# WELDING EQUIPMENT

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Taking innovatively sound steps since 1929, Miller has grown from a one-man operation selling products in Northeast Wisconsin, to what is today the world’s largest manufacturer of arc welding SMAW, GMAW, GTAW, SAW, ESW and cutting equipment. Miller keeps the tradition alive by delivering ruggedly reliable equipment of the highest quality.

www.millerwelds.com
Founded in 1938, in Sweden, Elga offers an extensive range of consumables for all welding processes and applications. Choose from coated electrodes, cored wires, Mig/Tig wires and submerged arc wires and fluxes, all available for carbon-manganese, low alloy and stainless steels. In addition, the range includes a full program of strips and fluxes for electroslag and submerged arc strip cladding with stainless and Ni-base alloys. Elga aims to develop and market welding consumables, offering peak performance in operability, mechanical properties and productivity.

www.elga.se

ITW Welding Products is part of Illinois Tool Works Inc. (ITW), a Fortune 200 diversified manufacturing company with more than 800 decentralized business units all over the world.

With the highest quality of Miller and Elga products, our focus on innovation, our technical know-how and our personalized service, we have gained a reputation as a serious and reliable partner at the forefront of welding technology.

Our aim to be the best choice for customers embraces more than just offering a range of high quality welding products. Working in close partnership with our customers provides the benefits of an extensive welding technology knowledge, backed by full service and support, enabling them to reduce welding costs by improved productivity and quality.

Customer competence combined with our Miller and Elga products, together with continuous technical support, enables them to be highly competitive in the welding manufacturing industries.

Miller and Elga have pioneered welding process innovations, developing and patenting solutions designed to solve user problems.

www.itw-welding.com
Bernard is a strong, growing company located in Beecher, IL (USA), with over 60 years experience as a MIG welding innovator. As part of ITW, Bernard shares access to unique resources that we leverage to improve welding productivity. Count on us for the long term. Currently we enjoy the strength and growth opportunities that come from being part of ITW Welding, while maintaining the personal warmth that is frequently found in a small organization.

Weldcraft is dedicated to providing the highest quality TIG welding products, accessories and service in the industry. From do-it-yourself projects to critical applications, we have the product for your TIG welding application. Our TIG torches and accessories are engineered using high-quality materials, durable components and innovative designs to optimize your TIG welding performance, providing uncompromising quality, value and service.
Orbitalum Tools GmbH, formerly known as George Fischer Rohrverbindungstechnik GmbH, was an independent subsidiary within the Georg Fischer Piping Systems group of companies since its foundation in the year 1960 until 2005, with its head office in Schaffhausen (CH). Since January 1st 2006, Orbitalum Tools GmbH belongs to the US American industrial company Illinois Tool Works Inc. (ITW).

Orbimatic GmbH was founded in 1990 and very quickly established itself as an innovative and leading manufacturer for orbital welding systems. Orbimatic was acquired by ITW in 2008.

In 2009 both companies – Orbitalum Tools GmbH and Orbimatic Welding Systems – have no been merged to the new “Orbitalum Tools GmbH”. The well-known brandname “Orbimatic” continues as a brandname within the Orbitalum Tools GmbH for orbital welding equipment.

Complete solutions for highest requirements in tube and pipe welding preparation up to orbital welding – all from one source.

Orbitalum Tools GmbH is your competent partner for orbital tube and pipe preparation (cutting, beveling and facing) and orbital welding technology for industrial piping systems, prefabrication and maintenance.
Our Competence

INNOVATION

For many decades ITW Welding, together with Miller and Elga know-how, has developed high-performance equipment, power sources, accessories and welding consumables. Our Team of highly competent Welding Engineer Experts support our customers all over the world.

Miller has a sound track record over many years of highly innovative inventions that have positioned the brand at the cutting edge of welding technology.

- **Summit Arc 1000/1250** was the pioneer in revolutionizing the submerged arc welding process with the introduction of Variable Balance AC.
- The first patent issued for **SAW Square Wave AC** was issued in 1982.
- The first patent issued for **AC/DC Square Wave** with variable balance was in 1994.
- Miller was the first to introduce the Summit Arc power source with this new technology at the AWS welding show in 1999.

During the past few years ITW Welding has focused strongly on the Pressure Vessel and associated components fabrication sector, and today we can offer a full range of welding solutions for:

- Heavy Wall Reactors
- Pressure Vessels
- Storage Tanks
- Plant Columns & Towers
- Heat Exchangers
- Turbines
Welding Process Advantages Icons

**Stick (SMAW)**
Better suited for windy, outdoor conditions
More forgiving when welding on dirty or rusty metal

**MIG (GMAW)**
Easiest process to learn
High welding speeds possible
Provides better control on thinner metals
Cleaner welds possible with no slag to remove
Same equipment can be used for Flux Cored welding

**Pulsed MIG (GMAW-P)**
Flexibility and productivity — nearly all metals can be welded in all positions
Larger diameter wires can be used
Virtually no spatter
Suitable for both thin and thick metals

**Submerged Arc (SAW)**
High deposition rates can enhance productivity
Excellent mechanical properties for high-quality code and X-ray requirements
Improves welding operator comfort and appeal — arc is below a bed of flux, no visible arch, no fume

**TIG (GTAW)**
Provides highest quality and most precision welding
Excellent cosmetic finish weld beads
Allows adjustment of heat input while welding by use of a remote control

**Pulsed TIG (GTAW-P)**
More control on thin metals
Less heat distortion on thin metals

**Multiprocess**
All process advantages included where applicable

**Induction Heating**
Easiest process whenever heating is required
Fast Heating compare to flame and resistance method
Much safer heating method compare to flame

**Engine Driven**
Portability, multi-process
Outdoor application
Provides backup power
High welding performance

**Wire Feeder**
Customize industrial MIG welding system

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Welding Equipment Selection Guide

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<th>Products</th>
<th>STICK</th>
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<th>MIG-MRD</th>
<th>Pro-Pulse</th>
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Technical Icons

- **Unit requires single-phase input power**
- **Unit supplies alternating current and direct current weld output**
- **Unit requires three-phase input power**
- **Unit supplies constant current weld output**
- **Unit supplies alternating current weld output**
- **Unit supplies constant voltage weld output**
- **Unit supplies direct current weld output**
- **Unit supplies constant current and constant voltage weld output**
**HDC 1500 DX Control Unit Automatic Weld Control**

Automatic digital weld controllers offer reliability, flexibility, and performance with their ability to interface with AC or DC, CC/CV power sources having remote contactor and output control capabilities.

