Welding Automation

Thyristorised SAW Power Sources - DC

LAF 635 /1000 / 1000M / 1250/1250M/ 1600/1600M

- Excellent welding characteristics throughout the entire current and voltage.
- Good arc stability at low as well as high voltages.

		LAF 635	LAF 1000	LAF1000 M	LAF1250 M	LAF 1250M	LAF 1600M	LAF1600M
MA	ins supply, V/Hz	400/50-60	400/50-60	400/50-60	400/50-60	400/50-60	400/50-60	400/50-60
ME	x output at 60% duly cycle, A	800/44	1000/44	1000/44				
ME	x output at 100% duty cycle, A	630/44	800/44	800/44	1250/44	1600/44	1800/44	1800/44
Se	tting range, A/V, SAW	30,5 1 -800/44	40 22-1 /	40/22-1	40/22-1250/44	40/22-1250/44	40 22-16 / 00/46	40/22-1600/46
Op			52	52			54	
No	load power, W	150	145	145	220	220	220	220
Eft		0.84 0 .920	0.84 0 95	0.84 0 95	0 87 0.92	0 87 0.92	0 86 0 87	0 86
Vo	ltage, 3ph 60 Hz, V	400/415	400/415/500	415/400/415/ 500	400/415/500	415/400/415/ 500	400/415/500	230/400/415/ 500
Vo	ltage, 3ph60Hz,V	440	400/440/550	230/400/440/ 550	400/440/550	230/400/440/ 550	400/440/550	230/400/440/ 550
	dosure class, protection	IP 23	IP 23	IP 23	IP 23	IP 23	IP 23	IP 23
Ex	ternal dimensions, LxWxH, mm	x1090	x1090	1090	774x598x1428	774x598 x1428	1428	774x598x1428

Thyristorised SAW Power Sources -AC

TAF 800/1250

- Heavy-duty thyristorised AC power sources with square wave output.
- Excellent arc ignition characteristics and good welding properties.
- Ideal for SAW.

Max output at 100% doty cycle, A		800	1250
Setting range, A/V		300/28-800/44	40<y? B-1»Q'44
Open **circuit** voltage, V		71	72
Efficiency at max current		0.86	0.86
Power factor at max current	0.75	0.76	
Voltage, 1 ph 50 Hz, V		400/415/500	400/415/500
Voltage, 1 ph 60 Hz, V	400/440/550	400/440/550	
Enclose class, protection		IP 23	IP 23

External dimensions, LxWxH, mm	774x598x1228	74x598x1228

A2/A6 Process Controller PEH

- Control boxes usable for SAW and GMAW together with A2/A6 automatic welding machines.
- Adaptable to LAF/TAF series of power sources, technical specifications as under.

Enclosure class, protection	IP 23
External dimensions, LxWxH, mm	355x210x164
Mains supply, V/Hz	42 (AC)/50-60
Weight, kg	5.5
Max power consumption, VA	900

Orbital TIG Welding

A21 PRB/PRC/PRD 100/PRD 160/POC 12-60, Aristo Mech Tig 4000iw

The ESAB welding program for mechanised tube welding is based on the TIG welding method with a non-consumable tungsten electrode. To further improve weld quality and decrease costs, ESAB have developed microprocessor controlled power sources for orbital TIG welding, the Aristo MechTig 4000iw with control boxes Aristo MechControl 2 and 4.

A21 PRB welding head is compact and easy to use as a result of its unique pincer action, which reduces setting-up times to a minimum. The welding head is positioned and secured around the tube with great accuracy in seconds. The PRB welding heads are available in three sizes for tubes with outer diameters of 17 to 170 mm.

A21 PRC welding head has a weaving movement and arc voltage control, which produces higher productivity and better welding quality, particularly when welding thick-walled tubes.

A21 PRD 100 welding head is designed for high precision, and quality. It is a TIG welding head for tubes with an outer diameter of 100 mm or higher. Due to compact design and low profile it requires only 73 mm clearance around the tube. This is water-cooled welding head usable up to 400A.

A21 PRD 160 is a water-cooled flexible pipe-welding head for pipes with an outer diameter of 160 mm or more. It consists of an articulated carriage that travels around the pipe on a rack adapted to match the diameter of the pipe. To ensure maximum flexibility it is built in modular form.

A21 POC 12-60 isawelding head for tube-to-tube sheetTIG welding. It is a precision-built, robust and versatile welding head 12 to 60 (93) mm outer tube diameter. It has a very high centering accuracy and centering mandrels are available for inner tube diameters from 10 mm. **Aristo MechTig 4000iw** is designed to work together with the **Aristo MechControl 2 and 4.** This is a 400A heavy-duty inverter based power source having compact design with outstanding welding characteristics. Connection cables up to 8m provide a working range of 16m.

ESAB

Tractor Automats - Miggytrac

Miggytrac 1001

It is a compact motor powered tractor into which a standard ESAB welding torch can be attached. It is mounted on four driving wheels together with the magnet ensuring stable operation. The magnet holds the tractor in the correct position on the work-piece, even if it is bent or angled.

