

# AC/DC TIG-MMA Welding Machine

## Thyristor Electronic Control

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AC/DC TIG-MMA  
Welding Machine

This industrial TIG, with a high duty cycle, is designed to weld steel, stainless steel, copper and aluminum alloys. Its reinforced steel casing is ideal for on-site work and its advanced cooling mode gives the highest duty cycle and protects it against dust.

The Orso VTA-301T AC/DC is a thyristor electronic control, heavy duty working, 2Phase/380V,50-60Hz,



TIG welding requires a gas shield protection of pure(Argon). In MMA mode, it allows you to weld with any kind of electrodes: rutile, basic, stainless steel or cast iron.

The Orso VTA-301T can be equipped with a remote control or foot pedal (optional) and has an integrated liquid cooling system to connect liquid cooled torches.

### PROCESS :

The procedure is based on a torch in which the tungsten electrode is inserted, around which shielding gas flows, which is brought onto melting through a alumina nozzle. Striking occurs through the contact between tungsten and workpiece, followed by a lifting (lift arc) or with

the aid of an electric discharge at high frequency (HF). Tungsten is then kept at a certain distance from the workpiece and a discharge voltage allows the ignition of the electric arc. The operator moves the torch along the joint to move melting, placing the tungsten infusible electrode at a maximum distance of a few millimeters and keeping stable this distance. It should be avoided that the electrode comes in direct contact with the workpiece, otherwise the tungsten rod "sticks" to the joint and welding is interrupted. In case filler material is required, the operator moves simultaneously the material rod to keep constantly its end within the arc and under gas protection:

- Current generator (DC for all steels, AC/DC for Aluminum);
- TIG DC HF, TIG AC/DC HF, TIG DC and AC/DC Pulse , MMA
- Torch including: cable, connections, possible H2O pipes, consumables, tungsten;
- Tank of shielding gas (argon or mixtures of argon with helium-hydrogen etc ...);
- Any filler metal rod.

### WELDS :-

- Steel
- Stainless Steel
- Aluminum
- Titanium
- Brass
- Bronze
- etc.



*All the technical data can be modified without advance notice.*

PROFESSIONAL COMPETENCE IN REDUCED DIMENSIONS : HIGH TECHNOLOGY WITH INVERTER WELDING AND CUTTING MACHINE

## AC/DC TIG WELDING MACHINE

**VTA-301T** are portable , fan-cooled, Thyristor TIG AC/DC welding machine for AC/DC TIG-MMA Welding.

- 1) Stable arc, beautiful welding surface and easy operation;
- 2) Current can be adjusted by foot control;
- 3) They can weld mild steel and stainless steel by DC function, also can weld aluminum and aluminum-alloy by AC function.

HF micro start enables easy arc ignition and prevents HF from causing interference with other localized electronic equipment. This a feature commonly found on more expensive machines.

Use the welder in DC mode for steels and AC mode for alloys. All three models also feature MMA (Arc) welding functionality too. These TIG welders will weld almost any metals\*

\*subject to usage of correct gas/rods and torch consumables

Fully featured pulse welding enables the adjustment of width, amperage and frequency, thus reducing heat deformation and providing greater control of the weld pool. Ideal for stainless steel applications.

Adjustable between 0.5 to 10Hz this allows for quicker travel speed, improved penetration and provides a narrow weld seam. This feature is commonly found on more expensive TIG welders.

It's perfect for aviation, automotive or manufacturing. Beginners love the ease of use and wave shape diagram on the panel, Experts love the consistency and high duty cycle. This is a very compact and efficient TIG welder utilizing inverter technology capable of outperforming it's competition.

The torch and accessories uses standard Tig torch consumables available at any welding store. Included on the torch is a alumina nozzle seat which should outlast the torch. Long torch cord is protected by a heat resistant sleeve and comes with many extra consumables. This is the torch for tough, big jobs that need performance.

### Processes

- TIG (GTAW)
- STICK (SMAW)
- Pulsed TIG (GTAW-P)

### Applications:-

- Shipbuilding
- Automotive
- Tube and Pipe
- Vocational
- Fabrication
- Aerospace
- Construction
- Heavy Manufacturing
- Maintenance
- etc.

| DESCRIPTION                 | VTA-301T WITH FULL PULSE                |
|-----------------------------|---|
| Rate Input                  | 380V, 2Phase, 50-60Hz, 26kVA            |
| Duty Cycle @ 300A , at 40°C | 50%                                     |
| DC Output Current           | TIG 8-300A , MMA 8-300A                 |
| DC Output Voltage           | TIG 16-20V , MMA 20-32V                 |
| AC Output Current           | TIG 8-300A , MMA 8-300A                 |
| AC Output Voltage           | TIG 16-22V , MMA 20-35V                 |
| Power Factor                | 0.93                                    |
| Pulse Frequency             | 0.5-10 Hz (Continuously)                |
| Up Slope Control Time       | 0.1-6 sec. (Continuously)               |
| No-load Voltage             | AC80V , DC80V                           |
| Down Slope Control Time     | 0.2-10 sec. (Continuously)              |
| Gas Pre-Flow Time           | 0.3sec.                                 |
| Gas Post Flow Time          | 5-25sec.                                |
| Pulse Width                 | 15-85%                                  |
| Arc Spot Time Adjustment    | 0.5-5 sec (Continuously)                |
| Cleaning width Adjustment   | Adjustable with AC TIG Welding          |
| Dimension (mm)              | 460x640x810                             |
| Net Weight                  | 195kg.                                  |
| Optional                    | Foot Remote Control / Water Cooler Tank |

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