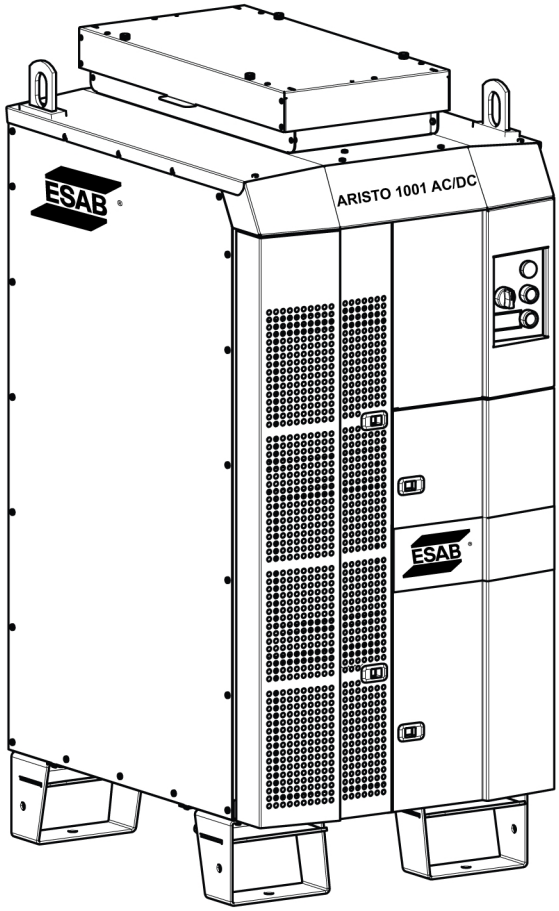
Aristo® 1001 AC/DC



Instruction manual

Original instructions

0448 582 001 GB 20251022

Valid for: Serial number: OP525YY-XXXX

EU DECLARATION OF CONFORMITY

According to:

The Machine Directive 2006/42/EC;
The EMC Directive 2014/30/EU;
The Low Voltage Directive 2014/35/EU
The RoHS Directive 2011/65/EU;

Type of equipment

Welding Power Source

Type designation etc.

Aristo 1001 AC/DC, from serial number OP525 YY XX XXXX

X and Y represents digits, 0 to 9 in the serial number, where YY indicates year of production.

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 60974-1:2018/A1:2019	Arc Welding Equipment - Part 1: Welding power sources
IEC 60974-10:2020	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.

Place/Date

Gothenburg
2025-10-02

Signature

Cristiano Ferreira
R&D Director Automation

CE

1 SAFETY

1.1 Meaning of symbols

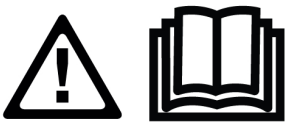
As used throughout this manual: Means Attention! Be Alert!

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

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

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

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



1.2 Safety precautions

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

All work must be carried out by trained personnel well-acquainted with the operation of the equipment. Incorrect operation of the equipment may lead to hazardous situations which 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!
Wire feeders are intended to be used with power sources in MIG/MAG mode only.

If used in any other welding mode, such as MMA, the welding cable between wire feeder and power source must be disconnected, or else the wire feeder becomes live or energized.

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.

Recommended ESAB coolant ordering number: 0465 720 002.

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 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 therefore that there are no inflammable materials nearby
- Do not use on closed containers.

HOT SURFACE - Parts can burn

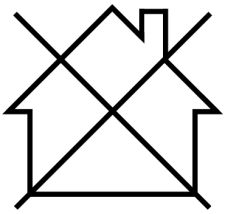
- Do not touch parts bare handed.
- Allow cooling period before working on equipment.
- To handle hot parts, use proper tools and/or insulated welding gloves to prevent burns.

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

PROTECT YOURSELF AND OTHERS!

CAUTION!
This product is solely intended for arc welding.

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.

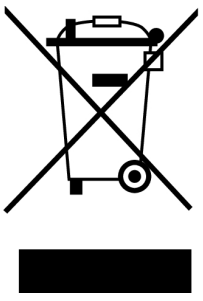


NOTE!
Dispose of electronic equipment at the recycling facility!

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 1001 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 the control unit (PEK, EAC 10, EAC 30 and PAB*). The welding process parameters are regulated via the control unit.

(*For integration)

The Aristo 1001 can be combined with:

- 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

3.1 Technical data

Aristo® 1001 AC/DC	
Mains voltage	380-575 V ±10 %, 3~ 50/60 Hz
Mains supply	19.2 MVA
Primary current	85
Setting range	14-50 V / 0 -1000
Permissible load 100 % duty cycle	1000 A / 44 V
Power factor at maximum current	0.93
Efficiency at maximum current	88
Open-circuit voltage U_0 max	121 V
Apparent power at maximum current	53.6 kVA
Active power at maximum current	49.6 kW
No-load power	159 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	857 × 613 × 1402 mm
Weight	349 kg
Insulation class	H
Enclosure class	IP23S
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 **IP23S** is intended for indoor and outdoor use; however, should not be operated in precipitation.

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.

NOTE!
The power source can be connected for generator power. For more information, contact authorised ESAB service personnel.

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.

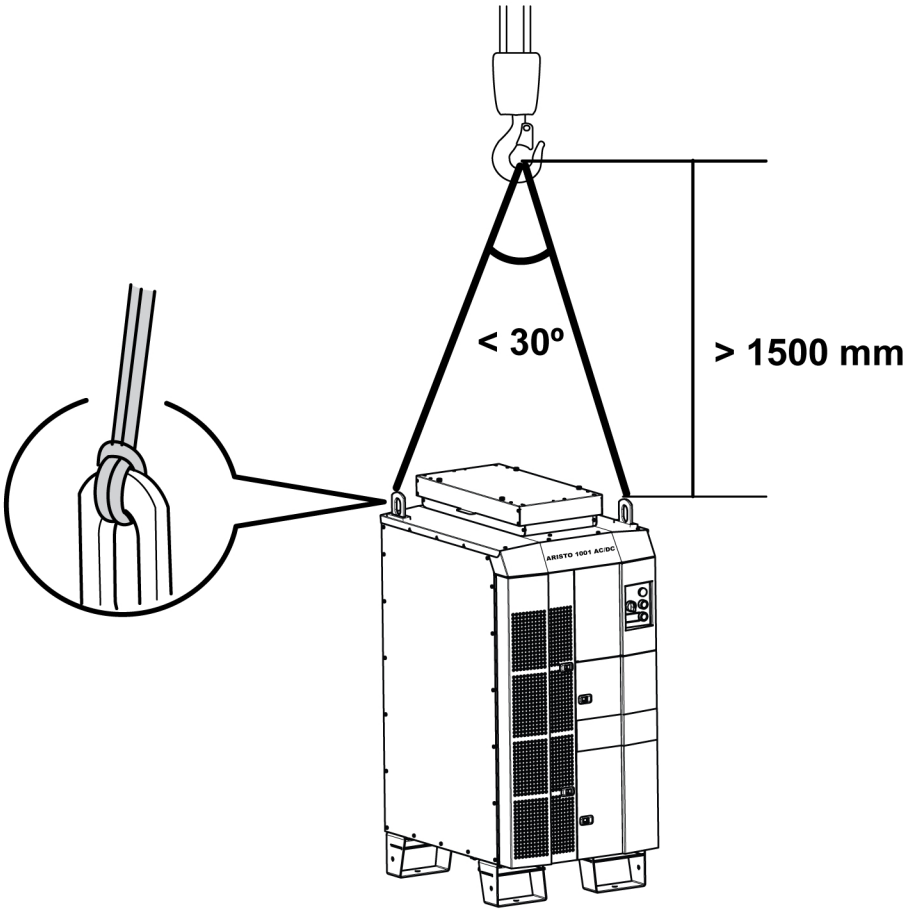
Intended for fixed installation.

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.

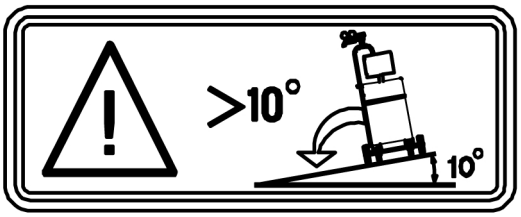
NOTE!
The power source can be powered from a generator. For more information, contact authorised ESAB service personnel.

