Section 2 - TIG welding
General information and choice criteria

Scheme of a manual installation for TIG welding

![Scheme of a manual installation for TIG welding](image)

Metal transfer

Criteria choice for TIG power sources

<table>
<thead>
<tr>
<th>Name</th>
<th>Supply</th>
<th>Welding current</th>
<th>Arc striking</th>
<th>Cycle</th>
<th>Pulse</th>
<th>Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRESTOTIG 160 PFC</td>
<td>Single phase</td>
<td>10 to 160</td>
<td>Simple</td>
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<td>Semi-extended</td>
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<td>Semi-extended</td>
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<tr>
<td>PRESTOTIG II DC 310 (W)</td>
<td>Three phase</td>
<td>5 to 300</td>
<td>Extended</td>
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<tr>
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<td>5 to 400</td>
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<td>31 (40*)</td>
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<tr>
<td>ADMIRAL 350 W DC</td>
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<td>4 to 350</td>
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<td>SAXOTIG 160 AC/DC</td>
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<tr>
<td>PRESTOTIG 310 AC/DC (W)</td>
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<td>3 to 300</td>
<td>Extended</td>
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<td>4 to 500</td>
<td>Extended</td>
<td>Yes</td>
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* water cooled version
**TIG welding glossary**

**European CE standards**
They guarantee a quality of construction, chemical and mechanical characteristics and a level of safety. All SAF-FRO power sources have CE certification. They impose construction according to European directives.

- Directive 89/336 imposes limitation of emissions of electromagnetic interferences.
- The low voltage directives impose manufacturing, safety and performance rules. EN 60974-1, device capacities are given according to a welding current delivered at a given duty cycle.

**Duty cycle**
It is defined in the standard. The duty cycle is the duration of continuous use of a device, based on a time of 10 minutes at a temperature of 40 °C. A duty cycle of 100 A at 60% means that over a period of 10 minutes, it is possible to weld continuously for 6 minutes, followed by a stop of 4 minutes. A duty cycle of 100 A at 100% means that the source is designed to deliver 100 A continuously.

**Pre-gas**
Used to purge the torch pipes before welding in order to start welding in an atmosphere of protective gas.

**Preheating stage**
Allows positioning on the joint and preheating of the metal to be welded.

**Up slope**
Makes it possible to reach the welding current level progressively.

**Down slope**
Avoids the crater (shrinkage cavity) at the end of the bead when welding stops.

**End setting**
Allows slower cooling of the weld pool and selection of a “lighted arc” welding cycle, which is very useful when welding in position.

**Post-gas**
Protects the weld pool and tungsten electrode during cooling.

**Balance**
Allows welding using alternating current (light alloys) to favour cleaning or penetration.

**Pulsed system**
Avoids collapse of the weld pool during welding of thin thicknesses by time phasing the welding current between a high value (hot time) and a low value (cold time).

**Clamping**
Saves time during spot welding operations by avoiding having to go through the whole welding cycle.

**HF arc striking device**
System involving a distant striking of the electric arc without contact between the tungsten electrode and the part to be welded. This mode is particularly useful when operating in environments that are sensitive to high-frequency interference.

**Arc striking on contact**
System involving striking of the electric arc as soon as the torch is raised after contact has been made between the part and the tungsten electrode. This mode is particularly useful when welding in position.

**Square waves**
In alternating current, the square form of current wave ensures excellent arc stability and avoids arc disruption when the current changes direction.

**IP protection class**
The first figure indicates the maximum diameter of an object able to penetrate the device and come in contact with a dangerous component. The second figure indicates the level of protection against falling rain. Example: IP 23 - the “2” indicates that an object with a diameter greater than 12.5 mm may not be introduced into the device - the “3” indicates that it is not damaged by rainfall at an angle of 60°.
PRESTOTIG DC PFC and PRO offers leading technology in TIG DC welding with a user friendly interface. Additional features include programme storage capability and improved reliability due to Power Factor Control technology. PRESTOTIG DC PFC and PRO range delivers more power with reduced consumption: up to 220 A single phase 16 A connection. PRESTOTIG DC machines with a range of operating features ensure high quality welding of steel, stainless and nickel alloys.

**PRESTOTIG 160 PFC**
Ideal for maintenance, light fabrication and pipe-work.

**Features:**
- Modular technology to improve reliability,
- Built-in Power Factor Control,
- Supplied complete with 16A plug,
- Improved generator compatibility (+/- 20% input voltage variations),
- Usable with primary extension cables (70 m with 2.5 mm² section),
- A simple welding cycle,
- TIG DC or MMA mode,
- HF and TIG Lift arc striking,
- Pre and Post gas adjustment,
- 2T / 4T mode,
- 160 A at 35% TIG - 140 A at 60% in MMA.

To order - Cat. No. W000273518

**Standard equipment:**
- 1 power source PRESTOTIG 160 PFC,
- 1 primary cable,
- 3 m earth cable and clamp with DINSE connector,
- 2 m fitted gas hose.

**PRESTOTIG 180 PRO**
Ideal for maintenance, light fabrication and pipe-work.

**Features:**
- TIG DC or MMA mode,
- A complete welding cycle,
- Pulsed TIG current,
- Choice of two current levels in 4T mode,
- Digital display of parameters,
- HF and PAC arc striking,
- 2T-4T-Spot modes,
- Usable with primary extension cables (70 m with 2.5 mm² section),
- Programme storage and recall (30),
- Remote control and foot pedal (options),
- Improved generator compatibility (+/- 20% input voltage variations).

To order - Cat. No. W000273979

**Standard equipment:**
- 1 power source PRESTOTIG 180 PRO,
- 1 primary cable 4 m long,
- 3 m earth cable and clamp with DINSE connector,
- 2 m fitted gas hose.

**PRESTOTIG 220 PRO**
Ideal for maintenance, light fabrication and pipe-work.

**Features:**
- Up to 220 A with a 16 A plug,
- TIG DC or MMA mode,
- A complete welding cycle,
- Pulsed TIG current,
- Choice of two current levels in 4T mode,
- Digital display of parameters,
- HF and PAC arc striking,
- 2T-4T-Spot modes,
- Usable with primary extension cables (70 m with 2.5 mm² section),
- Programme storage and recall (30),
- Remote control and foot pedal (options),
- Improved generator compatibility (+/- 20% input voltage variations).

