high precision thermoregulation

Catalogue 2010

huber

The Tango Factory is bright and always perfectly thermo-regulated

The Tango Factory – a Ma

In Offenburg stands the modern facility with a genuinely pleasant ambience: The Tango Factory. The architects Antonia and Wilhelm Kasten from Aulendorf have created a building, which offers optimal conditions for both, visitors and the Tango team.

There is always a comfortable temperature in the Tango Factory – irrespective of the season. The secret is thermal transfer and temperature control for minimal energy. The company founder Peter Huber has taken personal responsibility for the thermoregulation of the Tango Factory. His results prove once more the core competency of the company in thermal transfer resulting in temperature control.

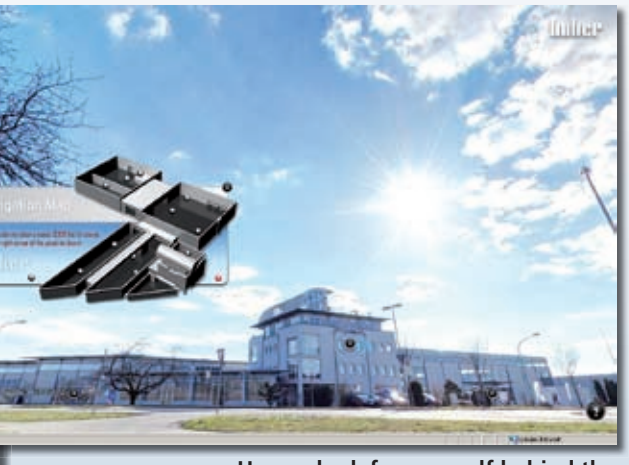
On completion of the third phase the Tango Factory has a volume of 60 000 cubic meters and a floor area of 8 500 square meters. The solid concrete walls of the office block are well insulated. The production halls have walls and roofs with PU insulation which would be suitable for an ice rink in the desert. 40 kilometers of pipe have been embedded in floors and ceilings of the office block and the floors of the production halls.

Where the action is: our website

We have innovated thermoregulation solutions for the range -120 to 425 °C. Please visit our website at www.huber-online.com. There you'll find all the important facts. An overnight update service ensures that the information is always current. You will be convinced of the superior performance of the Huber thermoregulation technology when you see the wide range of case studies. The unique pilot navigation allows you to comfortably find what you are looking for. Using the function "MyHuber" you can refine your search to define particular areas of interest. These preferences are stored and are available to you on your next visit. Also: experience in words and pictures what inspires us. There is a film showing a view behind the scenes in the production. Have a look for yourself at life in the Tango Factory.

sterpiece

The gigantic heat transfer area requires a maximum flow temperature of 24,5 °C. The heat load of the Tango Factory is 5,5 kilowatts per degree temperature difference from external to internal temperature. The fact is: with an average external temperature of about 0 °C in winter and a required internal temperature of 20 °C the heating energy requirement is 110 kilowatts. "We are warmed by the orders of our customers", says Peter Huber in his Handbook of Thermoregulation (www.temperiertechnik.de). All units are 'wet' tested. The heat discharged from the aircooled refrigeration machines heat the well insulated production halls. The heat from the test runs of the water cooled refrigeration machines is reclaimed via heat exchangers to heat the building.



Have a look for yourself behind the scenes: at www.huber-online.com

Who invented the Tango?

If we're talking about temperature control technology, the answer is obvious. 20 years ago, Peter Huber inspired by the exotic Argentine Tango, introduced a thermodynamic revolution with the Unistat® principle. The unique Unistat® range, with over 60 standard temperature control units, makes professional Scale-Up possible. Petite Fleur – the baby Tango extends the range and will be a world-wide sensation. You can find more information in this catalogue and at www.temperiertechnik.de.

Petite Fleur – the baby Tango

Innovations to beat the economic crisis!

Daniel Huber, Managing Director

The Unistat® range revolutionised temperature control technology. The innovations of our developers are based on the suggestions of our customers and our target of offering energy efficient and user friendly temperature control systems. „Yes we can" our innovations defy the current crisis and underline our established role as the pioneer for environmentally friendly cooling. The „Petite Fleur", the baby Tango, is perfect for applications with smaller power requirements between -40 °C and 200 °C dynamically and precisely. The first Unichillers with the natural refrigerant CO_2 are available and last but not least the new low cost bath thermostats of the MPC Range despite having modern microprocessor technology, offer exceptional value for money and an answer to the present crisis. With your support, and the support of the Huber Team and its partners Huber temperature control systems will remain the innovative leaders. Thank you for your ideas and for your loyalty.

Hot techno

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Ministats®, Unichillers® or powerful Unistats®: Huber is the correct choice

logy, cold precision

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Innovative temperature control solutions for laboratory and industry

Modern Controller – The think

Masterpieces of Plug & Play Technology and constructive user participation: Unistat®-Pilot and CC-Pilot

Since the early 80's we have used microprocessors in temperature control systems. 25 years of development have made the Unistat® high-dynamic temperature control system possible, with the most modern temperature and pressure sensor technology ensuring safe operation, permanent data exchange, and providing innovative solutions for accurate temperature control. The distinction of the automatic controller technology lies in the functionality and in the Plug & Play technology (since 1982).

Plug & Play Controller	Cat.No.	G	Price
Unistat®-Control	503.0002	3	
Unistat®-Pilot	503.0003	3	
CC-Pilot	658.0020	1	

The Low-Cost models with the MPC controller are designed to have the most basic functions required to maintain precise temperature control, whereas the Unistat®-Pilot and CC-Pilot can't fail to impress with their full functionality and trend-setting innovations.

Economic, low cost, robust: the new MPC-Controller

User friendly with many functions: the CC-Pilot

ing controller

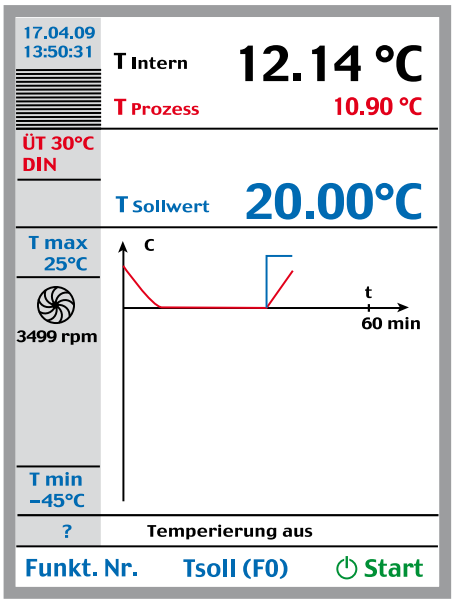
Plug & Play
3 years warranty

Unistat®-Pilot – as remote control with service information

Process-relevant data always in view

Unistat®-Pilot and CC-Pilot talk plain language and keep the user continually informed about all process-relevant data

Unistat®-Pilot and CC-Pilot are state of the art controllers for temperature control systems, which can be adapted to the individual needs of the users and not least from demographic criteria. A colour graphic flat screen display shows all information in plain language. The display shows all dynamic information during the thermoregulation process. The process and internal or jacket temperature, pump pressure and all safety-relevant information is displayed simply and clearly. The format of the display can be varied. Besides a clear display of all data, the most important information (set point, actual values of internal and process as well as the over temperature set point) can be presented in a large format. This facilitates reading from a distance and maintains focus on the critical parameters. The resolution of the temperature display is 0,1 K or 0,01 K as required. The temperature format can be selected in either celsius or Fahrenheit. Depending on the model and accessories the pump speed or the desired pressure can be stepplessly controlled. VPC (variable pressure control) offers protection against glass breakage. The controller parameters can be selected either manually or using True Adaptive Control (TAC) – the intelligent, self-optimising cascade controller, fully automatic guarantees the best parameters to achieve a highly dynamic temperature control. The working range can be restricted to suit requirements and the alarm response can be programmed to give an optical and/or acoustic alarm as required. The clock and calendar functions allow individual processes to be programmed and the autostart function enables the response to a mains power failure to be programmed (continue the process or go into standby). Additionally the control sensors are exceptionally simple to calibrate. Depending on the version digital and/or analogue interfaces allow data visualisation and logging. Installing a ComG@te enables the connection to a process control system.



E-grade – Functions on demand

E-grade – innovative activation keys for the functionality to suit your budget and process requirements

Every application requires particular functions. If the circulator is to be used in a range of applications it will generally require greater functionality. The required functionality grows with the complexity of the application. The innovative „E-grade“ has the answer. Units with the CC-Pilot in the basic version have a comprehensive range of functions suited to the classical temperature control applications. The E-grade allows the functionality to be extended at any time to suit new process requirements and budget. E-grade stands for electronic upgrade and it is simple to do: To extend the functionality a unit specific code is entered via the controller. This code is specific to the serial number of the unit and is either already entered at the factory for new units or it can be activated at a later date. The code is sent by email. There is no requirement for a hardware or software update.

E-grade	Cat.No.	Price
Basic > Exclusive	9495	
Exclusive > Professional	9496	
Basic > Professional	9496	

Consult the table (page 10/11) for the functions offered by each E-grade.

Easy Control

Easy Control – because simple is simply better
The simple alphabetic listing of the functions makes the „Easy-Control" very popular. At present the following languages are available; German, English, French, Italian, Spanish und Russian (cyrillic script). Inputs can be made via the touch-screen (exclusively the Unistat®-Pilot), the soft-keys, rotary encoder or a combination of all three.
Easy Control is used on all Unistat® models, CC-Circulators and Unichiller® in space saving tower casings.

Plug & Play

Plug & Play Technology – unique and proven since 1982
The modular concept is priceless in the event of service thanks to the unique Plug & Play Technology and is upgradeable at any time using modern flash technology. Circulators and chillers all operate with a standard user interface; this is a decisive advantage for users of multiple Huber temperature control systems. The controllers Unistat®-Pilot or CC-Pilot are swappable at any time and using a data cable can be used as a remote control. The CC-Pilot reaches unprecedented levels of functionality and flexibility.

MPC – Simple Low-cost Thermoregulation

Microprocessor Control MPC
Simple – Low Cost – and only what you need!
The modern Low-Cost controllers do without the unique benefits of the Plug & Play Technology. They are the low cost solution for the Minichillers®, Unichillers® in classic look and for the combination of the simple immersion circulators with baths made of polycarbonate, stainless steel or with refrigerated baths. Unnecessary features have been consciously removed. You only pay for what you need.
When safety is being considered nothing is compromised. Only three keys are required to operate the unit and the display is simple to understand.
For an additional cost the MPC-controller is offered in an **„Advanced" Version**. The functionality is extend to include an RS232 digital interface and the facility for an external sensor.

Functions

Function	Unistat®-Pilot	CC-Pilot „Professional“	CC-Pilot „Exclusive“
Adjustable Heating / Cooling Power	✓	✓	✓
Adjustable limit alarms	✓	✓	✓
Alarm Signal optical / acoustic	✓	✓	✓
AutoStart (mains failure automatic)	✓	✓	✓
Calendar, Date, Time	✓	✓	✓
Calibration programme for control sensor (Internal, Process)	5 Point	5 Point	5 Point
Colour flat screen display	with Touchscreen 5,7"	3,5“	3,5“
ComG@te Functions – External control signal / ECS STANDBY – Programmeable volt free contact / ALARM – digital interfaces RS232, RS485 – AIF (Analogue interface) 0/4-20 mA or 0-10 V – Level monitoring	✓	✓[1]	✓[1]
Comfort Menu / Compact Menu	✓	✓	✓
Compressor Automatic Control	✓	✓	✓
Controller parameter tuning	TAC[2]	TAC[2]	TAC[2]
De-gassing program	✓	✓	✓
Digital interface RS232	✓	✓[3]	✓[3]
Display	graphic, numeric, zoom	graphic, numeric, zoom	graphic, numeric, zoom
Display Resolution	0,1 °C / 0,01 °C	0,1 °C / 0,01 °C	0,1 °C / 0,01 °C
Easy Control	✓	✓	✓
Function check at start	Sensors, electronic	Sensors, electronic[5]	Sensors, electronic[5]
Language: D / E / F / IT / ESP / RUS	✓	✓	✓
Monitoring (Level Protection, Over Temperature Protection)	✓	✓	✓
Plug & Play-Technology	✓	✓	✓
Programmer – Additional functions	10 Prg. / max. 100 steps Calendar Start, Non-Linear-Ramping	10 Prg. / max. 100 steps Calendar Start, Non-Linear-Ramping	3 Prg. / max. 15 steps
Ramp function	✓	✓	✓
Set Point Limits	✓	✓	✓
Temperature control mode (Internal, Process)	✓	✓	✓
Temperature format: °C / F	✓	✓	✓
Time Format	✓	✓	✓
User Menus (Administrator-Level)	✓	✓	
Variable speed pump VPC	✓[6]	✓[6]	✓[6]
Venting programme	✓	✓	✓
2nd set point	✓	✓	

CC-Pilot „Basic"	MPC Advanced	MPC
✓		
✓	✓	✓
✓		
✓		
✓		
5 Point		
3,5"		
✓[1]		
✓		
✓		
predefined	predefined	predefined
✓		
✓[3]	✓	
numeric, zoom	numeric	numeric
0,1 °C	0,1 °C[4]	0,1 °C[4]
✓		
Sensors, electronic[5]	Sensors	Sensors
✓		
✓	✓	✓
✓		
✓		
	✓	
✓		
✓		
✓[6]		
✓		

CC-Pilot to Pilot Plant

Our customers are asking for tools to improve their process, now more than ever.

As they can share an almost identical interface, the bench chemist and plant engineer can exchange information more easily, which is critical to a „right first time" approach.

Gemma Cowell, Business Development Manager, Huber UK

[1] Option
[2] TAC – True Adaptive Control
Self optimising internal and cascade controllers
[3] Not available when ComG@te is installed.
RS232 in ComG@te is activated.
[4] Display resolution below -10 °C and above 100 °C: 1 °C
[5] Unichillers® only
[6] For units with variable speed pump VPC

Unistats® – Highly dynamic the

Unistats® should not be compared to conventional technology.
Thermodynamically there is no alternative.

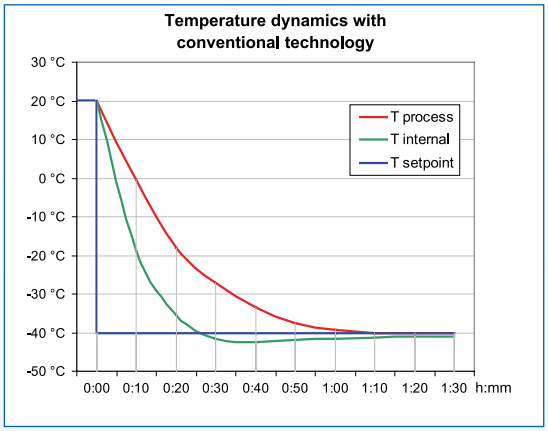
Tango and the big Unistats® for -120 to 425 °C for laboratory and production

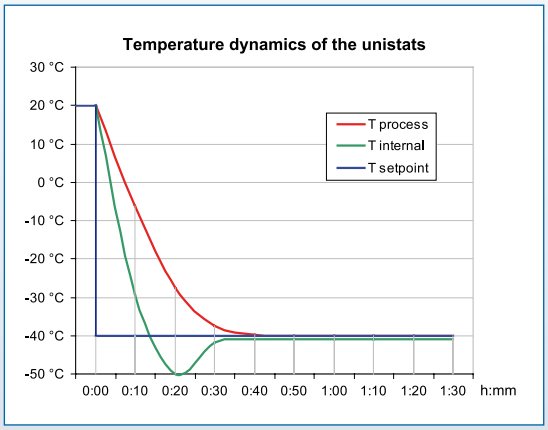
Our engineers know what is required in research and production: **PROCESS SAFETY!**

The security that the critical process temperatures in your laboratory or production facility run exactly as required – no compromises – every time. Unistats® bring this peace of mind, thermodynamically on the safe side.

Precise and reliable control of thermodynamic parameters is required, without compromises, for successful results.
We value the fact that our Unistats® deliver what you require: **PROCESS STABILITY in high end quality!**

The temperature control application in the foreground
The international Tango Club (Unistat® users across the whole world) shed light on the trends of tomorrow. The range of functions has been increased, and easy control has revolutionised operation. New functions have been tested and their effectiveness proven. Every function of the Unistat® has been subjected to





rmoregulation

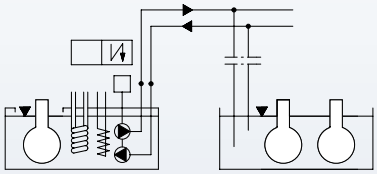
The cc-410 in conventional format is perfect for direct thermo-regulation of objects in its bath

many uncompromising tests on applications under industry conditions the quality spotlight of experienced users focused on results.
Our improvements in pump technology that have increased HTF flow rates has resulted in tangible improved heat transfer to and from the application. Predictable, repeatable results and previously unachievable response to changing thermal loads, provide a much faster ROI (return on investment), further improved by the minimal operating costs of the Unistat® Principle. In 1988 the first generation proved the concept of the Unistat® Technology. The second generation consolidated and led the growth of Unistat® Technology into industry. The Third Generation is refined, more efficient and more responsive, gives tighter control and is easier to use.

Conventional baths and circulating chillers operate with a hydraulically open bath.
With open bath technology (picture 1) the bath fluid is open to atmosphere and un-pressurised, regardless of whether the temperature control is internal (A), or external (B). During external temperature control (B) the level must be controlled in two locations. In typical externally closed temperature control (picture 2) where the object is directly (D) or indirectly (C) in contact with the heat transfer medium, the atmospherically open bath is also used to contain the expansion and contraction in HTF volume as the fluid heats and cools.

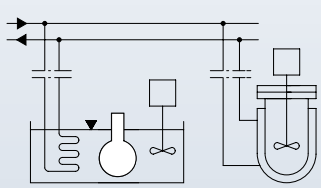
Unistats® embody capacity and dynamics. Small in size, big in power.
The Unistat® System (Pic3) combines the efficiencies of effective thermodynamics and modern microelectronics, making it a highly efficient alternative to open bath temperature control technology. Unistats® are circulation thermostats without a bath. An expansion vessel for thermal expansion and contraction replaces the conventional bath. The expansion vessel is isolated for the thermoregulation of open baths (F). Being hydraulically sealed they can be located below or above the application.
The Unistat® principle minimal HTF volume and increased thermal transfer abilities through higher HTF flow rates, reduced HTF pressure and highly efficient heat exchange surfaces increases the system's speed of response to changes in demand. Unistats® have the most rapid ramping rates capable of cooling rates of more than a hundred Kelvin per hour. For comparisons in cooling power densities (Watt/litre) please refer to DIN 12876.

Picture 1: open baths



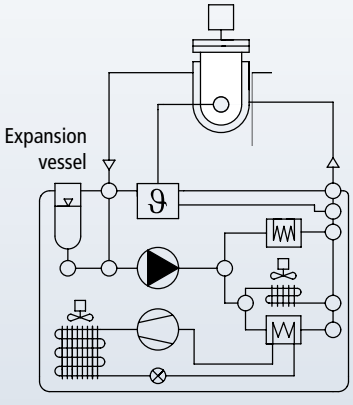
A B

Picture 2: closed circuits

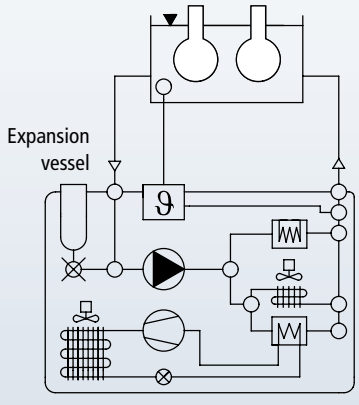


C D

Picture 3: The Unistat® Principle



E



F

Unistat® – for professional sca

Professional Scale-Up

To control from the smallest processes up to production volumes. Temperatures from -120 up to 425 °C. Over 60 models, in sleek tower housings, or flat-build, with cooling capacities from 0,7 to 130 kW for flexible scale-up in Research, Kilo-labs, Mini-plant, Pilot-Plant, and Production. While the Unistats® grow with the application, their operation and the Unistat® Principle remain the same.

Unistats® create space

A compact machine is one that is small with no loss of power. This is measured with the ratio watts/meter³. At every temperature the Unistat® is the most compact.

Safety

Unistats® have many safety features and handle temperature control applications – remotely and safely while operating continuously. Over-temperature, set-point and alarm limits can be set according to the conditions of the application to be controlled. The temperature and pressure sensors can be calibrated and the microprocessor controller monitors the operating status. VPC (Variable Pressure Control) monitors the maximum pressure in the fluid loop. Passive components ensure a extraordinarily high order of reliability. In case of emergency, the Unistats® can be electrically isolated. For critical processes an optional additional „emergency cooling system" can be activated.

„Process safety over-temperature protection": This unique user-initiated feature disables the heater

le-up

while initiating 100 % cooling should an over-temperature condition be caused by a thermal runaway in the process.

Environmental protection

Made from recyclable materials with an option to have 100 % environmentally refrigerants, consuming ⅓ the water of conventional systems (water-cooled units) and an energy management system to keep electrical power consumption to a minimum, the Unistats® are truly environmentally friendly.

Plug & Play
3 years warranty

Unistat® advantages

- **the fastest heating and cooling rates**
  ideal for isothermal chemical processes
- **highly responsive**
  the first choice for operational safety
  with exothermic reactions
- **the highest cooling power densitiy [Watts/l]**
  for dynamic and rapid temperature changes
- **incredibly compact**
  "volume cooling power"
  truly powerful, truly compact
- **wide temperature ranges**
  with no oil change
  with the thermofluid DW Therm
  for the temperature range from -120 to 200 °C

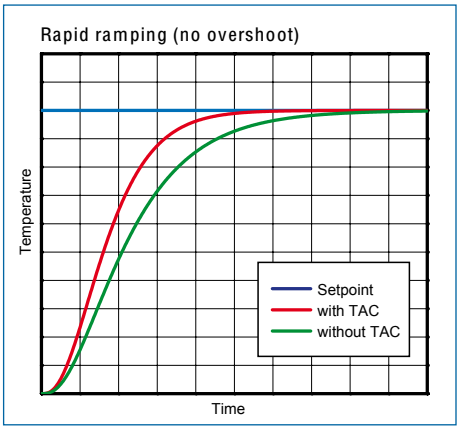
Communication

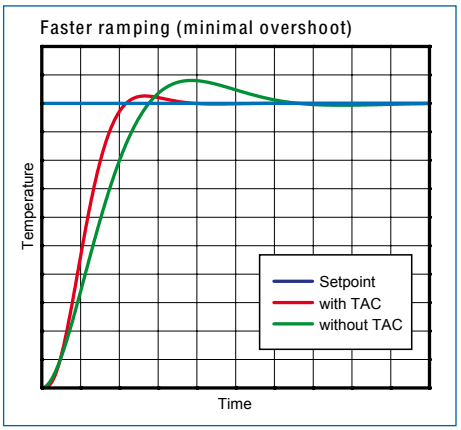
ComG@te
The ComG@te has connections complying with the NAMUR Standard and is fitted as standard on all Unistats®. The following interfaces are integrated:
– RS232 (bi-directional)
– RS485 (bi-directional)
– Volt free contact (programmeable)
– AIF Analogue-Interface 0/4-20mA or 0-10 V (bi-directional)
– ECS external control signal

WebG@te
The WebG@te allows communication via intranets and the internet. The organisation of complex temperature control profiles, filing of process data or the storage of thermoregulation runs is child's play with the USB interfaces and memory. The WebG@te is optionally available and has the following interfaces:
– RS232 (bi-directional)
– USB (Host)
– USB (Device)
– Ethernet
– Volt free contact (programmeable)
– ECS external control signal

The ComG@te and the WebG@te can be located remote from the Unistat® and connected via a single data cable. This has the advantage that the multiple connection possibilities can be installed simply at the process control system.

- **large colour TFT touch screen display**
  graphics, multilingual, simple communication and easy to use
- **reproducible precision**
  for demanding temperature applications
  from -120 to 425 °C
- **flexible Communication**
  ComG@te, WebG@te (Option)





True Adaptive Control

Self-optimising temperature control

Varying research criteria and process demands change the thermal load on the temperature control system. What does not change is the requirement for good control.

The solution is „TAC" which has the capability to automatically change with those demands, By building a multi-dimensional model of the process, the TAC is able to automatically adjust its PID parameters to cope with and respond rapidly to sudden changes in the process.

Operating in both „Jacket" and „Process" control, TAC provides responsive and close control. Rapid changes with no overshoot, that is what TAC brings to the process…automatically and under all conditions. User defined response rates allows for dampened or rapid response. If TAC is not required, the user can manually adjust the PID parameters.

| VPC Bypass |

With kind permission of Roche AG (CH)

Maximum HTF flow

Improved pump design together with reduced internal flow resistance gives higher HTF flows with lower HTF pressures meaning more efficient thermal transfer and faster ramping of the process for the same power.
Bench-top and floor standing Unistats® that use the new „M24" pump connections are supplied with „M16" adaptors to allow for convenient fitting to existing systems using „M16" fittings.

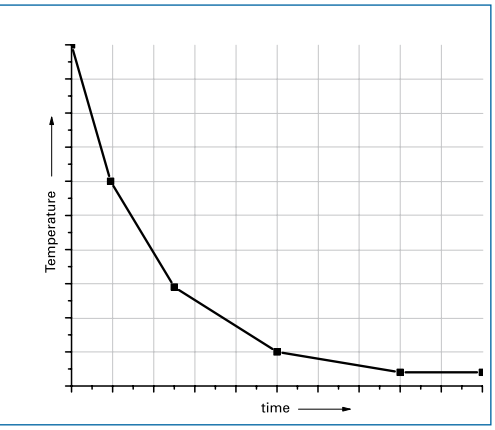
Variable Pressure Control (VPC)

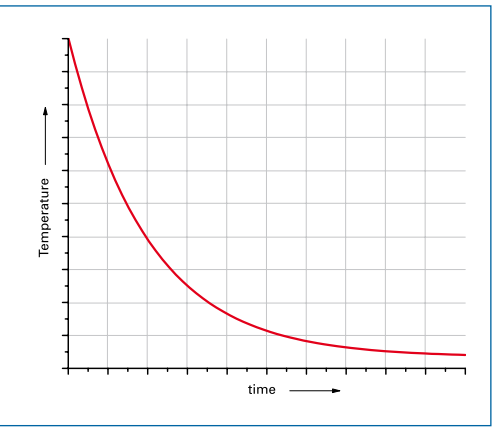
Pressure control with controllable soft-start
VPC was developed to protect glass reactors from damage caused by high fluid pressure. VPC also compensates for changes in viscosity as heat transfer fluid is heated and cooled. Unistats® for typical laboratory applications have a variable speed pump with soft-start, and using a pressure sensor can control their maximum fluid pressure. Unistats® with larger capacities (as an option) can control the pressure using a pressure sensor and a stepless bypass.
Minimal pressure, maximum flows, optimal heat transfer. The VPC allows enables the best operation while remaining inside the defined pressure limits of the application.

Jorge Zaragoza, Ajjitec Mexicana

TAC (true adaptive control) convinces the user

„In research our customers often work with different reactors. The functionality of the Unistats® is impressive and allows an individual solution for every temperature control process. The TAC technology is convincing due to the reproducible temperature control results."





Programmer

Programmer with linear ramp function
Single temperature changes can be realised using the linear ramp function. The easy to use programmer, with 100 steps, is available for more complex temperature requirements. Individual steps can be pieced together to form a suitable profile. Each step of the program can be selected to be either temperature or time stable. For each step, additional functions (Potential Free contact, Analogue Interface, temperature control mode) can be activated or deactivated.

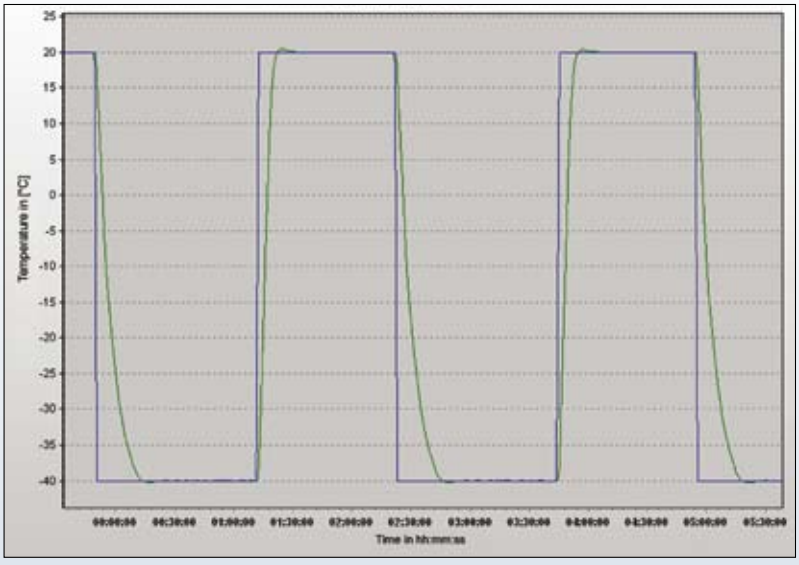
Non-linear Ramp Function (NLR)
Especially for crystallisation processes, non-linear temperature profiles allow higher purity crystals to be produced. Instead of using the temperature programmer to piece together discrete rectangular or linear ramps, e-functions can be used to define a continuous setpoint form.
The diagrams shows the high precision of the e-function (below) in contrast to a linear ramp (above, with 6-steps).

CoolNet®

CoolNet® – unique valve control
In refrigeration equipment, refrigerant is controlled by a metering valve. Unistat® refrigeration works with a CoolNet® stepper-motor controlled expansion valve, that has been produced in the Tango Factory since 2002. The valve opening is precisely controlled at between 0 and 600 steps, with a resolution of 0,005 mm/step. This allows the CoolNet® to achieve the optimal evaporator flow, and highest possible cooling capacity at each working temperature. Precise and reproducible control for temperatures down to -130 °C.

Reproducibility

Unistats® guarantee reproducible thermoregulation results with the highest possible dynamics.



petite fleur – the baby Tango

The baby Tango is the entry level model for temperature control applications in the mid-range -40 °C to 200 °C.

Plug & Play
3 years warranty

the smallest Unistat®
The smallest Unistat® E-grade professional and ComG@te are included as standard.
Natural refrigerant to protect the evironment.

The Tango is the original and smallest circulator of the Unistat® range, which has been the benchmark for many years. The „Petite Fleur" in comparison with the Tango Nuevo, is ⅔ the size, ⅔ the power and ⅔ the price.

The Tango and the Unistats® are suitable for externally open baths or closed applications, e.g. reactors. The first version of „Petite Fleur", the baby Tango, is designed for externally closed applications. With the expansion tank and the large illuminated sight glass, it is instantly recognisable as a Unistat® with all the well known advantages. A second version for open bath applications is in preparation.

„Good Day"
The bigger Unistat® models are equipped with the 5,7" display, and the baby tango welcomes the user with 3,5" display of the CC-Pilot. The picture left, shows the usual configuration, with the expansion tank and sight glass on the left, and on the right the automatic controller and control panel.

Functionality for all Applications
As with the large Unistats® the „Petite Fleur" comes with full controller functionality. The powerful variable speed pump combined with the VPC pressure control and the TAC adaptive internal and cascade control unsure the best possible results. The „Professional" E-grade and an internal ComG@te are factory installed as standard.

Also a fine view from the back:
ComG@te, M16x1 pump connections

Lift and Roll
Just 260 mm wide the baby Tango is ideally suited to fit in extract hoods. The rollers fitted at the back of the unit allow it to be easily brought to the required position, just lift and roll.

Ready for action
If the application is regularly changed, residual water in hoses and reactors can be a problem. The water mixes with the thermal fluid and inhibits the heat transfer process. The new water separation system allows water to be removed from the thermal fluid during thermal regulation.

More Power
DIN 12876 requires that cooling powers are measured at full pump speed. Reducing the pump speed reduces the heat energy entering the system. This leads to higher cooling powers and lower end temperatures. The baby Tango has an unusually powerful pump. Reducing the pump speed can make additional cooling power available – an extra 30 to 50 Watts can be achieved. We always quote cooling at maximum pump speed.

Unistat® for Professional Scale-Up and Process Development
The introduction of the "Petite Fleur" now means that the Unistat® temperature control system is available starting from a cooling capacity of 480 Watts at 20 °C, making it the only temperature control system in the world which offers professional Scale-Up from small scale laboratory R&D through to production plant. The Unistat® temperature control system covers a temperature range from -120 °C to 425 °C and cooling and heating powers up to 130 kW. The Unistat® temperature control system can be combined with customers' steam or brine systems, and is thus suitable for applications beyond the 10 m³-class.

