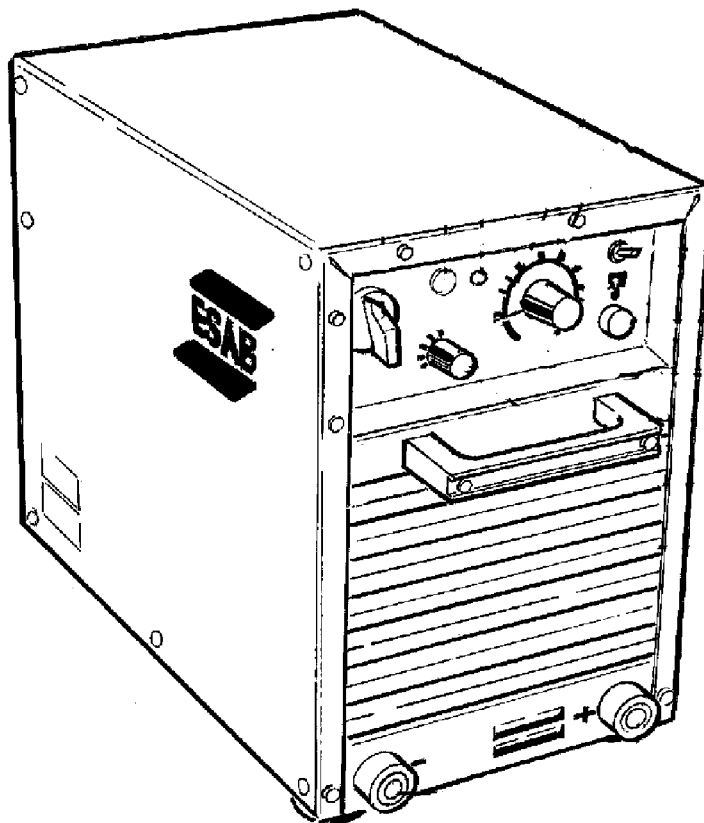


# LUA 400



**Bruksanvisning  
Brugsanvisning  
Bruksanvisning  
Käyttöohjeet  
Instruction manual  
Betriebsanweisung**

**Manuel d'instructions  
Gebruiksaanwijzing  
Instrucciones de uso  
Istruzioni per l'uso  
Manual de instruções**

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Rätt till ändring av specifikationer utan avisering förbehålles.  
Ret til ændring af specifikationer uden avisering forbeholdes.  
Rett til å endre spesifikasjoner uten varsel forbeholdes.  
Oikeudet muutoksiin pidätetään.

Rights reserved to alter specifications without notice.  
Änderungen vorbehalten.  
Sous réserve de modifications sans avis préalable.  
Recht op wijzigingen zonder voorafgaande mededeling voorbehouden.

Reservado el derecho de cambiar las especificaciones sin previo aviso.  
Specifiche senza preavviso.  
Reservamo-nos o direito de alterar as especificações sem aviso prévio.

## FÖRSÄKRAN OM ÖVERENSSTÄMMELSE

### SVENSKA

Esab Welding Equipment AB, 695 81 Laxå, Sverige, försäkrar under eget ansvar att svetsströmkälla LUA 400 med serienummer 535 är i överensstämmelse med standard EN 60974-1 enligt villkoren i direktiv 73/23/EEC (1973-02-19) med tillägg 93/68/EEC.

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## OVERENSSTEMMELSEERKLÆRING

### DANSK

Esab Welding Equipment AB, 695 81 Laxå, Sverige garanterer under eget ansvar, at svejsestrømkilde LUA 400 med serienummer 535 er i overensstemmelse med standard EN 60974-1 ifølge betingelserne i direktiv 73/23/EEC (1973-02-19) med tilægg 93/68/EEC.