To order - Cat. No. W000273981

**Standard equipment:**
- 1 power source PRESTOTIG 220 PRO,
- 4 m primary cable,
- 3 m earth cable and clamp with DINSE connector,
- 2 m fitted gas hose.
### Single phase input voltage
- **PRESTOTIG 160 PFC**: 230 V (+/- 20%) - 50/60 Hz
- **PRESTOTIG 180 PRO**: 230 V (+/- 20%) - 50/60 Hz
- **PRESTOTIG 220 PRO**: 230 V (+/- 20%) - 50/60 Hz

### Effective input current
- **PRESTOTIG 160 PFC**: 11 A TIG – 15 A MMA
- **PRESTOTIG 180 PRO**: 11 A TIG – 15 A MMA
- **PRESTOTIG 220 PRO**: 12 A TIG – 16 A MMA

### Open circuit voltage
- **PRESTOTIG 160 PFC**: 49.5 V
- **PRESTOTIG 180 PRO**: 50 V
- **PRESTOTIG 220 PRO**: 50 V

### Welding current range
- **PRESTOTIG 160 PFC**: 10 – 160 A
- **PRESTOTIG 180 PRO**: 5 – 160 A
- **PRESTOTIG 220 PRO**: 5 – 220 A TIG, 5 – 180 A MMA

### Duty cycle (at 40 °C)

<table>
<thead>
<tr>
<th>Duty cycle (at 40 °C)</th>
<th><strong>PRESTOTIG 160 PFC</strong></th>
<th><strong>PRESTOTIG 180 PRO</strong></th>
<th><strong>PRESTOTIG 220 PRO</strong></th>
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<tr>
<td>at 35%</td>
<td>160 A</td>
<td>160 A</td>
<td>220 A</td>
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<tr>
<td>at 60%</td>
<td>140 A</td>
<td>140 A</td>
<td>180 A</td>
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<tr>
<td>at 100%</td>
<td>120 A</td>
<td>130 A</td>
<td>150 A</td>
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### Connection type
- **TIG torch**: S
- **MMA**: 13 mm

### Protection index
- **IP 23S**

### Weight
- **9.5 kg**

### Dimensions
- **205 x 345 x 460 mm**

### European standards
- **EN 60974-1 / EN 60974-10 / EN 61000-3-2/12**

### To order

<table>
<thead>
<tr>
<th>To order</th>
<th><strong>PRESTOTIG 160 PFC</strong></th>
<th><strong>PRESTOTIG 180 PRO</strong></th>
<th><strong>PRESTOTIG 220 PRO</strong></th>
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### Add ons

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<tr>
<th>Add ons</th>
<th><strong>PRESTOTIG 160 PFC</strong></th>
<th><strong>PRESTOTIG 180 PRO</strong></th>
<th><strong>PRESTOTIG 220 PRO</strong></th>
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<tr>
<td>PROTIG NG 10 RLS torch</td>
<td>5 m W000278353</td>
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<td>PROTIG NG 20 RLS torch</td>
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<td>5 m W000278355</td>
<td>5 m W000278356</td>
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<td>PROTIG NG 30 RLS torch</td>
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<td>EUROSAF 25 l/min manoflowmeter</td>
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<td>MMA kit arc 25C50</td>
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### Options

<table>
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<tr>
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<th><strong>PRESTOTIG 160 PFC</strong></th>
<th><strong>PRESTOTIG 180 PRO</strong></th>
<th><strong>PRESTOTIG 220 PRO</strong></th>
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<tbody>
<tr>
<td>Wear parts box PROTIG NG 10 torches</td>
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<td>PROTIG NG 20 torches</td>
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<td>PROTIG NG 30 torches</td>
<td>W000306443</td>
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<tr>
<td>Extension harnesses for air-cooled torches version - 15 m</td>
<td>W000306135</td>
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<tr>
<td>Remote control 10 m long</td>
<td>W000242069</td>
<td></td>
<td></td>
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<tr>
<td>Foot pedal 10 m long</td>
<td>W000241602</td>
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<td>FURIOUS carrying</td>
<td>W000371907</td>
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</table>
2 - TIG welding
DC equipment – Industrial range

PRESTOTIG II and ADMIRAL with inverter technology are your welding partners in workshops or on-site applications. Powerful, rugged and easy to use installations. HF striking and excellent stability. High quality MMA welding performance with rutile, basic and cellulosic electrodes.

**PRESTOTIG II 310 (W) DC**

*Features:*
- Thermal safety indicator,
- Supply voltage defect indicator,
- Complete welding cycle: pre/post-gas, up/down slope adjustment current with setting,
- MMA or TIG DC modes,
- Pulsed and synergic pulsed TIG current,
- 2T-4T and spot mode selection,
- HF-PAC arc striking,
- Digital display of parameters.

*To order - Cat. No. W000279724*

*Standard package:*
- 1 PRESTOTIG II 310 DC power source,
- 5 m primary cable,
- 5 m earth cable and clamp with DINSE connector,
- 1.5 m fitted gas hose.

**PRESTOTIG II 410 (W) DC**

*Features:*
- Thermal safety indicator,
- Supply voltage defect indicator,
- Complete welding cycle: pre/post-gas, up/down slope adjustment current with setting,
- MMA or TIG DC modes,
- Pulsed and synergic pulsed TIG current,
- 2T-4T and spot mode selection,
- HF-PAC arc striking,
- Digital display of parameters.

*To order - Cat. No. W000279725*

*Standard package:*
- 1 PRESTOTIG II 410 DC power source,
- 5 m primary cable,
- 5 m earth cable and clamp with DINSE connector,
- 1.5 m fitted gas hose.

**ADMIRAL 350 W DC**

*Features:*
- User friendly front panel,
- Multi-purpose installation: TIG DC,
- Pulsed TIG / coated electrodes,
- Complete TIG welding cycle,
- 100 programme memory,
- Built-in cooling unit,
- Numerical control of the process.

