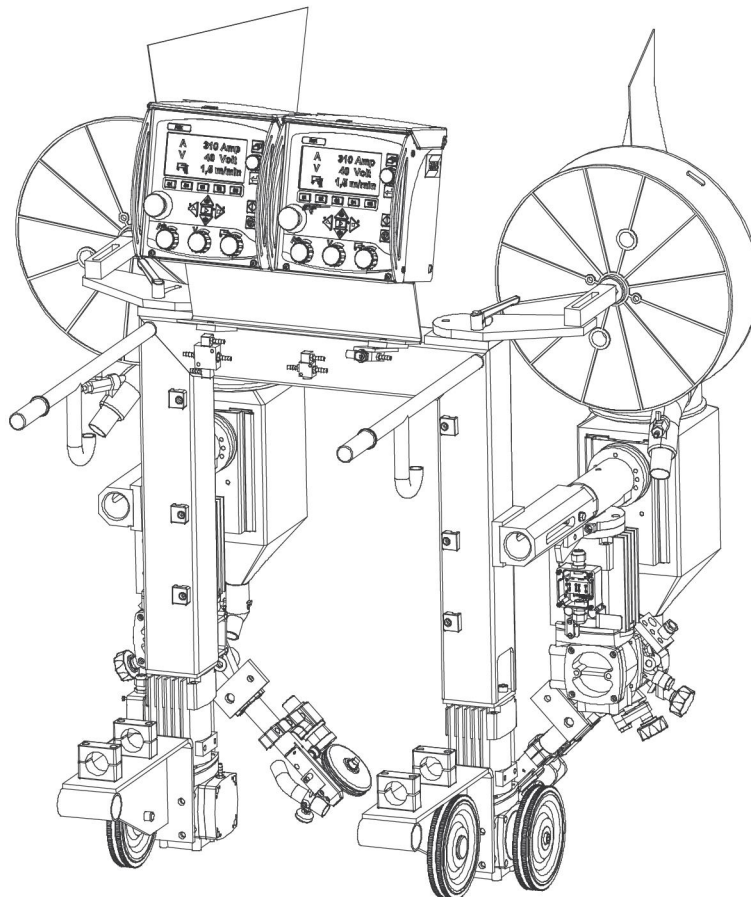


A6 DK

Automatic welding machine



Instruction manual



EU DECLARATION OF CONFORMITY

According to

The Low Voltage Directive 2014/35/EU, entering into force 20 April 2016

The EMC Directive 2014/30/EU, entering into force 20 April 2016

The RoHS Directive 2011/65/EU, entering into force 2 January 2013

Type of equipment

Wire Feeder with control box PEK

Type designation

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, and telephone No:

ESAB AB

Lindholmsallén 9, Box 8004, SE-402 77 Göteborg, Sweden

Phone: +46 31 50 90 00, Fax: +46 31 50 92 22

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

EN 12100-2 Safety of machinery – Part 2: Technical principles

EN 60974-5, Arc Welding Equipment – Part 5: Wire feeders

EN 60974-10:2014, A1:2015 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.

Date

Gothenburg

2017-10-30

Signature



Peter Kjällström

Position

Director Welding Automation

CE 2017

1	SAFETY	5
1.1	Meaning of symbols	5
1.2	Safety precautions	5
2	INTRODUCTION	9
2.1	General	9
2.2	Definitions	9
3	TECHNICAL DATA	10
3.1	Main components A6 DK	11
3.2	Description of main components	12
3.2.1	Carriage	12
3.2.2	Wire feed unit	12
3.2.3	Connector	12
3.2.4	Guide wheel	12
3.2.5	Motor with gear (A6 VEC)	12
3.2.6	Control box (PEK)	12
3.2.7	Flux recovery unit (A6 OPC)	12
3.2.8	Flux hopper / Flux tube / Flux nozzle	13
4	INSTALLATION	14
4.1	General	14
4.2	Mounting	14
4.2.1	Wire drum (Accessories)	14
4.3	Adjusting the brake hub	15
4.4	Connections	15
4.4.1	General	15
4.4.2	Automatic welding machine A6 DK (Submerged-arc Welding, SAW) ..	16
5	OPERATION	17
5.1	General	17
5.2	Loading the welding wire	17
5.3	Changing the feed roller	18
5.3.1	Single wire	18
5.4	Refilling with flux powder	18
5.5	Transportation of the Automatic Welding Machine	19
6	MAINTENANCE	20
6.1	General	20
6.2	Daily	20
6.3	Periodic	20
7	TROUBLESHOOTING	21
7.1	General	21
7.2	Possible errors	21
8	ORDERING SPARE PARTS	22

