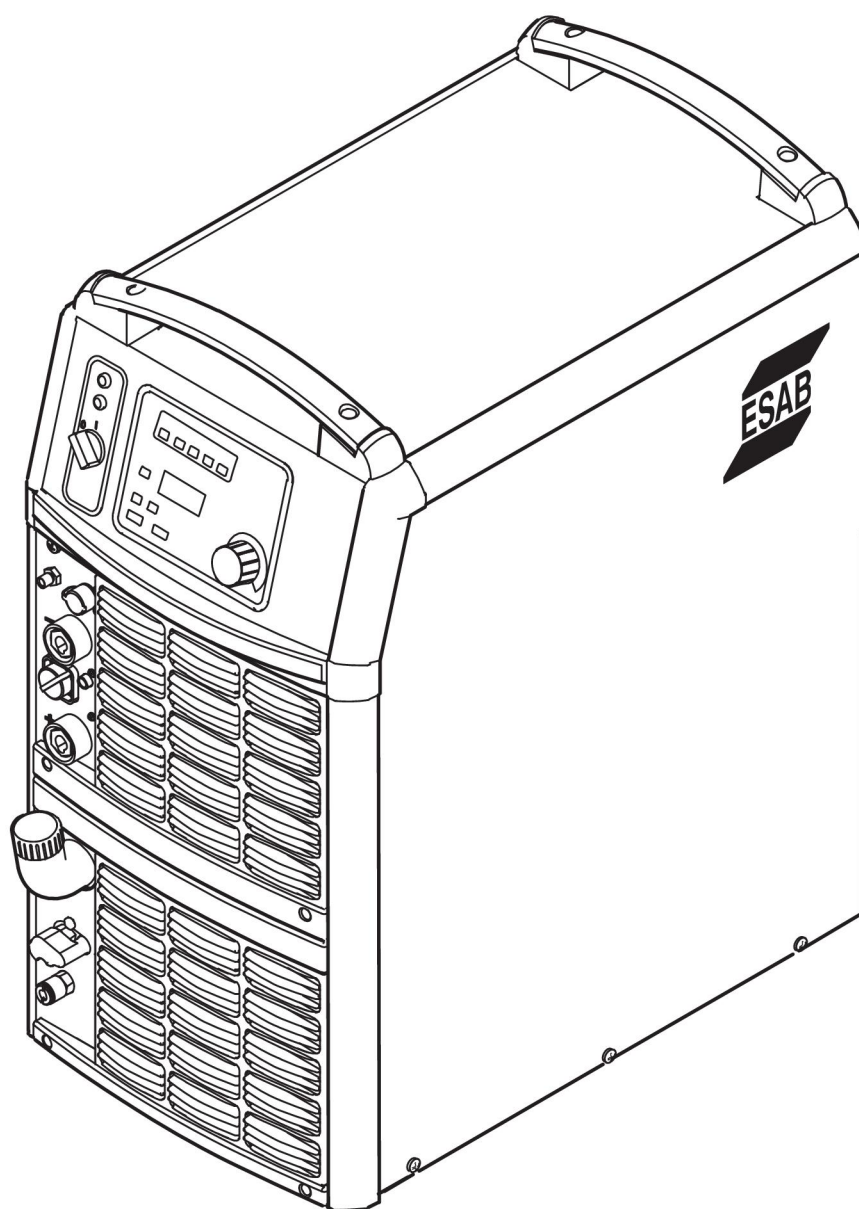




Origo™

# ***Tig 4300iw AC/DC***



**Instruction manual**



## EU DECLARATION OF CONFORMITY

**According to:**

The Low Voltage Directive 2014/35/EU;  
The RoHS Directive 2011/65/EU;

The EMC Directive 2014/30/EU;  
The Ecodesign Directive 2009/125/EC

**Type of equipment**

Arc welding power source

**Type designation**

Tig 4300iw AC/DC with serial number from 950 xxx xxxx (2009 w50)

**Brand name or trademark**

ESAB

**Manufacturer or his authorised representative established within the EEA**

ESAB AB  
Lindholmsallén 9, Box 8004, SE-402 77 Göteborg, Sweden  
Phone: +46 31 50 90 00, www.esab.com

**The following EN standards and regulations in force within the EEA has been used in the design:**

EN IEC 60974-1:2018/A1:2019	Arc welding equipment - Part 1: Welding power sources
EN IEC 60974-2:2019	Arc welding equipment - Part 2: Liquid cooling systems
EN IEC 60974-3:2019	Arc welding equipment - Part 3: Arc striking and stabilizing devices
EN 60974-10:2014/A1:2015, EU no. 2019/1784	Arc welding equipment - Part 10: Electromagnetic compatibility (EMC) Ecodesign requirements for welding equipment pursuant to Directive 2009/125/EC

**Additional Information:**

Restrictive use, Class A equipment, intended for use in locations other than residential.  
IEC EN draft standard 26/708/CDV have been used to establish EU no. 2019/1784 data.  
Tig 4300iw AC/DC is part of the Esab Aristo product family.

