



ESAB 2023 WELDING & CUTTING CATALOG

WELDING & CUTTING CATALOG 2023 EDITION



VICTOR
AN ESAB BRAND

**THERMAL
DYNAMICS**
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TWECO
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// ARC WELDING EQUIPMENT





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Arc Welding Processes

Gas Metal Arc Welding (GMAW, MIG)



This most flexible metal joining process involves an arc established between the workpiece and a wire electrode, which is continuously fed by a wire feeder through a torch.

The arc continuously melts the electrode to form the weld puddle.

An appropriate gas or gas mixture shields the weld area from atmospheric contamination.

The GMAW process has the advantages of high deposition rates, speed, excellent weld quality, minimal distortion of the workpiece, and no stub loss.

GMAW applications include several distinct process variations. Selection depends largely on the workpiece thickness and welding position:

Short Circuiting (Short Arc, Dip Transfer)

Involves a small fast-freezing weld puddle. Metal is transferred from the electrode to the puddle by repeated short circuits. Small diameter wires are used and the process operates at low currents and voltages. Short arc is used for welding thin gauge metals in all positions and for vertical and overhead welding of heavier sections.

Spray Arc

Electrode metal is transferred to the weld puddle as discrete droplets. Deposition rate is high and there is little or no spatter. With solid wire, the technique is used for 1/8 in. (3.2 mm) and thicker workpieces and for downhand welding.

Pulsed Spray Arc

The welding current is varied rapidly between a high and a low value. Metal is transferred to the work only during the high current period. The high peak current provides excellent arc stability. The period of low current maintains the arc and reduces the average current, making it possible to weld thinner gauge materials and to weld in all positions using larger sized wire electrodes than otherwise possible.

Cored Wire (FCAW, MCAW)

The electrode is fabricated from strip, enclosing a core of flux and metal which protects and refines the weld puddle and controls bead shape. Some cored wires can be used without external shielding gas. Smaller diameter wires can be used for all position welding. The addition of fluxing, alloy and slag-forming materials often allows high deposition rates, higher welding speeds and improved all-position capability compared with solid wires. This makes cored wire the material of choice in many high-production applications.

Shielded Metal Arc Welding (SMAW, Stick)



In this first practical arc welding process, the arc is established between a wire rod and the workpiece. The rod is coated with materials, which generate a gas and form a slag to protect the weld puddle and the solidifying weld metal from the atmosphere.

The coating may also supply alloying and refining ingredients, and the slag may help shape the weld bead, especially in vertical and overhead applications.

Electrodes are available for welding most carbon, low alloy, and stainless steels, some non-ferrous metals, and a wide range of maintenance and repair applications.

Light-duty work is often done with AC power from low cost transformers; production work usually involves DC power from heavy-duty rectifiers.

Gas Tungsten Arc Welding (GTAW, TIG)



Introduced by ESAB, the GTAW process produces welding heat from an arc between a non-consumable tungsten electrode and the workpiece. An inert gas, usually Argon, shields the arc and the workpiece.

Welding consumables, if used, are added separately. Because the process uses totally inert

shielding gas, welds of the highest quality are produced, and almost any metal can be welded.

Additional Technical Information

ESAB Technical Service Representatives are available to answer your questions. We also recommend that you take advantage of a series of handbooks published by ESAB which provide excellent guidance on the use of the arc welding processes.

In addition, there are references from other sources which can be very helpful in achieving the best possible results.

Call ESAB at 1.800.ESAB.123 to find out more.

GO ROGUE. OR TURN RENEGADE™.

When you need performance, portability and power – or even more power, performance and portability ... go **Rogue** and turn **Renegade**. These TIG/Stick inverters deliver professional-grade results with High Frequency (HF) TIG arc starts, pulsed TIG outputs and other rule-defying features.

ROGUE ET 200iP PRO

Never before has so much performance been available at such an attractive price point for taking on everything from quick repairs to code-quality pipe work.

Rogue differentiators start with a built-in solenoid valve and 200A of welding power – 40A more than any other welder in its class. It continues with HF arc starts, upslope/downslope control, a pulsed TIG range of 0.2–500 Hz and outstanding Stick performance with all electrodes (including 6010). To top it off, all this comes in a 21.1-lb. package with dual-voltage 120V/230V input for go-anywhere flexibility.

