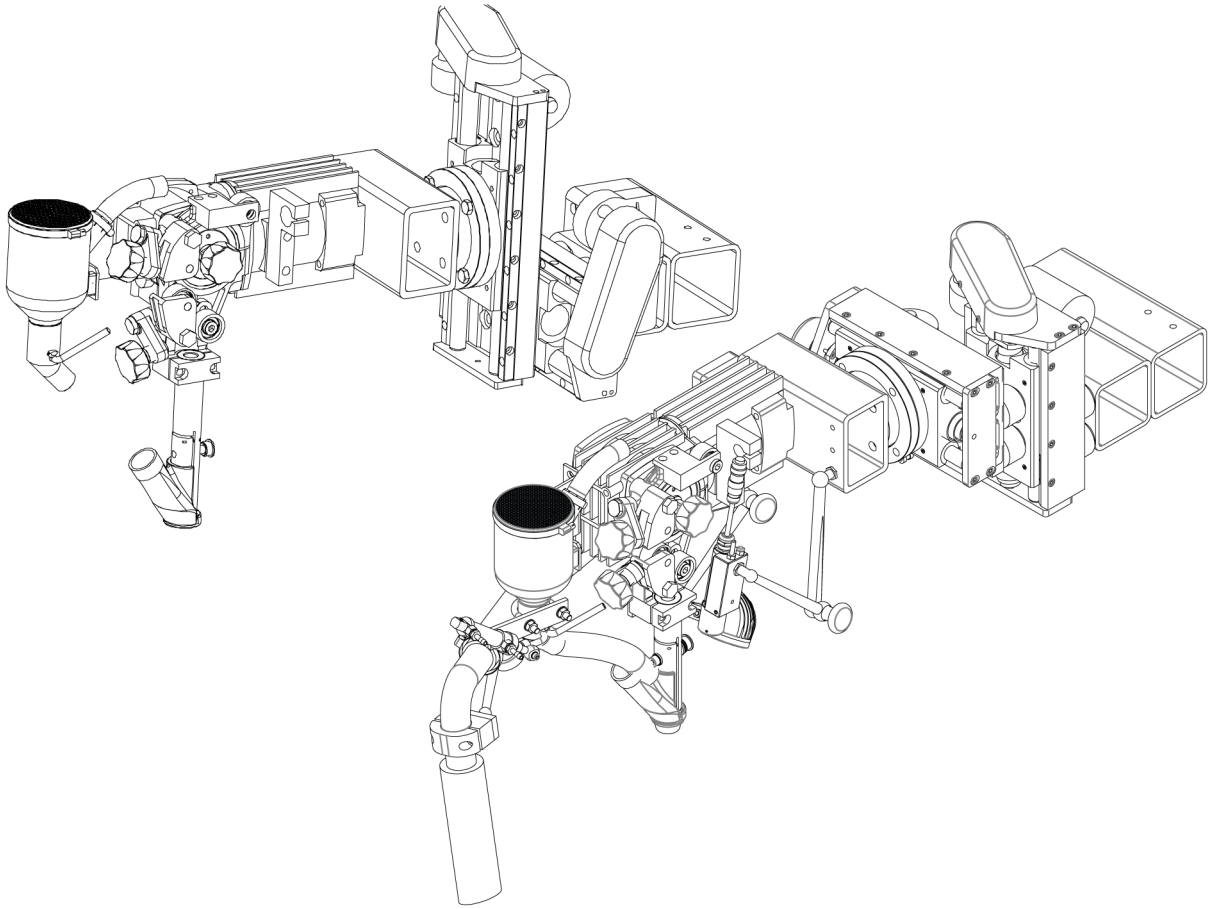
A6S Compact 500
A6S Compact 700
SAW welding head



Instruction manual

0449 548 301 GB 20261113

Valid for: Serial number: 052-xxx-xxxx

DECLARATION OF INCORPORATION OF PARTLY COMPLETED MACHINERY

Original

Directive 2006/42/EC, Annex II 1B

Manufacturer (and where appropriate his authorised representative):

Company: ESAB AB

Address: Lindholmsallen 9, Box 8004, SE-40277 Göteborg Sweden

Hereby declares that the partly completed machinery:

Type of machinery: A6 compact 500/ A6 compact 700 welding head

No. of machinery: 0416967-880 to 0416967-950, 0811054-880-0811054-950

Fulfills appropriate parts of 2006/42/EC. Appropriate parts of the directive are specified in the compiled technical documentation according to part B annex VII and can in response to a reasoned request by the national authorities be transmitted in digital form.

Appropriate parts:

Complies also with applicable requirements of the following EC directives:

The following harmonized standards have been considered:

EN ISO 12100:2010 Safety of machinery - General principles for design - Risk assessment and risk reduction

The following other standards and specifications have been applied:

Declares also (if applicable) that:

This partly completed machinery must not be put into service until the final machinery into which it is to be incorporated complies with the provisions of the Directive 2006/42/EC.

Authorized to compile the relevant technical documentation:

Name: Håkan Larsson

Address: Esabvägen 69581 Laxå

Signature:

Place and date: 12/11/2026
Lindholmsallen 9, Box 8004, SE-40277 Göteborg Sweden

Signature:



Name: Werner Van Dorpe

Position: Director Welding Automation

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1 SAFETY

1.1 Meaning of symbols

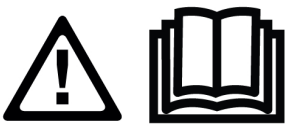
As used throughout this manual: Means Attention! Be Alert!

