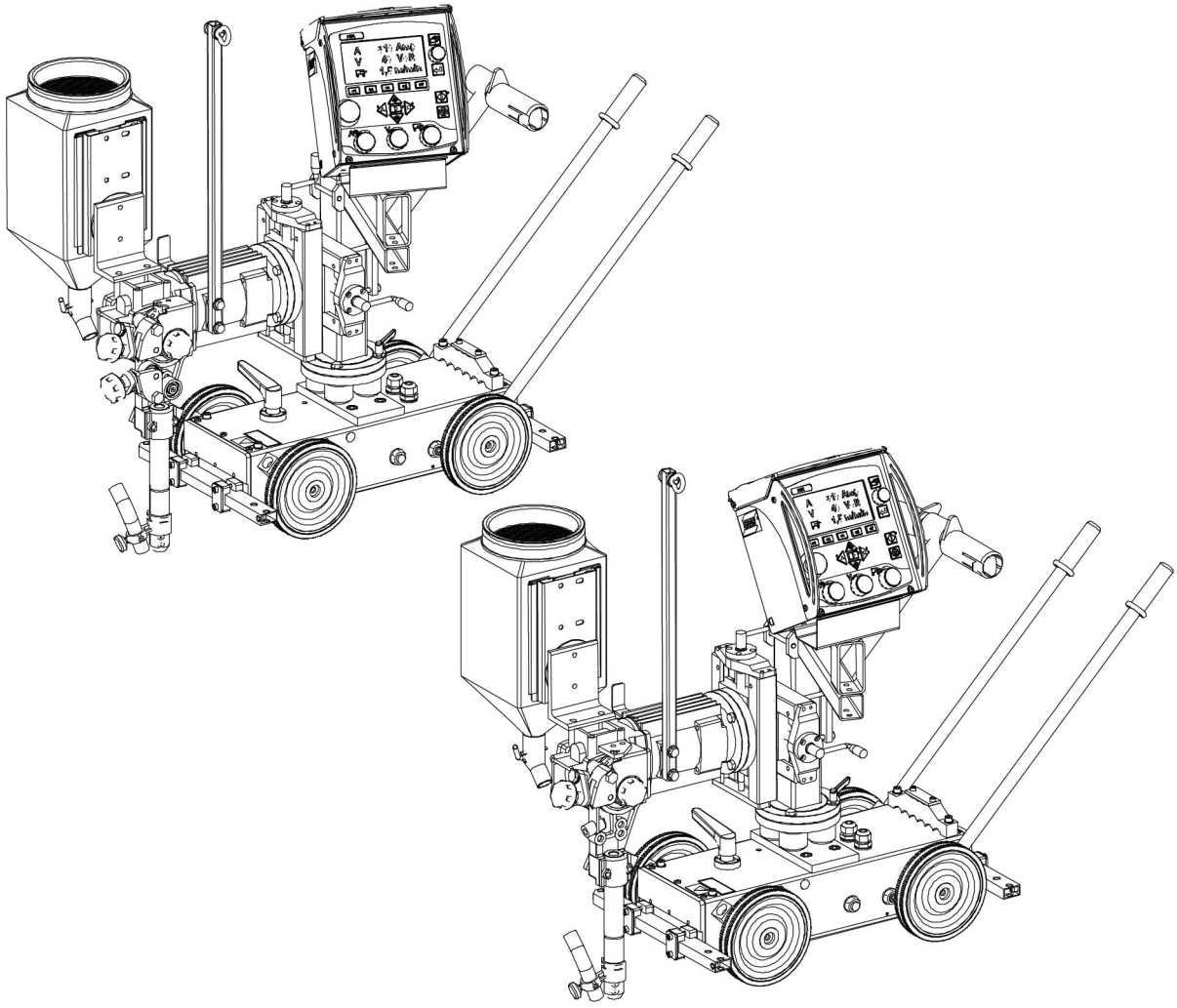
A6 Mastertrac

A6TF F1 / A6TF F1 Twin



Instruction manual

0449 265 560 US 20230626

Valid for: serial no. 940-xxx-xxxx

EU DECLARATION OF CONFORMITY

According to:
The Machine Directive 2006/42/EC; The EMC Directive 2014/30/EU;
The RoHS Directive 2011/65/EU;

Type of equipment
Wire Feeder with control box PEK

Type designation etc.
A2 Multitrac, A2 Tripletrac, A2 S-series
A6 Mastertrac, A6 Mastertrac Tandem, A6 S-series

Brand name or trade mark
ESAB

Manufacturer or his authorised representative established within the EEA
Name, address, telephone no:
ESAB AB
Lindholmsallén 9, Box 8004, SE-402 77 Göteborg, Sweden
Phone: +46 31 50 90 00

The following harmonised standard in force within the EEA has been used in the design:

EN ISO 12100:2010	Safety of machinery - General principles for design - Risk assessment and risk reduction
EN IEC 60974-5:2019	Arc Welding Equipment – Part 5: Wire Feeders
EN IEC 60974-10:2021	Arc Welding Equipment - Part 10: Electromagnetic compatibility (EMC) requirements

Additional Information: Restrictive use, Class A equipment, intended for use in location other than residential

By signing this document, the undersigned declares as manufacturer, or the manufacturer's authorised representative established within the EEA, that the equipment in question complies with the safety requirements stated above.

By signing this document, the undersigned declares as manufacturer, or the manufacturer's authorised representative established within the EEA, that the equipment in question complies with the safety and environmental requirements stated above.

Place/Date

Gothenburg
2023-02-07

Signature

Peter Kjällström
Product Director Welding Automation and Handling

CE

1 SAFETY

1.1 Meaning of symbols

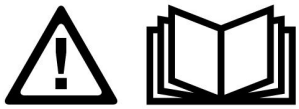
As used throughout this manual: Means Attention! Be Alert!

DANGER!
Means immediate hazards which, if not avoided, will result in immediate, serious personal injury or loss of life.

WARNING!
Means potential hazards which could result in personal injury or loss of life.

CAUTION!
Means hazards which could result in minor personal injury.

WARNING!
Before use, read and understand the instruction manual and follow all labels, employer's safety practices and Safety Data Sheets (SDSs).



1.2 Safety precautions

Users of ESAB equipment have the ultimate responsibility for ensuring that anyone who works on or near the equipment observes all the relevant safety precautions. Safety precautions must meet the requirements that apply to this type of equipment. The following recommendations should be observed, in addition to the standard regulations that apply to the workplace.

All work must be carried out by trained personnel well-acquainted with the operation of the equipment. Incorrect operation of the equipment may lead to hazardous situations, which could result in injury to the operator and damage to the equipment.

1. Anyone who uses the equipment must be familiar with:
   - its operation
   - the location of emergency stops
   - its function
   - the relevant safety precautions
   - welding and cutting or other applicable operation of the equipment
2. The operator must ensure that:
   - no unauthorized person is within the working area of the equipment when it is started up
   - no-one is unprotected when the arc is struck or work is started with the equipment
3. The workplace must:
   - be suitable for the purpose
   - be free from drafts

4. Personal safety equipment:
   - Always wear recommended personal safety equipment, such as safety glasses, flame-proof clothing, safety gloves
   - Do not wear loose-fitting items, such as scarves, bracelets, rings, etc., which could become trapped or cause burns
5. General precautions:
   - Make sure the return cable is connected securely
   - Work on high voltage equipment **may only be carried out by a qualified electrician**
   - Appropriate fire extinguishing equipment must be clearly marked and close at hand
   - Lubrication and maintenance must **not** be carried out on the equipment during operation

WARNING!
Arc welding and cutting may cause injury to yourself and others. Take precautions when welding and cutting.