*To order - Cat. No. W000263715*

*Standard package:*
- 1 ADMIRAL 350 W DC power source with integrated cooling unit,
- 1 trolley,
- 5 m primary cable,
- 5 m earth cable and clamp with DINSE connector,
- 1.5 m fitted gas hose.
### PRESTOTIG II 310 (W)DC
- **Three phase input voltage**: 400 V (+20/-15%) – 50-60 Hz
- **Effective input current**: 8.4 kVA
- **Open circuit voltage**: 80 V
- **Welding current range**: 5 A – 300 A
- **Duty cycle**:
  - at 35%: 300 A
  - at 60%: 230 A
  - at 100%: 200 A
- **Connection**: TIG torch
- **Protection Index / Class**: IP 23 C / H
- **Weight**: 20 kg - (30 kg*)
- **Dimensions**: 500 x 180 x 650 mm with cooling unit
- **European standards**: EN 60974-1 / EN 60974-10

### PRESTOTIG II 410 (W)DC
- **Effective input current**: 8.4 kVA
- **Open circuit voltage**: 80 V
- **Welding current range**: 5 A – 400 A
- **Duty cycle**:
  - at 35%: 400 A
  - at 60%: 320 A
  - at 100%: 270 A
- **Connection**: TIG torch
- **Protection Index / Class**: IP 23 C / H
- **Weight**: 31 kg - (41 kg*)
- **Dimensions**: 1090 x 610 x 970 mm
- **European standards**: EN 60974-1 / EN 60974-10

### ADMIRAL 350 W DC
- **Effective input current**: 15 kVA
- **Open circuit voltage**: 98.8 V
- **Welding current range**: 4 A – 350 A
- **Duty cycle**:
  - at 35%: 350 A
  - at 60%: 260 A
  - at 100%: 220 A
- **Connection**: MMA
- **Protection Index / Class**: IP 23 S / H
- **Weight**: 99 kg
- **Dimensions**: 1090 x 610 x 970 mm
- **European standards**: EN 60974-1 / EN 60974-10

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### To order

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<thead>
<tr>
<th>Power source only</th>
<th>PRESTOTIG II 310 DC</th>
<th>PRESTOTIG II 310 W DC</th>
<th>PRESTOTIG II 410 DC</th>
<th>PRESTOTIG II 410 W DC</th>
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### Add ons

- **COOLERTIG II DC unit**: W000279722
- **FREEZCOOL cooler liquid 9.6 l**: W000010167
- **PROTIG NG 40 RL C5B torch**:
  - 5 m: W000278372
  - 8 m: W000278373
- **PROTIG NG 10W RL C5B torch**:
  - 5 m: W000278374
  - 8 m: W000278375
- **PROTIG NG 35W RL C5B torch**:
  - 5 m: W000278376
  - 8 m: W000278377
- **EUROSAF 25 l/min manoflowmeter**: W000290247
- **MMA kit arc**:
  - 35C50: W000011139
  - 50C50: W000260681

### Options

- **Wear parts box**: PROTIG NG 10 torches: W000306441
  - PROTIG NG 35W / 40 torches: W000306444
- **Extension harness**: Air-cooled torches -15 m: W000306135
  - Water-cooled torches -15 m: W000306136
- **Remote control RC1**:
  - 5 m long: W000263311
  - 10 m long: W000270324
- **Foot pedal control FP1 - 5 m long**: W000263313
- **Trolley T3**: W000277087
- **Remote control BB-BOX (MMA / TIG)**: W000305112
- **Pulse remote control**: W000305064
- **Foot pedal control**: W000305065
- **Auto transformer *POWER BOX* 230 V /400 V tri**: W000305106

*with water cooling unit*
2 - TIG welding
AC/DC equipment

SAXOTIG / PRESTOTIG / ADMIRAL AC/DC TIG machines are designed for the welding specialists. SAXOTIG is the ideal machine to meet the requirements of maintenance applications, PRESTOTIG & ADMIRAL machines fulfill the most demanding welders needs. The rugged design and optimum performance makes these machines the ideal partner for all workshop and on-site requirements.

### SAXOTIG 160 AC/DC

**Features:**
- User-friendly front panel,
- AC/DC welding currents,
- MMA or 2T-4T TIG and spot mode
- Selection: pulsed TIG DC, AC with variable frequencies and adjustment of the balance cleaning,
- Time/penetration,
- Robustness.

**To order - Cat. No.**
W000056009

**Standard package:**
- 1 SAXOTIG 160 AC/DC power source,
- 3 m primary cable,
- 3 m earth cable & clamp and DINSE connector,
- 2 m fitted gas hose.

#### PRESTOTIG 240 (W) AC/DC

**Features:**
- Up to 230 A at 40% available on a single phase machine,
- 230 A in TIG and 180 A in MMA,
- Easy to move: only 17 kg,
- Generator compatible,
- Use at 230V +/- 15%,
- TACK FOR THIN for perfect tack welding,
- BI LEVEL for an improved cycle with two current levels,
- A compact machine, with possibility of user customization,
- Offshore and repair applications using TIG and MMA welding,
- Processes TIG DC - AC - Synergic pulse - Compotig process (MIX AC/DC) - pulse welding,
- 10 Programme memory.

**To order - Cat. No.**
W000275843

**Standard package:**
- 1 PRESTOTIG 240 AC/DC power source,
- 5 m primary cable with Schucko plug,
- 5 m earth cable & clamp and DINSE connector,
- 1.5 m fitted gas hose.

#### PRESTOTIG 310 (W) AC/DC

**Features:**
- Up to 300 A at 40%,
- 300 A in TIG and 250 A in MMA,
- Easy to move: only 25 kg,
- Built to work in extreme conditions,
- TACK FOR THIN for perfect tack welding,
- BI LEVEL for an improved cycle with two current levels,
- A compact machine, with possibility of user customization,
- Offshore and repair applications using TIG and MMA welding,
- Processes TIG DC - AC - Synergic pulse - Compotig process (MIX AC/DC) - pulse welding,
- 10 Programme memory.

**To order - Cat. No.**
W000278469

**Standard package:**
- 1 PRESTOTIG 310 AC/DC power source,
- 5 m primary cable,
- 5 m earth cable & clamp and DINSE connector,
- 1.5 m fitted gas hose.