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 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

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If equipped with ESAB cooler
Use ESAB approved coolant only. Non-approved coolant might damage the equipment and jeopardize product safety. In case of such damage, all warranty undertakings from ESAB cease to apply.

For ordering information, see the "ACCESSORIES" chapter in the instruction manual.

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, guards, and covers closed and securely in place.
- Have only qualified people remove covers for maintenance and troubleshooting as necessary.



- Keep hands, hair, loose clothing and tools away from moving parts.
- Reinstall panels or covers and close doors when service is finished and before starting the unit.

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FIRE HAZARD

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

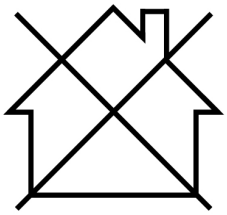


HOT SURFACE - Parts can burn

- 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.

CAUTION!
This product is solely intended for arc welding.

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.

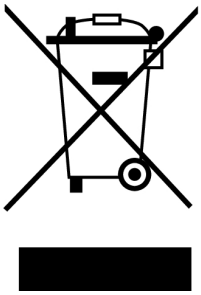


NOTE!
Dispose of electronic equipment at the recycling facility!

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.

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2 INTRODUCTION

A6S Compact 500 and **A6S Compact 700** welding heads included in this manual are designed for SAW and SAW heavy duty welding of butt and fillet joints. The welding heads are intended for use in combination with ESAB welding power sources and control units.

SAW heavy duty permits welding with higher current load and thick wire.

The welding heads can be used inside pipes for longitudinal welding and circumferential welding. Minimum diameter for each welding head and welding, see section "DIMENSION DRAWING".

2.1 Definitions

SAW welding	The weld bead is protected by a cover of flux during the welding.
SAW heavy duty	Submerged arc heavy duty, with a Ø 35 mm connector, permits a load of up to 1500 A (100%).

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3 TECHNICAL DATA

	A6S Compact 500	**A6S Compact 700**
Rated load 100%	1500 A	1500 A
Wire dimensions, solid single wire	4.0 mm	4.0 mm
Wire feed speed	0.2-4.0 m/min	0.2-4.0 m/min
Brake drum braking torque	1.5 Nm	1.5 Nm
Flux hopper capacity (Not to be filled with preheated flux)	1 l	1 l
Weight (flux excluded)	approximately 50 kg	approximately 50 kg
Sideways tilt, max.	25 °C	25 °C
Setting length of the slide	60 mm	120 mm
Supply voltage	42 V AC	42 V AC
Continuous A-weighted noise level	68 dB	68 dB

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4 INSTALLATION

The installation must be carried out by a professional.

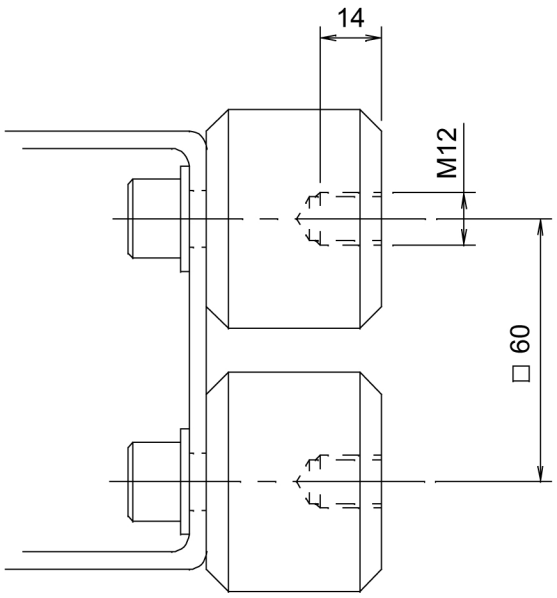
CAUTION!
This product is intended for industrial use. In a domestic environment this product may cause radio interference. It is the user's responsibility to take adequate precautions.

4.1 Mounting

4.1.1 Welding head

The welding head can easily be mounted by way of four M12 screws.

NOTE!
Make sure the bolts do not touch the bottom of the insulator, which has a thread depth of 14 mm.



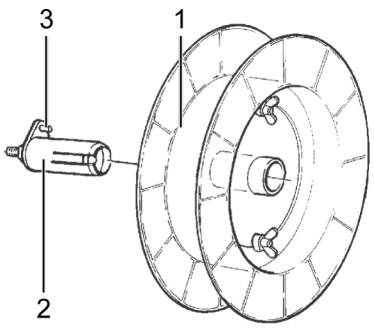
4.1.2 Slide

For mounting / dismounting of slides, see separate instruction manual.

4.1.3 Wire drum

Wire drum (1) is mounted on the brake hub (2).

- Check that the carrier (3) is pointing upwards.



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NOTE!
The maximum angle for the wire bobbin is 25°. At extreme angles, wear will occur on the brake hub locking mechanism and the wire bobbin will slide off the brake hub.

4.2 Adjusting the brake hub

The brake hub

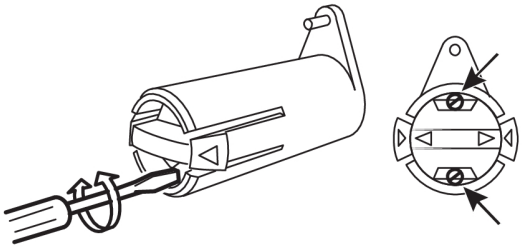
The hub is adjusted when delivered, if readjustment is required, follow the instructions below. Adjust the brake hub so that wire is slightly slack when wire feed stops.

