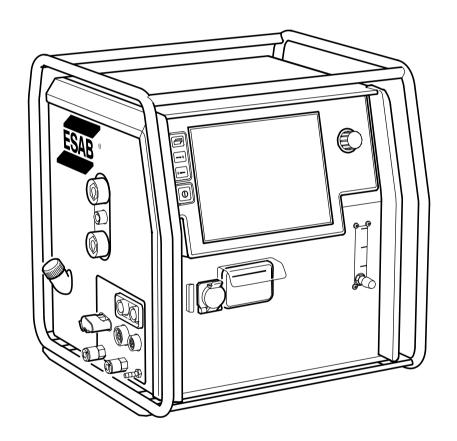




# **Aristo**®

# MechTig C2002i



**Instruction manual** 

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AC	ACCESSORIES			

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# 1 DIRECTIVE

### **DECLARATION OF CONFORMITY**

ESAB AB, Welding Equipment, SE-695 81 Laxå, Sweden, gives its unreserved guarantee that welding power source MechTig C2002i from serial number 810 are constructed and tested in compliance with the standard EN 60974-1 /-3 and EN 60974-10 (Class A) in accordance with the requirements of directive (2006/95/EC) and (2004/108/EEC).

\_\_\_\_\_\_

Laxå 2008-05-20

Kent Eimbrodt Global Director

**Equipment and Automation** 

# 2 SAFETY

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 unauthorized 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
- Personal safety equipment
  - Always wear recommended personal safety equipment, such as safety glasses, flame-proof clothing, safety gloves. Note! Do not use safety gloves when replacing wire.
  - 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 precausions 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.





# 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.

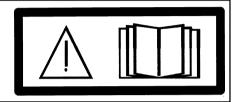
As the person responsible for the equipment, it is your responsibility to obtain information on approved collection stations.

For further information contact the nearest ESAB dealer.



# **CAUTION**

Read and understand the instruction manual before installing or operating.



ESAB can provide you with all necessary welding protection and accessories.

# 3 INTRODUCTION

**MechTig C2002i** is a welding power source intended for mechanized TIG welding.

ESAB's accessories for the product can be found on page 21.

# 3.1 Equipment

The power source is supplied with:

- instruction manual for the welding power source
- instruction manual for the control panel
- 5 m return cable
- terminating resistor.

# 3.2 Control panel WO 100



See the separate instruction manual for a detailed description of the control panel.



# 4 TECHNICAL DATA

MechTig C2002i			
Mains voltage	230 V ±10%, 1~50/60 Hz		
Mains supply	Z <sub>max</sub> 0.35 Ω		
Primary current I <sub>max</sub>	22 A		
Setting range	5 A - 200 A		
Permitted load 30% duty cycle 35% duty cycle 60 % duty cycle 100% duty cycle	200 A / 18 V 180 A / 17 V 150 A / 16 V 110 A / 14 V		
Power factor at maximum current	0.98		
Efficiency at maximum current	73 %		
Open-circuit voltage	92 V		
Operating temperature	-10 to +40° C		
Transportation temperature	-20 to + 55° C		
Constant A-weighted sound pressure	< 70 dB		
Dimensions I x w x h	470 x 479 x 472 mm		
Weight	30 kg		
Enclosure class	IP 23		
Application class	S		

Cooling unit			
Cooling power at 50 Hz at 60 Hz	670 W at 40° C temp. difference and flow 1.0 l/min 650 W at 40° C temp. difference and flow 1.0 l/min		
Type of cooling	50 % water / 50% monoethylene glycol		
Coolant quantity	2.0		
Maximum water flow at 50 Hz at 60 Hz	1.22 l/min 1.44 l/min		
Maximum water pressure at 50 Hz at 60 Hz	0.32 MPa (3.2 bar) 0.42 MPa (4.2 bar)		

# Mains supply, Z<sub>max</sub>

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.

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.

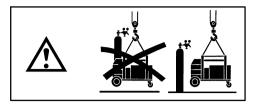
# **Application class**

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



# **5 INSTALLATION**

The installation must be executed by a professional.