**By signing this document, the undersigned declares as manufacturer, or the manufacturer's authorised representative established within the EEA, that the equipment in question complies with the safety and environmental requirements stated above.**

Place/Date

Göteborg  
2020-12-17

Signature

Pedro Muniz  
Standard Equipment Director

CE mark in 2020

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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

### 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 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.



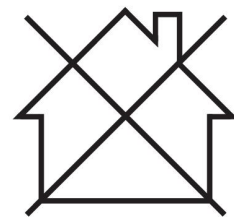
**WARNING!**

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.





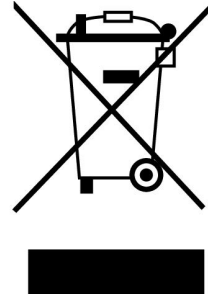
**NOTE!**

**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.**

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## 2 INTRODUCTION

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The **Tig 4300iw AC/DC** is a TIG welding power source, which can also be used for MMA welding. The power welding source can be used with alternating current (AC) or direct current (DC).

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

### 2.1 Equipment

The power source is delivered with 5 m (16.4 ft) mains cable including the plug, 5 m (16.4 ft) return cable, instruction manuals for power source and for the control panel.

Instruction manuals in other languages can be downloaded from the Internet: [www.esab.com](http://www.esab.com)

### 2.2 The control panel

#### TA24 AC/DC



See the separate instructions for detailed descriptions of the control panel.



### 3 TECHNICAL DATA

<b>Tig 4300iw AC/DC</b>	
<b>Mains voltage</b>	400 V $\pm$ 10%, 3~ 50 Hz
<b>Mains supply</b>	S <sub>sc min</sub> 2.6 MVA Z <sub>max</sub> 0.24 Ohm
<b>Primary current</b>	
I <sub>max</sub> TIG	25 A
I <sub>max</sub> MMA	32 A
<b>No-load power</b> in energy-saving mode 6.5 min. after welding	75 W
<b>Voltage/current range</b>	
TIG AC*/DC	4–430 A
MMA	16–430 A
<b>Permissible load at TIG</b>	
30% duty cycle	430 A / 27.2 V
60% duty cycle	350 A / 24.0 V
100% duty cycle	315 A / 22.6 V
<b>Permissible load at MMA</b>	
30% duty cycle	430 A / 37.2 V
60% duty cycle	330 A / 33.2 V
100% duty cycle	300 A / 32.0 V
<b>Power factor</b> at maximum current	
TIG	0.89
MMA	0.89
<b>Efficiency</b> at maximum current	
TIG	76%
MMA	80%
<b>Open-circuit voltage U<sub>0</sub> max</b>	
without VRD function <sup>1)</sup>	83 V
U <sub>OL</sub> "Live TIG" , VRD function deactivated <sup>2)</sup>	60 V
MMA, VRD function deactivated <sup>2)</sup>	60 V
VRD function activated <sup>2)</sup>	<35 V
<b>Operating temperature range</b>	-10 to +40 °C (+14 to +104 °F)
<b>Transportation temperature</b>	-20 to +55 °C (-4 to +131 °F)
<b>Dimensions l × w × h</b>	625 × 394 × 776 mm (24.6 × 15.5 × 30.5 in.)
<b>Continual sound pressure at no-load</b>	<70 db (A)
<b>Weight</b>	95 kg (209.4 lb)
<b>Insulation class</b>	H

<b>Tig 4300iw AC/DC</b>	
<b>Enclosure class</b>	IP23
<b>Application class</b>	S

\*) The minimum current during AC welding depends on the alloy used for the aluminium plates and their surface cleanliness.

1) Valid for power sources without VRD specification on the rating plate.

2) Valid for power sources with VRD specification on the rating plate. The VRD function is explained in the instruction manual for the control panel if the panel has that function.

<b>Cooling unit</b>	
Cooling power	2.0 kW at 40 °C (104 °F) temperature difference and flow 1.0 l/min (0.26 gpm)
Coolant	ESAB ready mixed coolant
Liquid quantity	5.5 l (1.45 gal)
Maximum water flow	2.0 l/min (0.53 gpm)

### 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, $S_{sc \text{ min}}$

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

### Mains supply, $Z_{\text{max}}$

Maximum permissible line impedance of the network in accordance with IEC 61000-3-11.

## 4 INSTALLATION

The installation must be carried out by a professional.



### NOTE!

#### Mains supply requirements

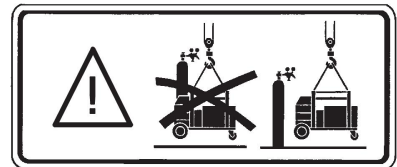
This equipment complies with IEC 61000-3-12 provided that the short-circuit power is greater than or equal to  $S_{scmin}$  at the interface point between the user's supply and the public system. It is the responsibility of the installer or user of the equipment to ensure, by consultation with the distribution 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.

### 4.1 Lifting instructions

With power source



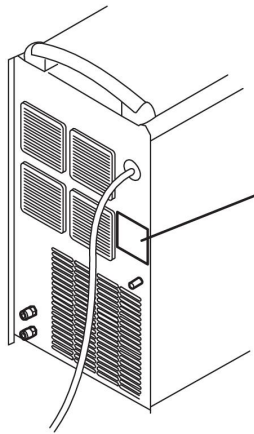
With trolley and power source



### 4.2 Positioning of the power source

Position the welding power source in such a way that its cooling air inlets and outlets are not obstructed.