- **Adjusting the braking torque:**
  - Turn the red handle to the locked position.
  - 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: Make sure to turn both springs the same amount.

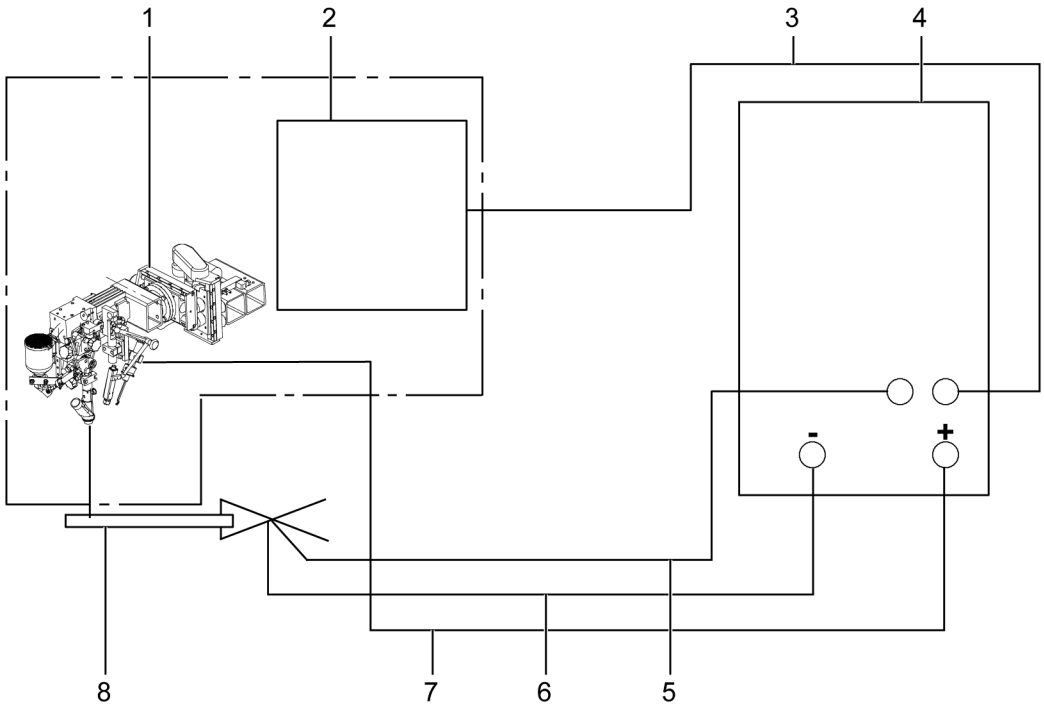


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4.3 Connections

The installation must be carried out by a professional.

CAUTION!
This product is intended for industrial use. In a domestic environment this product may cause radio interference. It is the user's responsibility to take adequate precautions.



1. Welding head
2. Control box (PEK, EAC 30 or PLC)
3. Control cable
4. Power source
5. Measurement cable
6. Return cable
7. Welding cable
8. Workpiece

1) Connect the control cable between the welding power source and the control box.

2) Connect the return cable between the welding power source and work piece.

3) Connect the welding cable between the welding power source and the welding head.

4) Connect the measurement cable between the welding power source and workpiece.

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5 OPERATION

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!

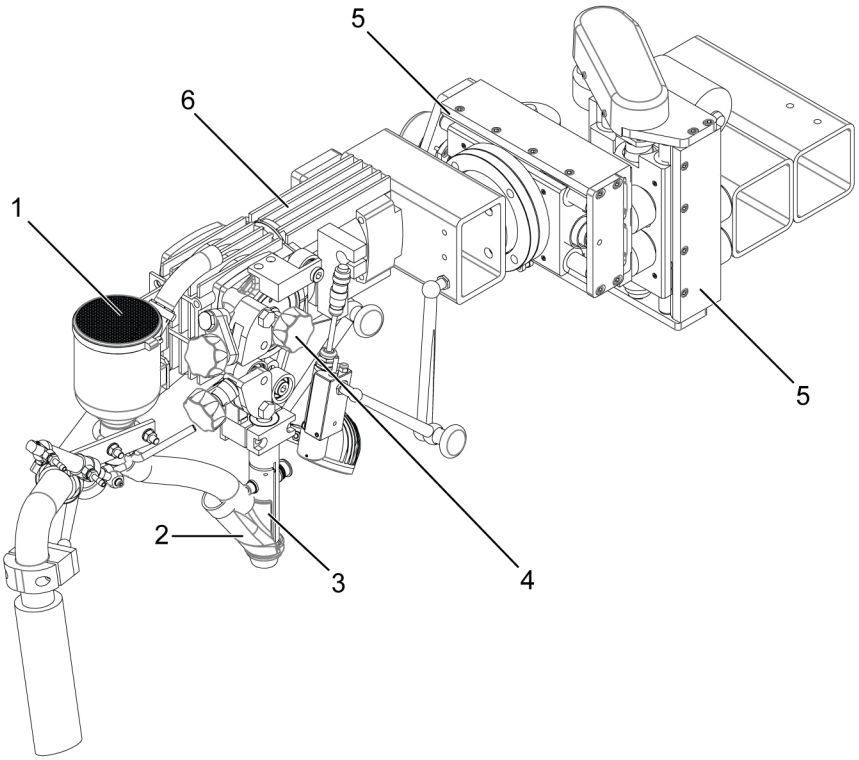
WARNING!
Electric shock! Do not touch the workpiece or the welding head during operation!

