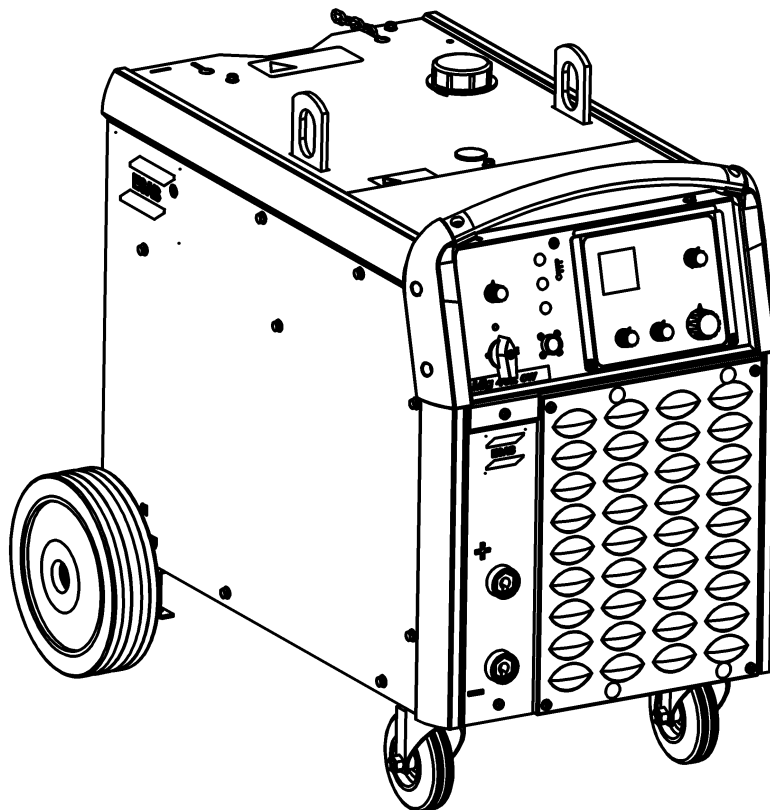


**Origo™**

***Mig 402cw, Mig 402c***

***Mig 502cw, Mig 502c***

***Mig 652cw, Mig 652c***



**Instruction manual**



## DECLARATION OF CONFORMITY

### In Accordance with

The Low Voltage Directive 2006/95/EC of 12 December 2006, entering into force 16 January 2007

The EMC Directive 2004/108/EC of 15 December 2004, entering into force 20 July 2007

### Type of equipment

Welding power sources for MIG/MAG welding

### Brand name or trade mark

ESAB

### Type designation etc.

Origo™ Mig 402c, Mig 402cw, Mig 502c, Mig 502cw, Mig 652c, Mig 652cw

Valid from serial number 712,714,715,716,725,726,743,747,748,749,750,751-xxx-xxxx

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

#### Name, address, telephone No, telefax No:

OZAS-ESAB Sp. z o.o.

ul.A.Struga 10 , 45-073 Opole , Poland

Phone: +48 77 4019200, Fax: +48 77 4019201

### The following harmonised standard 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 system

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 authorised representative established within the EEA, that the equipment in question complies with the safety requirements stated above.**

Place and Date  
Opole , 2011-06-27

Signature

Dariusz Brudkiewicz

Clarification

Position  
Managing Director  
OZAS-ESAB Sp. z o.o.

<b>1 SAFETY</b> .....	<b>4</b>
<b>2 INTRODUCTION</b> .....	<b>6</b>
2.1 Equipment .....	6
<b>3 TECHNICAL DATA</b> .....	<b>6</b>
<b>4 INSTALLATION</b> .....	<b>8</b>
4.1 Placing .....	8
4.2 Assembly of components .....	9
4.3 Mains power supply .....	10
<b>5 OPERATION</b> .....	<b>11</b>
5.1 Connections and control devices .....	11
5.2 Overheating protection .....	12
5.3 Water connection .....	12
5.4 Water flow guard .....	12
<b>6 MAINTENANCE</b> .....	<b>12</b>
6.1 Inspection and cleaning .....	12
6.2 Topping up the coolant .....	13
<b>7 FAULT TRACING</b> .....	<b>13</b>
<b>8 ORDERING OF SPARE PARTS</b> .....	<b>13</b>
<b>DIAGRAM</b> .....	<b>16</b>
<b>CONNECTION INSTRUCTION</b> .....	<b>18</b>
<b>ORDER NUMBER</b> .....	<b>21</b>
<b>ACCESSORIES</b> .....	<b>22</b>

# 1 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.

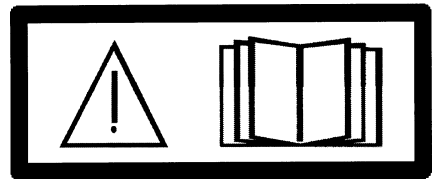
All work must be carried out by trained personnel well-acquainted with the operation of the equipment. Incorrect operation of the equipment may lead to hazardous situations which can result in injury to the operator and damage to the equipment.

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 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.



## CAUTION

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



## WARNING

*Do not use the power source for thawing frozen pipes.*



# 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.**

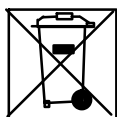
**PROTECT YOURSELF AND OTHERS!**

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



## 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.

## 2 INTRODUCTION

Origo™ Mig 402cw, 402c, Origo™ Mig 502cw, 502c and Origo™ Mig 652cw, 652c are chopper power sources designed for MIG/MAG (together with wire feed units Origo™ Feed 30x, Origo™ Feed 48x and the most of ESAB wire feeders), MMA, TIG (option) -welding.

The power sources are fan-cooled and equipped with thermal overload protection.

**ESAB's accessories for the product can be found on page 22.**

### 2.1 Equipment

The power source is supplied with:

- Return cable 5m with return clamp
- Shelf for gas cylinder
- Attachment chain for gas cylinder
- Guide pin for wire feed unit
- Instruction manual

## 3 TECHNICAL DATA

	<b>Origo™ Mig 402cw, 402c</b>
<b>Mains voltage</b>	230/400-415/500 V 3~ 50 Hz 230/440-460 V 3~ 60 Hz
<b>Permissible load at</b> 60 % duty cycle 100% duty cycle	400 A / 34 V 310 A / 30 V
<b>Setting range (DC)</b> <b>MIG/MAG</b> <b>MMA</b> <b>TIG</b>	20A / 14V-400A /34V 20A / 21V-400A /36V 20A / 11V-400A /26V
<b>Open circuit voltage</b>	53-70 V
<b>Open circuit power</b> with cooling unit	500 W 700 W
<b>Power factor</b> at maximum current	0,88
<b>Efficiency</b> at maximum current	70 %
<b>Control voltage</b>	42 V, 50/60 Hz
<b>Dimensions l x w x h</b>	835 x 640 x 835 mm
<b>Weight</b> with cooling unit	158 kg 172 kg
<b>Operating temperature</b>	-10 to +40° C
<b>Enclosure class</b>	IP 23
<b>Application classification</b>	<b>S</b>

	<b>Origo™ Mig 502cw, 502c</b>
<b>Mains voltage</b>	230/400-415/500 V 3~ 50 Hz 230/440-460 V 3~ 60 Hz
<b>Permissible load at</b> 60% duty cycle 100% duty cycle	500 A / 39 V 400 A / 34 V
<b>Setting range (DC)</b> <b>MIG/MAG</b> <b>MMA</b> <b>TIG</b>	20A/14V-500A /39V 20A/21V-500A /40V 20A/11V-500A /30V
<b>Open circuit voltage</b>	53-70 V
<b>Open circuit power</b> with cooling unit	550 W 750 W
<b>Power factor</b> at maximum current	0,90
<b>Efficiency</b> at maximum current	72 %
<b>Control voltage</b>	42 V, 50/60 Hz
<b>Dimensions l x w x h</b>	835 x 640 x 835 mm
<b>Weight</b> with cooling unit	194 kg 208 kg
<b>Operating temperature</b>	-10 to +40° C
<b>Enclosure class</b>	IP 23
<b>Application classification</b>	<b>S</b>

