

# WELDING AUTOMATION





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# **Controllers & Power Sources**



## Process Controller PEK

For use with ESAB CAN-controlled power sources and motors

- For use with ESAB automatic power sources LAF 631/1001/1251/1601, TAF 801/1251 and Aristo® 1000 AC/DC SAW.
- CAN-bus system for data transfer.
- Prepared for submerged arc welding (SAW), gas metal arc welding (GMAW) and arc gouging.
- User-friendly clear text menus.
- Selectable welding process.
- Memory for 255 parameter sets.
- Constant current or constant wire speed.
- Encoder controlled motors for top performance motion control.
- USB port for data back-up and transfer.
- Used welding parameters can be stored directly on a USB memory drive.
- Five Soft Keys can be configured according to operator preferences.



### Ordering information

A2-A6 process controller PEK	0460 504 880
Sales Literature	XA00143720

All sales literature can be downloaded at [assets.esab.com](http://assets.esab.com)

### Options & Accessories

I/O-Module	0462 080 001
Set of connectors	0462 119 880
Cable restraining bracket	0460 861 880
Control cable, 15 m (49 ft.)	0460 910 881
Control cable, 25 m (82 ft.)	0460 910 882
Control cable, 35 m (115 ft.)	0460 910 883
Control cable, 50 m (164 ft.)	0460 910 884



Adjustable sun shield for better visibility for outdoor use

### Technical data

Connection voltage from the power source	42V AC, 50/60 Hz
Connection power	max 900 VA
Motor connection adjusted for ESAB's A2 and A6 motors	connection of 2 motors, motor current 6A cont., max 10A
Speed control	feedback from pulse encoder
Welding speed, m/min (ipm)	0.1-2.0 (4-79) depending on travel carriage
Max. manual travel speed, m/min (ipm)	2.0 (79)
Consumable wire feed speed, m/min (ipm)	0.3-25 (12-984) depending on wire feed unit
Valve output	1 pc, 42 V AC, 0.5A
Inputs	for connection of sensors or limit switches
Connection to power source	Burndy contact 12-poles
Max ambient temperature, °C (°F)	45 (113)
Min ambient temperature, °C (°F)	-15 (59)
Max humidity (of air)	95%
Dimensions, LxWxH, mm (in.)	246x235x273 (7x9.25x11)
Weight, kg (lbs)	6.6 (14.5)
Enclosure class	IP23
Standards	EN60974-1, EN60974-10

## Process Controller EAC 10

For use with CAN- and Analogue controlled power sources and motors

- Intuitive user interface with real-time heat input keeping you in control of the weld.
- Detachable remote control interface lets you control the system from a comfortable position.
- The automatic weld head detection and setup lets you change between SAW, GMAW and gouging in no time.
- Digital and analogue interface to the power source – works with all current ESAB SAW power sources as well as most analogue power sources on the market including old LAF.
- Closed loop encoder based control system for precise wire feed and travel speed control.



### Ordering information

A4 process controller EAC 10                      0446 225 880  
 Sales Literature                                      XA00200320

All sales literature can be downloaded at [assets.esab.com](http://assets.esab.com)

### Options & Accessories

Control cable, 15 m (49 ft.)	0460 910 881
Control cable, 25 m (82 ft.)	0460 910 882
Control cable, 35 m (115 ft.)	0460 910 883
Control cable, 50 m (164 ft.)	0460 910 884
Control cable, 77 m (246 ft.)	0460 910 885
Control cable, 100 m (328 ft.)	0460 910 886

### Technical data

Connection voltage from the power source	60V DC or 42V AC, 50/60 Hz
Connection power	max 900 VA
Motor connection adjusted for ESABs motors	Connection of two motors, 6A cont, max 10A
Speed control	Feedback from pulse encoder
Welding speed, m/min (ipm)	0.1-2.0 (4-79) depending on travel carriage
Max. transport speed, m/min (ipm)	2.0 (79)
Consumable wire feed speed, m/min (ipm)	0.3-25.0 (12-984) depending on wire feed unit
Connection to power source	Burndy contact, 12 poles
Inputs	For connection of sensors or limit switches
Max humidity (of air)	95%
Operating temperature, °C (°F)	-10 - +40 (14-104)
Weight complete control unit, kg (lbs.)	6.8 (15)
Weight control pendant, kg (lbs.)	1.25 (2.8)
Dimensions complete control unit LxWxH, mm (in.)	275×300×165 (10.8×11.8×6.5)
Dimensions control pendant LxWxH, mm (in.)	245×225×50 (9.7×8.9×2.0)
Enclosure class	IP23

## PAB Fieldbus Interface

For use with ESAB CAN-controlled power sources

- PA universal fieldbus interface offering unlimited control from a PLC, PC or any general control unit.
- Standard HMI.
- Control the welding application from the same communication panel in a multifunctional automation system.
- The dual DC-motor drive unit named FAA is designed for seamless use with the Fieldbus interface.



### Technical data

External accessible communication interfaces	Fieldbus (Profibus DIN 19245 Part 1) for welding commands and data
	Ethernet for FTP and Web server

### Ordering information

PAB Fieldbus interface	0449 535 881
User manual (or digital at <a href="http://www.esab.com">www.esab.com</a> )	0465 589 001
Sales literature	XA00169820

All sales literature can be downloaded at [assets.esab.com](http://assets.esab.com)

### Options & Accessories

FAA Dual motor drive	0460 505 880
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## Welding Process quality systems

### WeldQAS

Automated welding processes require automated quality checks. The WeldQAS system is an automatic welding process monitor and controls 100% of the production. Parameters are directly monitored during the welding process, enabling an immediate reaction in case of error to avoid consequential damage. WeldQAS can be used to acquire the latest knowledge about welding production, optimisation and cost-effective use in the production processes.

### Avoid having to rework or recall your product

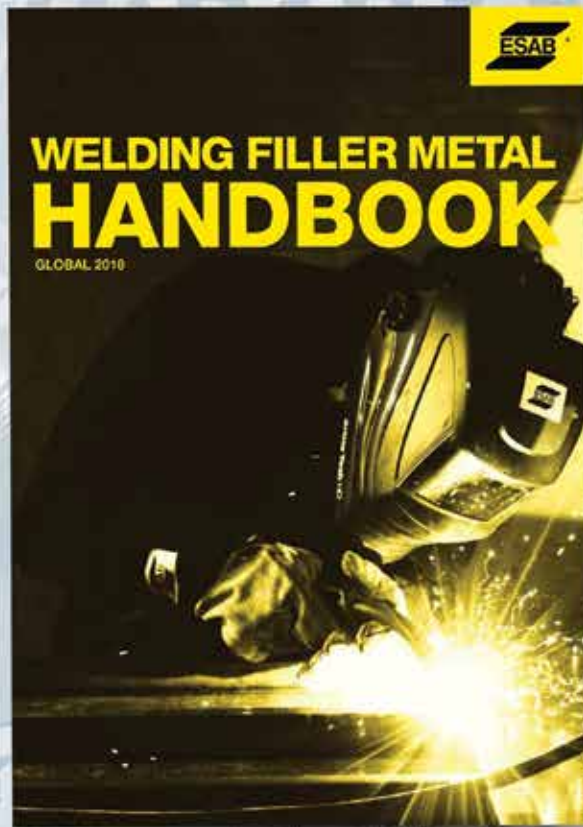
WeldQAS uses a 100% checkup of all welded seams by trend analyses and evaluation tools to force reproducible evaluation of the welding parameters. Recognising these changes in welding parameters quickly prevents further production of faulty parts.



Multi-wire setup with PEK and WeldQAS



# DOWNLOAD THE ESAB FILLER METAL HANDBOOK AT [ESAB.COM/FILLERMETALS](http://ESAB.COM/FILLERMETALS)



**Dual Shield II 81-K2**

The only product in its class that meets or exceeds the requirements for 100% CO<sub>2</sub> shielding gas. Dual Shield II-K2 is designed for high strength and ductility applications. This wire is available for the following applications: Shielded Metal Arc Welding (SMAW), Shielded Metal Arc Cutting (SMAC), Shielded Metal Arc Gas Metal Arc Welding (GMAW), Shielded Metal Arc Gas Metal Arc Cutting (SMAC), Shielded Metal Arc Gas Metal Arc Welding (GMAW), Shielded Metal Arc Gas Metal Arc Cutting (SMAC), Shielded Metal Arc Gas Metal Arc Welding (GMAW), Shielded Metal Arc Gas Metal Arc Cutting (SMAC).

Approvals and listed on safety labels. Please contact ESAB for more information.

**Classification** AWS A5.18 ER70S-B2, ER70S-B2, ER70S-B2, ER70S-B2, ER70S-B2, ER70S-B2, ER70S-B2, ER70S-B2, ER70S-B2, ER70S-B2

**Approximate:** ER70S-B2, ER70S-B2, ER70S-B2, ER70S-B2, ER70S-B2, ER70S-B2, ER70S-B2, ER70S-B2, ER70S-B2, ER70S-B2

**Welding Current:** DC-

**Shielding Gas:** 100% CO<sub>2</sub>

Condition	Yield Strength	Tensile Strength	Elongation
CO <sub>2</sub> shielding gas	141 MPa	69 MPa	39%
As welded			

**Typical Charpy V Notch Properties**

Condition	Test Temperature	Impact Value
CO <sub>2</sub> shielding gas	-30°C	10 J
As welded	-40°C	30 J
As welded	-20°C	40 J
As welded	-10°C	36 J

**Typical Weld Metal Analysis %**

	C	Mn	Si	Ni	Cr
CO <sub>2</sub> shielding gas	0.141	0.43	1.03	0.06	
Cr					

**Deposition Data**

Wire Diameter	Current	Voltage	Wire Feed Speed	Deposition Rate
1.2 mm	140-200 A	20-30 V	33-43 mm/min	13-18 g/hr

esab.com

## Power source Aristo® 1000 AC/DC SAW

AC/DC inverter power source for efficient submerged arc welding

- Based on unique and patent pending technologies to deliver the best welding performance with the lowest power consumption.
- Designed for use with the digital PEK controller and the robust A2/A6 feeder units.
- A global inverter - connect to a three phase mains supply from 380 to 575 V, 50 or 60 Hz.
- Change between DC and AC "on the fly". Minimize downtime and weld defects by the push of a button with the patent pending "on the fly" function.
- **CableBoost™** patent-pending technology ensures the performance of the power source is unaffected even when long welding cables are used. What you set is what you get.
- Increase productivity up to 65% compared to DC+ welding by using the higher deposition rate of unbalanced AC with the same heat input.
- **Bead Profile Modelling™** provides adjustable AC settings for precise control of penetration profile and depth, dilution, arc stability and weld appearance to achieve the best productivity and quality for each weld.



### Technical data

Mains supply, 3 ph, V, Hz	380-575, 50/60
Mains voltage (DC load), V	380/400/415/440/460/500/550/575
Mains current (DC load), A	86/82/79/74/71/66/59/57
Rated output at 100%, A / V	1000 / 44
AC Balance, %	25-75
AC Offset, A / V	±300 / ±10
AC Frequency, Hz	10-100
Output range, A	200-1000
EMC Filter	included
Parallel connection	available
Cable requirements, mm <sup>2</sup>	2x95 / 2x120
Welding cable length (total)	up to 100 m
Remote On/Off input	available
Digital welding regulator	3rd generation
Open circuit voltage, V DC	130
Idle power, W	200
Efficiency %	88
Power factor	0.93
Dimensions, LxWxH, mm (in.)	865x610x1320 (34x24x52)
Weight, kg (lbs)	330 (727.5)
Enclosure class	IP23
Certification	CE-certified
Third party approvals	CSA, CCC, Ghost-R

### Ordering information

Aristo® 1000 AC/DC SAW	0462 100 880
Interconnection cable, 4 m (for parallel/tandem operation)	0463 282 880
Installation manual (for parallel/tandem operation)	0740 801 030
Sales literature	XA00171020

All sales literature can be downloaded at [assets.esab.com](http://assets.esab.com)

### Options & Accessories

Control cable, 15 m (49 ft.)	0460 910 881
Control cable, 25 m (82 ft.)	0460 910 882
Control cable, 35 m (115 ft.)	0460 910 883
Control cable, 50 m (164 ft.)	0460 910 884
A2-A6 Process controller PEK	0460 504 880

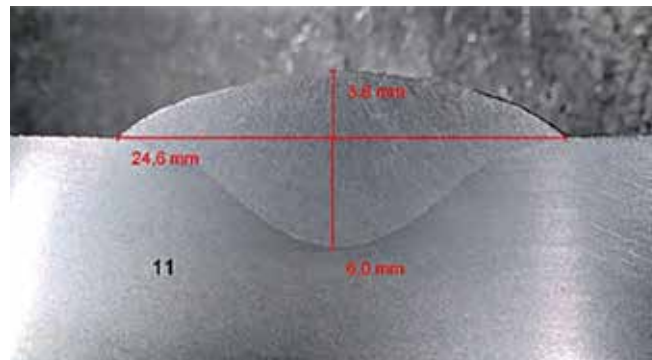
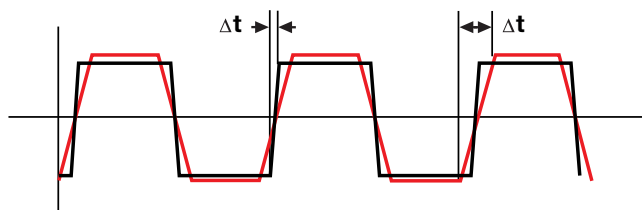
## Power source Aristo® 1000 AC/DC SAW

Cont.

- **True Square Wave Technology™** delivers the optimum wave form to overcome issues traditionally impacting AC welding. This technology increases process stability compared to conventional AC power sources.
- **SoftStart™** sequence reduces the risk of weld defects. This specially designed start sequence provide improved quality, saves cost and down time by avoiding re-work.
- Critical component protection is provided by a cooling channel design that guards all sensitive power source components from dust and particle contamination, ensuring extended component life.
- Minimal maintenance keeps uptime at a maximum with re-usable air filters that are easily accessed at the front of the machine and cooling channels that are quickly cleaned using compressed air.
- Cable protection ensures there are no production stops because of damaged cables or connectors. All connectors are positioned behind an enclosed door located at the front of the unit for protection and easy access.

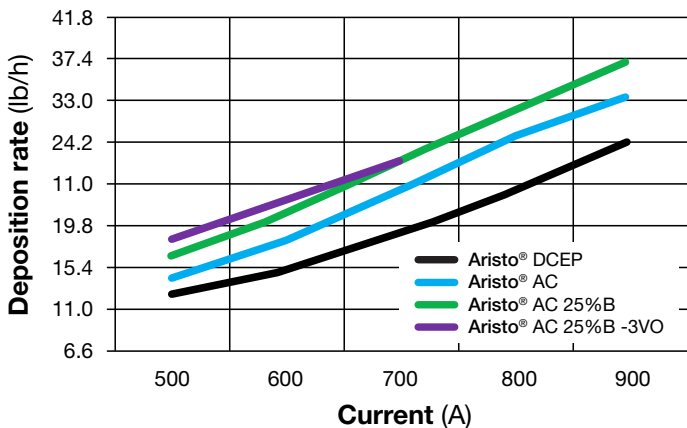
Transition time Aristo®

Transition time other inverters and power sources



DC+ 650A, 29V, 45 cm/min (17.7 ipm)  
 Deposition rate: 7.2 kg/hr (15.8 lbs/hr)  
 Unbalanced AC 650A, 39V, 45 cm/min (17.7 ipm)  
 Balance 25%, Offset -3V, Frequency 100Hz  
 Deposition rate: 11.6 kg/hr (25.5 lbs.hr)  
 61% higher deposition rate with unbalanced AC

**Aristo® 1000 AC/DC deposition rate chart**  
**A6, 4 mm wire, ESO 32 mm**



## Power sources LAF 631, 1001, 1251 and 1601

DC power sources for submerged-arc welding (SAW) or gas metal arc welding (GMAW)

- Three-phase, fan-cooled DC welding power sources designed for high productivity automated submerged-arc welding (SAW) or high productivity gas metal arc welding (GMAW).
- Used in combination with ESAB's A2-A6 equipment range and the A2-A6 Process Controllers (PEK or PEI).
- Good arc stability at both high and low arc voltages.
- Adjust and monitor the welding parameters on the power source from the front panel of the process controller (PEK or PEI).
- Welding current range can be extended by connecting two power sources in parallel for the most demanding applications.
- Ideal for SAW applications such as wind tower components, nuclear power vessels, boilers and in the ship building industry.
- Ideal for GMAW applications such as welding the root pass in heavy pipe production.



LAF 631 in combination with MechTrac and GMH

### Ordering information

LAF 631	0460 512 880
LAF 1001	0460 513 880
LAF 1251	0460 514 880
LAF 1601	0460 515 880
LAF 1001 M	0460 513 881
LAF 1251 M	0460 514 881
LAF 1601 M	0460 515 881
Sales Literature	XA00143820

All sales literature can be downloaded at [assets.esab.com](http://assets.esab.com)

### Options & Accessories

#### PEK

Control cable, 15 m (49 ft.)	0460 910 881
Control cable, 25 m (82 ft.)	0460 910 882
Control cable, 35 m (115 ft.)	0460 910 883
Control cable, 50 m (164 ft.)	0460 910 884

#### PEI

Control cable, 15 m (49 ft.)	0449 500 880
Control cable, 25 m (82 ft.)	0449 500 881
Control cable, 35 m (115 ft.)	0449 500 882
Control cable, 50 m (164 ft.)	0449 500 883
Control cable, 75 m (246 ft.)	0449 500 884
Control cable, 100 m (328 ft.)	0449 500 885
Wheel set LAF 631	0457 787 880

## Power sources LAF 631, 1001, 1251 and 1601

Cont.

Technical data	LAF 631	LAF 1001	LAF 1251	LAF 1601
Mains supply, 3 ph 50 Hz, V	400/415	400/415/500	400/415/500	400/415/500
Mains supply, 3 ph 60 Hz, V	440	400/440/550	400/440/550	400/440/550
Current 100%, 50 Hz, A	52	64/64/52	99/99/80	136/136/108
Current 100%, 60 Hz, A	52	64/64/52	99/99/80	136/136/108
Fuse, slow, 50 Hz, A	63	63	100/100/80	160/160/125
Fuse slow, 60 Hz, A	63	63	100/100/80	160/160/125
<b>Maximum load at:</b>				
100% duty cycle, A/V	630/44	800/44	1250/44	1600/44
80% duty cycle, A/V	-	-	-	-
60% duty cycle, A/V	800/44	1000/44	-	-
<b>Setting range, A/V</b>				
GMAW	50/17-630/44	50/17-1000/45	60/17-1250/44	-
SAW	30/21-800/44	40/22-1000/45	40/22-1250/44	40/22-1600/46
Open circuit voltage, V	54	52	51	54
Open circuit power, W	150	145	220	220
Efficiency %	84	84	87	86
Power factor	0.90	0.95	0.92	0.87
Enclosure class	IP23	IP23	IP23	IP23
Dimensions, LxWxH, mm (in.)	670x490x930 (26x19x37)	646x552x1090 (25x22x43)	774x598x1428 (30.5x23.5x56)	774x598x1428 (30.5x23.5x56)
Weight, kg (lbs.)	260 (573)	330 (727.5)	490 (1080)	585 (1290)
Application class	S	S	S	S

Technical data	LAF 1001 M	LAF 1251 M	LAF 1601 M
Mains supply, 3 ph 50 Hz, V	230/400/415/500	230/400/415/500	230/400/415/500
Mains supply, 3 ph 60 Hz, V	230/400/440/550	230/400/440/550	230/400/440/550
Current 100%, 50 Hz, A	111/64/64/52	171/99/99/80	235/136/136/108
Current 60%, 50 Hz, A	138/80/80/65	-	-
Current 100%, 60 Hz, A	111/64/64/52	171/99/99/80	235/136/136/108
Current 60%, 60 Hz, A	138/80/80/65	-	-
Fuse, slow, 50 Hz, A	125/63/63/63	160/125/125/80	200/160/160/125
Fuse, slow, 60 Hz, A	125/63/63/63	160/100/100/80	200/160/160/125

For all other technical information, see LAF 1001, LAF 1251 and LAF 1601, above.

These welding power sources comply with the requirements of EN 60974-1 and IEC 974-1.

S This symbol indicates that the welding power source may be used in areas with an increased electrical hazard, e.g. areas where the electrical hazard is increased due to damp and/or the proximity to earthed metal objects.

