

Recirculating Chiller

Hei-CHILL 400 Pro 115 V / 60 Hz

A FRYKA-Kältetechnik GmbH product
distributed by Heidolph Scientific Products GmbH

Operating instructions

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EN | Translation of the original operating instructions

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1 SAFETY

1.1 GENERAL SAFETY INSTRUCTIONS

- ▶ Read these operating instructions carefully! It is part of the device and contains important information about the device. Keep all documents easily accessible in the immediate vicinity of the device for later use.
- ▶ Make sure that the persons responsible for the device and the users have read and understood the operating instructions completely. Observance of the operating instructions is a basic prerequisite for safe operation of the device and for achieving the specified product characteristics and performance features.
- ▶ FRYKA-Kältetechnik GmbH accepts no liability for personal injury, damage to property or financial loss resulting from non-observance of the operating instructions. Liability for material defects is excluded in such cases.
- ▶ Even when used as intended, hazards cannot be completely ruled out. Despite constructive measures, residual risks remain due to the technical features and the area of application of the device, especially thermal and electrical hazards. Warnings about these residual risks are given on the device and in these operating instructions, as well as possible consequences of non-observance and measures to avoid the hazards. Follow all instructions given.


1.2 EXPLANATION OF SAFETY INSTRUCTIONS

These operating instructions use safety instructions. These are identified by a warning sign and a signal word. The signal word describes the severity of the hazard. Follow all instructions, as well as the associated measures to avoid the hazard, to ensure safe operation of the device.


- ▶ DANGER describes an imminently hazardous situation for the life and health of persons (serious injury or death).

 DANGER	Type / source of danger
	Possible consequences of non-observance
	▶ Measures to avoid the danger

- ▶ WARNING describes a possibly imminent hazardous situation for the life and health of persons (serious injury or death).

 WARNING	Type / source of danger
	Possible consequences of non-observance
	▶ Measures to avoid the danger

- ▶ CAUTION describes a possible impending hazardous situation for the life and health of persons (minor injuries).




 CAUTION	Type / source of danger
	Possible consequences of non-observance
	▶ Measures to avoid the danger

- ▶ NOTICE describes a situation that may lead to damage to property.

NOTE	Type / source of danger
	Possible consequences of non-observance
	▶ Measures to avoid the danger

1.3 SAFETY SYMBOLS


The following pictograms are used on or in the device:

Pictogram	Description
	Refer to instruction manual
	General warning sign Refer to the operating instructions to find out about the type of potential hazard and the measures to avoid it.
	Flammable substances

1.4 INTENDED USE


The **intended use** is the temperature control and circulation of suitable, non-flammable coolants in a closed temperature control circuit in the commercial or industrial sector.

Any use that deviates from this is considered **non-intended** and may impair the protection provided by the device. Among others, the following **reasonably foreseeable misuses** are included.

 **WARNING** **Non-intended use**
Personal injury or property damage


- › Only use the device for its intended purpose in accordance with these operating instructions.

- › Installation or operation in a potentially explosive atmosphere.
- › Installation or operation in damp rooms or outdoors.
- › Use in the household.
- › Use as a medical device within the meaning of Regulation (EU) 2017/745.
- › The cooling of food.
- › Use with an open temperature control circuit.
- › Operating the device with unsuitable coolant.
- › Operating the device without coolant.
- › Operating the device with components in the external temperature control circuit that cannot withstand the pressures of the device.

 **WARNING** **Operation not in accordance with the intended use due to insufficient qualification**
Personal injury or property damage


- › The device may only be operated by sufficiently qualified persons who have been instructed in its operation. The operating personnel must have read and understood the safety instructions in these operating instructions.
- › This device is not intended for persons with physical, sensory or mental impairments, or persons who do not have sufficient experience and knowledge, unless they have been instructed in the use of the device and initially supervised by a person responsible for their safety.

No modifications may be made to the device by third parties. The manufacturer accepts no liability for damage caused by technical modifications to the device, improper handling, misuse or use of the device in disregard of the operating instructions.

 WARNING	<p>Improper tampering or repairs</p> <p>Personal injury or property damage</p> <ul style="list-style-type: none"> › Only have modifications, repair or maintenance work carried out by the manufacturer or by specialist personnel trained or authorised by the manufacturer.
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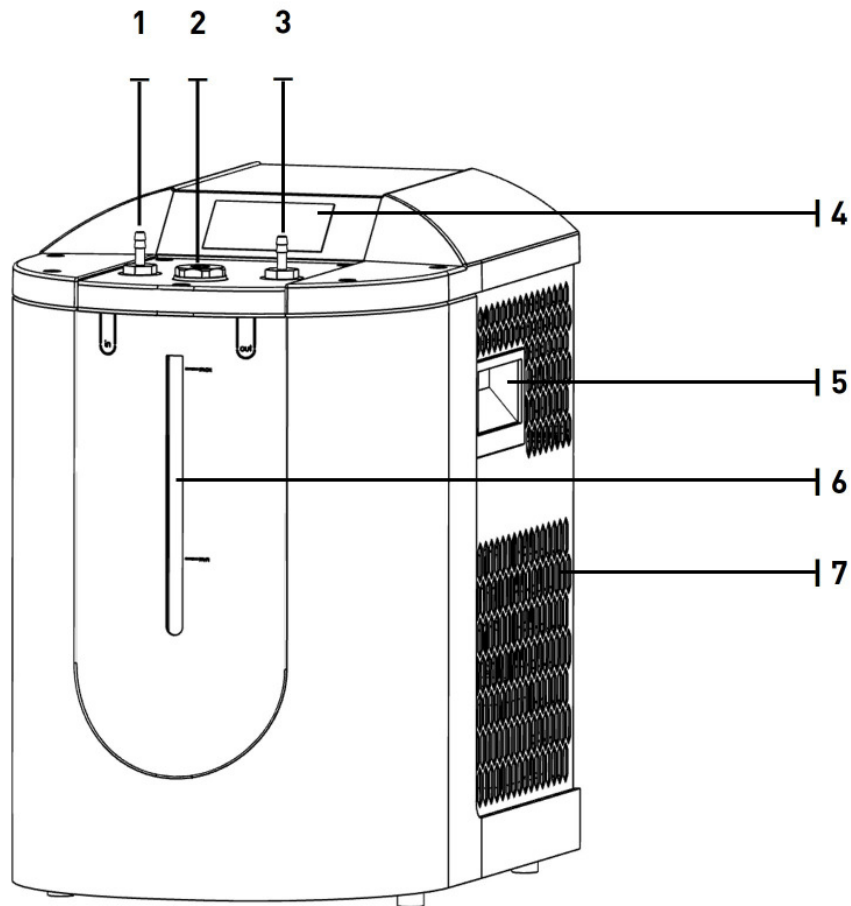
1.5 DEVICES WITH FLAMMABLE REFRIGERANT

The present device operates with environmentally friendly, energy-efficient refrigerant that has the property of flammability. The refrigeration circuit is designed to be permanently technically tight and has been tested for leaks. Observe the following safety instructions to minimise the residual risks that exist despite the inherently safe design.