	<b>Origo™ Mig 652cw, 652c</b>
<b>Mains voltage</b>	230/400-415/500 V 3~ 50 Hz 230/440-460 V 3~ 60 Hz
<b>Permissible load at</b> 60% duty cycle 100% duty cycle	650 A / 44 V 500 A / 39 V
<b>Setting range (DC)</b> <b>MIG/MAG</b> <b>MMA</b> <b>TIG</b>	20A/14V-650A /44V 20A/21V-650A /44V 20A/11V-650A /34V
<b>Open circuit voltage</b>	53-70 V
<b>Open circuit power</b> with cooling unit	670 W 870 W
<b>Power factor</b> at maximum current	0,90
<b>Efficiency</b> at maximum current	76 %
<b>Control voltage</b>	42 V, 50/60 Hz
<b>Dimensions l x w x h</b>	835 x 640 x 835 mm
<b>Weight</b> with cooling unit	228 kg 242 kg
<b>Operating temperature</b>	-10 to +40° C
<b>Enclosure class</b>	IP 23
<b>Application classification</b>	<b>S</b>

Cooling unit	
Cooling power	1,0 kW at 25° C and flow 1l/min
Coolant	ESAB's ready mixed coolant
Coolant quantity	5 l
Maximum water flow	2,1 l/min

**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.*



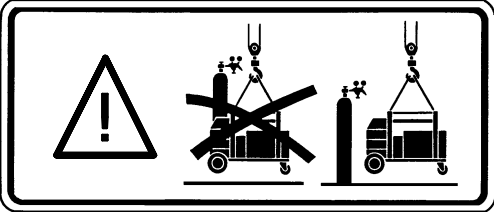
**CAUTION**

*This product is intended for industrial use. In a domestic environment this product may cause radio interference. It is the user's responsibility to take adequate precautions.*



**WARNING**

*Straps must be used when lifting the power source. The handle is only intended for pulling it.*

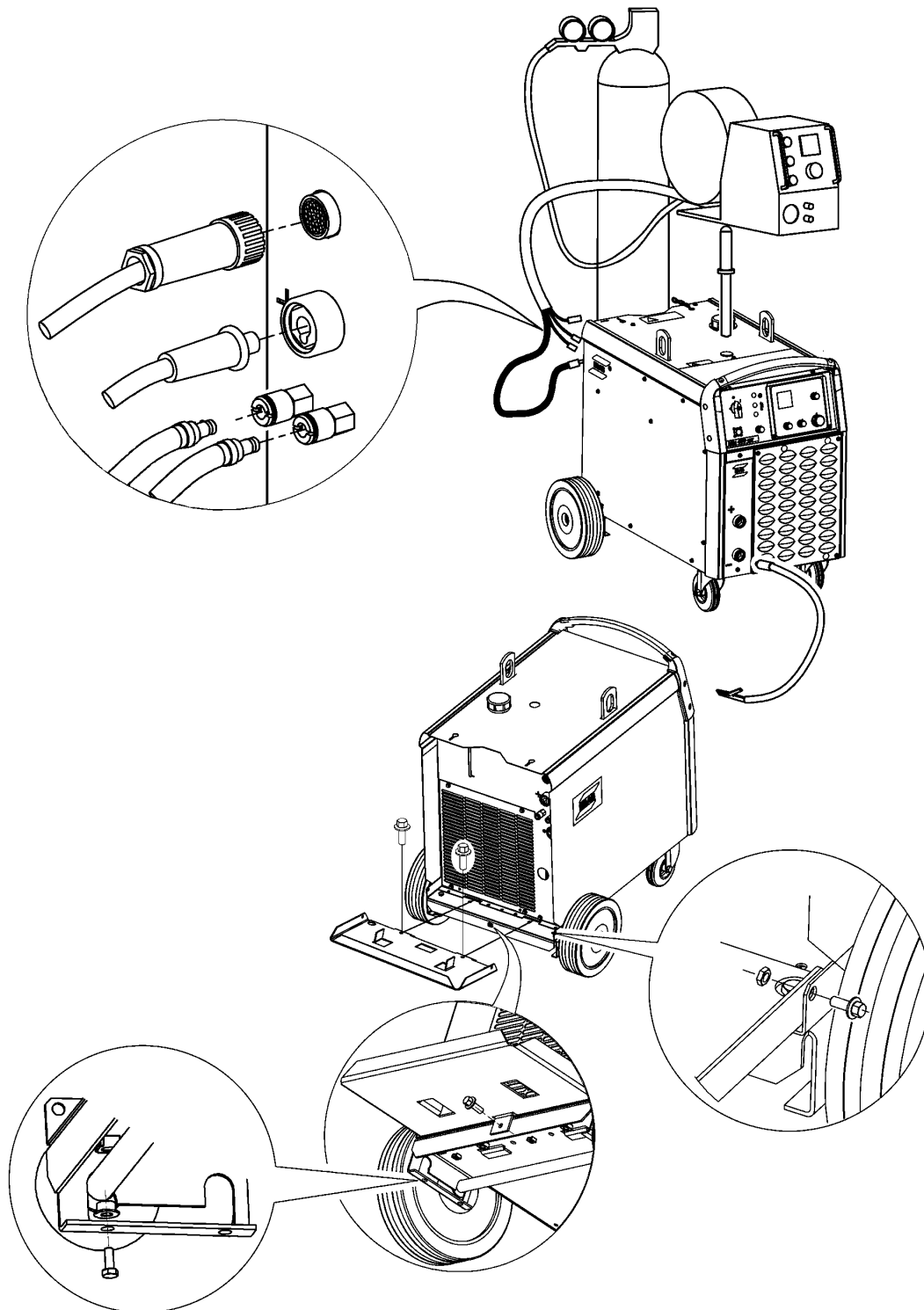


### 4.1 Placing

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



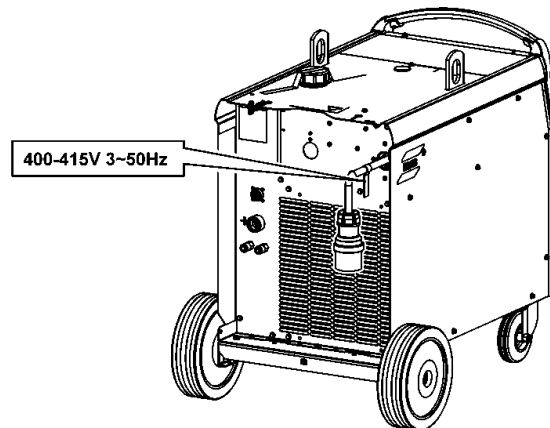
## 4.2 Assembly of components



### WARNING!

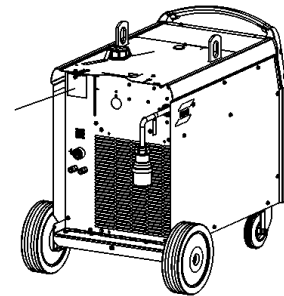
During transport, the rear wheels of the power source are in their forward position. Before use, place the wheels in their rear position.

### 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 size. A protective earth connection must be made, in accordance with regulations.

*Rating plate with supply connection data*



#### Recommended fuse sizes and minimum cable areas

50Hz	Mig 402cw, 402c	Mig 502cw, 502c	Mig 652cw, 652c
<b>Mains voltage</b>	230/400-415/500 V	230/400-415/500 V	230/400-415/500 V
<b>Primary current</b>			
60% duty cycle	56/32(43 <sup>*</sup> )/26 A	75/43(50 <sup>*</sup> )/34 A	103/59(65 <sup>*</sup> )/47
100% duty cycle	43/25/20 A	57/33/26 A	80/46/37 A
<b>Mains cable area (4x)</b>	10/4/4 mm <sup>2</sup>	16/6/6 mm <sup>2</sup>	25/10/10 mm <sup>2</sup>
<b>Fuse anti-surge</b>	35/25(50 <sup>*</sup> )/20 A	63/35(50 <sup>*</sup> )/35 A	80/50(63 <sup>*</sup> )/50 A

60Hz	Mig 402cw, 402c	Mig 502cw, 502c	Mig 652cw, 652c
<b>Mains voltage</b>	230/440-460 V	230/440-460 V	230/440-460 V
<b>Primary current</b>			
60% duty cycle	56/32(43 <sup>*</sup> ) A	75/43(50 <sup>*</sup> ) A	103/59(65 <sup>*</sup> ) A
100% duty cycle	43/25 A	57/33 A	80/46 A
<b>Mains cable area (4x)</b>	10/4 mm <sup>2</sup>	16/6 mm <sup>2</sup>	25/10 mm <sup>2</sup>
<b>Fuse anti-surge</b>	35/25(50 <sup>*</sup> ) A	63/35(50 <sup>*</sup> ) A	80/50(63 <sup>*</sup> ) A

\* AAG (Arc Air Gouging)

**NB:** The mains cable areas and fuse sizes as shown above are in accordance with Swedish regulations. They may not be applicable in other countries: make sure that the cable area and fuse sizes comply with the relevant national regulations.

