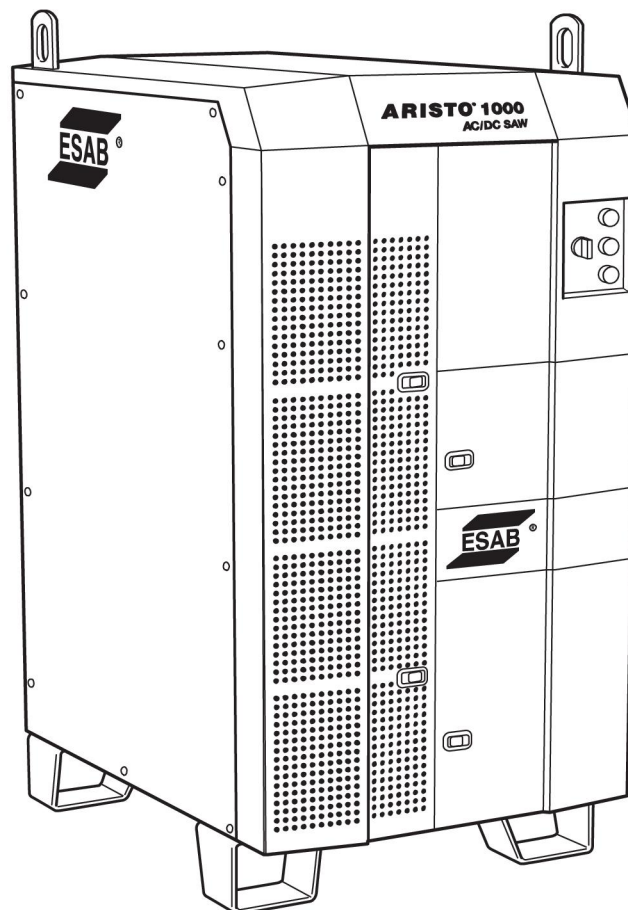




Aristo®

Aristo® 1000 AC/DC SAW



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

Welding Power Source

Type designation

Aristo 1000 AC/DC, from serial number 336 xxx xxx (2013 w/36)

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: +46 584 411 924

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

EN 60974-1:2012, Arc Welding Equipment – Part 1: Welding Power Sources

EN 60974-10:2014, 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

Signature

Position

Gothenburg
2016-07-20

A handwritten signature in black ink, appearing to read "Stephen Argo". The signature is written in a cursive, flowing style.

Stephen Argo

Global Director Equipment

CE 2016

TABLE OF CONTENTS

1	SAFETY	4
1.1	Meaning of symbols	4
1.2	Safety precautions	4
2	INTRODUCTION	7
3	TECHNICAL DATA	8
4	INSTALLATION	9
4.1	Lifting instructions	9
4.2	Location	10
4.3	Example of welding equipment	11
4.4	Cable routing	12
4.5	Mains power supply	13
5	OPERATION	15
5.1	Connections and control devices	15
5.2	Connection of welding and return cable	16
5.3	Key to symbols	16
5.4	Overheating protection	16
6	MAINTENANCE	17
6.1	Welding power source	17
7	FAULT-TRACING	19
8	ORDERING SPARE PARTS	20
	CABLE ROUTING REQUIREMENTS	21
	CLEANING	25
	DIAGRAM	26
	ASSEMBLY INSTRUCTIONS	27
	CONNECTION INSTRUCTION	28
	ORDERING NUMBERS	29
	WEAR PARTS	30
	ACCESSORIES	31

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.

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

PROTECT YOURSELF AND OTHERS!



CAUTION!

This product is solely intended for arc welding.



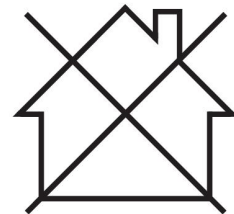
WARNING!

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

Aristo 1000 is a welding power source intended for high productivity submerged arc welding with direct current (DC) or alternating current (AC). The power source has many setting options for those who want to optimise their welding process.

The welding power source is used together with control unit PEK. The welding process parameters are regulated via the control unit.

The power source is part of ESAB's A2 / A6 system, which means that most of the components from this system can be used with Aristo 1000.

This includes components such as:

- Welding tractors
- Column and boom
- Welding heads
- Positioning equipment
- Joint tracking equipment
- Flux handling systems

ESAB accessories for the product can be found in the "ACCESSORIES" chapter of this manual.

3 TECHNICAL DATA

Aristo® 1000	
Mains voltage	380-575 V, ±10 %, 3~ 50/60 Hz
Mains supply	S_{sc} min 19.2 MVA
Primary current	I_{max} 84 A
Setting range	14–50 V / 0–1000 A
Permissible load 100 % duty cycle	1000 A / 44 V
Power factor at maximum current	0.92
Efficiency at maximum current	88 %
Open-circuit voltage U_0 max	125 V
Apparent power at maximum current	55.3 kVA
Active power at maximum current	49.5 kW
No-load power	170 W
Operating temperature	-10 to +40 °C (+14 to +104 °F)
Transportation temperature	-20 to +55 °C (-4 to +131 °F)
Dimensions l × w × h	865×610×1320 mm (34x24x52 in.)
Weight	330 kg (727 lbs)
Insulation class	H
Enclosure class	IP23
Application class	S

Duty cycle

The duty cycle refers to the time as a percentage of a ten-minute period that you can weld or cut at a certain load without overloading. The duty cycle is valid for 40 °C (104 °F), or below.

Enclosure class

The **IP** code indicates the enclosure class, i.e. the degree of protection against penetration by solid objects or water.

Equipment marked **IP23** is intended for indoor and outdoor use.

Application class

The symbol S indicates that the power source is designed for use in areas with increased electrical hazard.

Mains supply, S_{sc} min

Minimum short circuit power on the network in accordance with IEC 61000-3-12.

4 INSTALLATION

The installation must be carried out by a professional.

The power source must be calibrated by a professional.

**CAUTION!**

Installation shall be made to a symmetrical 3 phase system in respect to safety ground.

Intended for fixed installation.

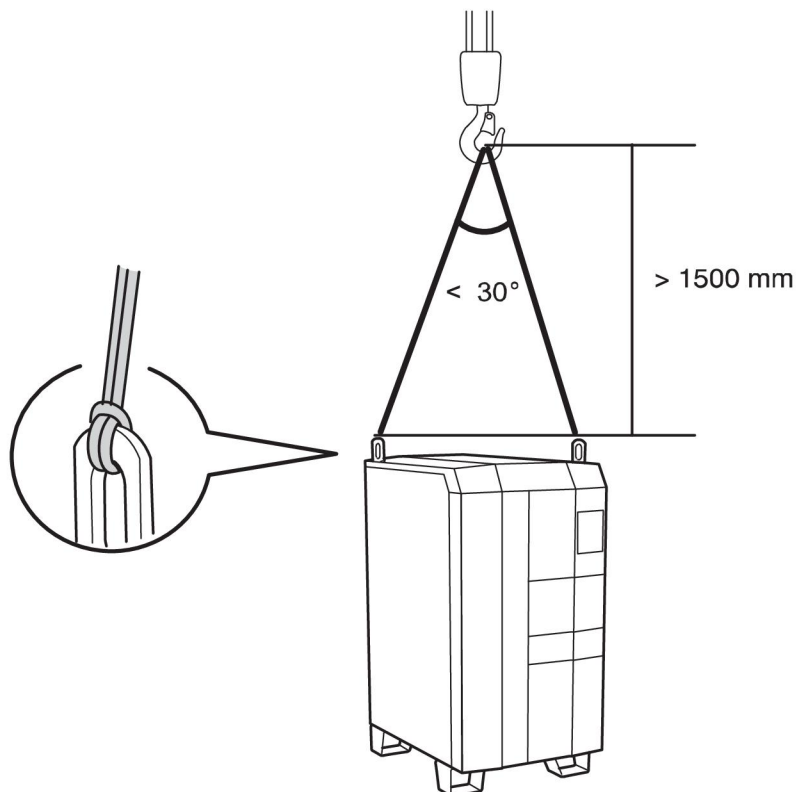
**NOTE!****Mains supply requirements**

This equipment complies with IEC 61000-3-12 provided that the short-circuit power is greater than or equal to S_{scmin} at the interface point between the user's supply and the public system. It is the responsibility of the installer or user of the equipment to ensure, by consultation with the distribution network operator if necessary, that the equipment is connected only to a supply with a short-circuit power greater than or equal to S_{scmin} . Refer to the technical data in the TECHNICAL DATA chapter.

**NOTE!**

The power source can be powered from a generator. For more information, contact authorised ESAB service personnel.

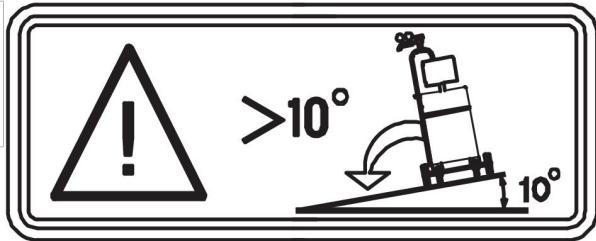
4.1 Lifting instructions



4.2 Location

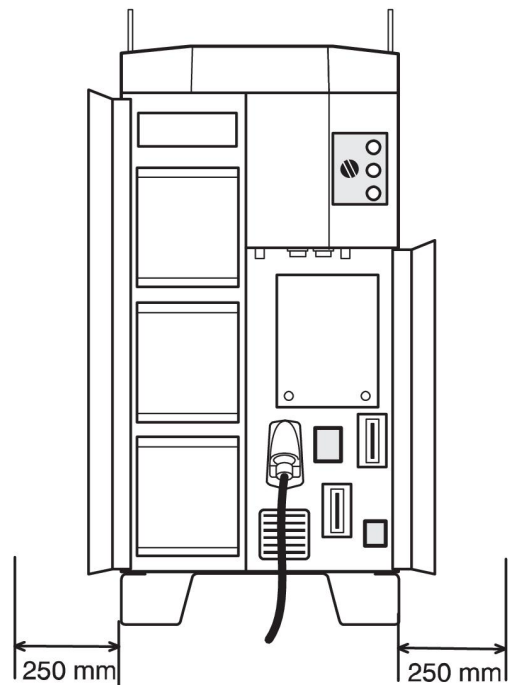
**WARNING!**

Secure the equipment - particularly if the ground is uneven or sloping.

