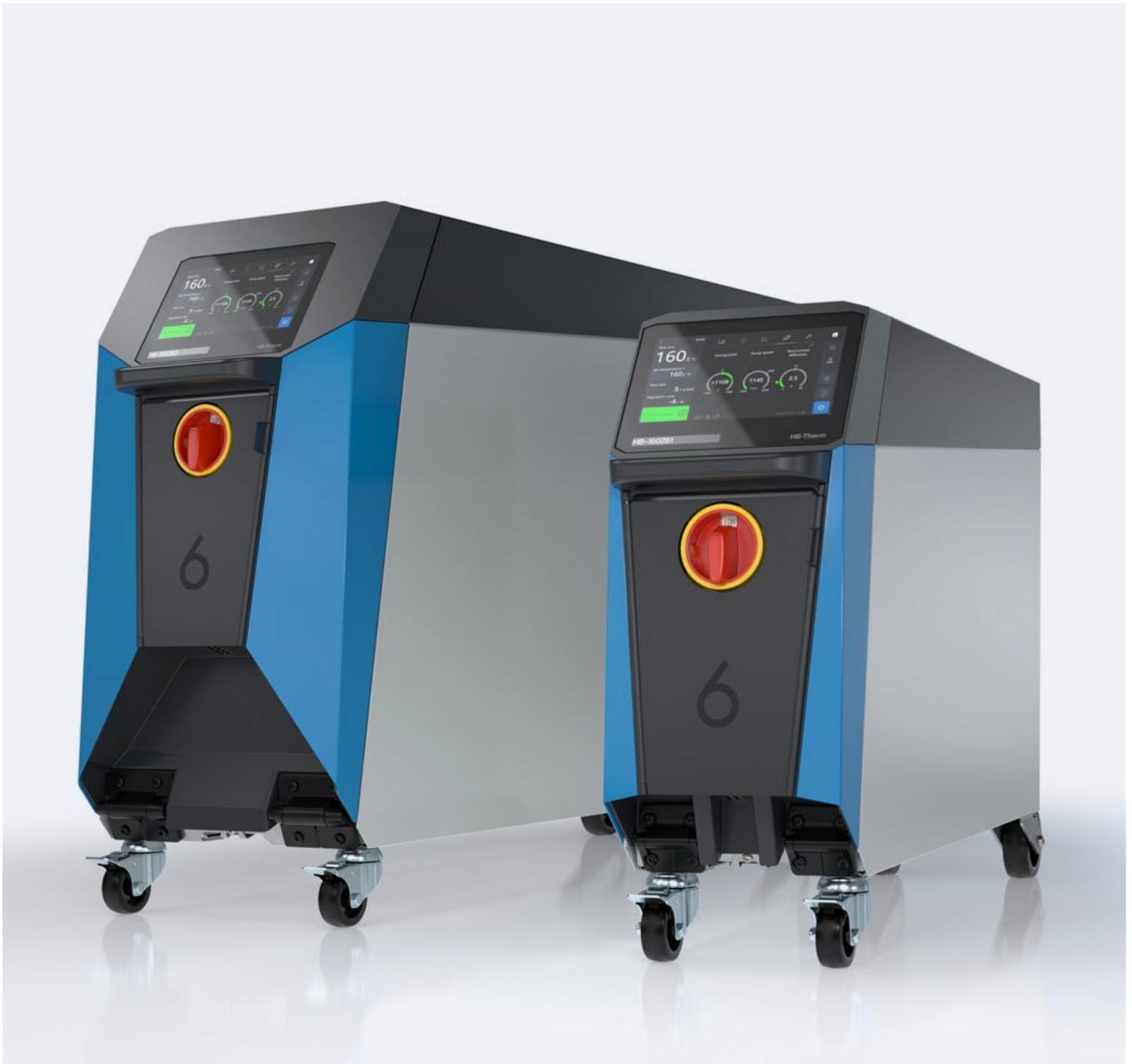


Thermo-6



The next Generation.
Temperature Control Units

Just
better.

Swiss made.

As a pioneer in the manufacturing of temperature control units for the plastics processing industry, HB-Therm AG has distinguished itself since its founding in 1967 with outstanding innovations, uncompromising quality, and a strong commitment to sustainability. The company produces around 11 000 temperature control units annually with 140 employees at its site in St. Gallen and is represented by over 60 agencies worldwide.



hb-therm.com



hb.click/
Company_Tour

The next Generation.

The technology of the Thermo-6 temperature control units builds on the extremely successful Thermo-5 series. With over 100 000 units in use, HB-Therm has become the global market leader. The unit technology has always been focused on quality and durability. HB-Therm backs this with a lifetime warranty on the core components heater and also on the flow meter. “Just better” stands for the consistent advancement of our technology.

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Interface Server Gate-6	
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Thermo-6

Faster and more precise

Highest control accuracy and extremely short heating and cooling times.

