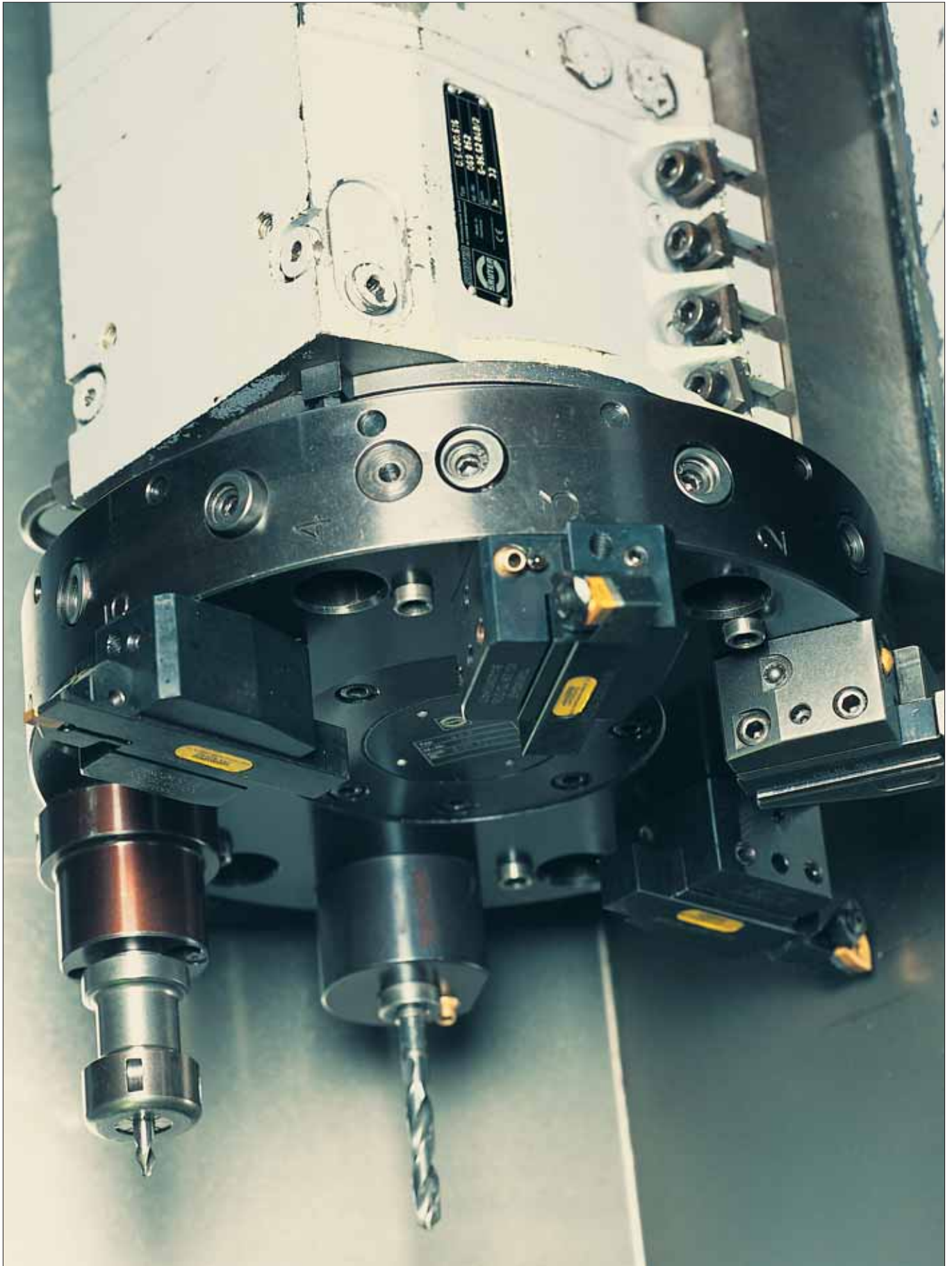
### Kesme ve Kanal Katerleri

Değiştirilebilir uçlu kesme lamaları ve tutucuları <i>Indexible insert cutting blade and holder</i> .....	69
Kısa lama ve kater tutucuları <i>Short blade and holder</i> .....	70
Değiştirilebilir kesme kateri <i>Indexible cutting toolholder</i>	
- XLCFR/L serisi - <i>XLCFR/L series</i> .....	70
- RF / LF 151.22 ve 23 serisi - <i>RF / LF 151.22 and 23 series</i> .....	71
- R / L 154.91 Dış Kanal Serisi - <i>R / L 154.91 External Grooving Series</i> .....	72
- R / L 154.91 İç Kanal Serisi - <i>R / L 154.91 Internal Grooving Series</i> .....	72
- R / L 154.93 Dış Lamba Serisi - <i>R / L 154.93 External Lamp Series</i> .....	73
- R / L 154.93 İç Lamba Serisi - <i>R / L 154.93 Internal Lamp Series</i> .....	73
- R / L 154 Serisi için Kesici Uçlar - <i>R / L 154 Series for Insert</i> .....	74
- TDKR / L Dış Kanal Serisi - <i>TDKR / L External Grooving Series</i> .....	75
- TDKR / L İç Kanal Serisi - <i>TDKR / L Internal Grooving Series</i> .....	75
- TDKR / L Serisi için Kesici Uçlar - <i>TDKR / L Series for Insert</i> .....	76
- AKR / L Alın Kanal Katerleri Serisi - <i>AKR / L Integral Holders</i> .....	77 - 78

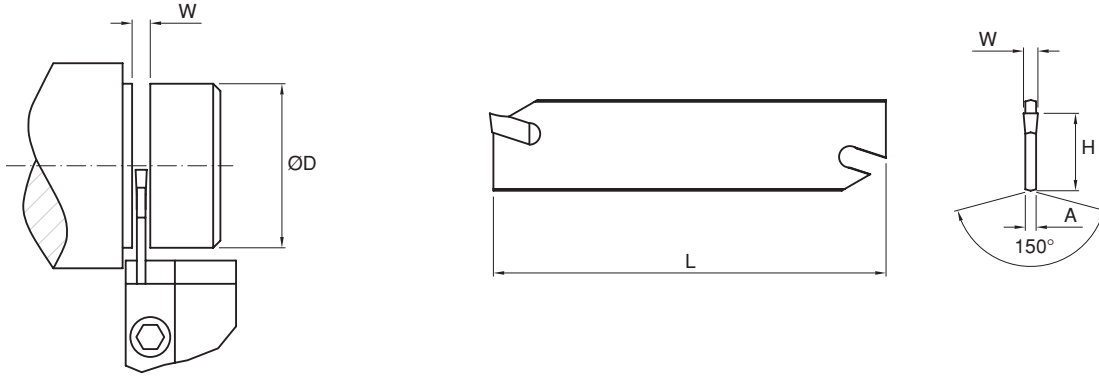
## Threading Toolholder

### Vida Açma Katerleri

- Dış Vida Açma Katerleri - <i>External threading toolholder</i> .....	79
- Delik Vida Açma Katerleri - <i>Internal threading toolholder</i> .....	80

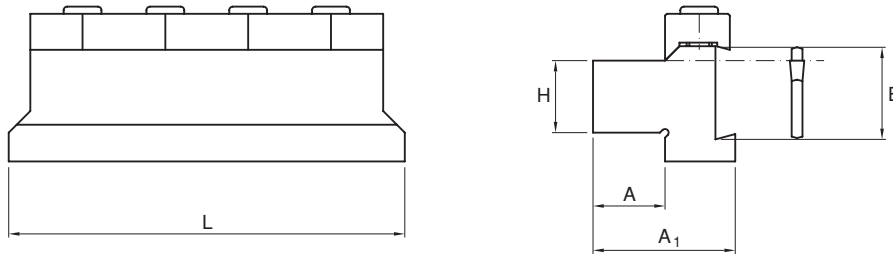


## Indexible Insert Cutting Blade Değiştirilebilir Uçlu Kesme Lamaları



Ordering No. Takım Kod No.	Stock Stok	Cutting Diameter Kesme Çapı ØD	Wide Genişlik W	H	L	A	Wrench Anahtar	Insert Kesici Uç
XLCFN 26 J25 TB	○	40	2.2	21.4	110	1.8	TCA 5	STE(N) 2.0
XLCFN 26 J31 TB	●	80	3.1	21.4	110	2.5	TCA 5	STE(N) 3.0
XLCFN 26 J41 TB	●	80	4.1	21.4	110	3.4	TCA 5	STE(N) 4.0
XLCFN 26 J51 TB	●	80	5.1	21.4	110	4.2	TCA 5	STE(N) 5.0
XLCFN 32 J25 TB	○	40	2.2	25	120	1.8	TCA 5	STE(N) 2.0
XLCFN 32 J31 TB	●	80	3.1	25	120	2.5	TCA 5	STE(N) 3.0
XLCFN 32 J41 TB	●	80	4.1	25	120	3.4	TCA 5	STE(N) 4.0
XLCFN 32 J51 TB	●	80	5.1	25	120	4.2	TCA 5	STE(N) 5.0

## Universal and CNC machine for Cutting Blade Holder Universal ve CNC Tezgahlar İçin Kesme Laması Tutucu



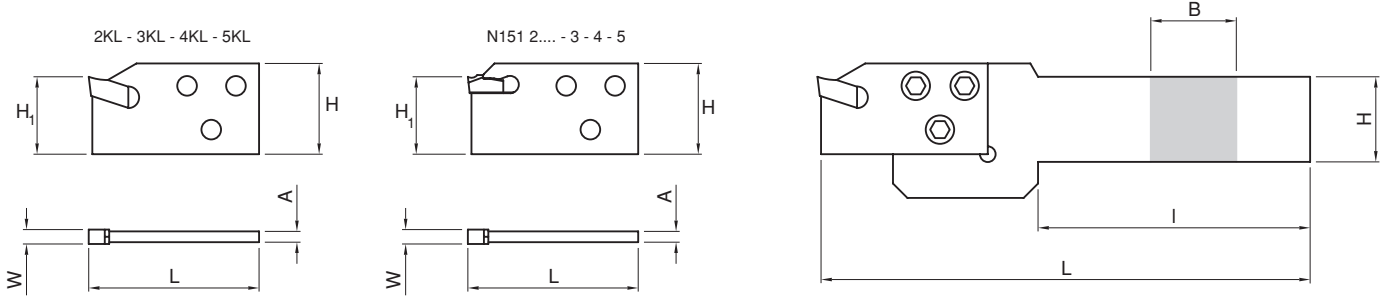
Ordering No. Takım Kod No.	Stock Stok	H H <sub>1</sub>	B	A	A <sub>1</sub>	L	Clamping Screw Bağlama Vidası
SBN 20 20 26K	●	20	26	20	33	109	M6 x 30
SBN 25 20 26K	●	25	26	20	33	109	M6 x 30
SBN 25 25 26K	●	25	26	25	38	109	M6 x 30
SBN 32 25 26K	○	32	26	25	38	109	M6 x 30
SBN 20 20 32K	●	20	32	20	33	120	M6 x 30
SBN 25 20 32K	●	25	32	20	33	120	M6 x 30
SBN 25 25 32K	●	25	32	25	38	120	M6 x 30
SBN 32 25 32K	○	32	32	25	38	120	M6 x 30

● Stokta Mevcut / In stock

● Siparişten sonra 2 hafta / 2 weeks upon the date of order

○ Siparişten sonra 4 hafta / 4 weeks upon the date of order

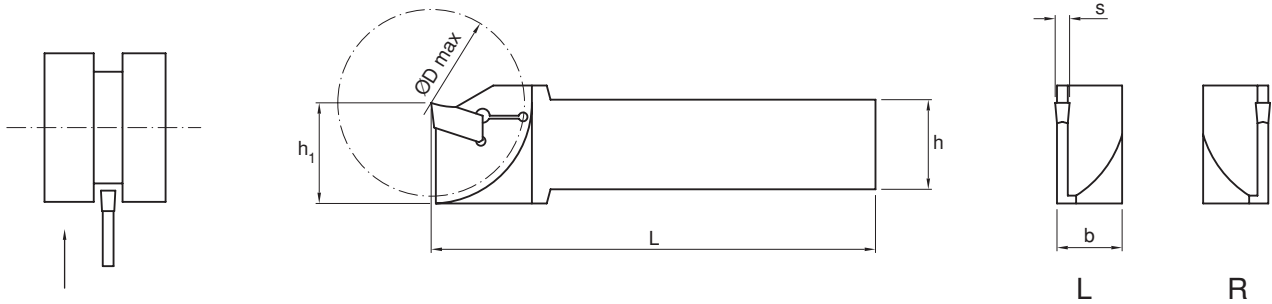
## Indexible Insert Short Blade and Cutter Holder Değiştirilebilir Uçlu Kısa Lama ve Kater Tutucu



