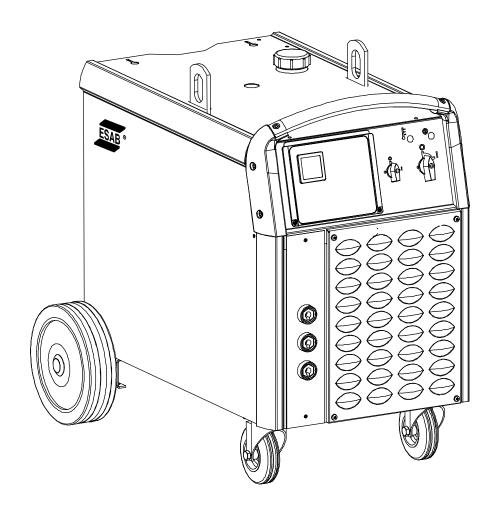


Mig 400t Mig 500t

Origo ™



Instruction manual

1 DIRECTIVE	3
2 SAFETY	3
3 INTRODUCTION	5
3.1 Equipment	5
4 TECHNICAL DATA	5
5 INSTALLATION	7
5.1 Placing	7
5.2 Assembly of components	7
5.3 Electrical installation	8
5.4 Mains power supply	9
6 OPERATION	10
6.1 Connections and control devices	10
6.2 Overheating protection	11
6.3 Water connection	11
6.4 Water flow guard	11
6.5 Inductance	11
7 MAINTENANCE	11
7.1 Inspection and cleaning	12
7.2 Topping up the coolant	12
8 FAULT TRACING	12
9 ORDERING OF SPARE PARTS	13
DIAGRAM	14
ACCESSORIES	19

TOCe - 2 -



1 DIRECTIVE

DECLARATION OF CONFORMITY

ESAB AB, Welding Equipment, SE-695 81 Laxå, Sweden, gives its unreserved guarantee that welding power source OrigoTM Mig 400t / OrigoTM Mig 500t from serial number 627 complies with standard IEC/EN 60974-1, in accordance with the requirements of directive (73/23/EEC) and addendum (93/68/EEC) and with standard IEC/EN 60974-10 in accordance with the requirements of directive (89/336/EEC) and addendum (93/68/EEC).

Laxå 2006-09-05

Kent Eimbrodt

Global Director Equipment and Automation

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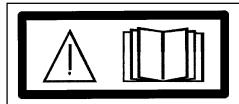
2 SAFETY

Users of ESAB welding 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 welding 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 welding 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 welding equipment must be familiar with:
 - its operation
 - · location of emergency stops
 - its function
 - · relevant safety precautions
 - welding
- 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
- The workplace must:
 - be suitable for the purpose
 - · be free from draughts
- 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!

Read and understand the instruction manual before installing or operating.



WARNING



ARC WELDING AND CUTTING CAN BE INJURIOUS TO YOURSELF AND OTHERS. TAKE PRECAUTIONS WHEN WELDING. ASK FOR YOUR EMPLOYER'S SAFETY PRACTICES WHICH SHOULD BE BASED ON MANUFACTURERS' HAZARD DATA.

ELECTRIC SHOCK - Can kill

- Install and earth the welding 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.



WARNING!

Do not use the power source for thawing frozen pipes.



This product is solely intended for arc welding.



Do not dispose of electrical equipment together with normal waste!

In observance of European Directive 2002/96/EC on Waste Electrical and Electronic Equipment and its implementation in accordance with national law, electrical equipment that has reached the end of its life must be collected separately and returned to an environmentally compatible recycling facility. As the owner of the equipment, you should get information on approved collection systems from our local representative.

By applying this European Directive you will improve the environment and human health!



3 INTRODUCTION

OrigoTM Mig 400t and OrigoTM Mig 500t are thyristor power sources designed for MIG/MAG-welding together with wire feed units OrigoTM Feed 30x, OrigoTM Feed 48x and the most of ESAB wire feeders.

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

ESAB's accessories for the product can be found on page 19.