4.1 Lifting instructions

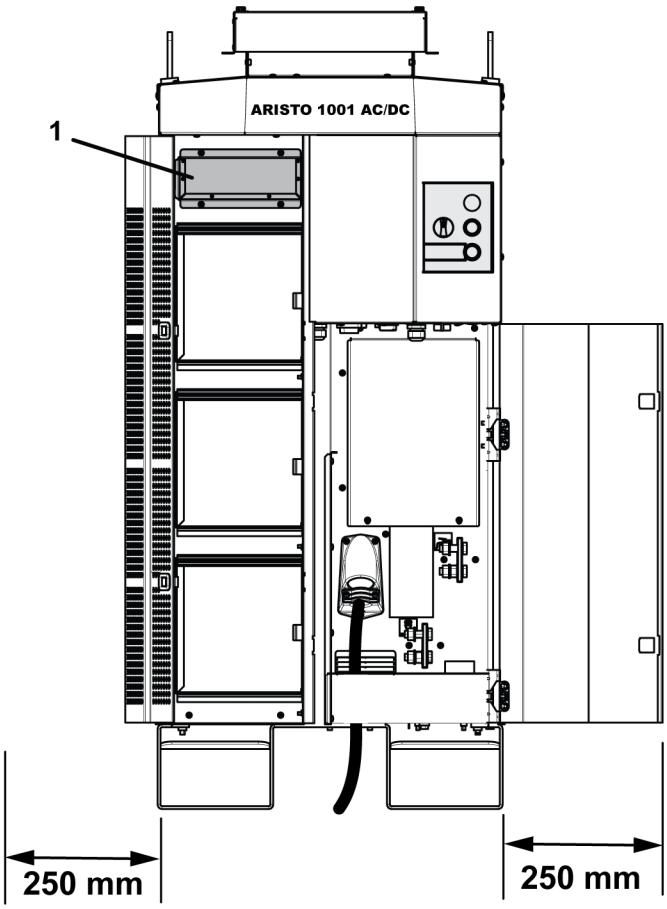


4.2 Location

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



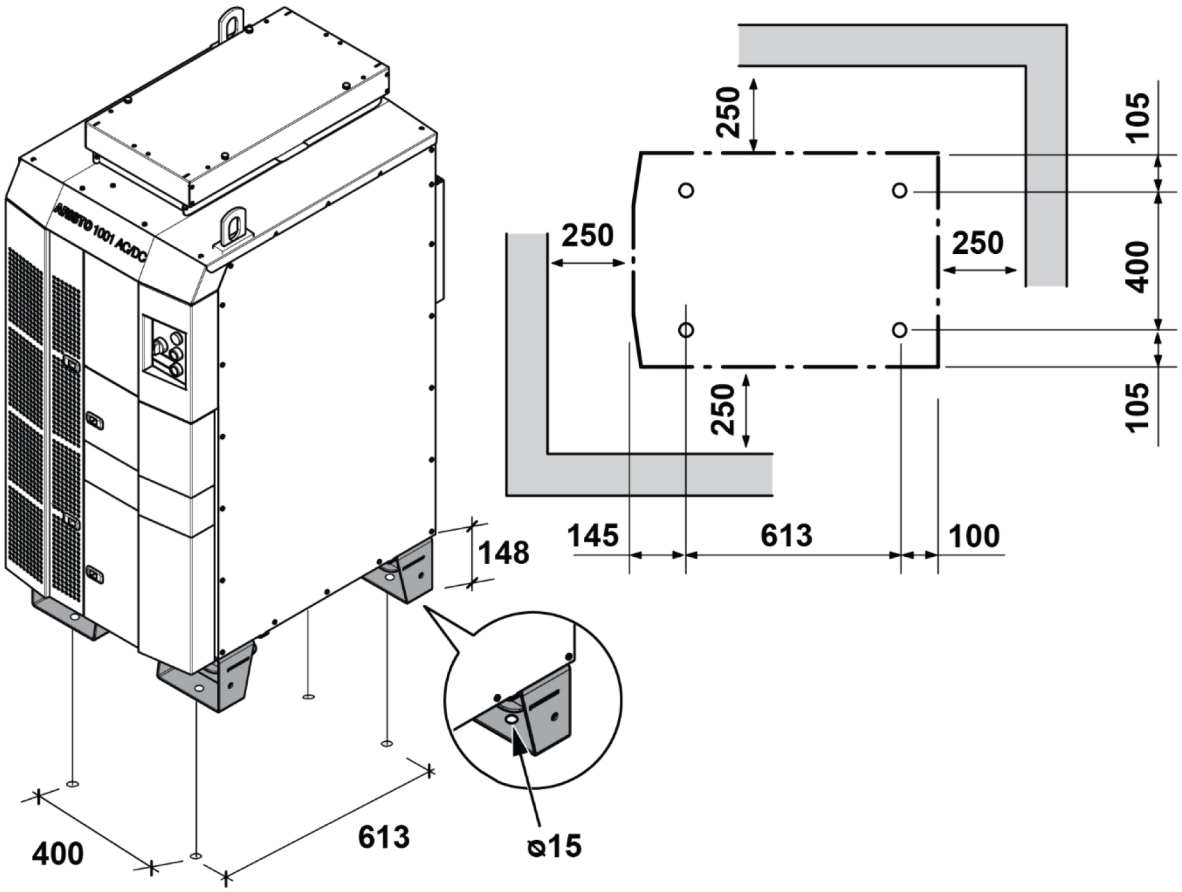
Position the welding power source so that its cooling air inlets and outlets are not obstructed, with a distance of at least 250 mm (9.86") all the way around.



1. Documentation compartment

4.3 Assembly instruction

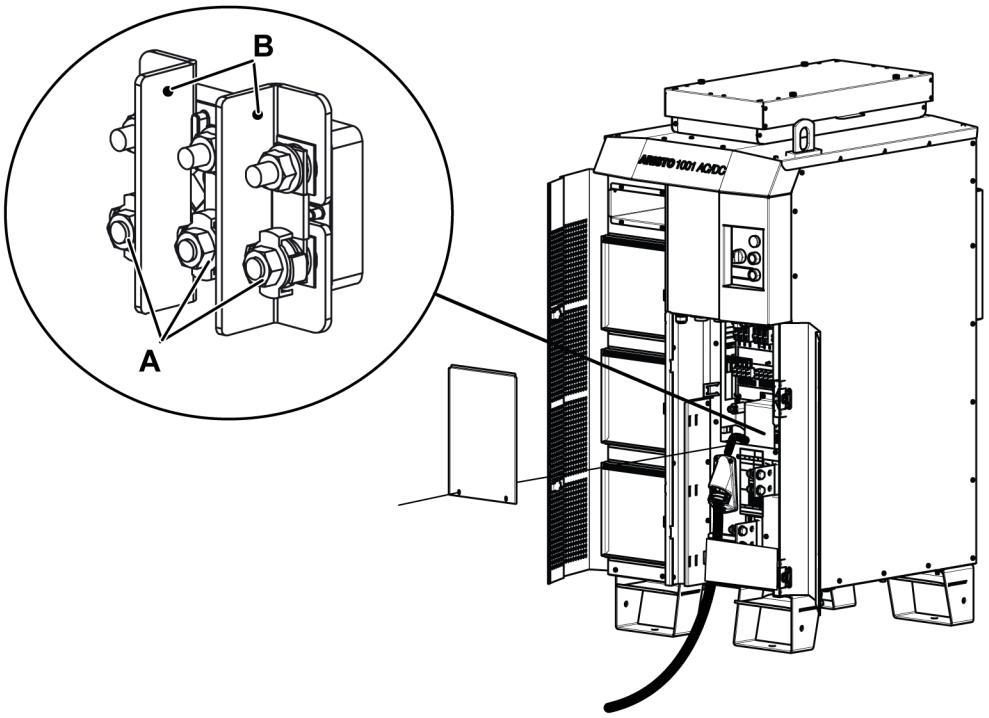
When installing the power source on the floor, see the following dimensions according to the hole pattern, fastener, and torque details.

