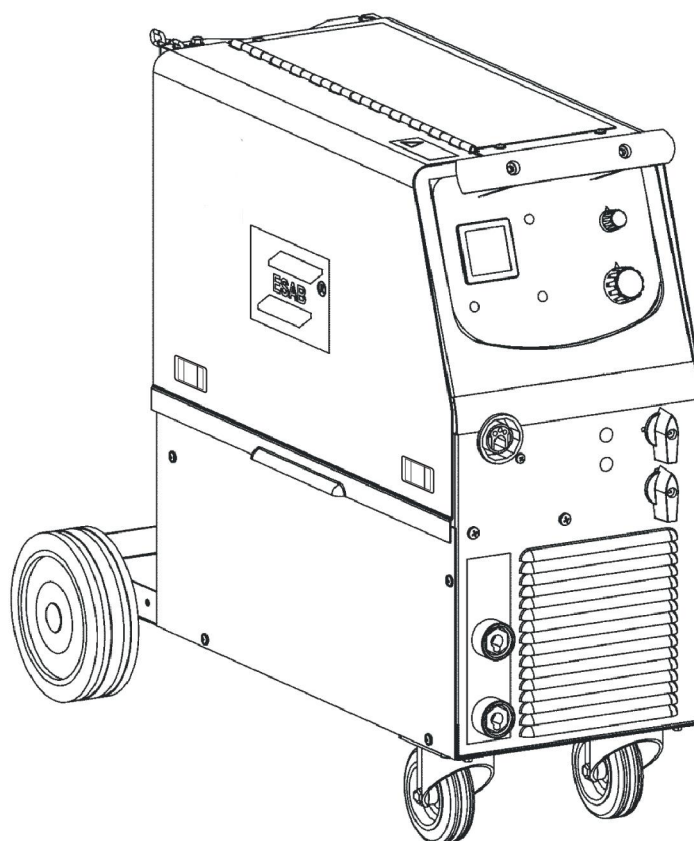


Origo™

Mig C170 3ph, Mig C200 3ph, Mig C250 3ph



Instruction manual



EU DECLARATION OF CONFORMITY

According to:

The Low Voltage Directive 2014/35/EU;

The EMC Directive 2014/30/EU;

The RoHS Directive 2011/65/EU;

The Ecodesign Directive 2009/125/EC

Type of equipment

Arc welding power source

Type designation

Mig C170

with serial number from 626 xxx xxxx (2006 w26)

Mig C200

with serial number from 626 xxx xxxx (2006 w26)

Mig C250

with serial number from 626 xxx xxxx (2006 w26)

Brand name or trademark

ESAB

Manufacturer or his authorised representative established within the EEA

ESAB AB

Lindholmsallén 9, Box 8004, SE-402 77 Göteborg, Sweden

Phone: +46 31 50 90 00, www.esab.com

The following EN standards and regulations in force within the EEA has been used in the design:

EN IEC 60974-1:2018/A1:2019

Arc welding equipment - Part 1: Welding power sources

EN IEC 60974-5:2019

Arc welding equipment - Part 5: Wire feeders

EN 60974-10:2014/A1:2015

Arc welding equipment - Part 10: Electromagnetic compatibility (EMC)

EU no. 2019/1784

Ecodesign requirements for welding equipment pursuant to Directive 2009/125/EC

Additional Information:

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

IEC EN draft standard 26/708/CDV have been used to establish EU no. 2019/1784 data.

Mig C170, C200 and M1g C250 are part of the ESAB Origo product family.

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 and environmental requirements stated above.

Place/Date

Göteborg
2020-12-18

Signature

Pedro Muniz
Standard Equipment Director

CE mark in 2020

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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!**

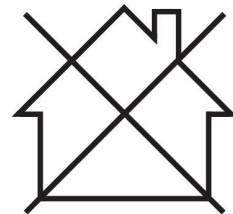
This product is solely intended for arc welding.

**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 C170 3ph, Mig C200 3ph and Mig C250 3ph are step controlled power sources of a compact design, intended for welding with solid steel, stainless steel or aluminium wire as well as tubular wire with or without shielding gas. It is possible to weld with homogeneous wire/shielding gas and weld with gasless tubular wire by switching the + and - connections on the switching terminal by the wire feed unit.

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

2.1 Equipment

The power source is supplied with:

- Welding torch
- Return cable with return clamp
- Shelf for gas cylinder
- Instruction manual

3 TECHNICAL DATA

	Mig C170 3ph	Mig C200 3ph	Mig C250 3ph
Voltage	400–415 V, 3~ 50/60Hz	400–415 V, 3~ 50/60Hz	230/400–415 V, 3~ 50/60Hz
Permissible load at			
100 % duty cycle	100 A	120 A	150 A
60 % duty cycle	130 A	150 A	190 A
35 % duty cycle	170 A	200 A	250 A
Setting range (DC)	30–170 A	30–200 A	40–280 A
Open circuit voltage	18.0–34.8 V	16.0–31.8 V	15.0–37.0 V
Open circuit power	310 W	210 W	340 W
Power factor at max load	0.97	0.97	0.94
Control voltage	42 V, 50/60 Hz	42 V, 50/60 Hz	42 V, 50/60 Hz
Wire feed speed	1.0–17 m/min	1.0–17 m/min	1.0–17 m/min
Burnback time	0.02–0.25 s	0.02–0.25 s	0.02–0.25 s
Spot welding	0.2–2.5 s	0.2–2.5 s	0.2–2.5 s
Welding torch connection	EURO	EURO	EURO
Wire dimension range	0.6–0.8(Fe, SS)	0.6–1.0(Fe, SS)	0.6–1.2(Fe, SS)
	1.0(Al)	1.0(Al)	1.0–1.2(Al)
	0.8(FCW)	0.8–1.0(FCW)	0.8–1.2(FCW)
	0.8–1.0(CuSi)	0.8–1.0(CuSi)	0.8–1.0(CuSi)
Max diameter/weight of wire bobbin	300 mm/15 kg	300 mm/15 kg	300 mm/15 kg
Dimensions l×w×h	860x420x730 mm	860x420x730 mm	860x420x730 mm
Weight	67.5 kg	72.5 kg	82 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 21	IP 21	IP 21
Application classification	S	S	S

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 **IP21** is intended for indoor use.

Application class

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

4 INSTALLATION

The installation must be carried out by a professional.



NOTE!

Connect the power source to the electricity mains with a network impedance of 0.268 (C250 3ph) ohm or lower. If the network impedance is higher, there is a risk of flicker in the illuminators.



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.