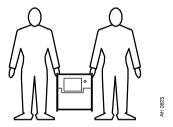


### Note

### 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 distrubution network operator if necessary, that the equipment may be connected.

# 5.1 Lifting instructions



# 5.2 Location

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

# 5.3 Mains power supply

Make sure that the welding power source is connected to the correct supply 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 and minimum cable area

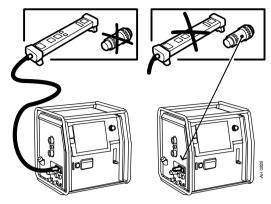
MechTig C2002i			
Mains voltage	230 V 1 $\sim$ 50/60 Hz		
Mains cable area	3 G 2.5 mm <sup>2</sup>		
Phase current I RMS	12 A		
Fuse anti-surge type C MCB	16 A 16 A		
Welding cable area	50 mm <sup>2</sup>		

**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.



# 5.4 Connecting the terminating resistor

To avoid communication interference, the remote socket must be fitted with a terminating resistor, when a remote control unit is not connected.

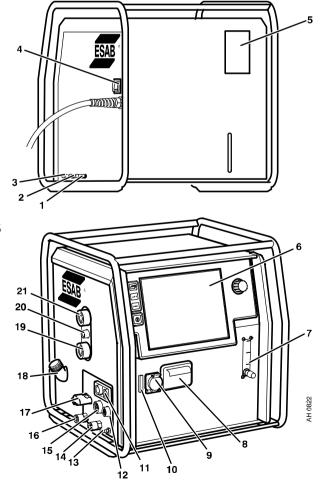


# 6 OPERATION

General safety regulations for the handling of the equipment can be found on page 3. Read through before you start using the equipment!

# 6.1 Connections and control devices

- 1 Connection for start gas in
- 2 Connection for weld gas in
- 3 Connection for root gas in
- 4 Switch for mains power
- 5 Rating plate for connection data
- **6** Control panel, see separate instruction manual
- 7 Gas flow meter
- 8 Printer
- **9** USB connection, see point 6.3.
- 10 Connection for documentation system WMS 4000
- 11 Connection (CAN) for remote control unit, terminating resistor or welding station A25
- 12 Connection for wire feed
- 13 Root gas connection out
- 14 Weld and start gas connection out
- 15 Connection for rotation
- 16 Connection for coolant from tube welding tool RED
- 17 Connection with ELP\* for coolant to the tube welding tool BLUE
- 18 Topping up with coolant
- **19** Connection for welding current (-)
- 20 Connection for manual TIG torch
- 21 Return cable connection (+)
- \*ELP = ESAB Logic Pump, see point 6.4.





### 6.2 Gas flow meter

NOTE! To achieve the correct flow, the flow must be measured at the tool.

The flow meter is calibrated for Argon gas at 4 bar pressure. The gas flow obtained from the tool can vary depending on the connected tool. If other pressures or gases are used, the gas flow must be measured at the workpiece.

ESAB recommends that a pressure regulator set for 4 bar is used.

# 6.3 USB connection

The external USB memory can be used to transfer programs to and from systems.

### Note!

During normal use there is no risk of "viruses" "infecting" equipment. To eliminate the risk entirely, we recommend that the memory, which is used together with this equipment, not be used for any other purpose other than its intended.

Certain USB memories may not work with this equipment. We recommend using USB memories from a reputable supplier.

ESAB assumes no responsibility for any damage caused as a consequence of incorrect use of the USB memory.

### 6.4 Water connection

The power source is equipped with a detection system **ELP** (**E**SAB **L**ogic **P**ump) which checks that the water hoses are connected. When connecting a water-cooled tube welding tool, the water pump starts.

# 6.5 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 a red flashing field with the text "OVERHEAT" appears in the lower right-hand corner of the control panel.

When the temperature drops, the overheat protection is automatically reset and the field stops flashing red.

For further information see the control panel user manual.

# 6.6 Flow guard, water

The water flow guard blocks the power source if the coolant stops (minimum water flow 0.7 l/min). When this occurs the welding current is interrupted and an error message is shown on the control panel.

For further information see the control panel user manual.