ELECTRIC SHOCK - Can kill

- Install and ground the unit in accordance with instruction manual.
- Do not touch live electrical parts or electrodes with bare skin, wet gloves, or wet clothing.
- Insulate yourself from work and ground.
- Ensure your working position is safe

ELECTRIC AND MAGNETIC FIELDS - Can be dangerous to health

- Welders with pacemakers fitted should consult their doctor before welding. EMF may interfere with some pacemakers.
- Exposure to EMF may have other health effects which are unknown.
- Welders should use the following procedures to minimize exposure to EMF:
  - Route the electrode and work cables together on the same side of your body. Secure them with tape when possible. Do not place your body between the torch and work cables. Never coil the torch or work cable around your body. Keep the welding power source and cables as far away from your body as possible.
  - Connect the work cable to the workpiece as close as possible to the area being welded.

FUMES AND GASES - Can be dangerous to health

- Keep your head out of the fumes.
- Use ventilation, extraction at the arc, or both, to take fumes and gases away from your breathing zone and the general area.

ARC RAYS - Can injure eyes and burn skin

- Protect your eyes and body. Use the correct welding screen and filter lens and wear protective clothing.
- Protect bystanders with suitable screens or curtains.

NOISE - Excessive noise can damage hearing

Protect your ears. Use ear defenders or other hearing protection.

MOVING PARTS - Can cause injuries

- Keep all doors, panels and covers closed and securely in place. Have only qualified people remove covers for maintenance and troubleshooting as necessary. Reinstall panels or covers and close doors when service is finished and before starting engine.
- Stop engine before installing or connecting unit.
- Keep hands, hair, loose clothing and tools away from moving parts.

FIRE HAZARD

- Sparks (spatter) can cause a fire. Make sure there are no inflammable materials nearby.
- Do not use on closed containers.

HOT SURFACE - Parts can burn

- Do not touch parts bare handed.
- Allow cooling period before working on equipment.
- To handle hot parts, use proper tools and/or insulated welding gloves to prevent burns.

MALFUNCTION - Call for expert assistance in the event of malfunction.

PROTECT YOURSELF AND OTHERS!

CAUTION!

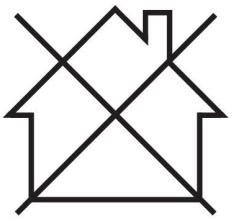
This product is solely intended for arc welding.

WARNING!

Do not use the power source for thawing frozen pipes.

CAUTION!

Class A equipment is not intended for use in residential locations where the electrical power is provided by the public low-voltage supply system. There may be potential difficulties in ensuring electromagnetic compatibility of class A equipment in such locations, due to conducted as well as radiated disturbances.



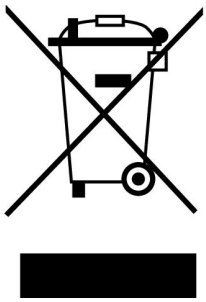
NOTE!

Dispose of electronic equipment at the recycling facility!

To conform with the European Directive 2012/19/EC on Waste Electrical and Electronic Equipment and its implementation in accordance with national law, electrical and/or electronic equipment that has reached the end of its life must be disposed of at a recycling facility.

As the person responsible for the equipment, it is your responsibility to obtain information on approved collection stations.

For further information contact the nearest ESAB dealer.



ESAB has an assortment of welding accessories and personal protection equipment for purchase. For ordering information contact your local ESAB dealer or visit us on our website.

2 INTRODUCTION

2.1 General

The **A6TF F1 / A6TF F1 Twin** automatic welding equipment is designed for **Submerged Arc Welding (SAW)** of butt and fillet joints.

All other applications are prohibited.

Intended for use in combination with **PEK** and ESAB welding power sources **LAF**, **TAF** or **Aristo 1000**.

NOTE!
Aristo 1000 only together with **PEK** with serial no. 747-xxx-xxxx or later.

2.2 Welding method

2.2.1 Submerged Arc Welding (SAW)

- Submerged Arc Light duty

Submerged Arc Light duty with a Ø20 mm connector permits a load up to 800 A (100%).

- Submerged Arc Heavy duty

Submerged Arc Heavy duty with a Ø35 mm connector permits a load of up to 1500 A.

This version can be equipped with feed rollers for single or twin wire welding (twin-arc). A special knurled feed roller is available for flux-cored wire, which guarantees even wire feed without the risk of deformation due to high feed pressure.

2.3 Definitions

SAW	The weld bead is protected by a covering of flux during the welding.
SAW Light duty	Permits welding with lower current load and thin wire.
SAW Heavy duty	Permits welding with lower current load and thick wire.
Twin-arc welding	Welding with two wires in one welding head.

2.4 Horizontal welding

The products described in this manual are designed for horizontal welding.

NOTE!
Do not use **A6 Mastertrac Tandem** when welding on inclined planes.

3 TECHNICAL DATA

	A6TF F1	A6TF F1 Twin
Supply voltage	42 V AC	42 V AC
Permissible load at 100%	1500 A	1500 A
Wire dimensions		
Solid single wire	3.0-6.0 mm	3.0-6.0 mm
Hollow wire	3.0-4.0 mm	3.0-4.0 mm
Solid twin wire	2×2.0–3.0 mm	2×2.0–3.0 mm
Maximum wire feed speed	4 m/min	4 m/min
Brake hub braking torque	669 lb-ft (1.5 Nm)	981 lb-ft (1.5 Nm)
Travel speed	0.1–2.0 m/min	0.1–2.0 m/min
Maximum weight of wire	1102.3 lb (30 kg)	1102.3 lb (30 kg)
Flux hopper volume	10 l	10 l
Weight (Excluding wire and flux)	1102.3 lb (110 kg)	1102.3 lb (140 kg)
Enclosure class	IP10	IP10
EMC classification	Class A	Class A