4.1 Location

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

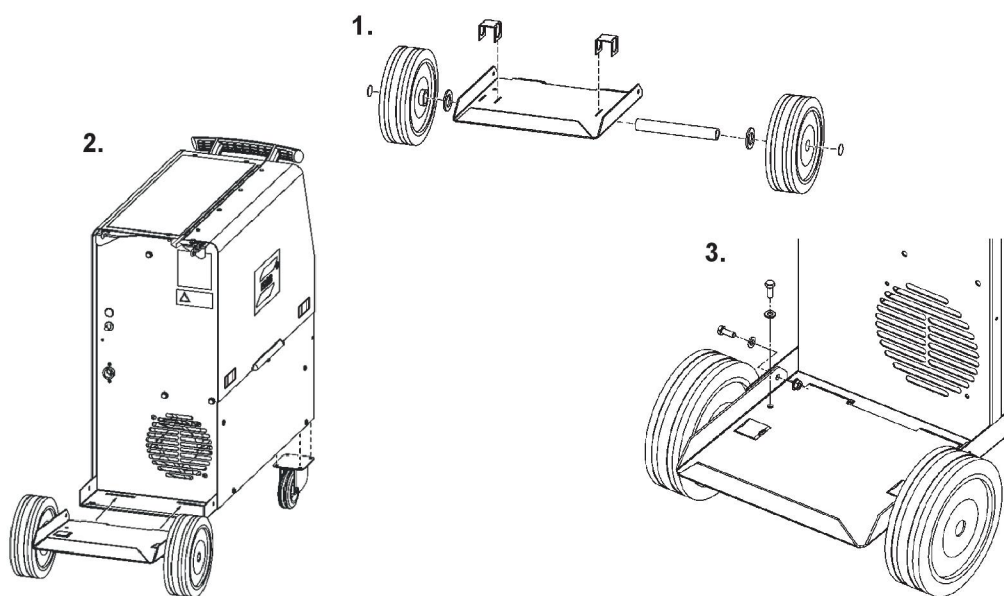
4.2 Assembly of components



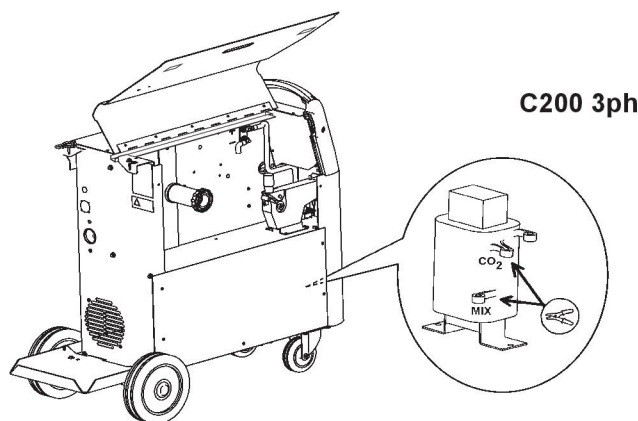
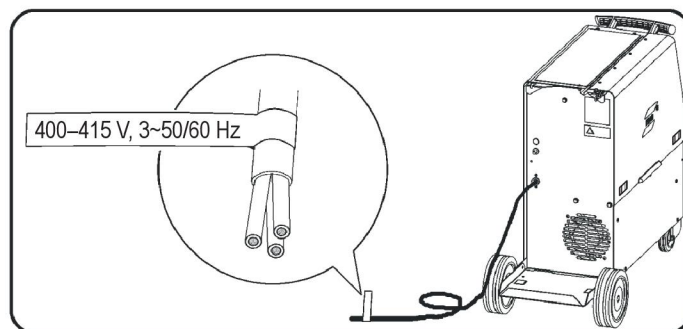
WARNING!

For packing and shipment of the power source the wheels are detached from the unit.

Before use attach the wheels according to instruction.



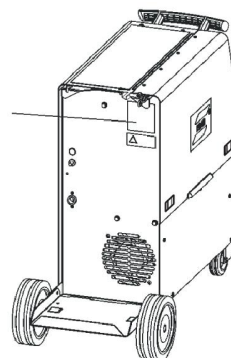
4.3 Electrical installation



4.4 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 area

	Mig C170 3ph	Mig C200 3ph	Mig C250 3ph
Voltage V	400-415 V, 3~ 50/60 Hz	400-415 V, 3~ 50/60 Hz	230/ 400-415 V, 3~ 50/60 Hz
Current A			
at 100% duty cycle	4.0	4.83	12.1/6.06
at 60% duty cycle	6.1	7.3	17.6/9.99
at 35% duty cycle	8.9	10.87	25.3/15.21

	Mig C170 3ph	Mig C200 3ph	Mig C250 3ph
Mains cable area mm ²	4 x 1.5	4 x 1.5	4 x 2.5 / 4 x 1.5
Fuse slow A	10	16	25/16

**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!**

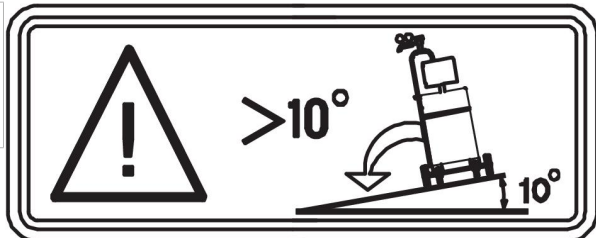
Rotating parts can cause injury, take great care.

**WARNING!**

To prevent the reel from sliding off the hub: Lock the reel in place by turning the red knob as shown on the warning label attached next to the hub.

