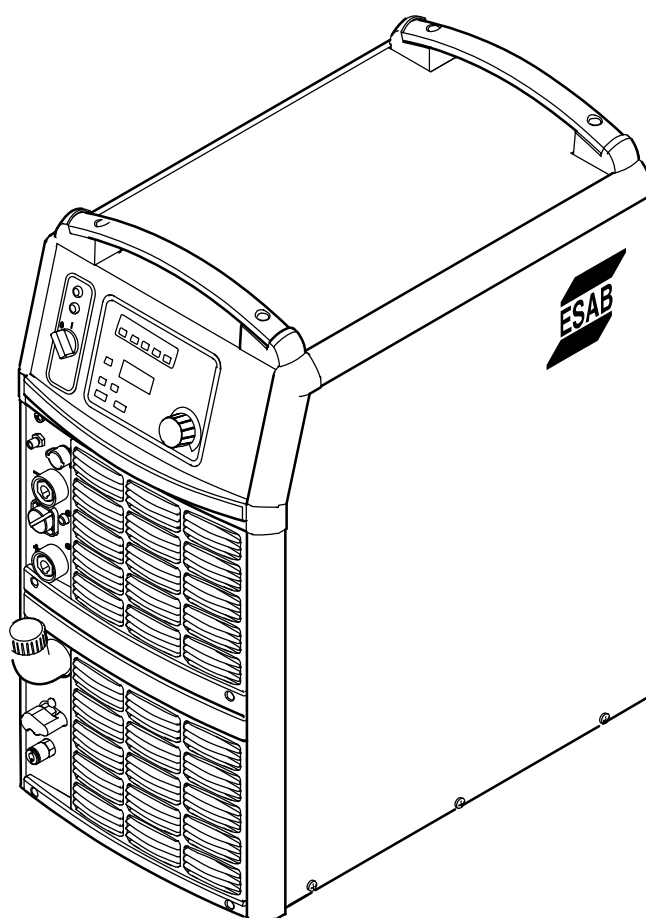


**Origo™**

# ***Tig 4300i AC/DC***



**Instruction manual**



## DECLARATION OF CONFORMITY

According to

The Low Voltage Directive 2006/95/EC, entering into force 16 January 2007

The EMC Directive 2004/108/EC, entering into force 20 July 2007

### Type of equipment

Arc welding power source

### Type designation

Tig 4300i AC/DC, Tig 4300iw AC/DC, TA24, from serial number 710 xxx xxxx (2007 w.10)

Tig 4300i AC/DC, Tig 4300iw AC/DC, TA24 are members of the ESAB Origo™ product family

### Brand name or trade mark

ESAB

### Manufacturer or his authorized representative established within the EEA:

#### Name, address, phone, website:

ESAB AB

Lindholmsallén 9

Box 8004, 402 77 GÖTEBORG, Sweden

Phone: +46 31 509 000

Website: www.esab.com

### The following harmonized standards, in force within the EEA, has been used in the design:

EN 60974-1, Arc welding equipment – Part 1: Welding power sources

EN 60974-2, Arc welding equipment – Part 2: Liquid cooling systems

EN 60974-3, Arc welding equipment – Part 3: Arc striking and stabilizing devices

EN 60974-10, Arc welding equipment – Part 10: Electromagnetic compatibility (EMC) requirements

### Additional information:

Restrictive use, Class A equipment, intended for use in locations other than residential.

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

#### Date

2012-09-27

#### Signature

Jerker Funnemark  
Clarification

#### Position

Managing Director  
Equipment & Automation

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# 1 SAFETY

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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
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
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. Ask for your employer's safety practices which should be based on manufacturers' hazard data.**

**ELECTRIC SHOCK - Can kill**

- Install and earth the unit in accordance with applicable standards.
- Do not touch live electrical parts or electrodes with bare skin, wet gloves or wet clothing.
- Insulate yourself from earth and the workpiece.
- Ensure your working stance is safe.

**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.

**FIRE HAZARD**

- Sparks (spatter) can cause fire. Make sure therefore that there are no inflammable materials nearby.

**NOISE - Excessive noise can damage hearing**

- Protect your ears. Use earmuffs or other hearing protection.
- Warn bystanders of the risk.

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

**Read and understand the instruction manual before installing or operating.**

**PROTECT YOURSELF AND OTHERS!**



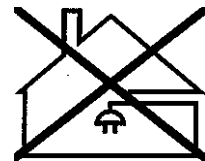
## WARNING

**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.*



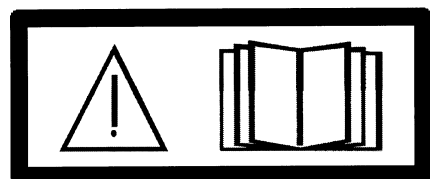
## CAUTION

*This product is solely intended for arc welding.*



## CAUTION

*Read and understand the instruction manual before installing or operating.*





**Dispose of electronic equipment at the recycling facility!**

In observance of European Directive 2002/96/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 can provide you with all necessary welding protection and accessories.**

## 2 INTRODUCTION

The **Tig 4300i 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's accessories for the product can be found on page 20.**

### 2.1 Equipment

The power source is delivered with 5 m mains cable incl the plug, 5 m return cable, instruction manuals for the power source and for the control panel.

