



Inspired by temperature

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VPC-Bypass

Unmounted or with
connection set

This documentation does not contain a device-specific technical appendix.

You can request the full installation guide from info@huber-online.com. Please give the model designation and serial number of your temperature control unit in your e-mail.

huber



OPERATION MANUAL

VPC-Bypass

Unmounted or with
connection set

VPC Bypass

with connection set
or loose

(not mounted to the temperature control unit)

This installation guide is a translation of the original German installation guide.

APPLIES TO:

Order-No. – Connection set

9774, 9775, 9776, 9777, 9797, 9798, 9799, 9845, 9846, 9847, 9851, 9872,
9876, 9881, 9883, 9884, 9892, 9951, 9960, 10130, 10247, 10454, 10461

Order-No. – loose

9335, 9726, 9727, 9757, 9767, 9819, 9820

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Foreword

Dear Customer,

Thank you for choosing accessories from Peter Huber Kältemaschinenbau SE. You have made a good choice. Thank you for your trust.

Please read the installation guide carefully before putting it into operation. Strictly follow all notes and safety instructions.

Follow the installation guide with regard to transport, start-up, operation, maintenance, repair, storage and disposal of the accessory.

We fully warrant the accessory for the specified normal operation.

The component listed on page 5 is referred to in this installation guide as accessory and Peter Huber Kältemaschinenbau SE as Huber company or Huber.

Liability for errors and misprints excluded.

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1 Introduction

1.1 Details on the declaration of conformity




CE The equipment complies with the basic health and safety requirements of the European Directives listed below:

- Machinery Directive 2006/42/EC
- Low Voltage Directive 2006/95/EC
- EMC Directive 2004/108/EC

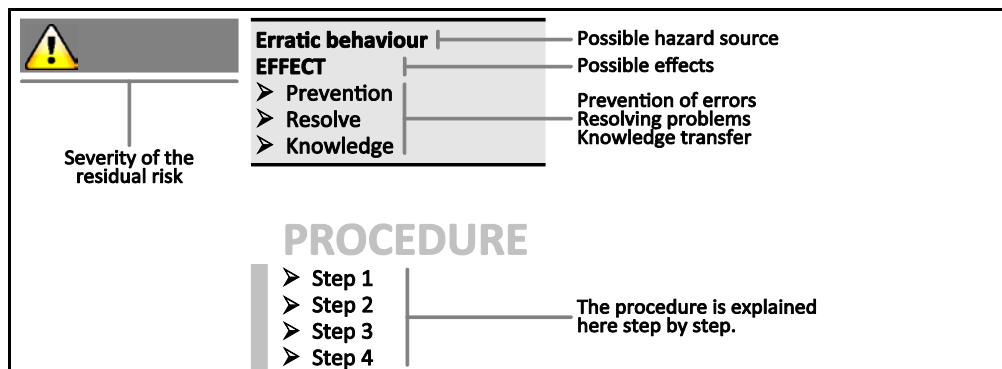
1.2 Safety

1.2.1 Symbols used for Safety Instructions

Safety instructions are marked by the below combinations of pictograms and signal words. The signal word describes the classification of the residual risk when disregarding the installation guide.

 DANGER	Denotes an immediate hazardous situation that will result in death or serious injuries.
 WARNING	Denotes a general hazardous situation that may result in death or serious injuries.
 CAUTION	Denotes a hazardous situation that can result in injury.
NOTE	Denotes a situation that can result in property material damage.
INFORMATION	Denotes important notes and usable hints.

Safety information and procedure



The safety information in the installation guide is designed to protect the responsible body, operator and the equipment from damage. Safety information must always appear **before** instructions and at the beginning of each chapter. First inform yourself about any residual risks due to misuse before you start an operation.

1.2.2 Safety during commissioning

The following chapters are only relevant for accessories in connection with a HUBER temperature control unit and apply in addition to the operation manual of the temperature control unit used. If you have any questions regarding the installation guide, please contact our Customer Support (see page 32 in section »Phone number and company address«). The installation guide is to be kept for future use.

1.2.3 Extension of specified normal operation

WARNING

Improper use

SERIOUS INJURY AND PROPERTY DAMAGE

- Keep the installation guide in close proximity to the temperature control unit and/or the accessory where it is easy to access.
- Only adequately qualified operators may work with the temperature control unit and/or the accessory.
- Operators must be trained before handling the temperature control unit and/or its accessories.
- Verify that the operators have read and understood the installation guide.
- Define precise responsibilities of the operators.
- Personal protective equipment must be provided to the operators.
- Be sure to follow the operator's safety rules to protect life and limb and to limit damages!

NOTE

Modifications to the accessory by third-parties

DAMAGE TO THE ACCESSORY AND THE TEMPERATURE CONTROL UNIT

- Do not allow third parties to make technical modifications to the accessories.
- The CE declaration of conformity becomes invalid if any modifications are made to the accessory without the manufacturer's approval.
- Only specialists trained by the manufacturer may carry out modifications, repairs or maintenance work.
- **The following must be observed without fail:**
- Only use the accessory in a fault-free condition!
- Have the start-up and repairs carried out by specialists only!
- Do not ignore, bypass, dismantle or disconnect any safety devices!

NOTE

A pressure-sensitive external application is run with the accessory without a rupture disc being installed

MATERIAL DAMAGE TO THE EXTERNAL APPLICATION

- To protect a pressure-sensitive external application (such as a glass apparatus), use a rupture disk in the supply line.
- Do not use accessories as a shut-off valve. The outputs cannot be completely closed due to the design.
- The external application can be damaged by excessive pressure if the return is closed.

When properly installed at the temperature control unit, the accessory is intended to permanently monitor and control the pressure of the **externally closed application**. The accessory itself can **not** be used without being connected to the temperature control unit. Otherwise the intended use applies as described in the temperature control unit's operation manual.

The accessory is not a safety device for the unrestricted protection of a pressure-sensitive external application (e.g. a glass apparatus). The maximum pump pressure may be applied to your external application if the accessory is defective. A sufficiently dimensioned rupture disc must be installed in the supply line (pressure side) to protect your external application. The installed rupture disc is destroyed in the event of a fault and thus protects the external application against damage. The approved temperature range is indicated on the nameplate of the accessory.

1.3 Responsible bodies and operators – Obligations and requirements

1.3.1 Obligations of the responsible body

Store the installation guide near the accessory where it is easy to access. Only adequately qualified operators (e.g. machine operators, chemists, chemical technical assistants, physicist etc.) may work with the accessory. Operators must be trained before handling the accessory. Verify that the operators have read and understood the installation guide. Define precise responsibilities for the operators. Personal protective equipment must be provided to the operators.

1.3.1.1 Proper disposal of resources and consumables

Do comply with all national disposal regulations applicable for you. Contact your local waste management company for any questions concerning disposal.