## Power sources TAF 801 and 1251

Square wave AC power sources for submerged arc welding (SAW)

- Square wave AC power sources that convert the secondary voltage from a sinus wave via a thyristor controlled rectifier bridge to a square wave arc voltage with excellent strike characteristics and good welding properties.
- Capacity for continuous welding
- Pre-setting of arc voltage.
- Reliable square wave striking.
- Arc voltage or current feed back.
- Optimized open circuit voltage.
- Compensation of mains supply fluctuation.
- Voltage drop compensation for long welding cables.
- High power factor ensuring low power consumption.
- Designed and built for convenient servicing.
- Safety control voltage 42V.
- Prepared for Scott connection of two power sources.
- Used in combination with ESAB's A2-A6 equipment range and the A2-A6 Process Controllers (PEK or PEI).



### Ordering information

TAF 801	0460 516 880
TAF 1251	0460 517 880
Sales Literature	XA00143920

All sales literature can be downloaded at [assets.esab.com](http://assets.esab.com)

### Options & Accessories

Control cable, 15 m (49 ft.)	0460 910 881
Control cable, 25 m (82 ft.)	0460 910 882
Control cable, 35 m (115 ft.)	0460 910 883
Control cable, 50 m (164 ft.)	0460 910 884

Technical data	TAF 801	TAF 1251
Mains supply, 1 ph 50 Hz, V	400/415/500	400/415/500
Mains supply, 1 ph 60 Hz, V	400/440/550	400/440/550
<b>Maximum load at:</b>		
100% duty cycle, A/V	800/44	1250/44
60% duty cycle, A/V	1000/44	1500/44
Setting range, A/V	300/28-800/44	400/28-1250/44
Open circuit voltage, V	71	72
Open circuit power, W	230	230
Efficiency %	86	86
Power factor	0.75	0.76
Dimensions, LxWxH, mm (in.)	774x598x1428 (30.5x23.5x56)	774x598x1428 (30.5x23.5x56)
Weight, kg (lbs)	495 (1091)	608 (1340)
Enclosure class	IP23	IP23
Application class	S	S

# **Welding** Tractors



## Versotrac with process controller EAC 10

Designed to conquer your jobsite

- Modularised system where the tractor can be disassembled into smaller units, carried separately and easily transported.
- Robust wire feed mechanism that can weld mild steel wire up to 5 mm up to 1000A @ 100%.
- The automatic weld head detection and setup lets you change between SAW, GMAW and gouging in no time.
- Intuitive user interface with real-time heat input –keeps you in control of the weld.
- Introducing an all new ergonomic handling system for welding wire spools, making wire changes easy.
- Tool-less interaction makes it easy to change weld point position and switch between butt and fillet welding.
- Re-buildable between three and four wheel versions to suit your needs.



### Ordering information

Versotrac EWT 1000 (SAW), EAC 10	0904 200 880
Sales Literature	XA00200120
Sales Literature Brochure	XA00201020

All sales literature can be downloaded at [assets.esab.com](http://assets.esab.com)

### Options & Accessories

EWB 1000 (SAW) Welding Head	0904 520 880
EWB 1000 (Twin SAW) Welding Head	0904 520 884
EWB 600 (GMAW) Welding Head	0904 520 885
Guide wheel bogie	0413 542 880
Idling roller	0333 164 880
Guide bar 3 m (10 ft.)	0154 203 880
V-wheeltrack in steel	0443 682 881
Lamp kit (2x27W)	0904 273 880
3-wheel kit	0904 557 880
Flat fillet kit	0904 586 880
Twin Kit EWB 1000 (SAW)	0446 110 880

Technical data	Single SAW	Twin SAW	GMAW with EWB 600
<b>Wire diameters, mm (in.)</b>			
- Steel	1.6-5.0 (1/16-3/16)	-	0.8-2.5 (.030-3/32)
- Stainless steel	1.6-4.0 (1/16-5/32)	-	0.8-1.6 (.040-1/16)
- Cored wire	1.6-5.0 (1/16-3/16)	-	1.2-3.2 (.045-1/8)
- Twin Wire	-	2x1.2-1.6 (2x(0.45x1/16)) *	-
Max wire feed speed, m/min (ipm)	9 (354)	16 (354)	16 (630)
Wire reel weight, kg (lbs.)	30 (66)	2x30 (2x66)	30 (66)
Flux hopper capacity, l (gal.)	6 (1.4)	6 (1.4)	-
Weight, excl wire and flux, kg (lbs.)	65 (143)	67 (148)	64,5 (142)
Permissible load 100%, A	1000	1000	600
Control voltage, V AC	42	42	42
Travel speed, m/min (ipm)	0.1-2.0 (4-79)	0.1-2.0 (4-79)	0.1-2.0 (4-79)
Linear slides stroke length, mm (in.)	90 (3.5)	90 (3.5)	90 (3.5)
Rotary slide setting angle	360°	360°	360°

\* Optional twin kit 0446 110 880 is needed.



## A2 Multitrac with process controller PEK

The universal welding tractor for Submerged-arc Welding (SAW) and Gas Metal Arc Welding (GMAW)

- The A2 Multitrac with the A2/A6 process controller PEK is available for both the SAW and the GMAW method.
- If the SAW-version is chosen, the A2 Multitrac is capable of working equally well with either single or twin wire.
- The feed unit secures an even, stable wire-feed speed.
- Four-wheel drive ensures accurate travel speed.
- Digital control panel allows exact pre-set and control of welding parameters.
- The Multitrac is fully mobile and can easily be moved from one welding station to another. It can also be quickly set-up for different workpieces.
- Designed for use with LAF or TAF welding power sources.



### Ordering information

A2 Multitrac A2TF (SAW), PEK	0461 233 880
A2 Multitrac A2TF (SAW Twin), PEK	0461 233 881
A2 Multitrac A2TG (GMAW), PEK	0461 234 880
A2 Multitrac A2TG (4WD, GMAW MTW 600), PEK	0451 234 881
Sales Literature SAW	XA00143220
Sales Literature GMAW	XA00143320

All sales literature can be downloaded at [assets.esab.com](http://assets.esab.com)

### Options & Accessories

Guide wheel bogie	0413 542 880
Idling roller	0333 164 880
Guide bar 3 m (10 ft.)	0154 203 880
V-guide wheel	0333 098 881
V-wheeltrack in steel	0443 682 881
Loop for connection of two tractors	0334 680 881
Pilot lamp, laser diode	0821 440 880



Technical data	Single SAW	Twin SAW	Single GMAW	GMAW with MTW 600
<b>Wire diameters, mm (in.)</b>				
- Steel	1.6-4.0 (1/16-5/32)	2x1.2-2.5 (2x(0.45x3/32))	0.8-1.6 (.030-1/16)	1.0-1.6 (.039-1/16)
- Stainless steel	1.6-4.0 (1/16-5/32)	2x1.2-2.5 (2x(0.45x3/32))	0.8-1.6 (.040-1/16)	1.0-1.6 (.039-1/16)
- Cored wire	1.6-4.0 (1/16-5/32)	-	1.2-2.4 (.045-3/32)	1.0-2.4 (.039-3/32)
- Aluminium	-	-	1.2-1.6 (.045-1/16)	1.0-2.0 (.039-5/64)
Max wire feed speed, m/min (ipm)	9 (354)	9 (354)	16 (630)	25 (984)
Wire reel weight, kg (lbs.)	30 (66)	2x15 (2.2x33)	30 (66)	30 (66)
Flux hopper capacity, l (gal.)	6 (1.4)	6 (1.4)	-	-
Weight, excl wire and flux, kg (lbs.)	47 (103)	47 (103)	43 (95)	43 (95)
Permissible load 100%, A	800	800	600	600
Control voltage, V AC	42	42	42	42
Travel speed, m/min (ipm)	0.1-1.7 (4-67)	0.1-1.7 (4-67)	0.1-1.7 (4-67)	0.1-1.7 (4-67)
Linear slides stroke length, mm (in.)	90 (3.5)	90 (3.5)	90 (3.5)	90 (3.5)
Rotary slide setting angle	360°	360°	360°	360°

## A6 Mastertrac A6TF (SAW)

For efficient Submerged-arc Welding

- Self-propelled, four-wheel drive automatic welding machine.
- Easy to move with quick set-up for different workpieces.
- Suitable for heavy production welding with capacity for up to 6 mm (0.24 inch) wire using 1500A direct or alternating current.
- Designed for use with LAF or TAF welding power sources.
- Three different designs:

**Single:** available with standard or high speed motor

**Twin-Arc:** with a simple add-on for the extra wire, you can convert an A6 Single Mastertrac into a highly productive automatic Twin-arc welder for fillet and butt welds without the use of an extra machine or power source.

**Tandem:** the high deposition rate using a multi-electrode system increases productivity substantially. By selecting different combinations of direct and alternating currents, the A6 Tandem Mastertrac can handle any type of welding work resulting in increased profitability.

- Weld mild steel and aluminium solid or cored wire by modifying an A6 Single Mastertrac with an easy conversion kit for Gas metal arc welding (GMAW).
- Pre-set and control of welding parameters with the A2-A6 Process Controller PEK - a digital control system with display menus; 255 different weld sets can be stored.

### Ordering information

A6 Mastertrac A6TF (SAW)	0461 235 880
A6 Mastertrac A6TF (SAW Twin)	0461 235 881
A6 Mastertrac A6TF (SAW, high speed)	0461 235 890
A6 Mastertrac A6TF (SAW, Twin, high-speed)	0461 235 891
A6 Mastertrac Tandem A6TF (SAW, AC/DC 1500)	0461 232 882
Sales Literature	XA00143420

All sales literature can be downloaded at [assets.esab.com](http://assets.esab.com)



A6 Mastertrac Tandem

### Options & Accessories

Contact equipment heavy Twin Arc, compl.	0334 291 889
Wire reel, plastic 30 kg (66 lbs.)	0153 872 880
Wire reel, steel 30 kg (66 lbs.)	0416 492 880
Wire reel, steel, flexible width	0449 125 880
Brake hub extra	0146 967 880
Rebuilding kit GMAW	0334 299 890
Strip cladding kit	0155 972 880
Flux hopper holder for strip cladding	0148 107 003
Wire reel, steel for strip cladding	
30-100 mm (1.2-4.0 in.)	0671 161 880
Flux recovery nozzle, strip cladding	0156 025 001
Flux funnel	0254 900 880
Insert, extended	0254 900 301
Angular slide	0671 171 580
Pilot lamp, laser diode	0821 440 880
Flux recovery unit OPC	0148 140 880
Bracket suction	0332 947 880
Idler rollers (2 per automat)	0333 164 880
Guide wheel, fillet	0671 125 780
Magnet guide rail, 3 m (10 ft.)	0154 203 880

### Carbon arc gouging

Rebuilding kit	
(use with carbon electrodes Ø 8.9-12.7)	0153 592 880
VEC-motor, 312:1	20145 063 905

Technical data	Single SAW	Single GMAW	Twin SAW	Tandem SAW
Permissible load 100%, A	1500	600	1500	2x1500
Wire diameter, mm (in.)	3.0-6.0 (1/8-1/4)	1.0-3.2 (0.045-1/8)	2x2.0-3.0 (2x3/32-1/8)	2x3.0-6.0 (2x1/8-1/4)
Wire feed speed, m/min (ipm)	0.2-4.0 (8-157.5)	0.8-16.6 (31.5-653.5)	0.2-4.0 (8-157.5)	0.2-4.0 (8-157.5)
Wire feed speed high, m/min (ipm)	0.4-8.0 (16-315)	-	0.4-8.0 (16-315)	-
Travel speed, m/min (ipm)	0.1-2.0 (4-79)	0.1-2.0 (4-79)	0.1-2.0 (4-79)	0.1-2.0 (4-79)
Control voltage, V AC	42	42	42	42
Wire reel weight, kg (lbs.)	30 (66)	30 (66)	2x30 (2x66)	2x30 (2x66)
Flux hopper capacity, l (gal.)	10 (2.6)	-	10 (2.6)	10 (2.6)
Weight excl wire and flux, kg (lbs.)	110 (242.5)	100 (220.5)	110 (242.5)	158 (348)

## A6-DK

### The portal welding machine

- Works with a single wire on each head.
- Each weld head is controlled by the A2-A6 PEK process controller and LAF (DC) or TAF (AC) power source.
- Ideal for simultaneous horizontal-vertical welding on both sides of a web or through panel.
- Straddles workpieces up to 800 mm (31 inch) tall and symmetrical profile widths of 400 mm (16 inch).
- Travels directly on a workpiece guided by a joint.
- Travel speed adjustable from 0.15-2.0 m/min (6-79 ipm).
- Store up to 10 l (2.6 gal.) of flux in the hopper.
- Each weld head is equipped with OPC flux recovery system.



### Ordering information

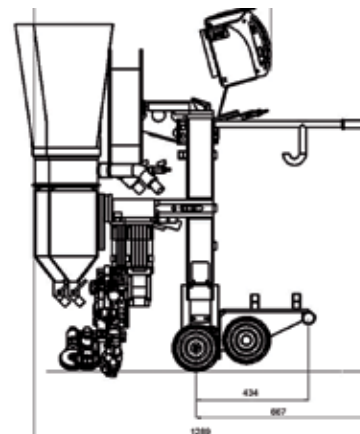
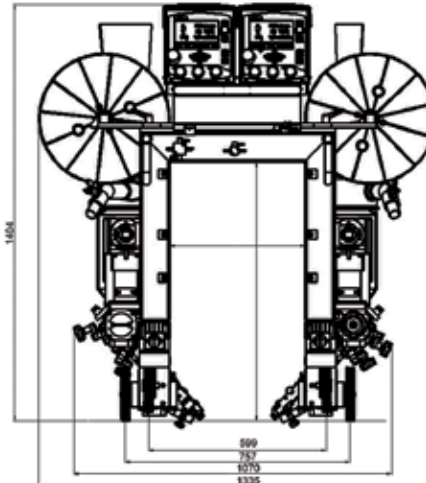
A6-DK SAW, single wire  
 excl. wire reel, feed rollers and contact jaws \*) 0461 237 901  
 Sales Literature XA00143620

All sales literature can be downloaded at [assets.esab.com](http://assets.esab.com)

\*) when contact equipment is excluded, feed rollers and contact jaws have to be ordered separately.

### Options & Accessories

Wire reel, plastic, 30 kg (66 lbs.) 0153 872 880  
 Wire reel, steel, 30 kg (66 lbs.) 0416 492 880



Technical data	
Permissible load 100%, A	1500
Travel speed, m/min (ipm)	0.15-2.0 (6-79)
Wire feed speed, m/min (ipm)	0.2-4.0 (8-157.5)
Wire reel weight, kg (lbs.)	2x30 (2x66)
Wire diameter SAW, mm (in.)	3.0-6.0 (1/8-1/4)
Flux hopper capacity (each weld head), l (gal.)	10 (2.6)
Weight, excl wire and flux, kg (lbs.)	150 (331)
<b>Straddle opening:</b>	
Vertical space limitation, mm (in.)	800 (31)
Longitudinal. symmetrical extension, mm (in.)	400 (16)

## ESAB Mechanised GMAW Solutions

Now in separate sales literature

- Key benefits of mechanisation, advanced process solutions, recommended ESAB consumables and standard equipment.
- Updated offering of battery-driven welding tractors and carriages easily mechanise your GMAW process and thermal cutting applications for weaving and non-weaving tasks to meet real-world welding and cutting challenges.
- Innovative features ensure high quality welds and cuts with the highest possible productivity, reliability, repeatability and efficiency.
- Flexible operation with either a battery or external power source.
- All models feature a reliable 4-wheel drive system with rapid acceleration and accurate stepper motor control for constant travel speeds, resulting in more time welding and less downtime.



### Ordering information

Sales Literature

XA00204220

All sales literature can be downloaded at [assets.esab.com](https://assets.esab.com)

# **Welding** Heads





## A2S Mini Master

A multi-purpose automatic welding system

- Versatile welding system for single wire SAW, twin wire SAW or GMAW.
- Light-weight, compact design allows for greater flexibility.
- Modular design allows user to expand, integrate or modify the system quickly and easily.
- Uses A2-A6 PEK or A2 PEI process controller.
- Accurate, easy joint-tracking with manual or motorized slide system and manual PAV or automatic GMH joint tracking.
- The system attaches to any beam travelling carriage or Column & Boom system.



### Ordering information

#### A2S Mini Master SAW Systems

*Incl A2-A6 Process controller PEK and wire equipment*

With manual slides 90x90 mm	0449 170 900
With motorized slides 180x180 mm and PAV	0449 170 901
With motorized slides 180x180 mm and GMH	0449 170 902

*Incl A2 Process controller PEI and wire equipment*

With manual slides 90x90 mm	0449 370 880
With motorized slides 180x180 mm and PAV	0449 370 881
With motorized slides 180x180 mm and GMH	0449 370 882

#### A2S Mini Master GMAW MTW (4WD) Systems

*Incl A2-A6 Process controller PEK and wire equipment*

With manual slides 90x90 mm	0449 181 900
With motorized slides 180x180 mm and PAV	0449 181 901
With motorized slides 180x180 mm and GMH	0449 181 902

*Incl A2 Process controller PEI and wire equipment*

With manual slides 90x90 mm	0449 380 880
With motorized slides 180x180 mm and PAV	0449 380 881
With motorized slides 180x180 mm and GMH	0449 380 882

### Options & Accessories

Pilot lamp, laser diode (for PEK), 2 m cable	0821 440 880
Pilot lamp, laser diode (for PEK), 5 m cable	0821 440 882
Pilot lamp, laser diode (for PEK), 7 m cable	0821 440 883
Thin wire straightener, single wire	0332 565 880

#### Gas handling equipment, GMAW only:

Cooling unit OCE 2H, 220V AC 50/60 Hz	0414 191 881
Gas hose	0190 270 101
Water-cooling hose	0190 315 104
Arc shield	0334 689 880

#### Optional equipment SAW:

Flux recovery unit OPC	0148 140 880
Flux container, silumin alloy	0413 315 881
Concentric flux funnel	0145 221 881
Contact tube, bent	0413 511 001
Wire reel, plastic, 30 kg (66 lbs.)	0153 872 880
Wire reel, steel, 30 kg (66 lbs.)	0416 492 880
Wire reel, steel, flexible width	0449 125 880
Wire reel, steel, Ø 220 mm (8.7 inch)	0671 164 080

*For PEK:*

Conversion kit, SAW to GMAW A2 (2WD)	0461 247 880
Conversion kit, SAW to GMAW MTW (4WD)	0461 248 880

*For PEI:*

Conversion kit, SAW to GMAW	0413 526 881
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Technical data	Single wire SAW	Twin wire SAW	GMAW	GMAW MTW 600w
Wire diameter, mm (in.)	Steel 1.6-4.0 (1/16-5/32) Stainless Steel 1.6-4.0 (1/16-5/32) Cored wire 1.6-4.0 (1/16-5/32) Aluminium -	2x1.2-2.5 (2x.045-3/32)	0.8-1.6 (.030-1/16) 0.8-1.6 (.030-1/16) 1.2-2.4 (.045-3/32) 1.2-1.6 (.045-1/16)	1.0-1.6 (.040-1/16) 1.0-1.6 (.040-1/16) 1.0-2.4 (.040-3/32) 1.0-2.0 (.040-5/64)
Max. wire feed speed, m/min (ipm)	9 (354)	9 (354)	16 (630)	25 (984)
Flux hopper capacity, l (gal.)	6 (1.4)	6 (1.4)	-	-
Max. permissible load 100%, A	800	800	600	600
Control voltage, V AC	42	42	42	42
Linear slide stroke length, mm (in.)	90 (3.5)	90 (3.5)	90 (3.5)	90 (3.5)
Rotary slide setting range	360°	360°	360°	360°

## A6S Arc Master

### Flexibility as standard

- Flexibility, reliability and superior performance capability
- Comprehensive component and module system make process customization easy.
- A6 VEC motor for reliable and consistent wire feed.
- Accurate, easy manual PAV or automatic GMH joint tracking with manual slides or joystick-controlled motor-operated cross slides.
- Capable of heavy-duty gas metal arc welding (GMAW), single/twin wire submerged arc welding (SAW), as well as strip cladding and Integrated Cold Electrode (ICE) welding with optional accessories.
- Uses A2-A6 PEK process controller for fast, accurate pre-setting of all parameters before welding starts.
- Feedback system ensures high and consistent welding quality - saves time and material.
- The welding heads can be equipped with a standard wire feed unit (gear ratio 156:1) or with a high-speed wire feed unit (gear ratio 74:1).