Return cable

Before starting up, check that the return cable is connected.

5.1 Main components

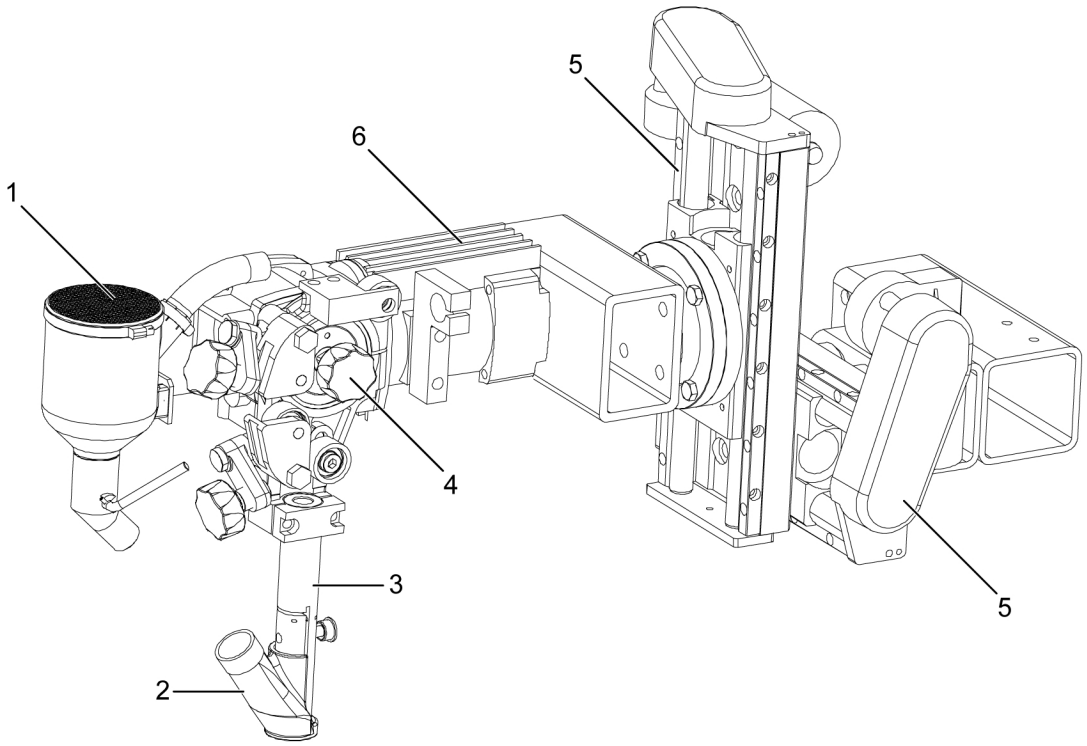
5.1.1 A6S Compact 500



1. Flux hopper
2. Flux nozzle
3. Connector
4. Wire feed unit
5. Motorised slide
6. Wire feed motor

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5.1.2 A6S Compact 700



1. Flux hopper
2. Flux nozzle
3. Connector
4. Wire feed unit
5. Motorised slide
6. Wire feed motor

5.1.3 Wire feed unit

The unit is used for guiding and feeding the welding wire down into the contact tube/connector.

5.1.4 Motorized 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. For the motorized slide (A6 Slide), see separate instruction manual.

5.1.5 Contact tube / connector

Transfers welding current to the wire during welding.

5.1.6 Wire feed motor

The wire feed motor is used for feeding the welding wire.

For more information about the wire feed motor, see separate instruction manual.

5.1.7 Flux hopper / flux tube

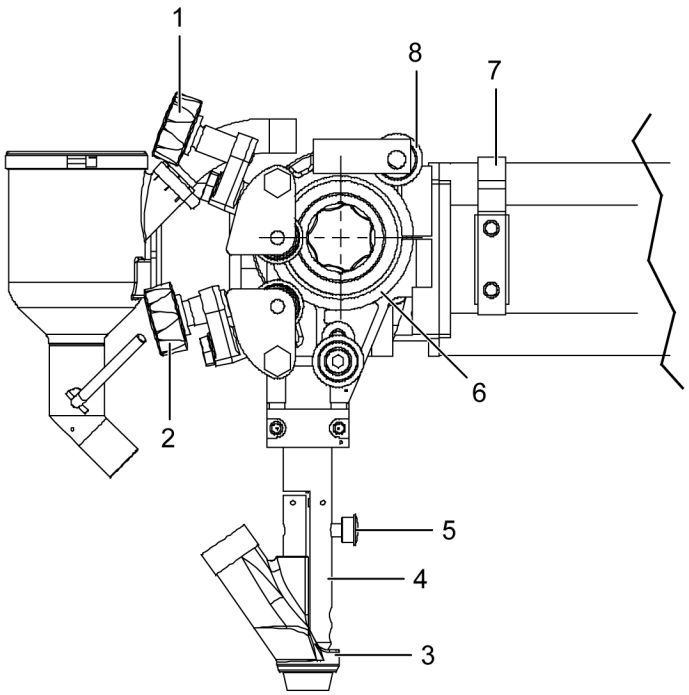
The flux is filled into the flux hopper and is then transferred to the workpiece through the flux tube.

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

See *"Refilling the flux"*, page 16 .

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5.2 Loading the welding wire



1. Wire tension knob
2. Wire adjusting knob
3. Contact tip
4. Contact jaw
5. Pressure screw
6. Feed roller
7. Conduit clamp
8. Guide roller

Follow the instructions to load the welding wire:

1) Mount the wire drum, see section "Wire drum".