**PROCESSES**
- Submerged Arc Welding (SAW)
- Electroslag (ESW)
- GMAW Spray
  (with customer-supplied solenoid)

**CHARACTERISTICS**
- Supply Single phase 115 VAC - 10 A
- Welding power source CV, AC or DC
- Set up/Menu
  - Flux Valve Control
  - Burn-back/Crater Time
  - Wire Feeder Speed Control
  - Amperage/Voltage/WFS Range look
  - # 12 programs
  - ArcTime and Arc Cycles
  - Preflow/Postflow
  - Start time/Run-in

---

**Sub Arc DC 1250 Submerged Arc Welding Power Source**

Three-phased, CC/CV DC power sources are designed to provide a superior arc for the SAW/ESW welding process as well as air carbon arc gouging plus the endurance to handle demanding industrial applications.

**PROCESSES**
- Submerged Arc Welding (SAW/ESW)
- Flux Cored (FCAW)
- Stick (SMAW)
- MIG (GMAW)
- Air Carbon Arc (CAC-A)
  Cutting and Gouging

**CHARACTERISTICS**
- CC/CV
- DC
- Three-Phase
- Amperage 100–1250 A
- Voltage 10–60V
- Rated Output 1000 A at 44 VDC (100% duty cycle)
- Voltage Supply 380 - 400 - 440 VAC
- Power Input @ Rated Output 73 KVA-53 KW

---

**Sub Arc AC/DC 1250 Submerged Arc Welding Power Source**

Three-phase squarewave AC/DC machine with phase-shifting capability with steps to refine arc. AC square wave provides excellent quality of penetration/bead profile and high performance in deposition rate with low heat input (improve mechanical properties and reduce distortion).

**PROCESSES**
- Submerged Arc Welding (SAW/ESW)
- MIG (GMAW)
- Air Carbon Arc (CAC-A)
  Cutting and Gouging

**CHARACTERISTICS**
- CC/CV
- DC/AC Variable Squarewave
- 61 balance ratios
- Three-Phase
- Frequencies 10 to 90HZ
- Amperage 250 - 1250 A
- Voltage 25 - 44 (71 OCV)
- Rated Output 1000 A at 44 VDC (100% duty cycle)
- Voltage Supply 380 - 400 - 415 VAC
- Power Input @ Rated Output 98 KVA-53 KW
Welding Equipment

Submerged Arc System

**Sub Arc AC/DC 1250 Submerged Arc Welding Power Source**

**Technology Increases SAW Deposition Rates**

Variable balance AC squarewave Submerged Arc Welding (SAW) technology from Miller overcomes the traditional problems or limitations of SAW with all other processes including DC electrode positive (DCEP), DC electrode negative (DCEN) and traditional AC.

The new SUB ARC AC/DC 1250, that replaces the Summitarc series, gives full control of the wave shape in frequency balance, and off-set:

- Increase deposition rate up to 59% using the same welding parameters
- Smaller joint angles and lower filler metal volume
- Reduce heat input, minimize distortion and improve the mechanical properties
- Penetration control to minimize the risk of lack of fusion
- Minimize the magnetic arc blow
- Reduce arc interactions in multi-wire process
- Control of bead shape
- Excellent arc start
- Improved arc stability compared to traditional AC
- Substantially lower power consumption

The new SUB ARC AC/DC 1250 has a 12 balance and frequency use friendly set up for the most common applications. A total of 81 balance ratios gives excellent performance in all application segments.
**PipeWorx™ Welding System**

The one-package pipe welding solution for pipe fabrication shops. Multiprocess capabilities include patented RMD Pro™ & Pro-Pulse™, optimized for steel and stainless pipe. Pipe Worx provide:

- Simply and friendly process set up
- Quick process change over
- No need for manual switch polarity
- Multiprocess machine for root, fill and cap
- Streamlined system

**PROCESSES**

- Stick (SMAW)
- DC TIG (GTAW) (HF and Lift-Arc™)
- MIG (GMAW)
- MIG RMD™ (GMAW SMC)
- Pro-Pulse™ (GMAW-P)
- Flux Cored (FCAW)

**CHARACTERISTICS**

- Current: DC (Stick) CC/DC (TIG) CV (MIG)
- Inverter Multiprocess
- Rated Output at 100% duty cycle 400 A at 44 VDC
- Voltage Supply 230/460 ~ 400 - 575 VAC
- Power Input @ Rated Output 230/460 VAC (14.8/18 KVA - 13.7 KW)
- Power Input @ Rated Output 400 VAC (16.9 KVA - 14.3 KW)
- Power Input @ Rated Output 575 VAC (19.0 KVA - 13.8 KW)

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**Axcess® E 450**

Optimize your industrial MIG welding system with digital control capability and exceptional MultiMig performance. A dedicated menu-driven wire feeder provides a true synergic solution with Insight Weld Data Monitoring System. Axcess E 450® provides:

- Digital control technology combined with an inverter power source
- The configuration via convenient web pages
- Superior welding performance
- Simplified installation
- Comprehensive feedback on welding activities
- Comprehensive feedback on welding productivity

**PROCESSES**

- Multi-MIG®
- Accu-Pulse® MIG (GMAW-P)
- Accu-Curve™ MIG (GMAW-P)
- Pulsed MIG (GMAW-P)
- MIG (GMAW)
- Metal Core
- Carbon Arc Gouging (CAC-C) can also be activated

**CHARACTERISTICS**

- Rated Output at 100% duty cycle 450 A at 36.5 VDC
- Amperage Range 5 - 600 A
- Voltage supply 208 - 575 V
- Power Input @ Rated Output 19.9 KVA - 19.2 KW
Gold Star 602® Stick Welding Equipment

Rugged, reliable performance and superior arc characteristics.

**CHARACTERISTICS**
- Current DC (CC)
- Thyristor power source
- Rated output amperage 450A 60% 38 VDC
- Voltage Supply 380-400-440 VAC - 3 phase
- Power Input @ Rated Output 35.5 KVA - 23.3 kW

**PROCESSES**
- Stick (SMAW)
- TIG (GTAW)
- Flux Cored (FCAW)
- Air Carbon Arc (CAC-A) thru 3/8” carbons

Maxstar® 350 and 700 Stick/TIG Welding Equipment

Exceptional performance - the finest DC TIG/Stick machines available, provide outstanding arc performance and product reliability.

**CHARACTERISTICS**
- Current DC (CC)
- Inverter power source
- Rated output amperage 300 A (600 A) 60% 32 (44) VDC
- Voltage supply 1 phase - 3 phase, 380/575 VAC
- Power Input @ Rated Output 3 phase, 12 (32) KVA - 11.5 (31 kW)

**PROCESSES**
- GTAW (HF - Lift-Arc™)
- GTAW P (pulsed)
- Stick (SMAW)
- Pulsed TIG (GTAW-P)
- Air Carbon Arc (CAC-AV)

XMT® CC/CV 456 Inverter Multiprocess Welding Equipment

With ST44 series wire feeder combines the advantages of inverter-based power with the built-in feature and productivity of high-end MIG machines.