### 2.2 The control panel

- **TA24 AC/DC**



See the separate instructions for detailed descriptions of the control panel. Instruction manuals in other languages can be downloaded from the website, [www.esab.com](http://www.esab.com).

### 3 TECHNICAL DATA

Tig 4300i AC/DC	
<b>Mains voltage</b>	400V, ± 10%, 3~ 50 Hz
<b>Mains supply</b>	S <sub>sc min</sub> 2.6 MVA Z <sub>max</sub> 0.24 Ω
<b>Primary current</b>	
I <sub>max</sub> TIG	25 A
I <sub>max</sub> MMA	32 A
<b>No-load powering</b> the 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>	
40 % duty cycle	430 A / 27.2 V
60 % duty cycle	400 A / 26.0 V
100 % duty cycle	315 A / 22.6 V
<b>Permissible load at MMA</b>	
40 % duty cycle	430 A / 37.2 V
60 % duty cycle	400 A / 36.0 V
100 % duty cycle	315 A / 32.6 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
<b>Transportation temperature</b>	-25 to +55° C
<b>Continual sound pressure at no-load</b>	<70 db (A)
<b>Dimensions, lxbxh</b>	625 x 394 x 776
<b>Weight</b>	95 kg
<b>Insulation class</b> transformer	H
<b>Enclosure class</b>	IP 23
<b>Application class</b>	<b>S</b>

Cooling unit	
Cooling power	2.0 kW at 40° C temperature difference and flow 1.0 l/min
Coolant	Ready mixed (see accessories on page 20)
Liquid quantity	5.5 l
Maximum water flow	2.0 l/min

*\*) 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 instructions for the control panel, if the panel has that function.

**Mains supply,  $S_{sc\ min}$**

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

**Mains supply,  $Z_{max}$**

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

**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.

**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 designed 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.

## 4 INSTALLATION

*The installation must be carried out by a professional.*

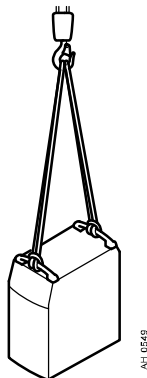
**Note**

**Mains supply requirements**

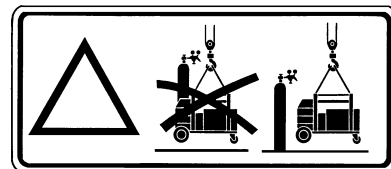
High power equipment may, due to the primary current drawn from the mains supply, influence the power quality of the grid. Therefore connection restrictions or requirements regarding the maximum permissible mains impedance or the required minimum supply capacity at the interface point to the public grid may apply for some types of equipment (see technical data). In this case 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 may be connected.

### 4.1 Lifting instructions

With power source



With power source and trolley

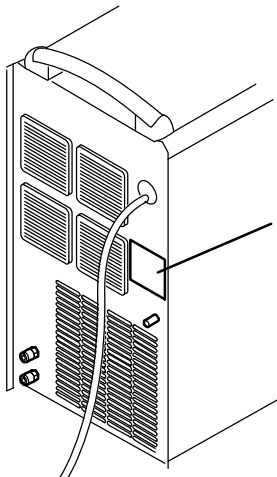


### 4.2 Placing

Position the welding power source such 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 4300i 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	16 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. Use the welding power source in accordance with the relevant national regulations.

