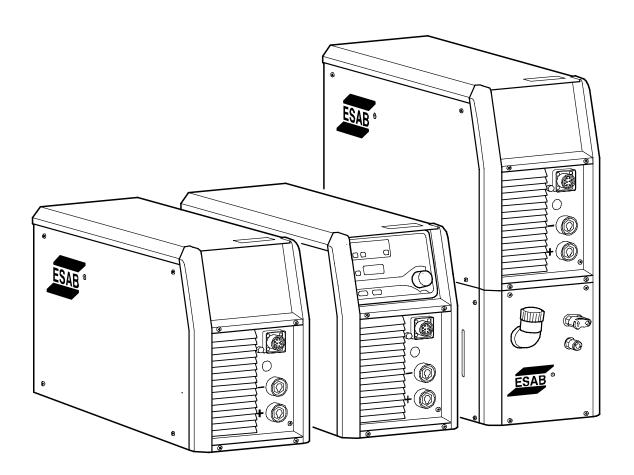




Origo™ Aristo™ Mig 3001i



Instruction manual

1 DIR	ECTIVE	3
2 SAF	ETY	3
3 INT	RODUCTION	5
3.1	Equipment	5
3.2	Control panel A24	5
4 TEC	CHNICAL DATA	6
5 INS	TALLATION	7
5.1	Lifting instructions	7
5.2	Location	8
5.3	Mains supply	8
6 OPI	ERATION	9
6.1	Connections and control devices	9
6.2	Connection of welding and return cable	9
6.3	Fan control	10
6.4	Overheating protection	10
6.5	MIG/MAG and FCAW-S welding	10
6.6	TIG welding	10
6.7	MMA welding	11
7 MA	NTENANCE	11
7.1	Power source	11
7.2	Welding torch	11
8 FAL	JLT-TRACING	12
9 ORI	DERING SPARE PARTS	12
DIAGR	AM	14
ORDEI	RING NUMBER	16
	PEODICE	10

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DIRECTIVE 1

DECLARATION OF CONFORMITYESAB AB, Welding Equipment, SE-695 81 Laxå, Sweden, gives its unreserved guarantee that welding power source Mig 3001i from serial number 835 are constructed and tested in compliance with the standard EN 60974-1 and EN 60974-10 (Class A) in accordance with the requirements of directive (2006/95/EC) and (2004/108/EEC).

Laxå 2008-08-14

Kent Eimbrodt Global Director

Equipment and Automation

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
- The operator must ensure that:
 - no unauthorized person is stationed within the working area of the equipment when it is started up.
 - no-one is unprotected when the arc is struck
- The workplace must:
 - · be suitable for the purpose
 - · be free from drafts
- Personal safety equipment
 - Always wear recommended personal safety equipment, such as safety glasses, flame-proof clothing, safety gloves.
 - Do not wear loose-fitting items, such as scarves, bracelets, rings, etc., which could become trapped or cause burns.
- General precautions
 - Make sure the return cable is connected securely.
 - Work on high voltage equipment may only be carried out by a qualified electrician.
 - Appropriate fire extinguishing equipment must be clearly marked and close at hand.
 - · Lubrication and maintenance must **not** be carried out on the equipment during operation.





WARNING



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



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 electromagnic compatibility of class A equipment in those locations, due to conducted as well as radiated disturbances.





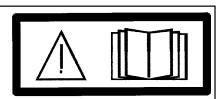
CAUTION!

This product is solely intended for arc welding.



CAUTION!

Read and understand the instruction manual before installing or operating.







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

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

3 INTRODUCTION

health!

Mig 3001i is a welding power source intended for MIG/MAG welding, as well as for welding with powder filled cored wire (FCAW-S), TIG welding and for welding with coated electrodes (MMA).

ESAB's accessories for the product can be found on page 17.

3.1 Equipment

Mig 3001i can be supplied with or without cooling unit. The cooling unit can be retro fitted. Installation kit for the cooling unit is available as an accessory, see page 17.