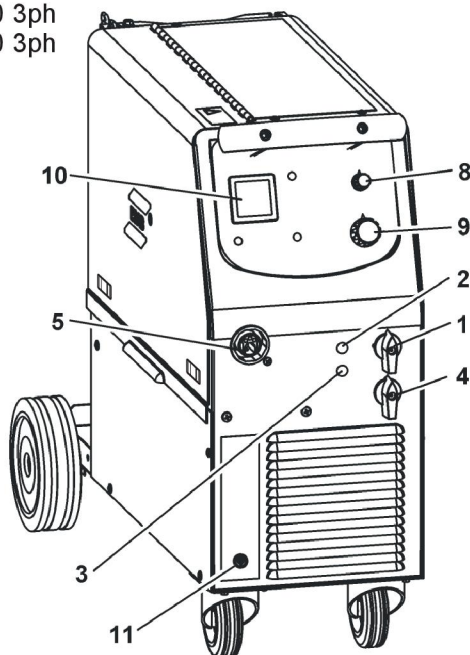
**WARNING!**

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

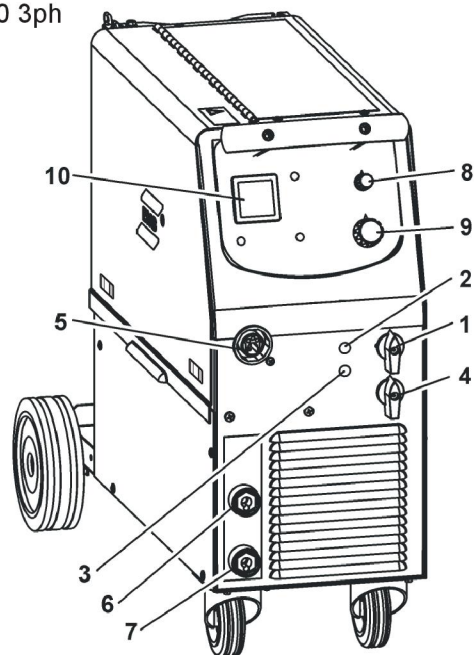


5.1 Connection and control devices

C170 3ph
C200 3ph

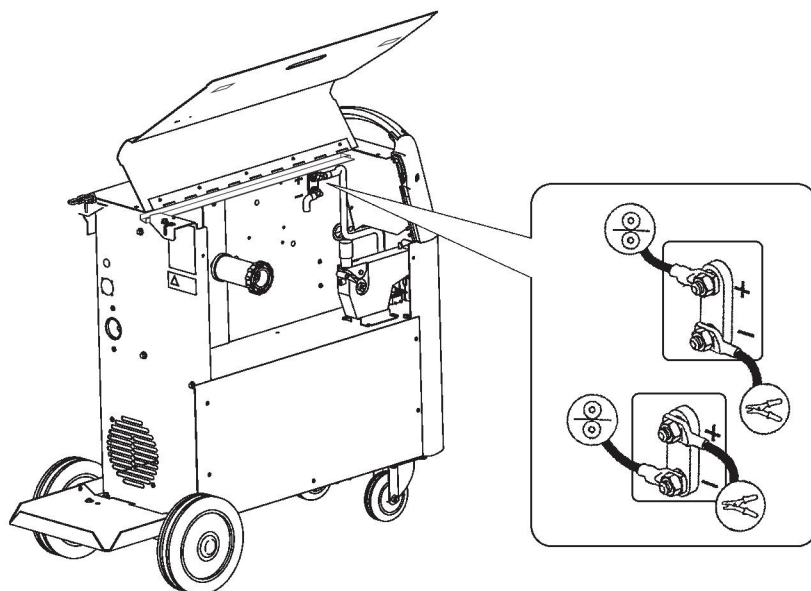


C250 3ph



- | | |
|---|---|
| 1. Mains supply switch | 7. Connection for return cable (-), low inductance |
| 2. Indicator lamp, power ON/OFF | 8. Knob for spot welding - ON/OFF and time setting |
| 3. Orange indicator lamp, overheating | 9. Knob for wire speed setting |
| 4. Welding voltage switch | 10. Digital instrument - V/A (option, see in "ACCESSORIES" chapter) |
| 5. EURO-connector for welding torch | 11. Return cable with return clamp |
| 6. Connection for return cable (-), high inductance | 12. Knob for burn-back time setting (located on control board) |

5.2 Welding without gas



5.3 Wire feed pressure

Start by making sure that the wire moves smoothly through the wire guide. Then set the pressure of the wire feeder's pressure rollers. It is important that the pressure is not too high.

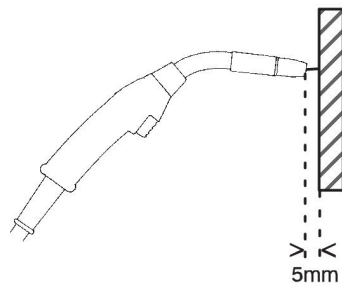


Figure A

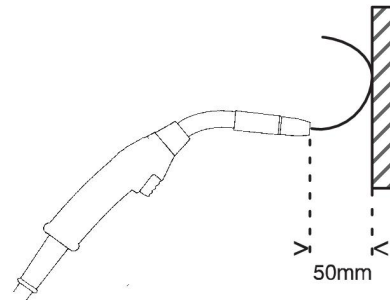


Figure B

To check that the feed pressure is set correctly, you can feed out the wire against an insulated object, e.g. a piece of wood.

When you hold the welding torch approx. 5 mm from the piece of wood (figure A) the feed rollers should slip.

If you hold the welding torch approx. 50 mm from the piece of wood, the wire should be fed out and bend (figure B).

5.4 Replacing and inserting wire

- Open the side panel.
- Disconnect the pressure sensor by folding it backwards, the pressure rollers slide up.
- Straighten the new wire for 10-20 cm. File away burrs and sharp edges from the end of the wire before inserting it into the wire feed unit.
- Make sure that the wire goes properly into the feed roller track and into the outlet nozzle and the wire guide.
- Secure the pressure sensor.
- Close the side panel.

5.5 Overheating protection

When the power source is switched on with the mains switch [1], indicator lamp [2] is on and lamp [3] off - the equipment is ready to operate. If the internal temperature becomes too high, the welding is interrupted and disabled. This state is indicated by lighting of the orange indicator lamp [3] on the front of the power source. It resets automatically when the temperature has fallen.

6 MAINTENANCE



NOTE!

Regular maintenance is important for safe and reliable operation.



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

Wire feed unit

Check regularly that the wire feed unit is not clogged with dirt.

- Cleaning and replacement of the wire feed unit mechanism's worn parts should take place at regular intervals in order to achieve trouble-free wire feed. Note that if pre-tensioning is set too hard, this can result in abnormal wear on the pressure roller, feed roller and wire guide.

The brake hub

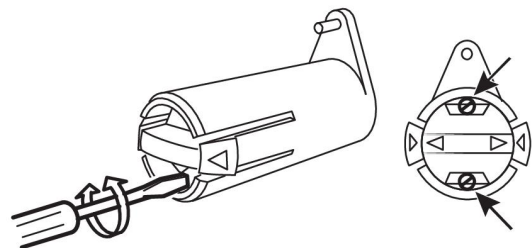
The hub is adjusted when delivered, if readjustment is required, follow the instructions below. Adjust the brake hub so that wire is slightly slack when wire feed stops.

- **Adjusting the braking torque:**
 - Turn the red handle to the locked position.
 - Insert a screwdriver into the springs in the hub.

Turn the springs clockwise to reduce the braking torque.

