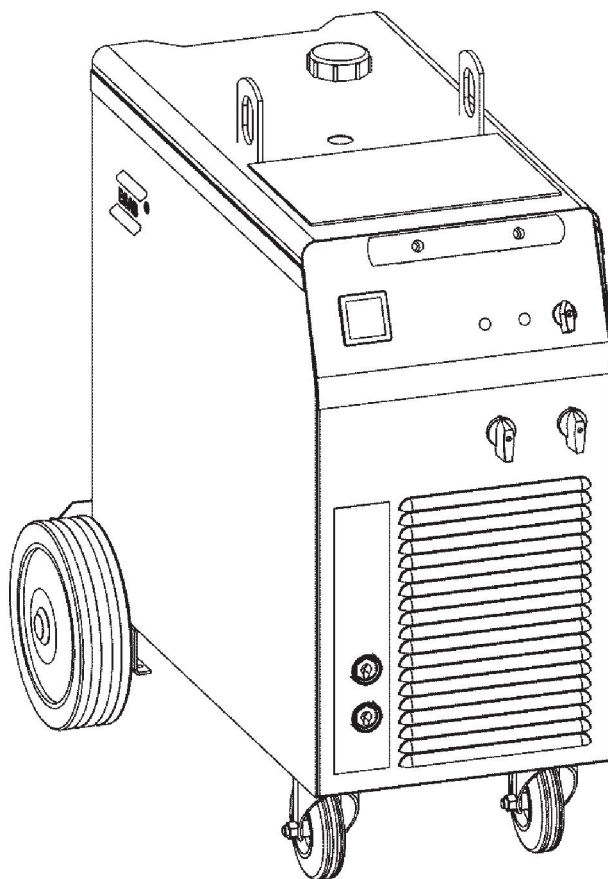




Origo™

Mig L305

Mig L405



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 L305 Valid from serial number 647-xxx-xxxx (2006 w.47)

Origo™ Mig L405 Valid from serial number 628-xxx-xxxx (2006 w.28), 211-xxx-xxxx (2012 w.11)

Manufacturer or his authorised representative established within the EEA

Name, address, telephone No, telefax No:

OZAS-ESAB Sp. z o.o.

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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 60974-10, 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 , 2012-03-20

Signature

Dariusz Brudkiewicz

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

Clarification

TABLE OF CONTENTS

1	SAFETY	4
1.1	Meaning of symbols	4
1.2	Safety precautions	4
2	INTRODUCTION	7
2.1	Equipment	7
3	TECHNICAL DATA	8
4	INSTALLATION	9
4.1	Positioning of welding power source	9
4.2	Assembly of counter balance	9
4.3	Assembly of components	10
4.4	Electrical installation	11
4.5	Mains power supply	12
5	OPERATION	14
5.1	Connection and control devices	14
5.2	Overheating protection	15
5.3	Inductance connection	15
6	MAINTENANCE	16
6.1	Inspection and cleaning	16
6.2	Topping up the coolant	16
7	TROUBLESHOOTING	18
8	ORDERING SPARE PARTS	19
	CLEANING	20
	DIAGRAM	21
	ORDERING NUMBERS	24
	ACCESSORIES	25

1 SAFETY

1.1 Meaning of symbols

As used throughout this manual: Means Attention! Be Alert!

**DANGER!**

Means immediate hazards which, if not avoided, will result in immediate, serious personal injury or loss of life.

**WARNING!**

Means potential hazards which could result in personal injury or loss of life.

**CAUTION!**

Means hazards which could result in minor personal injury.

**WARNING!**

Before use, read and understand the instruction manual and follow all labels, employer's safety practices and Safety Data Sheets (SDSs).



1.2 Safety precautions

Users of ESAB equipment have the ultimate responsibility for ensuring that anyone who works on or near the equipment observes all the relevant safety precautions. Safety precautions must meet the requirements that apply to this type of equipment. The following recommendations should be observed in addition to the standard regulations that apply to the workplace.

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

1. Anyone who uses the equipment must be familiar with:
 - its operation
 - location of emergency stops
 - its function
 - relevant safety precautions
 - welding and cutting or other applicable operation of the equipment
2. The operator must ensure that:
 - no unauthorised person is stationed within the working area of the equipment when it is started up
 - no-one is unprotected when the arc is struck or work is started with the equipment
3. The workplace must:
 - be suitable for the purpose
 - be free from drafts

4. Personal safety equipment:
 - Always wear recommended personal safety equipment, such as safety glasses, flame-proof clothing, safety gloves
 - Do not wear loose-fitting items, such as scarves, bracelets, rings, etc., which could become trapped or cause burns
5. General precautions:
 - Make sure the return cable is connected securely
 - Work on high voltage equipment **may only be carried out by a qualified electrician**
 - Appropriate fire extinguishing equipment must be clearly marked and close at hand
 - Lubrication and maintenance must **not** be carried out on the equipment during operation

**WARNING!**

Arc welding and cutting can be injurious to yourself and others. Take precautions when welding and cutting.

**ELECTRIC SHOCK - Can kill**

- Install and ground the unit in accordance with instruction manual.
- Do not touch live electrical parts or electrodes with bare skin, wet gloves or wet clothing.
- Insulate yourself from work and ground.
- Ensure your working position is safe

**ELECTRIC AND MAGNETIC FIELDS - Can be dangerous to health**

- Welders having pacemakers should consult their physician before welding. EMF may interfere with some pacemakers.
- Exposure to EMF may have other health effects which are unknown.
- Welders should use the following procedures to minimize exposure to EMF:
 - Route the electrode and work cables together on the same side of your body. Secure them with tape when possible. Do not place your body between the torch and work cables. Never coil the torch or work cable around your body. Keep welding power source and cables as far away from your body as possible.
 - Connect the work cable to the workpiece as close as possible to the area being welded.

**FUMES AND GASES - Can be dangerous to health**

- Keep your head out of the fumes.
- Use ventilation, extraction at the arc, or both, to take fumes and gases away from your breathing zone and the general area.

**ARC RAYS - Can injure eyes and burn skin**

- Protect your eyes and body. Use the correct welding screen and filter lens and wear protective clothing.
- Protect bystanders with suitable screens or curtains.

**NOISE - Excessive noise can damage hearing**

Protect your ears. Use earmuffs or other hearing protection.

