



AristoTig 400



Instruction manual

1	DIRECTIVE				
2	SAF	SAFETY			
3	INTF		5		
	3.1	Equipment	5		
	3.2	The control panel	5		
4	TEC	HNICAL DATA	6		
5	INST	ALLATION	7		
	5.1	Lifting instructions	7		
	5.2	Placing	7		
	5.3	Electrical installation (with autotransformer)	8		
	5.4	Mains power supply	9		
6	OPE	RATION	10		
	6.1	Connections and control devices	10		
	6.2	Turning on the power source	10		
	6.3	Fan control	11		
	6.4	Overheating protection	11		
	6.5	Cooling unit	11		
	6.6	Remote control unit	11		
7	MAI		12		
	7.1	Cleaning the air filter	12		
	7.2	Topping up the coolant	12		
8	FAU		13		
9	ORD	ERING OF SPARE PARTS	13		
DIAGRAM					
SPARE PARTS LIST					
ACCESSORIES 19					



1 DIRECTIVE

DECLARATION OF CONFORMITY

ESAB Welding Equipment AB, S-695 81 Laxå, Sweden, gives its unreserved guarantee that welding power source AristoTig 400 from serial number 105 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 EN 50199 in accordance with the requirements of directive (89/336/EEC) and addendum (93/68/EEC).

Laxå 2001-04-18

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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 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
- 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



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.



Read and understand the instruction manual before installing or operating.



Δ 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

The **AristoTig 400** is a TIG welding power source, which can also be used for MMA welding.

There are eight variants of the power source:

- AristoTig 400 with T4 control panel
- AristoTig 400 with T6 control panel
- AristoTig 400 with cooling unit and T4 control panel
- AristoTig 400 with cooling unit and T6 control panel
- AristoTig 400 with autotransformer and T4 control panel
- AristoTig 400 with autotransformer and T6 control panel
- AristoTig 400 with cooling unit, autotransformer and T4 control panel
- AristoTig 400 with cooling unit, autotransformer and T6 control panel

NB: These instructions describe an AristoTig 400 with cooling unit and autotransformer.

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

3.1 Equipment

The AristoTig 400 is delivered with 5m return cable, instructions for power source and one instruction for the control panel.

3.2 The control panel

The power source is supplied with one of the following control panels:

• T4 panel



With a knob for adjusting the current. Other parameters are controlled by pushbuttons, with symbols in the display panel.

• T6 panel



With a knob for adjusting the current. Other parameters are controlled by pushbuttons, with text in the display panel.

See the separate instructions for detailed descriptions of the control panels.



4 TECHNICAL DATA

	AristoTig 400 not reconnectable	AristoTig 400 reconnectable
Mains voltage	400V, ±10%, 3~ 50 Hz	208/230/400/460/475/500/575 V, ± 10%, 3~ 50/60 Hz
Primary current		
I _{max} TIG I _{max} MMA	29 A 38 A	50/44/29/23/23/20/15 A 65/57/38/30/30/20/20 A
No-load powerin the energy- saving mode, 6,5 min. after wel- ding	60 W	235 W
Voltage/current range TIG MMA	8–60 V / 4–400 A 16 – 400 A	8–60 V / 4–400 A 16 – 400 A
Permissible load at TIG 35% duty cycle 60 % duty cycle 100% duty cycle	400 A / 26 V 320 A / 23 V 250 A / 20 V	400 A / 26 V 320 A / 23 V 250 A / 20 V
Permissible load at MMA 35% duty cycle 60 % duty cycle 100% duty cycle	400 A / 36 V 320 A / 33 V 250 A / 30 V	400 A / 36 V 320 A / 33 V 250 A / 30 V
Power factor at maximum cur- rent	0,65	0,65
Efficiency at maximum current	85 %	85 %
Open-circuit voltage	78 – 90 V	78 - 90 V
Operating temperature range	-10 to + 40°C	-10 to + 40°C
Dimensions, Ixbxh with cooling unit	625 x 394 x 496 625 x 394 x 776	625 x 394 x 776 625 x 394 x 1056
Continual A-weighted sound pressure	<70 db	< 70 db
Weight with cooling unit	59 kg 79 kg	116 kg 136 kg
Insulation class	Н	Н
Enclosure class	IP 23	IP 23
Application class	S	S