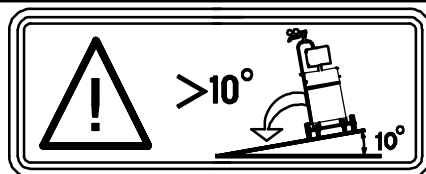
## 5 OPERATION

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



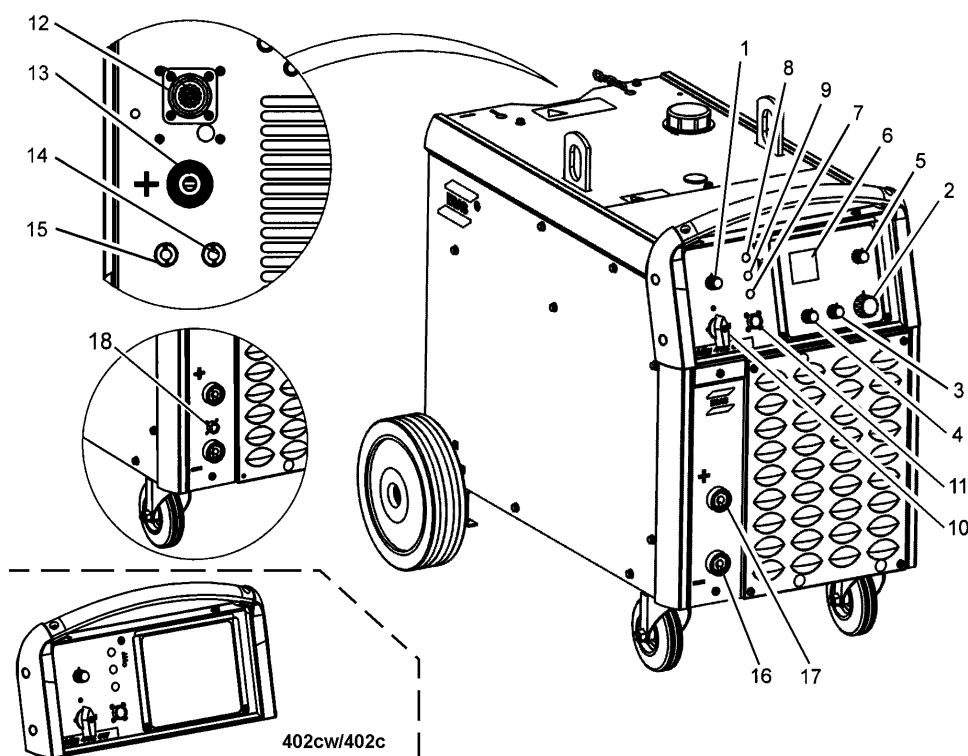
### WARNING

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



### 5.1 Connections and control devices

- |   |                                                                                               |    |                                                          |
|---|-----------------------------------------------------------------------------------------------|----|----------------------------------------------------------|
| 1 | Stepless inductance (di/dt) control knob                                                      | 10 | Main supply switch                                       |
| 2 | Current setting knob                                                                          | 11 | Remote current control socket                            |
| 3 | HOT START knob                                                                                | 12 | Control cable socket (from / to wire feeder)             |
| 4 | ARC FORCE knob                                                                                | 13 | Connection for weldng current cable (+)                  |
| 5 | Welding method switch                                                                         | 14 | Connection BLUE for cooling water to the wire feed unit  |
| 6 | Display (digital meters) is an accessory see on page 22                                       | 15 | Connection RED for cooling water from the wire feed unit |
| 7 | Orange indicating lamp, lack of coolant circulation (in machines with cooling liquid systems) | 16 | Connection for return cable (-)                          |
| 8 | White indicating lamp, power supply ON                                                        | 17 | Connection for weldng current cable (+)                  |
| 9 | Orange indicating lamp, overheating                                                           | 18 | LiftArc™ start kit (TIG) is an accessory see on page 22  |



## 5.2 Overheating protection

The power source has one thermal overload trip which operates if the internal temperature becomes too high, interrupting the welding current and lighting the orange indicating lamp on the front of the unit. It resets automatically when the temperature has fallen and the indicating lamp will go out.

## 5.3 Water connection

The Origo™ Feed has a sensor **ELP, ESAB Logic Pump**, that senses if the water hoses of the welding gun are connected. When a water cooled welding gun is connected, the water pump starts.

When connecting the cooling water hoses to/from the Feed wire feed unit, the mains ON/OFF switch of the Origo™ Mig must be in the OFF position.

**Note**, if a water cooled welding gun is used when the pump is inactive, the welding gun might be damaged, therefore it is not recommended to use wire feeders not equipped with ELP.

## 5.4 Water flow guard

The water flow guard interrupts the welding current in the event of loss of coolant and an orange indicating lamp on the front of the power source lights up.

The water flow guard is an accessory. Ordering number see on page 23.

---

# 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.*



### 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 Inspection and cleaning

Check regularly that the power source is free from dirt.

The power source should be regularly blown clean using dry compressed air at reduced pressure, see page 15. This should be done more frequently in dirty environments.

Otherwise the air inlet/outlet may become blocked and cause overheating. To avoid this you can use an air filter.

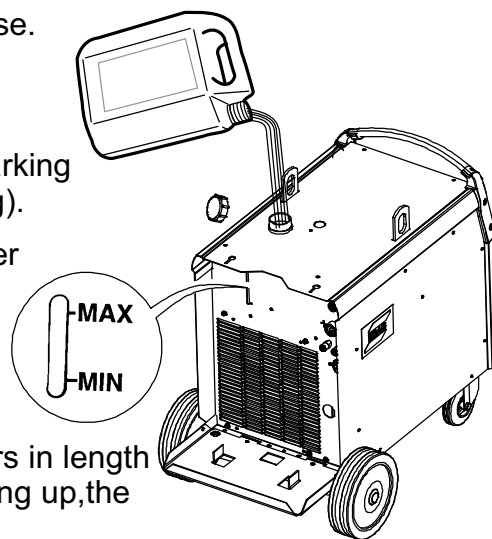
The air filter is an accessory. The order number can be found on page [22](#).

## 6.2 Topping up the coolant

ESAB ready mixed coolant is recommended for use. See accessories on page 22.

- Fill with coolant.  
(The fluid level must not exceed the upper marking but neither must it be below the lower marking).
- Disconnect the coolant hose for outgoing water (welding gun blue connection) in order to bleed any trapped air.
- Connect the coolant hose again.

**Note!** Coolant must be topped up if connecting a welding gun or connection cables that are 5 meters in length or longer. When adjusting the water level by topping up, the coolant hose does not need to be disconnected.