The power source is supplied with:

- 4.5 m return cable with contact clamp
- 5 m mains cable with 32 ampere connector
- instruction manual for the welding power source
- instruction manual in English for the control panel (if applicable)
- instruction manual for the cooling unit (if applicable)

Instruction manuals in other languages can be downloaded from the website, http://www.esab.com.

3.2 Control panel A24



Welding process parameters are controlled via the control panel. See the separate instruction manual for a detailed description of the panels.



TECHNICAL DATA 4

Mig 3001i			
Mains voltage	400 V ±10%, 3 ~ 50/60 Hz		
Mains supply	S _{sc min} 1.4 MVA		
Primary current I _{max} MIG/MAG I _{max} TIG I _{max} MMA	16 A 13 A 19 A		
No-load power demand when in the energy-saving mode, 6.5 min. after welding	30 W		
Setting range MIG/MAG TIG MMA	16 A / 8 V - 300 A / 48 V 4 - 300 A 16 - 300 A		
Permissible load at MIG/MAG 35 % duty cycle 60 % duty cycle 100% duty cycle	300 A / 29 V 240 A / 26 V 200 A / 24 V		
Permissible load at TIG 35 % duty cycle 60 % duty cycle 100% duty cycle	300 A / 22 V 240 A / 19.6 V 200 A / 18 V		
Permissible load at MMA 30 % duty cycle 60 % duty cycle 100% duty cycle	300 A / 32 V 230 A / 29,2 V 190 A / 27.6 V		
Power factor at maximum current MIG/MAG TIG MMA	0.90 0.89 0.90		
Efficiency at maximum current MIG/MAG TIG MMA	85 % 82% 84 %		
Open-circuit voltage	67 V		
Operating temperature	-10 to +40°C		
Transportation temperature	-20 to +55°C		
Continual sound pressure at no-load	<70 db (A)		
Dimensions lxwxh with cooling unit	652 x 249 x 423 mm 714 x 249 x 693 mm		
Weight with cooling unit	33 kg 53.5 kg		
Insulation class transformer	н		
Enclosure class	IP23		
Application class	S		
Application class	S		

Mains supply, $S_{\rm sc\ min}$ Minimum short circuit power on the network in accordance with IEC 61000-3-12



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. 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.

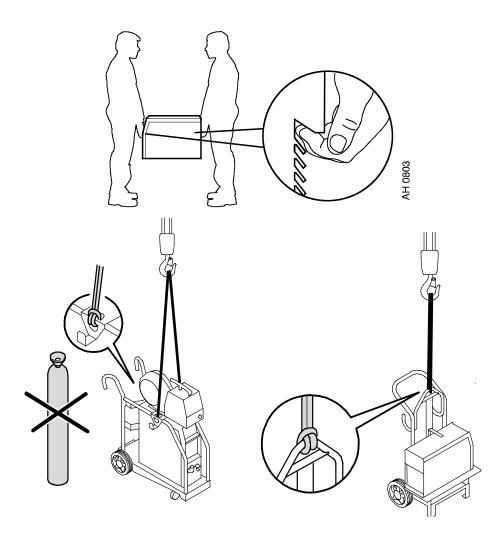
Application class

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

INSTALLATION

The installation must be executed by a professional.

5.1 **Lifting instructions**





5.2 Location

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

5.3 Mains supply

Note!

Mains supply requirements

High power equipment may, due to the primary current drawn from the mains supply, influence the power quality of the grid. Therefore connection restrictions or requirements regarding the maximum permissible mains impedance or the required minimum supply capacity at the interface point to the public grid may apply for some types of equipment (see technical data). In this case it is the responsibility of the installer or user of the equipment to ensure, by consultation with the distrubution network operator if necessary, that the equipment may be connected.

Make sure that the welding power source is connected to the correct supply voltage and that it is protected by the correct fuse rating. A protective earth connection must be made in accordance with regulations.

Rating plate with supply connection data

NOTE! The welding power source is designed for connection to a 400 volt system with four conductors.

If the power source is to be used in countries with a higher or lower supply voltage, the power source must be connected via a safety transformer.