Cooling unit				
Cooling power	2500 W at 40°C temperature difference and flow 1.5 l/min			
Coolant	50 % water / 50% glykol			
Liquid quantity	5.5 l			
Maximum water flow	2.0 l/min			
Maximum number of water-cooled welding guns/torches that may be connected	two MIG welding guns or one TIG torch and one MIG welding gun			

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.

5 INSTALLATION

The installation must be executed by a professional.

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.

Note!

Connect the power source to the electricity mains with a network impedance of 0.200 ohm or lower. If the network impedance is higher, there is a risk of flicker in the illuminators.

5.1 Lifting instructions



5.2 Placing

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





5.3 Electrical installation (with autotransformer)



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

Rating plate with supply connection data.

Recommended fuse sizes and minimum cable areas

AristoTig 400	60 Hz	50/60 Hz	50 Hz	60 Hz	60 Hz	50 Hz	60 Hz
Mains voltage	208 V	230 V	400 V	460 V	475 V	500 V	575 V
Mains cable area, mm ²	4G6	4G6	4G4	4G4	4G4	4G4	4G4
Phase current, I ef- fective	38 A	33 A	22 A	18 A	18 A	16 A	11 A
Fuse Anti-surge Type C MCB	50 A 50 A	50 A 50 A	25 A 32 A	20 A _	20 A _	16 A _	16 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!

6.1 Connections and control devices

- 1 Connection for cooling water from the TIG torch RED
- 2 Connection with water lock for cooling water to the TIG torch – BLUE
- 3 Cooling water filler
- 4 Connection for return cable (+)
- 5 Connection for remote control
- 6 Connection for welding cable (-)
- 7 Connection for start signal from the welding torch
- 8 Connection for gas to the TIG torch

- 9 Main power supply switch, 0 / 1 / START
- 10 White indicating lamp Power supply ON
- **11** Orange indicating lamp Overheating
- 12 Control panel (see the respective instructions)
- 13 Fuse 4 AT
- 14 Connection for gas hose
- **15** Connection for cooling water. *Not used on this model.*
- **16** Connection for cooling water. *Not used on this model.*



6.2 Turning on the power source

Turn on the mains power by turning switch (9) to the "START" position. Release the switch, and it will return to the "1" position.

If the mains power supply should be interrupted while welding is in progress, and then be restored, the power source will remain de-energised until the switch is again turned manually to the "START" position.

Turn the unit off by turning the switch to the "0" position

Whether in the event of a loss of power supply or of turning the power source off in the normal manner, welding data will be stored so that it is available next time the unit is started.



6.3 Fan control

The power source fans continue to run for 6,5 minutes after welding has stopped, and the unit switches to energy-saving mode. They start again when welding restarts.

The fans run at reduced speed for welding currents up to 144 A, and at full speed for higher currents.

6.4 Overheating protection

The power source has two thermal overload trips which operate if the internal temperature becomes too high, interrupting the welding current and lighting the orange indicating lamp on the front of the unit. They reset automatically when the temperature has fallen.

6.5 Cooling unit

Water lock

The cooling unit has a water lock that senses whether the cooling water hoses are connected.

The power source On/Off switch must be in the "0" position (Off) when connecting a water-cooled TIG torch.

If a water-cooled TIG torch is connected, the water pump starts automatically when the main On/Off switch is turned to "START" and/or when welding starts. After welding, the pump continues to run for 6,5 minutes, and then switches to the energy-saving mode.

Function when welding

To start welding, the welder presses the torch trigger switch. The power source energises the torch and starts wire feed and the cooling water pump.

To stop welding, the welder releases the torch trigger switch. The welding current is interrupted, but the cooling water pump continues to run for 6,5 minutes, after which the unit switches to energy-saving mode.