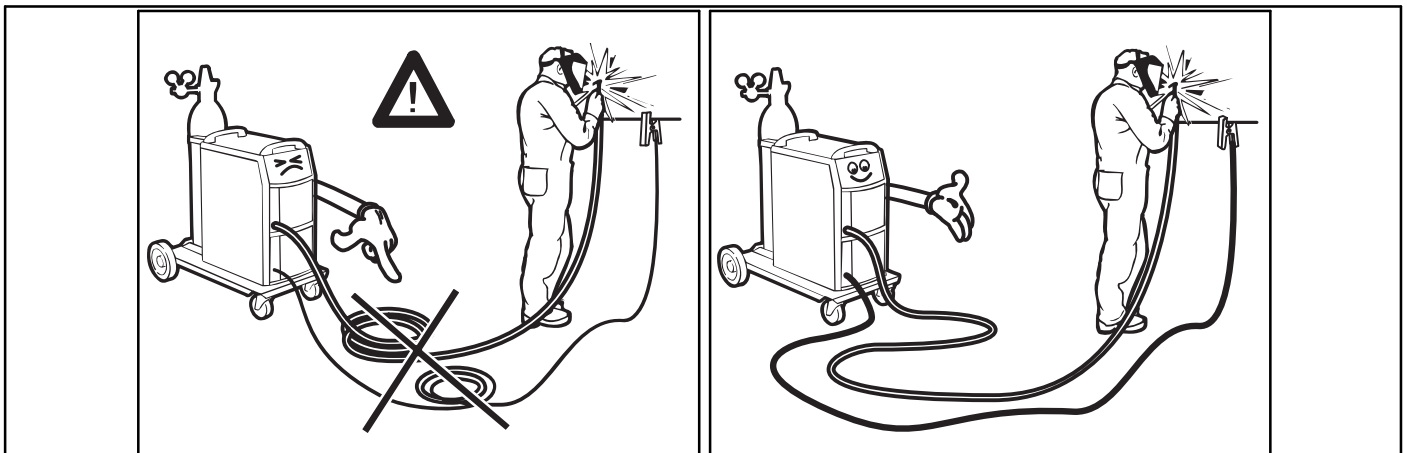
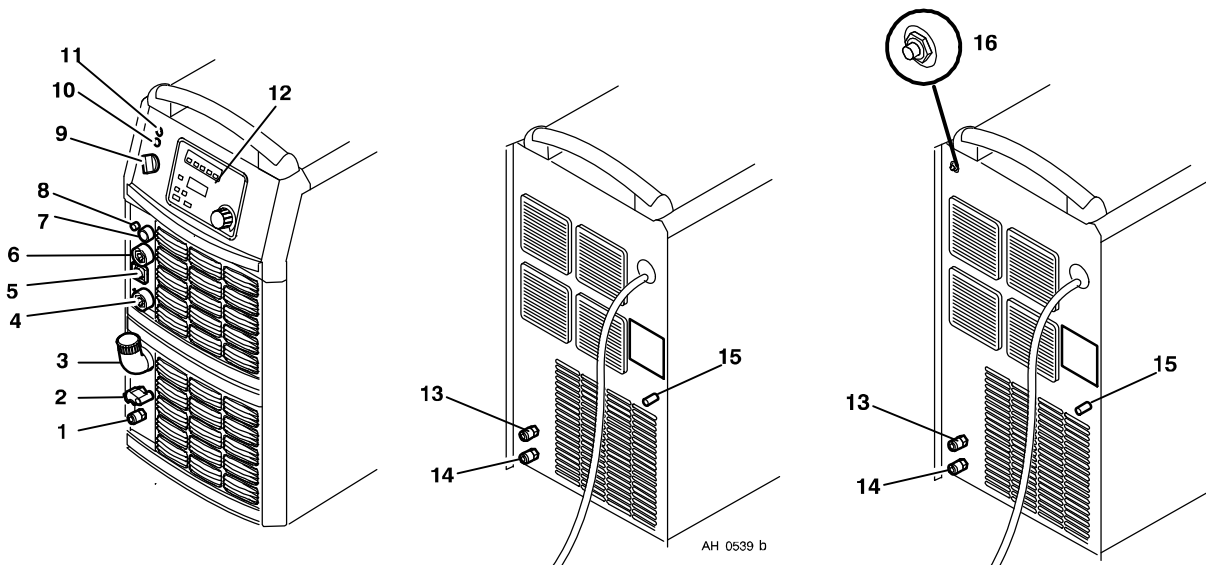
## 5 OPERATION

**General safety regulations for handling the equipment can be found on page 4. Read through before you start using the equipment!**

### 5.1 Connection 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. <i>Not used on this model.</i> |
| 6 | Connection for welding cable (-) or torch                   | 14 | Connection for cooling water. <i>Not used on this model.</i> |
| 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  |

\*ELP = ESAB Logic Pump, see point 5.6.



## 5.2 Key to symbols



## 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 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 that 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 page 20.

# 6 MAINTENANCE

*Regular maintenance is important for safe, reliable operation.*

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

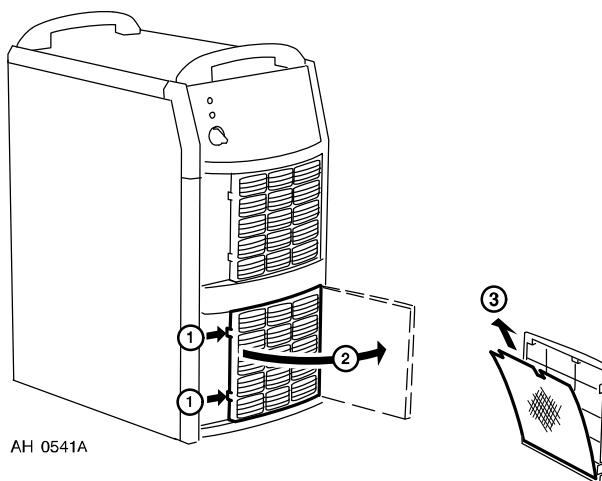


### CAUTION

*All guarantee undertakings from the supplier cease to apply if the customer attempts any work to rectify any faults in the product during the guarantee period.*

## 6.1 Cleaning the air filter

- Release the cover plate with the dust filter (1).
- Swing out the cover plate (2).
- Remove the dust filter (3).
- Blow it clean with compressed air at reduced pressure
- Replace the filter with the finer mesh on the side against the cover plate (2)
- Refit the cover plate with the filter.