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## FORSIKRING OM OVERENSSTEMMELSE

### NORSK

Esab Welding Equipment AB, 695 81 Laxå, Sweden, forsikrer på eget ansvar at svejsestrømkilde LUA 400 med serienummer 535 er i samsvar med standard EN 60974-1 i overensstemmelse med bestemmelsene i direktiv 73/23/EØF (1973-02-19) med tillegg 93/68/EØF

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## VAATIMUSTENMUKAISUUSVAKUUTUS

### SUOMI

Esab Welding Equipment AB, 695 81 Laxå, Sweden, vakuuttaa omalla vastuullaan, että hitsausvirtalähde LUA 400 sarjanumero 535 täyttää standardin EN 60974-1 vaatimukset direktiivin 73/23/EEC (19.2.1973) ja sen lisäyksen 93/68/EEC mukaisesti.

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## DECLARATION OF CONFORMITY

### ENGLISH

Esab Welding Equipment AB, 695 81 Laxå, Sweden, gives its unreserved guarantee that welding power source LUA 400 having serial number 535 complies with standard EN 60974-1, in accordance with the requirements of directive 73/23/EEC (1973-02-19) and addendum 93/68/EEC.

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## KONFORMITÄTSERKLÄRUNG

### DEUTSCH

Esab Welding Equipment AB, 695 81 Laxå Schweden, versichert hiermit auf eigene Verantwortung, daß die Schweißstromquelle LUA 400 mit Serien-Nr 535 mit der norm EN 60974-1 gemäß den Bedingungen der Richtlinien 73/23/EEC (1973-02-19) mit der Ergänzung 93/68/EEC in Übereinstimmung steht.

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## CERTIFICAT DE CONFORMITÉ

### FRANÇAIS

Esab Welding Equipment AB, 695 81 Laxå Suède, certifie sous sa propre responsabilité que la source de courant de soudage LUA 400 portant le numéro de série 535 répond aux normes de qualité EN 60974-1 conformément aux directives 73/23/EEC (1973-02-19) avec annexe 93/68/EEC.

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## OVEREENSKOMSTIGHEIDSVERKLARING

### NEDERLANDS

Esab Welding Equipment AB, 695 81 Laxå Sweden, verklaart op eigen verantwoordelijkheid dat lasstroombron LUA 400 met serienummer 535 overeenkomt met norm EN 60974-1 volgens richtlijn 73/23/EEG van de Raad (1973-02-19) met toevoeging 93/68/EEG.

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### DECLARACIÓN DE CONFORMIDAD

### ESPAÑOL

Esab Welding Equipment AB, 695 81 Laxå, Suecia, declara, asumiendo toda responsabilidad, que la fuente de corriente para soldadura LUA 400 con el número de serie 535 está fabricada de conformidad con la normativa EN 60974-1 según los requisitos de la directiva 73/23/EEC (1973-02-19) con el suplemento 93/68/EEC.

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### DICHIARAZIONE DI CONFORMITA

### ITALIANO

Esab Welding Equipment AB, 695 81 Laxå Swezia, dichiara sotto la propria responsabilità che il generatore per saldatura LUA 400 numero di serie 535 è conforme alla norma EN 60974-1 ai sensi dei requisiti previsti dalla direttiva 73/23/CEE (19/02/1973) e successive integrazioni nella direttiva 93/68/CEE.

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### DECLARAÇÃO DE CONFORMIDADE

### PORTUGUÊS

Esab Welding Equipment AB, 695 81 Laxå Suécia, certifica, sob a sua própria responsabilidade que, a fonte de corrente para soldadura LUA 400 número de série 535 está em conformidade com a norma EN 60974-1, segundo os requisitos constantes na directiva 73/23/EEC (19-02-1973) e com o suplemento 93/68/EEC.

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Laxå 95-06-21



Paul Karlsson  
Managing Director  
Esab Welding Equipment AB  
695 81 LAXÅ  
SWEDEN

Tel: + 46 584 81176

Fax: + 46 584 12336

## ENGLISH

### INTRODUCTION

LUA 400 is a welding rectifier built on the inverter principle and designed for welding with coated electrodes, TIG welding, semi-automatic welding and arc air gouging. Advanced electronics permit rapid control, low energy consumption, excellent welding characteristics and compensation for mains voltage fluctuation.