VPC
Variable Pressure Control

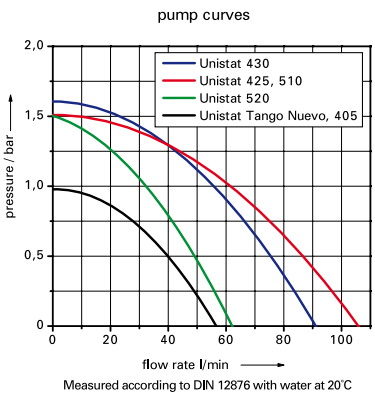
DIN 12876
Our cooling powers are always quoted at full pump speed

Model	Working Temperature Range (°C)	Pump max. VPC (l/min)	(bar)	Heating (kW)	Cooling Power (kW) at (°C) 200	20	0	-20	-30	Dimensions W x D x H (mm)	Cat.No.	G	Price
petite fleur	-40...200	33	0,9	1,5	0,48	0,48	0,45	0,27	0,16	260 x 450 x 504	1030.0001.04	3	
petite fleur w	-40...200	33	0,9	1,5	0,48	0,48	0,45	0,27	0,16	260 x 450 x 504	1030.0003.04	3	

| unistat® 510w | | unistat® 430 | | unistat® 520w |

| unistat® tango nuevo |

-55 °C
Models
from 0,7 to 21 kW



VPC
Variable Pressure Control

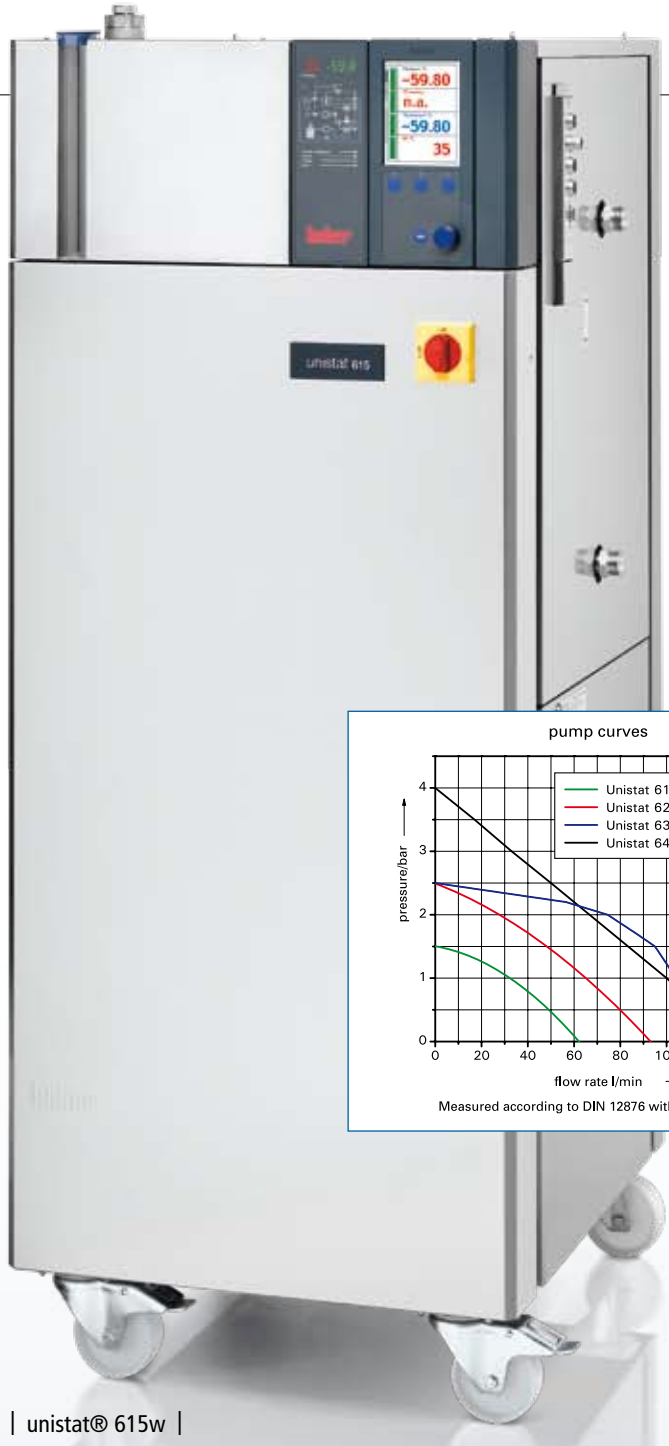
ATEX
ATEX Solutions (Option)

Additional heating
(Option)

Model to -55 °C	Working Temperature Range (°C)	Pump max. VPC (l/min)	(bar)	Heating (kW)	Cooling Power (kW) at (°C) 250	200	100	0	-20	-40	Dimensions W x D x H (mm)	Cat.No.	G	Price
tango nuevo	-45...250	55	0,9[1]	1,5/3,0	0,7	0,7	0,7	0,7	0,4	0,06	425x270x636	1000.0001.05	3	
tango nuevo wl	-45...250	55	0,9[1]	1,5/3,0	0,7	0,7	0,7	0,7	0,4	0,05	425x270x636	1000.0002.05	3	
unistat® 405	-45...250	55	0,9[1]	1,5/3,0	1,0	1,0	1,0	1,0	0,6	0,15	425x308x636	1002.0003.05	3	
unistat® 405w	-45...250	55	0,9[1]	1,5/3,0	1,3	1,3	1,3	1,3	0,7	0,15	425x270x636	1002.0002.05	3	
unistat® 410w	-45...250	55	0,9[1]	1,5/3,0	1,7	2,5	2,5	1,5	0,8	0,2	425x360x636	1031.0001.05	3	
unistat® 425	-40...250	105	1,5[2]	2,0	2,0	2,0	2,0	2,5	1,8	0,2	460x554x1332	1005.0002.05	3	
unistat® 425w	-40...250	105	1,5[2]	2,0	2,8	2,8	2,8	2,5	1,9	0,2	460x554x1332	1005.0003.05	3	
unistat® 430	-40...250	90	1,7[2]	4,0	3,5	3,5	3,5	3,5	2,2	0,3	460x554x1332	1005.0006.05	3	
unistat® 430w	-40...250	90	1,7[2]	4,0	3,5	3,5	3,5	3,5	2,2	0,3	460x554x1332	1005.0007.05	3	
unistat® 510w	-50...250	105	1,5[2]	6,0	5,3	5,3	5,3	5,3	2,8	0,9	460x554x1332	1005.0001.05	3	
unistat® 515w	-55...250	105	1,5[2]	6,0	7,0	7,0	7,0	5,0	2,8	0,9	460x554x1332	1032.0001.05	4	
unistat® 520w	-55...200	60	1,5[2]	6,0	–	6,0	6,0	6,0	4,2	1,5	540x604x1332	1006.0001.05	4	
unistat® 525w	-55...250	60	1,5[2]	6,0	10,0	10,0	10,0	7,0	4,2	1,5	460x550x1332	1033.0001.05	4	
unistat® 530w	-55...250	90	2,5[2]	12,0	7,0	19,0	21,0	16,0	9,0	3,0	540x704x1491	1034.0001.05	4	

[1]integrated VPC pressure control [2]VPC pressure control via bypass Option: natural refrigerants available on request Flat built models available on request

| unistat® 650w |



| unistat® 615w |

-60 °C
Models
from 7 to 130 kW

huber Natural Refrigerant inside

Model to -60 °C	Working Temperature Range (°C)	Pump max. VPC (l/min)	(bar)	Heating (kW)	Cooling Power (kW) at (°C) 200	100	0	-20	-40	-60	Dimensions W x D x H (mm)	Cat.No.	G	Price
unistat® 610w	-60...200	60	1,5[2]	6,0	7,0	7,0	7,0	6,4	3,3	0,8	600 x 704 x 1520	1007.0001.05	4	
unistat® 615w	-60...200	60	1,5[2]	12,0	9,5	9,5	9,5	8,0	4,8	1,2	600 x 704 x 1520	1007.0002.05	4	
unistat® 620w	-60...200	90	2,5[2]	12,0	12,0	12,0	12,0	12,0	6,5	1,8	700 x 804 x 1520	1008.0002.05	4	
unistat® 625w	-60...200	90	2,5[2]	12,0	16,0	16,0	16,0	15,0	7,4	2,2	700 x 804 x 1520	1008.0003.05	4	
unistat® 630w	-60...200	110	2,5[2]	24,0	22,0	22,0	21,0	20,0	14,0	5,0	920 x 1004 x 1655	1009.0001.05	5	
unistat® 635w	-60...200	110	2,5[2]	24,0	27,0	27,0	27,0	25,0	18,0	6,0	920 x 1004 x 1655	1009.0002.05	5	
unistat® 640w	-60...200	110	2,5[2]	30,0	32,0	32,0	35,0	30,0	18,0	6,0	920 x 1004 x 1655	1010.0001.05	5	
unistat® 645w	-60...200	130	4,0[2]	36,0	45,0	45,0	45,0	42,0	22,0	7,0	1830 x 1200 x 1830	1011.0001.05	5	
unistat® 650w	-60...200	130	4,0[2]	48,0	65,0	65,0	65,0	56,0	30,0	11,0	1830 x 1200 x 1830	1012.0002.05	5	
unistat® 680w	-60...200	130	4,0[2]	96,0	130,0	130,0	130,0	80,0	60,0	20,0	4500 x 2000 x 2000	1013.0001.05	5	

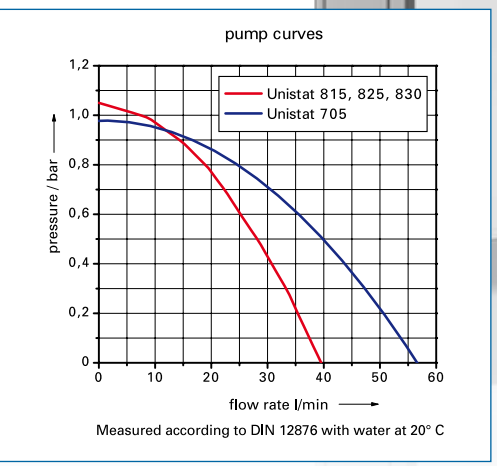
Options: natural refrigerant, additional heating capacity, air cooled units available on request

-85 °C
Air- or water-cooled

| unistat® 815w |

| unistat® 825 |

| unistat® 705w |



huber Natural Refrigerant inside

VPC
Variable Pressure Control

ATEX
ATEX Solutions (Option)

Additional heating
(Option)

Model to -85 °C	Working Temperature Range (°C)	Pump max. VPC (l/min)	(bar)	Heating (kW)	Cooling Power (kW) at (°C) 250	200	100	0	-20	-40	-60	-80	Dimensions W x D x H (mm)	Cat.No.	G	Price
unistat® 705	-75...250	55	0,9[1]	1,5 / 3,0	0,6	0,6	0,6	0,65	0,6	0,6	0,3	–	425 x 400 x 720	1001.0002.05	3	
unistat® 705w	-75...250	55	0,9[1]	1,5 / 3,0	0,6	0,6	0,6	0,65	0,6	0,6	0,3	–	425 x 400 x 720	1001.0001.05	3	
unistat® 815	-85...250	40	0,9[1]	2,0	1,3	1,3	1,3	1,5	1,5	1,4	1,2	0,2	460 x 604 x 1342	1014.0032.05	3	
unistat® 815w	-85...250	40	0,9[1]	2,0	1,5	1,5	1,5	1,5	1,5	1,4	1,2	0,2	460 x 604 x 1342	1014.0033.05	3	
unistat® 825	-85...250	40	0,9[1]	3,0	2,3	2,3	2,3	2,2	2,0	2,0	1,4	0,3	460 x 604 x 1342	1014.0001.05	4	
unistat® 825w	-85...250	40	0,9[1]	3,0	2,3	2,3	2,3	2,4	2,4	2,4	1,5	0,3	460 x 604 x 1342	1014.0002.05	4	
unistat® 830	-85...200	40	0,9[1]	3,0	–	4,0	3,8	3,6	3,5	3,5	2,2	0,7	540 x 654 x 1500	1015.0001.05	4	
unistat® 830w	-85...200	40	0,9[1]	3,0	–	4,0	3,8	3,7	3,6	3,6	2,2	0,7	540 x 654 x 1500	1015.0002.05	4	

[1]Integrated VPC pressure control [2]VPC pressure control via bypass Option: natural refrigerants available on request

| unistat® 930w |

- 90 °C
- 120 °C

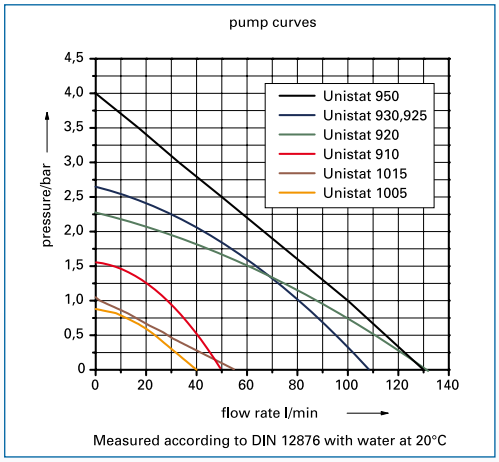
Models
from 5,2 to 36 kW

| unistat® 910w |

Scale-up live – more than 30 Unistats® in operation

„Here in GSK Chemical Development, at Research Triangle Park, we've been using jacketed laboratory reactors of various sizes for over ten years now. From the very beginning, our temperature control requirements demanded the best solution available, and we have relied on Huber Unistats® to deliver this capability. The Huber technology has allowed us to significantly improve our process development activities and is a critical tool in collecting data for Quality by Design studies."

Roy Flanagan,
Team Manager, Process Safety and Design



Measured according to DIN 12876 with water at 20°C

Model to -90 °C	Working Temperature Range (°C)	Pump max. VPC (l/min)	(bar)	Heating (kW)	Cooling Power (kW) at (°C) 250	200	100	0	-20	-40	-60	-80	Dimensions W x D x H (mm)	Cat.No.	G	Price
unistat® 905w	-90...250	40	0,9[2]	6,0	4,5	4,5	4,5	4,5	4,5	4,0	2,5	0,7	540 x 654 x 1500	1035.0002.05	4	
unistat® 910w	-90...250	40	1,5[2]	6,0	5,2	5,2	5,2	5,2	5,2	4,7	3,1	0,9	600 x 704 x 1565	1016.0001.05	4	
unistat® 920w	-90...200	90	2,5[2]	12,0	–	11,0	11,0	11,0	11,0	10,0	8,0	2,0	920 x 1204 x 1655	1017.0011.05	4	
unistat® 925w	-90...200	110	2,5[2]	12,0	–	16,0	16,0	16,0	16,0	15,0	13,5	3,5	920 x 1204 x 1655	1017.0001.05	4	
unistat® 930w	-90...200	110	2,5[2]	24,0	–	19,0	19,0	20,0	20,0	20,0	15,0	5,0	920 x 1204 x 1655	1017.0002.05	5	
unistat® 950	-90...200	130	4,0[2]	36,0	–	30,0	30,0	30,0	30,0	30,0	24,0	10,0	1700 x 3500 x 1850	1018.0002.05	5	
unistat® 950w	-90...200	130	4,0[2]	36,0	–	36,0	36,0	36,0	36,0	36,0	25,0	10,0	2630 x 1300 x 1930	1018.0001.05	5	

Model to -120 °C	Working Temperature Range (°C)	Pump max. VPC (l/min)	(bar)	Heating (kW)	Cooling Power (kW) at (°C) 100	0	-20	-40	-60	-80	-100	Dimensions W x D x H (mm)	Cat.No.	G	Price
unistat® 1005w	-120...100	30	0,9[1]	2,0	1,5	1,5	1,5	1,5	1,4	1,4	1,0	700 x 804 x 1520	1019.0001.05	4	
unistat® 1015w	-120...100	44	1,5[1]	4,0	2,5	2,5	2,5	2,5	2,5	2,0	2,0	920 x 1204 x 1655	1020.0001.05	5	

Option: natural refrigerants available on request

High Temperature Thermostats

High-precision and space-saving temperature control up to +425 °C. The new HT thermostats of the Unistat® cc400 range set new standards in safety, easy operation, and rapid, dynamic temperature control. The Unistat® cc401w HT model features integral stepper motor to control the HT-Cooling, level protection and configurable overtemperature protection. Its minimal internal volume allows the shortest heat-up times to be achieved, while at the same time the maximum expansion tank temperature is limited to +60 °C. The working life and properties of the thermal fluid are also protected, by avoiding direct contact between the hot fluid and atmosphere.
The HT thermostats with controlled HT-Cooling are suitable for temperature control applications up to +425 °C, e.g. a double-jacketed reaction vessel (reactor), and pilot plants, as well as the semiconductor Industry and high temperature distillation. They are suitable to maintain a high constant temperature, or to contain an exothermic reaction at high temperature.

Advantages:

- Small space required
- Low fill-volume
- High Pump capacity
- Rapid, efficient filling of the complete application – with venting
- +60 °C max. expansion tank temperature
- Plug & Play Technology
- Simple operation
- High level of safety through constant monitoring

| unistat® T320 |

| unistat® T340 |

| unistat® T305 |

Some like it hot

In the DSM Nutritional Products, NRD/CC-Miniplant Process Technology Solutions Centre, Switzerland, Huber HT Thermostats are used extensively where heating power is required in confined spaces. My colleagues are particularly impressed with the technical functionality, which is simple to use with the Huber Software. The optional pressure booster pump is ideal for use with the HT thermostats in both glass and stainless steel apparatus. This equipment is irreplaceable in our daily work.

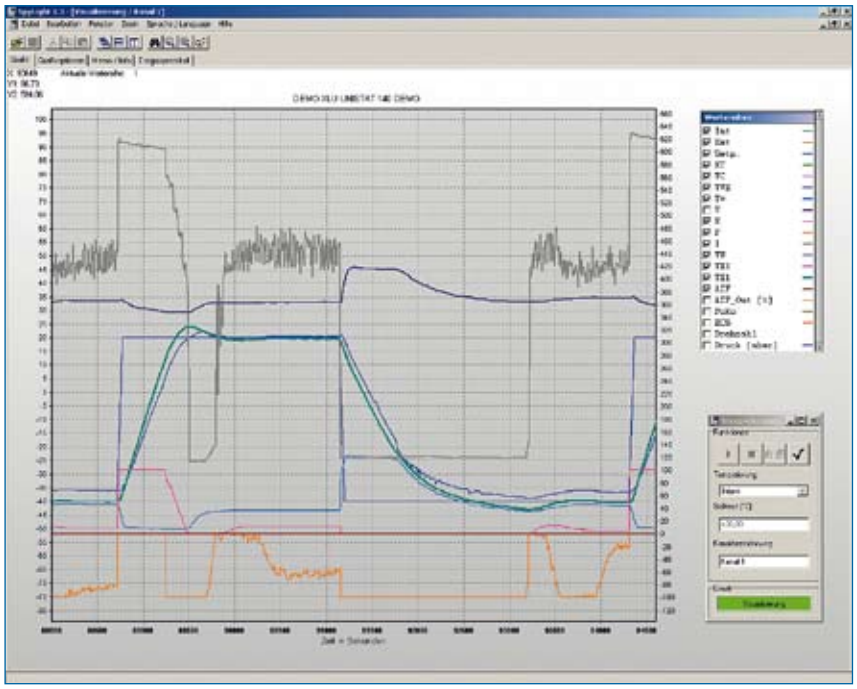
Peter Zimmermann, Technical Team Leader Mini-Plant, DSM Nutritional Products

Plug & Play
3 years warranty

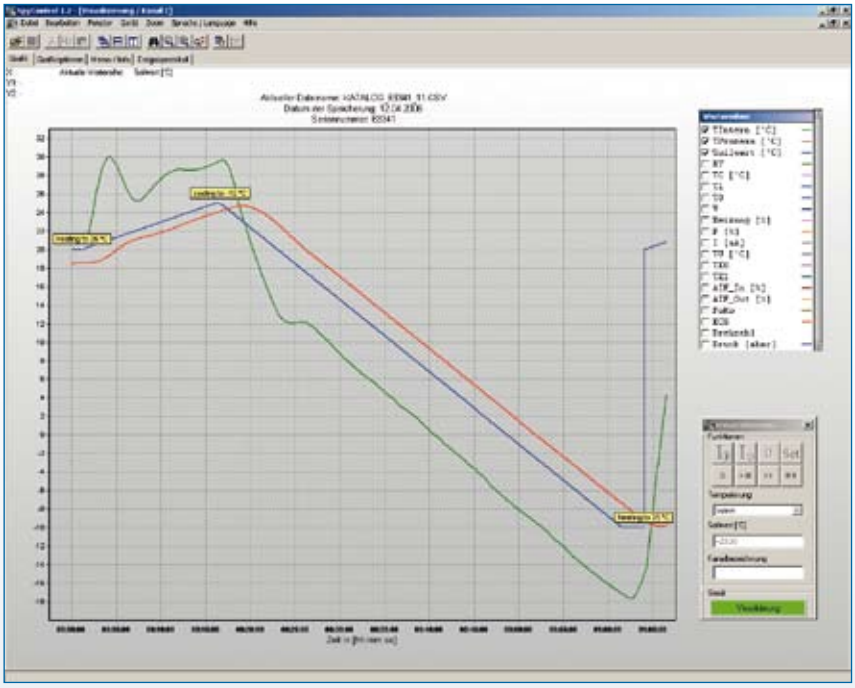
Model	Temperature Range (°C)	Pump max. VPC (l/min)	(bar)	Heating (kW)	Cooling Power (kW) at (°C) 400	300	200	100	Dimensions W x D x H (mm)	Cat.No.	G	Price
unistat® cc401	50..400	31	0,9[1]	3,0/9,0	–	–	–	–	288 x 378 x 750	1028.0001.04	3	
unistat® cc401w HT	(15) 50..400	31	0,9[1]	3,0/9,0	10,0	10,0	10,0	10,0	288 x 378 x 750	1028.0002.04	3	
unistat® cc402	80..425	31	1,0[1]	3,0/9,0	–	–	–	–	288 x 332 x 870	1028.0006.04	3	

Model	Temperature Range (°C)	Pump max. VPC (l/min)	(bar)	Heating (kW)	Cooling Power (kW) at (°C) 400	300	200	100	Dimensions W x D x H (mm)	Cat.No.	G	Price
unistat® T305	(15) 65..300	45	0,9[1]	3,0/6,0	–	–	–	–	425 x 250 x 635	1003.0001.05	3	
unistat® T305 HT	65..300*	45	0,9[1]	3,0/6,0	–	3,2	2,3	0,6	425 x 250 x 635	1003.0002.05	3	
unistat® T305w HT	(15) 65..300	45	0,9[1]	3,0/6,0	–	10,0	10,0	10,0	425 x 250 x 635	1003.0003.05	3	
unistat® T320	(15) 65..300	70	1,5[2]	12,0	–	–	–	–	460 x 554 x 1332	1004.0001.05	3	
unistat® T320w HT	(15) 65..300	60	1,5[2]	12,0	–	10,0	10,0	6,0	460 x 554 x 1332	1004.0002.05	3	
unistat® T330	(15) 65..300	70	2,5[2]	24,0	–	–	–	–	460 x 554 x 1332	1004.0008.05	3	
unistat® T330w HT	(15) 65..300	60	2,5[2]	24,0	–	10,0	10,0	6,0	460 x 554 x 1332	1004.0009.05	3	
unistat® T340	(15) 65..300	75	2,5[2]	48,0	–	–	–	–	600 x 704 x 1517	1024.0001.05	3	
unistat® T340w HT	(15) 65..300	60	2,5[2]	48,0	–	10,0	10,0	6,0	600 x 704 x 1517	1024.0002.05	3	
unistat® T350	(15) 65..300	110	4,0[2]	96,0	–	–	–	–	700 x 804 x 1515	1025.0001.05	4	

[1]integrated VPC pressure control [2]VPC pressure control via bypass * Lowest working temperature 15 K above ambient temperature



Test with a 20 litre reactor filled with DW Therm



Temperature with ramp function in a 20 litre reactor filled with DW Therm

	Huber Software	Cat.No.	G	Price
	SpyLight® (1 Channel)	6790	1	
	SpyWatch® (10 Channel)	6791	1	
	SpyControl® (10 Channel)	6792	1	

SpyLight®

The SpyLight® software enables process relevant data to be visualised and documented. The communication options are RS232, RS485 or TCP/IP. SpyLight® is easy to install, is economic with computer resources and child's play to use. The recorded data is displayed to a base of time. The axes are freely scalable and a zoom function helps the evaluation of individual segments.

SpyWatch®

SpyWatch® is based on the SpyLight® software but offers more features. Installation and operation is identical. SpyWatch® can operate up to 10 channels simultaneously. Each channel is independently documented and the graphic options can be configured as required. SpyWatch® allows the user to ussue the following instructions to the unit:

- Set point
- Change from jacket to process temperature
- Start/Stop

SpyControl®

SpyControl® is software which contains the functions of SpyLight® and SpyWatch®. An additional point is that it offers the possibility to control one or more machines with a programmer. The user can give temperature programs for the machines, which then automatically run. The segments of a temperature control program can be input in a user friendly manner using the so called Temperature control-Xplorer which is a module of SpyControl®. The temperature control programs so produced can be modified or changed and archived. The basic course of a temperature control program can also be displayed graphically.

Explosion proof installations

Two alternative solutions are available: Using the ATEX compliant Unistat® remote control II 2G Ex ib IIC T4 where the Unistat® is located outside the Ex zone OR the Unistat® is installed in an Ex-p pressure enclosure within the Ex zone.

Description:
Ex-p enclosure for zones 1 and 2
with pressure encapsulation to EN 60079-2
Type:
Ex px II T4
Features:
Stainless steel construction

- Door with Ex double door seal and turnbuckle latch
- 1 breakout with safety film for installation of Unistat®-Pilot (standard operability and functionality are not impaired)
- 2 x bulkhead fittings for cooling water connection
- Conductive rollers
- Ex-px enclosure pressurized encapsulation to EN 60079-2
- Ex ia temperature measurement (Cat.No. 9399)
- 2 x metal braided hoses for cooling water connection
- redundant temperature monitoring

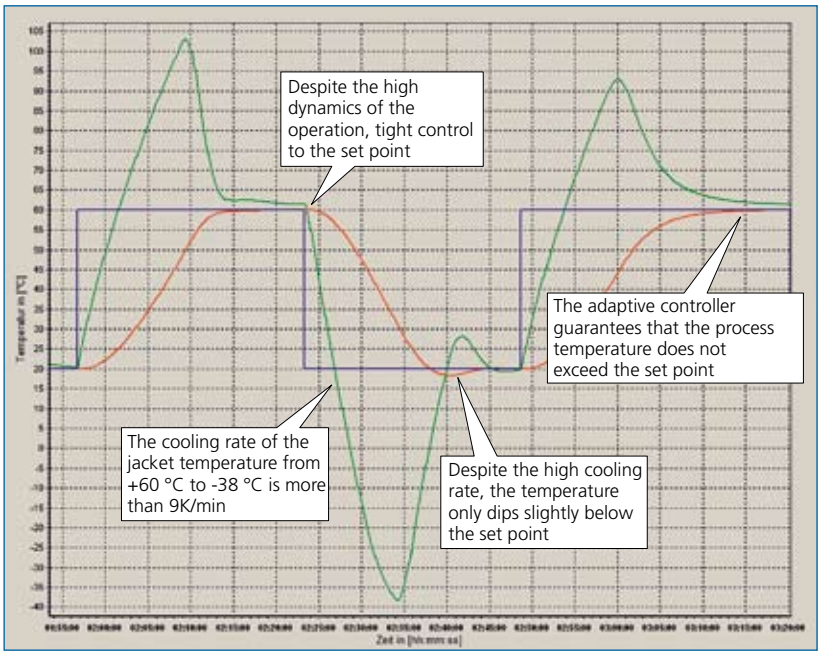
For unichillers® we can offer a custom quotation. Please provide us with zone, explosion sub-group and temperature class when requesting information.

Ex-p Enclosure	for Unistat® model	Cat.No.	G	Price
Ex-p Enclosure I	425w, 430w, 510w, 515w, 520w, 525w, 530w, 815w, 825w, 830w, 910w, 1005w 610w, 615w, 620w, 625w	6967	–	
Ex-p Enclosure II	630w, 635w, 640w, 920w, 925w, 930w	6968	–	
Ex-p Enclosure IV	tango nuevo wl, 405w, 410w, 705w	6970	–	
Remote Control Unistat® II 2G EEx ib IIC T4	all	9401	–	
Ex ia Process (nuevo version II)	all	9399	–	

Case study: Unistat® 610w

Unistat® 610w connected to a 20-litre glass reactor from Büchi AG Uster. The case study illustrates the different types of results which can be obtained using periodic and aperiodic controller settings.

Dynamic control with minimal over-/undershoot: The graphic shows a rapid heating from 20 °C to 60 °C within 16 minutes. It can be seen that the jacket temperature reaches 103 °C, so the process temperature of 60 °C can be reached quickly. The TAC (True Adaptive Control) shows even with dynamic controller settings the process temperature has negligible overshoot.



Dynamics and Performance, the Unistats® convince

The following cooling process to 20 °C also shows only a minimal undershoot. The Unistat® 610w cools the 20-litre reactor within 17 minutes to 20 °C, using a temperature difference of 40 K.

The adaptive controller was adjusted to avoid over- and undershoot. Repeating the heating process from 20 °C to 60 °C with the condition that the process temperature must not overshoot the new setpoint. TAC calls for a jacket temperature of 92 °C, a slightly lower heating rate than before. The time to reach temperature takes 24 minutes. The cooling time from 60 °C to 20 °C is 30 minutes.

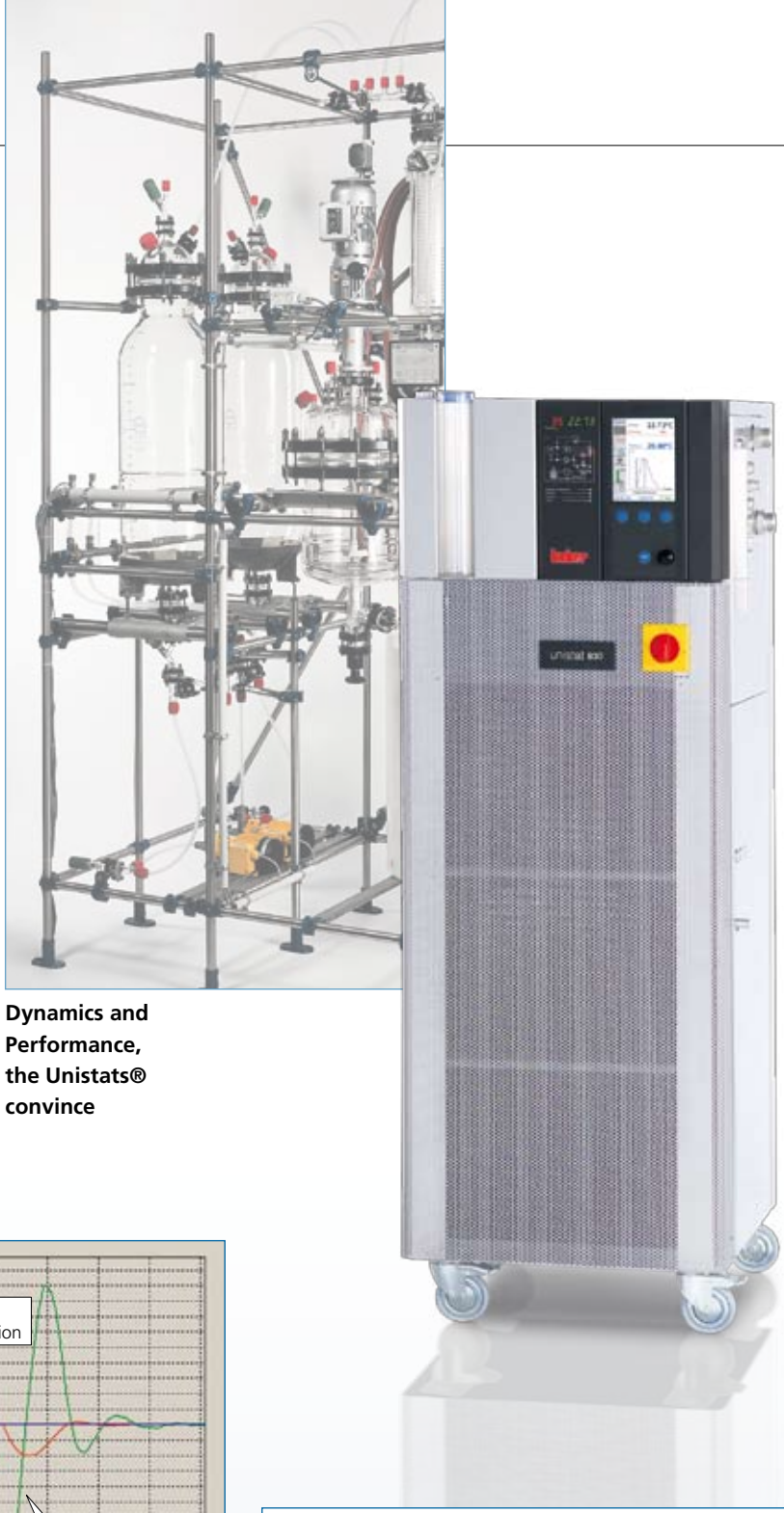
Setup details:

Temperature range:	-60….200 °C
Cooling power:	7 kW @ 200 °C…0 °C 6,4 kW @ -40 °C
Heating power:	12 kW
Hoses:	2x metal hose 1m connection M38x1,5
HTF:	DW-Therm
Reactor:	Büchi AG Uster 20-litre glass jacketed
Reactor content:	15-litre M90.055.03
Reactor stirrer:	70 rpm
Control:	Process

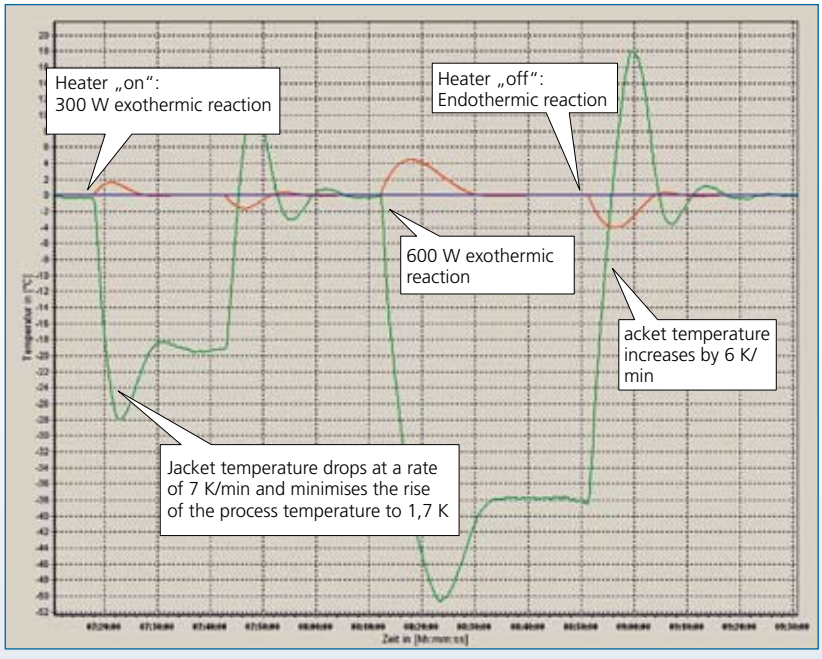
Case Study: Unistat® 830

The Unistat® 830 simulated and controls 300 watt exothermic and endothermic reactions in a 25-litre reactor from QVF.

Exothermic reactions are simulated using an electric heater. The graphic shows that the Unistat® 830 recognises the exothermic reactionand immediately activates the refrigeration system. The jacket temperature drops rapidly. The first reaction has a power of 300 watts, and the corresponding temperature rise of 1,7 K is removed within 9 minutes. An endothermic reaction is simulatedby switching the heater off. The Unistat® reacts by delivering heating power immediately. The process temperature is controlled to the set point within 15 minutes. The Unistat® behaves similarly with a reaction of 600 watts. The process temperature rises 4,3 K and after 18 minutes the brings the process temperature to the setpoint.



Dynamics and Performance, the Unistats® convince



Setup details:

Temperature range:	-85….200 °C
Cooling power:	3,6 kW @ 0 °…..0 °C 3,5 kW @ -40 °C
Heating power:	3 kW
Hoses:	metal hose 2x 1,5 m connections M38x1,5
HTF:	DW-Therm
Reactor:	QVF 25-litre glass jacketed
Reactor content:	18,75-litre M90.055.03
Reactor stirrer:	70 rpm
Control:	Process

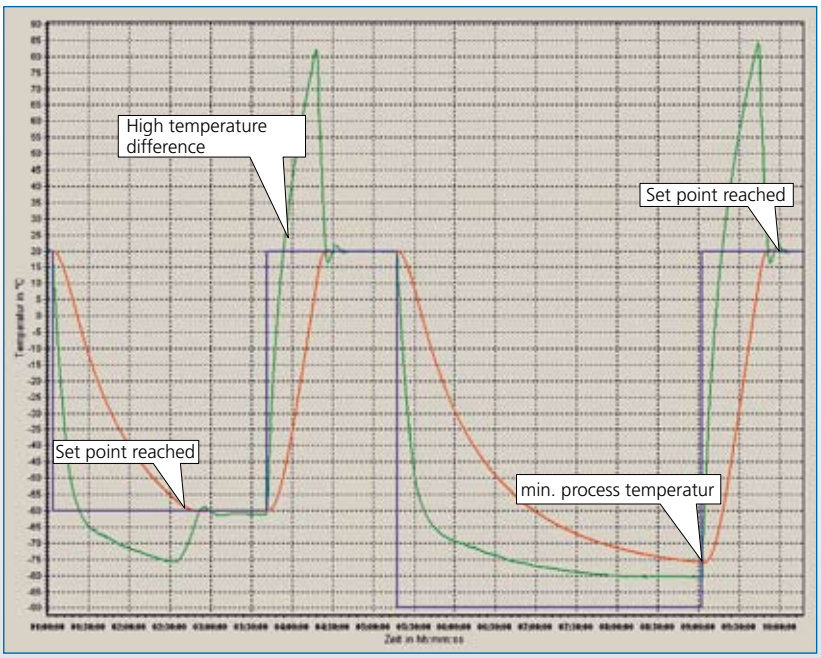
Case Study: Unistat® 910w

Unistat® 910w connected to a 50-litre glass reactor from Chemglass Inc., Vineland, NJ USA

Cooling from +20 °C to -60 °C. The Unistat® 910w quickly drops the jacket temperature. During the cooling process a maximum temperature difference between reactor contents (process temperature) and the jacket of about 60 K is achieved.The setpoint is reached in about 100 minutes. The heating process begins and a temperature difference of between reactor contents and jacket of 85 K is quickly established.The set point of 20 °C is reached within 65 minutes. The second cooling process shows the minimum achievable end temperature lies slightly below -75 °C (the jacket temperature is no longer decreasing).

