Operating Instructions

MW40

Air-to-air heat pump for heating

Picture similar

Device type	MW40
Manufacturer	Kroll Energy GmbH Eduard-Breuninger-Straße 67 D-71522 Backnang Phone : +49 (0)7191 / 9070 200 Fax : +49 (0)7191 / 9070 201 E-mail : vertrieb@kroll.de Internet : www.kroll.de

1 Table of contents

2 General information

The operating instructions must be read carefully before installation and commissioning and must always be kept in the immediate vicinity!
Transport damage must be noted on the delivery receipt and acknowledged by the driver!
Technical faults must be reported to Kroll Energy GmbH immediately!

2.1 Legend of symbols

The signalling symbols used in the operating instructions have the following meaning:

WARNING; this sign warns of personal injury
These instructions must be followed.

CAUTION; this sign warns of damage to property and the environment
These instructions must be followed.

NOTE; notes provide advice for working and offer additional information for the user.

REFERENCE; Reference to other sections in the operating instructions

2.2 Intended use

The MW40 is a mobile heat pump that is not suitable for private use. It was designed for commercial use on construction sites, in workshops, storage rooms, etc. and must not be used for room heating with high and highest requirements for the room air!

The MW40 may only be operated by trained personnel!

2.3 Disclaimer

Kroll Energy GmbH accepts no liability for possible damage resulting from improper use.
The manufacturer's liability also expires if work or repair to the system is carried out improperly.

2.4 EC-Conformity

The system was built in accordance with the applicable European directives and regulations and bears the CE mark.

EC Declaration of Conformity see ***12 EC Declaration of Conformity*** .

2.5 Warranty / Guarantee

In the event of improper use, installation or maintenance, that deviates from the operating instructions or in the case of unauthorised modifications to the factory-supplied appliance version, all warranty claims are void. Otherwise, our "Terms and Conditions of Sale and Delivery" apply.

The appliance must be installed and commissioned by a specialist in order to obtain a warranty claim!

Another prerequisite for the warranty is regular maintenance in accordance with these instructions, which must be carried out at least once a year. The general warranty period for the MW40 is 12 months after delivery. The invoice date is decisive.

3 Safety regulations

The system is safe to operate when used as intended. The design and construction comply with the current state of the art and all relevant technical regulations as well as the applicable European directives and regulations.

EC Declaration of Conformity see ***12 EC Declaration of Conformity.***

Every person carrying out work on the system must have read and understood the operating instructions before starting work and must comply with the local accident prevention and safety regulations.
A risk assessment must be prepared by the operator on site!

Danger to life due to electric current!

Electrical work may only be carried out by qualified specialists. Before opening the appliance, the system must be disconnected and secured against being switched on again.

Refrigerant:
The plant contains fluorinated greenhouse gases covered by the Kyoto Protocol.
The type, quantity and GWP of the refrigerant used can be found in *Table 4-1.*

Local risk of frostbite on contact with the refrigerant!

If the refrigerant used escapes at a leak, it is around - 40 °C cold. Direct contact with body parts can lead to frostbite.

System contains flammable refrigerant!

In the event of a refrigerant leak, the water-polluting oils it contains must be properly collected and disposed of!

The safety distance between the system and walls and objects must be ensured in accordance with the *installation plan on page 16*!

Never switch on the system if housing parts have been removed from the system!

Only install the MW40 outdoors and only operate it with outside air as a cooling and heating source! The air ducting sides must not be narrowed or blocked!

The ambient air at the installation site, which is drawn in as a source for cooling and heating, must not contain any chemically corrosive components! Otherwise there is a risk of machine damage or even total loss!

Avoid locations with high levels of dust! Otherwise, both airways must be cleaned regularly!

4 Machine overview

4.1 Technical data MWK40

Table 4-1: Technical data table

Characteristic value	Value
Nominal heat output	42.4 kW
System COP[1] (7 °C outside/ 35 °C room supply air)	2,69
JAZ[2] (outside temperature range)	2,43
Operating temperature min. to max.	-20 °C to +25 °C
Refrigerant (safety class A2L, of low flammability)	R454C
Refrigerant volume	15 kg

[1] integrated heating system (warm air fans) included

[2] Static calculation method VDI 4650 Sheet 1: 2019-03 (https://www.waermepumpe.de/ jazrechner/)

Characteristic value	Value
GWP	148 CO_2 equivalent
CO2 equivalent	2,48 t
Nominal volume flow	8,000 m3/h
Max. available air pressure	200 Pa
Weight (incl. refrigerant)	1,080 kg
Dimensions H x W x L approx.	2200 mm x 1200 mm x 2400 mm
Connection size air hoses (Ø)	525 mm
Emission sound pressure level	*See Table 4-2*
Electrical input	3/N/PE~400V 50 Hz
Protection class	I - Protective conductor ⏚
IP protection class with hose connection	IP44
Mains monitoring (Umin ≤ U ≥ Umax)	375 V ≤ U ≥ 475 V
max. rated current	31,0 A

Sound

The following sound pressure levels were determined in a free-standing position without sound reflection. Measurements were taken on the loudest side of the system at a height of 1.7 m (see ***Figure 4-1***). A different installation (with neighbouring sound-reflecting surfaces) can lead to an increase in the sound level. An exact indication of the respective sound pressure level is only possible by measuring at the installation site.

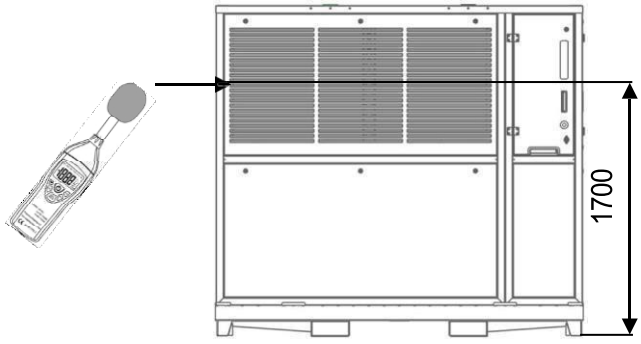


Figure 4-1: Loudest side of the MWK40 (at the fans, top left)

The regional noise protection regulations must be observed!

The following A-weighted sound pressure levels result depending on the distance:

Table 4-2: Sound pressure level

Distance [m]	1	2	3	4	5	6	7	8	9	10
Sound pressure level [dB(A)]	77	72	69	67	66,5	65	64,5	64	63	62

