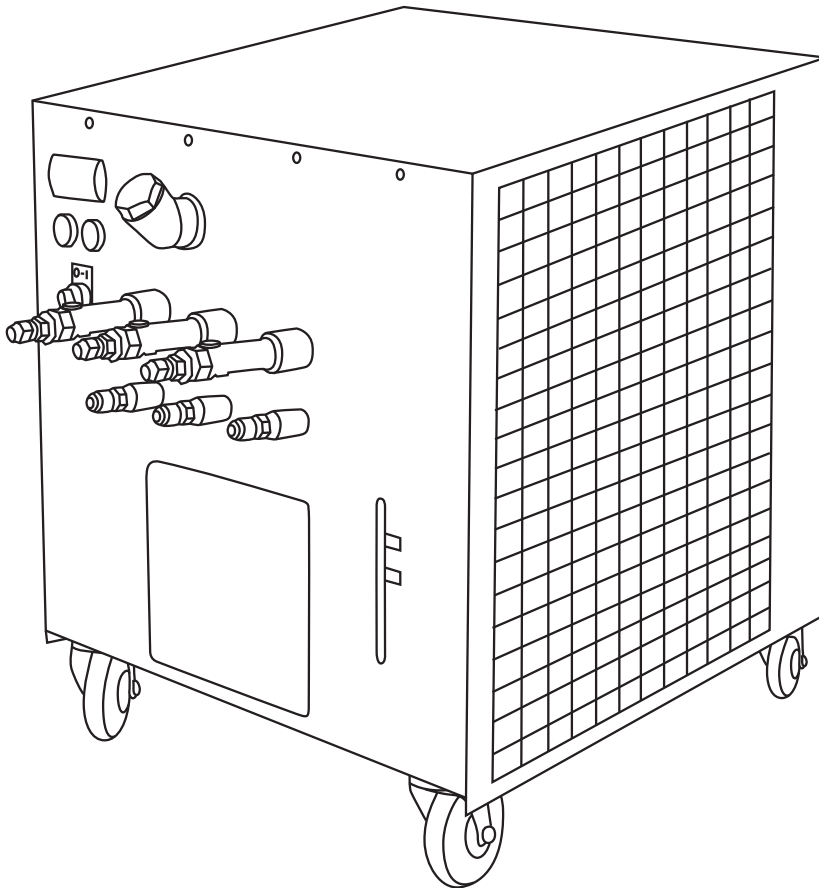


KempCool

40

Operating manual *EN*



OPERATING MANUAL

English

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1. INTRODUCTION

1.1 General

Congratulations on choosing the KempCool equipment. Used correctly, Kemppi products can significantly increase the productivity of your welding, and provide years of economical service.

This operating manual contains important information on the use, maintenance and safety of your Kemppi product. The technical specifications of the equipment can be found at the end of the manual.

Please read the manual and Safety Instructions booklet carefully before using the equipment for the first time. For your own safety and that of your working environment, pay particular attention to the safety instructions.

For more information on Kemppi products, contact Kemppi Oy, consult an authorised Kemppi dealer, or visit the Kemppi web site at www.kemppi.com.

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

NOTE! Items in the manual that require particular attention in order to minimise damage and personal harm are indicated with this symbol. Read these sections carefully and follow their instructions.

Disclaimer

While every effort has been made to ensure that the information contained in this guide is accurate and complete, no liability can be accepted for any errors or omissions. Kemppi reserves the right to change the specification of the product described at any time without prior notice. Do not copy, record, reproduce or transmit the contents of this guide without prior permission from Kemppi.

1.2 About the product

KempCool 40 is an efficient water cooling device designed for use with Kemppi's tandem robotic welding equipment, KempArc Pulse TCS. It can be used for water cooling of two welding guns, operating in a tandem welding environment. KempArc Pulse TCS can also be used with other mechanised welding equipments, when extremely high ability of cooling is demanded.

KempCool 40 is equipped with three water flow circuits, one for each contact tip and an optional circuit for cooling the gas nozzle. Each water flow circuit has its own flow control, and the low-pressure alarm can be adjusted to the desired level.

Range of application

The KempCool 40 cooling unit is designed to be used with Kemppi's KempArc welding equipments.

1.3 Properties

Description and operation principle

KempCool 40 is an efficient water cooling device. It is equipped with a fan and a radiator using water or special non-freezing liquid as a coolant. The operating temperature range of the device is 5...40 °C (plain water) or -20...+40 °C (non-freezing liquid) .

Excess heat is removed from the coolant with a fan. When the temperature of the coolant rises above a set level, heat exchanger is activated and the fan starts to operate, until the temperature gets below the set level. The activation level can be adjusted inside the KempCool 40 cooling unit. See instructions later in this manual.

