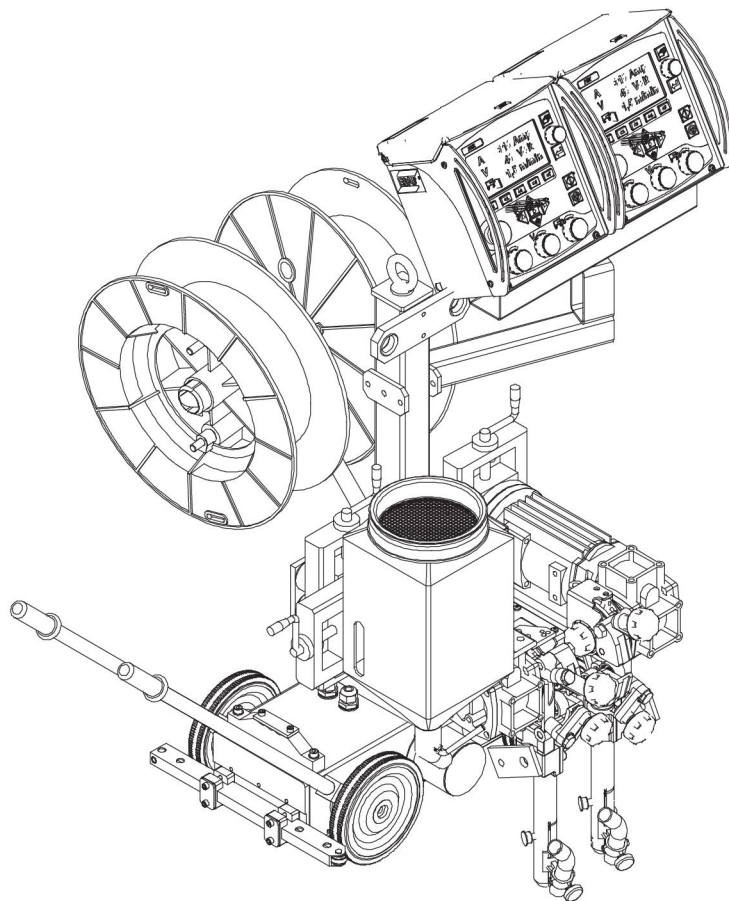


# ***A6 Mastertrac Tandem***

## ***A6TF F2***



## **Instruction manual**



## 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

Signature

Gothenburg  
2023-02-07

Peter Kjällström  
Product Director Welding Automation and Handling

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# 1 SAFETY

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## 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 can result in injury to the operator and damage to the equipment.

1. Anyone who uses the equipment must be familiar with:
  - its operation
  - location of emergency stops
  - its function
  - relevant safety precautions
  - welding and cutting or other applicable operation of the equipment
2. The operator must ensure that:
  - no unauthorised person is stationed 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 can be injurious 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 having pacemakers should consult their physician 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 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 earmuffs 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 fire. Make sure that 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.



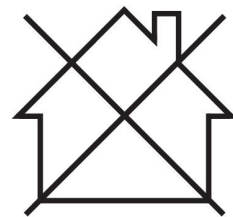
**WARNING!**

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 those locations, due to conducted as well as radiated disturbances.





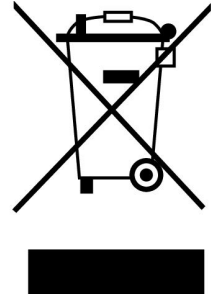
**NOTE!**

**Dispose of electronic equipment at the recycling facility!**

In observance of 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 F2** automatic welding equipment with two welding heads, is mounted on a self-propelled trolley. It is designed for **Submerged Arc Welding (SAW)** of butt welds.

**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)

The weld bead is protected by a cover of flux during the welding.

- 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 wire welding. A special knurled feed roller is available for flux-cored wire, which guarantees even feed without the risk of deformation due to high feed pressure.

- Tandem welding (Submerged Arc)

For tandem welding, a welding head of type **A6SF** is always used, which must be connected to 2 welding power sources and 2 control units of type **PEK**.

The tandem welding head includes 2 single welding heads (A6SF), each with its own contact tip. Each contact tip has a maximum rated load of 1500 A.