# 6.7 Flow guard, gas

The flow guard stops the welding process if the gas flow falls below 4 l/min. When this occurs an error message appears on the control panel.

For further information see the control panel user manual.



# 6.8 Symbol explanations

TIG-torch	O >> Start/Weld	Start and weld gas out
Tube welding tool	Û Root	Root gas out
Rotation	Root	Root gas in
Wire feed	© Weld → S	Weld gas in
	Start -	Start gas in

For detailed description of the function see instruction manual for the control panel.

# 7 MAINTENANCE

Regular maintenance is important for safe, reliable operation.

Only those persons who have appropriate electrical knowledge (authorized personnel) may remove the safety plates.



# **CAUTION**

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

# 7.1 Inspection and cleaning

### **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
- arc time
- placement
- surrounding environment.

It is normally sufficient to blow down the power source with dry compressed air (reduced pressure) once a year.

Clogged or blocked air inlets and outlets can cause overheating.



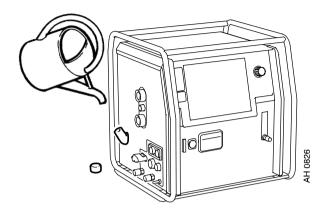
# **Tube welding tool**

The tube welding tool's wear parts should be cleaned and replaced at regular intervals in order to achieve trouble-free welding.

# 7.2 Topping up the coolant

Top up with coolant to the level of the filling hole.

ESAB's refrigerant is recommended for use. See accessories on page 21.





# **CAUTION**

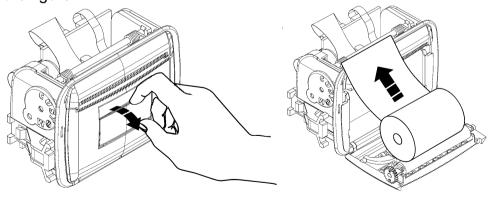
The coolant must be handled as chemical waste.

# 7.3 Printer

# Changing the paper roll

To change the paper roll, proceed as described below:

- 1. Open the printer cover as shown in the figure.
- 2. Position the paper roll making sure it unrolls in the proper direction as shown in the figure.

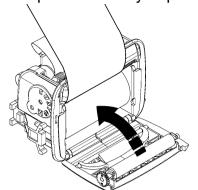


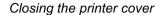
Opening the printer cover

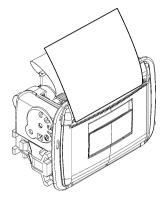
Positioning the paper roll



- 3. Pull out the paper and close the cover, as shown in the figure.
- 4. The printer is ready to print.







Ready to print

# 8 FAULT-TRACING

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

Type of fault	Corrective action		
No arc.	<ul> <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 the coolant flow.</li> </ul>		
The welding current is interrupted during welding.	<ul> <li>Check the coolant level.</li> <li>Check whether the overheating protection has operated (fault code 6 2 is displayed on the control panel).</li> <li>Check the coolant flow.</li> <li>Check the mains power supply fuses.</li> </ul>		
The overheating protection trips frequently.	<ul> <li>Make sure that you are not exceeding the rated data for the welding power source (i.e. that the unit is not being overloaded).</li> </ul>		
Poor welding performance.	<ul> <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 electrodes are being used.</li> <li>Check the mains power supply fuses.</li> <li>Check that the correct welding gas is being used.</li> </ul>		

