

Operation instruction • english
Gebrauchsanweisung • deutsch
Gebruiksaanwijzing • nederlands
Manuel d'utilisation • français

1913130E
0617

KEMPPI PRO EVOLUTION

3200, 4200, 5200



KEMPPI PRO EVOLUTION

3200 MVU, 4200 MVU, 5200 MVU



CONTENTS

1.	PREFACE	3
1.1.	Introduction	3
1.2.	Product introduction	3
1.2.1.	<i>Operation control and connectors</i>	4
1.3.	Accessories.....	5
1.3.1.	<i>Remote control devices</i>	5
1.3.2.	<i>Control panels</i>	5
1.3.3.	<i>Cables</i>	6
1.4.	Operation safety.....	6
2.	INSTALLATION	7
2.1.	Siting the machine and mounting the control panels PL and PX	7
2.2.1.	<i>Connection to the mains supply</i>	7
2.2.2.	<i>Welding and earth cables</i>	8
3.	OPERATION CONTROL SWITCHES AND POTENTIOMETERS AND THEIR USE	8
3.1.	Main switch I/O.....	8
3.2.	Pilot lamps.....	9
3.3.	Local or remote control of welding current	9
3.4.	Operation of cooling fan	9
4.	ACCESSORIES	9
4.1.	PL and PX control panels' operation in MMA welding.....	9
4.1.1.	<i>Control for MMA welding dynamics (PL, PX)</i>	9
4.1.2.	<i>Control of ignition pulse current (PX)</i>	10
4.1.3.	<i>Meter display (PL, PX)</i>	10
4.1.4.	<i>Operation mode selection (PX)</i>	10
5.	COOLING UNIT SUPPLY	11
6.	MAINTENANCE	11
6.1.	Cables	11
6.2.	Power source	12
6.3.	Regular maintenance	12
7.	OPERATION DISTURBANCES	12
7.1.	Operation of the overload protection.....	12
7.2.	Control fuses	12
7.3.	Under- and overvoltages in the mains supply	13
7.4.	Loss of a phase in the mains supply	13
7.5.	Disposal of the machine.....	13
8.	ORDERING NUMBERS	13
9.	TECHNICAL DATA	14
10.	TERMS OF GUARANTEE	15

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

Kemppi Pro Evolution 3200, 4200 and 5200 are multi-operator power sources designed for demanding professional use. They are suitable for MMA/MIG and pulsed MIG as well as for TIG welding in DC. Kemppi Pro Evolution can be used as power source with a welding auto-mate or robot.

Power control of Kemppi Pro Evolution power source has been realized with at approx. 20 kHz frequency IGBT transistors operating and control unit with microprocessor.

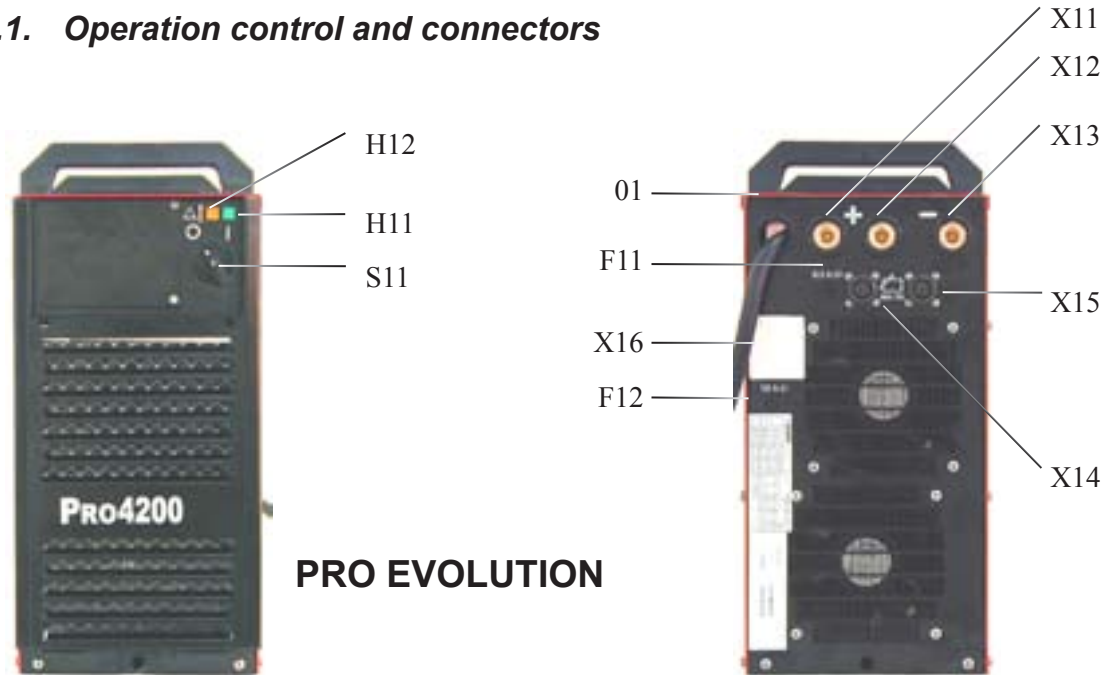
Kemppi Pro machines can be seen in operating instructions for each unit. Mounting instructions for control panels PX and PL are in their packages.

