



Compact Professional 315E/400E

Halvautomat

Semi-automatic

Halbautomat

**Machines de soudage
semi-automatique**

**Bruksanvisning och
reservdelsförteckning**

**Instruction manual and
spare parts list**

**Betriebsanweisung und
Ersatzteilverzeichnis**

**Manuel d'instructions et
liste de pièces détachées**

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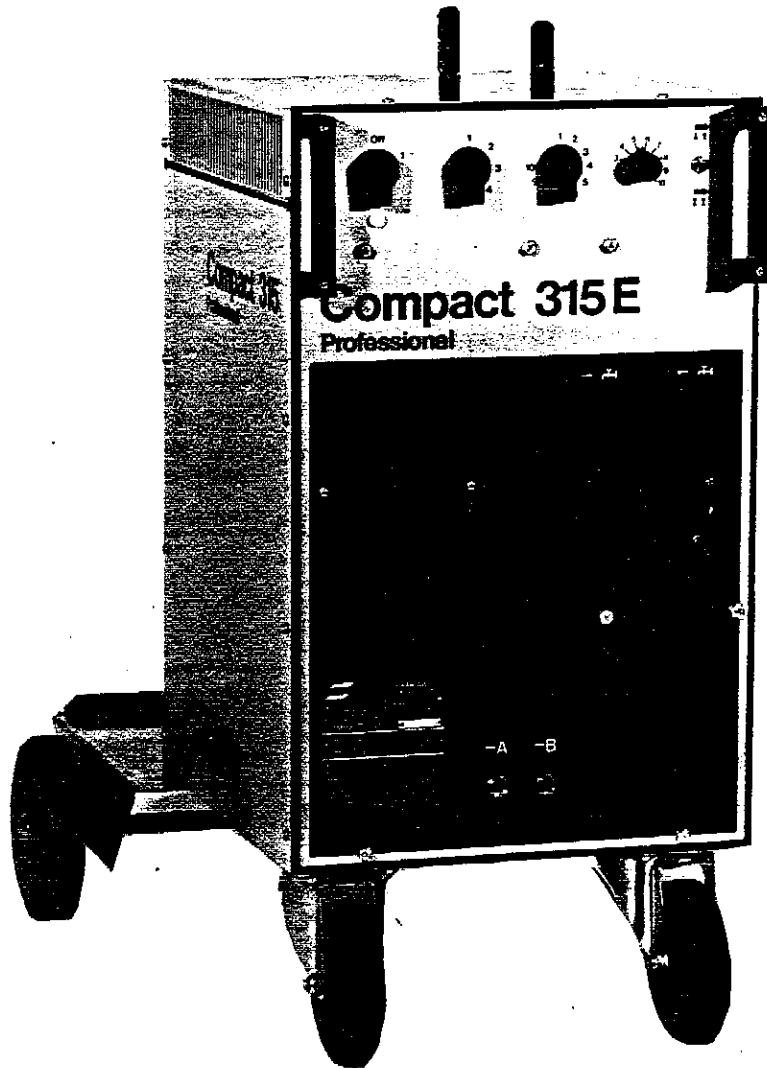
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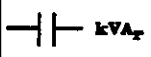
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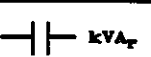
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Dep. HM
Technical
Documentation
ESAB Laxaa S