### 4.3 Mains power supply



Check that the unit is connected to the correct mains power supply voltage, and that it is protected by the correct fuse sizes. A protective earth connection must be made, in accordance with regulations.

Rating plate with supply connection data.

#### Recommended fuse sizes and minimum cable areas

Tig 4300iw AC/DC	TIG	MMA
<b>Mains voltage</b>	400 V 3~ 50 Hz	400 V 3~ 50 Hz
<b>Mains cable area, mm<sup>2</sup></b>	4G4	4G4
<b>Phase current, I<sub>1eff</sub></b>	16.9 A	21.9 A
<b>Fuse</b>		
Anti-surge	20 A	20 A
Type C MCB	20 A	25 A



#### NOTE!

The mains cable areas and fuse sizes as shown above are in accordance with Swedish regulations. For other regions, supply cables must be suitable for the application and meet local and national regulations.

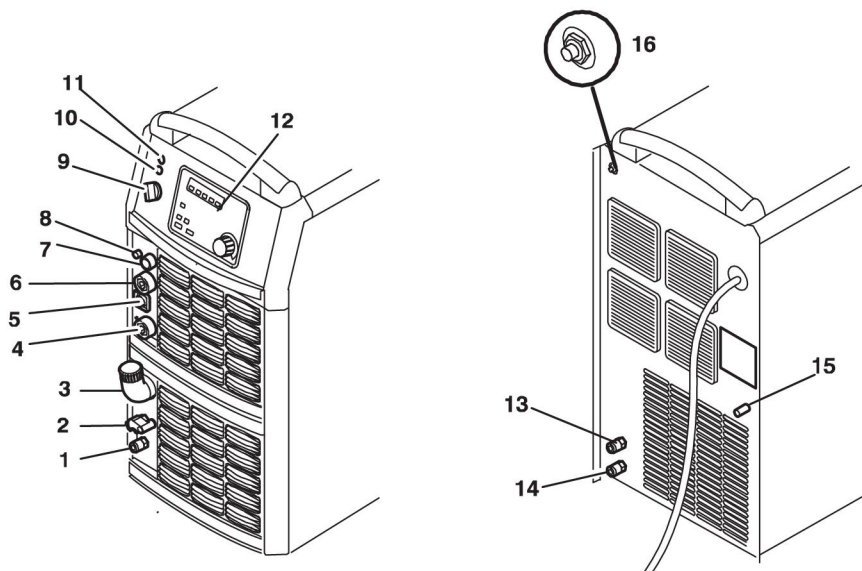
## 5 OPERATION

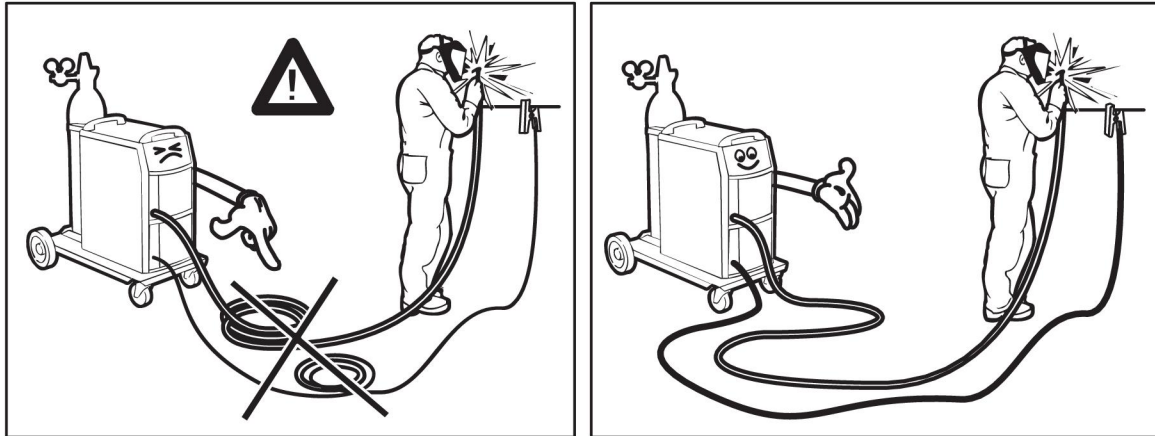
General safety regulations for handling the equipment can be found in the "SAFETY" chapter of this manual. Read it through before you start using the equipment!

### 5.1 Connections and control devices

- |  |  |
|--|--|
| 1 Connection for cooling water from the torch - RED          | 9 Main power supply switch, 0 / 1 / START                |
| 2 Connection with ELP* for cooling water to the torch - BLUE | 10 White indicating lamp - Power supply ON               |
| 3 Cooling water filler                                       | 11 Orange indicating lamp - Overheating                  |
| 4 Connection for return cable (+)                            | 12 Control panel (see the respective instructions)       |
| 5 Connection for remote control                              | 13 Connection for cooling water. Not used on this model. |
| 6 Connection for welding cable (-)                           | 14 Connection for cooling water. Not used on this model. |
| 7 Connection for start signal from the welding torch         | 15 Connection for gas hose                               |
| 8 Connection for gas to the TIG torch                        | 16 Fuse 42 V (from serial number 950-xxx-xxx only)       |

\*ELP = ESAB Logic Pump, see "Cooling unit" section.