### Ordering information

#### Single wire SAW systems

standard wire feed unit (gear ratio 156:1)

With manual slides 210x210 mm	0449 270 900
With motorized slides 300x300 mm and PAV	0449 270 901
With motorized slides 300x300 mm and GMH	0449 270 902

high-speed wire feed unit (gear ratio 74:1)

With manual slides 210x210 mm	0449 270 910
With motorized slides 300x300 mm and PAV	0449 270 911
With motorized slides 300x300 mm and GMH	0449 270 912

#### Twin-wire SAW system

high-speed wire feed unit (gear ratio 74:1)

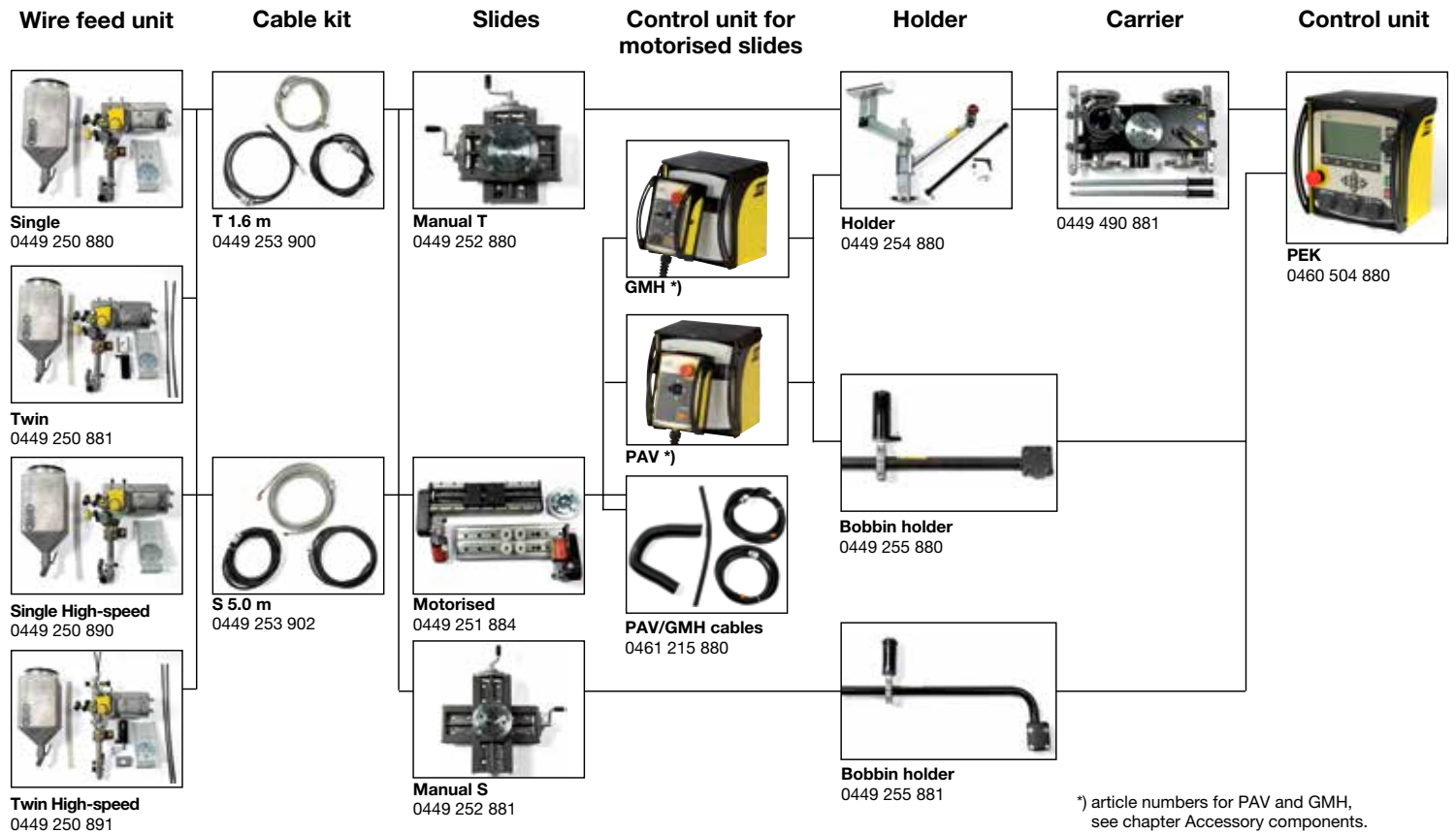
With manual slides 210x210 mm	0449 271 910
With motorized slides 300x300 mm and PAV	0449 271 911
With motorized slides 300x300 mm and GMH	0449 271 912



Technical data	Ratio 156:1	Ratio 74:1
Max. wire feed speed, m/min (ipm)	0.2-4.0 (8-157)	0.4-8.0 (16-315)
Wire diameter, single, mm (in.)	3.0-6.0 (0.118-0.236)	1.6-4.0 (0.063-0.157)
Wire diameter, twin, mm (in.)	2x2.0-2x3.0 (2x0.079-2x0.118)	2x1.6-2x2.5 (2x0.063-2x0.098)
Tubular wire single, mm (in.)	3.0-4.0 (0.118-0.157)	1.6-4.0 (0.063-0.157)
Linear slide stroke length, mm (in.)	90 (3.5)	90 (3.5)
<b>Rotary slide setting range</b>		
Circular slide, crank operated	± 180°	± 180°
Straightener	± 45°	± 45°
Max. permissible load, 100%, A	1500	1500



## A6 Component system Modularization



## A6S and A6DS Tandem welding heads

For optimum productivity

- Suitable for heavy construction welding.
- Capable of welding DC/DC, DC/AC or AC/AC.
- Uses A2-A6 Process Controller PEK for quick and accurate programming of welding parameters for each torch.
- Feedback system gives high and consistent welding quality from start to finish, saving time and money.
- Versatile positioning through easy to use, complete slide assembly for welding torch position, distance stick-out and angle on both leading and trailing torches.
- Enhance productivity by adding optional equipment such as Twin Wire and Integrated Cold Wire systems.
- Available in two basic versions, A6S Tandem Master and A6DS Tandem Master with several configurations to match specific safety, quality and productivity requirements.
- Welding heads can be equipped with a standard wire feed unit (gear ratio 156:1) or with a high-speed wire feed unit (gear ratio 74:1).



### Ordering information

A6S Tandem Master, standard (156:1)	0818 971 880
A6S Tandem Master, high-speed (74:1)	0818 971 881
A6DS Tandem Master, standard (156:1)	0818 970 880
A6DS Master, high-speed (74:1)	0818 970 881
Sales Literature	XA00119120

All sales literature can be downloaded at [assets.esab.com](http://assets.esab.com)

### Options & Accessories

Twinkit (one per torch)	0809 934 882
GMH, joint tracking with remote, complete	0460 884 880
GMH, joint tracking with control panel, compl	0460 884 881
GMH, slide motor cables, 5.0 m (16 ft.)	0461 215 880
Laser lamp, 5 m cable (16 ft.)	0821 440 882
Laser lamp, 7 m cable (23 ft.)	0821 440 883
Bracket (straight) for wire	0334 318 880
Brake hub, for wire reel	0146 967 880
Wire reel, plastic, 30 kg (66 lbs.)	0153 872 880
Wire reel, steel, fixed width, 30 kg (66 lbs.)	0416 492 880
Wire reel, steel, flexible width, 30 kg (66 lbs.)	0449 125 880

Technical data (Basic components)	A6S Tandem Master	A6DS Tandem Master
A6 feed unit HD type for wire 3-6 mm (1/8-1/4 in.)	2 pcs	2 pcs
Horizontal motorized slide with double runners L=355 mm (14 in.)	1 pc	1 pc
Vertical motorized slide with double runners L=595 mm (23.4 in.)	1 pc	1 pc
PEK, process controller	2 pcs	2 pcs
Flux hopper, 10 l (2.3 gal.) incl bracket	1 pc	1 pc
Cable holder	1 pc	1 pc
Main bracket with mounting flange for cross slide assembly	1 pc (0810 786 880)	-
Swivel bracket for rotating head 90°	1 pc (0334 549 880)	1 pc (0809 873 880)
Welding head	2 pcs	2 pcs
<b>Each welding head has:</b>		
A6 manual slide L=90 mm	1 pc (0154 465 880)	1 pc (0154 465 880)
A6 circular slide	1 pc (0671 171 580)	1 pc (0671 171 580)
Insulators	4 pcs (0278 300 180)	4 pcs (0278 300 180)
Total weight (excl PEK, wire and flux) approx. kg (lbs)	215 (474)	190 (419)

## A6S and A6DS Tandem welding heads

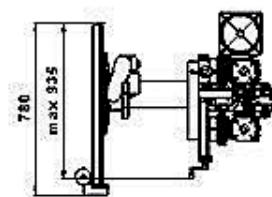
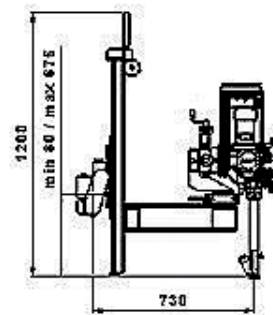
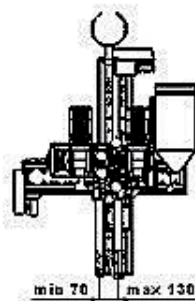
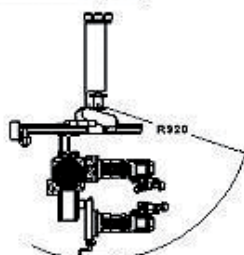
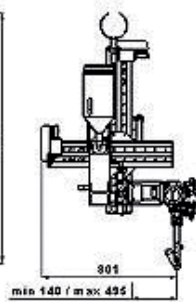
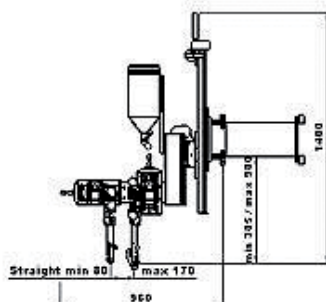
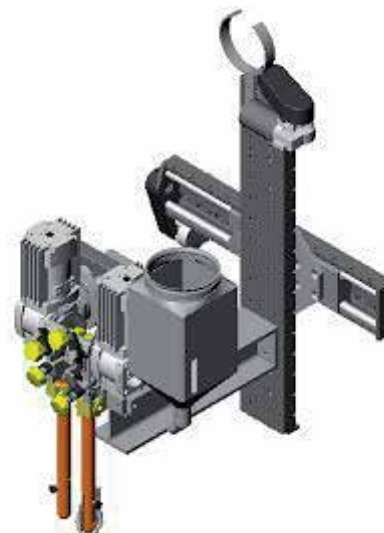
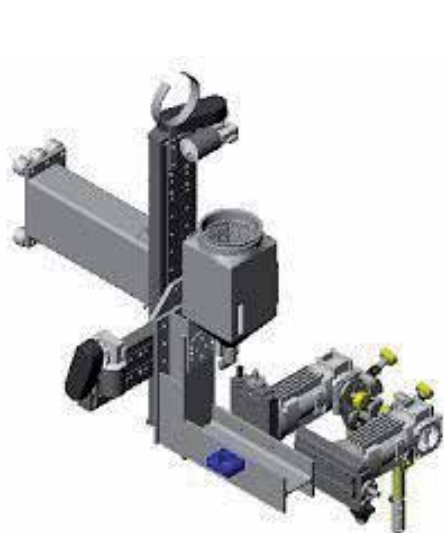
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### A6S Tandem Master

- Optimized for welding across multiple perpendicular axes and is key in the welding of cylindrical objects where both longitudinal and circumferential welding is required.
- Adjustable  $+90^\circ$  interval turning bracket and cross slide.
- Automatic joint tracking keeps in track no matter which direction welding occurs.

### A6DS Tandem Master

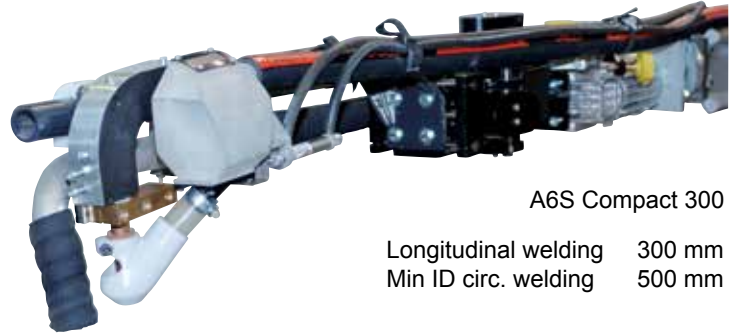
- Optimized for welding in multiple directions and is key in the automated welding of long weld joints such as beams and girders.
- Adjustable  $\pm 90^\circ$  interval turning bracket and fixed cross slide.
- Automatic joint tracking in any direction when integrated to ESAB column and boom M-model systems; simply rotate the head  $180^\circ$  and weld in the reverse direction.



## A6S Compact welding heads for internal welding

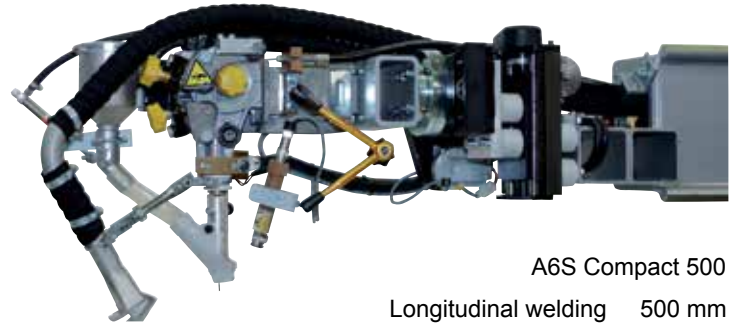
For excellent welding results

- For welding longitudinal and circumferential butt joints inside tubes.
- Three versions available:
  - A6S Compact 300 for internal welding of tubes down to 300 mm (12 inch) inside diameter.
  - A6S Compact 500 for internal welding of tubes down to 500 mm (20 inch) inside diameter.
  - A6S Compact 700 for internal welding of tubes down to 700 mm (27.5 inch) inside diameter.
- Equipped with reliable, VEC feed motor for superior weld performance.
- Supervise and adjust the head position via TV monitoring system - Optional.
- Use standard mini-cross slide assembly and PAV manual tracking system or GMH automatic joint tracking system to easily follow the joint - Optional.
- Add either the FFRS Basic/Super or FFRS 1200/3000 Flux Feed & Recovery System to optimize the welding process.



A6S Compact 300

Longitudinal welding 300 mm  
Min ID circ. welding 500 mm



A6S Compact 500

Longitudinal welding 500 mm  
Min ID circ. welding 550 mm



A6S Compact 700

Longitudinal welding 700 mm  
Min ID circ. welding 750 mm

### Ordering information

A6S Compact 300 Welding head, standard	0809 280 880
A6S Compact 300 Welding head, high-speed	0809 280 881
A6S Compact 500 Welding head, standard	0416 967 880
A6S Compact 500 Welding head, high-speed	0416 967 882
A6S Compact 700 Welding head, standard	0811 054 880
A6S Compact 700 Welding head, high-speed	0811 054 881
Sales Literature	XA00124620

All sales literature can be downloaded at [assets.esab.com](http://assets.esab.com)

Technical data	Compact 300
<b>Wire diameters, mm (in.)</b>	
- Steel	3.0-4.0 (1/8-5/32)
- Stainless steel	3.2 (1/8)
Permissible load 100%, A	800
Control voltage, V AC	42
Travel speed, m/min (ipm)	0.1-1.7 (4-67)
Linear slides stroke range, mm (in.)	50 (2)
Rotary slide setting range	360°
Wire feed speed, standard, m/min (ipm)	0.2-4.0 (8-157)
Wire feed speed, high.speed, m/min (ipm)	0.4-8.0 (15.7-315)

For technical data for Compact 500 and 700, please contact your local ESAB representative.

### Options & Accessories - Compact 300

Flux valve control kit, including solenoid valve and 5 m (16.4 ft.) air hose	0813 620 880
TV monitoring equipment	0811 176 880
Laser pointer	0811 177 880

#### Contact tips, wire size

M12, 3.0 mm (7/64 in.)	0154 623 005
M12, 3.2 mm (1/8 in.)	0154 623 004
M12, 4.0 mm (5/32 in.)	0154 623 003

#### Feed rollers, wire size

3.0-3.2 mm (1/8 in.)	0218 510 298
4.0 mm (5/32 in.)	0218 510 286

## ICE™

### Revolutionary SAW technology for enhanced productivity

- ESAB's patent pending ICE™ technology exploits the excess heat from the Twin SAW process to increase productivity by up to 100% without increasing heat input.
- **Up to 50% higher deposition rate.** Submerged arc welding is already the most productive welding process. But as with any other welding process, the need to limit heat input inhibits productivity. Instead of adding more energy, ICE™ utilises the excess heat available to melt more wire. This boosts productivity by up to 50%, depending on the application.
- **High Deposition Root™** - the ICE™ technology enables the use of tandem welding in root passes, for improved penetration and high productivity and eliminating the need for back gouging. High Deposition Root can increase productivity up to 100% in root welding, depending on the application.
- **Higher welding speed** - the increased deposition rate can also be utilised to increase welding speed. This can significantly improve productivity in applications where welding speed is the key to maximising productivity.
- **Reduced energy consumption** - welding is an energy intensive manufacturing operation. The ICE™ process enables an increase in deposition rate by up to 50%, without adding more energy. This combines environmental benefits with significantly reduced energy consumption.
- **Innovative Flat Cap Control™** - adjusting the ratio of "cold wire" used for cap runs makes it possible to produce a flatter cap to the weld. This increases fatigue resistance and reduces the need for post weld treatment. Just one more boost to your productivity.
- **Reduced flux consumption** - The significant productivity improvement provided by ICE™ enables many applications to be completed with fewer runs. In this way, flux consumption can be reduced by up to 20% when welding with a 50% higher deposition rate.



### Comparison of deposition rate for ICE™ and other methods.

Deposition rate →



ICE™



Twin DC+



Single DC+

### Single power-source and welding-head solutions

Deposition rate →



DC + AC ICE™



DC + Twin AC+



DC + AC

### Two power-source and welding-head solutions (tandem welding)

*These results are based on the testing results carried out under controlled conditions by ESAB using ESAB consumables and experienced welding engineers and may vary accordingly.*

### Suitable application areas

- On- and offshore windtower manufacturing
- Offshore fabrication
- Pipe welding
- General heavy fabrication
- Shipbuilding

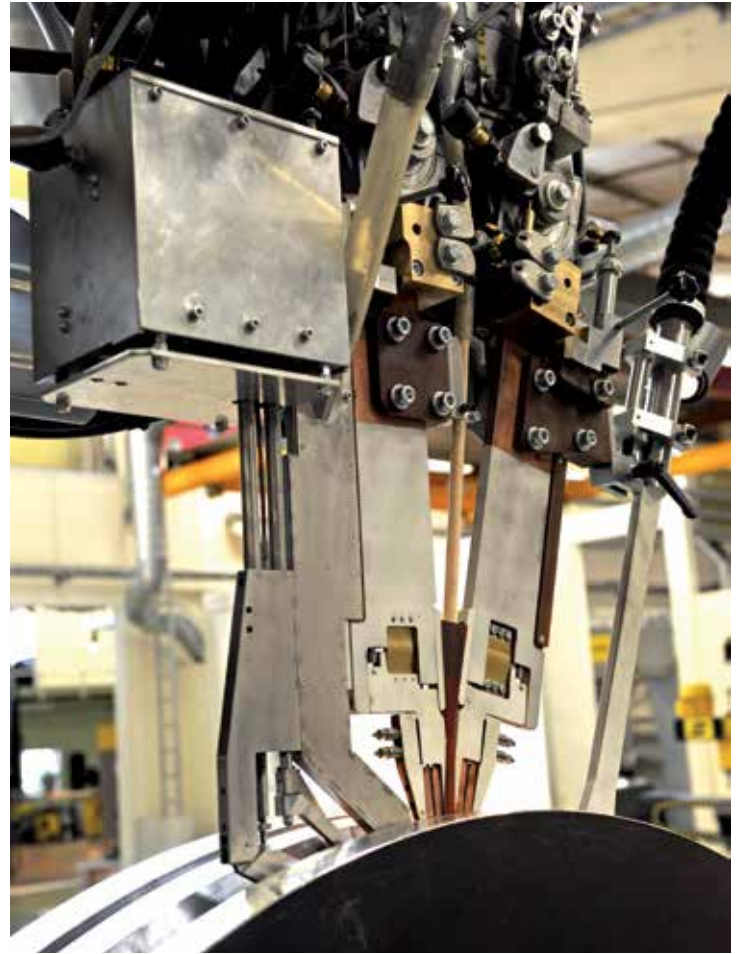
## HNG Multi

### Narrow Gap Welding System

- Designed for both Single (AC or DC) and tandem (DC/AC or AC/AC) wire welding in parallel or almost parallel joints, ranging in width from 18 mm (0.71 in.) and in depth down to 350 mm (13.8 in.).
- Continuous double-sided joint tracking gives a high reliability at shift overlap.
- Continuous measuring of joint width
- Short-circuit protected, welding head - workpiece.
- Automatic positioning.
- Possible to weld up to 50 mm (1.97 in.) joint width
- Air-cooled torch
- Reliable and uniform high weld quality
- High productivity.
- Minimum of supplementary work.