TABLE OF CONTENTS

DIMENSION DRAWING **23**
ORDERING NUMBERS **24**
ACCESSORIES **25**

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

**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.



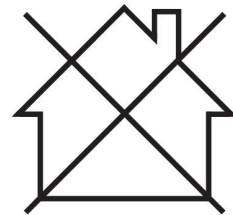
WARNING!

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 **A6 DK** automatic welding machine is designed for Submerged-arc Welding (SAW) of butt and fillet joints.

All other applications are prohibited.

They are intended for use in combination with **PEK** and ESAB's welding power sources **LAF** or **TAF** and **Aristo 1000**.



NOTE!

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

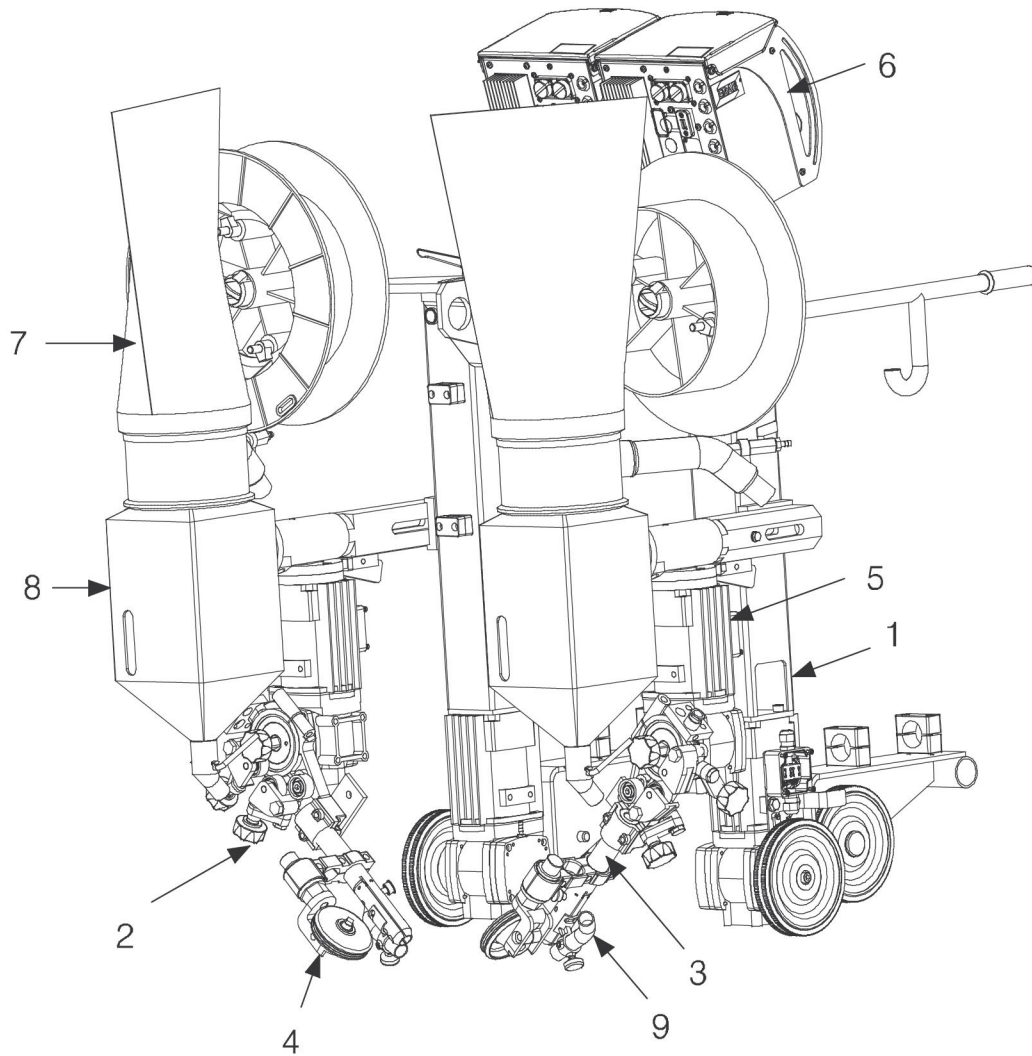
2.2 Definitions

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

3 TECHNICAL DATA

	A6 DK
Supply voltage	42 V AC
Permissible load at 100%	1500 A DC
Wire dimensions	3.0–6.0 mm
Wire feed speed	0.2–4.0 m/min
Brake hub braking torque	1.5 Nm
Travel speed	0.15–2.0 m/min
Maximum weight of wire	30 kg
Flux container volume (Not to be filled with preheated flux)	10 l
Weight (Excluding wire and flux)	150 kg

3.1 Main components A6 DK



- 1. Carriage
- 2. Wire feed unit
- 3. Connector
- 4. Guide wheel
- 5. Motor with gear (A6 VEC)

- 6. Control box PEK
- 7. Flux recovery unit (A6 OPC)
- 8. Flux hopper
- 9. Flux nozzle
- 10. Flux tube (not shown)

For more information on the main components, see section "**Description of main components**".

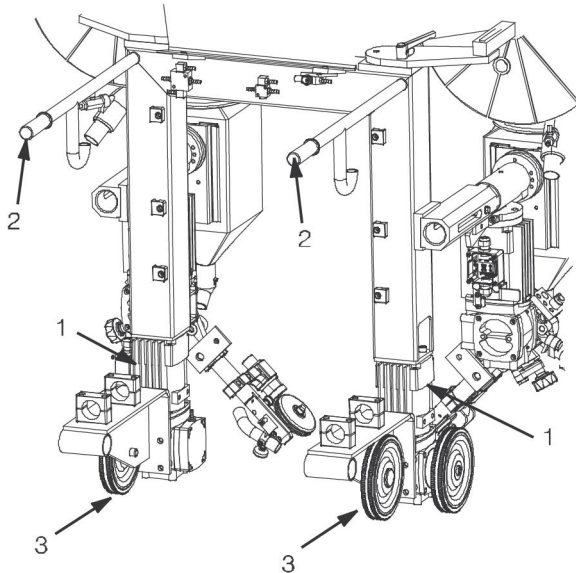