Overview	Material / Aids	Disposal / Cleaning
	Temperature control unit packaging material	Keep the packaging material for future use (e.g. transport).
	Thermal fluid	Please refer to the safety data sheet of the thermal fluid used for information on its proper disposal. Use the original thermal fluid container when disposing it.
	Filling accessories, e.g. beaker	Clean the filling accessories for reuse. Make sure that the materials and cleaning agents used are properly disposed of.
	Aids such as towels, cleaning cloths	Tools used to take up spilled thermal fluid must be disposed of in the same fashion as the thermal fluid itself. Tools used for cleaning must be disposed of depending on the cleaning agent used.
	Cleaning agents such as stainless steel cleaning agents, sensitive-fabrics detergents	Please refer to the safety data sheet of the cleaning agent used for information on its proper disposal. Use the original containers when disposing of large quantities of cleaning agents.
	Consumables such as air filter mats, temperature control hoses	Please refer to the safety data sheet of the consumables used for information on their proper disposal.

1.3.2 Requirements for operators

Work on the temperature control unit / accessory is reserved for appropriately qualified specialists, who have been assigned and trained by the responsible body to do so. Operators must be at least 18 years old. Persons under the age of 18 years may operate the temperature control unit / accessory only under the supervision of a qualified specialist. The operator is responsible for other people within the unit's working range.

1.3.3 Obligations of the operators

Carefully read the installation guide before handling the temperature control unit / accessory. Always observe the safety instructions. Wear appropriate personal protective equipment (e.g. safety goggles, protective gloves, non-slip shoes) when operating the temperature control unit / accessory.

2 Commissioning

2.1 In-plant transport

CAUTION

Accessories are not transported / moved according to the specifications in this installation guide
INJURIES DUE TO CRUSHING

- Always transport / move accessories according to the specifications in this installation guide.
- Wear personal protective equipment during transport.

CAUTION

The temperature control unit is transported / moved when the accessory is installed
INJURIES CAUSED BY TILTING THE TEMPERATURE CONTROL UNIT

- Remove the accessory before the temperature control unit is transported / moved.

NOTE

Accessories are transported in a horizontal position
PROPERTY DAMAGE

- Only transport accessories in an upright position.

- Protect accessories from transport damage.

2.2 Unpacking

WARNING

Using damaged accessories

MORTAL DANGER FROM ELECTRIC SHOCK

- Do not operate damaged accessories.
- Please contact Customer Support. The telephone number can be found on page 32, section »Phone number and company address«.

PROCEDURE

- Check for damage to the packaging. Damage can indicate property damage to the accessory.
- Check for any transport damage when unpacking the accessory.
- Always contact your forwarding agent regarding the settlement of claims.
- Follow the instructions on page 12, section »Proper disposal of resources and consumables« for the disposal of packaging material.

2.3 Ambient conditions

CAUTION

Unsuitable ambient conditions/unsuitable installation

SERIOUS INJURY DUE TO CRUSHING

- Comply with the requirements under sections »Ambient conditions« and »Installation conditions«.

INFORMATION

Make sure there is adequate fresh air available at the site for the accessory. The warm exhaust air must be able to escape upwards unhindered.

Use of the accessory is permitted only under normal ambient conditions in accordance with DIN EN 61010-1:2011:

- Use only indoors. The illuminance must be at least 300 lx.
- Installation elevation up to 2000 meters above sea level.
- Maintain wall and ceiling clearance for adequate air exchange (dissipation of waste heat, supply of fresh air for the accessory and work area). Ensure adequate floor clearance for air-cooled accessories. Do not operate the accessory from within the box or with an inadequately dimensioned bath as this inhibits the air exchange.

- Ambient temperature values are provided on the technical data sheet; to ensure trouble-free operation, compliance with the ambient conditions is mandatory.
- Relative humidity max 80% to 32 °C and 40 °C decreasing linearly to 50%.
- Short distance to supply connections.
- The accessory must not be installed so as to hinder or prevent access to the disconnecting device (to the power supply).
- Magnitude of the power supply fluctuations: see data sheet from page 33 in section »Annex«.
- Transient surges, as would normally occur in the power supply system
- Installation Class 3
- Applicable degree of soiling: 2.
- Surge category II.

Wall clearance to accessory

Side of accessory	Clearance to the accessory in cm
VPC bypass with connection set	
Top	Please refer to the operation manual of the temperature control unit used. The distance is increased by the contour of the accessory. See page 20 Section »Dimensions: Unistat with connection set« and page 21 Section »Dimensions: Unichiller with connection set«.
Front	
Right	
Left	
Rear	
VPC Bypass loose (not mounted to the temperature control unit)	
Top	free standing
Front	min. 20
Right	min. 20
Left	min. 20
Rear	min. 20

2.3.1 EMC-specific notes

These devices are suitable for the operation in “**industrial electromagnetic environments**”. It meets the “**immunity requirements**” of the currently applicable **EN61326-1**, which are required for this environment.

It also meets the “**interference emission requirements**” for this environment. It is a **Group 1** and **Class A** unit according to the currently applicable **EN55011**.

Group 1 specifies that high frequency (HF) is only used for the function of a device. **Class A** specifies the interference emission limits to be observed.

2.4 Installation conditions



WARNING

**The accessory is put onto the power supply line
DEATH FROM ELECTRICAL SHOCK BY DAMAGE TO THE POWER CABLE.**

➤ Do not put the accessory on power cables.

- Allow the accessory to acclimate for about 2 hours when changing from a cold to a warm environment (or vice versa). Do not turn on the accessory beforehand!
- Install upright, stable and without tilt.
- Use a non-combustible, sealed foundation.
- Keep the environment clean: Prevent slip and trip hazards.
- Wheels, if present, must be locked after the installation!

- Spilled/leaked thermal fluid must be discarded immediately and correctly. Follow the instructions for the disposal of thermal fluid and material on page 12 in Section »Proper disposal of resources and consumables«.
- Observe the ambient conditions.

2.5 Wrench sizes and torques

Observe the proper wrench sizes for the thermal fluid connection at the accessory. The following table lists the thermal fluid connections and the resulting wrench sizes, as well as the torque values. Always perform a leak test afterwards and re-tighten the connections if required. The values of the maximum torque (see table) must **not** be exceeded.

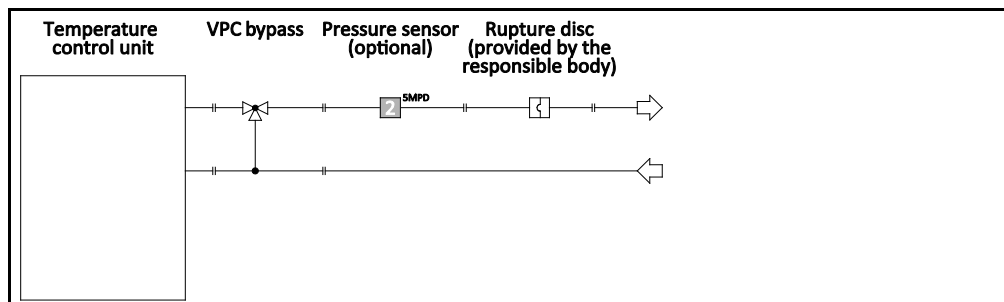
Thermal fluid connection	Sleeve nut wrench size	Connector wrench size	Recommended torques in Nm	Maximum torques in Nm
M16x1	19	17	20	24
M24x1.5	27	27	47	56
M30x1.5	36	32	79	93
	36	36	79	93
M38x1.5	46	46	130	153