This manual handles installation and use of Kemppi Pro Evolution power sources.



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.

1.2.1. Operation control and connectors



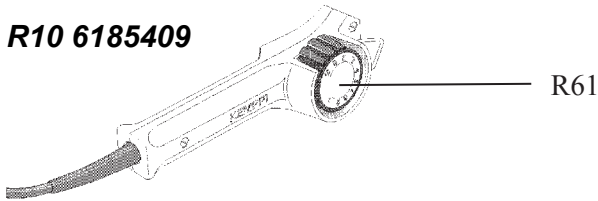
F11	Fuse for connection for control table	6,3 A delayed
H11	Signal lamp	I/O
H12	Warning lamp for thermal protection	
S11	Main switch I/O	
X11,	Welding connection	parallel
X12		
X13	Earth connection	
X14,	Connection for control cable	parallel
X15		
01	Inlet of mains cable	
02	Inspection cover for control panel	PL, PX Accessories
X16	Socket outlet	Fuse 230 V, 250 VA
F12	Fuse for socket outlet	1,0 A delayed



1.3. ACCESSORIES

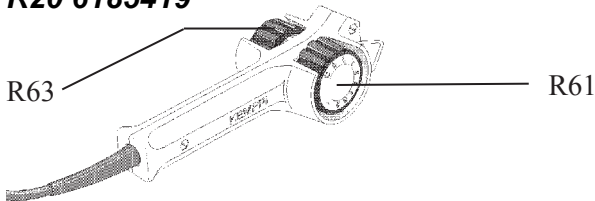
1.3.1. Remote control devices

R10 6185409



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

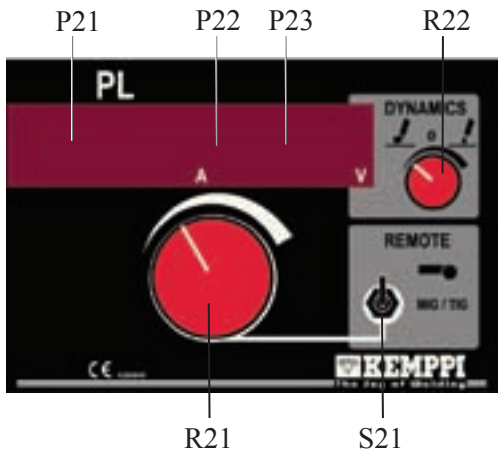
R20 6185419



MIG-MAG remote control device with controls for wire feed (R63) and voltage (R61), memory scales 1 ... 10.

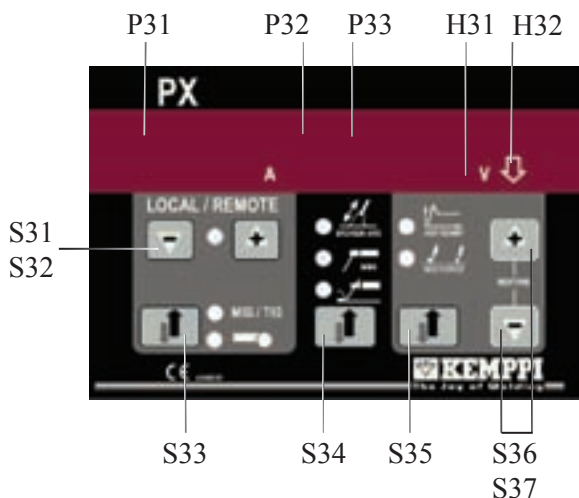
You can use control device also for control of MMA current from potentiometer R63.