Welding speed, m/min	0.15-1.2
Control voltage, V,AC	36-46
Power, W	20
Weight, kg	7
External dimensions, LxWxH, mm	266x257x267

Miggytrac 2000

It is a small, compact, motor-operated trolley designed for the mechanisation of GMAW, gas metal arc welding, in particular. The permanent magnet built-in magnet, which can be switched on/off, holds the tractor in the correct position on the work-piece.

Travel speed, m/min	2.5
Weldilng speed, m/min	0.15-1.5
Control voltage, V,AC	36-42
Max power consumption, W	25
Intermittent welding range, cm	1-99
Crater fill duration, s	0-9.9
Weight, kg	8.5
External dimensions, LxWxH, mm	400x340x370

Miggytrac 3000

It is a small, compact, motor-powered tractor with four wheel drive, integrated wire feed and water-cooled welding torch, designed for horizontal MIG/MAG welding of plates and beams. The carriage follows the weld joint by one front and one rear guide and wheel.

Travel speed, m/min	2.5
Welding speed, m/min	0.15-1.5
Control voltage, V,AC	36-46
Max power consumption, W	80
Intermittent welding range, cm	1-99
Crater fill duration, cm	0-9.9
Weight, kg	17
External dimensions, LxWxH, mm	370x400-530x520

Tractor Automats – Railtrac

Railtrac F1000

Railtrac F1000, Flexi, for welding and thermal cutting.

- Welds and cuts in all positions on magnetic and non-magnetic materials
- Quick assembly and easy operation
- Programmable with five programs
- Calibrated setting values in cm, mm and sec
- Programmable "backfill" for crater filling

Railtrac FR1000

Railtrac FR1000, Flexi Return, for welding and outing with automatic return.

- Welds and cuts in all positions on magnetic and non-magnetic materials
- Quick set-up and easy operation
- Programmable with five programs
- Calibrated setting values in mm, cm and sec
- Programmable "backfill" for crater filling

Railtrac FWR1000

Railtract FWR1000, Flexi Weaver Return, for oscillated welding with automatic return.

- Welds in all positions on magnetic and non-magnetic materials
- Quick set-up and easy operation
- Programmable with five programs
- Calibrated setting values in mm, cm and sec
- Programmable "backfill" for crater filling

Railtrac FW1000/FW1000 L

Railtract FW1000, Flexi Weaver, for oscillated welding. The Railtrac FW 1000 can be delivered in a "FW1000 L" version if the welding process need to be done with a lower welding speed than with FW1000.

- Welds and outs in all positions on magnetic and non-magnetic materials
- Quick set-up and easy operation
- Programmable with five programs

Railtrac BV1000 / BVR1000

Railtrac BV1000 and BVR1000 are two automatic units for mechanising the repair and hardfacing of rail pro?les smoothly and efficiently. The equipment can be assembled, and controlled quickly and easily by one person. Learning to use it is easy and extremely fast.

Rail length, m	2
Welding speed, m/min	0.1-1.5
Weaving range, mm	1-80
Weaving speed, mm/s	7-50
Max power consumption, W	80
Control voltage, V, AC	36-46
Crater fill duration, s	0-9.9
Zero-line shift, mm	25(+-12.5)
Programmable edge length, cm	6-99

The track for all the above models of Railtrac are made of Aluminium and can be either extended or cut to get the required length.

Tractor Automats - Trippletrac / Multitrac / Mastertac
A2 Trippletrac

It is a three-wheeled tractor carriage steers with the front wheel. It is used for internal circumferential welding of large cylindrical objects due to its clever design with a steering wheel. The tractor can be equipped with A2-A6 Process Controller PEH or A2 Welding Controller PEI.

Max load at 100% duty cycle, A	800
Wire feed max, m/min	0.2-9.0
Travel speed, m/min	0.1-1.7
External dimensions, LxWxH, mm	594x686x956
Weight, excl wire and flux, kg	47

A2 Multitrac with
A2/A6 Process Controller PEH

The A2 Multitrac with the A2/A6 process controller PEH is available for both SAW and the GMAW. If the SAW-version is chosen, theA2 Multitrac is capable of working with single or twin

Wire Ø, unall, solid	1.6-4.0	2x1.2-2.5	0.8-1.6	0.8-1.6
Wire Ø, SS	1.6-4.0	2x1.2-2.5	0.8-1.6	0.8-1.6
WireØ,Al			1.2-1.6	1.0-2.0
Wire Ø, CW	1.6-4.0		1.2-2.4	1.2-2.4
Wire feed, m/min	0.2-9	0.2-9	0.2-16	2.0-25
Travel speed, m/min	0.1-1.7	0.1-1.7	0.1-1.7	0.1-1.73
External dimensions, LxWxH, mm	870x400 x830	870x400 x830	870x400 x830	870x400 x830
Weight, kg	47	47	43	43

A6 Mastertrac

It is a heavy-duty self-propelled, fourwheel drive, automatic welding machine. The advanced electronic control provides high precision and the digital display enables all the welding parameters to be preset accurately. It can be used for SAW as well as for GMAW.