Overview wrench sizes and torques

2.6 Preparations for operation

2.6.1 Connecting the accessory to the temperature control unit

Example: Schematic representation of installation



INFORMATION

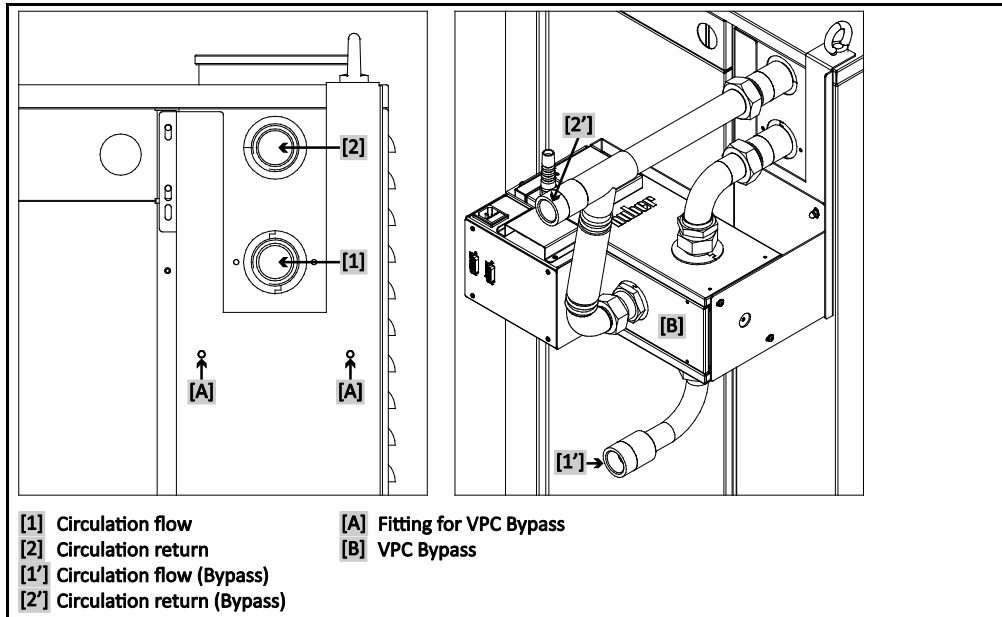
Follow the operation manual of the temperature control unit when connecting the device. Only use temperature control hoses that match the specifications of the thermal fluid used. Avoid bending / squeezing the temperature control hoses. Use suitable angle pieces and lay the hose connections with a large radius. Take the minimum bending radius from the data sheet of the temperature control hoses used. Make sure the temperature control hoses are attached to the respective unit connections such that they cannot slip off. Secure the temperature control hoses with hose clamps.

INFORMATION

Option:
Connect an external pressure sensor to the “external pressure” port of the accessory (otherwise the internal pressure sensor in the accessory takes control).

2.6.1.1 Applies to an accessory with connection set

Example: Connection with connection set

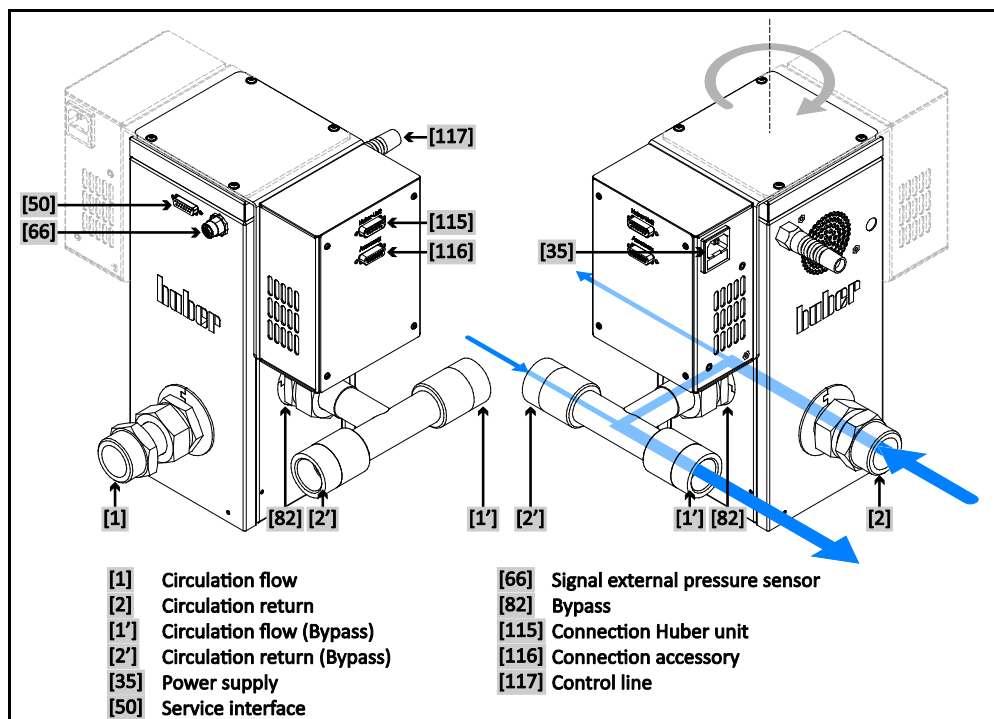


PROCEDURE

- Make sure the temperature control unit has not yet been filled with thermal fluid.
- Disconnect the temperature control unit from the power grid connection.
- Remove the protective caps from the connections on your accessory.
- Mount the bracket to the **>VPC Bypass support< [A]**.
- Mount the accessory to the support on the temperature control unit.
- Connect the **>Circulation flow< [1]** on the temperature control unit with the **>Circulation return< [2]** on the accessory.
- Connect the **>Circulation return< [2]** on the temperature control unit with the **>Bypass< [82]** on the accessory.
- Connect the **>Circulation flow (bypass)< [1']** on the accessory with the external application. For further information, please refer to the operation manual of the temperature control unit. The maximum pump pressure may be applied to your external application if the accessory is defective. A sufficiently dimensioned rupture disc must be installed in the supply line (pressure side) to protect your external application. The installed rupture disc is destroyed in the event of a fault and thus protects the external application against damage. Ensure the exiting thermal fluid can be collected and disposed of (see page 12 Section **»Proper disposal of resources and consumables«**).
- In case you use an external pressure sensor:
 Install the external pressure sensor between the accessory and the external application.
- Connect the **>Circulation return (bypass)< [2']** on the accessory with the external application. For further information, please refer to the operation manual of the temperature control unit.
- Check the connections for leaks.
- Install the supplied switching-mode power supply to the accessory (if not pre-installed).
- Connect the **>Control line< [117]** on the accessory to the **>Connection accessory< [116]** on the switching-mode power supply.
- Connect the **>Connection Huber Unit< [115]** on the switching-mode power supply with the **>Service interface< [50]** on the temperature control unit. The length of the connecting cable must not exceed 3 meters.
- In case you use an external pressure sensor:
 Connect the external pressure sensor with the **>Signal external pressure sensor< [66]** on the accessory.