3.1 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

4 TECHNICAL DATA

	Origo TM Mig 400t	Origo TM Mig 400t
Mains voltage	400/415 V 3~ 50 Hz	230/400/415/500 V, 3~ 50 Hz 230/440/460 V, 3~ 60 Hz
Permissible load at 45% duty cycle 60 % duty cycle 100% duty cycle	400 A / 34 V 350 A / 32 V 280 A / 28 V	400 A / 34 V 350 A / 32 V 280 A / 28 V
Setting range (DC)	50A /16.5V-400A /34V	50A/16.5V-400 A/34V
Open circuit voltage	53-58 V	53-58 V
Open circuit power with cooling unit	590 W 790 W	640 W 840 W
Power factor at maximum current	0,86	0,86
Efficiency at maximum current	74 %	76 %
Control voltage	42 V, 50/60 Hz	42 V, 50/60 Hz
Dimensions Ixwxh	800 x 640 x 835 mm	800 x 640 x 835 mm
Weight with cooling unit	209 kg 223 kg	210 kg 224 kg
Operating temperature	-10 to +40°C	-10 to +40°C
Enclosure class	IP 23	IP 23
Application classification	S	S



	Origo TM Mig 500t	Origo TM Mig 500t
Mains voltage	400/415 V 3~ 50 Hz	230/400/415/500 V, 3~ 50 Hz 230/440/460 V, 3~ 60 Hz
Permissible load at 60% duty cycle 80 % duty cycle 100% duty cycle	500 A / 39 V 450 A / 37 V 400 A / 34 V	500 A / 39 V 435 A / 36 V 390 A / 33,5 V
Setting range (DC)	50A/16.5V-500A /39V	50A/16.5V-500A /39V
Open circuit voltage	53-60 V	53-60 V
Open circuit power with cooling unit	670 W 870 W	720 W 920 W
Power factor at maximum current	0,90	0,90
Efficiency at maximum current	78 %	78 %
Control voltage	42 V, 50/60 Hz	42 V, 50/60 Hz
Dimensions lxwxh	800 x 640 x 835 mm	800 x 640 x 835 mm
Weight with cooling unit	235 kg 249 kg	237 kg 251 kg
Operating temperature	-10 to +40°C	-10 to +40°C
Enclosure class	IP 23	IP 23
Application classification	S	S

Cooling unit		
Cooling power	2500 W at40°C temp. difference and flow 1,5l/min	2500 W at40°C temp. difference and flow 1,5l/min
Coolant	50 % water / 50% glycol	50 % water / 50% glycol
Coolant quantity	5,5 l	5,5 l
Maximum water flow	2,0 l/min	2,0 l/min

Duty cycle

The duty cycle refers to the time as a percentage of a ten-minute period that you can weld at a certain load without overloading.

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!

Connect the power source to the electricity mains with a network impedance of 0.243Ω (Mig 400tw), 0.136Ω (Mig 500tw) or lower. If the network impedance is higher, there is a risk of flicker in the illuminators.



WARNING!

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.

Lifting instructions

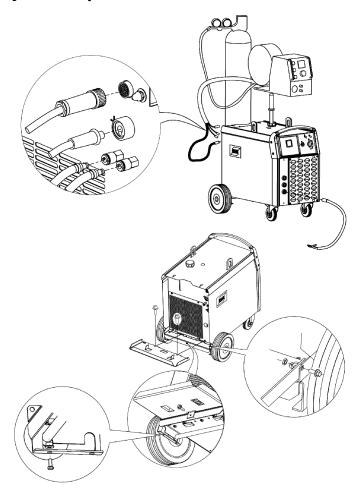
The power supply should be lifted by means of its lifting eye. The handle is only intended for pulling it along the ground.



5.1 Placing

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

5.2 Assembly of components



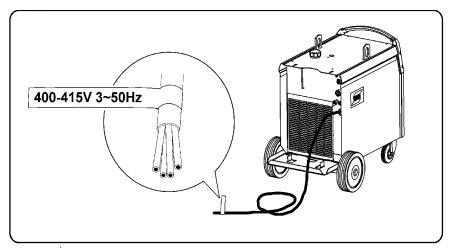


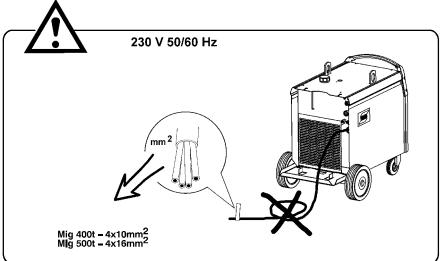


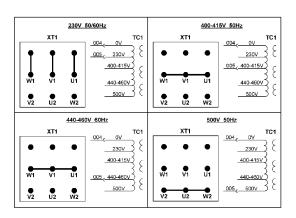
WARNING!