Cooling capacity

Nominal cooling capacity is 4 kW. The temperature of the coolant is always higher than the surrounding air by 0 to 8 °C.

NOTE! Whenever the unit is idle for longer periods of time, or if the temperature may occasionally drop below freezing point during storage or transport, empty all water flow circuits to avoid frost damage, or make sure that the cooling brine is of non-freezing kind.

NOTE! Do not use inflammable or explosive liquids.

NOTE! To get special non-freezing cooling brine, please contact Kemppi Oy.

Cooling circuit

The KempCool 40 cooling device is equipped with an effective pump, which makes the coolant continuously circulate between the heat exchanger and the welding gun. In the welding end, the coolant absorbs heat, which is transferred to the ambient air in the heat exchanger.

With the flow control screw you can control the flow of the cooling liquid. The level of coolant container must be checked regularly and filled if needed.

NOTE! Avoid running the pump dry.

NOTE! Ensure that there is at least 40 cm free space on both sides of the machine for effective cooling air circulation.

Cooling air

If surrounding air is heavily contaminated with particles of dust, install a filter to clean the incoming cooling air. The filter is available as an optional accessory. The filter must be regularly checked and replaced if needed.

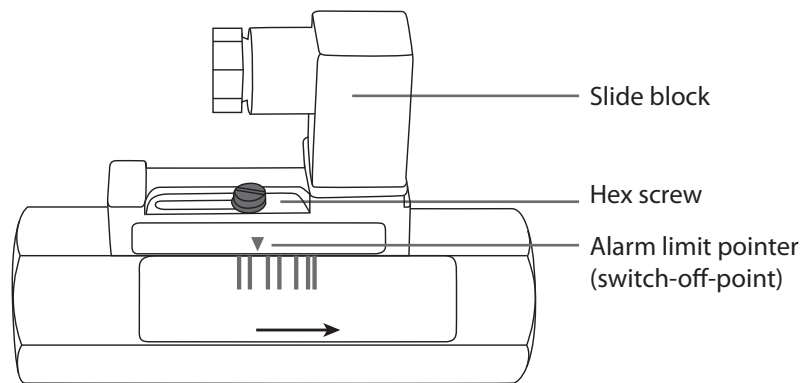
Flow control

There is a flow control screw in all return lines of the cooling circuit. With this screw you can adjust the coolant flow rate. Malfunction is indicated with a signal light in front of the cooling unit.

Pressure alarm limit

If circulation of the coolant is for some reason weakened due to a fault somewhere in the cooling circuit, the coolant pressure drops and the red signal light shows alarm.

With the control device located inside the cooling unit, you can set the pressure level where the alarm is triggered.



Setting the alarm limit for coolant pressure:

1. Attach the water hoses to the cooling water connectors on the front of the unit, and start the unit from the main switch.
 - If the ambient temperature is below 35 °C, only the pump starts.
2. Using the flow adjustment screws on the water hose connectors, set the flow rate to the same value (e.g. 0.5 – 1 l/min) on each outgoing water line.
3. Remove the side panel on the left of the unit (looking from the front).
4. Loosen the hex screw on top of the flow controller (see the picture).
5. Move the slide block, until an alarm is given.
 - If the unit is connected to a FastMig welding device, the alarm appears as a cooling unit error on the power source's control panel.
6. Move the slide block a little backwards, until the alarm stops.
7. Lock the slide block in its place by fixing the hex screw on the top.
8. Test the alarm by disconnecting one of the water lines. If there's no alarm, the set limit value is too low, and you should adjust the limit to higher value.
9. When the alarm limit is on desired level, tighten the slide block in its place and replace the side panel.

NOTE! The cooling fan starts when the temperature of the cooling water rises above 35 °C. The pump starts to circulate the cooling water as soon as you start the unit from the main switch. The pump has a thermostatic control, which allows longer maintenance intervals, because the unit gets less dust inside with the fan not operating.

2. INSTALLATION

2.1 Connecting the cooling system

Fill the coolant container through the filling tube. When the maximal level is reached, the built-in mechanical float switch breaks the water delivery. At the same time, circulation pump starts to operate for a while to allow automatic ventilation of the system.

NOTE! The transfer pump must be switched on only when the system is completely filled. Running dry can damage the pump.

If the cooled welding torches are located higher than the radiator, the coolant starts to flow back when you switch off the pump, and the coolant container may overflow. In this case you can set a check valve (either magnetic or manual) in the flow circuit.

2.2 Electrical connection

All local electrical and electronic regulations must be complied with when making the electrical connections. Before taking the equipment into use, check that the environment fulfils the following requirements.