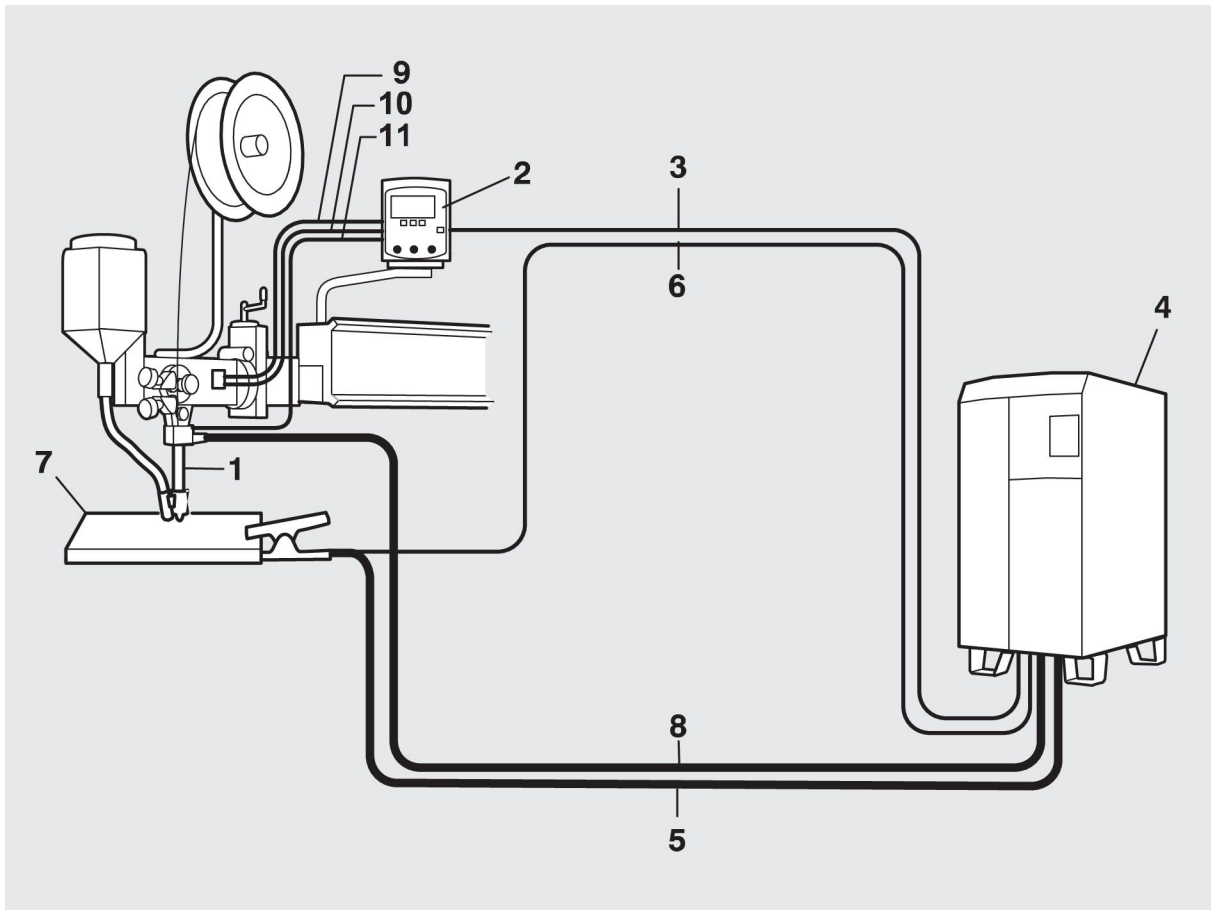


Position the welding power source so that its cooling air inlets and outlets are not obstructed, with a distance of at least 250 mm (9.86") all the way around.

When installing the power source on the floor, see the dimensions according to the hole pattern in the "ASSEMBLY INSTRUCTIONS" appendix to this manual.



4.3 Example of welding equipment



1 Welding head

2 Control unit

3 Control cable

4 Welding power source

5 Return cable

6 Measurement cable,
workpiece

7 Workpiece

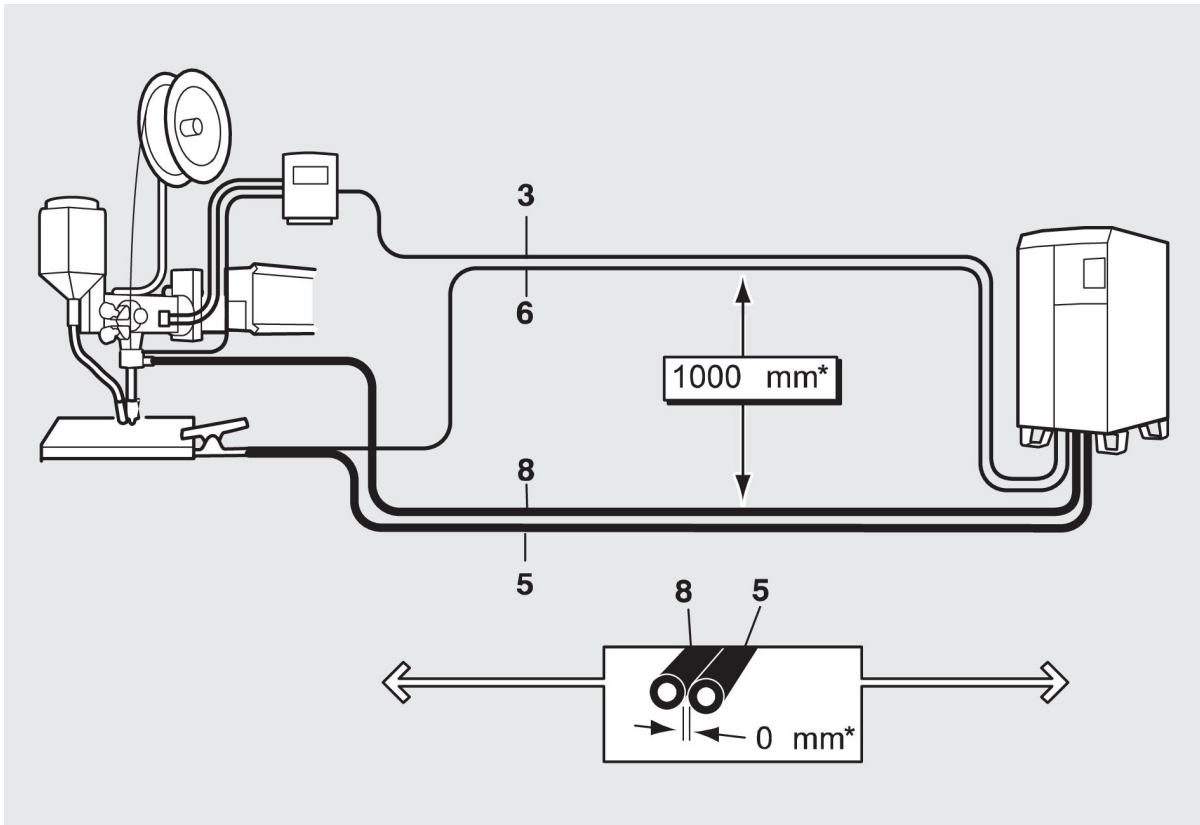
8 Welding cable

9 Measurement cable,
speed

10 Motor cable

11 Measurement cable,
welding voltage

4.4 Cable routing



*Recommended

3 Control cable

5 Return cable

6 Measurement cable, workpiece

8 Welding cable

For more information regarding cable routing, see the "CABLE ROUTING REQUIREMENTS" appendix.

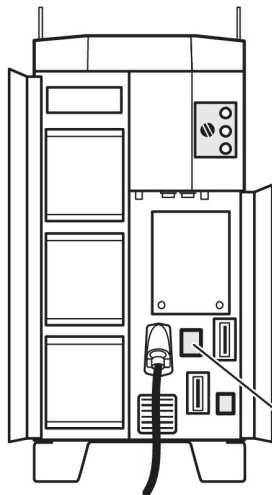
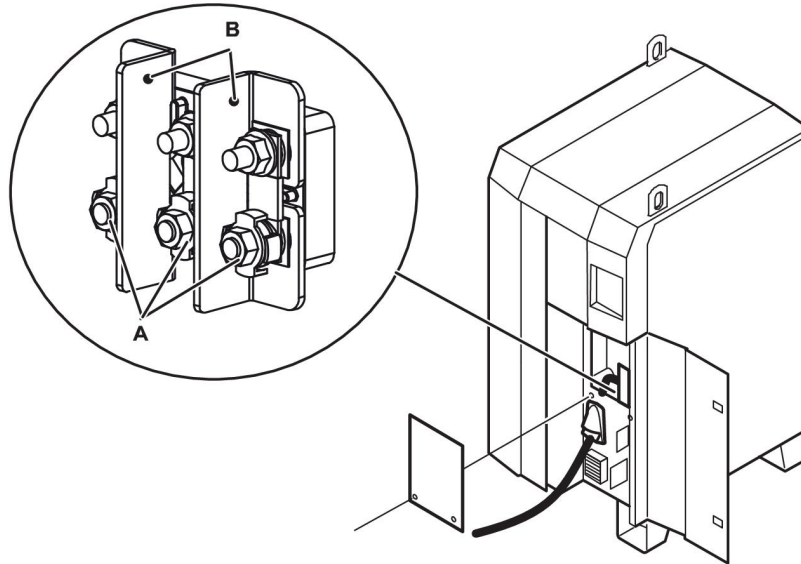
4.5 Mains power supply



WARNING!

The welding power source is connected for 400 V at delivery. For other mains voltages, reconnect on the terminal block, according to the "CONNECTION INSTRUCTION" appendix.

Tighten the screws **A** using a torque of 10 Nm (88.5 in lb). Ensure that the plastic protector **B** is still loose.



Make sure that the welding power source is connected to the correct mains voltage and that it is protected by the correct fuse rating. A protective earth connection must be made in accordance with regulations.