MOVING PARTS - Can cause injuries



- Keep all doors, panels and covers closed and securely in place. Have only qualified people remove covers for maintenance and troubleshooting as necessary. Reinstall panels or covers and close doors when service is finished and before starting engine.



- Stop engine before installing or connecting unit.
- Keep hands, hair, loose clothing and tools away from moving parts.

FIRE HAZARD



- Sparks (spatter) can cause fire. Make sure that there are no inflammable materials nearby.
- Do not use on closed containers.

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

PROTECT YOURSELF AND OTHERS!



CAUTION!

This product is solely intended for arc welding.



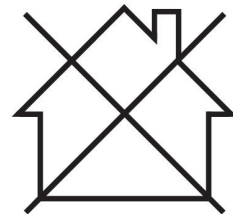
WARNING!

Do not use the power source for thawing frozen pipes.



CAUTION!

Class A equipment is not intended for use in residential locations where the electrical power is provided by the public low-voltage supply system. There may be potential difficulties in ensuring electromagnetic compatibility of class A equipment in those locations, due to conducted as well as radiated disturbances.



NOTE!

Dispose of electronic equipment at the recycling facility!

In observance of European Directive 2012/19/EC on Waste Electrical and Electronic Equipment and its implementation in accordance with national law, electrical and/or electronic equipment that has reached the end of its life must be disposed of at a recycling facility.

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

For further information contact the nearest ESAB dealer.



ESAB has an assortment of welding accessories and personal protection equipment for purchase. For ordering information contact your local ESAB dealer or visit us on our website.

2 INTRODUCTION

Mig L305, Mig L405 are step switched power sources designed for MIG/MAG-welding together with wire feed units Feed L302 and Feed L304.

The power units are fan-cooled and equipped with thermal overload protection. They can be fitted with an instrument that displays current and voltage.

It incorporates a hold function and can be calibrated.

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

2.1 Equipment

The power source is supplied with:

- Return cable 5 m (L305 - 3.5 m) with clamp
- Shelf for gas cylinder
- Guide pin for wire feed unit
- Instruction manual

3 TECHNICAL DATA

	Mig L305	Mig L405	Mig L405
Voltage	400-415 V, 3~ 50/60 Hz	400-415 V, 3~ 50/60 Hz	230/400-415/500 V 3~ 50 Hz 230/440-460 V 3~ 60Hz
Permissible load			
at 100% duty cycle	150 A	280 A/28 V	280 A/28 V
at 60% duty cycle	190 A	365 A/32 V	365 A/32 V
at 50% duty cycle	-	400 A/34 V	400 A/34 V
at 25% duty cycle	300 A	-	-
Setting range (DC)	30 A/15 V - 300 A/29 V	50 A/16,5 V - 400 A/34 V	50 A/16,5 V - 400 A/34 V
Open circuit voltage	17-40 V	17-45 V	17-45 V
Open circuit power	190 W	360 W	360 W
with cooling unit	-	600 W	600 W
Efficiency at max current	69%	71%	71%
Power factor at max current	0,97	0,98	0,98
Control voltage	42 V, 50/60 Hz	42 V, 50/60 Hz	42 V, 50/60 Hz
Dimensions l x w x h	782 x 425 x 830	812 x 552 x 925	812 x 552 x 925
Weight	89 kg	142 kg	143 kg
with cooling unit	-	156 kg	156 kg
Operating temperature	-10 to +40 °C	-10 to +40 °C	-10 to +40 °C
Transportation temperature	-20 to +55 °C	-20 to +55 °C	-20 to +55 °C
Enclosure class	IP 23	IP 23	IP 23
Application class	S	S	S
Coolant		ESAB ready mixed coolant	

Duty cycle

The duty cycle refers to the time as a percentage of a ten-minute period that you can weld or cut at a certain load without overloading. The duty cycle is valid for 40 °C / 104 °F, or below.

Enclosure class

The IP code indicates the enclosure class, i.e. the degree of protection against penetration by solid objects or water.

Equipment marked **IP23** is intended for indoor and outdoor use.

Application class

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

4 INSTALLATION

The installation must be carried out by a professional.



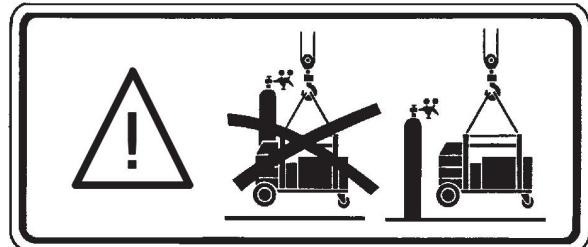
CAUTION!

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.