3.2 Description of main components

3.2.1 Carriage

The carriage is powered by **A6 VEC** motors (1).

It is equipped with handles (2) and two support wheels (3).

Use the handle bars to tilt the welding machine backwards, the support wheels will now take the weight and the welding machine can be moved.



3.2.2 Wire feed unit

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

3.2.3 Connector

Transfers welding current to the wire during welding.

3.2.4 Guide wheel

The guide wheel is attached to the connector and guides the welding machine along the weld joint.

3.2.5 Motor with gear (A6 VEC)

The motor is used for feeding the welding wire.

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

3.2.6 Control box (PEK)

See Instruction manual 0460 948 xxx, 0460 949 xxx, 0459 839 036.

3.2.7 Flux recovery unit (A6 OPC)

The **A6 OPC** is used to recover the surplus flux.

For more information regarding the **A6 OPC**, see Instruction manual 0443 407 xxx.

3.2.8 Flux hopper / Flux tube / Flux nozzle

The flux is filled into the flux hopper and 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 INSTALLATION

4.1 General

The installation must be carried out by a professional.



WARNING!

Rotating parts can cause injury, take great care.



4.2 Mounting

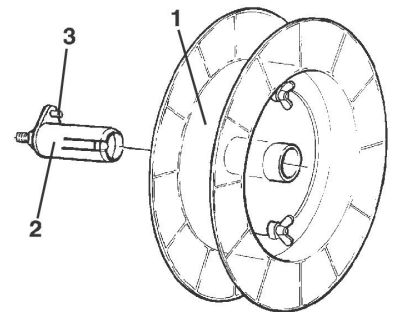
4.2.1 Wire drum (Accessories)

- The wire drum (1) is mounted on the brake hub (2).
- Check that the carrier (3) is pointing upwards.