Setup details

Temperature range:	-90...250 °C
Cooling power:	5,2 kW @ 200…-20 °C 4,7 kW @ -40 °C
Heating power:	6 kW
Hoses:	M30x1,5; 2x1,5 m
HTF:	DW-Therm
Reactor:	Chemglass Inc. 50-litre glass jacketed
Reactor content:	37-litre M90.055.03
Reactor stirrer speed:	80 rpm
Control:	Process

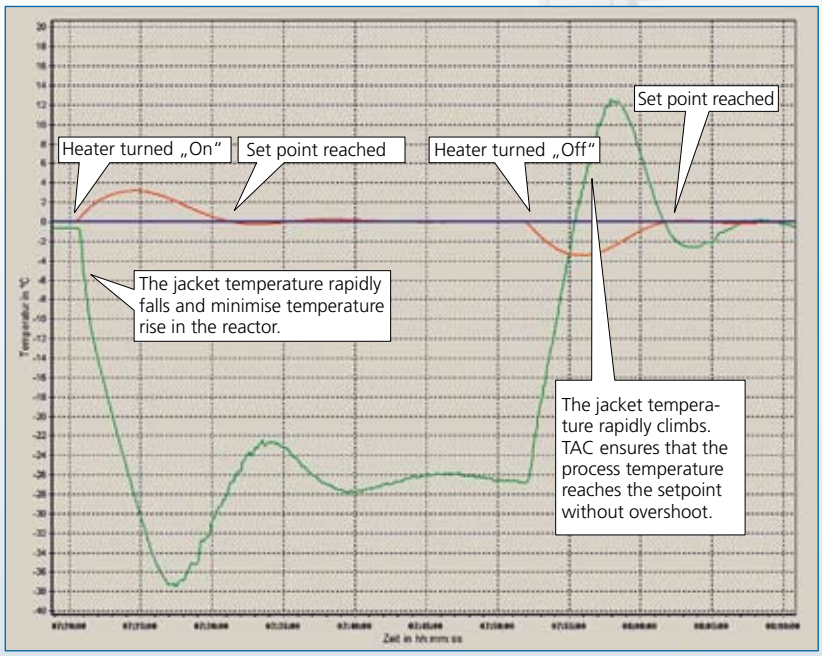


Case Study: Unistat® 825w

The Unistat® 825w controls simulated 300 watt exothermic and endothermic reactions in a 10-litre reactor from Büchi AG Uster.

How quickly can a sudden 300 watt heat source (exothermic reaction) be brought under control by a Unistat® 825w. The Unistat® reacts immediately to the temperature increase in the reactor. The reaction is brought under control by rapidly dropping the jacket temperature. The reaction causes a 3,2 K increase in the process temperature. The process temperature is brought back to the 0 °C setpoint within 11 minutes. An endothermic reaction is simulated by switching off the heating. The process temperature drops 3,2 K and within 10 minutes the process temperature is back to the setpoint.

Simulation of exothermaland endothermal reactions



Setup details:

Temperature range:	-85….250 °C
Cooling power:	2,4 kW @ 0 °C….-40 °C 1,5 kW @ -60 °C
Heating power:	3 kW
Hoses:	2 x metal hose 1m connection M30x1,5
Pump speed:	3500 rpm
HTF:	DW-Therm
Reactor:	Buchi AG Uster; 10-litre glass jacketed
Reactor content:	7,5-litre M90.055.03
Reactor stirrer speed:	400 rpm
Control:	Process

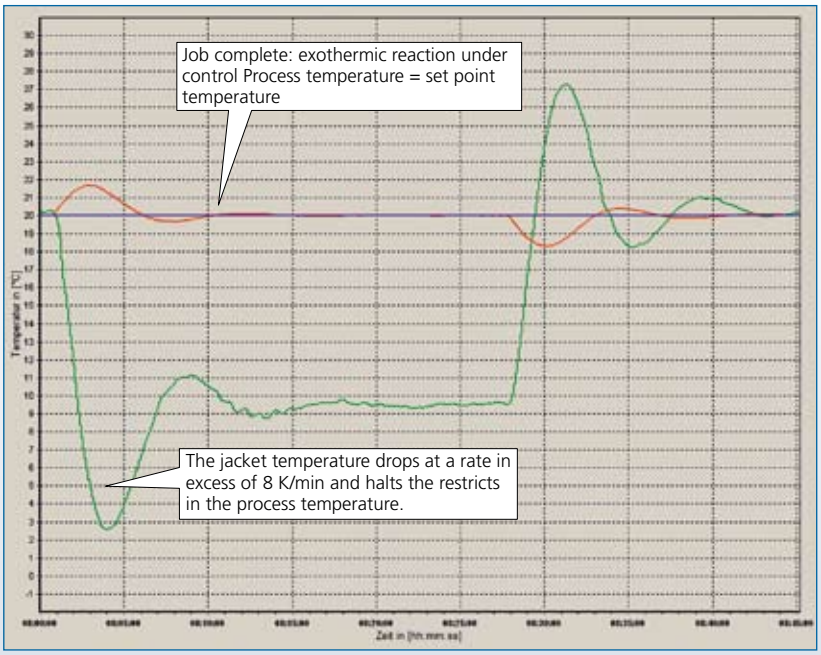
Setup details

Temperature range:	-50….250 °C
Cooling power:	5,0 kW @ 250 °C…100 °C
	5,3 kW @ 0 °C
	2,8 kW @ -20 °C
Heating power:	6,0 kW
Hoses:	2 x hose 1m
	connection M24x1,5
HTF:	DW-Therm
Reactor:	Büchi AG Uster
	15-litre – glass/enamel reactor
Reactor content:	10-litre M90.235.20
Reactor stirrer:	80 rpm
Control:	Process

Case Study: Unistat® 510w

The Unistat® 510w controls 300 watt exothermic and endothermic reactions in a 15-litre reactor from Büchi AG Uster.

The graphic illustrates the thermoregulation dynamics during a simulated exothermic reaction. Immediately after the heater (simulation of the exothermic reaction) was switched on. The Unistat® reacts by dropping the jacket temperature by 17 K at a rate of 8 K/min. The sudden temperature drop restricts the the rise in the process temperature to 1,7 K. The Unistat® 510w removes this temperature rise within 9 minutes. After 25 minutes the heating is switched off (simulating an endothermic reaction) and the process temperature drops to circa 18,3 °C. The Unistat® brings the process temperature to the setpoint within 12 minutes.



Case Study: Unistat® 930w

Unistat® 930w connected to a 100-litre glass reactor from Diehm. This case study shows the cooling rates and the minimum achievable end temperature in the reactor.

Cooling from +20 °C to -60 °C is achieved within 86 minutes The process temperature drops at a rate of 1 K/min. After the temperature was controlled at -60 °C a test was made to establish the minimum achievable end temperature in the reactor. After 120 minutes the 100 litre reactor from Diehm reaches -82 °C. The graphic shows that the process and jacket temperatures have a difference of only 5 K.

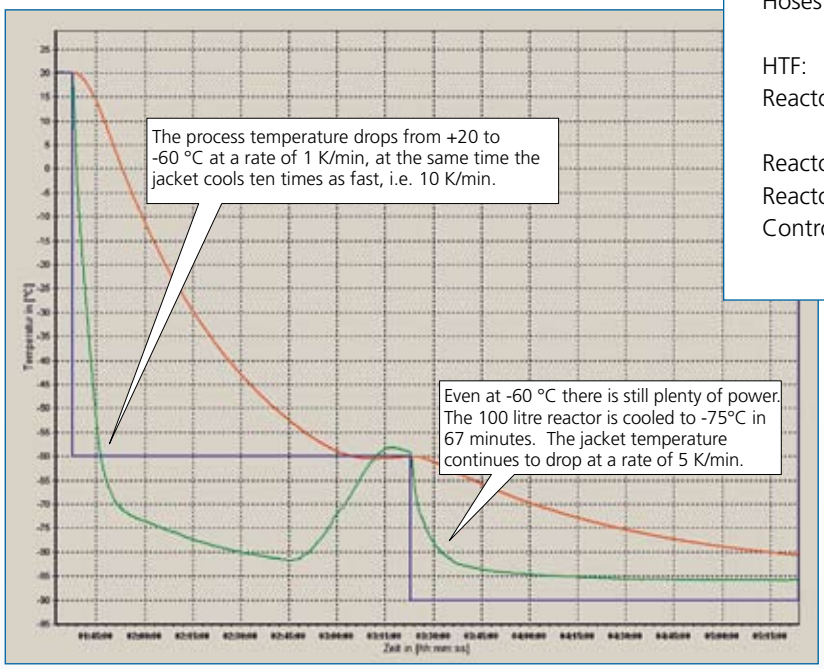
Impressive Thermoregulation

Unistats® convince our customers with the performance. The results are predictable and repeatable. The Unistat® Technology guarantees the highest possible process safety and stability.

Dr. Libor Reichstätter, Merci Ltd

Setup details:

Temperature range:	-90….200 °C
Cooling power:	19 kW @ 200 °C
	20 kW @ 0 °C to -40 °C
	15 kW @ -60 °C
	5 kW @ -80 °C
Heating power:	24 kW
Hoses :	2 x hose 1m
	connection M38x1,5
HTF:	DW-Therm
Reactor:	Diehm
	100-litre glass jacketed not insulated
Reactor content:	75-litre M90.055.03
Reactor stirrer speed:	400 rpm
Control:	Process



Controller in Plug&Play-Technology		Cat.No.	G	Price
Unistat®-Controllers are upgradeable with modern Flash-technology (please ask your service partner).	Unistat®-Control	503.0002	3	
	Unistat®-Pilot	503.0003	3	
ComG@te for Unistats®		6915	1	
Table stand for Unistat®-Pilot		9237	1	
Wall mounting bracket for Unistat®-Pilot		9375	1	
Side mounting bracket for Unistat®-Pilot		9408	1	

Control Cables	Control Cables (Standard length 3 m) from	to	note	Cat.No.	G	Price
Control cable for use with RS232, RS485 or analogue interface (AIF). Control cables can be configured to request.	ComG@te RS232/CC/UC	PC		6146	1	
	Unistat®-Control/CC/UC	Unistat®-Pilot/CC-Pilot	Extension cable	16160	1	
	ComG@te RS485		Cable end open	6279	1	
	ComG@te AIF		Cable end open	9353	1	
	Cable with special length available on request					

External Pt100 sensor	Sensors (standard cable lenght 1,5 m)	Cat.No.	G	Price
For external thermoregulation applications there are different sensors available. Special versions can be made on request.	closed Ø 6 mm 180 mm	6138	1	
	closed with handle Ø 6 mm 200 mm	6105	1	
	closed Ø 8 mm 400 mm	6064	1	
	mounted in protective pipe Ø 8 mm 170 mm	6205	1	
	M16x1 sensor for flow or return	6352	1	
	M16x1 sensor for flow or return double	6353	1	
	M30x1,5 sensor for flow or return	6509	1	
	M30x1,5 sensor for flow or return double	6363	1	
	Extension cable Pt100, 3m	6292	1	
	Sensor with special length available on request			

Bypass, (variable pressure control, vpc)			Cat.No.	G	Price
Stepless controlled bypass for Unistats® without variable speed pump. The max. pressure will be adjusted at the Unistat®-Pilot.	stepless controlled bypass	M24 x 1,5	on request	4	
		M30 x 1,5	9334	4	
	external pressure sensor	M38 x 1,5	9335	4	
		M24 x 1,5	9338	4	
		M30 x 1,5	9336	4	
		M38 x 1,5	9337	4	

Manual adjustable bypasses (uncontrolled) page 81

Safety Devices		Cat.No.	G	Price
Float switch in-sight glass, leak monitoring (highest safety class). Atmospheric sealing kit for sight glass and expansion vessel, e.g. for inert gas blanketing.	Float switch	6152	1	
	Sealing kit (for Unistats® with Nuevo Technology)	9402	2	
	Sealing kit (for Unistats® without Nuevo Technology)	6523	2	

Trolleys	for	Cat.No.	G	Price
The trolleys make the Unistats® mobile.	tango nuevo, unistat® 405w	9350	2	
	unistat® 705, 705w	6263	2	
	unistat® 405	9392	2	

Connections for Mettler Toledo „LabMax", „RC1"	Adaptor unistat® 40x Metal Hose NW20 / M30 x 1,5:	Qty	Cat.No.	G	Price
For use with the LabMax or the RC1 in variations High temp, Mid temp and low temp, use the adapters listed here.	M30 x 1,5 AG - 1/2" female	1x	6394	1	
	M30 x 1,5 AG - 3/4" female	1x	6442	1	
	M30 x 1,5 AG - M16 x 1 female	1x	6431	1	

DW-Therm -90 °C ...+200 °C

Specifications

Appearance and odour: transparent, colourless or yellow liquid with characteristic odour
Silane content: 99%
Viscosity: 2,0–2,2 mm² / sec at 20 °C
Density: 0,88 g / cm³ at 15 °C
Boiling range: 228–235 °C
Solidification at: -137 °C
Flash point: 101 °C
Ignition temperature: 265 °C
Usage closed systems

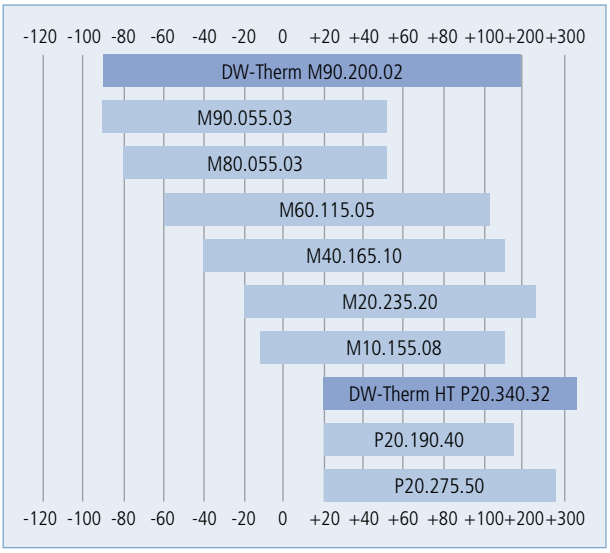
Properties

DW-Therm is a mixture of isometric triethoxysilanes and has been developed for hydraulically sealed systems.

Notes

- broad working range from -90 °C to +200 °C (hydraulically sealed systems)
- excellent thermooxidative stability at high temperatures
- low viscosity at low temperatures
- low volatility and pleasant odour
- easy handling (no creeping like silicone oils)
- good compatibility with silicone oils
- insoluble in water and environmentally friendly
- not classified as dangerous goods, no known toxicity

Operating range of thermal fluids			
P20.330.32:	plus 20°C	+330°C	32 mm²/s at 25°C
M40.165.10:	minus 40°C	+165°C	10 mm²/s at 25°C



DW-Therm HT +20 °C ...+330 °C

Specifications

Appearance: clear, orange coloured liquid
Content: 99,5 % partially hydrogenated terphenyls
kinematic Viscosity: 32 mm² / sec at 20 °C
Density: 1,004 g / cm³ at 20 °C
Boiling starts at: approx. 350 °C
Pour point: -33 °C
Flash point: ca. 190 °C
Fire point: ca. 218 °C
Ignition temperature: ca. 390 °C
Usage closed systems

Properties

DW-Therm HT is a mixture of parially hydrogenated terphenyls. It is for use exclusively in high temperature unistats®.

Notes

- broad working range from +20 °C to +330 °C (hydraulically sealed system)
- long lifetime at high temperatures under inert atmosphere: 3-4 years
- good thermal properties for heat transfer
- high oxidation stability

More informations under www.dws-synthese.de

Thermal Fluid		Litre	Cat.No. (G1)	Price
DW-Therm*	M90.200.02	10	6479	
DW-Therm HT*	P20.330.32	5	6672	
		10	6673	
MinOil	P20.190.40	5	6155	
		20	6156	
SynOil	M10.120.08	5	9684	
		10	9685	
SilOil	P20.275.50	5	6157	
		10	6158	
SilOil	M20.235.20	5	6161	
		10	6162	
SilOil	M40.165.10	5	6163	
		10	6164	
SilOil	M60.115.05	5	6165	
		10	6166	
SilOil	M80.055.03	5	6167	
		10	6168	
SilOil	M80.100.03	5	6275	
		10	6276	
SilOil	M90.055.03	5	6258	
		10	6259	

* exclusive for Unistats®

Huber chillers are called

Small footprints, robust and service friendly units, modern energy management, simple to use, flexible functionality, modular technology – these are the results of designs without compromise.

Unichillers® are intelligent chillers which are used mainly as an environmentally friendly and economic alternative to tap water for process cooling. Low temperatures increase efficiency and recovery rates in gas condensation processes. In contrast to tap water a desired setpoint can be selected between -10/-20 °C to 40 °C and controlled with a temperature stability of ±0.5 °C. The product range includes 27 air cooled and 26 water cooled models, with cooling powers from 0.3 kW to 50 kW. Most models can be factory fitted with a heater. The casings are made of stainless steel to ensure long life and high quality.

Minichiller® and Unichiller® for environmentally friendly refrigeration

Minichiller® or Unichiller®

Unichiller® with CC-Pilot
The proven Huber tower models offer power with small footprints. These top models have the exchangeable Compatible Control CC-Pilot. These models are used in both research and production, the range of cooling powers available is from 1.6 to 100 kW.

Features
- Space saving tower design: small dimensions, high powers
- Robust stainless steel construction
- Reliable continuous operation with alarm and early warning functions
- CC-Pilot with Plug & Play Technology
- Splash protection of display and function keys
- Large and bright TFT display
- Digital level indicator
- Simple to fill and drain
- Simple to use EASY Control, with rotary input and function keys
- All functions listed alphabetically
- RS232 interface and connection for optional ComG@te (NAMUR Standard)
- Strong pumps for systems with large pressure drops
- High flow rates for optimal heat transfer
- External Pt100 sensor via 4-wire Lemo S.A. connector
- 5-Point calibration
- IP-class to IEC EN 60529: 21

- Options (factory fitted)
  – Heater and adjustable over temperature protection
  – VPC (variable pressure control) with steplessly variable Bypass and pressure sensor
  – Winter operation for use in low temperature external environments
  – Weather protection
  – Tropical versions for environmental temperature up to 40 °C
  – Stronger pumps

Unichiller® with MPC-Controller
Compact, value-for-money units are available in classic look with cooling powers up to 2.5 kW for cooling applications in the lab. The models from Minichiller® to UC025w are suitable for on or under the lab bench.

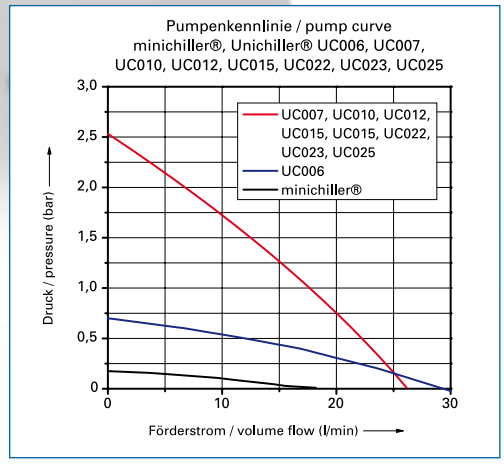
Classic Look and Minitower with value for money technology

Minichiller® and Unichiller® present themselves in classic look with cooling powers from 0.3 to 2.5 kW. Two water-cooled models in tower casings with a minimal footprint. Excellent control performance is achieved using a modern and easy to use microprocessor based controller with a large display. Thanks to high safety standards and a robust construction especially suited to removing process heat with continuous operation. With the exception of the two models in tower casings all units can be factory fitted with optional heating and independent overtemperature protection. The maximum working temperature increases to 100 °C and the temperature stability is ±0.5 K. The new construction allows constant operation in ambient temperatures up to 40 °C. The water-cooled models are especially quiet and require little cooling water even at full cooling power. Due to increasing costs of water the ROI is exceptionally short. All models with maximum pump pressure of 3 bar have an adjustable bypass and a pressure gauge.

Minichiller®

Small, robust and cost effective with its stainless steel casing. The Minichiller® is the smallest Unichiller® in the World.
Minichillers® are available with air or water-cooled refrigeration systems, illuminated level indicator, overflow and drain on the front. The filling port is on the top of the unit.

| minichiller®-NR |



| UC006 |

Model	Working Temp. Range (°C)	Pump max. (l/min)	Pump max. (bar)	Cooling Power (kW) at (°C) 15	0	-10	Dimensions W x D x H (mm)	mobile with trolley	Cat.No.	G	Price
minichiller®-NR	-20...40	20	0,2	0,3	0,2	0,14	225 x 360 x 380	–	3006.0015.99	2	
minichiller® w-NR	-20...40	20	0,2	0,3	0,2	0,14	225 x 360 x 380	–	3006.0022.99	2	
UC006	-20...40	30	0,7	0,6	0,5	0,22	280 x 490 x 414	–	3007.0001.99	3	
UC007	-20...40	25	2,5	0,7	0,55	0,35	350 x 430 x 622	–	3012.0001.99	3	
UC010	-10...40	25	2,5	1,0	0,8	0,5	350 x 430 x 622	–	3012.0002.99	3	
UC012	-10...40	25	2,5	1,2	1,0	0,7	420 x 480 x 579	Height: 660	3009.0002.99	3	
UC012w	-10...40	25	2,5	1,2	1,0	0,7	350 x 430 x 622	–	3012.0003.99	3	
UC015	-10...40	25	2,5	1,5	1,0	0,4	420 x 480 x 579	Height: 660	3009.0001.99	3	
UC015w	-10...40	25	2,5	1,5	1,0	0,4	350 x 430 x 622	–	3012.0004.99	3	
UC022	-10...40	25	2,5	2,2	1,6	1,0	460 x 590 x 743	incl.	3010.0001.99	3	
UC022w	-10...40	25	2,5	2,2	1,6	1,0	420 x 480 x 579	Height: 660	3009.0003.99	3	
UC023w	-10...40	25	2,5	2,0	2,0	1,3	350 x 430 x 622	–	3012.0005.99	3	
UC025	-10...40	25	2,5	2,5	2,0	1,2	460 x 590 x 743	incl.	3010.0002.99	3	
UC025w	-10...40	25	2,5	2,5	2,0	1,2	420 x 480 x 579	Height: 660	3009.0004.99	3	

Option heating for minichiller®-NR 1 kW, for UC models 2 kW

Option: Natural Refrigerant available on request

| UC007 |

| UC022 |

Unichiller®, Minichiller® „Advanced" (Further information page 9-11)

Model	Working Temp. Range (°C)	Pump max. (l/min)	Pump max. (bar)	Cooling Power (kW) at (°C) 15	0	-10	Dimensions W x D x H (mm)	mobile with trolley	Cat.No.	G	Price
minichiller®-NR Advanced	-20...40	20	0,2	0,3	0,2	0,14	225 x 360 x 380	–	3006.0025.99	2	
minichiller® w-NR Advanced	-20...40	20	0,2	0,3	0,2	0,14	225 x 360 x 380	–	3006.0026.99	2	
UC006 Advanced	-20...40	30	0,7	0,6	0,5	0,22	280 x 490 x 414	–	3007.0004.99	3	
UC007 Advanced	-20...40	25	2,5	0,7	0,55	0,35	350 x 430 x 622	–	3012.0025.99	3	
UC010 Advanced	-10...40	25	2,5	1,0	0,8	0,5	350 x 430 x 622	–	3012.0026.99	3	
UC012 Advanced	-10...40	25	2,5	1,2	1,0	0,7	420 x 480 x 579	Height: 660	3009.0018.99	3	
UC012w Advanced	-10...40	25	2,5	1,2	1,0	0,7	350 x 430 x 622	–	3012.0027.99	3	
UC015 Advanced	-10...40	25	2,5	1,5	1,0	0,4	420 x 480 x 579	Height: 660	3009.0017.99	3	
UC015w Advanced	-10...40	25	2,5	1,5	1,0	0,4	350 x 430 x 622	–	3012.0028.99	3	
UC022 Advanced	-10...40	25	2,5	2,2	1,6	1,0	460 x 590 x 743	incl.	3010.0009.99	3	
UC022w Advanced	-10...40	25	2,5	2,2	1,6	1,0	420 x 480 x 579	Height: 660	3009.0019.99	3	
UC023w Advanced	-10...40	25	2,5	2,0	2,0	1,3	350 x 430 x 622	–	3012.0029.99	3	
UC025 Advanced	-10...40	25	2,5	2,5	2,0	1,2	460 x 590 x 743	incl.	3010.0010.99	3	
UC025w Advanced	-10...40	25	2,5	2,5	2,0	1,2	420 x 480 x 579	Height: 660	3009.0020.99	3	

Option heating for minichiller®-NR 1 kW, for UC models 2 kW

Option: Natural Refrigerant available on request

Unichiller® (bench top) with water cooled refrigeration

Chillers with mini footprints for the lab

The models UC006Tw and UC009Tw have a footprint of only 230 x 280 mm and are therefore suitable for installation in laboratory furniture or in extract hoods.

The water-cooled chillers emit almost no heat and require minimal amounts of cooling water.

[W] 900W

On top: pump and cooling water connections, illuminated sightglass.
Front: drain, overflow and operation panel

| UC009Tw-NR |

Ideal partner for rotary evaporators

The UC009Tw with the 2-way-valve system allows my customers to connect two exhaust vapour condensers from chemistry pumps or two condensate coolers from rotary evaporators in parallel. They appreciate the space saving design.

Judy Iguchi, Chemglass Inc.

Model	Working Temp. Range (°C)	Pump max. Type	(l/min)	(bar)	Cooling Power (kW) at (°C) 15	0	-10	-20	Dimensions W x D x H (mm)	(W/dm³) at 15°C	0°C	Cat.No.	G	Price
UC006Tw-NR	-20..40	A	30	0,7	0,6	0,45	0,4	0,25	230 x 280 x 540	16,9	12,7	3022.0007.99	3	
UC009Tw-NR	-25..40	A	30	0,7	0,9	0,7	0,4	0,2	230 x 280 x 540	25,4	22,6	3022.0002.99	3	

Also available as Advanced model

Unichiller® in Tower Housings with CC-Pilot

Chillers with state-of-the-art technology
All stand models have the exchangeable Compatible Control „CC-Pilot". The cooling power is regulated by an automatic stepper motor controlled valve to adapt to the actual requirements. The intelligent and environmentally friendly energy management system minimises heat emission and reduces the operating costs (cooling water and electricity) of the water cooled models. The sound levels of the air-cooled models have been minimised through the use of speed controlled condenser fans. The refrigeration systems are exceptionally robust and can operate in environmental temperatures up to 40 °C. The internal CAN technology allows connection to a range of power and control components and is therefore suitable for this wide ranging product group:
The new Unichillers® with air- or water-cooled refrigeration systems are available from cooling powers of 1.7 kW for typical laboratory applications. The powerful Unichillers® with cooling powers up to 100 kW are also used as a central supply of cooling water for labs or complete buildings.

Process circulators with heating
Unichillers® with a optional heating become powerful process circulators for the mid temperature range -10/-20 up to 100 °C with a temperature stability of ±0.1 K.

For the highest quality and flexibility requirements
For reasons of quality and a long operational life the casings are all made of stainless steel. The options weather protected and/or winter operation allow the big Unichillers® to be located outdoors and controlled remotely by the CC-Pilot at the application. Stronger pumps are available for systems with high pressure drops, a maximum delivery pressure of 6 bar and flow rates of over 200 litre per minute are available.

Unichiller®
with air cooled refrigeration

| UC045T |

| UC110T |

[kW] to 40 kW

air cooled models from 1.7 to 40 kW

Model	Working Temp. Range (°C)	Pump max. Type	(l/min)	(bar)	Cooling Power (kW) at (°C) 15	0	-10	-20	Dimensions W x D x H (mm)	(W/dm³) at 15°C	0°C	Cat.No.	G	Price
UC017T	-10..40	B	27	3,0	1,7	0,9	0,4	–	450 x 510 x 1160	6,4	3,4	3013.0001.04	3	
UC020T	-20..40	B	27	3,0	2,0	2,0	1,5	0,8	450 x 510 x 1160	7,5	7,5	3013.0002.04	3	
UC025T	-10..40	B	27	3,0	2,5	1,2	0,6	–	450 x 510 x 1160	9,4	4,5	3013.0003.04	3	
UC040T	-10..40	B	27	3,0	4,0	2,5	1,5	–	500 x 550 x 1420	11,0	6,9	3014.0001.04	3	
UC045T	-20..40	B	27	3,0	4,5	4,5	2,9	1,5	500 x 550 x 1420	12,4	12,4	3014.0002.04	3	
UC055T	-10..40	C3	65	5,5	5,5	3,0	1,3	–	600 x 632 x 1610	9,1	5,0	3015.0001.04	3	
UC060T	-20..40	C3	65	5,5	6,0	6,0	3,9	2,0	600 x 632 x 1610	9,9	9,9	3015.0002.04	3	
UC080T	-10..40	C3	90	5,5	8,0	4,8	2,5	–	600 x 790 x 1614	11,4	6,5	3016.0001.04	3	
UC100T	-20..40	C3	90	5,5	10,0	10,0	6,5	2,5	600 x 790 x 1614	13,1	13,1	3017.0001.04	4	
UC110T	-10..40	C3	90	5,5	11,0	6,0	2,7	–	600 x 790 x 1614	14,4	7,9	3017.0002.04	4	
UC130T*	-10..40	C3	90	5,5	13,0	7,0	4,5	–	904 x 1260 x 1855	6,8	4,4	3018.0001.04	4	
UC150T*	-20..40	D3	180	4,5	15,0	15,0	9,7	3,7	874 x 1485 x 1820	6,2	6,2	3019.0001.04	4	
UC160T*	-10..40	D3	180	4,5	16,0	8,8	4,0	–	904 x 1260 x 1855	8,3	4,6	3018.0002.04	4	
UC200T*	-10..40	D3	180	4,5	20,0	11,0	5,0	–	874 x 1485 x 1820	8,3	4,6	3019.0002.04	4	
UC210T*	-20..40	D3	180	4,5	21,0	21,0	13,6	5,2	874 x 1985 x 1855	6,6	6,6	3020.0001.04	4	
UC250T*	-10..40	D3	180	4,5	25,0	14,0	6,2	–	874 x 1985 x 1855	7,8	4,4	3020.0002.04	5	
UC260T*	-20..40	D3	220	4,5	26,0	26,0	13,6	5,2	874 x 1985 x 1855	8,0	8,0	3020.0003.04	5	
UC300T*	-10..40	D3	220	4,5	30,0	16,5	7,5	–	874 x 1985 x 1855	9,3	5,1	3020.0004.04	5	
UC400T*	-10..40	D3	220	4,5	40,0	22,0	10,0	–	2500 x 1685 x 1785	5,3	2,9	3021.0001.04	5	

* without trolley

Option: heating 2 kW to 100°C

Option: Natural Refrigerant available on request

Unichiller®
with water cooled refrigeration

huber Natural Refrigerant inside

[kW] to 50 kW
water cooled models
from 1.7 to 50 kW

| UC 025Tw |

| UC 130Tw |

Model	Working Temp. Range (°C)	Pump max. Type	(l/min)	(bar)	Cooling Power (kW) at (°C) 15	0	-10	-20	Dimensions W x D x H (mm)	(W/dm³) at 15°C	0°C	Cat.No.	G	Price
UC017Tw	-10..40	B	27	3,0	1,7	0,9	0,4	–	400 x 440 x 1100	8,8	4,6	3024.0001.04	3	
UC020Tw	-20..40	B	27	3,0	2,0	2,0	1,5	0,8	400 x 440 x 1100	10,3	10,3	3024.0002.04	3	
UC025Tw	-10..40	B	27	3,0	2,5	1,2	0,6	–	400 x 440 x 1100	12,9	6,2	3024.0003.04	3	
UC030Tw	-20..40	B	27	3,0	3,0	3,0	2,0	1,0	400 x 440 x 1100	15,5	15,5	3025.0001.04	3	
UC040Tw	-10..40	B	27	3,0	4,0	2,5	1,5	–	400 x 440 x 1100	20,7	12,9	3025.0002.04	3	
UC055Tw	-10..40	C3	65	5,5	5,5	4,0	2,0	–	500 x 552 x 1261	15,8	11,5	3026.0001.04	3	
UC060Tw	-20..40	C3	65	5,5	6,0	6,0	3,8	2,1	500 x 552 x 1261	17,2	17,2	3026.0002.04	3	
UC080Tw	-10..40	C3	90	5,5	8,0	4,65	2,35	–	500 x 552 x 1261	23,0	13,4	3026.0003.04	3	
UC100Tw	-20..40	C3	90	5,5	10,0	10,0	6,3	3,0	600 x 600 x 1450	19,2	19,2	3027.0001.04	4	
UC110Tw	-10..40	C3	90	5,5	11,0	5,8	2,55	–	600 x 600 x 1450	21,1	11,1	3027.0002.04	4	
UC130Tw	-10..40	C3	90	5,5	13,0	7,0	4,5	–	600 x 600 x 1450	24,9	13,4	3027.0003.04	4	
UC150Tw	-20..40	D3	180	4,5	15,0	15,0	10,0	5,0	760 x 800 x 1560	15,8	15,8	3028.0001.04	4	
UC160Tw	-10..40	D3	180	4,5	16,0	9,5	5,5	–	600 x 600 x 1450	30,7	18,2	3027.0004.04	4	
UC200Tw	-10..40	D3	180	4,5	20,0	10,7	4,7	–	760 x 800 x 1560	21,1	11,3	3028.0002.04	4	
UC210Tw	-20..40	D3	180	4,5	21,0	21,0	15,5	9,5	760 x 800 x 1560	22,1	22,1	3028.0003.04	4	
UC250Tw	-10..40	D3	180	4,5	25,0	14,0	6,2	–	760 x 800 x 1560	26,4	14,3	3028.0004.04	5	
UC260Tw	-20..40	D3	220	4,5	26,0	26,0	20,0	12,0	760 x 800 x 1560	27,4	27,4	3028.0005.04	5	
UC300Tw*	-10..40	D3	220	4,5	30,0	16,0	7,1	–	760 x 900 x 1560	28,1	15,0	3029.0001.04	5	
UC400Tw*	-10..40	D3	220	4,5	40,0	21,0	10,0	–	760 x 900 x 1560	37,5	19,7	3029.0002.04	5	
UC500Tw*	-10..40	D3	220	4,5	50,0	26,0	–	–	1070 x 760 x 1625	37,8	19,7	3030.0001.04	5	

* without trolley Option: heating 2 kW to 100°C Option: Natural Refrigerant available on request

RotaCool® – a Co-Product

The „RotaCool®“ is a product co-developed with Heidolph to provide a dedicated cooling service to small bench top Rotary Evaporators.
It works well with all Rotary Evaporators.

Benefits are:

- Independent cooling for individual Rotary Evaporators
- Non-reliance on un-predictable house water supplies
- Consumes no additional bench space, the rotary evaporator sits on top
- Compact and powerful

New!
Removable extension plate

Also available from:
Heidolph Instruments GmbH & Co. KG
Walpersdorferstrasse 12
D-91126 Schwabach
Tel. 09122-9920-69
E-Mail: Heidolph.Instruments@Heidolph.de
Internet: www.heidolph.com

Model	Working Temp. Range (°C)	Cooling Power (kW) at (°C) 15	0	-10	Pump Data Pump max. (l/min)	(bar)	max. Suction (l/min)	(bar)	Dimensions W x D x H (mm)	Cat.No.	G	Price
RotaCool®	-10..40	0,42	0,35	0,22	20	0,2	17	0,18	470 (582*) x 580 x 420	3033.0005.99	3	

Option: Natural refrigerant available on request Dimensions subject to change * with removable extension plate (112 mm)

Pumps

We offer alternative pumps for applications with higher pressure drops.
Models with the Pump A are only suitable for externally closed systems. Models with the Pumps B, C and D can also be configured for operation with external open systems.
The quoted technical data is indicative, and will vary slightly depending on the model.

Pump	Pump duty (l/min) at (bar)						
	0,2	0,5	1,0	2,0	2,5	3,0	4,0
A	20	10	–	–	–	–	–
B*	–	21	17	6	–	–	–
B1*	–	40	35	28	24	20	10
C3**	–	–	65	60	45	40	25
C4**	–	–	80	75	75	60	30
D3**	–	–	140	160	140	130	90

*Stronger pump options available from UC017T / UC017Tw ** Pump suitable for UC055T / UC055Tw and above

Pump	Reduction in cooling power:	Price
B1 für B	150 W	
C4 für C3	400 W	
D3 für C3	750 W	
D3 für C4	350 W	

Ocassionally it might be necessary to increase the unit housing.

External Pt100-sensors

For external thermoregulation applications there are different sensors available. Special versions can be made on request.

Sensors (Standard length 1,5 m)	Cat.No.	G	Price
Ø 6 mm 180 mm	6138	1	
with handle Ø 6 mm 200 mm	6105	1	
Ø 8 mm 400 mm	6064	1	
mounted in protective pipe Ø 8 mm 170 mm	6205	1	
M16x1 sensor for flow or return	6352	1	
M16x1 sensor for flow or return double	6353	1	
M30x1,5 sensor for flow or return	6509	1	
M30x1,5 sensor for flow or return double	6510	1	
Extension cable Pt100, 3m	6292	1	

sensors with special lengths on request

Extension Cables

For use with the Unistat® Pilot and CC-Pilot and also for the external ComG@te.