2.6.1.2 Applies to an accessory without a connection set (loose)

Example: Connection without a connection set



PROCEDURE

- Make sure the temperature control unit has not yet been filled with thermal fluid.
- Disconnect the temperature control unit from the power grid connection.
- Remove the protective caps from the connections on your accessory.
- Glue the supplied rubber feet under the stand of the accessory. This improves stability.
- Place the accessory next to your temperature control unit. Pay attention to the stability of the accessory. Also consider possible vibrations during operation. When installing the accessory, make sure the temperature control hoses will not be under tension during operation.
- Connect the **>Circulation flow<** [1] on the temperature control unit with the **>Circulation return<** [2] on the accessory.
- Connect the **>Circulation return (bypass)<** [2'] on the temperature control unit with the **>Circulation flow (bypass)<** [1'] on the accessory.
- Connect the **>Circulation flow<** [1] on the accessory with the external application. For further information, please refer to the operation manual of the temperature control unit. The maximum pump pressure may be applied to your external application if the accessory is defective. A sufficiently dimensioned rupture disc must be installed in the supply line (pressure side) to protect your external application. The installed rupture disc is destroyed in the event of a fault and thus protects the external application against damage. Ensure the exiting thermal fluid can be collected and disposed of (see page 12 Section **»Proper disposal of resources and consumables«**).
- In case you use an external pressure sensor:
 - Install the external pressure sensor between the accessory and the external application.
 - Connect the **>Circulation return (bypass)<** [2'] on the accessory with the external application. For further information, please refer to the operation manual of the temperature control unit.
- Check the connections for leaks.
- Install the supplied switching-mode power supply to the accessory (if not pre-installed).
- Connect the **>Control line<** [117] on the accessory to the **>Connection accessory<** [116] on the switching-mode power supply.
- Connect the **>Connection Huber Unit<** [115] on the switching-mode power supply with the **>Service interface<** [50] on the temperature control unit. The length of the connecting cable must not exceed 3 meters.
- In case you use an external pressure sensor:
 - Connect the external pressure sensor with the **>Signal external pressure sensor<** [66] on the accessory.

2.7 Connecting to the power supply

INFORMATION

Based on local circumstances, it may be that you need to use an alternative power cable instead of the supplied original power cable. Do not use a power cable that is longer than **3 m** to be able to disconnect the accessory from the mains at any time. Have the mains cable only installed by a qualified electrician.

2.7.1 Connection using socket with protective earth (PE)

DANGER

Connecting to a power socket without protective earth (PE)

MORTAL DANGER FROM ELECTRIC SHOCK

- Always connect the accessory to safety sockets (PE).

DANGER

Damaged power cable/power cable connection

MORTAL DANGER FROM ELECTRIC SHOCK

- Do not start up the accessory.
- Isolate the accessory from the power supply.
- Have the power supply cable/power supply connection replaced and inspected by an electrician.
- Do not use a power cable that is longer than **3 m**.

NOTE

Incorrect power supply connection

DAMAGE TO THE ACCESSORY

- Your building's existing power supply voltage and frequency must match the data provided on the rating plate of the accessory.

INFORMATION

In case of uncertainties about an existing protective earth (PE), have the connection inspected by an electrician.

3 Function description

3.1 Function description of the accessory

3.1.1 General functions

The **VPC bypass** was developed for temperature control units that do **not** have an internal pressure sensor for regulating the pressure in the thermal fluid circuit. The VPC bypass allows sensitive external applications (e.g.: glass reactors) to be operated at a lower pressure during normal operation. The VPC bypass ensures a soft start. It regulates and limits the pressure that acts on the external application.

To avoid power losses, evaporator and heater are sufficiently circulated by the primary circuit (temperature control unit – VPC bypass). The secondary circuit supplies the external application.

The VPC Bypass can detect pressure in two ways:

- Internal pressure sensor: Measuring point in the VPC bypass (standard).
- External pressure sensor: Measuring point is external, e.g. directly at the external application. This requires an additional pressure sensor.

Optional:

The flow rate can be controlled in combination with a flow rate meter. There is **no protection** against excessive pressure.

3.2 To be noted when planning the test

INFORMATION

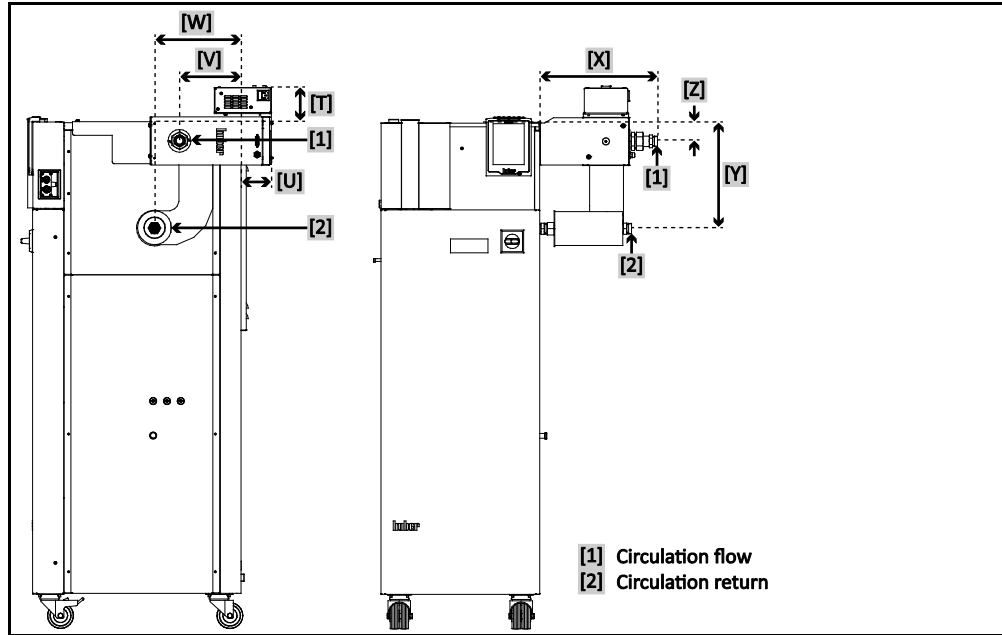
Also observe page 11, section »**Extension of specified normal operation**«.

The focus is on your application. Bear in mind that system performance is influenced by heat transfer, temperature, thermal fluid viscosity, volume flow, and flow speed.

- Make sure that the electrical connection is adequately dimensioned.
- The place of installation of the accessory should be selected so as to ensure adequate fresh air.
- A cross-section reduction or shut-off in the thermal fluid circulation must be avoided.
- To prevent the danger of over-pressure in the system, the thermal fluid must always be brought to room temperature before switching off. This will prevent damage to the temperature control device, accessory, or the application. Any isolating valves must remain open (pressure equalization).
- Select the thermal fluid to be used in such a way that it not only permits the minimum and maximum working temperature but is also suitable with regard to combustion point, boiling point, and viscosity. In addition, the thermal fluid must be compatible with all the materials in your system.
- Avoid bending the temperature control and cooling water hoses (if required). Use suitable angle pieces and lay the hose connections with a large radius. Take the minimum bending radius from the data sheet of the temperature control hoses used.
- The selected hose connections must be resistant to the thermal fluid, the working temperatures and the permitted maximum pressure.
- Check the hoses at regular intervals for any material fatigue (e.g. cracks, leaks).