Turn the springs counter-clockwise to increase the braking torque.

Note: Make sure you turn both springs the same amount.



Welding torch

- Cleaning and replacement of the welding torch's wear parts should take place at regular intervals in order to achieve trouble-free wire feed. Blow the wire guide clean regularly and clean the contact tip.

7 TROUBLESHOOTING

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

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 correct current value is set.
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.
Thermal overload trips operate frequently	• 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	• 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. • Check the wire feed unit - if proper rolls are applied and properly set the pressure of the wire feeder's pressure rollers.

8 ORDERING SPARE PARTS



CAUTION!

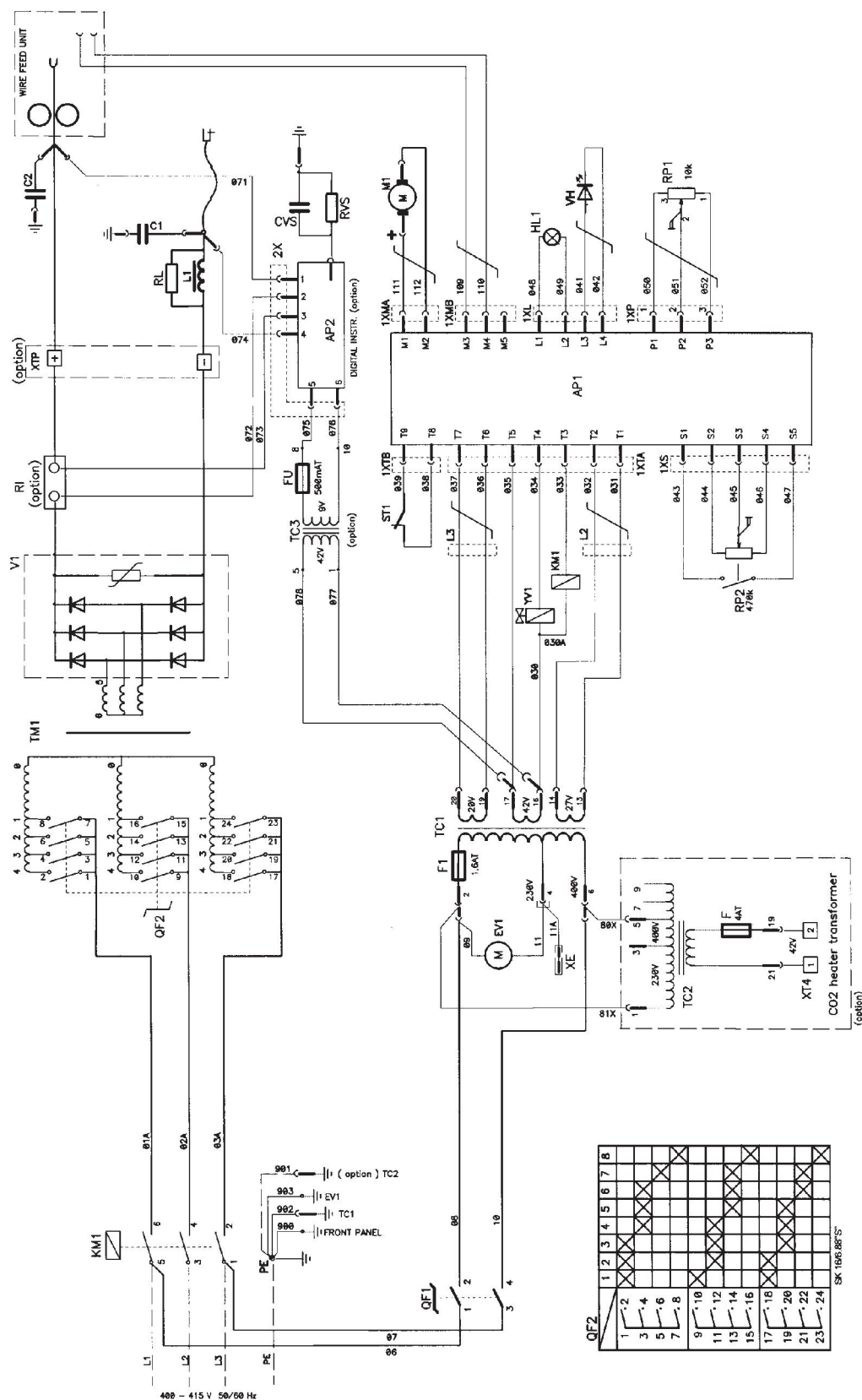
Repair and electrical work should be performed by an authorised ESAB service technician. Use only ESAB original spare and wear parts.

Mig C170 3ph, Mig C200 3ph, Mig C250 3ph is designed and tested in accordance with the international and European standards **IEC-/ EN 60974-1, IEC-/ EN 60974-10**. It is the obligation of the service unit which has carried out the service or repair work to make sure that the product still conforms to the said standard.