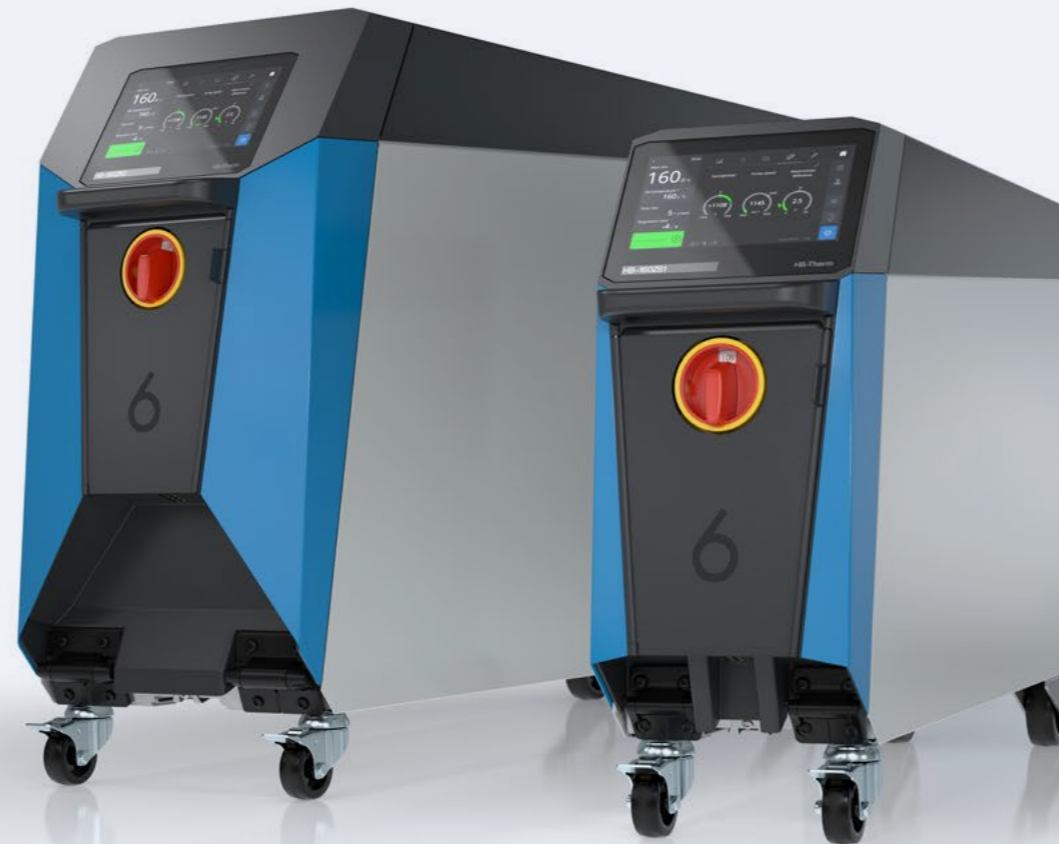
Pure energy efficiency

The speed-controlled pump is standard with Thermo-6. The Energy-Control assistant helps the user find the optimal operating point.

With the new exclusive Direct-Drive pump, we achieve a 20 % higher efficiency.

Intuitive operation

You will master the unit in just 10 minutes. Intuitive operation with a modern touchscreen.



hb.click/
6-Promo

Intelligently networked

Ethernet (OPC UA) is standard for us. The forward-looking hardware and software architecture gives you access to the digital world.

Control, analyse and manage

Process data recording, unit history, unit-specific documents such as certificates, calibration data, operating and assembly instructions – everything is quickly available.

Reliable. Ultra-low maintenance

Building on the proven Thermo-5 technology, we have consistently advanced the Thermo-6. Its low maintenance requirements make it particularly appealing for upkeep.

Unrivalled

Lifetime warranty on heater and flow meter.

Just 6 better.

The Units

The proven as base and improvement potentials consistently implemented: The result is a unit technology that is unsurpassed in terms of functionality and serviceability. Lifetime warranty on heater and flow meter does not allow any compromises. Energy efficiency has been redefined with a new pump technology combined with speed control. An Ethernet interface for communication with the injection moulding machine or the HB-Therm interface server Gate-6 is included in the extensive standard equipment.



Thermo-6 –
Housing size 62



Thermo-6 –
Housing size 61

Precise and powerful

- High control accuracy $\pm 0,1^{\circ}\text{C}$
- Shortest heating and cooling times
- Short response times
- Calibrated ex works

Safe and comfortable

- Fully automated process monitoring
- Highly accurate ultrasonic flow rate measurement
- Reduced maintenance effort through unit status monitoring and maintenance interval display

Energy efficient and sustainable

- Tankless system: Minimal circulation volume requires less power
- Speed-controlled pump
- Energy-efficient heating system / heat management (few ventilation slots)

Reliable and durable

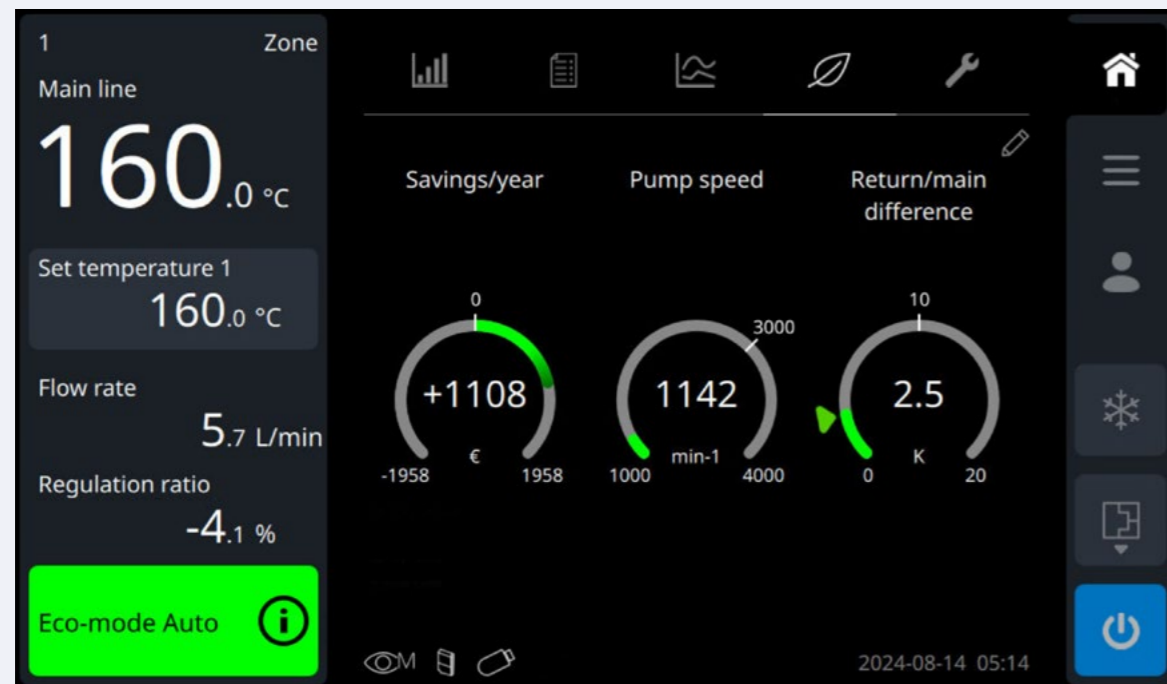
- Proven Thermo-5 technology consistently advanced
- Vaporisation-free cooling (prevents deposits)
- Controlled superimposed system pressure (prevents cavitation)
- Heater and flow meter with a lifetime warranty