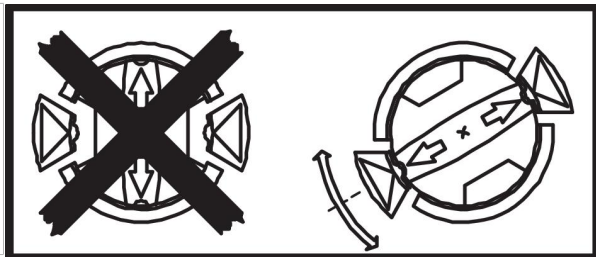
NOTE!

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.



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.

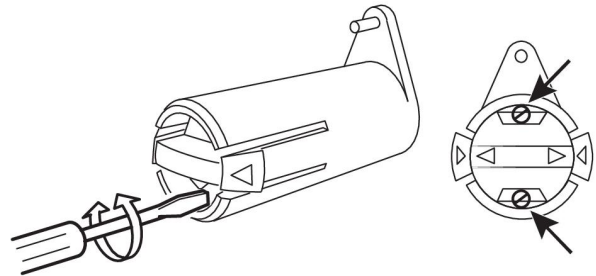


4.3 Adjusting the brake hub

The brake 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:

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!

Make sure you turn both springs the same amount.

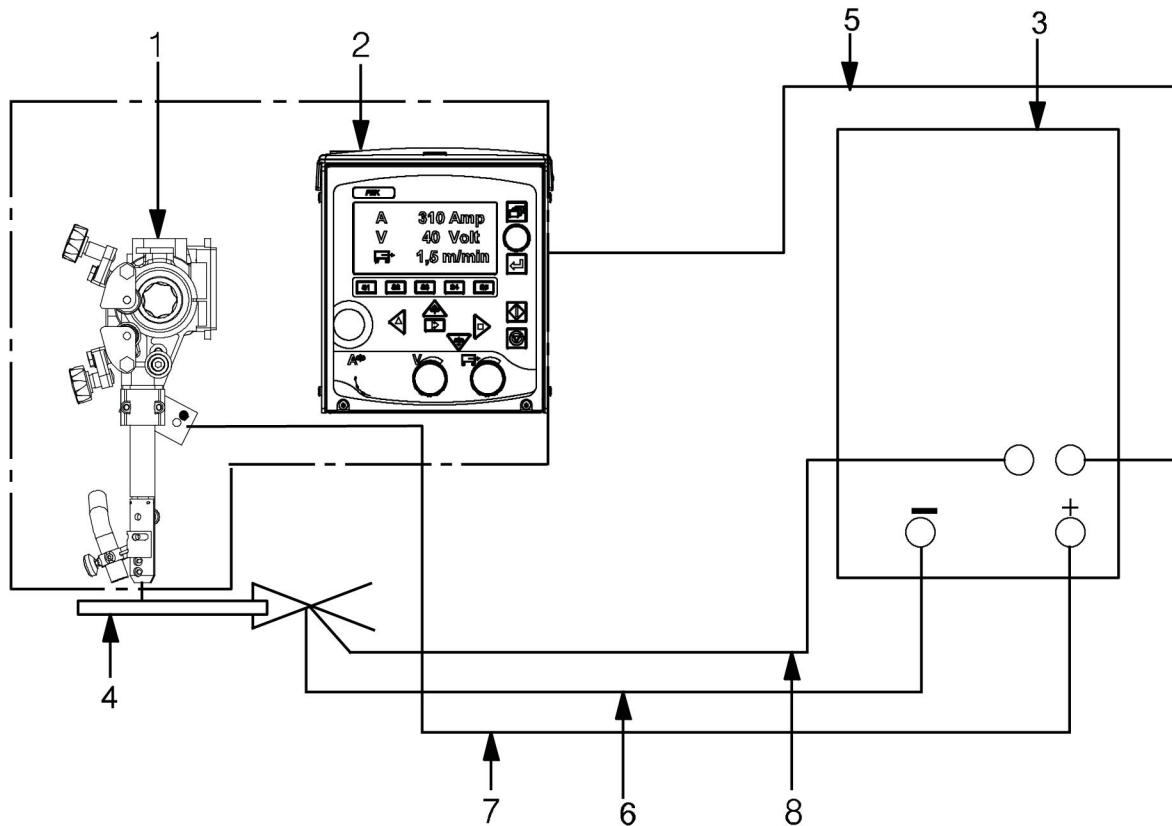
4.4 Connections

4.4.1 General

- The **PEK** is to be connected by a qualified person. See Instruction manual 0460 948 xxx, 0460 949 xxx, 0459 839 036.
- For the connection of **A6 OPC**, see Instruction manual 0443 407 xxx.
- For the connection of welding power source **LAF/ TAF**, see separate instruction manuals.

4.4.2 Automatic welding machine A6 DK (Submerged-arc Welding, SAW)

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



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!

- Select electrode type and flux powder so that the weld material is as close as possible to the analysis of the base metal.
- Select electrode size and welding data in accordance with the values recommended by the welding materials supplier.
- Thorough preparation of the weld surfaces is necessary to achieve a good weld.



NOTE!

The width of the weld joint gap must be uniform.

- To minimize the risk of hot cracking the width of the weld should be larger than the penetration.
