



# ***Origo<sup>TM</sup> Arc*** ***250/300/400***

Bruksanvisning  
Brugsanvisning  
Bruksanvisning  
Käyttöohjeet  
Instruction manual  
Betriebsanweisung  
Manuel d'instructions  
Gebruiksaanwijzing

Instrucciones de uso  
Istruzioni per l'uso  
Manual de instruções  
Οδηγίες χρήσεως  
Инструкция  
Instrukcja obsługi  
Návod k používání  
Kezelési utasítások

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## 1 DIRECTIVE

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### DECLARATION OF CONFORMITY

ESAB Welding Equipment AB, S-695 81 Laxå, Sweden, declares that welding power source Origo™ Arc 250/300/400 from serial number 316 000 0001 onwards, conforms to standard EN 60974-1, in accordance with the requirements of directive (73/23/EEC) and appendix (93/68/EEC) and with standard EN 50199, in accordance with the requirements of directive (89/336/EEC) and appendix (93/68/EEC).

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Laxå 2003



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## 2 SAFETY

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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 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
3. 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



**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 MANUFACTURER'S HAZARD DATA.**

**ELECTRICAL SHOCK - Can kill**

- Install and earth the welding unit in accordance with applicable standards.
- Do not touch live electrical parts or electrode with bare skin, wet gloves or wet clothing.
- Insulate yourself from earth and the work piece.
- 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 keep fumes and gases 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!**

Read and understand the instruction manual before installing or operating.



**WARNING!**

Do not use the power source for thawing frozen pipes.



**Note! 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

Origo™ Arc250, Origo™ Arc300 and Origo™ Arc400 are moving core power sources intended for welding with coated electrodes (MMAwelding).

#### 3.1 Equipment

The welding power source is delivered complete with mains cable (5 metres) and instruction manual.

#### 3.2 Field of application

The welding power source supply direct current, which allows you to weld most alloyed and non-alloyed steels, stainless steel and cast iron.

Origo™ Arc250 and Origo™ Arc300 are suitable for welding with coated electrodes diameter from 1,6 to 5 mm and Origo™ Arc400 accepts up to 6 mm diameter.

### 4 TECHNICAL DATA

|   | Origo™ Arc250   | Origo™ Arc300   | Origo™ Arc400   |
|---|---|---|---|
| Permissible load at:<br>40% duty cycle<br>100% duty cycle | 250A/30V<br>140A/25,6V  | 285A/31,4V<br>150A/26V  | 400A/36V<br>230A/29,2V  |
| Setting range   | 50A/22V-250A/30V  | 55A/22,2V-300A/32V  | 65A/22,6V-400A/36V  |
| Open circuit voltage                                      | 65-75V  | 65-75 V   | 70-80V  |
| Open circuit power  | 490W  | 590W  | 750W  |
| Power factor cosφ<br>(at max. current)                    | 0,52  | 0,54  | 0,58  |
| Enclosure class   | IP23  | IP23  | IP23  |
| Application class   | <span style="border: 1px solid black; padding: 2px;">S</span> | <span style="border: 1px solid black; padding: 2px;">S</span> | <span style="border: 1px solid black; padding: 2px;">S</span> |
| Weight  | 98kg  | 105 kg  | 158kg   |
| Dimensions:   |   |   |   |
| Width   | 544mm   | 544mm   | 560mm   |
| Depth   | 510mm   | 510mm   | 570mm   |
| Height  | 615mm   | 615mm   | 770mm   |
| Height with handle  | 930mm   | 930mm   | 1020mm  |