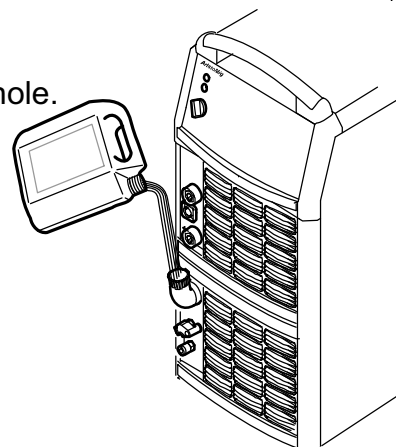
## 6.2 Topping up the coolant

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

ESAB's refrigerant is recommended for use.

See accessories on page 20.

**Note!** Coolant must be topped up if connecting a welding torch or connection cables that are 5 meters in length or longer.



### CAUTION

*The coolant must be handled as chemical waste.*

## **7 FAULT TRACING**

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

<b>Type of fault</b>	<b>Corrective action</b>
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 water 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 mains power supply fuses.</li> </ul>
The thermal cut-out trips frequently.	<ul style="list-style-type: none"> <li>• Check to see whether the dust filter is 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 being used.</li> <li>• Check that the correct welding gas is being used.</li> <li>• Check the gas flow.</li> <li>• Check the mains power supply fuses.</li> </ul>