Mains voltage	230 V, 50 Hz
Max. fuse protection	10 A
Wire cross section	1.5 mm ²

3. TAKING THE MACHINE INTO USE

When you have filled the cooling system and made the necessary electrical connections, you can turn on the heat exchanger group. The pump starts when you switch the device on.

If the desired pressure is not reached, please do as follows:

1. Check the coolant level in the cooling system and fill if necessary.
2. Check all joints.
3. Ventilate the system one more time.

3.1 Service and maintenance

The heat exchanger does not require any special servicing. However, it is recommended to check regularly the hoses and connections for leaks.

NOTE! Always ensure that the voltage is switched off when carrying out any kind of maintenance or service work on the KempCool 40 cooling device.

NOTE! Do not change electronic connections or make any technical modifications on the machine. For repair work, contact authorised Kemppi service workshop.

3.2 Troubleshooting

Problem	Cause	Action
Insufficient cooling capacity	The heat exchanger and/or air filter is dirty. Clean the components.	Clean the components.
	Cooling air temperature is too high.	Check the air temperature.
	Cooling system is overloaded.	Remove any extra cooling consumers.
	The coolant temperature is too high (> 40 °C).	Check thermoregulator setting. Replace if necessary.
Pump does not start	Thermal protection of the pump motor has gone off.	Check the fuses.
Flow alarm is on (the red warning light on the front panel)	The coolant level is too low.	Check the cooling system for leaks and add more coolant if needed.

3.3 Water quality

Subject to the equipment to be cooled or heat-balanced, certain requirements have to be met by the cooling water regarding purity. The degree of the water's contamination, as well as the size and construction of the heat-exchanging- or -balancing plant determine the process most suitable for the application of additives and/or care of the water-supply in question. You can use normal tap water when filling the tanks.

With deviating water-quality, we recommend using the services of consultants, or to have a water analysis or water sample sent to us.

Kemppi is not liable for any malfunctions or damages arising from deviating water qualities.

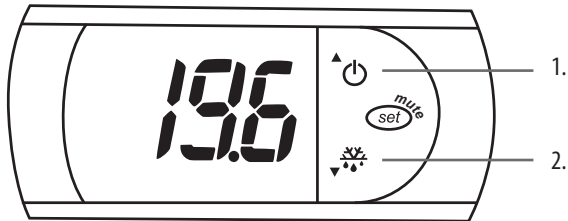
When employing chillers at temperatures below + 8°C, an anti-freeze medium must be added.

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3.4 Temperature control PJ 33

When you turn the main switch to position 1, the circulating pump starts. If the temperature of the coolant is higher than the temperature set at the thermoregulator, the cooling fan also starts automatically. Otherwise, the desired cooling temperature must be set at the thermoregulator.

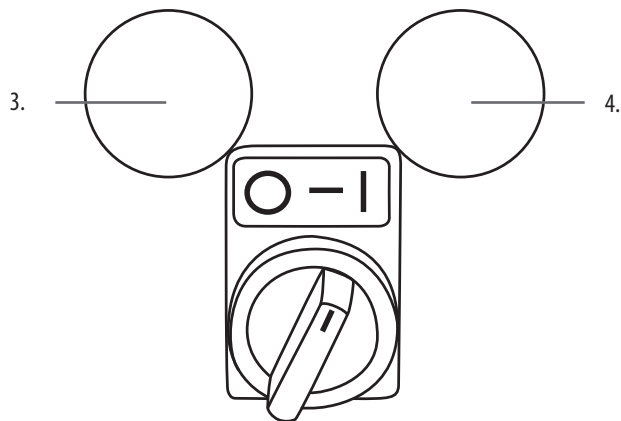
Changing the set point



1. Unlock the set point with a long press of the up arrow key (3 s).
2. Increase the set point value by pressing the up arrow key or decrease it by pressing the down arrow key.
3. When you have set the value, wait until the display returns to its initial state. The new setting is saved automatically.

You can also use the SET button to return to initial state.

Indicator lights



If led 3 shows white, the compressor is in operation.

If led 4 shows red, there is a fault (see the errors list).

3.5 Disposal of the machine



Do not dispose of electrical equipment 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 taken to an appropriate environmentally responsible recycling facility.

The owner of the equipment is obliged to deliver a decommissioned unit to a regional collection centre, per the instructions of local authorities or a Kemppi representative. By applying this European Directive you will improve the environment and human health.