Rating plate with supply connection data

Recommended fuse sizes

Aristo 1000 50/60 Hz at DC welding								
Mains voltage	380 V	400 V	415 V	440 V	460 V	500 V	550 V	575 V
Phase current $I_{1\text{eff}}$	84 A	79 A	75 A	72 A	69 A	64 A	60 A	54 A
Fuse anti-surge	100 A	100 A	80 A	80 A	80 A	80 A	63 A	63 A



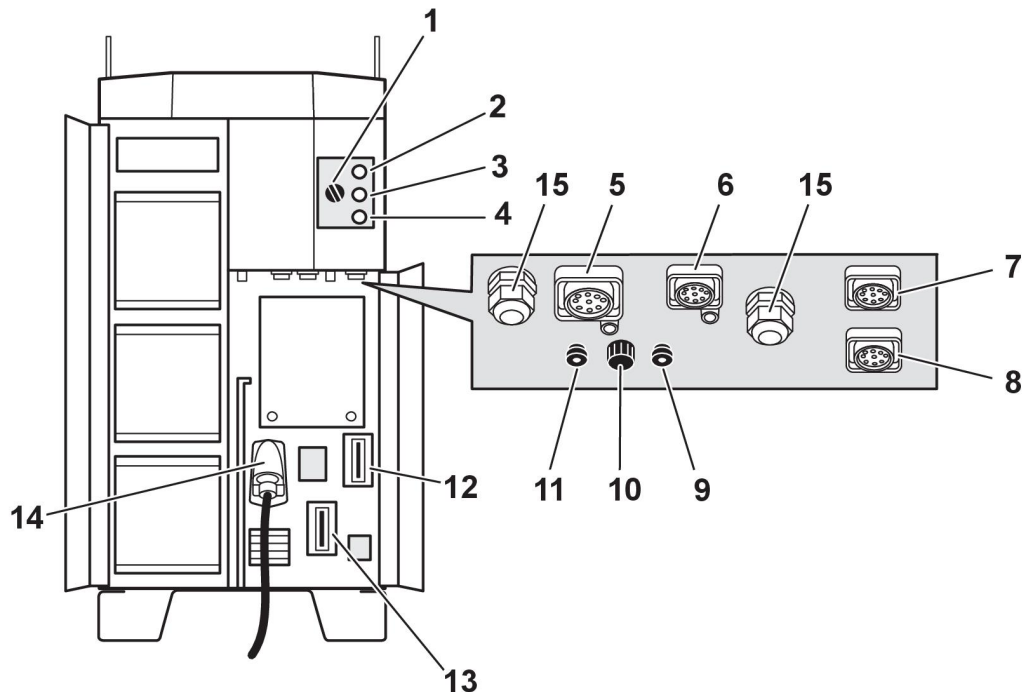
NOTE!



The fuse sizes as shown above are in accordance with Swedish regulations. Use the welding power source in accordance with the relevant national regulations.

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!

5.1 Connections and control devices



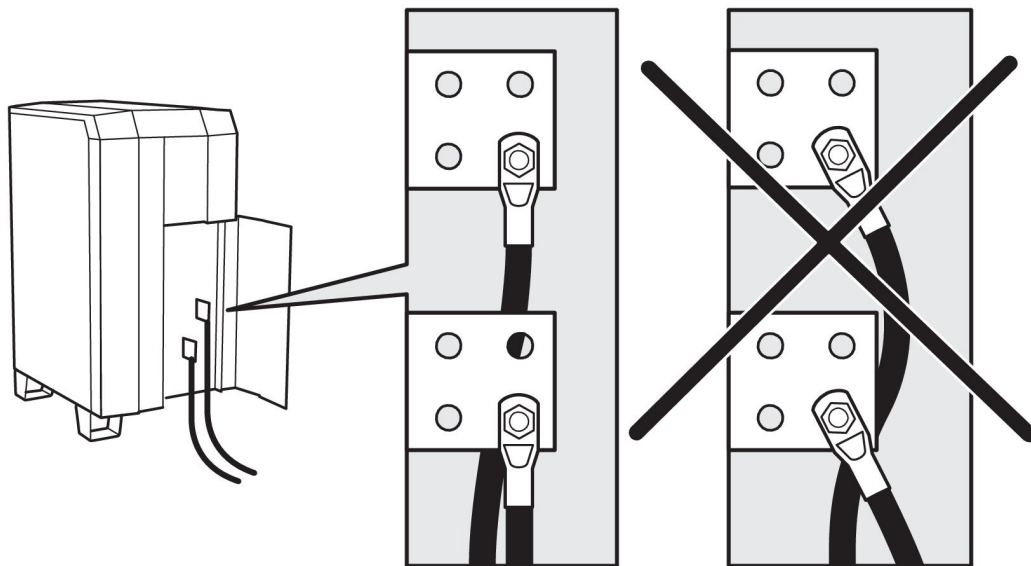
- | | |
|--|---|
| 1 Knob for setting control* | 8 Connection of internal bus for parallel/tandem connection (identical to 7) |
| 2 Fault indicating lamp orange | 9 Connection black for measurement cable, workpiece |
| 3 Push button white ON | 10 Fuse |
| 4 Push button black OFF | 11 Connection red for measurement cable, welding head |
| 5 Connection for control unit PEK | 12  Connection for return cable |
| 6 Connection for service tool | 13  Connection for welding current cable to welding head |
| 7 Connection of internal bus for parallel/tandem connection (identical to 8) | 14 Connection for mains voltage cable |
| | 15 Cable groove for signal cables |

*) There are three knob positions:

- Position 1, ON / OFF of mains voltage controlled from remote control unit
- Position 2, ON / OFF blocked
- Position 3, ON / OFF controlled using button 3 and 4

5.2 Connection of welding and return cable

Ensure that the welding and return cables are installed as illustrated.



5.3 Key to symbols

	Power source ON	○	Power source OFF
▢ ↗	Remote controlled start	○	Local control from the power source
⏏	Fault indication		

5.4 Overheating protection

The welding power source has overheating protection that operates if the temperature becomes too high. When this occurs, the welding current is interrupted and the yellow indicating lamp comes on. A fault code appears in the control unit (PEK) settings panel.

The overheating protection resets automatically and the welding process can be restarted when the temperature has fallen.

6 MAINTENANCE



NOTE!

Regular maintenance is important for safe and reliable operation.

Only those persons who have appropriate electrical knowledge (authorised personnel) may remove the safety plates to connect or carry out service, maintenance or repair work on welding equipment.



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.

6.1 Welding power source

Check regularly that the welding power source is not clogged with dirt.

How often and which cleaning methods apply depend on:

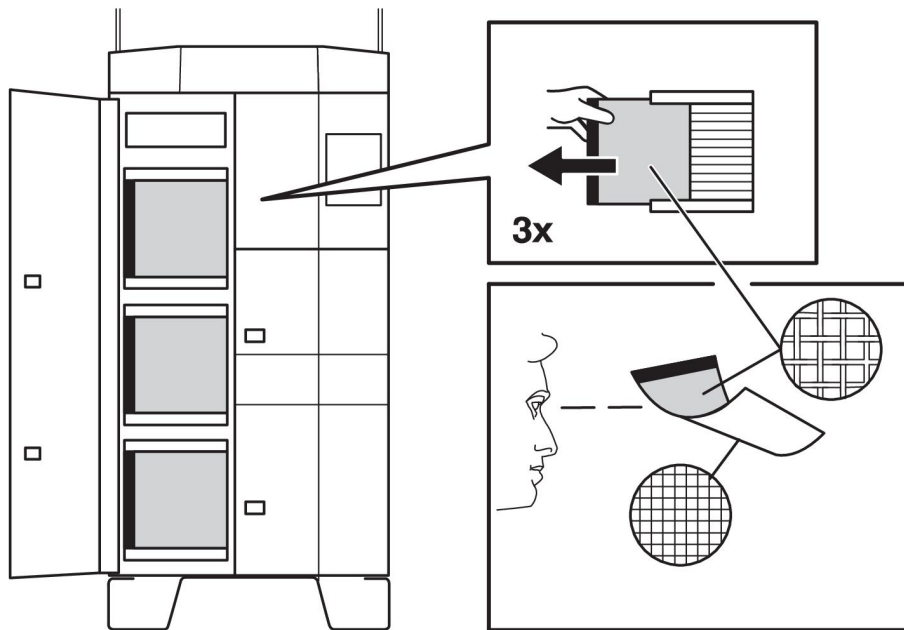
- welding process
- operation time
- location
- surrounding environment

The power source should be regularly blown clean using dry compressed air at reduced pressure, see the "CLEANING" appendix. This should be done more frequently in dirty environments.

Clogged or blocked air inlets and outlets may result in overheating. Ordering number for dust filter, see the "WEAR PARTS" appendix.

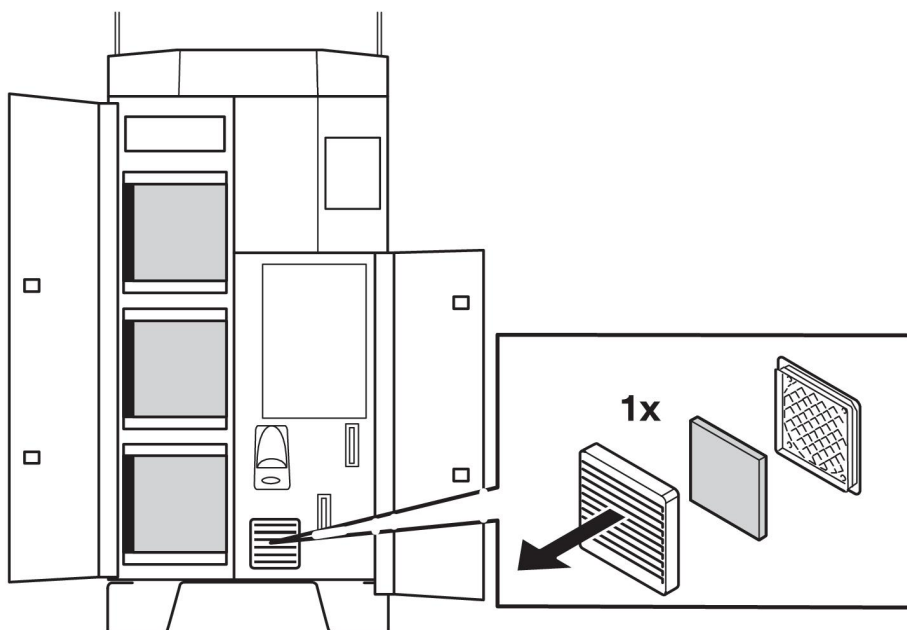
Replacing and cleaning the dust filter

1. Release the dust filter according to the illustration.
2. Blow the filter clean using compressed air (reduced pressure).
3. Reinstall the filter.
Ensure that the filter with the finest mesh is placed towards the grille.