#### PRESTOTIG 350W AC/DC

**Features:**
- Built-in cooling unit,
- User-friendly front panel,
- Using AC: adjustment of the balance cleaning time/penetration,
- Complete welding cycle: pre/post. gas - up/down slope current with setting,
- MMA or 2T-4T TIG modes and spot mode selection,
- Pulsed and synergic pulsed TIG current,
- HF, PAC arc striking,
- Supply voltage defect indicator,
- Digital display of parameter,
- 9 Programme memory.

**To order - Cat. No.**
W000262991

**Standard package:**
- 1 PRESTOTIG 350 W AC/DC power source,
- 1 cooling unit included,
- 5 m primary cable,
- 5 m earth cable & clamp and DINSE connector,
- 1.5 m fitted gas hose.

#### ADMIRAL 500W AC/DC

**Features:**
- Compact installation with integrated cooling unit,
- User-friendly front panel,
- Complete welding cycle: 2T-4T pre/post. gas - up/down slope current
- Multi-process unit: AC/DC TIG spot and pulsed TIG with a remote controller DC+, DC– or AC in MMA mode
- AC/DC TIG with a single cerium electrode with sharpened point
- AC noise reduction with a range of different wave forms
- Numerical control of the process with DSP (Digital Signal Processor) function
- 15 Programme memory.

**To order - Cat. No.**
W000263716

**Standard package:**
- 1 ADMIRAL 500W AC/DC power source,
- 1 cooling unit included,
- 5 m primary cable,
- 5 m earth cable & clamp and DINSE connector,
- 1.5 m fitted gas hose.
<table>
<thead>
<tr>
<th><strong>To order</strong></th>
<th><strong>SAXOTIG 160 AC/DC</strong></th>
<th><strong>PRESTOTIG 240 (W) AC/DC</strong></th>
<th><strong>PRESTOTIG 310 (W) AC/DC</strong></th>
<th><strong>PRESTOTIG 350 W AC/DC</strong></th>
<th><strong>ADMIRAL 500 W AC/DC</strong></th>
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<td><strong>Add ons</strong></td>
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**Main input voltage**
- 230 V (+/-10%) single phase 50/60 Hz
- 230 V (+/-15%) single phase 50/60 Hz
- 400 V (+/-10%) three phase 50/60 Hz
- 400 V (+/-10%) three phase 50/60 Hz
- 230 V-400 V three phase 50/60 Hz

**Maximum primary consumption**
- 6.2 kVA
- 3.9 kVA
- 7.9 kVA
- 11.7 kVA
- 14.4 kVA

**Open circuit voltage**
- 82 V
- 58 V
- 63 V
- 70 V
- 100 V

**Welding current range**
- 5 A - 150 A
- 3 A - 230 A
- 3 A - 300 A
- 3 to 250 A (DC) - 10 to 350 A (AC)
- 4 A - 500 A

**Duty cycle at 40 °C**
| 35% | 150 A (30%) | 230 A (40%) | 300 A |
| 60% | 100 A | 200 A | 230 A |
| 100% | 80 A | 180 A | 190 A |

**Connection**
- TIG: S, C5B, C5B, C5B
- MMA: 13 mm, 13 mm, 13 mm, 13 mm

**Protection Index / Class**
- IP 23 / H
- IP 23 C
- IP 23 C / H
- IP 23 S / H

**Weight (with water cooling unit)**
- 21 kg
- 17 kg (26 kg*)
- 25 kg (33 kg*)
- 74 kg
- 149 kg

**Dimensions**
- 410 x 220 x 430 mm
- 475 x 200 x 405 mm
- 505 x 195 x 440 mm
- 690 x 280 x 870 mm
- 960 x 590 x 1170 mm

**European standards**
- EN 60974-1
- EN 60974-10
- EN 61000-3-2/12

**Extension harness for torches**
- Air-cooled - 15 m
- Water-cooled - 15 m

**Remote control**
- T3
- T2A

**Trolley**
- T3
- T2A
2 - TIG welding
PROTIG NG torches

The range of PROTIG NG includes 4 air cooled, and 3 water cooled versions. All torches are supplied ready to use, the standard fitting table gives more information.

### Air cooled

<table>
<thead>
<tr>
<th></th>
<th>PROTIG NG 10</th>
<th>PROTIG NG 20</th>
<th>PROTIG NG 30</th>
<th>PROTIG NG 40</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duty cycle 35%</td>
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<td>150 A</td>
<td>200 A</td>
<td>250 A</td>
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<tr>
<td>Duty cycle 60%</td>
<td>80 A</td>
<td>100 A</td>
<td>130 A</td>
<td>200 A</td>
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<tr>
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<td>back cap</td>
<td>long</td>
<td>long</td>
<td>long</td>
</tr>
<tr>
<td></td>
<td>nozzle</td>
<td>Ø 10 mm</td>
<td>Ø 10 mm</td>
<td>Ø 12 mm</td>
</tr>
<tr>
<td></td>
<td>electrode</td>
<td>Ø 1.6 mm</td>
<td>Ø 2.0 mm</td>
<td>Ø 2.4 mm</td>
</tr>
<tr>
<td>Length</td>
<td>5 m</td>
<td>8 m</td>
<td>5 m</td>
<td>8 m</td>
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<td>EB C5B</td>
<td>W000278359</td>
<td>W000278360</td>
<td>W000278361</td>
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</tbody>
</table>

**• The round handle with a blade trigger (RL)**

These classic round handled TIG torches have been designed to meet all welding expectations in all positions. The trigger module is fully adjustable and can be moved to any position around the handle.

**• The ergonomic handle with button (EB)**

The best SAF-FRO TIG torches with an advanced ergo-design, using a colored soft grip for a maximum welder comfort. These torches will give you an optimum welding quality, and increase the communication between the welder and the machine.

New design of the trigger module with plastic blade.
- Safety: electrical isolation.
- Esthetic: no corrosion.

The woven sheath and the handle sleeve ensure full flexibility of the harness.

The modular system brings a increased control over the power source. All torches are delivered with a single button module.

The ball joint gives excellent flexibility, and the first 1 m of the harness is leather which increases the service life of the welding hose.
### Connectors, adaptors

#### Connectors
The connectors to the machine are a new design, compact and fully protected delivering both strength and quality. All hoses are rubber with a woven sheath for heavy duty work.