4. ORDERING NUMBERS

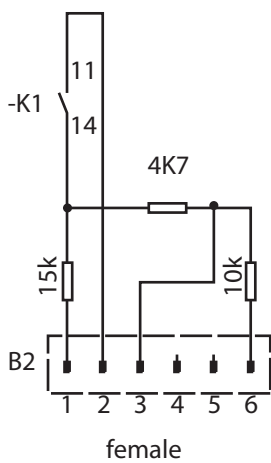
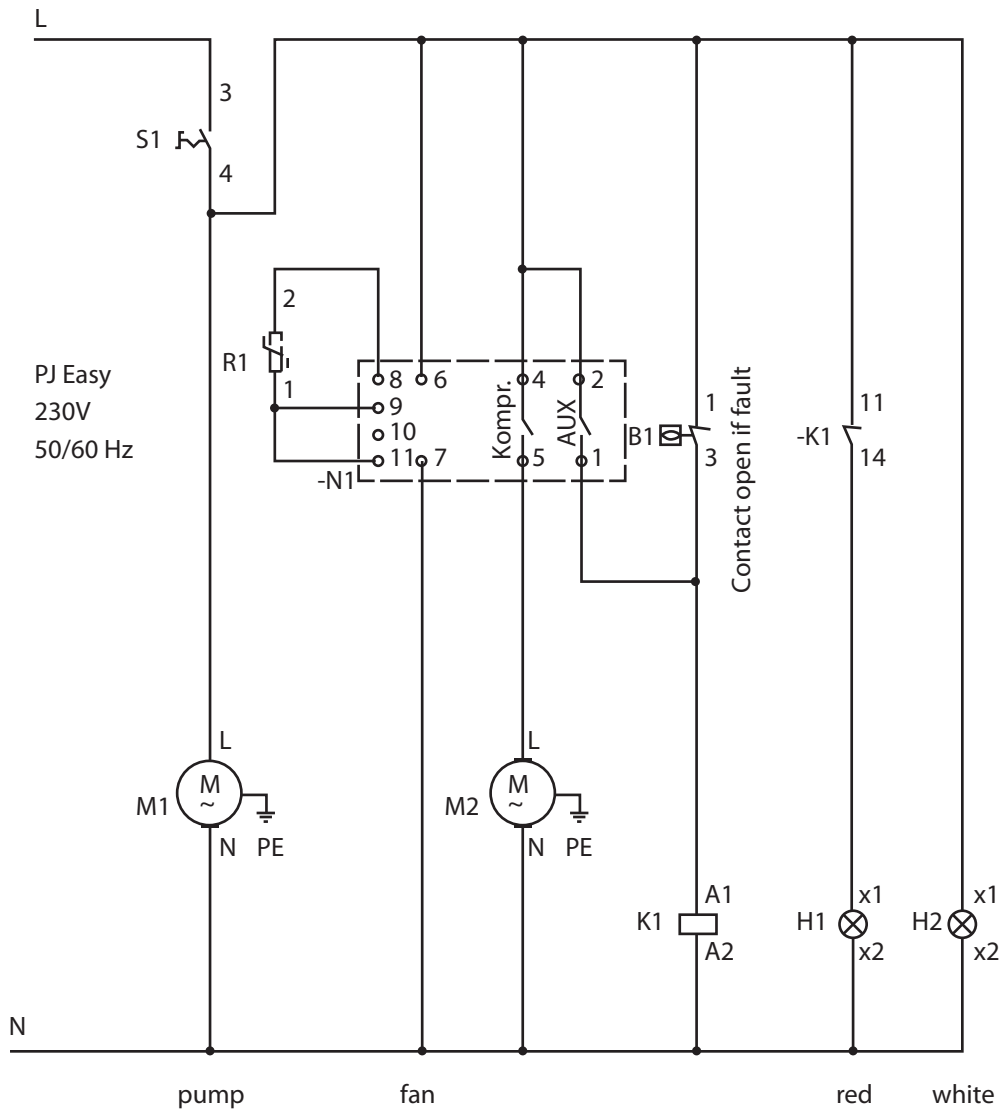
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5. TECHNICAL DATA

KempCool 40		
Operating voltage		230 V AC \pm 10 %
Connection capacity	100 % ED	300 W
Cooling power		4.0 kW
Start pressure, max.		0.35 MPa (= 3.5 bar)
Cooling liquid		20–40 % ethanol+water
Tank volume		8 l
External dimensions	LxWxH	700 x 600 x 600 mm
Weight		40 kg
Operating temperature range		–20...+40 °C (non-freezing liquid)
Storage temperature range		–40...+60 °C
EMC class		A
Degree of protection		IP23S

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6. MAIN CIRCUIT DIAGRAM



- B1 flow control
- M1 pump
- M2 fan
- N1 temperature controller
- R1 temperature sensor
- S1 on/off switch
- B2 AMP connector (connector to KempArc power source)
- K1 Relais Alarm
- H2 power on lamp
- H1 alarm lamp

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