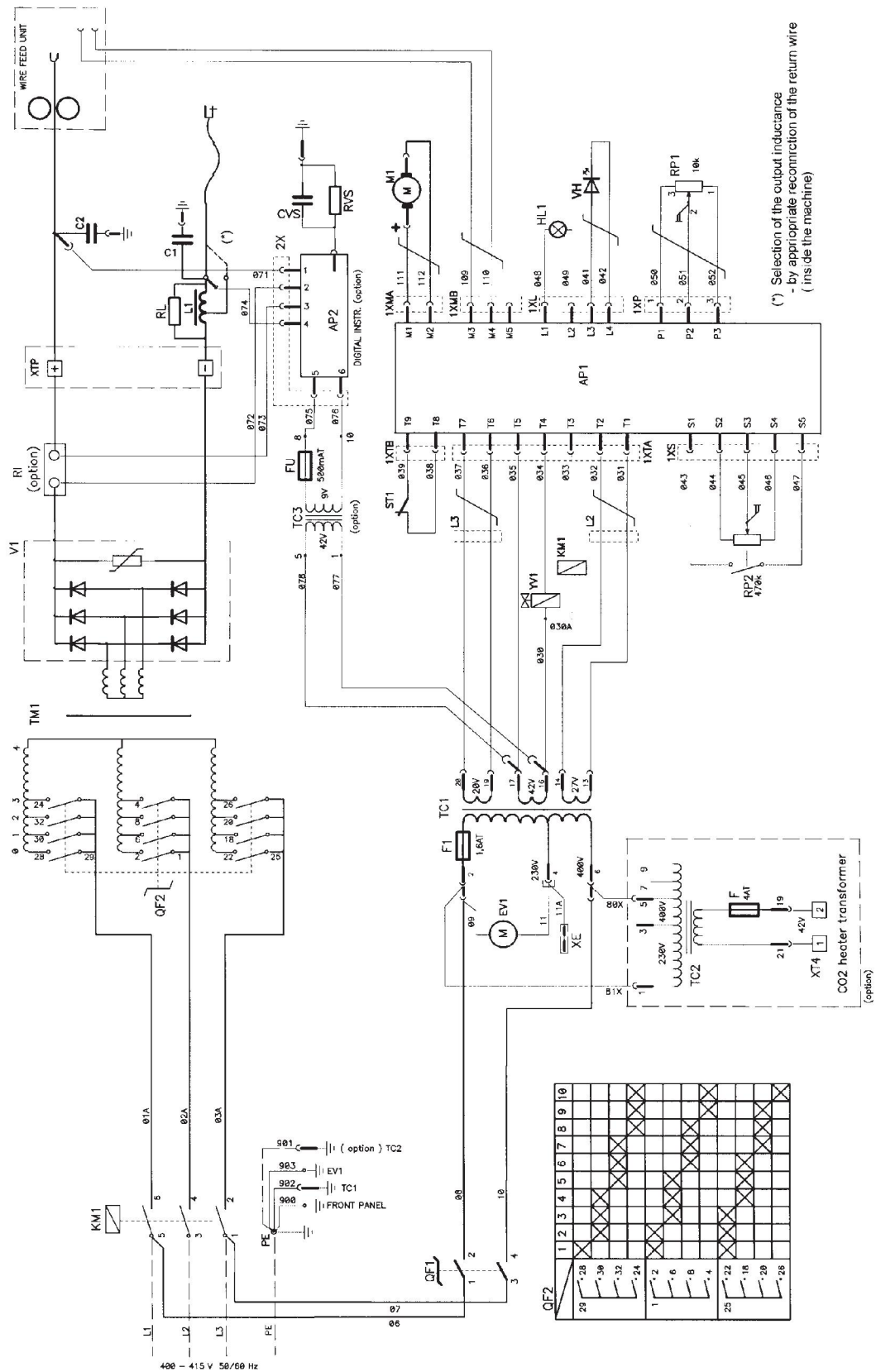
Spare parts and wear parts can be ordered through your nearest ESAB dealer, see [esab.com](https://www.esab.com). When ordering, please state product type, serial number, designation and spare part number in accordance with the spare parts list. This facilitates dispatch and ensures correct delivery.