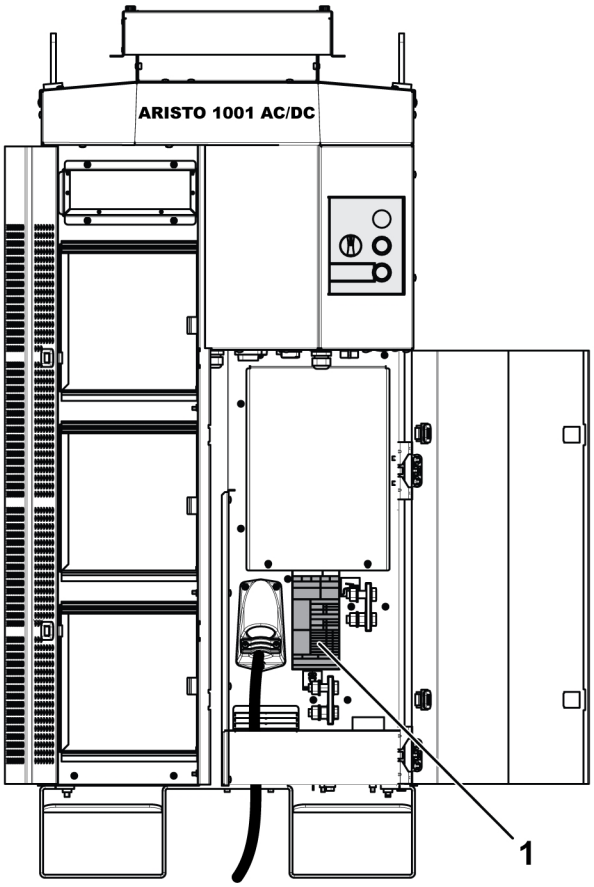


4.4 Mains power supply

WARNING!
The welding power source is configured for a 400 V connection at delivery. For other mains voltages, reconnect on the terminal block, according to the connection instructions.

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





1. Rating plate with supply connection data

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.

Recommended fuse sizes

Aristo 1001 50/60 HZ								
Mains voltage (V)	380 V	400 V	415 V	440 V	460 V	500 V	550 V	575 V
Phase current I_{1eff}(A)	84 A	79 A	75 A	72 A	69 A	64 A	60 A	54 A
Cable area (mm²)	35‡ mm²	35‡ mm²	25# mm²	25# mm²	25# mm²	25# mm²	16* mm²	16* mm²
Fuse anti-surge (A)	100 A	100 A	80 A	80 A	80 A	80 A	63 A	63 A

* For short lengths (<30 m) and standard ambient temperature.

Up to approx. 50 m in length.

‡ For up to approx. 50 m; longer runs may need upsizing.

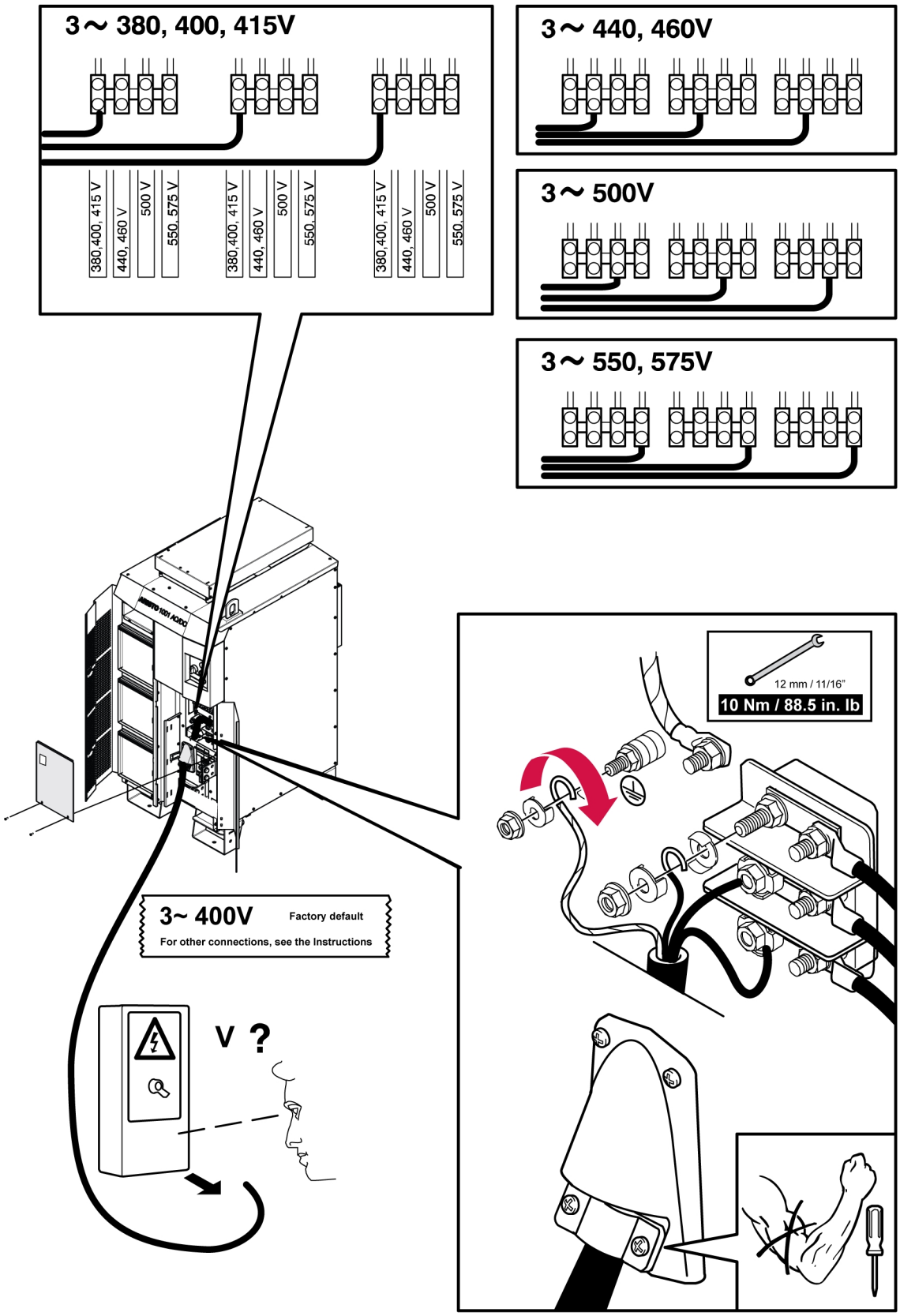
NOTE!
The fuse sizes as shown above are in accordance with Swedish regulations. Use the welding power source in accordance with the relevant national regulations.

4.5 Main power supply connection

WARNING!
The mains supply must be disconnected during installation.

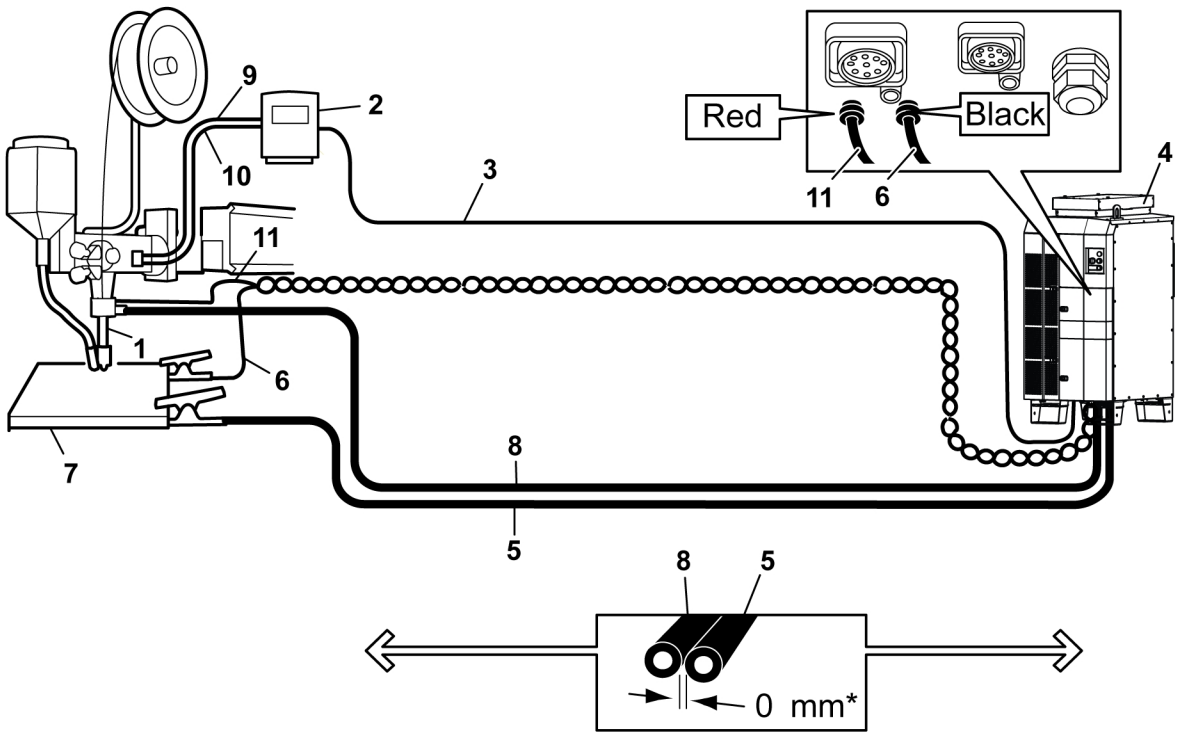
WARNING!
Wait until the DC bus capacitors are discharged. The DC bus capacitor discharge time is at least two minutes!