 DANGER	<p>Explosion or ignition of leaking refrigerant</p> <p>Serious injuries, possibly resulting in death</p> <ul style="list-style-type: none"> › Do not damage the refrigeration circuit. › In case of damage to the refrigeration circuit: <ul style="list-style-type: none"> - Keep open flames or ignition sources away from the device. - Ventilate the room for several minutes. - Switch off the device. - Notify the manufacturer. - Do not discharge the refrigerant into drains or rooms where there is a risk of explosion. - Observe the information on minimum room <i>size</i> (Chapter "<i>Setting up the device</i>" see page 11).
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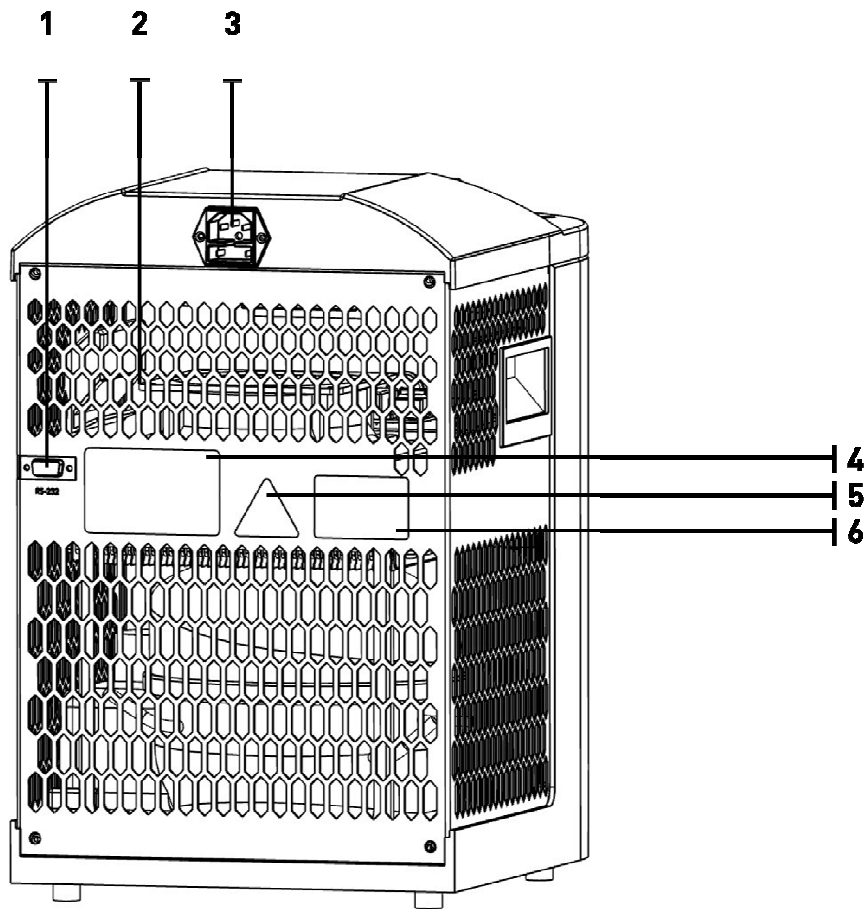
2 DEVICE DESCRIPTION

2.1 OVERVIEW OF DEVICE ELEMENTS



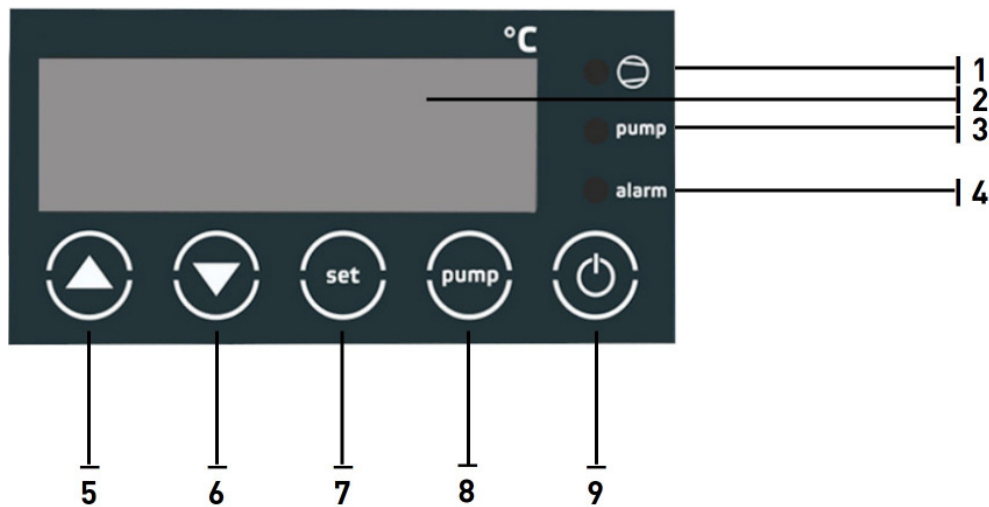
Front view

1	Inlet of the coolant at the recirculating chiller
2	Filler neck with screw plug
3	Outlet of the coolant at the recirculating chiller
4	Control
5	Handles
6	Level indicator
7	Ventilation openings



Rear view

1	Interface RS-232
2	Ventilation openings
3	Mains connection with device fuses
4	Type plate
5	Safety sign (warning of flammable substances)
6	Safety sign (warning open housing)



View of the control

1	Compressor operation indicator
2	Display
3	Pump operation indicator
4	Alarm indicator
5	"arrow up" button
6	"arrow down" button
7	"set" button
8	"pump" button
9	"on/off" button

2.2 REFRIGERATION UNIT

Temperature control circuit

The temperature control circuit of the recirculating chiller consists of

- ▶ a tank in which the coolant is cooled, including a filler neck
- ▶ a pump that circulates the coolant (not self-priming)
- ▶ hose connections to connect the external part of the circuit (customer side)

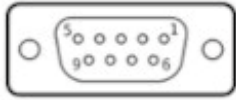
Refrigeration circuit

The refrigeration circuit consists of a permanently technically tight circuit filled with refrigerant. The elementary components are:

- ▶ Compressor: The compressor draws in the gaseous refrigerant and increases the pressure and temperature.
- ▶ Condenser: In the condenser, the heat of the refrigerant is released into the ambient air and the refrigerant condenses. Ventilation is provided by a fan.
- ▶ Expansion element: The pressure and temperature of the refrigerant is reduced at the capillary tube.
- ▶ Evaporator: The evaporator (tube heat exchanger) is located in the tank with the coolant. The evaporation of the refrigerant extracts heat from the coolant so that it cools down.