« Speed-controlled pumps enable energy savings and can be used universally for large and small moulds. »

Kurt Klopfenstein
CSO HB-Therm

Operation

Everything at a glance: The 7 inch IPS touch screen sets new standards in brilliance and speed. The intuitive user interface in the local language provides quick access to the desired functions. Energy-Control, Trend-Chart and Dashboard clearly display the important information at a glance. Intelligent assistants and a help system support during commissioning, energy optimisation, and process monitoring.



hb.click/
6-Display-EN

Clear and understandable

- You will master the unit in just 10 minutes.
- Intuitive operation in local language
- Navigation and input like on smartphones

Well-arranged and to the point

- Everything at a glance: Energy-Control, Dashboard, Trend-Chart
- 7 inch IPS touch screen
- Configurable display

Simple and convenient

- Comprehensive assistance systems
- Thanks to the Energy-Control assistant, you can find the optimal operating point.
- Self-diagnosis

Independent and flexible

- Ready for Industry 4.0
- OPC UA is standard (other via Interface Server Gate-6)
- Remote control via smartphones and tablets (with Gate-6 and e-cockpit App)

« Simple, intuitive and clear as never before. »

Andreas Steiner
Software Engineer HB-Therm

Gate-6

Gate-6 is more than an interface server – it is your key to the digital future. Together with your tablet or smartphone and the HB-Therm app “e-cockpit,” you unlock entirely new, powerful possibilities that take your efficiency and control to the next level.



Data security

Highest security standards vouchsafe data protection and safety. Remote access or upload of analysis data are only initiated after explicit user approval.

Gate-6: The versatile interface server for your applications.

Our Thermo-6 units come standard with an OPC UA interface and can be easily integrated into the machine control system. For connections via other interfaces such as DIGITAL, CAN, or Profibus-DP, the Gate-6 takes on the central role.

Connect up to 16 Thermo-6 units to a Gate-6 – ideal for increasing unit numbers, as one interface card is sufficient. Starting from two units, the investment pays off and increases efficiency.

Gate-6: Your gateway to the digital world and maximum efficiency.

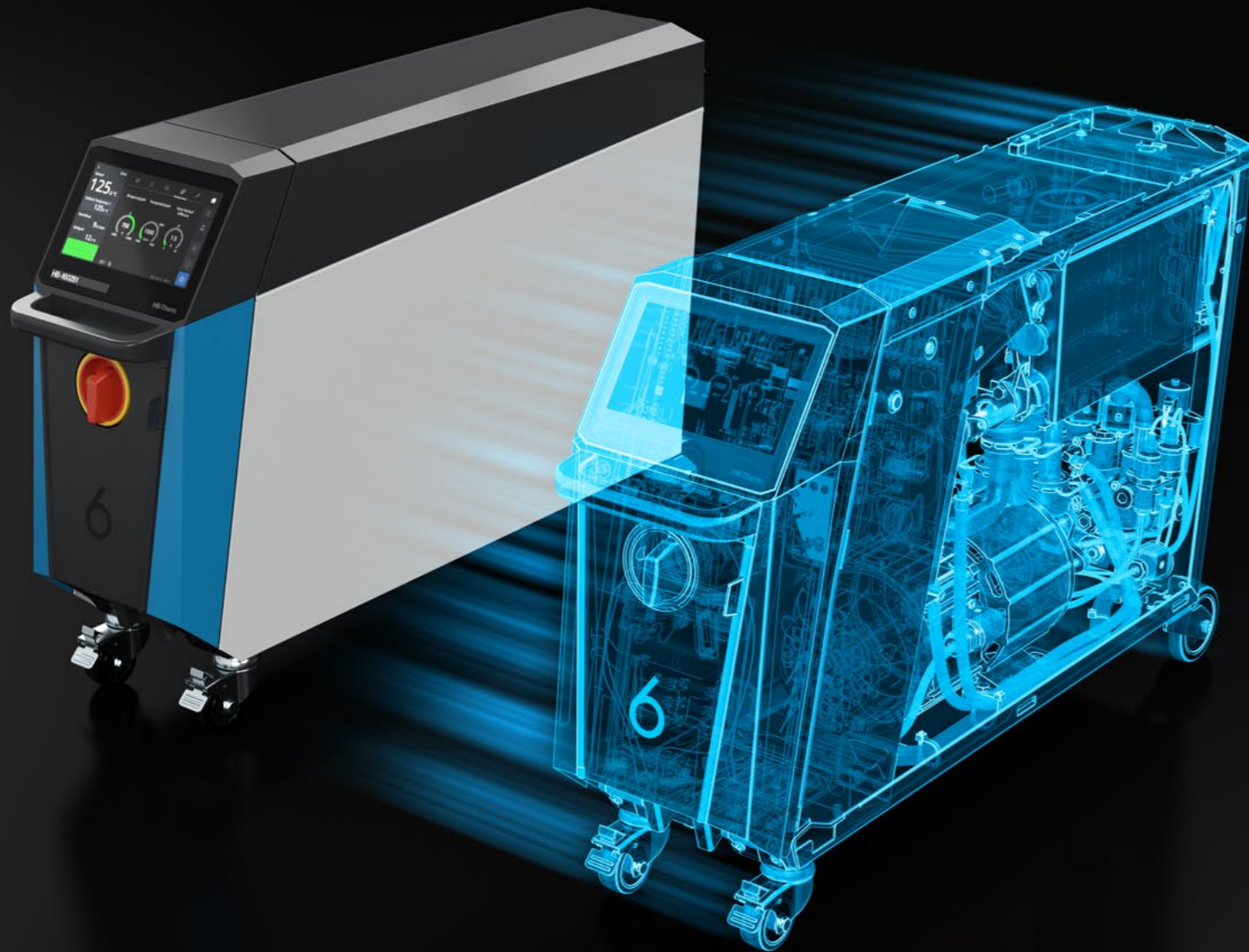
With Gate-6, you extend the capabilities of the HB-Therm e-cockpit app with smart remote functions. The 'Send Analysis Data' feature ensures that we can assist you quickly and efficiently.