Recommended fuse sizes and minimum cable area

Mig 3001i	
Mains voltage	400 V 3 \sim 50 Hz
Mains cable area mm ²	4G2.5 mm ²
Phase current leff	10 A
Fuse	
anti-surge	16 A
type C MCB	16 A

NOTE! The mains cable areas and fuse sizes as shown above are in accordance with Swedish regulations. Use the welding power source in accordance with the relevant national regulations.



6 OPERATION

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

6.1 Connections and control devices

- Connection for wire feed unit or remote control unit
- 2 Connection (-) MIG/MAG: Return cable TIG: Welding torch

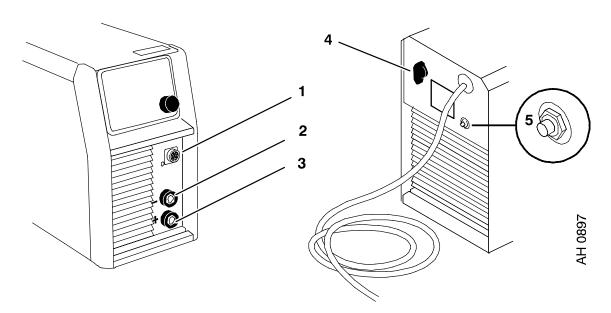
MMA: Return cable or welding cable

3 Connection (+) MIG/MAG: Welding cable

TIG: Return cable

MMA: Welding cable or return cable

- 4 Mains voltage switch 1 / 0
- Fuse for supply voltage for feeder unit,42 V



6.2 Connection of welding and return cable

The power source has two outputs, a positive terminal (+) and a negative terminal (-), for connecting welding and return cables. The output to which the welding cable is connected depends on the welding method or type of electrode used.

Connect the return cable to the other output on the power source. Secure the return cable's contact clamp to the work piece and ensure that there is good contact between the work piece and the output for the return cable on the power source.

For MMA welding, the welding cable can be connected to the positive terminal (+) or negative terminal (-) depending on the type of electrode used. The connecting polarity is stated on the electrode packaging.



6.3 Fan control

The power source has a time control that means that the fans continue to run for 6.5 minutes after welding has stopped, and the unit switches to energy-saving mode. The fans start again when welding restarts.

The fans run at reduced speed for welding currents up to 110 A, and at full speed for higher currents.

6.4 Overheating protection

The welding power source has overheating protection that operates if the temperature becomes too high. When this occurs the welding current is interrupted and a fault code is displayed on the control panel.

The overheating protection resets automatically when the temperature has fallen.

6.5 MIG/MAG and FCAW-S welding

An arc melts a continuously supplied wire. The weld pool is protected by shielding gas.

For MIG/MAG and FCAW-S welding, the power source is supplemented with:

- wire feed unit
- welding torch
- connection cable between power source and wire feed unit
- gas bottle

To ensure problem-free operation, the installation height from the cooling unit to the welding gun must be max. 7 m. Heights in excess of this can cause problems, such as long starting times, air bubbles, vacuums, etc.

If an installation height in excess of 7 m is required, we recommend an installation kit comprising a non-return valve and a solenoid valve, refer to accessories on page 17. Once these valves have been installed, the hose package must be horizontal during the initial startup so that everything fills with water. Then raise the wire feed unit and hose package to the high height. Continued safe operation at installation heights of up to 12 m can now commence.

6.6 TIG welding

TIG welding melts the metal of the workpiece, using an arc struck from a tungsten electrode, which does not itself melt. The weld pool and the electrode are protected by shielding gas.

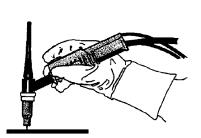
For TIG welding, the welding power source is supplemented with:

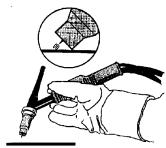
- a TIG torch with gas valve
- an argon gas cylinder
- an argon gas regulator
- tungsten electrode



"Live TIG-start"

At a "Live TIG-start" the tungsten electrode is placed against the workpiece. When the electrode is then lifted away from workpiece, the arc is struck at a limited current level (12 - 15 A).