Ordering No. Takım Kod No.	Stock Stok		H	H <sub>1</sub>	B	I	L	Clamping Screw Bağlama Vidası	Wrench Anahtar
	R	L							
XLCFR/L 20 20 26 LTH	○	○	20	21.5	20	105	160	M5 x 15 BV	Ta3
XLCFR/L 25 25 26 LTH	●	○	25	21.5	25	110	170	M5 x 15 BV	Ta3
XLCFR/L 32 25 26 LTH	○	○	32	21.5	25	130	190	M5 x 15 BV	Ta3

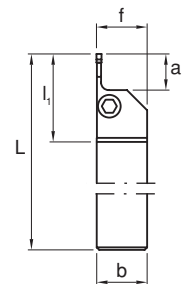
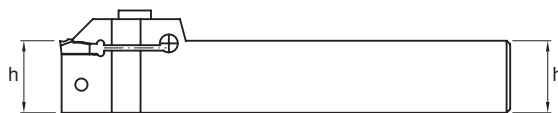
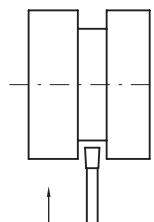
Ordering No. Takım Kod No.	Stock Stok	H	A	L	H <sub>1</sub>	W	Insert Kesici Uç
XLCFN 26X 2KL	○	25.2	2.0	50	21.5	2.2	STE(N) 2.0
XLCFN 26X 3KL	●	25.2	2.5	50	21.5	3.1	STE(N) 3.0
XLCFN 26X 4KL	●	25.2	3.4	50	21.5	4.1	STE(N) 4.0
XLCFN 26X 5KL	●	25.2	4.2	50	21.5	5.1	STE(N) 5.0

Ordering No. Takım Kod No.	Stock Stok	H	A	L	H <sub>1</sub>	W	Insert Kesici Uç
XLCFN 26X 3N 151	○	25.2	2.0	50	21.5	2.1	N151 2 300
XLCFN 26X 4N 151	○	25.2	2.5	50	21.5	3.1	N151 2 400
XLCFN 26X 5N 151	○	25.2	3.4	50	21.5	4.1	N151 2 500

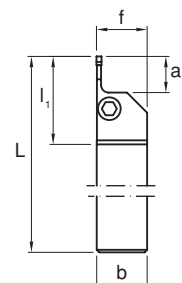
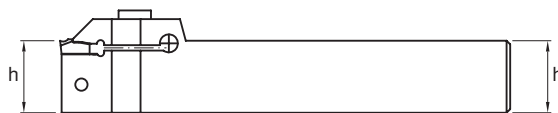
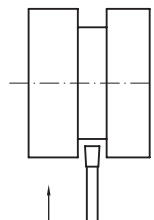


Ordering No. Takım Kod No.	Stock Stok		H	H <sub>1</sub>	B	I	L	Clamping Screw Bağlama Vidası	Wrench Anahtar
	R	L							
XLCFR/L 20 20 K31 TB	●	○	35	3.1	20	20	125	TCA5	STE(N) 3.0
XLCFR/L 20 20 K41 TB	○	○	35	4.1	20	20	125	TCA5	STE(N) 4.0
XLCFR/L 25 20 M31 TB	○	○	40	3.1	25	20	150	TCA5	STE(N) 3.0
XLCFR/L 25 25 M31 TB	●	○	40	3.1	25	25	150	TCA5	STE(N) 3.0
XLCFR/L 25 20 M41 TB	○	○	40	4.1	25	20	150	TCA5	STE(N) 4.0
XLCFR/L 25 25 M41 TB	○	○	40	4.1	25	25	150	TCA5	STE(N) 4.0
XLCFR/L 25 25 M51 TB	○	○	40	5.1	25	25	150	TCA5	STE(N) 5.0
XLCFR/L 32 25 P31 TB	○	○	50	3.1	32	25	170	TCA5	STE(N) 3.0
XLCFR/L 32 25 P41 TB	○	○	60	4.1	32	25	170	TCA5	STE(N) 4.0
XLCFR/L 32 25 P51 TB	○	○	60	5.1	32	25	170	TCA5	STE(N) 5.0

## External Grooving Holder Dış Çap Kanal Kateri



Ordering No. Takım Kod No.	Stock Stok		DIMENSION ÖLÇÜLER						Spare Part		Current Insert Kullanılan Kesici Uç	
	R	L	a <sub>r</sub>	b	f	h	h <sub>1</sub>	l <sub>1</sub>	L	Wrench Anahtar		Screw Bağlama Vidası
R/LF 151 22 16 16 20	○	○	8	16	17	16	16	23	100	Ta4	M5 x 15	N 151 22 200
R/LF 151 22 20 20 20	○	○	8	20	21	20	20	23	125			
R/LF 151 22 25 25 20	○	○	8	25	26	25	25	23	150			
R/LF 151 22 16 16 25	○	○	10	16	20	16	16	27	100	Ta4	M5 x 15	N 151 22 250
R/LF 151 22 20 20 25	○	○	10	20	25	20	20	27	125			
R/LF 151 22 25 25 25	○	○	10	25	32	25	25	27	150			
R/LF 151 22 20 20 30	●	○	10	20	25	20	20	27	125			N 151 22 300
R/LF 151 22 25 25 30	●	○	10	25	32	25	25	27	150			
R/LF 151 22 20 20 40	◐	○	13	20	25	20	20	31	125			N 151 22 400
R/LF 151 22 25 25 40	●	○	13	25	32	25	25	31	150	Ta4	M5 x 20	
R/LF 151 22 32 25 40	○	○	13	25	32	32	32	31	170			
R/LF 151 22 25 25 50	○	○	13	25	32	25	25	31	150	Ta5	M6 x 20	N 151 22 500
R/LF 151 22 32 25 50	○	○	13	25	32	32	32	31	170			
R/LF 151 22 25 25 60	○	○	16	25	32	25	25	37	150			N 151 22 600
R/LF 151 22 32 25 60	○	○	16	25	32	32	32	37	170			



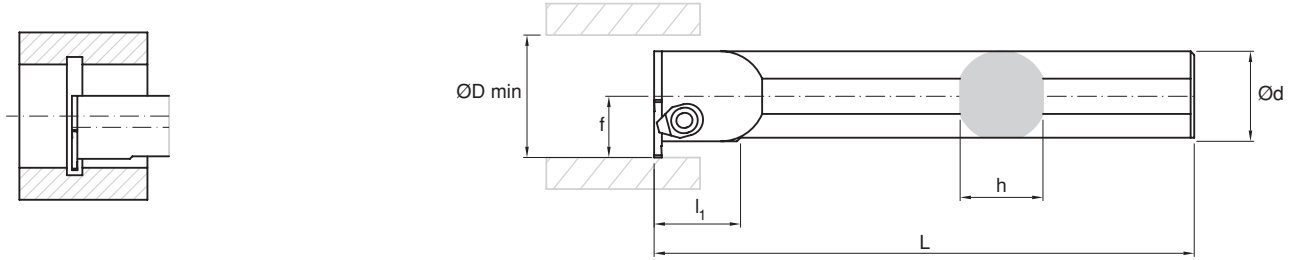
Ordering No. Takım Kod No.	Stock Stok		DIMENSION ÖLÇÜLER						Spare Part		Current Insert Kullanılan Kesici Uç	
	R	L	a <sub>r</sub>	b	f	h	h <sub>1</sub>	l <sub>1</sub>	L	Wrench Anahtar		Screw Bağlama Vidası
R/LF 151 23 16 16 20	○	○	15	16	17	16	16	39	100	Ta4	M5 x 15	N 151 22 200
R/LF 151 23 20 20 20	○	○	15	20	21	20	20	39	125			
R/LF 151 23 25 25 20	○	○	15	25	26	25	25	39	150			
R/LF 151 23 16 16 25	○	○	20	16	17	16	16	40	100			N 151 22 250
R/LF 151 23 20 20 25	○	○	20	20	21	20	20	40	125			
R/LF 151 23 25 25 25	○	○	20	25	26	25	25	40	150			
R/LF 151 23 16 16 30	◐	○	20	16	17	16	16	41	100			N 151 22 300
R/LF 151 23 20 20 30	●	○	20	20	21	20	20	41	125			
R/LF 151 23 25 25 30	●	○	20	25	26	25	25	41	150			
R/LF 151 23 32 25 30	○	○	20	25	26	32	32	37	170			
R/LF 151 23 20 20 40	○	○	25	20	21	20	20	47	125			N 151 22 400
R/LF 151 23 25 25 40	●	○	25	25	26	25	25	47	150	Ta4	M5 x 20	
R/LF 151 23 32 25 40	○	○	25	25	26	32	32	47	170			
R/LF 151 23 25 25 50	○	○	32	25	26	25	25	31	150	Ta5	M6 x 20	N 151 22 500
R/LF 151 23 32 25 50	○	○	32	25	26	32	32	31	170			
R/LF 151 23 25 25 60	○	○	32	25	26	25	25	37	150			N 151 22 600
R/LF 151 23 32 25 60	○	○	32	25	26	32	32	37	170			

● Stokta Mevcut / In stock

◐ Siparişten sonra 2 hafta / 2 weeks upon the date of order

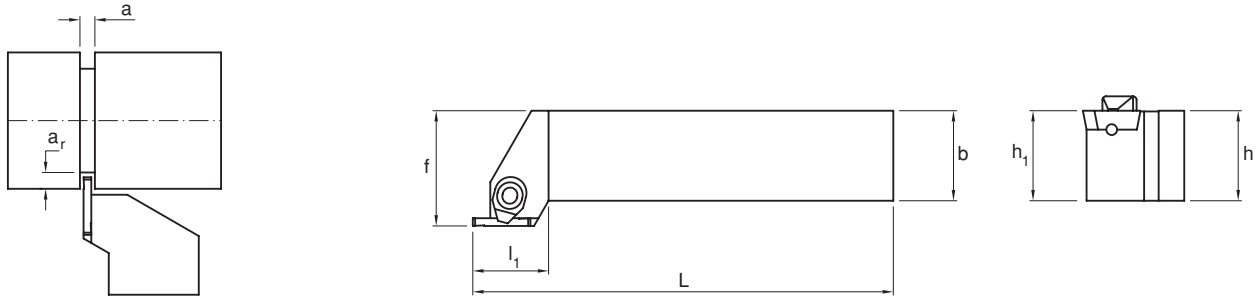
○ Siparişten sonra 4 hafta / 4 weeks upon the date of order

## Internal Grooving Holder Delik Kanal Kateri



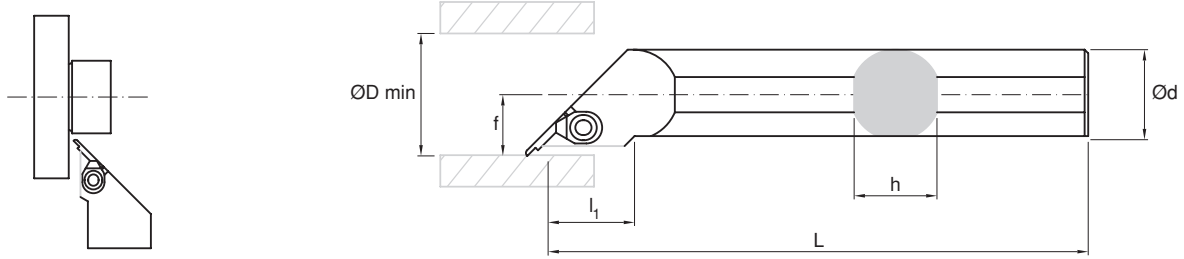
Ordering No. Takım Kod No.	Stock Stok		DIMENSION ÖLÇÜLER						Spare Part			Current Insert Kullanılan Kesici Uç
	R	L	Ød	h	l <sub>1</sub>	L	f	ØD min	Clamp Baskı Pabucu	Pin Pim	Screw Baskı Vidası	
R/L 154 91 16 3	●	○	16	15	20	150	11	21	7830001	CKP 3x8	7830002	BKU 1603.....R/L
R/L 154 91 20 3	●	○	20	18	22	200	13	26				
R/L 154 91 25 3	○	○	25	23	24	250	17	31				
R/L 154 91 32 3	○	○	32	30	26	300	21	40				
R/L 154 91 25 5	○	○	25	23	28	250	17	31	7485865	CKP 3x10	7485860	BKU 2204.....R/L
R/L 154 91 32 5	○	○	32	30	30	300	21	40				
R/L 154 91 40 5	○	○	40	38	35	350	27	50				