1.3.2. Control panels



PL panel 6185801

- P21 Current meter
set value / welding current
- P22 Voltage meter
open circuit / terminal voltage
- P23 Display for adjustment value of MMA
welding dynamics -9 ... 0 ... +9
- R21 Adjustment of welding current
- R22 Adjustment of MMA welding dynamics
- S21 Selection for local / remote control
local / MIG/TIG / remote control

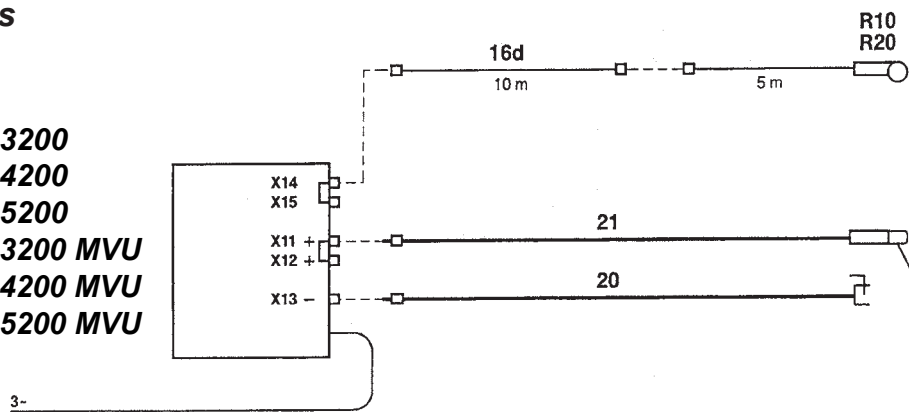


PX panel 6185802

- H31 Signal lamp for voltage display
 - H32 Signal lamp for display of adjustment status
 - P31 Current meter / set value / welding current
 - P32 Voltage meter / open circuit / terminal voltage
 - P33 Display for adjustment value of MMA
welding dynamics and start current -9 ... 0 ... +9
 - S31, S32 Adjustment of welding current +/-
 - S33 Selection for local / remote control
local / MIG/TIG / remote control
 - S34 Selection for characteristics
Point to point welding / normal welding /
carbon arc gouging
 - S35 Selection of property to be adjusted
MMA welding dynamics / start current
 - S36, S37 Adjustment for MMA welding dynamics
and start current +/-
- RECALL STD = resetting of factory set up (=0)

1.3.3. Cables

Pro Evolution 3200
Pro Evolution 4200
Pro Evolution 5200
Pro Evolution 3200 MVU
Pro Evolution 4200 MVU
Pro Evolution 5200 MVU



- 16d Extension cable for remote control
- 20 Earth cable
- 21 MMA welding cable
- R10, Remote control devices, see also page 5
- R20

1.4. OPERATION SAFETY

Please study these Operation safety instructions and respect them when installing, operating and servicing the machine.

Welding arc and spatters

Welding arc hurts unprotected eyes. Be careful also with reflecting arc flash. Welding arc and spatter burn unprotected skin. Use safety gloves and protective clothing.

Danger for fire or explosion

Pay attention to fire safety regulations. Remove flammable or explosive materials from welding place. Always ensure that you have sufficient fire fighting equipment available where you are welding. Be prepared for hazards in special welding jobs, eg. for the danger of fire or explosion when welding container type work pieces. Note! Fire can break out from sparks even several hours after the welding work has been finished!

Mains voltage

Never take welding machine inside a work piece (eg. container or truck). Do not place welding machine on a wet surface. Always check cables before operating the machine. Change damaged cables without delay. Damaged cables may cause an injury or set out a fire. Connection cable must not be crushed, it must not touch sharp edges or hot work pieces.

Welding power circuit

Isolate yourself by using proper protective clothing, do not wear wet clothing. Never work on a wet surface or use defect cables. Do not put the MIG-gun or welding cables on welding machine or on other electric equipment. Do not press the MIG-gun switch, if the gun is not directed towards a work piece.

Welding fumes

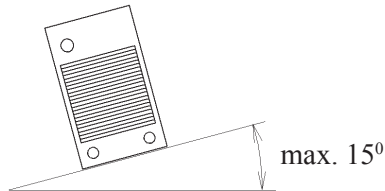
Take care that there is sufficient ventilation during welding. Take special safety precautions when welding metals which contain lead, cadmium, zinc, mercury or beryllium.

2. INSTALLATION

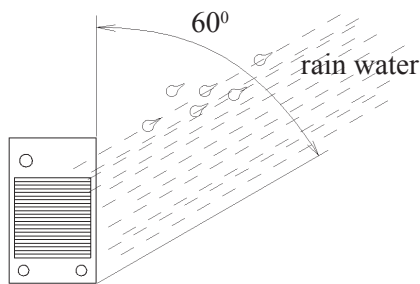
2.1. SITING THE MACHINE



Site the machine on a stationary, horizontal, dry base in a position that does NOT allow dust, dirt or metal particles to enter the machines cooling air flow.