« Gate-6 also make sense with OPC UA. »

Roland Huber
Product Manager HB-Therm



Your Possibilities



→ with e-cockpit app

	Knowledge	→ The function provides access to the extended online documentation for the unit and the free software.
	Unit Docs	→ Access to unit-specific documents (e.g., spare parts list, test certificate, etc.)
	Unit Management	→ In the unit management, you get an overview of all your Series 6 units and can create groups for departments that include multiple participants.
	Create a support ticket *	→ The function allows the creation of a ticket to HB-Therm Support, for example, in case of a malfunction.

→ and additionally with Gate-6

	Remote Control	→ Remote Control allows you to control the Thermo-6 unit remotely via smartphone or tablet. Data transfer occurs via Bluetooth over a VNC (Virtual Network Computing) connection. The blue frame around the unit's control indicates active remote access.
	Remote Access *	→ Remote Access allows you to access the unit remotely via any email address (e.g., by someone from a different company location). Data transfer occurs via Bluetooth over a VPN (Virtual Private Network) connection.
	Remote Support *	→ Remote Support simplifies problem analysis and resolution by allowing HB-Therm Support remote access to the unit (e.g., HB-Therm Switzerland Support Team). Data transfer occurs via Bluetooth over a VPN connection.
	Sending analysis data *	→ The function allows for the easy transmission of recorded data and settings to HB-Therm Support. By submitting the analysis data, a ticket is automatically created in the HB-Therm service management system. You will receive a confirmation via email upon receipt of the data.

* Registration in our ticketing system required

Tools

e-cockpit app



“e-cockpit” is the HB-Therm app for smartphones and tablets. The app features a QR code scanner specifically designed for HB-Therm codes. A detailed overview of the current features can be found on page 13. The app is available for Android and iOS.



hb.click/
e-cockpitApp

Knowledge

“Knowledge” is our customer knowledge database. Here, you will find comprehensive information on the operation and use of our units. Access to “Knowledge” is available both through our website hb-therm.com and directly via the e-cockpit app.

Contents:

- Manuals
- Unit software
- 3D product models
- and much more.



hb.click/
6-Knowledge-EN

Ticket

“Ticket” is the service management system for customers, where all requests and incidents are handled. Access to “Ticket” is available both through our website hb-therm.com and directly via the e-cockpit app.

Contents:

- Spare parts list
- Test certificate



hb.click/
Ticket



Thermo-6

6

Standard Equipment

Topic	Feature
Hydraulics	Speed-controlled, sealless pump in stainless steel, IE4
	Heating elements without direct contact to the heat transfer medium
	Continuous maintenance-free ultrasonic flow meter
	Low-scaling cooling system with plate heat exchanger
	Proportionally controlled cooler bypass (on units over 100 °C)
	Pressure shock-free cooling with proportional valve
	Controlled superimposed system pressure
	Booster pump for system filling (on units above 100 °C)
	Temperature measurement in main line and return line with sensor Pt 1000
	Hydraulic circuit with low resistance made of non-corroding materials
	Closed circuit with automatic filling and deaeration
	Integrated cooling water and return line filter
	Easy to modify for separate supply of system water
	Functions
Pump modes (normal, automatic, temperature difference, flow, speed, boost)	
Energy-Control with optimisation assistant	
3-phase heating control with solid state relay and current measurement	
Changeover to 2nd nominal value	
Nominal value ramp (ramp program on request)	
Control on either main line or return line (or external sensor ZE)	
Cooling with automatic switch-off programme	
Cyclical system water exchange (selectable)	
Monitoring / Safety	
	Process monitoring with automatic limit value setting
	Hose rupture and leakage monitor
	Sensor monitoring
	Frequency converter with automatic rotary field adaptation and current measurement
	Triple safety cut-out for heating
	Safety relief valve and pressure gauge on rear of unit
	Dry-running protection
	Lockable abrasion-resistant PUR castors with twist lock
	Cleanroom capable
	Command / Display
Basic display (Process, actual values, trend, energy, maintenance)	
Export of historical data	
Help system with context sensitive information	
Extended help in local language via QR-Code to HB-Therm "Knowledge" platform	
Acoustic alarms	
LED floor lighting for signalling the unit status	
Display of date and time (adjustable time zone)	
Data input password protected	
Logbook (alarms and user interactions)	
Units of measurement for temperature, flow rate and pressure can be set	
Timer	

Interfaces	Interface	Description
Interfaces	Ethernet	Interface OPC UA (EUROMAP 82.1, OPC 40082-1)
		Switch with 2 RJ-45 sockets
	HB	HB-Therm data interface CAN for connecting flow meters Flow-5 or for power supply of the Interface Server Gate-6 (see page 40)
		1 socket Sub-D 15 pin (female)
	USB	Connection for software updates and export of historical data
		USB-A

Additional Equipment

Designation	Code	Description
Leak stopper	ZL	With automatic negative pressure optimisation (up to 70 °C)
Connection for alarm and external control	ZB	Alarm using potential-free contact (rating max. 250 VAC, 4 A)
		3 inputs for selectable functions (e.g. unit ON/OFF, switching nominal value 1 or 2) 1 socket Harting Han 7D (male), connecting cable 6 m with plug included
Connection for external sensor	ZE	Thermocouple type J, K, T (use only insulated versions)
		Resistance thermometer Pt 100 in 2-, 3- or 4-wire circuit
		Standard signals 0–10 V or 4–20 mA
		1 socket M12-A 8 pin, connector included
Return line filter monitor	ZF	Dirt detection in the filter
		Additional pressure sensor in return line
Mould evacuation with compressed air	ZG	Replaces mould evacuation by pump reversal
		Mould evacuation with compressed air to the cooling water outlet or compressed air outlet (selectable)
Mould evacuation and pressure relief *	ZN	Mould evacuation and pressure relief through shut-off valve in the main line. The pump pushes the medium to the cooling water outlet.
		Pressure release when unit OFF
		Only for units with 6P/6R pumps (not possible with: ZG)