Extension Cables (Standard length 3 m)		Cat.No.	G	Price
Unistat® Control / CC / UC	Unistat®-Pilot / CC-Pilot	16160	1	

cables with special lengths on request

Control Cables

for ComG@te
Control cables for operation via the RS232, RS485 or the analogue interface (AIF). A range of control cables and plugs are available for ECS (external control signal), programmable volt-free (POKO) and for an external float switch.

Control Cables (Standard length 3 m)		Cat.No.	G	Price
from	note			
ComG@te R232	e.g. to PC	6146	1	
ComG@te RS485	Cable end open	6279	1	
ComG@te AIF	Cable end open	9353	1	
ComG@te ECS	Cable end open	9491	1	
ComG@te POKO	Cable end open	9490	1	
ComG@te LEVEL	Cable end open	9492	1	

Cables with special lenghts on request

Accessories

Accessories	Cat.No.	G	Price
Float switch	6152	1	
Weather resistant option	on request		

Modern Classics: Bath

Compatible Control Circulators are modern classics. Their predecessors have spread the still exclusive exchangeable controllers throughout the world since 1980.

Thermostats

CC circulators are classic constructions. Pump, control sensor, heater and evaporator are all located at the back part of the bath. This allows the use of both, optional calibration inserts for high precision calibration and also displacement inserts for increasing system temperature dynamics.

MPC circulators waive the advantages of Plug & Play Technology and is therefore a low cost alternative.

State of the art pump technology: The top range models with the CC-Pilot have powerful pressure and suction pumps. The pump speed can be controlled steplessly to suit the bath configuration. The maximum permissible pressure for an external application can be controlled via the optional ComG@te (digital interfaces RS232 and RS485, analogue interface 0/4-20 mA or 0-10 V, external control signal and programmable alarm) and pressure sensor. The pressure control VPC (variable pressure control) has already proved itself as an additional protection against glass breakage in the Unistats®.

Robust construction: The thermoregulation bath is welded to the unit cover plate. This means that no seal is required and offers lifelong protection to the insulation. The cover plate is also thermoregulated to avoid the formation of condense water or ice.

Chic: Circulator with stainless steel coat with exchangeable CC-Pilot or as Low-Cost alternative with the new MPC-Controller.

Hot and Cold: Compatible Control heating circulators operate up to 300 °C and with heating powers up to 4 kW.
Refrigerated bath circulators are available with working ranges between -90 °C and 200 °C. Beginning with the Ministat®, the smallest refrigerated circulator in the world, the actively cools at 200 °C.
Active Cooling Control – this means permanent operation of the refrigeration system at the maximum working temperature is possible, and has been a feature of all Compatible Control refrigerated circulators since 1976.

Environmentally friendly refrigeration: All refrigeration machines have automatic cooling power control and thereby reduce the energy consumption and heat emission to an absolute minimum. Water-cooled models have water saving refrigeration machines and typically use approximately one third of the cooling water required by other circulators. Huber refrigeration machines had stopped using CFCs and

huber Natural Refrigerant inside

Plug & Play
3 years warranty

The facts are convincing!

Large power to HTF volume ratio (W/dm³): Unusually large cooling powers, also at low temperatures and compact build form result large power to HTF volume ratios.

High cooling power density (W/L): Many bath circulators are suitable for displacement inserts (accessory). This allows unusually high cooling power density and the corresponding rapid temperature changes even at low temperatures.

Stainless steel casings: Quality and chic – stainless steel and little paint.

Air-cooled or water-cooled: The larger water-cooled units use typically two thirds the amount of cooling water used by conventional units. The CC-410wl was the first refrigeration circulator in the world (introduced in 1997) with an automatic change-over air- or water-cooled refrigeration system. In summer economic use of water – in winter air-cooled operation for heating the lab.

HCFCs (R22) years before the prohibition and therefore had a zero ozone depletion potential (ODP). To bring the greenhouse effect also to zero, Compatible Control circulators are also available with natural refrigerants.

Safety first: No compromises with safety! The requirements of the highest safety classification (3) to DIN 12876 are achieved through level protection and an adjustable independent overtemperature protection.

Infinitely variable: The simple versions are typical bath circulators, and as the name suggests mostly used for direct thermoregulation in the bath. They comprise of an immersion circulator and a bath. The bath is available in different sizes and materials. The polycarbonate baths (A) are transparent with operating temperatures up to 100 °C. The insulated stainless steel baths (B) have a maximum working temperature of 200 °C. The simple refrigeration circulators comprise of an immersion circulator (CC-E or MPC-E) and a refrigerated bath (K).

VPC
Variable Pressure Control

CC-Pilot with TFT-display and Plug&Play-Technology

Heating Thermostats with Polycarbonate bath

The transparent polycarbonate baths are suitable for use up to 100 °C. An Immersion Thermostat is mounted on the bath bridge for all models. With a pump adaptor, this combination can also be used with external, closed applications. The models with the CC-Pilot have a variable speed pressure/suction pump and are therefore also suitable for external open applications. The temperature stability, in accordance with DIN 12876, is 0,02 K for the CC-models and 0,05 K for the MPC-models.

| CC-118A |

| CC-E |

Immersion Thermostats

Immersion thermostats are the basis of many combinations of polycarbonate and stainless steel baths. Together with a cooling bath exact and reproducible temperatures down to -30 °C are possible.

| MPC-E |

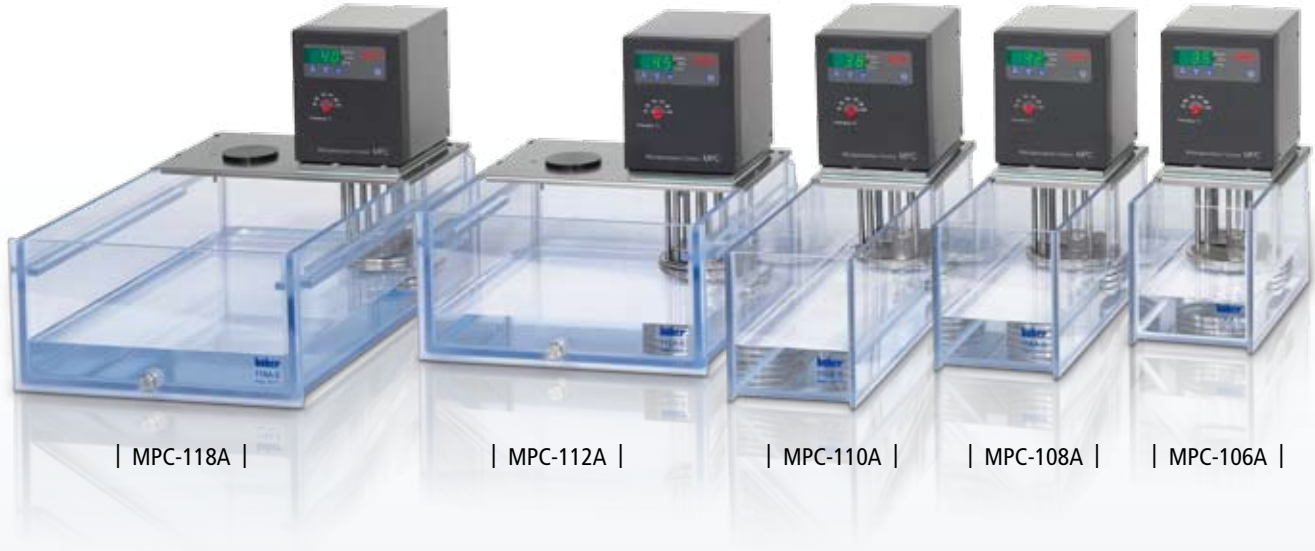
Model	Temperature Range (°C)	Temperature Stability** (K)	Heating Power (kW)	Pump Data max. Pressure (l/min)	Pump Data max. Pressure (bar)	Pump Data max. Suction (l/min)	Pump Data max. Suction (bar)	Safety Class***	Dimensions W x D x H (mm) / ID (mm)	Cat.No.	G	Price
CC-E	(-30) 25..200	0,01	2,0	27	0,7	25	0,4	FL, III	132 x 159 x 315/150	2000.0001.04	1	
MPC-E*	(-30) 25..200	0,05	2,0	20	0,2	17	0,18	FL, III	132 x 153 x 312/150	2035.0001.99	1	

* Also available as Advanced model ** to DIN 12876, measured in al stainless steel tank 12 litres *** FL for flammable liquids, III = adjustable overtemperature protection and addition low-liquid level protection

Plug & Play

3 years warranty

| CC-112A | | CC-110A | | CC-108A | | CC-106A |



| MPC-118A | | MPC-112A | | MPC-110A | | MPC-108A | | MPC-106A |

Model	Temp. max. (°C)	Heating (kW)	Bath Opening (mm)	Bath Depth (mm)	Bath Volume (ltr)	Pump Data max. Pressure (l/min)	Pump Data max. Pressure (bar)	Pump Data max. Suction (l/min)	Pump Data max. Suction (bar)	Dimensions W x D x H (mm)	Cat.No.	G	Price
CC-106A	100	2	130 x 110	150	6	27	0,7	25	0,4	147 x 307 x 330	2001.0001.04	1	
MPC-106A*	100	2	130 x 110	150	6	20	0,2	17	0,18	147 x 307 x 330	2037.0001.99	1	
CC-108A	100	2	130 x 210	150	8	27	0,7	25	0,4	147 x 407 x 330	2001.0002.04	1	
MPC-108A*	100	2	130 x 210	150	8	20	0,2	17	0,18	147 x 407 x 330	2037.0002.99	1	
CC-110A	100	2	130 x 310	150	10	27	0,7	25	0,4	147 x 507 x 330	2001.0003.04	1	
MPC-110A*	100	2	130 x 310	150	10	20	0,2	17	0,18	147 x 507 x 330	2037.0003.99	1	
CC-112A	100	2	303 x 161	150	12	27	0,7	25	0,4	333 x 360 x 335	2001.0004.04	1	
MPC-112A*	100	2	303 x 161	150	12	20	0,2	17	0,18	333 x 360 x 335	2037.0004.99	1	
CC-118A	100	2	303 x 321	150	18	27	0,7	25	0,4	333 x 520 x 335	2001.0005.04	1	
MPC-118A*	100	2	303 x 321	150	18	20	0,2	17	0,18	333 x 520 x 335	2037.0005.99	1	

Safety class FL, III * Also available as Advanced model

Heating Thermostats with Stainless steel baths

The insulated stainless steel baths are suitable for use up to 200 °C. All models have a bridge-mounted CC-E and MPC-E Immersion Thermostat. With a pump adaptor, this combination can also be used with externally closed and externally open applications. The temperature stability is 0,02 K for CC-E and 0,05 K for MPC-E to DIN 12876.
The models with the CC-Pilot have a variable speed pressure/suction pump and are therefore also suitable for external open applications.

*with option level control

Model	Temp. max. (°C)	Heating Power (kW)	Bath Opening (mm)	Bath Depth (mm)	Bath Volume (ltr)	Pump Data max. Pressure (l/min)	Pump Data max. Pressure (bar)	Pump Data max. Suction (l/min)	Pump Data max. Suction (bar)	Dimensions W x D x H (mm)	Cat.No.	G	Price
CC-208B	200	2	230 x 127	150	8,5	27	0,7	25	0,4	290 x 350 x 375	2002.0001.04	1	
MPC-208B*	200	2	230 x 127	150	8,5	20	0,2	17	0,18	290 x 350 x 375	2038.0001.99	1	
CC-212B	200	2	290 x 152	150	12	27	0,7	25	0,4	350 x 375 x 375	2002.0002.04	1	
MPC-212B*	200	2	290 x 152	150	12	20	0,2	17	0,18	350 x 375 x 375	2038.0002.99	1	
CC-215B	200	2	290 x 152	200	15	27	0,7	25	0,4	350 x 375 x 425	2002.0003.04	1	
MPC-215B*	200	2	290 x 152	200	15	20	0,2	17	0,18	350 x 375 x 425	2038.0003.99	1	
CC-220B	200	2	290 x 329	150	20	27	0,7	25	0,4	350 x 555 x 375	2002.0004.04	1	
MPC-220B*	200	2	290 x 329	150	20	20	0,2	17	0,18	350 x 555 x 375	2038.0004.99	1	
CC-225B	200	2	290 x 329	200	25	27	0,7	25	0,4	350 x 555 x 425	2002.0005.04	1	
MPC-225B*	200	2	290 x 329	200	25	20	0,2	17	0,18	350 x 555 x 425	2038.0005.99	1	

* Also available as Advanced model

| CC-225B |

| CC-205B |

| CC-202C |

Heating Circulation Thermostats

Good things come in small packages! Thanks to their low bath volumes the CC-202C/MPC-202C and CC-205B/MPC-205B are especially suitable for controlling the temperature of small external applications. The temperature of small objects can also be controlled by placing them directly in the bath. The maximum working temperature is 200 °C. The models with the CC-Pilot have a variable speed pressure/suction pump and are therefore also suitable for external open applications. The temperature stability, in accordance with DIN 12876, is 0,02 K for the CC-models and 0,05 K for the MPC-models.

Model	Temp. Range (°C)	Bath Opening (mm)	Bath Depth (mm)	Bath Volume (ltr)	Heating Power (kW)	Pump Data max. Pressure (l/min)	Pump Data max. Pressure (bar)	Pump Data max. Suction (l/min)	Pump Data max. Suction (bar)	Dimensions W x D x H (mm)	Cat.No.	G	Price
CC-202C	(-30)45..200	Ø25	150	2	2,0	27	0,7	25	0,4	178 x 260 x 355	2003.0001.04	1	
MPC-202C	(-30)45..200	Ø25	150	2	2,0	20	0,2	17	0,2	178 x 260 x 355	2039.0001.99	1	
CC-205B	(-30)45..200	105 x 90	150	5	2,0	27	0,7	25	0,4	178 x 337 x 355	2004.0001.04	1	
MPC-205B	(-30)45..200	105 x 90	150	5	2,0	20	0,2	17	0,2	178 x 337 x 355	2040.0001.99	1	

| CC-130A Visco 3 |

| Holder Ubbelohde Viscosimeter for Visco 3 (Cat.No. 9586) |

Visco-Thermostats

The "viscosity thermostats" are designed for capillary viscometery or for density measurements. They are constructed from transparent polycarbonate and are suitable for temperatures from 20 to 100 °C. They have a cooling coil for connection to a cooling source (e.g. a Minichiller®) to provide cooling. Various functions can be activated via E-grade.
The Visco 3-Model features a steel cover to facilitate three measurement inserts of 90 x 90 mm.
The Visco 5-Model is fitted with a steel cover with five Ø 51 mm openings.

Laurie Scioletti, Chemglass Inc.

This makes working fun:

Great! A viscosity bath with large and legible temperature display. The pump speed can be set to avoid any disturbing turbulence effects. This ensures perfect measurements every time. For certain customers a resolution of 0.01 K is required, therefore the E-grade „Exclusive" is activated.

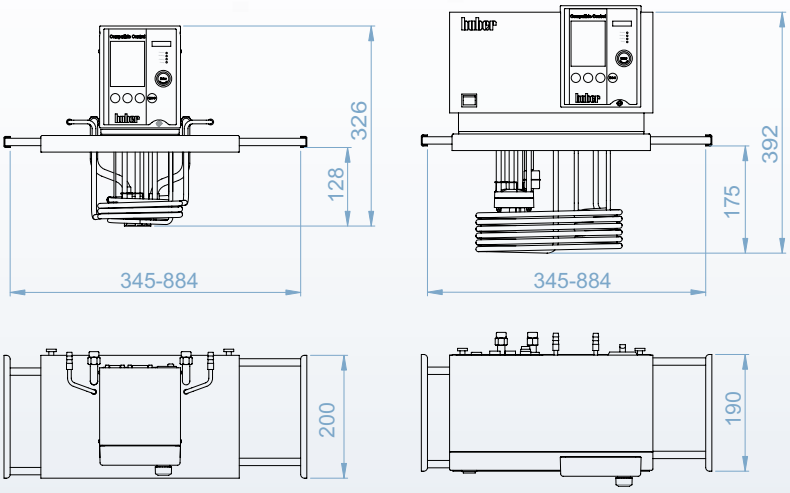
Model	Temperature max. (°C)	Heating Power (kW)	Bath Opening W x D (mm)	Bath Depth (mm)	Bath Volume (ltr)	Pressure pump Pressure (l/min)	Pressure pump max. (bar)	Dimensions W x D x H (mm)	Cat.No.	G	Price
CC-130A Visco 3	100	2	90 x 90	310	31	27	0,7	500 x 205 x 490	2001.0006.04	1	
CC-130A Visco 5	100	2	Ø 51	310	31	27	0,7	500 x 205 x 490	2001.0007.04	1	

(without accessories)

VPC
Variable Pressure Control

| CC-300BX |

| CC-200BX |



Bridge Thermostats

The bridge thermostats are suitable for use with a range of baths. The variable speed pressure/suction pump with VPC Technology is ideal for external thermoregulation applications. Models with bigger heating capacities are suitable for larger baths. The telescopic arms can be extended up to 884 mm.

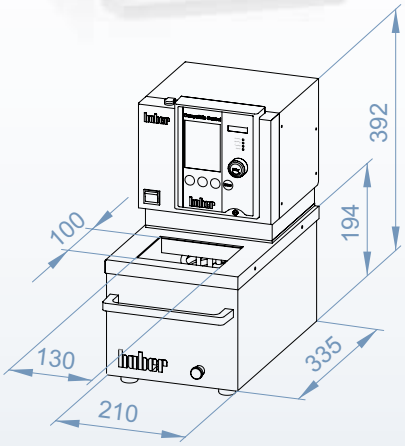
Model	Temperature Range (°C)	Heating Power (kW)	Temperature Stability* (K)	Pump Data max. Pressure (l/min)	(bar)	max. Suction (l/min)	(bar)	Cat.No.	G	Price
CC-200BX	(-20)28..200	2,0	0,02	27	0,7	25	0,4	2000.0003.04	1	
CC-300BX	(-20)28..300	3,0/4,0	0,02	27	0,7	25	0,4	2007.0002.04	1	

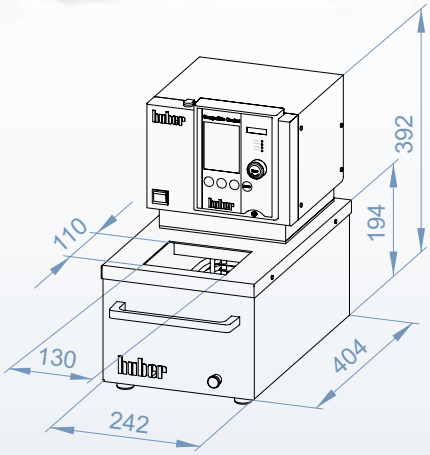
* to DIN 12876

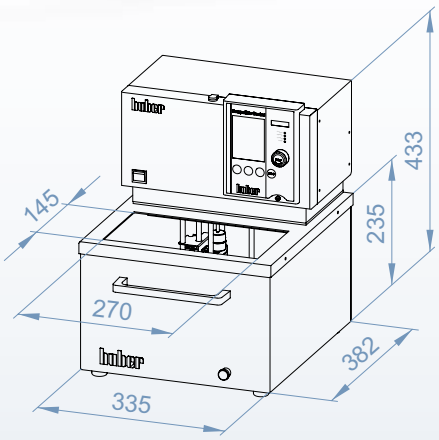
Heating bath circulators

For temperatures up to 300 °C, these extremely compact models have the smoothly controllable "vpc" pressure suction pump. The pump pressure can be controlled from the user-menu, using an optional pressure sensor, so protecting your glassware or other delicate apparatus from breakage.

| CC-304B | | CC-308B | | CC-315B |







Model	Temperature Range (°C)	Bath Volume (ltr)	Bath Depth (mm)	Heating Power (kW)	Temperature Stability* to DIN 12876 (K)	Pump Data max. Pressure (l/min)	(bar)	max. Suction (l/min)	(bar)	Cat.No.	G	Price
CC-304B	(-20)28..300	5,0	155	2,0	0,02	33	0,7	22	0,4	2005.0001.04	1	
CC-308B	(-20)28..300	8,5/5,2*	155	3,0	0,02	33	0,7	22	0,4	2006.0001.04	1	
CC-315B	(-20)28..300	15/8,5*	200	3,0/4,0	0,02	33	0,7	22	0,4	2007.0001.04	1	

* with displacement insert

Plug & Play
3 years warranty

| K20-cc-NR / K25-cc-NR | | K12-cc-NR / K15-cc-NR | | K20-mpc-NR / K25-mpc-NR | | K12-mpc-NR / K15-mpc-NR |

Cooling Circulators

Combinations of immersion circulators and insulated refrigeration baths are low-cost solutions for direct thermoregulation for the temperature range -20/-30 °C to 200 °C. The refrigeration baths operate with natural refrigerants. A pump adapter (optional) can be fitted for thermoregulation of externally closed and externally open* applications. Models with the CC-Pilot have a variable speed pressure/suction pump and are therefore suitable for external open thermoregulation applications. The temperature stability is 0.02 K for the CC-models and 0,05 K for the MPC-models.

*with option level control

Model	Temp. Range (°C)	Heating Power (kW)	Bath Opening (mm)	Bath Depth (mm)	Bath Volume (ltr)	Pump Data max. Pressure (l/min)	Pump Data max. Pressure (bar)	Pump Data max. Suction (l/min)	Pump Data max. Suction (bar)	Cooling Power (kW) at 0°C	Cooling Power (kW) at -10°C	Cooling Power (kW) at -20°C	Dimensions W x D x H (mm)	Cat.No.	G	Price
K12-cc-NR	-20..200	2	290 x 152	150	12	27	0,7	25	0,4	0,2	0,12	0,05	350 x 560 x 430	2009.0002.04	2	
K12-mpc-NR*	-20..200	2	290 x 152	150	12	20	0,2	17	0,18	0,2	0,12	0,05	350 x 560 x 430	2009.0005.99	2	
K15-cc-NR	-20..200	2	290 x 152	200	15	27	0,7	25	0,4	0,2	0,12	0,05	350 x 560 x 430	2010.0002.04	2	
K15-mpc-NR*	-20..200	2	290 x 152	200	15	20	0,2	17	0,18	0,2	0,12	0,05	350 x 560 x 430	2010.0005.99	2	
K20-cc-NR	-30..200	2	290 x 329	150	20	27	0,7	25	0,4	0,35	0,27	0,16	350 x 555 x 615	2011.0002.04	2	
K20-mpc-NR*	-30..200	2	290 x 329	150	20	20	0,2	17	0,18	0,35	0,27	0,16	350 x 555 x 615	2011.0005.99	2	
K25-cc-NR	-30..200	2	290 x 329	200	25	27	0,7	25	0,4	0,35	0,27	0,16	350 x 555 x 615	2012.0002.04	2	
K25-mpc-NR*	-30..200	2	290 x 329	200	25	20	0,2	17	0,18	0,35	0,27	0,16	350 x 555 x 615	2012.0005.99	2	

Safety class FL, III * Also available as Advanced model

Compatible Control Cooling Baths

The K6 models are compact refrigeration bath circulators for temperatures from -25 to 200 °C. These units are a combination of a miniature refrigerated bath and immersion circulator, in combination with a pump adapter they are suitable for external open* or closed applications. The combination with the immersion circulator CC-E with its suction/pressure pump is suitable for externally open and closed applications. The temperature stability is better than 0.02 K to DIN 12876. The K6 models and the powerful K6s-cc are low cost alternatives to the Ministat® 125, the smallest refrigeration circulator in the world and bestseller since 1976.

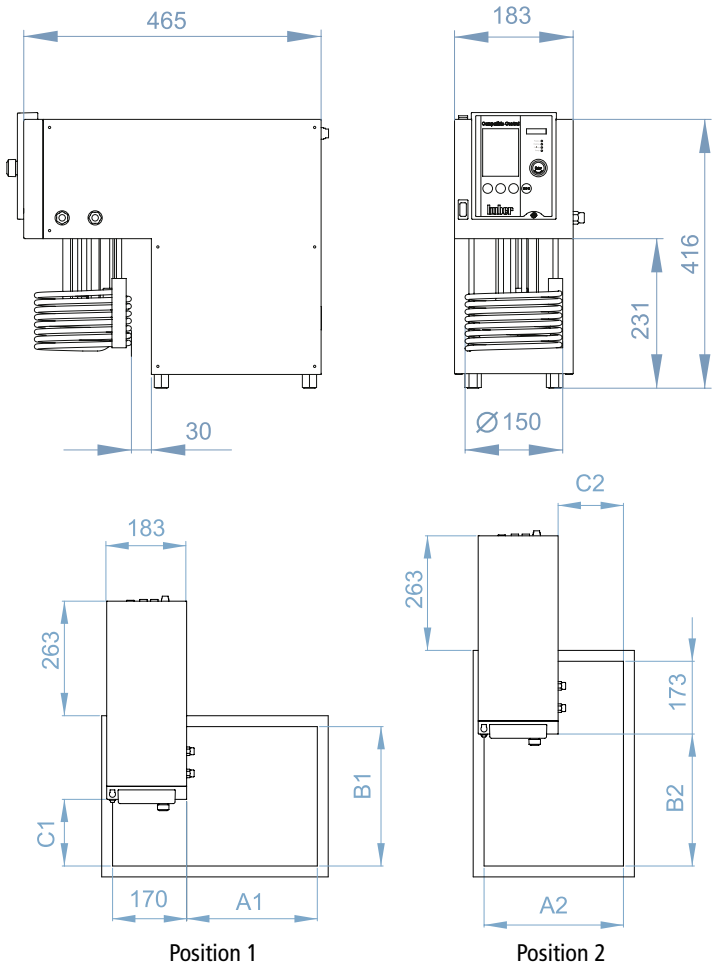
*with option level control

| K6-cc |
| K6s-cc |

| K6-mpc |
| K6s-mpc |

Model	Working Temperature Range (°C)	Heating Power (kW)	Bath Opening (mm)	Bath Depth (mm)	Bath Volume (ltr)	Pump Data max. Pressure (l/min)	Pump Data max. Pressure (bar)	Pump Data max. Suction (l/min)	Pump Data max. Suction (bar)	Cooling Power (kW) at (°C) 0	Cooling Power (kW) at (°C) -10	Cooling Power (kW) at (°C) -20	Dimensions W x D x H (mm)	Cat.No.	G	Price
K6-cc-NR	-25..200	2	140 x 120	150	4,5	27	0,7	25	0,4	0,15	0,1	0,05	210 x 400 x 546	2008.0005.04	2	
K6-mpc-NR*	-25..200	2	140 x 120	150	4,5	20	0,2	17	0,18	0,15	0,1	0,05	210 x 400 x 546	2008.0007.99	2	
K6s-cc-NR	-25..200	2	140 x 120	150	4,5	27	0,7	25	0,4	0,21	0,15	0,05	210 x 400 x 546	2008.0002.04	2	
K6s-mpc-NR*	-25..200	2	140 x 120	150	4,5	20	0,2	17	0,18	0,21	0,15	0,05	210 x 400 x 546	2008.0008.99	2	

* Also available as Advanced model



Variostat cc – the cooling thermostat for a variety of baths

This unique immersion circulator can thermoregulate a wide range of baths between -30 °C and 150 °C. This innovative construction allows the user ultimate flexibility. The circulation can be adjusted to suit the bath size using the stepless variable speed suction/pressure pump. The pump can also be controlled with an optional pressure sensor for external applications.

Insulated stainless steel baths are available in three standard sizes or made to measure. A drain is fitted as standard on the short side, on request this can be fitted on the long side. The order number has an L added to indicate the drain on the long side (Example 6052-L), see drawing.

huber Natural Refrigerant inside

Volume (Liter)	End-Temp. (°C)	Cooling Time* (min) with Ethanol to 0°C	-10°C	-20°C	free Bath Opening (mm) Position 1 A1	B1	C1	Position 2 A2	B2	C2
5,5	-30	15	30	55	85	160	–	160	85	–
11,0	-25	30	60	110	200	200	28	200	198	30
22,0	-20	65	130	240	300	320	148	320	298	150

*Cooling time, measured with ⅔ of bath covered

Insulated baths see Page 72

Model	Working Temperature Range (°C)	Bath Volume (ltr)	Heating Power (kW)	Pump Data max. Pressure (l/min)	(bar)	max. Suction (l/min)	(bar)	Cooling Power (kW) at (°C) 100	20	0	-20	-30	Cat.No.	G	Price
variostat cc	-30..150	variabel	1,0	27	0,7	20	0,4	0,3	0,3	0,2	0,12	0,03	2013.0001.04	2	

Function version available by E-grade Option: Natural Refrigerant available on request Temperature Stability to DIN 12876: 0,02 K

All stainless steel ministats® set the standard in the compact class

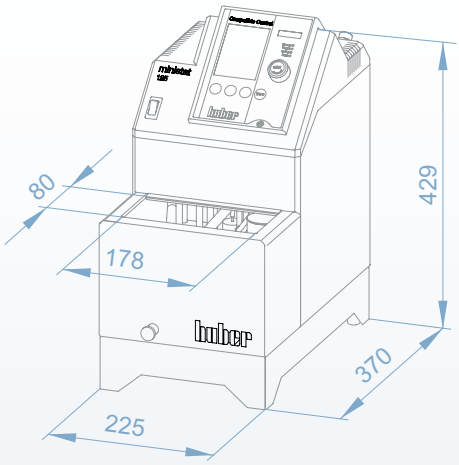
Ministats® – exceptionally compact and powerful – the smallest cooling thermostat in the world since 1976. It´s compact form allows it to be placed in a smallest space, e.g. in a laboratory extract hood. All three ministats® are now available with air- or water-cooling. Compliance with DIN 12876-1, class 3 allows it to be used unsupervised in continual operation. The maximum ambient temperature is 40 °C. A powerful variable speed pressure/suction pump can thermoregulate either objects in the bath and/or external applications. The maximum pressure can be controlled using an optional pressure sensor. VPC (variable pressure control) protects delicate glassware. This small volume and high power means exceptionally rapid heating and cooling rates are achieved. Displacement inserts (optional) reduced the bath volume by approximately 50 % amplifying this effect. The exposed surface area of the bath and thereby the moisture absorption is reduced. All models have Active Cooling Control for cooling power control at the maximum working temperature and an automatic cooling power regulation for energy saving operation and reduced heat dissipation into the lab.

The bath opening is large enough to allow small objects to be thermoregulated in the bath. All parts in contact with the thermofluid are made of stainless steel or high quality plastic. Ministats® have the CC-Pilot with Plug & Play-Technology (proven since 1980). In the event of service the controller can be simply swapped. Using a data cable the ministat® can be remotely controlled. The CC-Pilot has a state of the art microprocessor controller and a high precision temperature measurement system for exact and reproducible temperature control. The functionality and TFT-display are supported by Easy Control. Ministats® can be fitted with a ComG@te (NAMUR Standard) and so be integrated in a process control system.

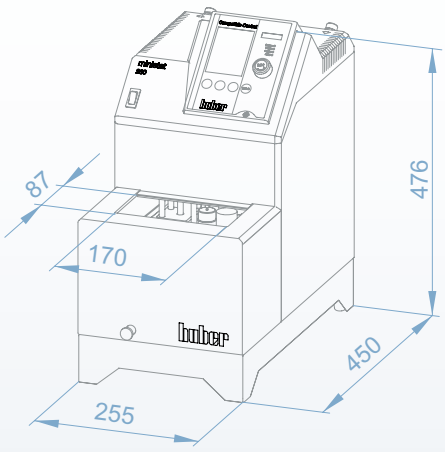
Typical applications for the smallest cooling thermostat in the world are external closed systems e.g. photometer, refractometer and viscosimeter.

Increased functionality with accessories (option):

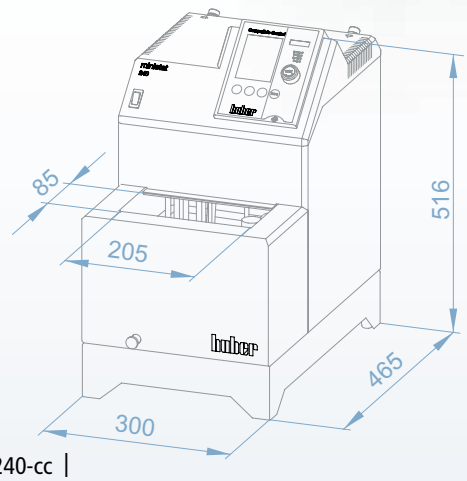
– External pressure sensor for VPC pressure control
– ComG@te (NAMUR Standard): (RS232, RS485, programmable volt-free contact, ECS (external control signal), Level monitoring
– Calibration and displacement insert



| ministat® 125-cc |



| ministat® 230-cc |



| ministat® 240-cc |

Model	Working Temperature Range (°C)	Bath Volume (ltr)	Bath Depth (mm)	Heating Power (kW)	Pump Data max. Pressure (l/min)	Pump Data max. Pressure (bar)	Pump Data max. Suction (l/min)	Pump Data max. Suction (bar)	Cooling Power (kW) at (°C) 20	0	-20	-30	Cat.No	G	Price
ministat® 125-cc	-25..150	2,75/1,3*	120	1,0	27	0,7	20	0,4	0,30	0,21	0,05	–	2014.0001.04	2	
ministat® 125w-cc	-25..150	2,75/1,3*	120	1,0	27	0,7	20	0,4	0,30	0,20	0,10	–	2014.0002.04	2	
ministat® 230-cc	-40..200	3,2/1,7*	135	2,0	27	0,7	20	0,4	0,42	0,38	0,25	0,14	2015.0001.04	2	
ministat® 230w-cc	-40..200	3,2/1,7*	135	2,0	27	0,7	20	0,4	0,42	0,38	0,25	0,14	2015.0002.04	2	
ministat® 240-cc	-45..200	4,9/2,8*	157	2,0	27	0,7	20	0,4	0,60	0,55	0,35	0,20	2016.0001.04	2	
ministat® 240w-cc	-45..200	4,9/2,8*	157	2,0	27	0,7	20	0,4	0,60	0,55	0,35	0,20	2016.0002.04	2	

* with displacement insert Option: Natural Refrigerant available on request Temperature Stability to DIN 12876: 0,02K

| ministat 240-cc |

| ministat 230-cc |

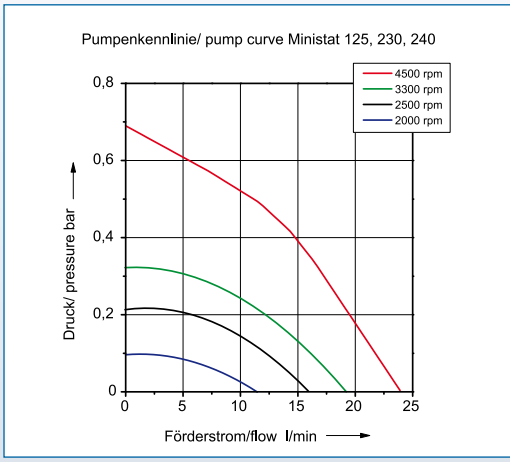
| ministat 125-cc* |

Features

- Compact ergonomic design
- CC-Pilot with Plug & Play technology, Large TFT-display, bright LCD-display with zoom function and display resolution 0,1 °C, EASY Control
- RS232 interface and connection for optional ComG@te (NAMUR Standard)
- Steplessly variable pump speed for homogeneous temperature distribution in bath or optimal circulation and heat transfer in external applications
- Active Cooling Control
- Pt100 External-Sensor
- Calibrateable temperature sensor
- Adjustable over temperature and level protection
- Compliant with DIN12876-1 class 3
- Pump connections for external applications
- Bath opening for thermoregulation of objects in bath
- Drain on front (option)*

VPC
Variable Pressure Control

Plug & Play
3 years warranty



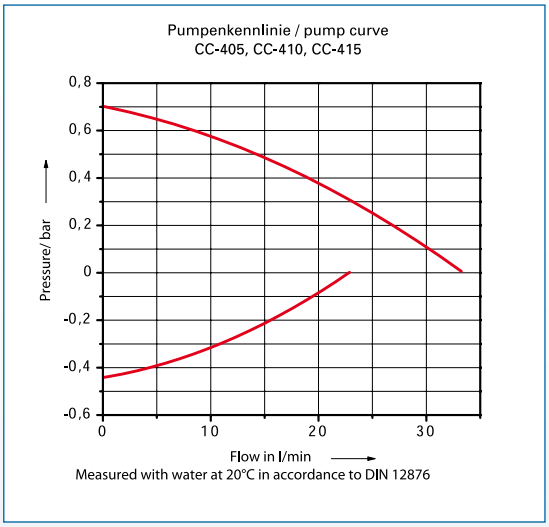
Cooling Power to DIN

5 °C lower and more power

DIN 12876 demands that the quoted cooling capacity is to be measured during full pump power. Reducing the pump power reduces the heat entering the system. This leads to more net cooling capacity and makes lower temperatures possible. Ministats® have an unusually strong pump. Reducing the pump speed increases in cooling power can be obtained from 30 to 50 Watts and over up to 5 °C lower end temperatures. We always quote the cooling power at full pump power.