- Preferably site the machine somewhat higher above the floor level.
- Ensure that the front as well as the rear of the machine there is at least 20 cm free distance to allow good circulation of the cooling air through the machine.
- Protect the machine against heavy rain and in hot circumstances against direct sunshine. Ensure the free circulation of the cooling air.



Degree of protection of machine IP23 allows at its maximum the water spray coming in 60° angle to hit machine's outer covering.

See to that the machine is positioned away from the line of particle spray, created by grinding tools etc.

2.2. MOUNTING THE CONTROL PANELS PL AND PX



Mounting of panel should only be carried out by competent electrician. Attention! Disconnect plug of machine from mains socket and wait for approx. 2 min before removing cover plate.

- On the front face of machine there is a cover plate where the control panel is mounted. Without a panel the machine is controlled either from remote control unit or Promig or Protig unit.
- Mount PL or PX panel according to mounting instructions delivered with them.

2.2.1. Connection to the mains supply

Kemppi Pro Evolution power sources are delivered equipped with 5 m mains cable without plug.

If local electricity regulations of operating country are stating otherwise, the mains cable should be replaced in conformity with the local regulations.

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

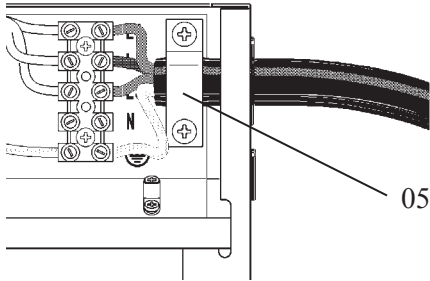
Remove the machine's right side plate to enable the mounting of a mains cable.

If changing the mains cable take into consideration 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 (05). The phase conductors of the cable are coupled to connectors L1, L2 and L3. The earth protection coloured green-yellow is coupled to connector ⊕



If you are using 5-lead cable, you must connect neutral conductor with terminal N.



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

	Rated voltage	Mains voltage range	Fuses, slow-blow	Connection cable *) mm ²
Pro Evolution 3200	400 V 3~	360 V... 440 V	25 A	4 x 6.0 S
Pro Evolution 4200	400 V 3~	360 V... 440 V	35 A	4 x 6.0 S
Pro Evolution 5200	400 V 3~	360 V... 440 V	35 A	4 x 6.0 S
Pro Evolution 3200 MVU	400 V 3~ 230 V 3~	360 V... 440 V 200 V... 260 V	35 A	4 x 6.0 S
Pro Evolution 4200 MVU	400 V 3~ 230 V 3~	360 V... 440 V 200 V... 260 V	50 A	4 x 10 S
Pro Evolution 5200 MVU	400 V 3~ 230 V 3~	360 V... 440 V 200 V... 260 V	60 A	4 x 16 S

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

2.2.2. Welding and earth cables

Recommended copper cables with cross-sectional area are as follows:

Kemppi Pro Evolution 3200 50 ... 70 mm²

Kemppi Pro Evolution 4200 70 ... 90 mm²

Kemppi Pro Evolution 5200 70 ... 90 mm²

In enclosed table are shown typical load capacities of rubber insulated copper cables, when ambient temperature is 25 °C and lead temperature is 85 °C.

CABLE DUTY CYCLE ED	VOLTAGE LOSS / 10m		
..... 100% 60% 30%			
50 mm ²	285 A	370 A	520 A.....0,35 V / 100 A
70 mm ²	355 A	460 A	650 A.....0,25 V / 100 A
95 mm ²	430 A	560 A	790 A.....0,18 V / 100 A

Do not overload welding cables due to voltage losses and heating.

Fasten the earth clamp of the return current cable carefully, preferably direct onto the piece to be welded. The contact surface of the earth clamp 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 I-position, pilot lamp H11 on the front face is illuminated and the machine is ready for use.



Always turn the machine on and off with the mains switch, never use the mains plugs as a switch.

3.2. PILOT LAMPS

The pilot lamps of the machine report the electric operation:

The green pilot lamp H11 when lit indicates that the machine is on and ready for use and it is connected to the mains supply with the main switch in the I-position.



H12 indicates when lit that the thermal protection of the machine has been activated due to over heating. The cooling fan will continue to run and cool the machine down and when the lamp is off the machine is ready to weld.

3.3. LOCAL OR REMOTE CONTROL OF WELDING CURRENT

You can control welding current either from local controls of PX or PL control panel, or from remote control unit which is connected to remote control connector X14 or X15, or from Promig or Protig unit.