## 5.2 Key to symbols



MMA



TIG



Return clamp

## 5.3 Turning on the power source

Turn on the mains power by turning switch (9) to the "START" position. Release the switch, and it will return to the "1" position.

If the mains power supply should be interrupted while welding is in progress, and then be restored, the power source will remain de-energised until the switch is again turned manually to the "START" position.

Turn the unit off by turning the switch to the "0" position

Whether in the event of a loss of power supply or of turning the power source off in the normal manner, welding data will be stored so that it is available next time the unit is started.

## 5.4 Fan control

The power source fans continue to run for 6.5 minutes after welding has stopped, and the unit switches to energy-saving mode. They start again when welding restarts.

The fans run at reduced speed for welding currents up to 144 A, and at full speed for higher currents.

## 5.5 Overheating protection

The power source has two thermal overload trips which operate if the internal temperature becomes too high, interrupting the welding current and lighting the orange indicating lamp on the front of the unit and a fault code is shown in the control panel. They reset automatically when the temperature has fallen.

## 5.6 Cooling unit

### Water lock

The cooling unit is equipped with a detection system **ELP (ESAB Logic Pump)** which checks whether the water hoses are connected.

The power source On/Off switch must be in the "0" position (Off) when connecting a water-cooled TIG torch.

If a water-cooled TIG torch is connected, the water pump starts automatically when the main On/Off switch is turned to "START" and/or when welding starts. After welding, the pump continues to run for 6.5 minutes, and then switches to the energy-saving mode.

### **Function when welding**

To start welding, the welder presses the torch trigger switch. The power source energises the torch and starts wire feed and the cooling water pump.

To stop welding, the welder releases the torch trigger switch. The welding current is interrupted, but the cooling water pump continues to run for 6.5 minutes, after which the unit switches to energy-saving mode.

### **Water flow guard**

The water flow guard interrupts the welding current in the event of loss of coolant, and displays an error message on the control panel. The water flow guard is an accessory, see "ACCESSORIES" chapter.

## 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.

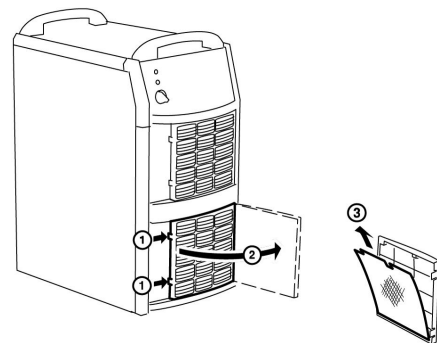


### CAUTION!

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 Cleaning the filter

- Remove the front grille with the filter (1).
- Swing out the front grille (2).
- Remove the filter (3).
- Blow the filter clean with compressed air (reduced pressure).
- Replace the filter with the finer mesh on the side against the front grille (2).
- Replace the front grille with the filter.



### 6.2 Topping up the coolant

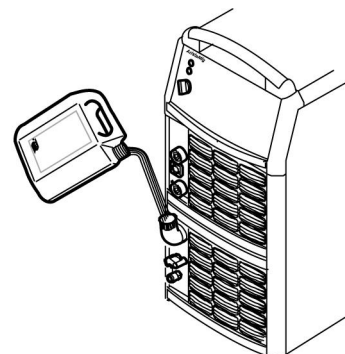
Top up with coolant until it is up to the level of the filling hole.

ESAB ready mixed coolant is recommended for use, see "ACCESSORIES" chapter.



### NOTE!

Coolant must be topped up if connecting a welding torch or connection cables that are 5 m (16.4 ft) in length or longer.



### CAUTION!

The coolant must be handled as chemical waste.



## 7 TROUBLESHOOTING

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

Type of fault	Action
No arc	<ul style="list-style-type: none"> <li>• Check that the mains power supply switch is turned on.</li> <li>• Check that the welding current supply and return cables are correctly connected.</li> <li>• Check that the correct current value is set.</li> <li>• Check start method (HF/Liftarc™).</li> <li>• Check the coolant flow (if the flow guard is mounted).</li> <li>• Check the coolant level.</li> </ul>
The welding current is interrupted during welding.	<ul style="list-style-type: none"> <li>• Check whether the thermal cut-outs have tripped (indicated by the orange lamp on the front panel) and a fault code is shown in the panel.</li> <li>• Check the coolant flow.</li> <li>• Check the main power supply fuses.</li> </ul>
The thermal cut-out trips operate frequently.	<ul style="list-style-type: none"> <li>• Check to see whether the air filters are clogged.</li> <li>• Make sure that you are not exceeding the rated data for the power source (i.e. that the unit is not being overloaded).</li> </ul>
Poor welding performance	<ul style="list-style-type: none"> <li>• Check that the welding current supply and return cables are correctly connected.</li> <li>• Check that the correct current value is set.</li> <li>• Check that the correct electrode / wire is used.</li> <li>• Check that the correct welding gas is being used.</li> <li>• Check the gas flow.</li> <li>• Check the main power supply fuses.</li> </ul>

