Operation instructions • english
Gebrauchsanweisung • deutsch
Gebruiksaanwijzing • nederlands
Manuel d’utilisation • français

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MASTER
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KEMPPI
The Joy of Welding

CONTENTS

1. PREFACE

1.1. INTRODUCTION

Congratulations on having purchased this product. Properly installed Kemppi products should prove to be productive machines requiring maintenance at only regular intervals. This manual is arranged to give you a good understanding of the equipment and its safe operation. It also contains maintenance information and technical specifications. Read this manual from front to back before installing, operating or maintaining the equipment for the first time. For further information on Kemppi products please contact us or your nearest Kemppi distributor.

The specifications and designs presented in this manual are subject to change without prior notice.

In this document, for danger to life or injury the following symbol is used: ⚠

Read the warning texts carefully and follow the instructions. Please also study the Operation safety instructions and respect them when installing, operating and servicing the machine.

1.2. PRODUCT INTRODUCTION

MASTER is a MMA DC welding power source which is designed for demanding professional use.

MASTER-inverter power source is 3-phase 220 A. The MASTER-power source is protected against overload with overcurrent protections and thermal releases. Operation of a thermal release is indicated with a signal lamp on the front wall of the machine.

To delivery equipment of the MASTER MMA welding power source belong carrying strap, connection cable and a 4-pole cable without plug.

Using comfort of MASTER can be added with remote control units which can be delivered as an accessory.

1.3. OPERATION SAFETY ⚠

Never watch the arc without a face shield designed for arc welding!

The arc damages unprotected eyes! The arc burns unprotected skin!

Protect yourself and the surroundings against the arc and hot spray!

Remember general fire safety!

Pay attention to the fire safety regulations. Welding is always classified as a fire risk operation. Welding where there is flammable or explosive material is strictly forbidden. If it is essential to weld in such an area remove inflammable material from the immediate vicinity of the welding site. Fire extinguishers must always be on site where welding is taking place.

Note! Sparks may cause ignition many hours after completion of welding.

Watch the mains voltage!

Take care of the cables - the connection cable must not be compressed, touch sharp edges or hot work pieces. Faulty cables are always a fire risk and highly dangerous. Do not locate the welding machine on wet surfaces. Do not take the welding machine inside the work piece (i.e. in containers, cars etc.)

Ensure that neither you nor gas bottles or electricial equipment are in contact with live wires or connections!

Do not use faulty welding cables. Isolate yourself by using dry and not worn out protective clothes. Do not weld on wet ground. Do not place the welding cables on the power source or other electricial equipment.

Watch the welding fumes!

Ensure that there is sufficient ventilation. Follow special safety measures when you weld metals which contain lead, cadmium, zinc, mercury and beryllium.

Note the danger caused by special welding jobs!

Watch the fire and explosion danger when welding container type work pieces.

2. INSTALLATION

2.1. OPERATION CONTROL AND CONNECTORS

H11 Signal lamp I/O

H12 Warning lamp for thermal shield

R11 Adjustement of welding current

R12 Adjustment of MMA welding dynamics

S11 Main switch I/O

S12 Selection for local/remote control

X11, X12 Welding and return current connections

X13 Connection for remote control

01 Inlet of mains cable

2.2. SITING THE MACHINE

By siting of the machine you should take into attention the following:

- Site the machine on a fixed dry base, from which there doesn't come any dust etc. into suction air. See to that the machine is positioned away from the line of particle spray, created by grinding tools etc. Preferably site machine somewhat higher above the floor level.

- See to that in front of the machine as well as at the rear of the machine there is at least 20 cm (8.0 inches) free distance to allow good circulation of the cooling air through the machine.

- Protect the machine against hard rain and in hot circumstances against direct sunshine. Ensure the free circulation of the cooling air.

2.3. CONNECTION TO THE MAINS SUPPLY

Connection of the main s cable and mounting and change of the plug should only be carried out by a competent electrician.

For the time of the mounting of the mains cable remove handle and casing plate of the machine

MASTER 2200 is delivered equipped with a mains cable without a plug. By change of the mains cable take into attention the following:

The cable is entered into the machine through the inlet ring on the rear panel of the machine and fastened with a cable clamp (21). The phase leads of the cable are coupled to connections L!, L2 and L3. The earth protection coloured green-yellow is coupled to connection .

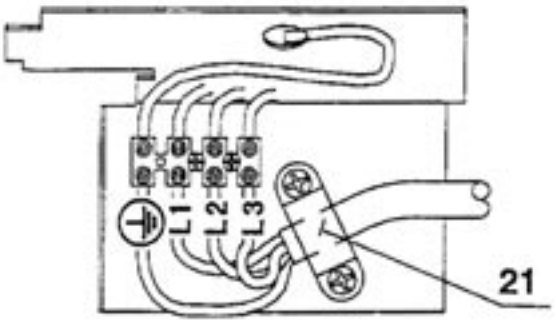
Sizes of the mains cable and fuse ratings for the machine at 100 % duty cycle are specified in the table below:

Rated voltage	380 V 3 ~
Mains voltage range	380 V -10 % … 415 V +6 %
Fuses	10 A delayed
Connection cable	4 x 1,5 mm² S*)

*) In cables of S type there is a protective grounding conductor coloured green-yellow.