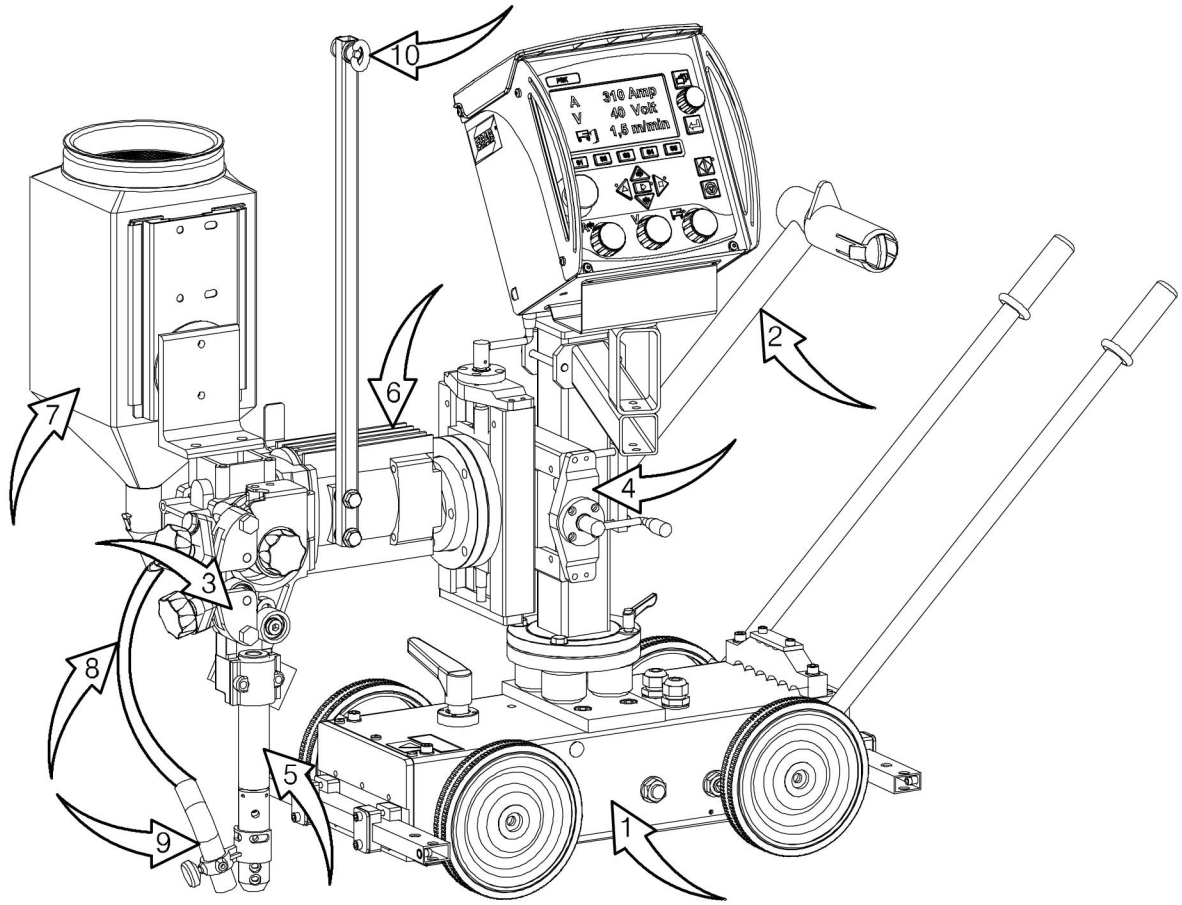
4 INSTALLATION

4.1 General

The installation must be carried out by a professional.

WARNING!
Rotating parts can cause injury, take great care.

4.2 Main components A6TF F1 (SAW), A6TF F1 Twin (SAW)

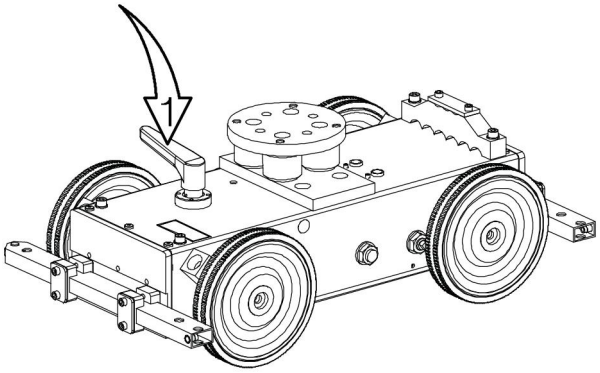


1. Carriage
2. Carrier
3. Wire feed unit
4. Slide kit, manual
5. Connector
6. Motor with gear (A6 VEC)
7. Flux hopper
8. Flux tube
9. Flux nozzle
10. Wire guide

4.3 Description of main components

4.3.1 Carriage

Secure the carriage with the locking lever **(1)**.



4.3.2 Carrier

Fit the control unit, wire feed unit and flux hopper, among other things, on the carrier.

4.3.3 Wire feed unit

The wire feed unit guides and feeds the welding wire into the connector.

4.3.4 Manual slides

The horizontal and vertical position of the welding head is adjusted by way of linear slides. The angular motion can be freely adjusted using the rotary slide.

4.3.5 Connector

Transfers welding current to the wire during welding.

4.3.6 Motor with gear (A6 VEC)

The motor feeds the welding wire.

For more information regarding **A6 VEC** see Instruction manual 0443 393 xxx.

4.3.7 Flux hopper / Flux tube / Flux nozzle

The flux is filled into the flux hopper. It is then transferred to the workpiece through the flux tube and the flux nozzle.

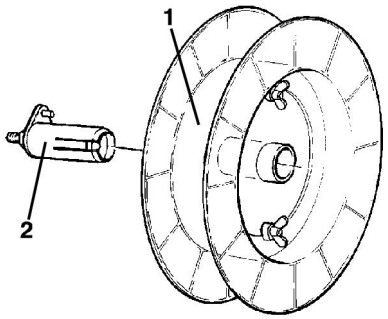
The amount of flux to be dropped down is controlled by way of the flux valve fitted to the flux hopper.

For more information, see section "**Refilling with flux powder**."

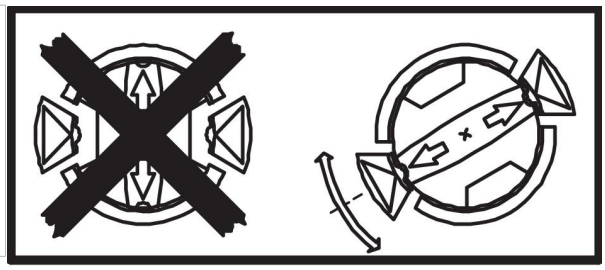
4.4 Mounting

4.4.1 Wire drum (Accessories)

Mount the wire drum (**1**) on the brake hub (**2**).



WARNING!
To prevent the reel from sliding off the hub: Lock the reel in place by turning the red knob as shown on the warning label attached next to the hub.

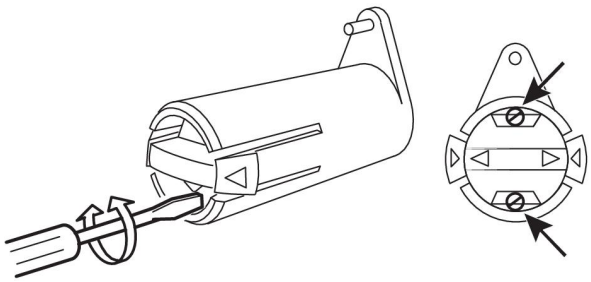


4.5 Adjusting the brake hub

The brake hub is adjusted upon delivery. If readjustment is required, follow the instructions below. Adjust the brake hub so that the wire is slightly slack when wire feed stops.

Adjusting the braking torque:

1. Turn the red handle to the locked position.
2. Insert a screwdriver into the springs in the hub.
   - Turn the springs clockwise to reduce the braking torque.
   - Turn the springs counter-clockwise to increase the braking torque.



NOTE!
Turn both springs the same amount.