4.2 Different views of the plant

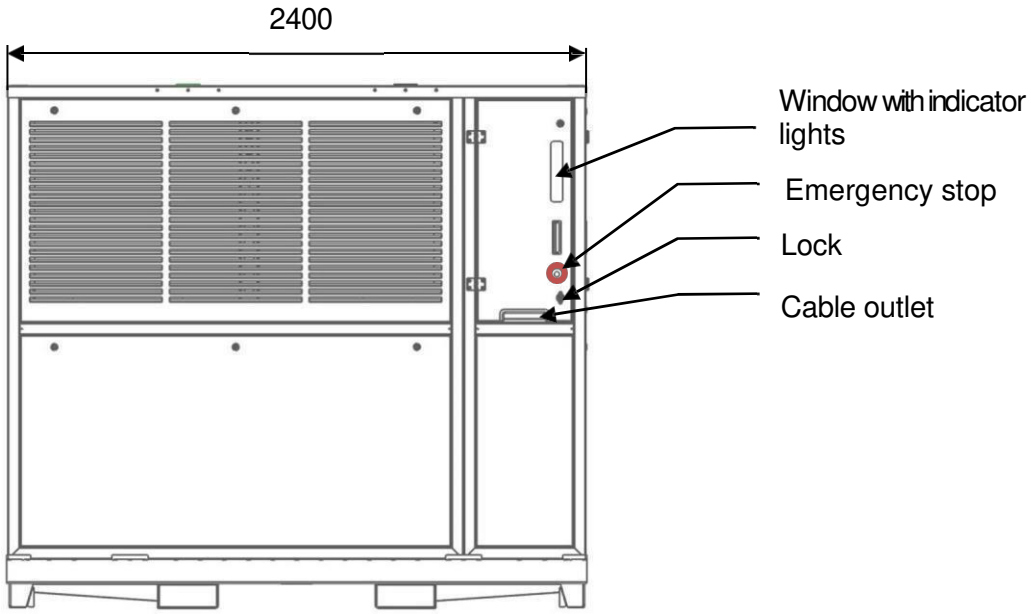


Figure 4-2: Illustration MW40 left side

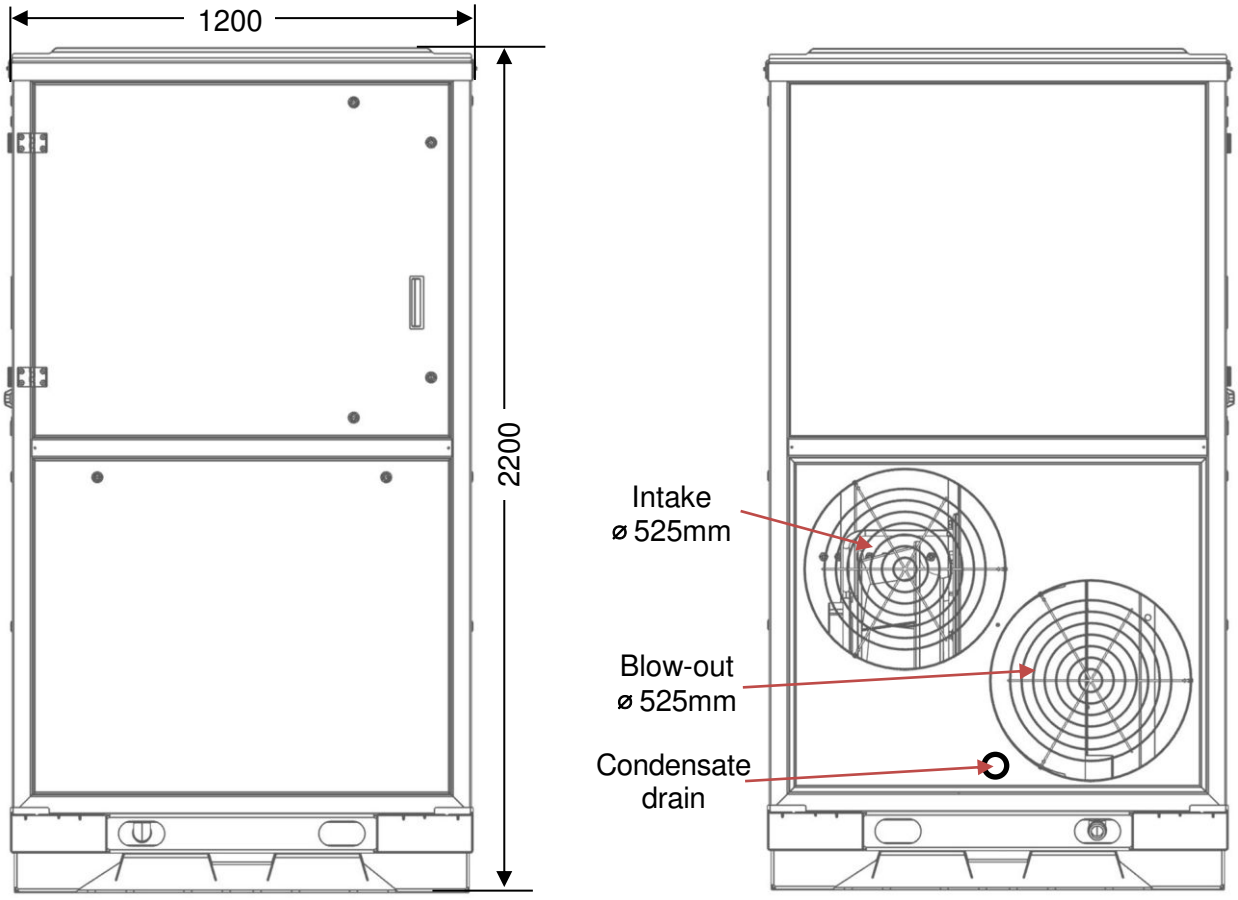


Figure 4-3: View of the MW40 from the front (left image) and from behind (right image)

4.3 Functions of the system

The MW40 is a fully automatic air-to-air heat pump that guarantees independent operation after presetting and activation. The operating parameters can be set via a browser-based visualisation (see ***Figure 4-5***)

General view of the WEB-Visu in *Figure 4-8* .

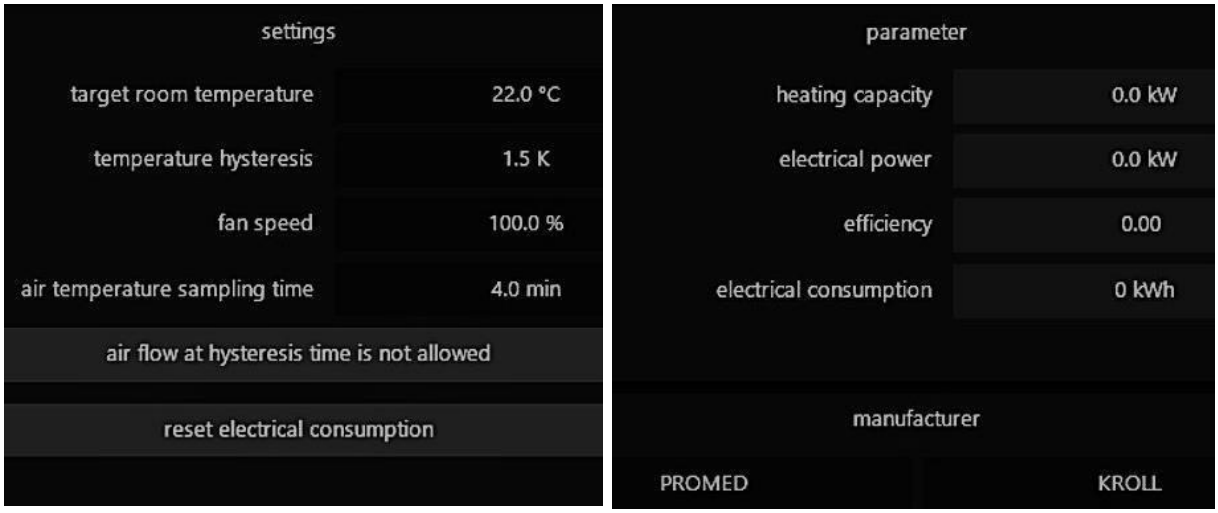


Figure 4-5: WEB-Visu partial view (right-hand side), input and display

The following parameters can be entered or read out:

Table 4-3: Parameters and their meaning

Input	Unit	Meaning
target room temperature	°C	Desired room temperature
temperature hysteresis	K	Operating range around the control temperature (0.5 to 3 K)
fan speed	%	Maximum speed of the internal fans (60 to 100 %)
air temperature sampling time	min	Time interval between air temperature checks: every x minutes, the lower fans are switched on in order to check the room temperature (1 to 10 min)
air flow at hysteresis time is / is not allowed	-	Active (blue): lower fans run continuously, even after reaching the target room temperature (for ventilation)
reset electrical consumption	-	Resetting the meter for current consumption

Display	Unit	Meaning
heating capacity	kW	Amount of heat transferred to the room air
electrical power	kW	Current electrical consumption
efficiency	-	Quotient of generated heating capacity and consumed electrical power
electrical consumption	kWh	Summation of the electrical energy used

Defrost function

The defrost function is used to free the evaporator from adhering ice so that it can work energy-efficiently again. The need for defrosting is automatically recognised and carried out by the system. During defrosting, the fans are switched off and the hot gas generated by the compressor (superheated refrigerant) is fed directly into the evaporator.
After 15 minutes at the latest, the compressor switches off and defrosting is complete. During this time, no useful heat is generated and no air is circulated. 2 minutes after the end of defrosting, the process restarts automatically in normal operation.

System control

The system has a variable-speed compressor to vary the heating output. In general, the system always attempts to provide the maximum output at the set target temperature. This is also possible when the ambient temperature drops (down to -25 °C) by converting the maximum reference current.
If the system reaches the limits of its operating range, it automatically reduces the compressor and fan output.