Replacing and cleaning the air filter

1. Release the air filter according to the illustration.
2. Clean the filter using soap and water
3. Reinstall the filter.



7 FAULT-TRACING

Try these recommended checks and inspections before sending for an authorized service technician.

Type of fault	Corrective action
No arc	<ul style="list-style-type: none"> • Check that the mains voltage is switched on. • Check that the welding and return cables are correctly connected. • Check that the correct current value is set. • Check the mains power supply fuses.
The welding current is interrupted during welding.	<ul style="list-style-type: none"> • Check whether the thermal cut-outs have tripped (a fault code appears on the control module's panel). • Check the mains power supply fuses.
The thermal cut-out trips frequently.	<ul style="list-style-type: none"> • Check to see whether the dust filter is clogged. • Make sure that you are not exceeding the rated data for the welding power source (i.e. that the unit is not being overloaded). • Check that the welding power source is not clogged with dirt. • Check the ambient temperature.
Poor welding performance	<ul style="list-style-type: none"> • Check that the welding current supply and return cables are correctly connected. • Check that the correct current value is set. • Check that the correct filler material (wire and powder) is used.

8 ORDERING SPARE PARTS



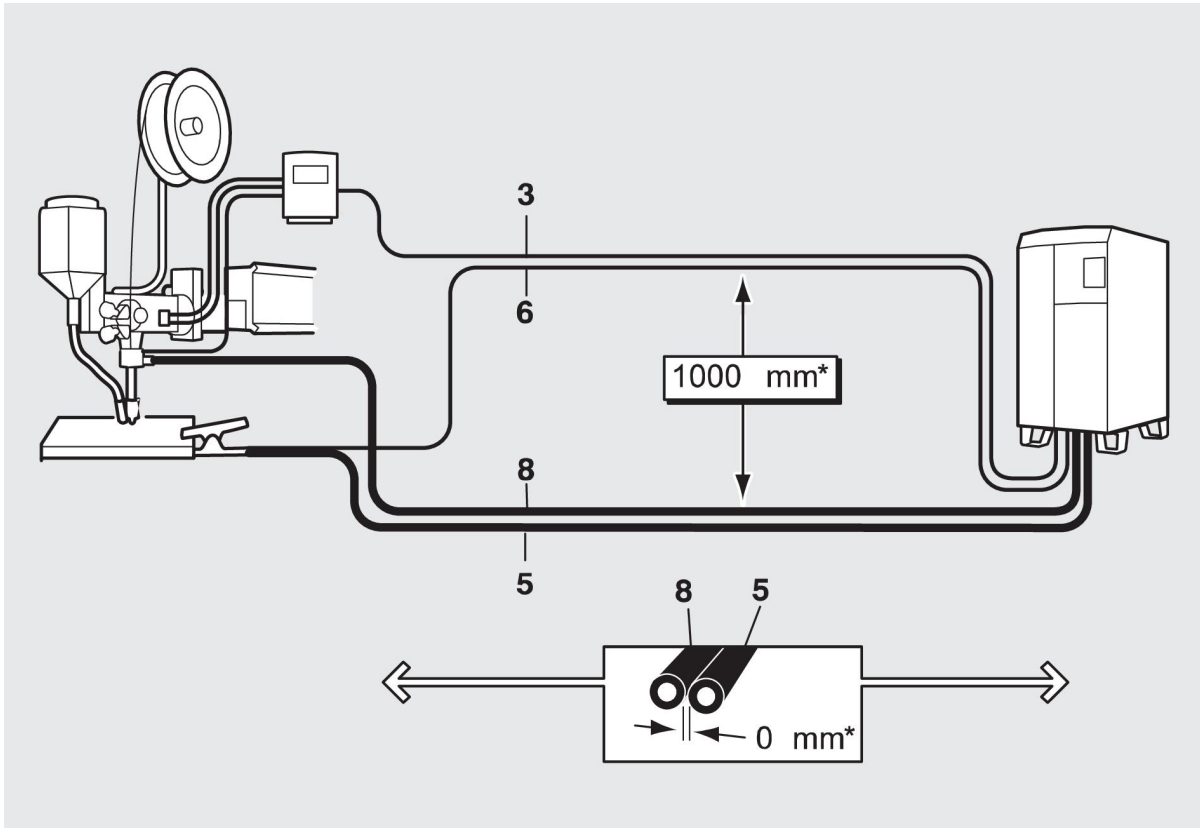
CAUTION!

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

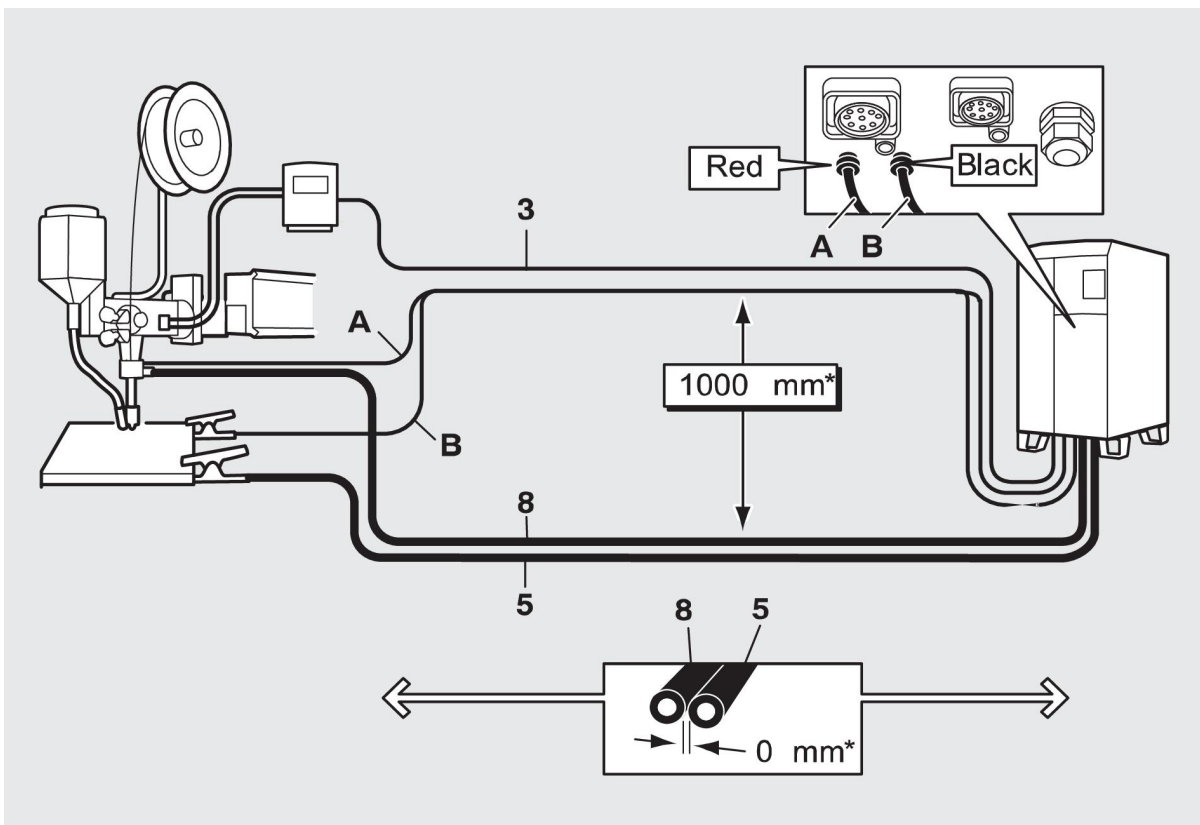
Aristo 1000 is designed and tested in accordance with the international and European standards **IEC-/EN 60974-1** and **IEC-/EN 60974-10**. It is the obligation of the service unit which has carried out the service or repair work to make sure that the product still conforms to the mentioned standards.

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.