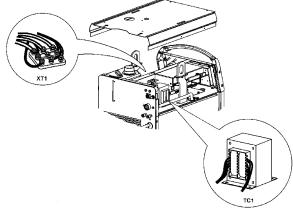
During transport, the rear wheels of the power source are in their forward position. Before use, place the wheels in their rear position.

5.3 Electrical installation







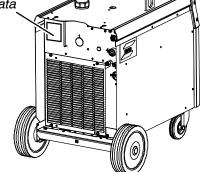




5.4 Mains power supply

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

Origo TM Mig 400t	3∼ 50 Hz	3∼ 50 Hz	3∼ 50 Hz	3∼ 60 Hz	3∼ 60 Hz
Mains voltage	230 V	400 / 415 V	500 V	230 V	440 / 460 V
Primary current 45% duty cycle 60% duty cycle 100% duty cycle	51 A 47 A 39 A	31 A 28 A 23 A	25 A 22 A 19 A	51 A 45 A 37 A	30 A 27 A 22 A
Mains cable area	4x10 mm ²	4x4 mm ²	4x4 mm ²	4x10 mm ²	4x4 mm ²
Fuse anti-surge	35 A	25 A	20 A	35 A	20 A

Origo TM Mig 500t	3∼ 50 Hz	3∼ 50 Hz	3∼ 50 Hz	3∼ 60 Hz	3∼ 60 Hz
Mains voltage	230 V	400 / 415 V	500 V	230 V	440 / 460 V
Primary current 60% duty cycle 80% duty cycle 100% duty cycle	69 A 63 A 59 A	42 A 38 A 34 A	33 A 29 A 27 A	69 A 61 A 56 A	42 A 37 A 33 A
Mains cable area	4x16 mm ²	4x6 mm ²	4x6 mm ²	4x16 mm ²	4x6 mm ²
Fuse anti-surge	63 A	35 A	35 A	50 A	25 A

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.



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!



WARNING - TIPPING RISK!

Fasten the equipment - particularly if the ground is uneven or sloping.

6.1 Connections and control devices

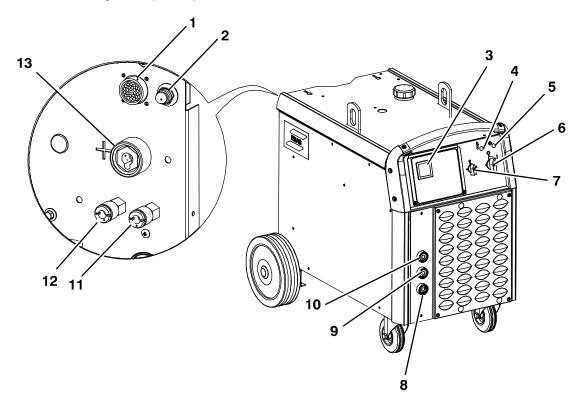
- Connection for control cable to the wire feed unit
- 2 MCB
- 3 Display (digital meters) is an accessory see on page 19.
- 4 Orange indicating lamp, overheating and loss of coolant*
- 5 White indicating lamp, power supply ON
- 6 Main supply switch
- 7 Main supply switch for cooling unit ELP**

- 8 Connection for return cable (-), low inductance
- **9** Connection for return cable (-), medium inductance
- 10 Connection for return cable (-), high inductance
- 11 Connection RED for cooling water from the wire feed unit
- 12 Connection BLUE for cooling water to the wire feed unit
- 13 Connection for welding current cable (+)

NOTE! Cooling water connections only available on certain models.

* Indicating loss of coolant, only when water flow guard is used, see point 6.4

** ELP = ESAB Logic Pump, see point 6.3.





6.2 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.

6.3 Water connection

The OrigoTM Feed has a sensor **ELP**, **ESAB** Logic **P**ump, 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 using other wire feed units, the water pump switch must be in position "I" when a water cooled welding gun is used.

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

When a self cooled welding gun is used the pump switch must be in position "ELP/0".

Note, if a water cooled welding gun is used when the pump is inactive, the welding gun might be damaged.

6.4 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 20.