2) Check that feed roller and contact jaw are of the correct dimension for the selected wire size.

3) Release the wire conduit clamp on the welding head and feed out the wire. About 0.5 m of wire should stick out of the wire conduit.

4) Bend the wire 90° so it can be fed down into the contact tip.

5) Put back the wire conduit clamp on the welding head.

6) Locate the end of the wire in the feed roller groove.

   Make sure the wire runs under the guide roller just in front of the wire conduit clamp.

7) Set the wire tension on the feed roller with the knob.

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

   For Submerged-arc heavy duty, the pressure screw must not be dismantled.

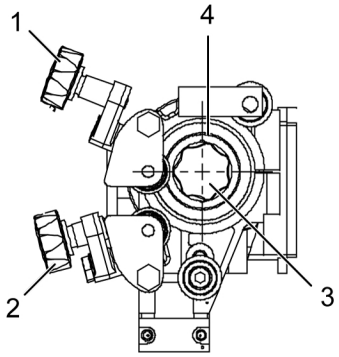
8) Feed the wire forward 30 mm.

9) Straighten the wire by adjusting the knob.

   When the wire straightener is correctly adjusted the wire should be straight when it leaves the contact jaws.

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5.3 Changing the feed roller



1. Wire tension knob
2. Wire adjusting knob
3. Hand wheel
4. Feed roller

Follow the instructions to change the feed roller:

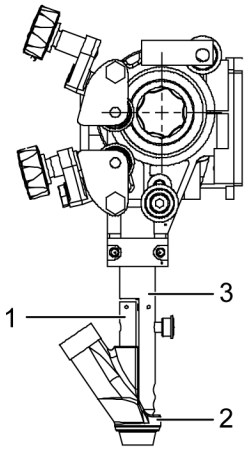
1) Release the wire tension and wire adjusting knobs.

2) Release the hand wheel.

3) Change the feed roller.

   The rollers are marked with their respective wire size.

5.4 Contact equipment



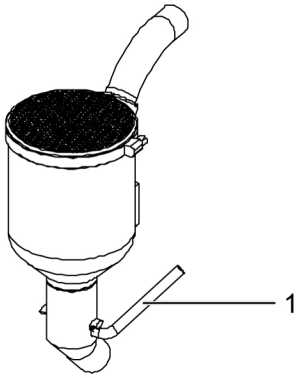
1) Use contact tip D35 with contact jaws

2) Fit the contact jaws (2) using the M5 bolts supplied. Fit one part of the jaws in the fixed contact tip (3) and the other part in the loose half of the split contact tip (1).

3) Fit the loose half with the contact jaw in position under the pressure screw. Tighten fully to ensure good contact between the contact jaw and the wire.

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5.5 Refilling the flux



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

> **NOTE!**
> The flux must be dry. Where possible avoid using agglomerating flux outdoors and in damp environments.

4) Position the flux tube so that it does not become kinked.
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.

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6 MAINTENANCE

WARNING!
The mains supply must be disconnected during cleaning and maintenance.

CAUTION!
Only persons with the appropriate electrical knowledge (authorised personnel) may remove the safety plates.

CAUTION!
The product is covered by manufacturer's warranty. Any attempt to carry out repair work by non-authorised service centers or personnel will invalidate the warranty.

NOTE!
Regular maintenance is important for safe and reliable operation.

NOTE!
Perform maintenance more often during severe dusty conditions.

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

6.1 Daily

- Keep the moving parts of the welding head clean.
- Make sure contact nozzles, hoses and electric cables are intact and properly connected.
- Make sure all bolted joints are tightened.
- Check that the conduit and the feed rollers are not worn or damaged.
- Check the brake hub braking torque. It should not be so low, that the wire reel continues to rotate when the wire feed is stopped and it should not be so great that 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".

6.2 Regularly

- Check the wire feed motor brushes once every three months. Replace when they are worn down to 6 mm.
- Examine the slides and lubricate if they bind.
- Inspect the wire guides, drive rollers and contact jaw on the wire feed unit. Replace any worn or damaged components, see section "SPARE PARTS".
- For trouble-free wire feed the wear parts of the feed mechanism should be cleaned and replaced at regular intervals.

NOTE!
Too hard pre-tensioning can lead to abnormal wear of the pressure roller, feed roller and wire conduit.

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7 TROUBLESHOOTING

Perform these checks and inspections before sending for an authorised service technician.

- Check that welding cables and connections are not damaged.
- Check that the controls are correctly set.
- Check that the mains voltage is disconnected before starting any type of repair action.

Type of fault	Possible cause	Corrective action
Current and voltage readings show large fluctuations.	Contact tip or nozzle are worn or wrong size.	Replace contact tip or nozzle.
	Feed roller pressure is inadequate.	Increase pressure on feed rollers.
Wire feed is irregular.	Pressure on feed rollers incorrectly set.	Adjust the pressure on feed rollers.
	Feed rollers are wrong size.	Replace the feed rollers.
	Grooves in feed rollers are worn.	Replace the feed rollers.
Welding cables overheating	Poor electrical connection.	Clean and tighten all electrical connections.
	Cross-sectional area of welding cables too small.	Use cables with a larger cross-section or use parallel cables.

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8 ORDERING SPARE PARTS

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

A6S Compact 500 and **A6S Compact 700** are designed and tested in accordance with the international and European standards **ENS ISO 12100:2010**, **EN ISO 13857:2019**, **EN ISO 13854:2019**, **EN ISO 13850:2015** and **EN 60204-1:2018**. 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.