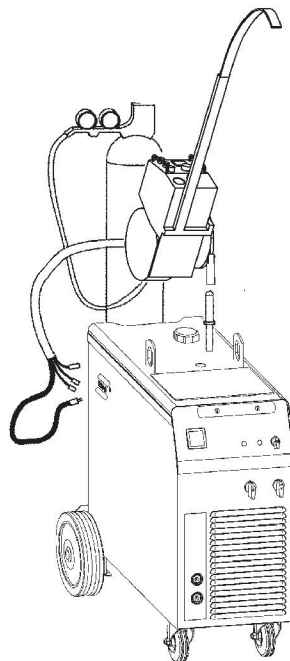


4.1 Positioning of welding power source

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

4.2 Assembly of counter balance

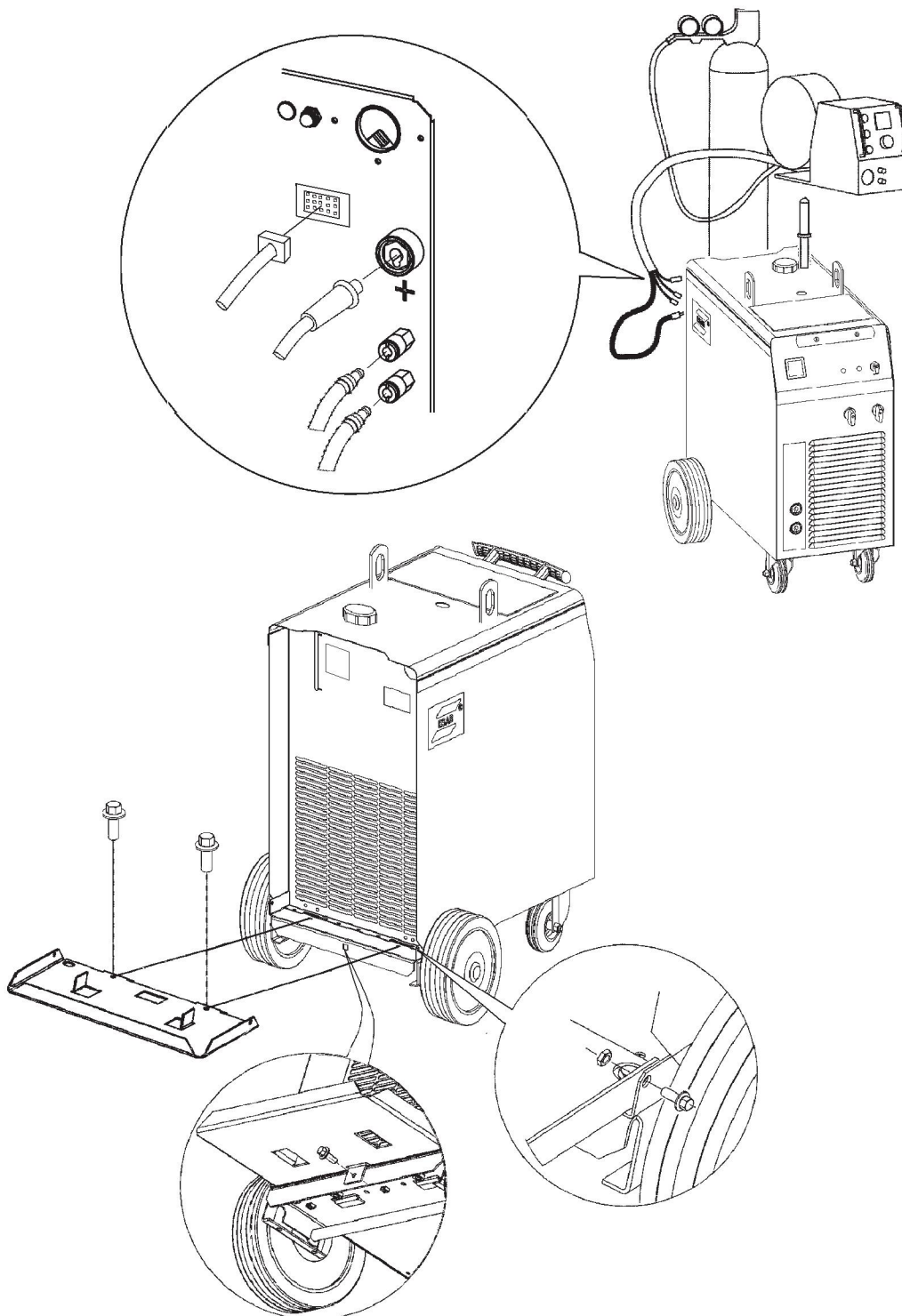
Assemble the stabilizer + CB KIT if the counter balance is to be installed on the power source. The stabilizer + CB KIT is an accessory. See "ACCESORIES" chapter for order number.



NOTE!

Use of a counter balance without stabilizer may cause the welding equipment to tip over.

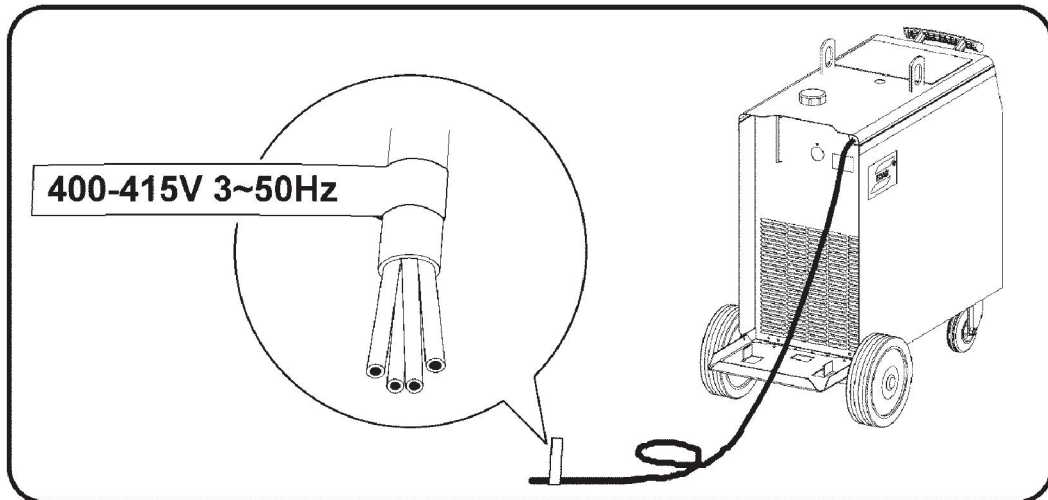
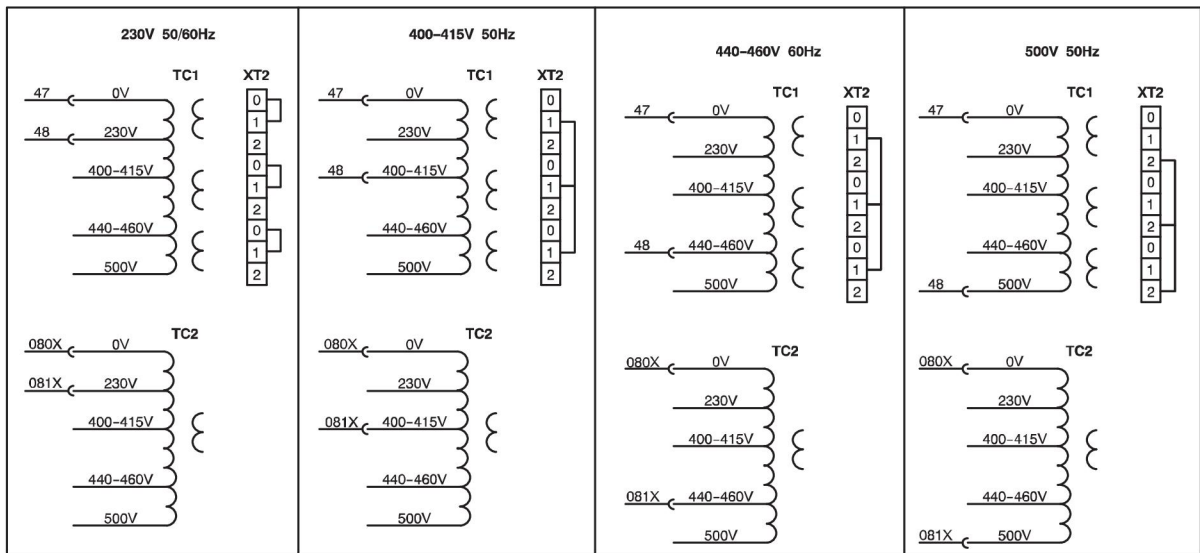
4.3 Assembly of components