## Dış Çap Kanal Kateri External Grooving Holder



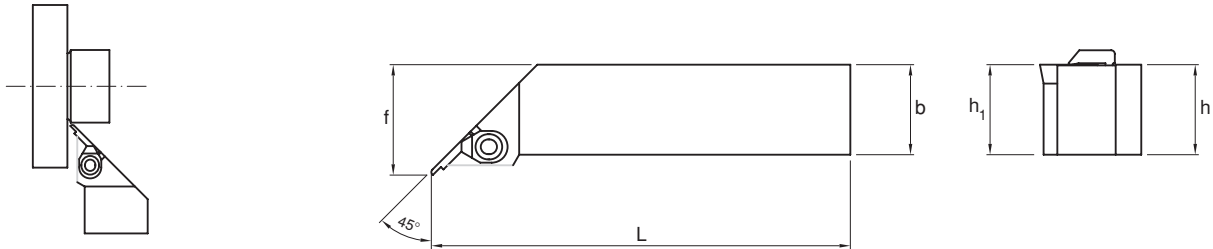
Ordering No. Takım Kod No.	Stock Stok		DIMENSION ÖLÇÜLER						Spare Part			Current Insert Kullanılan Kesici Uç
	R	L	h	h <sub>1</sub>	b	l <sub>1</sub>	L	f	Clamp Baskı Pabucu	Pin Pim	Screw Baskı Vidası	
R/L 154 91 16 16 3	○	○	16	16	16	21	100	20	7830001	CKP 3x8	7830002	BKU 1603.....R/L
R/L 154 91 20 20 3	●	○	20	20	20	21	125	25				
R/L 154 91 25 25 3	●	○	25	25	25	21	150	32				
R/L 154 91 32 25 3	○	○	32	32	25	21	170	32				
R/L 154 91 16 16 5	○	○	16	16	16	26	100	20	7485865	CKP 3x10	7485860	BKU 2204.....R/L
R/L 154 91 20 20 5	○	○	20	20	20	26	125	25				
R/L 154 91 25 25 5	○	○	25	25	25	26	150	32				
R/L 154 91 32 25 5	○	○	32	32	25	26	170	32				

## Internal Turning and Lamp Grooving Holder Delik Tornalama ve Lamba Açma Kateri



Ordering No. Takım Kod No.	Stock Stok		DIMENSION ÖLÇÜLER						Spare Part			Current Insert Kullanılan Kesici Uç
	R	L	Ød	h	l <sub>1</sub>	L	f	ØD min	Clamp Baskı Pabucu	Pin Pim	Screw Baskı Vidası	
R/L 154 93 16 3	○	○	16	15	20	150	11	21	7830001	CKP 3x8	7830002	BKU 1603.....R/L
R/L 154 93 20 3	○	○	20	18	22	200	13	26				
R/L 154 93 25 3	○	○	25	23	24	250	17	31				
R/L 154 93 32 3	○	○	32	30	26	300	21	40				
R/L 154 93 25 5	○	○	25	23	28	250	17	31	7485865	CKP 3x10	7485860	BKU 2204.....R/L
R/L 154 93 32 5	○	○	32	30	30	300	21	40				
R/L 154 93 40 5	○	○	40	38	35	350	27	50				

## External Turning and Lamp Grooving Holder Diş Çap Tornalama ve Lamba Açma Kateri



Ordering No. Takım Kod No.	Stock Stok		DIMENSION ÖLÇÜLER					Spare Part			Current Insert Kullanılan Kesici Uç
	R	L	h	h <sub>1</sub>	b	L	f	Clamp Baskı Pabucu	Pin Pim	Screw Baskı Vidası	
R/L 154 93 16 16 3	○	○	16	16	16	100	20	7830001	CKP 3x8	7830002	BKU 1603.....R/L
R/L 154 93 20 20 3	○	○	20	20	20	125	25				
R/L 154 93 25 25 3	○	○	25	25	25	150	32				
R/L 154 93 32 25 3	○	○	32	32	25	170	32				
R/L 154 93 16 16 5	○	○	16	16	16	100	20	7485865	CKP 3x10	7485860	BKU 2204.....R/L
R/L 154 93 20 20 5	○	○	20	20	20	125	25				
R/L 154 93 25 25 5	○	○	25	25	25	150	32				
R/L 154 93 32 25 5	○	○	32	32	25	170	32				

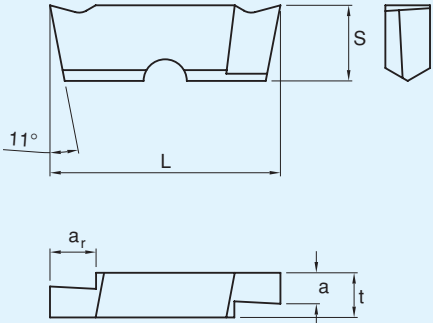
● Stokta Mevcut / In stock

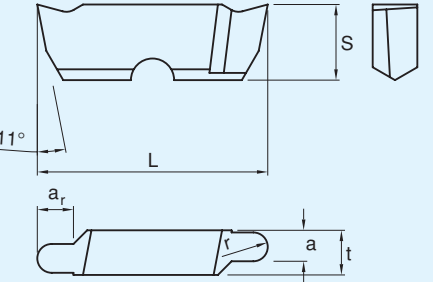
⦿ Siparişten sonra 2 hafta / 2 weeks upon the date of order

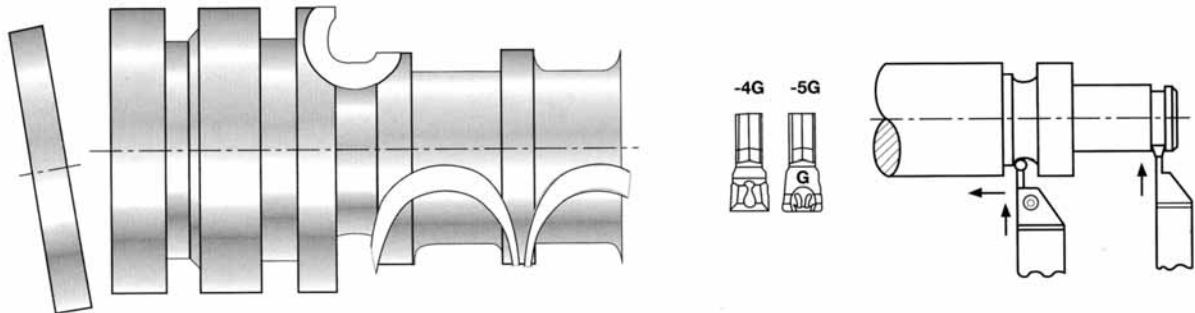
○ Siparişten sonra 4 hafta / 4 weeks upon the date of order



## Grooving Blade Insert Kanal Kesme Uçları

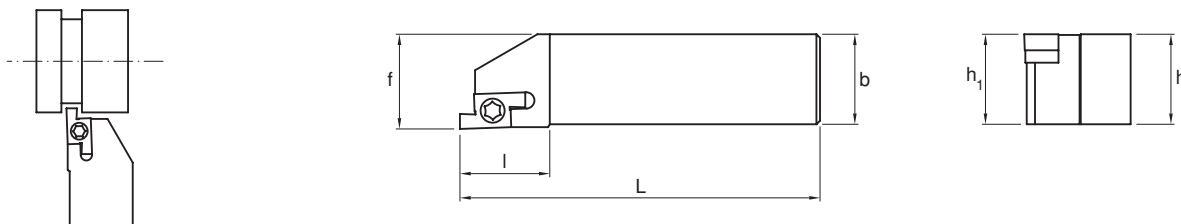
Insert Form Kesici Uç Şekli	Ordering No. Takım Kod No.	Stock Stok		DIMENSION ÖLÇÜLER						
		R	L	d (lc)	a	t	S	&	L	a <sub>r</sub>
	<b>BKU 1603 110 R/L</b>	○	○	1.10	3.1	5.25	11°	16	2.1	
	<b>BKU 1603 130 R/L</b>	○	○	1.30					2.3	
	<b>BKU 1603 160 R/L</b>	○	○	1.60					2.6	
	<b>BKU 1603 185 R/L</b>	○	○	1.85					2.9	
	<b>BKU 1603 215 R/L</b>	○	○	2.15					3.2	
	<b>BKU 1603 265 R/L</b>	○	○	2.65					3.7	
	<b>BKU 1603 300 R/L</b>	○	○	3.00					4.0	
	<b>BKU 2204 315 R/L</b>	○	○	3.15	5.1	6.25	11°	22	4.2	
	<b>BKU 2204 415 R/L</b>	○	○	4.15					5.2	
	<b>BKU 2204 515 R/L</b>	○	○	5.00					6.2	

Insert Form Kesici Uç Şekli	Ordering No. Takım Kod No.	Stock Stok		DIMENSION ÖLÇÜLER						
		R	L	d (lc)	a	t	S	&	r	L
	<b>BKU 1603 100 R/L</b>	○	○	2.00	3.1	5.26	11°	1.0	15.9	2.0
	<b>BKU 1603 150 R/L</b>	○	○	3.00				1.5		2.9
	<b>BKU 2204 200 R/L</b>	○	○	4.00	5.1	6.26	11°	2.0	21.9	4.0
	<b>BKU 2204 250 R/L</b>	○	○	5.00				2.5		5.0



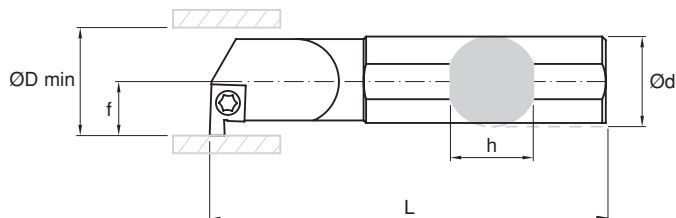
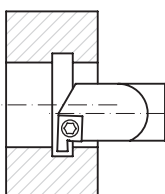


## External Grooving Holder Kanal Açma Kateri



		DIMENSION KATER ÖLÇÜLERİ											
Ordering No. Takım Kod No.	Stock Stok		h					Right Seat Sağ Altlık	Left Seat Sol Altlık	Seat Screw Altlık Vidası	Screw Sıkma Vidası	Wrench Anahtar	Insert Kesici Uç
	R	L	h <sub>1</sub>	b	l <sub>1</sub>	L	f						
TDKR/L 12 12 H06	○	○	12	12	18	100	16	—	—	—	7815101	T08	BTKU 0602
TDKR/L 16 16 H06	○	○	16	16	18	100	20						
TDKR/L 20 20 K06	○	○	20	20	18	125	25						
TDKR/L 25 25 M06	○	○	25	25	18	150	32						
TDKR/L 32 25 P06	○	○	32	25	18	170	32						
TDKR/L 12 12 H09	○	○	12	12	22	100	16	—	—	—	7815102	T15	BTKU 0904
TDKR/L 16 16 H09	○	○	16	16	22	100	20						
TDKR/L 20 20 K09	○	○	20	20	22	125	25	KA 09 R	KA 09 L	7883102	7815102	T15	BTKU 0904
TDKR/L 25 25 M09	○	○	25	25	22	150	32						
TDKR/L 32 25 P09	○	○	32	25	22	170	32						

## Internal Grooving Holder Kanal Açma Kateri



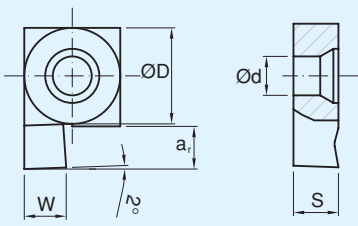
		DIMENSION KATER ÖLÇÜLERİ											
Ordering No. Takım Kod No.	Stock Stok		ØD min.	Ød	h	L	f	Right Seat Sağ Altlık	Left Seat Sol Altlık	Seat Screw Altlık Vidası	Screw Sıkma Vidası	Wrench Anahtar	Insert Kesici Uç
	R	L											
TDKR/L 0010 H06	○	○	14	10	9	100	7.5	—	—	—	7815101	T08	BTKU 0602
TDKR/L 0012 K06	○	○	17	12	11	125	8.5						
TDKR/L 0016 Q06	○	○	20	16	15	180	9.5						
TDKR/L 0020 R06	○	○	26	20	19	200	13						
TDKR/L 0025 S06	○	○	31	25	24	250	16						
TDKR/L 0032 T06	○	○	38	32	30	300	20						
TDKR/L 0016 Q09	○	○	20	16	15	180	9.5	—	—	—	7815102	T15	BTKU 0904
TDKR/L 0020 R09	●	○	26	20	19	200	13						
TDKR/L 0025 S09	○	○	31	25	24	250	16	KA 09 R	KA 09 L	7883102	7815102	T15	BTKU 0904
TDKR/L 0032 T09	○	○	38	32	30	300	20						
TDKR/L 0040 U09	○	○	48	40	37	350	24						
TDKR/L 0050 V09	○	○	65	50	47	400	29						