#### 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.

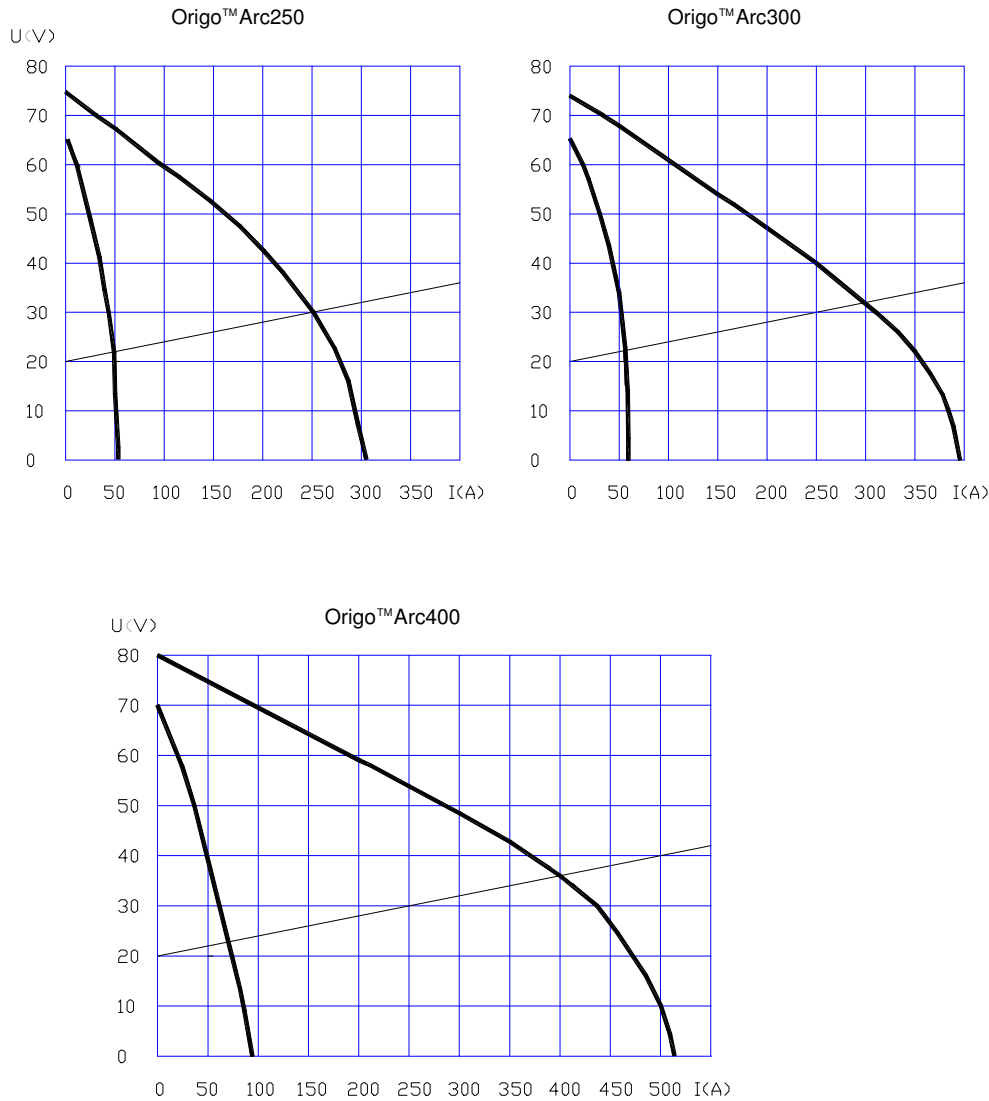
#### Enclosure class

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

## 4.1 Static characteristics




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## 5 INSTALLATION

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***The installation must be executed by a professional.***



### **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.

**Note!**

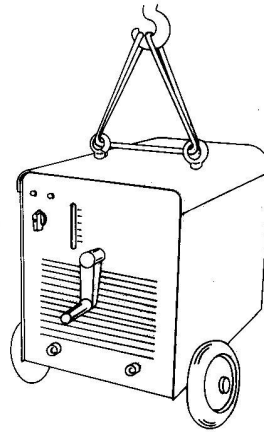
Connect the power source to the electricity mains with a network impedance  $Z_{max}$  or lower. If the network impedance is higher, there is a risk of flicker in the illuminators.

|               | $Z_{max}$ ( $\Omega$ ) |
|---------------|------------------------|
| Origo™ Arc250 | 0,18                   |
| Origo™ Arc300 | 0,11                   |
| Origo™ Arc400 | 0,08                   |

**5.1 Placing**

Place the machine so that there is nothing to prevent the cooling air from passing through it (air being drawn into the machine through a grill on the back).