## 7 FAULT TRACING

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

Type of fault	Actions
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> </ul>
Welding current is interrupted during welding	<ul style="list-style-type: none"> <li>• Check whether the thermal overload trip has operated (indicated by the orange lamp on the front)</li> <li>• Check the main power supply fuses.</li> </ul>
The thermal overload 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 welding wires are being used.</li> <li>• Check the main power supply fuses.</li> </ul>

## 8 ORDERING OF SPARE PARTS

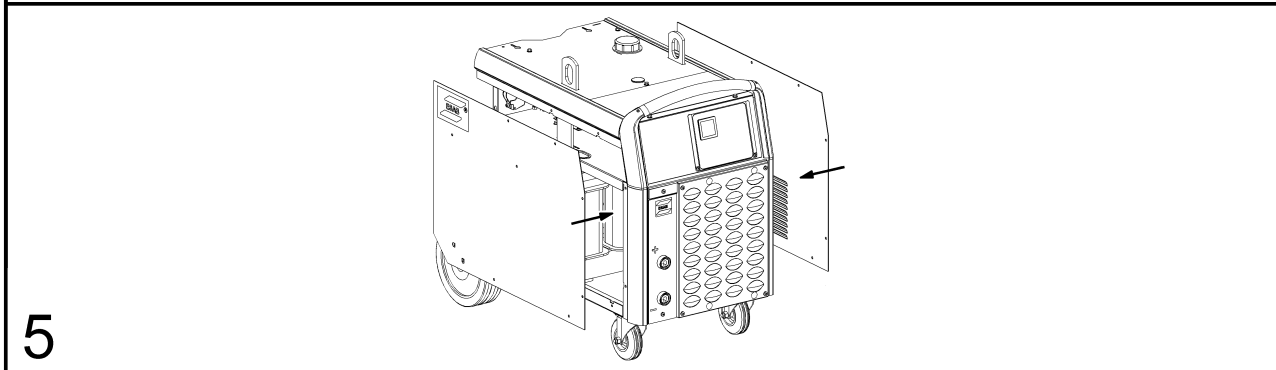
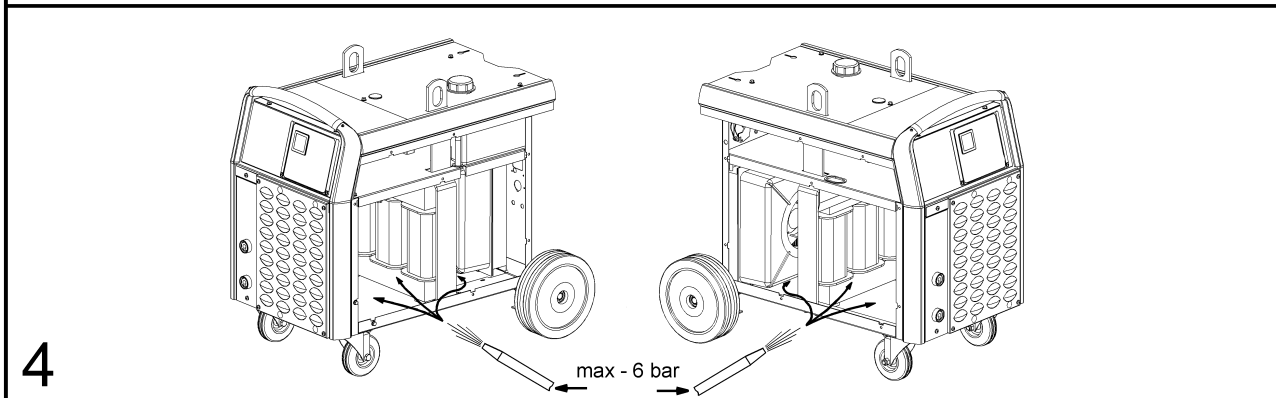
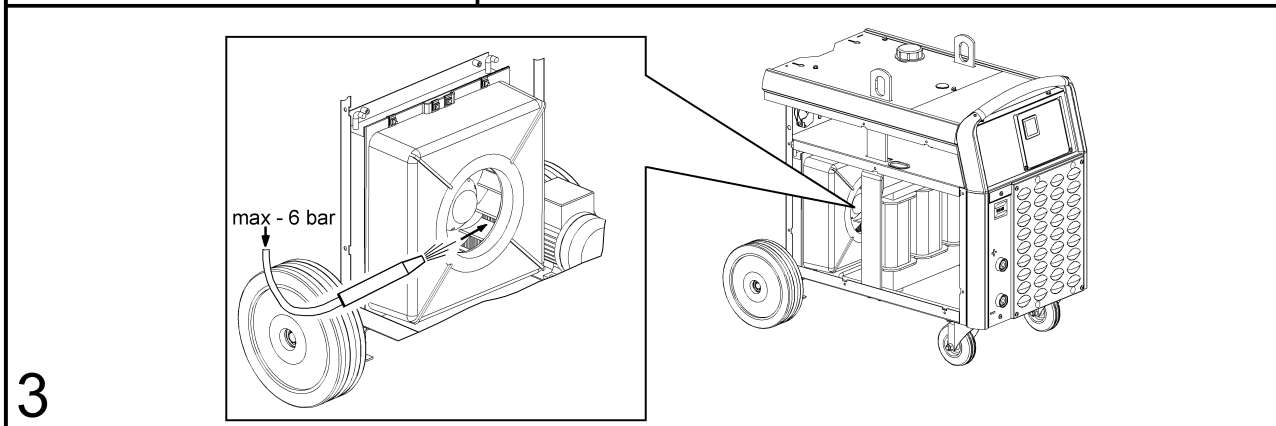
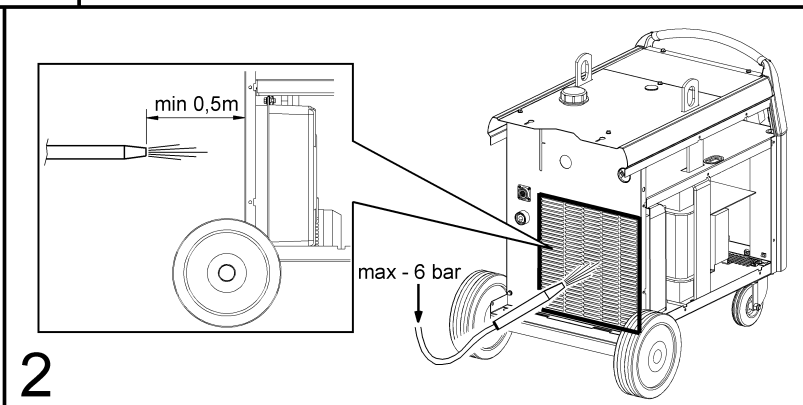
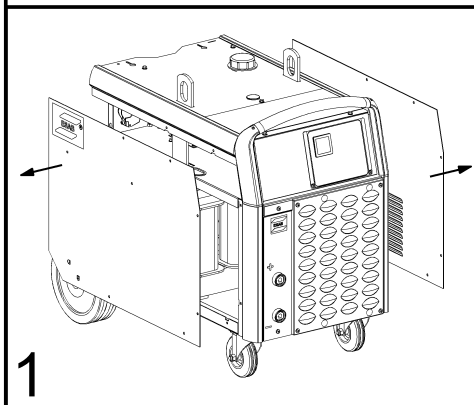
Origo™ Mig 402cw, 402c / Origo™ Mig 502cw, 502c / Origo™ Mig 652cw, 652c is designed and tested in accordance with the international and European standards EN 60974-1 and EN 60974-10. It is the obligation of the service unit which has carried out the service or repair work to make sure that the product still conforms to the said standard.