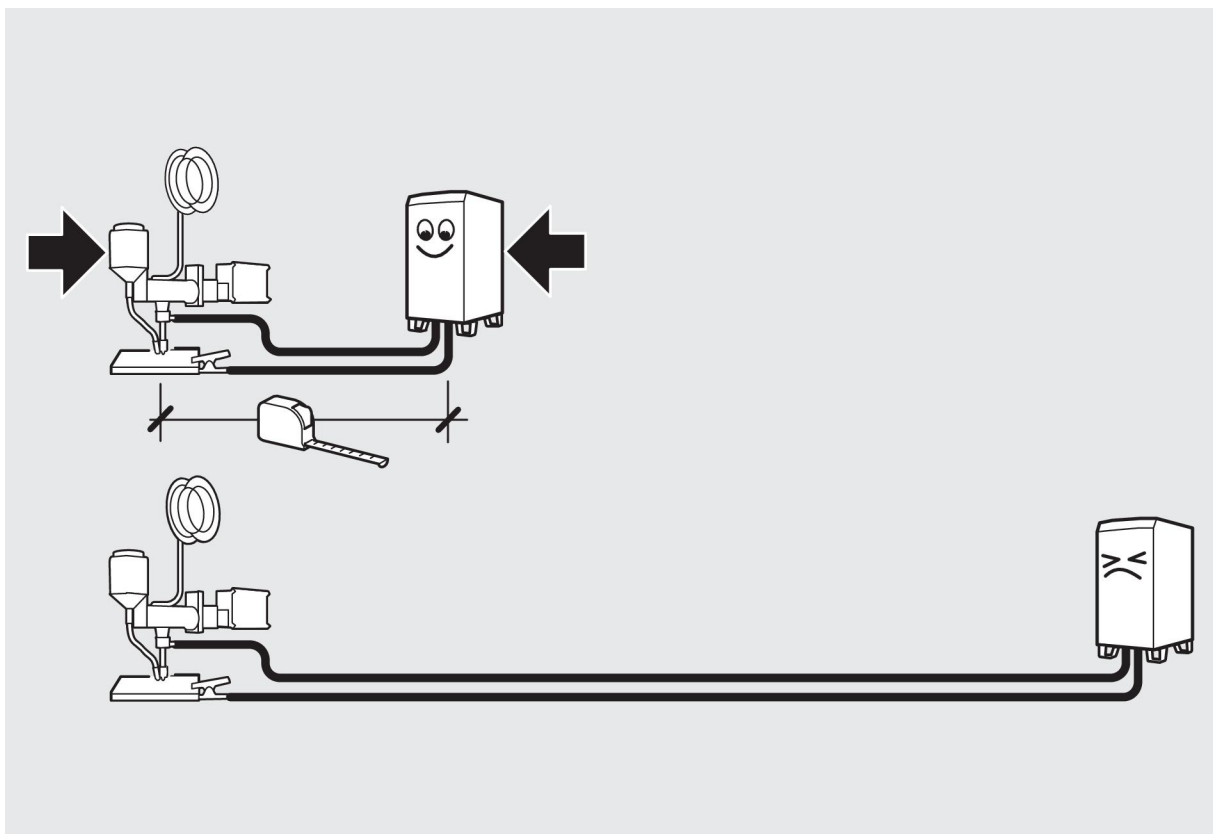
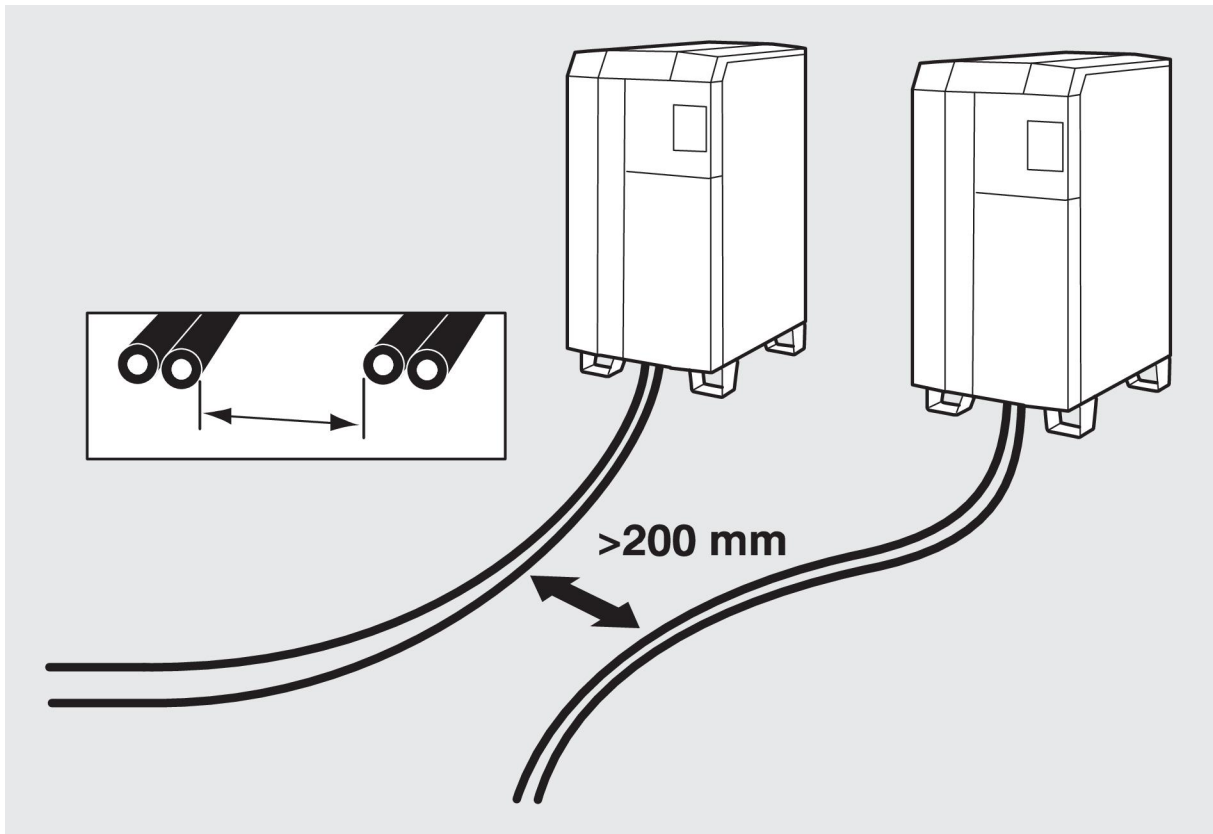
CABLE ROUTING REQUIREMENTS

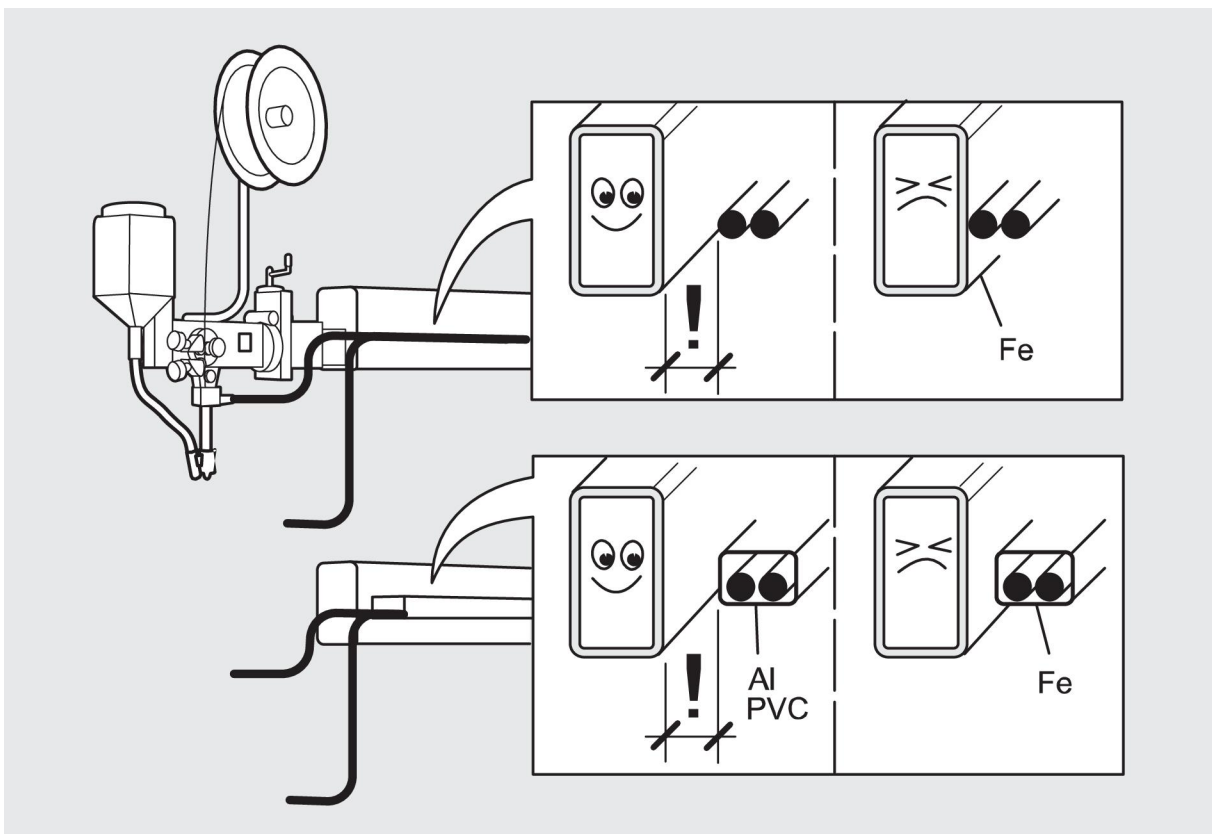
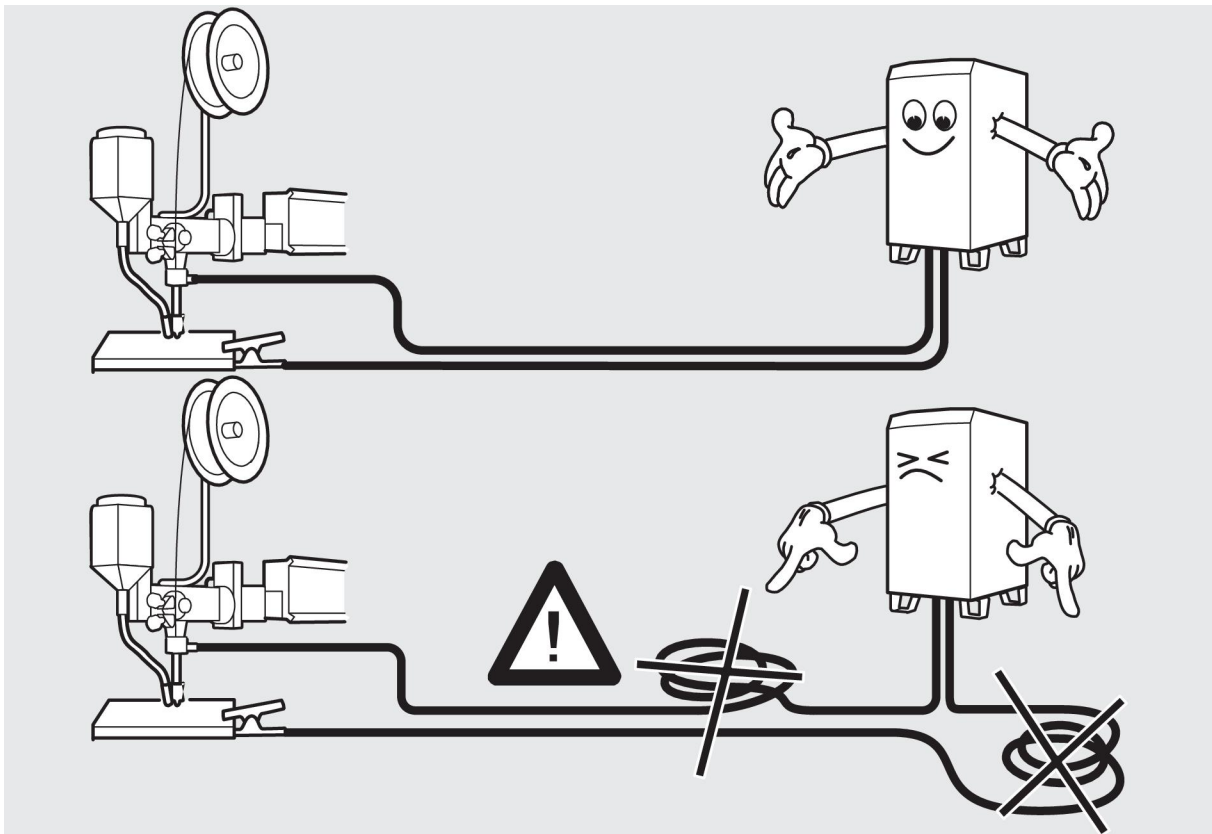


