

RA 350, 350W, 450, 450W

## OPERATION INSTRUCTIONS

### TECHNICAL DATA

#### INSTALLATION AND OPERATION

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- Connection of the wire feeder
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#### GUARANTEE

RA 350, 350W, 450 and 450W machines are power sources designed for gas arc welding. The RA 350W and -450W machines have a built-in cooling water circulation unit for a water-cooled welding torch.

All models are equipped with a rotating support T1 for the wire feeder (picture 1); in its place can also be mounted the swing arm KV 100 (6185237), picture on cover.

TECHNICAL DATA

		RA 350	RA 450
Mains voltage	V	3 x 380 50Hz	3 x 380 50Hz
Rated input			
100% duty cycle	kVA	10,0	12,4
60% duty cycle	kVA	15,2	18,8
cos		0,95	0,95
Welding current			
at 45% duty cycle	A		450
at 60% duty cycle	A	350	400
at 100% duty cycle	A	270	310
Open circuit voltage	V	14 - 42	16 - 48
Voltage steps	pcs	32	32
Induct.controls	pcs	2	2
Dimensions			
length	mm	970	970
width	mm	520	520
height	mm	910	910
Weight	kg	175	190
Class of insulation		H(180°C)	H(180°C)

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INSTALLATION AND OPERATIONConnection to the mains<sup>\*)</sup>

## Connection cable

	Connection cable mm <sup>2</sup>				Fuse A delayed			
	220V	380V	415V	500V	220V	380V	415V	500V
RA 350	4x6	4x2,5	4x2,5	4x2,5	35	20	20	16
RA 450	4x10	4x6	4x4	4x2,5	50	35	25	20

The connection cable is taken to the terminal block through the inlet insulation and the clamp on the back panel of the machine. The phase leads of the connection cable are coupled to connections L1, L2 and L3.

The yellow-green earth protection lead is coupled to the earthing screw beside the terminal block  $\perp$  (picture 5).

Changing the connection voltage<sup>\*)</sup>

With the machines which are designed for several connection voltages, it has to be made sure before connecting to the mains that the connection of the terminal block of the intermediate transformer corresponds to the connection voltage used (picture 6).

<sup>\*)</sup> N.B. CONNECTION OF THE CONNECTION CABLE TO THE MAINS SUPPLY SHOULD ONLY BE CARRIED OUT BY A COMPETENT ELECTRICIAN.

Connection of the wire feeder

On the back panel of the machine there are the +cable connectors and the control current connectors for the wire feeder as well as the cooling water connectors in the models RA 350W and -450W (picture 3).

When the FU wire feeder is used, to the side of the wire feeder is added the fitting set 6263210 for the control cable or in the water-cooled machines the fitting set 6263211 for the control cable and water hoses.

Built-in cooling water circulation unit (picture 4)

The models RA 350W and -450W have a built-in cooling water circulation unit for a water-cooled welding torch. With the switch beside the water tank of the machine you can select either the water-cooled or gas-cooled welding torch. In the "water"-position the cooling water circulation unit starts when the power source is switched on and the black push-button on the front wall of the machine is pressed in. When putting the machine into service the switch must be pressed for approx. 5 seconds because the equipment is protected against the dry operation with a pressure guard on the pressure side.

DO NOT PRESS THE SWITCH WHEN THE TANK IS EMPTY.

The pilot lamp above the push-button shows when the cooling water circulation unit is switched on.

To stop the cooling water circulation unit, press the red push-button below the start push-button or turn the main switch of the machine to position 'zero'.

The pump of the motor is overload protected with a thermostat, which controls the welding current and the voltage of the pump.

The water tank must be filled with 40% antifreeze according to the British Standard B 3151 (e.g. Esso Perma-Guard, Shell Antifreeze or Aspo Zero).

DO NOT USE THE EQUIPMENT WITHOUT ANY COOLING LIQUID!

The side plate of the machine has a control gate for observing the liquid level.

### External cooling water circulation unit WU 10

When the cooling water circulation unit WU 10 is used, the control cable between the wire feeder and the power source is coupled through the WU 10. In order to perform the connections the fitting set 6263212 is used for the wire feeder FU and the fitting set 6263213 for the wire feeder LISA. The installation and operation of WU 10 are explained in the operation instructions, delivered with the WU 10. The WU 10 can be placed on the power source beside the wire feeder using the broad rotating plate T3 (C185236).

### Earth cable

Welding characteristics are greatly determined by the nature of a welding choke. The earth cable is connected for the right choke value according to the following instruction:

- I            General use for the filler wires of  $\emptyset$  0,6-0,8 mm and for aluminium welding. Welding result "cold".
  
- II           General use for the filler wires of  $\emptyset$  1,0-1,6 mm and for flux-cored wire welding.

The recommended size of the earth cable and the +cable is 50 mm<sup>2</sup> in the RA 350 machines and 70 mm<sup>2</sup> in the RA 450 machines.

### Welding voltage adjustment (picture 2)

Voltage adjustment is divided into two ranges, which are marked on the main switch. Inside the ranges the voltage is adjusted with a 4-step coarse and fine adjustment switch.

Open circuit voltages are as follows.

Coarse	Fine	RA 350		RA 450	
		Small range	Wide range	Small range	Wide range
1	1 - 4	14,0-15,3	24,6-26,9	15,8-17,3	28,2-30,5
2	1 - 4	15,8-17,4	27,8-30,1	17,9-19,6	31,4-34,8
3	1 - 4	18,0-20,1	31,7-35,3	20,4-22,8	36,0-40,3
4	1 - 4	21,0-23,9	36,7-41,9	23,6-27,3	41,8-47,3

NOTE! DO NOT ADJUST THE VOLTAGE DURING WELDING.

### MAINTENANCE

#### Maintenance of the power source unit.

The amount of use and the working conditions should be taken into consideration in the maintenance of the RA machines. Careful use and preventive maintenance will ensure troublefree operation without unforeseeable service interruptions.

Basic maintenance should be carried out at least twice a year:

- clean the equipment carefully, the interior parts and components with compressed air
- inspect the condition of electrical connections and components especially the contact tips of the contactor and the relay. Clean the dirty tips.
- repair the possible damages immediately.

## Maintenance of the cooling water circulation unit (RA 450W, 350W)

Check daily the quantity of liquid. Change liquid if it has been boiling because it will then lose its metal protecting characteristics.

Cooling liquid must be changed twice a year and the pipes and tank must be rinsed with pure water. Check the condition of the pump, motor and coupling between them. Repair possible damages and clean the equipment.

WHEN CLEANING WITH COMPRESSED AIR ALWAYS PROTECT YOUR EYES WITH PROPER COGGLES.

IN CASE OF PROBLEMS CONTACT THE KEMPPI WORKS IN LAHTI, FINLAND OR YOUR KEMPPI-DEALER.

## GUARANTEE

The machines produced and products represented by Kemppe Oy are guaranteed against defects in material or manufacture. Within the limits of the guarantee the defective part will be replaced by a new one, or when possible, repaired free of charge.

The guarantee is valid for one year provided that the machine is used in one-shift work.

The guarantee does not compensate for damage due to improper use, neglect or normal wear. Possible travelling costs or freight or postage charges are not covered by the Kemppe guarantee.

Guarantee repairs shall be carried out only by Kemppe authorised representative. In case guarantee repair is demanded a certificate about validity of guarantee has to be presented.

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