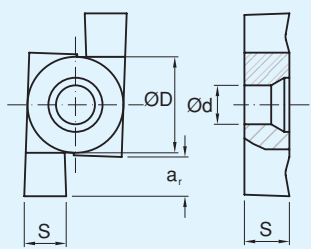
● Stokta Mevcut / In stock

○ Siparişten sonra 2 hafta / 2 weeks upon the date of order

○ Siparişten sonra 4 hafta / 4 weeks upon the date of order

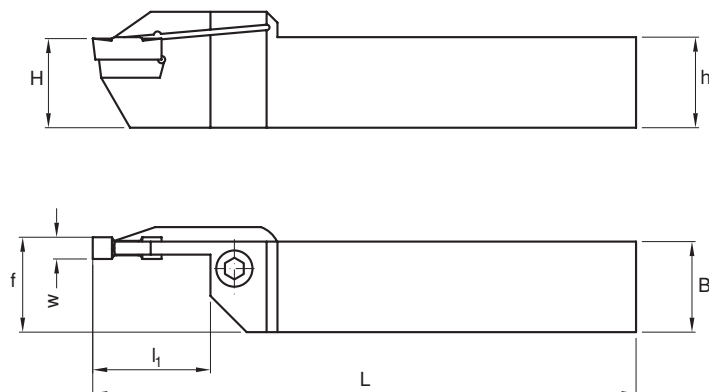
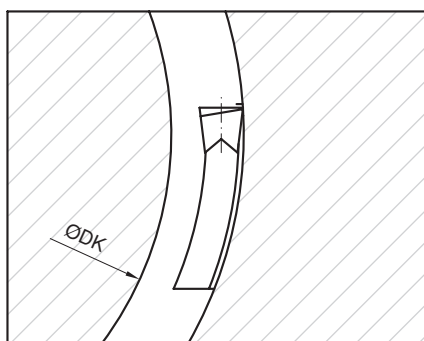
## Grooving Insert Kanal Açma Uçları

Insert Form Kesici Uç Şekli	Ordering No. Takım Kod No.	Stock Stok		DIMENSION ÖLÇÜLER					
		R	L	ØD (lc)	S	W	&	Ød	a <sub>r</sub>
	BTKU 06 02 215 R/L	●	●	6.35	2.6	2.15	2°	2.8	2.65
	BTKU 06 02 265 R/L	●	●			2.65			

Insert Form Kesici Uç Şekli	Ordering No. Takım Kod No.	Stock Stok		DIMENSION ÖLÇÜLER					
		R	L	ØD (lc)	S	W	&	Ød	a <sub>r</sub>
	BTKU 09 04 315 R/L	●	●	9.52	4.76	3.15	2°	4.4	4.5
	BTKU 09 04 415 R/L	●	●			4.15			



## Face Grooving Holder Alın Kanal Katerleri



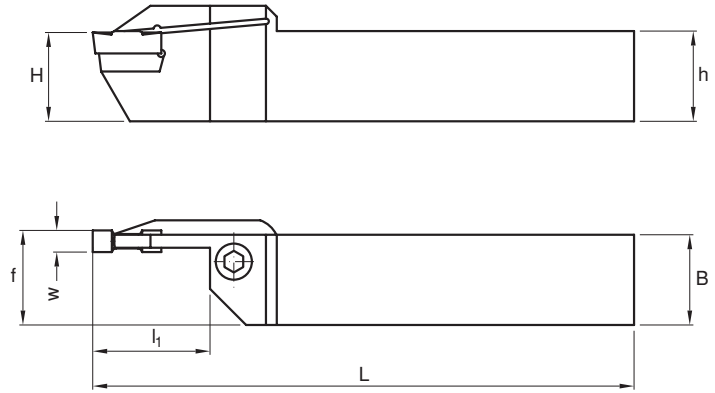
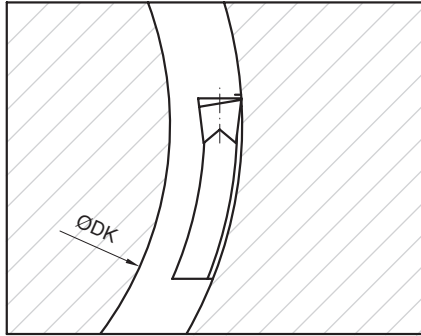
		DIMENSION KATER ÖLÇÜLERİ											
Ordering No. Takım Kod No.	Stock Stok		H	h	B	l <sub>1</sub>	L	f	W	DK min	DK max	Insert Kesici Uç	
	R	L											
AKR/L 20 25 3T [ 25 - 30 ]	○	○	20	20	20	25	140	20.5	3	25	30	AKT 3003 / AKT 3015	
AKR/L 20 30 3T [ 30 - 38 ]	○	○	20	20	20	25	140	20.5	3	30	38		
AKR/L 20 38 3T [ 38 - 48 ]	○	○	20	20	20	25	140	20.5	3	38	48		
AKR/L 20 48 3T [ 48 - 60 ]	○	○	20	20	20	25	140	20.5	3	48	60		
AKR/L 20 60 3T [ 60 - 75 ]	○	○	20	20	20	25	140	20.5	3	60	75		
AKR/L 20 75 3T [ 75 - 100 ]	○	○	20	20	20	25	140	20.5	3	75	100		
AKR/L 25 25 3T [ 25 - 30 ]	○	○	25	25	25	25	150	25.5	3	25	30		
AKR/L 25 30 3T [ 30 - 38 ]	○	○	25	25	25	25	150	25.5	3	30	38		
AKR/L 25 38 3T [ 38 - 48 ]	○	○	25	25	25	25	150	25.5	3	38	48		
AKR/L 25 48 3T [ 48 - 60 ]	○	○	25	25	25	25	150	25.5	3	48	60		
AKR/L 25 60 3T [ 60 - 75 ]	○	○	25	25	25	25	150	25.5	3	60	75		
AKR/L 25 75 3T [ 75 - 100 ]	○	○	25	25	25	25	150	25.5	3	75	100		
AKR/L 20 25 4T [ 25 - 29 ]	○	○	20	20	20	30	140	20.6	4	25	29	AKT 4004 / AKT 4020	
AKR/L 20 29 4T [ 29 - 34 ]	○	○	20	20	20	30	140	20.6	4	29	34		
AKR/L 20 34 4T [ 34 - 40 ]	○	○	20	20	20	30	140	20.6	4	34	40		
AKR/L 20 40 4T [ 40 - 48 ]	○	○	20	20	20	30	140	20.6	4	40	48		
AKR/L 20 48 4T [ 48 - 60 ]	○	○	20	20	20	30	140	20.6	4	48	60		
AKR/L 20 60 4T [ 60 - 75 ]	○	○	20	20	20	30	140	20.6	4	60	75		
AKR/L 20 75 4T [ 75 - 100 ]	○	○	20	20	20	30	140	20.6	4	75	100		
AKR/L 25 25 4T [ 25 - 29 ]	○	○	25	25	25	30	150	25.6	4	25	29		
AKR/L 25 29 4T [ 29 - 34 ]	○	○	25	25	25	30	150	25.6	4	29	34		
AKR/L 25 34 4T [ 34 - 40 ]	○	○	25	25	25	30	150	25.6	4	34	40		
AKR/L 25 40 4T [ 40 - 48 ]	○	○	25	25	25	30	150	25.6	4	40	48		
AKR/L 25 48 4T [ 48 - 60 ]	○	○	25	25	25	30	150	25.6	4	48	60		
AKR/L 25 60 4T [ 60 - 75 ]	○	○	25	25	25	30	150	25.6	4	60	75		
AKR/L 25 75 4T [ 75 - 100 ]	○	○	25	25	25	30	150	25.6	4	75	100		
AKR/L 25 100 4T [ 100 - 140 ]	○	○	25	25	25	30	150	25.6	4	100	140		
AKR/L 25 140 4T [ 140 - 240 ]	○	○	25	25	25	30	150	25.6	4	140	240		
AKR/L 25 240 4T [ 240 - 800 ]	○	○	25	25	25	30	150	25.6	4	240	800		

● Stokta Mevcut / In stock

● Siparişten sonra 2 hafta / 2 weeks upon the date of order

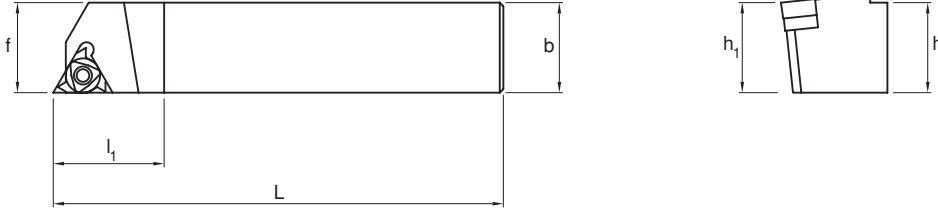
○ Siparişten sonra 4 hafta / 4 weeks upon the date of order

## Face Grooving Holder Alın Kanal Katerleri



		DIMENSION KATER ÖLÇÜLERİ											
Ordering No. Takım Kod No.	Stock Stok		H	h	B	l <sub>1</sub>	L	f	W	DK min	DK max	Insert Kesici Uç	
	R	L											
AKR/L 20 25 5T [ 25 - 30 ]	○	○	20	20	20	32.5	140	21	5	25	30	AKT 5004 / AKT 5025	
AKR/L 20 28 3T [ 28 - 31 ]	○	○	20	20	20	32.5	140	21	5	28	31		
AKR/L 20 31 5T [ 31 - 35 ]	○	○	20	20	20	32.5	140	21	5	31	35		
AKR/L 20 35 5T [ 35 - 40 ]	○	○	20	20	20	32.5	140	21	5	35	40		
AKR/L 20 40 5T [ 40 - 45 ]	○	○	20	20	20	32.5	140	21	5	40	45		
AKR/L 20 45 5T [ 45 - 55 ]	○	○	20	20	20	32.5	140	21	5	45	55		
AKR/L 20 55 5T [ 55 - 70 ]	○	○	20	20	20	32.5	140	21	5	55	70		
AKR/L 20 70 5T [ 70 - 95 ]	○	○	20	20	20	32.5	140	21	5	70	95		
AKR/L 25 25 5T [ 25 - 30 ]	○	○	25	25	25	32.5	150	26	5	25	30		
AKR/L 25 28 3T [ 28 - 31 ]	○	○	25	25	25	32.5	150	26	5	28	31		
AKR/L 25 31 5T [ 31 - 35 ]	○	○	25	25	25	32.5	150	26	5	31	35		
AKR/L 25 35 5T [ 35 - 40 ]	○	○	25	25	25	32.5	150	26	5	35	40		
AKR/L 25 40 5T [ 40 - 45 ]	○	○	25	25	25	32.5	150	26	5	40	45		
AKR/L 25 45 5T [ 45 - 55 ]	○	○	25	25	25	32.5	150	26	5	45	55		
AKR/L 25 55 5T [ 55 - 70 ]	○	○	25	25	25	32.5	150	26	5	55	70		
AKR/L 25 70 5T [ 70 - 95 ]	○	○	25	25	25	32.5	150	26	5	70	95		
AKR/L 25 95 5T [ 95 - 130 ]	○	○	25	25	25	32.5	150	26	5	95	130		
AKR/L 25 130 5T [ 130 - 180 ]	○	○	25	25	25	32.5	150	26	5	130	180		
AKR/L 25 180 5T [ 180 - 800 ]	○	○	25	25	25	32.5	150	26	5	180	800		
AKR/L 20 26 6T [ 26 - 30 ]	○	○	20	20	20	30	140	21.4	6	26	30	AKT 6004 / AKT 6030	
AKR/L 20 30 6T [ 30 - 38 ]	○	○	20	20	20	30	140	21.4	6	30	38		
AKR/L 20 38 6T [ 38 - 50 ]	○	○	20	20	20	30	140	21.4	6	38	50		
AKR/L 20 50 6T [ 50 - 70 ]	○	○	20	20	20	30	140	21.4	6	50	70		
AKR/L 25 30 6T [ 30 - 38 ]	○	○	25	25	25	30	150	26.4	6	30	38		
AKR/L 25 38 6T [ 38 - 50 ]	○	○	25	25	25	30	150	26.4	6	38	50		
AKR/L 25 50 6T [ 50 - 70 ]	○	○	25	25	25	30	150	26.4	6	50	70		
AKR/L 25 70 6T [ 70 - 100 ]	○	○	25	25	25	30	150	26.4	6	70	100		
AKR/L 25 100 6T [ 100 - 180 ]	○	○	25	25	25	30	150	26.4	6	100	180		
AKR/L 25 180 6T [ 180 - 400 ]	○	○	25	25	25	30	150	26.4	6	180	400		
AKR/L 25 400 6T [ 400 - ∞ ]	○	○	25	25	25	30	150	26.4	6	400	∞		