6.5 Inductance _______

Higher inductance produces a more flowing weld and less spatter. Lower inductance produces a harsher sound and a stable, concentrated arc.

7 MAINTENANCE

Regular maintenance is important for safe, reliable operation.

Maintenance must be executed by a professional.

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

Note!

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

Check regularly that the power source is free from dirt.

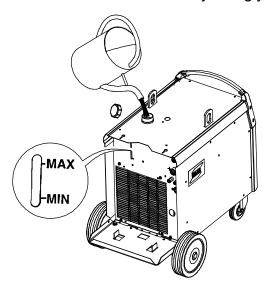
The power source should be regularly blown clean using dry compressed air at reduced pressure. More frequently in dirty environments.

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

The airfilter is an accessory. Ordering number on page 20.

7.2 Topping up the coolant

We recommend a 50/50 % mixture of water and ethylene glycol.



8 FAULT TRACING

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

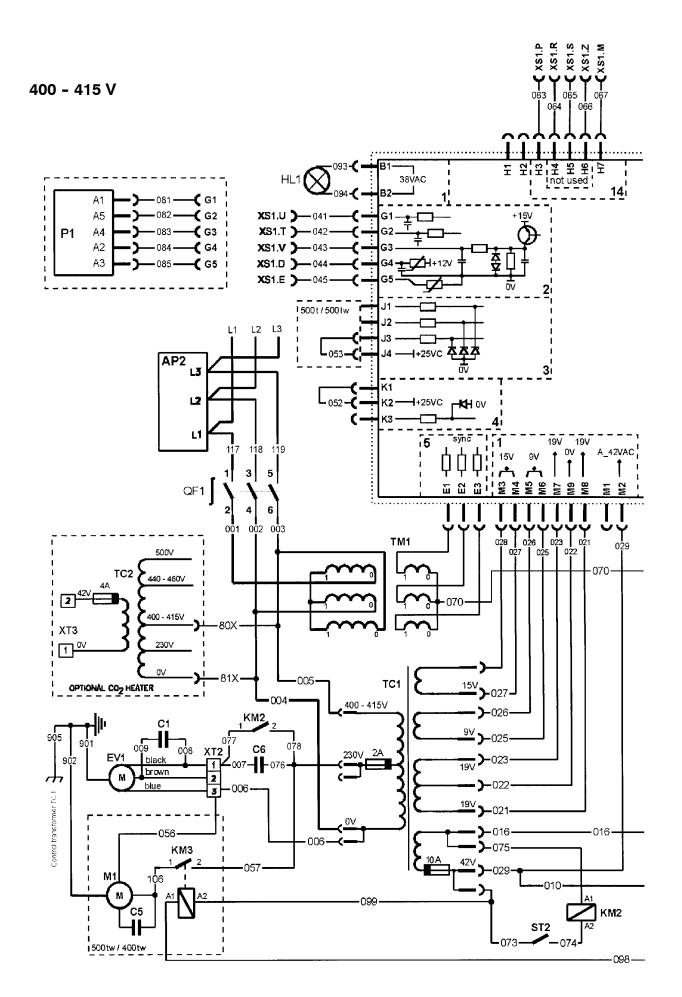
Type of fault	Actions
No arc.	 Check that the mains power supply switch is turned on. Check that the welding current supply and return cables are correctly connected. Check that the correct current value is set. Check to see whether the MCB has tripped.
Welding current is interrupted during welding	 Check whether the thermal overload trip has operated (indicated by the orange lamp on the front) Check the main power supply fuses.
The thermal overload trips operate frequently	 Check to see whether the air filters are clogged. Make sure that you are not exceeding the rated data for the power source (i.e. that the unit is not being overloaded).
Poor welding performance.	 Check that the welding current supply and return cables are correctly connected. Check that the correct current value is set. Check that the correct welding wires are being used. Check the main power supply fuses.