## 8 ORDERING SPARE PARTS

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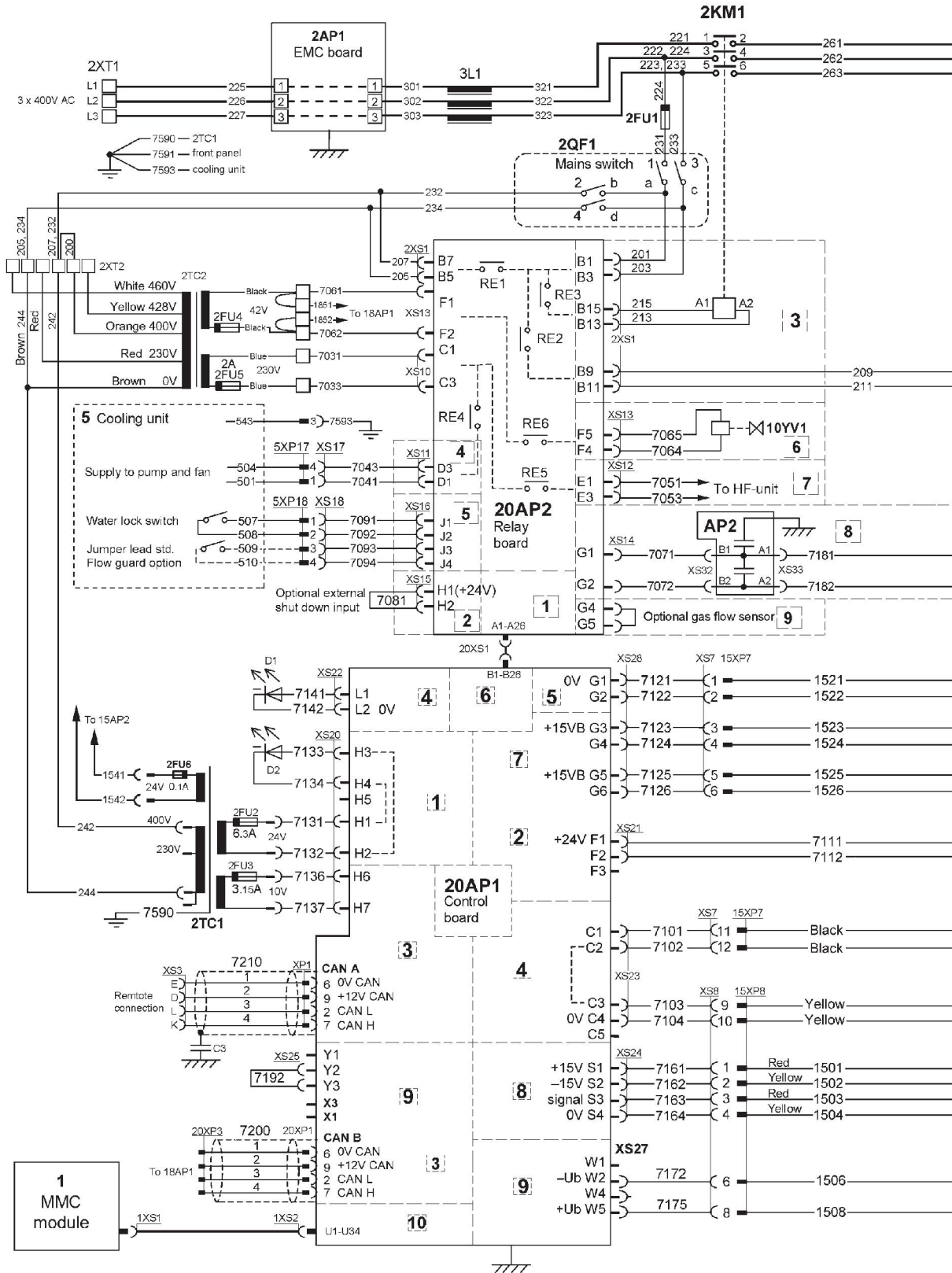
### CAUTION!