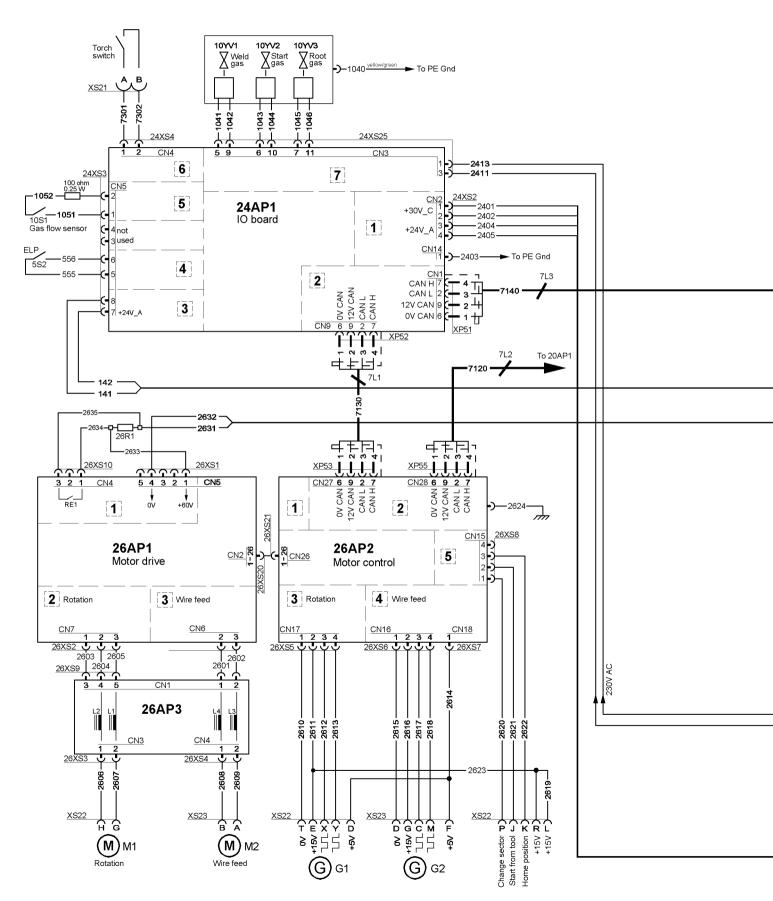
# 9 ORDERING SPARE PARTS

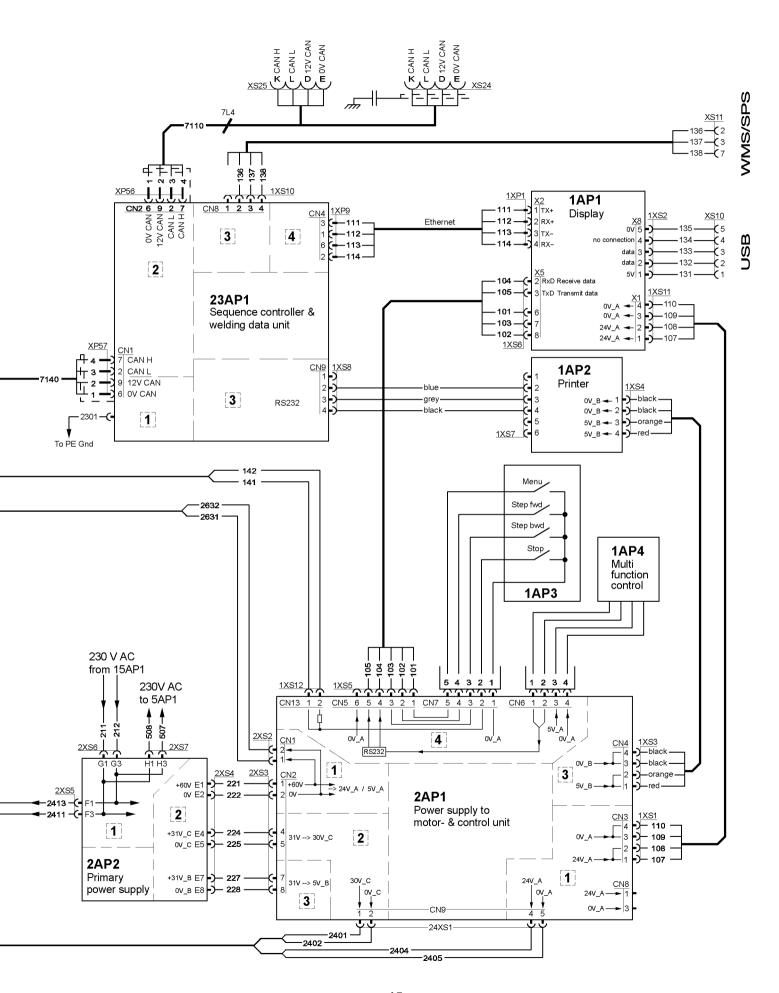
MechTig C2002i is designed and tested in accordance with the international and European standards 60974-1, 60974-2, 60974-3 and 60974-10. It is the obligation of the service unit which has carried out the service or repair work to make sure that the product still conforms to the said standard.