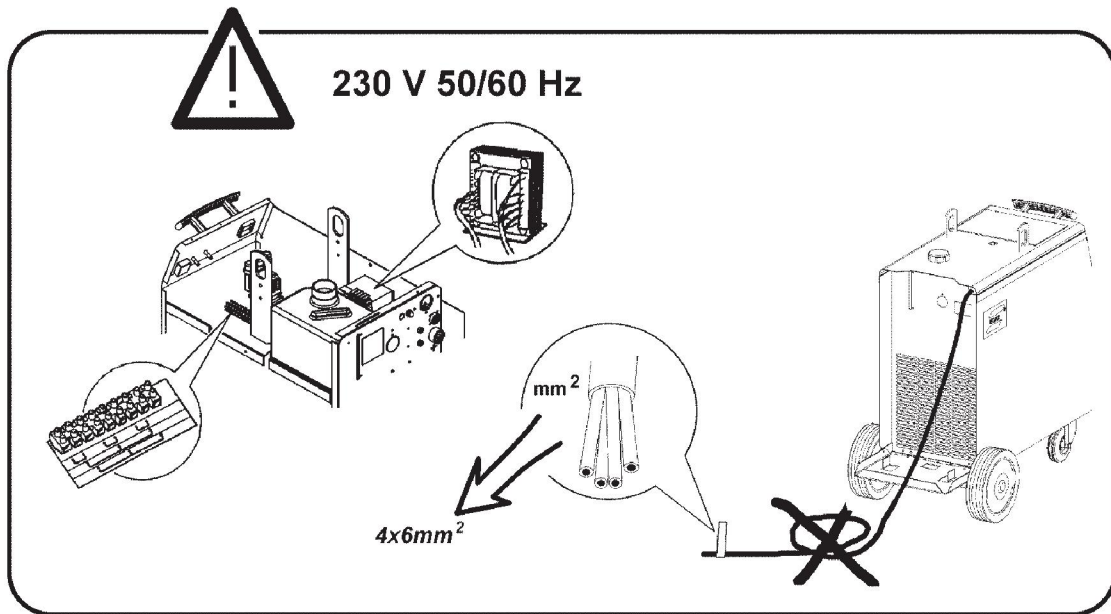
WARNING!

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

4.4 Electrical installation



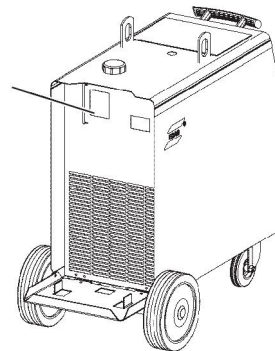
L405



4.5 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

L305	3~ 50/60 Hz				
Voltage V	400/415				
Current A					
at 100% duty cycle	7				
at 60% duty cycle	10				
at 25% duty cycle	18				
Cable area mm²	4 x 2.5				
Fuse, slow A	16				
L405	3~ 50 Hz	3~ 50/60 Hz	3~ 50 Hz	3~ 60 Hz	3~ 60 Hz
Voltage V	203	400/415	500	230	440/460
Current A					

L405	3~ 50 Hz	3~ 50/60 Hz	3~ 50 Hz	3~ 60 Hz	3~ 60 Hz
at 100% duty cycle	28	16	13	28	14
at 60% duty cycle	42	24	19	41	21
at 50% duty cycle	45	28	20	45	22
Cable area mm²	4 x 6	4 x 2.5	4 x 2.5	4 x 6	4 x 2.5
Fuse, slow A	25	20	20	25	20

**NOTE!**

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

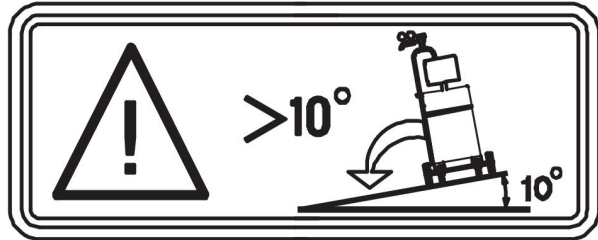
5 OPERATION

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



WARNING!