Compressor running times

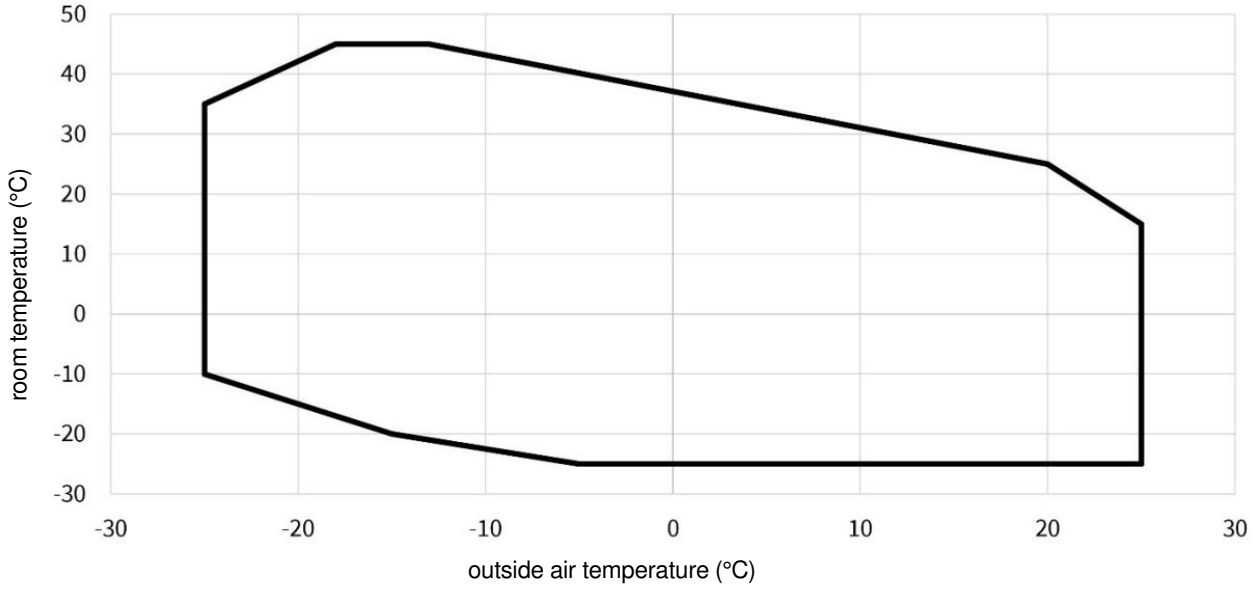
In case of uncontrolled start and stop processes, the compressor would be subject to increased wear. To avoid this and ensure a long operating life, the following runtime limits are stored in the machine control system:

1. Regardless of the temperature setting, there is a minimum of 8 minutes between two compressor starts.
2. Regardless of the control limit, the compressor runs for at least 2 minutes (except for safety shutdown).

Safety shutdown

Pressing the emergency stop button shuts down the system immediately. A restart is only possible after the system has been disconnected.

Figure 4-6: Operating range – heating



4.4 Description of the control and display

Indicator lights

The system operator can switch the system on and off using the rotary switch in the connection box. The four indicator lights show the operating status (see ***Figure 4-7***).

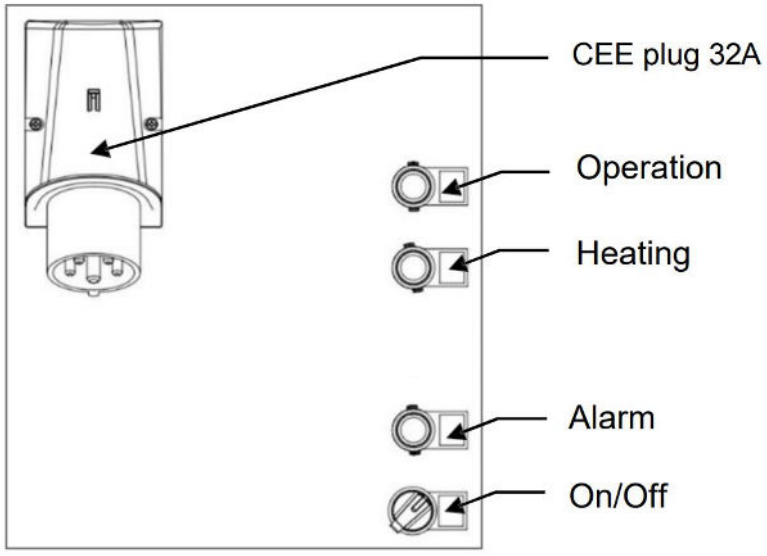


Figure 4-7: CEE plug, indicator light and switch in the connection box

The colour assignment is explained in the following table:

Table 4-4: Indicator lights and their meaning

Lamp green (operation)	Blinking	Oil preheating	The system is in start-up mode.
	On	Operation	The system is in operating mode.
Lamp orange (heating)	On	Heating	The system is in heating mode.
Lamp red (alarm)	Blinking	Error	The system is in error mode. The system restarts up to 3 times automatically. (see *10 error messages*)
	On	Error	The system is in error mode. The system does not restart automatically. (see *10 error messages*)

User interface (WEB-Visu)

The operating modes of the MWK40 can be monitored and set within specified limits by trained operating personnel. To do this, a connection must be established with a PC via Ethernet cable or LTE wireless connection.
The main components of the system, the process parameters and the necessary setting parameters can be found on the user interface shown below. This provides a good overview of the processes in the system as well as input and output values.

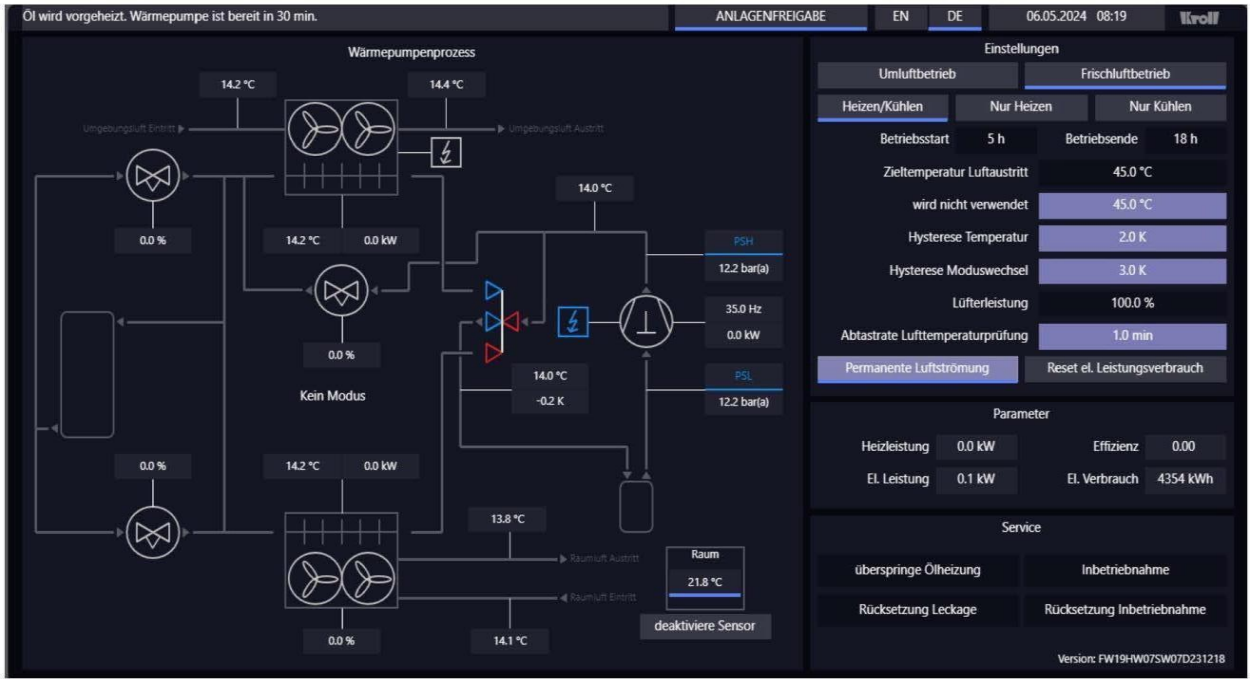


Figure 4-8: General view of WEB-Visu (example : MWK 40)

5 Transport, handling and storage

To avoid transport damage, the system should be transported to the installation site in its packed state using suitable industrial trucks.

The system must be transported in accordance with the applicable safety regulations!

Do not stand under or close to the system during transport! If the system falls or tips over during transport, this may result in personal injury and damage to property!

Lifting with industrial trucks

When selecting the industrial truck, take account of the total weight and technical data of the system (*see 3.1 Technical data*) and the position of the centre of gravity (*see Fig. 5-1*).
The industrial truck must have a load capacity suitable for the weight of the system!