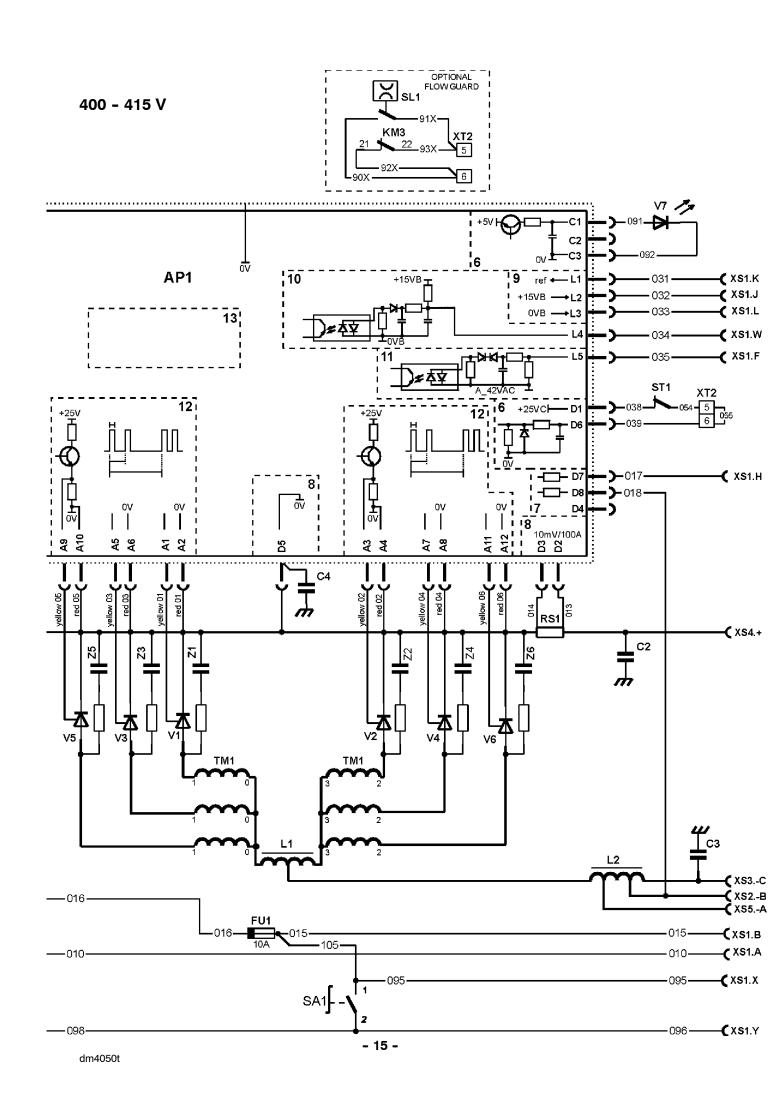


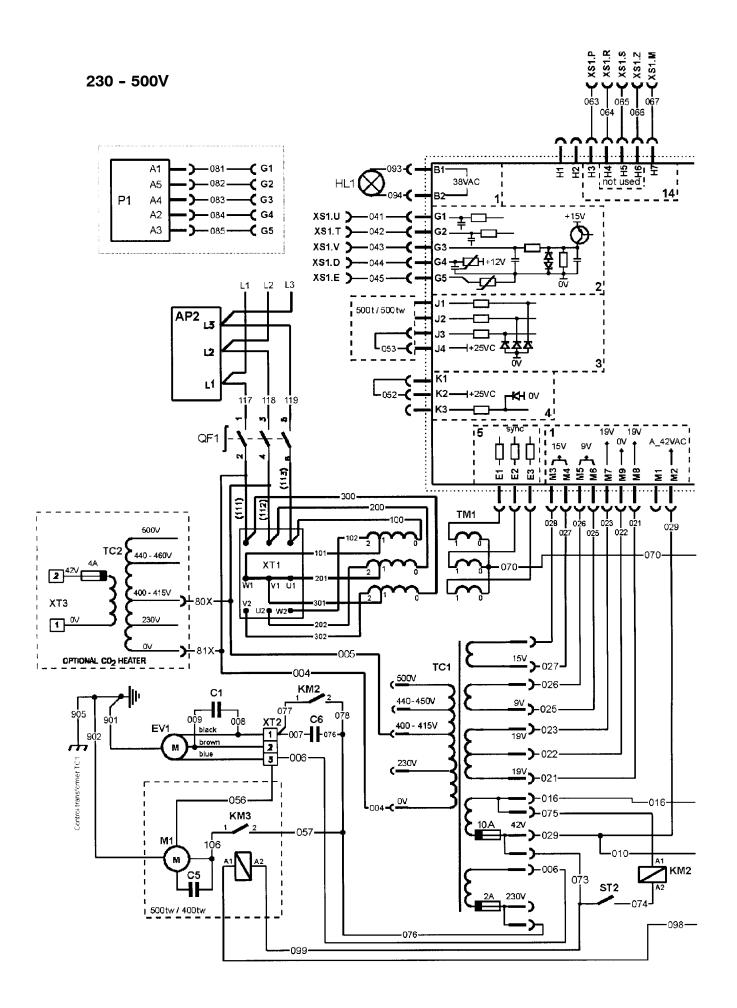
9 ORDERING OF SPARE PARTS

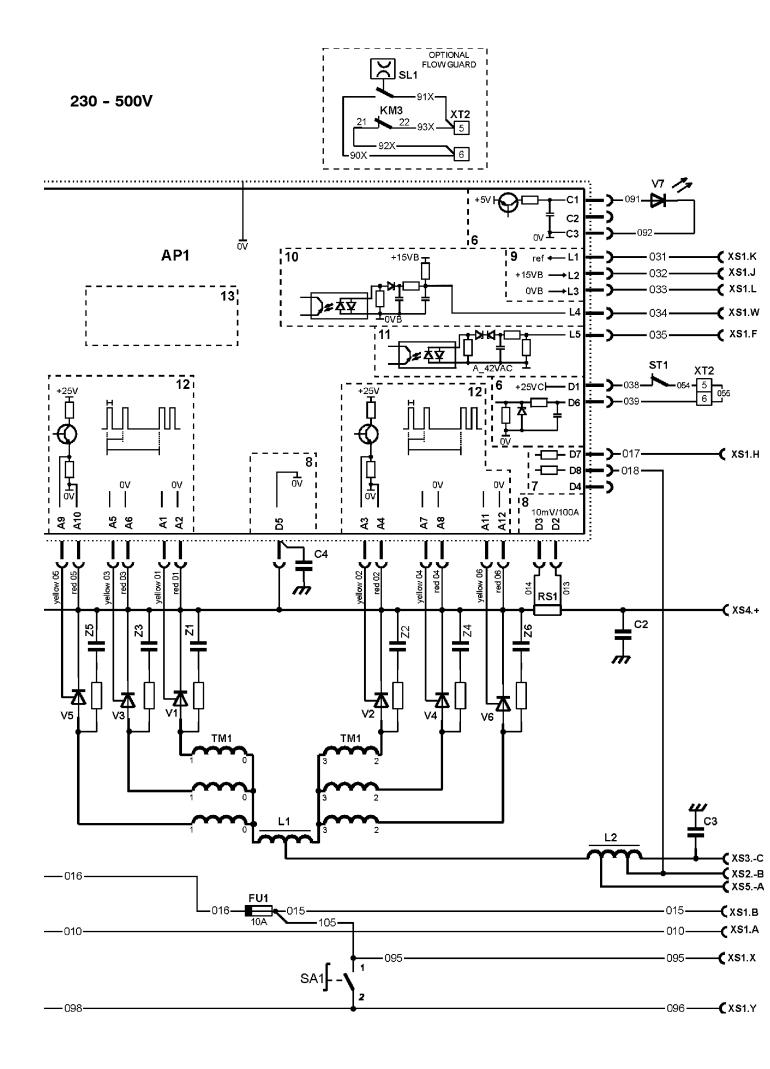
OrigoTM Mig 400t / OrigoTM Mig 500t is designed and tested in accordance with the international and European standards IEC/EN 60974-1 and EN 60974-10. It is the obligation of the service unit which has carried out the service or repair work to make sure that the product still conforms to the said standard.