ROGUE ES 130i AND 180i PRO

For those who focus on Stick projects, choose the Rogue ES 130i or 180i PRO. They offer all the Stick benefits of the 200iP PRO, plus Live TIG arc starts for TIG welding.

Generous ready-to-weld TIG and Stick accessory package.



ROGUE

GO PUL

Pulsed TIG reduces heat input, narrow puddle control and increases travel speed on steel, thin metal, delicate or h

Renegade ET 300iP
for HF TIG/Stick.



Water-cooled package weighs 59.3 lbs.,
converts to an air-cooled system in
minutes without tools.

Renegade ES 300i
for Stick/Live TIG.

TURN RENEGADE

Renegade ET 300iP weighs 37 lbs. yet offers a 300A output at 40% duty cycle, HF arc starts, a pulsed TIG range of 0.1–1,000 Hz and a peak amperage pulse duration adjustable between 10 and 90%.

Renegade can also weld with Stick electrodes up to 1/4 in. As a next-generation inverter, its Stick performance is enhanced by built-in intelligence for optimizing starts and stops with greater control over arc stability for less spatter. For those who focus on Stick welding and only need Live TIG arc starts, ESAB offers the Renegade ES 300i.

ON THE GO

Renegade connects to 230V 1-ph power and 230V to 480V 3-ph power with auto-sensing functionality and no rewiring required. A compact format, multi-handle design and integrated cable management system make it easy to carry and bring to any job site.



USED!

ows the weld profile, can improve
speed – all benefits for stainless
eat-sensitive applications.

RENEGADE™



VIDEO

ROGUE ES 130i PRO and ES 180i PRO

Portable DC Stick and Stick/TIG Welding Systems



STICK MACHINES



- Dual voltage input supply – flexibility to use any place on single phase plug
- Superior Arc characteristics – smooth and stable performance (including special mode for stick 6010)
- Generator Compliant – suitable for use with generators. (7kW recommended)
- Easy to Use – set the welding current and weld with excellent results
- Practical Design – makes the power source easy to carry which enables use at almost any work site
- Robust Design – IP23S designed for fabrication shop or site application
- PFC ensures a stable arc, resistant to power fluctuations even while working on long extension cables up to 300 feet (12 AWG size)
- Optional analogue remote control (Optional hand remote control MMA4)

Specifications ES 130i PRO

| Input Voltage | Stick (SMAW) Welding Output (230V) | TIG (GTAW) Welding Output (230V) | Current Range |
|-------------------------------------|--|--|--|
| 120-230 VAC +/- 15%, 1 ph, 50/60 Hz | 130 A / 25.2 V @ 25% Duty Cycle 84 A / 23.4 V @ 60% Duty Cycle 65 A / 22.6 V @ 100% Duty Cycle | 130 A / 15.2 V @ 25% Duty Cycle 84 A / 13.4 V @ 60% Duty Cycle 65 A / 12.6 V @ 100% Duty Cycle | 10-130 on 230VAC 10-130 on 120VAC, depending on process |
| Maximum Output | Stick (SMAW) Welding Output (120V) | TIG (GTAW) Welding Output (120V) | Operating Temperature |
| 130 Amp | 90 A / 23.6 V @ 25% Duty Cycle 58 A / 22.3 V @ 60% Duty Cycle 45 A / 21.8 V @ 100% Duty Cycle | 130 A / 15.2 V @ 25% Duty Cycle 84 A / 13.4 V @ 60% Duty Cycle 65 A / 12.6 V @ 100% Duty Cycle | -10° to +40° C (+14° to +104° F) |