3.3 Dimensions: Unistat with connection set

Dimensions: Unistat



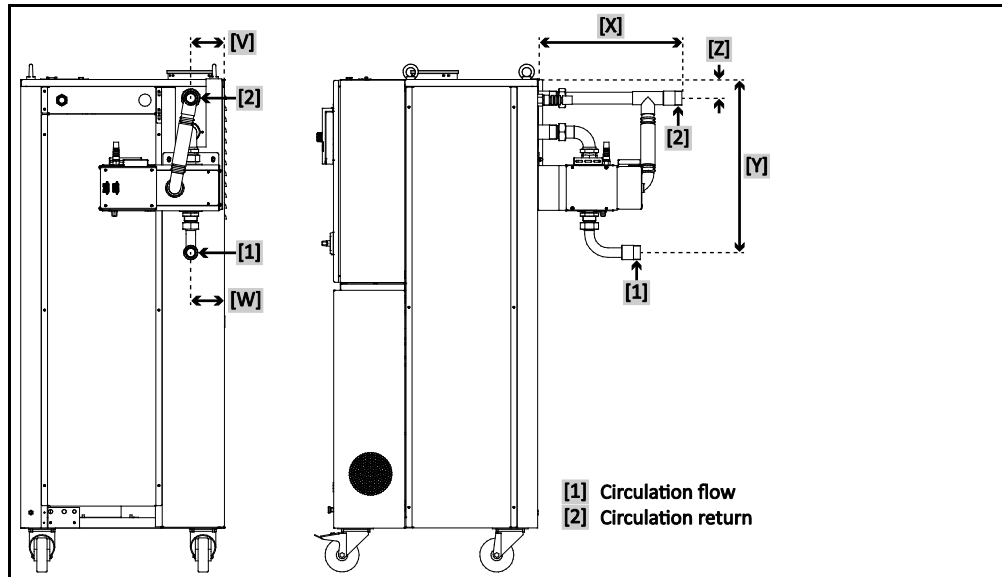
For the dimensions of the temperature control unit, please refer to the wiring diagram in the »Appendix« of the respective operation manual.

Dimensions: Accessory with connection set

Order-No.	Applies to temperature control unit	[T]	[U]	[V]	[W]	[X]	[Y]	[Z]
9797	Unistat 425, 425w, 430, 430w, P505w, 510w, 515w	103	23	244	197	343	213	52
9845	Unistat 912w, 915w	0	0	293	214	343	617	222
9846	Unistat 527w, P527w, 530w	0	0	314	204	343	461	216
9847	Unistat 610w, 615w	0	0	328	344	343	619	213
9851	Unistat 520w, 525w	0	0	310	204	343	461	213
9876	Unistat P904w, 905, 905w	101	90	179	252	343	360	52
9881	Unistat 630w, P634w, 635w, 640w	0	0	339	340	336	606	349
9883	Unistat 920w, 925w, 930w	0	0	339	339	336	606	347
9884	Unistat T320, T320w HT, T330, T330w HT	0	63	200	244	342	526	347
9892	Unistat 620w, 625w	0	0	332	348	343	619	213
9951	Unistat 645w, 650w	0	0	686	686	295	1131	831
9960	Unistat P810w, 815, 815w, 825, 825w	102	85	179	251	343	306	52
10130	Unistat P505, 510	83	23	243	196	340	232	73
10454	Unistat 910w	102	0	505	458	343	212	52
10461	Unistat 525	0	0	331	256	342	695	432
Dimensions in mm +/- 3 mm								

3.4 Dimensions: Unichiller with connection set

Dimensions: Unichiller



For the dimensions of the temperature control unit, please refer to the wiring diagram in the »Appendix« of the respective operation manual.

Dimensions: Accessory with connection set

Order-No.	Applies to temperature control unit	[V]	[W]	[X]	[Y]	[Z]
9774	Unichiller 017T, 020T, 025T	82	82	348	510	46
9774	To a temperature control unit height of 1230 mm Unichiller 017Tw, 025Tw, 030Tw, 040Tw	82	82	348	510	46
9775	Unichiller 055Tw, 060Tw, 080Tw	99	99	425	510	55
9776	Unichiller 055Tw, 060Tw, 080Tw, 100Tw, 110Tw, 130Tw, 160Tw	99	99	425	510	55
9777	Unichiller 150Tw, 200Tw, 210Tw, 250Tw, 260Tw, 300Tw, 400Tw	202	92	425	410	55
9798	Unichiller 055T, 060T, 080T, 100T, 110T	99	99	425	664	209
9799	Unichiller 040T, 045T	82	82	348	610	146
9872	Unichiller 130T, 150T, 160T, 200T	351	198	435	1248	893
9872	Unichiller 210T, 250T, 260T, 300T	711	558	435	1293	938
10247	From a temperature control unit height of 1230 mm Unichiller 017Tw, 025Tw, 030Tw, 040Tw	82	82	348	640	176
Dimensions in mm +/- 3 mm						

4 Setup mode

4.1 Setup mode

CAUTION

Moving the accessory during operation
SERIOUS BURNS/FREEZING OF THE HOUSING PARTS/ESCAPING THERMOFLUID

- Do not move the accessory when in operation.

NOTE

When the accessory is switched off, the thermofluid temperature is higher/lower than the room temperature

DAMAGE TO THE ACCESSORY

- Use the temperature control unit to temper the thermofluid in the accessory to room temperature (20 °C).
- Do not close the shut-off valves in the thermofluid circuit.

NOTE

A pressure-sensitive external application is run with the accessory without a rupture disc being installed

MATERIAL DAMAGE TO THE EXTERNAL APPLICATION

- To protect a pressure-sensitive external application (such as a glass apparatus), use a rupture disk in the supply line.
- Do not use accessories as a shut-off valve. The outputs cannot be completely closed due to the design.
- The external application can be damaged by excessive pressure if the return is closed.

4.1.1 Turning on the accessory

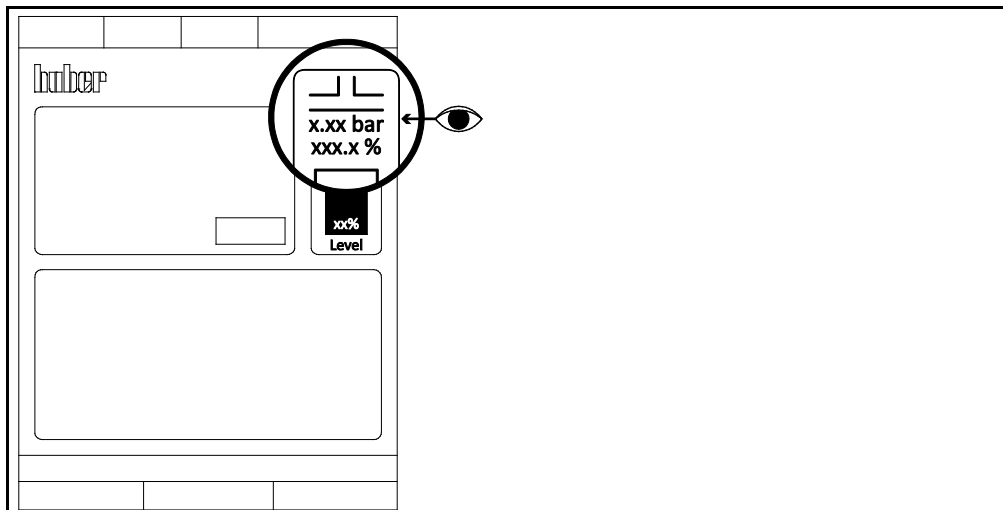
NOTE

The accessory is turned on before filling

DAMAGE TO THE ACCESSORY

- Dry running can damage the accessory if the temperature control unit and the accessory are not filled.
- Turn on the accessory only **after** filling it.