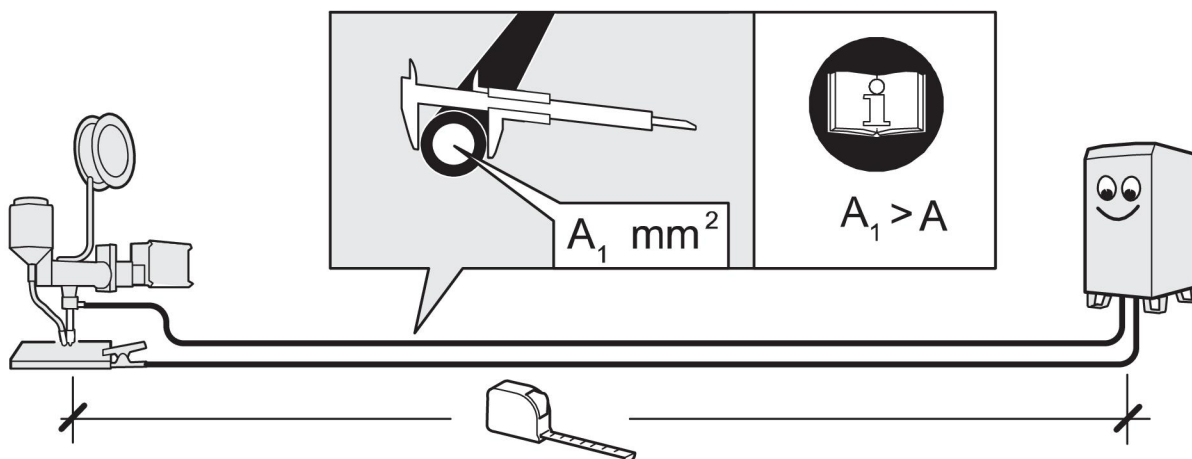
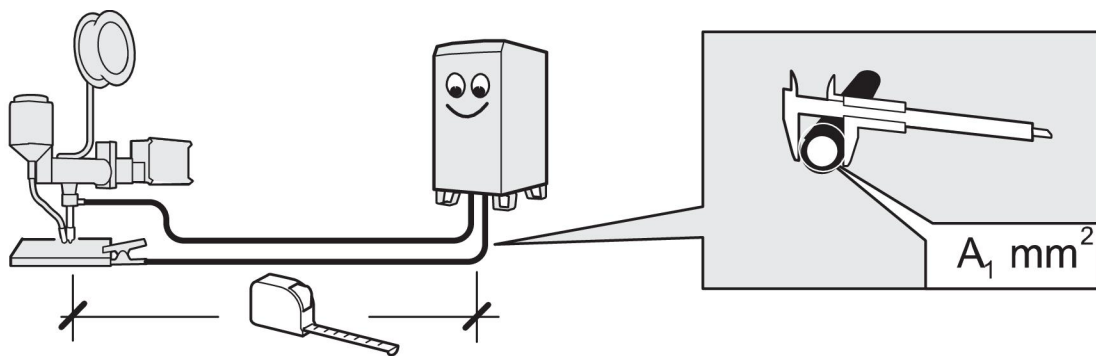
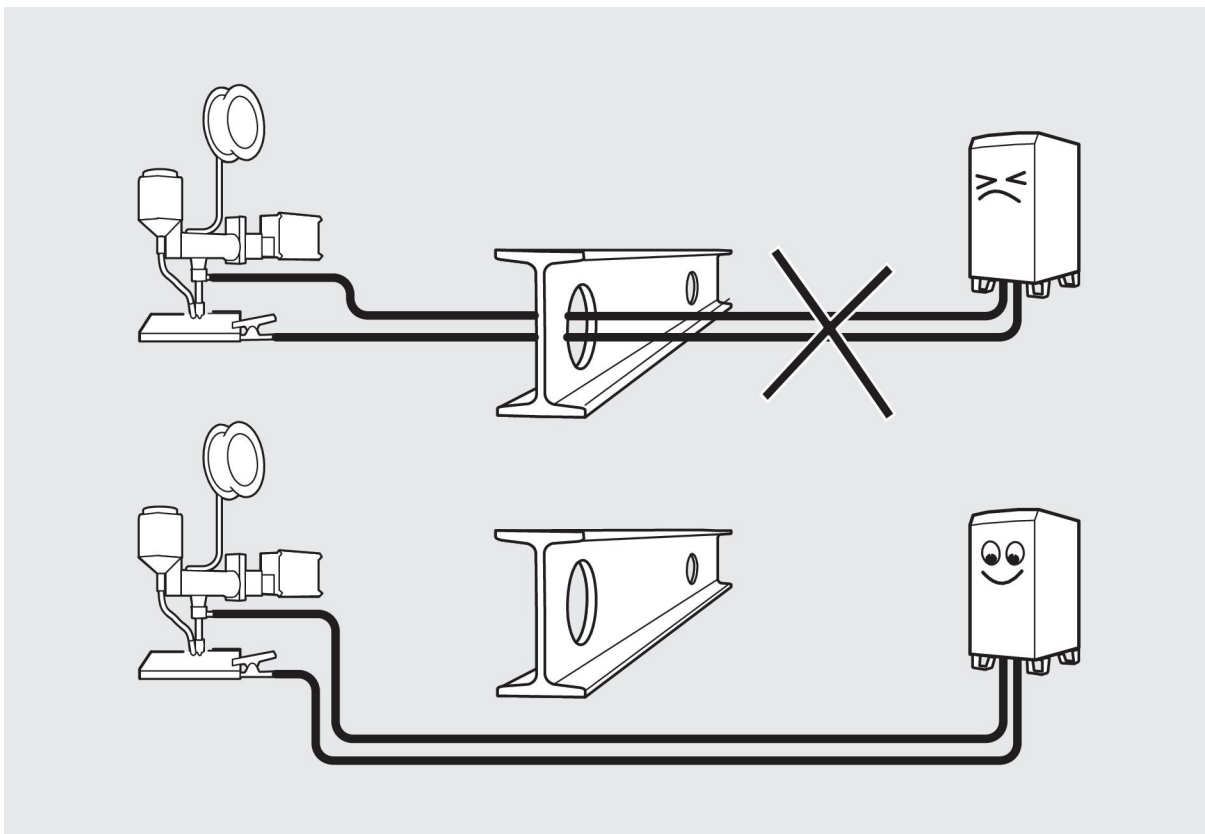
*Recommended



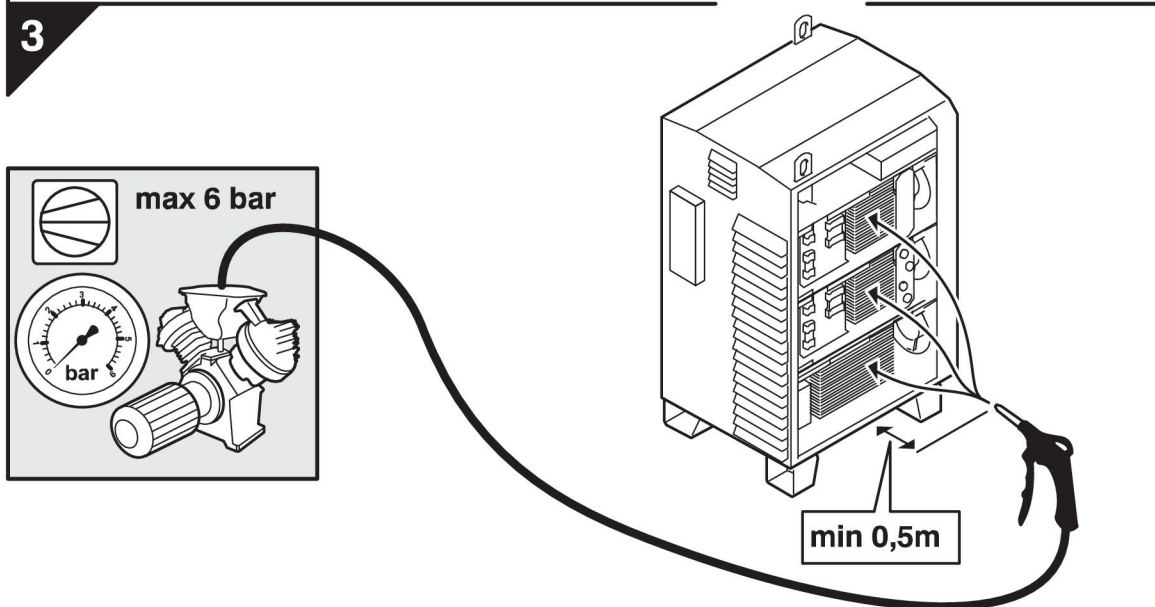
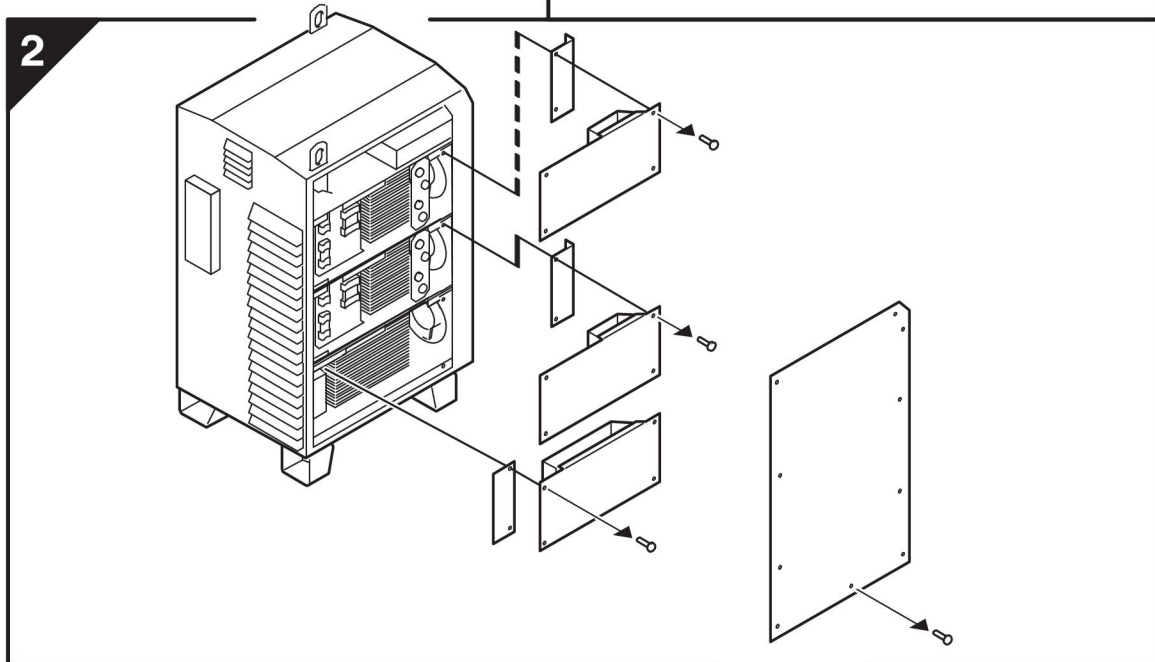
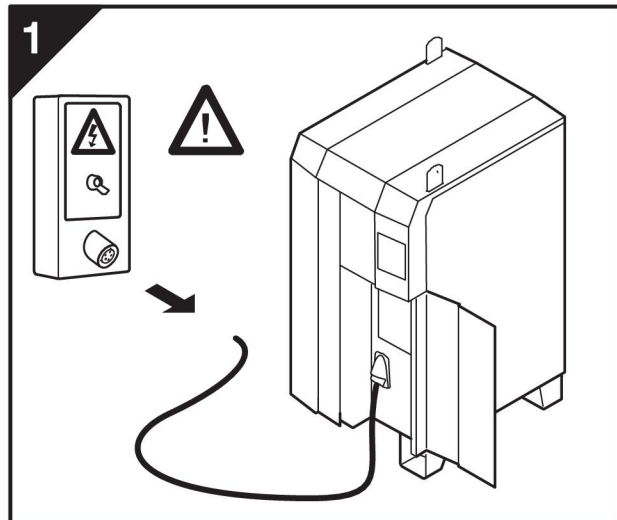
*Recommended