Inverter technology contributed to the low weight and compact dimensions of the unit. The rating plate and connection information are located at the rear of the LUA. LUA is supplied with two handles, connecting bolts, Allen key and cable couplings.

#### WARNING

This product is intended for industrial use. In a domestic environment this product may cause radio interference. It is the users responsibility to take adequate precautions.



## 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 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 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 ear defenders 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!**

## **Applications**

LUA 400 is the ideal choice for those who require a single power source that permits the use of all welding methods.

The basic unit, the LUA 400 power source, can be combined with ESAB standard components to create a complete system for MIG/MAG, manual or TIG welding. This instruction manual only describes the LUA 400 power source. (Order numbers for complementary equipment can be found in the "Accessories" section).

## **Manual welding**

The high open circuit voltage and a carefully chosen "start puff" at the beginning of welding ensure a smooth start to the welding cycle and easy striking of electrodes. The "anti-freeze feature" of LUA greatly reduces the risk of the electrode sticking to the work piece. If however the electrode does stick then the welding current is automatically reduced so that the electrode can be freed without damage and welding can continue immediately. This feature facilitates the welding of root beads in particular and saves electrodes.

## **MIG/MAG welding**

In the case of semi-automatic welding the power source must be combined with a wire feed unit, welding gun and gas bottle.

The latest electronics have been used to produce a compact, manageable and reliable semi-automatic supply with first class characteristics for MIG/MAG welding.

By using ESAB's wide selection of semi-automatic components (wire feed units, remote controls, welding guns, counterbalance arms and cooling units) you can customise equipment to suit your welding requirements. ESAB's special brochures describe the wide selection of semi-automatic equipment and accessories.

## **TIG welding**

When combined with ESAB's TIG-AID and BTD TIG gun the LUA 400 is an excellent unit for professional TIG welding.

Low current operation is essential for welding thin sheet metal. The LUA 400 satisfies this requirement, with a minimum welding current of just 15 A.

During TIG welding the "start puff" and "anti-freeze" features should be switched off. This is done by turning the rotary switch on the front panel to the "TIG" setting.

## **TECHNICAL DESCRIPTION**

This is how the LUA inverter works.

The incoming 3 phase AC current is rectified. Then it is converted back into AC using a much higher frequency than mains frequency. After transformation the current is again rectified to give a DC supply for welding. The entire cycle is controlled by a control circuit that gives the power source the desired static characteristic and dynamic performance.

LUA is divided into four main sections:

- The control section on top, comprising the circuit card, controls and electronics.
- The fan compartment, containing the fan and power resistor.
- The remaining components are mainly divided into mains components and welding components.

### **Control system**

The LUA control system used modern electronics to create a power source that has excellent static and dynamic welding characteristics, high efficiency, high power factor, low minimum current, start puff, anti-freeze, foldback, electrically insulated remote control, compensation for mains fluctuations, etc.



**TECHNICAL DATA**

Current setting range	15 A/20 V - 400 A/36 V
TIG welding	15-400 A
Manual welding	20-400 A
Semi-automatic welding	45-400 A

**Maximum load****Manual welding**

- at 35% duty cycle	400 A/36 V
- at 60% duty cycle	315 A/32.6 V
- at 100% duty cycle	150 A/26 V

**TIG welding**

- at 35% duty cycle	400 A/26 V
- at 60% duty cycle	315 A/22.6 V
- at 100% duty cycle	250 A/20 V

**Semi-automatic welding**

- at 35% duty cycle	400 A/34 V
- at 60% duty cycle	315 A/30 V
- at 100% duty cycle	200 A/24 V