⚠ **This equipment's electromagnetic compatibility (EMC) is designed for use in an industrial environment. Class A equipment is not intended for use in residential location where the electrical power is provided by the public low-voltage supply system.**

MASTER 2200



2.4. WELDING- AND RETURN CURRENT CABLES

⚠ Use only copper cables 25 mm².

Don't use thinner cables!

Fasten the earthing press of the return current cable carefully, preferably direct onto the piece of the press should always be as large as possible.

Clean the fastening surface from paint and rust!

3. OPERATION CONTROL SWITCHES AND POTENTIOMETERS AND THEIR USE

3.1. MAIN SWITCH I/O

When you turn the switch into the I-position, the "ON" pilot lamp H11 on the front panel is ignited and the machine is ready for use. The cooling fan of the MASTER gets started only when welding

3.2. LOCAL/REMOTE CONTROL OF WELDING CURRENT

You can control the welding current either from local control R11 of the machine or from a control which is connected to the remote control unit, the switch S12 should be in the remote control units: C 100C, and C 100D, see page 3

Pilot lamps

The pilot lamps of the machine report about the electric operation:

ON The green pilot lamp H11 for readiness for use is always on, when the machine is connected to mains supply and the main switch is in I-position.

The yellow pilot lamp H12 of the thermal shield is on, when the thermostat has released due to overheating of the machine. The cooling fan is cooling down the machine and by blacking out of the pilot lamp the readiness for welding is automatically returned.

3.3. ADJUSTMENT FOR MMA DYNAMICS

On the rear of the MASTER there is a tool-controlled adjustment for MMA dynamics. With this control you can adjust behaviour of the arc according to electrode type and your own likings.

The adjustment has influence on behaviour of the machine in drop short circuits.

Adjustment in minimum: Welding at its softest, arc pressure low

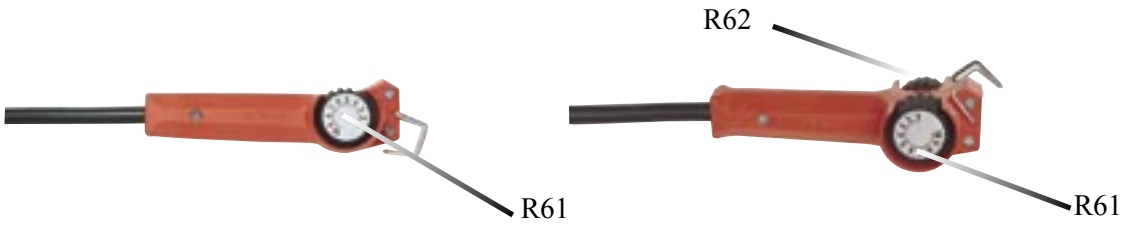
Adjustment in maximum: Welding at its roughest, arc pressure high

Recommendable initial adjustment is in the middle of the scale

3.4. ELECTRODES TO BE WELDED

By the MASTER power sources you can use all electrodes designed for DC or AC welding within the current limits of the machine in question.

The MASTER power sources are not suitable for carbon arc gouging or cutting.



3.5. REMOTE CONTROL DEVICES AND CABLES

C 100C

Control of MMA/TIG welding current (R61), memory scale 1-10.

C 100D

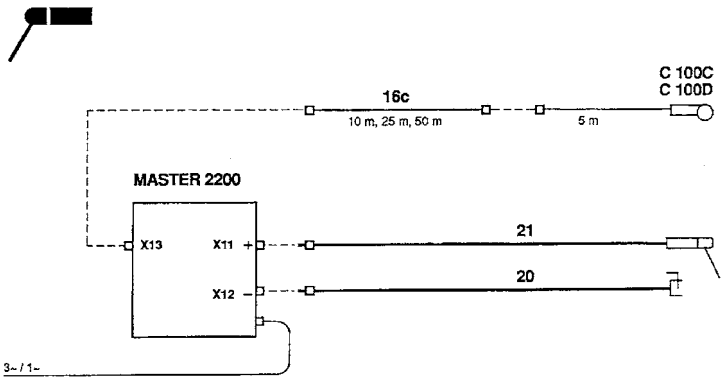
Rough control (R61), memory scale 1-10, and fine control +/- (R62) for MMA/TIG welding current.

16c Extension cable for remote control 4 poles

20 Return current cable

21 Cable for MMA welding

C 100C, C 100D Remote control devices, see also pages 3 and 6



4. MAINTENANCE

the amount of use and the working environment should be taken into consideration when planning the frequency of maintenance of the machine. Careful use and preventive maintenance will help to ensure trouble-free operation.

4.1. CABLES

Check the condition of welding and connection cables daily. Do not use faulty cables! Make sure that the mains connection cables in use are safe and according to laid down regulations.