BA-TEKNIK



| | | | | | | |
|--|--------------------------|---|-------------------|--------|-------|------|
| ESAB | | ESAB AB SWEDEN SUÈDE | | | | |
| Svetslikriktare Welding rectifier 3 ~  Schweissgleichrichter Transformateur - Redresseur de soudage Rectificador de soldadura | | SEN 8301 spec. ISO 700 VDE 0542 NF A85-013 | | | | |
| COMPACT 315E No. | | | | | | |
| Svetsning Welding  Schweissen Soudage Soldeo $U_0 = 18-46V$  | | U  50A/15V - 315A/30V | | | | |
| | | X | 35 % | 60 % | 100 % | |
| | | I | 315A | 250A | 200A | |
| | | U | 30 V | 26,5 V | 24 V | |
|  Primär Input Eingang Alimentation Alimentación | | U | 220 V | 38A | 26A | 19A |
| | | | 380 V | 22A | 15A | 11A |
| | | | 415 V | 20A | 13.5A | 10A |
| | | | 500 V | 17A | 11.5A | 8.5A |
| | | U | 220 V | 38A | 26A | 19A |
| | | | 440 V | 20A | 13A | 9.5A |
| | | | 550 V | 16A | 11A | 8A |
|  kVA _r | Degr. of/de IP21 protec. | Vikt Poids Peso Weight | Made in Sweden | | | |
| | | Gewicht 140 kg | Fabriqué en Suède | | | |

| | | | | | | |
|--|--------------------------|---|-------------------|-------|--------|------|
| ESAB | | ESAB AB SWEDEN SUÈDE | | | | |
| Svetslikriktare Welding rectifier 3 ~  Schweissgleichrichter Transformateur - Redresseur de soudage Rectificador de soldadura | | SEN 8301 spec. ISO 700 VDE 0542 NF A85-013 | | | | |
| COMPACT 400E No. | | | | | | |
| Svetsning Welding  Schweissen Soudage Soldeo $U_0 = 18-46V$  | | U  50A/15V - 400A/34V | | | | |
| | | X | 35 % | 60 % | 100 % | |
| | | I | 400 A | 315 A | 250 A | |
| | | U | 34 V | 30 V | 28.5 V | |
|  Primär Input Eingang Alimentation Alimentación | | U | 220 V | 52 A | 35 A | 24 A |
| | | | 380 V | 30 A | 20 A | 14 A |
| | | | 415 V | 27 A | 18 A | 13 A |
| | | | 500 V | 23 A | 15 A | 11 A |
| | | U | 220 V | 52 A | 35 A | 24 A |
| | | | 440 V | 27 A | 17 A | 12 A |
| | | | 550 V | 21 A | 14 A | 10 A |
|  kVA _r | Degr. of/de IP21 protec. | Vikt Poids Peso Weight | Made in Sweden | | | |
| | | Gewicht 155 kg | Fabriqué en Suède | | | |

TECHNICAL DESCRIPTION

COMPACT PROFESSIONAL 315 E and 400 E are two power sources of similar construction with built-in wire feed units for semi-automatic welding. The outer dimensions are the same but they differ in performance.

The power source is of constant potential type. On the front plate there is a switch for coarse setting of the welding voltage in four steps, and one for fine setting in 10 steps, i.e. 40 steps in all. The welding current is continuously adjustable in 10 steps by means of a potentiometer, graded 1-10.

There is also a toggle switch on the front panel for selection of 2/4-stroke as well as a separate mains switch and a pilot lamp to indicate position "On".

COMPACT PROFESSIONAL is also prepared for mounting of voltmeter and ammeter. These instruments are available as optional equipment (shunt included).

The power source, which is fan-cooled, is separated from the feed unit by an intermediate plate. The wire feed motor is combined with a worm gear and drives the two feed rollers, the rotation speed being controlled by electronics.

The feed rollers are provided with teeth. The lower roller is mounted directly on the outgoing shaft of the worm gear and drives in turn the upper roller.

Post-burn time is automatically acquired. It is adjustable between 40 and 240 msec.

The gas post-flow (4-stroke position) is set at 5 seconds but can be trimmed between 1 and 8 seconds.

COMPACT PROFESSIONAL is mounted on a chassi with rubber wheels, diameter 150 mm. There is also room for a gas bottle.

In COMPACT PROFESSIONAL 400E the control transformer is dimensioned to provide power to the cooling unit OCC1, and the machine is prepared for connection of cooling water for the welding gun by means of quick-couplings on the front plate.