**5.2 Lifting instructions**



**5.3 Mains power supply**

- Check that the welding power source is connected for the available mains power supply before connecting it to the mains.
- The mains cable is connected to the connection block XT1 (using terminals L1, L2 and L3) and PE-terminal.
- Make sure that the connection blocks XT1 and XT2 are correctly wired for the mains voltage used. (When delivered welding power source is wired for the mains voltage 3x400-415V, 50Hz).
- Connect the mains cable to the mains power supply according to the relevant regulations and install appropriate fuses in the main fuse box.

| <b>Origo™ Arc250</b>                | 50/60 Hz | 50 Hz   | 60 Hz   | 50 Hz | 60 Hz |
|-------------------------------------|----------|---------|---------|-------|-------|
| Mains voltage (V)                   | 230      | 400-415 | 440-460 | 500   | 550   |
| Max. eff. supply current (A)        | 34       | 19,5    | 17      | 15,5  | 15,5  |
| Fuse slow (A)                       | 35       | 20      | 20      | 16    | 16    |
| Mains cable area (mm <sup>2</sup> ) | 4x6      | 4x4     | 4x4     | 4x2,5 | 4x2,5 |

|                                     |          |         |         |       |       |
|-------------------------------------|----------|---------|---------|-------|-------|
| <b>Origo™ Arc300</b>                | 50/60 Hz | 50 Hz   | 60 Hz   | 50 Hz | 60 Hz |
| Mains voltage (V)                   | 230      | 400-415 | 440-460 | 500   | 550   |
| Max. eff. supply current (A)        | 36       | 21      | 18      | 16    | 16    |
| Fuse slow (A)                       | 35       | 25      | 20      | 16    | 16    |
| Mains cable area (mm <sup>2</sup> ) | 4x6      | 4x4     | 4x4     | 4x2,5 | 4x2,5 |

|                                     |          |         |         |       |       |
|-------------------------------------|----------|---------|---------|-------|-------|
| <b>Origo™ Arc400</b>                | 50/60 Hz | 50 Hz   | 60 Hz   | 50 Hz | 60 Hz |
| Mains voltage (V)                   | 230      | 400-415 | 440-460 | 500   | 550   |
| Max. eff. supply current (A)        | 56       | 32      | 28      | 25    | 25    |
| Fuse slow (A)                       | 63       | 35      | 35      | 25    | 25    |
| Mains cable area (mm <sup>2</sup> ) | 4x10     | 4x6     | 4x6     | 4x4   | 4x4   |

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## 6 OPERATION

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***General safety regulations for the handling of the equipment can be found on page 36. Read through before you start using the equipment!***

### 6.1 Start-up

- Start the welding power source by setting the mains switch to position “I”. The white lamp will light up and the fan will be started.
- Set the welding current, using the crank on the front. The selected welding current is shown by the dial. Follow the instructions on the electrode package for the recommended welding current.
- Connect welding and return cables to the terminals marked + and - on the front of the power source. Polarity reversal is carried out by changing over the welding and return cable connections. Connect return cable to the work piece.
- The power source is now ready for welding.

### 6.2 Overload protection

The thermostat prevents overheating of the welding power source. The yellow LED lights up in case of overheating. Resetting takes place automatically as soon as the power source has cooled down.

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## 7 MAINTENANCE

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*Regular maintenance is important for safe, reliable operation.*

**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

Normally it is sufficient to blow the welding power source clean regularly using dry compressed air at reduced pressure. In dusty and dirty environment the welding power source should be cleaned at shorter intervals.

Where necessary, lubricate the chain and sprocket using heat-resistant grease. When required, the gliding surfaces of the leakage cores can also be smeared with a thin coating of this grease.