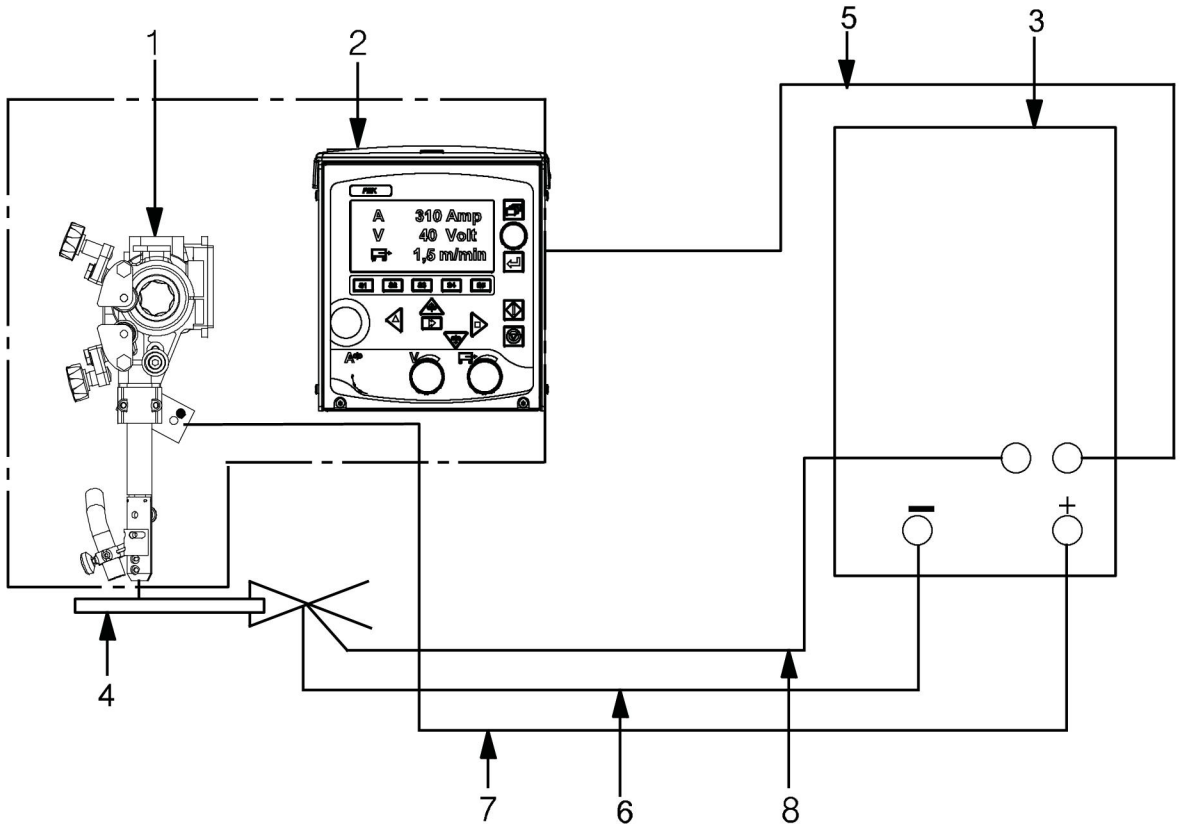
4.6 Connections

4.6.1 General

- The **PEK** must be connected by a qualified person. See separate instruction manual.
- For connection of **A6 GMH**, see separate instruction manual.
- For connection of **A6 PAV**, see separate instruction manual.

4.6.2 Automatic welding equipment A6TF F1 / A6TF F1 Twin (Submerged Arc Welding, SAW)

1. Connect the control cable (**5**) between the power source (**3**) and the **PEK** (**2**).
2. Connect the return cable (**6**) between the power source (**3**) and workpiece (**4**).
3. Connect the welding cable (**7**) between the power source (**3**) and the automatic welding equipment (**1**).
4. Connect the measurement cable (**8**) between the power source (**3**) and workpiece (**4**).



1. Automatic welding equipment
2. PEK
3. Power source
4. Workpiece
5. Control cable
6. Return cable
7. Welding cable
8. Measurement cable

5 OPERATION

5.1 General

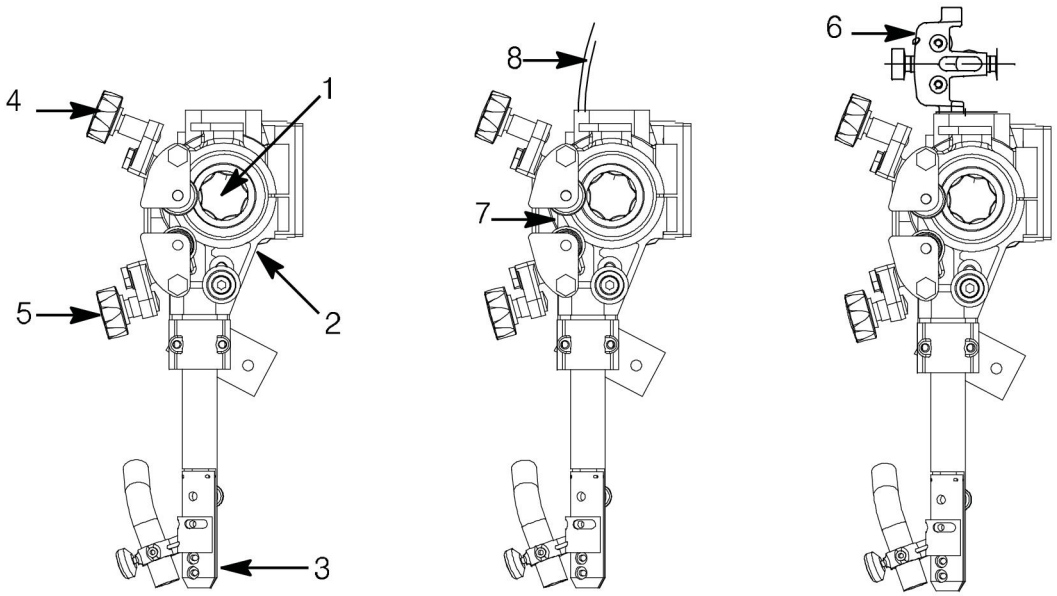
CAUTION!
Read and understand the instruction manual before installing or operating.

General safety regulations for handling the equipment can be found in the "SAFETY" chapter of this manual. Read it through before you start using the equipment!

Return cable

Before starting the welding, check that the return cable is connected. See section "**Connections.**"

5.2 Loading the welding wire



1. Mount the wire drum according to the instructions in the "**Installation**" chapter.
2. Check that feed roller (**1**) and contact jaw or contact tip (**3**) have the correct dimension for the selected wire size.
3. For A6TF F1 Twin:
   - Feed the wire through the wire guide (**8**).
4. When welding with fine wire:
   - Feed the wire through the fine wire feed unit (**6**).
     Ensure that the straightener is correctly adjusted so that the wire emerges straight out through the contact jaws or contact tip (**3**).
5. Pull the end of the wire through the straightener (**2**).
   - For a wire diameter greater than 2 mm, straighten out 0.5 m of wire and feed it by hand down through the straightener.
6. Locate the end of the wire in the feed roller (**1**) groove.
7. Set the wire tension on the feed roller with the knob (**4**).

NOTE!
Do not tension more than is required to achieve an even feed.

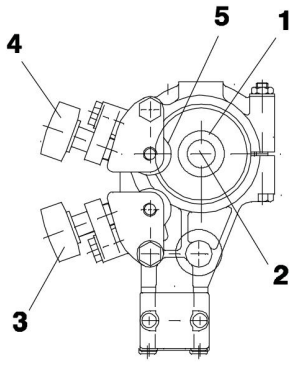
8. Feed the wire forward 30 mm below the contact tip by pressing  on the **PEK**.
9. Direct the wire by adjusting the knob (**5**).

NOTE!
Always use a guide tube (**7**) to ensure even feed of fine wire (1.6–2.5 mm).

5.3 Changing the feed roller

5.3.1 Single wire

- Release the knobs (**3**) and (**4**).
- Release the hand wheel (**2**).
- Change the feed roller (**1**).
  The feed rollers are marked with their respective wire sizes.



5.3.2 Twin wire (Twin-arc)

- Change the feed roller (**1**) with twin grooves in the same way as for single wire.

NOTE!
The pressure roller (**5**) must also be changed. A special curved pressure roller for twin wire replaces the standard pressure roller for single wire.