Accessory has been recognized



PROCEDURE

- Connect the switching-mode power supply on the accessory with the building's power grid connection.
- Switch the temperature control unit on.
 The accessory is automatically detected by the temperature control unit and turned on. If the accessory is detected, a stylized two-way valve appears on the right edge of the display (see figure). The indicated pressure is the actual pressure at the connected pressure sensor (internal or external).
- Adjust the temperature control unit as described in its operation manual.
- Then go to the "Categories Menu".

- Tap on the category "System Settings".
- Tap on the category "Pump".
- Tap on the sub-category "Pressure (VPC)".
- Enter the value for the pressure limit, using the numeric keypad that appears.
- Confirm your entry by tapping on "OK".

4.2 Filling and draining the accessory



Non-compliance with the safety data sheet for the thermal fluid to be used

INJURIES

- Risk of injury to the eyes, skin, respiratory tract.
- The safety data sheet for the thermal fluid to be used must be read prior to using it and its content must be respected.
- Observe the local regulations/work instructions.
- Wear your personal protective equipment (e.g. temperature-resistant safety gloves, safety goggles, safety footwear).
- Danger of slipping because floor and work area are contaminated. Clean the work station and follow the instructions for the disposal of thermal fluid and material on page 12 in Section »Proper disposal of resources and consumables«.

4.2.1 Filling the accessory



The accessory is turned on before filling

DAMAGE TO THE ACCESSORY

- Dry running can damage the accessory if the temperature control unit and the accessory are not filled.
- Turn on the accessory only **after** filling it.

PROCEDURE

- Check whether the steps described on page 15 in section »Preparations for operation« were implemented.
- For filling, venting and degassing of the temperature control unit, proceed as described in the operation manual of the temperature control unit.

4.2.2 Draining the accessory



Hot or very cold thermal fluid

SERIOUS BURNS/FREEZING OF LIMBS

- Before draining, ensure that the thermal fluid has room temperature (20 °C).
- If, at this temperature, the thermal fluid is too viscous to be drained: Control the temperature of the thermal fluid for a few minutes until the viscosity will allow drainage.
- Danger of burns when draining thermal fluid at temperatures above 20 °C.
- Wear your personal protective equipment when carrying out the drainage operation.

4.2.2.1 Applies to an accessory with connection set

PROCEDURE

- Do not disconnect the accessory from the temperature control unit.
- Proceed as described in the operation manual of the temperature control unit when draining it. The accessory is emptied via the temperature control unit. Follow the instructions for the disposal of thermal fluid on page 12 in Section »Proper disposal of resources and consumables«.
- Wait until the temperature control unit, the application and the accessory have emptied.
- Remove the temperature control hose from the >Circulation flow< [1].
- Remove the temperature control hose from the >Circulation return< [2].
- Leave the accessory open for a while for to allow it to dry out and the residue to drain.
- Re-connect the temperature control hose to the >Circulation flow< [1].
- Re-connect the temperature control hose to the >Circulation return< [2].

4.2.2.2 Applies to an accessory without a connection set (loose)

PROCEDURE

- Proceed as described in the operation manual of the temperature control unit when draining it. The accessory is emptied via the temperature control unit. Follow the instructions for the disposal of thermal fluid on page 12 in Section »**Proper disposal of resources and consumables**«.
- Wait until the temperature control unit, the application and the accessory have emptied.
- Remove the temperature control hose from the accessory's >**Circulation flow**< [1].
- Remove the temperature control hose from the accessory's >**Circulation return**< [2].
- Remove the temperature control hose from the accessory's >**Circulation flow**< [1'].
- Remove the temperature control hose from the accessory's >**Circulation return**< [2'].
- Leave the accessory open for a while for to allow it to dry out and the residue to drain.
- Re-connect the temperature control hose to the accessory's >**Circulation flow**< [1].
- Re-connect the temperature control hose to the accessory's >**Circulation return**< [2].
- Re-connect the temperature control hose to the accessory's >**Circulation flow**< [1'].
- Re-connect the temperature control hose to the accessory's >**Circulation return**< [2'].

5 Normal operation

5.1 Automatic operation

CAUTION

Hot or cold thermal fluid and surfaces

BURNS TO LIMBS

- Avoid direct contact with the thermal fluids or the surfaces.
- Wear your personnel protective equipment (e.g. temperature-resistant safety gloves, safety goggles, safety footwear).

5.1.1 Temperature control

5.1.1.1 Starting the temperature control process

The temperature control is started via the connected temperature control unit. Prerequisite: The temperature control unit and the accessory, including application, are filled and vented. The temperature control unit and the accessory are connected via the switching-mode power supply and each is connected to a power grid connection.

PROCEDURE

- Start the temperature control process as described in the operation manual of the temperature control unit.

5.1.1.2 Ending the temperature control process

NOTE

When the accessory is switched off, the thermofluid temperature is higher/lower than the room temperature

DAMAGE TO THE ACCESSORY

- Use the temperature control unit to temper the thermofluid in the accessory to room temperature (20 °C).
- Do not close the shut-off valves in the thermofluid circuit.

The temperature control process can be ended at any time. The accessory is switched off by the temperature control unit.

PROCEDURE

- Stop the temperature control process as described in the operation manual of the temperature control unit.

6 Interfaces and software update

NOTE

Connections with the interfaces are established during operation

DAMAGE TO THE INTERFACES

- Interfaces may get damaged if devices are connected with the interfaces during operation.
- Before connecting, ensure the device to be connected is turned off.

NOTE

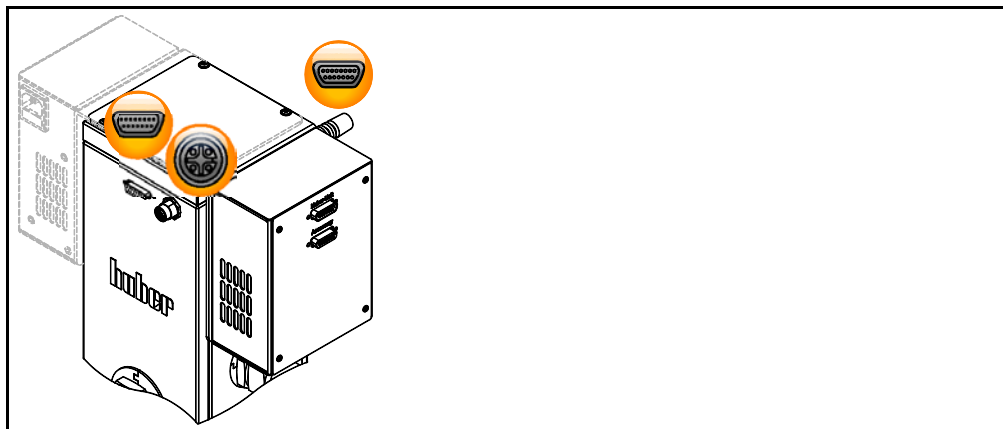
The specifications of the interface used are not being met.

