

HB-Therm[®]

Temperature Control



Temperature Control Units Thermo-5

Regulated mould temperatures are essential for plastics injection moulding.

Temperature control units regulate mould temperatures through a liquid heat carrier by controlled inducing or dissipating of heat.

Thermo-5 units provide efficient and reliable operation and are used to control temperatures in injection moulding or similar processes.

...precise, powerful and efficient

Highly accurate temperature control


- $\pm 0,1$ Kelvin with self-optimizing regulation
- Calibration of temperature, pressure and flow rate measurement
- Quality inspection certificate

Short heating and cooling times

- The tankless system tempers only as much heat carrier as necessary

Uses lower heating and cooling energy

- Minimal circulation volume requires less power
- Clever cooling concept reduces losses

Energy efficient pump – Eco-pump  *

- Energy savings by variable speed pump

...easy, intelligent and convenient

Simple operation

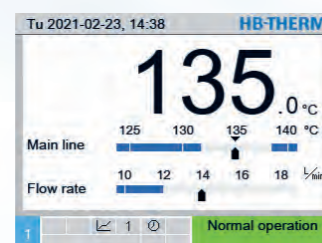
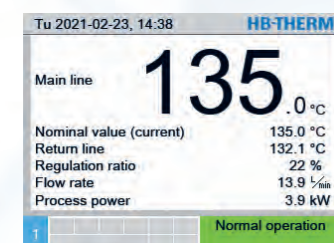
- Well-arranged menus in 21 languages
- Intuitive navigation
- On-the-spot instructions at the push of a button

Bright display

- Easily legible with high contrast
- Free choice of display windows and values

Convenient functions

- Fully automated mould cooling and evacuation *
- Recording of data via USB and analysis in Excel
- Store function for mould specific parameters
- Control also via the machine



...safe, reliable and low on maintenance

Fully automated process monitoring

- Continuous monitoring of temperature, flow and pressure
- Highly accurate ultrasonic flow rate measurement
- Detection of hose ruptures and leaks
- Pump status is monitored *

Durable construction

- Solely non-corroding materials in the hydraulic circuit
- Heating elements without direct contact to the heat transfer medium
 - ▶ Lifetime warranty on the heater
- Bypass and proportional valve result in vaporisation-free cooling and low-scaling *
- Sealless pump in stainless steel

Improved protection for the mould

- Closed system without oxygen contact
- Completely automatic purging of air
- Active regulation of pressure – only as much as necessary *

...small, clean and quiet

Squeezes into almost everywhere

- Made possible by ingenious hydraulic modules and a tankless system

Can also be used in a clean room *

- Fibre-free insulation, abrasion resistant castors and high-gloss finish

Draws attention only when necessary

- Intelligent monitoring of all processes

Switching Unit Vario-5

Special challenges in injection moulding cannot be overcome with classical mould temperature control. The solution is a variothermal control: High temperature during injection, cold temperature in the cooling phase.

Together with two temperature control units Thermo-5, the Vario-5 forms a variothermal system according to the fluid-fluid technique. Alternatingly, it links either the hot or the cold unit to the same circuit. It is quite possible to use existing moulds if the temperature control channels are suitably arranged.

Vario-5 provides easy and quiet operation. It supports the user in determining the optimum settings.

...after the heat, stay cool!

Improved part quality

- Eliminate weld lines
- Contour accuracy in the moulding of minute structures
- Optimal surface quality
- Reduce sink marks

Improved temperature control

- Short heating and cooling times
- Optimize cycle time and quality

...standard temperature control units mean minimal investment

- Multiple use of the units, also for standard applications
- Use of existing temperature control units
- Cost friendly concept
- Much experience with proven systems

...small, clean and quiet

Squeezes into almost everywhere

- Made possible by ingenious hydraulic modules

Can also be used in a clean room

- Fibre-free insulation, abrasion resistant castors and high-gloss finish

Silent

- No pressure shocks
- Without compressed air

...precise, powerful and efficient

Highly accurate process management

- Switching procedures are monitored

Smaller heating and cooling power requirement

- Integrated energy buffer

...safe, reliable and low on maintenance

Fully automated process monitoring

Durable construction

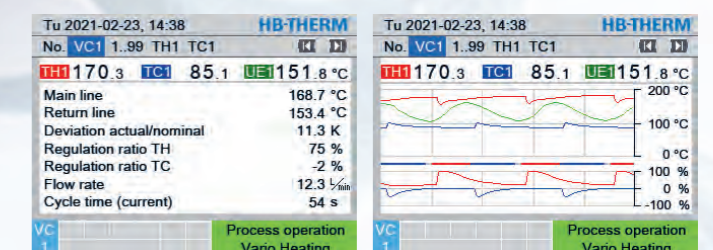
- Solely non-corroding materials in the hydraulic circuit
- Switching without pressure shocks

Improved protection for the mould

- Closed system without oxygen contact
- Avoids steam, scaling and corrosion

...easy, intelligent and convenient

- Central command via only one unit Thermo-5 or control module Panel-5
- Clever wizards determine setpoint temperatures, delays and switching times
- Freely selectable control mode
- Recording of data via USB and analysis in Excel



Flow Meter Flow-5

In parallel connected circuits flow changes might remain undetected as the flow of medium is distributed among the remaining channels.