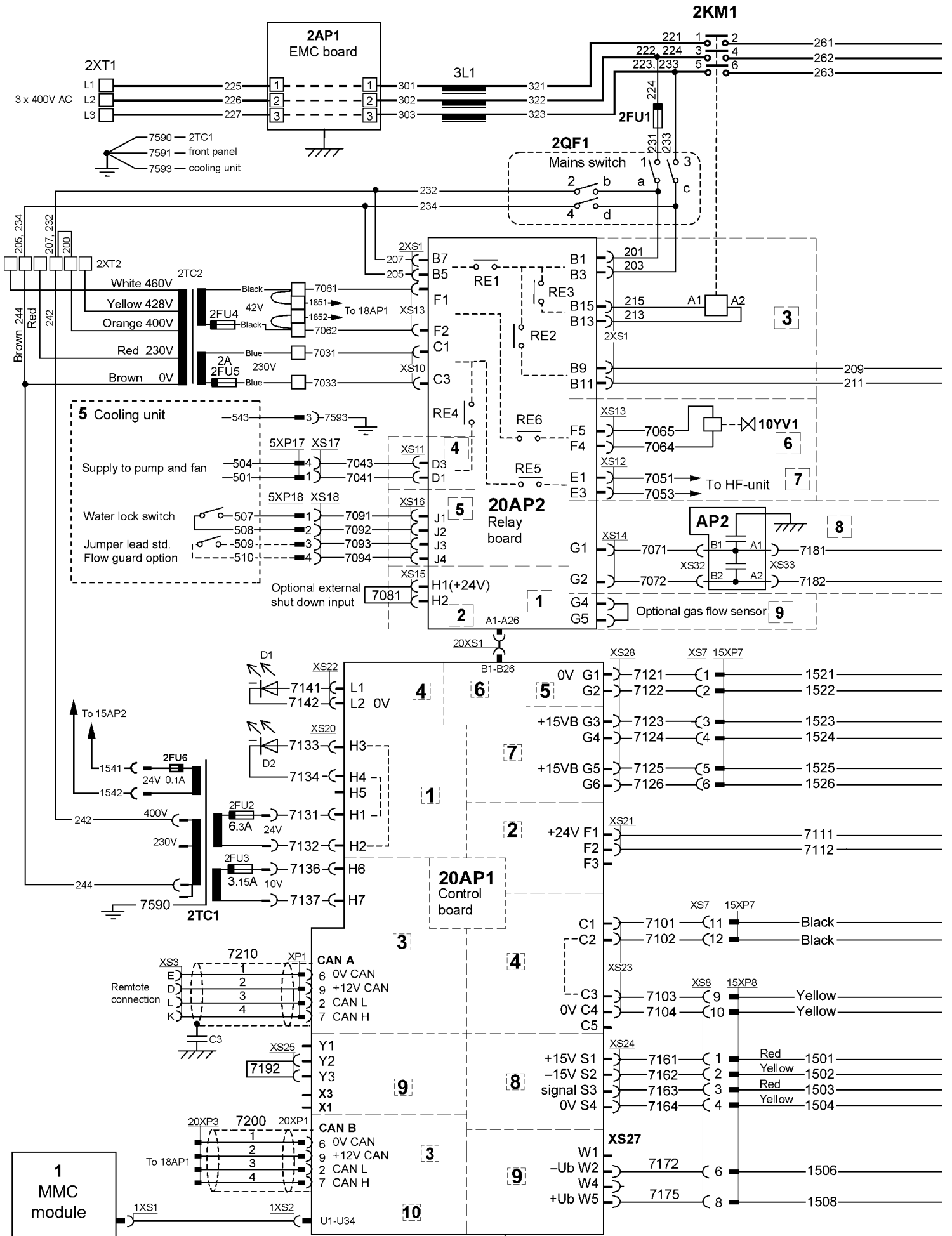
## **8 ORDERING OF SPARE PARTS**

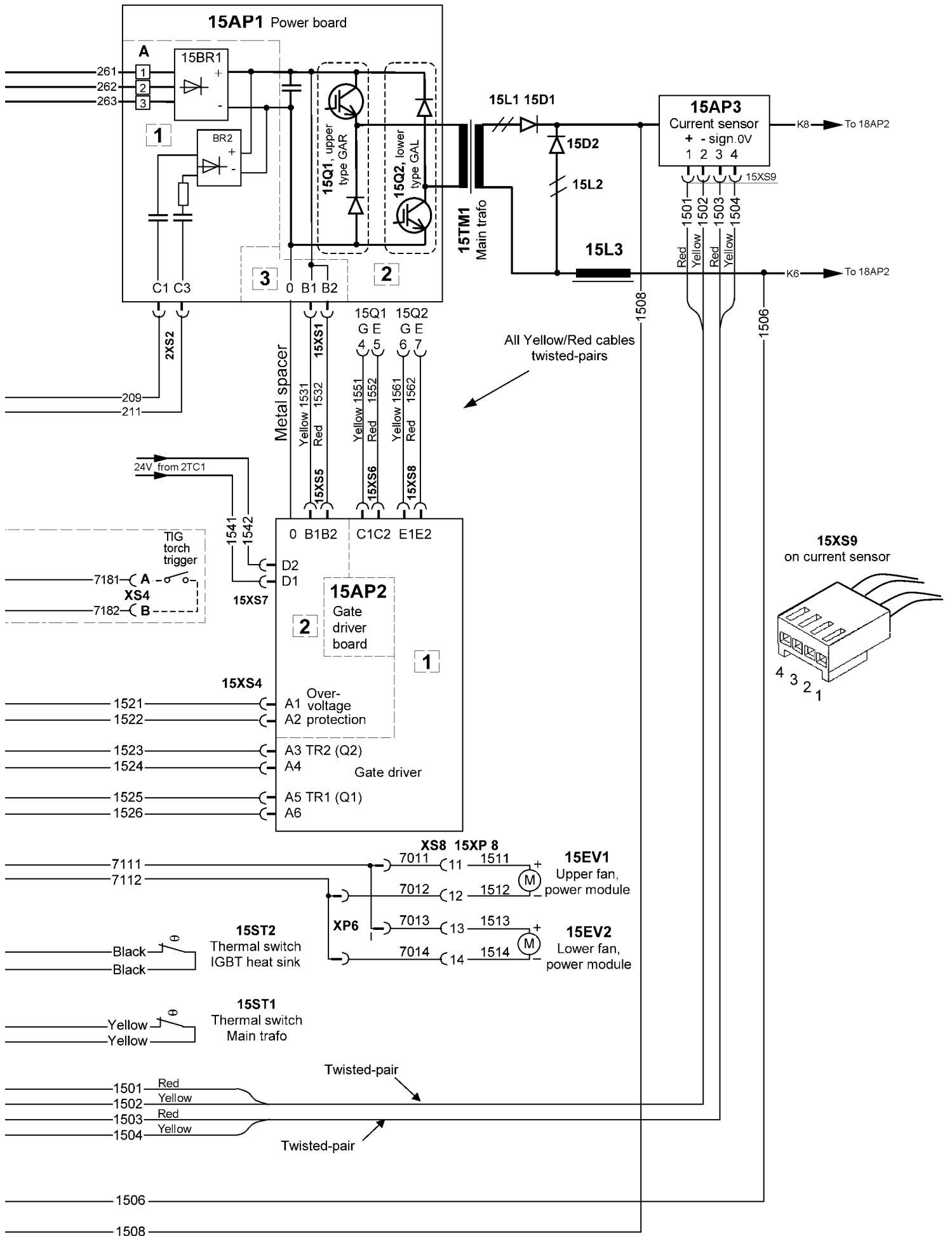
*Repair and electrical work should be performed by an authorised ESAB service technician. Use only ESAB original spare and wear parts.*

