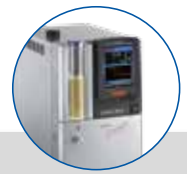


Temperature Control

Baths/Circulators

Chillers

Process thermostats



# PRODUCT NEWS

The new KISS® Circulators

# KISS®

Keeping Innovation  
Safe & Simple!



# huber



Technology you will love

The new  
**KISS® Circulators**



# NEW!

- ▶ Functional design, simple operation
- ▶ Highest operation safety
- ▶ 3 colour versions available

## KISS®

Keeping Innovation  
Safe & Simple!



Version  
RED



Version  
BLUE



Version  
GREY



in 3 colour versions



# Simple and low priced temperature control

INNOVATION: KISS® heating and cooling circulators for many standard applications from -30 to +200 °C

- ▶ For budget conscious routine applications
- ▶ Internal and external temperature control
- ▶ Modern clear OLED display, USB and RS232

The new KISS circulators offer more advantages: The units combine the most modern technology with simple operation and can be recommended for many routine applications in the laboratory, e.g. the temperature control of samples, analysis functions, material testing or the external temperature control of test equipment or experimental systems. All models are fitted with over temperature and low level protection and can achieve a temperature stability of  $\pm 0.05$  K.

Over 50 models available



RS232 interface



Mini-USB interface



Pt100 sensor connection (optional)



**Circulators**  
Insulated baths  
up to +200°C



**Cooling circulators**  
Natural refrigerants  
to -30°C

Control with KISS®

**NEW!**

## Advantages

- ✓ Large, bright OLED display
- ✓ Simple operation via a plain text menu
- ✓ RS232 and USB Interfaces
- ✓ Powerful pressure/suction pump
- ✓ Excellent value for money
- ✓ Safety class 3 (FL) to DIN 12876
- ✓ Internal and external temperature control
- ✓ Polycarbonate or stainless steel baths



**Baths/Circulators**  
Polycarbonate or stainless steel  
to +200°C



**Immersion circulators**  
with a screw clamp  
to +200°C



in 3 colour versions

# Protect the environment and reduce costs

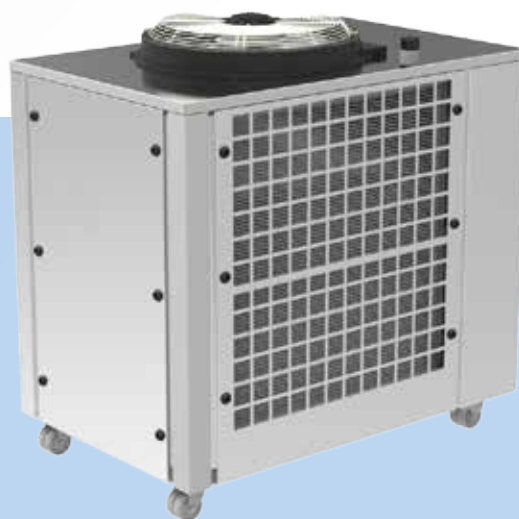
**INNOVATION:** High performance, budget friendly Unichiller® with the OLÉ controller for standard applications

The Unichiller with the OLÉ controller offers cooling powers up to 20 kW and is particularly budget-friendly. The chiller is ideal for standard cooling applications in the laboratory or in industry. The energy efficient function of the chiller reduces the water consumption for many applications, helping to protect the environment and reducing operating costs.

All models are fitted with the new OLÉ controller with its modern OLED display as well as for RS232, USB interfaces and PT100 measurement sensor connection.

## Advantages

- ✓ High cooling power up to 20 kW
- ✓ Air- and watercooled models
- ✓ Powerful circulation pump with a capacity of 40 l/min; 3,5 bar (optional: to 80 l/min; 5,5 bar)
- ✓ Compact, robust stainless steel housings
- ✓ Fitted with wheels for easy handling
- ✓ Optional heating up to +100 °C

