TiP TiG
THE WELDING REVOLUTION!
Terms and Definitions I

• TIP TIG – innovative non-consumable electrode arc welding (TIG welding) process with dynamic wire feeding movement

• TIP TIG CW (ColdWire!) - welding system consists of microprocessors controlled wire feeder with dynamic effect, interconnecting hose package, welding torch and transformer 230/28V
• TIP TIG HW (HotWire!) – semi-automatic arc welding machine consists of microprocessors controlled welding inverter, device for preheating of wire, wire feeder with dynamic effect, interconnecting hose package, welding torch and transformer 230/28V
The steady forward motion of the welding wire feed is superimposed by a secondary linear forward/backward motion of the wire feeder unit. The superposition of both movements provides kinematic energy into the weld puddle. The dynamic effects produce a very stable and controllable welding process. The wire feed speed as well as the oscillation movement are continuously adjustable and can be independently controlled.
Processes

- TIG (GTAW) AC/DC
- TIG (GTAW DC+)
- Plasma
- Laser
Weldable Materials

- Mild steel
- Stainless steel
- High-alloyed steels
- Aluminium and aluminiums alloyes
- Light and non-ferrous metals
- Titanium
- Zinc-plated materials
- Coated materials with thickness up to 85mm
Industries

- Food, Meat, Chemical
- Refinery and Offshore
- Pipes, Tubes, Tank
- Vessel and Precision Metal Fabrication
- Shipyards
- Defense
- Aerospace
- Automotive and Automation Technology
TIP TIG Dynamic ColdWire Process

microprocessors controlled wire feeder with dynamic effect, welding torch, interconnecting hose package and transformer 230/28V
TIP TIG Standard Sets I

TIP TIG Wire Feeder

• Wire diameter 0.8 – 1.2mm (1.6mm for Alu-Automation)

• Wire material All types which you need according to technology

• Microprocessor Control 25 jobs can be stored, startdelay, wirefeed back, UP/DOWN control ±33%

• 4-roller drive-wire feed speed 0.15-8.5 m/min

• Frequency of oscillation 15 Hz

• Power supply 28V (AC)

• Duty cycle (40°C) 400A/100% d.c.

• Weight 18kg (without wire)

• Dimensions (l/w/h) 790x330x445 [mm]

• Colour RAL 5003

• Built according to EN 60974-1, CE
TIP TIG Standard Sets II

Interconnecting Hose Package 3m or 8m to welding inverter

- Lincoln
- Miller
- Fronius
- ESAB
- CLOOS
- EWM
- EURO-ZA
- Merkle
- KEMPPI MLS
- MASTERTIG
TIP TIG Standard Sets III

**TIP TIG Torch 18 SuperCool straight/45°/90° bent**
- Watercooled
- Length: 4.0 or 6.0m
- Duty cycle: 400A/100% d.c.

**TIP TIG Torch TW 20 straight/45°/90°**
- Watercooled
- Length: 4.0 or 6.0m
- Duty cycle: 240A/60% d.c.

**Spare part box TIP TIG Torch**

**Transformer 230V/28-Volt 160 VA**
TIP TIG Dynamic HotWire Process

Microprocessors controlled welding inverter, device for preheating of wire, wire feeder with dynamic effect, interconnecting hose package, welding torch and transformer 230/28V
# Comparison of welding processes and applications

<table>
<thead>
<tr>
<th>Process</th>
<th>MIG pulsed</th>
<th>TIG</th>
<th>TIP TIG CW</th>
<th>TIP TIG HW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metals</td>
<td>Steel, stainless steel, aluminum</td>
<td>All weldable metals</td>
<td>All weldable metals</td>
<td>All weldable metals (ex. Al)</td>
</tr>
<tr>
<td>Thickness</td>
<td>&gt; 0.60 mm</td>
<td>&gt; 0.25 mm</td>
<td>&gt; 0.25 mm</td>
<td>&gt; 10.00 mm</td>
</tr>
<tr>
<td>Relative Speeds</td>
<td>Fast</td>
<td>Slow</td>
<td>Fast</td>
<td>Fast</td>
</tr>
<tr>
<td>Deposition Rates kg/h</td>
<td>1.0 - 3.6</td>
<td>0.4 – 0.7</td>
<td>1.0 – 3.6</td>
<td>1.4 – 5.4</td>
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<tr>
<td>Required Skill Level</td>
<td>Low</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Relative Operating Cost (time &amp; materials)</td>
<td>Low</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Weld Dressing needed (spatter or slag removal)</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
</tbody>
</table>
Comparison of processes used for the weld of abrasion-resistant alloys

<table>
<thead>
<tr>
<th>Process</th>
<th>Stick</th>
<th>TIG</th>
<th>TIP TIG CW</th>
<th>TIP TIG HW</th>
<th>GMAW</th>
<th>FCAW</th>
<th>PPAW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dilution %</td>
<td>20-30</td>
<td>2-10</td>
<td>2-10</td>
<td>2-10</td>
<td>20-35</td>
<td>20-30</td>
<td>&lt;1</td>
</tr>
<tr>
<td>Application Rates kg/h</td>
<td>0.9-2.7</td>
<td>0.4-0.9</td>
<td>0.9-3.6</td>
<td>1.8-6.4</td>
<td>0.9-3.6</td>
<td>3.6-8.2</td>
<td>3.6</td>
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<tr>
<td>Required Skill Level</td>
<td>Low</td>
<td>High</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Relative Operating</td>
<td>Low</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Cost (time &amp; materials)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
Welding in all positions
Technical Tips

• TIP TIG can be used for many manual and automatic applications with watercooled welding machines only

• TIP TIG suitable for cold-wire and hot-wire welding and can be used for many processes such as TIG AC/DC, plasma and laser welding techniques

• TIP TIG is irreplaceable where the highest quality of the welding controlled by the X-rays is needed
Roughly total cost for 1 meters of welding with hourly rate of 30 Euro
Roughly pay back of standard TIP TIG ColdWire set (without depreciation) in meters of welding

<table>
<thead>
<tr>
<th>Welding process</th>
<th>Meters</th>
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<tbody>
<tr>
<td>TIG (WIG) Hand</td>
<td>800</td>
</tr>
<tr>
<td>TIG (WIG) semi-automatic</td>
<td>1530</td>
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<tr>
<td>MIG/MAG Puls</td>
<td>4670</td>
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</table>
Stainless steel application
Nickel application

Very small heat input zone (WEZ)
Current >300A

Abdrückmedium: Helium
2std. bei 1bar abgedrückt
Kein Druckabfall messbar
Aluminum application
Cladding Application
Tandem Application
Tractor Application
Automation Application
Robotic Application
Summery I

• PRODUCTIVITY
  Welding seed fasten as MIG PULS! In predicaments up to 20% faster then MIG PULS!

• COSTREDUCTION
  Cost saving up to 70% then TIG welding and up to 25% then MIG Puls! No spatter, no rework!

• QUALITY
  Highest quality – excellent metallurgical and mechanical results – for all materials
SUMMERY II

• FLEXIBILITY
  Torches for all applications! Compatible with all TIG machines!

• AUTOMATION + ROBOT
  Excellent results in automatic and robot applications with low capital expenditure!

• TRIED + TESTED
  Hundreds TIP TIG units are currently in production all over the world since 2001!
BUY TIP TIG FOR YOUR BENEFIT!

Thanks for your attention!