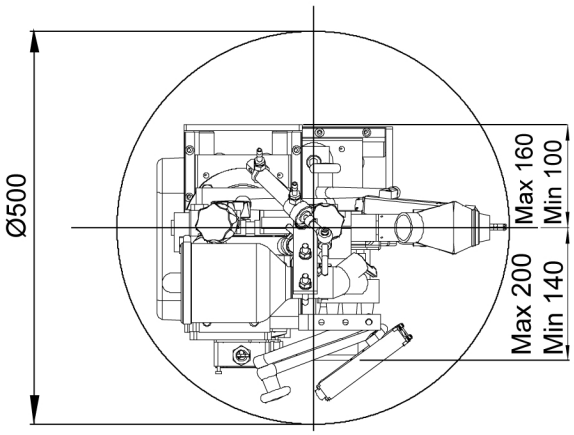
Spare parts and wear parts can be ordered through your nearest ESAB dealer, see **esab.com**. When ordering, please state product type, serial number, designation and spare part number in accordance with the spare parts list. This facilitates dispatch and ensures correct delivery.

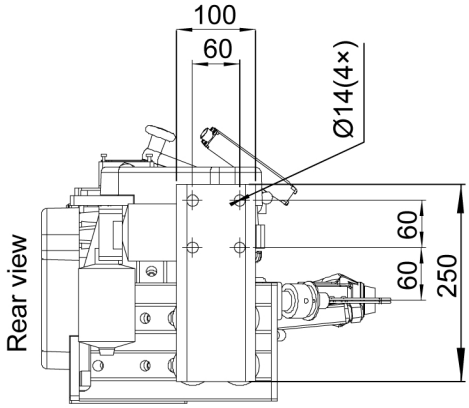
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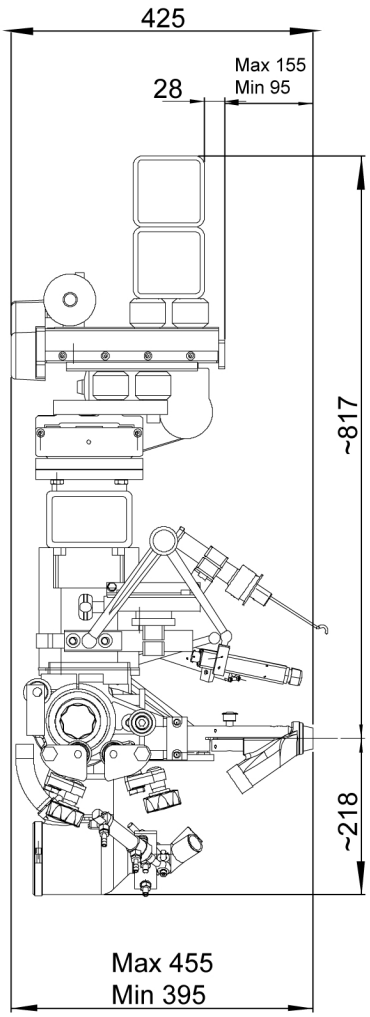
APPENDIX

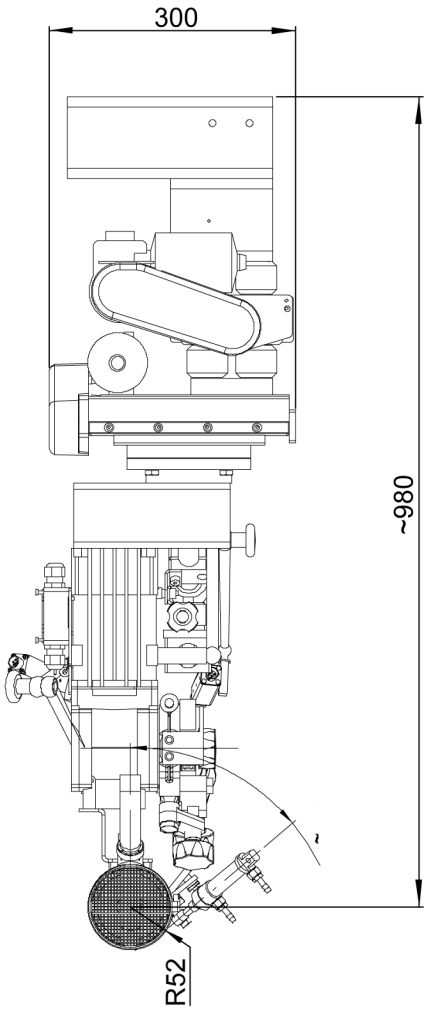
DIMENSION DRAWING

A6S Compact 500
Welding head complete with GMH, camera, laser lamp, pneumatic flux valve and inductive joint tracking system. Minimum diameter for longitudinal welding 500 mm. Minimum diameter for circumferential welding 550 mm.