#### Technical data

Weld joint type	Butt
Wire dimension, mm (in.)	3-4 (0.12-0.16)
Wire feed motor	A6 VEC 156:1, 4000 rpm
Max. wire feed speed, m/min (ipm.)	4 (157)
Max welding current DC, A	800
Max welding current AC, A	800
Beads in each layer	2-4
Deposition rate, kg/h (lbs./h)	approx. 7/16 (15.4/35.3) (Single/Tandem)
Tilting angle of weld nozzle	± 3.5°
Max. joint depth, mm (in.)	350 (13.8)
Joint width, mm (in.)	18-50 (0.71-1.97)
Wire angle between wires	15°
Distance between wires, mm (in.)	15 (0.59) (valid for 30 mm (1.18) stick-out)
Accuracy of joint tracking, mm (in.)	± 0.15
Max heat resistance, workpiece, °C (°F)	300 (572)
Min weld diameter, mm (in.)	500/1200 (19.7/47.2) Single/Tandem
Flux hopper unit	OPC Super
Flux hopper capacity, l (gal.)	approx. 10 (2.64)
<b>Min clearance internal weld</b>	
- Longitudinal, Ø mm (in.)	1500 (59.06)
- Circumferential, Ø mm (in.)	1500 (59.06)
Weight, kg (lbs.)	140/165 (309/364) (Single/Tandem)



#### Ordering information

For more information, please contact your nearest ESAB representative.

Sales Literature

XA00141620



Double-sided joint tracking

## A6S SAW strip cladding kit

For surfacing with high alloyed materials

- Used in combination with standard A6S Arc Master welding head.
- Provides an economical solution for surfacing with high alloyed materials such as stainless steel or nickel-based alloys.
- Choose a wider variety of parent materials and consumables.
- Stainless steel cladding is widely used in production of components where additional strength or corrosion resistance is required.
- Welding head can be fitted with electrode strips as wide as 30-100 mm (1.2-4.0 inch) and as thick as 0.5 mm (0.02 inch).

### Ordering information

Strip cladding kit

(for use with A6T SAW Tractor or A6S Arc Master HD)

Sales Literature

0155 972 880

XA00101020

All sales literature can be downloaded at [assets.esab.com](http://assets.esab.com)

### Options & Accessories

Reel holder (not to be used with motor-operated cross slide)

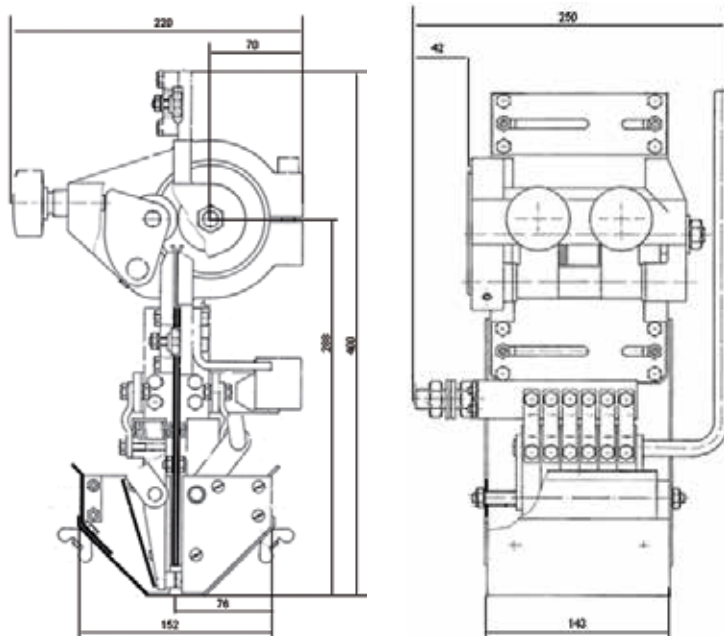
0417 636 880

Wire reel, steel

0416 492 880

Suction nozzle, flux

0156 025 001



### Technical data

Max. welding current at 100% duty cycle, A	1500
Feed roller diameter, mm (in.)	50 (2.0)
Strip width, mm (in.)	30-100 (1.2-4.0)
Strip thickness, mm (in.)	0.5 (0.02)
Strip feed speed	see sales literature for A6 Mastertrac, (XA00109420) or A6S Arc Master (XA00088920)

### ESW - Electroslag welding

ESW is a method of strip cladding, but differs from SAW strip cladding in that the arc is created between the electrode and the workpiece.

The welding flux that is put into the joint melts and a slag pool is produced, which then increases in depth.

When the temperature of the slag and its conductive capacity thereby increases, the arc is extinguished and the welding current is conducted via the molten slag where the necessary welding energy is produced through resistance.

This method can be used for joining thicknesses of 25 mm (1 in.) and above.

**Contact ESAB** for Options & Accessories and Technical Data for the ESW Welding Head.





# **Column & Booms**



## CaB Systems

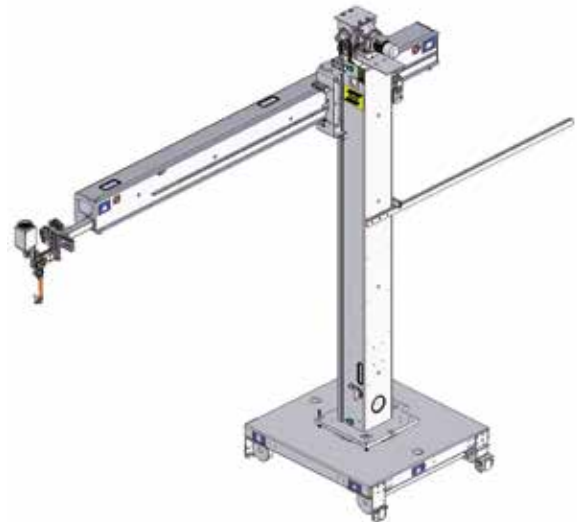
Cost efficient and flexible weld mechanization

- Modular design concept allows total customization using standard components.
- Large selection of available components to integrate for a custom solution:
- Any A2 or A6 weld head
- A2-A6 Process Controller PEK with ESAB DC or AC power sources
  - ESAB turning rolls and positioners
  - ESAB flux feeding and recovery systems
  - Monitoring systems and cameras
  - Four basic station configurations, suitable for most standard applications.
- Three different sizes; 300, 460 and 600 (number refers to boom profile height (mm) which determines working range and load capability).
- Choose from stationary or mobile, rail-travelling carriage systems.
- Versatile to respond to any automated welding demand.



### Standard CaB sizes

The three different sizes 300, 460 and 600 are the beam height dimensions of the boom in millimeters. Each boom size has a corresponding column. The different sizes are not only limited in where it can fit, but also how far the boom can extend and how much load that can be put on.



#### **Basic Station 1 - Standard format**

*Conventional Column and boom, with a movable boom and welding head at boom end. Welding equipment can be positioned along four axes.*

## CaB Systems

Cont.

### CaB 300M / 460M / 600M

#### Modular format - extended functionality

- A modular range of column and booms, available in three load sizes.
- Standard mechanical performance, including cable chains for the boom motions.
- The welding head is mounted at the front end of the boom.
- More than 20 options fully integrated, such as tandem welding, shift function, transport speed etc.
- Due to modularity and the fixed configuration possibilities the lead times for delivery can be kept at a minimum.



**Basic Station 1 - Modular and Custom format**

*Conventional Column and boom, with a movable boom and welding head at boom end. Welding equipment can be positioned along four axes. Cable chains are included.*

### CaB 300C / 460C / 600C

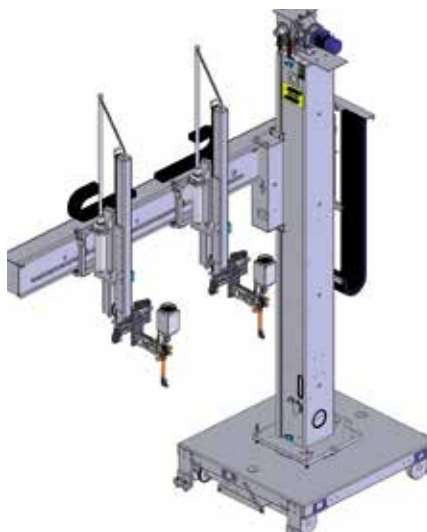
#### Custom format - special capabilities

- A customized range of welding column and booms for different customer requirements and applications.
- Loading capacities and working strokes for utmost accessibility to the welding joints.
- Based on the modular CaB range, solutions to meet the most demanding request can be achieved.
- Welding methods as TIG, MIG and SAW cladding as well as Nar row Gap can be chosen on customized stations.



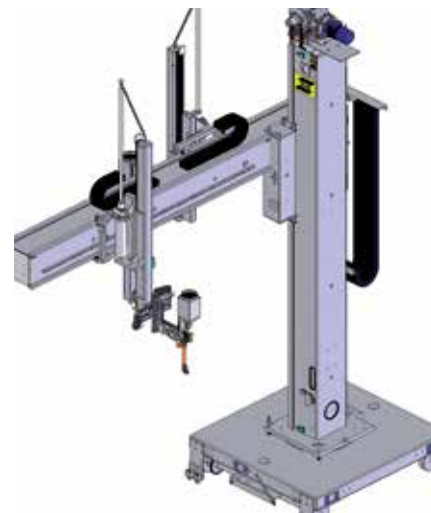
**Basic Station 2 - Custom format**

*Conventional Column and boom, with a movable boom and welding head at boom end combined with a boom-carriage-mounted welding head (not CaB 300).*



**Basic Station 3 - Custom format**

*Side-boom manipulator with horizontally fixed boom, supporting one or two welding heads. This welding station, which offers flexible movement, is the basic unit for welding girders and profiles and for joining plates and sections.*



**Basic Station 4 - Custom format**

*Side-boom manipulator with double-track boom. Welding heads mounted on either side of the boom. The boom carriages can be individually controlled by the joint tracking systems, on separate tracks. Ideal for transversal double-fillet welding of stiffeners.*

## CaB Systems

Technical data CaB 300M

### Technical data - Column

Effective working range, m (ft.)	3 (10)	4 (13)	5 (16.5)
Max. boom height <b>A</b> , mm (ft.) using movable carriage, min mm (ft.)	4070 (13) 930 (3)	5070 (16.5) 930 (3)	6070 (20) 930 (3)
Max. boom height <b>B</b> , mm (ft.) using concrete stand, min mm (ft.)	3955 (15.6) 815 (2.67)	4955 (19.5) 815 (2.67)	5955 (23.5) 815 (2.67)
Max. boom height <b>C</b> , mm (ft.) using stationary foot plate, min mm (ft.)	3750 (14.7) 610 (2.4)	4750 (18.7) 610 (2.4)	5750 (22.6) 610 (2.4)
Total height <b>D</b> using movable carriage, mm (ft.)	5170 (17)	6170 (20)	7170 (23.5)
Total height <b>E</b> using concrete stand, mm (ft.)	5055 (16.5)	6055 (20)	7055 (23)
Total height <b>F</b> using stationary foot plate, mm (ft.)	4850 (16)	5850 (19)	6850 (22.5)
Lifting speed, m/min (ipm)	0.7 (27.5)	0.7 (27.5)	0.7 (27.5)
Max total load on column platform, kg (lbs)	600 (1320)	600 (1320)	600 (1320)

### Technical data - Boom

Effective working range, m (ft.)	3 (10)	4 (13)	5 (16.5)
Extension <b>G</b> , max mm (ft.) min mm (ft.)	3580 (11.75) 540 (1.77)	4580 (15) 540 (1.77)	5580 (18) 540 (1.77)
Permissible loads: total, max kg (lbs.) one end, max kg (lbs.)	300 (660) 240 (530)	220 (485) 150 (331)	150 (330) 75 (165)
Cross-sectional diameter <b>H</b> , mm (ft.)	325 (13)	325 (13)	325 (13)
Welding speed, m/min (ipm)	0.1-2.0 (4-79)	0.1-2.0 (4-79)	0.1-2.0 (4-79)
Transport speed, m/min (ipm)	2.0 (79)	2.0 (79)	2.0 (79)

### Technical data - Rail carriage

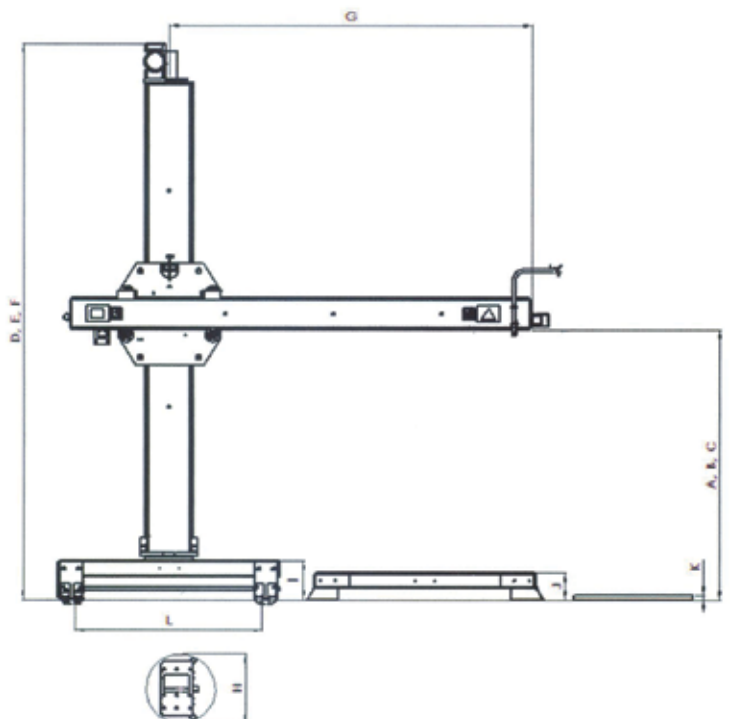
Track width <b>L</b> , inside to inside, mm (in.)	1730 (68.11)
Width x length, mm (in.)	2060x2330 (81.1x91.7)
Height <b>I</b> , mm (in.)	365 (14.37)
Welding speed, m/min (ipm)	0.1-2.0 (4-79)
Transport speed, m/min (ipm)	2.0 (79)
Total weight, kg (lbs.)	1670 (3681)

### Technical data - Concrete stand

Width x length, mm (in.)	2060x2100 (81.1x82.7)
Height <b>J</b> , mm (in.)	250 (9.84)
Total weight, kg (lbs.)	1550 (3417)

### Technical data - Foot plate

Width x length, mm (in.)	1100x1100 (43.3x43.3)
Height <b>K</b> , mm (in.)	40 (1.57)
Total weight, kg (lbs.)	350 (772)



## CaB Systems

Technical data CaB 460M

### Technical data - Column

Effective working range, m (ft.)	4 (13)	5 (16.5)	6 (20)	7 (23)
Max. boom height <b>A</b> , mm (ft.) using movable carriage, min mm (ft.)	4950 (16) 950 (3.12)	5950 (19.5) 950 (3.12)	6950 (23) 950 (3.12)	7950 (26.08) 950 (3.12)
Max. boom height <b>B</b> , mm (ft.) using concrete stand, min mm (ft.)	4845 (16) 845 (2.77)	5845 (19) 845 (2.77)	6845 (22.5) 845 (2.77)	7845 (25.74) 845 (2.77)
Max. boom height <b>C</b> , mm (ft.) using stationary foot plate, min mm (ft.)	4510 (15) 510 (1.6)	5510 (18) 510 (1.6)	6510 (21.5) 510 (1.6)	7510 (24.64) 510 (1.6)
Total height <b>D</b> using movable carriage, mm (ft.)	6275 (20.5)	7275 (24)	8275 (27)	9275 (30.43)
Total height <b>E</b> using concrete stand, mm (ft.)	6170 (21)	7170 (23.5)	8170 (27)	9170 (30)
Total height <b>F</b> using stationary foot plate, mm (ft.)	5835 (20)	6835 (22.5)	7835 (25.5)	8835 (29)
Lifting speed, m/min (ipm)	2.0 (79)	2.0 (79)	2.0 (79)	2.0 (79)
Max total load on column platform, kg (lbs)	1500 (3300)	1500 (3300)	1500 (3300)	1500 (3300)

### Technical data - Boom

Effective working range, m (ft.)	4 (13)	5 (16.5)	6 (20)	7 (23)
Extension <b>G</b> , max mm (ft.) min mm (ft.)	4715 (15.5) 715 (2.35)	5715 (18.8) 715 (2.35)	6715 (22) 715 (2.35)	7715 (25.3) 715 (2.35)
Permissible loads: total, max kg (lbs.) one end, max kg (lbs.)	1100 (2423) 550 (1213)	1050 (2313) 450 (992)	1000 (2203) 350 (772)	950 (2094) 150 (331)
Cross-sectional diameter <b>H</b> , mm (ft.)	630 (25)	630 (25)	630 (25)	630 (25)
Welding speed, m/min (ipm)	0.1-2.0 (4-79)	0.1-2.0 (4-79)	0.1-2.0 (4-79)	0.1-2.0 (4-79)
Transport speed, m/min (ipm)	2.0 (79)	2.0 (79)	2.0 (79)	2.0 (79)

### Technical data - Rail carriage

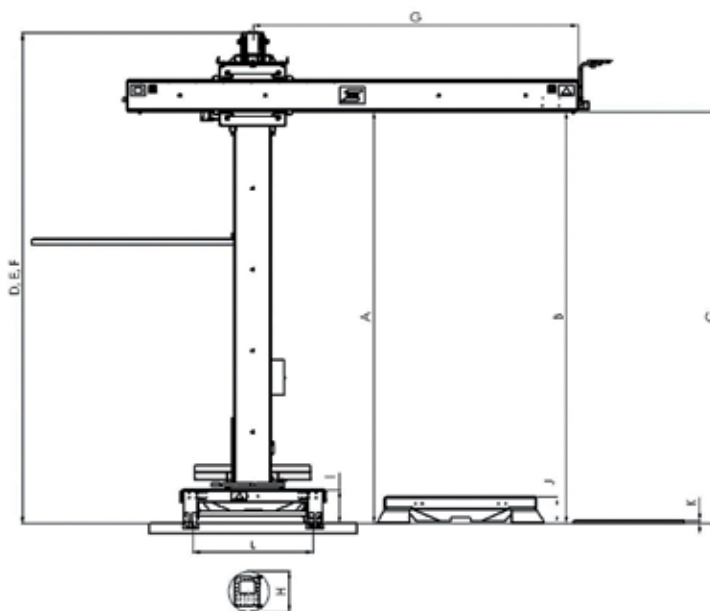
Track width <b>L</b> , inside to inside, mm (in.)	1730 (68.11)
Width x length, mm (in.)	2100x2380 (82.7x93.7)
Height <b>I</b> , mm (in.)	485 (19.1)
Welding speed, m/min (ipm)	0.1-2.0 (4-79)
Transport speed, m/min (ipm)	2.0 (79)
Total weight, kg (lbs.)	2860 (6305)

### Technical data - Concrete stand

Width x length, mm (in.)	2100x2410 (82.7x94.9)
Height <b>J</b> , mm (in.)	380 (14.96)
Total weight, kg (lbs.)	2900 (6393)

### Technical data - Foot plate

Width x length, mm (in.)	1600x1600 (63x63)
Height <b>K</b> , mm (in.)	40 (1.57)
Total weight, kg (lbs.)	505 (1113)