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



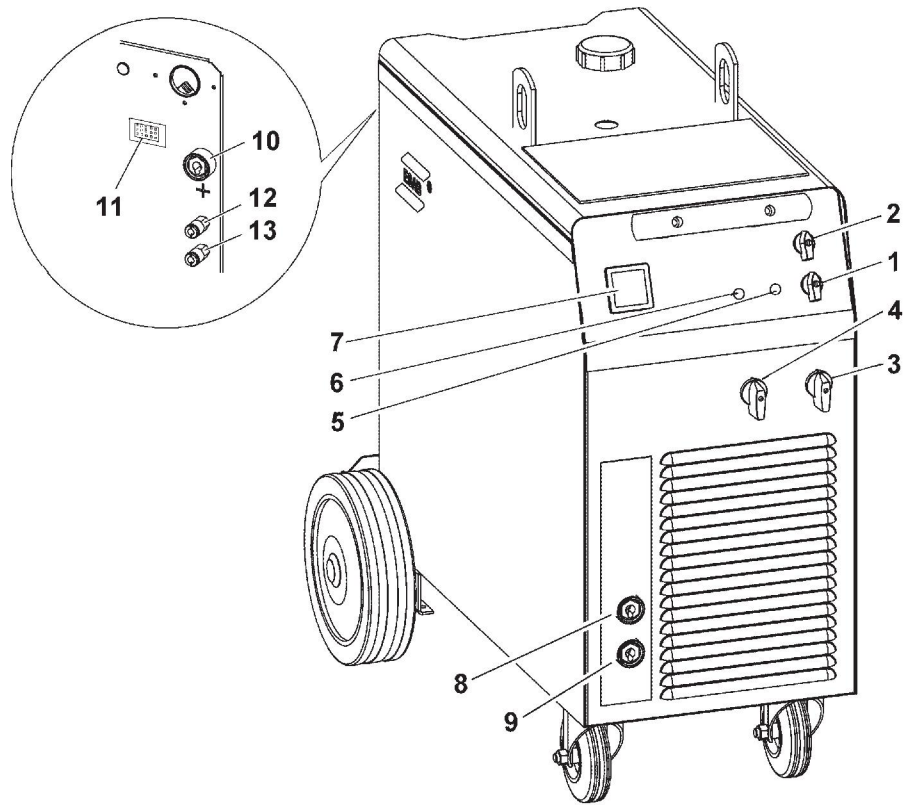
5.1 Connection and control devices

- | | |
|---------------------------------------|---|
| 1 Mains supply switch | 8 Connection for return cable (-), high inductance |
| 2 Main supply switch for cooling unit | 9 Connection for return cable (-), low inductance |
| 3 Switch, precise control | 10 Connection for welding current cable (+) |
| 4 Switch, coarse control | 11 Connection for control cable for wire feeder |
| 5 Indicating lamp, power supply ON | 12 Connection RED for cooling water from the wire feed unit |
| 6 Orange indicating lamp, overheating | 13 Connection BLUE for cooling water to the wire feed unit |
| 7 Digital instrument V/A* | |



NOTE!

*Digital instrument V/A only available on certain models.



5.2 Overheating protection

A thermal overload cutout protects against overheating. The cutout resets automatically when the unit has cooled.

5.3 Inductance connection

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

6 MAINTENANCE

**NOTE!**

Regular maintenance is important for safe and reliable operation.

**CAUTION!**

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

**CAUTION!**

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

6.1 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 "CLEANING" chapter. 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.

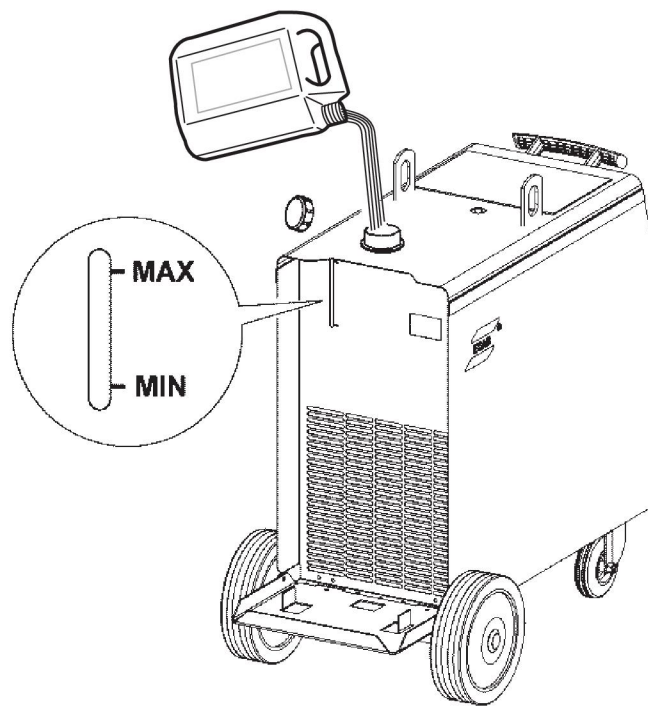
6.2 Topping up the coolant

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

- 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 torch blue connection) in order to bleed any trapped air.
- Connect the coolant hose again.

**NOTE!**

Coolant must be topped up if connecting a welding torch 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.



CAUTION!

The coolant must be handled as chemical waste.

7 TROUBLESHOOTING

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

Type of fault	Actions
No arc	<ul style="list-style-type: none"> • Check that the mains power supply switch is turned on. • Check that the welding current supply and return cables are correctly connected. • Check that correct current value is set. • Check to see whether the MCB has tripped.
Welding current is interrupted during welding	<ul style="list-style-type: none"> • Check whether the thermal overload trip has operated (indicated by the orange lamp on the front). • Check the main power supply fuses.
Thermal overload trips operate frequently	<ul style="list-style-type: none"> • Check to see whether the air inlets/outlets 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	<ul style="list-style-type: none"> • 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.

8 ORDERING SPARE PARTS



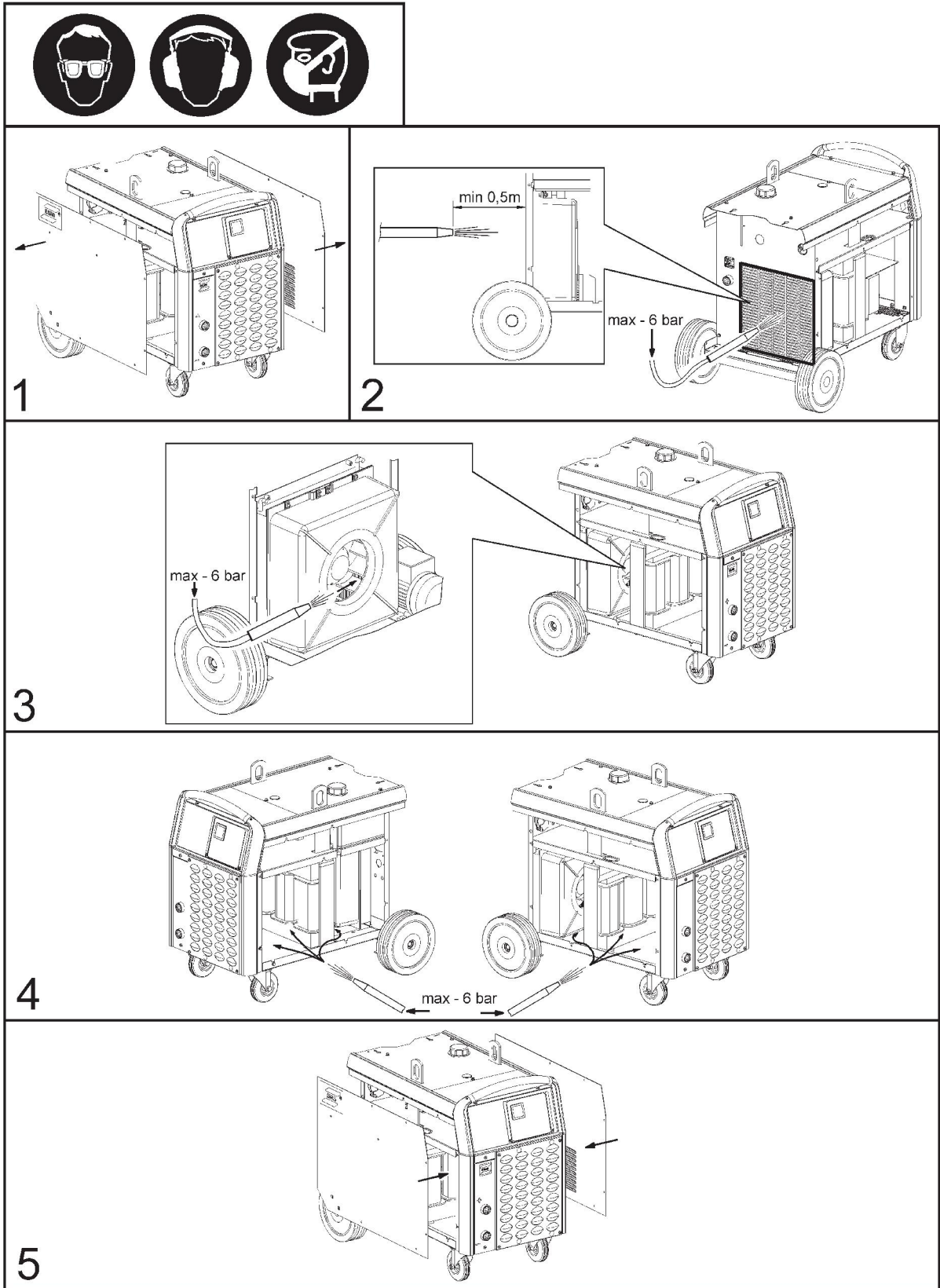
CAUTION!