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

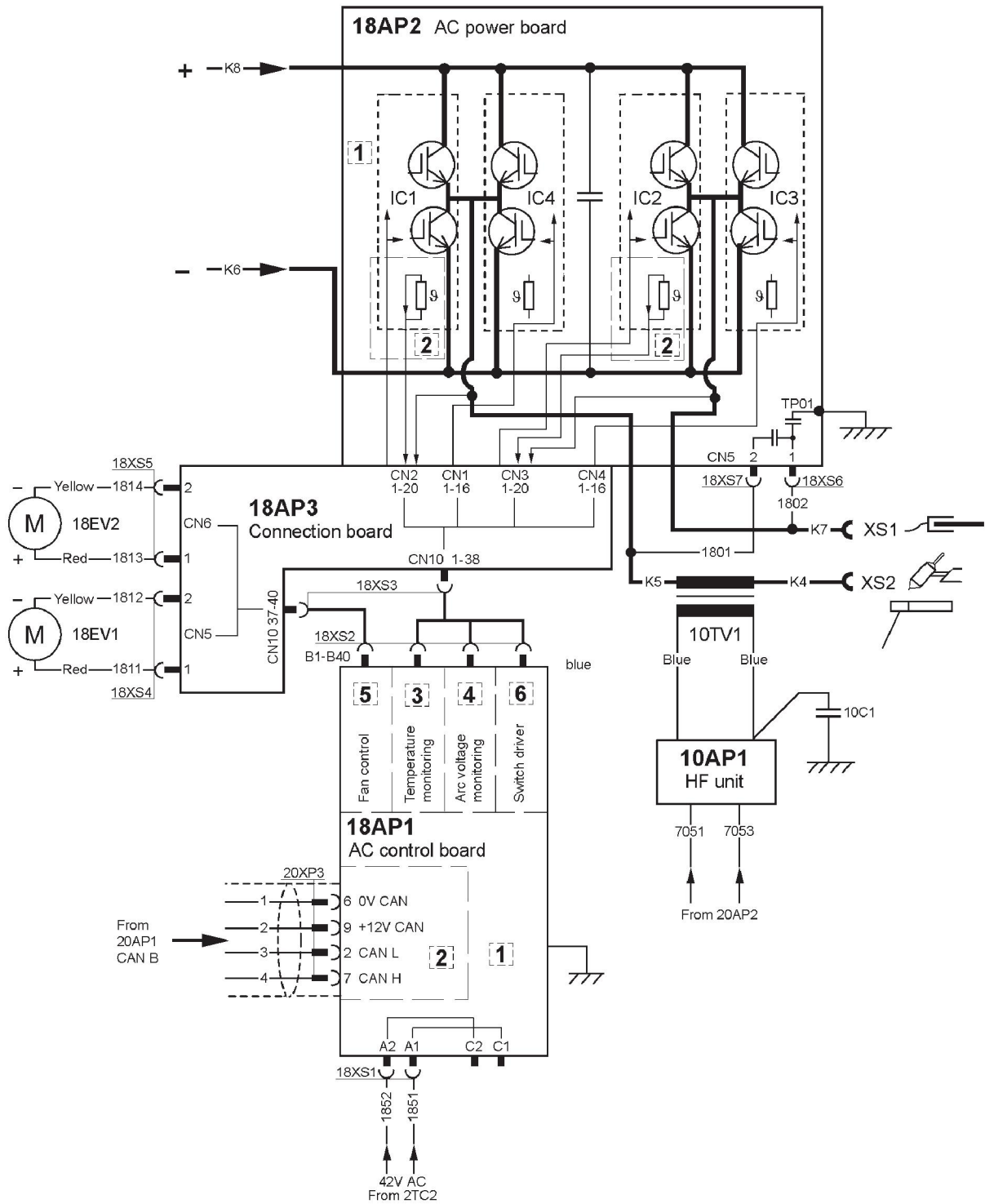
Tig 4300iw AC/DC is designed and tested in accordance with the international and European standards **IEC-/EN 60974-1, /-2, /-3** and **IEC-/EN 60974-10**. It is the obligation of the service unit which has carried out the service or repair work to make sure that the product still conforms to the mentioned standards.