## CaB Systems

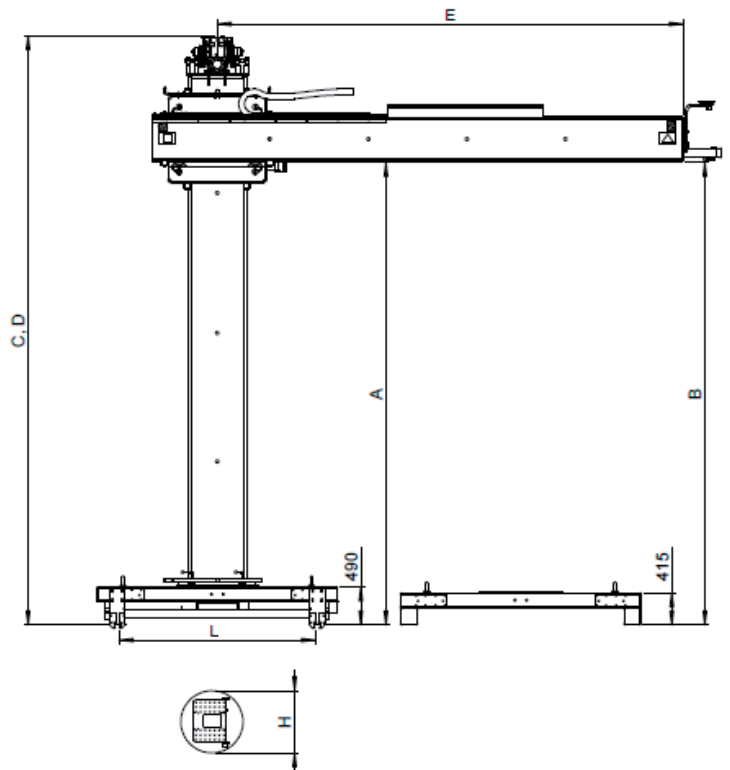
Technical data CaB 600M

Technical data - Column		CaB 600M				
Effective working range, m (ft.)	6 (20)	7 (23)	8 (26)	9 (29.5)	10 (33)	
Max. boom height <b>A</b> , mm (ft.) using movable carriage, min mm (ft.)	7025 (276.6) 1075 (42.3)	8025 (316) 1075 (42.3)	9025 (355.3) 1075 (42.3)	10025 (395) 1075 (42.3)	11025 (434) 1075 (42.3)	
Max. boom height <b>B</b> , mm (ft.) using concrete stand, min mm (ft.)	6950 (22.8) 1000 (3.3)	7950 (26.1) 1000 (3.3)	8950 (29.4) 1000 (3.3)	9950 (32.6) 1000 (3.3)	10950 (35.9) 1000 (3.3)	
Max. total height <b>C</b> , mm (ft.) using movable carriage	8585 (28.2)	9585 (31.4)	10585 (34.7)	11585 (38)	12585 (41.3)	
Max. total height <b>D</b> , mm (ft.) using concrete stand	8510 (27.9)	9510 (31.2)	10510 (34.5)	11510 (37.8)	12510 (41)	
Lifting speed, m/min (ipm)	2.0 (79)	2.0 (79)	2.0 (79)	2.0 (79)	2.0 (79)	

Technical data - Boom		6 (20)	7 (23)	8 (26)
Effective working range, m (ft.)				
Extension <b>E</b> , max mm (ft.) min mm (ft.)	7000 (23) 1000 (3.3)	8000 (26) 1000 (3.3)	9000 (29.5) 1000 (3.3)	
Permissible loads:				
total, max kg (lbs.)	1940 (4277)	1830 (4034)	1700 (3748)	
one end, max kg (lbs.)	550 (1213)	400 (882)	250 (551)	
Cross-sectional diameter <b>H</b> , mm (ft.)	1000 (3.3)	1000 (3.3)	1000 (3.3)	
Welding speed, m/min (ipm)	0.1-2.0 (4-79)	0.1-2.0 (4-79)	0.1-2.0 (4-79)	
Transport speed, m/min (ipm)				
Total weight incl cables, kg (lbs.)	1050 (2315)	1165 (2568)	1280 (2822)	

Technical data - Rail carriage 4WD	
Track width <b>L</b> , inside to inside, mm (in.)	2500 (98.4)
Width x length, mm (in.)	3100x2600 (122x102)
Height <b>I</b> , mm (in.)	490 (19.3)
Welding speed, m/min (ipm)	0.1-2.0 (4-79)
Transport speed, m/min (ipm)	2.0 (79)
Total weight, kg (lbs.)	4800 (10582)

Technical data - Concrete stand	
Width x length, mm (in.)	3100x2680 (122x105.5)
Height <b>J</b> , mm (in.)	415 (16.3)
Total weight, kg (lbs.)	4250 (9370)



## Telbo™ 6500 and Telbo™ 9500

### Telescopic boom

- Save valuable workshop space with the unique 3-section telescope-like retraction of the boom, securing operator safety.
- Outstanding reach-out with heavy loading capacity to ensure superior productivity and weld quality.
- Ideal for internal/external circumferential welding of windtower applications.
- Flexible production, no matter if mixed sizes and plate thicknesses are to be welded - productive results are obvious.
- Loaded with 1000 kg (2204 lbs.) Flux BigBag and 1000 kg Wire EcoCoils, welding is continuously performed and costly dwell times are minimized.



### Ordering information

For ordering information, please contact nearest ESAB representative.

### Features

- PLC control system for synchronized boom motion
- Automatic "Wind Back" of wire during boom retraction
- Telescopic wire guides
- Remote controlled flux nozzle (option)
- Remote controlled height adjustm. of joint tracking sensor (option)
- Saving in factory-floor foot print
- Increased workshop safety
- Enables flexible production
- "Big Pack" handling concepts (option)
- Camera supervision system (option)

### Applications

- Power generation, especially wind tower manufacturing lines.
- Pipeline, pipe mill contactors.
- General fabrication (small workshops with limited space).

Technical data	Telbo™ 6500	Telbo™ 9500
Effective work range, m (ft.)	6.5 (21.33)	9.5 (31.17)
Max extension, m (ft.) *)	8.0 (26.25)	12.5 (41)
Max load at boom end, kg (lbs.)	300 (661.4)	500 (1102)
Welding process	SAW / GMAW	SAW
Welding heads	A6	A6 SAW, Single/Tandem and Tandem/Twin
Control system	PLC / GMH	PLC / GMH
Operator seat	No	Yes

\*) Measured from column centre.





# Gantries



## Mechtrac 1730/2100/2500/3000

For mechanised gantry automation

- Fast and flexible way to increase productivity.
- Equipped with A2-A6 PEK process controller and A2 welding equipment for mechanised submerged arc welding (SAW) or gas metal arc welding (GMAW).
- Weld various profiles such as I-, T- or L-beams, straight columns or tapered columns.
- Available in four versions (width of gantry): 1730 mm (68 in.), 2100 mm (83 in.), 2500 mm (94 in.) or 3000 mm (118 in.).
- All versions have standard gantry leg height of 1500 mm (59 in.).
- Floor mounted rail delivered in standard lengths of 3 m (118 in.) - can be easily extended.
- Dual-drive motors are standard.
- Gantry can support a maximum weight of 220 kg (485 lbs.) - up to two A2 welding heads, complete with GMH joint tracking and OPC flux recovery systems.



*Mechtrac equipped with A2 welding heads, process controller PEK and power sources LAF 631*

### Ordering information

Mechtrac 1730, dual drive	0809 670 881
Mechtrac 2100, dual drive	0809 670 882
Mechtrac 2500, dual drive	0809 670 883
Mechtrac 3000, dual drive	0809 670 884
Sales Literature	XA00101220

All sales literature can be downloaded at [assets.esab.com](http://assets.esab.com)

### Options & Accessories

Travelling rail, 3 m (9.8 ft.)	0806 707 880
Travelling rail, extension, 3 m (9.8 ft.)	0806 707 881

### Technical data

Travel speed, m/min (ipm)	0.2-1.9 (8-75)
Maximum load, kg (lbs.)	220 (485)
Standard rail length, m (ft.)	3 (9.8)
Gantry width, mm (in.)	1730-3000 (68-118)



## Gantrac 300 and 460

Highly stabilized manipulation of welding torches with optimized welding results

- Rigid legs supported by encoder-controlled DC-driven bogie carriages as well as a cross beam to ensure uniform, stable welding speed.
- The gantry beam is equipped with guides and a rack on one or both sides for motorized welding carriages.
- The well-proven A6 welding heads are mounted on heavy duty slides with comprehensive working strokes to obtain good access to the workpieces.
- Incorporates the A2-A6 Process Controller PEK, equipped with GMH automatic joint tracking to control the vertical and horizontal axes.
- Submerged arc welding is the ideal method for the applications intended for this station.
- The flux handling equipment can be operated conveniently, without time-wasting interruptions. At the same time as flux consumption is reduced, the workplace is kept clean and free from flux spillage.
- The welding heads can be turned  $\pm 180$  degrees for welding in both X-directions as well as 90 degrees for welding in Y-direction across the beam.
- A large number of positioning axes permit flexible welding production.



### Ordering information

For ordering information, please contact your nearest ESAB representative.

## Walltrac

Minimal floor working area thanks to the single rail/wall support

- For production of various beam structures, such as I/H and box beams of tapered and non-symmetrical design, stiffener sections and the joining of plates and sections.
- Longitudinal and transverse welding procedures.
- Uses A6 welding heads and A2-A6 Process Controller PEK.
- Automatic joint tracking GMH controls the vertical and horizontal axes, i.e. the slides and the carriages, to safeguard the superior weld quality.
- A large number of positioning axes permit flexible welding production.



## Beam Travelling Carriage

To be used with ESAB A2 and A6 welding heads

- Ideal solution for submerged arc welding (SAW) or gas metal arc welding (GMAW) applications requiring beam mounted carriage.
- Can be fitted with any A2 or A6 welding head.
- For longitudinal welding or welding of circumferential workpieces.
- Place the carriage on either a standard I-beam IPE 300 or specially machined I-beam (contact ESAB for details).
- Fast and easy pre-programming of travel motion and welding parameters using the A2-A6 process controller PEK.

### Ordering information

Beam travelling carriage	0457 897 881
Sales Literature	XA00091920

### Options & Accessories

Mounting bracket for Tandem head	0458 026 001
Track in lengths of 3000 mm (9.8 ft.)	0145 282 880
<i>Required number of floor columns: 2</i>	
Track in lengths of 4500 mm (14.8 ft.)	0145 282 881
<i>Required number of floor columns: 3</i>	
Track in lengths of 6000 mm (19.7 ft.)	0145 282 882
<i>Required number of floor columns: 3</i>	
Track in lengths of 8000 mm (26 ft.)	0145 282 883
<i>Required number of floor columns: 4</i>	



### Technical data

Travel speed beam carriage, cm/min (ipm)	6-200 (2-79)
Weight carriage, kg (lbs.)	60 (132)

## MBVA 330 and 550

Beam welding carriage

- Heavy side beam carriage, suitable for multiple submerged-arc welding heads and most options available on column and booms.
- Cross beams available up to 1.2 m (4 ft.), capacity up to 1.4 ton.
- VEC motor with gear, rack and pinion, for powerful, consistent carriage travel.
- Different travel units for speeds to match process.



### Ordering information

MBVA 330 carriage	0150 765 880
MBVA 550 carriage	0150 901 880
Sales Literature	XA00105120

All sales literature can be downloaded at [assets.esab.com](http://assets.esab.com)

### Options & Accessories

Cable, length 1.5-50 m (5-164 ft.)	contact ESAB
Travel unit, speed range 3-80 cm/min (1.2-32 ipm)	0150 943 880
Travel unit, speed range 11-125 cm/min (4-49 ipm)	0150 943 881
Travel unit, speed range 14-250 cm/min (5.5-98 ipm)	0150 943 882
Travel unit, speed range 37-1500 cm/min (14.5-590 ipm)	0150 943 883
Travel unit, speed range 27-530 cm/min (11-208 ipm)	0150 943 884
Beam 330, 300 cm (118 in.), 240 kg (529 lbs.)	0803 348 880
Beam 330, 450 cm (177 in.), 480 kg (1058 lbs.)	0803 348 881
Beam 330, 600 cm (236 in.), 720 kg (1587 lbs.)	0803 348 882
Beam 330, 750 cm (295 in.), 960 kg (2116 lbs.)	0803 348 883
Beam 330, 900 cm (354 in.), 1000 kg (2204 lbs.)	0803 348 884
Beam 330, 1050 cm (413 in.), 1200 kg (2645.5 lbs.)	0803 348 885
Beam 330, 1200 cm (472 in.), 1420 kg (3130.5 lbs.)	0803 348 886
Beam 550, 300 cm (118 in.)	0321 527 880
Beam 550, 450 cm (177 in.)	0321 527 881
Beam 550, 600 cm (236 in.)	0321 527 882
Beam 550, 800 cm (315 in.)	0321 527 883
Beam 550, 1200 cm (472 in.)	0321 527 884

### Technical data

	MBVA 330	MBVA 550
Rated load, N (kp)	10000 (1000)	20000 (2000)
Rated moment, Nm (kpm)	3300 (330)	10000 (1000)
Weight, kg (lbs.)	95 (209)	275 (606)

# **Accessory Components**

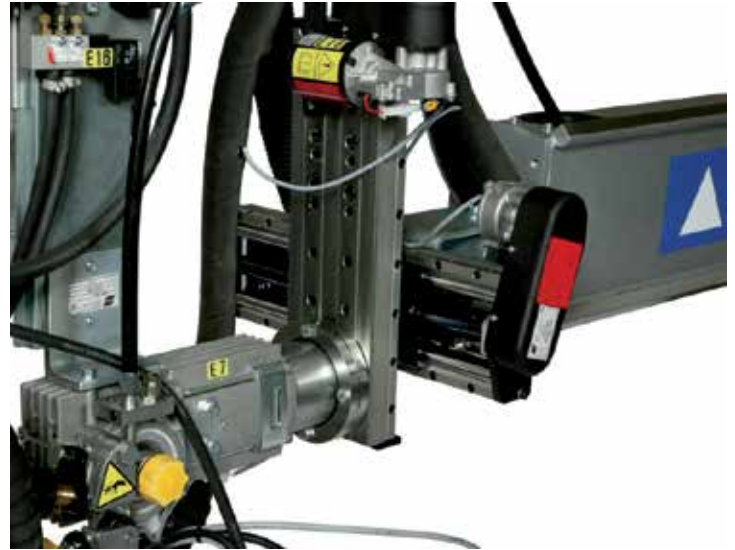




## Servo Slide

### Motorized slide for linear motion

- Heavy duty capacity with high precision slide for accurate and rapid joint tracking and positioning.
- Can be installed in vertical or horizontal positions - setting lengths up to 1030 mm (41 in.) with a central point of attachment.
- Operates jointly with A2 or A6 components.
- Slides available from 60 mm (2.4 in.) to 1030 mm (41 in.) working range.
- Permissible load of 1500 N (337 lbf/ft.) in any mounting position.
- Maximum torque for vertical unit is 400 Nm (3540 lbf/in.); maximum torque for horizontal unit is 280 Nm (2480 lbf/in.).
- Designed to be used together with joint positioning and tracking systems PAV and GMH.



### Ordering information

Servo slide, 60 mm (2 in.)	0334 333 880
Servo slide, 120 mm (5 in.)	0334 333 881
Servo slide, 180 mm (7 in.)	0334 333 882
Servo slide, 240 mm (9 in.)	0334 333 883
Servo slide, 300 mm (12 in.)	0334 333 884
Servo slide, 420 mm (17 in.)	0334 333 885
Servo slide, 540 mm (21 in.)	0334 333 886
Servo slide, 730 mm (29 in.)	0334 333 887
Servo slide, 1030 mm (41 in.)	0334 333 888
Servo slide, 358 mm (14 in.), heavy duty	0416 190 880
Servo slide, 598 mm (23.5 in.), heavy duty	0416 190 884
Sales Literature	XA00032720

All sales literature can be downloaded at [assets.esab.com](http://assets.esab.com)

### Options & Accessories

Connecting cable, 2 m (6.5 ft.)	0460 745 880
Connecting cable, 5 m (16.4 ft.)	0460 745 881
Connecting cable, 10 m (32.8 ft.)	0460 745 882

### Technical data

Control voltage, V DC	42
Max ambient temperature	80°C (176°F)
Axial play, runner, mm (in.)	0.1 (0.004)
Max. torque-free load, kg (lbs.)	150 (330)

Technical data	Slide 60 mm (2 in.)	Slide 120 mm (5 in.)	Slide 180 mm (7 in.)	Slide 240 mm (9 in.)	Slide 300 mm (12 in.)	Slide 420 mm (17 in.)	Slide 540 mm (21 in.)	Slide 730 mm (29 in.)	Slide 1030 mm (41 in.)
Total length, mm (in.)	305 (12)	365 (14)	425 (17)	485 (19)	545 (21.5)	665 (26)	785 (31)	1025 (40)	1385 (54.5)
Number of 60 mm (2.4 in.) indexings	3	4	5	6	7	9	11	14	21
Weight, kg (lbs.)	11.5 (25)	13.2 (29)	15 (33)	16.7 (37)	18.5 (41)	21.9 (48)	25.4 (56)	30.9 (68)	38.8 (85.5)

## PAV and GMH

### Joint Positioning and Tracking systems

- Simple and easy to use.
- Adapt for use with almost any type of welding joint.
- The PAV system is for manual joint tracking and the GMH system is for automatic joint tracking.
- The PAV and GMH work equally well with ESAB A2 or A6 welding systems.
- Motorized servo slides guarantee a reliable and accurate joint tracking.
- Both the PAV and GMH systems are available in three versions; with control panel on the front, with remote control or without control panel suitable for integration into customized solutions.
- The GMH automatic joint tracking system is designed for use in fillet and butt joints using sensor fingers.
- GMH compensates for irregularities in weld joint, tracks simple geometric shapes and avoids parallax problems.



Adjustable sun shield for better visibility for outdoor use

### Ordering information

PAV without control panel	0460 502 880
PAV with control panel	0460 502 881
PAV with remote control	0460 697 880
GMH without control panel	0460 503 880
GMH with control panel	0460 503 881
GMH with remote control	0460 698 880
GMH system compl with <b>remote control</b> , sensor, sensor cable and mini cross saddle	0460 884 880
GMH system compl with <b>control panel</b> , sensor, sensor cable and mini cross saddle	0460 884 881
Sales Literature PAV	XA00139420
Sales Literature GMH	XA00139320

### Technical data

Control voltage, V AC, Hz	42, 50-60
Fuse, A	10
Max. welding current at 100% duty cycle, A	6
Armature voltage, V DC	40
Field voltage, V DC	60
Current limit, A	15
Dimensions, mm (inch)	246x235x273 (9.7x9.3x10.7)
Weight, kg (lbs.)	6 (13)
Enclosure class	IP23



GMH with and without remote control



PAV with and without remote control

### Options & Accessories

Cable restraining bracket	0460 861 880
Motor cable, 5 m (16.4 ft.)	0460 745 881
Motor cable, 10 m (32.8 ft.)	0460 745 882
Motor cable, 19 m (62.3 ft.)	0460 745 884
Servo slides	0334 333 xxx
(see former page)	

#### For GMH only:

Sensor with finger (requires cable 0416 749 9xx)	0416 688 880
Mini cross saddle + sensor support	0416 739 880
Remote control	0460 570 880
Protective rubber boot for sensor	0412 013 001
Standard finger	0146 586 001
Finger with ball	0416 719 001
Finger for heat exchange plates	0443 328 880
Finger for beam welding	0443 187 880
Intermediate transformer	0148 636 002
Sensor cables for sensor 0416 749 881 (post June 2019)	
Sensor cable, 5 m (16.4 ft.)	0416 749 888
Sensor cable, 9 m (29.5 ft.)	0416 749 889
Sensor cable, 19 m (62.3 ft.)	0416 749 880
Sensor cables for sensor 0416 749 880 (pre June 2019)	
Sensor cable, 5 m (16.4 ft.)	0416 749 888
Sensor cable, 9 m (29.5 ft.)	0416 749 889
Sensor cable, 19 m (62.3 ft.)	0416 749 880



## OPC Basic & Super

### Sturdy compact flux recovery systems

- Robust and compact design.
- Easy to operate and practically maintenance-free.
- Integrated system for maximum productivity - lower investment and service costs.
- Adapts to any A2 or A6 welding system - tractor or stationary.
- Uses only compressed air - safe and inexpensive.
- Can be integrated into complete FFRS flux feeding and recovery system.
- Three filter types; filter bag for A2 applications, cyclone filter with filter bag for most A6 applications and Tedak filter for heavy-duty applications.
- OPC system includes; ejector, cyclone, filter with attachment hardware, securing strap, suction hose and four suction nozzles (for butt welds, normal and large; fillet welds, left and right).



### OPC Basic Flux Recovery System

- Works on ejector principle using compressed air
- Cyclone separator, on top of flux hopper, efficiently separates dust from recovered flux.
- Slag is separated and flux is returned to hopper.

### OPC Super Flux Recovery System

- Similar to Basic System but with stronger ejector and cyclone - provides better suction.
- Can also be used with pre-heated flux.