Wire dimensions:

| | <u>ϕ mm</u> |
|---------------------------------|-------------------------------------|
| ● Steel | 0.6 - 1.6 |
| ● Aluminium | 1.0 - 1.6 quality OK 1813 or harder |
| ● Stainless steel | 0.6 - 1.2 |
| ● Flux cored wire | 1.0 - 1.6 |
| Feed roller no 1, for electrode | 0.6- 1.2 |
| Feed roller no 2, for electrode | 1.6 |
| Feed roller no 3, for electrode | 1.2- 1.6 cored wire |

Each feed roller has grooves for 3 different electrode diameters .
The number is printed on the rollers.

| <u>Nozzles:</u> | | <u>Bore dia- meter ϕ mm</u> | <u>Electrode dia- meter ϕ mm</u> |
|-----------------|-------------|---|--|
| Inlet, | 1 (plastic) | 2.0 | 0.6 - 1.2 |
| | 2 (steel) | 2.4 | 1.2 - 1.6 mm |
| Outlet, | 1 (copper) | 1.0 | 0.6 |
| | 2 (copper) | 1.6 | 0.8 - 1.2 |
| | 3 (copper) | 4.0 | 1.6 |
| | 4 (copper) | 2.4 | 1.2 - 1.6 cored wire |
| | 5 (plastic) | 1.5 | 1.0 - 1.2 aluminium wire |
| | 6 (plastic) | 2.0 | 1.6 aluminium wire |

Technical data:

COMPACT PROFESSIONAL:

315E

400E

| | | IP 22 AF | IP 22 AF | |
|---|------------------|------------|------------|----|
| Enclosure type | | H | H | |
| Temperature class | | | | |
| Mains voltage, | 50 Hz | 220 | 220 | V |
| | | 380 | 380 | V |
| | | 415 | 415 | V |
| | 60 Hz | 500 | 500 | V |
| | | 220 | 220 | V |
| | | 440 | 440 | V |
| | | 550 | 550 | V |
| Permissible load | Duty cycle 100 % | 200 | 250 | A |
| | | 24 | 27 | V |
| | Duty cycle 60 % | 250 | 315 | A |
| | | 27 | 30 | V |
| | Duty cycle 35 % | 315 | 400 | A |
| | | 30 | 34 | V |
| Open-circuit voltage | | 43 | 45 | V |
| Control transformer, sec. voltage | | | | |
| - for 2/4-stroke | | 24 | 24 | V |
| - for electronics | | 19 | 19 | V |
| - for gas solenoid valve | | 42 | 42 | V |
| - for cooling unit OCC1 | | | 220 | V |
| - power | | | 250 | VA |
| Post-burn time, adjustable within | | 40 - 240 | 40 - 240 | ms |
| Gas post-flow, adjustable (position 4-stroke) preset value from ESAB | | 1 - 8 | 1 - 8 | s |
| | | 5 | 5 | s |
| Space for wire reel, type 25 | | ϕ 300 | ϕ 300 | mm |

INSTALLATION

1. The equipment should be placed in such a way that the cooling will not be jeopardised. Do not cover the machine over. The cooling air from the fan mustn't disturb the gas protection for the arc.
2. Check that the machine is connected for the correct mains voltage and that the correct fuses have been fitted.
3. Connect the machine to the mains.
4. Connect the shielding gas.
5. Connect the earth return cable to the workpiece and make sure that there is good contact.
6. The electrode:
 - a) Make sure that the appropriate nozzles and feed rollers have been mounted.