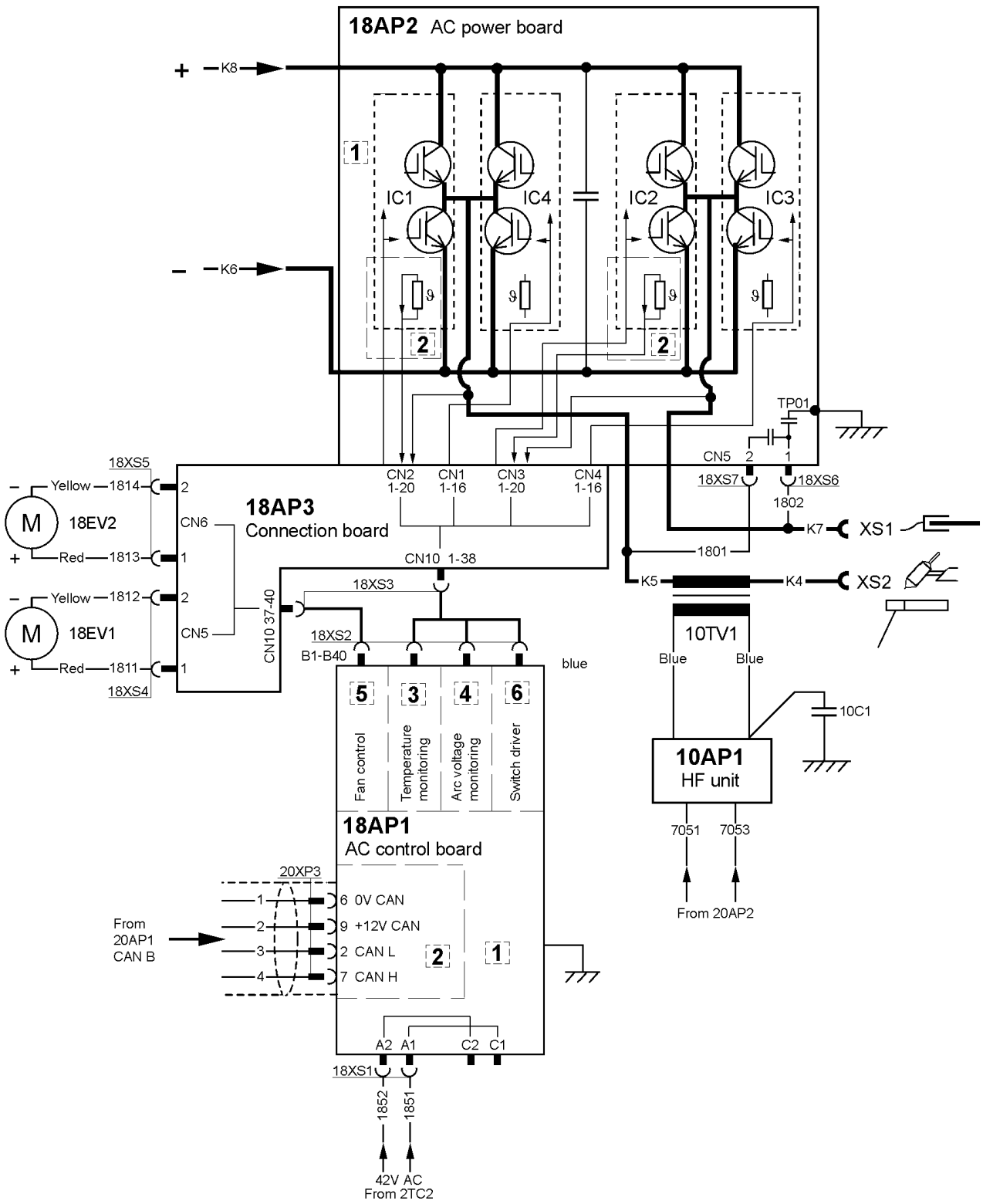
**Tig 4300i AC/DC is designed and tested in accordance with the international and European standards IEC- / EN 60974-1, 60974-2, 60974-3 and IEC- / EN 60974-10. It is the obligation of the service unit which has carried out the service or repair work to make sure that the product still conforms to the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

Spare parts may be ordered through your nearest ESAB dealer, see the last page of this publication.