Refrigeration Bath Circulators

HUBER refrigerated bath circulators in the classic form perform safe and repeatable heating and cooling tasks in the lab. 19 models covering the range -90 to 200 °C with a selection of heating and cooling powers are available with air- or water-cooled (w) refrigeration machines. Natural refrigerants for environmentally friendly operation are available on request. A powerful variable speed pressure/suction pump allows the thermoregulation of objects in the bath or external applications. The pump speed is steplessly controlled. In combination with an optional pressure sensor the maximum pressure can be controlled. VPC (variable pressure control) ensures the best circulation and protects delicate glass apparatus from breakage due to overpressure. Small volume and high heating and cooling powers result in the shortest heating and cooling rates. Displacement inserts (optional) reduce the bath volume by half increases this effect. Additionally the bath surface area is reduced and the moisture absorption also. The calibration insert (optional) allows all HUBER refrigeration circulators to be used as calibration baths. The calibration insert ensures an even temperature distribution with a temperature stability of +/-0.01 K. All models have Active Cooling Control for cooling power control at the maximum working temperature and an automatic cooling power regulation for energy saving operation and reduced heat dissipation into the lab. Depending on the model carry handles or rollers are fitted for easy transportation. The drain is located on the front of the unit to enable simple drainage of the bath. The cover plate is thermoregulated to avoid condensation. All models have the CC Pilot with Plug&Play technology: In the event of service the controller can be simply swapped. The CC Pilot can be used as a remote con-



| CC-405 |

Model	Working Temperature Range (°C)	Bath Volume (ltr)	Bath Depth (mm)	Heating Power (kW)	Pump Data max. Pressure (l/min)	Pump Data max. Pressure (bar)	Pump Data max. Suction (l/min)	Pump Data max. Suction (bar)	Cooling Power (kW) at (°C) 100	20	0	-20	-30	-40	Cat.No	G	Price
CC-405	-40..200	5	150	1,5	33	0,7	22	0,4	0,7	0,7	0,7	0,45	0,18	0,03	2017.0001.04	2	
CC-405w	-40..200	5	150	1,5	33	0,7	22	0,4	0,7	0,7	0,7	0,45	0,18	0,03	2017.0002.04	2	
CC-410wl	-45..200	22/8,5*	200	3,0	33	0,7	22	0,4	0,8	0,8	0,8	0,5	0,15	0,1	2019.0001.04	3	
CC-415	-40..200	5	150	1,5	33	0,7	22	0,4	1,2	1,2	1,0	0,6	0,2	0,05	2018.0001.04	2	
CC-415wl	-40..200	5	150	1,5	33	0,7	22	0,4	1,2	1,2	1,0	0,6	0,2	0,05	2018.0002.04	3	

* with displacement insert Option: Natural Refrigerant available on request Temperature Stability to DIN 12876: 0,02K

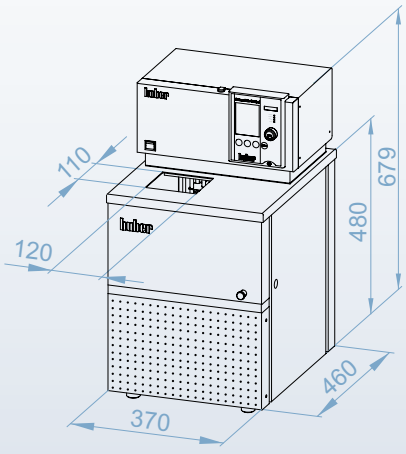
trol (with data cable). The CC Pilot is a high tech microprocessor based controller with a high precision measurement system for exact and reproducible results. The wide ranging functionality is supported by a large TFT display and simple operation. HUBER refrigeration circulators can be equipped with a ComG@te to the Namur standard to enable integration in a process control system. Depending on the bath dimensions objects can be thermoregulated in a bath. Typical applications for these classics are the thermoregulation of externally closed systems, e.g. photometer, refractometer, viscosimeter, double-jacketed reactors and autoclaves. They are used in miniplants, kilo labs, for stock point measurement, for low temperature calibration, for petroleum tests and many more applications.

| CC-415wl |

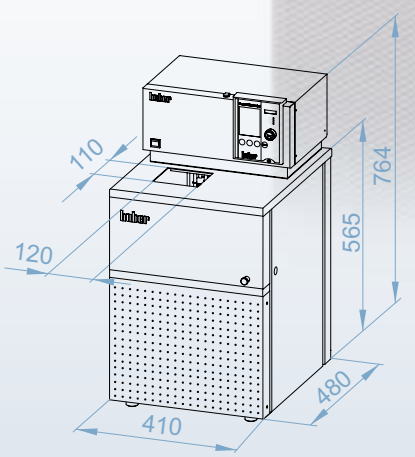
VPC
Variable Pressure Control

Plug & Play
3 Years Warranty

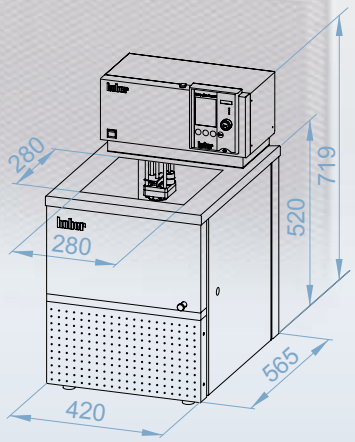
| CC-410wl |



| CC-405, CC-405w |



| CC-415, CC-415wl |

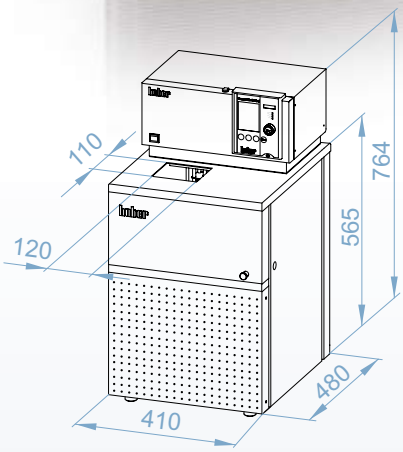


| CC-410wl |

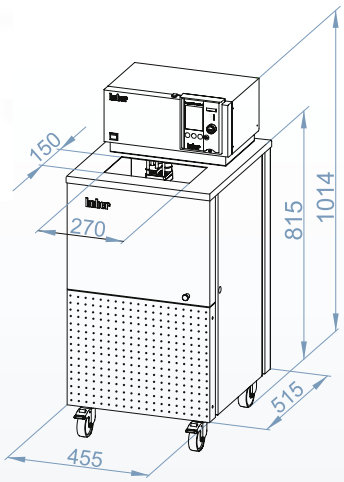
| CC-505 |

| CC-510 |

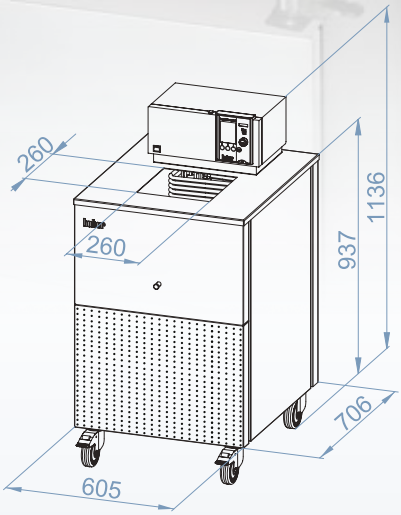
| CC-515w |



| CC-505, CC-505wl |



| CC-510, CC-510w, CC-515w |



| CC-515 |

Model	Working Temp. Range (°C)	Bath Volume (ltr)	Bath Depth (mm)	Heating power (kW)	Pump Data max. Pressure (l/min)	Pump Data max. Pressure (bar)	Pump Data max. Suction (l/min)	Pump Data max. Suction (bar)	Cooling Power (kW) at (°C) 100	20	0	-20	-40	Cat.No.	G	Price
CC-505	-50..200	5	150	1,5	33	0,7	22	0,4	1,2	1,2	1,0	0,6	0,15	2018.0003.04	2	
CC-505wl	-50..200	5	150	1,5	33	0,7	22	0,4	1,2	1,2	1,0	0,6	0,15	2018.0004.04	3	
CC-510	-50..100	18/11*	200	3,0	31	0,6	24	0,35	2,1	2,1	2,1	1,0	0,4	2020.0001.04	2	
CC-510w	-50..100	18/11*	200	3,0	31	0,6	24	0,35	2,4	2,4	2,4	1,0	0,4	2020.0002.04	2	
CC-515	-55..100	26/15*	200	3,0	31	0,6	24	0,35	3,3	3,3	3,3	1,6	0,6	2021.0001.04	2	
CC-515w	-55..100	18/11*	200	3,0	31	0,6	24	0,35	3,3	3,3	3,3	1,6	0,6	2020.0003.04	2	
CC-520w	-55..100	17/10*	200	3,0	31	0,6	24	0,35	5,0	5,0	5,0	3,0	1,5	2022.0001.04	3	
CC-525w	-55..100	17/10*	200	3,0	31	0,6	24	0,35	7,0	7,0	5,0	3,0	1,5	2023.0001.04	3	

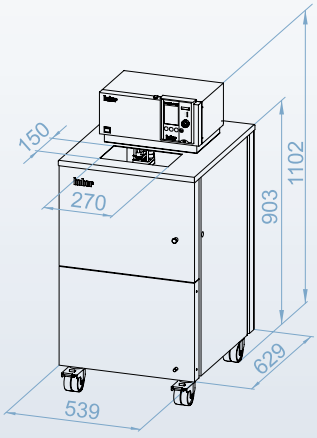
Function version available by E-grade * with displacement insert Option: Natural Refrigerant available on request Temperature Stability to DIN 12876: 0,02 K

Features

- Compact ergonomic design
- CC-Pilot with Plug & Play technology
- Display and function keys protected against splashing
- Large TFT-display, bright LCD-display with zoom function and display resolution 0.1°C
- EASY Control: simple operation with rotary knob and function keys
- All menu functions listed alphabetically
- RS232 interface and connection for optional ComG@te (NAMUR Standard)
- Steplessly variable pump speed for homogeneous temperature distribution in bath or optimal circulation and heat transfer in external applications
- Active Cooling Control – mechanical cooling up to maximum working temperature
- Intelligent energy management with cooling power control for energy saving and environment friendly operation and reduced heat emission
- Pt100 External-Sensor connection via 4-wire Lemosa-plug
- Calibrateable temperature sensor
- Adjustable over temperature and level protection
- Low level early warning system
- Compliant with DIN12876-1 class 3
- Pump connections for external applications
- Bath opening for thermoregulation of objects in bath
- Drain on front

- **Increased functionality with E-grade (Option):**
  - True Adaptive Control – self optimising internal and cascade control
  - Display resolution 0.01 K
  - Integrated programmer with 3 programs each with 5 segments or up to 100 segments distributed over 10 programs
  - Ramp function for quick temperature changes
  - Multi point calibration of temperature sensor

- **Increased functionality with accessories (Option):**
  - External pressure sensor for VPC pressure control
  - ComG@te acc. to NAMUR Standard RS232, RS485, programmable volt-free contact, ECS (external control signal), level monitoring
  - Calibration and displacement insert



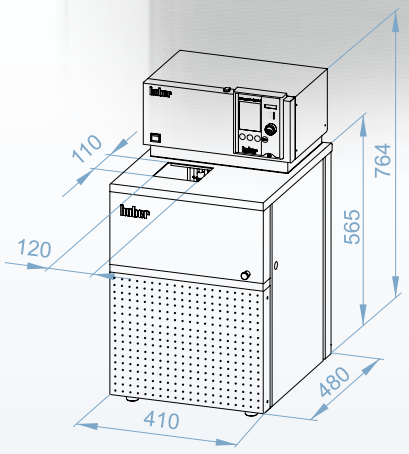
| CC-525w |

| CC-520w |

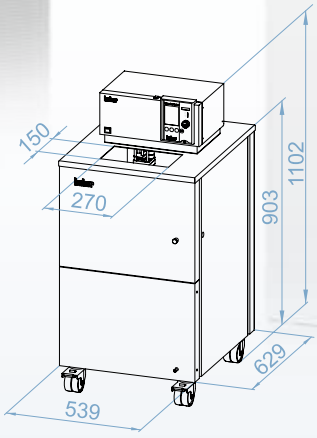
The CC-805 is a low cost alternative for low temperature applications when low power is required.

| CC-805 |

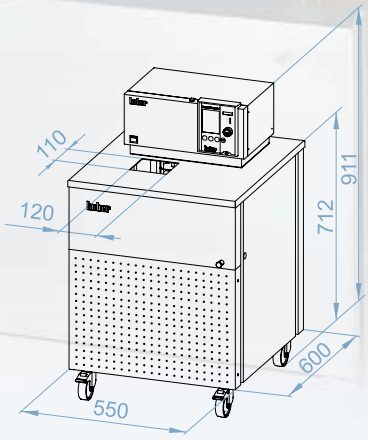
| CC-820w |



| CC-805 |



| CC-820, CC-820w |



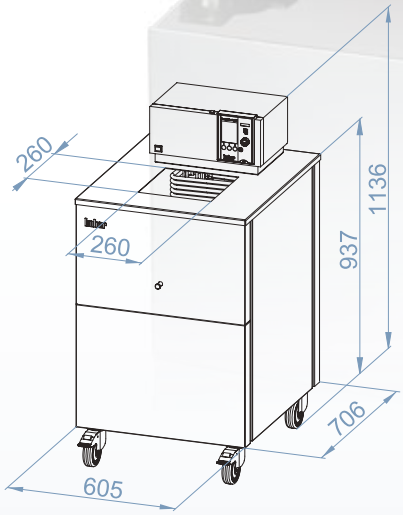
| CC-815 |

Model	Working Temp. Range (°C)	Bath Volume (ltr)	Bath Depth (mm)	Heating Power (kW)	Pump Data max. Pressure (l/min)	Pump Data max. Pressure (bar)	Pump Data max. Suction (l/min)	Pump Data max. Suction (bar)	Cooling Power (kW) at (°C) 100	20	0	-20	-40	-60	Cat.No.	G	Price
CC-805	-80..100	5	150	1,5	33	0,7	22	0,4	0,5	0,5	0,5	0,4	0,3	0,3	2024.0001.04	2	
CC-815	-85..100	5	150	1,5	33	0,7	22	0,4	1,0	1,0	1,0	0,8	0,75	0,6	2026.0001.04	3	
CC-820	-80..100	17/10*	200	3,0	31	0,6	24	0,35	1,2	1,2	1,2	1,1	0,9	0,6	2025.0001.04	3	
CC-820w	-80..100	17/10*	200	3,0	31	0,6	24	0,35	1,2	1,2	1,2	1,1	0,9	0,6	2025.0002.04	3	
CC-905	-90..100	26/15*	200	3,0	31	0,6	24	0,35	2,0	2,0	2,0	1,9	1,7	1,0	2027.0001.04	3	
CC-905w	-90..200	26/15*	200	3,0	31	0,6	24	0,35	2,0	2,0	2,0	1,9	1,7	1,0	2027.0002.04	3	
CC-906w	-90..200	30/19*	200	3,0	31	0,6	24	0,35	3,0	3,0	3,0	2,8	2,4	1,6	2036.0001.04	3	

Function version available by E-grade * with displacement insert Option: Natural Refrigerant available on request Temperature Stability to DIN 12876: 0,02 K

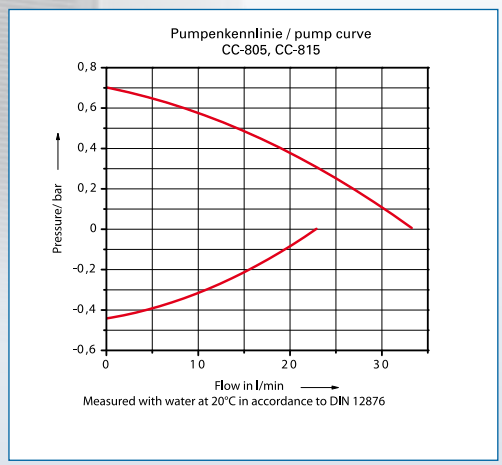
| CC-815 |

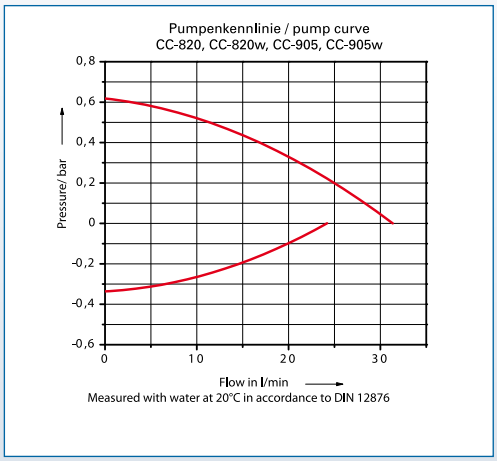
| CC-905w |



| CC-905, CC-905w, CC-906w |

Pump Data





huber Natural Refrigerant inside

Flow-through Chillers

| DC30-NR |

The "Flow-through Chillers" are designed for simple, low demand cooling applications. They are commonly used in combination with the CC-202C or CC-205B series to remove heat in order to cool a process back to room temperature.

Model	Working Temp. Range (°C)	Cooling Power (kW) at 0°C	-10°C	-20°C	Dimensions W x D x H (mm)	Cat.No	G	Price
DC30-NR	-30..50	0,2	0,15	0,07	190x250x360	3000.0001.99	2	
DC31-NR	-30..50	0,4	0,35	0,10	250x310x400	3001.0001.99	2	
DC32-NR	-30..50	0,6	0,47	0,12	280x340x460	3002.0001.99	2	

Immersion Coolers

"Dip" or "Immersion" coolers are ideal for simple cooling applications when low temperatures are required such as vapour traps or for cooling individual flasks. They are also commonly used to remove heat from the baths in the "A" and "B" series. The units with an "E" have the capability to control the temperature to a stability of +/- 0,5 K to DIN 12876. All models can be delivered with a flexible evaporator coil (no extra cost). The model name and Cat.No. get the addition "F". Flexible probes & custom probes available.

| TC100E-NR | | TC50-NR |

| TC45-F-NR |

Model	Working Temperature Range (°C)	Cooling Power (W) at 0°C	-20°C	-30°C	-90°C	Dimensions W x D x H (mm)	Cat.No. „Standard"	Cat.No. with flexible evaporator	G	Price
TC45-NR	-45..100	240	180	100	–	190x295x360	3003.0001.99	3003.0003.99	2	
TC45E-NR	-45..100	240	180	100	–	190x295x360	3003.0002.99	3003.0004.99	2	
TC50-NR	-50....50	300	260	200	–	260x330x415	3004.0001.99	3004.0003.99	2	
TC50E-NR	-50....50	300	260	200	–	260x330x415	3004.0002.99	3004.0004.99	2	
TC100-NR	-100..40	160	150	140	70	294x470x560	3005.0001.99	3005.0003.99	2	
TC100E-NR	-100..40	160	150	140	70	294x470x560	3005.0002.99	3005.0004.99	2	

Polycarbonate Baths

All models are designed to operate up to a maximum temperature of 100°C.

Model	Dimensions W x D x H (mm)	Opening (mm)	Bath Depth (mm)	Volume (ltr)	Cat.No.	G	Price
106A-E	142 x 305 x 161	130 x 290	150	6	30527	1	
108A-E	142 x 405 x 161	130 x 390	150	8	30528	1	
110A-E	142 x 505 x 161	130 x 490	150	10	30529	1	
112A-E	333 x 358 x 166	303 x 342	150	12	30523	1	
118A-E	333 x 518 x 166	303 x 502	150	18	30526	1	
130A-E	500 x 200 x 322	480 x 180	312	30	17098	1	

Stainless Steel Baths (Insulated)

All models are designed to operate up to a max temperature of 200°C.

| 225B |

| 215B |

| 208B |

Model	Dimensions W x D x H (mm)	Opening (mm)	Bath Depth (mm)	Volume (ltr)	Cat.No.	G	Price
208B	290 x 350 x 206	235 x 290	150	8,5	6683	1	
212B	350 x 375 x 206	290 x 320	150	12	6684	1	
215B	350 x 375 x 256	290 x 320	200	15	6012	1	
220B	350 x 555 x 206	290 x 500	150	20	6685	1	
225B	350 x 555 x 256	290 x 500	200	25	6013	1	

| K20-NR, K25-NR | | K12-NR, K15-NR |

Refrigerated Baths

The refrigerated baths K12 to K25 use natural refrigerants. The immersion circulator does the temperature control. In combination with an immersion circulator these refrigerated baths can cover the complete temperature range. The refrigeration system offers active cooling, in continuous operation over the complete working range.

Model	Temperature Range (°C)	Bath Opening W x D (mm)	Bath Depth (mm)	Volume (ltr)	Cooling Power (kW) at 0°C	-10°C	-20°C	Dimensions W x D x H (mm)	Cat.No.	G	Price
K12-NR	-20..200	290 x 320	150	12	0,2	0,12	0,05	350 x 560 x 263	2009.0001.99	2	
K15-NR	-20..200	290 x 320	200	15	0,2	0,12	0,05	350 x 560 x 263	2010.0001.99	2	
K20-NR	-30..200	290 x 500	150	20	0,35	0,27	0,16	350 x 555 x 448	2011.0001.99	2	
K25-NR	-30..200	290 x 500	200	25	0,35	0,27	0,16	350 x 555 x 448	2012.0001.99	2	

Insulated Baths "Variostat"

Insulated stainless steel baths are available in 3 standard sizes or in dimensions to suit customer requirements. The drain is on the short side as standard but can be fitted on the long side on request. The order number has additionally -L (e.g. 6052-L).

Variostat Baths		Bath Depth	Bath Opening W x D	Cat.No.	G	Price
Standard*	5,5 litre	165 mm	257 x 160 mm	6052	2	
	11 litre	165 mm	368 x 200 mm	6053	2	
	22 litre	165 mm	468 x 320 mm	6054	2	
Drain valve with cap				6839	1	
insulated Cover for:				**Cat.No.**	**G**	**Price**
Bath	5,5 litre			6176	2	
Bath	11 litre			6178	2	
Bath	22 litre			6180	2	

*Custom sizes on request

Bath Bridges

Model	Cat.No.	G	Price
Polycarbonate bath 106A-E, 108A-E, 110A-E	19592	1	
Polycarbonate bath 112A-E, 118A-E	19593	1	
Stainless steel bath 208B	19594	1	
Stainless steel bath 212B, 215B, 220B, 225B	19595	1	
Refrigerated bath K12-NR, K15-NR, K20-NR, K25-NR	19596	1	

Adjustable Bases

for stainless steel, polycarbonate and refrigerated baths with CC-E, MPC-E

Model	Cat.No.	G	Price
Adjustable base for 112A	6297	1	
Adjustable base for 118A	6328	1	
Adjustable base for 212B, 215B, K12, K15	19654	1	
Adjustable base for 220B, 225B, K20, K25	19655	1	

Bath Covers

for stainless steel, polycarbonate and refrigerated baths with CC-E, MPC-E

Model	Cat.No.	G	Price
Bath cover back 220B-225B, K20-K25	6024	1	
Bath cover 208B	19597	1	
Bath cover front 212B-225B, K12-K25	19598	1	
Bath cover one piece 220B-225B, K20-K25	19599	1	
Bath cover 106A	37533	1	
Bath cover 108A	37552	1	
Bath cover 110A	37572	1	
Bath cover 112A	37653	1	
Bath cover 118A	9579	1	

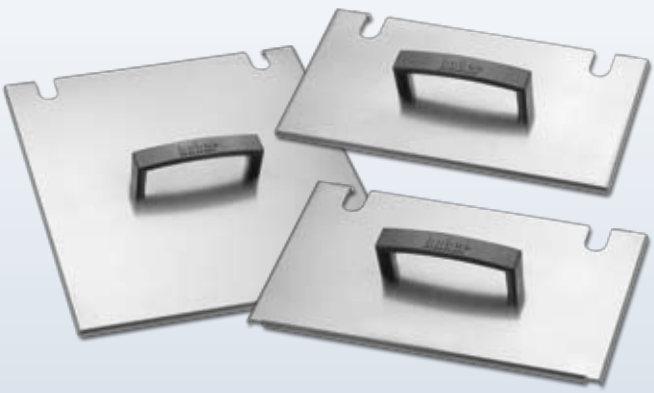
20 litres and larger can be in one or two parts

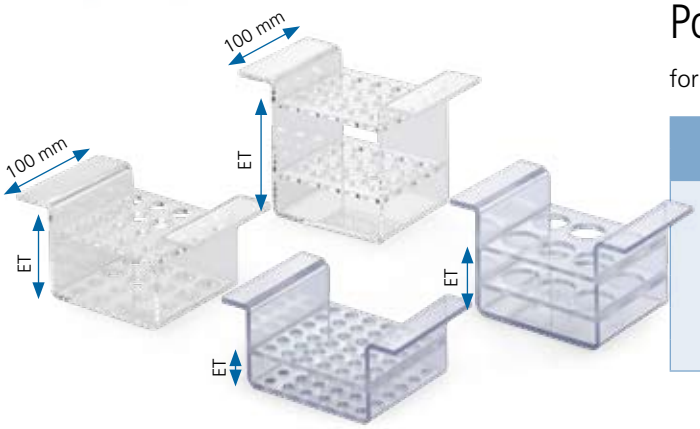
Bath Covers

Suitable for use with adjustable bases
for stainless steel, polycarbonate and refrigerated baths with CC-E, MPC-E

Model	Cat.No.	G	Price
Bath cover front 212B-215B, K12-K15	36903	1	
Bath cover front 220B-225B, K20-K25	19598	1	
Bath cover back 220B-225B, K20-K25	36976	1	
Bath cover one piece 220B-225B, K20-K25	36878	1	
Bath cover 112A	37582	1	
Bath cover 118A	37579	1	

20 litres and larger can be in one or two parts





Polycarbonate test tube racks

for 106A-E to 110A-E

Type	Holes	Immersion Depth (mm)	Cat.No.	G	Price
A	12 x Ø22	50	6028	1	
B	20 x Ø17	55	6029	1	
C	20 x Ø17	95	6030	1	
D	30 x Ø13	45 (Hemolyse)	6031	1	
E	6 x Ø31	50	6032	1	
F	36 x Ø11	25 (Eppendorf)	6033	1	

Stainless steel test tube racks

for 112A-E, 118A-E, 212B to 225B and refrigerated baths K12-K25

Type	Holes	Immersion Depth (mm)	Cat.No.	G	Price
1	36 x Ø17	100	6037	1	
2	45 x Ø13	70	6038	1	
3	46 x Ø17	100	6039	1	
4	58 x Ø13	70	6040	1	

Trolleys

The stainless steel trolleys make the Compatible Control Thermostate mobile.

Model	Cat.No.	G	Price
Trolley for K20, K25	6334	2	
Trolley for CC805, CC415, CC505	6235	2	
Trolley for CC410wl	6295	2	
Trolley for TC100, TC100-F, TC100E, TC100E-F	9442	2	
Trolley for ministat® 125 / 125w	9596	2	
Trolley for ministat® 230 / 230w	9597	2	
Trolley for ministat® 240 / 240w	9598	2	

Unipump Pressure booster

Made of stainless steel for temperatures from -120 to 300 °C to compensate for the pressure loss in external systems. The Unipump is connected in series with the pump of compatible control thermostat and can be controlled via the volt-free contact of the ComG@te or the WebG@te.

Unipump	max. Pressure Increase (bar)	Cat.No.	G	Price
Unipump I M16x1	0,8	527.0001	2	
Unipump I 2 stage M16x1	1,5	527.0002	2	
Unipump I DC M24x1,5	1,0	527.0008	2	
Unipump II M30x1,5	1,5	527.0003	2	
Unipump II 2 stage M30x1,5	2,5	527.0004	2	
Unipump III M38x1,5	1,5	527.0006	2	
Unipump III 2 stage M38x1,5	2,5	527.0007	2	
Control Cable Unipump / Unistat® (3m)		6221	1	
Control Cable Unipump I / CC (3m)		6222	1	

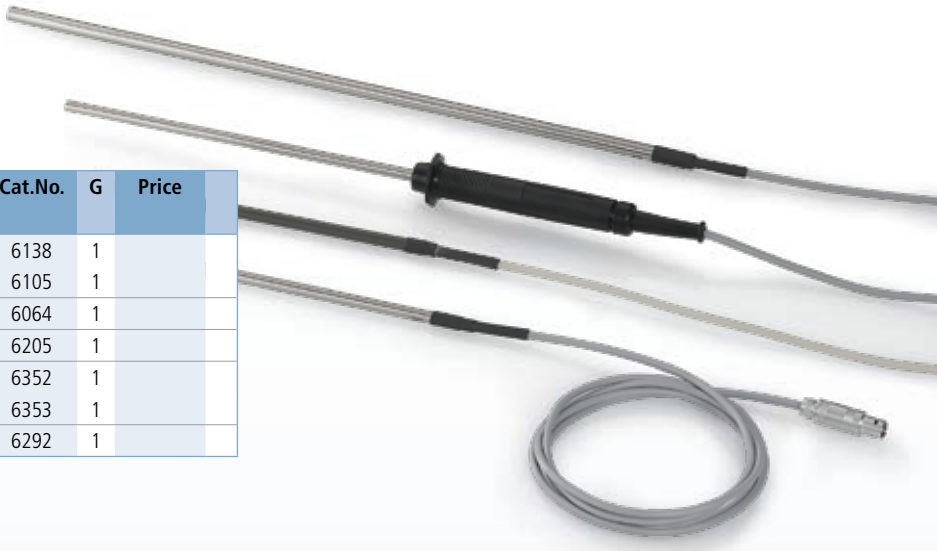
| CC-Pilot |

Controller

Controller	Cat.No.	G	Price
CC-Pilot	658.0020	1	
Wall bracked CC-Pilot	9493	1	
Table stand CC-Pilot	9494	1	

External Pt100-sensor

For external thermoregulation applications a range of sensors are available. Special versions can be made on request.



Sensors (Standard cable length 1,5 m)	Cat.No.	G	Price
Ø 6 mm 180 mm	6138	1	
with handle Ø 6 mm 200 mm	6105	1	
Ø 8 mm 400 mm	6064	1	
mounted in protective pipe Ø 8 mm 170 mm	6205	1	
M16x1 sensor for flow or return	6352	1	
M16x1 sensor for flow or return double	6353	1	
Extension cable Pt100, 3m	6292	1	

Sensor with special lengths available on request

Control cables

for ComG@te

Control cables for operation via the RS232, RS485 or the analogue interface (AIF). A range of control cables and plugs are available for ECS (external control signal), programmable volt-free (POKO) and for an external float switch.

Control Cables (Standard length 3 m) from	Note	Cat.No.	G	Price
ComG@te RS232	for example to PC	6146	1	
ComG@te RS485	Cable end open	6279	1	
ComG@te AIF	Cable end open	9353	1	
ComG@te ECS	Cable end open	9491	1	
ComG@te POKO	Cable end open	9490	1	
ComG@te LEVEL	Cable end open	9492	1	

Cables with special lenghts available on request

ComG@te and WebG@te

ComG@te
The ComG@te has connections complying with the NAMUR Standard and is fitted as standard on all Unistats®. The following interfaces are integrated:
RS232 (bi-directional), RS485 (bi-directional), ECS external control signal, Volt free contact (programmeable), AIF Analogue-Interface 0/4-20 mA or 0-10 V (bi-directional)

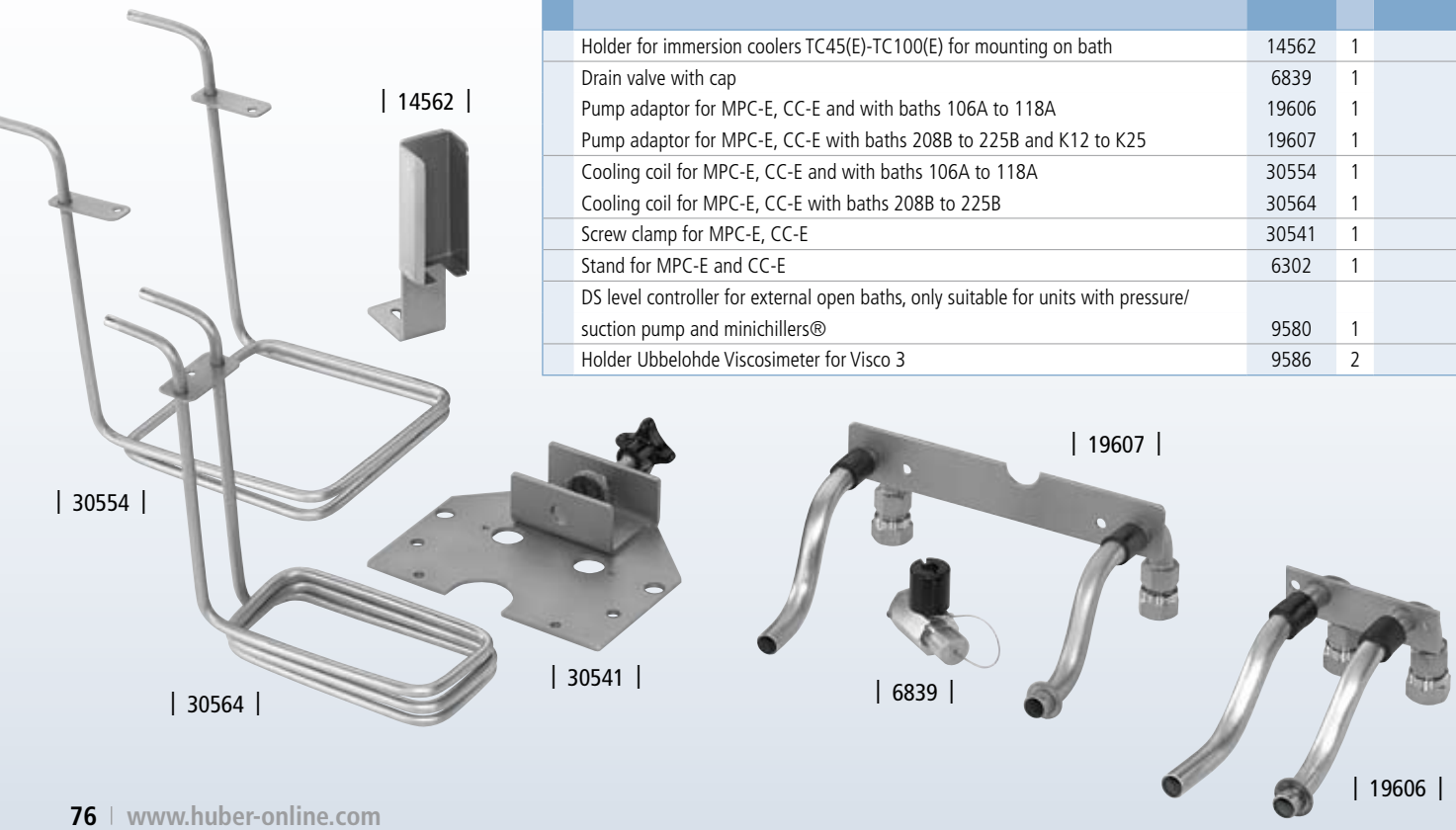
WebG@te
The WebG@te allows communication via intranets and the internet. The organisation of complex temperature control profiles, filing of process data or the storage of thermoregulation runs is child's play with the USB interfaces and memory. The WebG@te is optionally available and has the following interfaces:
RS232 (bi-directional), USB (Host), USB (Device), Ethernet RJ45, Volt free contact (programmeable), ECS external control signal

The ComG@te and the WebG@te can be located remote from the Unistat® and connected via a single data cable. This has the advantage that the multiple connection possibilities can be installed simply at the process control system.