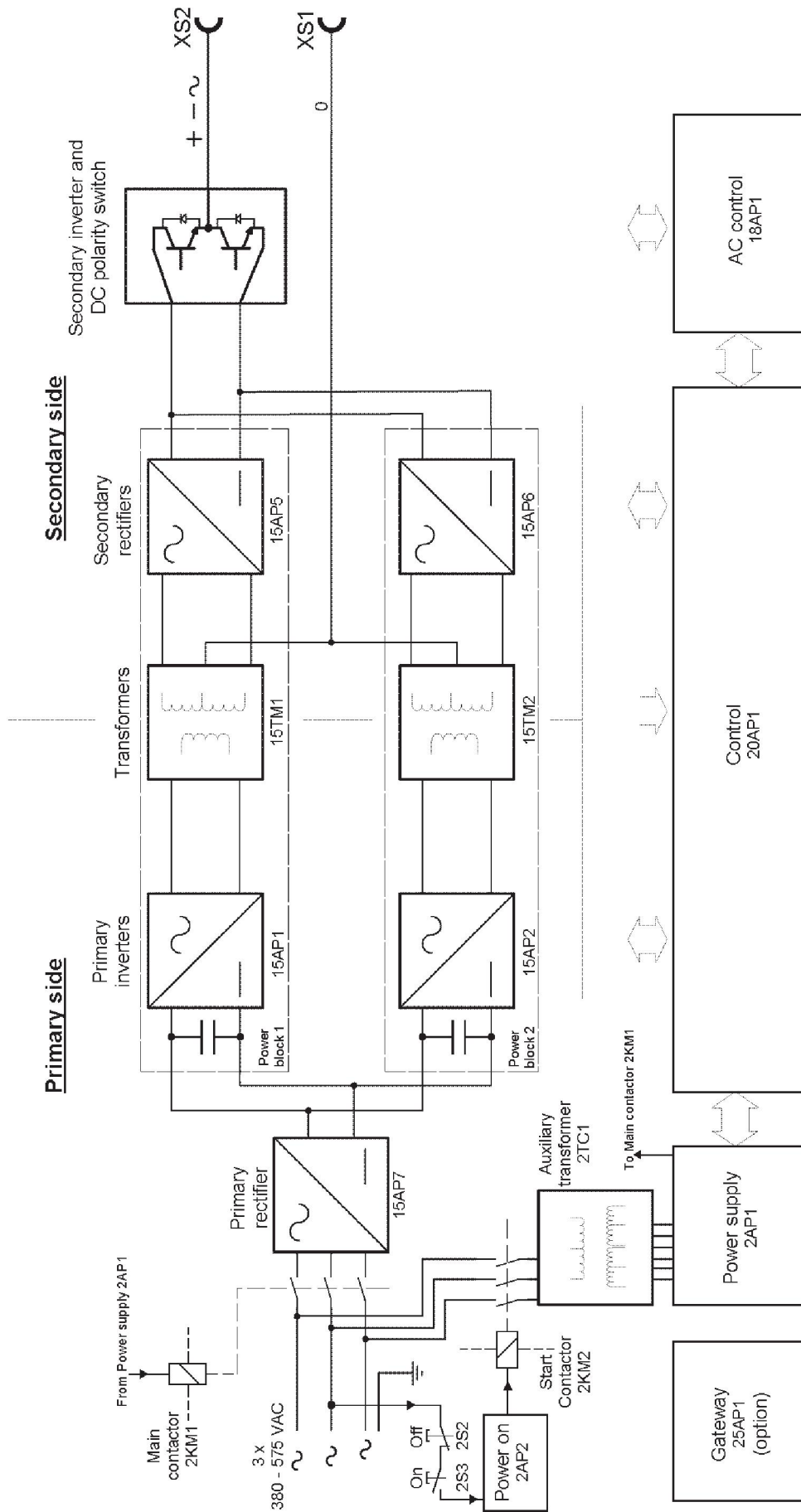




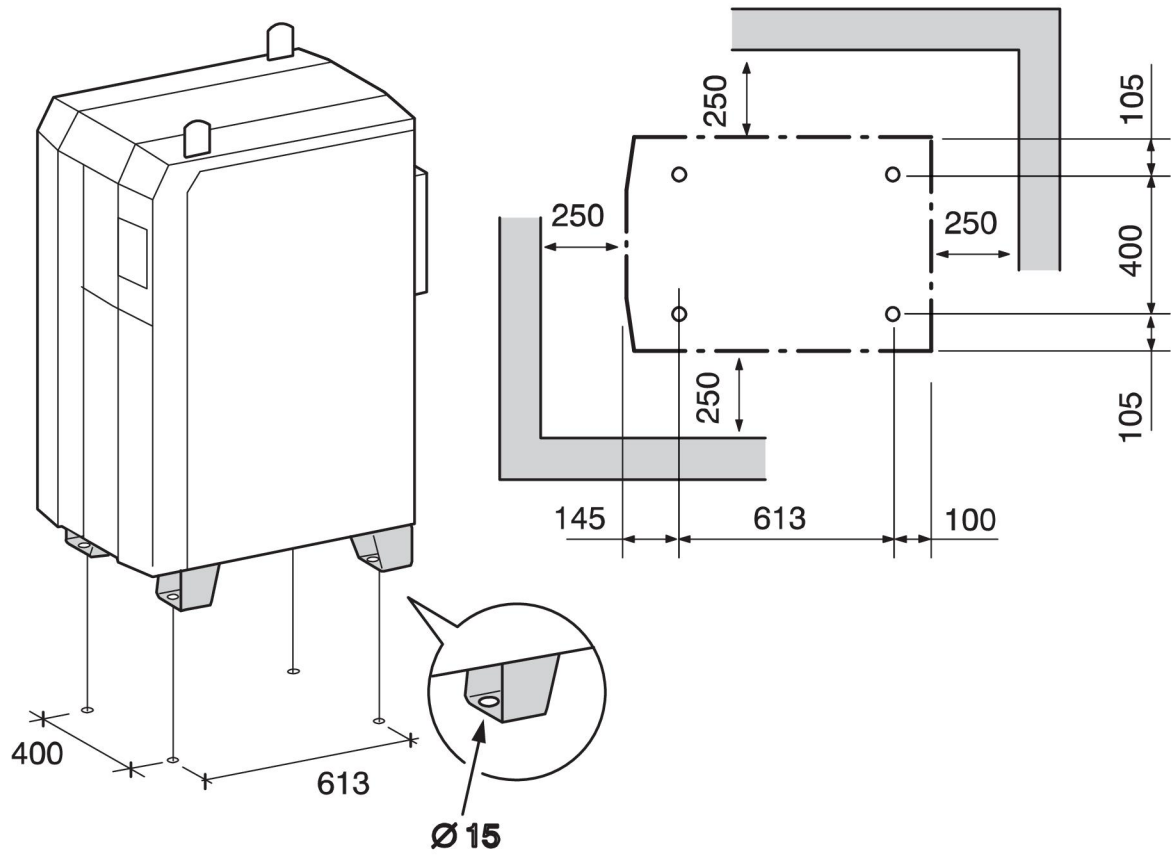
CLEANING



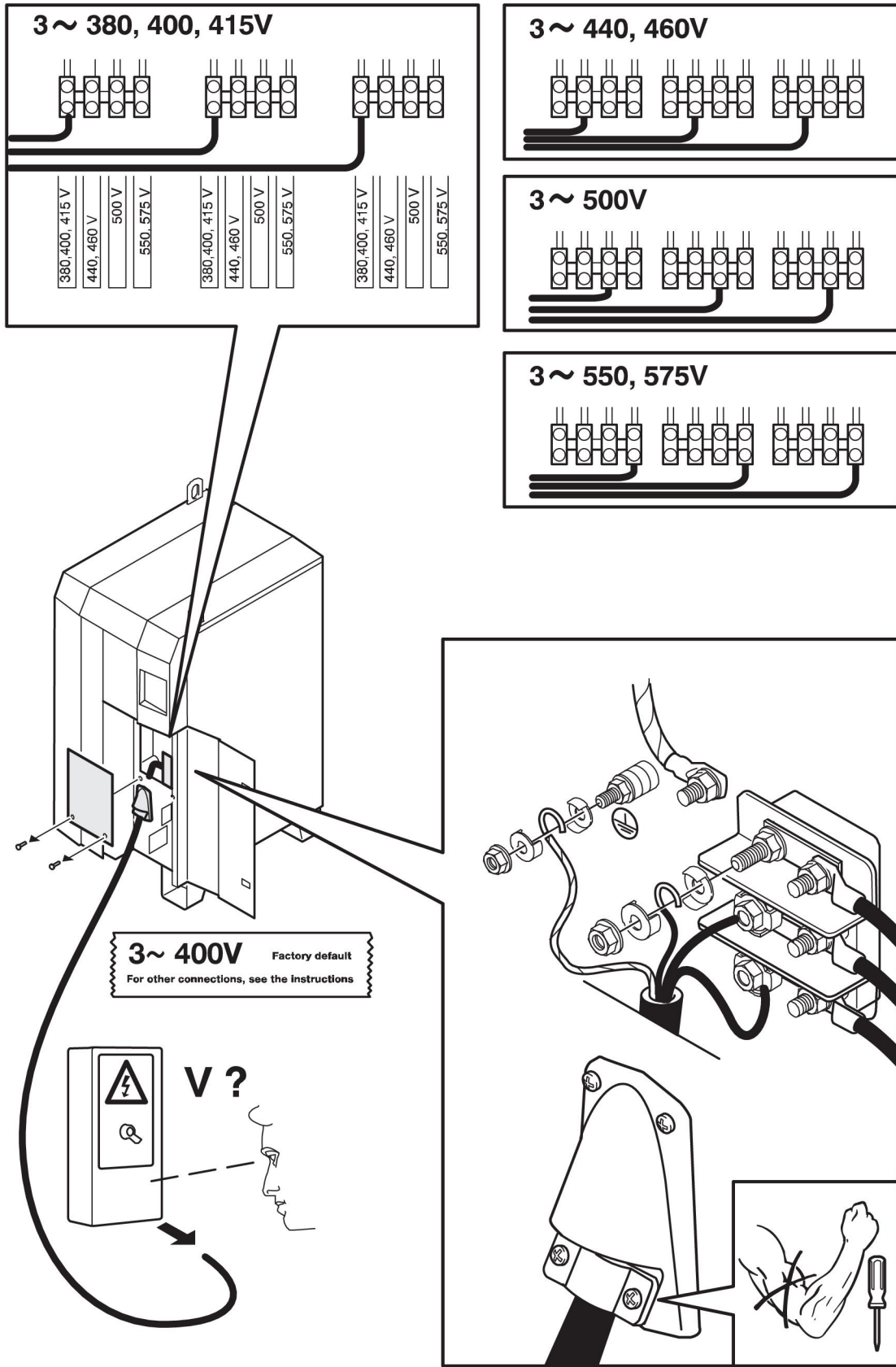
DIAGRAM



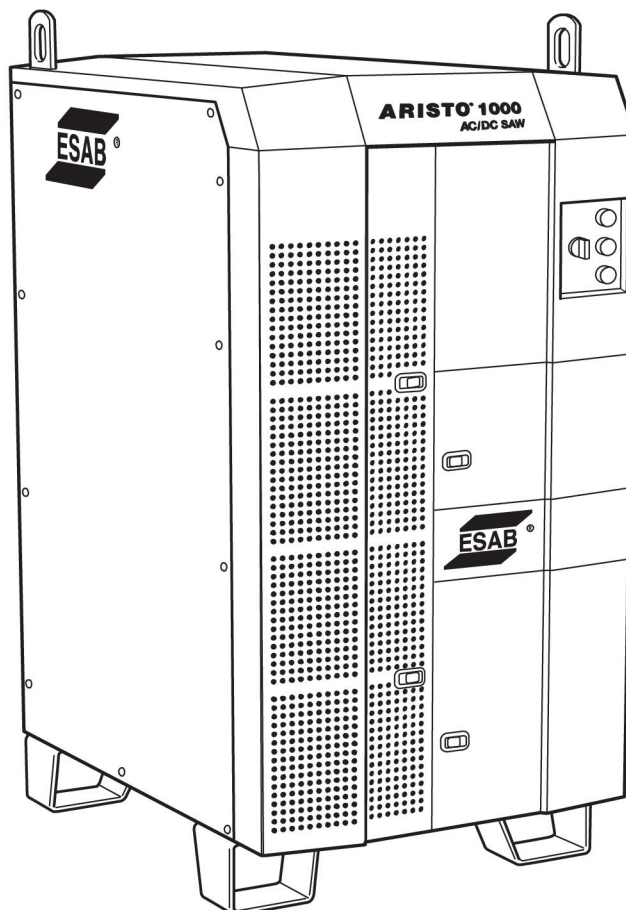
ASSEMBLY INSTRUCTIONS



CONNECTION INSTRUCTION



ORDERING NUMBERS

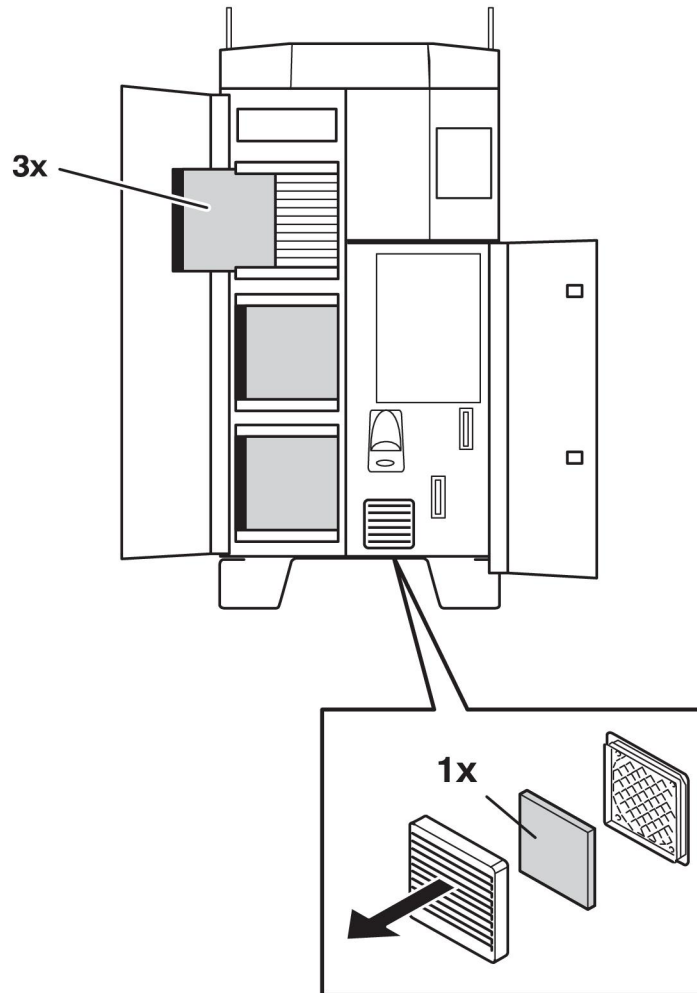


Ordering no.	Denomination	Type
0462 100 880	Welding power source	Aristo® 1000 AC/DC SAW
0740 800 205	Service manual	Aristo® 1000 AC/DC SAW
0459 839 050	Spare parts list	Aristo® 1000 AC/DC SAW
0740 801 030	Installation manual	For tandem and parallel connection of Aristo® 1000 AC/DC SAW

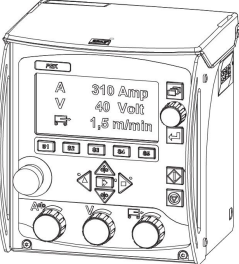
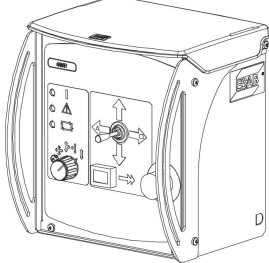
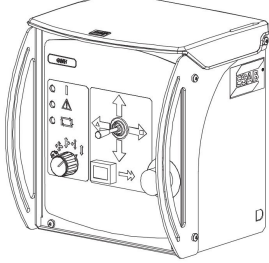