### 2.3 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

|   | <b>A6TF F2 (SAW)</b> |
|---|----------------------|
| <b>Supply voltage</b>                       | 42 V AC              |
| <b>Permissible load at 100%</b>             | 1500 A               |
| <b>Wire dimensions</b>                      |                      |
| Solid single wire                           | 3.0–6.0 mm           |
| Flux-cored wire                             | 3.0–4.0 mm           |
| <b>Maximum wire feed speed</b>              | 4 m/min              |
| <b>Brake hub braking torque</b>             | 1.5 Nm               |
| <b>Travel speed</b>                         | 0.1–2.0 m/min        |
| <b>Maximum weight of wire</b>               | 2×30 kg              |
| <b>Flux hopper volume</b>                   | 10 l                 |
| <b>Weight</b><br>(Excluding wire and flux)  | 158 kg               |
| <b>Continuous A weighted sound pressure</b> | 68 dB                |
| <b>Enclosure class</b>                      | IP10                 |
| <b>EMC classification</b>                   | Class A              |

## 4 INSTALLATION

### 4.1 General

The installation must be carried out by a professional.

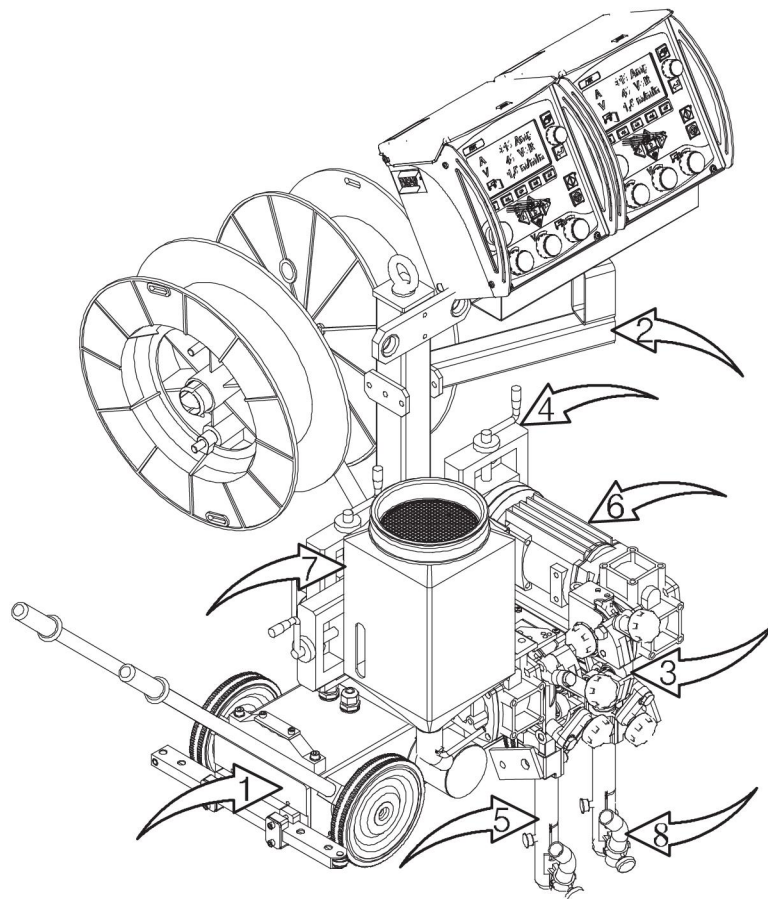


**WARNING!**

Rotating parts can cause injury, take great care.



### 4.2 Main components A6TF F2 (SAW)



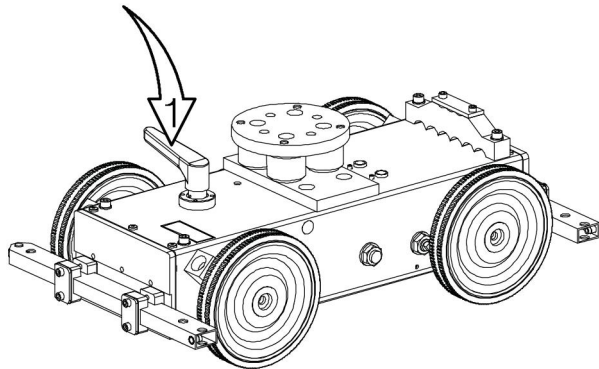
- 1. Carriage
- 2. Carrier
- 3. Wire feed unit
- 4. Slide kit, manual

- 5. Connector
- 6. Motor with gear (A6 VEC)
- 7. Flux hopper
- 8. Flux nozzle

## 4.3 Description of main components

### 4.3.1 Carriage

The carriage is provided with 4-wheel drive. Secured 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.

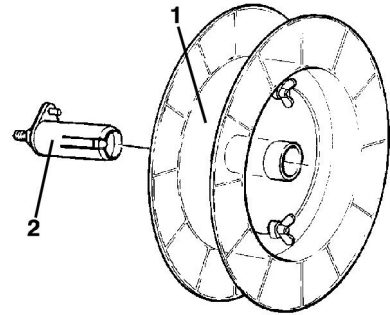
The amount of flux to be dropped down is controlled by way of the flux valve fitted to the flux hopper.