Selector switch of control panel has to be in a position corresponding to control mode: local control / MIG/TIG / remote control unit.

Suitable remote control units R10 and R20, see page 5.

At MIG and TIG welding, current control is made according to operation instruction of controlling MIG or TIG unit.

3.4. OPERATION OF COOLING FAN

In Kemppi Pro Evolution 3200 there is one and in 4200 and 5200 there are two simultaneously operating fans.

- The fan is started for a moment when main switch is placed into position I.
- The fan will start during welding as the machine heats up and it will run for 1 to 10 minutes after the welding has stopped.
- On no-load fan is started in intervals of approx. half an hour for minute's time.




4. ACCESSORIES

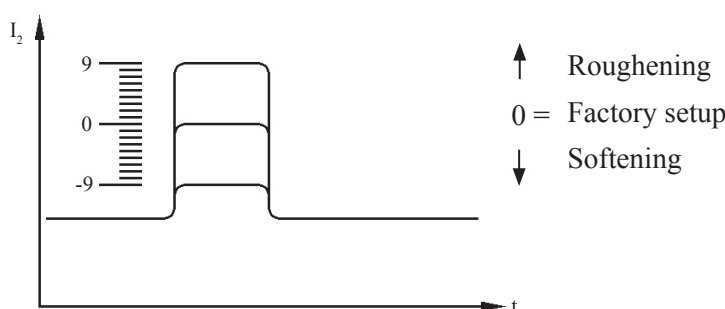
4.1. PL AND PX CONTROL PANELS' OPERATION IN MMA WELDING

4.1.1. Control for MMA welding dynamics (PL, PX)

With control for electrode dynamics you can influence arc behaviour in different kinds of operation situations.




When arc is roughened, blowing is increasing and at the same time also spatter.

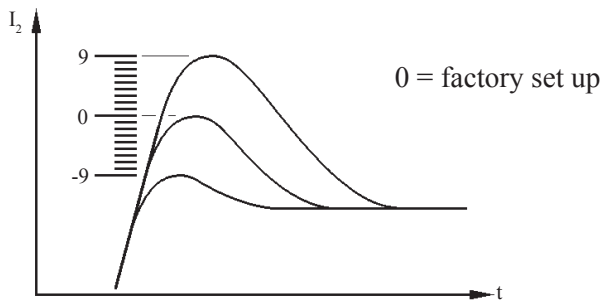
-  Soft arc. Object to reduce amount of spatter in welding at the upper end of recommended currents for electrode.
-  Factory setup (PX). Normal setting for all electrode types.
-  Rough arc. Object e.g. cellulose covered electrodes and thin stainless electrode in welding at the lower end of the recommended currents for electrode.



4.1.2. Control of ignition pulse current (PX)

Display 0 corresponds to factory set up of ignition pulse. Number of ignition pulses depends on electrode type and diameter which are used. Ignition pulse changes with set value of welding current in such a way that at low values ignition pulse is low and short and at high values it is higher and longer.

-  Low, short ignition pulse. Object e.g. small stainless electrodes.
-  Factory set up. Object e.g. basic electrodes.
-  High, long ignition pulse. Object e.g. high efficiency electrodes.



4.1.3. Meter display (PL, PX)

Voltage meter shows machine's terminal voltage which is voltage between connectors X11/X12 and X13.

Accuracy of current true value in respect to real value is $\pm 2,5\%$, ± 2 A.

Accuracy of voltage true value in respect to real value is $\pm 2,5\%$, $\pm 0,2$ V.

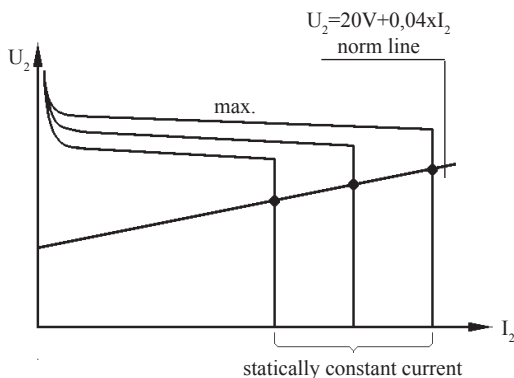
Depending on welding cable length and copper cross section, real arc voltage and meter display might differ main volts from each other. Error will increase when current is growing. See table in paragraph "Welding and earth cables", page 8.

In current measurement the same error won't appear.