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## 8 FAULT TRACING

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

| Type of fault  | Measure  |
|--|--|
| No arc.  | <ul style="list-style-type: none"> <li>• Make sure the mains switch is on.</li> <li>• Check that the welding and return cables are properly connected.</li> <li>• Make sure the welding current setting is correct.</li> </ul>                 |
| The welding current is interrupted in the course of welding. | <ul style="list-style-type: none"> <li>• Check if the thermal cut-out has tripped (the yellow indicating led on the front panel is on).</li> <li>• Check the mains power supply fuses.</li> </ul>  |
| The thermal cut-out trips frequently.                        | <ul style="list-style-type: none"> <li>• Check that the ratings of the welding power source have not been exceeded (overload of the power source).</li> </ul>  |
| Poor welding result.   | <ul style="list-style-type: none"> <li>• Check that the welding and return cables are properly connected.</li> <li>• Make sure the welding current setting is correct.</li> <li>• Check that the correct electrodes are being used.</li> </ul> |

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## 9 ORDERING OF SPARE PARTS

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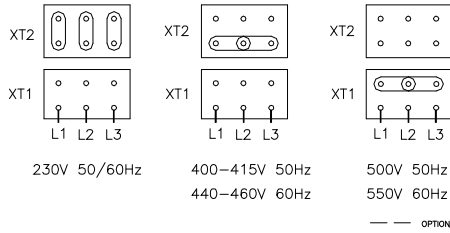
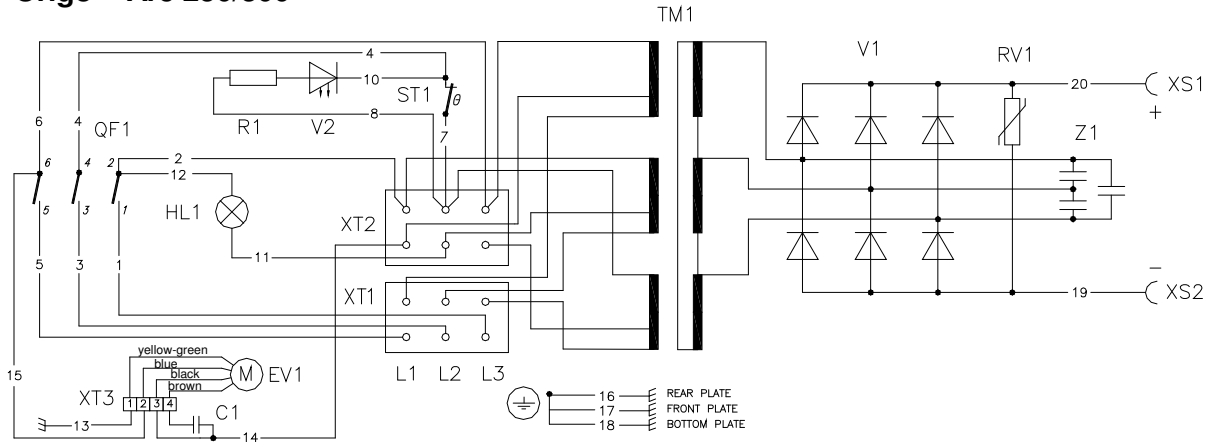
**Origo™ Arc 250/300/400 is designed and tested in accordance with the international and European standards IEC/EN 60 974-1 and EN 50 199. It is the obligation of the service unit which has carried out the service or repair work to make sure that the product still conforms to the said standard.**

Spare parts may be ordered through your nearest ESAB dealer, see the last page of this publication. When ordering, please state product type, serial number, designation and spare part number in accordance with the spare parts list.