Only the forklift mounts on the long sides may be used to lift the heat pump with industrial trucks (see *Figure 5-1*)! Ensure that the forks are correctly positioned and locked in place and that the heat pump is correctly seated on the forks (see *Figure 5-2*) in order to minimise the risk of damage.

Lifting from the front or rear can cause damage to the system and is explicitly not recommended!

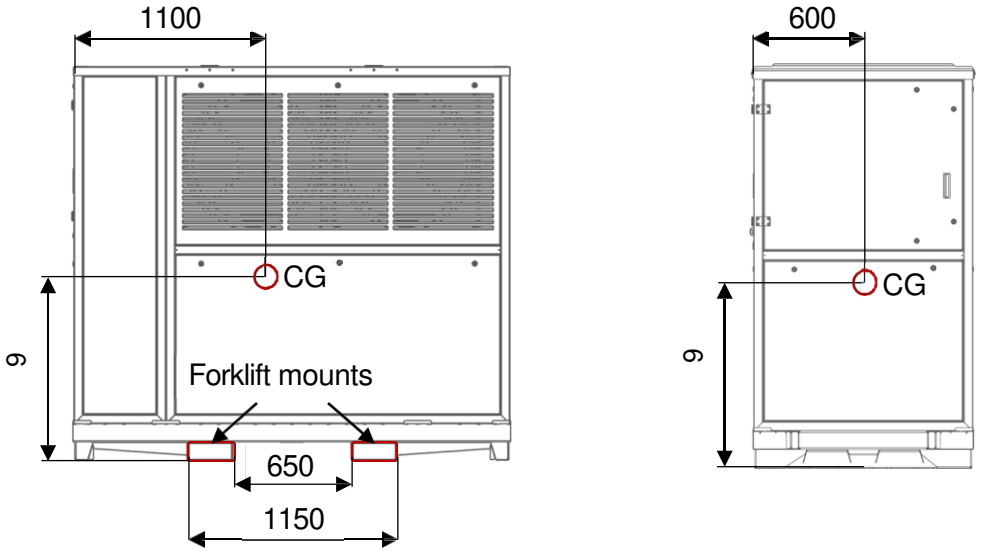


Figure 5-1: Position of the centre of gravity

Centre of gravity marking

This symbol marks the position of the centre of gravity on the long sides of the MW40.

The centre of gravity is not in the middle, but towards the front of the system!

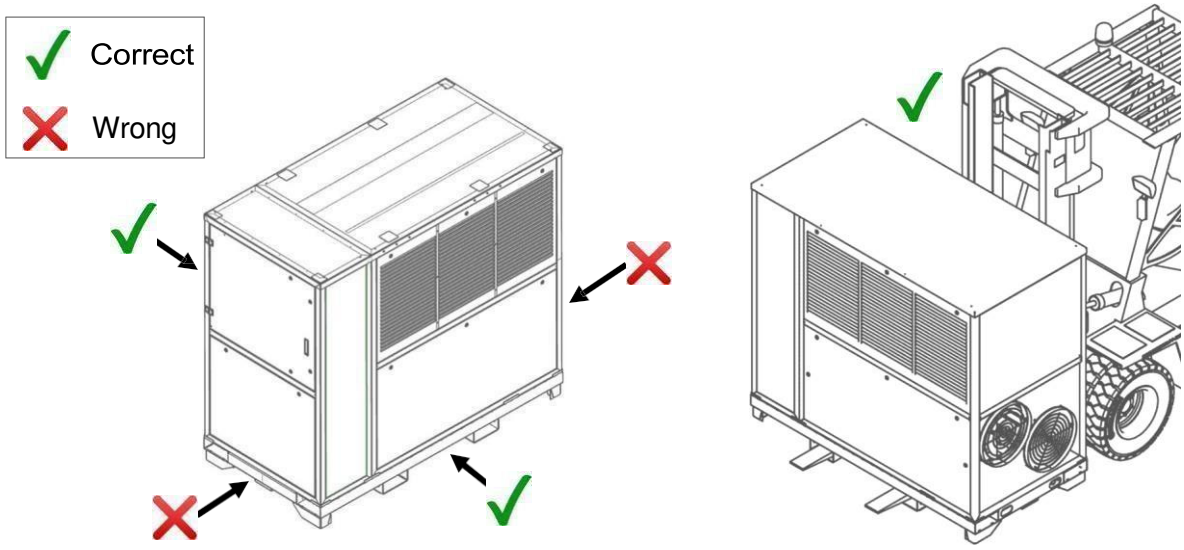


Figure 5-2: Transport sides and correct pick-up with the forklift truck

6 Installation and connection

Installation

For the installation and operation of the system, the general rules of technology, the building inspectorate, fire protection and legal regulations for the operation of electrical systems as well as DGUV regulation 38 must be observed.

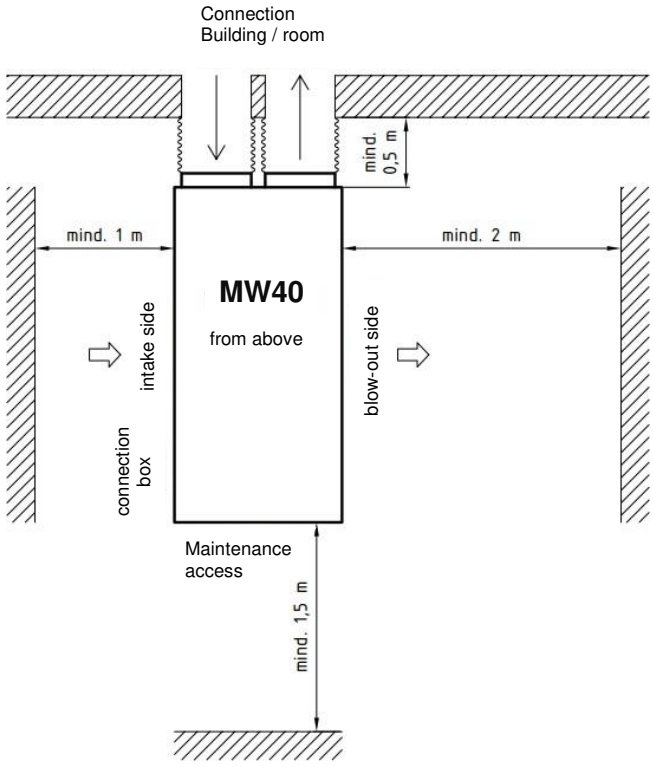


Figure 6-1: Layout plan

Incorrect and improper installation can cause dangerous personal injury, damage to property and a reduction of the lifespan of the heat pump. Therefore, such work must only be carried out by specialised personnel!

Due to the flammable refrigerant, the system must be installed and operated on a fireproof surface and outdoors! Ignition sources are prohibited in the vicinity of the MW 40!

The system must be set up on a solid and stable surface! A soft floor can cause the system to tip over and result in personal injury.

When installing on sealed surfaces, ensure that the condensate is drained! Otherwise, there is a risk of slipping due to frozen condensate in cold temperatures!

The system must be positioned free-standing with the minimum distances specified in *Figure 6-1.*
When selecting the installation location, the maximum inclination of 2° must be observed so that the condensate can drain freely and the operating life of the compressor bearings is not reduced.

Hose connections

For the hose connections (IN/OUT), temperature-resistant air hoses with a diameter of 525 mm must be selected and connected to the nozzles provided with tensioning straps (see *Figure 4-3*).
Spiral-reinforced hoses must be used against the negative suction pressure. Alternatively, fixed sheet metal ducts or corrugated pipes can also be installed.
A maximum pressure loss of 200 Pa must not be exceeded in order to maintain the functionality of the system!

Branching the heating hoses is not recommended due to the pressure loss and targeted air flow.

7 Electrical connection

Danger to life due to electric current!

Electrical work may only be carried out by qualified specialists. Before opening the appliance, the system must be disconnected from the power supply and secured against being switched on again.

The relevant EN, VDE and local safety regulations must be observed when installing and carrying out electrical work!

The electrical connection on site must be protected with a 3-phase 32 A type C circuit breaker for each MW40 heat pump. Protection via a slow-blow low-voltage fuse (DT or D0 fuse) is also permitted.
If the electrical connection is additionally monitored with a residual current circuit breaker (FI/RCD), the manufacturer recommends a type F circuit breaker with a differential tripping current of 300 mA to ensure continuous operation of the heat pump.
The power connection for the MW40 is located in the connection box on the left-hand side (next to the indicator lights). It is a CEE plug 32 A (3 ~ 400 V AC, N, PE).