The temperatures for controlling the refrigeration circuit are measured via a PT 100 temperature sensor.

2.3 INTERFACE



Connection via RS232

The 9-pin D-SUB socket is used to connect a Heidolph control.
(Length of the connection cable max. 3m)

2.4 EMC INFORMATION


This device is suitable for household use (Class B) in terms of electromagnetic compatibility as well as in industrial electromagnetic environment (class A).


The device has been tested according to the following standards:

- DIN EN IEC 61000-6-2
- DIN EN IEC 61000-6-3

3 COMMISSIONING


3.1 SETTING UP THE DEVICE

 DANGER	<p>Explosion or ignition of leaking refrigerant Serious injuries, possibly resulting in death</p> <ul style="list-style-type: none"> ▶ The device should not be installed in another system (e.g. plant, machine, enclosure or similar). In the event of a leak in the refrigeration circuit, escaping refrigerant may collect in the system and form an explosive atmosphere. Installation of the device in another system may result in hazards caused by the other system which cannot be controlled by FRYKA. The operator / installer of the overall system is responsible for the safety of the overall system. Ensure that no explosive atmosphere can form when the device is installed in another system if there is a leak in the refrigeration circuit of the device. To do this, observe the instruction on room size below. ▶ Do not cover any fan/ventilation openings in the housing or in the system intended for installation. ▶ After installing the device, wait at least 1 hour before connecting and operating the device. Damage to the refrigerant circuit during transport may result in refrigerant leakage.
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 DANGER	<p>Explosion or ignition of leaking refrigerant Serious injuries, possibly resulting in death</p> <ul style="list-style-type: none"> ▶ Prevent the formation of an explosive atmosphere of more than 8g refrigerant per m³ room air: ▶ Determine the minimum room size based on the refrigerant quantity in the refrigerant circuit (see type plate). ▶ Only install the device in a sufficiently large room. ▶ Take furniture and inventory into account in the calculation, as these reduce the room air volume. ▶ Example: The minimum volume of the installation room in m³ is calculated from the refrigerant quantity (g) / 8g/m³. For a refrigeration circuit with 100g refrigerant this means: 100g / 8g/m³ = 12.5m³. With a standard room height (2.40 m), this corresponds to a floor area of 5.2m². In the case of added rooms, it is recommended to double the floor space, i.e. a minimum floor space of 10.4m² results.
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Installation conditions valid for safe operation:


- ▶ Indoors only
- ▶ Installation altitude up to 2000 m above sea level
- ▶ Ambient temperature/humidity: 5°C to 31°C relative humidity ≤ 80%, decreasing linearly up to 50% relative humidity at 40°C.
- ▶ Pollution degree 2 (DIN EN 61010-1)
- ▶ Supply voltage fluctuations up to 10% of the nominal voltage


 CAUTION	Overturning, falling or rolling away of the device
	Impact/crush <ul style="list-style-type: none"> › Set up the device together with a second person on a level and even surface. › Ensure that the surface is non-slip and has sufficient load-bearing capacity. › Make sure that the device is stable. › Do not tilt the device. › Lock the brakes on the castors if available.

- › Only set up the device in a suitable location.
- › The installation location must not be exposed to direct sunlight and must not be near a heat source such as radiators.
- › Set up the device in such a way that optimum ventilation is ensured so that the waste heat generated can be dissipated. To do this, keep at least 30 cm away from the nearest object (wall, etc.) at the ventilation openings.

NOTE	Unsuitable installation location
	Defect of the device <ul style="list-style-type: none"> › Avoid excessive heat load. › Ensure adequate ventilation of the device. › Do not cover the ventilation openings. › Do not operate the device in an inclined position.

3.2 CONNECTING THE EXTERNAL TEMPERATURE CONTROL CIRCUIT


 WARNING	Bursting of components in the external temperature control circuit
	Frostbite, cutting <ul style="list-style-type: none"> › Before commissioning, determine the max. permissible pressure for the external circuit. This is determined by the weakest link (e.g. glass apparatus). Make sure that this is higher than the maximum pressure of the circulation pump. › Prevent the hoses from kinking.


 CAUTION	Leakage of coolant due to unsuitable or defective hoses/hose connections
	Frostbite <ul style="list-style-type: none"> › Only use thermally insulated hoses and hose connections approved for the temperature range, coolant and pressures. › Check the hoses for material fatigue at regular intervals and replace them if necessary. › Secure the hoses at the connections with hose clamps against slipping off.

Make the connection to your application using hoses:
 These must be pressure-resistant up to at least 5 bar and suitable for the temperature range and the coolant used. Suitable hoses are available from the manufacturer as accessories.

- › Connect the left-hand hose connection (IN) to the return of your system.
- › Connect the right-hand hose connection (OUT) to the flow of your system.
- › Secure the hoses at the hose connections with hose clamps.
- › Check the tightness and firm fit of the hose clamps.

3.3 CONNECTING THE DEVICE

 DANGER	<p>Explosion or ignition of leaking refrigerant due to damage to the refrigeration circuit during transport.</p> <p>Serious injury, possibly resulting in death.</p> <ul style="list-style-type: none"> › Wait at least 1 hour after setting up the device before connecting it and putting it into operation.
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 DANGER	<p>Incorrect electrical connection</p> <p>Fire or electric shock</p> <ul style="list-style-type: none"> › Only connect the device directly to a properly installed socket outlet with a protective earth contact. › The socket must be fused with a maximum of 16A slow-blow. › Check the device for damage before each use. › Only use cables approved by the manufacturer. › Detachable supply cables must not be replaced by inadequately dimensioned supply cables. › Do not operate the device if it is damaged or has a damaged supply cable. › Have damaged supply cables replaced by a qualified electrician.
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NOTE	<p>Connection to impermissible mains voltage, current type or frequency</p> <p>Defect of the device</p> <ul style="list-style-type: none"> › Operate the device only with the mains voltage, current type and frequency specified on the type plate.
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- › The mains connection is located on the back of the device.
- › Connect the mains cable supplied first to the mains connector plug and then to the mains socket of the house installation.
- › The mains connection serves as a mains disconnection. Position the device so that access is easy and disconnection from the mains is not difficult.

3.4 COOLANT

The coolant used must meet certain requirements. Therefore, only use the non-flammable coolant HKF 15.1 POF ECO provided by the manufacturer to ensure optimum and safe operation of the device. If a different coolant is used, there is no warranty or liability for damage.