## NL and AL Series External Threading Holder NL ve AL Serisi Dış Çap Vida Açma Takımları



Ordering No. Takım Kod No.	Stock Stok	DIMENSION KATER ÖLÇÜLERİ					Shim Altık	Shim Screw Altık Vidası	Screw Sıkma Vidası	Wrench Torx Anahtar
		h h <sub>1</sub>	b	l <sub>1</sub>	L	f				
NL 08 - 2	○	8	8	13	80	11	—	—	7815101	T 08
NL 08 - 2 LH	○	8	8	13	80	11				
NL 12 - 3	○	12	12	15	100	12			7815102	T 15
NL 12 - 3 LH	○	12	12	15	100	12				
AL 16 3C	○	16	16	16	125	16	—	—	7815102	T 15
AL 16 3C LH	○	16	16	16	125	16				
AL 20 3C	●	20	20	21	125	20	VİDA 16 ALT R/L	7883102		
AL 20 3C LH	○	20	20	21	125	20				
AL 25 3C	●	25	25	21	150	25				
AL 25 3C LH	○	25	25	21	150	25				
AL 32 3C	○	32	32	21	170	32				
AL 32 3C LH	○	32	32	21	170	32				
AL 25 4C	●	25	25	28	150	25	VİDA 22 ALT R/L	7883101	7883202	T 15
AL 25 4C LH	○	25	25	28	150	25				
AL 32 4C	○	32	32	28	170	32				
AL 32 4C LH	○	32	32	28	170	32				
AL 40 4C	○	40	40	28	180	40				
AL 40 4C LH	○	40	40	28	180	40				

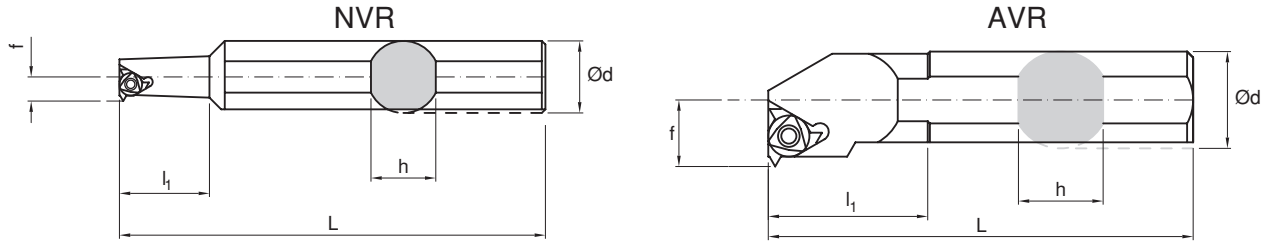
● Stokta Mevcut / In stock

○ Siparişten sonra 2 hafta / 2 weeks upon the date of order

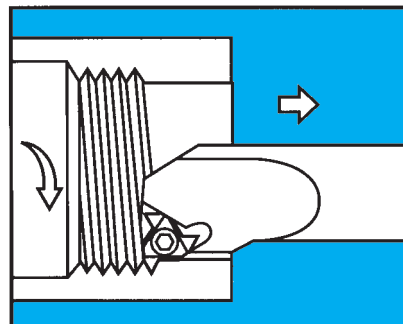
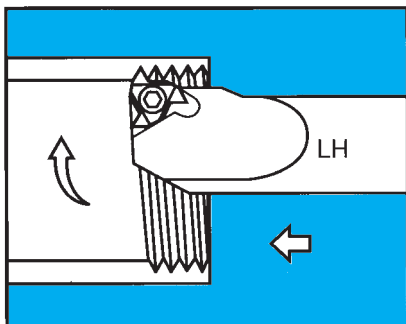
○ Siparişten sonra 4 hafta / 4 weeks upon the date of order



## NVR and AVR Series Internal Threading Holder NVR ve AVR Serisi İç Çap Vida Açma Takımları



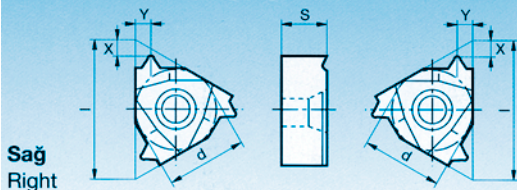
Ordering No. Takım Kod No.	Stock Stok	DIMENSION KATER ÖLÇÜLERİ					Shim Altık	Shim Screw Altık Vidası	Screw Sıkma Vidası	Wrench Torx Anahtar
		d	h	L	l <sub>1</sub>	f				
NVR 10 - 2 C	●	20	18	180	25	7.3	—	—	7815101	T 08
NVR 10 - 2 C LH	○	20	18	180	25	7.3	—	—	7815101	T 08
NVR 10 - 2 C - 10	○	10	9	150	25	7.3	—	—	7815101	T 08
NVR 10 - 2 C 10 LH	○	10	9	150	25	7.3	—	—	7815101	T 08
NVR 13 - 2 C	●	20	18	180	32	8.7	—	—	7815101	T 08
NVR 13 - 2 C LH	○	20	18	180	32	8.7	—	—	7815101	T 08
NVR 16 - 3C	●	20	18	180	40	11.77	—	—	7815102	T 15
NVR 16 - 3 C LH	○	20	18	180	40	11.77	—	—	7815102	T 15
NVR 16 - 3 C 16	○	16	15	180	40	11.77	—	—	7815102	T 15
NVR 16 - 3 C 16 LH	○	16	15	180	40	11.77	—	—	7815102	T 15
AVR 20 - 3 C	●	20	18	180	50	13.4	—	—	7815102	T 15
AVR 20 - 3 C LH	○	20	18	180	50	13.4	—	—	7815102	T 15
AVR 25 - 3 C	●	32	30	250	60	16	VİDA 16 ALT R/L	7883102	7815102	T 15
AVR 25 - 3 C LH	○	32	30	250	60	16	VİDA 16 ALT R/L	7883102	7815102	T 15
AVR 25 - 3 C 25	○	25	23	250	60	16	VİDA 16 ALT R/L	7883102	7815102	T 15
AVR 25 - 3 C 25 LH	○	25	23	250	60	16	VİDA 16 ALT R/L	7883102	7815102	T 15
AVR 32 - 3 C	○	32	30	250	60	19.6	VİDA 16 ALT R/L	7883102	7815102	T 15
AVR 32 - 3 C LH	○	32	30	250	60	19.6	VİDA 16 ALT R/L	7883102	7815102	T 15
AVR 40 - 3 C	○	40	37	300	60	23.8	VİDA 16 ALT R/L	7883102	7815102	T 15
AVR 40 - 3 C LH	○	40	37	300	60	23.8	VİDA 16 ALT R/L	7883102	7815102	T 15
AVR 50 - 3 C	○	50	46	400	60	30.3	VİDA 16 ALT R/L	7883102	7815102	T 15
AVR 50 - 3 C LH	○	50	46	400	60	30.3	VİDA 16 ALT R/L	7883102	7815102	T 15
AVR 25 - 4 C	●	32	30	250	60	18.3	—	—	7883202	T 15
AVR 25 - 4 C LH	○	32	30	250	60	18.3	—	—	7883202	T 15
AVR 25 - 4 C 25	○	25	23	250	60	18.3	—	—	7883202	T 15
AVR 25 - 4 C 25 LH	○	25	23	250	60	18.3	—	—	7883202	T 15
AVR 32 - 4 C	○	32	30	250	60	21.5	VİDA 22 ALT R/L	7883101	7883202	T 15
AVR 32 - 4 C LH	○	32	30	250	60	21.5	VİDA 22 ALT R/L	7883101	7883202	T 15
AVR 40 - 4 C	○	40	37	300	60	25.8	VİDA 22 ALT R/L	7883101	7883202	T 15
AVR 40 - 4 C LH	○	40	37	300	60	25.8	VİDA 22 ALT R/L	7883101	7883202	T 15
AVR 50 - 4 C	○	50	46	400	60	30.3	VİDA 22 ALT R/L	7883101	7883202	T 15
AVR 50 - 4 C LH	○	50	46	400	60	30.3	VİDA 22 ALT R/L	7883101	7883202	T 15





## ER/EL-ISO

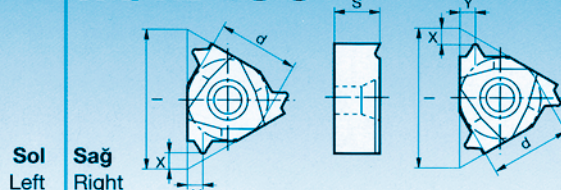
Dış vida açma, Metrik ISO  
External threads, Metric ISO



Sağ  
Right

## IR/IL-ISO

İç vida açma, Metrik ISO  
Internal threads, Metric ISO



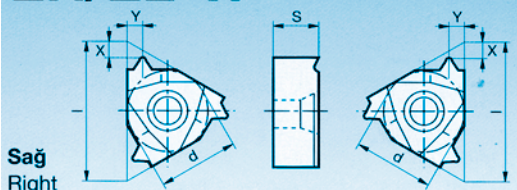
Sol  
Left

Sol  
Left

Sipariş Kodu	Adım mm	Ölçüler					Sipariş Kodu	Adım mm	Ölçüler				
		l	d	s	x±0.05	y±0.05			l	d	s	x±0.05	y±0.05
11 ER/EL 0.50 ISO	0.50	11.0	6.35	3.0	0.6	0.6	11 IR/IL 0.50 ISO	0.50	11.0	6.35	3.0	0.6	0.6
11 ER/EL 0.75 ISO	0.75	11.0	6.35	3.0	0.6	0.6	11 IR/IL 0.75 ISO	0.75	11.0	6.35	3.0	0.6	0.6
11 ER/EL 1.00 ISO	1.00	11.0	6.35	3.0	0.7	0.7	11 IR/IL 1.00 ISO	1.00	11.0	6.35	3.0	0.7	0.7
11 ER/EL 1.25 ISO	1.25	11.0	6.35	3.0	0.8	0.9	11 IR/IL 1.25 ISO	1.25	11.0	6.35	3.0	0.8	0.9
11 ER/EL 1.50 ISO	1.50	11.0	6.35	3.0	0.8	1.0	11 IR/IL 1.50 ISO	1.50	11.0	6.35	3.0	0.8	1.0
16 ER/EL 0.50 ISO	0.50	16.5	9.52	3.4	0.6	0.6	16 IR/IL 0.50 ISO	0.50	16.5	9.52	3.4	0.6	0.6
16 ER/EL 0.70 ISO	0.70	16.5	9.52	3.4	0.6	0.6	16 IR/IL 0.70 ISO	0.70	16.5	9.52	3.4	0.6	0.6
16 ER/EL 0.75 ISO	0.75	16.5	9.52	3.4	0.6	0.6	16 IR/IL 0.75 ISO	0.75	16.5	9.52	3.4	0.6	0.6
16 ER/EL 0.80 ISO	0.80	16.5	9.52	3.4	0.6	0.6	16 IR/IL 0.80 ISO	0.80	16.5	9.52	3.4	0.6	0.6
16 ER/EL 1.00 ISO	1.00	16.5	9.52	3.4	0.7	0.7	16 IR/IL 1.00 ISO	1.00	16.5	9.52	3.4	0.7	0.7
16 ER/EL 1.25 ISO	1.25	16.5	9.52	3.4	0.8	0.9	16 IR/IL 1.25 ISO	1.25	16.5	9.52	3.4	0.8	0.9
16 ER/EL 1.50 ISO	1.50	16.5	9.52	3.4	0.8	1.0	16 IR/IL 1.50 ISO	1.50	16.5	9.52	3.4	0.8	1.0
16 ER/EL 1.75 ISO	1.75	16.5	9.52	3.4	0.9	1.2	16 IR/IL 1.75 ISO	1.75	16.5	9.52	3.4	0.9	1.2
16 ER/EL 2.00 ISO	2.00	16.5	9.52	3.4	1.0	1.3	16 IR/IL 2.00 ISO	2.00	16.5	9.52	3.4	1.0	1.3
16 ER/EL 2.50 ISO	2.50	16.5	9.52	3.4	1.1	1.5	16 IR/IL 2.50 ISO	2.50	16.5	9.52	3.4	1.1	1.5
16 ER/EL 3.00 ISO	3.00	16.5	9.52	3.4	1.2	1.6	16 IR/IL 3.00 ISO	3.00	16.5	9.52	3.4	1.2	1.6
22 ER/EL 3.50 ISO	3.50	22.0	12.70	4.6	1.6	2.3	22 IR/IL 3.50 ISO	3.50	22.0	12.70	4.6	1.6	2.3
22 ER/EL 4.00 ISO	4.00	22.0	12.70	4.6	1.6	2.3	22 IR/IL 4.00 ISO	4.00	22.0	12.70	4.6	1.6	2.3
22 ER/EL 4.50 ISO	4.50	22.0	12.70	4.6	1.7	2.4	22 IR/IL 4.50 ISO	4.50	22.0	12.70	4.6	1.7	2.4
22 ER/EL 5.00 ISO	5.00	22.0	12.70	4.6	1.7	2.5	22 IR/IL 5.00 ISO	5.00	22.0	12.70	4.6	1.7	2.5