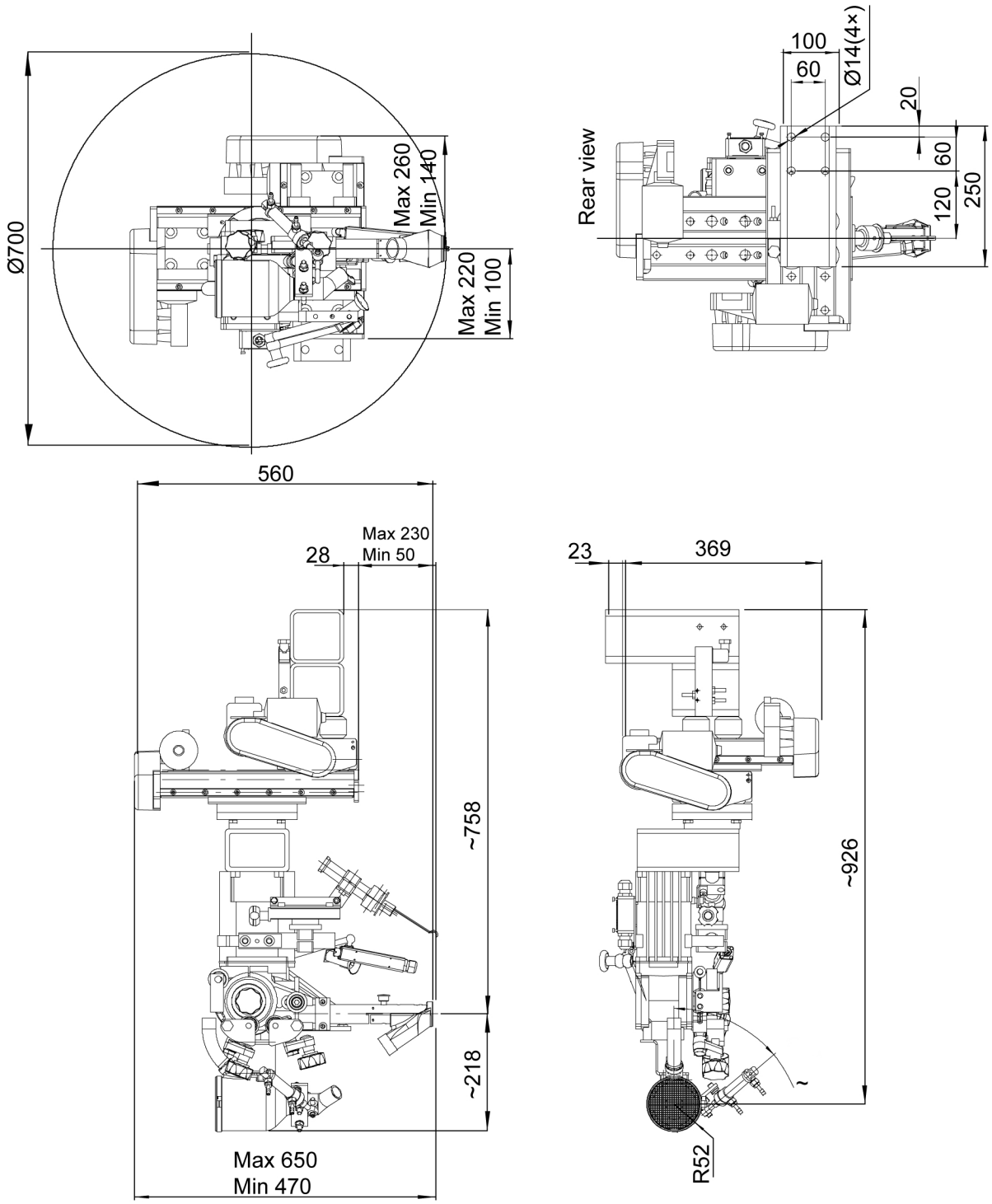




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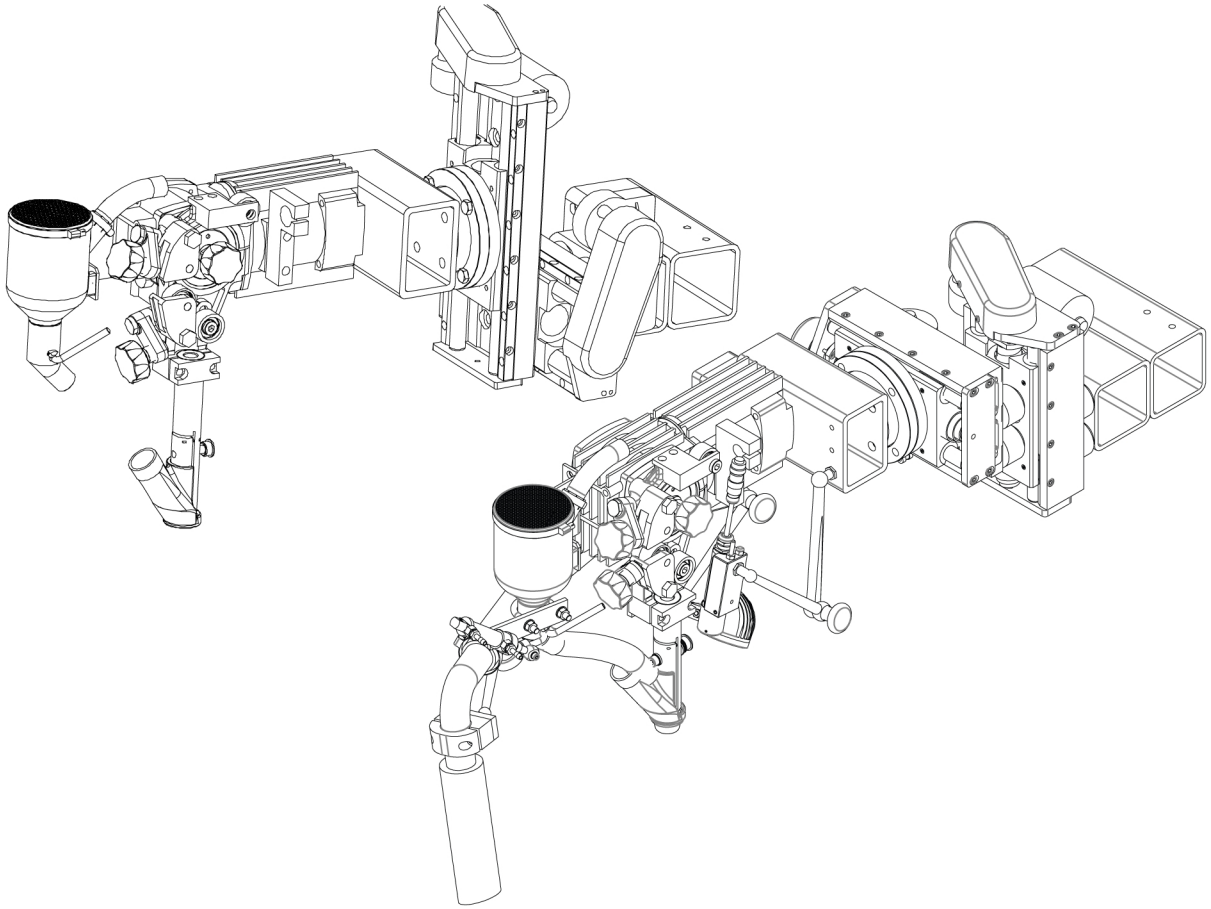
A6S Compact 700