- Assemble the pressure roller with special stub shaft (order no. 0146 253 001).

5.3.3 Flux-cored wire for knurled rollers (Accessories)

- Change both the feed roller (**1**) and pressure roller (**5**) for the wire size to be used.

NOTE!
A special stub shaft is required for the pressure roller (order no. 0212 901 101).

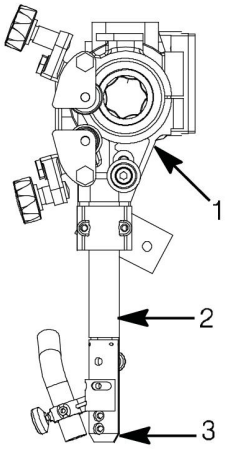
- Tighten the pressure screw (**4**) with moderate pressure to ensure that the flux-cored wire does not deform.

5.4 Contact equipment for Submerged Arc Welding

5.4.1 For single wire 3.0–6.0 mm

Use automatic welding equipment A6TF F1 (SAW) where the following are included:

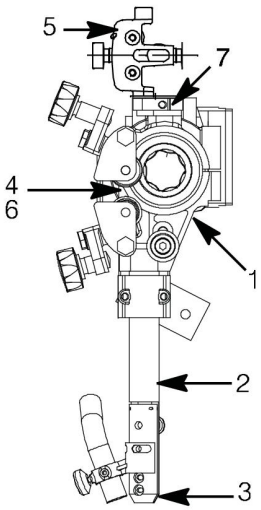
- Wire feed unit (**1**)
- Connector D35 (**2**)
- Contact jaw (**3**)
  Ensure that a good contact is achieved between the contact jaws and the wire.



5.4.2 For twin wires 2×2.0–3.0 mm (D35)

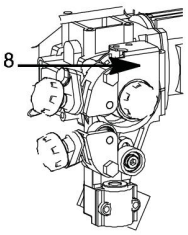
Use automatic welding equipment A6TF F1 Twin (SAW) where the following are included:

- Wire feed unit (**1**)
- Connector Twin D35 (**2**)
- Contact jaw (**3**)
  Ensure that a good contact is achieved between the contact jaws and the wire.
- Guide tubes (**4, 6**)



5.4.2.1 Accessories

- Fine-wire straightener (**5**) to be fitted on top of the clamp of the wire feed unit (**1**).



NOTE!
When mounting the fine-wire straightener, remove the plate (**7**) if it exists.

NOTE!
Do not remove the protection plate (**8**).

5.4.2.2 Adjustment of the wires for twin-arc welding

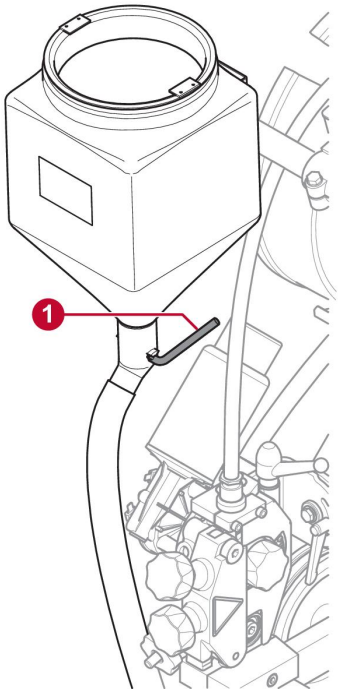
Position the wires in the joint so as to achieve optimal weld quality by rotating the connector. The two wires can be rotated so that they are positioned one after the other along the line of the joint, or in any position up to 90° across the joint, i.e. one wire on each side of the joint.

5.5 Refilling with flux powder

1. Close the flux valve (**1**) on the flux hopper.
2. Remove the optional cyclone on the flux recovery unit, if installed.
3. Fill with flux powder.

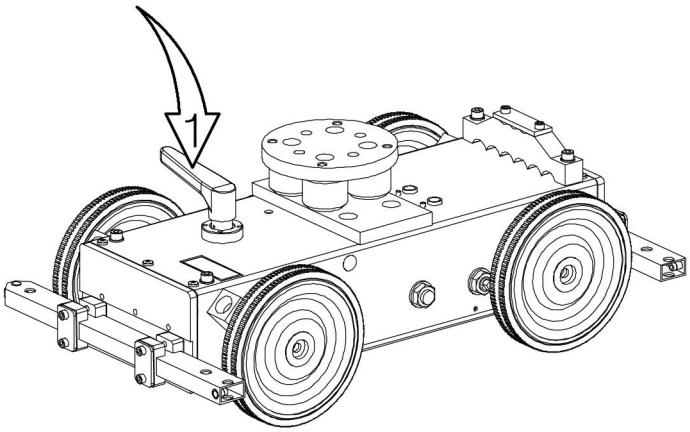
> **NOTE!**
> The flux powder must be dry. Use preheated flux powder only when the flux hopper is designed for its use.

4. Position the flux tube without twisting it.
5. Adjust the height of the flux nozzle above the weld so that the correct amount of flux is delivered. Flux coverage should be sufficient to ensure that arc penetration does not occur.

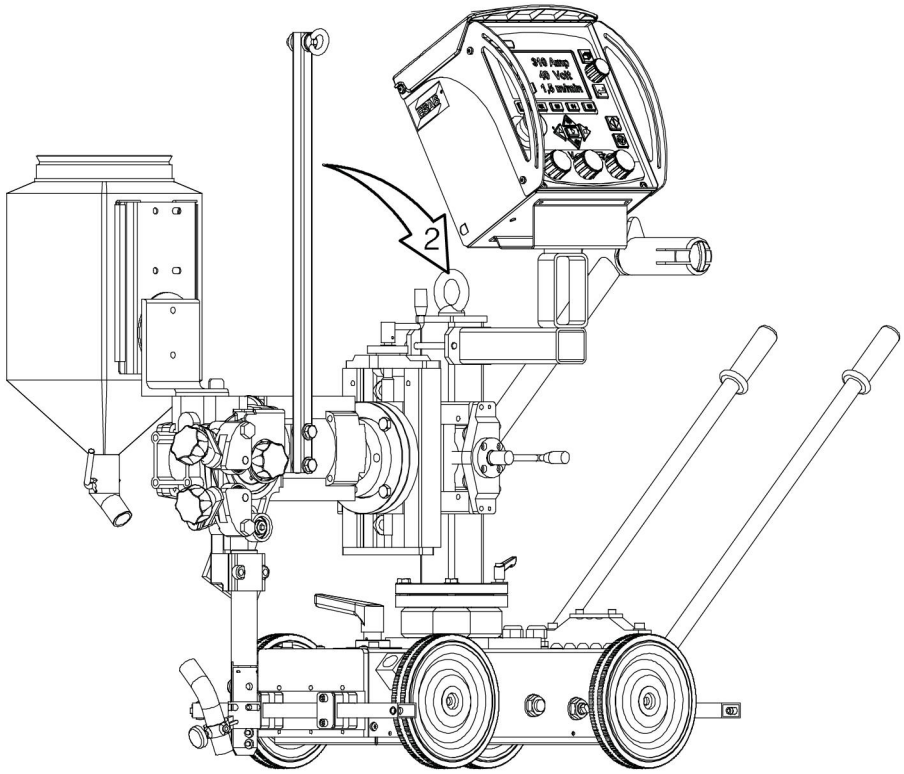


5.6 Transportation

Disengage the wheels by turning the locking lever (**1**).