**CHARACTERISTICS**
- Current DC (CC/CV)
- Inverter multiprocess power source
- Rated output amperage 565 A 60% at 43 VDC
- Voltage supply 380-400 VAC 3 phase
- Power Input @ Rated Output 21.2 KVA - 19.2 kW

**PROCESSES**
- MIG (GMAW)
- Stick (SMAW)
- TIG (GTAW)
- Flux Cored (FCAW)
- Air Carbon Arc (CAC-A) Cutting and Gouging (3/8 in carbons)

Dimension™ 562 Multiprocess Welding Equipment

Excellent multiprocess solution delivers dependable performance in demanding applications and combines with 70 Series wire feeder for a complete welding solution.

**CHARACTERISTICS**
- Current DC (CC/CV)
- Multiprocess DC (CC/CV)
- Rated output amperage 450 A 100% at 36.5 VDC
- Voltage supply 380 - 400 - 440 VAC 3 phase
- Power Input @ Rated Output 35.3 KVA - 22.3 kW

**PROCESSES**
- MIG Spray transfer (GMAW)
- Stick (SMAW)
- TIG (GTAW)
- Flux Cored (FCAW)
- Air Carbon Arc (CAC-A) Cutting and Gouging (through 3/8 in carbons)
- Submerged Arc Welding (SAW)
Welding Equipment

Wire Feeders

SuitCase® 8RC and 12RC

Offer remote voltage control, light weight and small size, with superior durability needed to stay in service and meet production schedules.

**PROCESSES**
- MIG (GMAW)
- Flux Cored (FCAW)

**CHARACTERISTICS**
- Totally enclosed, impact-resistant, flame-retardant case
- Ergonomically sound, lightweight, modular design
- Quick-change drive rolls
- Carrying handle
- Remote voltage control
- Gas solenoid valve

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### 70 Series

Raising the bar for industrial-class wire feeders with all the traditional features, plus enhanced flexibility provided by features such as trigger hold, automatic run-in, and tool-less rotatable drive.

**PROCESSES**
- MIG (GMAW)
- Flux Cored (FCAW)

**CHARACTERISTICS**
- Tool-less rotatable drive assembly
- Automatic run-in control
- Trigger hold
- Dual schedule control
- Sequence control
- Welding process range control
- Four weld programs

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<th>Model</th>
<th>Input Power</th>
<th>Wire Feed Speed</th>
<th>Wire Diameter Capacity</th>
<th>Maximum Spool Size Capacity</th>
<th>Dimensions</th>
<th>Net Weight</th>
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<tr>
<td>74S</td>
<td>24 VAC, 7 A/50/60 Hz</td>
<td>50-780 IPM (1.3-19.8 m/min)</td>
<td>.023-1/8 in (0.6-3.2 mm)</td>
<td>60 lb (27 kg) coil with optional wire reel assembly</td>
<td>Single: H: 14 in (356 mm) W: 12 in (305 mm) D: 26½ in (673 mm)</td>
<td>56 lb (26 kg)</td>
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<tr>
<td>74D</td>
<td>10 A/50/60 Hz</td>
<td>20-400 IPM (0.5-10.2 m/min)</td>
<td>Optional Low Speed: 20-400 IPM (0.5-10.2 m/min)</td>
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<td>Single: H: 14 in (356 mm) W: 12 in (305 mm) D: 26½ in (673 mm)</td>
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<td>74DX</td>
<td>10 A/50/60 Hz</td>
<td>82-1435 IPM (2.3-38.6 m/min)</td>
<td>Optional High Speed: 92-1435 IPM (2.3-38.6 m/min)</td>
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Welding Equipment

MIG Guns

Bernard Guns

All guns are not created equal.
A MIG gun should be durable, easy to use and customized to your specific application. Exceptional welding performance demands an exceptional gun. Our MIG guns help you achieve quality welds, increase productivity and lower costs. Customize your Gun using our online configurator at Bernardwelds.com. Bernard Gun™ is able to weld up to 600 Amp.

Processes
- MIG (GMAW)
- Flux Cored (FCAW)

Characteristics
- Current: 150 A to 600 A
- Cable length: 2.44 to 7.63 meter
- Air cooled (Q™ and S™ series)
- Water cooled (W™ series)
- Contact tip: wire size 0.6 mm to 2.4 mm

Jump Liner
- Minimizes inventory and downtime for changeover

Neck
- Fixed, rotatable and multiple length options improve operator comfort

Handle
- Ventilated to reduce heat and increase operator comfort

Trigger
- Designed and built to last more than 1 million cycles

Centerfire™ Consumables
- Built-in spatter shields protects diffuser, improves gas flow
- Threadless contact tip mates securely with diffuser for better conductivity
- Fits all Q-Guns - from 150 to 600 A
Crafter™ Series CS300

Crafter™ Series air-cooled torches provide the professional welder with the highest standards of reliability and performance, even in the harshests of field applications.

**PROCESSES**
- GTAW

**CHARACTERISTICS**
- Hand-held Air-Cooled
- Current: 300 Amp DC, 250 Amp AC (60% duty cycle)
- Electrode range:.020"-5/32" (0.5-4.0 mm)
- Lightweight body
  - minimizes operator fatigue and withstands continuous, heavy-duty welding applications
- Heavy copper components
  - ensure maximum welding capacity on demanding fieldwork
- High air-cooling capacity
  - eliminates the need and expense for complex water-cooling systems and increases portability for field applications
- Exclusive heat dam and thermal speed channel technology
  - minimize handle temperature to reduce overheating and downtime

Crafter™ Series CS310A

Crafter™ Series water-cooled torches offer professional welders the consistency and flexibility needed for demanding applications by increasing amperage output, not torch size.

**PROCESSES**
- GTAW

**CHARACTERISTICS**
- Hand-held Water-Cooled
- Current: 310 Amp DC, 310 Amp AC (100% duty cycle)
- Electrode range:.020"-1/8" (0.5-3.2 mm)
- ColorSmart hose and cable sets
  - differentiate input water, water/power cable and gas hoses to simplify torch package installation.
- D-Handle design
  - features a self-indexing flat top that allows for torch orientation by feel.
- Tri-Flex hose and cable assembly
  - remains flexible in cold weather to ease handling and extend cable life
- Weld-Ready torch package features
  - cable cover and installed front-end parts to maximize performance and simplify ordering
- Patented double-lip back cap seal
  - improves high-frequency shielding and reduces gas leakage
- Mechanical fittings
  - provide a secure connection to prevent gas or water leakage and allow easy hose replacement
BRB 2 | BRB 4 Boiler Pipe Preparation Machines

Lightweight and robust boiler pipe preparation machines. Prepare I/V/Y and U seam weld joint geometries in pipe ends made from high-alloy steel (stainless steel), low-alloy and carbon steel with the unique QTC® tool system. Pipe end and tube sheet joint preparations in boiler, tank and apparatus construction.