 CAUTION	<p>Non-observance with the instructions in the safety data sheet of the temperature control fluid.</p> <p>Injuries</p> <ul style="list-style-type: none"> › Follow the instructions in the safety data sheet of the coolant, in particular the instructions on the use of suitable personal protective equipment (PPE), especially the wearing of safety goggles, protective gloves and protective clothing.
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NOTE	<p>Use of the recommended coolant outside the approved specifications</p> <p>Defect of the device</p> <ul style="list-style-type: none"> › The coolant supplied is not suitable for steel and galvanized steel and must therefore not come into contact with these materials in the entire circuit. › The coolant supplied may only be used undiluted. Do not mix the temperature control fluid with tap water. › Check the pH value of the coolant supplied annually. If the value is below 7 (acidic), the coolant must be replaced to prevent damage to the temperature control circuit. Replace the coolant at the latest when it becomes very discoloured, smells or the tempering fluid circuit becomes clogged. › Protect the coolant from sunlight.
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3.5 FILLING THE DEVICE AND SWITCHING ON FOR THE FIRST TIME

**Coolant in the device****Fire/electric shock**

- › Do not fill the device via a water pipe, the pressure will destroy the heat exchanger.
- › Do not overfill the device. Observe the fill level indicator.
- › Do not pour any coolant over the device.

After the external circuit has been established, you can fill the device with coolant:

- › Remove the screw plug from the filler neck on the top of the device and fill with coolant.
- › Observe the level indicator during the filling process. The device must be filled with a quantity of coolant between 3.0 and 4.0 litres, at most up to the "max" mark.
- › Now switch on the recirculating chiller. To do this, press the "on/off" button.
- › The display now shows the current temperature of the coolant and the refrigeration unit starts operating.
- › Press the "pump" button to switch on the pump.
- › The level drops because the filled-in coolant is now pumped into the external circuit.
- › Fill up with coolant until the external circuit and the recirculating cooler are filled to the "max" mark.
- › Replace the sealing plug. The device is now ready for operation.

4 CONTROL AND OPERATION

4.1 CONTROL

The device is in standby mode after the mains connection has been established.

Switch on: Press the "on/off" button.

The current temperature of the coolant is shown in the display and the refrigeration unit goes into operation.

Switch on the pump: Press the "pump" button to start circulation of the coolant. Make sure that the temperature control circuit is not blocked, e.g. by kinked hoses.

Set the desired temperature:

The desired temperature is displayed when you press the "set" button.

To change the desired temperature, use the "arrow up" or "arrow down" button while pressing the "set" button.

Switching off: Press the "on/off" button.

The pump and cooling are then switched off.

4.2 COOLANT LEVEL

The fill level of the coolant is visible behind the blue viewing window in the housing.

- "min": Minimum fill level of the device. Reduced cooling capacity.

- "max": Maximum fill level of the device. Full cooling capacity.

If the fill level is below the "min" mark, an alarm message is given. "FLO" flashes in the display and an alarm tone sounds.

The alarm only sounds when the device is in operation, not in standby mode. The alarm tone can be temporarily silenced by pressing the "arrow down" button.

To protect against a defect, the refrigeration unit and pump are switched off.

- ▶ Refill with *coolant* (Chapter "*Filling the device and switching on for the first time*" | see page 14).

When the minimum fill level is reached, the refrigeration unit and the pump are set to the operating state that was active before the alarm.

5 MAINTENANCE

⚠ DANGER	<p>Live parts / moving parts</p> <p>Electric shock / injuries</p> <ul style="list-style-type: none"> › Disconnect the device from the mains before carrying out any maintenance work.
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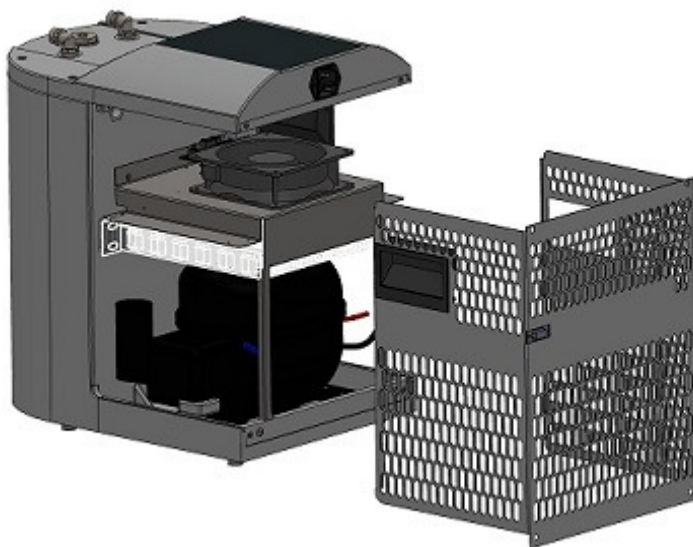
5.1 CLEANING THE CONDENSER

⚠ DANGER	<p>Explosion or ignition of leaking refrigerant</p> <p>Serious injuries, possibly resulting in death</p> <ul style="list-style-type: none"> › Maintenance work may only be carried out by instructed, competent personnel. › Do not damage the condenser or other parts of the refrigeration circuit piping.
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⚠ CAUTION	<p>Type / Source of danger</p> <p>Possible consequences of non-observance</p> <ul style="list-style-type: none"> › Measures to avoid the danger
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NOTE	<p>Dirty condenser fins</p> <p>Overheating and defect of the device</p> <ul style="list-style-type: none"> › Depending on the degree of soiling at the installation site, but at least every 6 months, clean the condenser of the device.
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- › Switch off the device.
- › Disconnect the device from the mains.
- › Loosen the fixing screws of the grille at the back.
- › Pull the grille off to the rear.
- › The condenser is mounted horizontally above the compressor (white highlighting).
- › Clean the condenser with compressed air or a vacuum cleaner with brush attachment.
- › Replace the front grille.



5.2 CLEANING THE DEVICE

 DANGER	<p>Liquid in the device</p> <p>Electric shock</p> <ul style="list-style-type: none"> ▸ Do not spill liquid on the device.
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- Switch off the device.
- Disconnect the device from the mains.
- Wipe the device with a damp cloth. Do not use any aggressive cleaners or cleaning agents containing solvents on the plastic surfaces.

5.3 CHECKING THE COOLANT

Check the pH value of the coolant supplied annually. If the value is below 7 (acidic), the coolant must be replaced to prevent damage to the temperature control circuit.

Replace the coolant at the latest when it becomes very discoloured, smells or the temperature control circuit becomes clogged.

6 TROUBLESHOOTING

 DANGER	<p>Live parts / moving parts</p> <p>Electric shock / injuries</p> <ul style="list-style-type: none"> ▸ Disconnect the device from the mains before carrying out any repair work.
 WARNING	<p>Improper tampering or repairs</p> <p>significant personal injury and/or damage to property</p> <ul style="list-style-type: none"> ▸ Repair work or tampering with the refrigeration unit may only be carried out by the manufacturer or by qualified personnel authorised by the manufacturer. ▸ Components and parts of the refrigeration circuit must be replaced with original parts to avoid the risk of possible refrigerant ignition.
 CAUTION	<p>Components with high temperature</p> <p>Burning</p> <ul style="list-style-type: none"> ▸ Bring the device to room temperature before starting work.