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

Mig L305, Mig L405 are designed and tested in accordance with the international and European standards 60974-1 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 mentioned standard.

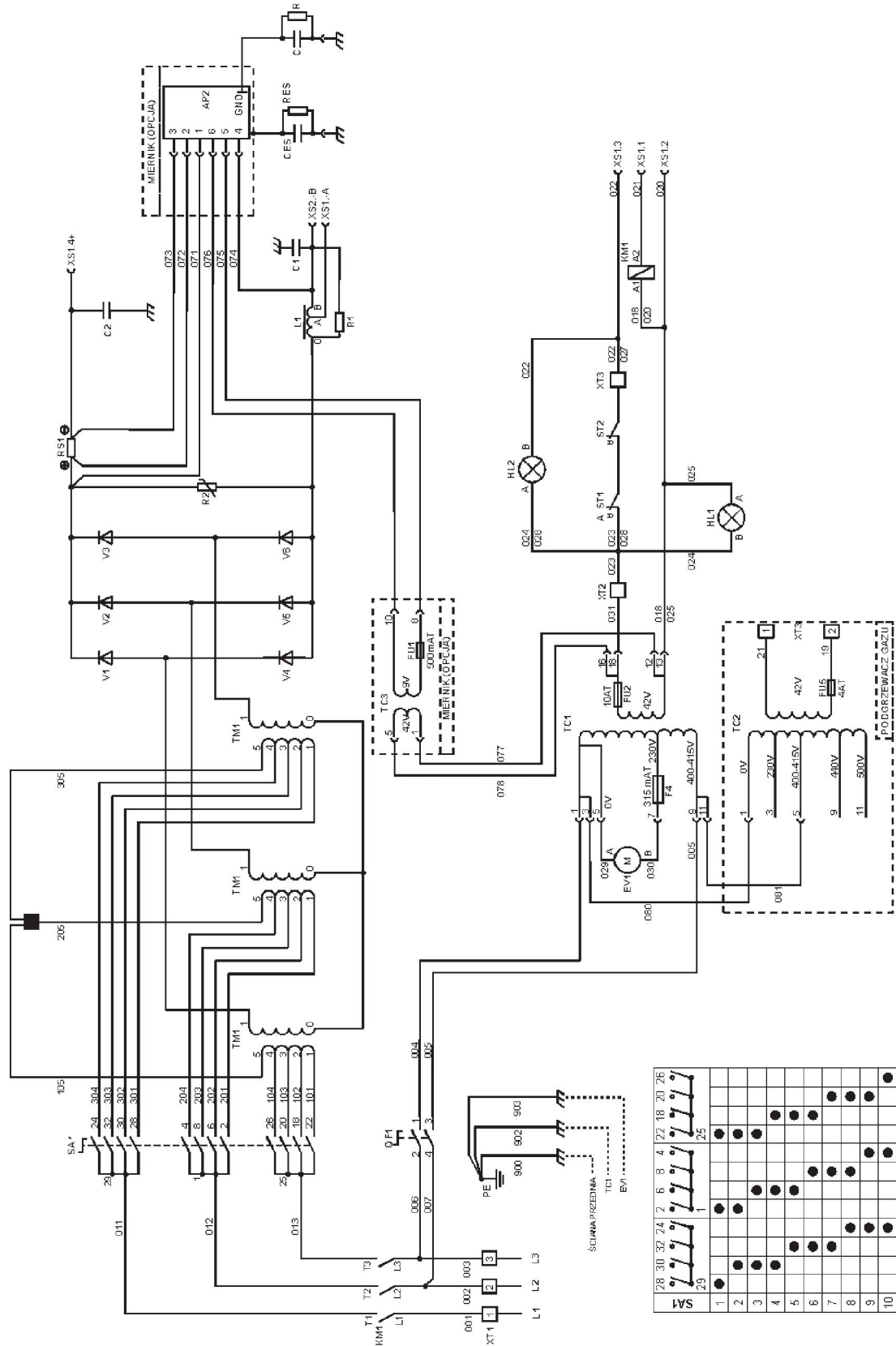
Spare parts and wear parts can be ordered through your nearest ESAB dealer, see the back cover of this document. When ordering, please state product type, serial number, designation and spare part number in accordance with the spare parts list. This facilitates dispatch and ensures correct delivery.