Specifications ES 180i PRO

| Input Voltage | Stick (SMAW) Welding Output (230V) | TIG (GTAW) Welding Output (230V) | Current Range | | |
|-------------------------------------|---|---|--|---|--------------------|
| 120-230 VAC +/- 15%, 1 ph, 50/60 Hz | 180 A / 27.2 V @ 25% Duty Cycle 116 A / 24.6 V @ 60% Duty Cycle 90 A / 23.6 V @ 100% Duty Cycle | 180 A / 17.2 V @ 25% Duty Cycle 116 A / 14.6 V @ 60% Duty Cycle 90 A / 13.6 V @ 100% Duty Cycle | 10-180 on 230VAC 10-180 on 120VAC, depending on process | | |
| Maximum Output | Stick (SMAW) Welding Output (120V) | TIG (GTAW) Welding Output (120V) | Operating Temperature | | |
| 180 Amp | 110 A / 24.2 V @ 25% Duty Cycle 70 A / 22.8 V @ 60% Duty Cycle 55 A / 22.2 V @ 100% Duty Cycle | 140 A / 15.6 V @ 25% Duty Cycle 90 A / 13.6 V @ 60% Duty Cycle 70 A / 12.8 V @ 100% Duty Cycle | -10° to +40° C (+14° to +104° F) | | |
| Energy Save Mode | Rated kVA | Open Circuit Voltage | Enclosure Class | Dimensions | Weight |
| 50 W | 3.9 kVA | 78 V DC | IP23S | 15.8" x 6" x 10.4" (403 x 153 x 264 mm) | 18.2 lbs (8.25 kg) |

Ordering Information

| | |
|-------------------|------------|
| ROGUE ES 130i PRO | 0700500091 |
| ROGUE ES 180i PRO | 0700500070 |

Includes: power source with 3 m (10 ft) mains cable and plug (N6-50P), shoulder strap, electrode holder with 3 m (10 ft) cable and return cable 3 m (10 ft) with clamp.

Options & Accessories

| | |
|---|------------|
| Rogue Plastic Case | 0700500085 |
| HW-17R, 60° Head with Rotary Valve, 12.5 ft (3.8 m), 2 pc. cable/hose assembly twist lock | 35857 |
| GRF400-580 Flowmeter Regulator | 0781-2701 |
| Electrode Holder 200 A and Lead Assembly, 13 ft (4 m), 50 mm | WS200E13 |
| Ground Clamp 200 A and Lead Assembly, 10 ft (3 m), 50 mm | WS200G10 |
| TIG Foot Control, 15 ft (4.5m) cable and 8-pin connector | W4014450 |
| Power Adapter, 230 V to 120 V, 15 A (2 ft, N6-50R to N5-15P) | W4014000 |

Renegade™ ES 300i

Multi-Voltage, Industrial Stick/TIG Machine



STICK MACHINES

- ES 300i has highest power-to-weight ratio in its class weighing in at 33 lbs. (15 kg) and producing 300 A at 40% duty cycle (3 ph)
- Small, lightweight system can virtually go anywhere on the jobsite; its three handle design makes it easy for transportation and maneuvering through manholes and other hard to reach areas
- ES 300i incorporates excellent performance with 6010 (cellulosic) electrodes and additional functionality to tailor Arc Force for a softer or crisper arc through a 6010 mode
- With an excellent TIG operational range from 5 to 300 A, you'll have the confidence to tackle a broad range of material thicknesses
- Intuitive Interface – the machine's digital readout display, along with large buttons with excellent feedback and controls, make it easy to set parameters and read them from a distance
- Cable Management – an integrated latch system helps control cables so they can be secured to the machine, making it easy to pack up and go

| Specifications | | | | | | | |
|--|--|--------------------------|--|------------------|---|---|-----------|
| Input Voltage | Welding Output TIG | | Welding Output Stick | | Current Range | Input Current Draw | Rated kVA |
| 230 – 460 VAC 1 ph, 3 ph +/- 10% 50/60 Hz | 300 A/20 V @ 40% Duty Cycle, 3 ph 250 A/20 V @ 60% Duty Cycle, 3 ph 200 A/18 V @ 100% Duty Cycle, 1/3 ph | | 300 A/30 V @ 40% Duty Cycle, 3 ph 250 A/30 V @ 60% Duty Cycle, 3 ph 200 A/28 V @ 100% Duty Cycle, 1/3 ph | | 5 – 200 A, 1 ph 5 – 300 A, 3 ph | 10 A, 400 – 460 V 11 A, 380 V 20 A, 230 V | 11.3 kVA |
| Open Circuit Voltage | Power Factor @ Max Current | Efficiency @ Max Current | Energy Save Mode | Lead Cord Length | Dimensions L x W x H | Weight | |
| 48 V (32 V - VRD) | 0.96 | 85% (TIG) 89% (Stick) | 91 W | 10 ft. (3 m) | ES 300i: 15.75 x 5.75 x 10 in. (400 x 146 x 255 mm) | ES 300i: 18 lbs. (8 kg) | |

| Ordering Information | |
|----------------------|------------|
| Renegade ES 300i | 0445100881 |

Standard package includes power supply, shoulder strap, 10 ft. (3 m) input cable, 2 x OKC 50mm connectors (packages do not contain work cables or electrode cables).