### Ordering information

OPC Basic, with standard filter bag	0148 140 880
OPC Basic, with cyclone filter	0802 415 882
OPC Basic, with Tedak filter	0802 415 883
OPC Super *)	0339 719 880
OPC Super complete, with cyclone filter	0802 415 892
OPC Super complete, with Tedak filter	0802 415 893
Sales Literature	XA00105020
Sales Literature Wear parts OPC	XA00126420

\*) excl. hose, nozzles and filter

### Options & Accessories

Air pressure hose 3/8 in.	0190 343 104
Air pressure hose 1/2 in.	0190 343 106
Air pressure tube Ø 63 mm, 2.5 in.	0193 125 003
Air central	0417 714 880
Plastic bag	0190 665 004
Filter bag, paper	0155 966 001
Filter bag, cotton	0332 448 001
Cyclone filter	0379 538 880
Tedak filter	0453 708 881

Technical data	OPC Basic	OPC Super
<b>Airflow capacity</b>		
at working pressure 0.4 MPa, l/min	175	420
at working pressure 0.5 MPa, l/min	225	500
at working pressure 0.6 MPa, l/min	250	580
Max working pressure, MPa	0.6	0.6
<b>Max suction height</b>		
at working pressure 0.4 MPa, m *)	0.8	1.0
at working pressure 0.5 MPa, m *)	0.8	1.2
at working pressure 0.6 MPa, m *)	0.8	1.4
Sound level at work, dB	70	72
Max working temperature, °C	130	150
Short term temperature, °C **)	170	190

\*) Suction height with normal flux bead and a welding speed of 100 cm/min

\*\*) Tested with preheated flux to temp. max 220°C and weld object temp. max 350°C.



## FFRS Flux Feed and Recovery Systems

Efficient flux handling for cost-effective welding

- Ideal for continuous and high capacity welding
- Minimum manual flux handling.
- Reduced flux consumption for better welding economy.
- Fewer weld stops for increased efficiency.
- Efficient filtration of used air.
- Flux feeds from a 75 l (20 gal.) capacity TPC-75 pressurized flux tank to the ESAB flux hopper of your choice; 6 l or 10 l (1.6 gal. or 2.6 gal.)
- Flux feed inlet options; straight or bent.

### FFRS Super

- Built on OPC Super modules
- **Super** - for increased flux and heat conditions.
- Based on ejector vacuum principle.

### FFRS 2000 & 3000

- Based upon an electrical suction unit creating vacuum.
- For use when extra high recovery force is required and for compact welding heads.
- Flux dust separated automatically in a pre-separator.

### Options & Accessories

Air central	0417 714 880
Flux hopper 10 l (2.6 gal.)	0147 649 881
Flux hopper 6 l (1.6 gal.)	0413 315 881
Holder for hopper	0148 487 880
Level indicator for TPC	0452 048 880
Pneumatic flux valve	0802 540 880
Flux valve control unit	0813 620 880
Sales Literature FFRS Super	XA00104820
Sales Literature FFRS 2000 & 3000	XA00104920



FFRS 3000

### Ordering information

FFRS Super with cyclone filter	0809 914 881
FFRS Super with heaters in TPC	0809 914 882
FFRS Super with Tedak dust filter	0809 914 883
FFRS Super with heaters and Tedak filter	0809 914 884

*FFRS Super systems include 25 m 1/2" air pressure hose, 25 m flux feed hose from TPC to hopper (20 m for heated systems) 2 m flux suction hose, 6 m dust hose from hopper to filter (10 m for systems with Tedak), bent inlet for flux hopper and flux recovery nozzles.*

FFRS 2000	0809 914 893
FFRS 2000 with heaters	0809 914 894
FFRS 3000	0809 914 887
FFRS 3000 with heaters	0809 914 888

*FFRS 1200/3000 systems include 25 m 1/2" air pressure hose, 25 m flux feed hose from TPC to hopper (20 m for heated systems) 16 m flux suction hose, suction hose between the primary separator and the vacuum unit (1200 = 2 m, 3000 = 5 m), bent inlet for flux hopper and flux recovery nozzles.*

Technical data	FFRS 2000	FFRS 3000
Weight without flux, kg (lbs.)	320 (705)	400 (882)
Dimensions, LxWxH, mm (in.)	1100x800x2210 (43.3x31.5x87)	750x450x2210 (30x18x87)
<b>Primary separator</b>		
Volume, l (gal.)	50 (13)	50 (13)
Dimensions, LxW, mm (in.)	450x700 (18x28)	450x900 (18x35)
<b>Suction unit</b>		
Power, W	2000	3000
Mains supply, V/Hz	400 / 3-50	400 / 3-50
Fuse, A	16	16
Max. vacuum, kPa	-30	-25
Max. air flow capacity, m <sup>3</sup> /h	240	270
Sound level, dB	71	63
Filter area, m <sup>2</sup>	3	3
Filtration efficiency, %	99.95	99.95
Life-span of filter, work hours	5-6000	4000-6000
Weight, kg (lbs.)	74 (163)	194 (428)
Dimensions, LxWxH, mm (in.)	950x640x1200 (37x25x47)	1200x690x2000 (47x27x79)

## CRE 30 & CRE 60 Air Drying Units

For use with ESAB flux handling systems

- Designed for use with any flux handling system.
- The system is based on the absorption principle - reduces the risk of hydrogen cracking in weld metal by ensuring flux remains dry.
- Built-in monitor - warns if the programmed humidity limit is exceeded.
- Reduces condensation - less corrosion and malfunctions.
- Simple system monitoring - manometer on pressurized dryer bottles with easy-to read dew point indicator.



### Ordering information

CRE 30 air drying unit	0443 570 880
CRE 60 air drying unit	0443 570 881
Sales Literature	XA00101920

All sales literature can be downloaded at [assets.esab.com](http://assets.esab.com)

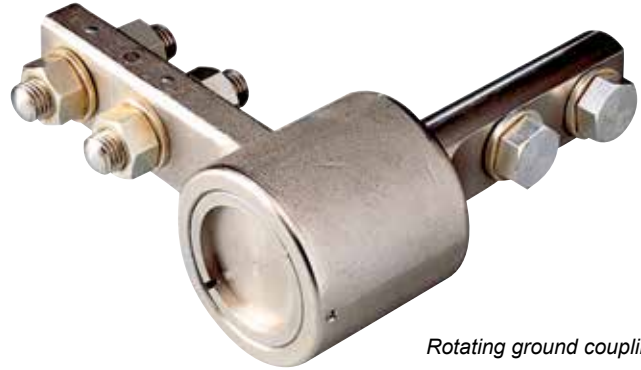
### Options & Accessories

Desiccant, type 512 (package per 25 kg (55 lbs.))	0443 570 017
Oil filter	0443 570 018
Dust filter	0443 570 019

Technical data	CRE 30	CRE 60
Mains supply, V AC, Hz	230, 50/60	230, 50/60
Max. power rating, W	40	50
Net air flow capacity at 6 bar, m <sup>3</sup> /h (ft <sup>3</sup> /hr at 87 psi)	30 Normal (1060)	60 Normal (2120)
Regenerating flow at 6 bar (87 psi), %	14	14
Max. dew point under nominal working conditions, °C (°F)	-26 (-14)	-26 (-14)
<b>Desiccant Type 512</b>		
Sodium-Aluminium-Silicate, kg (lbs.)	10 (22)	16 (35)
Normal pore size, Ångström	4	4
Particle size, mm (in.)	2.5-5.0 (0.01-0.20)	2.5-5.0 (0.01-0.20)
Density, kg/m <sup>3</sup> (lbs/in. <sup>3</sup> )	720 (0.023)	720 (0.026)
Cycle time per container	5	5
Max. permissible air flow for oil separation filter, m <sup>3</sup> /hr	60 Normal	60 Normal
Manifold thread size	R12	R12
Max. working pressure, bar (psi)	6 (87)	6 (87)
Max. air pressure at testing, bar (psi)	10 (145)	10 (145)
Max. inlet air temperature under nominal conditions, °C (°F)	30 (86)	30 (86)

## Rotating Ground Couplings

- For a good connection to the workpiece to obtain optimal welding performance.
- For rotating workpieces, a ground connection with a rotatable coupling is the safest choice.
- To attach the coupling to the workpiece, special clamps are available, see "Ground Clamps" below.



*Rotating ground coupling NKK*

### Ordering information

NKK 600, max. 600A, 2.2 kg (4.8 lbs.)	0700 004 007
NKK 800, max. 800A, 2.7 kg (5.9 lbs.)	0700 004 001
NKK 1200, max 1200A, 4.0 kg (8.8 lbs.)	0700 004 002
NKK 2000, max 2000A, 7.3 kg (16 lbs.)	0700 004 003

## Ground Clamps for Rotating Workpieces

- K2 or PZ3 ground clamps can be mounted directly onto the rotatable ground coupling to create good contact between the workpiece and the return cable.
- Return clamps can also be used together with the GA 800 handle connection to form a complete ground clamp to handle high current welding on non-rotating workpieces.



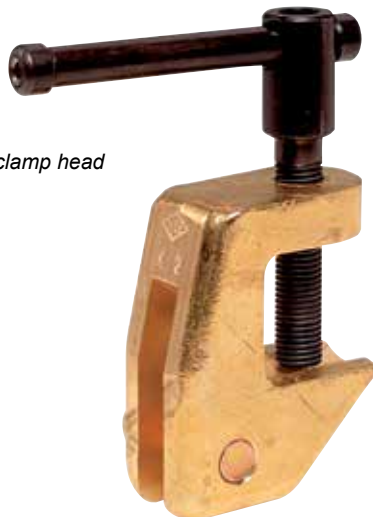
*Pole clamp PZ3*

### Ordering information

K2 Clamp head for NKK 800/1200	0700 004 004
GA 800 Handle connection for K2	0700 004 005
PZ3 Pole clamp for NKK 2000	0700 004 006



*Handle connection GA 800*



*K2 clamp head*

## OCE-2H Cooling unit

Compact and efficient

- Can be used for gas metal arc welding (GMAW) as well as for tungsten arc welding (GTAW).
- Both for manual and automatic welding.
- Flow guard as option.
- Designed for use together with water-cooled welding equipment, manual or automatic.
- The water tank and pump are manufactured of corrosion resistant material. A flow guard is available as optional equipment for control of the water flow down to about 1 l/min (0.26 gal.)

### Ordering information

Cooling unit OCE-2H	0414 191 881
Flow guard for OCE-2H	0414 231 880
Sales Literature	XA00043120

All sales literature can be downloaded at [assets.esab.com](http://assets.esab.com)



### Technical data Pump with motor

Max power consumption, W	250
Mains supply, V, Hz	230, 50/60, 1-phase
<b>Mains water pressure at</b>	
50 Hz	300 kPa (3 bar)
60 Hz	410 kPa (4.1 bar)

### Technical data Cooler

<b>Cooling power</b>	
40° overtemp and 2.0 l/min, kW	1.1
60° overtemp and 2.0 l/min, kW	1.7
Water pressure at 2.0 l/min, kPa	220
Coolant volume, l (gal.)	8 (2.11)
Dimensions, LxWxH, mm (in.)	236x316x398 (9.3x12.4x15.7)



# Handling Equipment



## ECD 15-120 and ECI 15-120

### Conventional Roller Beds

- Interface connection to ESAB CaB equipped with weld controller PEK for complete integration.
- Two wireless remote-control pendants using Radio Frequency (RF), and an inductive charger comes as standard.
- Control panel with PLC and solid-state inverter for precise speed control.
- Wheel holder C-C adjustable in steps to cover various work piece diameters.
- High quality gear motors from a European supplier with a minimum of backlash.
- Optional Motorised/Idler Rail Bogie versions.



### Ordering information

#### Drive unit

Roller Bed ECD-15	0909 000 880
Roller Bed ECD-15, digital display	0909 000 881
Roller Bed ECD-30	0909 002 880
Roller Bed ECD-30, digital display	0909 002 881
Roller Bed ECD-60	0909 004 880
Roller Bed ECD-60, digital display	0909 004 881
Roller Bed ECD-90	0909 006 880
Roller Bed ECD-90, digital display	0909 006 881
Roller Bed ECD-120	0909 008 880
Roller Bed ECD-120, digital display	0909 008 881

#### Idler unit

Roller Bed ECI-15	0909 001 880
Roller Bed ECI-30	0909 003 880
Roller Bed ECI-60	0909 005 880
Roller Bed ECI-90	0909 007 880
Roller Bed ECI-120	0909 009 880

### Options & Accessories

CaB integration cable 10/20/30/40m	0909 530 880/1/2/3
Synchronisation cable 10/20/30/40m	0909 530 900/1/2/3
Sales literature	XA00213120

All sales literature can be downloaded at [assets.esab.com](http://assets.esab.com)

Technical data		ECD/ECI-15	ECD/ECI-30	ECD/ECI-60	ECD/ECI-90	ECD/ECI-120
Max loading capacity, ton/per section	Drive unit	7.5	15	30	45	60
	Idler unit	7.5	15	30	45	60
Turning capacity, ton	Drive unit	22.5	45	90	135	180
Turning speed, min-max, mm/min (ipm)		200-2000 (7.9-78.7)				
Workpiece diameter, min-max, mm (in.)		480-5700 (19-224)	480-5700 (19-224)	700-7600 (27.5-299)	700-7600 (27.5-299)	700-7600 (27.5-299)
	Mains supply, V	50Hz, 3ph		380-440		
Roller type		Polyurethane (90°C / 92°A Shore)				
Roller width / diameter, mm no. of wheels		90/400 1	90/400 1	180/580 1	250/580 1	180/580 2
	Weight, kg (lbs.)	Drive unit 645 (1422)	865 (1907)	1390 (3064)	1895 (4178)	2600 (5732)
Dimensions LxHxW, mm (in.)	Idler unit	475 (1047)	625 (1819)	1055 (2326)	1430 (3153)	1895 (4178)
	Drive unit	3647x774x700 (144x30x28)	3874x810x700 (153x32x28)	4920x895x900 (194x36x36)	5054x1028x900 (199x41x36)	5300x1230x900 (209x49x90)
	Idler unit	2790x600x700 (110x24x28)	2790x700x700 (110x28x28)	3740x700x900 (148x32x36)	3740x800x900 (148x32x36)	3740x900x900 (148x36x36)
Control voltage, V DC		24				

Mains cable not included in delivery.



## ESD 15-120 and ESI 15-120 Self-Aligning Roller Beds

- Self-Aligning is designed for safer handling and gives better side support in thinner wall thicknesses.
- Interface connection to ESAB CaBequipped with weld controller PEK for complete integration.
- Two wireless remote-control pendants using Radio Frequency (RF), and an inductive charger comes as standard.
- Control panel with PLC and solid-state inverter for precise speed control.
- Wheel holder C-C adjustable in steps to cover various work piece diameters.
- High quality gear motors from a European supplier with a minimum of backlash.
- Optional Motorised/Idler Rail Bogie versions.



### Ordering information

#### Drive unit

Roller Bed ESD-15	0909 010 880
Roller Bed ESD-15, digital display	0909 010 881
Roller Bed ESD-30	0909 012 880
Roller Bed ESD-30, digital display	0909 012 881
Roller Bed ESD-60	0909 014 880
Roller Bed ESD-60, digital display	0909 014 881
Roller Bed ESD-90	0909 016 880
Roller Bed ESD-90, digital display	0909 016 881

#### Drive unit (cont.)

Roller Bed ESD-120	0909 018 880
Roller Bed ESD-120, digital display	0909 018 881

#### Idler unit

Roller Bed ESI-15	0909 011 880
Roller Bed ESI-30	0909 013 880
Roller Bed ESI-60	0909 015 880
Roller Bed ESI-90	0909 017 880
Roller Bed ESI-120	0909 019 880

### Options & Accessories

CaB integration cable 10/20/30/40m	0909 530 880/1/2/3
Synchronisation cable 10/20/30/40m	0909 530 900/1/2/3
Sales literature	XA00220520

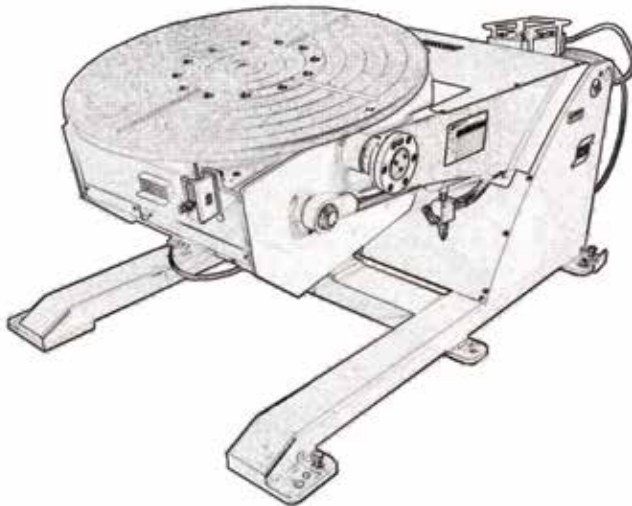
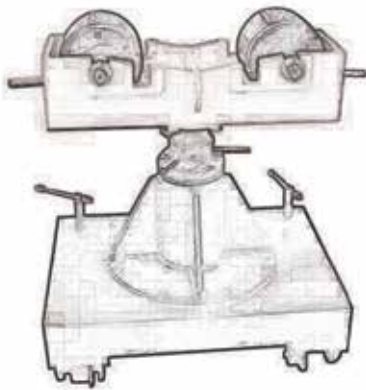
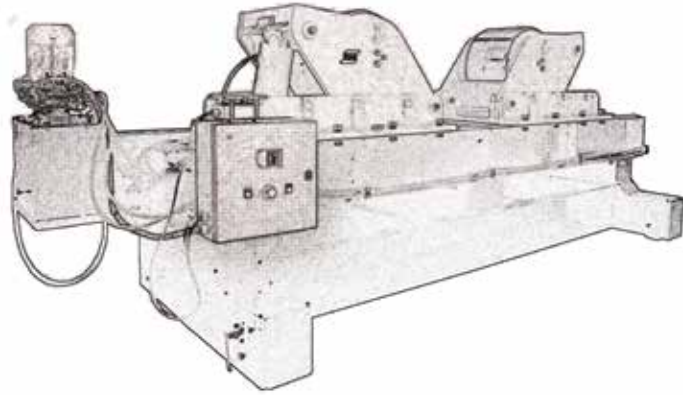
Technical data		ESD/ESI-15	ESD/ESI-30	ESD/ESI-60	ESD/ESI-90	ESD/ESI-120
Max loading capacity, ton/per section	Drive unit	7.5	15	30	45	60
	Idler unit	7.5	15	30	45	60
Turning capacity, ton	Drive unit	22.5	45	90	135	180
Turning drive motor, kW		2x 0.18	2x 0.37	2x 0.75	2x 1.00	2x 1.50
Turning speed, min-max, mm/min (ipm)		200-2000 (7.9-78.7)				
Workpiece diameter all wheels, min-max, mm (in.)		1090-4400 (43-173)	1420-4900 (56-193)	1420-6300 (56-193)	2120-6200 (83-244)	2120-6200 (83-244)
Workpiece diameter inner wheels, max, mm (in.) / weight ton		350(13.7)/7	490(19.2)/15	500(19.6)/30	810(31.8)/45	810(31.8)/80
Mains supply, V	50Hz, 3ph	380-440				
Roller type		Polyurethane (90°C / 92°A Shore)				
Roller width / diameter, mm no. of wheels		90/300 1	90/400 1	90/400 2	180/580 1	180/580 1
Weight, kg (lbs.)	Drive unit	703 (1550)	1066 (2350)	2031 (4478)	2569 (5664)	2894 (6380)
	Idler unit	561 (1237)	847 (1868)	1802 (3973)	2130 (4696)	2207 (4866)
Dimensions LxHxW, mm (in.)	Drive unit	3647x774x700 (144x30x28)	3874x810x700 (153x32x28)	4920x895x900 (194x36x36)	5054x1028x900 (199x41x36)	5300x1230x900 (209x49x90)
	Idler unit	2790x600x700 (110x24x28)	2790x700x700 (110x28x28)	3740x700x900 (148x28x36)	3740x800x900 (148x32x36)	3740x900x900 (148x36x36)
Control voltage, V DC		24				

Mains cable not included in delivery.

## Other Equipment

On request

- Positioners
- Pipe rotators
- Fit-up units
- Rail bogies



# Applications



## Welding solutions for Pipemills

Our experience and knowledge - your benefit!

### Flexible, reliable welding equipment

A wide range of products developed in-house for various multi-wire SAW applications which are particularly suitable for pipe welding.

### Precise, high-speed longitudinal welding

Our concept for longitudinal submerged-arc welding is suitable for pipes in a normal diameter range of 20-64", a normal wall thickness of 6-40 mm (0.24-1.57 in.) and a length of up to 18 m (708.66 in.).

### Internal and external welding

For internal welding we have designed pre-stressed booms as well as welding heads for up to four wires.