WARNING!
This operation must be done by a person who has the appropriate electrical knowledge.

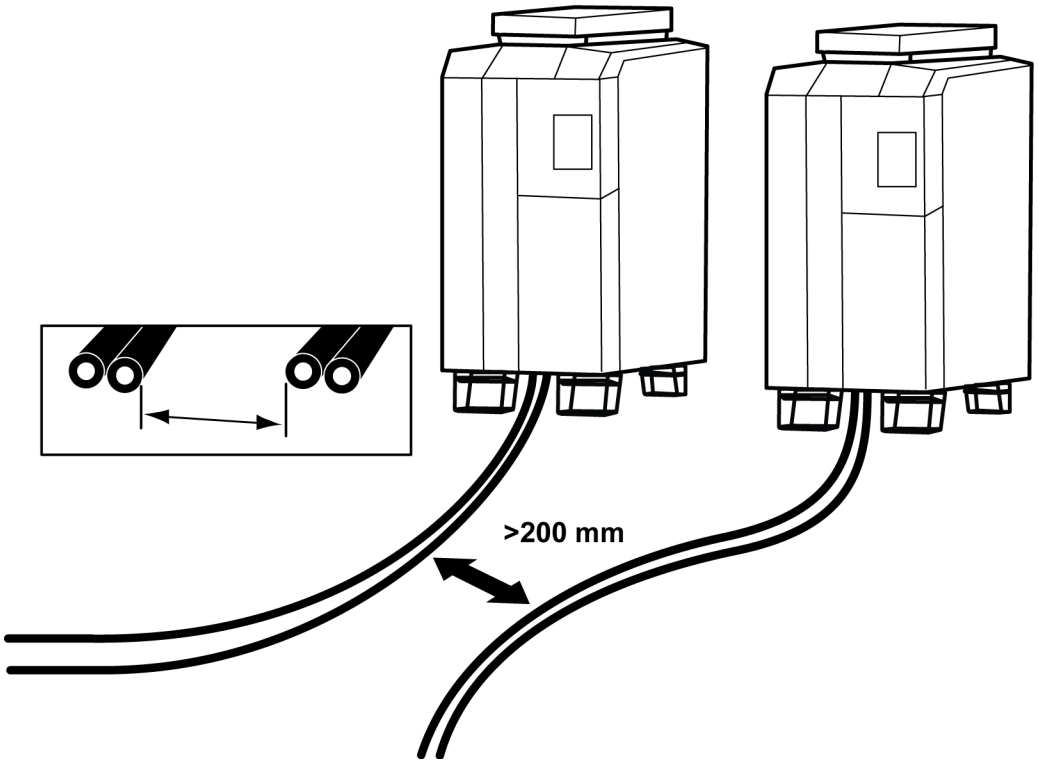


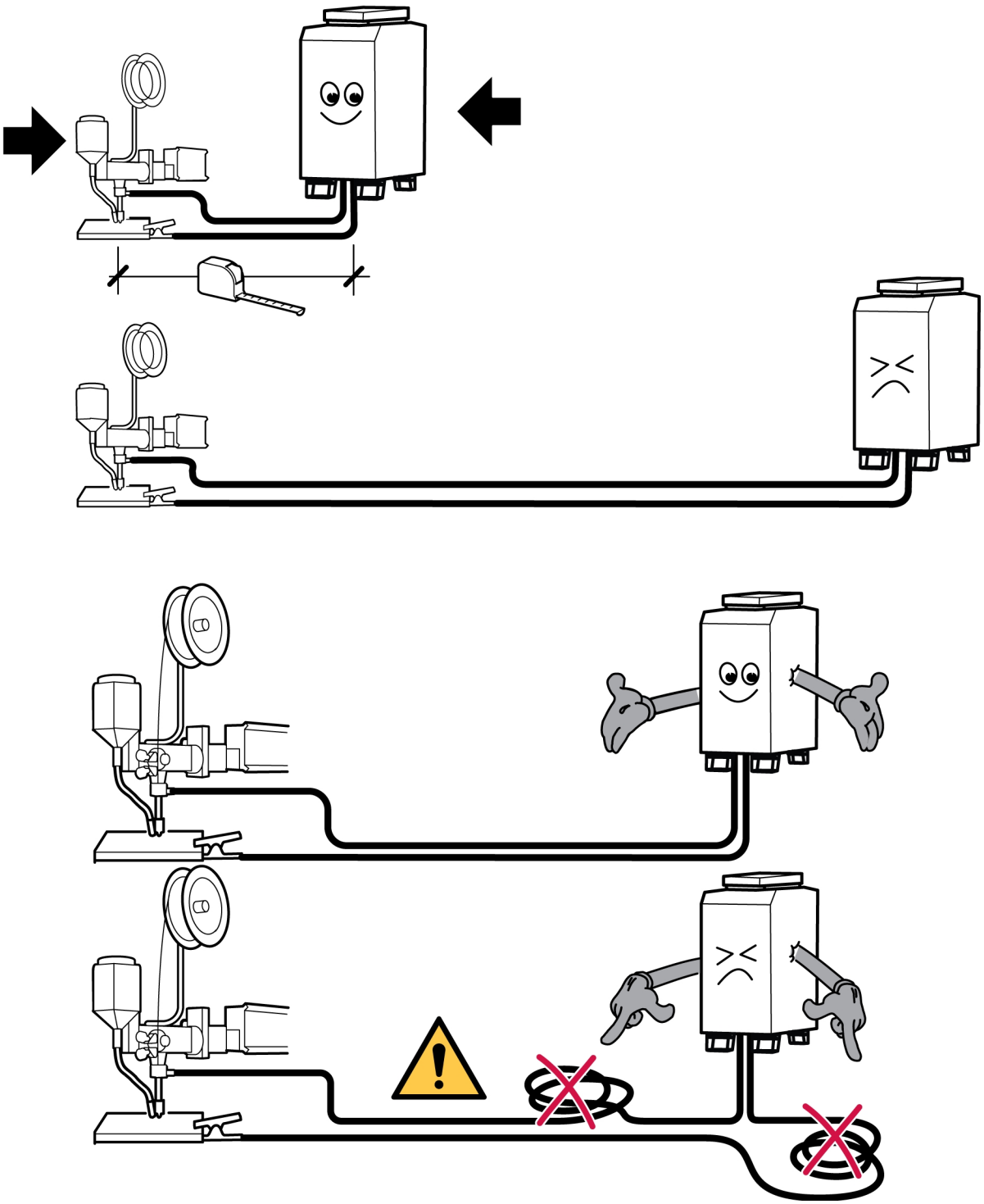
4.6 Cable routing requirements

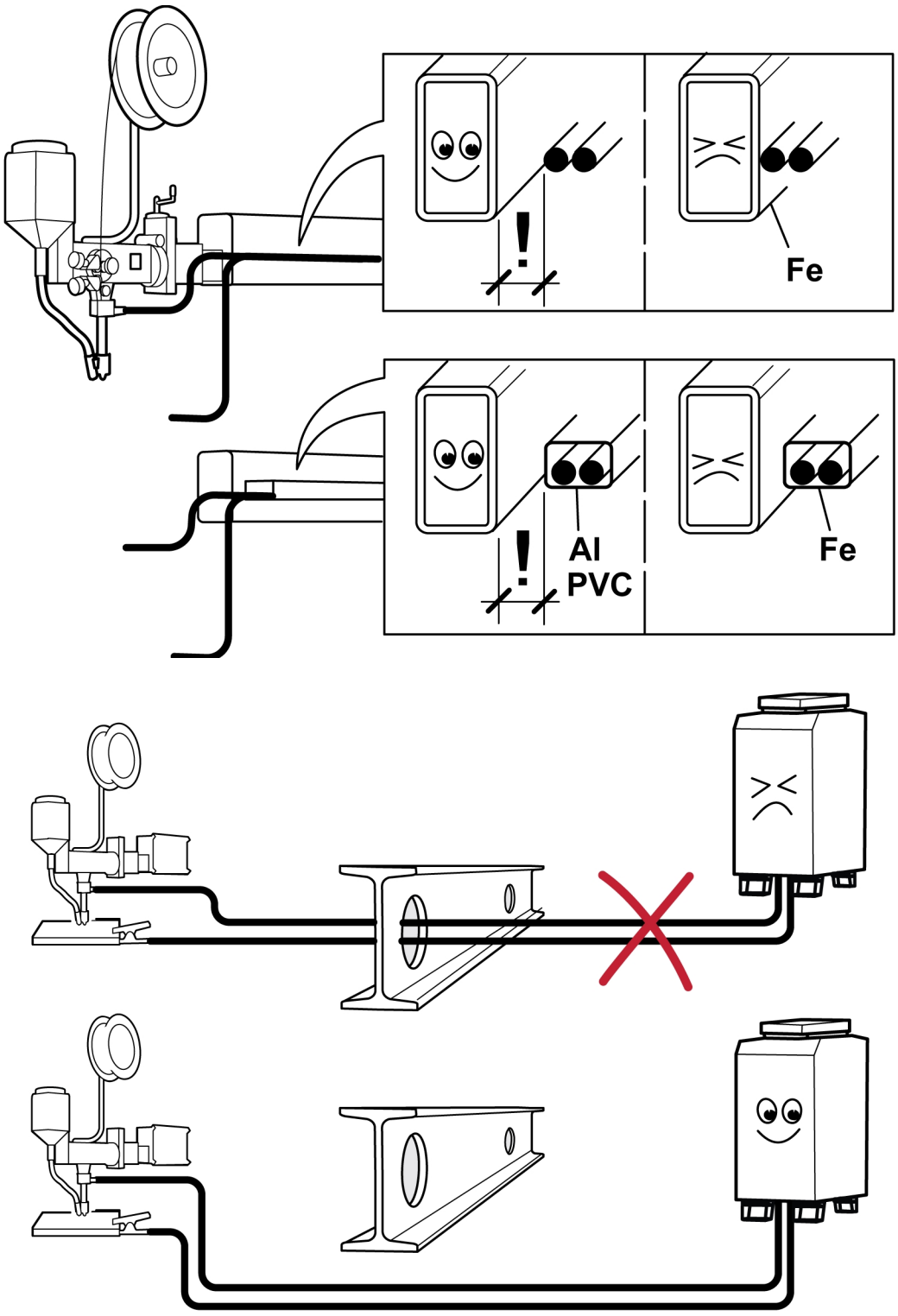
NOTE!
To use the welding voltage signal in the control cable (3), you need to add fuse 20FU1. Fuse (20FU1) is available in documentation compartment, see *"Location"*, page 10.

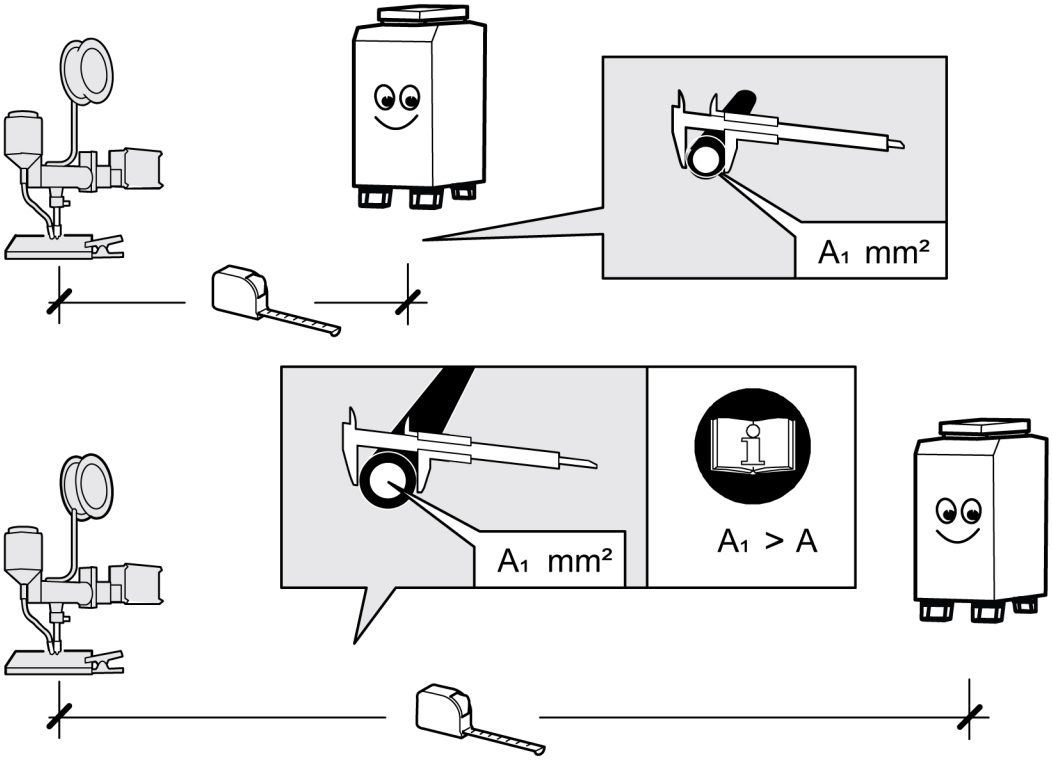