Open circuit voltage 65-75 V

Open circuit power 0.06 kW

Power factor  $\lambda$  0.94

Efficiency  $\eta$  0.80

Enclosure class IP 23

Application class **S**

Weight 48 kg

**Mains supply**

Voltage (V)	3x230	3x400	3x415	3x440	3x500	3x550
Frequency (Hz)	50/60	50/60	50	60	50	60
Primary current (A)	40	26	25	18	19	15
Fuse, slow (A)	35	20	20	20	20	20
Cable (mm <sup>2</sup> )	4x6	4x2.5	4x2.5	4x2.5	4x2.5	4x2.5

**This welding power source complies with IEC 974-1**

Mains cable complies with Swedish regulations.

The symbol **S** indicates the power source is designed for use in area of increased electrical hazard.

The **IP** code indicates the degree of protection the casing provides against penetration of solid objects and water.

Equipment marked **IP 23** is designed for indoor and outdoor use.

## INSTALLATION

Check that the welding power source is set up for the available main voltage before connecting it to the supply.

The voltage is indicated on the rating plate at the rear of the power source.

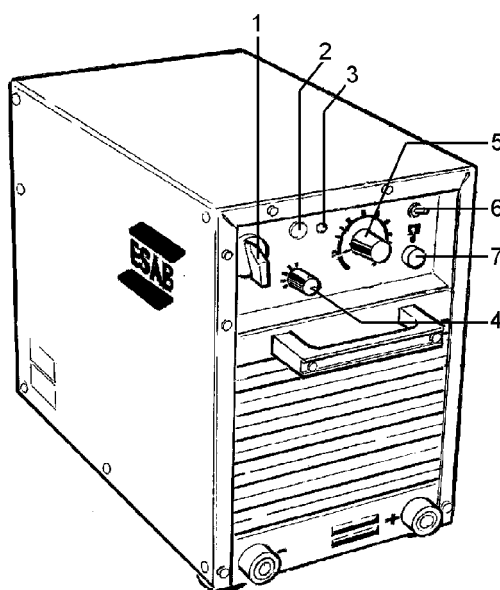
LUA must be connected to a three phase mains supply.

LUA is supplied with a mains cable. The cable is connected to the terminals L1, L2 and L3 on terminal block K11. The phase sequence is not important. The cable grommet and cable grip are located on the bottom right at the rear of the rectifier. The equipment must be earthed in accordance with regulations.

Suitable welding and return cables for the LUA 400 are 50 mm<sup>2</sup>.

### Controls on front panel of LUA:

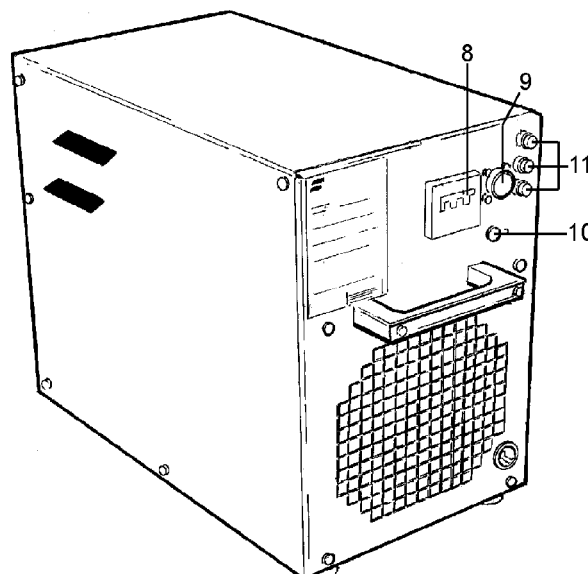
1. Power switch
2. White lamp which lights up when rectifier is switched on
3. Yellow lamp which lights up if power source overheats
4. Rotary switch for selecting between MIG/MAG, manual, or TIG welding
5. Knob for adjusting welding current. Equipped with planetary gear to allow fine adjustment. A sliding clutch prevents damage caused if the knob is turned past the min. or max. settings.
6. Toggle switch for selecting between current control on front panel or remote control
7. Socket for remote control