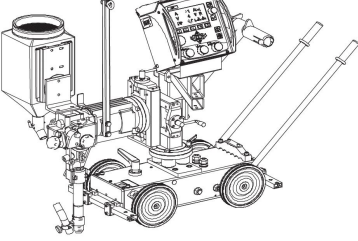
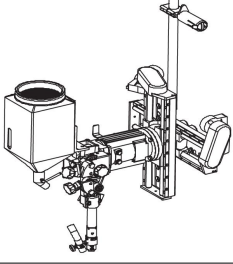
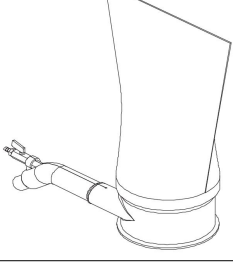
Technical documentation is available on the Internet at: www.esab.com

WEAR PARTS

Qty	Ordering no.	Denomination
3	0458 398 003	Dust filter
1	0441 828 003	Air filter



ACCESSORIES

0460 504 880	Control unit PEK	
0460 503 881	Joint tracking unit GMH	
0460 502 881	Control unit for motorised slides PAV	
0461 235 880	Welding automat A6 Mastertrac	
0449 270 900	Welding head A6 SF F1 SAW	
0148 140 880	Flux recovery unit	

For more information regarding components for the A2 / A6 system, see separate brochures.



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>