* Included in the standard equipment for units with 4T/4S pumps

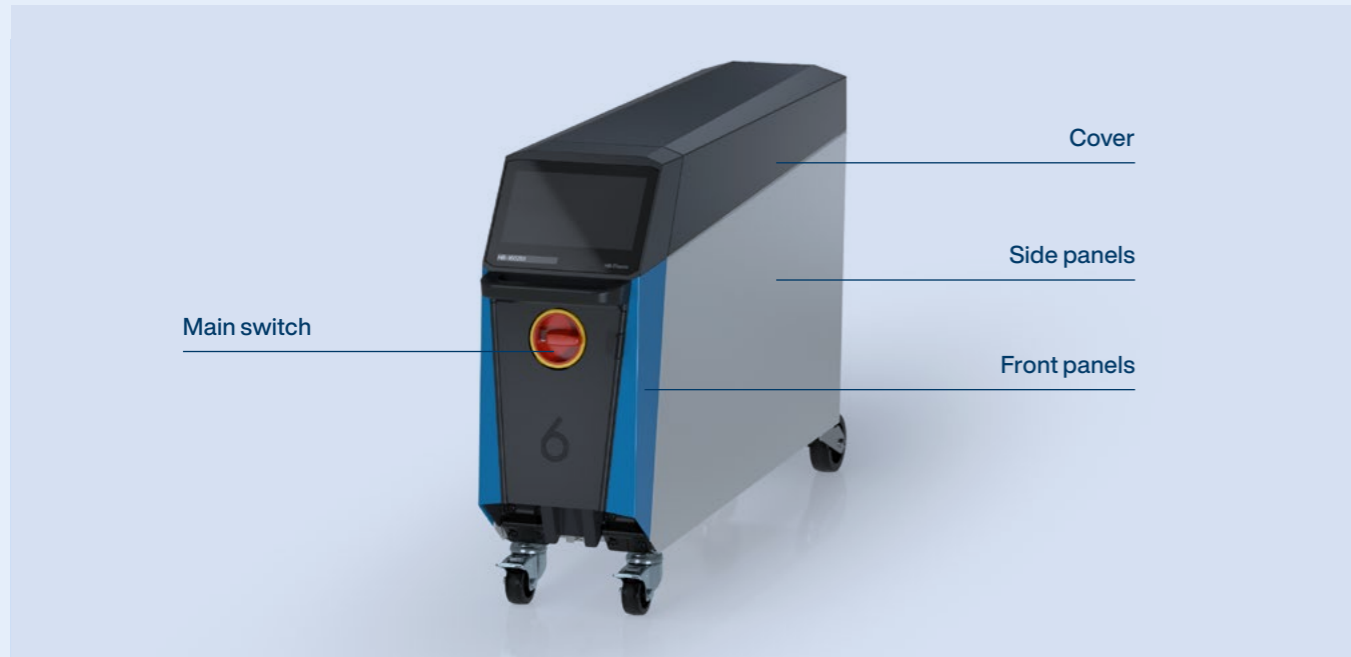


Temperature control units Thermo-6 are connected to the machine control directly via OPC UA or interface server Gate-6 (see page 37).

Special Executions

Colour		Code
Cover	RAL 9011 (matt graphite black)	Standard
	Custom colour	C004 'colour' *
Side panels	RAL 7035 (glossy light grey)	Standard
	Custom colour	C005 'colour' *
Front panels	RAL 5015 (glossy sky blue)	Standard
	Custom colour	C006 'colour' *

* RAL/NCS (matt/glossy)



Main switch		Code
Red/yellow		Standard
Black		C007

Mains cable		Code
Rubber (H07RN-F)	Length 4 m	Standard
	Length 0,5 to 15 m	C001 'z,z' m
PUR(H07BQ-F)	Length 0,5 to 15 m	C002 'z,z' m
UL	Length 0,5 to 15 m	C003 'z,z' m

Certification/Approval		Code
	CE, UKCA	Standard
	MET – Complies with UL 61010-1, CSA C22.2 No. 61010-1; E115902 (currently only available for Thermo-6, housing size 61; size 62 in preparation)	C011

Note: Special executions C001-C007 available for all housing sizes

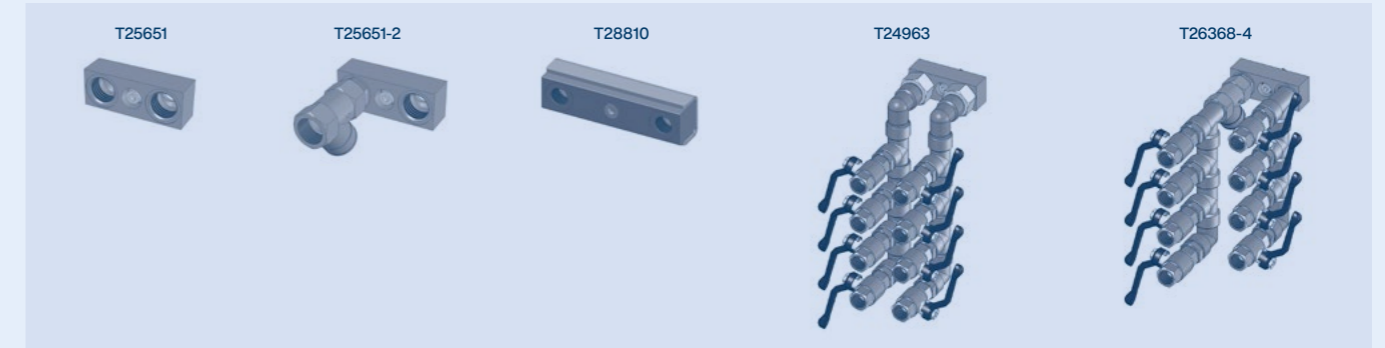
Accessories

Accessories Program

- Electrical and hydraulic connections
- Carrier frames for temperature control units
- etc.