The connection box is lockable and must therefore be protected against access of unauthorised persons!

8 Commissioning

The appliance must only be put into operation with a closed housing!

1. **Carry out an installation check:**

   - ✓ Installation and assembly have been carried out in accordance with these operating instructions.
   - ✓ The electrical installation was carried out properly and professionally.
   - ✓ All pipe systems and components of the system are tight.

2. **Commissioning:**

   - ✓ Establish power connection (CEE plug 32 A, 5-pin in connection box)
   - ✓ Turn the switch to the ON position.
   - ✓ Wait until oil preheating is complete (lamp lights up green, duration: 5 to 30 min)
   - ✓ Connect via PC, tablet or smartphone:

Login	
WAN Router: via VPN	Please refer to the type label for the IP address
WLAN SSID:	Please refer to the type label
WLAN PW:	Please refer to the type label

It is possible to dial directly into the system's router within a range of around 5 meters. For greater distances, a SIM card and booking of the web app option are required.

Via WLAN to the WEB-Visu:

Firstly, the WLAN must be activated on the end device (e.g. laptop). When the system is switched on, it sets up a WLAN network that can be selected on the end device (for name, see type label). Access is established by entering the *WLAN PW* (see type label). Once the connection has been established, open the browser window and enter the following in the browser line: *192.168.135.2/webvisu*. The WEB-Visu window will then open.

Via Ethernet to the WEB-Visu:

For an Ethernet connection, the upper door of the machine room must first be opened in order to access the PLC controller (see *Figure 4-4*). Connect the PLC controller and the end device using a LAN cable. If DHCP[3] is active on the end device, the following entry can be made in the browser as for the WLAN connection: *192.168.135.2/webvisu*. If DHCP[3] is not active, the IP of the end device must be transferred to the IP range of the system: *192.168.135.xxx*. The addresses 1, 2 and 3 must not be used for the *xxx* at the end.

[3] Dynamic Host Configuration Protocol

9 Operation

The MW 40 is designed for stand-alone operation. The system operation can be monitored remotely by the customer via the user interface (see *Figure 4-8*) and the operating parameters can be individually controlled. If faults occur during operation, the system switches itself off automatically.

9.1 Cleaning

The outside of the appliance can be cleaned with a damp cloth and commercially available cleaning agents. Cleaning and care products that are abrasive or contain acid and/or chlorine must not be used. The intake and exhaust openings must be inspected for dirt at regular intervals (depending on the installation location) and cleaned if necessary.

Other components that are to be cleaned regularly are listed in *9.2 Maintenance.*

9.2 Maintenance

The manufacturer strongly recommends carrying out annual maintenance to prevent damage to property and the environment!

The maintenance of refrigeration systems must be carried out by a specialised company with a certificate of competence!

The following work must be carried out during maintenance:

1. Safety inspection of the electrical installation.
2. Visual inspection of the refrigerant piping for integrity and leaks.
3. Visual inspection of the mechanical components.
4. Compressor function test and oil level measurement.

The oil level can be gauged through the compressor inspection glass. A mirror must be used for this, as the inspection glass faces the rear wall of the refrigeration installations.
The target fill level is 2.6 litres of Bitzer IBSE 32 refrigerating machine oil.

5. Pressure and leak test of the refrigeration circuit.
6. Cleaning the registers, the fans and the condensate drain.

10 Error messages

If an error cannot be rectified independently or with the help of a specialist, please contact the manufacturer!

Description of error types

The software distinguishes between 4 types and 2 special rules

- Type 0 = Information

This type simply sends information to the database without intervening in the process itself. The only exception is the undervoltage signal. This reduces the output of the compressor. The system is not stopped or switched off.

- Type 1 = thermal temporary fault

This type applies to all errors resulting from the process (e.g. low pressure, high pressure, overheating, etc.). These errors lead to the system being switched off. The system restarts after 10/20/30 minutes. The lag time is based on an error counter: error no. 1 → 10 min, error no. 2 → 20 min, and so on. If error no. 4 is reached, the temporary error will become a permanent error (see type 3).
If no error occurs for 8 minutes (compressor runtime), the counter will be reset to 0.

- Type 2 = electrical temporary fault

This type applies to all errors that indicate electrical problems (e.g. errors due to voltage drops). These errors lead to the system being switched off. The machine restarts after 3 minutes or after the compressor lag-time is completed (max. 8 minutes). Equivalent to type 1, there is an error counter and when reaching error no. 4, the temporary error becomes a permanent error (see type 3).
If no error occurs for 8 minutes (compressor runtime), the counter will be reset to 0.

- Type 3 = permanent error

This type of error causes the system to switch off and it will not restart on its own. The system can only be restarted by a software reset (via web app) or a complete manual restart. This should only be done after careful consideration and can be particularly useful if it was set due to a repeated temporary error, the cause of which has been safely rectified. **Example:** Very cold night causes 4x negative pressure, thus error type 3, in the morning the temperature rises → the system can be restarted via web app or manual restart.

- Special regulations (listed as error type 3)

Same effect as error type 3: immediate shut down of the system without restarting automatically, but with a distinctive difference: a restart via a software reset (e.g. via web app) is not possible

This applies to the following errors:

- Low refrigerant level / loss of refrigerant (800): This error can **only** be reset by the manufacturer (via master password or from the source code)
- Emergency stop (700): Only electrically disconnecting the system will help here.

Table 10-1: Description of error codes

Code	Type	Description of the	Possible cause	Solution
100	2	AC fans (up) do not react after starting	Contactor defective	Testing by a qualified electrician
110	2	AC fan (up) does not stop	Contactor does not drop	Testing by a qualified electrician
120	2	AC fan (up) stops during operation	Contactor defective, Fan voltage is missing (phase monitoring)	Testing by a qualified electrician
300	2	Frequency inverter error	various	Read out error on FI display by a qualified electrician
310	2	Motor protection switch of the compressor is activated	Motor overheats, various causes	Inspection by qualified electrician and air conditioning specialist
320	2	Compressor does not start	Compressor defective, frequency inverter defective	Testing by a qualified electrician
330	2	Compressor does not stop	Frequency inverter defective	Testing by a qualified electrician
340	2	Compressor stops during operation	Compressor defective, frequency inverter defective	Testing by a qualified electrician
400	2	Thermal contact of an EC fan (below) has been triggered	Pressure too high and temperature too high	Check air hoses for kinks or other irregularities
500	3	Refrigerant sensor position	Suction gas sensor indicates significantly higher temperature compared to hot gas sensor	Sensors are reversed. Check by a qualified electrician
510	3	Refrigerant sensor failure	Suction gas sensor or connection cable defective	Testing by a qualified electrician
600	1	High pressure switch is activated	Heat dissipation not sufficient; inlet temperature too high; EC fan defective	Check air hoses for kinks or other irregularities
610	1	Low pressure switch is activated	*Table 10-2: Cause-solution for error 610 p.24*	
620	1	Condensation above application limit	see 600	see 600
630	1	Condensation below application limit	Room air too cold	Preheat room air
640	1	Evaporisation above application limit	Ambient air too warm, expansion valve, driver or control defective	Inspection by qualified electrician and air conditioning specialist
650	1	Evaporation below application limit	see 610	see 610
660	1	Overheating too low	Expansion valve driver or control defective, Poor regulation	Inspection by qualified electrician and air conditioning specialist

Code	Type	Description	Possible cause	Solution
680	1	Hot gas temperature too high	Foreign gas or leakage; expansion valve defective	Inspection by air conditioning specialist
700	3*	Emergency stop, system sshut down	Emergency stop button has been pressed	Pull out the emergency stop button, disconnect the system from power supply, reconnect, restart the system
710	2	Stepper motor card	Error stepper motor card	Inspection by air conditioning specialist
740	3	Temperature card	Faulty signal evaluation. All temperature sensors display exactly 0°C.	System must be switched off. Check card contact
800	3*	Refrigerant flow / refrigerant shortage	Leakage, Expansion valve defective, Filter clogged, System outside operating range (temperature)	Check ambient temperature. Inspection by air conditioning specialist

Table 10-2: Cause-solution for error 610

Code	Possible cause	Solution
610	Refrigeration pipe shut off	Check valves on the collector and compressor
	Solenoid valve #V1701 does not switch on	Testing by qualified electrician
	Expansion valve, driver or control defective	Testing by qualified electrician
	Too little refrigerant, leakage	Inspection by air conditioning specialist
	Ambient temperature too cold (< -25°C)	Change location or wait
	Poor regulation	Check input parameters
	Insufficient air flow at the axial fans	Check air path for obstruction
	Axial fan defective	Testing by qualified electrician
	External gas in the system (nitrogen, air, etc.)	Inspection by air conditioning specialist
	Register iced up	Start defrost function

A list of the spare parts to be purchased can be found in the *spare parts list.*

11 Dismantling, decommissioning and disposal

The system must be decommissioned in accordance with the locally applicable laws, directives and standards for the recovery, reuse and disposal of operating materials and components of heat pumps.