**CHARACTERISTICS**

- **Pneumatic version**
  - Air consumption: 0.7 - 1.2 at 6 bar [m³/min]
  - Power: 0.38 – 1 kW
  - Speed: 120 / 0-11 [rpm]
  (max. idling speed)

- **Auto Version**: Double-quick machining using the BRB Auto with pneumatic clamping ideal for series processing, e.g. Heat Exchanger and Boiler applications.

- **Electric Version**: 230 V/120 V (50/60 Hz)
  - Power: 0.5 - 0.67 / 1.0 - 1.34
  - Speed: 118 / 17 - 35 [rpm]
  (max. idling speed)

**REB Series Pipe End Preparation Machines**

<table>
<thead>
<tr>
<th>Model</th>
<th>Power [kW]</th>
<th>Air consumption [m³/min at 6 bar/90 psi]</th>
<th>Main or Power supply [V-Hz]</th>
<th>Working range ID [mm]</th>
<th>Wall thickness [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>REB 6 P</td>
<td>1.8</td>
<td>2.0</td>
<td>230 - 50/60</td>
<td>49 - 159</td>
<td>3 - 22</td>
</tr>
<tr>
<td>REB 6 E</td>
<td>1.2</td>
<td>2.0</td>
<td>230 - 50/60</td>
<td>49 - 159</td>
<td>4 - 30</td>
</tr>
<tr>
<td>REB 14 P</td>
<td>1.8</td>
<td>2.0</td>
<td>230 - 50/60</td>
<td>92 - 320</td>
<td>4 - 30</td>
</tr>
<tr>
<td>REB 14 E</td>
<td>1.2</td>
<td>2.0</td>
<td>230 - 50/60</td>
<td>92 - 320</td>
<td>4 - 22</td>
</tr>
</tbody>
</table>
**Orbimatic CAdvanced | CB Orbital Welding Power Supplies**

The ORBIMAT CAdvanced series of orbital welding power supplies are equipped with a new and unique operating concept. In addition to the reliable ORBIMATIC automatic programming which generates welding parameters by entering the tube diameter, wall thickness, material, and welding gas. Available also with AVC / OSC control.

The ORBIMAT CB Orbital welding power supplies of the ORBIMAT CBasic series include the tried and tested ORBIMATIC automatic programming with programming help when entering the tube diameter, wall thickness, material and welding gas.

**P16 | P20 Tube-to-Tube-Sheet Orbital Weld Heads**

With these TIG welding heads, it is easy or simple to weld tubes to tube sheets with the highest of accuracy and consistent quality. Together with the ORBIMAT CA or CB range of orbital welding power supplies you will get a state-of-the-art welding system with multiple choices and erase easy operation.

**OP 46 | 51 | 102 Tube-to-Tube Orbital Weld Heads**

Ideal for applications with limited space availability thanks to their slim design.

Also available with arc voltage control and oscillation (AVC/OSC).

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>OP 46</td>
<td>12.7 - 46</td>
<td>85 - 120</td>
<td>200</td>
<td>1.6 - 2.4</td>
<td>0.6 - 0.8</td>
<td>80 - 135</td>
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<tr>
<td>OP 51</td>
<td>12.7 - 51</td>
<td>104 - 120</td>
<td>200</td>
<td>1.6 - 2.4</td>
<td>0.6 - 0.8</td>
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<tr>
<td>OP 102</td>
<td>50 - 102</td>
<td>198</td>
<td>200</td>
<td>1.6 - 2.4</td>
<td>0.6 - 0.8</td>
<td>170</td>
<td>16</td>
<td>12</td>
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<tr>
<td>OP 51 AVC/OSC</td>
<td>31.5 - 51</td>
<td>135</td>
<td>200</td>
<td>1.6 - 2.4</td>
<td>0.6 - 0.8</td>
<td>135</td>
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</tr>
<tr>
<td>OP 102 AVC/OSC</td>
<td>50 - 102</td>
<td>198</td>
<td>200</td>
<td>1.6 - 2.4</td>
<td>0.6 - 0.8</td>
<td>135</td>
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</tr>
</tbody>
</table>

The range of application for each machine is given by different modules. As standard equipment includes only one module.
Low Tension Resistance Machines

**Thermocontrol R/6 BT 81 dcm** Weld Preheating and Stress Relieving

Low tension machines designed for stress relieving heat treatments. Manufactured in a strong stainless spray painted framework, these machines are equipped with wheels to facilitate small movements and eyebolts for their lifting; they are particularly suitable for the use in the factory or on site. The functioning is completely automatic. These machines are divided into two types: “BT series” with a tension completely variable between 0 - 90V according to heating elements tension;

**PROCESSES**
- Resistance Heating
  Preheat up to 350 °C
  PWHT up to 1050 °C

**CHARACTERISTICS**
- Power 81 KVA
- Input voltage three-phase 400 V
- Resistances voltage 0 - 90 V
- Nr. outputs 6
- Resistance number each output 3
- Max. power for each output 13.5 KVA
- Programming and Control
  UMT with PC and GSM Modem or Multiprog.

**Low Tension Resistance Machines**

**Heating elements** Weld Preheating and Stress Relieving

Our heating elements have been particularly designed to carry out pre-heat, post-heat and stress relieving treatment for joint welding operation. The assembly process of heat insulating ceramic beads allows the production of heating elements in a range of various dimensions which differs from those listed and considered standard (MAT - Strip - Snake - Unifilar - fingers).

**PROCESSES**
- Resistance Heating
  Preheat up to 350 °C
  PWHT up to 1050 °C

**CHARACTERISTICS**
- Heat insulation by ceramic beads made of sintered alumina 98%
- Heating wire made of Ni/Cr - 80/20 LITZE
- Max. temperature producible 1050 °C
- Max. electric current flux 50A.
Infrared Radiant Panels

IR 2400 Weld Preheating and Stress Relieving

Special highly reflective paraboles concentrate the energy radiated by infrared radiant elements directly on the piece, increasing the system efficiency. Connecting n.7 IR 2400 elements together, you obtain a single radiant panel with a power of 16.8 KW, corresponding to a single machine output (R/6 BT 108 – R/12 BT 216). The special track composition allows to adapt the IR 2400 panels easily to the different profiles of the pieces to heat. The electrical connection among the elements is granted by the track links, reducing the panel connections to only two unipolar cables. The back assembly flasks allow to anchor panels to adjustable support structures, allowing the greatest applicative flexibility. IR 2400 infrared radiant elements allow to heat quickly, without contact, metallic masses in movement. The application fields are the preheat of circumferencial weldings, of shafts, of pipe unions, etc., the drying of products in productive processes and in fettlings. The very high performance allows to minimize the energy dissipated in the environment in comparison with the alternative systems.