bu07d001

### Controls at rear of LUA:

8. Automatic fuse which protects against overloading and high current spikes
9. Socket for connecting wire feed unit and MIG/MAG remote control
10. Socket for connecting OCD1 cooling unit or TIG-AID (220 V)
11. Fuses



bu07d002

## **OPERATION**

1. LUA must be placed upright.
2. Set the automatic fuse on the rear to setting I.
3. Set the power switch to setting I. The power lamp will light up and the fan will start.
4. Check that there is no restriction in the flow of air.
5. Set the rotary switch to MIG/MAG, manual or TIG, as required. There are three different MIG/MAG settings. A gives the "coldest" weld and C gives the "hottest" weld.
6. In the case of MMA or TIG welding, set the toggle switch on the front panel to allow direct or remote control of the welding current, as required.
7. In the case of MIG/MAG welding the remote control must also be connected to the socket on the wire feed unit and the toggle switches on the wire feed unit and the front panel must both be set to the appropriate setting.
8. Fine adjust the welding current using the knob on the front panel or using the remote control. See relevant instruction manual.
9. Check that the couplings on the welding cable and return cable are properly connected to LUA.
10. LUA is now ready to start welding.

Operating instructions for the wire feed unit and TIG-AID are supplied with that equipment.

## **Safety devices**

As mentioned previously there is an automatic fuse unit on the rear of the LUA power source.

In the event of overloading or a high current spike this fuse trips automatically and switches off the power.

To continue operation the automatic fuse must be reset to setting I. If the fuse trips repeatedly you should call in a service engineer.

LUA is also equipped with a thermal overload switch that automatically switches off the power in the event of overload or overheating (yellow lamp lights up). This is reset automatically once the components have cooled down to an acceptable temperature.

## **MAINTENANCE**

Depending on the environment it is used in the power source should be blown clean regularly using dry compressed air at reduced pressure. Otherwise blocked air in-takes or vents may lead to overheating.

### **Ordering spare parts**

When ordering spare parts please state the machine model, serial number plus the name and spare part number as shown in the list of spare parts. This makes dispatch easier and ensures correct delivery.

## **ACCESSORIES**

### **LUA 400 multi-voltage version.**

LUA 400 is supplied as standard for connection to 380–415 V mains supplies. By fitting a voltage module the LUA 400 can also be connected to the following supply voltages:

220/380/415/500 V – 50 Hz and  
220/380/440/550 V – 60 Hz.

### **Remote control**

	<b>Order no.</b>
• PHB 1 remote control	367 317-880
• PHB 2 remote control	367 318-880
• PHC 2 remote control	367 620-880
• PHA 5 pulse unit	
with Cannon connector	320 128-880
with Burndy connector	367 970-880
• PHA 2 hot-start unit	367 601-880
• Programmer unit PAB 6	367 308-880
• Crater filling unit PAC 8	367 305-880
• Short pulse unit PAD 3	367 502-880

## Connection and extension cables

PHB 1, PHB 2, PHC 2, PHA 5 och PHA 2.

### Order no.

- 5 m connecting cable 367 144-881
- 10 m connecting cable 367 144-882
- 25 m connecting cable 367 144-883
- 25 m extension cable 367 662-880

Remote control cable PAB 6, PAC 8, PAD 3.

- 5 m, 367 144-884
- 10 m, 367 144-885
- 16 m, 367 144-886

Switching unit

- For permanent connection. 321 170-880
- For cable connection. 321 170-881

## Optional accessories for LUA include:

### Order no.

- Trolley for power source 365 187-880
- LUA semi-trolley (Basic)  
for power source and wire feed 367 360-882
- LUA semi-trolley (water)  
for power source and wire feed 367 360-880
- LUA maxi-trolley "JUMBO"  
with space for cooling unit  
and TIG-AID 367 360-881
- TIG-MAID I trolley 365 075-880