> **NOTE!**
> Use the lifting eye bolt (**2**) when lifting the equipment.



5.7 Conversion of A6TF F1 / A6TF F1 Twin (Submerged Arc Welding) to MIG/MAG welding

Assemble in accordance with the instructions accompanying the conversion kit.

5.8 Conversion of A6TF F1 (Submerged Arc Welding) to Twin-arc

Assemble in accordance with the instructions accompanying the conversion kit.

6 MAINTENANCE

6.1 General

CAUTION!
All warranty undertakings from the supplier cease to apply if the customer attempts any work to rectify any faults in the product during the warranty period.

NOTE!
Make sure the power cable is disconnected before doing any kind of maintenance work.

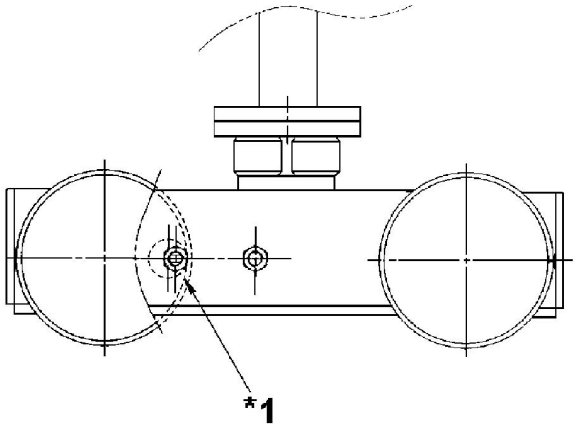
For maintenance of the control unit, see separate instruction manual.

6.2 Daily

- Clean flux and dirt from moving parts.
- Check that the contact tip and all electrical cables are connected.
- Make sure all screwed joints are tightened.
- Check that guides and drive rollers are not worn or damaged.
- Check the brake hub braking torque. Tighten if the wire reel continues to rotate when the wire feed is stopped. Loosen if the feed rollers slip. As a guide, the braking torque for a 66.1 lb (30 kg) wire reel should be 13.3 in-lb (1.5 Nm).
  To adjust the braking torque see section "**Adjusting the brake hub**."

6.3 Periodic

- Check the wire feed motor brushes once every three months. Replace when they are worn down to 6 mm.
- Inspect the slides, lubricate them if they are binding.
- Inspect the wire guides, drive rollers and contact tip on the wire feed unit. Replace any worn or damaged components; see section "**WEAR PARTS**."
- If the carriage travel becomes jerky, check that the chain is correctly tensioned. Tension the chain if necessary.



- To tension the chain undo the nut (***1**) and turn the cam, then tighten the nut.

7 TROUBLESHOOTING

7.1 General

Equipment

- Instruction manual for included parts.

Check

- That the power supply is connected for the correct mains supply.
- That all three phases are supplying the correct voltage (phase sequence is not important).
- That welding cables and connections are not damaged.
- That the controls are correctly set.
- That the mains supply is disconnected before starting repairs.

7.2 Possible errors

1. Symptom	**Current and voltage readings show large fluctuations**
Cause 1.1	Contact jaws or nozzle are worn or the wrong size.
Action	Replace contact jaws or nozzle.
Cause 1.2	Wire feed roller pressure is inadequate.
Action	Increase pressure on wire feed rollers.
2. Symptom	**Wire feed is uneven**
Cause 2.1	Pressure on wire feed rollers is set incorrectly.
Action	Adjust pressure on wire feed rollers.
Cause 2.2	Wire feed rollers are the wrong size.
Action	Replace wire feed rollers.
Cause 2.3	Grooves in wire feed rollers are worn.
Action	Replace wire feed rollers.
3. Symptom	**Welding cables are overheating**
Cause 3.1	Poor electrical connection.
Action	Clean and tighten all electrical connections.
Cause 3.2	Cross-sectional area of welding cables is too small.
Action	Use cables with a larger cross-section or use parallel cables.

8 ORDERING SPARE PARTS

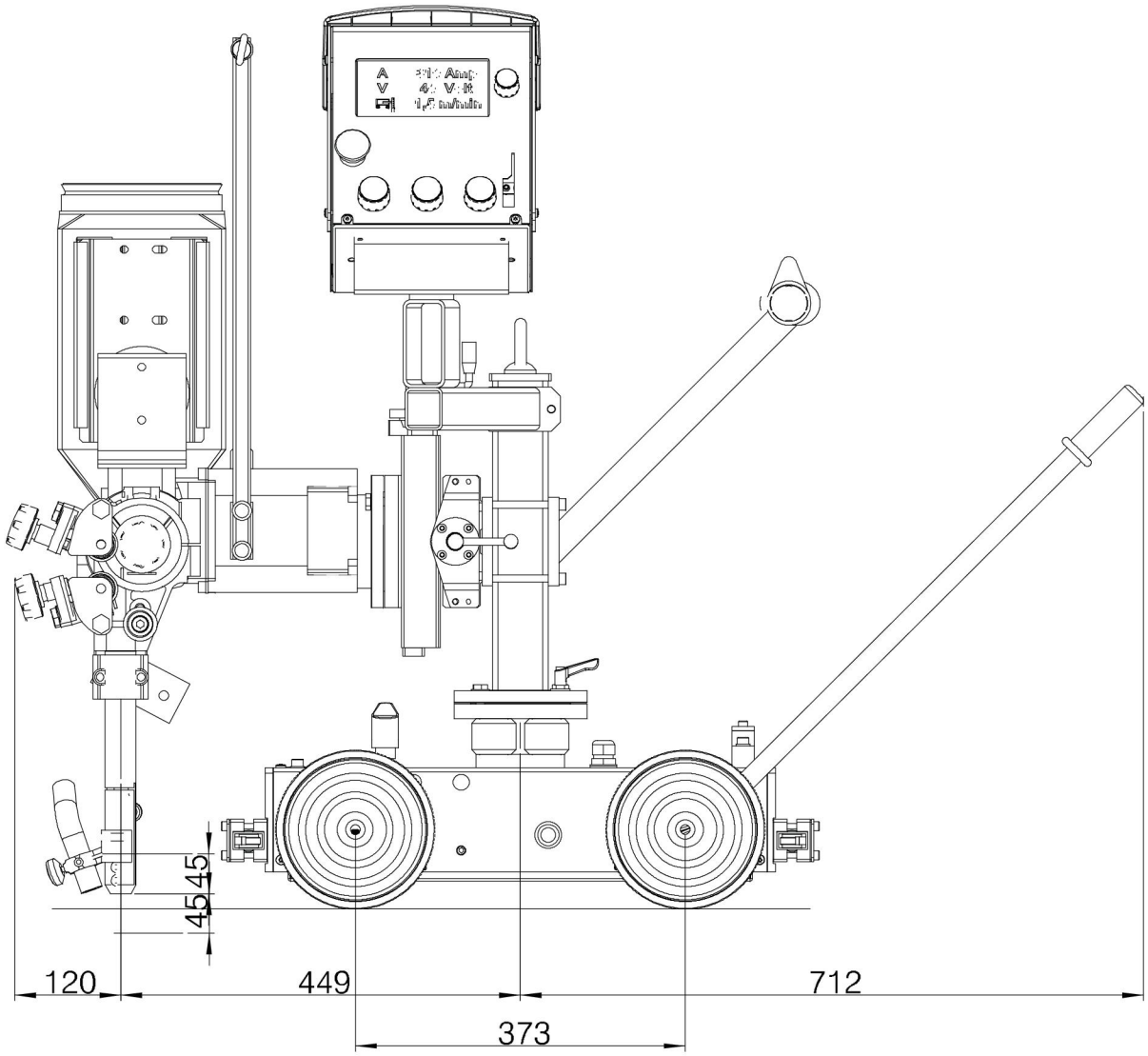
CAUTION!