- In the event of an error, an optical and acoustic alarm is emitted.
- The corresponding message is shown on the display.
- An overview of status and error messages can be found in the table at the end of this chapter.
- For further information and help with faults and error messages, please contact the manufacturer.

6.1 INTERNAL THERMAL PROTECTION

The compressors of the refrigeration unit are equipped with internal thermal protection. This switches off the compressors and consequently the cooling if there is overheating. As a result, the actual temperature increases and a temperature alarm follows.

Check the following possible causes:

- Is the condenser dirty?
- Is the ambient temperature too high?
- Is optimal ventilation of the device ensured?
- Are the fans operating?
- The cooling is switched on again automatically after the compressor has cooled down (approx. one to two hours).
- You can obtain an overview of the status and error messages in the following table.
- You can obtain additional information and help when there are malfunctions and error messages from the manufacturer.

6.2 HIGH PRESSURE SWITCH

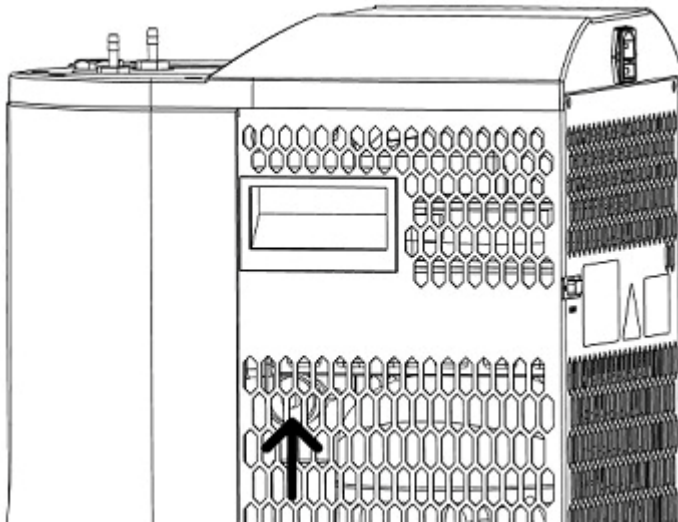
The refrigeration circuit is protected against excessive pressure by a high pressure switch with a manual reset. If the pressure is too high, this switches off the compressor. The actual temperature then rises and a temperature alarm is triggered.

Check the following possible causes:

- Is the condenser dirty?
- Is the ambient temperature too high?
- Is optimal ventilation of the device ensured?
- Are the fans operating?

After the causes that led to the triggering of the high pressure switch have been eliminated, the high pressure switch must be reset manually.

- ▶ This is located on the right side of the device and can be pressed through the ventilation openings.
- ▶ Press the reset button with a thin but not pointed object.



6.3 STATUS AND ERROR MESSAGES

Fault/error message	Description	Cause	Remedy
.	luminous LED dot in the display	Device is in standby mode.	Press the "on / off" button to turn on the device.
Temperature display flashes, Alarm tone sounds: 1 s on - 1 s off "Alarm" LED is lit.	The temperature of the coolant is outside the working temperature range	The temperature of the coolant deviates more than the permitted tolerance from the working temperature range. Default setting: Alarm when falling below -12°C or exceeding +42°C	The alarm message is automatically deactivated when the temperature returns to the permitted temperature range between -10°C and +40°C.
F1H, display flashes Alarm tone sounds: 1 s on - 1 s off "Alarm" LED is lit.	Sensor error F1 (Sensor break)	Sensor F1 has a fault and must be replaced.	Please contact the manufacturer.
F1L, display flashes Alarm tone sounds: 1 s on - 1 s off "Alarm" LED is lit.	Sensor error F1 (Short circuit on the sensor)	Sensor F1 has a fault and must be replaced.	Please contact the manufacturer.
F3L, display flashes Alarm tone sounds	Boundary alarm: temperature to low	Electronic circuit defect	Send the device to the manufacturer for repair.
F3H, display flashes Alarm tone sounds	Boundary alarm: temperature to high	Device overheated	<ul style="list-style-type: none"> - Clean the condenser (Chapter "Cleaning the condenser" see page 16). - Ambient temperature too high (> 35°C)? - Is the chiller optimally ventilated? - The high pressure switch has tripped and must be reset (Chapter "High pressure switch" see page 18).
FLO Alarm tone sounds: 1 s on - 1 s of "Alarm" LED is lit.	Level of coolant too low.	There is too little coolant in the device. Refrigeration unit and pump were switched off.	Refill with coolant (Chapter " Filling the device and switching on for the first time " see page 14).
EP	Data loss in the parameter memory	Control contact 1 and 2 are de-energized.	Simultaneously press the arrow-up, arrow-down and "on / off" buttons.

After the error has been eliminated, the previously set display mode becomes active again.
The alarm tone can be switched off by pressing the "arrow-down" button.

7 DECOMMISSIONING | DISPOSAL

7.1 DRAINING THE COOLANT

! WARNING	<p>Contact with cold coolant</p> <p>Frostbite</p> <ul style="list-style-type: none"> › Bring the device with the coolant to room temperature before emptying.
! CAUTION	<p>Non-observance with the instructions in the safety data sheet of the temperature control fluid.</p> <p>Injuries</p> <ul style="list-style-type: none"> › Follow the instructions in the safety data sheet of the coolant, in particular the instructions on the use of suitable personal protective equipment (PPE), especially the wearing of safety goggles, protective gloves and protective clothing.

- ▶ Press the "pump" button to switch off the pump. The "pump" LED stops lighting up.
- ▶ Pull the hose off the left hose connection (IN).
- ▶ Place the end of the hose in a container that can completely absorb the coolant present in the entire temperature control circuit.
- ▶ Switch the pump on again. The coolant is now pumped into the container. If the level falls below the minimum level, the pump and refrigeration unit are automatically switched off and the alarm message "FLO" is displayed.
- ▶ Press the "on/off" button to switch off the device.
- ▶ The rest of the coolant can be poured out via the filler neck or remain in the device after closing the filler neck.
- ▶ Observe the instructions for disposal in the safety data sheet and any local regulations.

7.2 DEVICE DISPOSAL

Old devices are not worthless waste. Valuable raw materials can be recovered through environmentally sound disposal.