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

## 4.4 Mounting

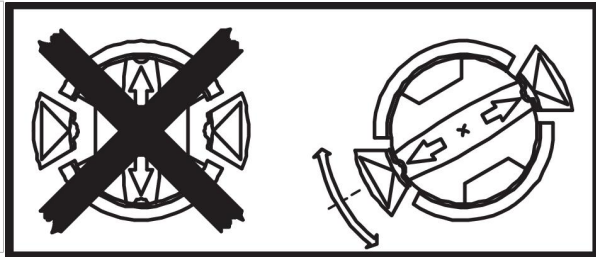
### 4.4.1 Wire drum (Accessories)

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



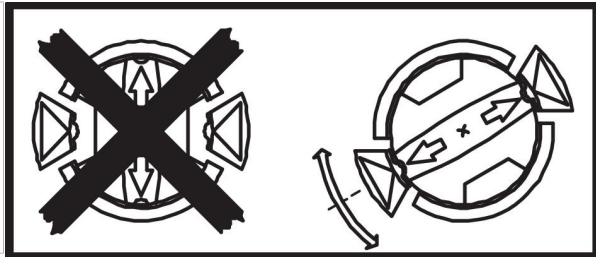
#### WARNING!

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.



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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.



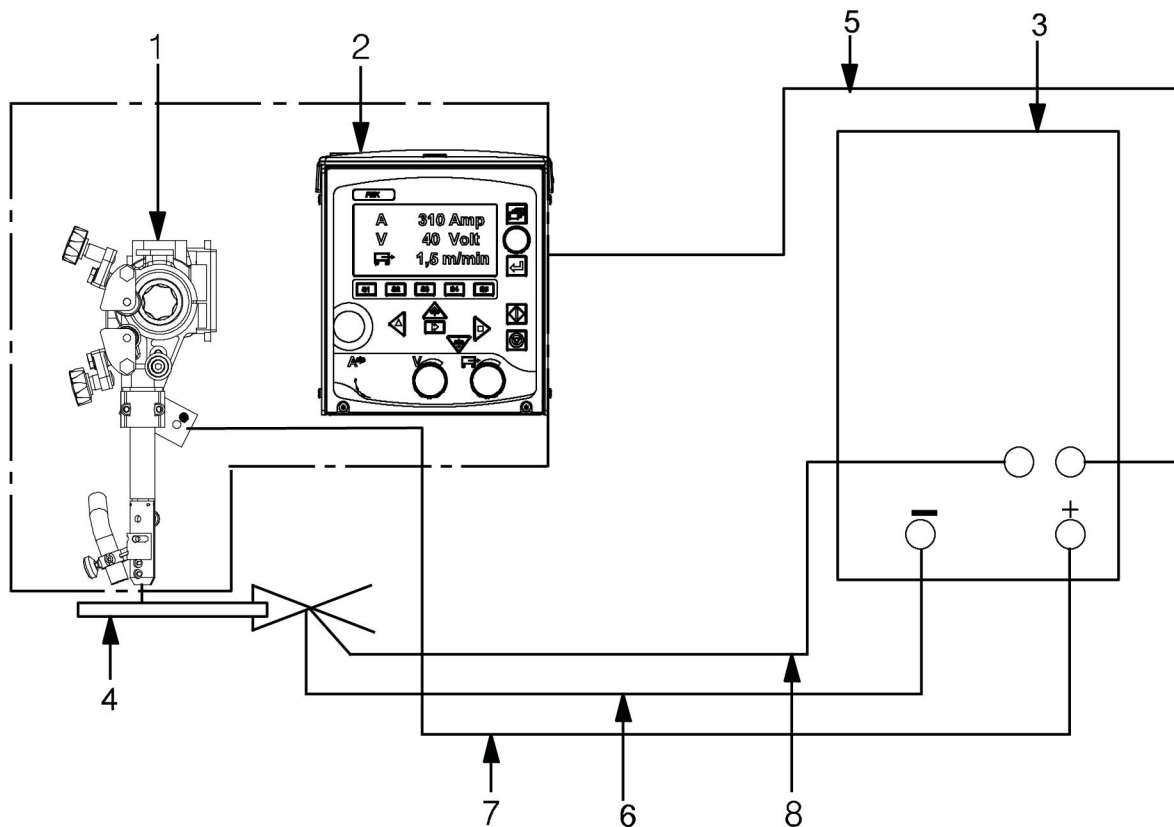
## 4.5 Connections

### 4.5.1 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.

### 4.5.2 Automatic welding equipment A6TF F2 (Submerged Arc Welding, SAW)

1. Connect the control cable between the power source and the **PEK**.
2. Connect the return cable between the power source and work piece.
3. Connect the welding cable between the power source and the automatic welding equipment.
4. Connect the measurement cable between the power source and workpiece.