- Always weld a test piece with the same joint preparation and plate thickness as the intended production piece.



NOTE!

Never make a trial weld on a production workpiece.

- For control and adjustment of the automatic welding machine and welding power supply, see the Instruction manual for the **PEK**.

5.2 Loading the welding wire


1. Mount the wire drum according to the instructions in section "**Mounting**".
2. Check that feed roller (1) and contact jaw or contact tip (3) are of the correct dimension for the selected wire size.
3. Straighten out 0.5 m of wire and feed it by hand down through the straightener (2).
4. Locate the end of the wire in the feed roller (1) groove.
5. Set the wire tension on the feed roller with the knob (4).



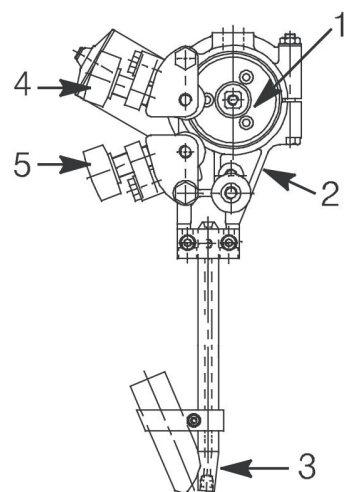
NOTE!

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

6. Feed the wire forward 30 mm below the contact

tip by pressing  on the control box **PEK**.

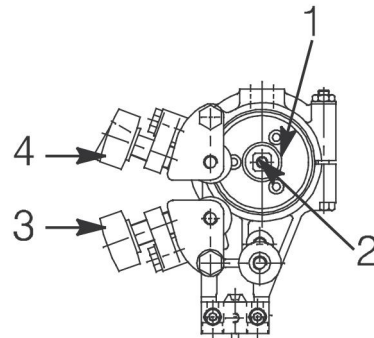
7. Direct the wire by adjusting the knob (5).



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).
- They are marked with their respective wire sizes.



5.4 Refilling with flux powder

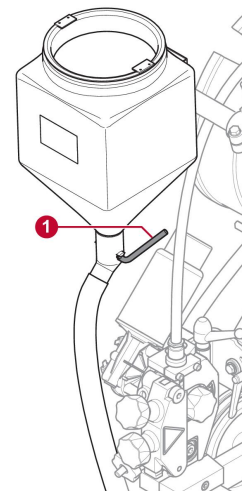
1. Close the flux valve (1) on the flux hopper.
2. Remove the cyclone on the flux recovery unit, if fitted.
3. Fill with flux powder.



NOTE!