Medium Frequency Induction Machines

Pegaso 85 Weld Preheating and Stress Relieving

Medium frequency induction machine for a fast heating of metallic masses. Realized in strong structures powder varnished, the machines are fitted with wheels for small movements and lifting eyebolts. The interchangeability of the inductors allows to use inductors conformed to each single piece. The machines are provided with water cooling internal circuit. The calibration is completely automated.
Welding Equipment

Advanced Equipment

Induction Heating

ProHeat™ 35 Weld Preheating and Stress Relieving

The induction power source represents the innovative solutions. Multiple output provides to insulated connectors for air-cooled blankets or liquid cooled cables. On-board temperature controls allows with both digital recorder and manual based programming, a total control process. Time to temperature is faster than conventional method. Benefits compared to flame or resistance heating are:

- Shorter time to temperature
- Shorter set up and removal time
- Safety
- Work environment
- Evenly distributed heating
- No hot parts
- One cable to coil
- Simple to use
- Durable hose, no fragile parts such as ceramic pads
- Portable equipment

**PROCESSSES**

- Induction Heating
  - Preheat up to 204 °C
  - PWHT up to 788 °C

**CHARACTERISTICS**

- Rated output 35KW at 100% (5-30 KHz)
- Voltage supply 400/460 - 460/575 VAC 3 phase
- Power Input @ Rated Output 39 KVA - 37 KW

Engine Driven Generator

Big Blue® 500 CC/CV Multiprocess Welding Equipment

Designed for fleet owners, constructions, contractors and rental companies who want a powerful diesel welder/generator and place a premium on rugged reliability with proven performance.

**PROCESSSES**

- Submerged Arc Welding (SAW)
- Stick (SMAW)
- DC TIG (GTAW)
- MIG (GMAW)
- Flux cored (FCAW)
- Stud welding
- Air Carbon Arc (CAC-A)

**CHARACTERISTICS**

- Deutz/Perkins engine
- 1 phase Generator Power Peak 5500 W, Continuos 4000 W
  - Optional 3 phase 20000 W or 1 phase 12000 W (While not welding)
- Welding output range
  - DC SMAW 40 - 600 A
  - DC GTAW 20 - 425 A
  - DC MIG/FCAW 14 - 40 VDC
  - DC SAW 180 - 600 A
**Miller Tractor MT 1500**

A motorized, highly flexible welding tractor designed to produce precision, high-quality, Submerged Arc Welds.

**PROCESSES**
- Submerged Arc (SAW)
- Recommended Miller Power Supplies
  - Sub Arc DC 800
  - Sub Arc DC 1250
  - Sub Arc AC/DC 1250

**PACKAGE INCLUDES**
- Tractor
- HDC 1500 DX weld controller
- RAD-400 drive motor
- Flux hopper
- Wire reel
- Torch
- Remote start/stop control
- Tractor guide rolls
- Wire straightener

**RAD Wire Drive Assemblies**

Miller offers either standard or high-speed 115 V Heavy-duty wire assemblies.

**CHARACTERISTICS**
- RAD 100
  - Low speed, right-angle wire drive assembly
- RAD 400
  - Standard speed, right-angle wire drive assembly
- RAD 780
  - High speed, right-angle wire drive assembly

**Flux Hopper**

Automatic flux valve will carry 11.3 kg of flux.
The opening is sized to allow hook-up of any flux-hopper mounted recovery system.
A slag screen is also provided.

**DESCRIPTION**
- 11.3 Kg capacity
- Power supply 115 V

**Compressed Air Flux Feeder**

The automatic air compressed flux feeding system is electronically controlled to enable pre-heated flux to be kept at a constant temperature.

**CHARACTERISTICS**
- Storage capacity from 120 up to 205 litres.
- Working temperature 100 °C
- Voltage supply 220 V
- Max Input Power 2800 W
- Max Air Pressure 6 bar
Welding Equipment

Control Terminology

Accu-Pulse® STANDARD on all Axcess models
The patented Accu-Pulse process allows for precise control of the pulse arc. Accu-Pulse provides optimum molten puddle control and has power to increase wire feed speeds and deposition 20 to 25% in many applications.

Benefits
- Shorter arc lengths possible
- Better puddle control
- More tolerant of contact tip to work variation
- Less audible noise
- No arc wandering in tight corners
- Narrow arc plasma column
- Allows weld to fill in at toes increasing travel speed and deposition
- More tolerant of poor fit up and gaps
- Ideal for seam tracking robot welding applications

RMD™ (Regulated Metal Deposition)
Precisely controlled short-circuit transfer technology, available on PipeWorx™ Welding System and as an option on Axcess® models. For spatter reduction, up to 20% reduced heat input, or filling gaps. Reduces weld training and improves weld quality.

Benefits
- Well suited to thin materials
- Can replace TIG process in some applications
- Gap filling
- Spatter reduction
- Provides less heat into work piece
- Excellent performance on stainless steel
- Can be combined with other Axcess®-related programs
- Minimize distortion
- Use larger diameter wire on thin materials

Pro-Pulse™
On the PipeWorx™ Welding System, easier-to-use pulse welding method than conventional pulse for out-of-position pipe welding applications. Offers precise arc and puddle control even in narrow weld joints, providing optimum molten puddle control for out-of-position welding.

Benefits
- Ideally suited to fill and cap pass welding
- Easier puddle control than conventional spray pulse
- Shorter arc lengths and narrow arc cone for out-of-position welding
- More tolerant of tip to work variation
- Improve fusion and fill at toe of weld
- Less heat input reduces interpass cooling time and improves weld cycle time
- Enables one-wire with one-gas weld procedures

Accu-Speed™ OPTIONAL on all Axcess models
Accu-Speed is a variation of the Accu-Pulse process and was developed for the type of arcs needed in automated welding applications. Accu-Speed has a tighter driving arc that can be directed into the joint, yet still remains stable at the higher travel speeds used in automated welding. In general, Accu-Speed has lower average voltage and amperage when compared to Accu-Pulse.

Benefits
- Up to 20% greater travel speed than Accu-Pulse
- Lower average voltage/amperage than Accu-Pulse
- Tight, driving arc
- Remains stable at higher travel speeds

Accu-Curve™ STANDARD on all Axcess models
Accu-Curve is a variation of the Accu-Pulse process. The transitions from peaks to background voltage are “curved”. The curved transitions provide a “softer” feel without sacrificing the tight arc lengths that allow for better puddle control that have become the hallmark of the Accu-Pulse process.