Dismantling must be carried out by qualified heating or cooling system specialists!

Danger to life due to electric current!
Electrical work may only be carried out by qualified specialists. Before opening the appliance, the system must be disconnected from the power supply and secured against being switched on again.

System is pressurised and contains flammable refrigerant!
The refrigerant must be recycled, reconditioned or disposed of properly!
For this purpose, the refrigerant must be properly and professionally transferred to a designated and appropriately labelled recycling bottle and handed over to a specialist treatment company.

For this work, wearing cold-insulated protective clothing is mandatory (protective gloves, face shield): The refrigerant is about -40 °C cold when it escapes!

Components must be disposed of separately according to material and returned to the material cycle!

12 EC Declaration of Conformity

– original –

Kroll Energy GmbH
Eduard-Breuninger-Straße 67, 71522 Backnang, Germany

We, Kroll Energy GmbH, declare that the machine described below, heat pump MW40, article number 301531
complies with all relevant requirements of the EC Machinery Directive 2006/42/EC.

The machine also complies with the following additional EC/EU directives and regulations:

Directive 2014/68/EU...	on the making available on the market of pressure equipment
Directive 2014/30/EU…	on electromagnetic compatibility
Directive 2014/35/EU…	on the making available on the market of electrical equipment
Regulation EU 517/2014…	on fluorinated greenhouse gases
Regulation EC 1516/2007…	laying down the standard requirements of the Check for leaks...
Regulation 2015/2068/EU…	laying down the form of marking

The following harmonised standards have been applied:

DIN EN 378-2 (2018-04):	Refrigerating systems and heat pumps - Safety and environmental requirements - Part 2: Design, manufacture, testing, labelling and documentation
DIN EN 60204-1:	Safety of machinery - Electrical equipment of machines - Part 1: General requirements