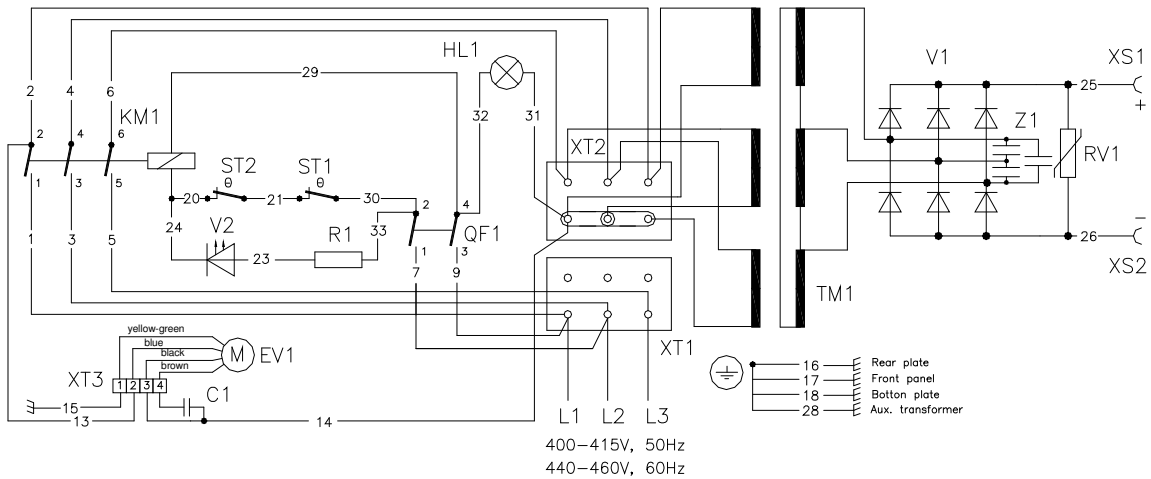
This facilitates dispatch and ensures correct delivery.

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 Esquema Schema Esquema Σχήμα σύνδεσης Διαγραμμα Schema Schemat  
 Kapcsolási rajz

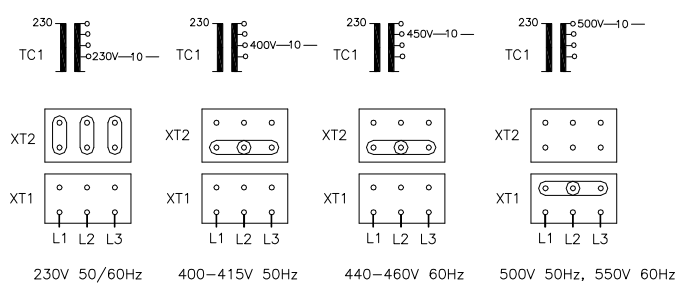
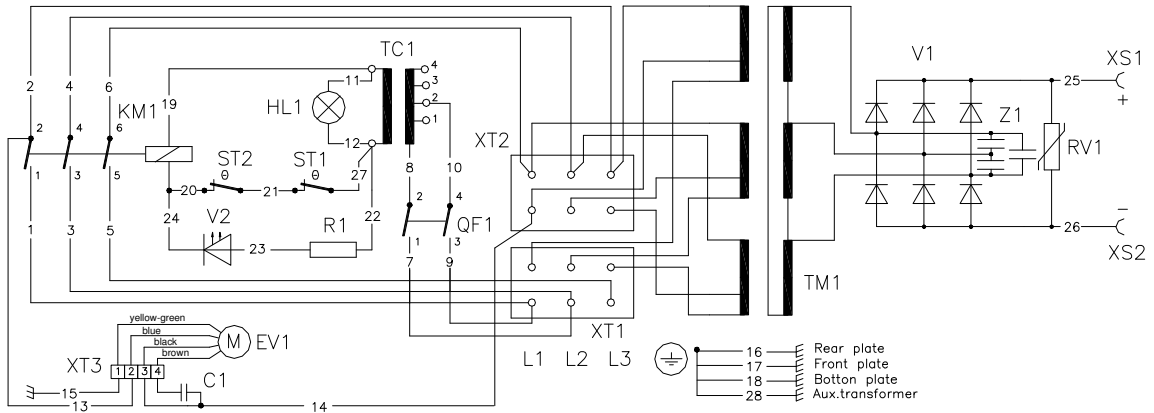
Origo™ Arc 250/300



Origo™ Arc 400 (400V)



# Origo™ Arc 400 (500V)





Group H.Q. International directory of subsidiary and associated companies.  
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