RUFFIAN ES 150G EDW

Compact Engine Driven Welder

STICK MACHINES



- Advanced control over arc parameters, including adjustable Arc Force, to optimize the arc – especially with 6010 electrodes
- Impressive power output of 150A at 60% duty cycle
- Thermal protection for the welder and generator guaranteeing a long, useful life
- Latest inverter technology ensures a stable and smooth stick arc that produces the cleanest welds
- Trusted Kohler gas engine meets a high standard of power and reliability
- Fuel-efficient 5-gallon gas tank and engine hour meter
- Auxiliary generator output voltage is independent from the welding current, allowing simultaneous use of electrical tools without worrying about adjustments to the welder settings
- Four 120 VAC, 20 A GFCI receptacles and one 240 VAC (6-50R) receptacle, all protected by a circuit breaker and covers
- Easy to maneuver through the job site with large industrial-grade wheels that provide high ground clearance; and ergonomic, removable handles that distribute weight evenly
- 3-year warranty by ESAB on welder/generator and 3-year warranty by Kohler on engine

Specifications (Welding Machine)

| Output Setting Range (DC), Stick (SMAW)/MMA | Rated Duty Cycle, Stick (SMAW)/MMA | Open Circuit Voltage (OCV) |
|---|---|----------------------------|
| 20 A/20.8 V – 150 A/26 V | 60% @ 150 A/26 V 100% @ 115 A/24.6 V | 78 V |

Specifications (Generator)

| Phases | Voltages | Frequency | Peak Power | Continuous Power | Max Current (without Welding) |
|--------|-------------|-----------|------------|------------------|--------------------------------|
| 1 ph | 120/240 VAC | 60 Hz | 4.5 kVA/kW | 4 kVA/kW | 34 A (120V AC); 17 A (240V AC) |

Specifications (Engine)

| Brand, Model, and Warranty | Power | Fuel Type | Cooling Type | Cylinders | RPM |
|---|-------|-----------|--------------|-----------|------|
| Kohler Command PRO CH440, 3-year warranty by manufacturer | 14 HP | Gasoline | Air | 1 | 3600 |

Specifications (General)

| Fuel Tank Capacity | Enclosure Class | Dimensions L x W x H (w/o Wheels and Handles) | Dimensions L x W x H (w/ Wheels and Handles) | Weight (Empty Gas Tank) (w/o Wheels and Handles) | Weight (Empty Gas Tank) (w/ Wheels and Handles) |
|----------------------|-----------------|---|--|--|---|
| 18.93 L (5.0 US gal) | IP23S | 28.70 x 22.52 x 25.98 in. (729 x 572 x 660 mm) | 40.83 x 28.74 x 31.61 in. (1037 x 730 x 803 mm) | 223.8 lbs (101.5 kg) | 248.0 lb (112.5 kg) |

Ordering Information

| | |
|--------------------------|------------|
| ESAB Ruffian ES 150G EDW | 0707070150 |
|--------------------------|------------|

Includes: Ruffian ES 150G Engine Driven Welder, (2) Industrial grade wheels, (2) industrial grade handles.

Options & Accessories

| | |
|--|------------|
| Electrode Holder 200A and Lead Assembly, 4 m (13 ft) | WS200E13 |
| Ground Clamp 200A and Lead Assembly, 3 m (10 ft) | WS200G10 |
| Lifting Eye | 0707071001 |
| Protective Cover, ES 150G EDW | 0707071002 |
| Tweco® Style to OKC Adapter Connector | 94251240 |

Note: Spare and wear parts for Kohler Command PRO CH440 engine are offered by Kohler. See separate user manual for details.

PORTABILITY

Large **industrial-grade** wheels and handles allow for easier transport around the jobsite.



POWER + PRODUCTIVITY

150A max output: power to weld up to 5/32 in. Stick electrodes. 60% duty cycle at 150A for more **welding productivity**.



TECHNOLOGY

Inverter-based SMAW welder provides smooth and consistent arcs for **high-quality welds**.



VERSATILITY

2-in-1 stick welder / 4.5 kW generator with independent control of output current to run external welding, plasma, and power.



RUFFIAN

ES150G

RUN WILD



Learn More ▶