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

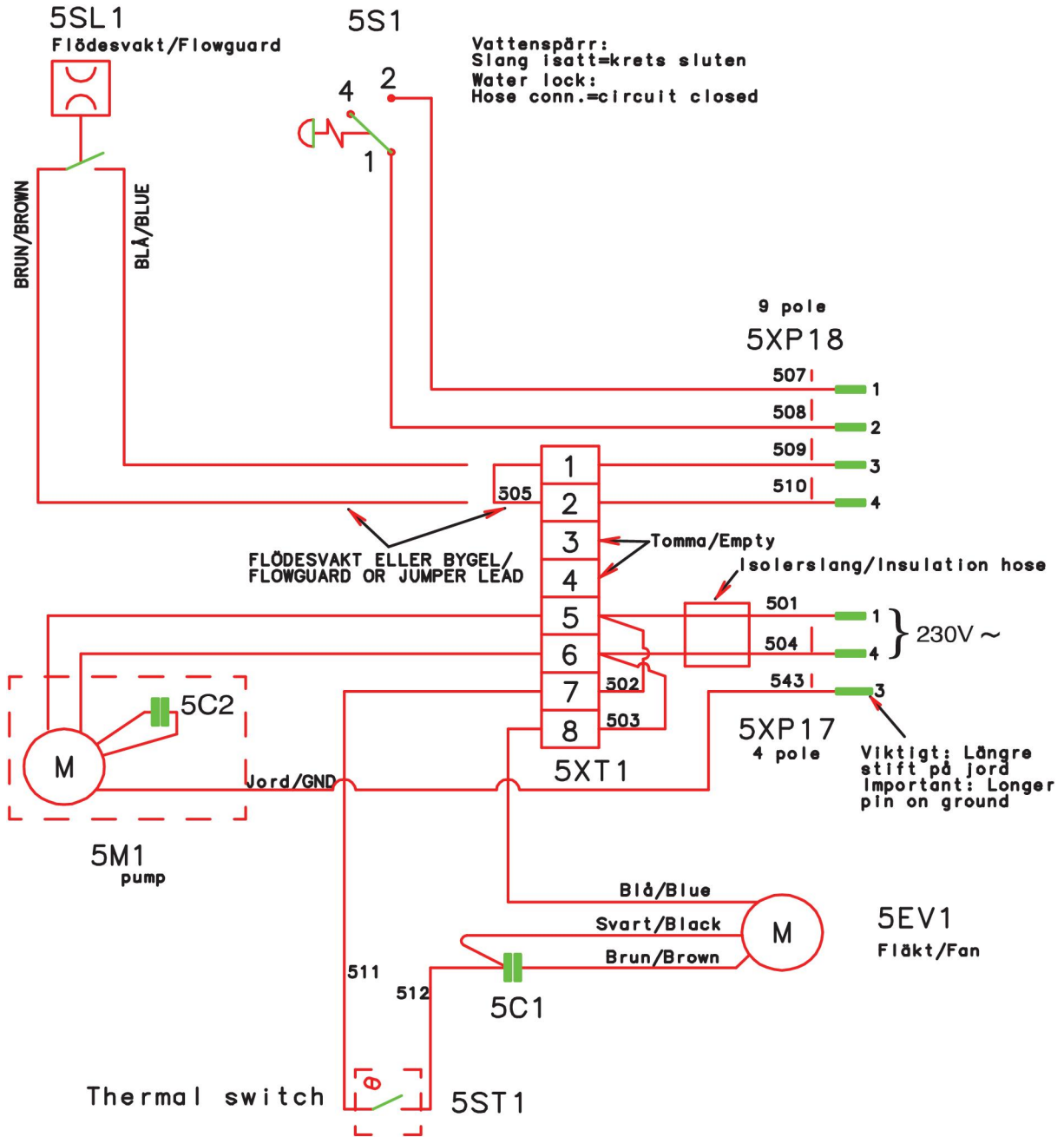
# DIAGRAM







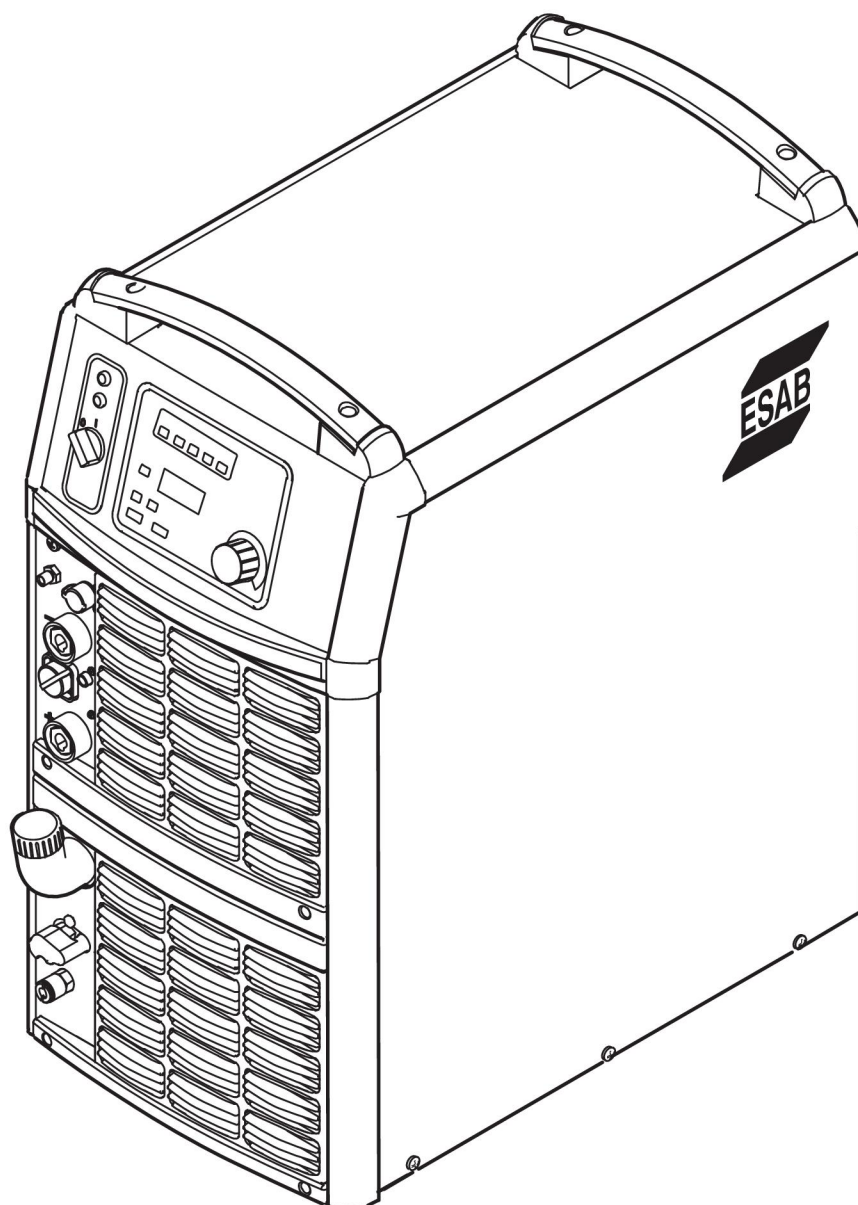
Cooling Unit



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**ORDERING NUMBERS**


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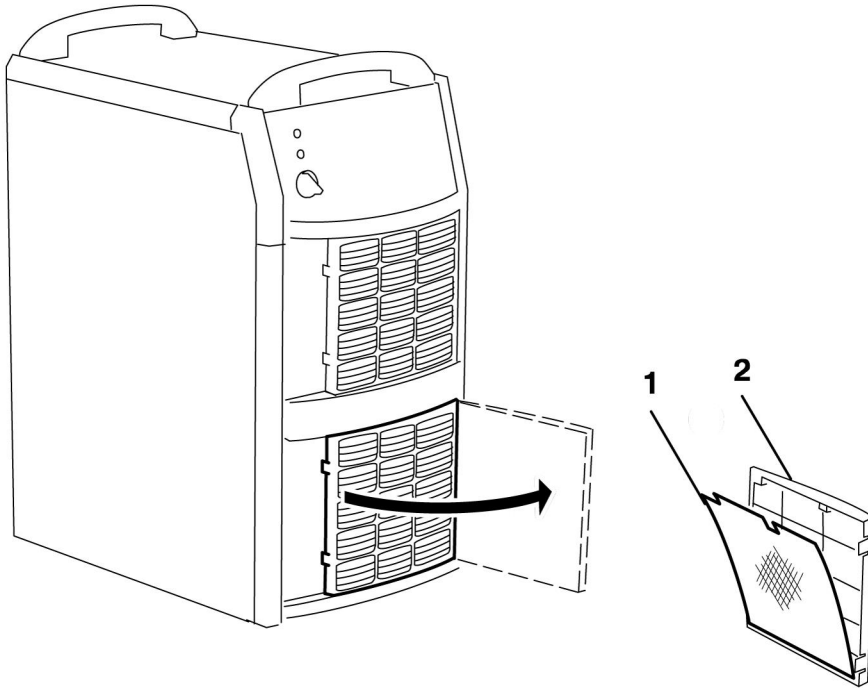
Ordering no.	Denomination	Type
0460 100 880	Welding power source	Origo™ Tig 4300iw, AC/DC, TA24 AC/DC
0459 839 008	Spare parts list	Tig 4300iw AC/DC
0459 839 003	Spare parts list	Control Panel, Origo™ TA24 AC/DC
0459 944 xxx	Instruction manual	Control Panel, Origo™ TA24 AC/DC

Instruction manuals and the spare parts list are available on the Internet at: [www.esab.com](http://www.esab.com)

## SPARE PARTS LIST

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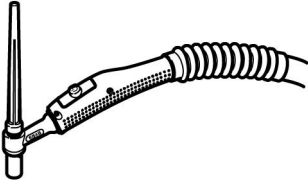
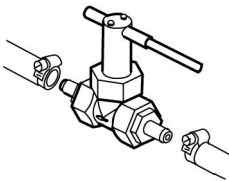
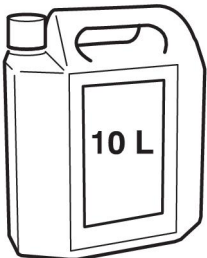
Item	Ordering no.	Denomination
1	0458 398 001	Filter
2	0458 383 991	Front grille





## ACCESSORIES

0458 530 881	<b>Trolley</b>	
0459 491 883	<b>Remote control unit AT1 CAN</b> MMA and TIG: current	
0459 491 884	<b>Remote control unit AT1 CF CAN</b> MMA and TIG: rough and fine setting of current.	
0460 315 880	<b>T1 Foot CAN - Foot control unit</b> Including 5 m (16.4 ft) cable	