6.7 MMA welding

For welding with coated electrodes, the power source is supplemented with:

welding cable with electrode clamp

7 MAINTENANCE

Regular maintenance is important for safe, reliable operation.

Only personnel with the appropriate electrical skills (authorised staff) may remove safety plates.



CAUTION!

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

7.1 Power source

Check regularly that the welding power source is not clogged with dirt.

How often and which cleaning methods apply depend on: the welding process, arc times, placement and the surrounding environment. It is normally sufficient to blow the power source clean with dry compressed air (reduced pressure) once a year.

Clogged or blocked air inlets and outlets otherwise result in overheating.

7.2 Welding torch

Wear parts should be cleaned and replaced at regular intervals in order to achieve trouble-free welding.



8 FAULT-TRACING

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

Type of fault	Corrective action
No arc	Check that the mains power supply switch is turned on.
	Check that the welding and return cables are correctly connected.
	Check that the correct current value is set.
	Check the mains power supply fuses.
The welding current is interrupted during welding.	 Check whether the overloading protection has tripped (indicated in the control panel). Check the mains power supply fuses.
The overloading protection trips frequently.	 Check to see whether the dust filter is 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 and return cables are correctly connected. Check that the correct current value is set. Check that the correct wire or electrode is used. Check the mains power supply fuses.