| Electrode <u>Φ mm</u> | Bore diameter Φ mm / material | | Feed roller | |
|--------------------------|-------------------------------|----------------------|-------------|---------------|
| | <u>Inlet nozzle</u> | <u>Outlet nozzle</u> | <u>No</u> | <u>Groove</u> |
| 0,6 | 2,0 / plastic | 1,0 / copper | 1 | 1 |
| 0,8 | 2,0 / plastic | 1,6 / copper | 1 | 1 |
| 0,9 - 1,0 | 2,0 / plastic | 1,6 / copper | 1 | 2 |
| 1,2 | 2,0 / plastic | 1,6 / copper | 1 | 3 |
| 1,6 | 2,4 / steel | 2,4 / copper | 2 | 1 |
| 1,2 Cored wire | 2,4 / steel | 2,4 / copper | 3 | 1 |
| 1,4 Cored wire | 2,4 / steel | 2,4 / copper | 3 | 2 |
| 1,6 Cored wire | 2,4 / steel | 2,4 / copper | 3 | 2 |
| 1,0 Aluminium | 2,0 / plast | 1,5 / plastic | 1 | 2 |
| 1,2 Aluminium | 2,0 / plast | 1,5 / plastic | 1 | 3 |
| 1,6 Aluminium | 2,4 / stål | 2,0 / plastic | 2 | 1 |

The number is indicated on the roller. The standard version of the feed unit is intended for 0,6 -1,2 mm steel electrode. Other nozzles and feed rollers are available as optional equipment.

- b) Mount the wire reel and file off any sharp edges from the new wire before inserting it into the inlet nozzle. Then move the control lever of the pressure roller aside. Set pressure will not be altered. Adjusting of the feed roller in relation to the electrode wire diameter is made by fitting washers between the screw and the feed roller.

The pressure roller will automatically adjust its position relative to the position of the lower roller.

- c) Straighten out 5-10 cm of the wire and pass it through the inlet nozzle.

- d) Apply the control lever of the pressure roller and adjust the pressure by means of the adjusting screw.
- e) Feed the electrode up to the welding gun and adjust the stick-out.

OPERATION

1. Set the switch to position 1. The indicating lamp lights up.
2. Set the welding voltage (coarse setting) by means of the selector switch, marked 1-4.
3. Set the welding voltage (fine setting) using the selector, marked 1-10.
4. Set the welding current by means of the potentiometer, marked 1-10. (Continuously adjustable.)
5. Select 2/4-stroke by means of the toggle switch.
6. The earth return cable should be connected to one of the inductor outlets, marked "A" and "B". Outlet "A" is normally used for welding light gauge materials (less than 3 mm) and using CO₂ shielding gas. Otherwise outlet "B" is recommended.
7. The welding process is started by pulling the trigger of the torch. In position 2-stroke the welding will go on until the trigger is released. In position 4-stroke the welding process is stopped by pulling the trigger a second time.
8. Post burn-time is obtained automatically. It is adjustable from 40 to 240 msec by means of a potentiometer, located on the intermediate plate in the space above the feed unit.
9. Gas post-flow, only in position 4-stroke, can be trimmed by means of a potentiometer on the PC board, located in the space below the feed unit.

MAINTENANCE

1. Keep the inside of the wire feed units and the wire conduits clean by blowing with compressed air at reduced pressure as necessary. Clean the groove in the feed roller and the hole in the outlet nozzle.
2. The outlet nozzle can be removed by lifting the retaining spring and pushing the nozzle forward.
3. The bearings in the motor and gearbox are permanently lubricated. Check the carbon brushes in the motor and replace them if necessary.
4. Check the two O-rings in the connection block and replace them if necessary. They can be most easily removed by lifting out the whole coupling block to which they are fitted. Apply silicone grease to the new O-rings before fitting them.
5. Wire change:
 - a) Release the thrust roller spring.

- b) Pull away remaining wire from the wire guide and remove the reel.
- c) Fit the new wire reel.
- d) Straighten out about 5-10 cm of the wire and round off the tip with a file before inserting it into the wire guide.
- e) Select the correct size of outlet nozzle.
- f) Pass the wire into the wire feed unit, ensuring that it is correctly located in the groove in the feed roller and in the outlet nozzle
- g) Apply the thrust roller spring.
- h) Fit the correct contact tip in the welding gun, as shown in the instructions for the welding gun.
- i) Start the welding power source. Feed the wire by means of the operating trigger of the gun. This is facilitated by straightening out the welding hose.
- j) N.B! The wire conduit should be purged by compressed air in connection with each change of wire.