- ▶ FRYKA devices are marked with the symbol of the crossed-out wheeled bin with bar (electrical and electronic appliances placed on the market after 13.08.2005). The devices must be collected separately from unsorted municipal waste (household waste) in accordance with Directive 2012/19/EU.
- ▶ FRYKA devices are intended exclusively for commercial use and may therefore not be disposed of at public collection points (public waste disposal authorities).
- ▶ Dispose of the device properly via a primary treatment facility certified in accordance with the Electrical and Electronic Equipment Act (ElektroG) or contact the dealer or manufacturer from whom you purchased the appliance. FRYKA will take back devices of its own manufacture from the year of manufacture 2001 that were sold to commercial end customers and dispose of them properly. For this purpose, the end customer must return the devices free of charge and, before sending them, must free them from sources of infection or toxic substances and declare in a legally binding manner that the device is free from such harmful contamination.
- ▶ We are registered as a manufacturer with the "stiftung elektro-altgeräte register" under the registration number DE85076546.
- ▶ Please note the information on *shipping* (Chapter "*Packing and shipping*" | see page 23).

The device contains flammable refrigerants in a hermetically sealed circuit. Therefore, do not damage the disused device at the refrigeration circuit so that the contained refrigerant and oil cannot escape in an uncontrolled manner.

**Explosion or ignition of the refrigerant****Health damages**

- › Do not damage the refrigeration circuit.
- › Disposal may only be carried out by a specialist company.

7.3 DISPOSE OF PACKAGING

The packaging protects your device from damage in shipping. Please help: Dispose of the packaging in an environmentally friendly manner in accordance with the legal requirements.

8 TRANSPORT | PACKAGING | STORAGE


8.1 PACKING AND SHIPPING

If the device is to be transported or shipped, observe the following instructions:

- ▶ Follow the instructions in the chapter "Draining the coolant".
- ▶ Clean and decontaminate the device.
- ▶ Pack the device in the original packaging.
- ▶ Only ship the device upright, never lying down.
- ▶ Ship the device upright on a pallet by forwarding agent.

NOTE	<p>Unsuitable packaging and transport</p> <p>Defect of the device</p> <ul style="list-style-type: none"> ▶ Pack the device sufficiently securely. ▶ Transport the device according to the above specifications.
-------------	---

8.2 RETURNING GOODS

 WARNING	<p>Risk of poisoning or infection from toxic or infectious substances</p> <p>Damage to health</p> <ul style="list-style-type: none"> ▶ Never ship contaminated devices. ▶ Decontaminate the device from poisonous or infectious substances before shipment.
--	---

- ▶ If you are returning goods, e.g. for repair, please complete the **certificate of decontamination** (Chapter "**Certificate of decontamination**" | see page 32) and enclose it with the returned goods.

8.3 STORAGE

- ▶ Only store the device completely emptied and cleaned.
- ▶ If possible, pack the device in the original packaging or in similarly suitable packaging to avoid damage.

Storage conditions:

- ▶ In dry indoor rooms
- ▶ Upright, to avoid damage to the refrigeration circuit.
- ▶ Permissible ambient temperature: 5 to 40 °C
- ▶ Permissible ambient humidity: max. 70% relative humidity, non-condensing

9 TECHNICAL DATA

Working temperature range	-10°C bis +40°C
Control accuracy at -10°C	+/- 1 K
Display resolution	0,1 K
Cooling capacity	
at 20°C	400 W
at 10°C	350 W
at 0°C	250 W
at -10°C	80 W
Circulation pump	
Flow rate [max.]	6 l/min
Flow pressure [max.]	0,3 bar
Hose connections	1/4" female thread
Coolant tank	1,5 to 4,0 l
External dimensions [WxDxH]	260 x 370 x 405 mm
Installation dimensions [WxD]	660 x 570 mm
Weight	18 kg
Noise level [distance 1m]	47 dB(A)
Permitted ambient temperature range	5°C to 40°C
Max. temperature of coolant	60°C
Electrical connection	115 V / 60 Hz
Power consumption	280 W
Current [max.]	3,2 A
Protection class	IP 20
Class. acc. DIN 12876	I / NFL
Max. operating pressure	25 bar
Refrigerant	R290 (GWP 3*)

- ▶ The refrigeration circuit is permanently technically sealed and tested for tightness and overpressure resistance
- ▶ For filling quantities see the type label
- ▶ All data refer to nominal voltage and nominal frequency. Ambient temperature 20°C
- ▶ Technical data according to DIN 12876

* GWP: Global Warming Potential according to IPCC IV

9.1 SCOPE OF DELIVERY

Description	Quantity
Recirculating chiller	1
Mains cable	1
Operating instructions	1
Hose connections for hose diameter 8mm incl. sealing ring	2
Spanner for the filler neck screw plug	1
Bleed key	1

9.2 ACCESSORIES

Description
Coolant HKF 15.1 POF ECO 5 litres
Coolant HKF 15.1 POF ECO 2x5 litres

9.3 PARTS LIST

Code	Description
AS	Port D-SUB / RS 232
E1	Capillary
F1	Temperature sensor controller
Ft1	Filter dryer
G	Gateway
KS	Mains connection socket complete 6.3A
KS	Fuse 5/20 6.3A slow-blow
M1	Compressor
M2	Fan motor
M3+M4	Pump unit 1048 115V
PSH	Pressure switch
R	Mainboard
S	Float switch
WT1	Condenser
WT2	Heat exchanger

10 SERVICE

10.1 WARRANTY STATEMENT

Heidolph Scientific Products GmbH provides a three-year warranty against material and manufacturing defects. Glass and wear parts, transportation damage, and damage resulting from improper handling or non-intended use of the product are excluded from the warranty.

The warranty period for registered products begins on the date of purchase. Register the product with the enclosed warranty card or on our homepage www.heidolph.com.

For non-registered products, the warranty period begins with the date of the serial production (to be determined by the serial number).

In the event of material or manufacturing defects, the product will either be repaired or replaced free of charge within the warranty period.

10.2 CONTACT INFORMATION

Manufacturer and distributor

FRYKA-Kältetechnik GmbH
Ohmstraße 4
73730 Esslingen
Germany

Sales, Service und Support

Heidolph Scientific Products GmbH
Technical Service
Walpersdorfer Str. 12
D-91126 Schwabach/Deutschland
E-Mail: service@heidolph.de

Heidolph Instruments North America
E-mail: service@heidolph.com
www.heidolphNA.com

11 ANNEX

11.1 DECLARATION OF CONFORMITY



EG-KONFORMITÄTSERKLÄRUNG EC Declaration of Conformity

Hersteller: FRYKA-Kältetechnik GmbH
Manufacturer:
Anschrift: Ohmstraße 4, 73730 Esslingen, Deutschland
Address:
Produkt: Umlaufkühler
Product: *Recirculating Chiller*
Typen: Hei-CHILL 400 Pro 230V 50Hz, Hei-CHILL 400 Pro 115V 60Hz US
Types:
Seriennummer: ab 72250
Serial number: *from 72250*