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

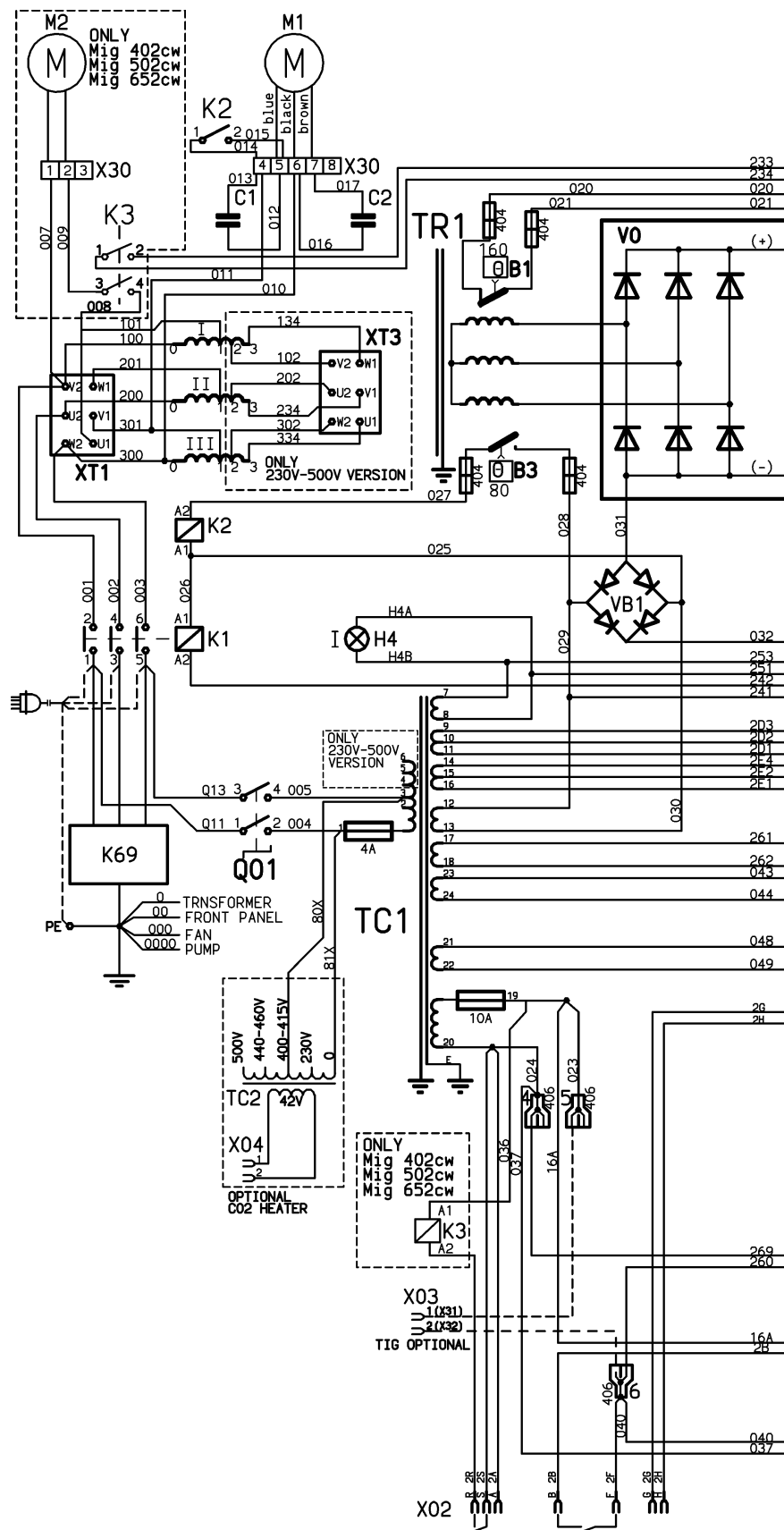
## NOTES

A series of horizontal dotted lines for writing notes.