	ComG@te / WebG@te (NAMUR)	Cat.No.	G	Price
	ComG@te Ministats®, CC, internal	31217	1	
	ComG@te Unistats®, CC, external	6915	1	
	WebG@te Ministats®, CC, internal	9620	3	
	WebG@te Unistats®, CC, external	9621	3	

Accessories

		Cat.No.	G	Price
	Holder for immersion coolers TC45(E)-TC100(E) for mounting on bath	14562	1	
	Drain valve with cap	6839	1	
	Pump adaptor for MPC-E, CC-E and with baths 106A to 118A	19606	1	
	Pump adaptor for MPC-E, CC-E with baths 208B to 225B and K12 to K25	19607	1	
	Cooling coil for MPC-E, CC-E and with baths 106A to 118A	30554	1	
	Cooling coil for MPC-E, CC-E with baths 208B to 225B	30564	1	
	Screw clamp for MPC-E, CC-E	30541	1	
	Stand for MPC-E and CC-E	6302	1	
	DS level controller for external open baths, only suitable for units with pressure/ suction pump and minichillers®	9580	1	
	Holder Ubbelohde Viscosimeter for Visco 3	9586	2	



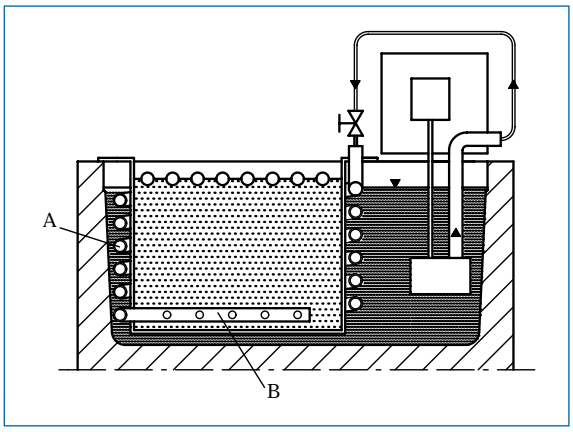
Calibration inserts

Calibration insert	Cat.No.	G	Price
ministat® 125	6806	2	
ministat® 230	6807	2	
ministat® 240	6808	2	
CC-410wl	6294	2	
CC-510, CC-510w, CC-515w, CC-520, CC-520w, CC-525w, CC-820, CC-820w	6496	2	
CC-515, CC-905, CC-905w, CC-906w	6150	2	
CC308B	9355	1	
CC315B	6126	1	

Function principle

The thermofluid at constant temperature flows through the heat exchanger (A) and via the distributor pipe (B) down into the calibrating bath. Temperature fluctuations in the thermostat are evened out in (A). The entire system acts as a calorimeter. There are virtually no gradients and no delay in the case of swift ramps. Temperature stability can be improved by a factor of 5 to 10.

The calibration baths in combination with Unistats® (Page 79) work in the same principle.



Displacement inserts

Displacement insert	Cat.No.	G	Price
ministat® 125	6818	2	
ministat® 230	6819	2	
ministat® 240	6820	2	
CC410wl	6293	2	
CC-510, CC-510w, CC-515w, CC-520, CC-520w, CC-525w, CC-820, CC-820w	6049	2	
CC-515, CC-905, CC-905w, CC-906w	6050	2	
CC308B	31973	1	
CC315B	6043	1	
CC205B	6041	1	

Simple options to boost performance

Displacement inserts:

- reduce the liquid volume. Reducing the bath volume reduces the thermal load and leads to faster ramping times.
- reduce the liquid´s exposed surface area, which reduces moisture absorption.
- contain the expansion volume HTF and prevent the bath from overflowing.

| BFT2 |

| BFT1 |

Beer Force-Ageing-Test Thermostat

We offer a special air or water cooled thermostat unit for the Beer Force-Ageing-Test. Both models are equipped with a comfortable programmer for the usual change between 0 °C and 60 °C in the usual 24 hour cycle. The BFT2 is for 20 bottles in the original Eurobox.
The CFC free units comply with the safety class FL, III. Casings and bath parts are made of Stainless steel.

Model	Working Temperature Range (°C)	Bath Opening W x D (mm)	Bath Depth (mm)	Heating Power (kW)	Cooling Power at 20°C (kW)	Dimensions W x D x H (mm)	Cat.No.	G	Price
BFT1	0..80	280 x 280	150	2,0	1,0	420 x 565 x 719	2032.0001.04	2	
BFT1w	0..80	280 x 280	150	2,0	1,0	420 x 565 x 719	2032.0002.04	2	
BFT2	0..80	530 x 400	360	3,0	2,5	670 x 715 x 1105	2033.0001.04	2	
BFT2w	0..80	530 x 400	360	3,0	2,5	670 x 715 x 1105	2033.0002.04	2	
BFT4	0..80	300 x 400	300	2,0	0,35	540 x 605 x 801	2034.0001.04	2	

Option: Natural Refrigerant available on request

| Application |

Hotbox

The Hotbox is a heating circulator with CC-Pilot for thermoregulation of externally open applications in compact form, ideal for installation in production systems. The Hotbox has a stainless steel pump and adjustable over temperature protection complying with DIN 12876.

| HB45 |

Model	Working Temperature Range (°C)	Connection	Pump Flow Rate (l/min)	max. Pressure (bar)	Heating Power (kW)	Dimensions W x D x H (mm)	Cat.No.	G	Price
HB45	45..250	M16 x 1	45	0,9	4,5	180 x 430 x 360	2030.0001.04	3	
HB60	60..250	M30 x 1,5	90	1,5	6,0	323 x 451 x 498	2031.0004.04	3	
HB120	60..250	M30 x 1,5	90	1,5	12,0	323 x 451 x 498	2031.0003.04	3	

Flexible solutions for calibration in production

Cal 700 – Calibration bath for measurement and control sensors

	Model	Temperature Range (°C)	Pump Connection	Dimensions W x D x H (mm)	Bath Opening (mm)	Bath Depth (mm)	Bath Volume (ltr)	Cat.No.	G	Price
	Cal 700	-100..400	M30x1,5	300 (440*) x 300 x 566	Ø118	384	7,0	9623	3	

* with external overflow vessel (140 mm)

High Precision Calibration

Calibration is a comparison between a measurement system and a reference or standard. During the comparison it is established how large the deviation between the two values or if the value lies within the specified limits. Calibration is normally carried out in accordance with rigorous national or international standards.

Meaningful and comparable measurements around the world require calibrated instruments. The quality of measurements is defined in terms of tolerance and repeatability, and is only achievable with the use of calibrated measurement devices or by adjusting sensors.
Calibration baths are used in quality management departments of industry and research. The modular concept based on the combination of a calibration bath with a Unistat®, which dictates the temperature range and speed of temperature change. The stainless steel calibration bath is designed in a similar format to a calorimeter to ensure temperature homogeneity. Baths with a 118 mm diameter and depth of 384 mm are offered for calibration of measurement and control sensors. The calibration space is freely accessible and symmetrical. The upper edge is designed to allow exact reading of the temperature measured by glass thermomenters and also offers a tight seal for the customer specific bath lid. Optionally a heat exchanger can be installed to separate the bath fluid from the circulator fluid. Special calibration software in the circulator and the self-optimising controller with TAC-Technology mean short times between the different calibration temperatures. The calibration space of the baths can be made in particular sizes to suit specific customer requirements.

Advantages

- Highest temperature stability up to ± 0.002 °C
- Temperature homogeneity better than ± 0.01 °C
- External overflow vessel
- Special firmware for calibration
- 5-point calibration of the control sensor

Adaptor for M16 x 1	Thread	(G1) to	Cat.No.	Price
	male	M16 x 1 male	6278	
	female	M16 x 1 female	6359	
	male	1/2" male	6299	
	male	1/2" female	6364	
	female	1/2" male	6360	
	female	1/2" female	6229	
	male	3/4" female	5443	
	female	3/4" female	6361	
	female	M30 x 1,5 male	6431	
	male	M30 x 1,5 male	6449	
	male	M30 x 1,5 female	6454	

Adaptor for M24 x 1,5	Thread	(G1) to	Cat.No.	Price
	female	M30 x 1,5 male	6723	
	female	M16 x 1 male	6724	
	female	3/4" NPT female	6874	
	male	M16 x 1 female	6945	
	male	1/2" female	9243	
	female	1/2" male	9244	
	male	M24x 1,5 male	9386	

Adaptor for M30 x 1,5	Thread	(G1) to	Cat.No.	Price
	male	M30 x 1,5 male	6448	
	female	3/8" male	6445	
	male	1/2"male	6393	
	male	1/2" female	6394	
	female	1/2" male	6391	
	female	1/2" female	6392	
	male	3/4" male	6447	
	male	3/4" female	6442	
	female	3/4" female	6452	
	female	3/4" NPT male	6472	
	male	1" male	6444	
	female	1" female	6453	

Adaptor for 1/2"	Thread	(G1) to	Cat.No.	Price
	female	1/2" female	6358	
	female	3/4" NPT female	6356	

Adaptor for M38 x 1,5	Thread	(G1) to	Cat.No.	Price
	female	1" NPT male	6600	
	female	M30 x 1,5 male	6612	
	female	3/4" male	6665	

M16 x 1	(G1)	Cat.No.	Price
	Hose Connector NW 8 Hose Connector NW 12	6086 6087	
	Blank Plug	6088	
	Nut	6089	
	Micro Hose Connector NW 3,2	6090	
	90° Adaptor	6195	
	Ball Valve	6091	
	2-way Header 3-way Header 4-way Header 5-way Header	6194 6193 6187 6815	
	2-way Valve System 3-way Valve System 4-way Valve System 5-way Valve System	6284 6285 6286 6816	

M24 x 1,5	(G1)	Cat.No.	Price
	90° Adaptor	9256	
	Ball Valve	9236	
	2-way Header 3-way Header 4-way Header	9233 9234 9235	
	2-way Header with Ball Valves 3-way Header with Ball Valves 4-way Header with Ball Valves	9245 9246 9247	

M30 x 1,5	(G1)	Cat.No.	Price
	90° Adaptor	6461	
	Ball Valve	6451	
	2-way Header 3-way Header 4-way Header	6420 6421 6422	
	2-way Header with Ball Valves 3-way Header with Ball Valves 4-way Header with Ball Valves	6423 6463 6464	

M38 x 1,5	(G1)	Cat.No.	Price
	90° Adaptor	6699	
	Ball Valve	6700	
	2-way Header 3-way Header 4-way Header	6706 6707 6708	
	2-way Header with Ball Valves 3-way Header with Ball Valves 4-way Header with Ball Valves	6709 6710 6711	

1/2" and 3/4"	(G1)	Cat.No.	Price
	Hose connections 1/2" for 3/8" hose	2294	
	Hose connections 3/4" for 1/2" hose	2295	
	90° Adaptor 1/2" to M30 x 1	9323	

Manual bypass	(G1)	Cat.No.	Price
	M24 x 1,5 M30 x 1,5 M38 x 1,5	9339 6417 9340	

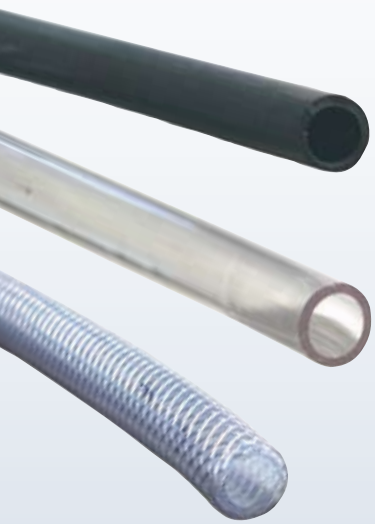
Hoses, insulated

Plastic hose for optimal thermal performance			Temperature Range	Length	Cat.No.	G	Price
NW 12	AD 37 mm	M24 x 1,5	-60...260 °C	100 cm	9325	1	
NW 12	AD 37 mm	M24 x 1,5	-60...260 °C	150 cm	9326	1	
NW 12	AD 37 mm	M24 x 1,5	-60...260 °C	200 cm	9327	1	
NW 12	AD 37 mm	M24 x 1,5	-60...260 °C	300 cm	9328	1	
NW 20	AD 44 mm	M30 x 1,5	-60...260 °C	100 cm	9612	1	
NW 20	AD 44 mm	M30 x 1,5	-60...260 °C	150 cm	9613	1	
NW 20	AD 44 mm	M30 x 1,5	-60...260 °C	200 cm	9614	1	
NW 20	AD 44 mm	M30 x 1,5	-60...260 °C	300 cm	9615	1	
NW 25	AD 56 mm	M38 x 1,5	-60...260 °C	100 cm	9616	1	
NW 25	AD 56 mm	M38 x 1,5	-60...260 °C	150 cm	9617	1	
NW 25	AD 56 mm	M38 x 1,5	-60...260 °C	200 cm	9618	1	
NW 25	AD 56 mm	M38 x 1,5	-60...260 °C	300 cm	9619	1	

Metal hose, insulated			Temperature Range	Length	Cat.No.	G	Price
NW 12	AD 33 mm	M16 x 1	-50...200 °C	100 cm	9608	1	
NW 12	AD 33 mm	M16 x 1	-50...200 °C	150 cm	9609	1	
NW 12	AD 33 mm	M16 x 1	-50...200 °C	200 cm	9610	1	
NW 12	AD 33 mm	M16 x 1	-50...200 °C	300 cm	9611	1	
NW 12	AD 44 mm	M16 x 1	-100...350 °C	100 cm	6084	1	
NW 12	AD 44 mm	M16 x 1	-100...350 °C	150 cm	6085	1	
NW 12	AD 44 mm	M16 x 1	-100...350 °C	200 cm	6136	1	
NW 12	AD 44 mm	M16 x 1	-100...350 °C	300 cm	6255	1	
NW 12	AD 44 mm	M24 x 1,5	-100...350 °C	100 cm	9274	1	
NW 12	AD 44 mm	M24 x 1,5	-100...350 °C	150 cm	9275	1	
NW 12	AD 44 mm	M24 x 1,5	-100...350 °C	200 cm	9276	1	
NW 12	AD 44 mm	M24 x 1,5	-100...350 °C	300 cm	9277	1	
NW 12	AD 56 mm	M24 x 1,5	-120...400 °C	100 cm	6784	1	
NW 12	AD 56 mm	M24 x 1,5	-120...400 °C	150 cm	6785	1	
NW 12	AD 56 mm	M24 x 1,5	-120...400 °C	200 cm	6786	1	
NW 12	AD 56 mm	M24 x 1,5	-120...400 °C	300 cm	6787	1	
NW 20	AD 56 mm	M30 x 1,5	-100...350 °C	100 cm	6426	1	
NW 20	AD 56 mm	M30 x 1,5	-100...350 °C	150 cm	6386	1	
NW 20	AD 56 mm	M30 x 1,5	-100...350 °C	200 cm	6427	1	
NW 20	AD 56 mm	M30 x 1,5	-100...350 °C	300 cm	6428	1	
NW 25	AD 63 mm	M38 x 1,5	-100...350 °C	100 cm	6655	1	
NW 25	AD 63 mm	M38 x 1,5	-100...350 °C	150 cm	6656	1	
NW 25	AD 63 mm	M38 x 1,5	-100...350 °C	200 cm	6657	1	
NW 25	AD 63 mm	M38 x 1,5	-100...350 °C	300 cm	6658	1	

NW = Nominal width (mm) AD = External diameter

Hoses



Hose*		Temperature Range	Length	Cat.No.	G	Price/m
NW 3,2	PVC	-20...60 °C	variable	6072	1	
NW 8	PVC	-20...60 °C	variable	6071	1	
NW 12	PVC	-20...60 °C	variable	6070	1	
NW 8	NBR	-30...80 °C	variable	6075	1	
NW 12	NBR	-30...80 °C	variable	6073	1	
NW 8	Silicon	-40...180 °C	variable	6077	1	
NW 12	Silicon	-40...180 °C	variable	6076	1	
NW 8	FKM	-20...180 °C	variable	6079	1	
NW 12	FKM	-20...180 °C	variable	34322	1	
NW 8	PTFE	-60...180 °C	variable	6350	1	
NW 12	PTFE	-60...180 °C	variable	6351	1	

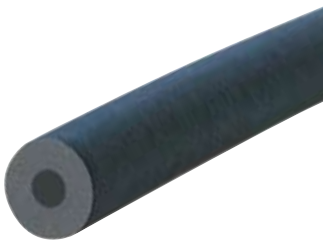
* As protection against condensation or high temperatures, we recommend the insulated hoses listed on page 83.

Cooling Water Hoses

Cooling Water Hose (Flexible braided hose)	Temperature Range	Length	Cat.No.	G	Price
1/2"	-10...100 °C	100 cm	16851	1	
1/2"	-10...100 °C	150 cm	16852	1	
1/2"	-10...100 °C	200 cm	16853	1	
3/4"	-10...100 °C	100 cm	16854	1	
3/4"	-10...100 °C	150 cm	16855	1	
3/4"	-10...100 °C	200 cm	16856	1	
1"	-10...100 °C	100 cm	16857	1	
1"	-10...100 °C	150 cm	16858	1	
1"	-10...100 °C	200 cm	16859	1	

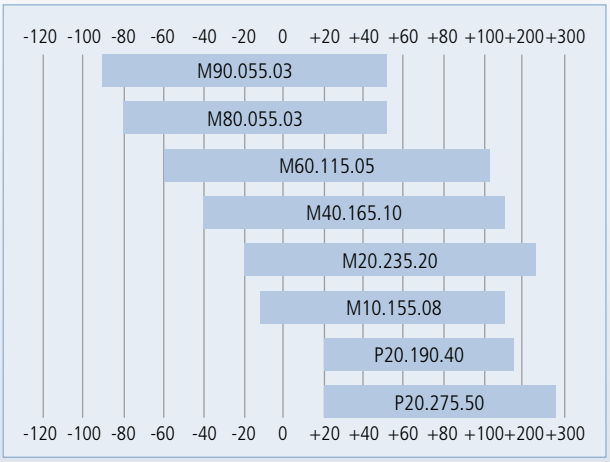
Hose insulation

Hose insulation		Thick-ness	Internal-Ø	Cat.No.	G	Price
Hose:	8 mm	7 mm	13 mm	6083	1	
Hose:	12 mm	7 mm	17 mm	6082	1	
Hose:	12 mm	12 mm	17 mm	3968	1	
Metal hose, insulated:	M16x1	22 mm	42 mm	6375	1	
Metal hose, insulated:	M30x1,5	23 mm	57 mm	6377	1	
Metal hose, insulated:	1/2"	22 mm	50 mm	6376	1	



Safe thermoregulation: the selection of thermal fluids

Huber thermal fluids have the best possible thermodynamic and environmental characteristics. The correct selection is vitally importantand is dependent on the temperature range. Consideration must be given to the safety standards to ensure reliable and safe operation and optimal results. Maximum life of the fluids is also expected. The material safety data sheets are available in the download area of the website. (www.huber-online.com).



Operating range of thermal fluids			
P20.330.32:	plus 20°C	+330°C	32 mm²/s at 25°C
M40.165.10:	minus 40°C	+165°C	10 mm²/s at 25°C

Thermal Fluid		Litre	Cat.No. (G1)	Price
DW-Therm*	M90.200.02	10	6479	
DW-Therm HT*	P20.330.32	5	6672	
		10	6673	
MinOil	P20.190.40	5	6155	
		20	6156	
SynOil	M10.120.08	5	9684	
		10	9685	
SilOil	P20.275.50	5	6157	
		10	6158	
SilOil	M20.235.20	5	6161	
		10	6162	
SilOil	M40.165.10	5	6163	
		10	6164	
SilOil	M60.115.05	5	6165	
		10	6166	
SilOil	M80.055.03	5	6167	
		10	6168	
SilOil	M80.100.03	5	6275	
		10	6276	
SilOil	M90.055.03	5	6258	
		10	6259	
Antifreeze (Ethylenglykol)		10	6170	
		50	6171	
Algae Protection		0,1	6172	

* exclusive for Unistats®

Model	Catalogue Page	Temperature Range	Tmin with Cooling	Tmin with Water Cooling	Heating Power	Bath Volume	min. Filling Capacity	Bath Volume with Displacement Insert	Bath Opening WxDxH	Resolution of Display	Temperature Stability	Cooling Power at									
												300°C	200°C	100°C	20°C	0°C	-20°C	-40°C	-60°C	-80°C	-100°C
		°C	°C	°C	kW	l	l	l	mm	K	K	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
Unistats® to -55°C																					
petite fleur	21	-40...200			1,5		1,5			0,01	0,01		0,48	0,48	0,48	0,45	0,27				
petite fleur w	21	-40...200			1,5		1,5			0,01	0,01		0,48	0,48	0,48	0,45	0,27				
unistat® tango nuevo	22	-45...250			1,5 / 3,0		1,5			0,01	0,01		0,7	0,7		0,7	0,4	0,06			
unistat® tango nuevo wl	22	-45...250			1,5 / 3,0		1,5			0,01	0,01		0,7	0,7		0,7	0,4	0,05			
unistat® 405	22	-45...250			1,5 / 3,0		1,5			0,01	0,01		1,0	1,0		1,0	0,6	0,15			
unistat® 405w	22	-45...250			1,5 / 3,0		1,5			0,01	0,01		1,3	1,3		1,3	0,7	0,15			
unistat® 410w	22	-45...250			1,5 / 3,0		1,5			0,01	0,01		2,5	2,5	2,5	1,5	0,8	0,2			
unistat® 425	22	-40...250			2,0		3,6			0,01	0,01		2,0	2,0	2,0	2,5	1,8	0,2			
unistat® 425w	22	-40...250			2,0		3,6			0,01	0,01		2,8	2,8	2,8	2,5	1,9	0,2			
unistat® 425w-FB	22	-40...250			2,0		5			0,01	0,01		2,8	2,8	2,8	2,5	1,9	0,2			
unistat® 430	22	-40...250			4,0		3,9			0,01	0,01		3,5	3,5	3,5	3,5	2,2	0,3			
unistat® 430w	22	-40...250			4,0		3,9			0,01	0,01		3,5	3,5	3,5	3,5	2,2	0,3			
unistat® 430w-FB	22	-40...250			4,0		4,1			0,01	0,01		3,5	3,5	3,5	3,5	2,2	0,3			
unistat® 510w	22	-50...250			6,0		4,7			0,01	0,01		5,3	5,3		5,3	2,8	0,9			
unistat® 510w-FB	22	-50...250			6,0		5			0,01	0,01			5,0		5,0	2,8	0,9			
unistat® 515w	22	-55...250			6,0		4,7			0,01	0,01		7,0	7,0	7,0	5,0	2,8	0,9			
unistat® 520w	22	-55...200			6,0		5,1			0,01	0,01		6,0	6,0		6,0	4,2	1,5			
unistat® 520w-FB	22	-55...250			6,0		8,6			0,01	0,01		5,0	5,0		6,0	4,2	1,5			
unistat® 525w	22	-55...250			6,0		5,1			0,01	0,01		10,0	10,0	10,0	7,0	4,2	1,5			
unistat® 530w	22	-55...250			12,0		7,2			0,01	0,01		19,0	21,0	21,0	16,0	9,0	3,0			
Unistats® to -75°C																					
unistat® 610w	23	-60...200			6,0		5,65			0,01	0,01		7,0	7,0		7,0	6,4	3,3	0,8		
unistat® 615w	23	-60...200			12,0		5,65			0,01	0,01		9,5	9,5		9,5	8,0	4,8	1,2		
unistat® 620w	23	-60...200			12,0		5,2			0,01	0,01		12,0	12,0		12,0	12,0	6,5	1,8		
unistat® 625w	23	-60...200			12,0		3,4			0,01	0,01		16,0	16,0	16,0	16,0	15,0	7,4	2,2		
unistat® 630w	23	-60...200			24,0		11,4			0,01	0,01		22,0	22,0		21,0	20,0	14,0	5,0		
unistat® 635w	23	-60...200			24,0		21			0,01	0,01		27,0	27,0		27,0	25,0	18,0	6,0		
unistat® 640w	23	-60...200			30,0		17			0,01	0,01		32,0	32,0	35,0	35,0	30,0	18,0	6,0		
unistat® 645w	23	-60...200			36,0		30			0,01	0,01		45,0	45,0		45,0	42,0	22,0	7,0		
unistat® 650w	23	-60...200			48,0		28			0,01	0,01		65,0	65,0		65,0	56,0	30,0	11,0		
unistat® 680w	23	-60...200			96,0		40			0,01	0,01		130,0	130,0		130,0	80,0	60,0	20,0		
unistat® 705	24	-75...250			1,5 / 3,0		1,5			0,01	0,01		0,6	0,6		0,65	0,6	0,6	0,3		
unistat® 705w	24	-75...250			1,5 / 3,0		1,5			0,01	0,01		0,6	0,6		0,65	0,6	0,6	0,3		
Unistats® to -85°C																					
unistat® 815	24	-85...250			2,0		3,8			0,01	0,01		1,3	1,3		1,5	1,5	1,4	1,2	0,2	
unistat® 815w	24	-85...250			2,0		3,2			0,01	0,01		1,5	1,5		1,5	1,5	1,4	1,2	0,2	
unistat® 815w-FB	24	-85...250			2,0		4,5			0,01	0,01		1,5	1,5		1,5	1,5	1,4	1,2	0,2	
unistat® 825	24	-85...250			3,0		2,9			0,01	0,01		2,3	2,3		2,2	2,0	2,0	1,4	0,3	
unistat® 825w	24	-85...250			3,0		3			0,01	0,01		2,3	2,3		2,4	2,4	2,4	1,5	0,3	
unistat® 825w-FB	24	-85...250			3,0		4			0,01	0,01		2,3	2,3		2,4	2,4	2,4	1,5	0,3	
unistat® 830	24	-85...200			3,0		3,5			0,01	0,01		4,0	3,8		3,6	3,5	3,5	2,2	0,7	
unistat® 830w	24	-85...200			3,0		3,5			0,01	0,01		4,0	3,8		3,7	3,6	3,6	2,2	0,7	
Unistats® to -90°C																					
unistat® 905w	25	-90...250			6,0		3,5			0,01	0,01		4,5	4,5		4,5	4,5	4,0	2,5	0,7	
unistat® 910w	25	-90...250			6,0		4,3			0,01	0,01		5,2	5,2		5,2	5,2	4,7	3,1	0,9	
unistat® 910w-FB	25	-90...250			6,0		4,3			0,01	0,01		5,2	5,2		5,2	5,2	4,7	3,1	0,9	
unistat® 920w	25	-90...200			12,0		12			0,01	0,01		11,0	11,0	11,0	11,0	11,0	10,0	8,0	2,0	
unistat® 925w	25	-90...200			12,0		12			0,01	0,01		16,0	16,0	16,0	16,0	16,0	15,0	13,5	3,5	
unistat® 930w	25	-90...200			24,0		12			0,01	0,01		19,0	19,0	19,0	20,0	20,0	20,0	15,0	5,0	

FL = Suitable for inflammable and non-inflammable liquids

max. Flow Rate – Pressure	max. Press – Pressure Pump	max. Flow Rate – Suction Pump	max. Press – Suction Pump	Pump Connection	Circulation Pump	Safety Standard	Overtemperature Protection	Low Level Protection	Dimensions WxDxH	Weight	Power Supply[1]	Refrigeration Machine Cooling	min. Ambient Temperature	max. Ambient Temperature	Cooling Water Connection	Natural Refrigerant[2]	Cat. No.	Model
l/min	bar	l/min	bar						mm	kg	V; Hz		°C	°C				
33	0,9			M16x1		FL	Yes	Yes	260 x 450 x 504	45,0	230;1~;50	AIR	5	40		S	1030.0001.04	petite fleur
33	0,9			M16x1		FL	Yes	Yes	260 x 450 x 504	45,0	230;1~;50	WATER	5	40	1/2"	S	1030.0003.04	petite fleur w
55	0,9			M24x1,5		FL	Yes	Yes	425 x 270 x 636	56,0	230;1~;50 / 400;3~N;50	AIR	5	40		O	1000.0001.05	unistat® tango nuevo
55	0,9			M24x1,5		FL	Yes	Yes	425 x 270 x 636	56,0	230;1~;50 / 400;3~N;50	AIR+WATER	5	40	1/2"	O	1000.0002.05	unistat® tango nuevo wl
55	0,9			M24x1,5		FL	Yes	Yes	425 x 308 x 636	62,0	230;1~;50 / 400;3~N;50	AIR	5	40			1002.0003.05	unistat® 405
55	0,9			M24x1,5		FL	Yes	Yes	425 x 270 x 636	56,0	230;1~;50 / 400;3~N;50	WATER	5	40	1/2"	O	1002.0002.05	unistat® 405w
55	0,9			M24x1,5		FL	Yes	Yes	425 x 360 x 636	67,5	230;1~;50 / 400;3~N;50	WATER	5	40	1/2"	O	1031.0001.05	unistat® 410w
105	1,5			M30x1,5		FL	Yes	Yes	460 x 554 x 1332	155,0	400;3~N;50	AIR	5	40			1005.0002.05	unistat® 425
105	1,5			M30x1,5		FL	Yes	Yes	460 x 554 x 1332	159,0	400;3~N;50	WATER	5	40	1/2"	O	1005.0003.05	unistat® 425w
105	1,5			M30x1,5		FL	Yes	Yes	920 x 639 x 740	175,0	400;3~N;50	WATER	5	40	1/2"	O	1021.0001.05	unistat® 425w-FB
90	1,7			M30x1,5		FL	Yes	Yes	460 x 554 x 1332	161,0	400;3~N;50	AIR	5	40			1005.0006.05	unistat® 430
90	1,7			M30x1,5		FL	Yes	Yes	460 x 554 x 1332	159,0	400;3~N;50	WATER	5	40	1/2"	O	1005.0007.05	unistat® 430w
70	1,5			M30x1,5		FL	Yes	Yes	920 x 639 x 740	153,0	400;3~N;50	WATER	5	40	1/2"	O	1021.0002.05	unistat® 430w-FB
105	1,5			M30x1,5		FL	Yes	Yes	460 x 554 x 1332	163,0	400;3~N;50	WATER	5	40	1/2"	O	1005.0001.05	unistat® 510w
105	1,5			M30x1,5		FL	Yes	Yes	920 x 639 x 740	177,0	400;3~N;50	WATER	5	40	1/2"	O	1021.0003.05	unistat® 510w-FB
105	1,5			M30x1,5		FL	Yes	Yes	460 x 554 x 1332	163,0	400;3~N;50	WATER	5	40	1/2"	O	1032.0001.05	unistat® 515w
60	1,5			M30x1,5		FL	Yes	Yes	540 x 604 x 1332	203,0	400;3~N;50	WATER	5	40	1/2"	O	1006.0001.05	unistat® 520w
60	1,5			M30x1,5		FL	Yes	Yes	920 x 639 x 740	201,2	400;3~N;50	WATER	5	40	1/2"	O	1022.0001.05	unistat® 520w-FB
60	1,5			M30x1,5		FL	Yes	Yes	540 x 604 x 1336	203,0	400;3~N;50	WATER	5	40	1/2"	O	1033.0001.05	unistat® 525w
90	2,5			M30x1,5		FL	Yes	Yes	540 x 704 x 1491	288,0	400;3~N;50	WATER	5	40	1/2"	O	1034.0001.05	unistat® 530w
60	1,5			M30x1,5		FL	Yes	Yes	600 x 704 x 1520	348,0	400;3~N;50	WATER	5	40	1/2"	O	1007.0001.05	unistat® 610w
60	1,5			M30x1,5		FL	Yes	Yes	600 x 704 x 1520	358,0	400;3~N;50	WATER	5	40	1/2"	O	1007.0002.05	unistat® 615w
90	2,5			M30x1,5		FL	Yes	Yes	700 x 804 x 1520	440,0	400;3~N;50	WATER	5	40	3/4"	O	1008.0002.05	unistat® 620w
90	2,5			M30x1,5		FL	Yes	Yes	700 x 804 x 1520	448,0	400;3~N;50	WATER	5	40	3/4"	O	1008.0003.05	unistat® 625w
110	2,5			M38x1,5		FL	Yes	Yes	920 x 1004 x 1655	679,0	400;3~;50	WATER	5	40	3/4"	O	1009.0001.05	unistat® 630w
110	2,5			M38x1,5		FL	Yes	Yes	920 x 1004 x 1655	734,0	400;3~;50	WATER	5	40	3/4"	O	1009.0002.05	unistat® 635w
110	2,5			M38x1,5		FL	Yes	Yes	920 x 1004 x 1655	734,0	400;3~;50	WATER	5	40	3/4"	O	1010.0001.05	unistat® 640w
130	4,0			M38x1,5		FL	Yes	Yes	1830 x 1200 x 1830	1400	400;3~;50	WATER	5	40	1 1/2"	O	1011.0001.05	unistat® 645w
130	4,0			M38x1,5		FL	Yes	Yes	1830 x 1200 x 1830	1400	400;3~;50	WATER	5	40	1 1/2"	O	1012.0002.05	unistat® 650w
130	4,0			M38x1,5		FL	Yes	Yes	4500 x 2000 x 2000	3500	400;3~N;50	WATER	5	40	2"	O	1013.0001.05	unistat® 680w
55	0,9			M24x1,5		FL	Yes	Yes	425 x 400 x 720	90,0	230;1~;50 / 400;3~N;50	AIR	5	40		O	1001.0002.05	unistat® 705
55	0,9			M24x1,5		FL	Yes	Yes	425 x 400 x 720	90,0	230;1~;50 / 400;3~N;50	WATER	5	40	1/2"	O	1001.0001.05	unistat® 705w
40	0,9			M30x1,5		FL	Yes	Yes	460 x 604 x 1342	186,0	400;3~N;50	AIR	5	40			1014.0032.05	unistat® 815
40	0,9			M30x1,5		FL	Yes	Yes	460 x 604 x 1342	190,0	400;3~N;50	WATER	5	40	1/2"	O	1014.0033.05	unistat® 815w
40	0,9			M30x1,5		FL	Yes	Yes	1200 x 654 x 742	177,0	400;3~N;50	WATER	5	40	1/2"	O	1023.0001.05	unistat® 815w-FB
40	0,9			M30x1,5		FL	Yes	Yes	460 x 604 x 1342	208,0	400;3~N;50	AIR	5	40			1014.0001.05	unistat® 825
40	0,9			M30x1,5		FL	Yes	Yes	460 x 604 x 1342	204,0	400;3~N;50	WATER	5	40	1/2"	O	1014.0002.05	unistat® 825w
40	0,9			M30x1,5		FL	Yes	Yes	1200 x 654 x 742	226,0	400;3~N;50	WATER	5	40	1/2"	O	1023.0002.05	unistat® 825w-FB
40	0,9			M30x1,5		FL	Yes	Yes	540 x 654 x 1500	245,0	400;3~N;50	AIR	5	40			1015.0001.05	unistat® 830
40	0,9			M30x1,5		FL	Yes	Yes	540 x 654 x 1500	242,0	400;3~N;50	WATER	5	40	1/2"	O	1015.0002.05	unistat® 830w
40	0,9			M30x1,5		FL	Yes	Yes	540 x 654 x 1500	242,0	400;3~N;50	WATER	5	40	1/2"	O	1035.0002.05	unistat® 905w
40	1,5			M30x1,5		FL	Yes	Yes	600 x 704 x 1565	398,0	400;3~N;50	WATER	5	40	1/2"	O	1016.0001.05	unistat® 910w
40	1,5			M30x1,5		FL	Yes	Yes	1500 x 705 x 900	398,0	400;3~N;50	WATER	5	40	1/2"	O	1026.0001.05	unistat® 910w-FB
90	2,5			M38x1,5		FL	Yes	Yes	920 x 1204 x 1655	995,0	400;3~;50	WATER	5	40	3/4"	O	1017.0011.05	unistat® 920w
110	2,5			M38x1,5		FL	Yes	Yes	920 x 1204 x 1655	995,0	400;3~;50	WATER	5	40	3/4"	O	1017.0001.05	unistat® 925w
110	2,5			M38x1,5		FL	Yes	Yes	920 x 1204 x 1655	991,0	400;3~;50	WATER	5	40	3/4"	O	1017.0002.05	unistat® 930w