External flow meters Flow-5 monitor parallel circuits individually and detect changes early on, before production quality begins to be compromised.

The Flow-5 are easy to operate and provide highly accurate ultrasonic measurements.

...parallel, more power, and still reliable

Constant temperature control and high part quality

- Larger overall flow
- Smaller temperature difference between main line and return line
- Better homogeneity in temperature distribution

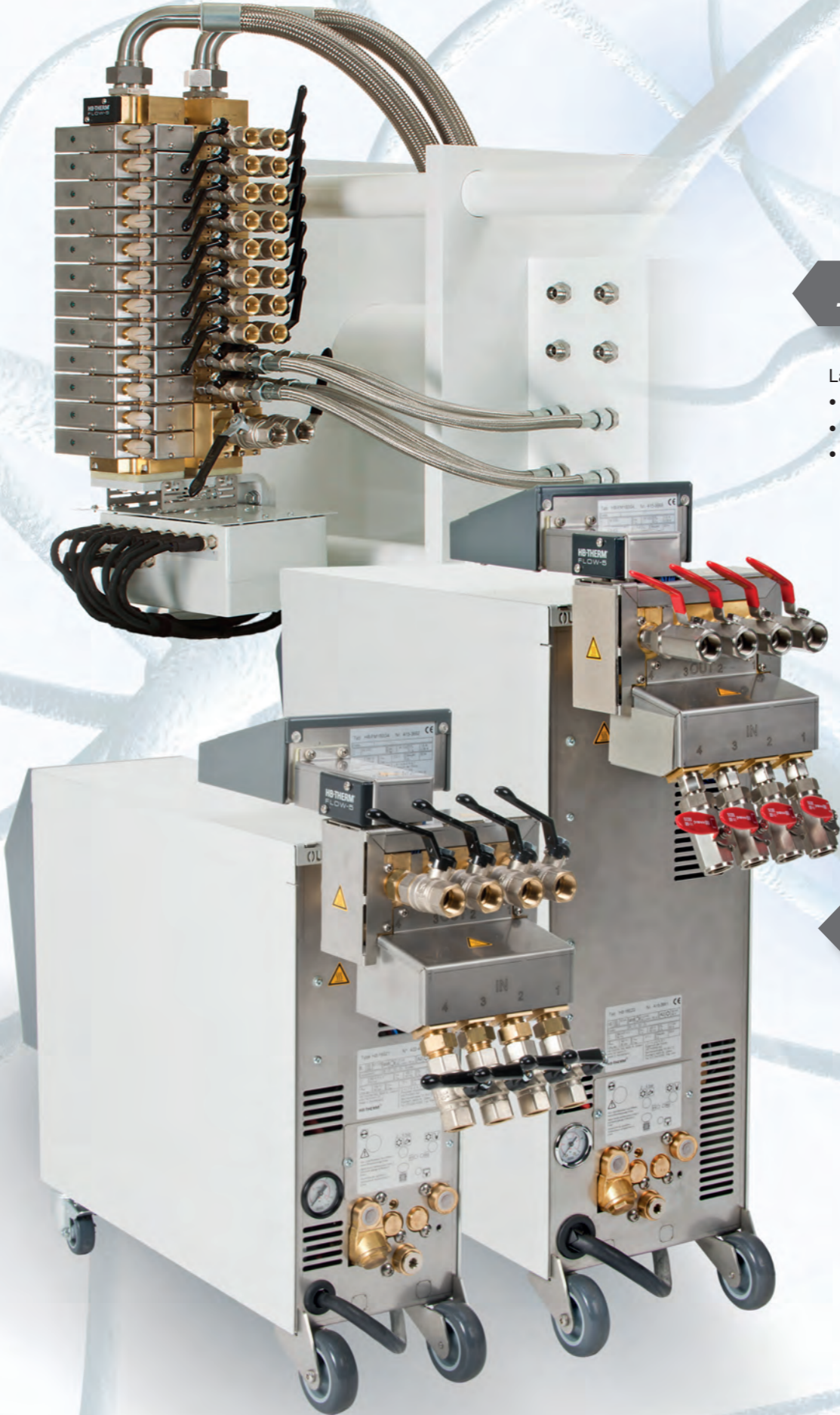
Saves costs and energy

- Fewer temperature control units necessary

...easy, intelligent and convenient

- Determination of process power per circuit
- Automatic limit value setting
- Assistant for manual flow adjustment *
- Recording of data via USB and analysis in Excel

Tu 2021-02-23, 14:38		Tu 2021-02-23, 14:38	
HB-THERM		HB-THERM	
... B1 B2 B3 B4 B5 B6 B7 B8 ... [K] [I]		... A B C A1 A2 A3 ... [K] [I]	
Flow rate	18.1 $\frac{l}{min}$	No.	R
Main line	175.0 °C	1	6.2 173.2
Return line	174.2 °C	2	5.3 172.8
Process power	1.0 kW	3	OFF 11
Difference return/main line	-0.8 K	4	10.1 174.2
		5	2.1 171.7
		6	0.7 169.3
		7	18.1 174.2
		8	4.5 173.1