1. Welding head
2. Control unit
3. Control cable
4. Welding power source
5. Return cable
6. Measurement cable, workpiece
7. Workpiece
8. Welding cable
9. Measurement cable, speed
10. Motor cable
11. Measurement cable, welding voltage









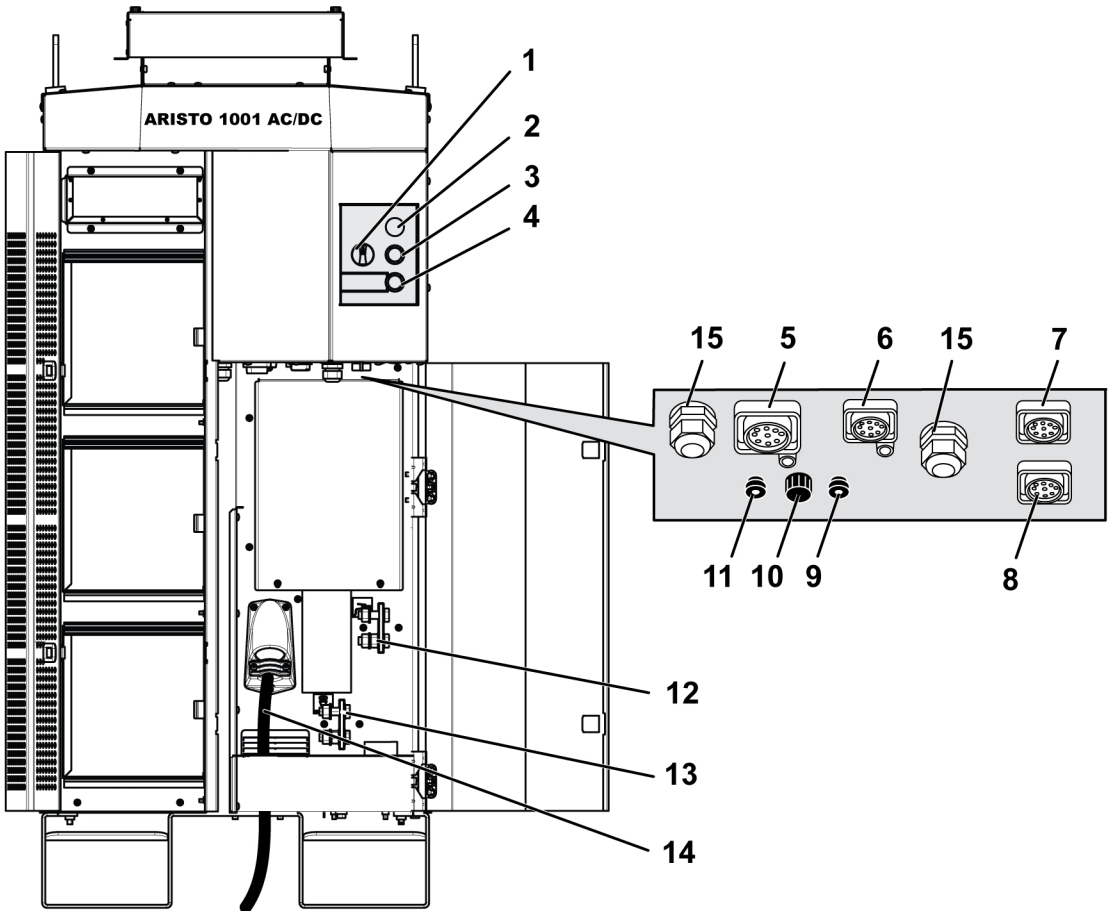
5 OPERATION

General safety regulations for handling the equipment can be found in the chapter "Safety". Read it through before you start the equipment.

