

OptiArc ETIG AC DC 250/300/400/500 High performance AC-DC TIG

3 phase 400V & 1 phase 230V

The OptiArc ETIG range sets new standards for industrial AC DC TIG welding!

The ETIG range of machines are British made industrial machines constructed using the very latest Mitsubishi IGBT chopper technology, this combines all the performance advantages of inverter technology with the ruggedness of transformer based machines. It also gives a substantial reduction in size & weight of the machine compared to conventional old school technology. The benefits of our OptiArc technology are not to be underestimated, ultra-low power consumption, superb arc characteristics with precise instant arc starting & a perfect stable arc across the full range.

The ETIG range are really simple to set up & use, anyone who has TIG welded previously can use these in seconds. Unlike competitors machines there is no programming needed or constant referring back to instruction manuals. In addition we have added some unique functions all aimed at improved welding performance for all materials. For instance on AC the frequency is variable from 25HZ right up to 200HZ & extended AC balance control makes it possible to do so much more with AC welding of aluminium etc. This allows infinite control from 50% balanced output through to 100% negative or 100% positive electrode. Also our new QPulse (high speed pulsing) function can increase welding productivity by up to 35% & therefore reduce your welding costs.

These machines will not fail in dirty or damp workshops like inverters do, they are not affected by fluctuations on input supply they will just keep welding reliably year after year.

All the ETIG models come complete with undercarriage for gas bottle & wheels so no expensive trolleys are needed.

The benefits of the OptiArc ETIG machines really do add up, which makes these machines the perfect choice for all manual & automatic welding applications, including general fabrication, motorsport engineering, aerospace work, petrochemical, offshore, Oil & Gas, precision engineering etc.



Comes ready to accept our unique EFEED40 cold wire feeder to give higher productivity & reduce skills needed for manual welding. Also ideal for automatic welding.

Green, low energy consumption gives you more welding for lower running costs



Powered by



Key benefits of the OptiArc ETIG AC DC machines.

- ✓ **Superb welding performance on AC & DC TIG & AC & DC MMA with capability of all electrode types.**
- ✓ **Perfect arc starts & welds every time from min to max power on both TIG & MMA.**
- ✓ **Rugged reliable design is not affected by harsh operating conditions or poor input supply, guaranteed!**
- ✓ **Advanced features means you can increase welding speed, reduce heat affected zone, increase penetration etc.**
- ✓ **Ultra low power consumption reduces your running costs & helps the environment.**
- ✓ **Ready to accept our EFEED 40 cold wire feeder to increase productivity further.**

Standard OptiArc ETIG machine functions.

- ✓ Precise current control can be set to within +/-1 amp, digital display shows preset value then exact value when welding.
- ✓ Variable up & down slope controls, 0-5 seconds upslope, 0-15 seconds downslope range.
- ✓ Infinitely variable AC frequency from 25HZ to 200HZ, (low freq for a soft wide arc higher freq for a tight constricted arc).
- ✓ Extended AC balance control so you can set the cleaning & heat/penetration levels to suit each job.
- ✓ Extended AC balance control goes from 100% - to 100% + electrode gives you so much more control on AC welding.
- ✓ Pulse function allows normal pulse function 0.5HZ – 200Hz or QPulse (high frequency pulsing up to 2KHZ or 2000PPS)
- ✓ Torch trigger latching 4T/2T, (when used on 4T with our OptiArc cold wire feeder the trigger can control wire start/stop)
- ✓ Variable gas preflow & gas post flow control, 0-5 seconds preflow, 0-15 seconds postflow range.
- ✓ Electronic pulse HF for precise instant arc starts (I.T. friendly so will not affect your phone or PC etc)
- ✓ MMA electrode welding with super smooth arc on all electrodes & will also weld cellulose!
- ✓ Remote current function allows use of a foot pedal or hand remote or special current control on TIG torch.
- ✓ Automatic compensation for varying input power, long extension leads or unstable generators.

Technical specs OptiArc AC DC ETIG250 ETIG300 ETIG350 ETIG400 ETIG500

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Amperage range AC & DC	5-250	10-300	10-350	10-400	10-500
Duty cycle @ 40% *	250A	300A	350A	400A	500A
Duty cycle @ 60 % *	200A	245A	285A	325A	410A
Open circuit volts approx.	82V	82V	82V	82V	82V
Fuse on standard 400V models *	16A	16A	16A	16A/20A	32A
Single phase 230v models fuse *	16/20A	25/32A	32A/45A	32/45A	N/A
Min generator for max TIG output	6.0KVA	8.0KVA	10KVA	12KVA	15KVA
Min generator for 3/4 output	4KVA	6KVA	7KVA	8KVA	10KVA

*Duty cycles are quoted at 40°C; at lower temperatures the duty cycle will be higher, on MMA welding its 5% lower. Fuses should be slow type 'D' rated

All models can be supplied as air cooled or with built in water cooling. Water cooled versions have water flow sensing to avoid torch damage if a cooling problem develops.