[1] Voltage can be changed, must be specified with order

[2] S = Standard, O = Option, A = On Request

[3] Option

[4] Display resolution below -10 °C and above 100 °C: 1 °C

Model	Catalogue Page	Temperature Range	Tmin with Cooling	Tmin with Water Cooling	Heating Power	Bath Volume	min. Filling Capacity	Bath Volume with Displacement Insert	Bath Opening WxDxH	Resolution of Display	Temperature Stability	Cooling Power at									
												300°C	200°C	100°C	20°C	0°C	-20°C	-40°C	-60°C	-80°C	-100°C
		°C	°C	°C	kW	l	l	l	mm	K	K	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
unistat® 950	25	-90...200			36,0		11			0,01	0,01		30,0	30,0	30,0	30,0	30,0	30,0	24,0	10,0	
unistat® 950w	25	-90...200			36,0		30			0,01	0,01		36,0	36,0	36,0	36,0	36,0	36,0	25,0	10,0	
Unistats® to -120°C																					
unistat® 1005w	25	-120...100			2,0		3,6			0,01	0,01			1,5	1,5	1,5	1,5	1,5	1,4	1,4	1,0
unistat® 1015w	25	-120...100			4,0		7			0,01	0,01			2,5	2,5	2,5	2,5	2,5	2,5	2,0	2,0
Unistat® High Temperature Thermostats, Unistat® Heating Thermostats																					
unistat® cc401	27	50...400			3,0 / 9,0		3			0,01/0,1	0,05										
unistat® cc401w HT	27	50...400		15	3,0 / 9,0		2,3			0,01/0,1	0,05	10,0	10,0	10,0							
unistat® cc402	27	80...425			3,0 / 9,0		3			0,01/0,1	0,05										
unistat® T305	27	65...300		15	3,0 / 6,0		1,45			0,01	0,02										
unistat® T305 HT	27	65...300			3,0 / 6,0		1,9			0,01	0,01	3,2	2,3	0,6							
unistat® T305w HT	27	65...300		15	3,0 / 6,0		1,9			0,01		10,0	10,0	10,0							
unistat® T320	27	65...300		15	12,0		3,5			0,01	0,02										
unistat® T320w HT	27	65...300		15	12,0		3,5			0,01		10,0	10,0	6,0							
unistat® T330	27	65...300		15	24,0		3,5			0,01	0,01										
unistat® T330w HT	27	65...300		15	24,0		3,5			0,01		10,0	10,0	6,0							
unistat® T340	27	65...300		15	48,0		3,5			0,01	0,01										
unistat® T340w HT	27	65...300		15	48,0		3,5			0,01		10,0	10,0	6,0							
unistat® T350	27	65...300		15	96,0		3,5			0,01	0,01										
Unichillers® (Bench top)																					
minichiller®-NR	40	-20...40					1,4			0,1	0,2					0,2	0,07				
minichiller®-NR Advanced	41	-20...40					1,4			0,1	0,2					0,2	0,07				
minichiller® w-NR	40	-20...40					1,4			0,1	0,2					0,2	0,07				
minichiller® w-NR Advanced	41	-20...40					1,4			0,1	0,2					0,2	0,07				
UC006	40	-20...40					1,25			0,1	0,2					0,5					
UC006 Advanced	41	-20...40					1,25			0,1	0,2					0,5					
UC007	40	-20...40					3,8			0,1	0,2					0,55	0,16				
UC007 Advanced	41	-20...40					3,8			0,1	0,2					0,55	0,16				
UC010	40	-10…40					3,8			0,1	0,2					0,8					
UC010 Advanced	41	-10…40					3,8			0,1	0,2					0,8					
UC012	40	-10…40					3,8			0,1	0,2					1,0					
UC012 Advanced	41	-10…40					3,8			0,1	0,2					1,0					
UC012w	40	-10…40					3,8			0,1	0,2					1,0					
UC012w Advanced	41	-10…40					3,8			0,1	0,2					1,0					
UC015	40	-10…40					3,8			0,1	0,2					1,0					
UC015 Advanced	41	-10…40					3,8			0,1	0,2					1,0					
UC015w	40	-10...40					3,8			0,1	0,2					1,0					
UC015w Advanced	41	-10...40					3,8			0,1	0,2					1,0					
UC022	40	-10...40					3,8			0,1	0,2					1,6					
UC022 Advanced	41	-10...40					3,8			0,1	0,2					1,6					
UC022w	40	-10...40					3,8			0,1	0,2					1,6					
UC022w Advanced	41	-10...40					3,8			0,1	0,2					1,6					
UC023w	40	-10...40					3,8			0,1	0,2					2,0					
UC023w Advanced	41	-10...40					3,8			0,1	0,2					2,0					
UC025	40	-10...40					3,8			0,1	0,2					2,0					
UC025 Advanced	41	-10...40					3,8			0,1	0,2					2,0					
UC025w	40	-10...40					3,8			0,1	0,2					2,0					
UC025w Advanced	41	-10...40					3,8			0,1	0,2					2,0					
Unichillers® (Tower)																					
UC006Tw-NR	42	-20...40					1,25			0,1	0,5					0,45	0,25				

FL = Suitable for inflammable and non-inflammable liquids

max. Flow Rate – Pressure	max. Press – Pressure Pump	max. Flow Rate – Suction Pump	max. Press – Suction Pump	Pump Connection	Circulation Pump	Safety Standard	Overtemperature Protection	Low Level Protection	Dimensions WxDxH	Weight	Power Supply[1]	Refrigeration Machine Cooling	min. Ambient Temperature	max. Ambient Temperature	Cooling Water Connection	Natural Refrigerant[2]	Cat. No.	Model
l/min	bar	l/min	bar						mm	kg	V; Hz		°C	°C				
130	4,0			M38x1,5		FL	Yes	Yes	1700 x 3500 x 1850	2100	400;3~;50	AIR	5	40			1018.0002.05	unistat® 950
130	4,0			M38x1,5		FL	Yes	Yes	2630 x 1300 x 1930	1950	400;3~;50	WATER	5	40	1 1/4"	O	1018.0001.05	unistat® 950w
30	0,9			M30x1,5		FL	Yes	Yes	700 x 804 x 1520	355,0	400;3~;50	WATER	5	40	1/2"	O	1019.0001.05	unistat® 1005w
44	1,5			M30x1,5		FL	Yes	Yes	920 x 1204 x 1655	685,0	400;3~;50	WATER	5	40	1/2"	O	1020.0001.05	unistat® 1015w
31	0,9			M24x1,5		FL	Yes	Yes	288 x 378 x 750	37,0	230;1~;50 / 400;3~N;50		5	40	1/2"		1028.0001.04	unistat® cc401
31	0,9			M24x1,5		FL	Yes	Yes	288 x 378 x 750	45,0	230;1~;50 / 400;3~N;50		5	40	1/2"		1028.0002.04	unistat® cc401w HT
31	1,0			M24x1,5		FL	Yes	Yes	288 x 332 x 870	48,0	230;1~;50 / 400;3~N;50		5	40	1/2"		1028.0006.04	unistat® cc402
45	0,9			M24x1,5		FL	Yes	Yes	425 x 250 x 635	35,0	230;1~;50/60 / 400;3~N;50/60		5	40	1/2"		1003.0001.05	unistat® T305
45	0,9			M24x1,5		FL	Yes	Yes	425 x 250 x 635	36,0	230;1~;50/60 / 400;3~N;50/60		5	40			1003.0002.05	unistat® T305 HT
45	0,9			M24x1,5		FL	Yes	Yes	425 x 250 x 635	41,5	230;1~;50/60 / 400;3~N;50/60		5	40	1/2"		1003.0003.05	unistat® T305w HT
70	1,5			M30x1,5		FL	Yes	Yes	460 x 554 x 1332	123,0	400;3~N;50		5	40	1/2"		1004.0001.05	unistat® T320
60	1,5			M30x1,5		FL	Yes	Yes	460 x 554 x 1332	124,0	400;3~N;50		5	40	1/2"		1004.0002.05	unistat® T320w HT
70	2,5			M30x1,5		FL	Yes	Yes	460 x 554 x 1332	123,0	400;3~N;50		5	40	1/2"		1004.0008.05	unistat® T330
60	2,5			M30x1,5		FL	Yes	Yes	460 x 554 x 1332	138,0	400;3~N;50		5	40	1/2"		1004.0009.05	unistat® T330w HT
75	2,5			M38x1,5		FL	Yes	Yes	600 x 704 x 1517	148,0	400;3~N;50		5	40	1/2"		1024.0001.05	unistat® T340
60	2,5			M38x1,5		FL	Yes	Yes	600 x 704 x 1517	163,0	400;3~N;50		5	40	1/2"		1024.0002.05	unistat® T340w HT
110	4,0			M38x1,5		FL	Yes	Yes	700 x 804 x 1515	203,0	400;3~N;50		5	40	1/2"		1025.0001.05	unistat® T350
20	0,2	17	0,18	M16x1	Yes	NFL	No	No	225 x 360 x 380	23,0	230;1~;50/60	AIR	5	40		S	3006.0015.99	minichiller®-NR
20	0,2	17	0,18	M16x1	Yes	NFL	No	No	225 x 360 x 380	23,0	230;1~;50/60	AIR	5	40		S	3006.0025.99	minichiller®-NR Advanced
20	0,2	17	0,18	M16x1	Yes	NFL	No	No	225 x 360 x 380	23,0	230;1~;50/60	WATER	5	40	1/2"	S	3006.0022.99	minichiller® w-NR
20	0,2	17	0,18	M16x1	Yes	NFL	No	No	225 x 360 x 380	23,0	230;1~;50/60	WATER	5	40	1/2"	S	3006.0026.99	minichiller® w-NR Advanced
30	0,7			M16x1	A	NFL	No	Yes	280 x 490 x 414	37,0	230;1~;50/60	AIR	5	40		O	3007.0001.99	UC006
30	0,7			M16x1	A	NFL	No	Yes	280 x 490 x 414	37,0	230;1~;50/60	AIR	5	40		O	3007.0004.99	UC006 Advanced
25	2,5			3/4"	B	NFL	No	No	350 x 430 x 622	56,0	230;1~;50	AIR	5	40		O	3012.0001.99	UC007
25	2,5			3/4"	B	NFL	No	No	350 x 430 x 622	56,0	230;1~;50	AIR	5	40		O	3012.0025.99	UC007 Advanced
25	2,5			3/4"	B	NFL	No	No	350 x 430 x 622	49,0	230;1~;50	AIR	5	40			3012.0002.99	UC010
25	2,5			3/4"	B	NFL	No	No	350 x 430 x 622	49,0	230;1~;50	AIR	5	40			3012.0026.99	UC010 Advanced
25	2,5			3/4"	B	NFL	No	No	420 x 480 x 579	52,0	230;1~;50	AIR	5	40			3009.0002.99	UC012
25	2,5			3/4"	B	NFL	No	No	420 x 480 x 579	52,0	230;1~;50	AIR	5	40			3009.0018.99	UC012 Advanced
25	2,5			3/4"	B	NFL	No	No	350 x 430 x 622	52,0	230;1~;50	WATER	5	40	1/2"	O	3012.0003.99	UC012w
25	2,5			3/4"	B	NFL	No	No	350 x 430 x 622	52,0	230;1~;50	WATER	5	40	1/2"	O	3012.0027.99	UC012w Advanced
25	2,5			3/4"	B	NFL	No	No	420 x 480 x 579	52,0	230;1~;50	AIR	5	40			3009.0001.99	UC015
25	2,5			3/4"	B	NFL	No	No	420 x 480 x 579	52,0	230;1~;50	AIR	5	40			3009.0017.99	UC015 Advanced
25	2,5			3/4"	B	NFL	No	Yes	350 x 430 x 622	52,0	230;1~;50	WATER	5	40	1/2"	O	3012.0004.99	UC015w
25	2,5			3/4"	B	NFL	No	Yes	350 x 430 x 622	52,0	230;1~;50	WATER	5	40	1/2"	O	3012.0028.99	UC015w Advanced
25	2,5			3/4"	B	NFL	No	Yes	460 x 590 x 743	78,0	230;1~;50	AIR	5	40			3010.0001.99	UC022
25	2,5			3/4"	B	NFL	No	Yes	460 x 590 x 743	78,0	230;1~;50	AIR	5	40			3010.0009.99	UC022 Advanced
25	2,5			3/4"	B	NFL	No	Yes	420 x 480 x 579	93,0	230;1~;50	WATER	5	40	1/2"	O	3009.0003.99	UC022w
25	2,5			3/4"	B	NFL	No	Yes	420 x 480 x 579	93,0	230;1~;50	WATER	5	40	1/2"	O	3009.0019.99	UC022w Advanced
25	2,5			3/4"	B	NFL	No	Yes	350 x 430 x 622	50,0	230;1~;50	WATER	5	40	1/2"	O	3012.0005.99	UC023w
25	2,5			3/4"	B	NFL	No	Yes	350 x 430 x 622	50,0	230;1~;50	WATER	5	40	1/2"	O	3012.0029.99	UC023w Advanced
25	2,5			3/4"	B	NFL	No	Yes	460 x 590 x 743	88,0	230;1~;50	AIR	5	40			3010.0002.99	UC025
25	2,5			3/4"	B	NFL	No	Yes	460 x 590 x 743	88,0	230;1~;50	AIR	5	40			3010.0010.99	UC025 Advanced
25	2,5			3/4"	B	NFL	No	Yes	420 x 480 x 579	93,0	230;1~;50	WATER	5	40	1/2"	O	3009.0004.99	UC025w
25	2,5			3/4"	B	NFL	No	Yes	420 x 480 x 579	93,0	230;1~;50	WATER	5	40	1/2"	O	3009.0020.99	UC025w Advanced
30	0,7			M16x1	A	NFL	No	No	230 x 280 x 540	30,0	230;1~;50	WATER	5	40	1/2"	S	3022.0007.99	UC006Tw-NR

[1] Voltage can be changed, must be specified with order

[2] S = Standard, O = Option, A = On Request

[3] Option

[4] Display resolution below -10 °C and above 100 °C: 1 °C

Model	Catalogue Page	Temperature Range	Tmin with Cooling	Tmin with Water Cooling	Heating Power	Bath Volume	min. Filling Capacity	Bath Volume with Displacement Insert	Bath Opening WxDxH	Resolution of Display	Temperature Stability	Cooling Power at									
												300°C	200°C	100°C	20°C	0°C	-20°C	-40°C	-60°C	-80°C	-100°C
		°C	°C	°C	kW	l	l	l	mm	K	K	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
UC006Tw-NR Advanced	42	-20...40					1,25			0,1	0,5					0,45	0,25				
UC009Tw-NR	42	-25...40					1,25			0,1	0,5					0,7	0,2				
UC009Tw-NR Advanced	42	-25...40					1,25			0,1	0,5					0,7	0,2				
Unichillers® air-cooled in Tower Housings with CC-Pilot																					
UC017T	44	-10...40					2,5			0,01/0,1	0,5					0,9					
UC020T	44	-20...40					2,5			0,01/0,1	0,5					2,0	0,8				
UC025T	44	-10...40					2,5			0,01/0,1	0,5					1,2					
UC040T	44	-10...40					3,5			0,01/0,1	0,5					2,5					
UC045T	44	-20...40					3,5			0,01/0,1	0,5					4,5	1,5				
UC055T	44	-10...40					5			0,01/0,1	0,5					3,0					
UC060T	44	-20...40					5			0,01/0,1	0,5					6,0	2,0				
UC080T	44	-10...40					5			0,01/0,1	0,5					4,8					
UC100T	44	-20...40					8,36			0,01/0,1	0,5					10,0	2,5				
UC110T	44	-10...40					8,36			0,01/0,1	0,5					6,0					
UC130T	44	-10...40					17			0,01/0,1	0,5					7,0					
UC150T	44	-20...40					17			0,01/0,1	0,5					15,0	3,7				
UC160T	44	-10...40					17			0,01/0,1	0,5					8,8					
UC200T	44	-10...40					17			0,01/0,1	0,5					11,0					
UC210T	44	-20...40					17			0,01/0,1	0,5					21,0	5,2				
UC250T	44	-10...40					20			0,01/0,1	0,5					14,0					
UC260T	44	-20...40					20			0,01/0,1	0,5					26,0	5,2				
UC300T	44	-10...40					25			0,01/0,1	0,5					16,5					
UC400T	44	-10...40					25			0,01/0,1	0,5					22,0					
Unichillers® water-cooled in Tower Housings with CC-Pilot																					
UC017Tw	45	-10...40					2,5			0,01/0,1	0,5					0,9					
UC020Tw	45	-20...40					2,5			0,01/0,1	0,5					2,0	0,8				
UC025Tw	45	-10...40					2,5			0,01/0,1	0,5					1,2					
UC030Tw	45	-20...40					2,5			0,01/0,1	0,5					3,0	1,0				
UC040Tw	45	-10...40					2,5			0,01/0,1	0,5					2,5					
UC055Tw	45	-10...40					5,9			0,01/0,1	0,5					4,0					
UC060Tw	45	-20...40					5,9			0,01/0,1	0,5					6,0	2,1				
UC080Tw	45	-10...40					5,9			0,01/0,1	0,5					4,65					
UC100Tw	45	-20...40					6,5			0,01/0,1	0,5					10,0	3,0				
UC110Tw	45	-10...40					6,5			0,01/0,1	0,5					5,8					
UC130Tw	45	-10...40					6,5			0,01/0,1	0,5					7,0					
UC150Tw	45	-20...40					12,7			0,01/0,1	0,5					15,0	5,0				
UC160Tw	45	-10...40								0,01/0,1	0,5					9,5					
UC200Tw	45	-10...40								0,01/0,1	0,5					10,7					
UC210Tw	45	-20...40					13			0,01/0,1	0,5					21,0	9,5				
UC250Tw	45	-10...40					5,5			0,01/0,1	0,5					14,0					
UC260Tw	45	-20...40					12,3			0,01/0,1	0,5					26,0	12,0				
UC300Tw	45	-10...40					9,5			0,01/0,1	0,5					16,0					
UC400Tw	45	-10...40					9,5			0,01/0,1	0,5					21,0					
UC500Tw	45	-10...40								0,01/0,1	0,5					26,0					
Compatible Control Heating Thermostats and MPC Heating Thermostats																					
CC-E	52	25...200	-30	20	2,0					0,01/0,1	0,01										
MPC-E	52	25...200	-30	20	2,0					0,1[4]	0,05										
CC-200BX	57	28...200	-20		2,0					0,01/0,1	0,02										
CC-300BX	57	28...300	-20		3,0 / 4,0					0,01/0,1	0,02										
CC-106A	53	25...100	-30	20	2,0	6,0	6		130 x 110 x 150	0,01/0,1	0,02										

FL = Suitable for inflammable and non-inflammable liquids

max. Flow Rate – Pressure Pump	max. Press – Pressure Pump	max. Flow Rate – Suction Pump	max. Press – Suction Pump	Pump Connection	Circulation Pump	Safety Standard	Overtemperature Protection	Low Level Protection	Dimensions WxDxH	Weight	Power Supply[1]	Refrigeration Machine Cooling	min. Ambient Temperature	max. Ambient Temperature	Cooling Water Connection	Natural Refrigerant[2]	Cat. No.	Model
l/min	bar	l/min	bar						mm	kg	V; Hz		°C	°C				
30	0,7			M16x1	A	NFL	No	No	230 x 280 x 540	30,0	230;1~;50	WATER	5	40	1/2"	S	3022.0005.99	UC006Tw-NR Advanced
30	0,7			M16x1	A	NFL	No	No	230 x 280 x 540	32,0	230;1~;50	WATER	5	40	1/2"	S	3022.0002.99	UC009Tw-NR
30	0,7			M16x1	A	NFL	No	No	230 x 280 x 540	32,0	230;1~;50	WATER	5	40	1/2"	S	3022.0006.99	UC009Tw-NR Advanced
27	3,0			3/4"	B	NFL	No	Yes	450 x 510 x 1160	114,0	230;1~;50	AIR	5	40			3013.0001.04	UC017T
27	3,0			3/4"	B	NFL	No	Yes	450 x 510 x 1160	130,0	230;1~;50	AIR	5	40			3013.0002.04	UC020T
27	3,0			3/4"	B	NFL	No	Yes	450 x 510 x 1160	119,0	230;1~;50	AIR	5	40			3013.0003.04	UC025T
27	3,0			3/4"	B	NFL	No	Yes	500 x 552 x 1451	164,0	400;3~N;50	AIR	5	40			3014.0001.04	UC040T
27	3,0			3/4"	B	NFL	No	Yes	500 x 552 x 1451	164,0	400;3~N;50	AIR	5	40			3014.0002.04	UC045T
65	5,5			1 1/4"	C3	NFL	No	Yes	600 x 632 x 1610	175,0	400;3~N;50	AIR	5	40			3015.0001.04	UC055T
65	5,5			1 1/4"	C3	NFL	No	Yes	600 x 632 x 1610	199,0	400;3~N;50	AIR	5	40			3015.0002.04	UC060T
90	5,5			1 1/4"	C3	NFL	No	Yes	600 x 790 x 1614	234,0	400;3~N;50	AIR	5	40			3016.0001.04	UC080T
90	5,5			1 1/4"	C3	NFL	No	Yes	600 x 790 x 1614	230,0	400;3~N;50	AIR	5	40			3017.0001.04	UC100T
90	5,5			1 1/4"	C3	NFL	No	Yes	600 x 790 x 1614	230,0	400;3~N;50	AIR	5	40			3017.0002.04	UC110T
90	5,5			1 1/4"	C3	NFL	No	Yes	904 x 1260 x 1855	375,0	400;3~N;50	AIR	5	40			3018.0001.04	UC130T
180	4,5			1 1/4"	D3	NFL	No	Yes	874 x 1485 x 1820	481,0	400;3~N;50	AIR	5	40			3019.0001.04	UC150T
180	4,5			1 1/4"	D3	NFL	No	Yes	904 x 1260 x 1855	480,0	400;3~N;50	AIR	5	40			3018.0002.04	UC160T
180	4,5			1 1/4"	D3	NFL	No	Yes	874 x 1485 x 1820	481,0	400;3~N;50	AIR	5	40			3019.0002.04	UC200T
180	4,5			1 1/4"	D3	NFL	No	Yes	874 x 1985 x 1855	430,0	400;3~N;50	AIR	5	40			3020.0001.04	UC210T
180	4,5			1 1/4"	D3	NFL	No	Yes	874 x 1985 x 1855	430,0	400;3~N;50	AIR	5	40			3020.0002.04	UC250T
220	4,5			1 1/4"	D3	NFL	No	Yes	874 x 1985 x 1855	430,0	400;3~N;50	AIR	5	40			3020.0003.04	UC260T
220	4,5			1 1/4"	D3	NFL	No	Yes	874 x 1985 x 1855	450,0	400;3~N;50	AIR	5	40			3020.0004.04	UC300T
220	4,5			1 1/4"	D3	NFL	No	Yes	2500 x 1685 x 1785	480,0	400;3~N;50	AIR	5	40			3021.0001.04	UC400T
27	3,0			3/4"	B	NFL	No	Yes	400 x 440 x 1100	96,0	230;1~;50	WATER	5	40	1/2"	O	3024.0001.04	UC017Tw
27	3,0			3/4"	B	NFL	No	Yes	400 x 440 x 1100	109,0	230;1~;50	WATER	5	40	1/2"	O	3024.0002.04	UC020Tw
27	3,0			3/4"	B	NFL	No	Yes	400 x 440 x 1100	109,0	230;1~;50	WATER	5	40	1/2"	O	3024.0003.04	UC025Tw
27	3,0			3/4"	B	NFL	No	Yes	400 x 440 x 1100	115,0	400;3~N;50	WATER	5	40	1/2"	O	3025.0001.04	UC030Tw
27	3,0			3/4"	B	NFL	No	Yes	400 x 440 x 1100	110,0	400;3~N;50	WATER	5	40	1/2"	O	3025.0002.04	UC040Tw
65	5,5			1 1/4"	C3	NFL	No	Yes	500 x 552 x 1261	168,0	400;3~N;50	WATER	5	40	1/2"	O	3026.0001.04	UC055Tw
65	5,5			1 1/4"	C3	NFL	No	Yes	500 x 552 x 1261	173,0	400;3~N;50	WATER	5	40	1/2"	O	3026.0002.04	UC060Tw
90	5,5			1 1/4"	C3	NFL	No	Yes	500 x 552 x 1261	225,0	400;3~N;50	WATER	5	40	1/2"	O	3026.0003.04	UC080Tw
90	5,5			1 1/4"	C3	NFL	No	Yes	600 x 600 x 1450	230,0	400;3~N;50	WATER	5	40	1/2"	O	3027.0001.04	UC100Tw
90	5,5			1 1/4"	C3	NFL	No	Yes	600 x 600 x 1450	370,0	400;3~N;50	WATER	5	40	1/2"	O	3027.0002.04	UC110Tw
90	5,5			1 1/4"	C3	NFL	No	Yes	600 x 600 x 1450	370,0	400;3~N;50	WATER	5	40	1/2"	O	3027.0003.04	UC130Tw
180	4,5			1 1/4"	D3	NFL	No	Yes	760 x 800 x 1560	370,0	400;3~;50	WATER	5	40	3/4"	O	3028.0001.04	UC150Tw
180	4,5			1 1/4"	D3	NFL	No	Yes	600 x 600 x 1450	235,0	400;3~N;50	WATER	5	40	3/4"	O	3027.0004.04	UC160Tw
180	4,5			1 1/4"	D3	NFL	No	Yes	760 x 800 x 1560	430,0	400;3~N;50	WATER	5	40	3/4"	O	3028.0002.04	UC200Tw
180	4,5			1 1/4"	D3	NFL	No	Yes	760 x 800 x 1560	430,0	400;3~;50	WATER	5	40	3/4"	O	3028.0003.04	UC210Tw
180	4,5			1 1/4"	D3	NFL	No	Yes	760 x 800 x 1560	430,0	400;3~;50	WATER	5	40	3/4"	O	3028.0004.04	UC250Tw
220	4,5			1 1/4"	D3	NFL	No	Yes	760 x 800 x 1560	430,0	400;3~N;50	WATER	5	40	3/4"	O	3028.0005.04	UC260Tw
220	4,5			1 1/4"	D3	NFL	No	Yes	760 x 900 x 1560	450,0	400;3~N;50	WATER	5	40	3/4"	O	3029.0001.04	UC300Tw
220	4,5			1 1/4"	D3	NFL	No	Yes	760 x 900 x 1560	450,0	400;3~;50	WATER	5	40	3/4"	O	3029.0002.04	UC400Tw
220	4,5			1 1/4"	D3	NFL	No	Yes	1070 x 760 x 1625	520,0	400;3~;50	WATER	5	40	3/4"	O	3030.0001.04	UC500Tw
27	0,7	25	0,4	M16x1[3]		FL	Yes	Yes	132 x 159 x 315/150	4,0	230;1~;50/60		5	40			2000.0001.04	CC-E
20	0,2	17	0,18	M16x1[3]		FL	Yes	Yes	132 x 153 x 315/150	4,0	230;1~;50/60		5	40			2035.0001.99	MPC-E
27	0,7	25	0,4	M16x1[3]		FL	Yes	Yes	345 x 200 x 326	12,0	230;1~;50/60		5	40			2000.0003.04	CC-200BX
27	0,7	25	0,4	M16x1		FL	Yes	Yes	345 x 190 x 392	13,0	230;1~;50/60 / 400;3~N;50		5	40			2007.0002.04	CC-300BX
27	0,7	25	0,4	M16x1[3]		FL	Yes	Yes	147 x 307 x 330	5,0	230;1~;50/60		5	40			2001.0001.04	CC-106A

[1] Voltage can be changed, must be specified with order

[2] S = Standard, O = Option, A = On Request

[3] Option

[4] Display resolution below -10 °C and above 100 °C: 1 °C

Model	Catalogue Page	Temperature Range	Tmin with Cooling	Tmin with Water Cooling	Heating Power	Bath Volume	min. Filling Capacity	Bath Volume with Displacement Insert	Bath Opening WxDxH	Resolution of Display	Temperature Stability	Cooling Power at									
												300°C	200°C	100°C	20°C	0°C	-20°C	-40°C	-60°C	-80°C	-100°C
		°C	°C	°C	kW	l	l	l	mm	K	K	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
MPC-106A	53	25...100	-30	20	2,0	6,0	6		130 x 110 x 150	0,1[4]	0,05										
CC-108A	53	25...100	-30	20	2,0	8,0	8		130 x 210 x 150	0,01/0,1	0,02										
MPC-108A	53	25...100	-30	20	2,0	8,0	8		130 x 210 x 150	0,1[4]	0,05										
CC-110A	53	25...100	-30	20	2,0	10,0	10		130 x 310 x 150	0,01/0,1	0,02										
MPC-110A	53	25...100	-30	20	2,0	10,0	10		130 x 310 x 150	0,1[4]	0,05										
CC-112A	53	25...100	-30	20	2,0	12,0	12		303 x 161 x 150	0,01/0,1	0,02										
MPC-112A	53	25...100	-30	20	2,0	12,0	12		303 x 161 x 150	0,1[4]	0,05										
CC-118A	53	25...100	-30	20	2,0	18,0	18		303 x 321 x 150	0,01/0,1	0,02										
MPC-118A	53	25...100	-30	20	2,0	18,0	18		303 x 321 x 150	0,1[4]	0,05										
CC-130A Visco 3	56	28...100		15	2,0	31,0			90 x 90 x 310	0,01/0,1	0,01										
CC-130A Visco 5	56	28...100		15	2,0	31,0			Ø 51 x 310	0,01/0,1	0,01										
CC-208B	54	25...200	-30	20	2,0	8,5	8,5		230 x 127 x 150	0,01/0,1	0,02										
MPC-208B	54	25...200	-30	20	2,0	8,5	8,5		230 x 127 x 150	0,1[4]	0,05										
CC-212B	54	25...200	-30	20	2,0	12,0	12		290 x 152 x 150	0,01/0,1	0,02										
MPC-212B	54	25...200	-30	20	2,0	12,0	12		290 x 152 x 150	0,1[4]	0,05										
CC-215B	54	25...200	-30	20	2,0	15,0	15		290 x 152 x 200	0,01/0,1	0,02										
MPC-215B	54	25...200	-30	20	2,0	15,0	15		290 x 152 x 200	0,1[4]	0,05										
CC-220B	54	25...200	-30	20	2,0	20,0	20		290 x 329 x 150	0,01/0,1	0,02										
MPC-220B	54	25...200	-30	20	2,0	20,0	20		290 x 329 x 150	0,1[4]	0,05										
CC-225B	54	25...200	-30	20	2,0	25,0	25		290 x 329 x 200	0,01/0,1	0,02										
MPC-225B	54	25...200	-30	20	2,0	25,0	25		290 x 329 x 200	0,1[4]	0,05										
CC-202C	55	45...200	-30	20	2,0	2,0			Ø 25 x 150	0,01/0,1	0,02										
MPC-202C	55	45...200	-30	20	2,0	2,0			Ø 25 x 150	0,1[4]	0,05										
CC-205B	55	45...200	-30	20	2,0	5,0			105 x 90 x 150	0,01/0,1	0,02										
MPC-205B	55	45...200	-30	20	2,0	5,0			105 x 90 x 150	0,1[4]	0,05										
CC-304B	58	28...300	-20		2,0	5,0			130 x 100 x 155	0,01/0,1	0,02										
CC-308B	58	28...300	-20		3,0	8,5		5,2	130 x 110 x 155	0,01/0,1	0,02										
CC-315B	58	28...300	-20		3,0/ 4,0	15,0		8,5	270 x 145 x 200	0,01/0,1	0,02										
Immersion Coolers, Flow-through Chillers																					
TC45-NR	70	-45...100														0,24	0,18	0,05			
TC45E-NR	70	-45...100								0,1	0,5					0,24	0,18	0,05			
TC50-NR	70	-50...50														0,3	0,26				
TC50E-NR	70	-50...50								0,1	0,5					0,3	0,26				
TC100-NR	70	-100...40														0,16	0,15		0,12	0,12	0,01
TC100E-NR	70	-100...40								0,1	0,5					0,16	0,15		0,12	0,12	0,01
DC30-NR	70	-30...50														0,15	0,07				
DC31-NR	70	-30...50														0,35	0,10				
DC32-NR	70	-30...50														0,47	0,12				
Compatible Control Cooling Bath Thermostats and MPC Cooling Bath Thermostats																					
K6-cc-NR	60	-25...200			2,0	4,5			140 x 120 x 150	0,01/0,1	0,02					0,15	0,05				
K6-mpc-NR	60	-25...200			2,0	4,5			140 x 120 x 150	0,1[4]	0,05					0,15	0,05				
K6s-cc-NR	60	-25...200			2,0	4,5			140 x 120 x 150	0,01/0,1	0,02				0,26	0,21	0,05				
K6s-mpc-NR	60	-25...200			2,0	4,5			140 x 120 x 150	0,1[4]	0,05				0,26	0,21	0,05				
K12-NR	72	-20...200				12,0			290 x 320 x 150	0,01/0,1						0,2	0,05				
K12-cc-NR	59	-20...200			2,0	12,0			290 x 152 x 150	0,01/0,1	0,02					0,2	0,05				
K12-mpc-NR	59	-20...200			2,0	12,0			290 x 152 x 150	0,1[4]	0,05					0,2	0,05				
K15-NR	72	-20...200				15,0			290 x 320 x 200	0,01/0,1						0,2	0,05				
K15-cc-NR	59	-20...200			2,0	15,0			290 x 152 x 200	0,01/0,1	0,02					0,2	0,05				
K15-mpc-NR	59	-20...200			2,0	15,0			290 x 152 x 200	0,1[4]	0,05					0,2	0,05				
K20-NR	72	-30...200				20,0			290 x 500 x 150	0,01/0,1						0,35	0,16				