PROPERTY DAMAGE

- Only connect components that meet the specifications of the interface used.

6.1 Interfaces on the accessory

Standard interface on the accessory



6.1.1 Service interface



This interface is exclusively used by Huber service engineers for service purposes.

6.1.2 Connection jack for external pressure sensor



This interface is used to connect an optional external pressure sensor. For the appropriate external pressure sensor, please refer to the Huber catalog under Accessories.

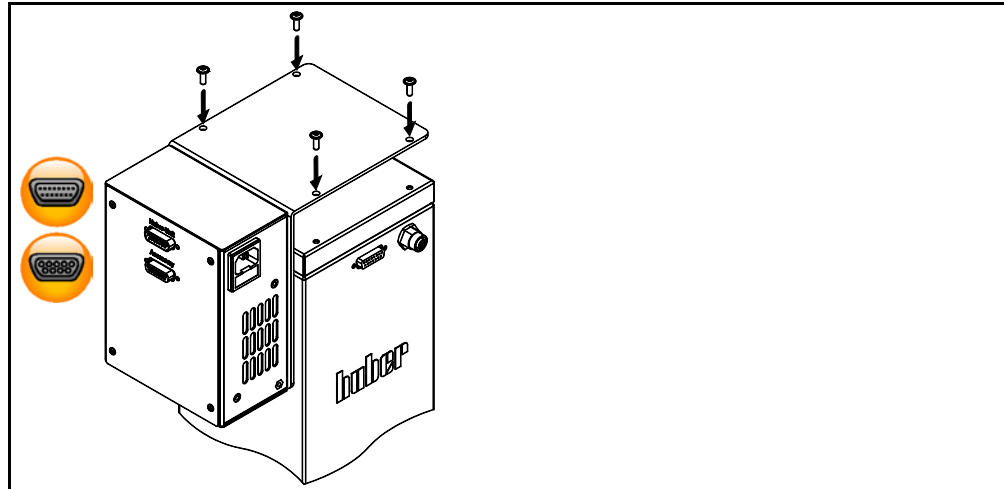
6.1.3 Control line



This interface is used to connect the accessory with the switching-mode power supply.

6.2 Switching-mode power supply interfaces

Standard switching-mode power supply interfaces



In some cases, the temperature control unit interfaces cannot supply sufficient power to the connected accessory. The switching-mode power supply is connected in between to ensure the proper power supply of the connected accessory. The temperature control unit communicates with the accessory via the switching-mode power supply and the switching-mode power supply simultaneously supplies power to the accessory.

6.2.1 Connection Huber Unit



This interface is used to connect the temperature control unit with the switching-mode power supply.

6.2.2 Connection Accessory



The accessory is connected to this jack. The switching-mode power supply supplies the accessory with power and receives control signals from the temperature control unit at the same time.

INFORMATION

The interfaces used must meet the specifications of the generally accepted standards.

Pin assignment

Pin	Signal	Description
2	RxD	Receive Data
3	TxD	Transmit Data
5	GND	Signal GND

7 Service/maintenance

7.1 Maintenance



Cleaning/maintenance while the temperature control unit is operating

MORTAL DANGER FROM ELECTRIC SHOCK

- Stop an ongoing temperature control process.
- Adjust the temperature of the thermal fluid to room temperature after switching off.
- Disconnect the temperature control unit from the power supply.
- Also disconnect the accessory from the current supply.



Carrying out maintenance work not described in this installation guide

DAMAGE TO THE ACCESSORY

- For maintenance work not described in the installation guide, contact Huber company.
- Maintenance work not described in this installation guide is reserved for qualified specialists trained by Huber.
- Only perform the following maintenance work on the accessory yourself.

7.1.1 Function check and visual inspection

Monitoring interval

Cooling*	Description	Maintenance interval	Comment	Person responsible
L/W	Visually inspect hoses and hose connections	Prior to switching on the temperature control unit	Exchange leaking hoses and hose connections prior to switching on the temperature control unit. On page 28 see Section » Replacing temperature control hoses «.	Responsible body and/or operators
L/W	Inspect power supply cable	Prior to switching on the temperature control unit or on relocation	Do not start the temperature control unit if the power cable is damaged.	Qualified electrician (BGV A3)
L/W	Thermal fluid inspection	As required		Responsible body and/or operators
L/W	Inspect the accessory for damage and stability	Every 12 months or after a change of location		Responsible body and/or operators

*L = Air cooling; W = Water cooling; U = Applicable only for Unistats

7.1.2 Replacing temperature control hoses

Replace defective temperature control hoses **before** turning on the temperature control unit.

PROCEDURE

- Exchange the thermal fluid hoses as described in the operation manual of the temperature control unit.

7.2 Thermal fluid inspection, replacement and circuit cleaning

PROCEDURE

- Do not disconnect the accessory.
- Proceed as described in the operation manual of the temperature control unit when performing the thermofluid inspection and changing and cleaning the thermofluid circuit.

7.3 Cleaning the surfaces



CAUTION

Extremely hot / cold surfaces, connections and thermal fluids

BURNS/FREEZING OF LIMBS

- Surfaces, connections and tempered thermal fluids can be extremely hot or cold depending on the operating mode.
- Avoid direct contact with surfaces, connections and thermal fluids!
- Wear your personnel protective equipment (e.g. temperature-resistant safety gloves, safety goggles).

NOTE

Exposed plug contacts

DAMAGE CAUSED BY FLUID INGRESS

- Protect unused plug contacts with the protective caps supplied.
- Clean surfaces only with a damp cloth.

A standard stainless steel cleaning agent is suitable for cleaning the stainless steel surfaces. Carefully clean painted surfaces (damp only) using a solution of sensitive-fabrics detergent. Follow the instructions on page 12, section »**Proper disposal of resources and consumables**« for the disposal of cleaning agents and material.

7.4 Plug contacts

NOTE

Exposed plug contacts

DAMAGE CAUSED BY FLUID INGRESS

- Protect unused plug contacts with the protective caps supplied.
- Clean surfaces only with a damp cloth.

Protective caps are supplied for all plug contacts. Make sure that any plug contacts not required are protective with the caps.

7.5 Decontamination/repairs



CAUTION

Returning an accessory for repair that was not decontaminated

PHYSICAL INJURY AND PROPERTY DAMAGE CAUSED BY HAZARDOUS MATERIALS IN OR ON THE ACCESSORY

- Carry out appropriate decontamination.
- The decontamination process depends on the type and quantity of the materials used.
- Consult the relevant safety data sheet.
- You will find a prepared return receipt at www.huber-online.com.