Hiermit erklären wir in alleiniger Verantwortung, dass die genannten Maschinen in ihrer Konzipierung und Bauart, sowie in der von uns in Verkehr gebrachten Ausführung den einschlägigen Bestimmungen der folgenden Richtlinien entsprechen:

We hereby declare under our sole responsibility that the machines mentioned comply with the relevant provisions of the following directives in their design and construction as well as in the version placed on the market by us:

2006/42/EG <i>2006/42/EG</i>	Maschinenrichtlinie vom 17. Mai 2006 <i>Machinery Directive of 17 May 2006</i>
2014/30/EU <i>2014/30/EU</i>	EMV-Richtlinie vom 26. Februar 2014 <i>EMC DIRECTIVE of 26 February 2014</i>
2011/65/EU (EU) 2015/863 <i>2011/65/EU</i> <i>(EU) 2015/863</i>	RoHS-Richtlinie vom 8. Juni 2011 Delegierte (RoHS-) Richtlinie vom 31. März 2015 <i>RoHS Directive of 8 June 2011</i> <i>Delegated (RoHS-) Directive of 31 March 2015</i>

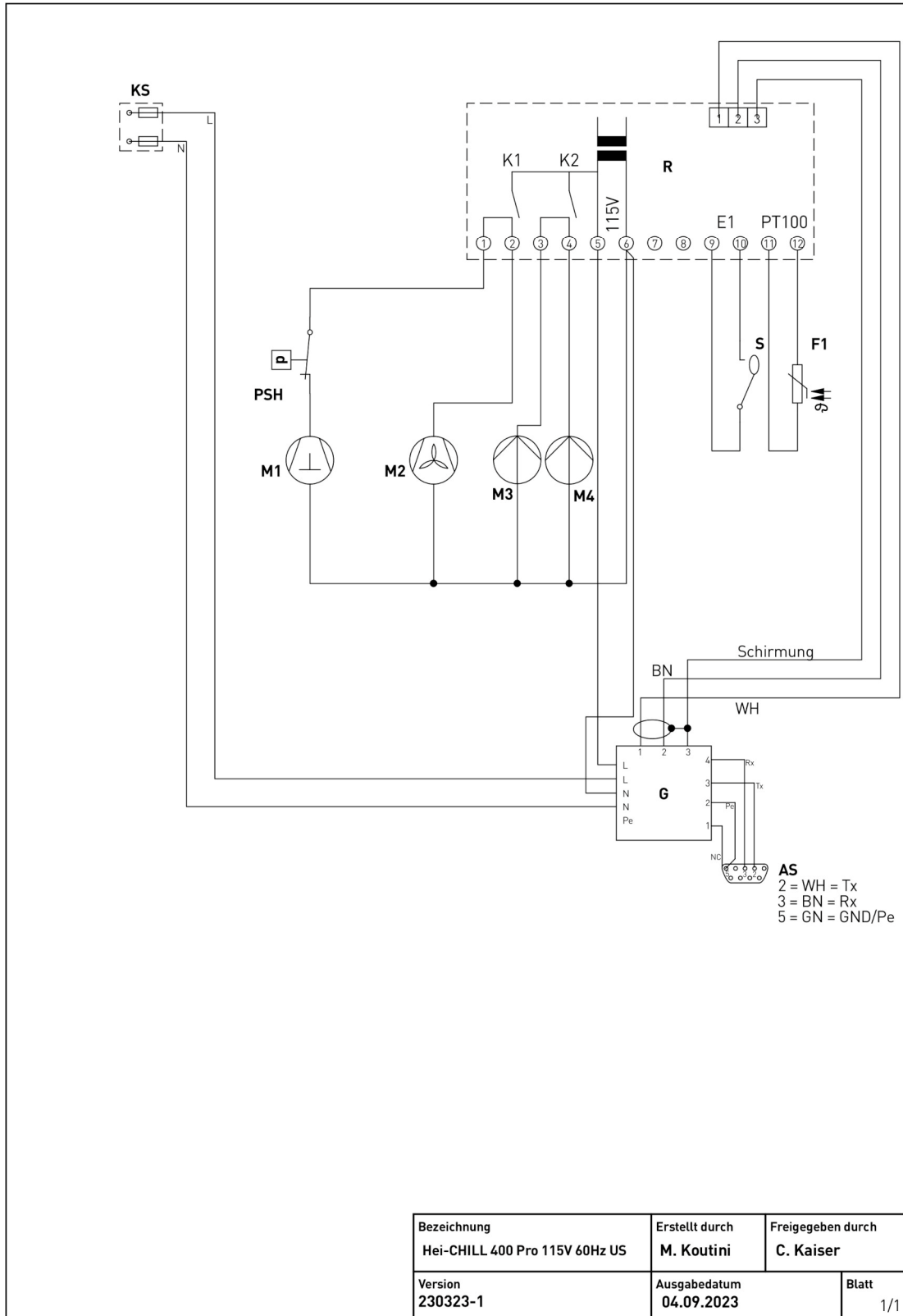
Bevollmächtigter für die Zusammenstellung
 der technischen Unterlagen:
Authorised representative for the compilation of the technical documentation:

FRYKA-Kältetechnik GmbH,
 Ohmstraße 4, 73730 Esslingen, Deutschland
 Ralph Kaiser