[PTO for further info](#)

OptiArc ETIG AC DC 250-500A 3 phase & single phase

Further reading

With so many different makes & models of machines on the market today it can be difficult to make the right decision when considering which TIG welder to buy. The range is huge, from low cost inverters that often have a short lifespan to the most expensive American or European made inverters & a few old school transformer types. The older type transformer machines have always been the reliable option, but they are limited in welding performance, they are big & heavy & power consumption is very high. Inverter based machines give superior welding performance, they are smaller & have low power consumption, but long term reliability is an issue for even the best European machines. Our OptiArc ETIG AC DC machines tick all the boxes! They perform as well or better than the most expensive German or American inverters yet cost considerably less & are simple to use. You have all the functions needed for any TIG welding application & the arc characteristics are absolutely unbeatable. On DC the arc is super smooth, stable & virtually silent. On AC the arc is 100% stable from minimum to max output at any frequency & the arc is quieter than most other TIG machines you can buy. When welding on AC the variable frequency controls allow you to change the arc width to suit your requirements, by increasing the AC frequency a more focused & concentrated arc is generated, reducing the frequency gives a softer wider arc to spread the heat. The unique extended variable AC balance gives full control of the heat & cleaning ratio on AC from 95% - to 95% + & even allows the electrode polarity to be 100% + if needed for special applications such as very thin materials. Turning this control negative gives increased heat in the material & reduces the heat in the tungsten & therefore allows a higher current range to be used with the electrode. This allows you to weld much thicker materials with a lower amperage. It's even possible to use an air cooled TIG torch up to nearly 300A on AC (short term) using our extended balance function. Turning the balance positive reduces the heat into the job but increases the cleaning effect, ideal for some contaminated or difficult to weld alloys etc. On MMA stick welding the arc is also superb & even cellulosic electrodes such as 6010 & 6011 go down nicely. The output polarity can be changed on the AC/DC control & in addition both DC & AC MMA can be used with full AC frequency & balance control unlike most current competitor's machines.

On TIG the QPulse function used on DC can also bring real welding benefits; it gives a more focused arc similar to that achieved with plasma welding. The result of this is up to 35% increase in welding speed, reduction in heat input by up to 50%, reduction in bead width & heat affected zone & increasing penetration by up to 35%.

Chopper based machines are already manufactured by some major competitors, but only for the most industrial machines. Until recently it's not been cost effective for medium sized equipment. Chopper technology works like an inverter by controlling the output at high frequency but it controls the low voltage welding output (80V) directly, not the high voltage mains input side like inverters do. Even the best inverters suffer with expensive blow ups & generally the more industrial the environment the more problems inverter machines have. By working on the low voltage side our OptiArc ETIG models do not suffer these problems, you get the high performance of a good inverter but the superior reliability of a transformer based machine. So no big repair bills to worry about & an expected life span of 25+ years which no inverter gets anywhere close to. Furthermore, we have added some real bullet proof design features to these models. For instance, a faulty TIG torch or damaged foot pedal wires etc can easily cause HF or welding current to come into contact with the torch trigger wires or the remote pot circuit. Most TIG machines on the market today will suffer major PCB failure if this fault condition occurs. The ETIG machines withstand this fault condition & there is no failure of the machine whatsoever.

Another important reliability feature is the ability to withstand up to 50% short term overvoltage & undervoltage without failure. Most inverters will fail within 1 second of this fault occurring, particularly overvoltage. This is quite a common reason for inverter failure as even a good mains supply will see short term voltage spikes occasionally & more rural supplies or generators are particularly prone to voltage fluctuations & spikes. The superior energy efficiency of our ETIG models also means your running costs are kept to an absolute minimum. If you study the technical specs on the previous page you will see the power supply requirements are very low, for instance the ETIG400 can be run on a 16A supply.

This technology also allows us to produce these up to 400A in 230V single phase, nothing else on the market comes anywhere close!

In addition to the technical benefits of the ETIG machines we also offer the best long term support in the industry. 2 year warranty on the machine, 5 year warranty on the main transformer (the heart of the machine) & a guarantee of all spares & service availability for a minimum of 20 years.

You will see the OptiArc ETIG machines are the ideal machine for anyone who appreciates a top performance AC DC TIG/MMA welding machine which will keep working year after year.

Standard options

High quality foot pedal

Super smooth operation.
Allows you to precisely control the weld pool.



TIG torch options

Including amperage control type.



Other options

- Non standard input voltages such as 480V or 550V.
- Up to 1000A models available on request.
- Robotic interface.
- Virtually any option you can think of is possible please ask!

ETIG cold wire feeder for non-stop welding.

- Non-stop TIG welding.
- Increase productivity.
- Reduce consumable cost.
- De-skill TIG welding.
- Weld difficult to access parts
- Automate TIG welding.

Automatically synchronises with the ETIG power source to start & stop wire feed. Very simple to set up & use.

Pool delay timer allows for weld pool to form before feeding.

Wire feeding can also be manually controlled by using the TIG torch trigger switch & 4T function on the power source. (Press trigger to start welding, release to start wire, press again to finish welding).

Pulses wire in perfect synchronisation with peak current when welding on pulse.

Independent pulsar allows you to pulse the wire regardless of welding current.

Auto retract pulls the wire out of the welding pool at end of each weld.



All models comply with BS EN60974-1, BS EN50199, WEE/HD0071UZ

We guarantee to fully support these machines with spares & service for a minimum of 20 years.

'Invest in the best' quality made British welding equipment