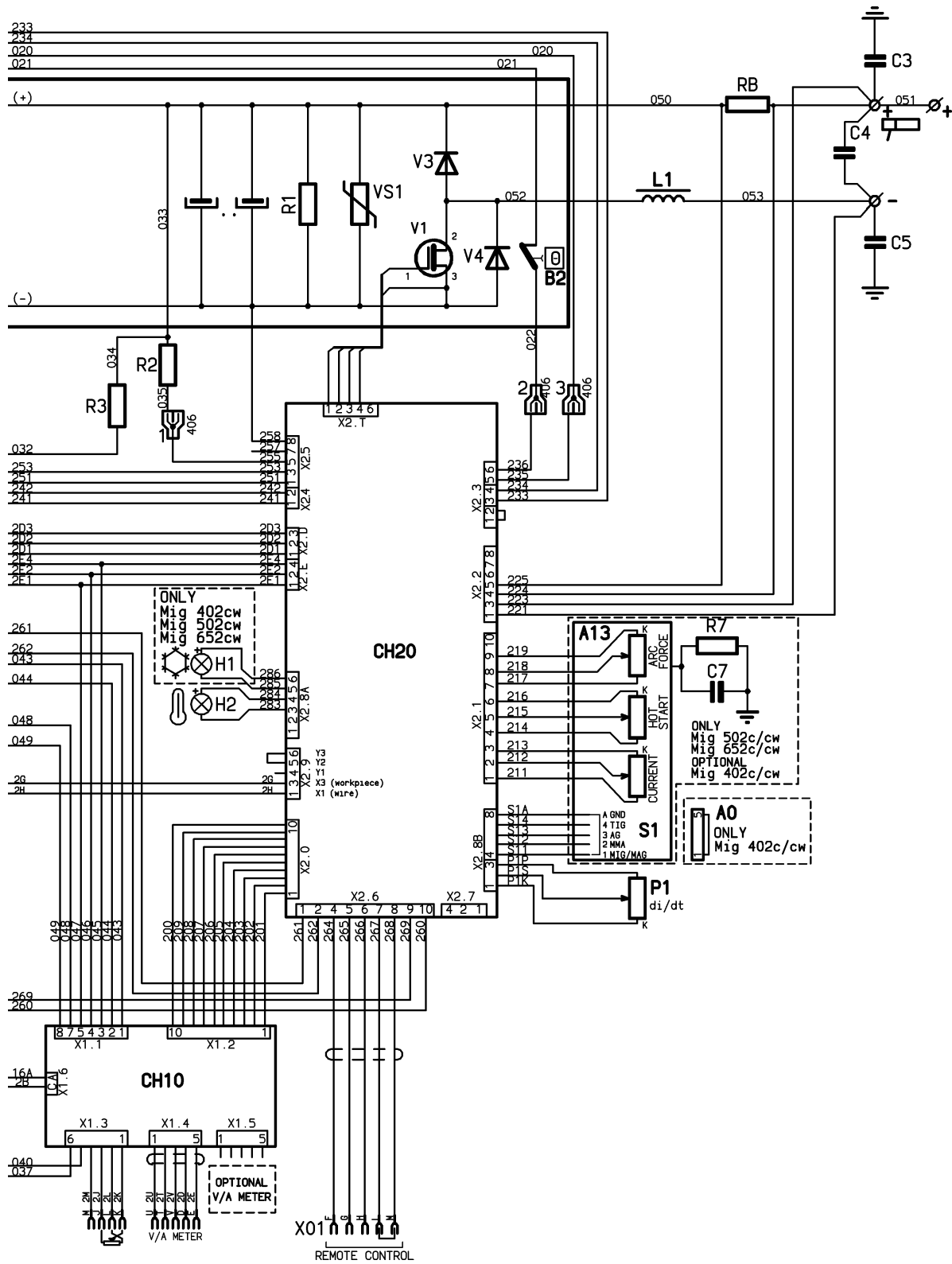
# Cleaning



# Diagram

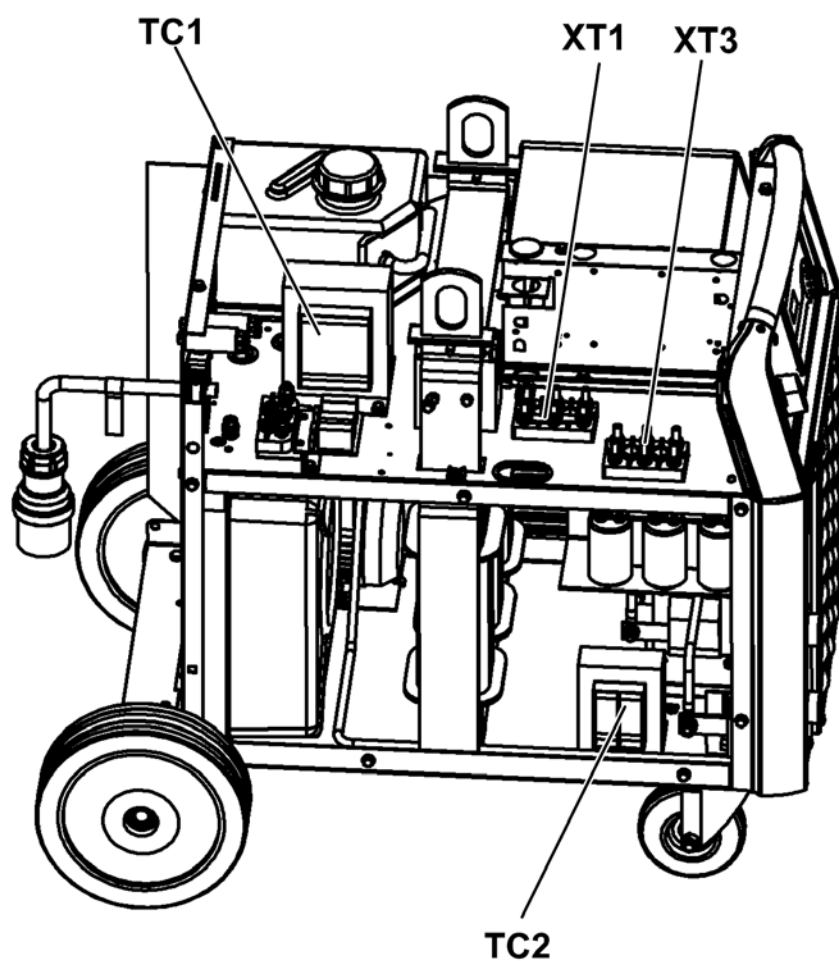


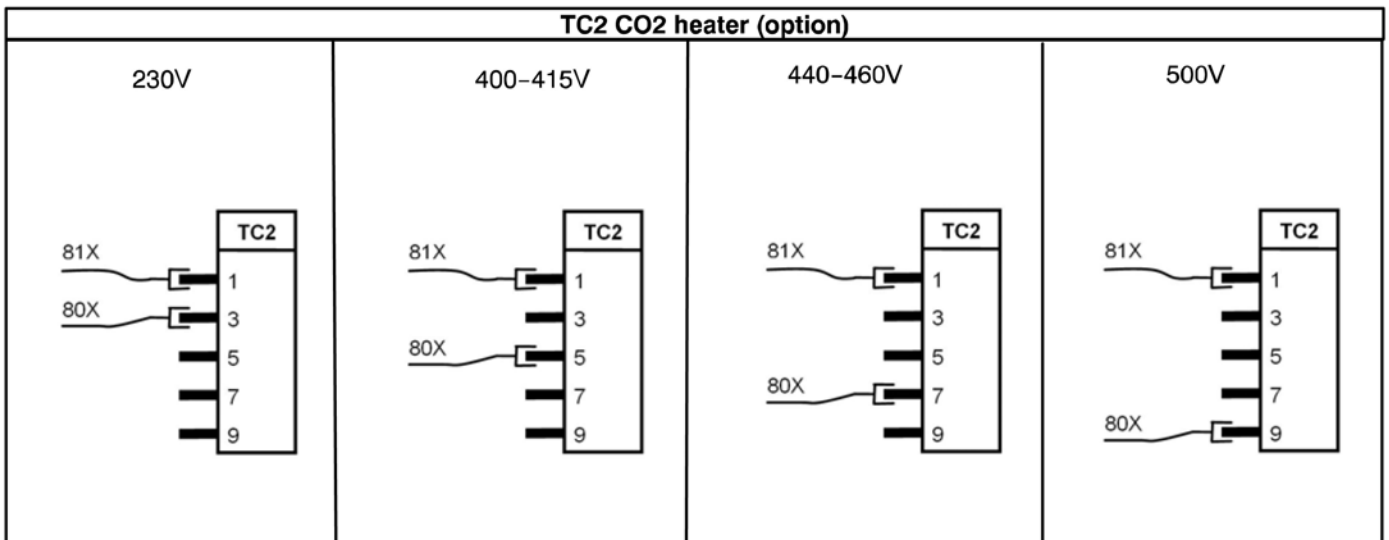
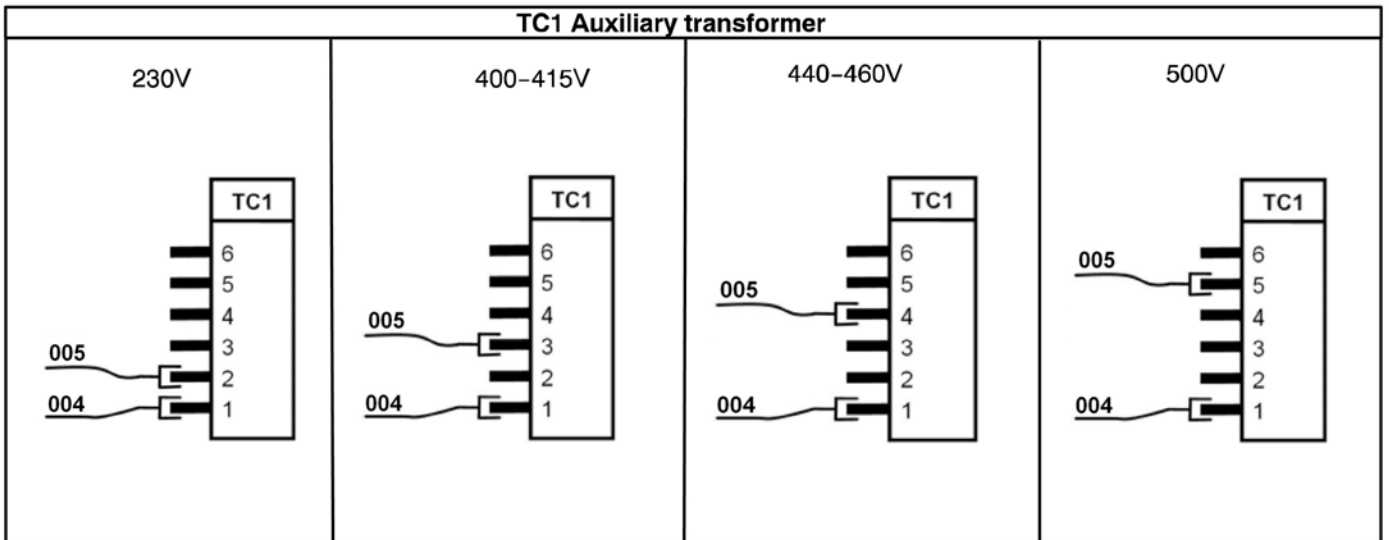
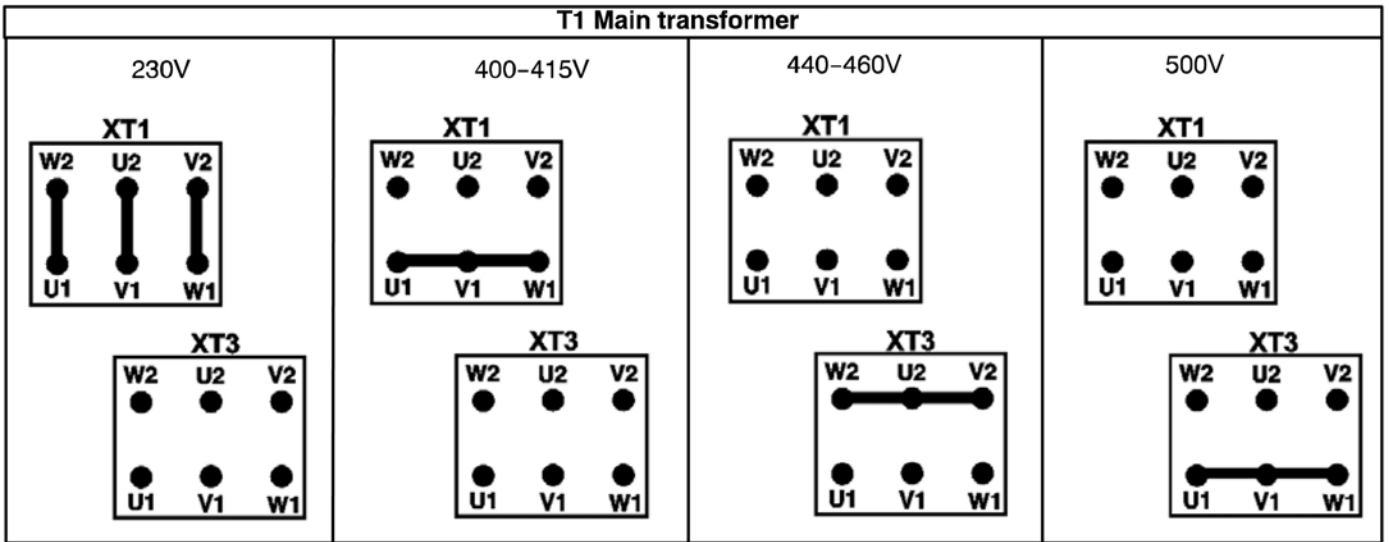