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

NOTE!
When moving the equipment use intended handle. Never pull the cables.

5.1 Connections and control devices



1. Knob for setting control*
2. Fault indicating lamp orange
3. Push button white ON
4. Push button black OFF
5. Connection for control unit
6. Connection for service tool
7. Connection of internal bus for parallel/tandem connection (identical to 8)
8. Connection of internal bus for parallel/tandem connection (identical to 7)
9. Connection black for measurement cable, workpiece
10. Fuse (20FU1)
11. Connection red for measurement cable, welding head
12. Connection for return cable
13. Connection for welding current cable to welding head
14. Connection for mains voltage cable
15. Cable groove for signal cables

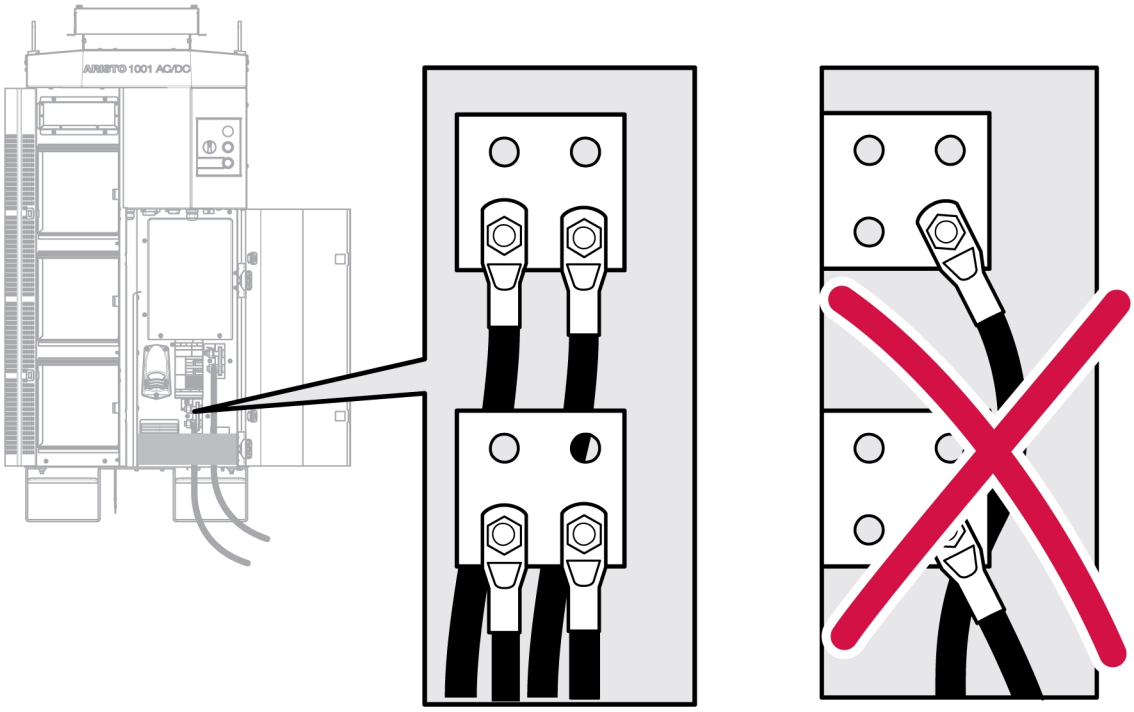
*) There are three knob positions:

- Position 1, ON / OFF of mains voltage controlled from remote control unit

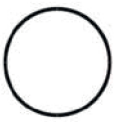
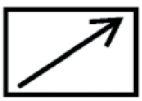
- Position 2, ON / OFF blocked
- Position 3, ON / OFF controlled using button 3 and 4

5.2 Connection of welding and return cable

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



5.3 Meaning of 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 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.

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.

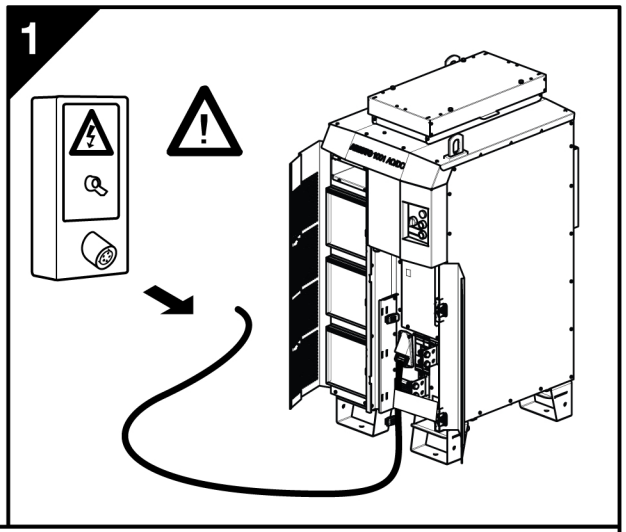
6.1 Cleaning instructions

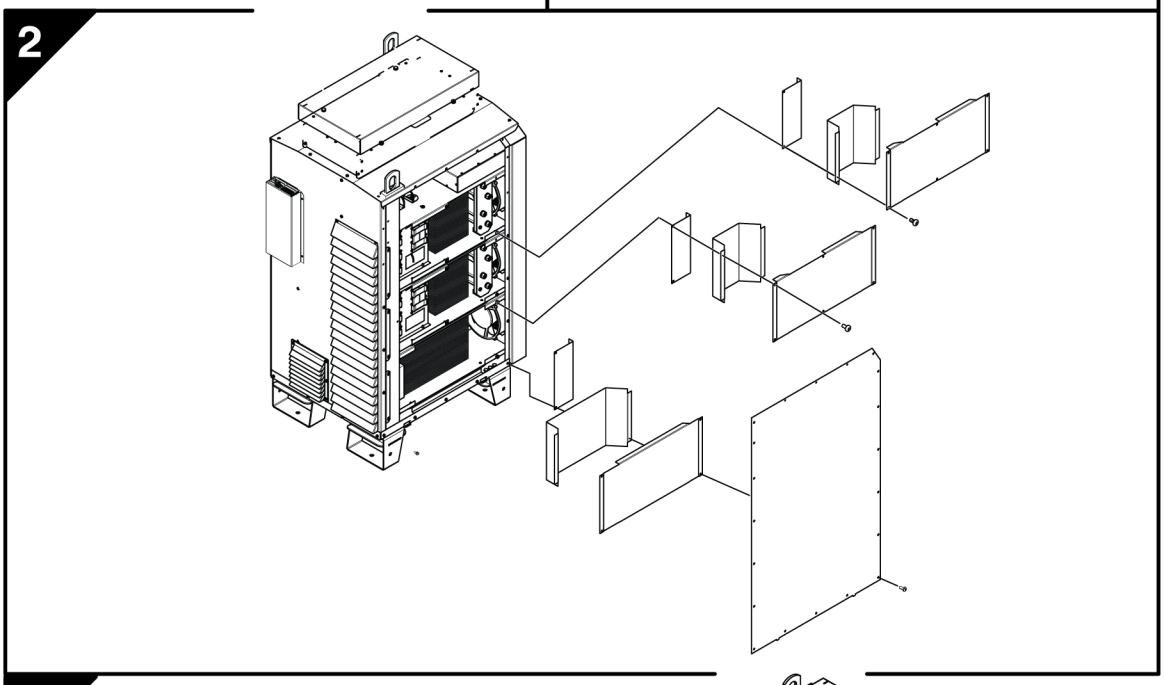
Check regularly that the welding power source is not clogged with dirt.