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

## 5 OPERATION

### 5.1 General



#### CAUTION!

Read and understand the instruction manual before installing or operating.

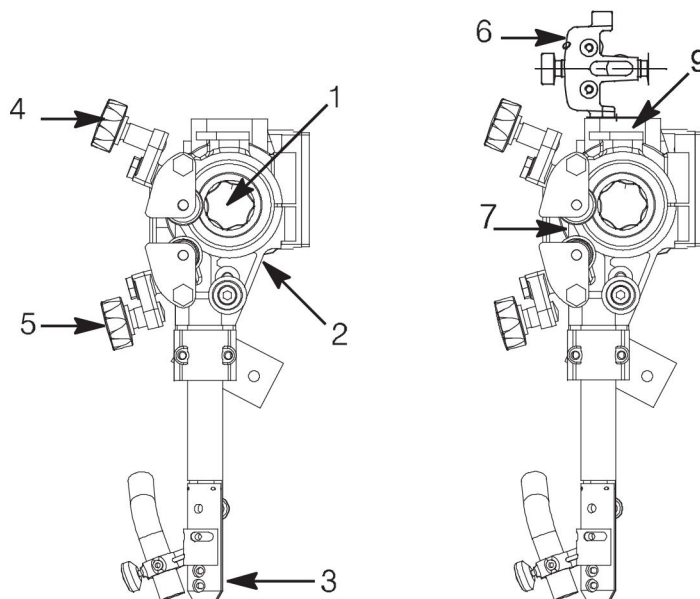


General safety regulations for handling the equipment can be found in the "SAFETY" chapter of this manual. Read it through before you start using the equipment!

#### 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) has the correct dimension for the selected wire size.
3. 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).
4. 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.
5. Locate the end of the wire in the feed roller (1) groove.
6. 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.

7.

Feed the wire forward 30 mm below the contact tip by pressing  on the **PEK**.

8. 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).

### 5.2.1 Accessories

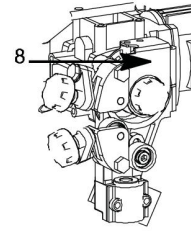
- Fine-wire straightener (6) to be fitted on top of the clamp of the wire feed unit (2).

**NOTE!**

When mounting the fine-wire straightener, remove the plate (9) if it exists.

**NOTE!**

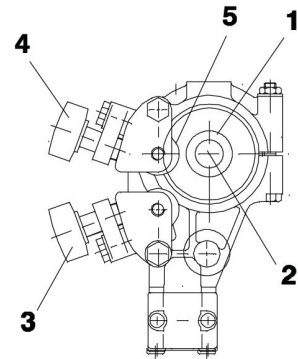
Do not remove the protection plate (8).



## 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 Flux-cored wire for knurled rollers (Accessories)

- Change the feed roller (1) and pressure roller (5) as a pair for the wire size to be used.

**NOTE!**

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

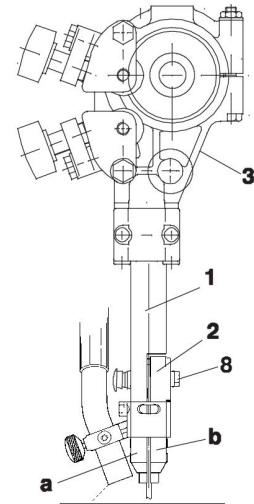
- Tighten the pressure screw (4) with moderate pressure to ensure that the flux-cored wire does not deform.



## 5.4 Contact equipment for Submerged Arc Welding

### 5.4.1 For single wire 3.0–6.0 mm. Heavy duty (D35)

- Use the straightener (3), connector (1) D35 with contact jaws (2).
- Assemble one contact jaw with the M5 bolts provided, in the fixed contact tip (a).
- Assemble the other contact jaw in the free half of the two-piece connector (b) under the bolt (8). Tighten hard to ensure that a good contact is achieved between the contact jaws and the wire.



### 5.4.2 For flux-cored wire 1.6–4.0 mm (D20 and D35) (Accessories)



#### NOTE!

If contact jaws (D35) are used, the contact jaws must not be tightened down to hard in order to ensure that the flux-cored wire is not distorted.