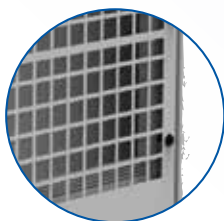


Model	Working Temp. Range (°C)	Pump max. (l/min)	Pump max. (bar)	Cooling Power (kW) at 20°C	Dimensions WxDxH (mm)	Refrigeration Machine Cooling	Wheels	Cat. No.	G
Unichiller 050-OLÉ	-20...40	40	3,5	5	735 x 1135 x 1155	Air	yes	3038.0003.98	3
Unichiller 075-OLÉ	-20...40	40	3,5	7,5	735 x 1135 x 1155	Air	yes	3040.0001.98	35
Unichiller 100-OLÉ	-20...40	40	3,5	10	735 x 1135 x 1155	Air	yes	3039.0001.98	35
Unichiller 150-OLÉ	-20...40	40	3,5	15		Air	yes	3041.0001.98	4
Unichiller 200-OLÉ	-20...40	40	3,5	20		Air	yes	3042.0001.98	4

osts

**NEW!**

Whisper quiet through the use  
of a speed controlled EC-Fan



Removable ventilation grill  
for easy cleaning



Protection class IP21  
(option: IP54)



| Unichiller® 050-OLÉ |

Model	Working Temp. Range (°C)	Pump max. (l/min) (bar)	Cooling Power (kW) at 20°C	Dimensions WxDxH (mm)	Refrigeration Machine Cooling	Wheels	Cat. No.	G
Unichiller 050w-OLÉ	-20...40	40 3,5	5	735 x 1135 x 1050	Water	yes	3038.0004.98	3
Unichiller 075w-OLÉ	-20...40	40 3,5	7,5	735 x 1135 x 1050	Water	yes	3040.0002.98	35
Unichiller 100w-OLÉ	-20...40	40 3,5	10	735 x 1135 x 1050	Water	yes	3039.0003.98	35
Unichiller 150w-OLÉ	-20...40	40 3,5	15		Water	yes	3041.0002.98	4
Unichiller 200w-OLÉ	-20...40	40 3,5	20		Water	yes	3042.0002.98	4

# The best for your research reactor

INNOVATION: Dynamic temperature control system Petite Fleur® and Grande Fleur® for perfect temperature control of your research reactors

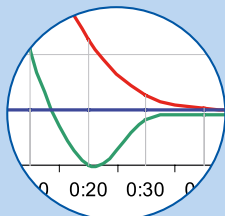
- ▶ New model: Grande Fleur
- ▶ The best value for money sealed circulator on the market
- ▶ Faster than conventional circulation thermostats

The small Tangos are the entry level into the world of Unistats. The compact dimensions and unique thermodynamics make the Petite Fleur and Grande Fleur ideal for precise temperature control of all applications. All models are extremely compact, easy to operate, and with working temperatures from -40 to +200 °C, are very versatile.



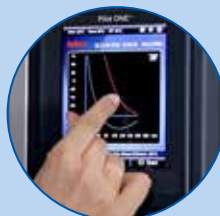
## Advantages

- ✓ Pilot ONE controller with 5.7" touchscreen
- ✓ Highly precise and reproduceable results
- ✓ Fastest heating and cooling rates
- ✓ Large temperature range without fluid change
- ✓ Efficient circulation pump for best heat transfer
- ✓ USB, Ethernet and RS232 interfaces
- ✓ E-grade "Professional" as standard
- ✓ Environmentally friendly with natural refrigerant



### Small but with great performance

Unistats are temperature control circulators without a fluid reservoir. Due to lower mass, the speed of temperature change is increased enormously.



### Just like your Smartphone

With models using the Pilot ONE controller, operation is completely intuitive and easily understood via the large touchscreen display.



# NEW!



Model	Working Temperature Range (°C)	Pump max. VPC		Heating Power (kW)	Cooling Power (kW) at (°C)					Dimensions WxDxH (mm)	Cat. No.	G
		(l/min)	(bar)		200	20	0	-20	-30			
Petite Fleur®	-40...200	33	0,9	1,5	0,48	0,48	0,45	0,27	0,16	260 x 450 x 504	1030.0001.01	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	1030.0003.01	3
Petite Fleur®-eo	-40...200	33	0,9	1,5	0,48	0,48	0,45	0,27	0,16	260 x 450 x 504	1030.0004.01	3
Grande Fleur®	-40...200	38	0,9	1,5	0,60	0,60	0,60	0,35	0,20	295 x 540 x 565	1041.0001.01	3
Grande Fleur® w	-40...200	38	0,9	1,5	0,60	0,60	0,60	0,35	0,20	295 x 540 x 565	1041.0007.01	3
Grande Fleur®-eo	-40...200	38	0,9	1,5	0,60	0,60	0,60	0,35	0,20	295 x 540 x 565	1041.0004.01	3
Grande Fleur® w-eo	-40...200	38	0,9	1,5	0,60	0,60	0,60	0,35	0,20	295 x 540 x 565	1041.0010.01	3