# Diagram

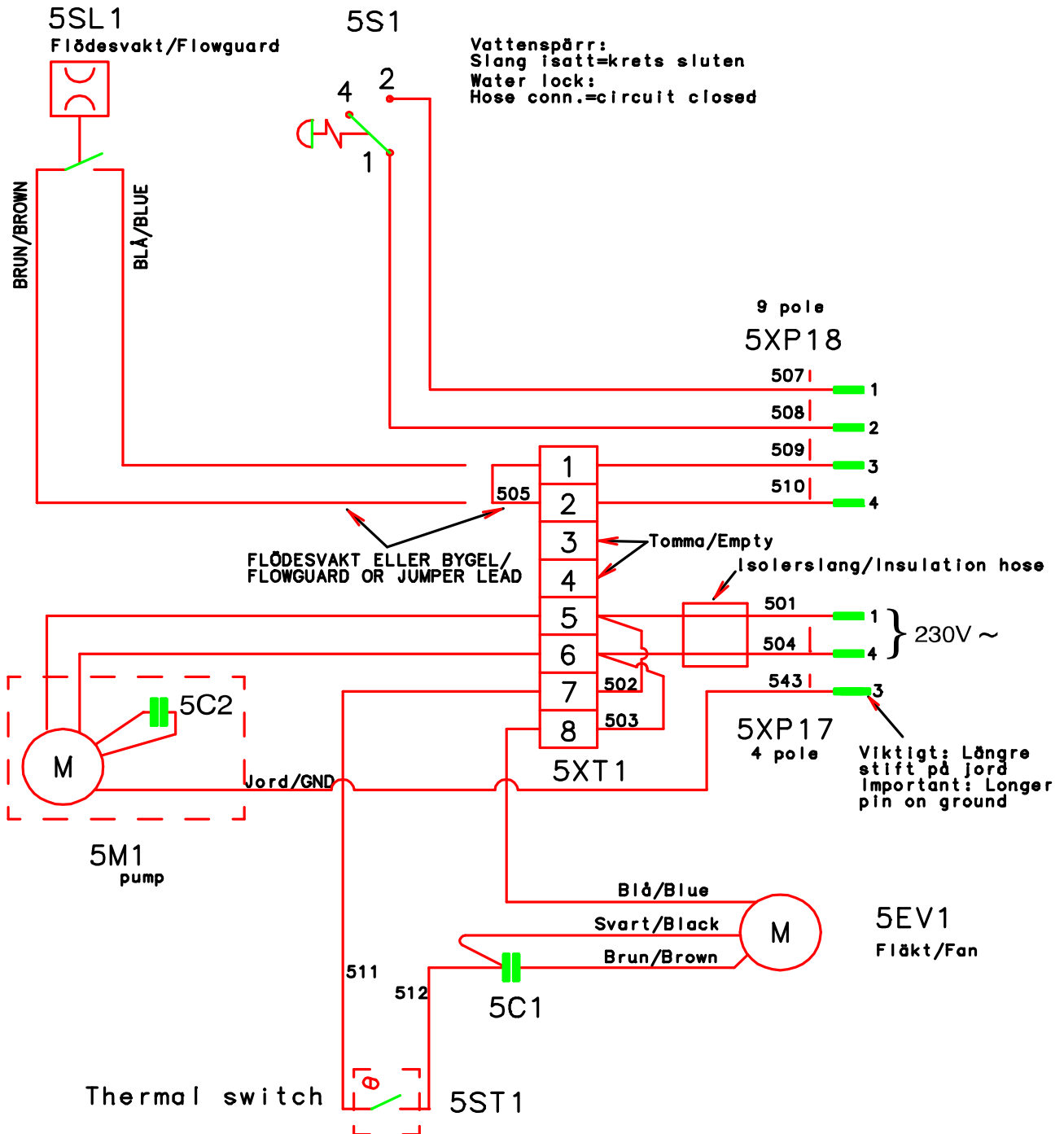






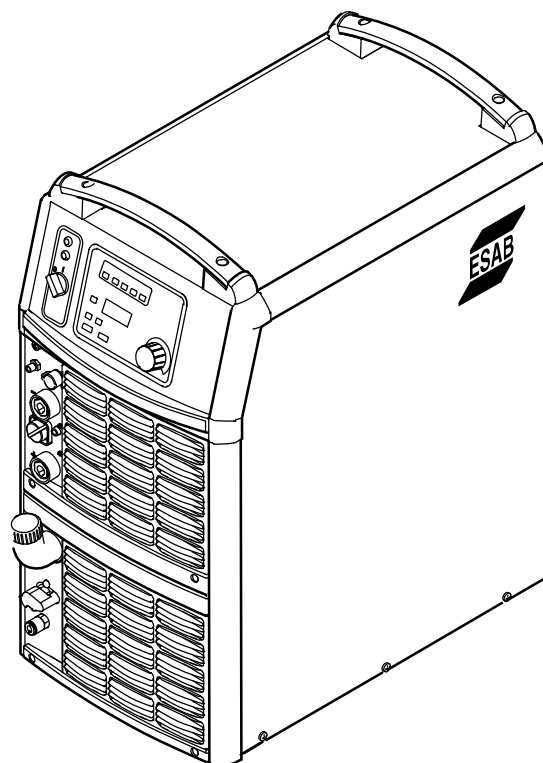


# Cooling unit



## Tig 4300i AC/DC

### Order number



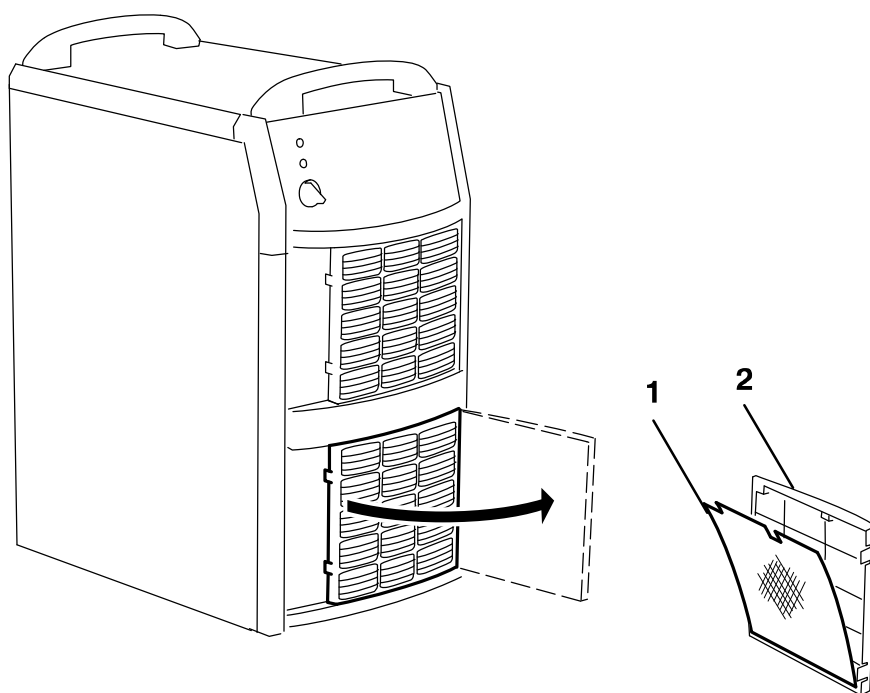
Ordering no.	Denomination	Type
0460 100 880	Welding power source	Origo™ Tig 4300iw, AC/DC, TA24 AC/DC
0459 839 008	Spare parts list	Tig 4300i AC/DC
0459 839 003	Spare parts list	Control panel, Origo™ TA24 AC/DC
0459 944 xxx	Instruction manual	Control panel, Origo™ TA24 AC/DC

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

## Tig 4300i AC/DC

### Spare parts list

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

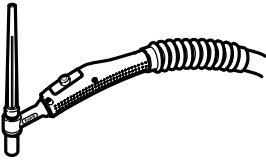
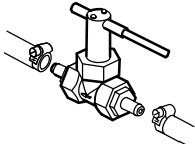
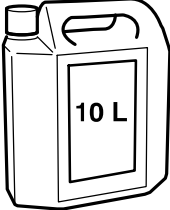


# Tig 4300i AC/DC

## Accessories

	<p><b>Trolley</b> ..... 0458 530 881</p>
	<p><b>Remote control unit AT1 CAN</b> ..... 0459 491 883 MMA and TIG: current</p>
	<p><b>Remote control unit AT1 CF CAN</b> ..... 0459 491 884 MMA and TIG: rough and fine setting of current.</p>
	<p><b>T1 Foot CAN - Foot Control unit</b> ..... 0460 315 890 Including 5 m cable</p>