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Hydraulic (Accessories extract)	Suitable for unit	O/ID
Adapter for central coupling main/return line, brass	with pump 4T/4S	T25651
Adapter for central coupling main/return line, brass, incl. main line filter	with pump 4T/4S	T25651-2
Adapter for central coupling cooling water, brass	with cooling A2	T28810
Manifold 2x4xG1/2 with shut-off valves	with pump 4T/4S	T24963
Manifold 2x4xG1/2 with shut-off valves, incl. main line filter	with pump 4T/4S	T26368-4



Miscellaneous accessories (Accessories extract)	Suitable for unit	Material	O/ID
Screen protector	Housing size 61	PC	T29560-1
		PET	T29560-2
	Housing size 62	PC	T29560-3
		PET	T29560-4



Flow Meter Flow-5

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

hb.click/D8136-EN

Checking Facility for Temperature Control Units

The checking facility allows for easy inspection and calibration of temperature control units in terms of temperature, pressure and flow rate, as well as the creation of test reports.

hb.click/D8138-EN

100 °C

Water, indirect cooling

Temperature control unit	Type	HB-100Z	
		Housing size	
		61	62
			
Heating **	8 kW	8	●
	16 kW	16	●
Pump	1,1 kW; 65 L/min, 85 m	4T	●
	1,5 kW; 140 L/min, 54 m	6P	●
Cooling	40 kW @ 60 K	A2	●
	65 kW @ 60 K	B2	○
	120 kW @ 60 K	E2	○
Additional Equipment	Leak stopper	ZL	○
	Connection for alarm and external control	ZB	○
	Connection for external sensor	ZE	○
	Return line filter monitor	ZF	○
	Mould evacuation with compressed air	ZG	○
	Mould evacuation and pressure relief	ZN	1) ○ 2)
Mains voltage	400 V (380–415 V ±5 %), 50/60 Hz; 3LPE	406	●
	220 V (200–220 V ±5 %), 50/60 Hz; 3LPE	226	○
	460 V (440–480 V ±5 %), 50/60 Hz; 3LPE	466	○

Ordering example: HB-100Z61-8-4T-A2-ZE-406-English

● Standard specification ○ Optional

1) Functions in units with pump 4T included in standard equipment.

2) Typical specification.
Combination ZG/ZN not possible

** More variants under development

Technical data	Type	HB-100Z		
		Housing size		
		61	62 (Pump 4T)	62 (Pump 6P)
Maximum main line temperature	°C	100	100	100
Flow rate measurement	L/min	0,4–65	0,4–65	1–150
Circulating volume in unit	L	1,4	2,0	3,0
Dimensions	Height	mm	510	650
	Width	mm	190	300
	Depth	mm	793	991
Weight max.	kg	55	73	86
Connection, main line and return line	Thread	G¾	G¾	G1¼
	Resistance	bar, °C	20, 120	20, 120
Connection, cooling water	Pressure	bar	2–5	2–5
	Thread at cooling A2		G¾	
	Thread at cooling B2		G¾	G¾
	Thread at cooling E2			G¾
	Resistance	bar, °C	10, 100	10, 100
Connection, separate system water	Pressure	bar	2–5	2–5
	Thread at cooling A2		G¾	
	Thread at cooling B2		G¾	G¾
	Thread at cooling E2			G½
	Resistance	bar, °C	10, 100	10, 100
Connection, mould evacuation with compressed air (ZG)	Pressure	bar	2–8	2–8
	Thread at compressed air inlet		G¾	G¾
	Thread at compressed air outlet		G¾	G½
	Resistance	bar, °C	10, 100	10, 100

140 °C

Water, indirect cooling

Temperature control unit		Type	HB-140Z	
		Housing size	61	62
				
Heating **	8 kW	8	●	
	16 kW	16		●
Pump	1,1 kW; 65 L/min, 85 m	4S	●	●
	1,5 kW; 140 L/min, 54 m	6R		●
Cooling	40 kW @ 60 K	A2	●	●
	65 kW @ 60 K	B2	○	●
	120 kW @ 60 K	E2		○
Additional Equipment				
	Leak stopper	ZL	○	○
	Connection for alarm and external control	ZB	○	○
	Connection for external sensor	ZE	○	○
	Return line filter monitor	ZF	○	○
	Mould evacuation with compressed air	ZG	○	○
	Mould evacuation and pressure relief	ZN	1)	○ 2)
Mains voltage				
	400 V (380–415 V ±5 %), 50/60 Hz; 3LPE	406	●	●
	220 V (200–220 V ±5 %), 50/60 Hz; 3LPE	226	○	○
	460 V (440–480 V ±5 %), 50/60 Hz; 3LPE	466	○	○

Ordering example: HB-140Z62-16-6R-E2-ZE-406-English

● Standard specification ○ Optional

- 1) Functions in units with pump 4S included in standard equipment.
 2) Typical specification.
 Combination ZG/ZN not possible

** More variants under development

Technical data		Type	HB-140Z		
		Housing size	61	62 (Pump 4S)	62 (Pump 6R)
Maximum main line temperature	°C		140	140	140
Flow rate measurement	L/min		0,4–65	0,4–65	1–150
Circulating volume in unit	L		1,4	2,0	3,0
Dimensions					
	Height	mm	510	650	650
	Width	mm	190	300	300
	Depth	mm	793	991	991
Weight max.	kg		59	78	90
Connection, main line and return line					
	Thread		G¾	G¾	G1¼
	Resistance	bar, °C	20, 160	20, 160	20, 160
Connection, cooling water					
	Pressure	bar	2–5	2–5	2–5
	Thread at cooling A2		G¾	G¾	
	Thread at cooling B2			G¾	G¾
	Thread at cooling E2				G¾
	Resistance	bar, °C	10, 100	10, 100	10, 100
Connection, separate system water					
	Pressure	bar	2–5	2–5	2–5
	Thread at cooling A2		G¾	G¾	
	Thread at cooling B2			G¾	G¾
	Thread at cooling E2				G½
	Resistance	bar, °C	10, 100	10, 100	10, 100
Connection, mould evacuation with compressed air (ZG)					
	Pressure	bar	2–8	2–8	2–8
	Thread at compressed air inlet		G¾	G¾	G¾
	Thread at compressed air outlet		G¾	G¾	G½
	Resistance	bar, °C	10, 100	10, 100	10, 100