## Connection instruction

230V / 400-415V / 440-460V / 500V



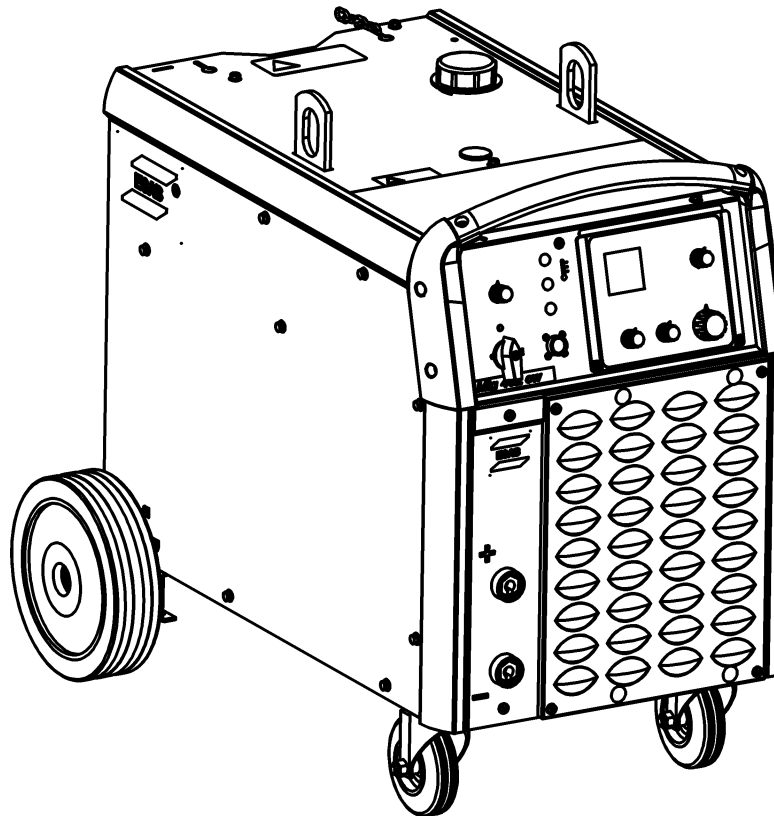


## Burndy 23 <-> Amphenol 19

Burndy 23	Amphenol 19	Signals
A	A	42V
B	B	42V
C		
D	D	12V
E	E	0V
F	F	Start contact
G	G	Artificial ground
H	H	Arc voltage
J	J	+15VB
K	K	Ref
L	L	0VB
M		
N		
P		
R		
S		
T	T	Data display
U	U	Clock display
V	V	Load display
W	M	Crater fill
X	R	Water connection monitoring
Y	S	Water connection monitoring
Z		

## Mig 402c, Mig 502c, Mig 652c

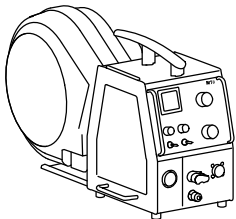
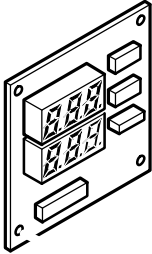
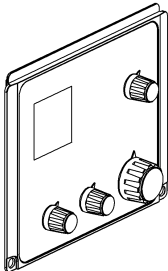
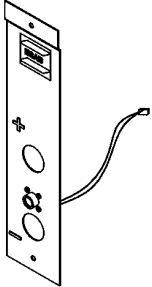
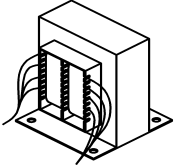
### Order number

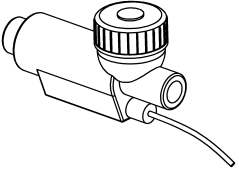
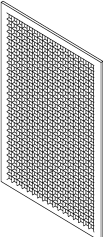
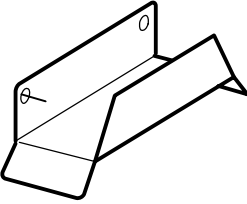
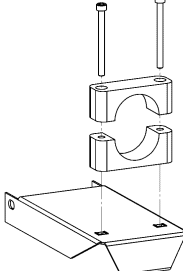
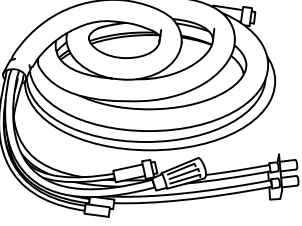


Valid for serial no. 712-xxx-xxxx to 751-xxx-xxxx

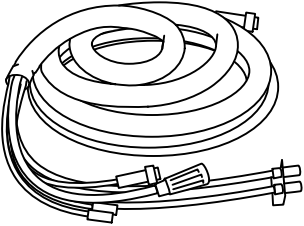
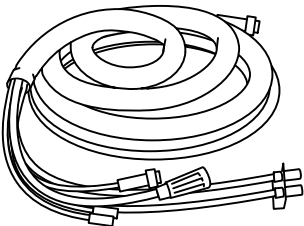

Ordering no.	Type	Notes	Ser.no.
0349 308 500	Origo™ Mig 402cw	400V - 415V, 3~50Hz; with water cooler	712
0349 310 750	Origo™ Mig 402c	400V - 415V, 3~50Hz	714
0349 310 760	Origo™ Mig 502cw	400V - 415V, 3~50Hz; with water cooler	715
0349 310 770	Origo™ Mig 502c	400V - 415V, 3~50Hz	716
0349 310 800	Origo™ Mig 652cw	400V - 415V, 3~50Hz; with water cooler	725
0349 311 060	Origo™ Mig 652c	400V - 415V, 3~50Hz	726
0349 311 230	Origo™ Mig 402cw	230V - 500V, 3~50Hz, 3~60Hz; with water cooler	743
0349 311 220	Origo™ Mig 402c	230V - 500V, 3~50Hz, 3~60Hz	747
0349 311 250	Origo™ Mig 502cw	230V - 500V, 3~50Hz, 3~60Hz; with water cooler	748
0349 311 240	Origo™ Mig 502c	230V - 500V, 3~50Hz, 3~60Hz	749
0349 311 270	Origo™ Mig 652cw	230V - 500V, 3~50Hz, 3~60Hz; with water cooler	751
0349 311 260	Origo™ Mig 652c	230V - 500V, 3~50Hz, 3~60Hz	750

Accessories

	<p><b>Origo™ Feed with capsulated bobbin, M13 panel</b></p> <p>Origo™ Feed 304 M13 with display ..... 0459 116 864</p> <p>Origo™ Feed 304 M13 with display and water 0459 116 874</p> <p>Origo™ Feed 484 M13 with display and water 0459 116 974</p>
	<p><b>Digital instrument</b> ..... 0455 173 882</p> <p>only Mig 502cw,502c, Mig 652cw,652c</p>
	<p><b>Digital instrument (with Panel A13)</b> ..... 0349 310 396</p> <p>for Mig 402cw,402c</p>
	<p><b>LiftArc™ start kit</b> ..... 0349 311 530</p>
	<p><b>Transformer for CO<sub>2</sub> heater</b> ..... 0349 302 250</p>

	<p><b>Water flow guard</b> ..... 0349 302 251</p>
	<p><b>Filter</b> ..... 0349 302 252</p>
	<p><b>Holder for welding gun and cables</b> ..... 0349 303 362</p>
	<p><b>Strai relief</b> ..... 0349 311 700</p>
	<p><b>Connection set for 400 A power sources</b></p> <p>Connection set 1.7 m ..... 0459 836 880</p> <p>Connection set 5 m ..... 0459 836 881</p> <p>Connection set 10 m ..... 0459 836 882</p> <p>Connection set 15 m ..... 0459 836 883</p> <p>Connection set 25 m ..... 0459 836 884</p> <p>Connection set 35 m ..... 0459 836 885</p> <p>Connection set 1.7 m, water ..... 0459 836 890</p> <p>Connection set 5 m, water ..... 0459 836 891</p> <p>Connection set 10 m, water ..... 0459 836 892</p> <p>Connection set 15 m, water ..... 0459 836 893</p> <p>Connection set 25 m, water ..... 0459 836 894</p> <p>Connection set 35 m, water ..... 0459 836 895</p>