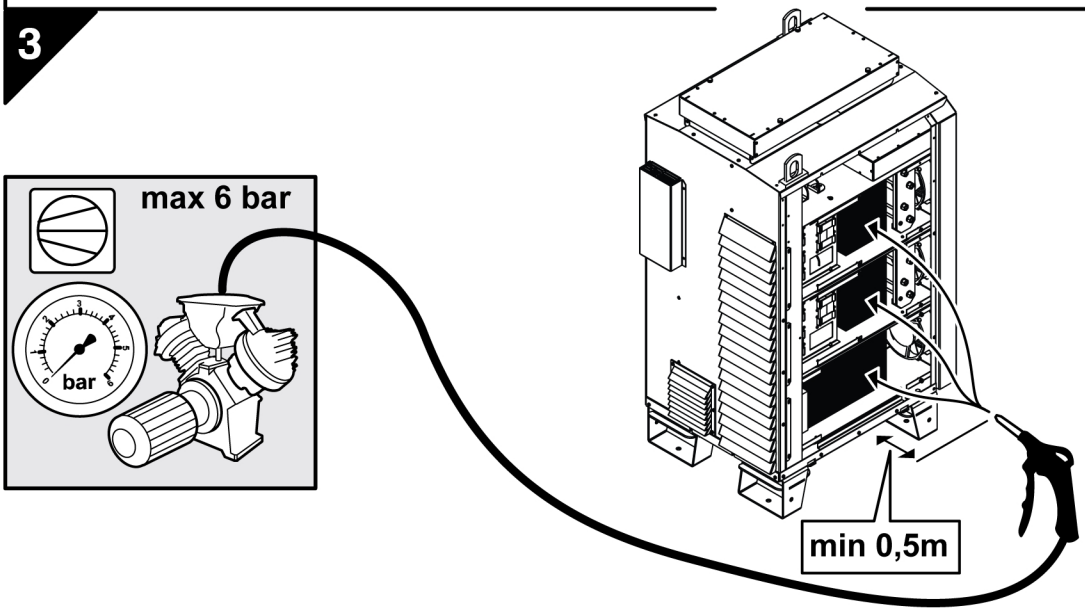
How often and which cleaning methods apply depend on:

- welding process
- operation time
- location
- surrounding environment

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



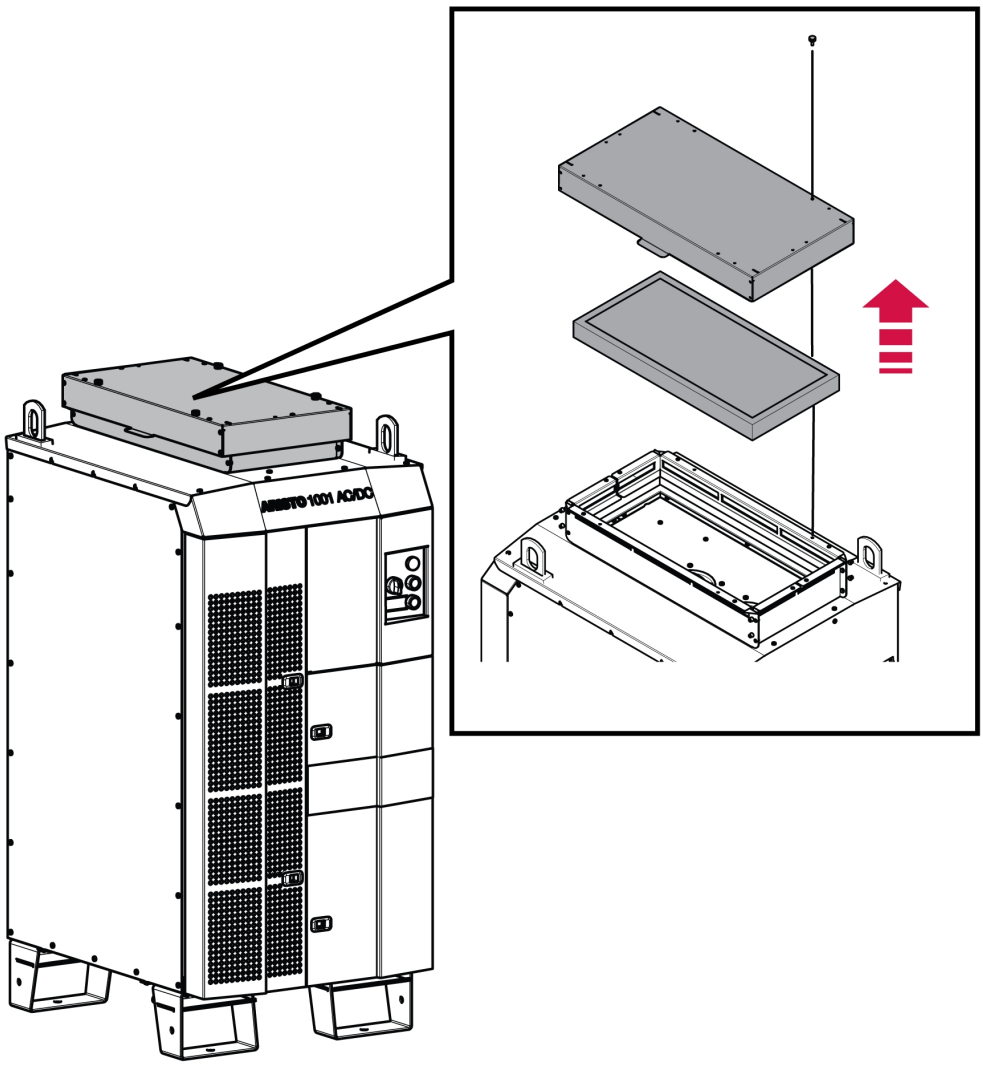




6.2 Replacing and cleaning the top module filter

1) Remove the four screws and the cover from the top module.
2) Remove the pleated cassette filter according to the illustration.
3) Blow compressed air (reduced pressure) to clean the filter.
4) Reinstall the pleated cassette filter.

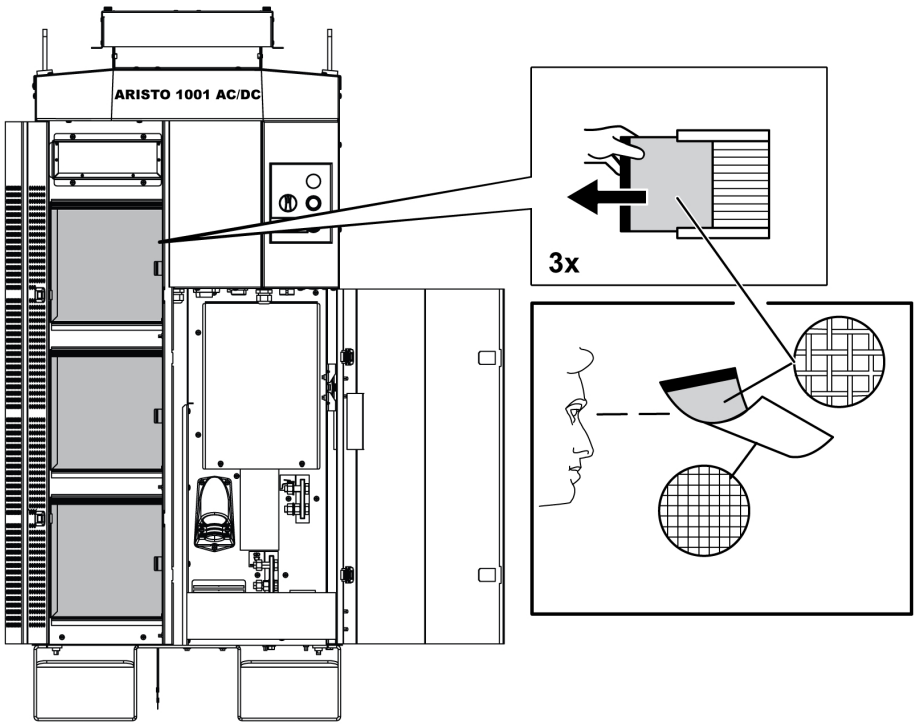
> **NOTE!**
> Make sure that the pleated cassette filter with the finest mesh is facing the fan.



6.3 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.