Water flow guard

The water flow guard interrupts the welding current in the event of loss of coolant, and displays an error message on the control panel. The water flow guard is an accessory.

6.6 Remote control unit

Aristo machines with intergral control panels should have program version 1.21 or higher, in order for the remote control to function correctly.

When the remote control unit is connected, the power source and wire feed unit are in remote control mode; the buttons and knobs are blocked. The functions can only be adjusted via the remote unit.

If the remote control unit is not to be used, the remote control unit must be disconnected from the power source / wire feed unit, as otherwise it will remain in remote control mode.



When carrying out TIG welding, the value for the pulse current can be changed with the remote control.

For more information about the operation of the remote control unit, see the relevant operating instructions for the control panel.

7 MAINTENANCE

Regular maintenance is important for safe, reliable operation.

Only those persons who have appropriate electrical knowledge (authorized personnel) may remove the safety plates to connect or carry out service, maintenance or repair work on welding equipment.

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 Cleaning the air filter

- Release the cover plate with the dust filter (1).
- Swing out the cover plate (2).
- Remove the dust filter (3).
- Blow it clean with compressed air at reduced pressure
- Replace the filter with the finer mesh on the side against the cover plate (2)
- Refit the cover plate with the filter.

7.2 Topping up the coolant

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

Top up with coolant until it is up to the level of the filling hole.





8 FAULT TRACING

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

Type of fault	Action
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 fuse.
Welding current is interrupted during welding	 Check whether the thermal overload trips have operated (indicated by the orange lamp on the front panel). Check the main power supply fuses.
The thermal overload trips ope- rate 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 electrodes are being used. Check the main power supply fuses.

9 ORDERING OF SPARE PARTS

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

AristoTig 400 is designed and tested in accordance with the international an European standards IEC/EN 60974-1 and EN 50199. 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.





Cooling unit



Ordering number



Ordering no.	Denomination	Туре	Notes
0458 630 880	Welding power source	AristoTig 400	with T4 control panel
0458 630 881	Welding power source	AristoTig 400	with T4 control panel and cooling unit
0458 630 882	Welding power source	AristoTig 400	with T4 control panel and auto transformer
0458 630 883	Welding power source	AristoTig 400	with T4 control panel, cooling unit and auto transformer
0458 630 884	Welding power source	AristoTig 400	with T6 control panel
0458 630 885	Welding power source	AristoTig 400	with T6 control panel and cooling unit
0458 630 886	Welding power source	AristoTig 400	with T6 control panel and auto transformer
0458 630 887	Welding power source	AristoTig 400	with T6 control panel, cooling unit and auto transformer
0458 640 990	Spare part list	AristoTig 400	
0458 819 xxx	Instruction manual	Control panel T4	
0458 855 xxx	Instruction manual	Control panel T6	

The instruction manuals and the spare parts list are available on the Internet at **www.esab.com** Under "Products" and "Welding & cutting equipment", you will find a link to the page where you can both search for and download instructions and spare parts lists.

AristoTig 400

Spare parts list

ltem	Ordering no.	Denomination
1	0458 398 001	Filter
2	0458 383 001	Front grill



AristoTig 400

Accessories

Trolley for AristoTig	0458 530 881
Remote control adapter RA12 12 pole For analogue remote controls to CAN based equipment.	0459 491 910
Remote control unit MTA1 CAN MIG/MAG: wire feed speed and voltage MMA: current and arc force TIG: current, pulse and background current	0459 491 880
Remote control unit M1 10Prog CAN Choice of on of 10 programs MIG/MAG: voltage deviation TIG and MMA: current deviation	0459 491 882
Remote control unit AT1 CAN MMA and TIG: current	0459 491 883
Remote control unit AT1 CF CAN MMA and TIG: rough and fine setting of current.	0459 491 884
Remote cable CAN 4 pole - 12 pole 5 m 10 m 15 m 25 m 0.25 m	0459 544 880 0459 554 881 0459 554 882 0459 554 883 0459 554 883



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