eo = for external open operation

All units use natural refrigerant as standard

# Powerful and efficient temperature control

**INNOVATION:** Unistat® "P"-models with high pressure pumps for applications with a high flow resistance

- ▶ New "P" models with pump pressure up to 5.5 bar
- ▶ Especially for applications requiring a high delivery pressure
- ▶ Proven Unistat regulation technology included

Unistats have been the leading technological solution for responsive and tight temperature control in a variety of demanding applications across all industries since their introduction in 1980. The Unistat principle has for many years delivered reliable, dependable and reproducible temperature control. High "turbulent" flow is a key feature for efficient thermal transfer and temperature control. Unistat pumps are purposefully designed and manufactured to generate high flow rates to achieve as turbulent a flow as possible for this reason. Inside our Unistats, the heat transfer coefficient ("alpha value") is maximized across the Unistat's heat exchangers (evaporator and heater) by generating and maintaining a high turbulent flow. This means that the power generated by the system is efficiently transferred from the Unistat to the application. In pressure sensitive applications (e.g. glass jacketed reactors); the maximum permissible pressure is typically 0,5 bar. The intent and purpose of the pump is to achieve the highest possible flow rate within this low pressure limit. This application "restriction" is addressed in the design and build of the Unistat pump in that it generates high flow rates at comparatively low pressures. To

maximize efficiencies and reduce losses, magnetically coupled pumps are avoided in favour of directly coupled pumps.

Some applications have fluid paths which generate a high flow resistance (e.g. Flow Through Reactors). In these cases, increasing pressure can increase flow (this is not always the case as the maximum flow, regardless of pressure is dictated by the flow resistance of the system). To address these applications, we have added the option of using a pump that generates higher pressures to increase flow to the highest possible rate within the flow limits of the system (the "system curve"). It should be noted that high pressure pumps generate more heat which results in a loss of cooling power. For this reason, units fitted with a high pressure pump should only be considered for applications with a high flow resistance.

We have expanded the Unistat range with new models for these applications. The new Unistats with the additional "P" (Pressure) on this double page have powerful magnetically coupled circulation pumps with high pressure.



## Tip: Proper selection of the circulating pump

Check the "small print" to determine and which setting the pump is running at when the cooling powers are given. Devices which use high pressure pumps generate higher losses meaning less of the generated cooling power is transferred to the application. High flow results in efficient thermal transfer and better temperature control, not high pressure.

## Advantages

- ✓ Stronger pump
- ✓ Maximum process safety
- ✓ Reproducible results of thermoregulation
- ✓ Fastest heating and cooling rates
- ✓ Large temperature range without fluid change
- ✓ Proven functionality for process industries and process engineering
- ✓ E-grade "Professional" as standard