160 °C

Water, indirect cooling

Temperature control unit		Type	HB-160Z	
		Housing size	61	62
				
Heating **	8 kW	8	●	
	16 kW	16		●
Pump	1,1 kW; 65 L/min, 85 m	4S	●	●
	1,5 kW; 140 L/min, 54 m	6R		●
Cooling	40 kW @ 60 K	A2	●	●
	65 kW @ 60 K	B2	○	●
	120 kW @ 60 K	E2		○
Additional Equipment				
	Leak stopper	ZL	○	○
	Connection for alarm and external control	ZB	○	○
	Connection for external sensor	ZE	○	○
	Return line filter monitor	ZF	○	○
	Mould evacuation with compressed air	ZG	○	○
	Mould evacuation and pressure relief	ZN	1)	○ 2)
Mains voltage				
	400 V (380–415 V ±5 %), 50/60 Hz; 3LPE	406	●	●
	220 V (200–220 V ±5 %), 50/60 Hz; 3LPE	226	○	○
	460 V (440–480 V ±5 %), 50/60 Hz; 3LPE	466	○	○

Ordering example: HB-160Z62-16-4S-B2-ZB-ZE-406-English

● Standard specification ○ Optional

1) Functions in units with pump 4S included in standard equipment.

2) Typical specification.
Combination ZG/ZN not possible

** More variants under development

Technical data		Type	HB-160Z		
		Housing size	61	62 (Pump 4S)	62 (Pump 6R)
Maximum main line temperature	°C		160	160	160
Flow rate measurement	L/min		0,4–65	0,4–65	1–150
Circulating volume in unit	L		1,4	2,0	3,0
Dimensions					
	Height	mm	510	650	650
	Width	mm	190	300	300
	Depth	mm	793	991	991
Weight max.	kg		59	78	90
Connection, main line and return line					
	Thread		G¾	G¾	G1¼
	Resistance	bar, °C	20, 180	20, 180	20, 180
Connection, cooling water					
	Pressure	bar	2–5	2–5	2–5
	Thread at cooling A2		G¾	G¾	
	Thread at cooling B2			G¾	G¾
	Thread at cooling E2				G¾
	Resistance	bar, °C	10, 100	10, 100	10, 100
Connection, separate system water					
	Pressure	bar	2–5	2–5	2–5
	Thread at cooling A2		G¾	G¾	
	Thread at cooling B2			G¾	G¾
	Thread at cooling E2				G½
	Resistance	bar, °C	10, 100	10, 100	10, 100
Connection, mould evacuation with compressed air (ZG)					
	Pressure	bar	2–8	2–8	2–8
	Thread at compressed air inlet		G¾	G¾	G¾
	Thread at compressed air outlet		G¾	G¾	G½
	Resistance	bar, °C	10, 100	10, 100	10, 100

180 °C

Water, indirect cooling

Temperature control unit		Type	HB-180Z
		Housing size	62
			
Heating **	16 kW	16	●
Pump **	1,5 kW; 140 L/min, 54 m	6R	●
Cooling	65 kW @ 60 K	B2	●
	120 kW @ 60 K	E2	○
Additional Equipment			
Connection for alarm and external control	ZB	○	
Connection for external sensor	ZE	○	
Return line filter monitor	ZF	○	
Mould evacuation with compressed air	ZG	○	
Mould evacuation and pressure relief	ZN	○ ²⁾	
Mains voltage	400 V (380–415 V ±5 %), 50/60 Hz; 3LPE	406	●
	220 V (200–220 V ±5 %), 50/60 Hz; 3LPE	226	○
	460 V (440–480 V ±5 %), 50/60 Hz; 3LPE	466	○

Ordering example: HB-180Z62-16-6R-B2-ZN-406-English

● Standard specification ○ Optional

2) Typical specification.
Combination ZG/ZN not possible

** More variants under development



Temperature control units Thermo-5
Water up to 180 °C (Page 10)

hb.click/
D8090-EN

Technical data		Type	HB-180Z
		Housing size	62 (Pump 6R)
Maximum main line temperature	°C		180
Flow rate measurement	L/min		1–150
Circulating volume in unit	L		3,0
Dimensions	Height	mm	650
	Width	mm	300
	Depth	mm	991
Weight max.	kg		90
Connection, main line and return line	Thread		G1¼
	Resistance	bar, °C	25, 200
Connection, cooling water	Pressure	bar	2–5
	Thread at cooling B2		G¾
	Thread at cooling E2		G¾
	Resistance	bar, °C	10, 100
Connection, separate system water	Pressure	bar	2–5
	Thread at cooling B2		G¼
	Thread at cooling E2		G½
	Resistance	bar, °C	10, 100
Connection, mould evacuation with compressed air (ZG)	Pressure	bar	2–8
	Thread at compressed air inlet		G¾
	Thread at compressed air outlet		G½
	Resistance	bar, °C	10, 100

Heating Capacity

Electricity Supply

We recommend using a Type B Residual Current Device (RCD), as the temperature control units are equipped with a frequency converter. Type A RCDs are not suitable. The leakage current is a maximum of 5 mA per unit.

The heating capacity is applicable to mains voltage (220 V, 400 V, 460 V) with internal heating capacity limitation, and it changes within the specified voltage range by a maximum of ±10 %.