Ensure that a good contact is achieved with the wire.

### 5.4.3 Adjustment of the wire for tandem welding



#### NOTE!

The distance between the first and second wires must not be so great that the slag has time to solidify between the wires.

Ensure that good flux coverage is achieved between the first and second wires.

## 5.5 Refilling with flux powder

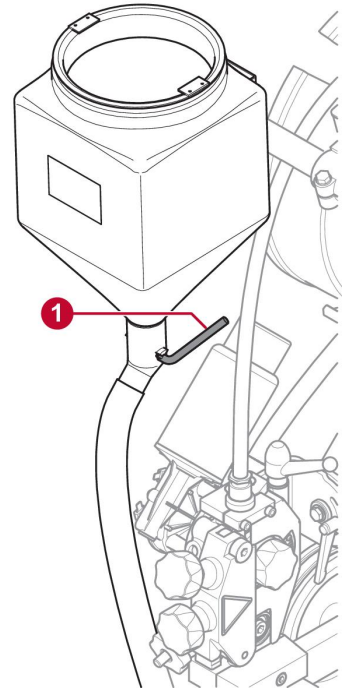
1. Close the flux valve (1) on the flux hopper.
2. Remove the optional cyclone on the flux recovery unit, if fitted.
3. Fill with flux powder.



### NOTE!

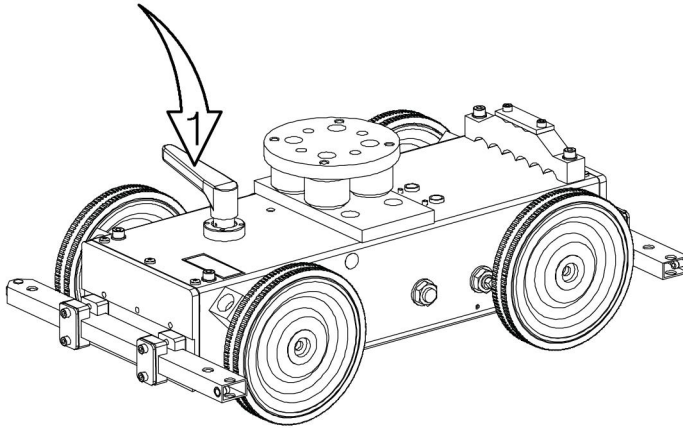
The flux powder must be dry. Use preheated flux powder only when the flux hopper is designed for that.

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 so that penetration of the arc does not occur.



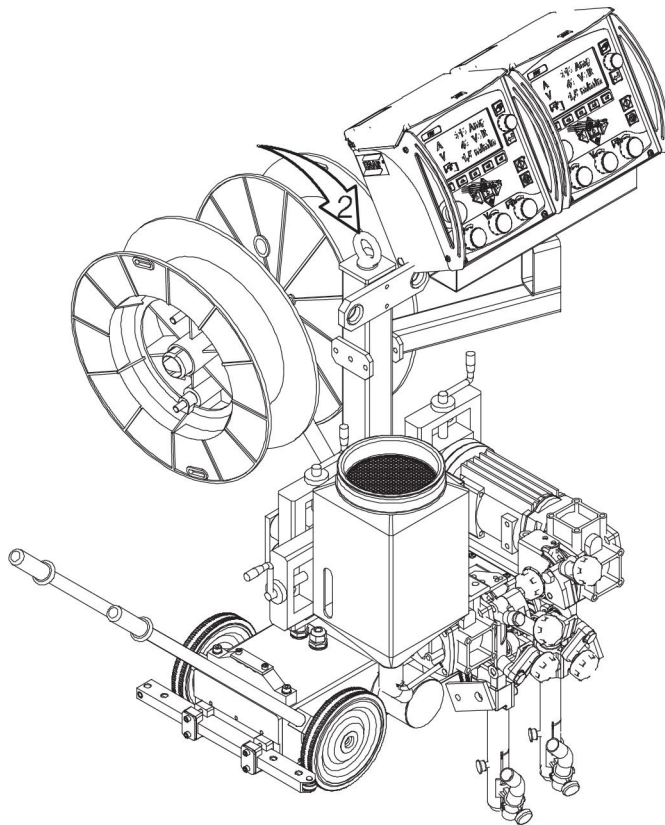
## 5.6 Transportation

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



**NOTE!**

Use the lifting eye bolt (2) when lifting the equipment.



## 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!

Before doing any kind of maintenance work, make sure the mains cable is disconnected.