# Control

# NEW!

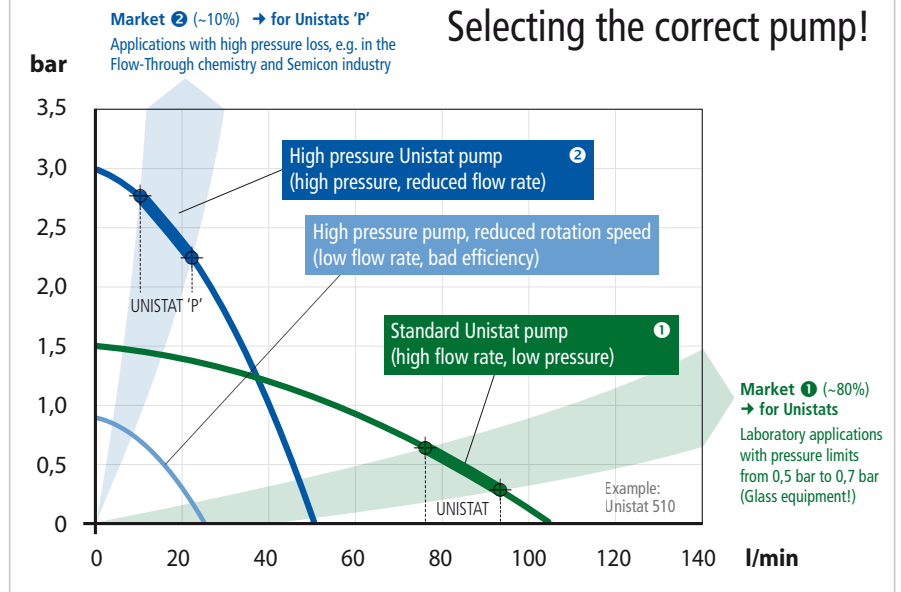
| Unistat® P505w |



| Unistat® P810w |



## Selecting the correct pump!



The new Unistats "P" with high pressure pumps are suitable for applications requiring high pressure (→ Market 2).

We continue to recommend our proven Unistats with standard circulating pumps for all other applications (→ Market 1).

| Unistat® P404 |

Model	Working Temperature Range (°C)	Pump max.		Heating Power (kW)	Cooling Power (kW) at (°C) *					Dimensions WxDxH (mm)	Cat. No.	G
		(l/min)	(bar)		0	-20	-40	-60	-80			
Unistat® P404	-45...250	50	3,0	3,5	1,0	0,5	0,05	—	—	460 x 554 x 660	1043.0001.01	35
Unistat® P505w	-51...250	50	3,0	6,0	5,0	2,2	0,3	—	—	460 x 554 x 1453	1044.0001.01	4
Unistat® P527w	-55...250	90	5,5	12,0	12,0	6,0	2,0	—	—	540 x 704 x 1491	1045.0001.01	4
Unistat® P634w	-60...200	90	5,5	24,0	25,0	23,0	16,0	—	—	950 x 1005 x 1650	1046.0001.01	5
Unistat® P810w	-85...250	50	3,0	3,4	1,5	1,4	1,3	1,1	0,3	460 x 604 x 1465	1047.0001.01	4
Unistat® P904w	-90...250	50	3,0	6,0	4,1	4,1	3,7	2,0	0,3	540 x 654 x 1650	1048.0001.01	4

\* Cooling capacity information is provided at maximum pump capacity according to DIN 12876

# Process development factory fitted

**INNOVATION:** The new E-grade® “Explore” converts your Unistat® into a process engineering development tool

E-grade “Explore” is a further development of the Unistat technology and utilizes the extensive features and capabilities of the Unistats to display important process data directly on the Pilot ONE. Temperatures, temperature differences, heating / cooling capacities and pump data are all displayed in real time directly on the Pilot ONE controller. Relevant measurements can also be processed via the digital interfaces.

E-grade “Explore” enables the Unistat to be used as a process technology and process engineering development

tool. The advantage is obvious: The user can make changes to the system on the bench (e.g. impede flow) and observe the change in control and other effects of the chemistry and process.

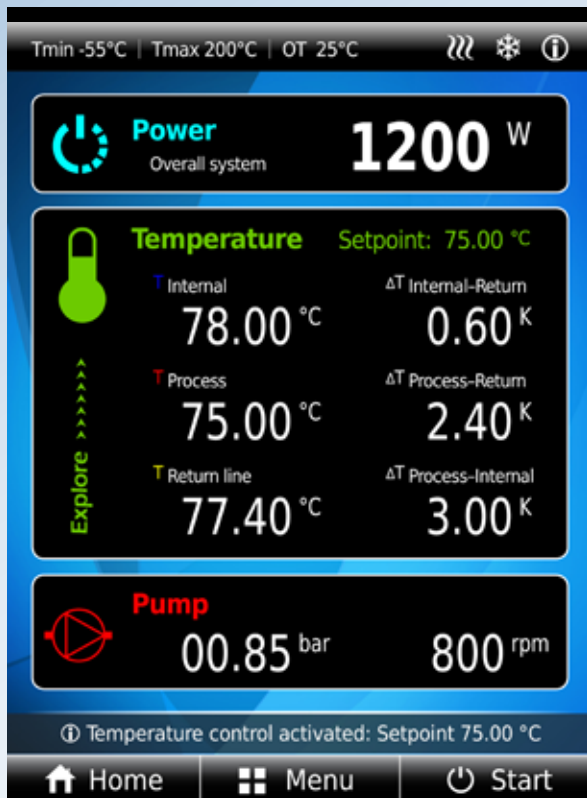
## Examples of applications for E-grade® “Explore”

- Process development and optimisation
- Estimation of heat balances and termination criteria
- User tests of base materials
- Advanced data collection for scale-up experiments





# NEW!



E-grade "Explore" adds an additional main screen to Pilot ONE to display the most important process data. Measurement data can also be retrieved via interfaces.