4.1.4. Operation mode selection (PX)

Normal MMA welding

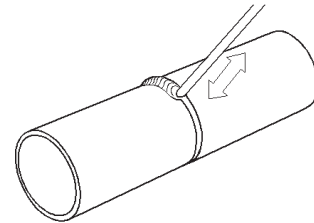
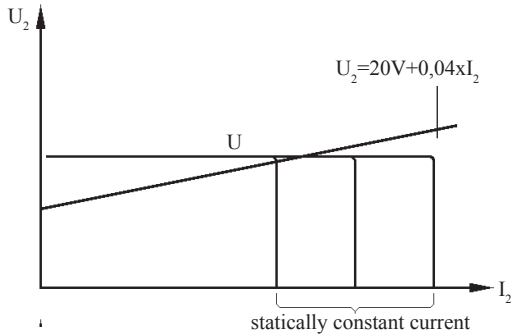
In normal MMA welding there are constant current characteristics in the machine. The machine is trying to keep welding current value regardless of arc length changes.



Point to point welding

Point to point welding is necessary then when the seam to be welded does not withstand heat of continuous arc and welding has to be carried out by interrupting arc. The reason is usually thin materials or variable fittings.

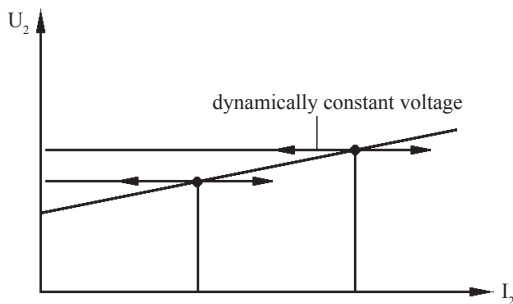
The machine has characteristic curve which makes interrupting of arc easier when electrode is drawn further from seam.



U is limited below max. voltage of machine

Carbon arc gouging

In carbon arc gouging there are dynamic constant voltage curves. If the tip gouging carbon makes a short circuit, the power source will make a strong increase to the current, the short circuit ends rapidly and the arc will remain or reignite easier.



5. COOLING UNIT SUPPLY 1~230 V / 250 VA

Kemppi Pro Evolution 4200 and 5200 power sources have as standard a by productive earthed outlet X16 isolated safety transformer. Procool cooling unit is connected to this outlet.

6. 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.

6.1. CABLES

Check the condition of welding and connection cables daily. Do not use damaged cables.

Make sure that the mains cables in use are safe and according to laid down regulations.

The repair and mounting of a mains connection cables should be carried out only by an authorized electrician.

6.2. POWER SOURCE



Note! Disconnect the plug of the machine from the mains socket and wait approx. 2 minutes (capacitor charge) before removing the cover plate.

Check at least every half year:

- Electric connectors of the machine - clean the oxidized parts and tighten the loosened ones.
- Note! You must know correction 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. Also clean the ventilation net behind the front grate.
- Do not use compressed air, there is a risk that dirt is packed even more tightly into gaps of cooling profiles.
- Do not use pressure washing device.
- Only authorized electrician shall carry out repairs to the machines.

6.3. REGULAR MAINTENANCE

Kemppi Service Workshops 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 connectors, switches and potentiometers
- Checking of electric connections
- Meter checking
- Checking of mains cable and plug
- Damaged parts or 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.

7. OPERATION DISTURBANCES

In case of problems contact the Kemppi works in Lahti, Finland, or your local Kemppi dealer.

Check the maintenance objects before the machine is sent to the Service Workshop.

7.1. OPERATION OF THE OVERLOAD PROTECTION



Yellow pilot lamp H12 of thermal protection is lit when thermostat has operated due to overheating of machine.

The thermostat of machine will operate, if machine is continuously loaded over rated values or cooling air circulation is blocked.

Cooling fan cools down the machine and when the pilot lamp is not lit the machine is automatically ready for welding.

7.2. CONTROL FUSES

Fuse F11, 6,3 A delayed, on the rear wall of machine is as protection for connection of auxiliary devices X14-15.

Voltage unit for auxiliary devices (1~230 V/240 VA) has a fuse of its own F12 1,0 A delayed.



**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.**

7.3. UNDER- AND OVERVOLTAGES IN THE MAINS SUPPLY

Primary circuits of machine are protected against sudden, transient overvoltages.

Machine is designed to withstand 3 x 440 V voltage continuously (see technical data). See to it that voltage is kept within admissible limits especially when mains supply is taken e.g. from combustion engine generator.

If the mains has undervoltage (under approx. 300 V), machine control stops to operate automatically.

7.4. LOSS OF A PHASE IN THE MAINS SUPPLY

Loss of a phase causes noticeable poorer welding properties than normally or the machine doesn't get started at all. Loss of a phase can be due to following:

- blowing of mains supply fuse
- defective mains cable
- bad connection of mains connection cable on terminal block or plug of machine

7.5. 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!