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

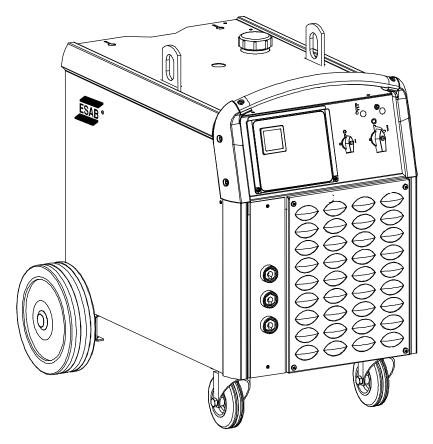








$Origo^{TM}$ Mig 400t / $Origo^{TM}$ Mig 500t



Valid for serial no. 627-XXX-XXXX

Ordering numbers

0349 302 242	Origo TM Mig 400t	400V / 415V, 3~50Hz
0349 302 243	Origo TM Mig 400t	230V / 400V / 415V / 500V 3~50Hz, 230V / 440V / 460V 3~60Hz
0349 302 244	Origo TM Mig 400tw	400V / 415V, 3~50Hz; with water cooler
0349 302 245	Origo TM Mig 400tw	$230V/400V/415V/500V3{\sim}50Hz,230V/440V/460V3{\sim}60Hz;$ with water cooler
0349 302 246	Origo TM Mig 500t	400V / 415V, 3~50Hz
0349 302 247	Origo TM Mig 500t	230V / 400V / 415V / 500V 3~50Hz, 230V / 440V / 460V 3~60Hz
0349 302 248	Origo TM Mig 500tw	400V / 415V, 3~50Hz; with water cooler
0349 302 249	Origo TM Mig 500tw	$230V/400V/415V/500V3{\sim}50Hz,230V/440V/460V3{\sim}60Hz;$ with water cooler
0349 303 728	Origo TM Mig 500tw	400V / 415V, 3~50Hz; with water cooler, with circuit breaker

Accessories

1	- TM TM	
	Origo TM Feed for Marathon Pac TM ,	
	M13 panel	0459 114 883
	Origo TM Feed 304 M13	0459 114 884
	Origo TM Feed 304 M13 with display	0459 114 893
0000		0459 114 894
	Origo TM Feed 304 M13 with water	0459 114 983
	Origo TM Feed 304 M13 with display and water	0459 114 984
	Origo TM Feed 484 M13	0459 114 993
	Origo TM Feed 484 M13 with display	0459 114 994
	Origo TM Feed 484 M13 with water	
	=	
	Origo TM Feed 484 M13 with display and water	
	Origo [™] Feed with capsulated bobbin,	
	M13 panel	0459 116 883
	Origo TM Feed 304 M13	0459 116 884
	Origo TM Feed 304 M13 with display	0459 116 893
	Origo TM Feed 304 M13 with water	0459 116 894
0000	=	0459 116 983
	Origo TM Feed 304 M13 with display and water	0459 116 984
	Origo TM Feed 484 M13	0459 116 993
	Origo TM Feed 484 M13 with display	0459 116 994
	Origo TM Feed 484 M13 with water	
	Origo TM Feed 484 M13 with display and water	
S	Origo TM Feed for Marathon Pac TM , M14 panel	
	Origo TM Feed 304 M13 with display and water	0459 114 895
	Origo TM Feed 484 M13 with display and water	0459 114 995
	Oligo Feed 464 WTS Will display and water	
4		
	Origo [™] Feed with capsulated bobbin,	
	M14 panel	0459 116 895
	Origo TM Feed 304 M13 with display and water	0459 116 995
00000	Origo TM Feed 484 M13 with display and water	
	Digital instrument	0455 173 882
0		
 		

$Origo^{TM}$ Mig 400t / $Origo^{TM}$ Mig 500t

Transformer for CO ₂ heater	0349 302 250
Guide pin	
Water flow guard	0349 302 251
Filter	
Holder for welding gun and cables	0349 303 362

$Origo^{TM}$ Mig 400t / $Origo^{TM}$ Mig 500t

Connection set for 400 A power sources	
Connection set 1.7 m	0469 836 880
Connection set 10 m	0469 836 881
Connection set 15 m	0469 836 882
Connection set 25 m	0469 836 883
Connection set 35 m	0469 836 884
Connection set 1.7 m, water	0469 836 885
Connection set 10 m, water	0469 836 886
Connection set 15 m, water	0469 836 887
Connection set 25 m, water	0469 836 888
Connection set 35 m, water	0469 836 889
Connection set for 500 A power sources	
Connection set 1.7 m	0469 836 890
Connection set 10 m	0469 836 891
Connection set 15 m	0469 836 892
Connection set 25 m	0469 836 893
Connection set 35 m	0469 836 894
Connection set 1.7 m, water	0469 836 895
Connection set 10 m, water	0469 836 896
Connection set 15 m, water	0469 836 897
Connection set 25 m, water	0469 836 898
Connection set 35 m, water	0469 836 899

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

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For addresses and phone numbers to our distributors in other countries, please visit our home page

www.esab.com



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