**Mig 402c, Mig 502c, Mig 652c**

	<p><b>Connection set for 500 A power sources</b></p> <p>Connection set 1.7 m ..... 0459 836 980</p> <p>Connection set 5 m ..... 0459 836 981</p> <p>Connection set 10 m ..... 0459 836 982</p> <p>Connection set 15 m ..... 0459 836 983</p> <p>Connection set 25 m ..... 0459 836 984</p> <p>Connection set 35 m ..... 0459 836 985</p> <p>Connection set 1.7 m, water ..... 0459 836 990</p> <p>Connection set 5 m, water ..... 0459 836 991</p> <p>Connection set 10 m, water ..... 0459 836 992</p> <p>Connection set 15 m, water ..... 0459 836 993</p> <p>Connection set 25 m, water ..... 0459 836 994</p> <p>Connection set 35 m, water ..... 0459 836 995</p>
	<p><b>Connection set for 650 A power sources</b></p> <p>Connection set 1.7 m, water ..... 0459 836 990</p> <p>Connection set 5 m, water ..... 0459 836 991</p> <p>Connection set 10 m, water ..... 0459 836 992</p> <p>Connection set 15 m, water ..... 0459 836 993</p> <p>Connection set 25 m, water ..... 0459 836 994</p> <p>Connection set 35 m, water ..... 0459 836 995</p>
	<p><b>Coolant ready mixed (5 l) ..... 0349 483 296</b></p>

For more information of the accessories contact the nearest ESAB agency.







NOTES

A series of 30 horizontal dotted lines for writing notes.

# ESAB subsidiaries and representative offices

<b>Europe</b> <b>AUSTRIA</b> ESAB Ges.m.b.H Vienna-Liesing Tel: +43 1 888 25 11 Fax: +43 1 888 25 11 85 <b>BELGIUM</b> S.A. ESAB N.V. Brussels Tel: +32 2 745 11 00 Fax: +32 2 745 11 28 <b>BULGARIA</b> ESAB Kft Representative Office Sofia Tel/Fax: +359 2 974 42 88 <b>THE CZECH REPUBLIC</b> ESAB VAMBERK s.r.o. Vamberk Tel: +420 2 819 40 885 Fax: +420 2 819 40 120 <b>DENMARK</b> Aktieselskabet ESAB Herlev Tel: +45 36 30 01 11 Fax: +45 36 30 40 03 <b>FINLAND</b> ESAB Oy Helsinki Tel: +358 9 547 761 Fax: +358 9 547 77 71 <b>FRANCE</b> ESAB France S.A. Cergy Pontoise Tel: +33 1 30 75 55 00 Fax: +33 1 30 75 55 24 <b>GERMANY</b> ESAB GmbH Solingen Tel: +49 212 298 0 Fax: +49 212 298 218 <b>GREAT BRITAIN</b> ESAB Group (UK) Ltd Waltham Cross Tel: +44 1992 76 85 15 Fax: +44 1992 71 58 03 ESAB Automation Ltd Andover Tel: +44 1264 33 22 33 Fax: +44 1264 33 20 74 <b>HUNGARY</b> ESAB Kft Budapest Tel: +36 1 20 44 182 Fax: +36 1 20 44 186 <b>ITALY</b> ESAB Saldatura S.p.A. Bareggio (Mi) Tel: +39 02 97 96 8.1 Fax: +39 02 97 96 87 01 <b>THE NETHERLANDS</b> ESAB Nederland B.V. Amersfoort Tel: +31 33 422 35 55 Fax: +31 33 422 35 44	<b>NORWAY</b> AS ESAB Larvik Tel: +47 33 12 10 00 Fax: +47 33 11 52 03 <b>POLAND</b> ESAB Sp.zo.o. Katowice Tel: +48 32 351 11 00 Fax: +48 32 351 11 20 <b>PORTUGAL</b> ESAB Lda Lisbon Tel: +351 8 310 960 Fax: +351 1 859 1277 <b>ROMANIA</b> ESAB Romania Trading SRL Bucharest Tel: +40 316 900 600 Fax: +40 316 900 601 <b>RUSSIA</b> LLC ESAB Moscow Tel: +7 (495) 663 20 08 Fax: +7 (495) 663 20 09 <b>SLOVAKIA</b> ESAB Slovakia s.r.o. Bratislava Tel: +421 7 44 88 24 26 Fax: +421 7 44 88 87 41 <b>SPAIN</b> ESAB Ibérica S.A. Alcalá de Henares (MADRID) Tel: +34 91 878 3600 Fax: +34 91 802 3461 <b>SWEDEN</b> ESAB Sverige AB Gothenburg Tel: +46 31 50 95 00 Fax: +46 31 50 92 22 ESAB international AB Gothenburg Tel: +46 31 50 90 00 Fax: +46 31 50 93 60 <b>SWITZERLAND</b> ESAB AG Dietikon Tel: +41 1 741 25 25 Fax: +41 1 740 30 55 <b>UKRAINE</b> ESAB Ukraine LLC Kiev Tel: +38 (044) 501 23 24 Fax: +38 (044) 575 21 88	<b>North and South America</b> <b>ARGENTINA</b> CONARCO Buenos Aires Tel: +54 11 4 753 4039 Fax: +54 11 4 753 6313 <b>BRAZIL</b> ESAB S.A. Contagem-MG Tel: +55 31 2191 4333 Fax: +55 31 2191 4440 <b>CANADA</b> ESAB Group Canada Inc. Mississauga, Ontario Tel: +1 905 670 02 20 Fax: +1 905 670 48 79 <b>MEXICO</b> ESAB Mexico S.A. Monterrey Tel: +52 8 350 5959 Fax: +52 8 350 7554 <b>USA</b> ESAB Welding & Cutting Products Florence, SC Tel: +1 843 669 44 11 Fax: +1 843 664 57 48 <b>Asia/Pacific</b> <b>AUSTRALIA</b> ESAB South Pacific Archerfield BC QLD 4108 Tel: +61 1300 372 228 Fax: +61 7 3711 2328 <b>CHINA</b> Shanghai ESAB A/P Shanghai Tel: +86 21 2326 3000 Fax: +86 21 6566 6622 <b>INDIA</b> ESAB India Ltd Calcutta Tel: +91 33 478 45 17 Fax: +91 33 468 18 80 <b>INDONESIA</b> P.T. ESABindo Pratama Jakarta Tel: +62 21 460 0188 Fax: +62 21 461 2929 <b>JAPAN</b> ESAB Japan Tokyo Tel: +81 45 670 7073 Fax: +81 45 670 7001 <b>MALAYSIA</b> ESAB (Malaysia) Snd Bhd USJ Tel: +603 8023 7835 Fax: +603 8023 0225 <b>SINGAPORE</b> ESAB Asia/Pacific Pte Ltd Singapore Tel: +65 6861 43 22 Fax: +65 6861 31 95	<b>SOUTH KOREA</b> ESAB SeAH Corporation Kyungnam Tel: +82 55 269 8170 Fax: +82 55 289 8864 <b>UNITED ARAB EMIRATES</b> ESAB Middle East FZE Dubai Tel: +971 4 887 21 11 Fax: +971 4 887 22 63 <b>Africa</b> <b>EGYPT</b> ESAB Egypt Dokki-Cairo Tel: +20 2 390 96 69 Fax: +20 2 393 32 13 <b>SOUTH AFRICA</b> ESAB Africa Welding & Cutting Ltd Durbanvill 7570 - Cape Town Tel: +27 (0)21 975 8924  <b>Distributors</b> <i>For addresses and phone numbers to our distributors in other countries, please visit our home page</i> <a href="http://www.esab.com">www.esab.com</a>
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------



[www.esab.com](http://www.esab.com)