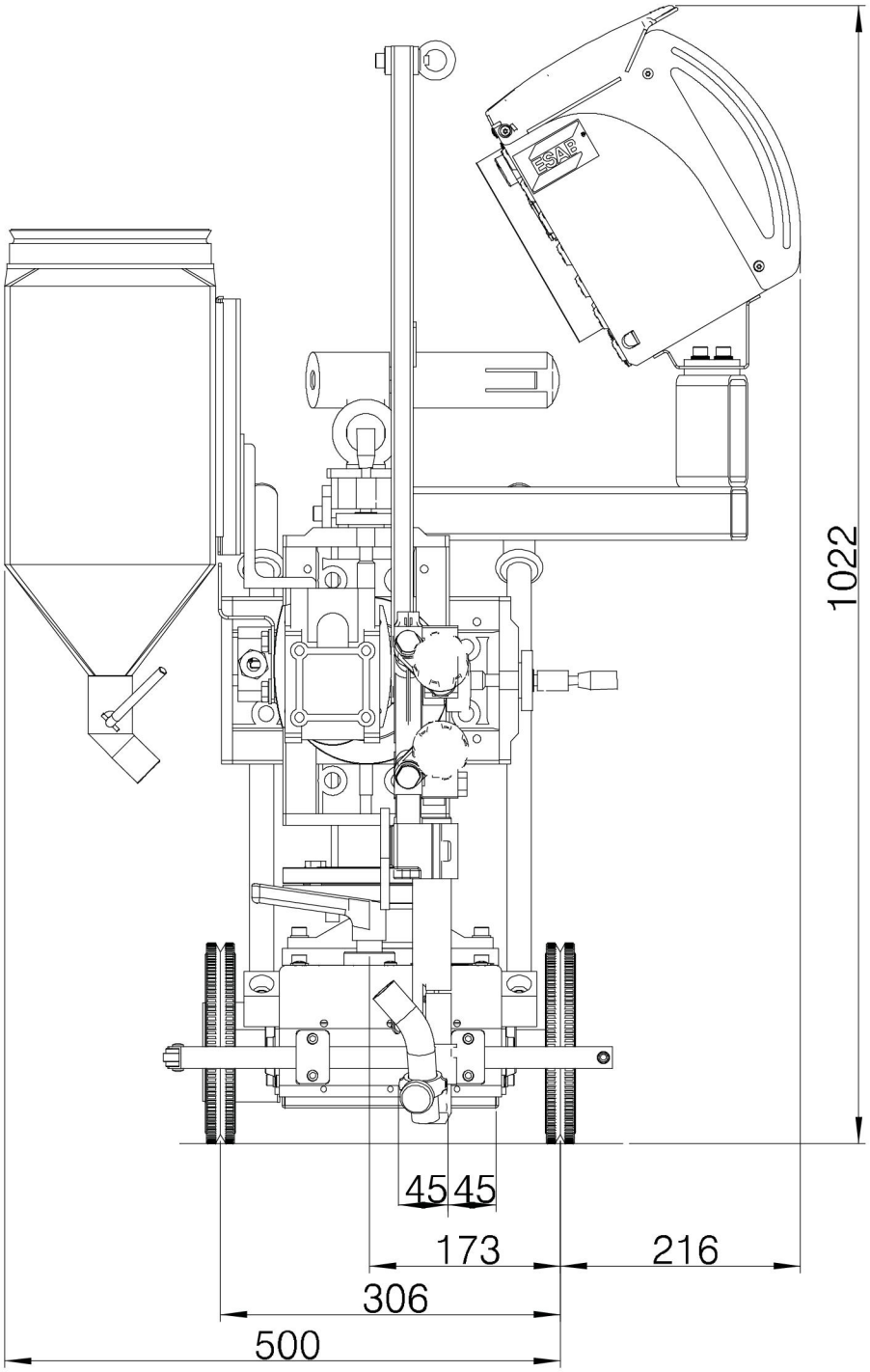
Repair and electrical work should be performed by an authorized ESAB service technician. Use only ESAB original spare and wear parts.

A6TF F1 and A6TF F1 Twin are designed and tested in accordance with the international and European standards **EN 60974-5**, **EN 12100-2** and **EN 60974-10**. Upon completion of service or repair work, it is the responsibility of the person(s) performing the work to ensure that the product still complies with the requirements of the above standards.

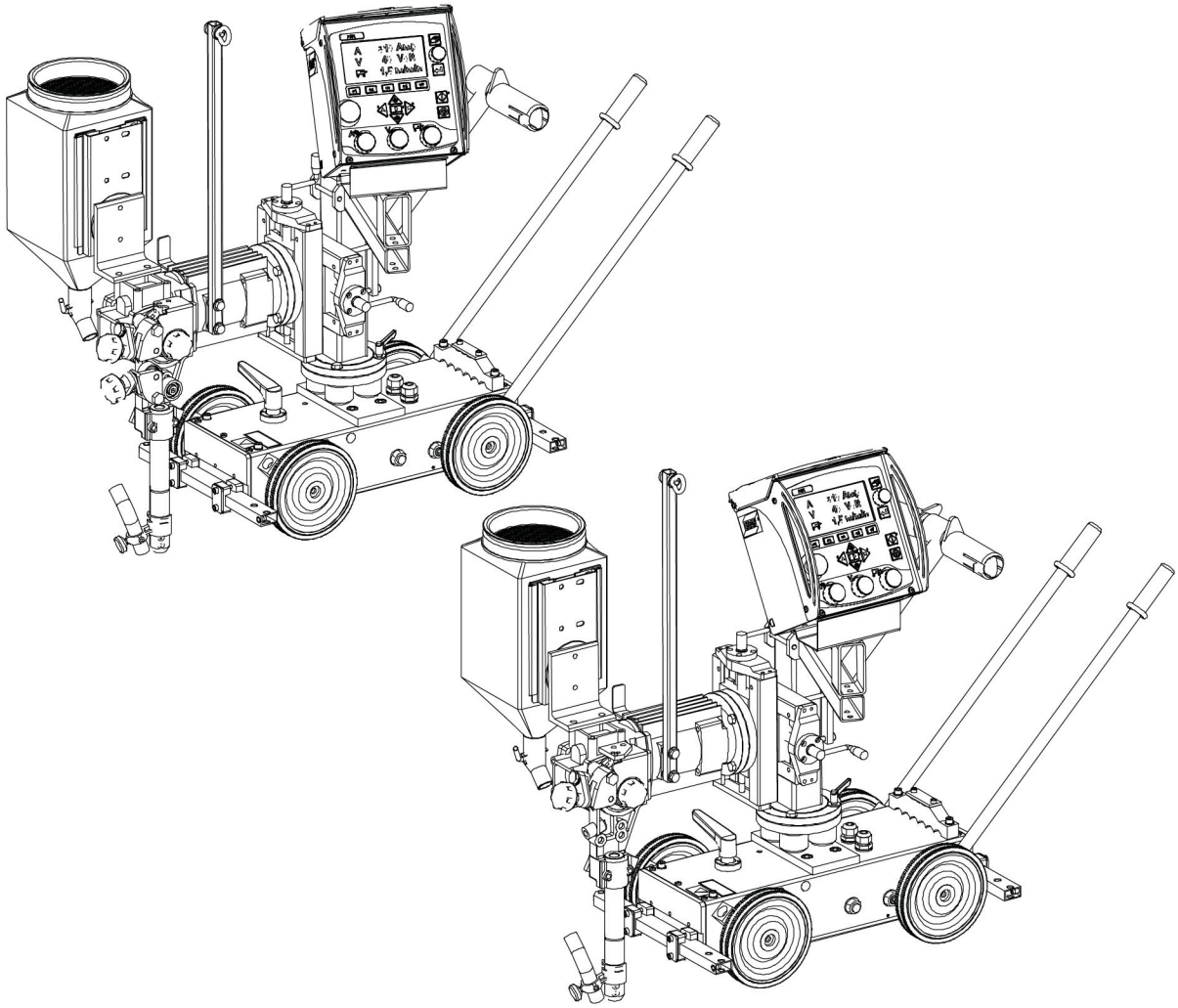
Spare parts and wear parts can be ordered through your nearest ESAB dealer, see the back cover of this document. When ordering, please state product type, serial number, designation and spare part number in accordance with the spare parts list. This facilitates dispatch and ensures correct delivery.