DIAGRAM

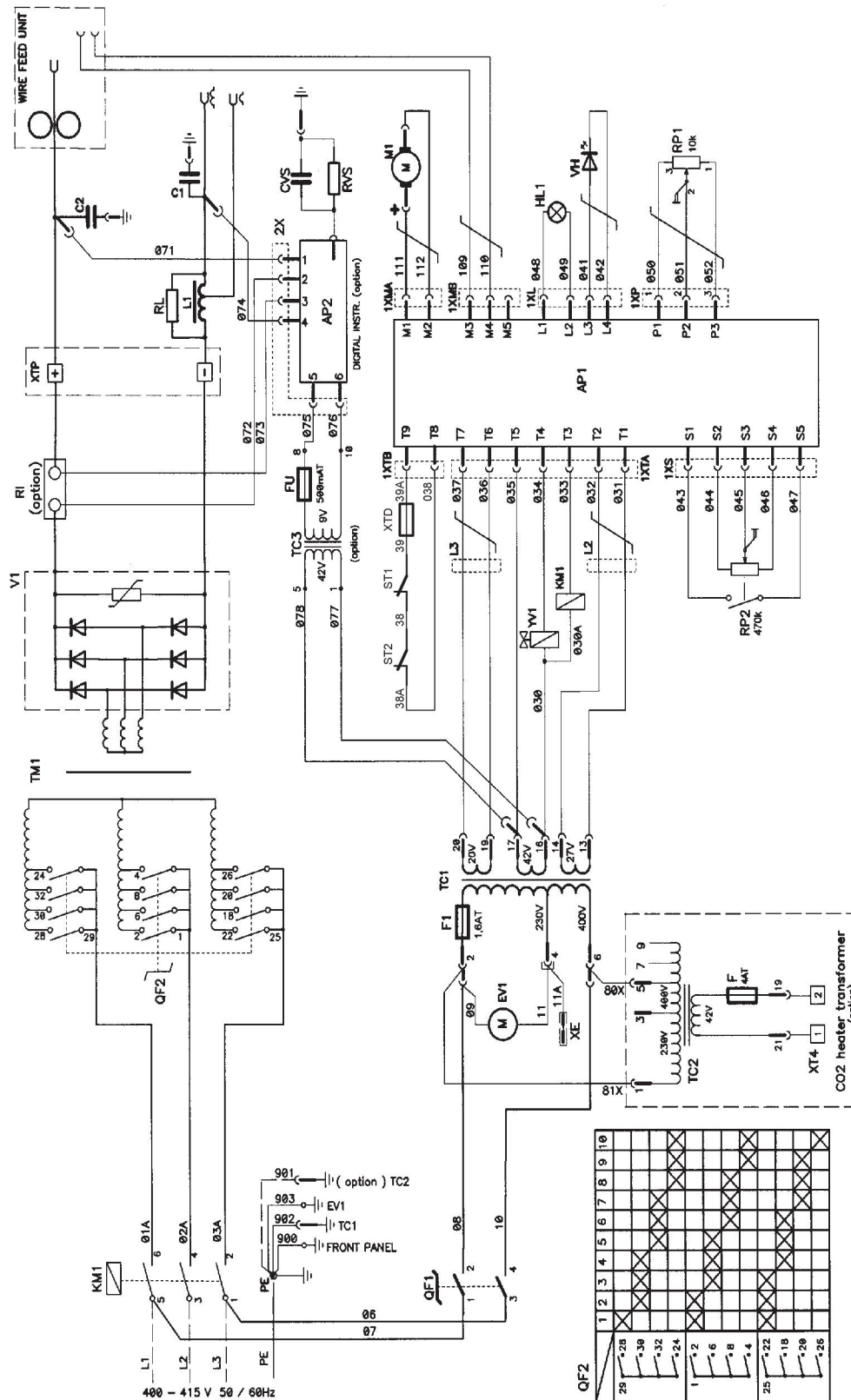
Mig C170 3ph, 400-415 V

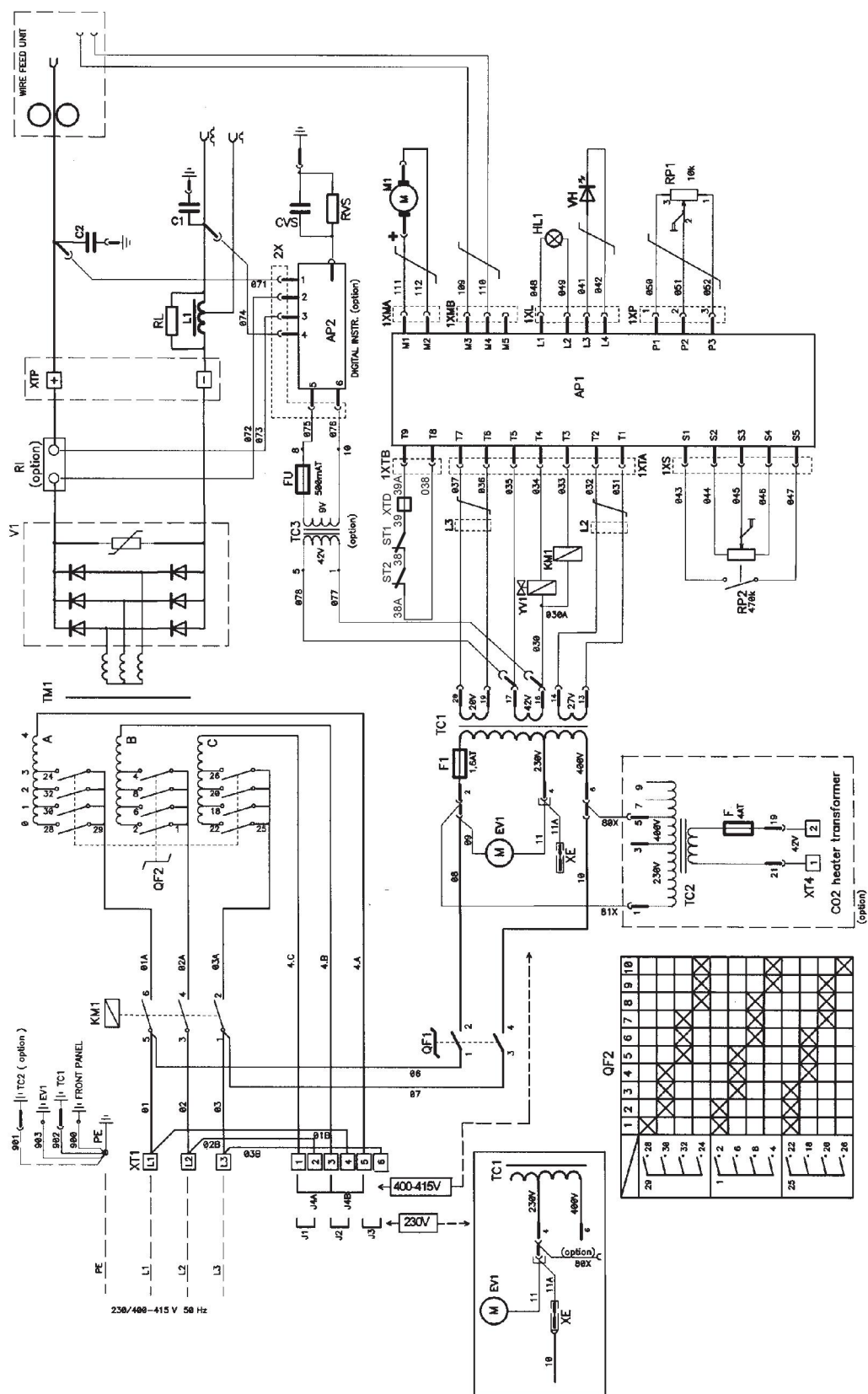


Mig C200 3ph, 400-415 V

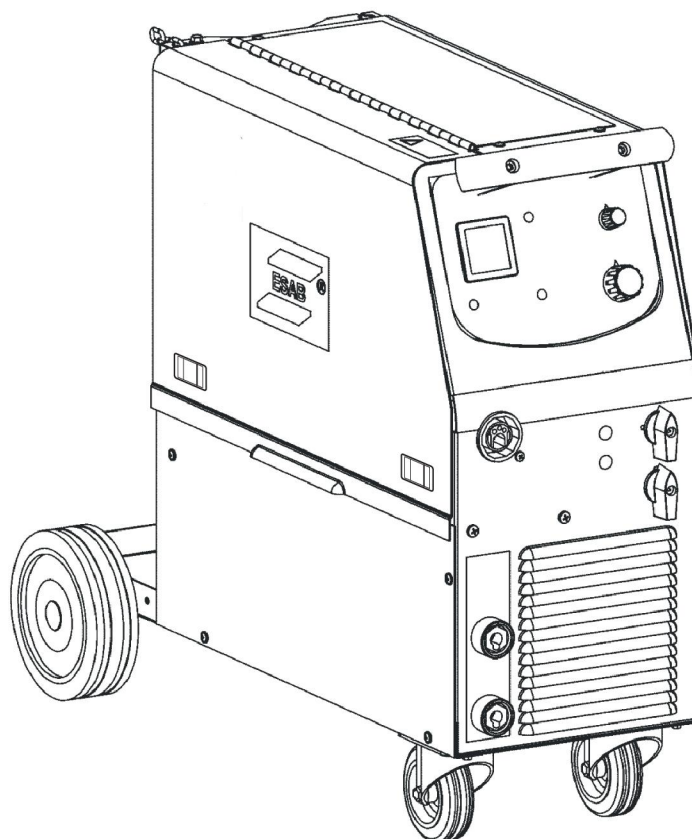


Mig C250 3ph, 400-415 V





ORDERING NUMBERS



Ordering no.	Denomination	Type	Notes
0349 308 670	Power source	Origo™ Mig C170 3ph	400-415 V 3~50/60Hz
0349 308 290	Power source	Origo™ Mig C200 3ph	400-415 V 3~50/60Hz
0349 307 840	Power source	Origo™ Mig C250 3ph	400-415 V 3~50/60Hz
0349 309 410	Power source	Origo™ Mig C250 3ph	230/400-415 V 3~50/60Hz
0349 300 524	Spare parts list	Mig C170 3ph, Mig C200 3ph, Mig C250 3ph	