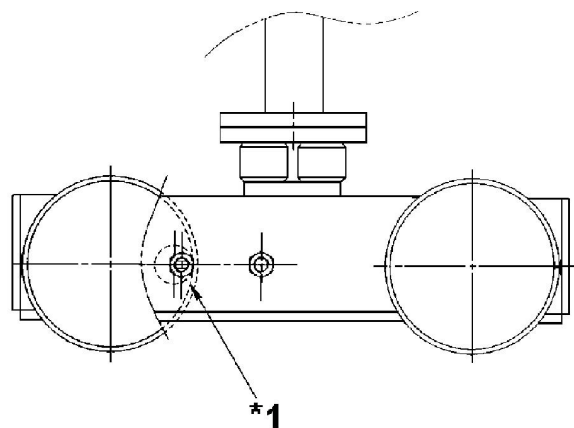
For maintenance of the control unit, see separate instruction manual.

### 6.2 Daily

- Clean flux and dirt off 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 30 kg wire reel should be 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

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

## 8 ORDERING SPARE PARTS

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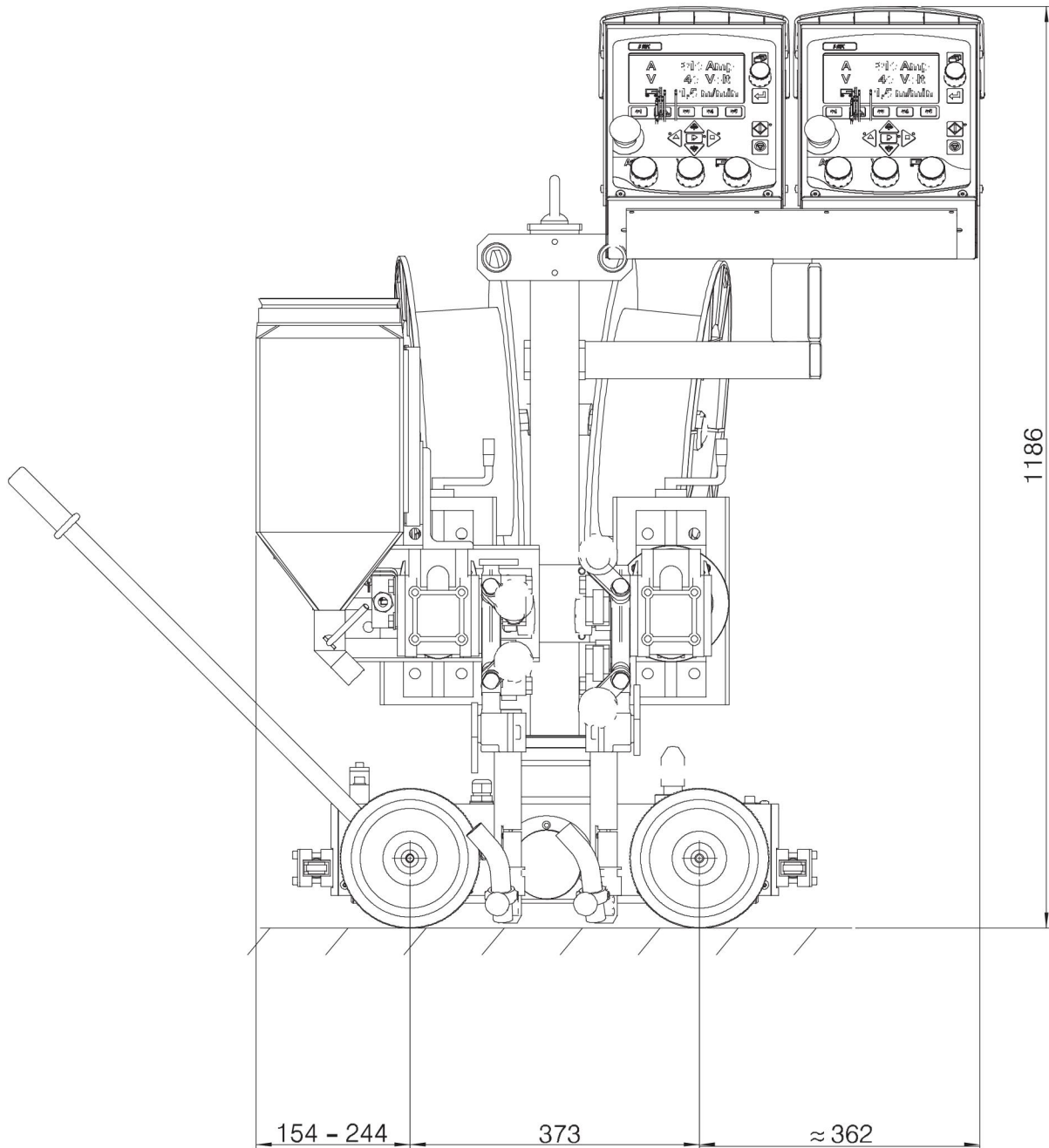
### CAUTION!