Authorised to compile the technical documentation:
Kroll Energy GmbH

Dr Alexander Ramm

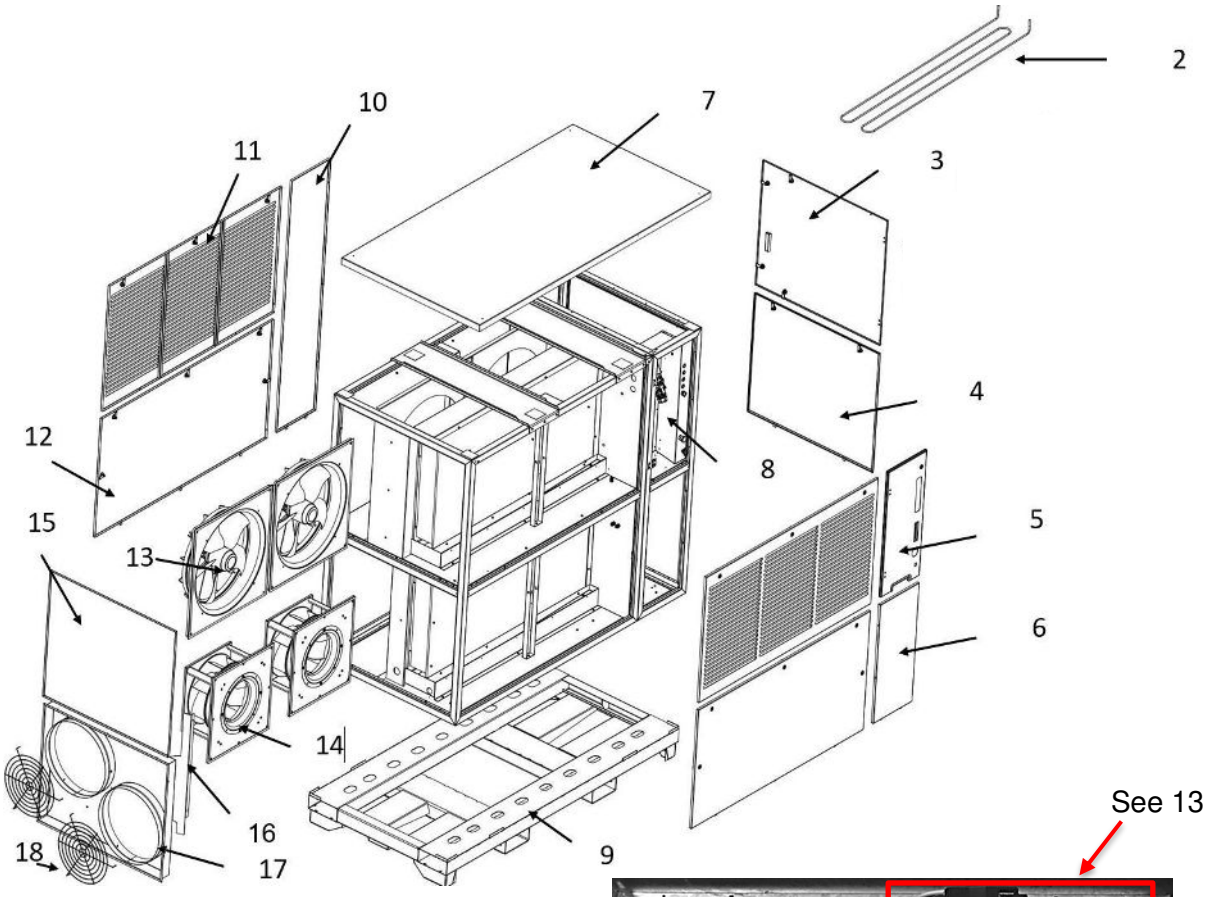
Technical Manager of Kroll Energy GmbH

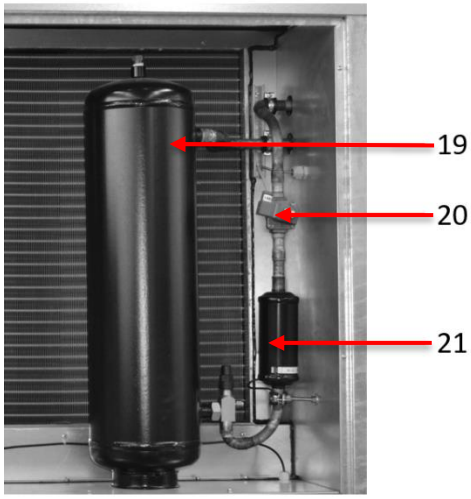
A. Ramm

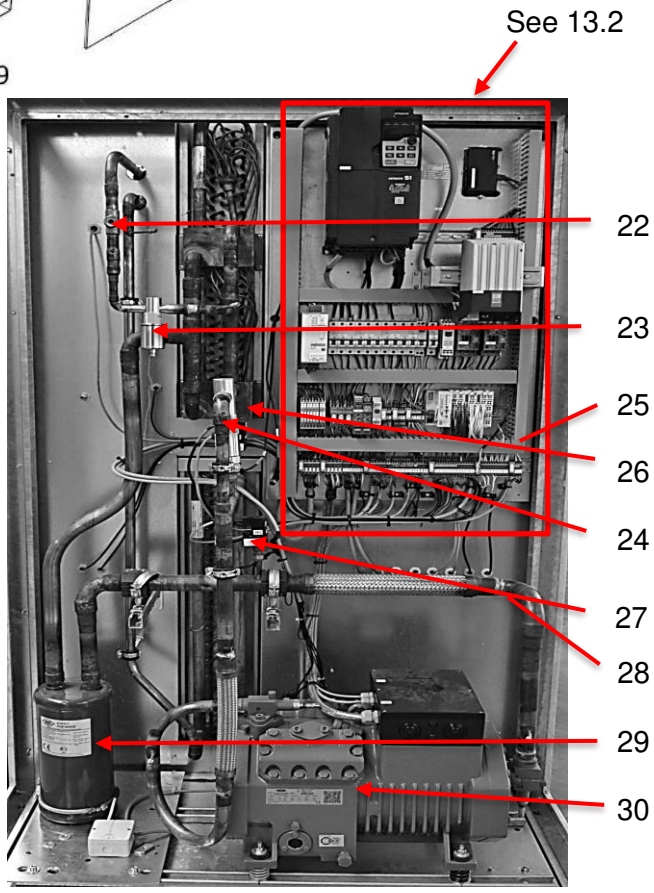
Backnang, May 4th, 2022

13 Exploded view and spare parts list

13.1 Housing / mechanical components

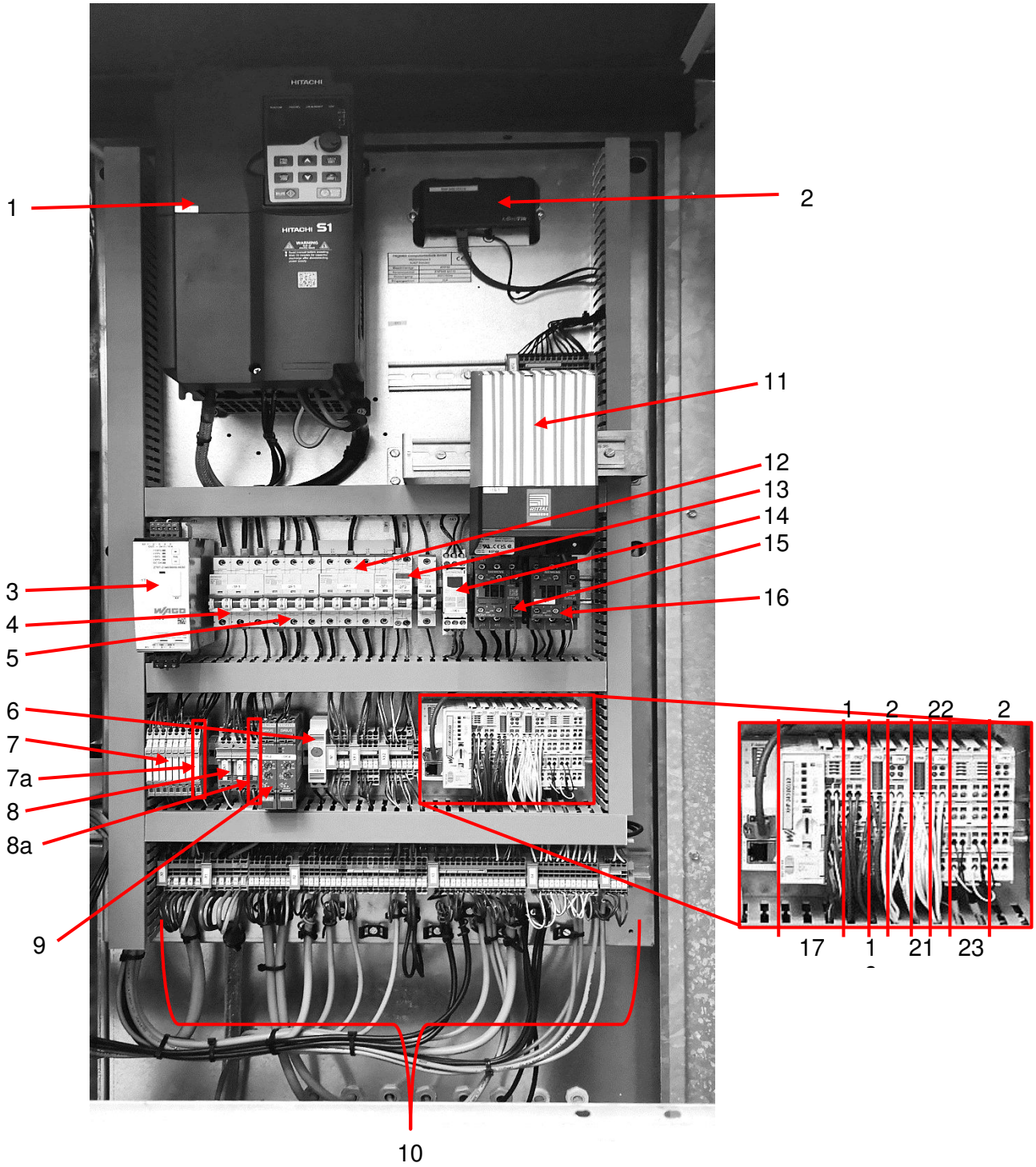






Pos.	Description	Article no.
1.		
2.	Heating element	301141
3.	Front service door	115674-01
4.	Front bottom panel	115675-01
5.	Side door (Control panel)	302004
6.	Slim bottom side panel (left side)	301679
7.	Cover	115683
8.	Terminal box	116948-01
9.	Base	301662
10.	Slim side panel (right side)	301676
11.	Ventilation panel (left & right)	115684-01
12.	Big bottom side panel (left & right)	115678-02
13.	Axial fan	116024-01
14.	Centrifugal fan	116022-02
15.	Back top panel	301678
16.	Intake baffle	115685
17.	Intake/outlet panel (back)	302005
18.	Guard grid	301068
19.	Collector	300731
20.	Solenoid valve	300818
21.	Filter dryer	300733
22	Inspection glass	300734
23	Expansion valve	300735
24	Alco control valve	301520
25	Low pressure switch; type PS3-W1	300743
26	Solenoid valve coil for bypass valve	300748
27	High-pressure switch; type PS3-W6S	300742
28	High pressure transmitter; type 0-25	300741
29	Liquid separator	300732
30	Reciprocating compressor	300728-01

13.2 Electrical components



Pos.	Description	Article No.
1.	Converter	301717
2.	Router	301735
3.	Power supply unit	301714
4.	Circuit breaker	301708
5.	Circuit breaker	301716
6.	heating thermostat	301710
7.	Switch relay	301721
7a.	Switch relay	301711
8	Switch relay	301719
8a.	Switch relay	301709
9.	Master relay	301712
10.	Clamp set	301725
11.	Control cabinet heating	301713
12.	Circuit breaker	301722
13.	FI/LS circuit breaker	301718
14.	Phase monitor	301707
15.	Power contactor	301703
16.	Power contactor	301723
17.	SPS control	301727
18.	SD-card	301728
19.	Digital I/O module	301729
20.	Digital I/O module	301730
21.	Analogue I/O module	301731
22.	Analogue I/O module	301732
23.	Analogue I/O module	301733
24.	Feed/segment module	301734
25.	Steppercontroller	301958

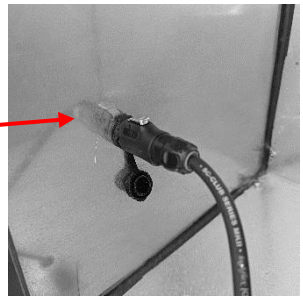
14 Accessories

14.1 External room thermostat (accessories)

Item number: 302443

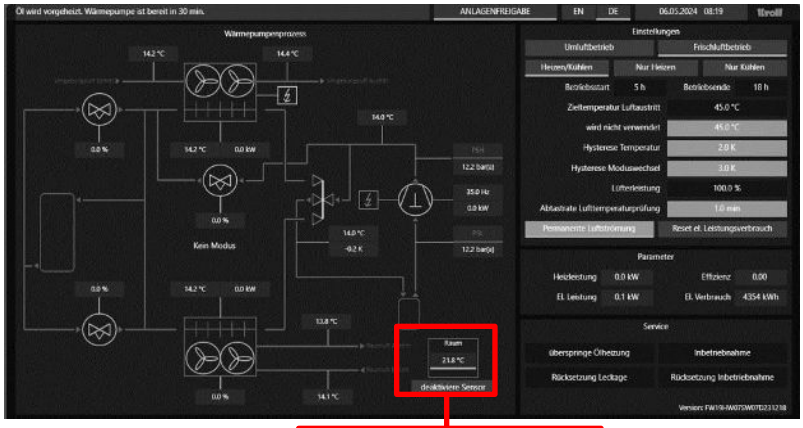
This room thermostat was designed for extreme conditions and is therefore extremely robust. The cable length is 20 meters.

The junction box for the room thermostat is located inside the main connection door.