#### Adaptators
For old torches with central gas to be connected to power sources with separate gas, use **W000306140**

For torches with separate gas to be connected to power sources with central gas, use **W000306141**

<table>
<thead>
<tr>
<th>Water cooled</th>
<th>PROTIG NG 10W</th>
<th>PROTIG NG 35W</th>
<th>PROTIG NG 40W</th>
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<td>350 A</td>
<td>450 A</td>
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<td>long</td>
<td>long</td>
</tr>
<tr>
<td>nozzle</td>
<td>Ø 12 mm</td>
<td>Ø 15 mm</td>
<td>Ø 14 mm</td>
</tr>
<tr>
<td>electrode</td>
<td>Ø 2.4 mm</td>
<td>Ø 4.0 mm</td>
<td>Ø 4.8 mm</td>
</tr>
<tr>
<td>Length</td>
<td>5 m</td>
<td>8 m</td>
<td>5 m</td>
</tr>
<tr>
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<td></td>
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</table>
2 - TIG welding
PROTIG NG torches

Wear parts
SAF-FRO sets the standard for wear parts, ensuring maximum quality for both welding and gas protection.

![Wear parts illustration]

- **PROTIG NG 40 W**
  - A - insulating nut
  - B - nozzle seals
  - C - water distributor

Gas lens, for welding where access is difficult

- **The gas lens collet body** supplied with a filter and a sealing ring.
- **The ring** or the filter are supplied on their own.

**Wear parts box**
A complete kit for all applications. The kit includes electrode collets, nozzles, back caps and collet body.

- **PROTIG NG 10 / 10W**
  - W000306441
- **PROTIG NG 20**
  - W000306442
- **PROTIG NG 30**
  - W000306443
- **PROTIG NG 40 / 35W**
  - W000306444
- **PROTIG NG 40W**
  - W000306445

**Modular system:**
Standard delivery for EB all torches is a single button module. Other control module formats are available to order.

- **Single button delivery**

**Other buttons**
- **1** Horizontal potmeter: W000279370
- **2** Vertical potmeter: W000279246
- **3** Double button: W000279242
- **4** Blade: W000279245

**Adjustable heads**
As an option, adjustable torch bodies are available, designed to make welding in limited access locations easier with a choice of 2 heads, small and large which are mounted on air cooled or water cooled bodies.

- **Air cooled body (10/20)**: W000279381
- **Water cooled body (10W)**: W000279382
- **Head PROTIG NG 10/10W**
  - W000279383
- **Head PROTIG NG 20**
  - W000279384

⚠ Refer to the instruction manual to see the different connections for the modules. For potmeter adapt the wiring to the welding machine.
Wear parts are common for both RL or EB handles.

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<th>Wear Part</th>
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*All PROTIG NG wear parts are compatible with the previous PROTIG range.*

* For the collet body « heavy duty », use the gas lens nozzles
2 - TIG welding

WTT2 TIG torches

Simplicity and reliability
TIG torches which are reliable, flexible and use common wear parts. Connections and handles for all applications.

Handle

Connections

Air cooled

Water cooled

Air cooling

<table>
<thead>
<tr>
<th>Handle</th>
<th>Duty cycle at 40 °C</th>
<th>Fitted with</th>
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<th>WTT2 17</th>
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<tr>
<td></td>
<td>60%</td>
<td>Cap</td>
<td>80 A</td>
<td>100 A</td>
<td>130 A</td>
</tr>
<tr>
<td></td>
<td>35%</td>
<td>Nozzle</td>
<td>110 A</td>
<td>135 A</td>
<td>180 A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Electrode</td>
<td>Ø 10 mm</td>
<td>Ø 10 mm</td>
<td>Ø 12 mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ø 1.6 mm</td>
<td>Ø 2.0 mm</td>
<td>Ø 2.4 mm</td>
</tr>
<tr>
<td>Length</td>
<td>4 m</td>
<td>8 m</td>
<td>4 m</td>
<td>8 m</td>
<td>4 m</td>
</tr>
<tr>
<td></td>
<td>RL</td>
<td>S</td>
<td>W000278878</td>
<td>W000278923</td>
<td>W000278918</td>
</tr>
<tr>
<td></td>
<td>E/B</td>
<td>C5B</td>
<td>W000278879</td>
<td>W000278922</td>
<td>W000278917</td>
</tr>
<tr>
<td></td>
<td></td>
<td>V</td>
<td>W000278875</td>
<td>W000278926</td>
<td>W000278919</td>
</tr>
</tbody>
</table>

Water cooling

<table>
<thead>
<tr>
<th>Handle</th>
<th>Duty cycle at 40 °C</th>
<th>Fitted with</th>
<th>WTT2 20W</th>
<th>WTT2 18W</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>100%</td>
<td>Cap</td>
<td>200 A</td>
<td>320 A</td>
</tr>
<tr>
<td></td>
<td>60%</td>
<td>Nozzle</td>
<td>250 A</td>
<td>350 A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Electrode</td>
<td>Ø 12 mm</td>
<td>Ø 12 mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ø 2.4 mm</td>
<td>Ø 2.4 mm</td>
</tr>
<tr>
<td>Length</td>
<td>4 m</td>
<td>8 m</td>
<td>4 m</td>
<td>8 m</td>
</tr>
<tr>
<td></td>
<td>RL</td>
<td>S</td>
<td>W000278893</td>
<td>W000278906</td>
</tr>
<tr>
<td></td>
<td>E/B</td>
<td>C5B</td>
<td>W000278894</td>
<td>W000278905</td>
</tr>
<tr>
<td></td>
<td></td>
<td>V</td>
<td>W000278891</td>
<td>W000278911</td>
</tr>
</tbody>
</table>