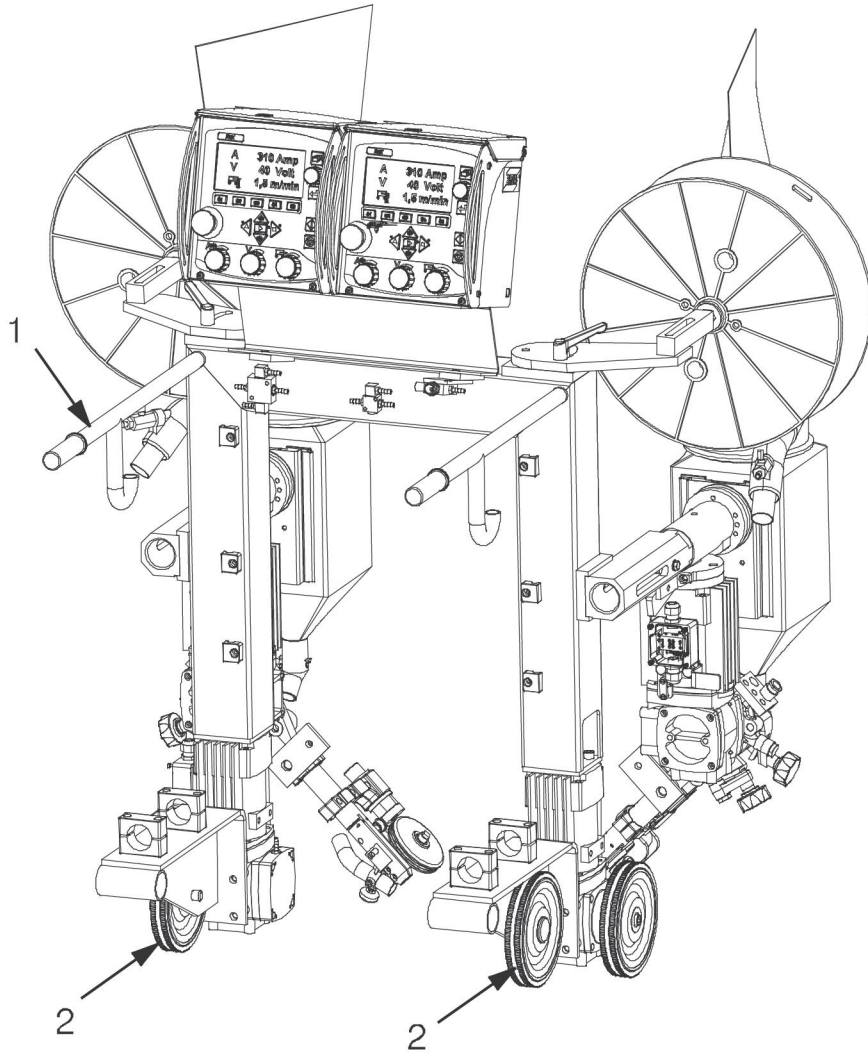
The flux powder must be dry. Where possible avoid using agglomerating flux powder outdoors and in damp environments.

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.



5.5 Transportation of the Automatic Welding Machine

- Tip the welding machine backwards with the handles (1).
- The weight has now been moved to the support wheels (2) and the welding machine can be moved.



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 the maintenance of the control box **PEK**, see the Instruction manual 0460 948 xxx, 0460 949 xxx, 0459 839 036.

6.2 Daily

- Clean flux and dirt off moving parts of the welding machine.
- Check that the contact tip and all electrical cables are connected.
- Check that all bolted joints are tight and that guides and drive 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**".

6.3 Periodic

- Inspect the electrode feed unit's electrode control, drive rollers and contact tip.
- Replace worn or damaged components.
- Inspect the slides, lubricate them if they are binding.

7 TROUBLESHOOTING

7.1 General

Equipment

- Instruction manual for control box **PEK**.

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 wrong size.

Action Replace contact jaws or nozzle.

Cause 1.2 Feed roller pressure is inadequate.

Action Increase pressure on feed rollers.

2. Symptom **Wire feed is irregular.**

Cause 2.1 Pressure on feed rollers is incorrectly set.

Action Adjust pressure on feed rollers.