CLEANING

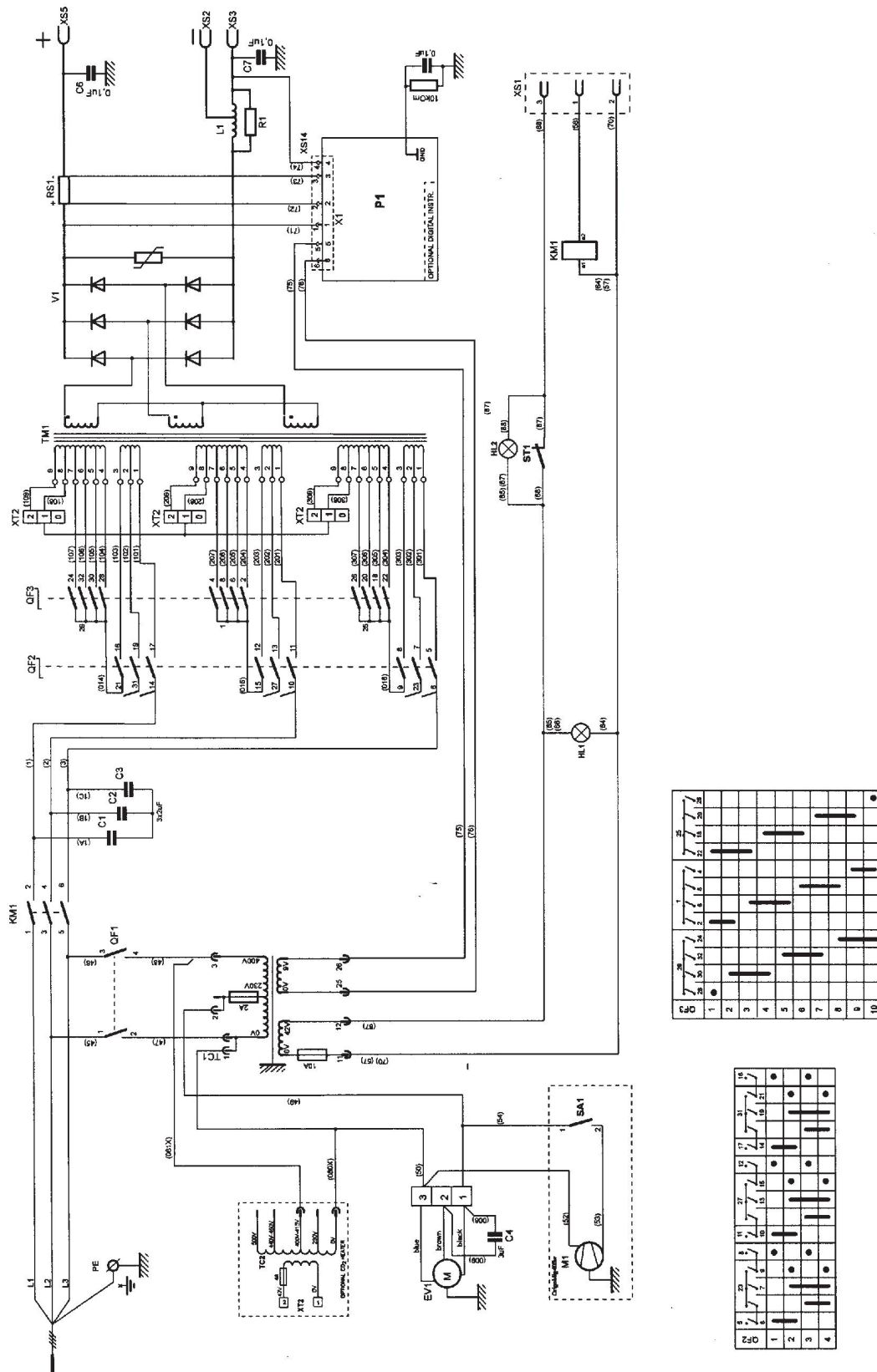


DIAGRAM

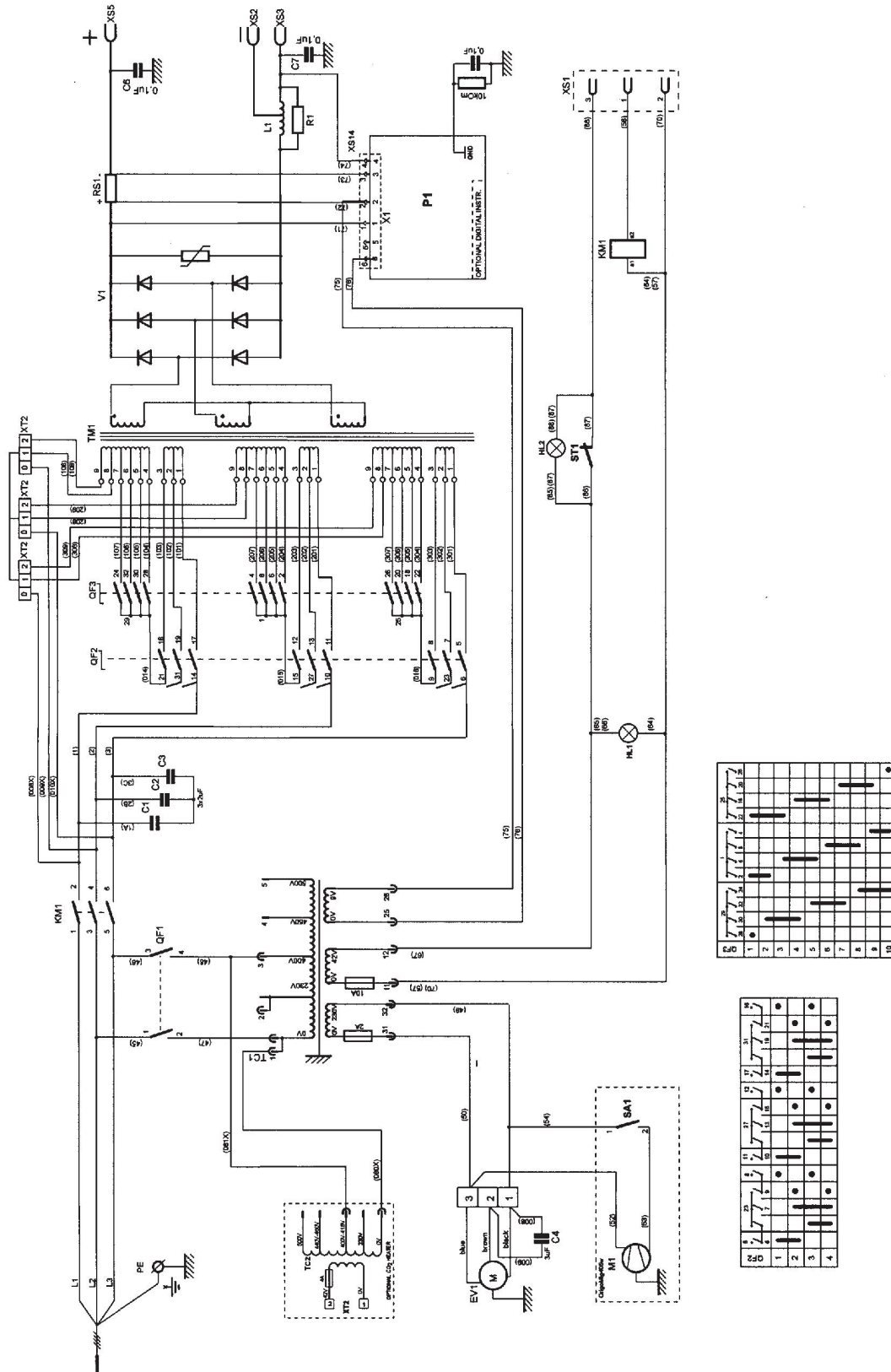
Origo™ Mig L305, 400-415 V



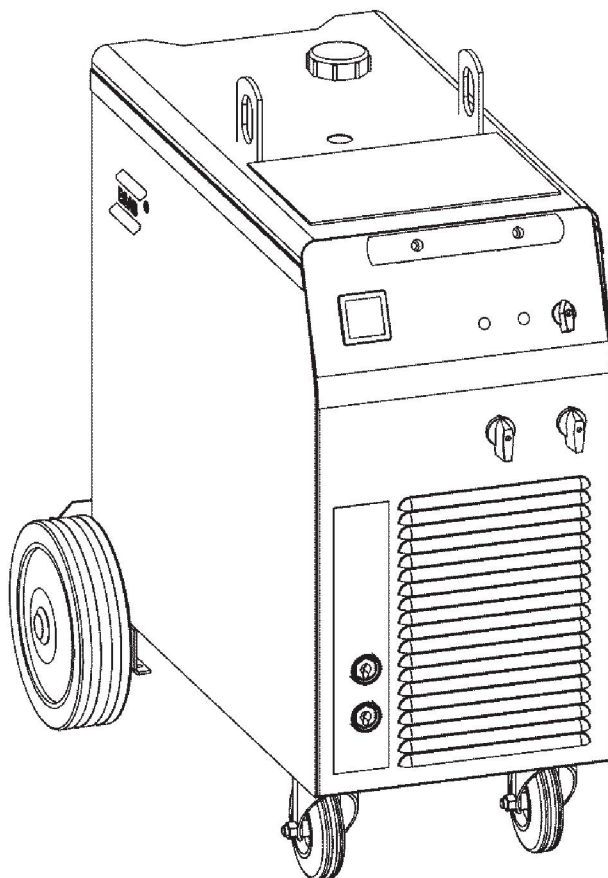
Origo™ Mig L405, 400-415 V



Origo™ Mig L405, 230-500 V



ORDERING NUMBERS

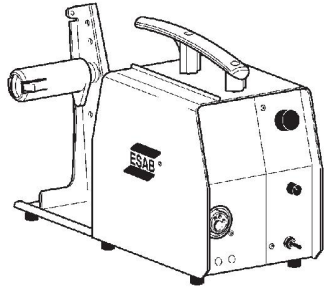
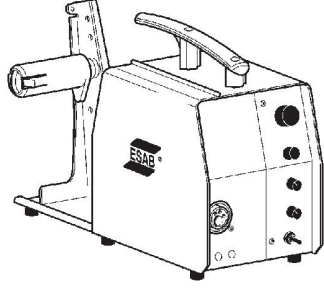
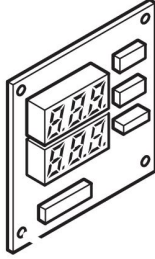
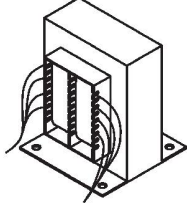
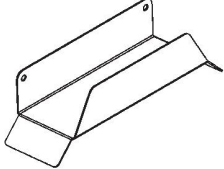


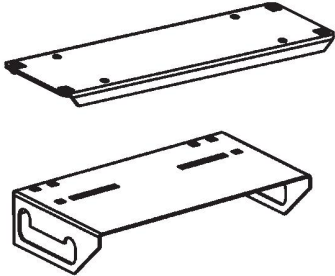

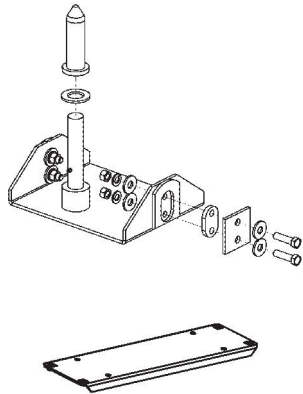

Valid for serial no. 628-xxx-xxxx, 647-xxx-xxxx, 211-xxx-xxxx

Ordering numbers		
0349 309 700	Origo™ Mig L305	400-415 V 3~ 50 Hz
0349 306 517	Origo™ Mig L405	400-415 V 3~ 50 Hz
0349 306 594	Origo™ Mig L405	230/400-415/500 V 3~ 50 Hz; 230/440-460 V 3~ 60 Hz
0349 306 563	Origo™ Mig L405w	400-415 V 3~ 50 Hz
0349 306 595	Origo™ Mig L405w	230/400-415/500 V 3~ 50 Hz; 230/440-460 V 3~ 60 Hz
0349 313 090	Origo™ Mig L405	400-415 V 3~ 50 Hz with digital instrument

Technical documentation is available on the Internet at: www.esab.com

ACCESSORIES

0459 495 782	Origo™ Feed L302, open	
0459 495 882	Origo™ Feed L304, open	
0349 302 451 0349 302 598	Digital meter (L405) Digital meter (L305)	
0349 302 250	Transformer kit for CO₂ heater	
0349 303 362	Cable holder	

0349 303 475	Stabilizer (L305)	
0349 303 474	Stabilizer (L405)	
0349 305 812	CB KIT (cpl., only L405) CONTAINS: <ul style="list-style-type: none">• KIT for Counter Balance (0349 309 748)• Stabilizer (0349 303 474)	
0349 309 471	Fan speed reductor (L405)	
0465 720 002	ESAB ready mixed coolant (10 l / 2.64 gal) Use of any other cooling liquid than the prescribed one might damage the equipment. In case of such damage, all warranty undertakings from ESAB cease to apply.	

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