Max load at 100% ditu cycle, A	1500	600	1500	2x1500
Wirediameter, mm	3.0-6.0	1.0-3.2	2x2.0-3.0	2x3.0-6.0
Wire lead, m/min	0.2-4.0	0.8-16.6	0.2-4.0	0.2-4.0
Travel speed, m/min	0.1-2.0	0.1-2.0	0.1-2.0	0.1-2.0
External dimensions, LxWxH, mm	1410x750 x850	1410x750 x850	1410x750 x850	1410x990 x850

Roller Beds

Esab offers a wide range of roller beds with capacity varying from 5 - 250 tons. The roller beds have mechanical adjustment for circular work-pieces and self-aligning roller beds, which automatically adapt o the roller bed diameter. These roller beds are designed to operate in combination with A2/A6 automatic welding equipment and Esab's columns and booms.

Positioners

Esab offers a comprehensive range of positioners for automatic welding. These very versatile welding tools enable welding to be carried out in the optimum positions to benefit the quality of the work. The positioners can be integrated with A2/A6 automatic welding equipment.

Friction Stir Welding

Legio Friction Stir Welder

The LEGIO combines the latest technology with proven quality. The modular system makes it possible to assemble welding stations to suit the most varied Friction Stir Welding applications.

The LEGIO system consists of five basic designs in a series of seven sizes, covering a welding depth of 1.2 mm (.045 in) to 60 mm (2.4 in). These basic types can be supplemented with different types of equipment to suit the most varied production needs and give maximum flex-ibility to any production line.

The versatile Legio family includes linear motion with single or dual (over /under) heads, with or without tables. Dual axis (x-y) model is available with or without table. Tables include a whole pattern for attaching fixtures.

Legio includes ESAB HMI control specifically designed for the Friction Stir Welding. It is a closed loop welding control, with ability to control Z-axis either by pressure or by position. PC network connections and data transfer are available optionally.

Friction Stir Welding

Super Stir Friction Stir Welder

The SuperStir program includes a variety of machines developed from a standarized SuperStir base unit having working ranges of 0.5x1.5m (19.7x59in) up to 10x20m (33x66 ft) within the same concept.

This includes customized models of various designs for specific customer requirements in different production areas.

These different designs are used worldwide in R&D centers for joining of extrusions to panels, in production of pressure vessels as well as small parts for the automotive and electronic industries.

Robotics for Arc Welding

Esab offers a wide range of automated welding solutions using a range of robots from ABB. Robotics can provide a cost-effective and modular solution for a variety of welding applications with increased productivity. The various advantages of using robotics

Built on an Open Structure

The robots are equipped with a wide range of universal communications interfaces, configurable from S4Cplus, the robot's controller. They can be connected to a PC for servicing purposes or the factory data network using one or two Ethernet links. The robots controller contains the standard field-buses and serial-channels for interfaces with a wide range of power sources and distributed devices.

Flexibility - Develop Custom Functionality

Using the arc-welding software ArcWave the robots can be configured. For advanced and critical welding applications customized functionality can be configured using RAPID, the high level programming language from ABB.

Pre-program Offline

New programs can be created, programs can be stimulated or robots can be pre-programmed for a specific functionality.

Position Anywhere - Portability

The robots can be mounted on a wall or inverted from gantries, columns with booms and elevators for heavy-duty welding, allowing for a wide variety of working range capabilities. Work-piece positioners with one or two axis can also be added to this to increasing the flexibility in positioning.

High Level of Accuracy

The software is designed to achieve high-level accuracy to maintain the quality in the welding applications.

Range of Robots

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RB 140

ABB's fastest and smallest arm-based industrial robot. Highly flexible with slim wrist, 6-axis robot able to reach into narrow, small spaces. Easy-to-mount equipment. Robust and compact. The standard IRB 140 can be mounted at any angle without modification for optimum reach and efficiency. Load capacity: 5 kg; supplementary load is: 1.5 kg; reach: 0.81 meters.

IRB 1400

Robust, well-proven, 6 axis, arm-based industrial robot with a large installed base. Well-balanced arm construction, plus maintenance-free gearboxes and cabling, reducing noise levels and maintenance requirements. Load capacity: 5 kg; reach: 1.44 meters.

IRB2400L

Slim yet robust arm-based, 6-axis robot. All the IRB 2400 industrial robots are ideal for arc-welding applications. Features unlimited axis 6. IRB 2400L load capacity is 7 kg; reach 1.8 meters. IRB 2400/10 load capacity is 10 kg; reach 1.5 meters. IRB 2400/16 load capacity; 16 kg; reach: 1.5 meters.

IRB 4400

Compact, versatile robot with medium to heavy handling capacity. The B-axis robot can handle loads up to 60 kg, or up to 45 kgatveryhighspeeds. Reach: 1.96meters.