Adaptator

For connection of a 9 mm diameter torch to a 13 mm power source socket

W000306139
## WTT2 TIG torches wear parts

<table>
<thead>
<tr>
<th>Parts</th>
<th>REP</th>
<th>WTT2 9 / 9V</th>
<th>WTT2 17 / 17V</th>
<th>WTT2 20W</th>
<th>WTT2 26 / 26V</th>
<th>WTT2 18W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wearparts box</td>
<td></td>
<td>W000306398</td>
<td>W000306399</td>
<td>W000306400</td>
<td>-</td>
<td>W000306403</td>
</tr>
<tr>
<td>Back cap 04-1</td>
<td></td>
<td>W000306404</td>
<td>W000306405</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sealing ring</td>
<td>04-2</td>
<td>W000306396</td>
<td>W000306397</td>
<td>W000270780</td>
<td>W000306395</td>
<td>-</td>
</tr>
<tr>
<td>Insulating ring</td>
<td>04-1</td>
<td>W000306410</td>
<td>W000306415</td>
<td>-</td>
<td>W000306416</td>
<td>-</td>
</tr>
<tr>
<td>Collet body 06-2</td>
<td>05</td>
<td>W000306437</td>
<td>W000306380</td>
<td>W000306377</td>
<td>W000306381</td>
<td>W000306382</td>
</tr>
<tr>
<td>Nozzle 09-1</td>
<td>06-1</td>
<td>W000306422</td>
<td>W000306428</td>
<td>W000306424</td>
<td>W000306425</td>
<td>W000306426</td>
</tr>
<tr>
<td>Long nozzle 09-2</td>
<td>06-2</td>
<td>W000306456</td>
<td>W000306461</td>
<td>-</td>
<td>W000306462</td>
<td>-</td>
</tr>
<tr>
<td>Gas L. sealing ring 07</td>
<td></td>
<td>W000306465</td>
<td>W000306466</td>
<td>W000306467</td>
<td>W000306468</td>
<td>W000306470</td>
</tr>
</tbody>
</table>

### Wear parts box

For an easier maintenance of the WTT2 torches, two boxes are available.

- Box for WTT2 9 / 9V / 20W: W000371535
- Box for WTT2 17 / 26 / 18W: W000371536
2 - TIG welding
Tungsten electrodes

Choice criteria*

<table>
<thead>
<tr>
<th>Type</th>
<th>Metal</th>
<th>Arc stability</th>
<th>Striking</th>
<th>Lasting</th>
<th>Thermal resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pure Tungsten</td>
<td>Light alloys</td>
<td>★★</td>
<td>★</td>
<td>★</td>
<td>★</td>
</tr>
<tr>
<td>Tungsten with Thorium</td>
<td>Carbon and stainless steel</td>
<td>★</td>
<td>★★★★</td>
<td>★★★★</td>
<td>★★★★</td>
</tr>
<tr>
<td>Tungsten with Cerium</td>
<td>All</td>
<td>★★</td>
<td>★★★</td>
<td>★★★</td>
<td>★★★</td>
</tr>
<tr>
<td>Tungsten with Lanthanum</td>
<td>All</td>
<td>★★</td>
<td>★★★</td>
<td>★★★</td>
<td>★★★</td>
</tr>
<tr>
<td>Tungsten with rare Earths</td>
<td>All</td>
<td>★★</td>
<td>★★★</td>
<td>★★★</td>
<td>★★★</td>
</tr>
</tbody>
</table>

★★★★ Excellent ★★★ Good ★★ Average

* Color codification is following the DIN / EN26848 standard. It can be seen on the electrode extremity.

Tungsten Electrodes NERTAL - 150 mm long.

Very high quality Tungsten electrodes (selected raw material and high-tech manufacturing process). Perfectly adapted to the most demanding applications.

<table>
<thead>
<tr>
<th>Ø mm</th>
<th>NERTAL Pure Tungsten</th>
<th>NERTAL S Tungsten with Thorium</th>
<th>NERTAL C Tungsten with Cerium</th>
<th>NERTAL L Tungsten with Lanthanum</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>S03710250</td>
<td>S03710257</td>
<td>S03710530</td>
<td></td>
</tr>
<tr>
<td>1.6</td>
<td>S03710251</td>
<td>S03710258</td>
<td>S03710531</td>
<td>S03710651</td>
</tr>
<tr>
<td>2.0</td>
<td>S03710252</td>
<td>S03710259</td>
<td>S03710533</td>
<td>S03710652</td>
</tr>
<tr>
<td>2.4</td>
<td>S03710506</td>
<td>S03710508</td>
<td>S03710534</td>
<td>S03710653</td>
</tr>
<tr>
<td>2.5</td>
<td>S03710268</td>
<td>S03710267</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2</td>
<td>S03710507</td>
<td>S03710509</td>
<td>S03710537</td>
<td>S03710655</td>
</tr>
<tr>
<td>4.0</td>
<td>S03710254</td>
<td>S03710261</td>
<td>S03710538</td>
<td>S03710656</td>
</tr>
<tr>
<td>4.8</td>
<td>S03710510</td>
<td>S03710512</td>
<td>S03710539</td>
<td></td>
</tr>
<tr>
<td>5.0</td>
<td>S03710255</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>6.0</td>
<td>S03710256</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

Thorium is radioactive and may present hazardous by external and internal exposure. If alternatives are technically feasible, they should be used.

Tungsten electrodes WELDLINE WP - WT 20 - WC 20 - WL 20 - WS 20

<table>
<thead>
<tr>
<th>Ø mm</th>
<th>WP Pure Tungsten</th>
<th>WT20 Tungsten + 2% thorium</th>
<th>WC20 Tungsten + 2% cerium</th>
<th>WL20 Tungsten + 2% lanthanum</th>
<th>WS 20 Tungsten + 2% rare earth</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>W000010009</td>
<td>-</td>
<td>W000010002</td>
<td>W000335151</td>
<td>W000010016</td>
</tr>
<tr>
<td>1.6</td>
<td>W000010010</td>
<td>W000010003</td>
<td>W000010003</td>
<td>W000335153</td>
<td>W000010016</td>
</tr>
<tr>
<td>2.0</td>
<td>W000010011</td>
<td>W000010004</td>
<td>W000010004</td>
<td>W000335153</td>
<td>W000010017</td>
</tr>
<tr>
<td>2.4</td>
<td>W000010012</td>
<td>W000010005</td>
<td>W000010005</td>
<td>W000335154</td>
<td>W000010018</td>
</tr>
<tr>
<td>3.0</td>
<td>W000010013</td>
<td>-</td>
<td>W000010006</td>
<td>W000010026</td>
<td>W000010019</td>
</tr>
<tr>
<td>3.2</td>
<td>W000010014</td>
<td>W000010035</td>
<td>W000010032</td>
<td>W000335156</td>
<td>W000010020</td>
</tr>
<tr>
<td>4.0</td>
<td>W000010015</td>
<td>W000010035</td>
<td>W000010032</td>
<td>W000335157</td>
<td>W000010038</td>
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</table>