The external welding station is based on a column and boom solution with a very stable cross-slide to adapt to different pipe diameters.

### Return current systems (grounding)

High current circuits have to be closed back to the power source by efficient systems at constantly moving pipes. Flexible steel brushes in two rows in front and behind the welding process are pressed with defined force from outside to the pipe to catch the current with a minimum of voltage loss and to surely avoid any arc blow effect, which would disturb the weld process.

### Problem-free flux and wire feed systems

Smooth feeding of wire in different diameters and equally straight-forward supply of new and re-used flux.

The correct combination of compressed air, flux feeding, easy replenishment of new flux via the Big/Bag system, a vacuum unit, a reliable magnetic separator and continuous recovery helps to create welding stations with less downtime, high-quality welds and a cleaner working environment.

### Spiral pipe welding

Internal and external welding is performed at one and the same station. Internal welding starts first and, after half a turn, external welding then begins - internally with two or in some cases three wires and externally with one or three wires in the welding process, depending on the diameter and wall thickness of the pipe.

## Ordering information

For more information, please contact your nearest ESAB representative.

Sales Literature

XA00136520



Internal welding



External welding

# Windmill Tower Manufacturing

Dedicated solutions for dedicated manufacturers

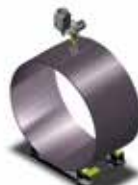
- The key to efficient production of wind towers is smooth component flow in the workshop. The benefit of a high deposition welding process is completely lost if the set-up or handling of components in any area of the process fails or takes an unacceptable amount of time.
- ESAB can assist with the welding and cutting process in wind tower production and deliver finely tuned solutions for each step in the production process.
- With a complete package from ESAB, you only need to work with one supplier for product, service and support. This results in a large project being organized efficiently, with a fixed cost and agreed time schedule. Smooth production flow is part of the complete delivery.



*Oxy-fuel or plasma cutting of plate and seam preparation*



*Rolling, forming and tack welding of the shell*



*External longitudinal submerged-arc welding using a column and boom*



*Internal longitudinal submerged-arc welding using a column and boom*



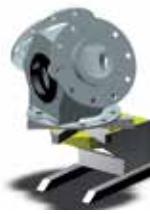
*Submerged-arc welding of flanges and supports*



*Joining of shell sections using roller beds with hydraulic fit-up system. Internal and external submerged-arc welding performed by a column and boom station.*



*Automatic welding of the door frame.*

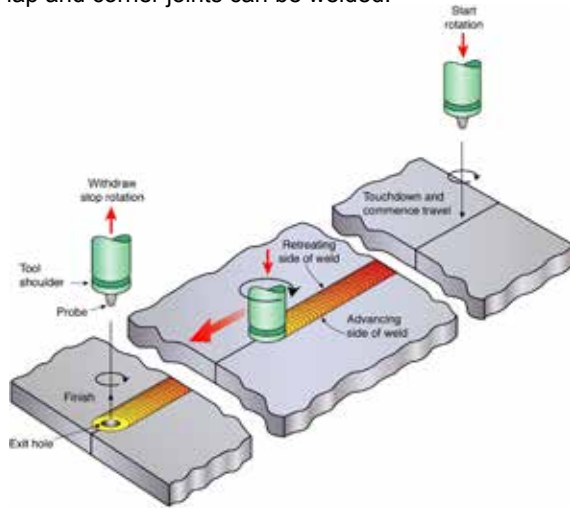


*Production of sub-components using an ESAB positioner and manual welding equipment*

## Friction Stir Welding

Quality in depth

- The Friction Stir Welding (FSW) method is based on the principle of obtaining a sufficiently high temperature and pressure to join two components together by using a rotating tool, which under high pressure, moves along the joint and thereby creates a weld.
- FSW is ideal for joining profiles and plates
- Butt, lap and corner joints can be welded.



### Suitable application areas

The FSW process is capable of welding a large variety of products in diverse industries:

- Aerospace - fuel tanks, fuelage, doors
- Transportation - rail cars
- Marine - deck panels
- Automotive - suspension, bumper, seat parts, battery trays
- Nuclear power - copper canisters
- Heat transfer - heat sinks & exchangers



### Key benefits

- Minimal distortion and shrinkage
- No joint preparation - degreasing only
- No grinding, polishing or straightening
- No repair welding
- Reduced weight (40% less than GMAW)
- Consistent weld quality
- Increased tensile strength
- Outstanding fatigue properties
- No fumes, sparks or spatter
- Low noise level
- Improved repeatability

### SuperStir™ Friction Stir Welding System

The ESAB SuperStir™ range is purpose-built for high-volume production of large aluminium panels, girders and trusses. The large custom-designed units offer a safe, clean and simple welding process that can be fully automated, dramatically reducing production costs.

ESAB SuperStir™ FSW technology is applied across the entire industrial spectrum, from shipping, offshore, construction and transportation to defence and aerospace.

# Friction Stir Welding

Cont.

## SuperStir™ FSW Gantry

- A flexible gantry for friction stir welding based upon a modular, five-axis motion system platform that can be scaled to cover a range of applications.
- The SuperStir FSW Gantry system for automated friction stir welding is a modular, 5-axis motion platform in a gantry configuration
- The gantry system is based on ESAB's well proven control system and is designed to fit a broad range of welding applications with a modular architecture that allows it to be tailored to the specific needs of your application.
- The gantry operates on rails making it particularly well suited to weld long components.
- Fully Automated Process. At the heart of ESAB's SuperStir technology is the control system developed for the FSW process.
- For fast support, operation of the gantry can be remotely monitored in real time from any PC computer using a standard Ethernet connection.
- High quality welds - increased tensile strength and outstanding fatigue properties compared to conventional welding.
- Minimum of post treatment - low distortion and shrinkage thanks to low heat input

## Options

- FSW heads for different welding thicknesses
- Retractable PIN Tool (RTP) & Bobbin tool head
- Stationary shoulder
- Welding FSW tools
- Joint tracking system
- Weld video monitoring system
- Milling head
- Vacuum system
- Protection bellows for Y and Z range motion components
- Central lubrication system
- Fixture systems

Other combinations of working ranges and welding thicknesses available on request.



### Technical data

### Basic System

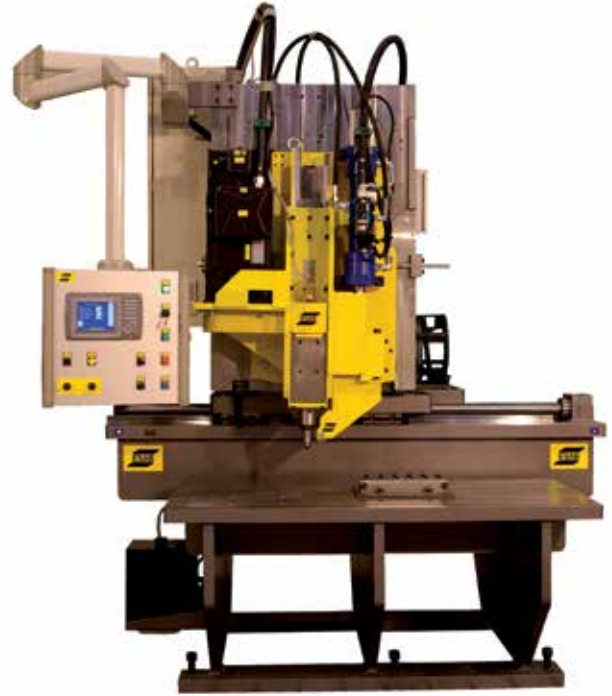
Working range, m			
X axis	up to 150		
Y axis	up to 10		
Z axis	up to 3		
Rotation axis			
A axis	± 6° (around Y axis)		
B axis	± 90° (around X axis)		
Transport speed, m/min	up to 10		
Welding speed, m/min	up to 3		
Welding tool rotation, rpm	100-3000		
Power supply, V	400 ± 10%		
Power consumption, kW	approx. 50		
Welding aluminium thickness (welding tool dependent)	<b>Head 3</b>	<b>Head 4</b>	<b>Head 5</b>
Series 6000, mm	1-10	1-18	1-35
Series 5000 mm	1-7	1-10	1-20
Series 2000 & 7000 mm	1-5	1-8	1-18
Downforce Z axis, kN	25	60	100

## Friction Stir Welding

Cont.

### LEGIO™ Friction Stir Welding System

- The modular system makes it possible to assemble welding stations to suit the most varied Friction Stir welding applications.
- The LEGIO™ system consists of 5 basic designs in a series of seven sizes, covering a welding depth of 1.2 to 65 mm (0.045 to 2.4 in.)
- These basic types can be supplemented with different types of equipment to suit the most varied production needs with maximum flexibility to any production line.
- The larger S- and the U-models are designed to be easily integrated with larger fixtures, rotary units and exchangeable clamping systems.
- For the production of smaller workpieces, the UT- and the ST-model are the most suitable. They have tables prepared with a hole pattern, where fixtures can be attached.



### EWH 50 FSW Friction Stir Welding Head

- This robust, compact and flexible friction stir welding head is designed for welding plates up to 10 mm in aluminium 6000 alloys.
- Due to the compact design it's especially suitable for robotic FSW welding enabling 3D joint geometries.
- Tool holder Weldon 25
- High Accuracy Force sensor (Z-direction)
- Tool cooling system for high volume welding
- Enables conventional FSW and Stationary Shoulder FSW

#### Technical data

#### EWH 50 FSW

Rated current, A (peak)	47A (104,5A)
Max.spindle rotation, rpm	4000
Axial force, kN	15
Radial force, KN	4,5
Torque, Nm (at rpm)	50 (0-3500), 25 (4000)
Dimensions Length, mm (in)	297 (12)
Dimensions Diameter, mm (in)	232 (9)
Weight, kg (lbs)	60 (132)

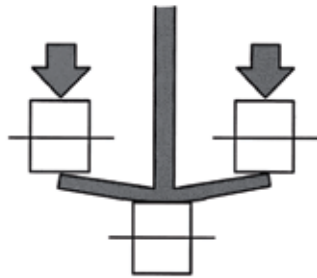


# Beam Welding - Pull Through Welders

For welding of beams and profiles

- ESAB offers a complete and effective way of welding beams and profiles. Whether you weld I-, T- or L-beams, wide flange beams, columns, tapered beams or non-symmetrical beams, ESAB has the expertise and welding equipment to match your efficiency, quality, precision, versatility, productivity, and overall welding economy requirements.
- Two types of machines: IT-machines where the beams are welded with the web unit in the vertical position, and I-machines, where the beams are produced in horizontal position.
- High production capacity and perfect weld quality.
- The welding operation takes place when the flange and the web are pressed together under pressure in order completely to eliminate the gap between the surfaces.

*Straightening principle:*



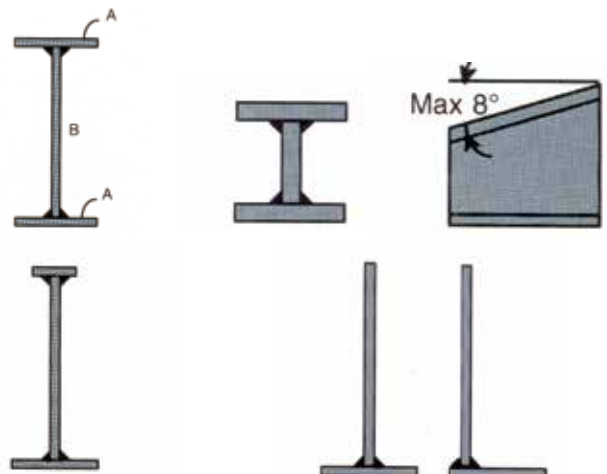
Beam welder IT-258



**Total range of beam sizes that can be welded:**

Machine type	Web	Flange
IT-258	200-2500 mm	100-800 mm
IT-158	200-1500 mm	100-800 mm

**Examples of beams than can be welded:**



## Tank welder Circotech

A series of mechanized compact girth welders

Circotech is a series of self-propelled 3 o'clock welding equipment primarily developed for on-site erection of large storage tanks, silos, blast furnaces and similar cylindrical objects. It is available as a single-side version and a double-side version. Usually it is designed to travel on the top edge of the tank shell. As there are different ways of building tanks, one machine in the series is designed to travel on a rail which is temporarily fixed to the shell or on a stand-alone ring outside the shell.

### Operator safety - CE approved

The operator of each machine (if a double-side version) rides in a cabin, where he supervises and controls the welding process with the control panel within easy reach. The cabin, whose floor level under the carriage is variable to suit the height of the plate, is built as a cage to give the operator(s) maximum safety and comfort. For weather protection the cage can be covered by curtains. The cabin of a double-side machine is equipped with step ladders and a joining bridge at the top to facilitate for the operators to climb onboard. The bridge also has guard rails for the safety of the operators.

### Submerged-arc welding

The machine is usually equipped for SAW with single wire. SAW with twin wires is, upon request, available as an alternative. The flux is supplied from a flux hopper and supported in the welding position by an endless rubber belt from where it may be collected/ sucked up after welding and re-circulated. A flux recovery unit can be included.



### Technical data

Height, mm (in.)	1000-3000 (39-118)
Thickness, mm (in.)	8-35 (5/16-1.4)
Min. Shell curvature, radius, mm (in.)	4000 (157)

### Economic benefits

The investment in a Circotech installation contributes to a consistent weld quality, which means low defect rate. The consumption of welding consumables is low because of efficient joint preparation. All in all this means good return on investment.

## Circotech design

The Circotech is built up of modules to satisfy a variety of customer requirements. The very basic machine can be equipped with a carriage which travels on the top edge of the plates of a tank, or it can be supplied with a carriage made to travel on a separate rail or ring. In this shape the machine can also be controlled by an operator walking along with it on a built-up cat-walk.

However, the machine is usually supplied with a cabin in the form of a safety cage with curtains for protection against rain and wind.

It is easy to adjust the machine for different plate heights, because of the telescopic design of the frame. The design also makes it easy to transport.

For environmental and safety reasons, tanks are nowadays often built with double shells with a space between shells of around 2 m. Circotech is designed to operate also in this space.



*Double-side Circotech being lifted onto the job.*

## Package content

- Ready to weld ESAB subarc welding machine type A6 with manual adjustment slides
- Pre-set control box
- Weather-shielded safety cabin
- ESAB power source LAF 1000
- Flux hopper, 6 l and flux support
- 50 m control cable
- Welding and return cables

A single-side Circotech can be specified for welding either in right-hand or in left-hand direction.



*Close-up of the welding head.*

## Ordering information

- Single side or double side equipment
- A6 system for SAW with single wire or twin wire
- Top of plate travelling or rail travelling

For ordering information, please contact your nearest ESAB representative.

## Options & Accessories

- Preheating and joint-cleaning oxy-acetylene device (*complete incl. hoses*)
- Lighting equipment
- Extension cables
- Twin-arc kit
- Motorized slide

## ESAB Retrofit

Bring new life to your equipment

Even old carriers of welding equipment can be revitalised to secure continuous production. ESAB Retrofit is a solution to modernise your SAW equipment for extended life and increased productivity.

We offer standardised packages for welding equipment run by the PEG or the PEH process controller for single or tandem wire set-up. The packages include a choice of power source(s) depending on application and needs, and specialised components for retrofit.

- Increased productivity by upgrading your power source or welding head
- Maintained high integration between controller and CaB motion
- The PEK process controller share the same logic as PEG and PEH
- Same type of wear parts used

### Benefits of upgrading from PEG or PEH to the modern PEK process controller

- Access quality data displaying welding parameters from previous welds
- Access production statistics displaying historical deposition rates
- More precise welding values and higher process stability due to encoder feedback with all motors
- Display heat input based on actual welding conditions
- User-friendly interface and menus
- Increased number of weld data settings available
- Quicker software upgrade using USB
- Connectivity to a wider range of automation power sources including Aristo® 1000 AC/DC SAW
- Enables upgrade to ICE™ technology (on request)

*Please note: The PEG controller was replaced by PEH in late 1990's. The PEH was made obsolete in 2009 and with the ESAB 10 year spare part supply policy the product will not be supported from 2019.*



Tandem setup with PEK



Closeup of ICE wire



### Benefits of upgrading your power source

#### Upgrading from 1000 A to 1250 A

Increased welding current which allows the full utilisation of twin technology. Twin kit is required.

#### LAF/TAF to Aristo 1000 inverter

Aristo 1000 offers AC/DC capability all in one power source. DC+ to secure penetration in root pass and AC for higher deposition rate in fill pass.

Additional features:

- Parameter and polarity change on the fly. No need to stop welding to change polarity or parameter set-up
- Refine the process and improve deposition rate by adjusting frequency, balance and off-set
- Multi process power source with additional capability for gouging
- Cable boost function ensures stable parameters even with long cables

## ESAB Retrofit kits

Present configuration			New configuration			
Controller	Power source	Wire setup	Controller	Power source	Wire setup	Kit no.
PEG	LAE	Single	PEK	LAF 1001	Single	0906 210 880
			PEK	LAF 1251	Single	0906 211 880
			PEK	Aristo 100 AC/DC SAW	Single	0906 212 880
PEH	LAF	Single	PEK	LAF 1001	Single	0906 213 880
			PEK	LAF 1251	Single	0906 214 880
			PEK	Aristo 100 AC/DC SAW	Single	0906 215 880
PEG	LAE/TAE	Tandem	PEK	LAF 1251/TAF 801	Tandem	0906 216 880
			PEK	LAF 1251/TAF 1251	Tandem	0906 217 880
			PEK	2x Aristo 100 AC/DC SAW	Tandem	0906 218 880
PEH	LAF/TAF	Tandem	PEK	LAF 1251/TAF 801	Tandem	0906 219 880
			PEK	LAF 1251/TAF 1251	Tandem	0906 220 880
			PEK	Aristo 100 AC/DC SAW	Tandem	0906 221 880

The kits above contain parts for a standard retrofit. Additional work outside of the kit will be quoted separately. Other functions and features on request.

We also offer tailored retrofits on various types of SAW stations including other brands than ESAB.

Retrofits using above standard kits do not require re-certification in accordance with EU regulations.



# **Wear** Parts



## A2 Wear Parts

Secure your welding quality and productivity with ESAB original parts

### Wear Part Kits

Contents	Wire Diameter, mm (in.)	Part Number	
<b>Wear part kit A2 SAW</b> 15 pcs contact nozzles 2 pcs feed rollers 2 pcs pressure rollers 1 pc contact tube	2.5 (3/32) 3.0 (0.12) 3.2 (1/8) 4.0 (5/32)	0810123880 0810123881 0810123882 0810123883	
<b>Wear part kit A2 GMAW</b> 10 pcs contact nozzles 1 pc feed roller 1 pc pressure roller 1 pc contact tube 1 pc gas nozzle 2 pcs insulating sleeve 1 pc plug 1 pc tip adaptor 1 set of O-rings	1.0 (.035) 1.2 (.045) 1.6 (1/16) 2.0 (5/64)	0810125880 0810125881 0810125882 0810125883	
<b>Wear part kit A2 SAW Twin</b> 20 pcs contact nozzles 1 pc feed roller 1 pc pressure roller 1 pc nozzle holder	1.2 (.045) 1.6 (1/16) 2.0 (5/64)	0810124880 0810124881 0810124882	

### Feed Roller Single Wire


Wire Dimension mm (in.)	Part Number	SAW Single	GMAW	
0.8 (.030)	0145538881		•	
1.0 (.035)	0145538882		•	
1.2 (.045)	0145538883		•	
1.6 (1/16)	0218510281	•	•	
2.0 (5/64)	0218510282	•	•	
2.4-2.5 (3/32)	0218510283	•	•	
3.0-3.2 (.012-1/8)	0218510298	•	•	
4.0 (5/32)	0218510286	•	•	
Pressure roller	0153148880	•	•	

### Feed Roller Twin Wire


Wire Dimension mm (in.)	Part Number	SAW Twin	
2 x 1.2 (.045)	0218522486	•	
2 x 1.6 (1/16)	0218522488	•	
2 x 2.0 (5/64)	0218522484	•	
2 x 2.4-2.5 (3/32)	0218522480	•	
Pressure roller	0218524580	•	



### Feed Roller Grooved and Knurled

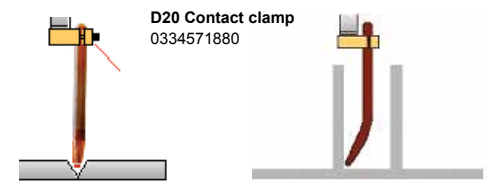
Wire Dimension Cored Wire, mm (in.)	Part Number	SAW Single	GMAW	
0.8-1.6 (.030-1/16)	0146024880	•	•	
2.0-4.0 (5/64-5/32)	0146024881	•	•	

### Pressure Roller Grooved and Knurled

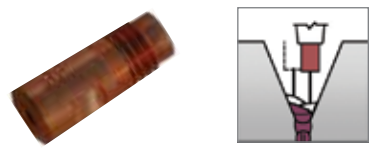


Wire Dimension Cored Wire, mm (in.)	Part Number	SAW Single	GMAW	
0.8-1.6 (.030-1/16)	0146025880 <sup>1</sup>	•	•	
2.0-4.0 (5/64-5/32)	0146025881 <sup>1</sup>	•	•	
Shaft for pressure roller	0212901101	•	•	

<sup>1</sup>Use with shaft for pressure roller 0212901101.