The repair of the mains connection cables must be carried out only by an authorised electrician.

4.2. POWER SOURCE

Note! Isolate the plug of the machine from the mains socket and wait approx. 2 minutes (capacitor charging) before removing the casing plate.

Check at least every half year:

- Electric connections of the machine - clean the oxidized parts and tighten the loosened ones. Note! You must know correct tension torques before starting the reparation of the joints.
- Clean the inner parts of the machine from dust and dirt e.g. with a soft brush and vacuum-cleaner. Do not use compressed air, there is a risk that dirt is packed even more tightly into gaps of cooling profiles!

Only authorised electrician must carry out repairs to the machines.

Regular maintenance

KEMPPI-service repair shops make regular maintenance according to agreement.

The major points in the maintenance procedure are listed as follows:

- Cleaning of the machine
- Checking and maintenance of the welding tools
- Checking of switches and potentiometers
- Checking of electric connections
- Checking of mains cable and plug
- Damaged parts in bad connection are replaced by new ones
- Maintenance testing. Operation and performance values of the machine are checked, and adjusted when necessary by means of test equipment

5. OPERATION DISTURBANCES

In case of problems contact the KEMPPI works or your KEMPPI dealer.

Check the maintenance objects before the machine is sent to the service repair shop

5.1. OPERATION OF THE OVERLOAD PROTECTION

The overload protections (thermal protections) of the machine operate, if the machine is continuously loaded above the rated values or the circulation of the cooling air is blocked.

The machine is automatically returned into operation, after it has cooled down t a lower temperature.

5.2. CONTROL FUSES

As the machine protection there is on control card an 1,0 A slow-blow cartridge fuse in the safety voltage circuit.

- Reason for burning of a fuse might be a damaged control card.

Use same type and rating of fuse which is marked beside the fuse adapter.

Damage caused by a wrong type fuse, is not covered by the guarantee.

6. DISPOSAL OF THE MACHINE

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!

7. ORDERING NUMBERS

C 100C			6185410
C 100D			6185413
16c	/10 m		6185451
	/25 m		6185452
	/50 m		6185453
20	/5 m	- 25 mm²	6184211
	/10 m	- 25 mm²	6184212
21	/5 m	- 25 mm²	6184201
	/10 m	- 25 mm²	6184202
T110	Transport unit		6185251

8. TECHNICAL DATA

MASTER 2200		
Mains voltage	3~, 50/60 Hz	380 V -10 % … 415 V +6 %
Rated power	25 % ED	220 A / 8,4 kVA
	60 % ED	145 A / 5,5 kVA
	100 % ED	110 A / 3,5 kVA
Connection cable/fuses		4 x 1,5S / 10 A delayed
Welding current range	MMA	15 A / 20,5 V … 220 A / 28,8 V
Electrode sizes to be welded		ø 1,5 … 4,0 (5,0) mm
Welding current control		stepless
Open circuit voltage		80 V
Efficiency		82 % (220 A / 28,8 V)
Power factor		0,9 (220 A / 28,8 V)
Open circuit power		approx. 10 W
Storage temperature range		-40 … +60°C
Operation temperature range		-20 … +40°C
Temperature class		H (180°C) / B (130°C)
Degree of protection		IP 23C
External dimensions:	length	472 mm
	width	152 mm
	height	302 mm
Weight		12,5 kg
Suitable accessories:		remote control units C 100C, C 100D

The product meets conformity requirements for CE marking.

9. TERMS OF GUARANTEE

Kemppi Oy provides a guarantee for products manufactured and sold by them if defects in manufacture and materials occur. Guarantee repairs must be carried out only by an Authorised Kemppi Service Agent. Packing, freight and insurance costs to be paid by orderer. The guarantee is effected on the date of purchase. Verbal promises which do not comply with the terms of guarantee are not binding on guarantor.

Limitations on guarantee

The following conditions are not covered under the terms of guarantee: defects due to natural wear and tear, non-compliance with operating and maintenance instructions, connection to incorrect or faulty supply voltage (including voltage surges outside equipment spec.), incorrect gas pressure, overloading, transport or storage damage, fire of damage due to natural causes i.e. lightning or flooding.

This guarantee does not cover direct or indirect travelling costs, daily allowances or accommodation. Note: Under the terms of guarantee, welding torches and their consumables, feeder drive rolls and feeder guide tubes are not covered. Direct or indirect damage due to a defective product is not covered under the guarantee. The guarantee is void if changes are made to the product without approval of the manufacturer, or if repairs are carried out using non-approved spare parts.

The guarantee is also void if repairs are carried out by non-authorised agents.

Undertaking guarantee repairs

Guarantee defects must be informed to Kemppi or authorised Kemppi Service Agents within the guarantee period. Before any guarantee work is undertaken, the customer must provide proof of guarantee or proof of purchase, and serial number of the equipment in order to validate the guarantee. The parts replaced under the terns of guarantee remain the property of Kemppi.

Following the guarantee repair, the guarantee of the machine or equipment, repaired or replaced, will be continued to the end of the original guarantee period.

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