Cause 2.2 Feed rollers are of the wrong size.

Action Replace feed rollers.

Cause 2.3 Grooves in feed rollers are worn.

Action Replace 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



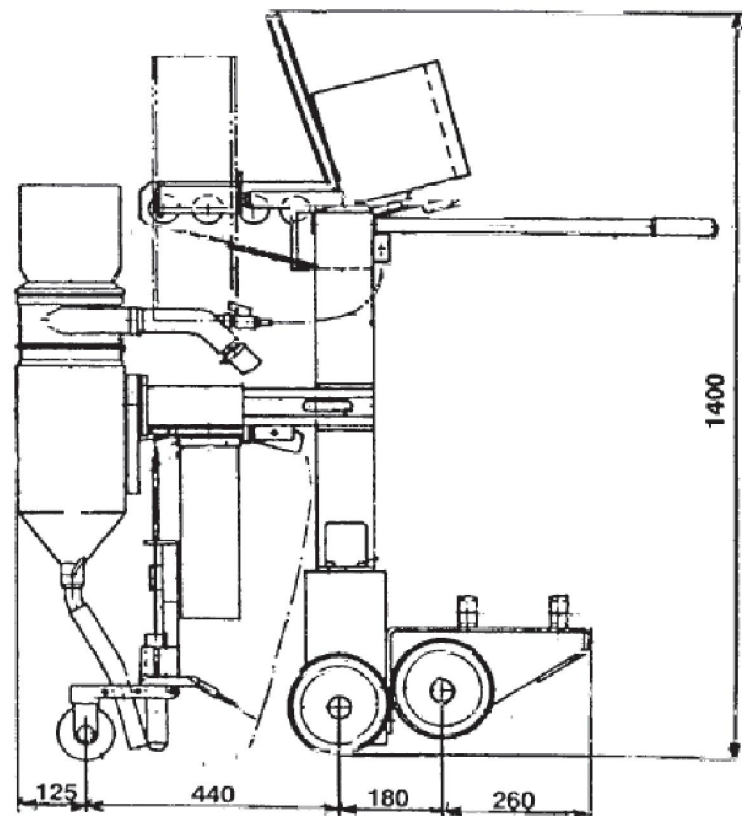
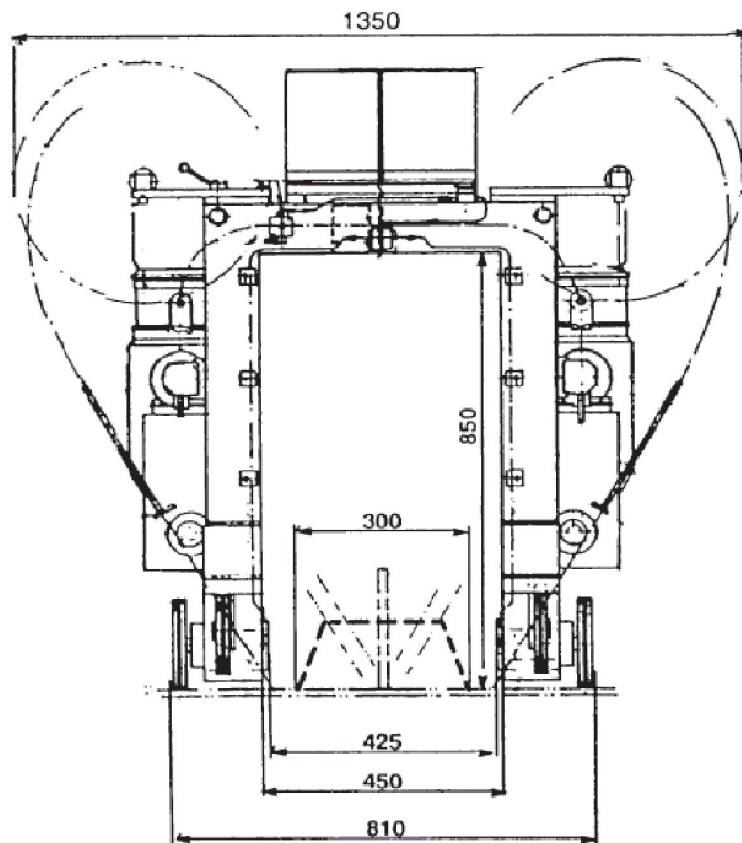
CAUTION!