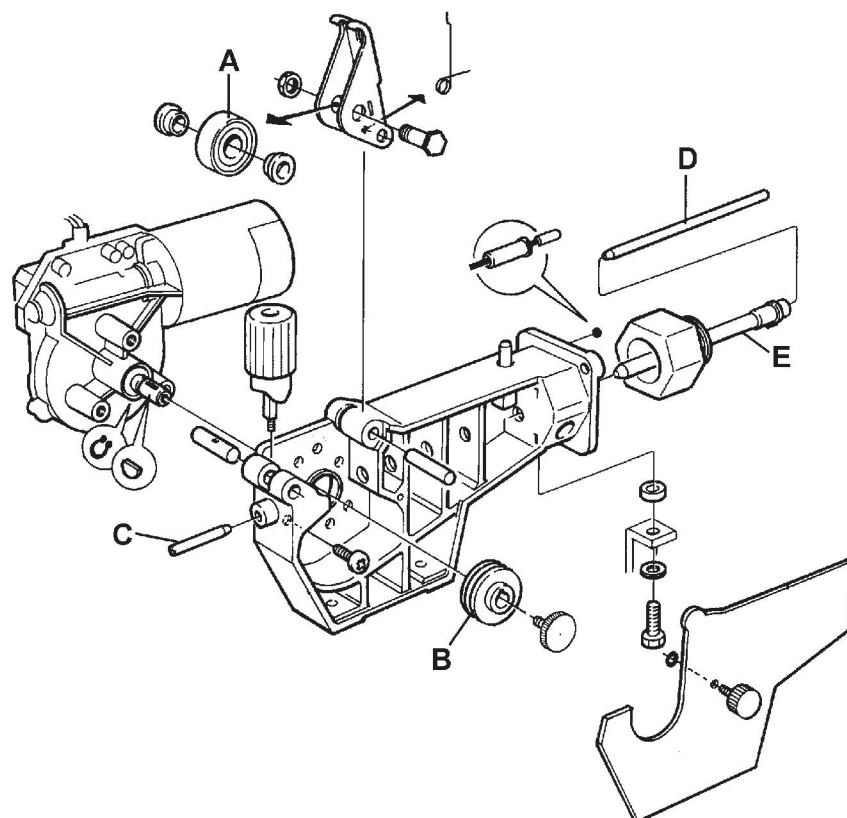
Technical documentation is available on the Internet at: www.esab.com

WEAR PARTS

(W. F. Mechanism 0455 890 890)

Item	Denomination	Ordering no.	Notes
A	Pressure roller	0455 907 001	
B	Feed roller	0367 556 001	Ø0.6-0.8 mm Fe, Ss, cored wire.
		0367 556 002	Ø0.8-1.0 mm Fe, Ss, cored wire.
		0367 556 003	Ø1.0-1.2 mm Fe, Ss, cored wire.
		0367 556 004	Ø1.0-1.2 mm Al wire.
C	Inlet nozzle	0466 074 001	
D	Insert tube	0455 894 001	Plastic, must be used together with item 0455 885 001, for welding with Al wire.
		0455 889 001	Steel, must be used together with item 0455 886 001.
E	Outlet nozzle	0455 885 001	Must be used together with item 0455 894 001, for welding with Al wire.
		0455 886 001	Must be used together with item 0455 889 001.

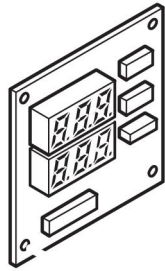
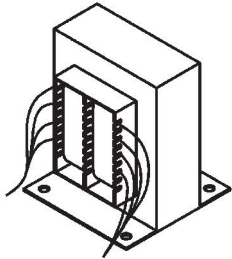
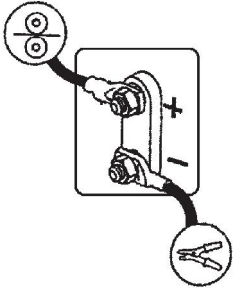
The rollers are marked with wire dimension in mm, some are also marked with inch.

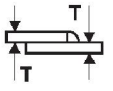
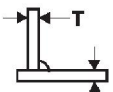
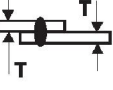


Welding with aluminium wires

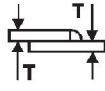
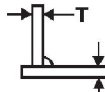
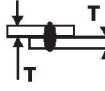
In order to weld with aluminium wires, proper rollers, nozzles and liners for aluminium wires **MUST** be used. It is recommended to use 3 m long welding torch for aluminium wires, equipped with appropriate wear parts.

ACCESSORIES

0349 302 598	Digital meter	
0349 302 250	Transformer kit for CO₂ heater	
0349 309 310	Polarity change KIT	

OrigoMig C170 3ph	 T [mm]	 d [mm]	Fe Ar + 18% CO ₂			Fe CO ₂			SS Ar + 2% CO ₂		AlMg5 Ar 100%		tubular gasless wire (TUBROD OK.14.16) REVERSE POLARITY		
															
			1-10	1- 10	1-10	1-10	1- 10	1-10	1-10	1- 10	1-10	1- 10	1-10	1- 10	1-10
	0,6	0,6	3,1	2		2,8	3		3	2				2,5	1
		0,8	2,5	2		3	3		2,5	2					
	0,8	0,6	3,6	3		4	4		4	3				3	2
		0,8	3	3		3	4		3	3					
	1,0	0,6	5	4		5	5		5,5	4					
		0,8	3,5	4		3,5	5		4	4				3,5	3
		1,0									4	1			
	1,5	0,6	5,5	5		5,5	6		8	5					
		0,8	4,5	5		4	6		6	5				4,5	4
		1,0									5,5	2			
	2,0	0,6	6,5	6		7	7		10	6					
		0,8	5,5	6		4,5	7		8	6				6	5
		1,0									6	3			
	2,5	0,6	8,5	7		8,5	8		10	8					
		0,8	7	7		5,5	8		8,5	7				8	6
		1,0									7,5	4			
	3,0	0,8	8	8		6	8		7	8				10	7
		1,0									8,5	6			
	0,6	0,6	3,6	3	7	5	5	6					3	2	7
		0,8	3	3	6	3,5	5	6							
	0,8	0,6	6,5	6	6	7	7	7							
		0,8	4,5	5	6	4	6	7					4,5	4	8
	1,0	0,6	8,5	7	8	8,5	8	8							
		0,8	7	7	6	4,5	7	10					8	6	7
	1,5	0,6	8,5	7	10	8,5	8	10							
		0,8	8	8	9			10							

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OrigoMig C200 3ph	 T [mm]	 d [mm]	Fe Ar + 18% CO ₂			Fe CO ₂			SS Ar + 2% CO ₂		AlMg5 Ar 100%		tubular gasless wire (TUBROD OK.14.16) REVERSE POLARITY		
															