7 TROUBLESHOOTING

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

Type of fault	Corrective action
No arc	• 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.	• 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.	• 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	• 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

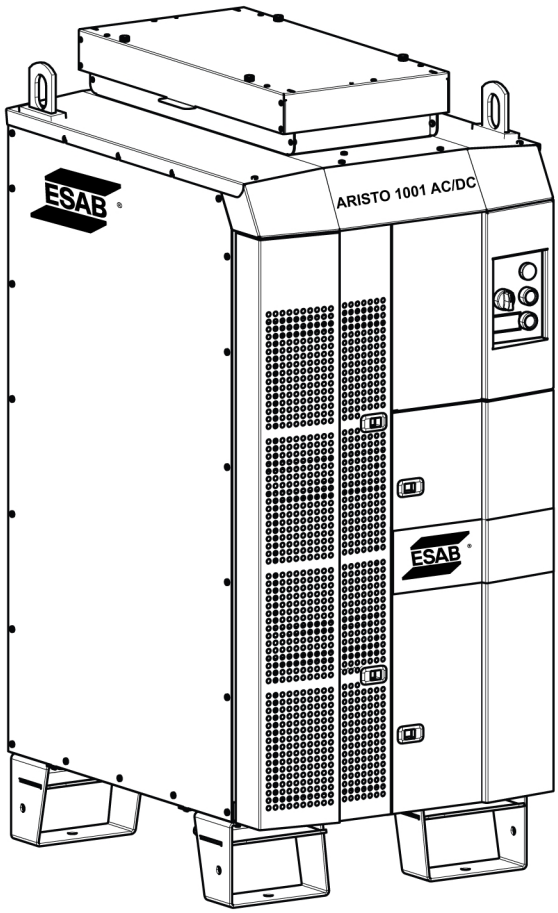
CAUTION!
Repair and electrical work should be performed by an authorised ESAB service technician.
Use only ESAB original spare and wear parts.

Aristo 1001 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.

APPENDIX

ORDERING NUMBERS

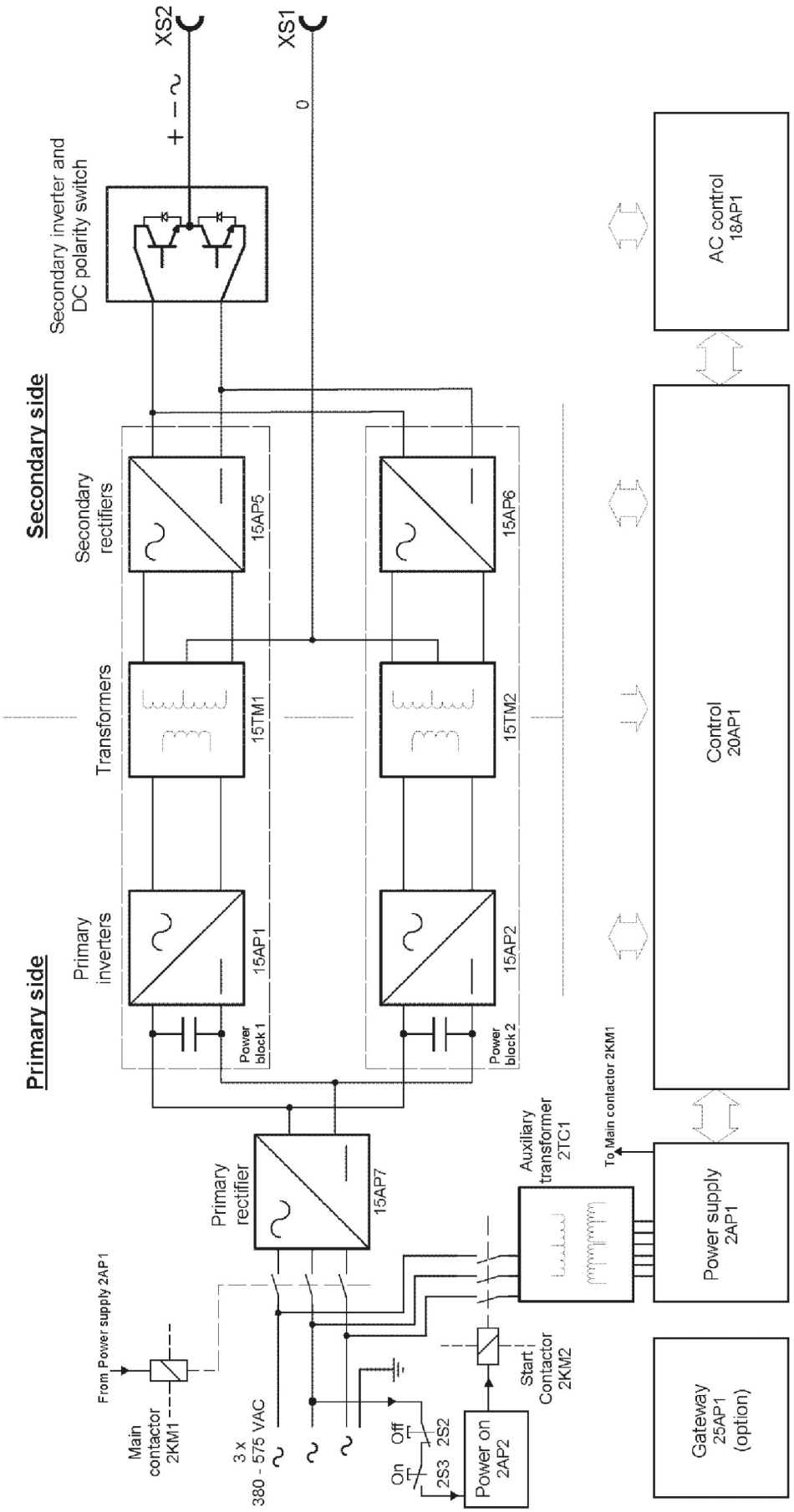


Ordering no.	Denomination	Type
0462 100 890	Welding power source	
0464 771 200	Service manual	
0464 771 050	Spare parts list	

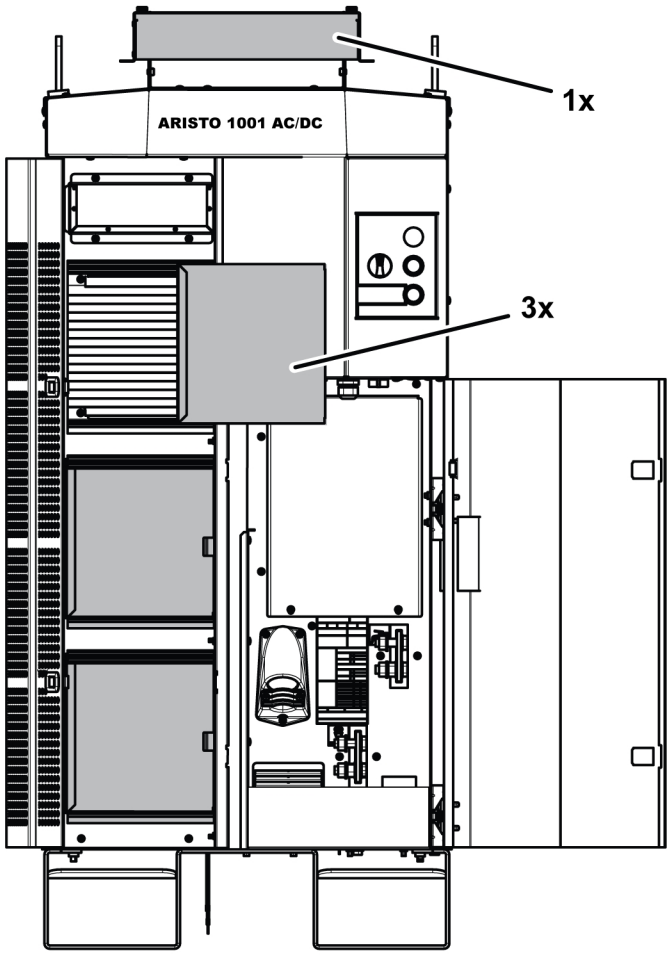
The three last digits in the document number of the manual show the version of the manual. Therefore they are replaced with * here. Make sure to use a manual with a serial number or software version that corresponds with the product, see the front page of the manual.

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

WIRING DIAGRAM

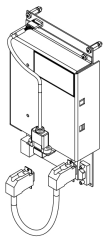


WEAR PARTS



Qty	Ordering no.	Denomination
3	0458 398 003	Dust filter
1	0462 091 020	Pleated cassette filter

ACCESSORIES

0449 535 882	PAB profinet	
0449 535 883	PAB EtherNet/IP	

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