	<p><b>Remote cable CAN 4 pole - 12 pole</b></p> <p>5 m ..... 0459 544 880 10 m ..... 0459 554 881 15 m ..... 0459 554 882 25 m ..... 0459 554 883 0.25 m ..... 0459 554 884</p>
	<p><b>Return cable 5 m 70 mm<sup>2</sup></b> ..... 0700 006 895</p>

**Tig 4300i AC/DC**

	<p><b>TIG torch TXH 400w</b>  incl. 4 m cable assembly ..... 0460 014 840  incl. 8 m cable assembly ..... 0460 014 880</p> <p><b>TIG torch TXH 400w HD</b>  incl. 4 m cable assembly ..... 0460 014 841  incl. 8 m cable assembly ..... 0460 014 881</p> <p><b>TIG torch TXH 400wr HD</b>  incl. 4 m cable assembly ..... 0461 014 841  incl. 8 m cable assembly ..... 0461 014 881</p> <p>Remote adapter kit for TXH 400wr HD, incl.  holder ..... 0459 491 912*</p> <p>*Recommended remote interconnection cable  0459 554 884</p>
	<p><b>Water flow guard 0.7 l/min</b> ..... 0456 855 880</p>
	<p><b>Coolant</b> (Ready mixed) 50% water and 50%  mono-ethylene glycol (10 l) ..... 0194 230 002</p>





# ESAB subsidiaries and representative offices

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