8. ORDERING NUMBERS

Kemppi Pro Evolution 3200		6131320
Kemppi Pro Evolution 4200		6131420
Kemppi Pro Evolution 5200		6131520
Kemppi Pro Evolution 3200 MVU		613132003
Kemppi Pro Evolution 4200 MVU		613142003
Kemppi Pro Evolution 5200 MVU		613152003
Return current cable	5 m - 50 mm ²	6184511
Return current cable	5 m - 70 mm ²	6184711
Cable for MMA welding	5 m - 50 mm ²	6184501
Cable for MMA welding	5 m - 70 mm ²	6184701
PL		6185801
PX		6185802
R10		6185409
R20		6185419
Remote controlled interconnecting cable 10 m		6185481
T10		6185231
T120		6185252
P40		6185264
P40L		6185264L
P30W		6185262

9. TECHNICAL DATA

	Pro Evolution 3200	Pro Evolution 4200	Pro Evolution 5200
Mains voltage			
3~50/60 Hz	400 V -15%...+20%	400 V -15%...+20%	400 V -15%...+20%
Rated power			
80 % ED		420 A / 19,7 kVA	520 A / 26,6 kVA
100 % ED	320 A / 13,3 kVA	400 A / 18,6 kVA	440 A / 20,0 kVA
Connection cable/ fuse delayed	4 x 6 S - 5 m / 25 A	4 x 6S - 5 m / 35 A	4 x 6S - 5 m / 35 A
Max. welding voltage 40 °C			
70 % ED			520 A / 40,0 V
80 % ED		420 A / 36,8 V	
100 % ED	320 A / 32,8 V	400 A / 36 V	440 A / 37,6 V
Max. welding voltage 20 °C			
100 % ED	320 A / 32,8 V	420 A / 36,8 V	480 A / 39,6 V
Welding current range			
MMA	10 A ... 320 A	10 A ... 420 A	10 A ... 520 A
TIG	5 A ... 320 A	5 A ... 420 A	5 A ... 520 A
MIG	12 V ... 37 V	12 V ... 39 V	12 V ... 42 V
Max. welding voltage	46 V / 300 A	46 V / 400 A	50 V / 500 A
Open circuit voltage	appr. 65 V	appr. 65 V	appr. 65 V
Open circuit power	< 75 W	< 75 W	< 75 W
Efficiency at nominal values	appr. 85 %	appr. 85 %	appr. 85 %
Power factor at nominal values	appr. 0,93	appr. 0,93	appr. 0,93
Storage temperature range	-40 ... +60 °C	-40 ... +60 °C	-40 ... +60 °C
Operating temperature range	-20 ... +40 °C	-20 ... +40 °C	-20 ... +40 °C
Temperature class	H (180 °C) / B (130 °C)	H (180 °C) / B (130 °C)	H (180 °C) / B (130 °C)
Degree of protection	IP 23 C	IP 23 C	IP 23 C
External dimensions			
length	530 mm	530 mm	530 mm
width	230 mm	230 mm	230 mm
height	520 mm	520 mm	520 mm
Weight	37 kg	41 kg	48 kg
Voltage supply for auxiliary devices	50 V DC	50 V DC	50 V DC
X 14, X 15	fuse 6,3 A delayed	fuse 6,3 A delayed	fuse 6,3 A delayed
Voltage supply for cooling unit PROCOOL 10	1~, 230 V / 250 VA	1~, 230 V / 250 VA	1~, 230 V / 250 VA
X 16	fuse 1,0 A delayed	fuse 1,0 A delayed	fuse 1,0 A delayed