Benefits
- “Softer” arc feel than Accu-Pulse
- Maintains tight arc lengths
- Maintains better puddle control

Auto-Line™
Allows for any primary input voltage within a range, single or three-phase, 50 or 60 Hz. Also adjusts for voltage spikes within the entire range.

Auto-Link®
Internal inverter power source circuit that automatically links the power source to the primary voltage being applied (230 V or 460 V), without the need for manually linking primary voltage terminals.

Axcess® File Management
Software that turns a standard Palm™ handheld or PC into a remote pendant control for all Axcess systems. Allows e-mailing, storage, and transfer of welding programs.

Extended AC Balance™ (30–99%)
Controls the amount of oxide cleaning (amperage time in Electrode Negative) on Dynasty® 350 and 700. Essential for high quality aluminum welds.

Fan-On-Demand™
Internal power source cooling system only works when needed, keeping internal components cleaner.

Hot Start™
Used on some Stick (SMAW) machines to make it easier to start difficult-to-start electrodes. Used for arc starting only.

Lift-Arc™
This feature allows TIG arc starting without high frequency. Starts the arc at any amperage without contaminating the weld with tungsten.

Low OCV Stick™
Reduces OCV on several Maxstar® and Dynasty® models when power source is not in use, eliminating need for add-on voltage reducers.

Wind Tunnel Technology™
Internal air flow on many Miller inverters, that protects electrical components and PC boards from contamination, significantly improving reliability.
### Consumables

**Selection Guide for Welding and Cladding products for specific segments**

<table>
<thead>
<tr>
<th>C-Mn and Low Alloy Stick (SMAW) Electrodes</th>
</tr>
</thead>
<tbody>
<tr>
<td>C-Mn</td>
</tr>
<tr>
<td><strong>P48M (C-Mn)</strong></td>
</tr>
<tr>
<td><strong>P62MR (0.5Ni)</strong></td>
</tr>
<tr>
<td><strong>P63MR (0.5Ni)</strong></td>
</tr>
<tr>
<td><strong>P65MR (0.5Ni - 0.2Mo)</strong></td>
</tr>
<tr>
<td><strong>P48K (2.5Ni)</strong></td>
</tr>
<tr>
<td><strong>P58K (3.5Ni)</strong></td>
</tr>
</tbody>
</table>

**Low temperature**

| C-Mn                                    |
| **P62MR (0.5Ni)**                        | A5.5 E7018G     |  |  |  |  |
| **P63MR (0.5Ni)**                        | A5.5 E7018C-3L  |  |  |  |  |
| **P65MR (0.5Ni - 0.2Mo)**                | A5.5 E8018G     |  |  |  |  |
| **P48K (2.5Ni)**                         | A5.5 E8018C-1   |  |  |  |  |
| **P58K (3.5Ni)**                         | A5.5 E7018C-2L  |  |  |  |  |

**Creep resistant**

| C-Mn                                    |
| **P81CR (0.5Mo)**                        | A5.5 E7018A-1   |  |  |  |  |
| **P83CR (1 ¼ Cr - 0.5Mo)**               | A5.5 E8018B-2   |  |  |  |  |
| **P84CR (2 ¼ Cr - 1Mo)**                 | A5.5 E9018B-3   |  |  |  |  |

<table>
<thead>
<tr>
<th>Stainless and Ni-base stick (SMAW) Electrodes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CROMAROD B308L</strong></td>
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<tr>
<td><strong>CROMAROD 308L</strong></td>
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<tr>
<td><strong>CROMAROD B309L</strong></td>
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<tr>
<td><strong>CROMAROD 309L</strong></td>
</tr>
<tr>
<td><strong>CROMAROD B309Nb</strong></td>
</tr>
<tr>
<td><strong>CROMAROD 309MoL</strong></td>
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<tr>
<td><strong>CROMAROD B316L</strong></td>
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<tr>
<td><strong>CROMAROD 316L</strong></td>
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<tr>
<td><strong>CROMAROD B317L</strong></td>
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<tr>
<td><strong>CROMAROD 317L</strong></td>
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<tr>
<td><strong>CROMAROD B347</strong></td>
</tr>
<tr>
<td><strong>CROMAROD 347</strong></td>
</tr>
<tr>
<td><strong>CROMAROD 385</strong></td>
</tr>
</tbody>
</table>

**Austenitic**

| C-Mn                                    |
| **CROMAROD DUPLEX B**                    | A5.4 E2209-15   |  |  |  |  |
| **CROMAROD DUPLEX**                      | A5.4 E2209-17   |  |  |  |  |
| **CROMAROD 2507R**                       | A5.4 E2594-17   |  |  |  |  |
| **CROMAROD 2507B**                       | A5.4 E2594-15   |  |  |  |  |

**Duplex**

| C-Mn                                    |
| **CROMAROD 625**                         | A5.11 ENiCrMo-3 |  |  |  |  |
| **CROMAROD 82**                          | A5.11 (ENiCrFe-3) |  |  |  |  |

**Nickel-base**

| C-Mn                                    |
| **ELGASAW 103 Si**                       | A5.17 EH12K     |  |  |  |  |
| **ELGASAW 103Mo**                        | A5.23 EA4       |  |  |  |  |
| **ELGASAW EB2R**                         | A5.23 EB2R      |  |  |  |  |
| **ELGASAW EB3R**                         | A5.23 EB3R      |  |  |  |  |
| **ELGASAW EB3V**                         | A5.23 EG        |  |  |  |  |
| **ELGASAW 103NiMo1/4**                   | A5.23 EG        |  |  |  |  |
| **ELGASAW 103Ni1Mo**                     | A5.23 EG / EF3  |  |  |  |  |
| **ELGASAW 102Ni1**                       | A5.23 EN1       |  |  |  |  |
| **ELGASAW 102Ni2**                       | A5.23 EN2       |  |  |  |  |

**Submerged Arc C-Mn & Low Alloy Steel Wires**

| C-Mn                                    |
| **ELGASAW 103 Si**                       | A5.17 EH12K     |  |  |  |  |
| **ELGASAW 103Mo**                        | A5.23 EA4       |  |  |  |  |
| **ELGASAW EB2R**                         | A5.23 EB2R      |  |  |  |  |
| **ELGASAW EB3R**                         | A5.23 EB3R      |  |  |  |  |
| **ELGASAW EB3V**                         | A5.23 EG        |  |  |  |  |
| **ELGASAW 103NiMo1/4**                   | A5.23 EG        |  |  |  |  |
| **ELGASAW 103Ni1Mo**                     | A5.23 EG / EF3  |  |  |  |  |
| **ELGASAW 102Ni1**                       | A5.23 EN1       |  |  |  |  |
| **ELGASAW 102Ni2**                       | A5.23 EN2       |  |  |  |  |