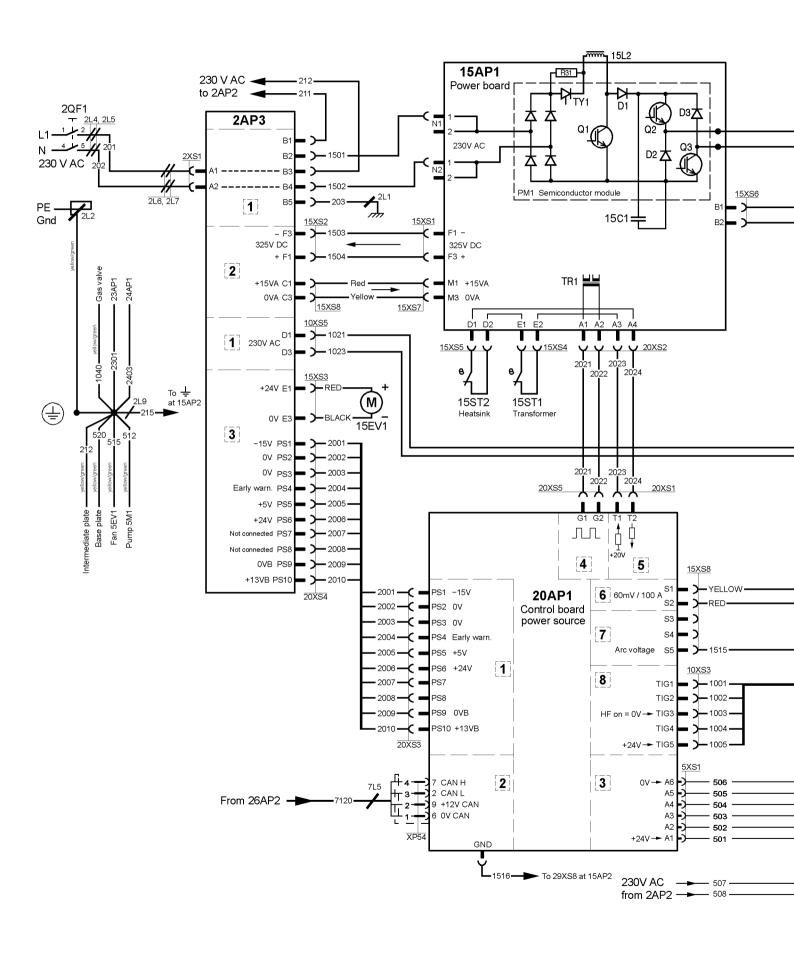
Spare parts may be ordered through your nearest ESAB dealer, see the last page of this publication.