### Contact Tube D20 Single Wire

Length, mm (in.)	Part Number	SAW Single	
100 (4)	0413510003	•	 <p>D20 Contact clamp 0334571880</p>
190 (7.5)	0413510002	•	
260 (10.2)	0413510001	•	
500 (19.7)	0413510004	•	
260 (10.2) bent	0413511001	•	

### Contact Nozzles

Wire Dimension mm (in.)	Part Number	SAW Single	GMAW	SAW Twin	
<b>M12</b>					
1.6 (1/16)	0154623008	•			
2.0 (5/64)	0154623007	•			
2.5 (3/32)	0154623006	•			
3.0 (0.12)	0154623005	•			
3.2 (1/8)	0154623004	•			
4.0 (5/32)	0154623003	•			
<b>M6</b>					
0.8 (.030)	0153501002 <sup>1</sup>		•		
1.0 (.035)	0153501004 <sup>1</sup>		•	•	
1.2 (.045)	0153501005 <sup>1</sup>		•	•	
1.6 (1/16)	0153501007 <sup>1</sup>		•	•	
2.0 (5/64)	0153501009		•	•	
2.4-2.5 (3/32)	0153501010		•	•	
Tip adaptor M10 to M6	0147333001		•		
<b>M10</b>					
0.8 (.030)	0258000914		•		
1.0 (.035)	0258000913		•		
1.2 (.045)	0258000908		•		
1.6 (1/16)	0258000909		•		
2.0 (5/64)	0258000910		•		
2.4 (3/32)	0258000911		•		
3.0 (.012)	0258000918	•			
3.2 (1/8)	0258000915	•			
4.0 (5/32)	0258000919	•			

<sup>1</sup>Use in conjunction with tip adaptor M10 to M6 for GMAW applications.

## A2 Wear Parts

Cont.

### Contact Device D20 Complete GMAW

Description	Part Number	GMAW	
1. A2 torch	0030465389	•	
2. Gas nozzle	0145227882	•	
3. Insulating sleeve	0145226001	•	
4. Contact tube	0145534882	•	
5. Plug	0146099001	•	
6. Extension	00409798-03/-04 <sup>1</sup>	•	
7. Guide tube	0415032001	•	
8. O-ring, 22.2x3	0190680405	•	
9. O-ring, 15.3x2.4	0190680313	•	
10. O-ring, 5.3x2.4	0190680303	•	

<sup>1</sup>158 mm (6.2 in.) and 108 mm (4.3 in.) lengths.

### MTW-600 GMAW Torch, 600A

Description	Part Number	
1.1 MTW-600, 200 mm (8 in.)	0457460880	
1.2 MTW-600, 250 mm (10 in.)	0457460881	
1.3 MTW-600, 300 mm (12 in.)	0457460882	
1.4 MTW-600, 400 mm (16 in.)	0457460883	
2. Gas nozzle	0457451001	
3. Splatter protection	0457452001	
4. Centering sleeve	0457453001	
5. O-ring	0457458001	
6. Nozzle adaptor	0808311001	
7.1. Contact tube, 200 mm (8 in.)	0457455005	
7.2. Contact tube, 250 mm (10 in.)	0457455006	
7.3. Contact tube, 300 mm (12 in.)	0457455007	
7.4. Contact tube, 400 mm (16 in.)	0457455008	
8.1. Guide inserts, Steel		
1.0-1.6 (.040-1/16), L = 210 (8.3)	0457454001	
1.0-1.6 (.040-1/16), L = 260 (10.2)	0457454002	
1.0-1.6 (.040-1/16), L = 310 (12.2)	0457454003	
1.0-1.6 (.040-1/16), L = 360 (14)	0457454004	
1.0-1.6 (.040-1/16), L = 410 (16)	0457454005	
8.2. Guide inserts, Brass		
2.0-2.4 (5/64-3/32), L = 208 (8.2)	0457620001	
2.0-2.4 (5/64-3/32), L = 258 (10.1)	0457620002	
2.0-2.4 (5/64-3/32), L = 308 (12.1)	0457620003	
2.0-2.4 (5/64-3/32), L = 408 (16.1)	0457620004	
8.3. Guide inserts, Plastic PTFE		
1.0-1.6 (.040-1/16), L = 400 (16) <sup>1</sup>	0457619001	
2.0-2.4 (5/64-3/32), L = 400 (16) <sup>1</sup>	0457619002	
<b>Contact Nozzle M8, mm (in.)</b>	<b>Fe, SS, CW</b>	<b>Al</b>
1.0 (.040)	0457625005	0457625005
1.2 (.045)	0457625006	0457625007
1.4 (.052)	0457625008	-
1.6 (1/16)	0457625009	0457625009
2.0 (5/64)	-	0457625001
2.4 (3/32)	0457625012	0457625012

<sup>1</sup> Cut to suitable length

### MTW-600 GMAW Feed Roller, Single Wire

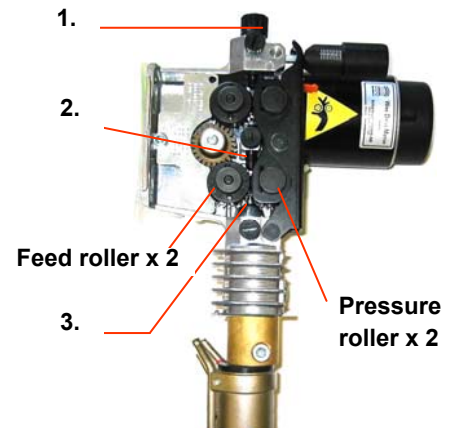
Wire Dimension mm (in.)	Part Number		GMAW	
	Fe, SS	Al		
0.6-0.8 (.023-.030)	0369557001	-	•	
0.8-0.9 (.030-.035)	-	0369557011	•	
0.8-1.0 (.030-.040)	0369557002	-	•	
1.0-1.2 (.040-.045)	0369557003	0369557006	•	
1.2-1.6 (.045-1/16)	0369557007	-	•	
1.4-1.6 (.052-1/16)	0369557013	-	•	
1.6 (1/16)	-	0369557008	•	
2.0 (5/64)	-	0369557009	•	
2x1.2 (2 x .045)	0369557010	-	•	
Pressure roller (flat roller)	0369728001	0369728001	•	

### MTW-600 GMAW Feed Roller, Single Wire, Groove, Knurled

Wire Dimension mm (in.)	Part Number Cored Wire	GMAW	
1.0-1.2 (.040-.045)	0369557004	•	
1.4-1.6 (.052-1/16)	0369557005	•	
Pressure roller (knurled roller)	0466262001	•	

### MTW-600 Wire Feeder

Description	Part Number
1. Nipple wire conduit	0455049001
2. Intermediate nozzle	0455072001
3.1 Outlet nozzle, Fe	0469837880
3.2 Outlet nozzle, Al	0469837881



## A6 Wear Parts

Secure your welding quality and productivity with ESAB original parts


### Feed Roller SAW Single Wire

Wire Dimension, mm (in.)	Part Number	
1.6 (1/16)	0218510281	  <i>Idling pressure roller</i>  <i>Driving feed roller with groove</i>
2.0 (5/64)	0218510282	
2.4-2.5 (3/32)	0218510283	
3.0-3.2 (.012-1/8)	0218510298	
4.0 (5/32)	0218510286	
5.0 (3/16)	0218510287	
6.0 (1/4)	0218510288	
Pressure roller	0153148880	

### Feed Roller SAW Single Wire, Knurled V-Groove


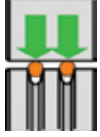
Wire Dimension, mm (in.)	Part Number	
3.0-5.0 (.012-3/16) Pressure roller	0218510299 0153148880	  <i>Idling pressure roller</i>  <i>Driving feed roller with knurled groove</i>

### Feed Roller SAW Single Wire with 2-Roller Drive, Knurled U-Groove

Wire Dimension, mm (in.)	Part Number	
<b>Feed Roller</b> 0.8-1.6 (.030-1/16) 2.0-4.0 (5/64-5/32)	0146024880 0146024881	 <p><i>Geared driving feed and pressure roller with knurled groove, eg/ soft, tubular wire</i></p>
<b>Pressure Roller</b> 0.8-1.6 (.030-1/16) 2.0-4.0 (5/64-5/32) Shaft for pressure roller	0146028880 <sup>1</sup> 0146025881 <sup>1</sup> 0212901101	

<sup>1</sup>Use with shaft for pressure roller #0212901101.

### Feed Roller SAW Twin Wire

Wire Dimension, mm (in.)	Part Number	
2 x 1.2 (.045) 2 x 1.6 (1/16) 2 x 2.0 (5/64) 2 x 2.4-2.5 (3/32) 2 x 3.0-3.2 (.012-1/8)	0218522486 0218522488 0218522484 0218522480 0218522481	 <p><i>Spherical idling pressure roller for equally distributed pressure on the two wires</i></p>  <i>Driving feed with grooves for twin wire system</i>

### Feed Roller SAW Twin Wire, Knurled U-Groove

Wire Dimension, mm (in.)	Part Number
2 x 2.0-3.2 (5/64-1/8) Pressure roller <sup>1</sup>	0148772880 0218524580

<sup>1</sup>Spherical type with shaft

### D35 Heavy-Duty System

Length, mm (in.)	Part Number	
<b>D35 Straight Contact Tube</b>		
220 (8.7)	0417959880	<p>Washer D22x10.5x2 0215100023 Spring Washer D20/10.2x1.1 0219504307 Ring 0417979001 Screw M8x16</p>
275 (10.8)	0417959881	
400 (15.7)	0417959882	
500 (19.7)	0417959883	
700 (27.5)	0417959884	
Clamp half	0809342880	

### Contact Jaws for Heavy-Duty System

Wire Dimension, mm (in.)	Part Number	
<b>Single Wire, Length 65/58 mm (2.5/2.3 in.)</b>		
2.0 (5/64)	0332581880	<p>65 mm (2.5 in.) 0332581880/-881 58 mm (2.3 in.) 0265900880/-884 120 mm (4.7 in.) 0000237320/-321 Long contact jaws 120 mm (4.7 in.) for improved access to deep joints</p>
2.4-2.5 (3/32)	0332581881	
3.0 (0.12)	0265900880	
3.2 (1/8)	0265900881	
4.0 (5/32)	0265900882	
5.0 (3/16)	0265900883	
6.0 (1/4)	0265900884	
<b>Single Wire, Length 120 mm (4.7 in.)</b>		
3.0 (0.12)	0000237320	
4.0 (5/32)	0000237321	
<b>Single Wire, Length 75 mm (3 in.)</b>		
1.6-3.0 (1/16-.012)	0265901480	<p>75 mm (3 in.) Durable contact jaws for all wire dimensions between 1.6-3.0 mm (1/16-.012 in.)</p>
<b>Twin Wire, Length 73 mm (2.9 in.)</b>		
2 x 1.6 (1/16)	0265902882	
2 x 2.0 (5/64)	0265902881	
2 x 2.4-2.5 (3/32)	0265902884	
2 x 2.5-3.0 (3/32-.012)	0265902880	
<b>Twin Wire, Length 73 mm (2.9 in.) with Guide Tube Connection</b>		
2 x 1.6 (1/16)	0808650882	
2 x 2.0 (5/64)	0808650881	
2 x 2.5-3.0 (3/32-.012)	0808650880	
<b>Twin Wire, Length 120 mm (4.7 in.) with Guide Tube Connection</b>		
2 x 1.6 (1/16)	0816019882	
2 x 2.0 (5/64)	0816019881	
2 x 2.4-2.5 (3/32)	0816019883	
2 x 2.5-3.0 (3/32-.012)	0816019880	

## A6 Wear Parts

Cont.

### SAW Contact Nozzles for Light-Duty System

Wire Dimension, mm (in.)	Part Number	
<b>SAW Contact Nozzle M6 for Twin Wire</b>		
2 x 1.2 (.045)	0153501005	<p>M6</p> <p>Guide tube, L=358, D6/4 0415032001</p> <p>Guide tube, L=750, D6/4 0415032002</p> <p>Spiral insert, L=366, D3.5/1.5 0334279001</p> <p>Nozzle holder 0333772001</p> <p>Contact nozzle x2</p>
2 x 1.6 (1/16)	0153501007	
2 x 2.0 (5/64)	0153501009	
2 x 2.4-2.5 (3/32)	0153501010	

### SAW Contact Jaws for ICE™

Description	Part Number	
Contact jaw, 2.5 mm (3/32) Contact jaw, 2.4-2.5 mm (3/32) Wire guide Ceramic sleeve	0819882880 0816019983 0824038001 0819883001	<p>L=73.5 mm (3 in.) 0819882880</p> <p>L=120 mm (4.7 in.) 0816019983</p>
<b>ICE Wear Kit</b> 3 pcs contact jaw, 2.5 mm 3 pcs ceramic sleeve 1 pc feed roller, 2.5 mm	0824376880	

### Insulated Contact Nozzle with Nozzle Cap for Narrow V-Joints

Description	Part Number	
Nozzle holder	0000237415	<p>M16</p> <p>Nozzle holder</p> <p>Contact nozzle</p> <p>Nozzle cap</p> <p>D35 contact tube</p>
Nozzle with cap:		
2.0 (5/64)	0000237329	
2.5 (3/32)	0000237328	
3.0 (0.12)	0000237330	
3.2 (1/8)	0000237332	
4.0 (5/32)	0000237327	
Nozzle cap	0000237331	

### Guide Tubes

Length, mm (in.)	Part Number	
<b>Single/Twin Wire, max 3.2 mm (1/8 in.)</b>		
358 (14), D6/4 750 (29.5), D6/4 Clamp	0415032001 <sup>1</sup> 0415032002 <sup>2</sup> 0218514001	<p>Single wire      Twin wire</p>

<sup>1</sup>Twin Wire: eg/ 2 x 358 mm (14 in.) for 275 mm (10.8 in.) contact tube. <sup>2</sup>Guide tube 750 mm (29.5 in.) to be cut to suit the length of the contact tube.

### Flux Nozzle

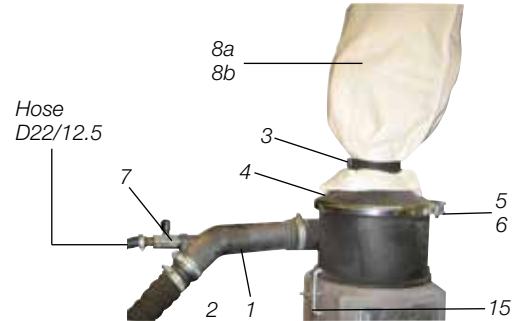
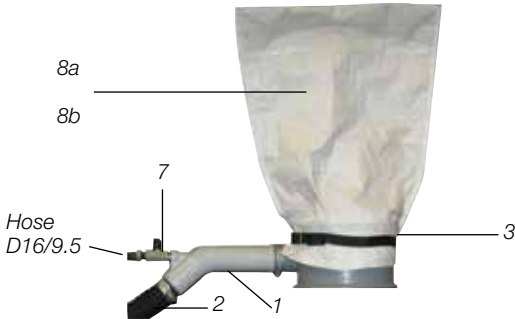
Description	Part Number	Description	Part Number
<b>D20 Contact Tube</b>			
1. Tube 2. Clamp 5. Flux hose 0.5 m (1.6 ft.) 5.1. Flux hose free length/m (ft.)	0332948001 0333094880 0443383002 0443383001		
<b>D35 Contact Tube</b>			
3. Flux nozzle complete 3.1. Tube bent 3.2. Tube holder 5. Flux hose 0.5 m (1.6 ft.) 5.1. Flux hose free length/m (ft.)	0153299880 0153296001 0153290002 0443383002 0443383001		
2. Flux funnel complete 2.1 Insulated sleeve 5. Flux hose 0.5 m (1.6 ft.) 5.1. Flux hose free length/m (ft.)	0145221881 0333667001 0443383002 0443383001	4. Flux funnel complete 4.1. Insert, 36 mm (1.4 in.) 4.2. Insert, 24 mm (0.9 in.) 5. Flux hose 0.5 m (1.6 ft.) 5.1. Flux hose free length/m (ft.)	0254900880 0254900301 0254900302 0443383002 0443383001

### Contact Jaws for A6 SAW Cladding Head Assembly

Description	Part Number	
Contact jaws <i>12 pcs required for complete assembly</i>	0148325001	<p>Strip      Contact jaw</p>

## OPC Flux Recovery System Wear Parts

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### OPC Basic

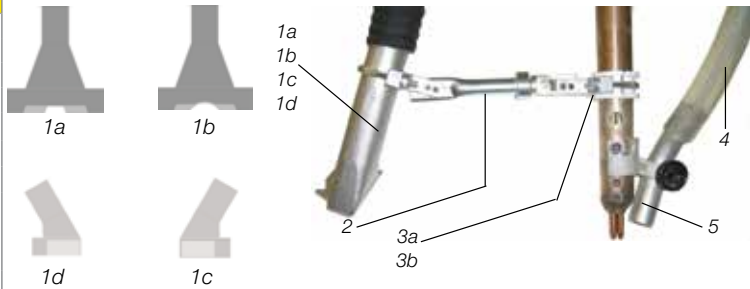
1	Ejector	0147640880
2	Spiral hose D47.0/38.1	0191813801
3	Tension band	0192855002
4	Cone <sup>1</sup>	0148143001
5	Tension ring <sup>1</sup>	0148144001
6	O-ring, 189.3x5.7	0215201353
7	Ball valve	0145824881
8a	Filter, paper	0155966001
8b	Filter, cotton <sup>1</sup>	0332448001
9	Funnel	0148142001
10	Rubber lining	0145565001
11	O-ring 149.2x5.7	0215201345
12	Cyclone	0148141001
13	Rubber lining	0145073001
14	Tension spring	0145815001
16	Strainer	0020301780

### OPC Super

1	Ejector	0339720001
2	Spiral hose D47.0/38.1	0191813801
3	Tension band	0192855002
4	Cone	0332279001
5	Tension ring	0148144001
6	O-ring, 189.3x5.7	0215201353
7	Ball valve	0333625001
8a	Filter, paper	0155966001
8b	Filter, cotton <sup>1</sup>	0332448001
9	Funnel	0332280001
10	Rubber lining	0332282001
11	O-ring 149.2x5.7	0215201345
12	Cyclone	0332281001
13	Rubber lining	0332283001
14	Tension spring	0145815002
15	Clamp	0340612001
16	Strainer	0020301780

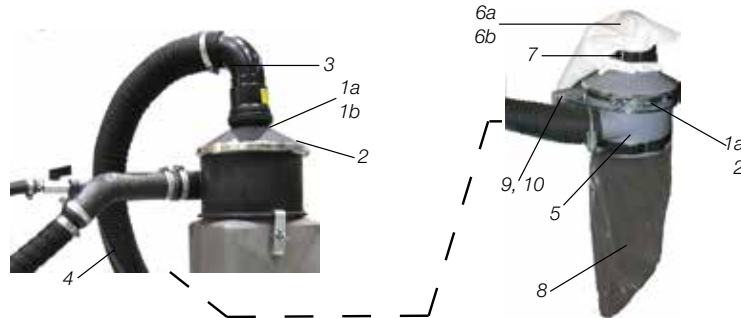
### Suction Nozzle

1a	Butt weld 1	0145501001
1b	Butt weld 2	0145502001
1c	Fillet weld left	0145504001
1d	Fillet weld right	0145505001
2	Nozzle bracket	0147384881
3a	Insulator D20	0145131004
3b	Insulator D35	0145131002
4	Flux hose, D32.0/25.0, free length, m	0443383001
	0.5 m (1.6 ft.)	0443383002
5	Pipe bent	0153296001



### Cyclone Filter

1a	Cone basic	0148143001
1b	Cone super	0332279001
2	Tension ring	0148144001
3	Bend	0413576001
4	Spiral hose D67.2/63	0193125003
5	Cyclone	0148141001
6a	Filter, paper	0155966001
6b	Filter, cotton <sup>1</sup>	0332448001
7	Tension band	0192855002
8	Plastic bag	0190665004
9	U-screw	0379600001
10	Bracket	0379599880



<sup>1</sup>Optional item.









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