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

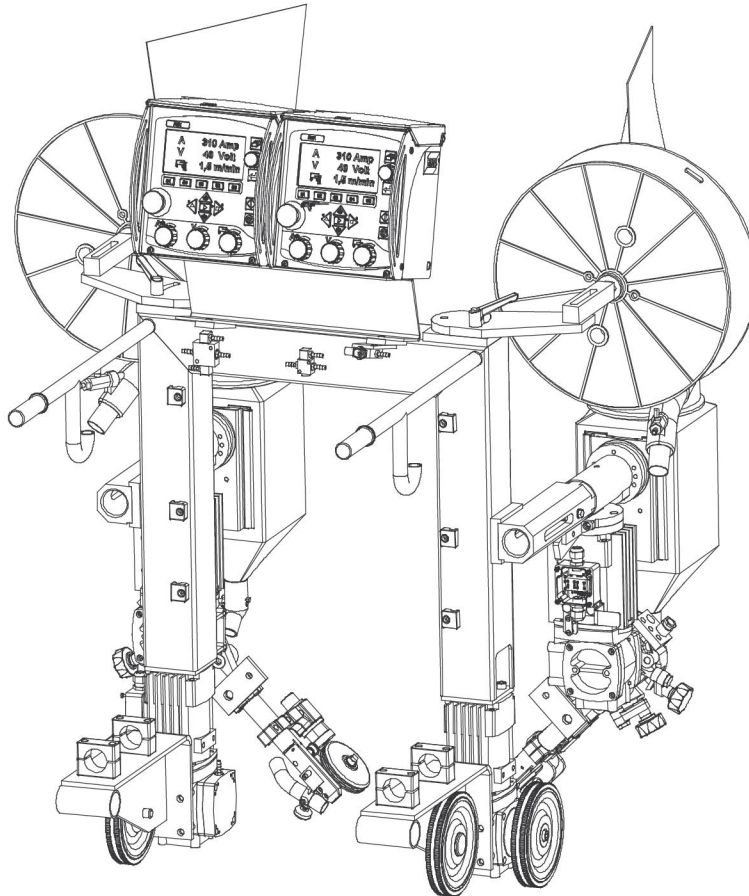
A6 DK is designed and tested in accordance with the international and European standards **EN 60974-5**, **EN 12100-2** and **EN 60974-10**. On completion of service or repair work, it is the responsibility of the person(s) performing the work to ensure that the product still complies with the requirements of the above standards.

Spare parts and wear parts can be ordered through your nearest ESAB dealer, see esab.com. 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

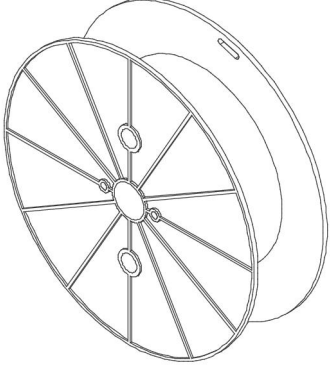
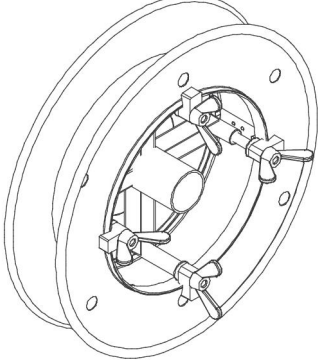


Ordering number	Denomination	Type	Notes
0461 237 901	Automatic welding machine	A6 DK	
0460 949 *74	Instruction manual	PEK Control panel	
0460 948 *01	Instruction manual	PEK Control unit	

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 or software version that corresponds with the product, see the front page of the manual.

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

ACCESSORIES

0153 872 880	Wire reel plastic	
0416 492 880	Wire reel steel	



A WORLD OF PRODUCTS AND SOLUTIONS.



For contact information visit esab.com

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

<http://manuals.esab.com>