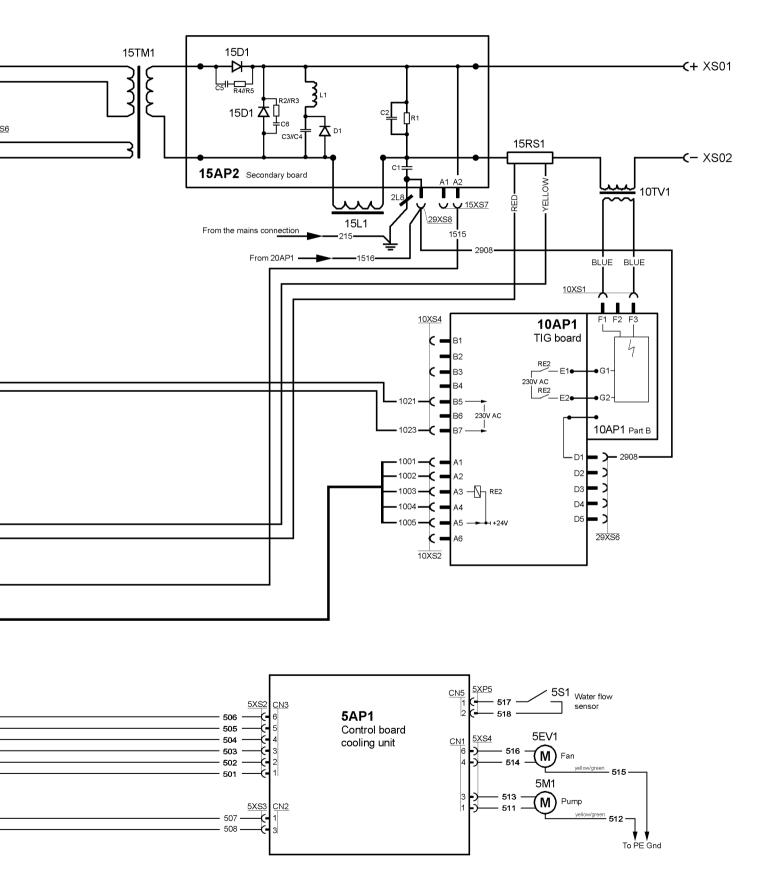
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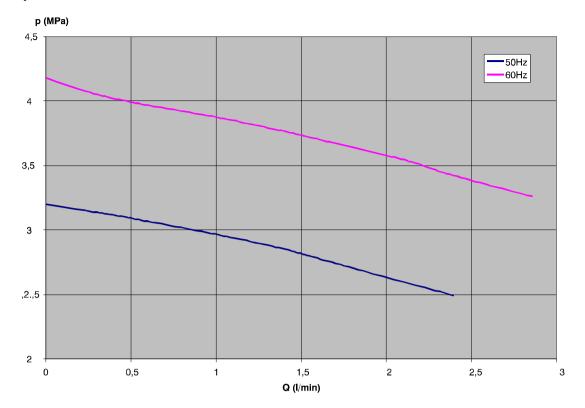








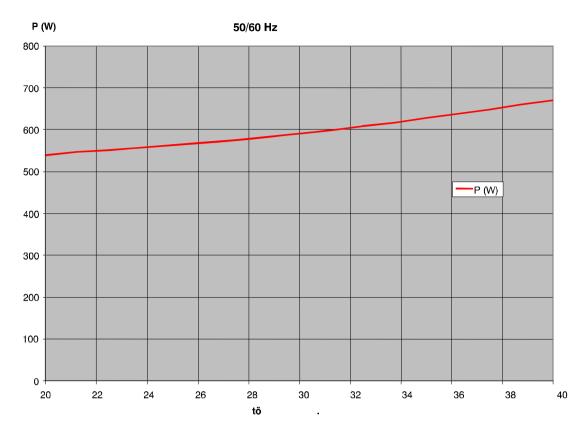
# Pump data



**P** = Pump pressure

**Q** = Flow rate

# **Cooling caracteristic**

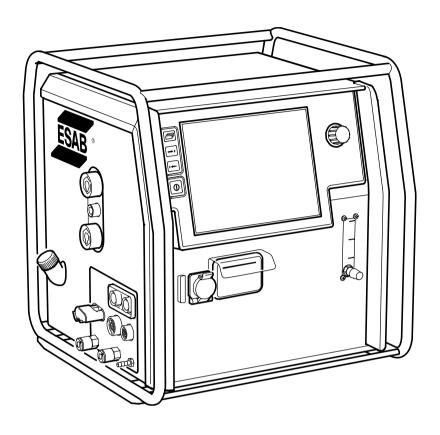


**P** = Power

tö = Flow rate

# MechTig C2002i

# Ordering number



Ordering no.	Denomination	Туре
0444 700 880	Welding power source	Aristo™ MechTig C2002i, WO100
0459 839 009	Spare parts list	Aristo™ MechTig C2002i, WO100
0444 536	Instruction manual	Control panel WO100

Instruction manuals and the spare parts list are available on the Internet at www.esab.com