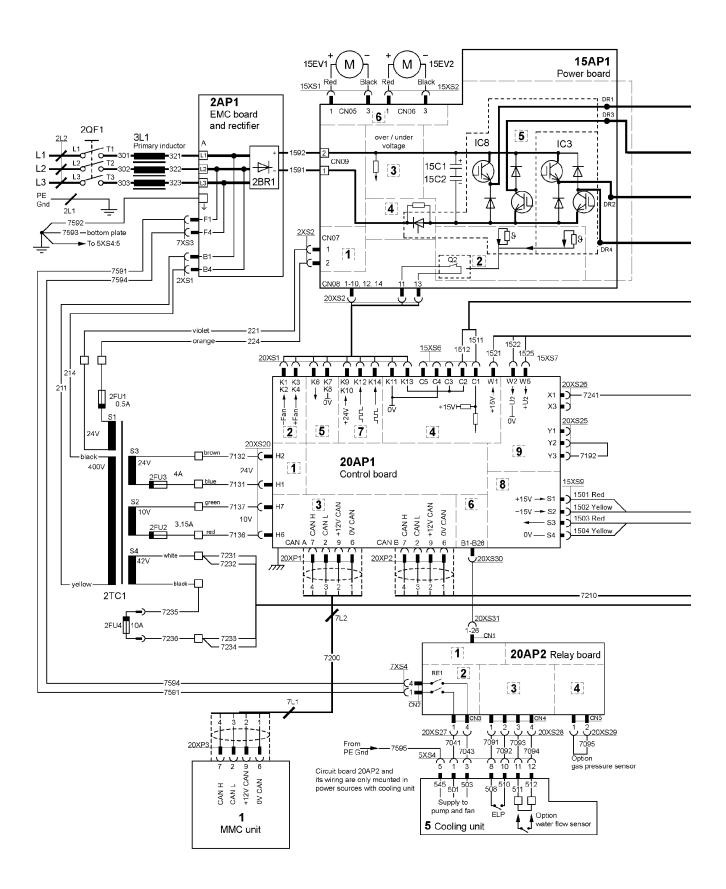
9 ORDERING SPARE PARTS

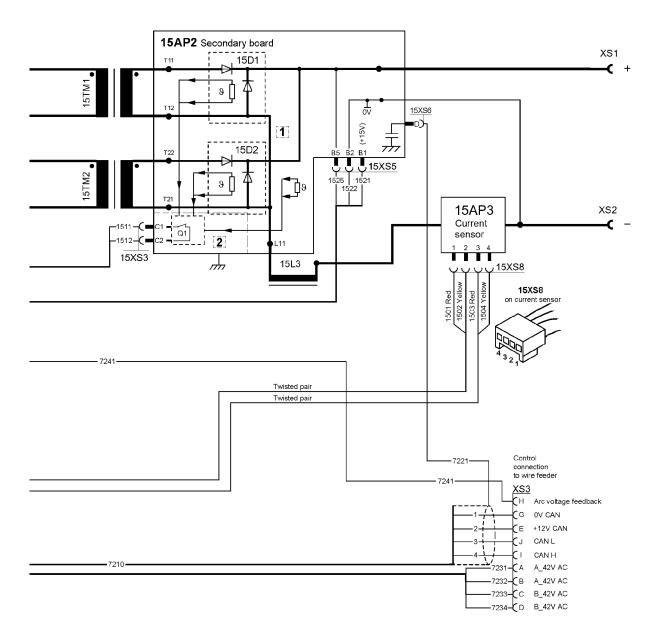
Repair and electrical work should be performed by an authorized ESAB serviceman. Use only ESAB original spare and wear parts.

Mig 3001i 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.

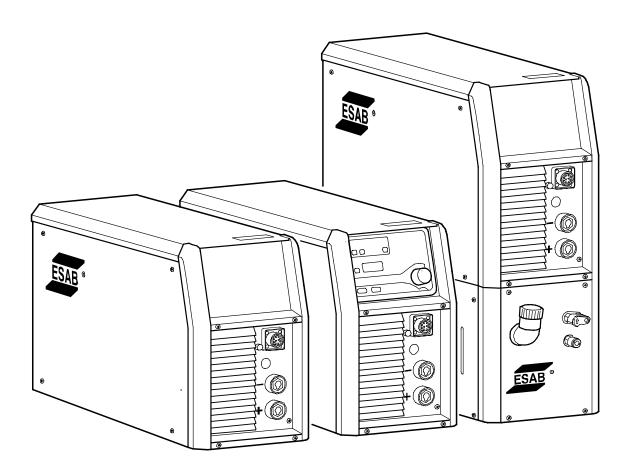
Spare parts may be ordered through your nearest ESAB dealer, see the last page of this publication.

Mig 3001i





Ordering number



Ordering no.	Denomination	Туре	Notes
0459 740 883	Welding power source Welding power source Welding power source	Origo™ Mig 3001i Origo™ Mig 3001iw Origo™ Mig 3001i A24	with cooling unit with control panel A24
0459 839 031	Spare parts list	Mig 3001i	
0460 737 0	Instruction manual	Control panel A22, A24	

The spare parts list is available on the Internet at ${\bf www.esab.com}$

Accessories

Trolley with two wheels 0460 564 880 Feeder platform for trolley with two wheels 0460 815 880 **Trolley with four wheels** 0460 565 880 **Mounting brackets** 0460 911 880

	Stabilizer kit for counter balance	0460 946 880
	Protection frame	
	Cooling unit CoolMidi 1000	
	Connection kit for cooling unit	0460 685 881
	Installation kit water return flow guard	0461 203 880
	Water flow guard 0.7 l/min	0456 855 881
10 L	Coolant (Ready mixed) 50% water and 50% mono-ethylene glycol (10 l)	0007 810 012

	Connection set 70mm ²	
	1.7 m	0459 528 780 0459 528 781
	5 m	0459 528 781
	10 m	0459 528 782
	15 m	
	25 m	0459 528 784
	35 m	0459 528 785
	Connection set water 70mm ²	
	1.7 m	0459 528 790
	5 m	0459 528 791
	10 m	0459 528 792
	15 m	0459 528 793
	25 m	0459 528 794
	35 m	0459 528 795
	Remote control unit MTA1 CAN	0459 491 880
	MIG/MAG: wire feed speed and voltage MMA:	
	current and arc force	
	TIG: current, pulse and background current	
	Remote control unit AT1 CAN	0459 491 883
	MMA and TIG: current	
	Remote control unit AT1 CF CAN	0459 491 884
	MMA and TIG: rough and fine setting of current.	
	Remote control cable 10 pole - 4 pole	
	5 m	0459 960 880
Market Market	10 m	0459 960 881
	25 m	0459 960 882

Information on PSF welding torches can be found in separate brochures.

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