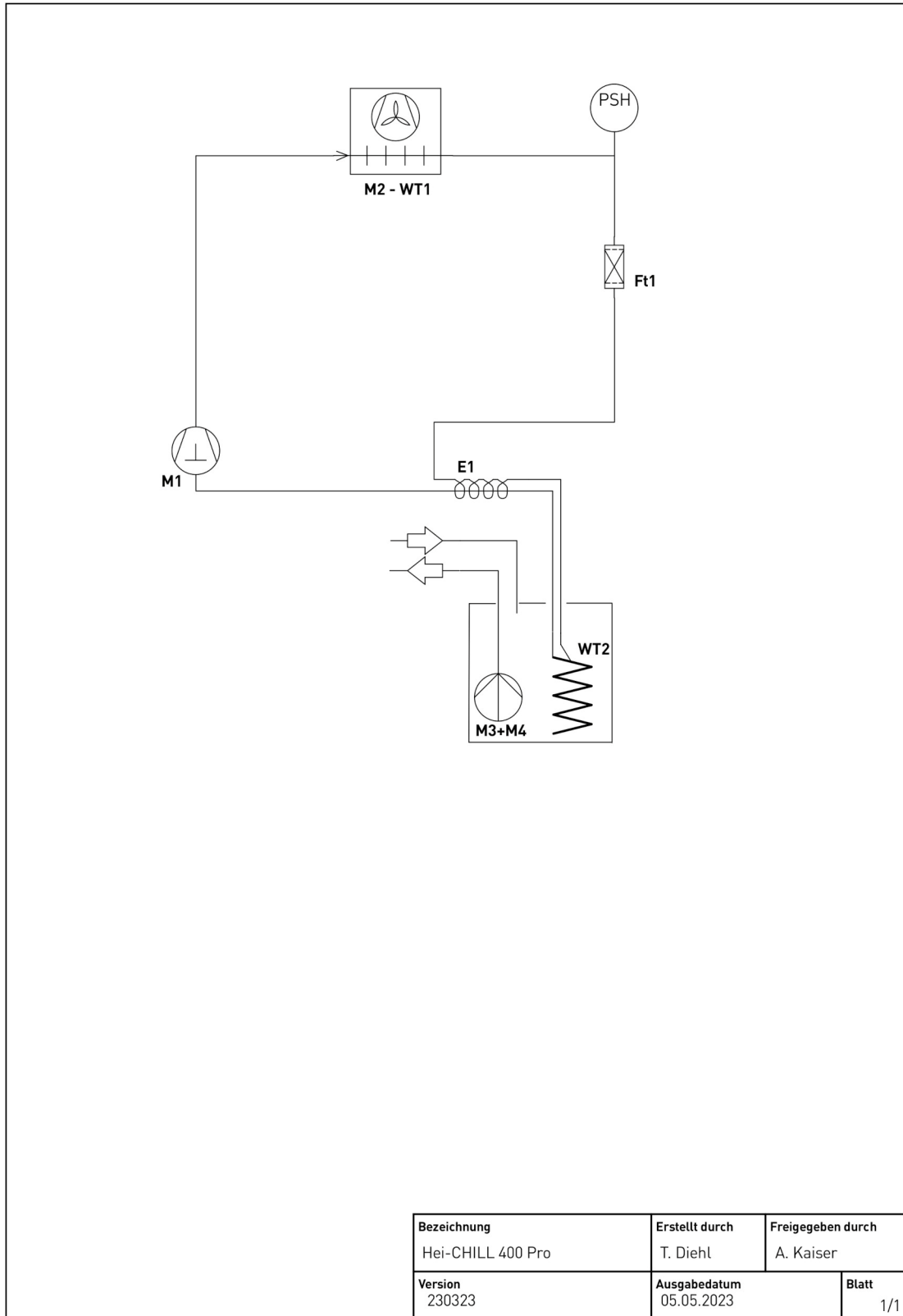
Esslingen, 01.08.2023


 Ralph Kaiser
 Geschäftsführer
(Managing director)

11.2 WIRING DIAGRAM



11.3 REFRIGERATION CIRCUIT



11.4 CHINA ROHS



CHINA ROHS DECLARATION OF CONFORMITY

FRYKA-Kältetechnik GmbH has made reasonable efforts to ensure that hazardous materials and substances may not be used in its products.

As defined in GB/T 26572 the "Maximum Concentration Value" limits [MCV] apply to these restricted substances:

- Lead (Pb): 0.1%
- Mercury (Hg): 0.1%
- Cadmium (Cd): 0.01%
- Hexavalent chromium [Cr(VI)]: 0.1%
- Polybrominated biphenyls (PBB): 0.1%
- Polybrominated diphenyl ether (PBDE): 0.1%

Environmental Friendly Use Period (EFUP)

EFUP defines the period in years during which the hazardous substances contained in electrical and electronic products will not leak or mutate under normal operating conditions. During normal use by the user such electrical and electronic products will not result in serious environmental pollution, cause serious bodily injury or damage to the user's assets. The Environmental Friendly Use Period for FRYKA-Kältetechnik GmbH products is 25 years.



此表格是按照 SJ/T 11364-2014 中规定制定。
This table is created according to SJ/T 11364-2014

MATERIAL CONTENT DECLARATION FOR FRYKA-Kältetechnik GmbH PRODUCTS							
有毒有害物质或元素 Hazardous substances							
部件名称 Part name	铅 Pb	汞 Hg	铬 Cd	六价铬 Cr(VI)	多溴联苯 PBB	多溴二苯醚 PBDE	环保期限 标识 EFUP
包装 Packaging	0	0	0	0	0	0	
金属外壳 Metal housing	0	0	0	0	0	0	
控制器/测量设备 Controller / measuring device	0	0	0	0	0	0	
金属部件 Metal parts	X	0	0	0	0	0	
电子电气组件 Electrical and electronic parts	X	0	0	0	0	0	
配件 Accessories	X	0	0	0	0	0	
制冷部件 Refrigeration components	X	0	0	0	0	0	



注释：此表格适用于所有产品。以上列出的原件或组件不一定都属于所附产品的组成。

Note: Table applies to all products. Some of the components or parts listed above may not be part of the enclosed product.

- O: 表示该有毒有害物质在该部件所有均质材料中的含量均在GB/T 26572规定的限量要求以下。
O: Indicates that the above mentioned hazardous substance contained in all homogeneous materials of the part is below the required limit as defined in GB/T 26572.
- X: 表示该有毒有害物质至少在该部件某一均质材料中的含量超出GB/T 26572规定的限量要求。
X: Indicates that the above mentioned hazardous substance contained in at least one of the homogeneous materials of this part is above the required limit as defined in GB/T 26572.

除上表所示信息外，还需声明的是，这些部件并非是有意图用铅(Pb)、汞(Hg)、铬(Cd)、六价铬(Cr(VI))、多溴联苯(PBB)或多溴二苯醚(PBDE)来制造的。

Apart from the disclosures in the above table, the subassemblies are not intentionally manufactured or formulated with lead (Pb), mercury (Hg), cadmium (Cd), hexavalent chromium (CrVI), polybrominated biphenyls (PBB), and polybrominated diphenyl ethers (PBDE).

Products manufactured by FRYKA-Kältetechnik GmbH may enter into further devices or can be used together with other appliances .

With these products and appliances in particular, FRYKA-Kältetechnik GmbH will not take responsibility for the EFUP of those products and appliances.

Esslingen, 27.03.2024

Achim Kaiser
Chief Executive Officer CEO

11.5 CERTIFICATE OF DECONTAMINATION

To avoid damage during shipping:
 - Only ship the device **well packaged**
 - Only ship the device **upright**
 - Only ship the device on a **pallet by shipping company**

CERTIFICATE OF DECONTAMINATION

Enclose the completed certificate of decontamination with the device you are returning to us. Returns without a certificate of decontamination cannot be processed!

SENDER	
Company	Name
Department	First name
Street	Phone
Post code	Email
City	
Country	

DEVICE DETAILS	
Device type	Serial no.
Remarks / fault description	

We hereby declare in a legally binding manner that

- the device has been completely emptied
- the device has been decontaminated/disinfected and cleaned
- there are no toxic, infectious or other hazardous substances in or on the device
- there is no risk to persons or the environment from hazardous substances

The sender is liable for any damage caused by incomplete or incorrect information.

_____	_____	_____	_____
Date	Name / Position	Signature	Company's stamp



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