# MechTig C2002i

# Accessories

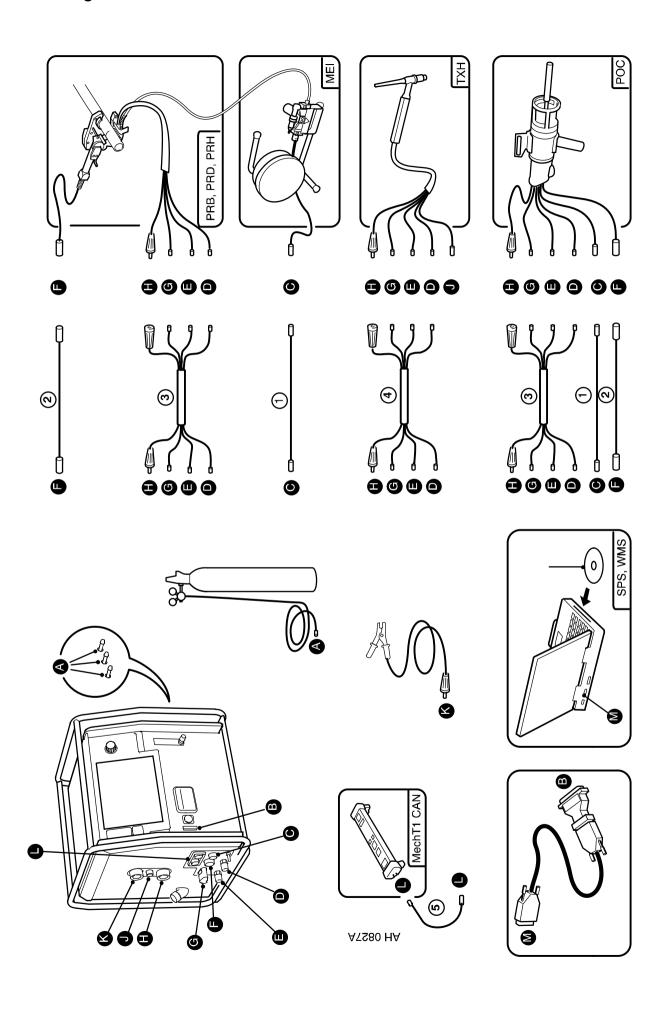
	Thermal paper	0444 529 002
10 L	Coolant (ready mixed) 50 % water and 50% monoethylene glycol (10 l)	0007 810 012
	Carriage	0301 100 880

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# MechTig C2002i

Product	Ordering number
Tube welding tool PRB	
17-49 watercooled	0443 750 882
33-90 watercooled	0443 760 882
60-170 watercooled	0443 770 882
17-49 aircooled	0443 750 883
33-90 aircooled	0443 760 883
60-170 aircooled	0443 770 883
Tube welding tool PRD	
160 (for meltwelding with floating head)	0444 151 880
160 with wire feeder	0444 151 881
Tube welding tool PRH	
3-12 enclosed	0444 300 880
3-38 enclosed	0444 301 880
6-76 enclosed	0444 302 880
Tube welding tool POC 12-60 with wire feed unit	0443 930 880
TIG hand torch TXH 400W (4 m OKC)	0460 014 840
Wire feed unit MEI 10	
for PRB 17-49	0444 211 880
for PRB 33-90	0444 212 880
for PRB 60-170	0444 213 880
Wire feed unit MEI 21	0443 830 880
Remote control unit MechT1 CAN	0460 181 880
S Remote cable CAN 4 pole - 12 pole,	
5 m	0459 554 880
10 m	0459 554 881
15 m	0459 554 882
25 m	0459 554 883
0.25 m	0459 554 884
Documentation system	
Welddoc™ WMS 40000	
SPS 4000	0457 410 881
Opto cable, 15 m	0457 072 881
Opto cable, 2 m	0457 072 882
Return cable 4,5 m, 25 mm <sup>2</sup>	0156 743 909
Extension cable	
① for wire feed unit and CAN 42 V, 10 m	0456 904 880
② for rotation, 10 m	0456 906 880
Extension set	
③ for current, water and gas, 8 m	0456 905 880
for current, water, gas and torch contact, 8 m	0466 705 881

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