0459 554 880	<b>Remote cable CAN 4 pole - 12 pole</b> 5 m (16.4 ft)	
0459 554 881	10 m (32.8 ft)	
0459 554 882	15 m (49.2 ft)	
0459 554 883	25 m (82.0 ft)	
0459 554 884	0.25 m (0.82 ft)	
0700 006 895	<b>Return cable 5 m 70 mm<sup>2</sup> (16.4 ft)</b>	

<b>TIG torches</b>		
0700 300 565	<b>TXH 401W</b> incl. 4 m (13.1 ft) cable assembly	
0700 300 567	incl. 8 m (26.2 ft) cable assembly	
0700 300 636	<b>TXH 401Wr</b> incl. 4 m (13.1 ft) cable assembly	
0700 300 638	incl. 8 m (26.2 ft) cable assembly	
0700 300 566	<b>TXH 401W HD</b> incl. 4 m (13.1 ft) cable assembly	
0700 300 568	incl. 8 m (26.2 ft) cable assembly	
0700 300 637	<b>TXH 401Wr HD</b> incl. 4 m (13.1 ft) cable assembly	
0700 300 639	incl. 8 m (26.2 ft) cable assembly	
0459 491 912*	Remote adapter kit for TXH 401wr/401wr HD, incl. holder *Recommended remote interconnection cable 0459 554 884	
0456 855 880	<b>Water flow guard</b> 0.7 l/min (0.17 gpm)	
0465 720 002	<b>ESAB ready mixed coolant</b> (10 l / 2.64 gal) Use of any other cooling liquid than the prescribed one might damage the equipment. In case of such damage, all warranty undertakings from ESAB cease to apply.	





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

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