Recommended welding intensities

<table>
<thead>
<tr>
<th>Electrode diameter</th>
<th>Direct current</th>
<th>Alternating current</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Electrode negative (+)</td>
<td>Electrode positive (+)</td>
</tr>
<tr>
<td>1.0 mm</td>
<td>10 A to 70 A</td>
<td>-</td>
</tr>
<tr>
<td>1.6 mm</td>
<td>20 A to 100 A</td>
<td>10 A to 20 A</td>
</tr>
<tr>
<td>2.0 mm</td>
<td>50 A to 140 A</td>
<td>15 A to 25 A</td>
</tr>
<tr>
<td>2.4 mm</td>
<td>70 A to 170 A</td>
<td>15 A to 30 A</td>
</tr>
<tr>
<td>3.0 mm</td>
<td>100 A to 210 A</td>
<td>20 A to 35 A</td>
</tr>
<tr>
<td>3.2 mm</td>
<td>130 A to 250 A</td>
<td>20 A to 40 A</td>
</tr>
<tr>
<td>4.0 mm</td>
<td>150 A to 350 A</td>
<td>35 A to 50 A</td>
</tr>
</tbody>
</table>
2 - TIG welding

**Accessories**

**Magnetic stand for TIG torch**

**TIG POINT**
Chemical sharpening of tungsten electrodes.

**TIG-SHARP - Portable electric tool for tungsten electrode sharpening**

Characteristics:
- All you need to sharpen your tungsten electrodes (all ranges) delivered in a practical metal case:
  - Sharpening machine
  - Clamp to lock the stand to a bench
  - Standard blue head for 1.6, 2.0, 2.4, 3.2 mm diameters
  - Nozzle connectable on a vacuum cleaner for extraction of tungsten dusts
  - Electrode holder to clamp TIG electrodes
  - Tools to assemble and dismantle.
- For accurate sharpening:
  - Choose the electrode diameter
  - Select the grinding angle (10° to 70°)
  - Start the machine
  - Insert the electrode and turn it slowly.
- An incredible result:
  - The grind is perfect
  - The grinding angle is very precise
  - Longitudinal sharpening, precise and symmetric angle.
- Voltage: 220 V - 50/60 Hz
- Power: 400 W
- Amperage: 1.8 A
- Disk speed: 30 000 tr/min
- Weight: 1.85 kg
Conform to CE standards.

**OPTICLEAN**
New inverter-technology installation for cleaning, polishing and marking of stainless steel.

See complete information on OPTICLEAN in page 98

**Extension**
For PROTIG NG and WTT2 torches, the extension harnesses are 15 m long and fitted with quick connectors and either S (banana) or 5 pins type trigger plugs. The connectors are protected by a leather cover with velcro fasteners.

- Air cooled version
- Water cooled version

**Autonomous cooling unit**
For every MIG/MAG or TIG power source with water cooled torch.

- Built in flowrate security.
- Delivered with a 5 litres drum of cooling liquid FREEZCOOL.
- Cooling capacity: 1.5 kW.
- Flowrate: 3 l/min. (4.2 bars).
- Dimensions (L x w x H): 680 x 220 x 340 mm.
- Weight: 18 + 5 kg.
- Do not mix with other cooling liquid.

FREEZCOOL

- Red (9.6 litres) W000010167
- Red (20 litres) W000010168

**Additional TIG unit M 200**
- For RODARC, SAFEX and BUFFALO X MMA DC rectifier machines.
- HF arc striking.
- 200 A max welding.

W000305050
2 - TIG welding
MICROPLASMA and TIG process

Manual and automatic welding applications
For the manual or automatic assembly of thin precious metals in the thickness range:
0.05 - 1.0 mm (stainless steels, Inconel, titanium, silver and gold alloys).
Electric components industries, electronics, small containers, metallic filters and tool repair.
Medical sector, watchmakers, goldsmiths.

PLASMAFIX 51
Characteristics:
• User friendly front panel.
• Multilingual display.
• Totally programmable welding cycles.
• 100 programmes memory.
• Configuration which is adapted to the user’s needs.
• Programme print out.
• Also for TIG welding.
• Equipped of RS 232 for coupling a P.C. or printer
• Cooling by a liquid
• Tungsten electrodes: Ø 1.0 or 1.6 mm, 75 or 150 mm long.

REFRIJET 51
Cooling unit

To order
PLASMAFIX 51 (power source only) W000315658
REFRIJET 51 (cooling unit) W000315645
Double pressure regulator W000315646
EUROSAF regulator GC W000290234
Connection kit for regulators Z70012020
Microplasma earth cable W000315644
TIG adaptor for SP45 torch W000315813
FREEZCOOL cooling liquid 9.6 L W000010167
Package (containing all the above equipment and a SP 45 torch)
Package manual (with SP 45 manual torch 4 m long ) W000274273
Package automatic (with SP 45 automatic torch 4 m long ) W000274274

Primary power supply:
Power supply (V) 230-400-440 V - 50/60 Hz
Three-phase
Cos φg 0.91
Max. primary power (phased) 6 A (under 400 V)
Secondary:
PLASMA smooth and pulsed mini 80 m A - maxi 50 A at 100%
TIG smooth and pulsed mini 0.8 A - maxi 50 A at 60%
No load voltage 106 V
Pulse frequency 1 Hz to 10 kHz
Other characteristics:
Front panel programmation by keys and code
Display by LCD bill sticker
Cooling by cooling unit outside power source
HF source built-in
Main and annular gas circuit built-in
Back shielding gas circuit option (integrable)
Protection class IP 23
Weight 95 kg
Dimensions (L x W x H) 650 x 360 x 750 mm

REFRIJET 51 cooling unit
Cooling by liquid in a closed circuit of the SP 45 torch and the power source (power supply by PLASMAFIX 51 power source):
Power supply 230 V - 50/60 Hz
Capacity 6 l
Power consumption 2 200 W at 20 °C
Weight 36 kg
Dimensions (L x W x H) 720 x 360 x 340 mm