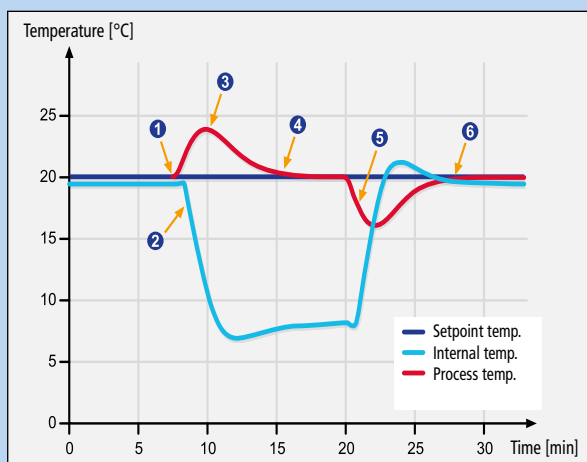
## The process at a glance:

**Performance:**  
Current heating or cooling capacity of the system

**Temperature values:**  
Setpoint, internal, process, return

**Temperature differences:**  
 $\Delta T$  internal return,  $\Delta T$  process return,  $\Delta T$  process internal

**Circulation pump:**  
Pressure / speed (depending on model)



E-grade "Explore" enables targeted process optimisation for process scale-up (example graphic: controlled exothermic reaction) based on setpoint, actual values, temperature differences and heating / cooling capacity data.

## Advantages

- ✓ Access to critical process data directly from the Unistat
- ✓ No additional hardware required
- ✓ Display of process data directly on the device display of Pilot ONE
- ✓ Transmission, recording and visualisation via data interfaces (USB, LAN, RS232, etc.)

**Note:** E-grade "Explore" is only available for Unistats!

# Quick Couplings

**NEW!**

Temperature control units are often connected to the application with insulated hoses (e.g. a reactor). There are different applications to be connected to the unit, then our quick-disconnect couplings are recommended. The quick-disconnect fills the special requirements that temperature control requires and reliably prevents leakage of thermal fluid. The quick-disconnect produces only a small pressure drop and allows good performance of the entire system. If pressure sensitive apparatus is used, then we strongly recommend use of the optional adaptor #10417 to connect an operator supplied pressure relief system in the application's flow line. Glassware can be protected from the danger of damage through bursting.

## Technical specifications:

- Media temperature: -90 °C ... +230 °C
- Operating pressure: max. 25 bar @ 20 °C
- Leakage rate: < 0,4 ml per decoupling cycle
- Pressure drop  $\Delta p$  (with water):
  - at 40 l/min: 0,04 bar
  - at 100 l/min: 0,25 bar
- Material: Stainless steel 1.4404 / 1.4571
- Permissible media: Huber Heat Transfer Fluids

## Advantages

- ✓ Optimum flow, low pressure loss, good heat transfer
- ✓ High-quality, durable sealing compounds for safe operation
- ✓ All components are made of stainless steel
- ✓ The free rotation prevents hose torsion
- ✓ Possible installation in bulkhead, e.g. to connect to a glass reactor
- ✓ Minimum axial coupling forces required due to a bayonet locking device
- ✓ Low leakage rate during disconnection
- ✓ Smooth surfaces within the valve allows cleaning easy
- ✓ Worn parts can be replaced (e.g. main seal)
- ✓ Optional equipment on request:
  - ATEX approval for Zone 2, II 2G IIC Tx
  - Dust and insulation caps for both coupling parts
  - Acceptance test certificate according to DIN EN 10204-2.1, -2.2 or -3.1

Coupling  
| 10407 |



| 10406 |  
Fitting



The new quick couplings allow the safe separation of the application (e.g. reactor) from the temperature control unit – without draining!



| 10417 |  
Pressure relief connection

# Pilot ONE® Remote-Software

**NEW!**

## Pilot ONE® Remote GUI

Remote control Software for Windows for temperature control units using the Pilot ONE

The software "Pilot ONE Remote GUI" enables the complete user display of the Pilot ONE to be displayed on a Windows PC, and to operate our units from the PC.