## ER/EL-W

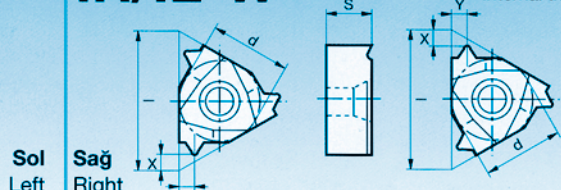
Dış vida açma, Whitworth  
External threads, Whitworth



Sağ  
Right

## IR/IL-W

İç vida açma, Whitworth  
Internal threads, Whitworth



Sol  
Left

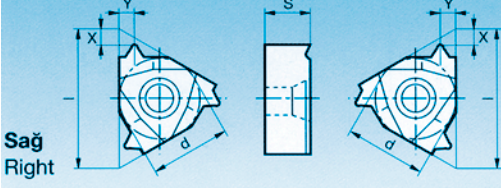
Sol  
Left

Sipariş Kodu	Adım mm	Ölçüler					Sipariş Kodu	Adım mm	Ölçüler				
		l	d	s	x±0.05	y±0.05			l	d	s	x±0.05	y±0.05
16 ER/EL 28 W	28	16.5	9.52	3.4	0.6	0.7	16 IR/IL 28 W	28	16.5	9.52	3.4	0.6	0.7
16 ER/EL 26 W	26	16.5	9.52	3.4	0.7	0.8	16 IR/IL 26 W	26	16.5	9.52	3.4	0.7	0.8
16 ER/EL 24 W	24	16.5	9.52	3.4	0.7	0.8	16 IR/IL 24 W	24	16.5	9.52	3.4	0.7	0.8
16 ER/EL 20 W	20	16.5	9.52	3.4	0.8	0.9	16 IR/IL 20 W	20	16.5	9.52	3.4	0.8	0.9
16 ER/EL 19 W	19	16.5	9.52	3.4	0.8	1.0	16 IR/IL 19 W	19	16.5	9.52	3.4	0.8	1.0
16 ER/EL 18 W	18	16.5	9.52	3.4	0.8	1.0	16 IR/IL 18 W	18	16.5	9.52	3.4	0.8	1.0
16 ER/EL 16 W	16	16.5	9.52	3.4	0.9	1.1	16 IR/IL 16 W	16	16.5	9.52	3.4	0.9	1.1
16 ER/EL 14 W	14	16.5	9.52	3.4	1.0	1.2	16 IR/IL 14 W	14	16.5	9.52	3.4	1.0	1.2
16 ER/EL 12 W	12	16.5	9.52	3.4	1.1	1.4	16 IR/IL 12 W	12	16.5	9.52	3.4	1.1	1.4
16 ER/EL 11 W	11	16.5	9.52	3.4	1.1	1.5	16 IR/IL 11 W	11	16.5	9.52	3.4	1.1	1.5
16 ER/EL 10 W	10	16.5	9.52	3.4	1.1	1.5	16 IR/IL 10 W	10	16.5	9.52	3.4	1.1	1.5
16 ER/EL 9 W	9	16.5	9.52	3.4	1.2	1.7	16 IR/IL 9 W	9	16.5	9.52	3.4	1.2	1.7
16 ER/EL 8 W	8	16.5	9.52	3.4	1.2	1.5	16 IR/IL 8 W	8	16.5	9.52	3.4	1.2	1.5
22 ER/EL 7 W	7	22.0	12.70	4.6	1.6	2.3	22 IR/IL 7 W	7	22.0	12.70	4.6	1.6	2.3
22 ER/EL 6 W	7	22.0	12.70	4.6	1.6	2.3	22 IR/IL 6 W	7	22.0	12.70	4.6	1.6	2.3
22 ER/EL 5 W	5	22.0	12.70	4.6	1.7	2.4	22 IR/IL 5 W	5	22.0	12.70	4.6	1.7	2.4



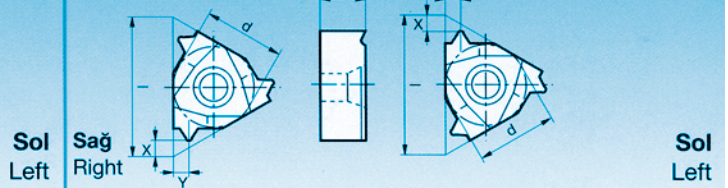
## ER/EL-UN

Dış vida açma, Amerikan UN  
External threads, American UN



## IR/IL-UN

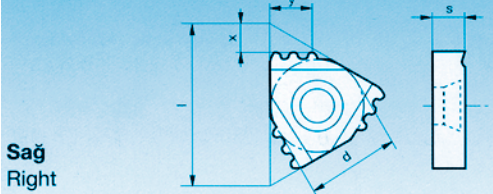
İç vida açma, Amerikan UN  
Internal threads, American UN



Sipariş Kodu	Adım mm	Ölçüler						Sipariş Kodu	Adım mm	Ölçüler					
		l	d	s	x±0.05	y±0.05	l			d	s	x±0.05	y±0.05		
11 ER/EL 24 UN	24	11.0	6.35	3.0	0.7	0.8	11 IR/IL 24 UN	24	11.0	6.35	3.0	0.7	0.8		
11 ER/EL 20 UN	20	11.0	6.35	3.0	0.8	0.9	11 IR/IL 20 UN	20	11.0	6.35	3.0	0.8	0.9		
11 ER/EL 18 UN	18	11.0	6.35	3.0	0.8	1.0	11 IR/IL 18 UN	18	11.0	6.35	3.0	0.8	1.0		
16 ER/EL 32 UN	32	16.5	9.52	3.4	0.6	0.6	16 IR/IL 32 UN	32	16.5	9.52	3.4	0.6	0.6		
16 ER/EL 28 UN	28	16.5	9.52	3.4	0.6	0.7	16 IR/IL 28 UN	28	16.5	9.52	3.4	0.6	0.7		
16 ER/EL 24 UN	24	16.5	9.52	3.4	0.7	0.8	16 IR/IL 24 UN	24	16.5	9.52	3.4	0.7	0.8		
16 ER/EL 20 UN	20	16.5	9.52	3.4	0.8	0.9	16 IR/IL 20 UN	20	16.5	9.52	3.4	0.8	0.9		
16 ER/EL 18 UN	18	16.5	9.52	3.4	0.8	1.0	16 IR/IL 18 UN	18	16.5	9.52	3.4	0.8	1.0		
16 ER/EL 16 UN	16	16.5	9.52	3.4	0.9	1.1	16 IR/IL 16 UN	16	16.5	9.52	3.4	0.9	1.1		
16 ER/EL 14 UN	14	16.5	9.52	3.4	1.0	1.2	16 IR/IL 14 UN	14	16.5	9.52	3.4	1.0	1.2		
16 ER/EL 12 UN	12	16.5	9.52	3.4	1.1	1.4	16 IR/IL 12 UN	12	16.5	9.52	3.4	1.1	1.4		
16 ER/EL 11 UN	11	16.5	9.52	3.4	1.1	1.5	16 IR/IL 11 UN	11	16.5	9.52	3.4	1.1	1.5		
16 ER/EL 10 UN	10	16.5	9.52	3.4	1.1	1.5	16 IR/IL 10 UN	10	16.5	9.52	3.4	1.1	1.5		
16 ER/EL 9 UN	9	16.5	9.52	3.4	1.2	1.7	16 IR/IL 9 UN	9	16.5	9.52	3.4	1.2	1.7		
16 ER/EL 8 UN	8	16.5	9.52	3.4	1.2	1.6	16 IR/IL 8 UN	8	16.5	9.52	3.4	1.2	1.6		
22 ER/EL 7 UN	7	22.0	12.70	4.6	1.6	2.3	22 IR/IL 7 UN	7	22.0	12.70	4.6	1.6	2.3		
22 ER/EL 6 UN	6	22.0	12.70	4.6	1.6	2.3	22 IR/IL 6 UN	6	22.0	12.70	4.6	1.6	2.3		
22 ER/EL 5 UN	5	22.0	12.70	4.6	1.7	2.5	22 IR/IL 5 UN	5	22.0	12.70	4.6	1.7	2.5		

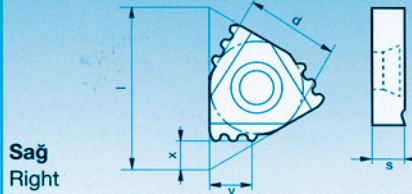
## ER-ISO-M

Dış vida açma, Metrik ISO-Çok ağızlı uçlar  
External threads, Metric ISO-Multi tooth inserts



## IR-ISO-M

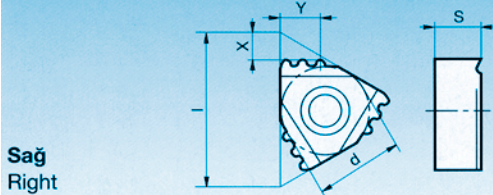
İç vida açma, Metrik ISO-Çok ağızlı uçlar  
Internal threads, Metric ISO-Multi tooth inserts



Sipariş Kodu	Adım mm	Dış sayısı	Kesme		Kesme verileri				Sipariş Kodu	Adım mm	Dış sayısı	Kesme		Kesme verileri				
			x±0.05	y±0.05	sayısı	1	2	3				4	x±0.05	y±0.05	sayısı	1	2	3
Sağ diş									Sağ diş									
16 ER 1.00 ISO 3M	1.00	3	1.8	2.6	2	0.38	0.25		16 IR 1.00 ISO 3M	1.00	3	1.8	2.6	2	0.38	0.25		
16 ER 1.50 ISO 2M	1.50	2	1.6	2.4	3	0.42	0.30 0.20		16 IR 1.50 ISO 2M	1.50	2	1.6	2.4	3	0.42	0.30 0.20		
22 ER 1.50 ISO 3M	1.50	3	2.5	3.8	2	0.55	0.37		22 IR 1.50 ISO 3M	1.50	3	2.5	3.8	2	0.55	0.37		
22 ER 2.00 ISO 2M	2.00	2	2.1	3.1	3	0.57	0.40 0.28		22 IR 2.00 ISO 2M	2.00	2	2.1	3.1	3	0.57	0.40 0.28		

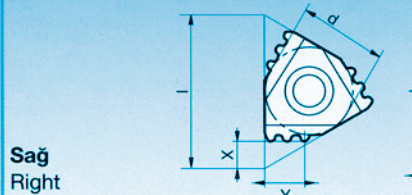
## ER-API-M

Dış vida açma, API-Yuvarlak çok ağızlı uçlar  
External threads, API-round-Multi tooth inserts



## IR-API-M

İç vida açma, API-Yuvarlak çok ağızlı uçlar  
Internal threads, API-round-Multi tooth inserts

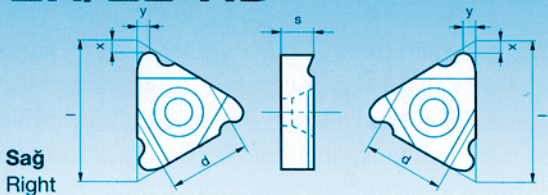


Sipariş Kodu	Adım mm	Dış sayısı	Kesme		Kesme verileri			Sipariş Kodu	Adım mm	Dış sayısı	Kesme		Kesme verileri				
			x±0.05	y±0.05	sayısı	1	2				3	x±0.05	y±0.05	sayısı	1	2	3
API-Rd								API-Rd									
22 ER 10 API-RD 2M	10	2	2.4	3.7	3	0.60	0.50 0.31	22 IR 10 API-RD 2M	10	2	2.4	3.7	3	0.60	0.50 0.31		