As the responsible body you are responsible for carrying out decontamination **BEFORE** third-party personnel come into contact with the accessory. Decontamination must be carried out **BEFORE** the accessory is returned for repair or inspection (clearly stating in writing on the accessory that the decontamination has been carried out).

To simplify the process, we have prepared a form for you. This is available for download at www.huber-online.com.

8 Shutting down

8.1 Safety instructions and basic principles



Connection/adjustment to the power supply not carried out by an electrician and/or connection to a power socket without protective earth (PE)

MORTAL DANGER FROM ELECTRIC SHOCK

- Have the connection/adjustment to the power supply carried out by an electrician.
- Always connect the accessory to safety sockets (PE).



Damaged power cable/power cable connection

MORTAL DANGER FROM ELECTRIC SHOCK

- Do not start up the accessory.
- Isolate the accessory from the power supply.
- Have the power supply cable/power supply connection replaced and inspected by an electrician.
- Do not use a power cable that is longer than **3 m**.



Risk of tipping due to unstable accessory

SERIOUS INJURY AND PROPERTY DAMAGE

- Avoid risk of tipping due to unstable accessory.



The temperature control unit is transported / moved when the accessory is installed

INJURIES CAUSED BY TILTING THE TEMPERATURE CONTROL UNIT

- Remove the accessory before the temperature control unit is transported / moved.



Non-compliance with the safety data sheet for the thermal fluid to be used

INJURIES

- Risk of injury to the eyes, skin, respiratory tract.
- The safety data sheet for the thermal fluid to be used must be read prior to using it and its content must be respected.
- Observe the local regulations/work instructions.
- Wear your personal protective equipment (e.g. temperature-resistant safety gloves, safety goggles, safety footwear).
- Danger of slipping because floor and work area are contaminated. Clean the work station and follow the instructions for the disposal of thermal fluid and material on page 12 in Section »Proper disposal of resources and consumables«.



Hot or very cold thermal fluid

SERIOUS BURNS/FREEZING OF LIMBS

- Before draining, ensure that the thermal fluid has room temperature (20 °C).
- If, at this temperature, the thermal fluid is too viscous to be drained: Control the temperature of the thermal fluid for a few minutes until the viscosity will allow drainage.
- Danger of burns when draining thermal fluid at temperatures above 20 °C.
- Wear your personal protective equipment when carrying out the drainage operation.



All safety instructions are important and must be followed during working operations according to the installation guide!

8.2 Switch-off

PROCEDURE

- Switch off the temperature control unit. Please refer to the operation manual of the temperature control unit
- Disconnect the temperature control unit from the current supply. Please refer to the operation manual of the temperature control unit
- Disconnect the accessory from the power supply.

8.3 Draining the accessory

PROCEDURE

- Drain the temperature control unit and the accessory as described in the operation manual of the temperature control unit.

8.4 Separating the accessory from the temperature control unit

8.4.1 Applies to an accessory with connection set

PROCEDURE

- Drain the temperature control unit **before** you disconnect the accessory.
- Disconnect both the temperature control unit and the accessory from the power supply.
- In case you use an external pressure sensor:
Disconnect the external pressure sensor from the **>Signal external pressure sensor<** [66] on the accessory.
- Disconnect the **>Connection Huber Unit<** [115] on the switching-mode power supply from the **>Service interface<** [50] on the temperature control unit.
- Disconnect the **>Control line<** [117] on the accessory from the **>Connection accessory<** [116] on the switching-mode power supply.
- Remove the supplied switching-mode power supply from the accessory (if necessary).
- Disconnect the **>Circulation return (bypass)<** [2'] on the accessory from the external application.
- Disconnect the **>Circulation flow (bypass)<** [1'] on the accessory from the external application.
Remove the rupture disk installed in the thermal fluid circuit, if present.
If you have used an external pressure sensor:
Remove the external pressure sensor from the thermal fluid circuit.
- Disconnect the **>Circulation return<** [2] on the temperature control unit from the **>Bypass<** [82] on the accessory.
- Disconnect the **>Circulation flow<** [1] on the temperature control unit from the **>Circulation return<** [2] on the accessory.
- Remove the accessory from the support on the temperature control unit.
- Remove the bracket from the **>VPC Bypass support<** [A].
- Install the protective caps on the connections on your accessory.

8.4.2 Applies to an accessory without a connection set (loose)

PROCEDURE

- Drain the temperature control unit **before** you disconnect the accessory.
- Disconnect both the temperature control unit and the accessory from the power supply.
- In case you use an external pressure sensor:
Disconnect the external pressure sensor from the **>Signal external pressure sensor<** [66] on the accessory.
- Disconnect the **>Connection Huber Unit<** [115] on the switching-mode power supply from the **>Service interface<** [50] on the temperature control unit.
- Disconnect the **>Control line<** [117] on the accessory from the **>Connection accessory<** [116] on the switching-mode power supply.
- Remove the supplied switching-mode power supply from the accessory (if necessary).
- Disconnect the **>Circulation return (bypass)<** [2'] on the accessory from the external application.
- Disconnect the **>Circulation flow (bypass)<** [1] on the accessory from the external application.
Remove the rupture disk installed in the thermal fluid circuit, if present.
If you have used an external pressure sensor:
Remove the external pressure sensor from the thermal fluid circuit.
- Disconnect the **>Circulation return<** [2] on the temperature control unit from the **>Circulation flow (bypass)<** [1'] on the accessory.
- Disconnect the **>Circulation flow<** [1] on the temperature control unit from the **>Circulation return<** [2] on the accessory.
- Install the protective caps on the connections on your accessory.

8.5 Packing

Use the original packaging wherever possible!

8.6 Shipping

NOTE**Improper transport of accessory****PROPERTY DAMAGE**

➤ Comply with all requirements in this section to avoid damage to the accessory.

If fitted, use the lugs located on the top of the accessory for transportation. Do not transport the accessory alone and without aids.

- Always use the original packaging for transport.
- Protect attachments from damage during transport!
- Secure with tensioning belts/lashing straps rated for the weight concerned.
- Additionally secure (depending on model) with plastic film, cardboard and straps.

8.7 Disposal

Huber temperature control units and Huber accessories are made of high quality, recyclable materials. For example: Stainless steel 1.4301 / 1.4401 (V2A), copper, nickel, FKM, Perbunan, NBR, ceramic, carbon, Al-Oxid, red brass, brass, nickel-plated brass and silver solder. Proper recycling of the temperature control unit and accessories can actively help reduce CO₂ emissions in the production of these materials. Follow the laws and regulations of your jurisdiction when disposing material.

8.8 Phone number and company address

INFORMATION

Contact Customer Support **prior** to returning your accessory. Please keep the serial number of the accessory ready. The serial number can be found on the nameplate of the accessory.

8.8.1 Telephone number: Customer Support

Telephone: +49-781-9603-244

8.8.2 Telephone number: Sales

Telephone: +49-781-9603-123

8.8.3 Email address: Customer Support

Email: support@huber-online.com

8.8.4 Service/return address

Peter Huber Kältemaschinenbau SE
Werner-von-Siemens-Straße 1
77656 Offenburg

8.9 Certificate of Compliance

Please read page 29, section »Decontamination/repairs«.

9 Annex

Inspired by **temperature** designed for you

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