...precise, powerful and efficient

- Large scope of application
- Smallest flow rates from 0,4 L/min
 - High temperatures up to 200 °C *
 - Different models

...safe, reliable and low on maintenance

- Fully automated process monitoring
- Continuous monitoring of flow and temperature per circuit
 - Highly accurate ultrasonic flow rate measurement
- Durable construction
- Solely non-corroding materials in the hydraulic circuit
 - Flow rate measurement without any moving parts
- Improved protection for the mould
- Early detection saves costly maintenance

* Some features may not apply, depending on the model

Water Treatment Unit Treat-5

Unsuitable water in the temperature control circuit promotes scaling and corrosion, thus raising maintenance costs and risking premature failures. The risk increases for water temperatures above 140 °C, rotary feedthroughs, or small channel cross sections.

Treat-5 supplies temperature control units with system water of defined quality.

It provides easy and ecological operation. After initially adding the conditioning agent it works automatically and prompts the user periodically for checking.

...for channels to remain nicely clean

Prevents the consequences of poor water quality

- Reduces failures, wear and maintenance to a minimum
- Longer lifespan for the mould

Higher process reliability

- Perfect heat transfer between medium and mould
- Precise temperature control
- No blocked circuits

...easy, intelligent and convenient

Simple operation

- Well-arranged menus in 21 languages
- Intuitive navigation
- Interactive user guidance allows use without prior knowledge
- On-the-spot instructions at the push of a button

Bright display

- Easily legible with high contrast
- Free choice of display windows and values

Convenient functions

- Calculates the exact amount of the required agent
- Easy instruction to monitor the system water quality
- Integrated logbook tracks the treatment process
- Easy front-side sampling
- Recording of data via USB and analysis in Excel

Tu 2021-02-23, 14:38		HB-THERM	
Main line pressure	2.3 bar	Warning Maintenance medium	
Filling volume tank	12.7 L	Periodic maintenance medium is due.	
Level tank	53 %	Please check medium with test kit,	
Remain. time maint. medium	364 h	input results, start analysis or postpone	
Op. time since maint. medium	636 h	by 3 days maintenance medium by	
Hours run	2742 h	cancelling.	
Temperature tank	34.2 °C	Result corrosion	168
		Result pH Value	8.2
		Start analysis	✓
Normal operation		Filling vol.	12.7 L
		Pressure	2.3 bar
		Normal operation	



...safe, reliable and low on maintenance

Durable construction

- Solely non-corroding materials in the hydraulic circuit
- Sealless pump in stainless steel
- Medium-separated ultrasonic fill-level measurement
- Easy-to-remove filter cage

...easy on the environment

- Reduced consumption of water and agent by reusing the system water
- Pump runs only as long as necessary

Cleaning Unit Clean-5

Aside from reducing flow, impurities lead to a degradation in heat transfer, and thus to a deterioration in performance.

Clean-5 removes corrosion and scale in moulds, temperature control units and hoses, and provides extended protection in storage.

It offers easy and ecological operation, prompts the user to add the respective amounts of agent, and then automatically continues its work.

...for channels to become nicely clean

Higher process reliability

- Perfect heat transfer between medium and mould
- Precise temperature control
- No blocked circuits

Longer service life

- Less component failures
- Removes corrosion and scale in the mould

...easy, intelligent and convenient

Simple operation

- Well-arranged menus in 21 languages
- Intuitive navigation
- Interactive user guidance allows use without prior knowledge
- On-the-spot instructions at the push of a button

Bright display

- Easily legible with high contrast
- Free choice of display windows and values

Convenient functions

- Calculates the exact amounts of the required agents
- Integrated logbook tracks the cleaning process
- Easy front-side sampling
- Recording of data via USB and analysis in Excel

Tu 2021-02-23, 14:38		HB-THERM	
Cleaning	✓	Warning ▶ Add agent	
Neutralisation	✓	Please add 217 g or 146 ml neutralisation agent DOS N720.	
Before Conservation	✓	> Continue by pressing [OK]	
Rinsing	1/3 00:09		
Preservation			
Finishing			
Cleaning effectiveness	8.4		
Main line pressure	1.5 bar		
Filling volume tank	8.0 L		
		1 Rinsing	
		1 Neutralisation	

...cleans, rinses and conserves

Intensive cleaning

- Efficiently releases deposits with automatic flow reversal
- Cleans only as long as necessary

Thoroughly neutralizes and rinses

- Multiple rinsing with automated filling and draining

Sustained protection

- Conserves the cleaned surfaces
- No corrosion of moulds in storage

...safe, reliable and low on maintenance

Fully automated process monitoring

- Tracks the cleaning success

Durable construction

- Solely non-corroding materials in the hydraulic circuit
- Sealless pump in stainless steel
- Medium-separated ultrasonic fill-level measurement
- Easy-to-remove filter cage

...easy on the environment

- Uses only as much agent as necessary
- Neutralises the cleaning liquid before draining





HB-Therm AG
St. Gallen, Switzerland

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