FL = Suitable for inflammable and non-inflammable liquids

max. Flow Rate – Pressure	max. Press – Pressure Pump	max. Flow Rate – Suction Pump	max. Press – Suction Pump	Pump Connection	Circulation Pump	Safety Standard	Overtemperature Protection	Low Level Protection	Dimensions WxDxH	Weight	Power Supply[1]	Refrigeration Machine Cooling	min. Ambient Temperature	max. Ambient Temperature	Cooling Water Connection	Natural Refrigerant[2]	Cat. No.	Model
l/min	bar	l/min	bar						mm	kg	V; Hz		°C	°C				
20	0,2	17	0,18	M16x1[3]		FL	Yes	Yes	147 x 307 x 330	5,0	230;1~;50/60		5	40			2037.0001.99	MPC-106A
27	0,7	25	0,4	M16x1[3]		FL	Yes	Yes	147 x 407 x 330	6,0	230;1~;50/60		5	40			2001.0002.04	CC-108A
20	0,2	17	0,18	M16x1[3]		FL	Yes	Yes	147 x 407 x 330	6,0	230;1~;50/60		5	40			2037.0002.99	MPC-108A
27	0,7	25	0,4	M16x1[3]		FL	Yes	Yes	147 x 507 x 330	6,0	230;1~;50/60		5	40			2001.0003.04	CC-110A
20	0,2	17	0,18	M16x1[3]		FL	Yes	Yes	147 x 507 x 330	6,0	230;1~;50/60		5	40			2037.0003.99	MPC-110A
27	0,7	25	0,4	M16x1[3]		FL	Yes	Yes	333 x 360 x 335	8,0	230;1~;50/60		5	40			2001.0004.04	CC-112A
20	0,2	17	0,18	M16x1[3]		FL	Yes	Yes	333 x 360 x 335	8,0	230;1~;50/60		5	40			2037.0004.99	MPC-112A
27	0,7	25	0,4	M16x1[3]		FL	Yes	Yes	333 x 520 x 335	8,0	230;1~;50/60		5	40			2001.0005.04	CC-118A
20	0,2	17	0,18	M16x1[3]		FL	Yes	Yes	333 x 520 x 335	8,0	230;1~;50/60		5	40			2037.0005.99	MPC-118A
27	0,7			M16x1		FL	Yes	Yes	500 x 205 x 490	11,0	230;1~;50/60		5	40			2001.0006.04	CC-130A Visco 3
27	0,7			M16x1		FL	Yes	Yes	500 x 205 x 490	11,0	230;1~;50/60		5	40			2001.0007.04	CC-130A Visco 5
27	0,7	25	0,4	M16x1[3]		FL	Yes	Yes	290 x 350 x 375	10,0	230;1~;50/60		5	40			2002.0001.04	CC-208B
20	0,2	17	0,18	M16x1[3]		FL	Yes	Yes	290 x 350 x 375	10,0	230;1~;50/60		5	40			2038.0001.99	MPC-208B
27	0,7	25	0,4	M16x1[3]		FL	Yes	Yes	350 x 375 x 375	11,0	230;1~;50/60		5	40			2002.0002.04	CC-212B
20	0,2	17	0,18	M16x1[3]		FL	Yes	Yes	350 x 375 x 375	11,0	230;1~;50/60		5	40			2038.0002.99	MPC-212B
27	0,7	25	0,4	M16x1[3]		FL	Yes	Yes	350 x 375 x 425	12,0	230;1~;50/60		5	40			2002.0003.04	CC-215B
20	0,2	17	0,18	M16x1[3]		FL	Yes	Yes	350 x 375 x 425	12,0	230;1~;50/60		5	40			2038.0003.99	MPC-215B
27	0,7	25	0,4	M16x1[3]		FL	Yes	Yes	350 x 555 x 375	14,0	230;1~;50/60		5	40			2002.0004.04	CC-220B
20	0,2	17	0,18	M16x1[3]		FL	Yes	Yes	350 x 555 x 375	14,0	230;1~;50/60		5	40			2038.0004.99	MPC-220B
27	0,7	25	0,4	M16x1[3]		FL	Yes	Yes	350 x 555 x 425	16,0	230;1~;50/60		5	40			2002.0005.04	CC-225B
20	0,2	17	0,18	M16x1[3]		FL	Yes	Yes	350 x 555 x 425	16,0	230;1~;50/60		5	40			2038.0005.99	MPC-225B
27	0,7	25	0,4	M16x1		FL	Yes	Yes	178 x 260 x 355	8,0	230;1~;50/60		5	40			2003.0001.04	CC-202C
27	0,7	25	0,4	M16x1		FL	Yes	Yes	178 x 337 x 355	9,0	230;1~;50/60		5	40			2004.0001.04	CC-205B
33	0,7	22	0,4	M16x1		FL	Yes	Yes	210 x 335 x 392	13,0	230;1~;50/60		5	40			2005.0001.04	CC-304B
33	0,7	22	0,4	M16x1		FL	Yes	Yes	242 x 404 x 392	18,0	230;1~;50/60		5	40			2006.0001.04	CC-308B
33	0,7	22	0,4	M16x1		FL	Yes	Yes	335 x 382 x 433	22,0	230;1~;50/60 / 400;3~N;50		5	40			2007.0001.04	CC-315B
							No	No	190 x 295 x 360	16,0	230;1~;50	AIR	5	40		S	3003.0001.99	TC45-NR
							No	No	190 x 295 x 360	16,0	230;1~;50	AIR	5	40		S	3003.0002.99	TC45E-NR
							No	No	260 x 330 x 415	25,0	230;1~;50	AIR	5	40		S	3004.0001.99	TC50-NR
							No	No	260 x 330 x 415	25,0	230;1~;50	AIR	5	40		S	3004.0002.99	TC50E-NR
							No	No	294 x 470 x 560	57,0	230;1~;50	AIR	5	40		S	3005.0001.99	TC100-NR
							No	No	294 x 470 x 560	57,0	230;1~;50	AIR	5	40		S	3005.0002.99	TC100E-NR
				M16x1			No	No	190 x 250 x 360	16,0	230;1~;50	AIR	5	40		S	3000.0001.99	DC30-NR
				M16x1			No	No	250 x 310 x 400	25,0	230;1~;50/60	AIR	5	40		S	3001.0001.99	DC31-NR
				M16x1			No	No	280 x 340 x 460	30,0	230;1~;50	AIR	5	40		S	3002.0001.99	DC32-NR
27	0,7	25	0,4	M16x1		FL	Yes	Yes	210 x 400 x 546	25,0	230;1~;50	AIR	5	40		S	2008.0005.04	K6-cc-NR
20	0,2	17	0,18	M16x1		FL	Yes	Yes	210 x 400 x 546	25,0	230;1~;50	AIR	5	40		S	2008.0007.99	K6-mpc-NR
27	0,7	25	0,4	M16x1		FL	Yes	Yes	210 x 400 x 546	25,0	230;1~;50	AIR	5	40		S	2008.0002.04	K6s-cc-NR
20	0,2	17	0,18	M16x1		FL	Yes	Yes	210 x 400 x 546	25,0	230;1~;50	AIR	5	40		S	2008.0008.99	K6s-mpc-NR
							No	No	350 x 560 x 263	20,0	230;1~;50	AIR	5	40		S	2009.0001.99	K12-NR
27	0,7	25	0,4	M16x1[3]		FL	Yes	Yes	350 x 560 x 430	28,0	230;1~;50	AIR	5	40		S	2009.0002.04	K12-cc-NR
20	0,2	17	0,18	M16x1[3]		FL	Yes	Yes	350 x 560 x 430	28,0	230;1~;50	AIR	5	40		S	2009.0005.99	K12-mpc-NR
							No	No	350 x 560 x 263	20,0	230;1~;50	AIR	5	40		S	2010.0001.99	K15-NR
27	0,7	25	0,4	M16x1[3]		FL	Yes	Yes	350 x 560 x 430	28,0	230;1~;50	AIR	5	40		S	2010.0002.04	K15-cc-NR
20	0,2	17	0,18	M16x1[3]		FL	Yes	Yes	350 x 560 x 430	28,0	230;1~;50	AIR	5	40		S	2010.0005.99	K15-mpc-NR
							No	No	350 x 555 x 448	30,0	230;1~;50/60	AIR	5	40		S	2011.0001.99	K20-NR
27	0,7	25	0,4	M16x1[3]		FL	Yes	Yes	350 x 555 x 615	36,0	230;1~;50/60	AIR	5	40		S	2011.0002.04	K20-cc-NR
20	0,2	17	0,18	M16x1[3]		FL	Yes	Yes	350 x 555 x 615	36,0	230;1~;50/60	AIR	5	40		S	2011.0005.99	K20-mpc-NR

[1] Voltage can be changed, must be specified with order

[2] S = Standard, O = Option, A = On Request

[3] Option

[4] Display resolution below -10 °C and above 100 °C: 1 °C

Model	Catalogue Page	Temperature Range	Tmin with Cooling	Tmin with Water Cooling	Heating Power	Bath Volume	min. Filling Capacity	Bath Volume with Displacement Insert	Bath Opening WxDxH	Resolution of Display	Temperature Stability	Cooling Power at									
												300°C	200°C	100°C	20°C	0°C	-20°C	-40°C	-60°C	-80°C	-100°C
		°C	°C	°C	kW	l	l	l	mm	K	K	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
K25-NR	72	-30...200				25,0			290 x 500 x 200	0,01/0,1						0,35	0,16				
K25-cc-NR	59	-30...200			2,0	25,0			290 x 329 x 200	0,01/0,1	0,02					0,35	0,16				
K25-mpc-NR	59	-30...200			2,0	25,0			290 x 329 x 200	0,1[4]	0,05					0,35	0,16				
Compatible Control Heating Thermostats																					
ministat® 125-cc	62	-25...150			1,0	2,75	2	1,3	178 x 80 x 120	0,01/0,1	0,02			0,3	0,3	0,21	0,05				
ministat® 125-cc-NR	62	-25...150			1,0	2,75	2	1,3	178 x 80 x 120	0,01/0,1	0,02			0,3	0,3	0,21	0,05				
ministat® 125w-cc	62	-25...150			1,0	2,75		1,3	178 x 80 x 120	0,01/0,1	0,02			0,3	0,3	0,2	0,1				
ministat® 125w-cc-NR	62	-25...150			1,0	2,75		1,3	178 x 80 x 120	0,01/0,1	0,02			0,3	0,3	0,2	0,1				
ministat® 230-cc	62	-40...200			2,0	3,2		1,7	170 x 87 x 135	0,01/0,1	0,02			0,42	0,42	0,38	0,25	0,05			
ministat® 230-cc-NR	62	-40...200			2,0	3,2		1,7	170 x 87 x 135	0,01/0,1	0,02			0,42	0,42	0,38	0,25	0,05			
ministat® 230w-cc	62	-40...200			2,0	3,2		1,7	170 x 87 x 135	0,01/0,1	0,02			0,42	0,42	0,38	0,25	0,05			
ministat® 230w-cc-NR	62	-40...200			2,0	3,2		1,7	170 x 87 x 135	0,01/0,1	0,02			0,42	0,42	0,38	0,25	0,05			
ministat® 240-cc	62	-45...200			2,0	4,9		2,8	205 x 85 x 157	0,01/0,1	0,02			0,6	0,6	0,55	0,35	0,05			
ministat® 240-cc-NR	62	-45...200			2,0	4,9		2,8	205 x 85 x 157	0,01/0,1	0,02			0,6	0,6	0,55	0,35	0,05			
ministat® 240w-cc	62	-45...200			2,0	4,9		2,8	205 x 85 x 157	0,01/0,1	0,02			0,6	0,6	0,55	0,35	0,05			
ministat® 240w-cc-NR	62	-45...200			2,0	4,9		2,8	205 x 85 x 157	0,01/0,1	0,02			0,6	0,6	0,55	0,35	0,05			
variostat® cc	61	-30...150			1,0					0,01/0,1	0,02			0,3	0,3	0,2	0,12				
CC-405	64	-40...200			1,5	5,0			120 x 110 x 150	0,01/0,1	0,02			0,7	0,7	0,7	0,45	0,03			
CC-405w	64	-40...200			1,5	5,0			120 x 110 x 150	0,01/0,1	0,02			0,7	0,7	0,7	0,45	0,03			
CC-410wl	64	-45...200			3,0	22,0		8,5	280 x 280 x 200	0,01/0,1	0,02			0,8	0,8	0,8	0,5	0,1			
CC-415	64	-40...200			1,5	5,0			120 x 110 x 150	0,01/0,1	0,02			1,2	1,2	1,0	0,6	0,05			
CC-415wl	64	-40...200			1,5	5,0			120 x 110 x 150	0,01/0,1	0,02			1,2	1,2	1,0	0,6	0,05			
CC-505	66	-50...200			1,5	5,0			120 x 110 x 150	0,01/0,1	0,02			1,2	1,2	1,0	0,6	0,15			
CC-505wl	66	-50...200			1,5	5,0			120 x 110 x 150	0,01/0,1	0,02			1,2	1,2	1,0	0,6	0,15			
CC-510	66	-50...100			3,0	18,0		11,0	270 x 150 x 200	0,01/0,1	0,02			2,1	2,1	2,1	1,0	0,4			
CC-510w	66	-50...100			3,0	18,0		11,0	270 x 150 x 200	0,01/0,1	0,02			2,4	2,4	2,4	1,0	0,4			
CC-515	66	-55...100			3,0	26,0		15,0	260 x 260 x 200	0,01/0,1	0,02			3,3	3,3	3,3	1,6	0,6			
CC-515w	66	-55...100			3,0	18,0		11,0	270 x 150 x 200	0,01/0,1	0,02			3,3	3,3	3,3	1,6	0,6			
CC-520w	66	-55...100			3,0	17,0		10,0	270 x 150 x 200	0,01/0,1	0,02			5,0	5,0	5,0	3,0	1,5			
CC-525w	66	-55...100			3,0	17,0		10,0	270 x 150 x 200	0,01/0,1	0,02			7,0	7,0	5,0	3,0	1,5			
CC-805	68	-80...100			1,5	5,0			120 x 110 x 150	0,01/0,1	0,02			0,5	0,5	0,5	0,4	0,3	0,3	0,06	
CC-815	68	-85...100			1,5	5,0			120 x 110 x 150	0,01/0,1	0,02			1,0	1,0	1,0	0,8	0,75	0,6	0,15	
CC-820	68	-80...100			3,0	17,0		10,0	270 x 150 x 200	0,01/0,1	0,02			1,2	1,2	1,2	1,1	0,9	0,6	0,14	
CC-820w	68	-80...100			3,0	17,0		10,0	270 x 150 x 200	0,01/0,1	0,02			1,2	1,2	1,2	1,1	0,9	0,6	0,14	
CC-905	68	-90...200			3,0	26,0		15,0	260 x 260 x 200	0,01/0,1	0,02		2,0	2,0	2,0	2,0	1,9	1,7	1,0	0,34	
CC-905w	68	-90...200			3,0	26,0		15,0	260 x 260 x 200	0,01/0,1	0,02		2,5	2,0	2,0	2,0	1,9	1,7	1,0	0,34	
CC-906w	68	-90...200			3,0	30,0		19,0	260 x 260 x 200	0,01/0,1	0,02		3,0	3,0	3,0	3,0	2,8	2,4	1,6	0,55	
Specials																					
RotaCool®	46	-10...40					1,5			0,1	1,0					0,35					
HB45	78	45...250			4,5		3,5			0,01/0,1	0,5										
HB60	78	60...250			6,0		3,5			0,01/0,1	0,5										
HB120	78	60...250			12,0		3,5			0,01/0,1	0,5										
BFT1	78	0...80			2,0	22,0			280 x 280 x 150	0,01/0,1	1,0				1,0						
BFT1w	78	0...80			2,0	22,0			280 x 280 x 150	0,01/0,1	1,0				1,0						
BFT2	78	0...80			3,0	90,0			530 x 400 x 360	0,01/0,1	1,0				2,5						
BFT2w	78	0...80			3,0	90,0			530 x 400 x 360	0,01/0,1	1,0				2,5						
BFT4	78	0...80			2,0	50,0			300 x 400 x 300	0,01/0,1	1,0				0,35						

FL = Suitable for inflammable and non-inflammable liquids

max. Flow Rate – Pressure	max. Press – Pressure Pump	max. Flow Rate – Suction Pump	max. Press – Suction Pump	Pump Connection	Circulation Pump	Safety Standard	Overtemperature Protection	Low Level Protection	Dimensions WxDxH	Weight	Power Supply[1]	Refrigeration Machine Cooling	min. Ambient Temperature	max. Ambient Temperature	Cooling Water Connection	Natural Refrigerant[2]	Cat. No.	Model
l/min	bar	l/min	bar						mm	kg	V; Hz		°C	°C				
							No	No	350 x 555 x 448	30,0	230;1~;50/60	AIR	5	40		S	2012.0001.99	K25-NR
27	0,7	25	0,4	M16x1[3]		FL	Yes	Yes	350 x 555 x 615	36,0	230;1~;50/60	AIR	5	40		S	2012.0002.04	K25-cc-NR
20	0,2	17	0,18	M16x1[3]		FL	Yes	Yes	350 x 555 x 615	36,0	230;1~;50/60	AIR	5	40		S	2012.0005.99	K25-mpc-NR
27	0,7	20	0,4	M16x1		FL	Yes	Yes	225 x 370 x 429	25,0	230;1~;50	AIR	5	35		–	2014.0001.04	ministat® 125-cc
27	0,7	20	0,4	M16x1		FL	Yes	Yes	225 x 370 x 429	25,0	230;1~;50	AIR	5	35		S	2014.0011.04	ministat® 125-cc-NR
27	0,7	20	0,4	M16x1		FL	Yes	Yes	225 x 370 x 429	25,0	230;1~;50	WATER	5	40	1/2"	–	2014.0002.04	ministat® 125w-cc
27	0,7	20	0,4	M16x1		FL	Yes	Yes	225 x 370 x 429	25,0	230;1~;50	WATER	5	40	1/2"	S	2014.0006.04	ministat® 125w-cc-NR
27	0,7	20	0,4	M16x1		FL	Yes	Yes	255 x 450 x 476	35,0	230;1~;50/60	AIR	5	40		–	2015.0001.04	ministat® 230-cc
27	0,7	20	0,4	M16x1		FL	Yes	Yes	255 x 450 x 476	35,0	230;1~;50/60	AIR	5	40		S	2015.0005.04	ministat® 230-cc-NR
27	0,7	20	0,4	M16x1		FL	Yes	Yes	255 x 450 x 476	35,0	230;1~;50	WATER	5	40	1/2"	–	2015.0002.04	ministat® 230w-cc
27	0,7	20	0,4	M16x1		FL	Yes	Yes	255 x 450 x 476	35,0	230;1~;50	WATER	5	40	1/2"	S	2015.0007.04	ministat® 230w-cc-NR
27	0,7	20	0,4	M16x1		FL	Yes	Yes	300 x 465 x 516	41,0	230;1~;50	AIR	5	40		–	2016.0001.04	ministat® 240-cc
27	0,7	20	0,4	M16x1		FL	Yes	Yes	300 x 465 x 516	41,0	230;1~;50	AIR	5	40		S	2016.0005.04	ministat® 240-cc-NR
27	0,7	20	0,4	M16x1		FL	Yes	Yes	300 x 465 x 516	41,0	230;1~;50	WATER	5	40	1/2"	–	2016.0002.04	ministat® 240w-cc
27	0,7	20	0,4	M16x1		FL	Yes	Yes	300 x 465 x 516	41,0	230;1~;50	WATER	5	40	1/2"	S	2016.0006.04	ministat® 240w-cc-NR
27	0,7	20	0,4	M16x1		FL	Yes	Yes	183 x 465 x 416	24,0	230;1~;50/60	AIR	5	40		O	2013.0001.04	variostat® cc
33	0,7	22	0,4	M16x1		FL	Yes	Yes	370 x 460 x 679	55,0	230;1~;50/60	AIR	5	40		O	2017.0001.04	CC-405
33	0,7	22	0,4	M16x1		FL	Yes	Yes	370 x 460 x 679	55,0	230;1~;50/60	WATER	5	40	1/2"	O	2017.0002.04	CC-405w
33	0,7	22	0,4	M16x1		FL	Yes	Yes	420 x 565 x 719	72,0	230;1~;50/60	AIR+WATER	5	40	1/2"	O	2019.0001.04	CC-410wl
33	0,7	22	0,4	M16x1		FL	Yes	Yes	410 x 480 x 764	60,0	230;1~;50/60	AIR	5	40			2018.0001.04	CC-415
33	0,7	22	0,4	M16x1		FL	Yes	Yes	410 x 480 x 764	61,0	230;1~;50/60	AIR+WATER	5	40	1/2"	O	2018.0002.04	CC-415wl
33	0,7	22	0,4	M16x1		FL	Yes	Yes	410 x 480 x 764	60,0	230;1~;50	AIR	5	40			2018.0003.04	CC-505
33	0,7	22	0,4	M16x1		FL	Yes	Yes	410 x 480 x 764	62,0	230;1~;50	AIR+WATER	5	40	1/2"	O	2018.0004.04	CC-505wl
31	0,6	24	0,35	M16x1		FL	Yes	Yes	455 x 515 x 1014	99,0	400;3~N;50	AIR	5	40			2020.0001.04	CC-510
31	0,6	24	0,35	M16x1		FL	Yes	Yes	455 x 515 x 1014	96,0	400;3~N;50	WATER	5	40	1/2"	O	2020.0002.04	CC-510w
31	0,6	24	0,35	M16x1		FL	Yes	Yes	605 x 706 x 1136	98,0	400;3~N;50	AIR	5	40			2021.0001.04	CC-515
31	0,6	24	0,35	M16x1		FL	Yes	Yes	455 x 515 x 1014	98,0	400;3~N;50	WATER	5	40	1/2"	O	2020.0003.04	CC-515w
31	0,6	24	0,35	M16x1		FL	Yes	Yes	539 x 629 x 1102	141,0	400;3~N;50	WATER	5	40	1/2"	O	2022.0001.04	CC-520w
31	0,6	24	0,35	M16x1		FL	Yes	Yes	539 x 629 x 1102	142,0	400;3~N;50	WATER	5	40	1/2"	O	2023.0001.04	CC-525w
33	0,7	22	0,4	M16x1		FL	Yes	Yes	410 x 480 x 764	80,0	400;3~N;50	AIR	5	40		O	2024.0001.04	CC-805
33	0,7	22	0,4	M16x1		FL	Yes	Yes	550 x 600 x 911	139,0	230;1~;50	AIR	5	40			2026.0001.04	CC-815
31	0,6	24	0,35	M16x1		FL	Yes	Yes	539 x 629 x 1102	150,0	400;3~N;50	AIR	5	40			2025.0001.04	CC-820
31	0,6	24	0,35	M16x1		FL	Yes	Yes	539 x 629 x 1102	150,0	400;3~N;50	WATER	5	40	1/2"	O	2025.0002.04	CC-820w
31	0,6	24	0,35	M16x1		FL	Yes	Yes	605 x 706 x 1136	162,0	400;3~N;50	AIR	5	40			2027.0001.04	CC-905
31	0,6	24	0,35	M16x1		FL	Yes	Yes	605 x 706 x 1136	170,0	400;3~N;50	WATER	5	40	1/2"	O	2027.0002.04	CC-905w
31	0,6	24	0,35	M16x1		FL	Yes	Yes	605 x 706 x 1136	185,0	400;3~N;50	WATER	5	40	1/2"	O	2036.0001.04	CC-906w
20	0,2	17	0,18	M16x1	Yes		No	Yes	470 x 580 x 420	32,0	230;1~;50/60	AIR	5	40		O	3033.0005.99	RotaCool®
45	0,9			M16x1		FL	Yes	Yes	180 x 430 x 360	19,0	400;3~N;50		5	40			2030.0001.04	HB45
90	1,5			M30x1,5		FL	Yes	Yes	323 x 451 x 498	44,0	400;3~N;50		5	40			2031.0004.04	HB60
90	1,5			M30x1,5		FL	Yes	Yes	323 x 451 x 498	44,0	400;3~N;50		5	40			2031.0003.04	HB120
						FL	Yes	Yes	420 x 565 x 719	70,0	230;1~;50	AIR	5	40			2032.0001.04	BFT1
						FL	Yes	Yes	420 x 565 x 719	70,0	230;1~;50	WATER	5	40	1/2"	O	2032.0002.04	BFT1w
						FL	Yes	Yes	670 x 715 x 1105	116,0	400;3~N;50	AIR	5	40			2033.0001.04	BFT2
						FL	Yes	Yes	670 x 715 x 1105	116,0	400;3~N;50	WATER	5	40	1/2"	O	2033.0002.04	BFT2w
						FL	Yes	Yes	540 x 605 x 801	69,0	230;1~;50	AIR	5	40			2034.0001.04	BFT4

[1] Voltage can be changed, must be specified with order

[2] S = Standard, O = Option, A = On Request

[3] Option

[4] Display resolution below -10 °C and above 100 °C: 1 °C

A Ambient Temperature Range

Ambient Temperature Range is the permissible temperature range of the environment in which the unit will function. It is 5...40 °C for all Huber units in this catalogue. The quoted cooling powers are for an ambient temperature of 20 °C.

B Bath Opening

is the usable surface that is available for direct thermoregulation, as a rule over the entire usable depth.

Bath Thermostat

is a thermostat which is equipped with a pump and a bath that contains the object to be thermoregulated. The built-in circulating pump is used to mix the bath liquid, but can also be used if necessary to circulate the thermofluid through an externally connected circuit, e.g. connection of a flow-through cooler to allow the cooling of heating thermostats.

Bath/Circulation Thermostat

is a thermostat with a bath opening which allows objects to be directly thermoregulated in the bath, but also includes a pump for external closed or open applications. Note: pressure & suction pump is required for open applications. Compatible Control thermostats have pressure & suction pump.

Bath Volume (also fill volume)

is the volume of the bath liquid that is required for adequate operation of the thermostat, but without considering the volume of thermofluid in the external circuit. If two values are given, the lower value indicates the minimum required volume with displacement insert, the upper value the permissible maximum amount. The difference is the so-called expansion volume. Especially in the case of external applications, the size of the expansion tank must be considered, since the circulating thermostat must also take up the expansion of the liquid in the external circuit. The smaller the surface area of the expansion tank the lower is the area of thermofluid open to attack from oxidation and air humidity absorption.

C Calibration Thermostat (CAL)

is a bath thermostat with especially high temperature stability and especially consistent temperature distribution through the bath.

Clear-view Thermostat

is a bath thermostat with transparent walls for direct observation of the object being thermoregulated.

D Discharge Pressure

is the positive pressure of the circulating pump of a thermostat directly at the pump discharge. If only one value is given in the tables, then this involves the maximum delivery pressure for flow rate zero. Pump curves illustrate discharge in relation to the flow rate.

E E-grade

stands for electronic upgrade. E-grade can extend the functionality of the CC-Pilot. A unit specific activation code is required. This can be carried out in the factory. If ordered at a later date the activation code can be sent by E-Mail.

Extended Working Temperature Range

Extended Working Temperature Range is the temperature range that can be attained when using a factory-fitted cooling coil when operating with cooling water.

F Flow Rate

is the volume of liquid delivered per time unit by the circulating pump measured with water. If only one value is given in the table, this is the maximum flow rate for a zero discharge pressure. Pump curves illustrate discharge in relation to the flow rate.

Flow-through Chillers (DC)

are add-on coolers which are connected into an external circuit to upgrade a heating thermostat to a heating/cooling thermostat. They are used to replace water cooling, and also to extend the lower operating temperature.

H Heat Load

is the maximum capacity of the installed electric heater. The heating is controlled proportionally. The heating is continually controlled, and as the set point temperature is approached the power is reduced automatically.

Heating Thermostat

is a thermostat whose working temperature range is primarily above the ambient temperature adds heat to the thermofluid.

I Immersion Cooler

is an additional chiller with a flexible tube and a cooling coil (evaporator) for immersion cooling of any desired bath.

Immersion Thermostat

is a thermostat that can be combined with a bath and to form a complete unit. Immersion thermostats are equipped with a screw clamp to attach them to any desired bath wall or can be fixed on a stand. Immersion thermostats can also be fitted to a bridge and mounted permanently in a bath.

Industrial Thermostats (UC-Hx)

are refrigerated circulators (Unichiller range) with factory fitted heating. The units have high cooling, heating and pump powers which allow quick cooling and heating rates due to the small internal volumes. They are ideal for temperature control in process technology, within a smaller temperature range (-20 to 120 °C).

Interface, analogue

is used to input the set value or to output the actual value of temperature in analogue form, generally in the form of a current (0/4-20 mA or 0-10 V).

Interface, digital

is used to transfer data between connected units in digital form via data cable. The set and actual temperature values are the main items transferred. The serial RS 232 interface allows a point-to-point connection. This means that at anyone time only two participants such as the thermostat and the PC can communicate with each other via the interface. The RS 485 interface is an addressable interface where up to 32 participants can be connected. Each participant of the bus system has its address.

Intrinsic Temperature

is the operating temperature of a heating thermostat that is reached when the heating is switched off. It depends on the pump power, thermofluid (viscosity and density) used and the insulation of the thermostat, e.g. with or without a cover on the bath.

N Net Cooling Capacity

is the effective capacity available in refrigeration thermostats or circulating chillers. This is the net cooling power of the unit after the frictional heat produced by the circulating pump and the heat entering as a result of non-ideal insulation has been subtracted.

O Operating Temperature Range

Operating Temperature Range is the temperature range that is limited by the permissible lowest and highest operating temperatures.

P Pressure/Suction Pump

This pump has a pressure and a suction stage which are driven by the same motor. The thermofluid is delivered from the pressure stage from the thermostat into the circuit, and the suction stage draws the liquid back into the thermostat. A pressure/suction pump can be used in just the same way as a pressure pump for a closed circuit. It has the advantage compared to a pressure pump that the pressure in the external circuit falls from positive values (pressure) in the flow line to nega-

tive values (suction) in the return line and is almost zero in the application itself. Thus it is suitable for the thermoregulation of pressure-sensitive glass vessels. Additionally it is possible to thermoregulate an open external circuit (e.g. a bath) with the aid of a pressure/suction pump. This cannot be done with a pure pressure pump, since this delivers thermofluid to the bath. The thermofluid can only be returned to the bath via a suction stage. In any case a so-called constant level device is required to maintain a constant level in the bath and this ensures that the flows of both pump stages are controlled so that they are equal. This is the only way that the level in the external bath can be maintained constant.

Process Control

Often cascade control, is when the temperature control is dictated by the temperature of the connected external application. A temperature sensor (often a Pt100 4 wire configuration with a Lemosa plug) is therefore required in the external application, which is connected to the thermostat. The actual value measured at the external application is measured and a set point for the thermostat is continually calculated. Depending on the operating temperature, insulation losses and exothermic reactions, the bath temperature and thus the flow temperature of the thermostat can be considerably above or below the set point. (Always consider the safety limits of the fluid!!)

R Recirculation Thermostat (Unistats®)

Is a thermostat in which thermofluid is pumped through an open or closed external circuit. Recirculation thermostats e.g. the Unistats® can have a thermally discoupled expansion vessel, whose surface temperature is not the operating temperature. They do not have an accessible bath. Unistats® have a thermally discoupled active surface (expansion vessel), where by the surface temperature is not necessarily the same as the operating temperature.

Refrigerated Circulator

is a special cooling thermostat which is designed exclusively as a circulation thermostat. Circulation chillers have evolved from thermostats and form a separate range of units in terms of their type of construction (DeskTop, Tower), the cooling and pump capacities. Generally they have no accessible bath. They are often used as a substitute for cooling with tap water. (exception: minichiller).

Refrigerated/Heating Thermostat

is a thermostat whose working temperature range is above and below the ambient temperature, and which can either add heat to or extract heat from the thermofluid.

Refrigerant

This is used in the refrigeration unit within the thermostat and extracts the heat from the thermofluid, when the compressed gas expands in the evaporator. Huber has been completely CFC free since 1992 and HCFC (e.g. R22) free since 1994. Huber uses only refrigerants which do no damage to the ozone layer (ODP Ozone Depletion Potential, ODP=0), and minimal Global warming potential (GWP, i.e. Green house effect).

Refrigerated Thermostat

is a thermostat whose working temperature range is below the ambient temperature and draws heat from the thermofluid. Huber refrigerated thermostats are strictly speaking cooling/heating thermostats, since their working temperature range is above and below the ambient temperature. Heat can be extracted from and added to the thermofluid.

S Safety Classes

It is possible to use non-flammable or flammable bath liquids with thermostats. The relevant safety requirements are given in DIN EN 61010-2-010. There is a distinction made between the NFL classes with built-in over-heating protection that are exclusively for non-flammable liquids and FL (Flammable) with adjustable overtemperature protection and low level protection for flammable liquids (all Huber thermostats).

Standards

The safety requirements for electrical laboratory equipment, and especially also those for thermostats, have been defined in European standards EN 61010-1 and EN 61010-2-01 0, replacement for DIN 12879, among others. The terms and characteristic of characteristic data is defined in DIN 12876-1 and DIN 12876-2.

Suction Pressure

is the negative pressure of the circulating pump of a thermostat directly at the pump suction. If only one value is given in the tables, then this is the maximum suction pressure for zero flow rate. Pump curves illustrate suction pressure in relation to the flow rate.

T Temperature Stability

is half of the temperature difference between the highest and lowest temperatures which are measured for a specific set point after attaining a stable value over a 30 minute period. The details are quoted for 70 °C (using water) for a heating thermostat and at -10 °C (using ethanol) for a cooling thermostat (see also DIN 12876).

True Adaptive Control

TAC is a Huber designed dynamic adaptive controller that continually updates its PID parameters. The TAC controller constructs a virtual multidimensional model of the application in real time to cope with sudden changes in thermal load such as during an exothermic reaction.

V Variable Pressure Control VPC

VPC is an active pressure control capability that allows the operator to control to either a maximum set pressure or pump speed. Through this feature it is possible to maintain the highest HTF flow rates within application pressure limitations (e.g. glass reactors)

W Working Temperature Range

Working Temperature Range is the temperature range which can be attained at an ambient temperature of 20 °C by the thermostat alone and with the exclusive use of electrical energy. In the case of a heating thermostat the working temperature begins above room temperature (as a result of the energy introduced by the pump and the effective insulation) and ends at the upper limit of the operating temperature. The WTR of a refrigeration thermostat begins with the lowest operating temperature of the unit and finishes with the upper temperature at which the refrigeration machine can permanently operate.

Hotline

Have you a thermoregulation problem or questions relating to our products? You can contact us Monday to Friday from 7:30 to 18:00 (CET).

Technical Support: +49-781-9603-244
Sales: +49-781-9603-123
Order Processing: +49-781-9603-109

3-2-1 Warranty on Registration

Many years experience with minimal failures have allowed us to extend our warranty conditions. Since the 1.1.2000 we have extended our warranty on the refrigeration system to 2 years.

If you register your unit serial number with us (in writing), you will receive the following warranty conditions:
3 Years warranty on exchangeable electronic controllers (Plug & Play), 2 Years warranty on the refrigeration technology (including compressors) and 1 Year warranty on the mechanical and electrical components.

Please register your unit under SERVICE at www.huber-online.com or by Fax +49-781-57211, the warranty period starts on the dispatch date (ex works). Please note that these extended warranty conditions will not necessarily be adopted by our foreign service partners. Please speak to our distributors regarding the conditions being offered.

Payment Terms

If pre-payment has not been agreed, invoices are all payable within 30 days net, no discount.

Terms and Conditions (Extract)

Validity, defence clause

All deliveries and services of the Peter Huber Kältemaschinenbau GmbH (supplier) are exclusively according to these general business terms and conditions (conditions) and any possible special contractual agreements. Other (purchasing etc.) conditions of the buyer are not a part of the contract, even if not specifically rejected in the order confirmation.

Retention of ownership

The goods remain the property of the supplier (title is retained) until the fulfilment of all outstanding financial claims against the buyer.
The buyer may offer the (title retained) goods within the framework of normal business, however now all resulting demands for securing payment to the supplier up to the indebted sum (inclusive sales tax) passes to the new purchaser. The supplier acknowledges this.

Delivery times and delivery delays

The delivery time is calculated under the agreement of the contractual parties. Compliance on the part of the supplier is under the condition that all business and technical questions between the contracted parties are explained, and that the buyer has fulfilled all his obligations within the allotted time. If this is not the case, then the delivery time is extended appropriately. The delivery time is when items for delivery, have left the suppliers works or are ready for pick-up. An article can be offered for selling on by the buyer is allowed.

Transport and liability transfer

The order for the transport of the goods must be placed by the buyer.
The risk is passed to the buyer as soon as the items to be delivered have left the factory. This is also valid for part deliveries or when the supplier is contracted to perform other work (e.g. delivery, assembly and installation).
If the delivery is delayed, or omitted due to circumstances outwith the control of the supplier or because the buyer has so requested, then the risk passes to the buyer from the day the buyer is notified that the goods are ready for collection. This is also true for any delay in acceptance of the goods by the buyer due to other reasons.

Trials

If goods are supplied for testing, then it is classed as being bought by the buyer, if it is not returned within the agreed return time frame. If no return time has been agreed, this is to be taken as 4 weeks. The date of the invoice is decisive. In case of return, the buyer bears the cost of transport, checking and any other costs incurred by the supplier (Cleaning, servicing, repairs etc).

Warranty claims

The supplier is liable for Material and defective title of the delivery, under exception from further liability as follows:
The place of repair is exclusively decided by the supplier. Normally, the repairs take place at the registered office of the supplier, or at another place deemed suitable by the supplier.
The buyer has the right under the legal regulations to withdraw from the contract, when the supplier, under consideration of the legal exceptions, has given a reasonable date for repair or replacement due to a manufacturing defect, which has now elapsed without success. If it is only a minor complaint, then the buyer has the right of a reduction in the contract price.
Further demands (damages etc) from the buyer are excluded.
The seller is not liable for any problems resulting from an alteration to the unit made by the purchaser or any third party. The seller is also not responsible for any alterations to equipment which have not been authorised in writing in advance.
Repairs which have not been authorised in writing by the supplier, outsourced work and modifications of any kind, non intended use, the changing or removal or manipulation of the machine label or the serial number. All rule out supplier responsibility for defects.
The supplier is not under any circumstances liable for damages to the buyer or end customer caused by the non availability of parts or through production stoppage (e.g. due to late parts deliveries).

Returns according to the (German) electrical - and electronic equipment regulation (ElektroG)

The sale price excludes the cost for return and disposal of old equipment. The buyer is considered to be different than private households in the sense of this regulation. If required, the supplier can organise the return and recycling or disposal of such equipment as is distributed by the supplier, on payment of all charges so arising.

Severability Clause

If a clause in these conditions is invalid, it does not change the validity of the other clauses. If a clause is partially invalid, then the other parts of the clause remain valid. The parties are bound to replace the invalid clause with a valid replacement clause, which comes as close as possible to the economic use of the invalid clause.

Note

Please note that the terms and conditions described here are only valid for direct business with Peter Huber Kältemaschinenbau GmbH. Please consult your distributor for their terms of business.

Technical details and dimensions are subject to change. No liability is accepted for errors or ommisions.

In the Tango-Fa

ctory

Top 100 – Innovator 2009

The findings of the latest study have resulted in us being recognised as one of Germany's „Top 100" innovative companies in 2009.
Further information can be found at www.huber-online.com.

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huber

high precision
thermoregulation

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