9. TECHNICAL DATA

	Pro Evolution 3200 MVU	Pro Evolution 4200 MVU	Pro Evolution 5200 MVU
Mains voltage			
3~50/60 Hz	400 V -15%...+20%	400 V -15%...+20%	400 V -15%...+20%
	230 V -10%...+10%	230 V -10%...+10%	230 V -10%...+10%
Rated power			
80 % ED		420 A / 19,7 kVA	520 A / 26,6 kVA
100 % ED	320 A / 13,3 kVA	400 A / 18,6 kVA	440 A / 20,0 kVA
Connection cable/ fuse delayed	4 x 6 S - 5 m / 35 A	4 x 10S - 5 m / 50 A	4 x 16S - 5 m / 63 A
Max. welding voltage 40 °C			
70 % ED			520 A / 40,0 V
80 % ED		420 A / 36,8 V	
100 % ED	320 A / 32,8 V	400 A / 36 V	440 A / 37,6 V
Max. welding voltage 20 °C			
100 % ED	320 A / 32,8 V	420 A / 36,8 V	480 A / 39,6 V
Welding current range			
MMA	10 A ... 320 A	10 A ... 420 A	10 A ... 520 A
TIG	5 A ... 320 A	5 A ... 420 A	5 A ... 520 A
MIG	12 V ... 37 V	12 V ... 39 V	12 V ... 42 V
Max. welding voltage		46 V / 300 A	46 V / 400 A 50 V / 500 A
Open circuit voltage	appr. 65 V	appr. 65 V	appr. 65 V
Open circuit power	< 75 W	< 75 W	< 75 W
Efficiency at nominal values	appr. 85 %	appr. 85 %	appr. 85 %
Power factor at nominal values	appr. 0,93	appr. 0,93	appr. 0,93
Storage temperature range	-40 ... +60 °C	-40 ... +60 °C	-40 ... +60 °C
Operating temperature range	-20 ... +40 °C	-20 ... +40 °C	-20 ... +40 °C
Temperature class	H (180 °C) / B (130 °C)	H (180 °C) / B (130 °C)	H (180 °C) / B (130 °C)
Degree of protection	IP 23 C	IP 23 C	IP 23 C
External dimensions			
length	530 mm	530 mm	530 mm
width	230 mm	230 mm	230 mm
height	630 mm	630 mm	630 mm
Weight	45 kg	49 kg	56 kg
Voltage supply for auxiliary devices	50 V DC	50 V DC	50 V DC
X 14, X 15	fuse 6,3 A delayed	fuse 6,3 A delayed	fuse 6,3 A delayed
Voltage supply for cooling unit			
PROCOOL 10	1~, 230 V / 250 VA	1~, 230 V / 250 VA	1~, 230 V / 250 VA
X 16	fuse 1,0 A delayed	fuse 1,0 A delayed	fuse 1,0 A delayed

10. 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 or 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-authorized 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 terms 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.

KEMPPI OY
PL 13
FIN – 15801 LAHTI
FINLAND
Tel (03) 899 11
Telefax (03) 899 428
www.kemppi.com

KEMPPIKONEET OY
PL 13
FIN – 15801 LAHTI
FINLAND
Tel (03) 899 11
Telefax (03) 7348 398
e-mail: myynti.fi@kemppi.com

KEMPPI SVERIGE AB
Box 717
S – 194 27 UPPLANDS VÄSBY
SVERIGE
Tel (08) 590 783 00
Telefax (08) 590 823 94
e-mail: sales.se@kemppi.com

KEMPPI NORGE A/S
Postboks 2151, Postterminalen
N – 3103 TØNSBERG
NORGE
Tel 33 34 60 00
Telefax 33 34 60 10
e-mail: sales.no@kemppi.com

KEMPPI DANMARK A/S
Literbuen 11
DK – 2740 SKOVLUNDE
DANMARK
Tel 44 941 677
Telefax 44 941 536
e-mail:sales.dk@kemppi.com

KEMPPI BENELUX B.V.
Postbus 5603
NL – 4801 EA BREDA
NEDERLAND
Tel +31 (0)76-5717750
Telefax +31 (0)76-5716345
e-mail: sales.nl@kemppi.com

KEMPPI (UK) Ltd
Martti Kemppi Building
Fraser Road
Priory Business Park
BEDFORD, MK443WH
ENGLAND
Tel 0845 6444201
Fax 0845 6444202
e-mail: sales.uk@kemppi.com

KEMPPI FRANCE S.A.
65 Avenue de la Couronne des Prés
78681 EPONE CEDEX
FRANCE
Tel (01) 30 90 04 40
Telefax (01) 30 90 04 45
e-mail: sales.fr@kemppi.com

KEMPPI GmbH
Otto – Hahn – Straße 14
D – 35510 BUTZBACH
DEUTSCHLAND
Tel (06033) 88 020
Telefax (06033) 72 528
e-mail:sales.de@kemppi.com

KEMPPI SP. z o.o.
Ul. Piłsudskiego 2
05-091 ZĄBKI
Poland
Tel +48 22 781 6162
Telefax +48 22 781 6505
e-mail: info.pl@kemppi.com

KEMPPI WELDING
MACHINES AUSTRALIA PTY LTD
P.O. Box 404 (2/58 Lancaster Street)
Ingleburn NSW 2565, Australia
Tel. +61-2-9605 9500
Telefax +61-2-9605 5999
e-mail: info.au@kemppi.com