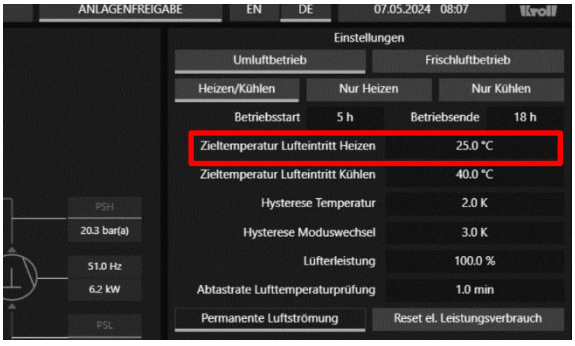
- Plug in the room thermostat until the spring clip fastens.
- To call up the WEB-Visu software, enter the following in the web browser: (WiFi or LAN)
  192.168.135.2/webvisu

As soon as the room thermostat has been connected, this is displayed in the WEB-Visu.



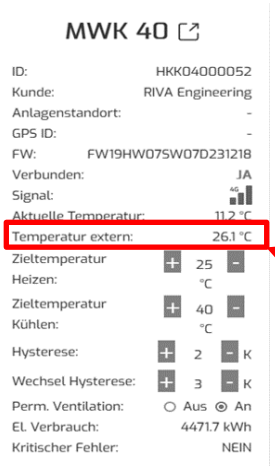
External Room Thermostate

If a blue bar can be seen below the temperature, the external room thermostat is active and displays the current ambient temperature. The button below the room temperature display can be used to activate or deactivate the room thermostate.
If the room thermostat is deactivated or defective the blue bar will go off. In this case, the temperature is monitored via the intake air opposite the radial fan.



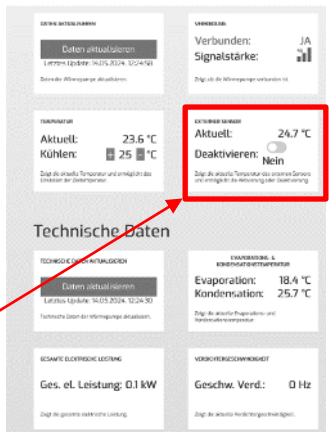
- Enter the desired temperature in the "Target temperature air inlet heating" or "Target temperature air inlet cooling".

The switch-off time of the system is influenced by the hysteresis setting.

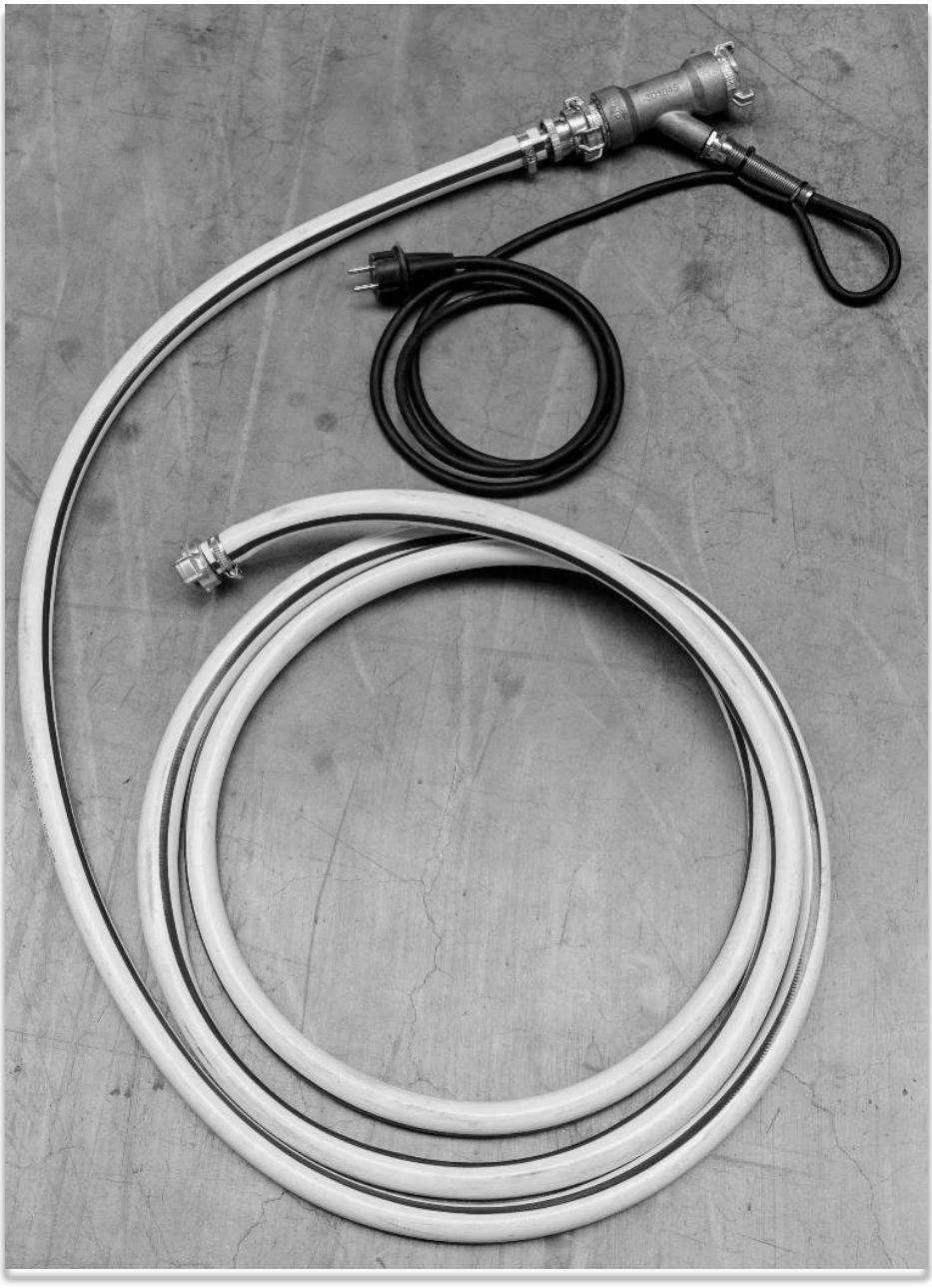


Set temperature via web app

- Log in to the web app
  webapp.kroll.de
- Call up the desired machine by clicking on it
- Enter the desired temperature in the "External temperature" field
- The room thermostat can also be activated and deactivated via the web app



14.2 Heated condensate hose (accessories)



Item number: 301701

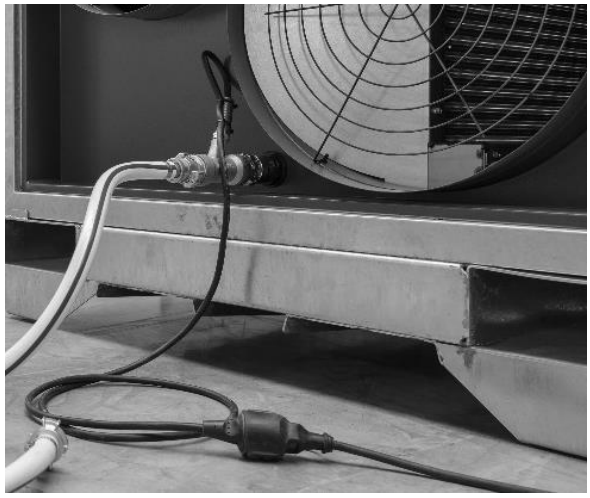
A heated condensate hose is required at an ambient temperature of 5°C and below. The heated condensate hose ensures that the condensate drains off reliably and does not freeze. This prevents damage to the inside of the system.

The heating unit integrated in the hose guarantees frost protection at outside temperatures of up to -**20°C.** The heated condensate hose has a length of approx. 5 metres.

- Screw the adapter piece for the quick coupling onto the condensate drain connection and seal it.
- Position the flange and connect it by turning it half a turn clockwise. (bayonet lock).
- Connect the heating unit to an external 230V power source.

Do not shorten the condensate hose. The internal heating unit is approximately the same length and will be destroyed as a result.

The condensate hose must not be higher than the condensate nozzle to ensure that the condensate can drain.



Many and/or tight kinks in the condensate hose can impair the drainage of the condensate. Ideally, the condensate should be able to drip off from a height of approx. 10 cm at the end of the condensate hose.

15 Service documentation

Date of reported fault	Cause	Measure / Use of materials	Person

Date of reported fault	Cause	Measure / Use of materials	Person

Date of reported fault	Cause	Measure / Use of materials	Person

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Any use, installation, maintenance that is not effected according to the rules as asserted in the technical manual, or unauthorized modifications on the original version as delivered from manufacturer leads to expiration of any right to warranty.
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Technical modification for product improvement are subject to change without notice.

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