**Submerged Arc Fluxes**

| Basic                                    |
| **ELGAFLUX 285B**                        | EN 760 SA AB167ACH5 |  |  |  |  |
| **ELGAFLUX 400B**                        | EN 760 SA FB155ACH5 |  |  |  |  |

| High basic low impurity                  |
| **ELGAFLUX 285B**                        | EN 760 SA AB167ACH5 |  |  |  |  |

| High basic                               |
| **ELGAFLUX 500B**                        | EN 760 SA FB155ACH5 |  |  |  |  |
### Submerged Arc Stainless and Ni-base Wires

<table>
<thead>
<tr>
<th>Wire Description</th>
<th>AWS</th>
<th>PRESSURE VESSELS</th>
<th>HEAVY WALL REACTORS</th>
<th>HEAT EXCHANGERS</th>
<th>SPHERE STORAGE TANKS</th>
<th>TURBINE</th>
<th>PLANT COLUMNS &amp; TOWER</th>
</tr>
</thead>
<tbody>
<tr>
<td>CROMASAW 308L</td>
<td>A5.9 ER308L</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
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<tr>
<td>CROMASAW 316L</td>
<td>A5.9 ER316L</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>CROMASAW 318L</td>
<td>A5.9 ER318L</td>
<td>●</td>
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<td>CROMASAW 309L</td>
<td>A5.9 ER309L</td>
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<tr>
<td>CROMASAW 347</td>
<td>A5.9 ER347</td>
<td>●</td>
<td>●</td>
<td>●</td>
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<tr>
<td>CROMASAW 309MoL</td>
<td>(A5.9 ER309MoL)</td>
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<td>●</td>
<td>●</td>
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<tr>
<td>CROMASAW 316L</td>
<td>A5.9 ER316L</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>CROMASAW 318L</td>
<td>A5.9 ER318L</td>
<td>●</td>
<td>●</td>
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<td>CROMASAW 309L</td>
<td>A5.9 ER309L</td>
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<td>A5.9 ER347</td>
<td>●</td>
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</table>

### Submerged Arc Stainless and Ni-base Fluxes

<table>
<thead>
<tr>
<th>Flux Description</th>
<th>AWS</th>
<th>PRESSURE VESSELS</th>
<th>HEAVY WALL REACTORS</th>
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<th>TURBINE</th>
<th>PLANT COLUMNS &amp; TOWER</th>
</tr>
</thead>
<tbody>
<tr>
<td>CROMAFLUX 380</td>
<td>EN 760-SF CS2DCH5</td>
<td>●</td>
<td>●</td>
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<td>●</td>
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### Gas-Shielded Flux-Cored Wires (FCAW)

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<th>Wire Description</th>
<th>AWS</th>
<th>PRESSURE VESSELS</th>
<th>HEAVY WALL REACTORS</th>
<th>HEAT EXCHANGERS</th>
<th>SPHERE STORAGE TANKS</th>
<th>TURBINE</th>
<th>PLANT COLUMNS &amp; TOWER</th>
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### Stainless and Ni-base Strips

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<th>HEAVY WALL REACTORS</th>
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### Electroslag Strip Cladding Fluxes

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Submerged Arc Torches System

**OBT 600**
600 Amp, 100% duty cycle torch with concentric flux flow nozzle.

**PROCESS**
- Submerged Arc Welding (SAW)
- Wire diameter 1.6 - 5.5 mm

**Single Wire Narrow Gap Torch**
800 Amp, 100% duty cycle torch for narrow gap.

**PROCESS**
- Submerged Arc Welding (SAW)
- Wire diameter 2.4 - 4.0 mm
- For depth 50 - 350 mm
- Insulation type Velflon up to 200° C
- Insulation type Ceramic up to 350° C

**OBT 1200**
1200 Amp, 100% duty cycle torch with concentric flux flow nozzle.

**PROCESS**
- Submerged Arc Welding (SAW)
- Wire diameter 1.6 - 5.5 mm

**Tandem Wire Narrow Gap Torch**
800 Amp, 100% duty cycle torch for narrow gap.

**PROCESS**
- Submerged Arc Welding (SAW tandem)
- Wire diameter 2.4 - 4.0 mm
- For depth 50-350 mm
- Insulation type Velflon up to 200° C
- Insulation type Ceramic up to 350° C

**TWA-1**
1200 Amp, 100% duty cycle twin torch with concentric flux flow nozzle.

**PROCESS**
- Submerged Arc Welding (SAW twin)
- Wire diameter 1.2 - 2.4 mm x 2

**Single Wire Narrow Gap Flat Torch**
800 Amp, 100% duty cycle torch for narrow gap.

**PROCESS**
- Submerged Arc Welding (SAW)
- Wire diameter 2.4 - 3.2 mm
- For depth 100 - 250 mm
- Insulation type Ceramic up to 350° C
Cladding

The Cladding processes
Weld overlay using Stainless Steel and Nickel-base strips and fluxes for both internal and external surfaces is a widely accepted technique in the manufacture of process equipment. These cladding materials are designed to withstand the various corrosive media and high temperatures deriving from the service conditions.
Strip cladding is used with both the Submerged Arc (SAW) and the Electroslag (ESW) processes. Excellent results are achieved by way of strong mechanical bonding, weld deposit chemistry and fast deposition rates, leading to greater productivity. The ESW process enables single layer welding, further enhancing productivity.

Submerged Arc Welding process (SAW)
Standard SAW equipment can be simply adapted to enable the conversion from solid wire to strip. The requirement is for an adaptor plate to be fitted and the appropriate strip cladding head attached. The choice of power source depends on the process and need to produce sufficiently high welding current to suit the thickness of the material and the size of strip to be used.

Electro Slag Welding process (ESW)
Due to the high current density of the ESW process, high capacity welding power sources are required for strip cladding. The choice of welding power source depends on the size of strip used, and needs to offer stable characteristics and precise adjustment to suit the welding application.
To meet the required power for ESW cladding, it is often necessary to connect two or more welding power sources together. This can be achieved by linking the machines using the appropriate parallel control kit.
Additional equipment such as a magnetic steering device, used with wider strips to ensure consistent weld bead formation, can also be attached to the cladding head.

Key benefits of the ESW strip cladding process
The key benefits of using the ESW strip cladding technique compared to the SAW process are that the deposition rates are much higher and the dilution with the base material is lower.
ESW results from the ohmic resistance heating effect in a liquid electro-conductive slag. No electric arc is produced and the strip melts from contact with the hot molten slag bath. Flux feeding is from one side only, unlike the SAW process where the flux is fed onto both sides of the arc.