DIMENSION DRAWING





ORDERING NUMBERS



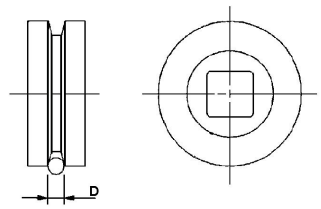
Ordering number	Denomination	Type	Notes
0461 235 880	A6 Mastertrac	A6TF F1 SAW	
0461 235 881	A6 Mastertrac	A6TF F1 SAW Twin	
0460 949 *74	Instruction manual	PEK Control panel	
0460 948 *01	Instruction manual	PEK Control unit	
0463 648 001	Spare parts list		

Technical documentation is available on the Internet at: www.esab.com

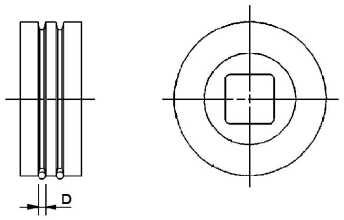
WEAR PARTS

Feed rollers

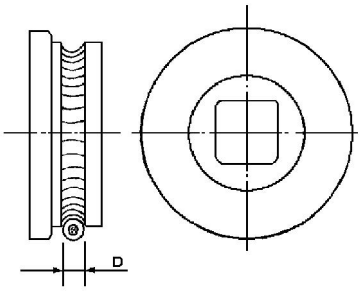
SAW and MIG/MAG	
Part no.	**D (mm)**
0218 510 281	1.6
0218 510 282	2.0
0218 510 283	2.5
0218 510 286	4.0
0218 510 287	5.0
0218 510 288	6.0
0218 510 298	3.0–3.2



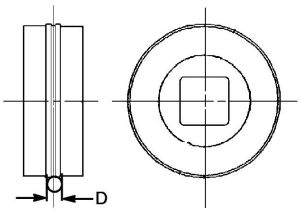
SAW Twin (D35)	
Part no.	**D (mm)**
0218 522 480	2.5
0218 522 481	3.0–3.2
0218 522 484	2.0
0218 522 486	1.2
0218 522 487	1.0
0218 522 488	1.6



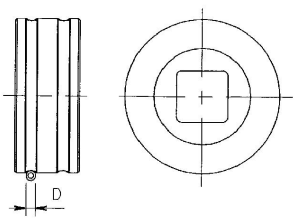
SAW and MIG/MAG tubular wire	
Part no.	**D (mm)**
0146 024 880	0.8–1.6
0146 024 881	2.0–4.0



MIG/MAG	
Part no.	**D (mm)**
0145 538 880	0.6
0145 538 881	0.8
0145 538 882	1.0
0145 538 883	1.2

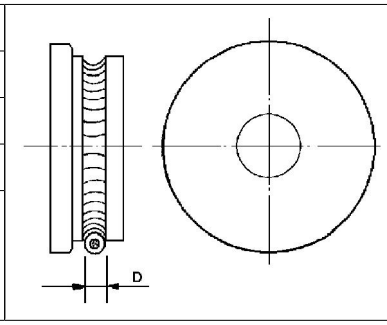


MIG/MAG	
Part no.	**D (mm)**
0148 772 880	2.0–3.0

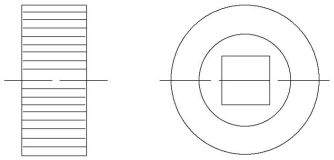


Pressure rollers

SAW and MIG/MAG tubular wire	
Part no.	**D (mm)**
0146 025 880	0.8–1.6
0146 025 881	2.0–4.0
0146 025 882	5.0–7.0

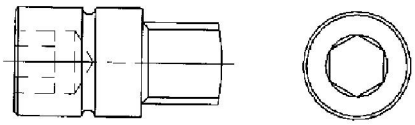


SAW Twin	
Part no.	
0218 524 580	
0146 253 001	Stub shaft
0144 953 001	Spherical ball bearing
0190 452 178	Washer



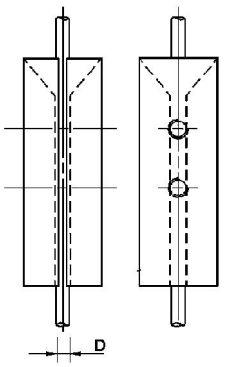
Stub shaft for pressure roller

SAW tubular wire
Part no.
0212 901 101

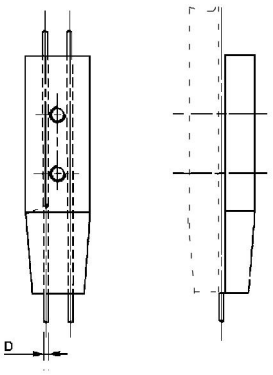


Contact jaws

SAW HD (D35)	
Part no.	**D (mm)**
0265 900 880	3.0
0265 900 881	3.2
0265 900 882	4.0
0265 900 883	5.0
0265 900 884	6.0

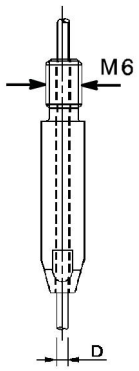


SAW Twin HD	
Part no.	**D (mm)**
0265 902 880	2.5–3.0
0265 902 881	2.0
0265 902 882	1.6
0265 902 883	4.0

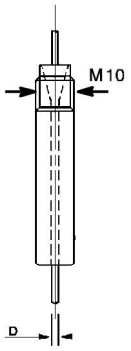


Contact tip

MIG/MAG and SAW Twin LD (D35)	
Part no.	**D (mm)**
0153 501 002	0.8
0153 501 004	1.0
0153 501 005	1.2
0153 501 007	1.6
0153 501 009	2.0
0153 501 010	2.4–2.5

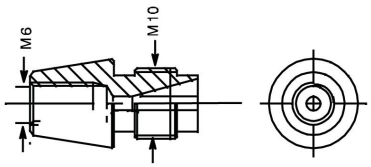


MIG/MAG (D35)	
Part no.	**D (mm)**
0258 000 908	1.2
0258 000 909	1.6
0258 000 910	2.0
0258 000 911	2.4
0258 000 913	1.0
0258 000 914	0.8
0258 000 915	3.2



Adaptor for contact tip

SAW and MIG/MAG (D35)	
Part no.	**D (mm)**
0147 333 001	M6/M10



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