## ER/EL-RD

Dış vida açma, yuvarlak DIN 405  
External round threads, DIN 405



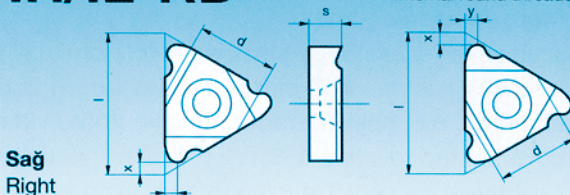
Sağ  
Right

Sol  
Left

Sipariş Kodu	Adım mm	Ölçüler				
		l	d	s	x±0.05	y±0.05
<b>RD DIN 405</b>						
16 ER/EL 10 RD	10.0	16.5	9.52	3.4	1.1	1.2
16 ER/EL 8 RD	8.0	16.5	9.52	3.4	1.4	1.3
16 ER/EL 6 RD	6.0	16.5	9.52	3.4	1.5	1.7
22 ER/EL 6 RD	6.0	22.0	12.70	4.6	1.5	1.7
22 ER/EL 4 RD	4.0	22.0	12.70	4.6	2.2	2.3

## IR/IL-RD

İç vida açma, yuvarlak DIN 405  
Internal round threads, DIN 405



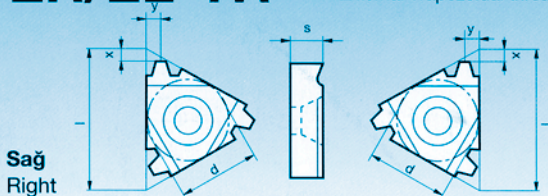
Sağ  
Right

Sol  
Left

Sipariş Kodu	Adım mm	Ölçüler				
		l	d	s	x±0.05	y±0.05
<b>RD DIN 405</b>						
16 IR/IL 10 RD	10.0	16.5	9.52	3.4	1.1	1.2
16 IR/IL 8 RD	8.0	16.5	9.52	3.4	1.4	1.3
16 IR/IL 6 RD	6.0	16.5	9.52	3.4	1.5	1.7
22 IR/IL 6 RD	6.0	22.0	12.70	4.6	1.5	1.7
22 IR/IL 4 RD	4.0	22.0	12.70	4.6	2.2	2.3

## ER/EL-TR

Dış Trapez vida açma, yuvarlak DIN 103  
External Trapezoidal threads, DIN 103



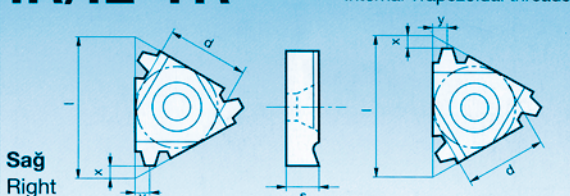
Sağ  
Right

Sol  
Left

Sipariş Kodu	Adım mm	Ölçüler				
		l	d	s	x±0.05	y±0.05
<b>TR DIN 103</b>						
16 ER/EL 1.50 TR	1.50	16.5	9.52	3.4	1.0	1.1
16 ER/EL 2.00 TR	2.00	16.5	9.52	3.4	1.1	1.3
16 ER/EL 3.00 TR	3.00	16.5	9.52	3.4	1.3	1.5
22 ER/EL 4.00 TR	4.00	22.0	12.70	4.6	1.7	1.9
22 ER/EL 5.00 TR	5.00	22.0	12.70	4.6	2.1	2.5

## IR/IL-TR

İç Trapez vida açma, yuvarlak DIN 103  
Internal Trapezoidal threads, DIN 103



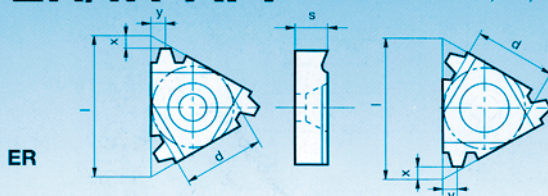
Sağ  
Right

Sol  
Left

Sipariş Kodu	Adım mm	Ölçüler				
		l	d	s	x±0.05	y±0.05
<b>TR DIN 103</b>						
16 IR/IL 1.50 TR	1.50	16.5	9.52	3.4	1.0	1.1
16 IR/IL 2.00 TR	2.00	16.5	9.52	3.4	1.1	1.3
16 IR/IL 3.00 TR	3.00	16.5	9.52	3.4	1.3	1.5
22 IR/IL 4.00 TR	4.00	22.0	12.70	4.6	1.7	1.9
22 IR/IL 5.00 TR	5.00	22.0	12.70	4.6	2.1	2.5

## ER/IR-API

Dış ve iç t trapez vida açma, API  
External and internal, API, buttressing



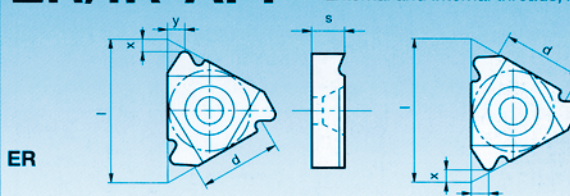
ER

IR

Sipariş Kodu	Adım	Ölçüler				
		l	d	s	x±0.05	y±0.05
<b>Dış sağ vida-BUT</b>						
22 ER 5 BUT 75	5	22.0	12.70	4.6	3.1	1.9
22 ER 5 BUT 1	5	22.0	12.70	4.6	3.1	1.9
<b>İç sağ vida-BUT</b>						
22 IR/EL 4.00 TR	5	22.0	12.70	4.6	2.8	1.9
22 IR/EL 5.00 TR	5	22.0	12.70	4.6	2.8	1.9

## ER/IR-API

Dış ve iç yuvarlak vida açma, API  
External and internal threads, API round



ER

IR

Sipariş Kodu	Adım	Ölçüler				
		l	d	s	x±0.05	y±0.05
<b>Dış sağ vida-API-Rd</b>						
16 ER 10 API-Rd	10	16.5	9.52	3.4	1.2	1.4
16 ER 10 API-Rd	8	16.5	9.52	3.4	1.3	1.5
<b>İç sağ vida-API-Rd</b>						
16 IR 10 API-Rd	10	16.5	9.52	3.4	1.2	1.4
16 IR 8 API-Rd	8	16.5	9.52	3.4	1.3	1.5

## The Operation of Grooving Screw Thread Vida açma operasyonları

### Choosing the production method

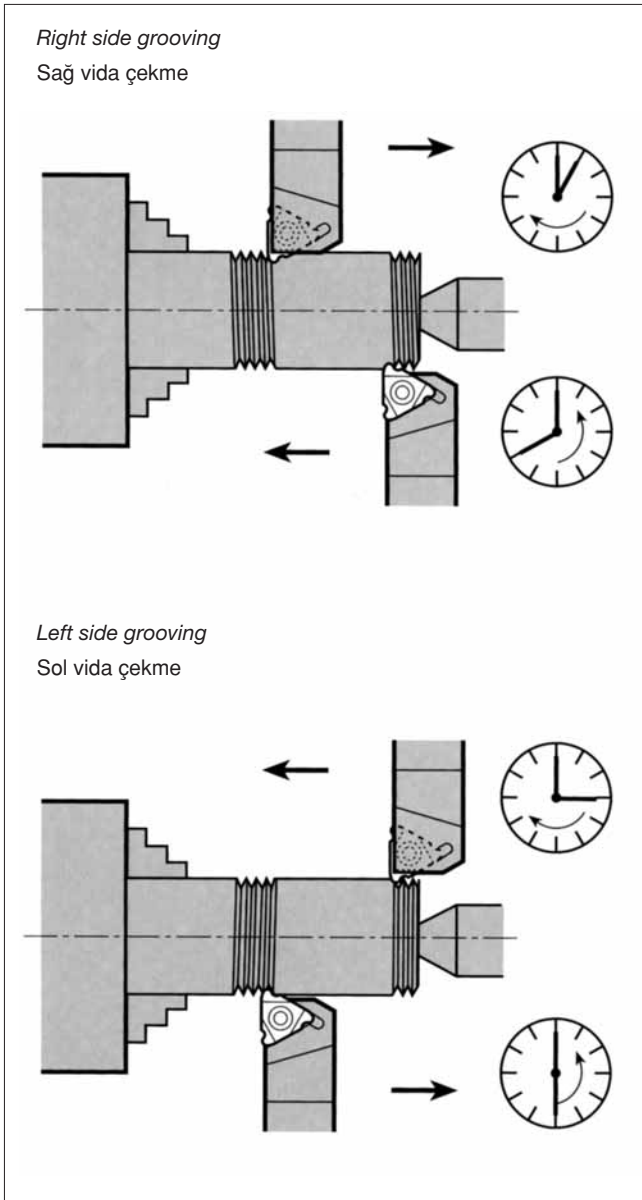
For the screw operation well adapted to process material's form and tool, the most appropriate method is decided. Mostly the selected process direction is the grooving screw thread toward the head and it is applied. Although grooving is possible by diverging from head, grooving toward the head is preferred. Depending on the direction of screw being grooved as cutting tool, grooving must be chosen and used as right or left to groove toward the head from spot. In this occasion, left tool is used for right screw and right tool is used for left screw. As a result, insert and tool provides maximum support. Besides normal cutting conditions, the reverse conditions can be executed. While all these in the current position, toolholder and hard metal insert which will groove screw thread must be used together.

### Üretim Metodunun Seçilmesi

İş parçasının şekli ve takıma uygun olarak vida operasyonu için hangi metodun daha uygun uygulanacağına karar verilir. Daha çok işleme yönü olarak aynaya doğru vida çekme seçilerek uygulanır. Aynadan uzaklaşarak vida çekmekte mümkün olmakla beraber, aynaya doğru vida çekmek tercih edilir. Kesici takım çekilecek olan vidanın yönüne göre puntadan aynaya doğru çekmek için sağ ve sol olarak seçilmeli ve kullanılmalıdır. Bu durumda sağ vida için sol takım ve sol vida için ise sağ takım kullanılır. Bu durumda kesici uç ve takım maksimum desteği sağlar. Bunun yanında normal kesme şartlarının yanında terside uygulanabilir. Tüm bunlar yapılırken kater ve vida açacak olan sert maden kesici uç aynı tip olarak beraber kullanılmalıdır.