To order
Torchess
SP45 manual torch 4 m long W000273326
8 m long W000315652
SP45 automatic torch 4 m long W000273327
8 m long W000370619
Wear parts box for SP 45 torch W000315651
SP 20 manual torch 4 m long W000315653
8 m long W000370620
Wear parts box for SP 20 manual torch W000370622
SP 20 automatic torch 4 m long W000315655
8 m long W000370621
Wear parts box for SP 20 automatic torch W000370777

Options
Trolley W000315659
Double footpedal remote control (replaces the torch’s trigger) W000370778
Trigger and current adjustment pedal W000315649
Back weld gas protection device (add a EUROSAF pressure regulator) W000315643
Wear parts for SP torches

<table>
<thead>
<tr>
<th>To order</th>
<th>SP 45</th>
<th>SP 20</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tungsten electrode + 2% lanthanum</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ø 1.0 mm</td>
<td>W000010373</td>
<td></td>
</tr>
<tr>
<td>Ø 1.6 mm</td>
<td></td>
<td>W000010016</td>
</tr>
<tr>
<td><strong>Constricting nozzles</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ø 0.6 mm</td>
<td>W000315812</td>
<td>W000315814</td>
</tr>
<tr>
<td>Ø 0.8 mm</td>
<td>W000315801</td>
<td>W000315815</td>
</tr>
<tr>
<td>Ø 1.0 mm</td>
<td>W000315802</td>
<td>W000315820</td>
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<td>Ø 1.2 mm</td>
<td>W000315803</td>
<td>W000315816</td>
</tr>
<tr>
<td>Ø 1.5 mm</td>
<td>W000315804</td>
<td></td>
</tr>
<tr>
<td>Ø 1.6 mm</td>
<td>W000315805</td>
<td></td>
</tr>
<tr>
<td><strong>Alumina nozzles</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ø 0.7 mm</td>
<td>W000315809</td>
<td></td>
</tr>
<tr>
<td>Ø 0.8 mm</td>
<td></td>
<td>W000370774</td>
</tr>
<tr>
<td>Ø 1.0 mm</td>
<td>W000315810</td>
<td></td>
</tr>
<tr>
<td>Ø 1.1 mm</td>
<td>W000315811</td>
<td></td>
</tr>
<tr>
<td><strong>Constricting nozzles 45°</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ø 0.6 mm</td>
<td>W000371896</td>
<td></td>
</tr>
<tr>
<td>Ø 0.8 mm</td>
<td></td>
<td>W000372283</td>
</tr>
<tr>
<td>Ø 1.0 mm</td>
<td>W000371898</td>
<td>W000372282</td>
</tr>
<tr>
<td>Ø 1.2 mm</td>
<td>W000371897</td>
<td>W000372281</td>
</tr>
<tr>
<td>Ø 1.5 / 1.8 mm</td>
<td>W000371901</td>
<td></td>
</tr>
<tr>
<td><strong>Constricting nozzles 90°</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ø 0.6 mm</td>
<td>W000371902</td>
<td></td>
</tr>
<tr>
<td>Ø 0.8 mm</td>
<td></td>
<td>W000372280</td>
</tr>
<tr>
<td>Ø 1.0 mm</td>
<td>W000371903</td>
<td>W000315825</td>
</tr>
<tr>
<td>Ø 1.2 mm</td>
<td>W000371904</td>
<td>W000372279</td>
</tr>
<tr>
<td>Ø 1.5 / 1.8 mm</td>
<td>W000371904</td>
<td></td>
</tr>
<tr>
<td><strong>Alumina nozzle 45°</strong></td>
<td>W000371895</td>
<td>W000372284</td>
</tr>
<tr>
<td><strong>Alumina nozzle 90°</strong></td>
<td>W000371894</td>
<td></td>
</tr>
</tbody>
</table>

Wear parts boxes for SP torches

**SP 45**
- constricting nozzles
  - 2 x Ø 0.8 mm
  - 2 x Ø 1.0 mm
  - 2 x Ø 1.2 mm
  - 2 x Ø 1.5 mm
  - 2 x Ø 1.6 mm
- electrode holders
  - 2 x Ø 1.0 mm
  - 2 x Ø 1.6 mm
- alumina nozzle
  - 1 x Ø 7 mm
  - 1 x Ø 9 mm
  - 1 x Ø 11 mm
- electrode centering cases
  - 2 x Ø 1.0 mm
- electrode centers
  - 2 x Ø 1.0 mm
  - 2 nozzle joints
- 1 electrode positioning template
- electrodes
  - 5 x Ø 1.0 mm

**SP 20 manual**
- constricting nozzles
  - 2 x Ø 0.8 mm
  - 2 x Ø 1.0 mm
  - 2 x Ø 1.2 mm
- electrode holders
  - 2 x Ø 1.0 mm
  - alumina nozzle
    - 1 x Ø 8 mm
    - 1 x Ø 10 mm
- electrode centering cases
  - 2 x Ø 1.0 mm
- electrode centers
  - 2 x Ø 1.0 mm
  - 2 nozzle joints
- 1 electrode positioning template
- electrodes
  - 5 x Ø 1.0 mm

**SP 20 automatic**
- constricting nozzles
  - 2 x Ø 0.6 mm
  - 2 x Ø 0.8 mm
  - 2 x Ø 1.0 mm
  - 2 x Ø 1.2 mm
- electrode holders
  - 2 x Ø 1.0 mm
- alumina nozzle
  - 1 x Ø 8 mm
  - 1 x Ø 10 mm
- electrode centering cases
  - 2 x Ø 1.0 mm
- electrode centers
  - 2 x Ø 1.0 mm
  - 2 nozzle joints
- 1 electrode positioning template
- electrodes
  - 5 x Ø 1.0 mm
- gauge wrench

Welding lathes

Consult Us

Power supply
- 230 V - 50 Hz*

Rotation speed
- 0.1 - 11 tr/min

Concentricity of tail stock
- ± 0.02 mm

Tail stock force
- 1 950 Ncm

Central axis
- 166 mm

Maximum distance between point
- 500 mm

Maximum admissible diameter
- 320 mm

Drilling of plug
- Ø 48 mm
- Ø 20 / 32 / 42 mm
- Ø 16 mm

Weight
- 150 kg

* For version 60 Hz and for other dimensions consult us.