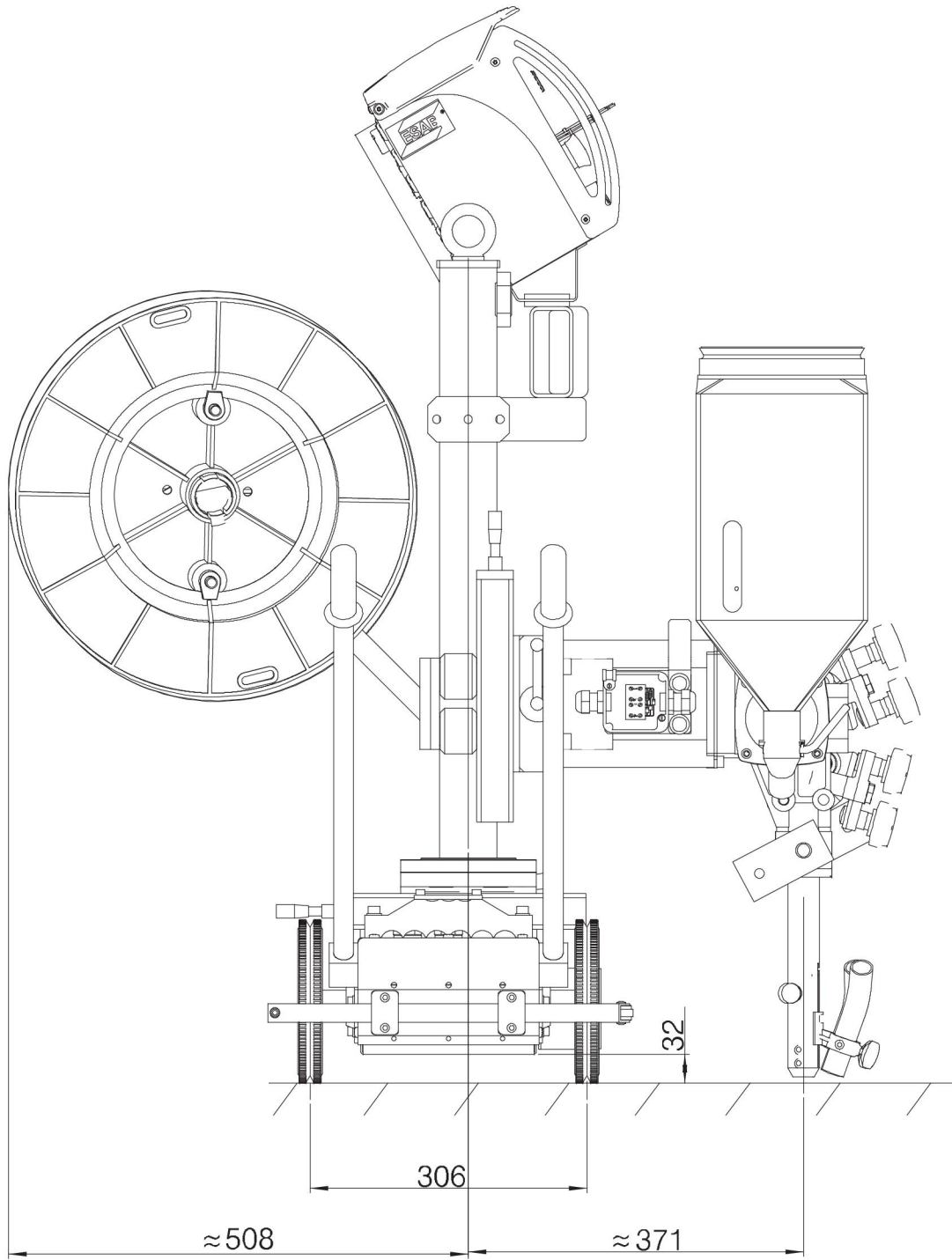
Repair and electrical work should be performed by an authorised ESAB service technician. Use only ESAB original spare and wear parts.