Welding head complete with GMH, camera, laser lamp, pneumatic flux valve and inductive joint tracking system. Minimum diameter for longitudinal welding 700 mm. Minimum diameter for circumferential welding 750 mm.



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ORDERING NUMBERS



Ordering number	Denomination	Type	Notes
0416 967 880	Welding head	A6S Compact 500	156:1
0416 967 881	Welding head	A6S Compact 500	156:1
0416 967 882	Welding head	A6S Compact 500	74:1
0416 967 883	Welding head	A6S Compact 500	156:1, with water cooled VEC
0416 967 884	Welding head	A6S Compact 500	74:1, without cables
0416 967 885	Welding head	A6S Compact 500	156:1, without cables
0416 967 886	Welding head	A6S Compact 500	without cables, with PEK
0416 967 950	Welding head	A6S Compact 500	115:1, without cables
0811 054 880	Welding head	A6S Compact 700	156:1
0811 054 881	Welding head	A6S Compact 700	74:1
0811 054 882	Welding head	A6S Compact 700	156:1, without cables
0811 054 883	Welding head	A6S Compact 700	74:1, without cables
0811 054 982	Welding head	A6S Compact 700	156:1, with PEK
0811 054 983	Welding head	A6S Compact 700	74:1, with PEK
0811 054 950	Welding head	A6S Compact 700	115:1, without cables
0449 548 *	Instruction manual		
0463 836 001	Spare parts list		

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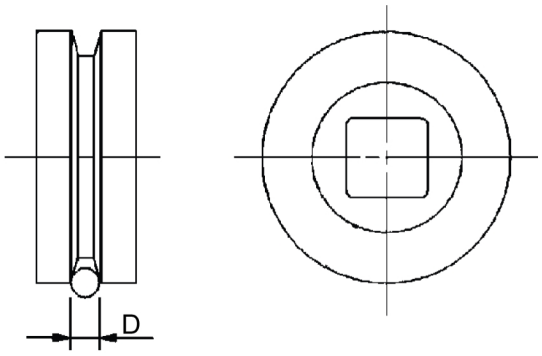
The three last digits in the document number of the manual show the version of the manual. Therefore they are replaced with * here. Make sure to use a manual with a serial number that corresponds with the product, see the front page of the manual.

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WEAR PARTS

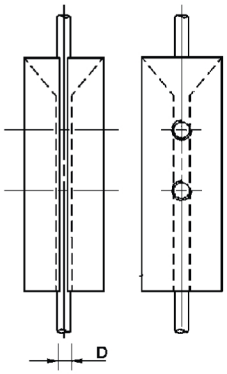
Feed rollers

Ordering number	Denomination	Notes
0218 510 282	SAW	D=2.0 mm
0218 510 283	SAW	D=2.4-2.5 mm
0218 510 298	SAW	D=3.0-3.2 mm
0218 510 286	SAW	D=4.0 mm



Contact jaws

Ordering number	Denomination	Notes
0332 581 880	SAW HD (D35)	D=2.0 mm
0332 581 881	SAW HD (D35)	D=2.4-2.5 mm
0265 900 880	SAW HD (D35)	D=3.0 mm
0265 900 881	SAW HD (D35)	D=3.2 mm
0265 900 882	SAW HD (D35)	D=4.0 mm



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ACCESSORIES

A6S Compact 500

0810 514 880	Joint tracking equipment, A6 GMD (Option 10)
0817 770 880	Camera (Option 20)
0810 516 880	Pilot lamp (Option 30)
0810 852 880	Pneumatic flux valve (Option 40)
0810 904 880	Inductive joint tracking (Option 50)
0820 297 880	Inductive joint tracking for circumreferential welding, A6 GMD (Option 60)

A6S Compact 700

0811 055 880	Joint tracking equipment, A6 GMD (Option 10)
0811 056 880	Camera (Option 20)
0811 057 880	Pilot lamp (Option 30)
0811 058 880	Pneumatic flux valve (Option 40)
0811 059 880	Inductive joint tracking (Option 50)

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