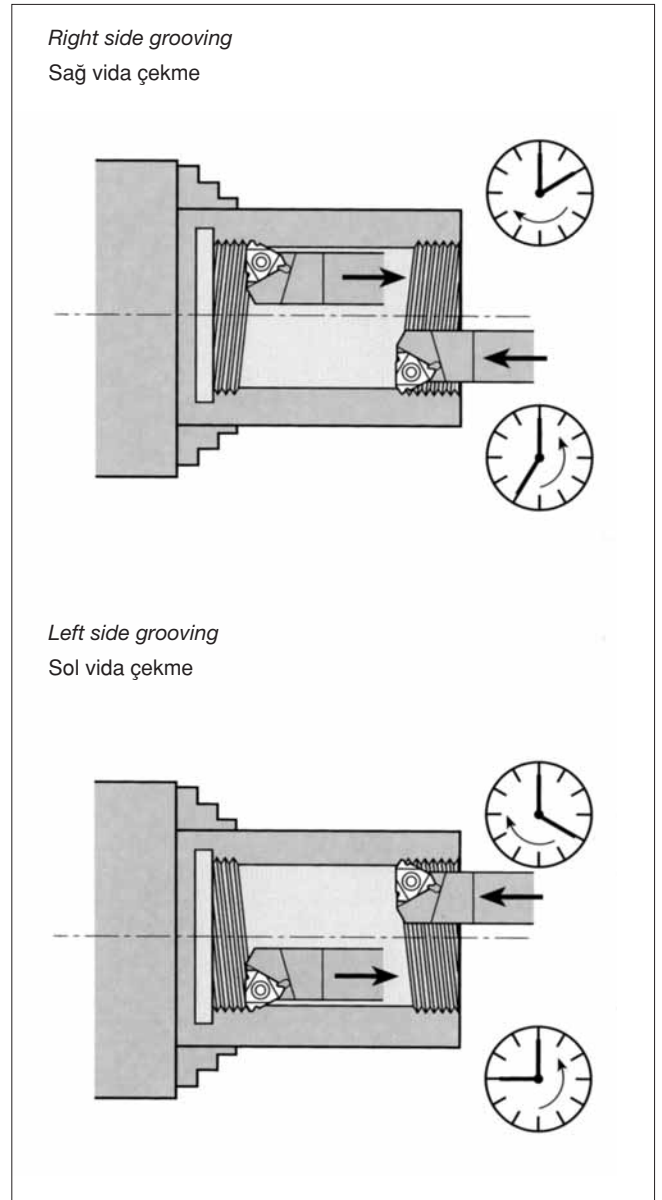
### External grooving methods

#### Dış vida çekme metodları



### Internal grooving methods

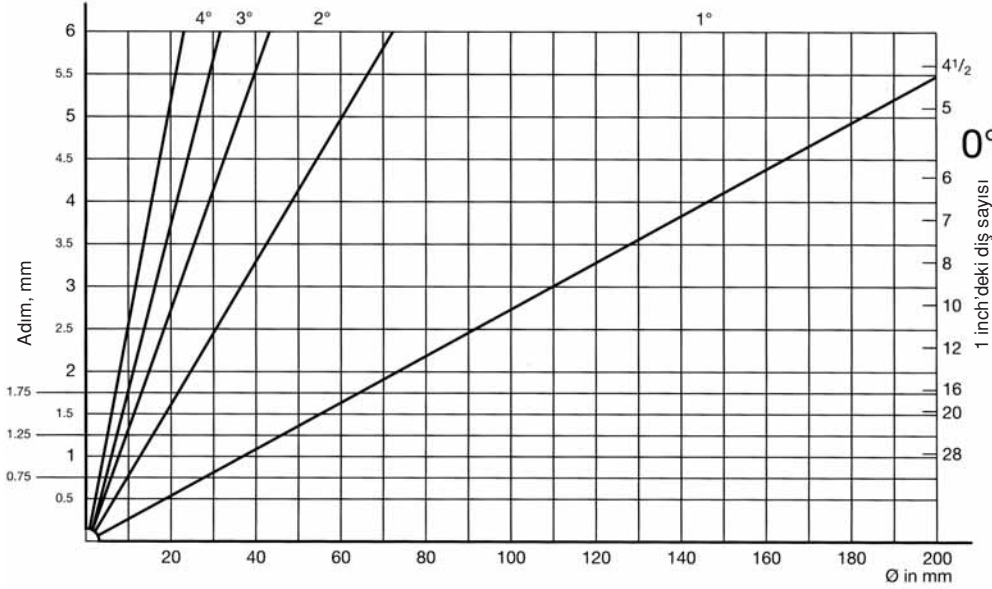
#### İç vida çekme metodları





## Vida açma takımları helis açısı ( $\lambda^\circ$ )

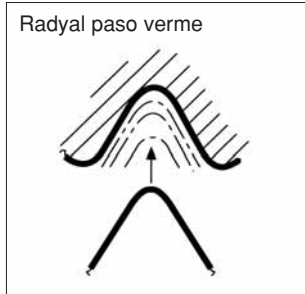
Vida helis açısı altlığın eğim açısı emniyetli bir tolerans aralığına sahip olmalıdır. Vida helis açısı, alttaki grafik yardımı ile hesaplanabilir.



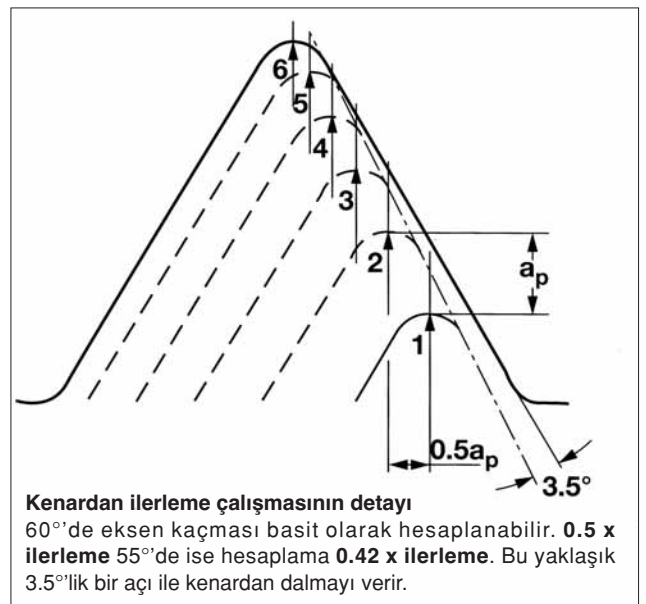
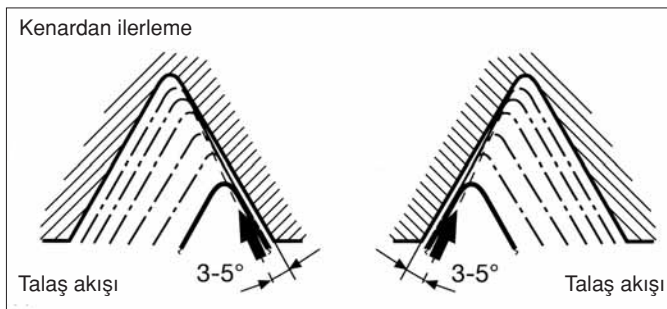
Vida açma katerlerinde kullanacağımız altlığın doğru seçilmesi, açılacak vidanın yüzey kalitesine ve ömrüne doğrudan etki eder.

## Vida açma operasyonlarında radyal paso verme çeşitleri

Vida açma operasyonlarında üç çeşit radyal paso verme çeşidi vardır: Radyal paso verme, dış çaptan eksene doğru ve arttırımla, vida takımına, iş parçasına ve vida adımına bağlı olarak seçilir.



Mekanik olarak kontrol edilen tezgahlarda en çok uygulanan vida açma şeklidir. Yumuşak talaş formu ve aynı zamanda kesici uç aşınması vardır. Normal vida açmada kullanılır. Büyük hatve'li vidalarda talaş kontrolü kötü ve yüzeyde tirlamalar oluşur. Sert metallere seçilir. Örneğin austenitik paslanmaz çelik gibi. Radyal paso verme şeklindeki vida açma operasyonlarında, vida profilin her iki yanına aynı anda yük geldiği için ucun, profili verdiği kısımda, aşırı zorlanma ve aşınmaya daha müsait ortam yaratılmış olur. Aynı zamanda vida açma işlemi esnasında çıkan talaşın atılması da kolay olmaz ve bu kesici ucun kendisine de zarar vermesine neden olur.

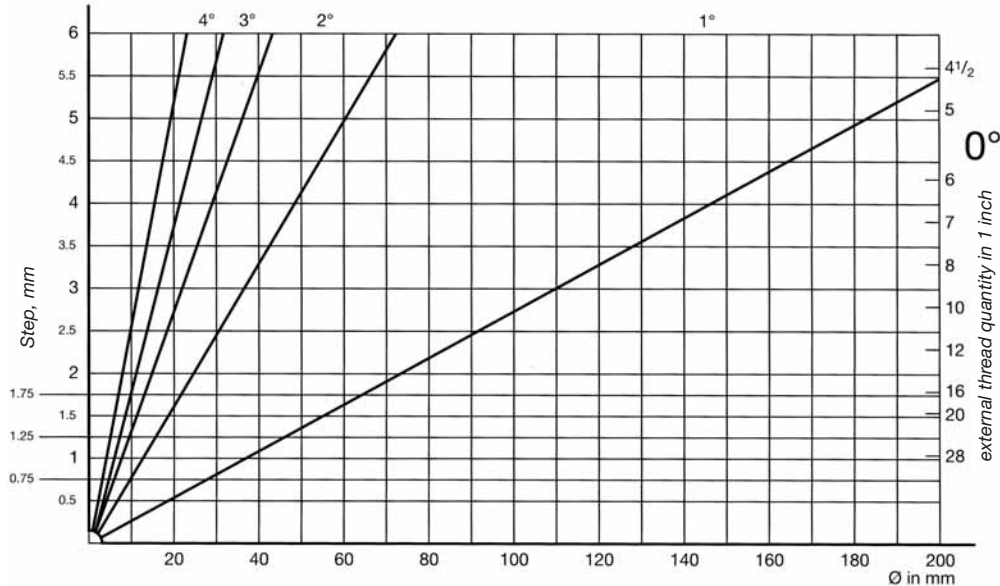


Vida açma operasyonlarında vida profili kenarından merkeze doğru ilerleme, sağa ve sola doğru çalışma pozisyonlarla mükemmel talaş kontrolü sağlar. Büyük hatveli vidalarda ve de iç çapa vida açma işleminde talaşın dışarıya kolay çıkmasına ve de vibrasyon nedeni ile yüzey bozulmalarına neden olmaması açısından uygun bir vida açma metodudur. Kötü yüzey ve aşırı yüzey aşınmalarından kaçınılmalıdır. Giriş açısı 3-5° arası olmalıdır. Ancak CNC kontrollü tezgahlarda bu metodun uygulanabilme imkanı vardır.

**Kenardan ilerleme çalışmasının detayı**  
60°'de eksen kaçması basit olarak hesaplanabilir. **0.5 x ilerleme** 55°'de ise hesaplama **0.42 x ilerleme**. Bu yaklaşık 3.5°'lik bir açı ile kenardan dalmayı verir.

## Helix angle of grooving tools ( $\lambda^\circ$ )

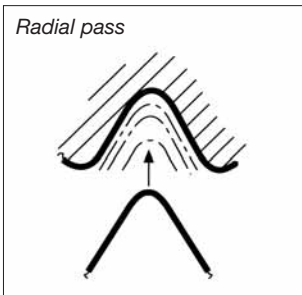
Screw helix angle and slope angle of shim must have safe tolerance interval.  
Screw helix angle can be calculated by referring to the following graphic scheme.



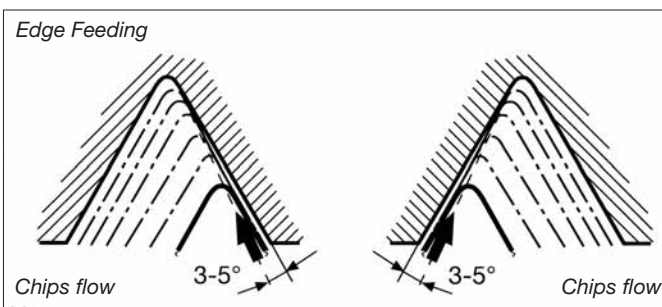
Choosing the true shim in grooving toolholders effects wear life and surface quality of the screw which will be grooved.

## The variations of radial pass in grooving process

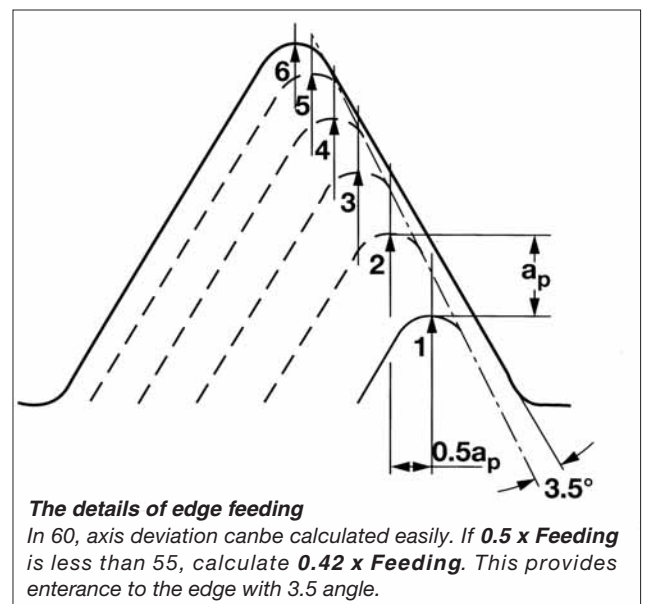
There are three kinds of radial pass in grooving processes: Radial pass from external diameter to the axis and by increasing is chosen depending on screw tool, process material and screw step.



It is the most applied grooving type in workbench being controlled mechanically. There are soft chips form and insert corrosion at the same time. It is used in normal grooving process. In screws having big pitch, chips control is low quality and some vibration occurs in surface. Hard metal are also chosen. Austenitic stainless steel is an example. In the grooving process through radial pass method, because on both sides of screw profile has loaded at the same time, in the pin section forming profile, the probability of extra corrosion an compulsion increases. Throwing chips occur during grooving is not easy and it causes insert being damaged by itself.



In grooving operations, feeding from screw profile to the center provides perfect chips control by the positions running toward right and left. It is an appropriate grooving method for screws having big pitch, because it doesn't cause any surface corruption as a result of vibration and it provides to throwing the chips outside in the process of internal grooving. It must be avoided to get low quality surface and over surface corruptions. Entering angle must be between 3 and 5. But this method can be used only in workbenches having CNC control.



### The details of edge feeding

In 60, axis deviation can be calculated easily. If  $0.5 \times \text{Feeding}$  is less than 55, calculate  $0.42 \times \text{Feeding}$ . This provides entrance to the edge with 3.5 angle.