The Remote GUI uses a secure authentication. It is thus certain that non authorised persons cannot remotely control the unit, nor that communication can take place with the wrong unit by mistake.



# Modbus TCP

**NEW!**

## Modbus TCP – Interface protocol

Support for Modbus TCP by a free of charge firmware update for the Pilot ONE

With Modbus TCP, our units now offer a further protocol for industrial communication via the Ethernet interface. The communication is based on the Huber own PB command set and can be incorporated, with little effort into a Modbus TCP client stack on the relevant automation system. The protocol is already integrated in the newest Pilot ONE software and therefor immediately available after the cost-free firmware update.

Further information as to the function can be obtained from the Data Communication Handbook (Chapter 10) from [www.huber-online.com](http://www.huber-online.com).



# Flow measurement and control

**NEW!**

For the measurement and control of Heat Transfer Fluids flow rate we offer various measurement instruments to build into the temperature control fluid circuit. The flow rate can then be displayed directly on the Pilot ONE and also be transmitted via the digital interfaces (USB, RS232, LAN and optional RS485, Profibus) to a PC or an automation system. It is also possible to control the flow rate with the measurement equipment. For this a temperature control unit with an integrated VPC-Bypass or an external VPC-Bypass as an accessory is required. The flow rate to be controlled is set on the Pilot ONE or can be entered by a setpoint input via the digital interfaces.

The flow rate measurement allows essential functions such as finding the Kinetics/Dynamics of reaction synthesis and crystallisation, heat flow investigation and scale-up in process technology.

Further information available on request.

## Advantages

- ✓ Exact measuring/control of the flow rate
- ✓ Displayed directly on the Pilot ONE
- ✓ Flow rate can be read or set via the interfaces
- ✓ Simple installation, even as retro-fit
- ✓ For scientific or industrial processes



Flow rate measuring instrument

Adaptor

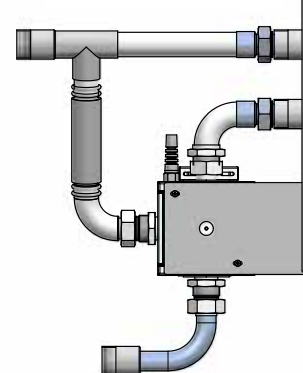


Adaptor



Connection example with VPC-Bypass

VPC-Bypass with connecting set



Unichiller

Model	Temperature Range (°C)	Measurement accuracy (l/min) (%)	Flow volume max. (l/min)	Allowable medium	Order. No.
Flow rate measuring instrument 1/2"	-40...130	1...15 1,6...0,6	100	Water, Water-Glycol	10465
Flow rate measuring instrument 1"	-40...130	1...15 3,7...0,7	310	Water, Water-Glycol	10464
Flow rate measuring instrument 1 1/2"	-40...130		750	Water, Water-Glycol	10466



# Remote control EEX Panel

**NEW!**

## Remote control EEX Panel, #10394

Robust industrial panel for ATEX environments for remote control of our units with the Pilot ONE.

- 15 inch TFT touch-screen (1024 x 768 Pixels)
- Stainless steel housing IP54 for wall mounting
- Explosion protection Zone 1 and 21
- Power supply AC 100-230 V
- Ethernet interface 100 / 1 Base T
- Windows 7 embedded MUI operating system

Approval:

Ex II 2G Ex db eb qb [ib op pr] IIC T4

Ex II 2D Ex tb IIIC T120 °C

Ex db eb qb [ib op pr] IIC T4

Ex tb IIIC T120 °C IMMETRO

GOST-R



# Industry 4.0

**NEW!**

## Industry 4.0 with Huber temperature control units

In the course of Industry 4.0, industrial production processes are dovetailed together using the most modern communications technology. The OPC-UA (OPC Unified Architecture) communications protocol describes data semantically and thus enables a data exchange between automation systems, without requiring a driver to be written. Our temperature control units with Pilot ONE can even now be controlled, or data can be requested, using this modern OPC-UA protocol.

Further information available on request.