			1-10	1-10	1-10	1-10	1-10	1-10	1-10	1-10	1-10	1-10	1-10	1-10	1-10
 	0,6	0,6	3	1		2,5	4		3	3					
		0,8	2	3		2	4						2	1	
	0,8	0,6	4	4		3	5		4	4					
		0,8	3	4		2,5	5		3	3			2,5	2	
		1,0	2	4		2	5		2,5	3			2	2	
	1,0	0,6	5	5		4,5	6		5,5	5					
		0,8	4	5		3	6		3,5	4			2,6	3	
		1,0	3	5		2,5	6		3	4	4	1	2	3	
	1,5	0,6	5,5	6		5	7		7,5	6					
		0,8	4,5	6		3,5	7		4,5	5			3	4	
		1,0	3	6		3	7		3	5	4,5	2	2,5	5	
	2,0	0,6	7	7		7,5	8		10	7					
		0,8	5,5	7		4	8		5,5	6			3,2	5	
		1,0	3,5	7		3,5	8		4	6	5	3	3,5	6	
	2,5	0,6	9	8		9,5	9		10	10					
		0,8	6,5	8		5	9		6	7			4	7	
		1,0	4	8		4	9		4,5	7	6,5	5	4,5	7	
	3,0	0,8	7	9		6	10		7,5	8			5	8	
		1,0	5	9		5	10		5,5	8	6	8	5,5	9	
	4,0	0,8	8	10		6,5	10		6	10			6	10	
		1,0	5,5	10		5,5	10		5	10	7	9	7,5	10	
	0,6	0,6	5	5	6	3	5	8							
		0,8	4	5	6	2,5	5	7					3	4	7
		1,0	3	5	5	2	5	7					3,5	4	7
	0,8	0,6	5,5	6	8	5	7	8							
		0,8	4,5	6	6	4	7	7					3	5	8
		1,0	3	6	6	2,5	6	8					3,5	6	8
	1,0	0,6	7	7	8	9,5	9	8							
		0,8	5,5	7	6	4	8	8					5	8	10
		1,0	3,5	7	6	3	7	8					5,5	9	6
	1,5	0,8	7	9	7	6	10	9							
		1,0	5	9	5	5,5	10	7					7,5	10	7

GIN:0349 309 307

OrigoMig C250 3ph			Fe Ar + 18% CO ₂				Fe CO ₂				SS Ar + 2% CO ₂			AlMg5 Ar 100%			tubular gasless wire (TUBROD OK.14.16) REVERSE POLARITY			
			1-10	1-10	L	1-10	1-10	1-10	L	1-10	1-10	Low (L)	High (H)	1-10	1-10	Low (L)	1-10	1-10	L	1-10
	0,6	0,6	3	2	L	3	4	H	5	4	L						3	1	L	
		0,8	2,5	2	L	2,5	3	L	4	4	L									
	0,8	0,6	4,5	3	L	4	5	H	6	5	L						3,5	2	L	
		0,8	3	3	H	3	4	L	5	5	L						2	2	L	
		1,0	3,5	3	L	3,5	5	L	3,5	4	L									
	1,0	0,6	4,5	4	H	5	6	H	7,5	6	H						3,5	3	L	
		0,8	3,5	4	H	3	5	H	6,5	6	H						2,5	3	L	
		1,0	4,5	4	L	4	6	L	4	4	L	4,5	2	H	2,5	3	2	3	L	
		1,2	2	4	H	2,5	6	L	3	4	L	4	2	H	2	3	2	3	L	
	1,5	0,6	6	5	H	5,5	7	H	10	7	H						4,5	4	L	
		0,8	4,5	5	H	3,5	6	H	7,5	7	L						2,5	4	L	
		1,0	4	5	H	4,5	7	L	5	5	L	5	3	H	2,5	4	2	4	L	
		1,2	3	5	H	3	7	H	4	5	L	5	3	H	2	4	2	4	L	
	2,0	0,6	7,5	6	H	10	8	H									6,5	5	L	
		0,8	5,5	6	H	4	7	H	8	8	L						3	5	L	
		1,0	4,5	6	H	4,5	8	H	5,5	6	H	6,5	4	H	2,5	5	3	5	L	
		1,2	3,5	6	H	3,2	7	H	5	6	L	5,5	4	H	2,5	5	3	5	L	
	3,0	0,8	8	7	H	5,5	8	H	10	9	L						8	6	L	
		1,0	5	7	H	6,5	9	H	6,5	7	H	7	5	H	3,5	6	3	6	L	
		1,2	4	7	H	3,5	8	H	5,5	7	L	6	5	H	3	6	3	6	L	
	4,0	0,8	8,5	8	H	6,5	9	H									9,5	7	L	
		1,0	6,5	8	H	8	10	H	5,5	8	L	7	7	L	5	8	4	8	L	
		1,2	5	8	H	4	9	H	5	8	L	6	7	L	4	8	4	8	L	
	5,0	0,8	6,5	9	L	9	10	H									10	8	L	
		1,0	7,5	9	H	8,5	10	H	7	9	L	8,5	8	L	7,5	9	5	9	L	
		1,2	5,5	9	H	6	9	L	5,5	9	L	7	8	L	5	9	5	9	L	
	6,0	0,8	8	10	L															
		1,0	6,5	10	L	8	10	L	8,5	10	L	10	9	L	10	10	8	10	L	
		1,2	5,5	10	L	6,5	10	L	6,5	10	L	8,5	9	L	8	10	8	10	L	
	0,6	0,6	6	5	H	7	5	6	H	7							4	4	L	6
		0,8	3,5	4	H	6	4	5	H	6							2,5	3	L	7
		1,0	3	3	H	6	3	4	H	6							2	4	L	6
		1,2	2,5	4	H	5	2,5	6	L	5										
	0,8	0,6	6,5	6	H	7	5,5	7	H	9							7	6	L	6
		0,8	4,5	5	H	6	4	6	H	7							3	4	L	8
		1,0	4	5	H	6	3,5	5	H	6							2,5	5	L	6
		1,2	3,5	5	H	5	3	7	H	5										
	1,0	0,6	8,5	8	H	7	9,5	8	H	8							9,5	8	L	6
		0,8	7	7	H	6	5,5	8	H	8							4,5	6	L	8
		1,0	4,5	6	H	6	4,5	7	H	6							3	6	L	7
		1,2	3,5	6	H	5	4	8	H	5										
	1,5	0,8	10	9	H	7	10	10	H	7							8	8	L	8
		1,0	6	8	H	6	6,5	9	H	6							5	9	L	7
		1,2	4	7	H	6	5,5	9	L	5										



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