A6TF F2 is designed and tested in accordance with the international and European standards **EN 60974-5**, **EN 12100-2** and **EN 60974-10**. On 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 [esab.com](https://www.esab.com). 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



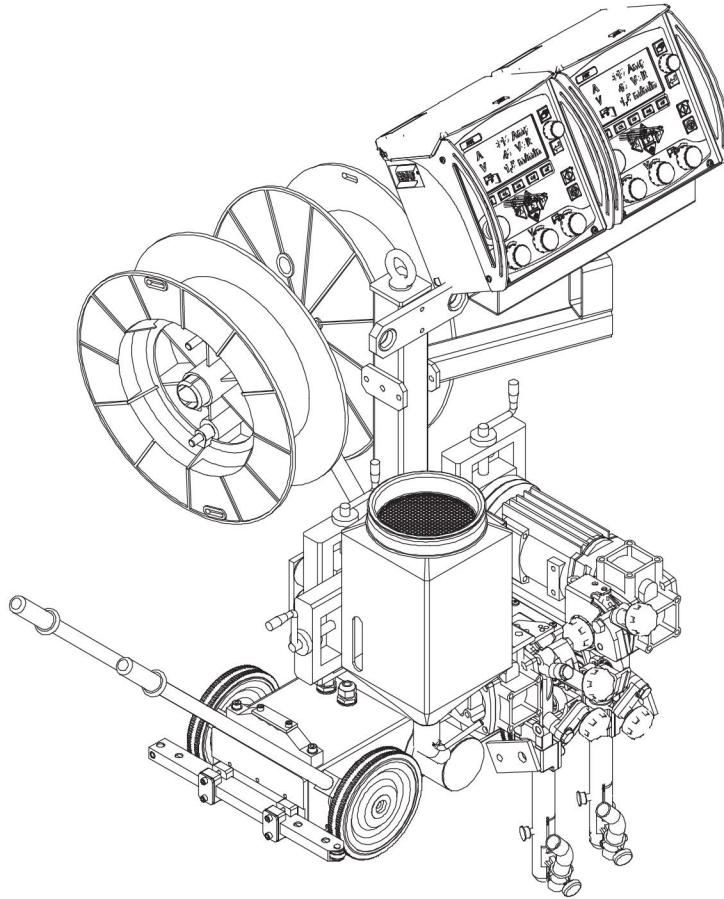




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**ORDERING NUMBERS**

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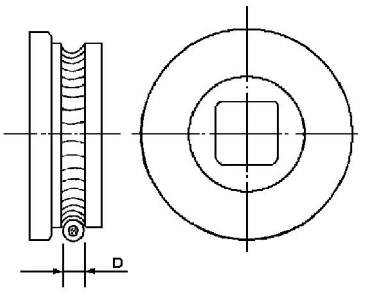


| Ordering number | Denomination         | Type              | Notes |
|-----------------|----------------------|-------------------|-------|
| 0461 232 882    | A6 Mastertrac Tandem | A6TF F2           |       |
| 0460 949 *74    | Instruction manual   | PEK Control panel |       |
| 0460 948 *01    | Instruction manual   | PEK Control unit  |       |
| 0463 649 001    | Spare parts list     |                   |       |

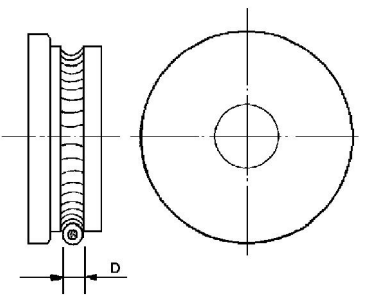
Technical documentation is available on the Internet at: [www.esab.com](http://www.esab.com)

## WEAR PARTS

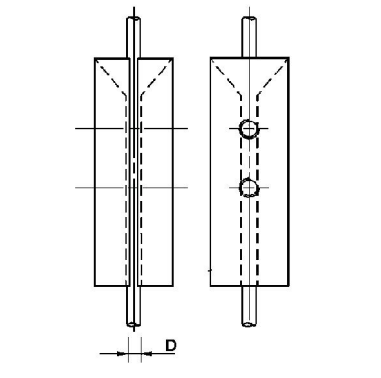
### Feed rollers

| SAW tubular wire |         |  |
|------------------|---------|---|
| Part no.         | D (mm)  |   |
| 0146 024 880     | 0.8–1.6 |   |
| 0146 024 881     | 2.0–4.0 |   |

### Pressure rollers

| SAW tubular wire |         |  |
|------------------|---------|--|
| Part no.         | D (mm)  |  |
| 0146 025 880     | 0.8–1.6 |  |
| 0146 025 881     | 2.0–4.0 |  |

### Contact jaws

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





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For contact information visit [esab.com](http://esab.com)

ESAB AB, Lindholmsallén 9, Box 8004, 402 77 Gothenburg, Sweden, Phone +46 (0) 31 50 90 00

[manuals.esab.com](http://manuals.esab.com)