# NEWS

## WHAT ELSE IS NEW?



### Award as Top-Employer

Our employees enjoy an unusual working place culture. For this we were awarded the well known Top-Job medallion on 12 February 2016 in Berlin, from the hands of the former Federal Minister of Economics, Wolfgang Clement. The Top-Job coach recognised us for our sustained personnel policy and our high attraction as employer. The quality seal "Top-Job" is awarded to companies who go out of their way to ensure a healthy workplace culture. This shows in the quality of the managements work and in high work satisfaction within the workforce.

The scientists of the Institute for Leadership and Personnel management of the University of St Gallen, carried out an online employee survey, which contributed to two thirds of the final score. The company and personnel management were questioned concerning their personnel work for the evaluation of the other third.

### Deployment at 4,572 Meters above sea level

In an Indian observatory in the Himalayan mountains a Huber Unichiller maintains constant operating temperatures for measuring instruments on an astronomical telescope. The observatory is located on Mount Saraswati in the Western Himalayas, near the town of Hanle, and is operated by the Indian Institute for Astrophysics. At a height of 4,572 meters, it is one of the highest observatories in the world. The observatory has an optical 2m infrared telescope, the "Himalayan Chandra Telescope" (HCT), which is controlled remotely by the "Center for Research and Education in Science and Technology" (CREST) near Bangalore through a dedicated satellite connection.



### 3-2-2-Warranty with improved conditions

From the 1st of January 2016 we have extended our warranty for mechanical and electrical components. The guarantee for all our products is normally 12 months from the day of delivery. With the 3-2-2 warranty you receive additional guarantee benefits with no additional extra costs. In order to receive the expanded guarantee conditions, an online registration is required.



### Environmentally friendly and energy-efficient

We have been using natural refrigerants for over 20 years and are therefore pioneers for environmentally friendly temperature control. The innovative construction of our units enable even large Unistats, Unichillers and temperature control units, to be fitted with environmentally friendly refrigerants. In addition, the lower energy and cooling water requirements, a long life and good recyclability, lead to an excellent ecological balance for our products.



### New Heat Transfer Fluids brochure

Our Heat Transfer Fluids have the best possible thermo-dynamic and environmentally compatible characteristics. The Heat Transfer Fluids guarantee a reliable and safe operation, with the best temperature control results, and a long life. All the Heat Transfer Fluids are collected together in our new brochure "Heat Transfer Fluids" and clearly shown. In addition to the technical specifications and diagrams for viscosity, density and specific heat, there is additional information and tips for use.



### Budget price temperature control hoses NW12

We have expanded our range of temperature control hoses, with a new hose with a nominal diameter of 12 mm. This budget priced hose is suitable for standard applications within the temperature range of -40 °C to +100 °C. The hose consists of EPDM material with braid, and allows a maximum pressure of 20 bar. The hose has an external diameter of 19,6 mm and can be obtained under article number #10506.



### Extended temperatures with Heat Transfer Fluids

When used in closed systems with Unistats our Heat Transfer Fluids SilOil M40, M60, M80 and M90 we can extend the operating range. The Heat Transfer Fluids can then be used as follows:

Heat Transfer Fluids	Bath Circulators	Unistats
M40.165/ <b>220</b> .10	-40 ... +165 °C	-40 ... <b>+220</b> °C
M60.115/ <b>200</b> .05	-60 ... +115 °C	-60 ... <b>+200</b> °C
M80.100/ <b>250</b> .03	-80 ... +100 °C	-80 ... <b>+250</b> °C
M90.055/ <b>170</b> .03	-90 ... +55 °C	-90 ... <b>+170</b> °C



Reliable, environmentally friendly and best value for money:

# Thermoregulation from Huber



Quality  
Made in Germany



Best value  
for money



Unique  
Plug & Play



Case studies for  
performance comparison



Proven  
technology



Worldwide  
Sales & Services



Accurate information  
according to DIN 12876



Safe investment  
due to E-grade function



Maximum safety for  
operator and application



Environmentally friendly  
with natural refrigerant



Connections for  
USB and network



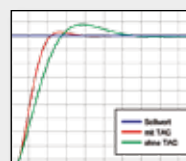
Models for all  
applications



Time saving heat-up  
and cool-down times



Easy-to-use  
operation



State-of-the-art technology  
guarantees highest precision



Free-of-charge  
warranty extension

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**huber**  
high precision thermoregulation