- Deposition rate up to 70% faster.
- Dilution very low, 10-13%. Almost 50% lower than the SAW process.
- Increased travel speed with selected fluxes.
- Weld deposit chemistry obtainable in one layer with selected strips and fluxes.
- Flux consumption significantly reduced.
- No electric arc, open weld pool.
- Very flat weld deposit, smooth tie-in and clean uniform surface.

![ESW Deposition rate / Width strip](image)
HDC 1500 DX Control Unit  Automatic Weld Control

Automatic digital weld controllers offer reliability, flexibility, and performance with their ability to interface with AC or DC, CC/CV power sources having remote contactor and output control capabilities.

**PROCESSES**
- Submerged Arc Welding (SAW)
- Electroslag (ESW)
- GMAW Spray
  (with customer-supplied solenoid)

**CHARACTERISTICS**
- Supply Single phase 115 VAC - 10 A
- Welding power source CV, AC or DC
- Set up/Menu
  - Flux Valve Control
  - Burn-back/Crater Time
  - Wire Feeder Speed Control
  - Ampere/Voltage/WFS Range look
  - # 12 programs
  - Arc Time and Arc Cycles
  - Preflow/Postflow
  - Start time/Run-in

Sub Arc DC 1250  Submerged Arc Welding Power Source

Three-phased, CC/CV DC power sources are designed to provide a superior arc for the SAW/ESW welding process as well as air carbon arc gouging plus the endurance to handle demanding industrial applications.

**PROCESSES**
- Submerged Arc Welding (SAW/ESW)
- Flux Cored (FCAW)
- Stick (SMAW)
- MIG (GMAW)
- Air Carbon Arc (CAC-A)
  Cutting and Gouging

**CHARACTERISTICS**
- CC/CV
- DC
- Three-Phase
- Amperage 100 - 1250 A
- Voltage 10 - 60 V
- Rated Output 1000 A at 44 VDC (100% duty cycle)
- Voltage Supply 380 - 400 - 440 VAC
- Power Input @ Rated Output 73 KVA-53 KW

Sub Arc AC/DC 1250  Submerged Arc Welding Power Source

Three-phase squarewave AC/DC machine with phase-shifting capability with steps to refine arc. AC square wave provides excellent quality of penetration/bead profile and high performance in deposition rate with low heat input (increase mechanical properties and reduce distortions).

**PROCESSES**
- Submerged Arc Welding (SAW/ESW)
- MIG (GMAW)
  Cutting and Gouging

**CHARACTERISTICS**
- CC/CV
- DC/AC Variable Squarewave
- B1 balance ratios
- Three-Phase
- Frequencies 10 to 90HZ
- Amperage 250 - 1250 A
- Voltage 25 - 44 (71 OCV)
- Rated Output 1000 A at 44 VDC (100% duty cycle)
- Voltage Supply 380 - 400 - 415 VAC
- Power Input @ Rated Output 98 KVA-53 KW
Cladding

Cladding Heads

For Standard Application
It is recommended that all cladding SAW/ESW heads are used in conjunction with the Miller RAD 100/400 drive motor.

**TNA 120**

**CHARACTERISTICS**
- Max current 3600 A (100% duty cycle)
- Dimension 230 x 230 x 470 mm
- Weight 22 Kg
- Water cooled
- Strip width 60 - 90 - 120 mm

**TNA 90**

**CHARACTERISTICS**
- Max current 3000 A (100% duty cycle)
- Dimension 220 x 230 x 400 mm
- Weight 18 Kg
- Water cooled
- Strip width 30 - 60 - 90 mm

**TNA 60**

**CHARACTERISTICS**
- Max current 2100 A (100% duty cycle)
- Dimension 200 x 230 x 360 mm
- Weight 12 Kg
- Water cooled
- Strip width 30 - 60 mm

**TNA 30**

**CHARACTERISTICS**
- Minimum inside diameter pipe clad 310 mm - 12"
- Max current 1000 A (100% duty cycle)
- Dimension 230 x 160 x 224 mm
- Weight 6.2 Kg
- Water cooled
- Strip width 30 mm

**TNA 10**

**CHARACTERISTICS**
- Minimum inside diameter pipe clad 260 mm - 10"
- Max current 850 A (100% duty cycle)
- Dimension 200 x 160 x 200 mm
- Weight 6.0 Kg
- Water cooled
- Strip width 30 mm

**TNA 8**

**CHARACTERISTICS**
- Minimum inside diameter pipe clad 203 mm - 8"
- Max current 750 A (100% duty cycle)
- Dimension 125 x 160 x 134 mm
- Weight 5.5 Kg
- Water cooled
- Strip width 30 mm

For Nozzle and Pipe Application
The following head is designed for SAW/ESW both Circunferential and Longitudinal Cladding.
Wire Drive Assemblies
Miller offers either standard or high-speed 115 V Heavy-duty wire assemblies.

**CHARACTERISTICS**
- RAD 100
  - Low speed, right-angle wire drive assembly
- RAD 400
  - Standard speed, right-angle wire drive assembly

Magnetic Steering Device
**BLC-10A / BLC-6A**
The magnetic steering device is intended for use with the ESW process. When used with stainless steel and nickel-base strip and fluxes, it ensures that the cladding process achieves uniformity, in terms of level and uniform weld bead edge formation. Additionally it controls the weld bead ripple formation which maintains the consistency of both bond integrity and appearance.

**CHARACTERISTICS**
- Weight 15 kg
- Dimension 530 x 280 x 400 mm
- Power 220V / 110V 50 - 60 Hz
- Solenoid 6 A 12 VDC (blue) / strip 60 mm. A 24 VDC (red) / strip 90-120 mm.

Parallel Control
Allows easy connection of two or more Miller Welding power sources. This is the perfect solution for increased amperage applications.

Strip De-Reeler
Strip spool holder from 150 to 1.000 Kg. with adjustable inner diameter.

Compressed Air Flux Feeder
The automatic air compressed flux feeding system is electronically controlled to enable pre-heated flux to be kept at a constant temperature.

**CHARACTERISTICS**
- Storage capacity from 120 up to 205 litres.
- Working temperature 100° C
- Voltage supply 220 V
- Max Input Power 2800 W
- Max Air Pressure 6 bar
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Welding & Cladding

Fully Automated Solutions

ESW Cladding System

SAW Portal

SAW with Mobile Power

SAW Column and Boom

SAW Triple Arc
Center of Competence - ITW Welding Italy
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ITW Welding Torches Europe D-Tech GmbH
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AEC Technology
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