Maximum fusing; Cross-section through unit mains cable (with mains voltage)

Heating	400 V or 460 V	220 V
8 kW	3x20 A; 2,5 mm ²	3x32 A; 6 mm ²
16 kW	3x32 A; 6 mm ²	3x63 A; 16 mm ²

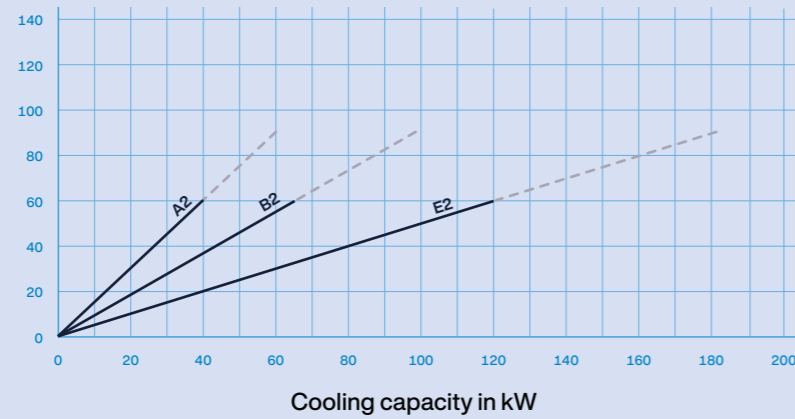
Cooling Capacity

Temperature difference between heat transfer medium and cooling water in °C

Cooling water quantity at 2 bar:

- A2 14 L/min
- B2 18 L/min
- E2 37 L/min

Attainable practical values

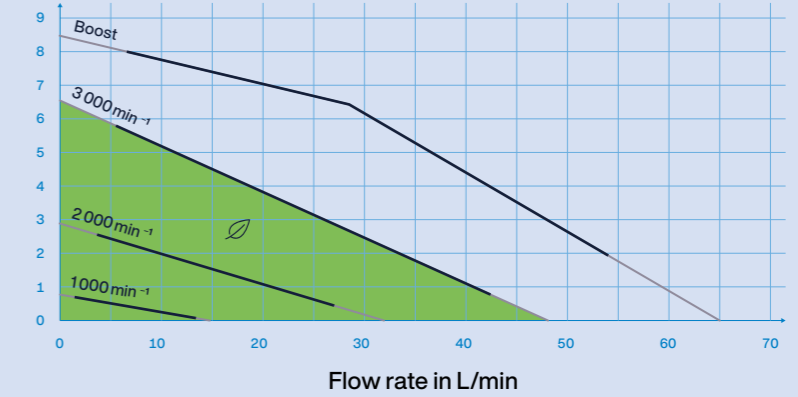


Pump Capacity Curve

4T/4S – Hydraulic

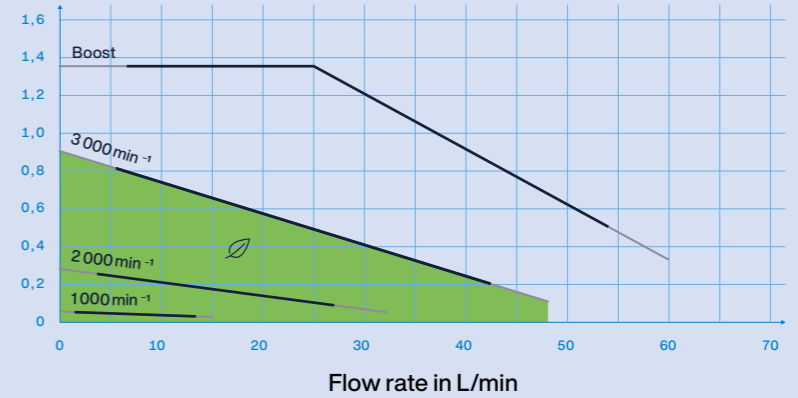
Pressure of pump 4T/4S in bar

Attainable practical values at water 40 °C

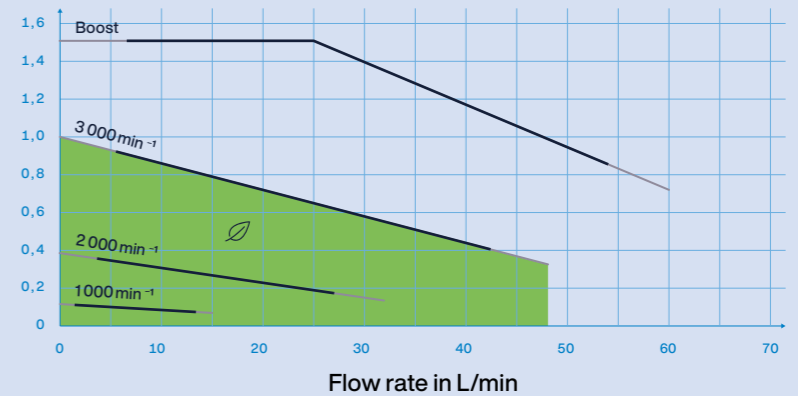


4T/4S – Electrical

Power of pump 4T in kW



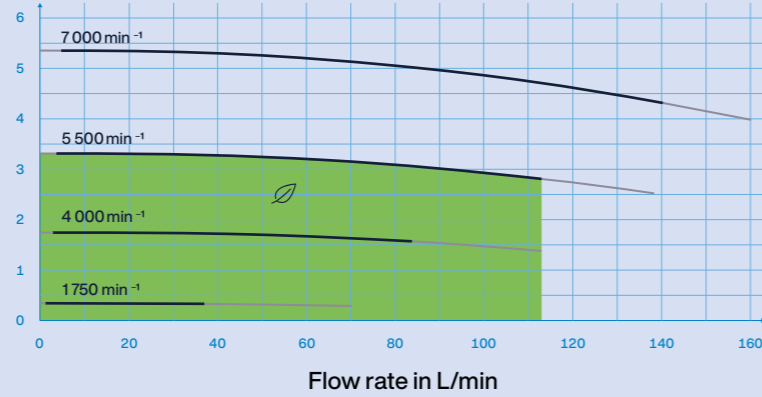
Power of pump 4S in kW



6P/6R – Hydraulic

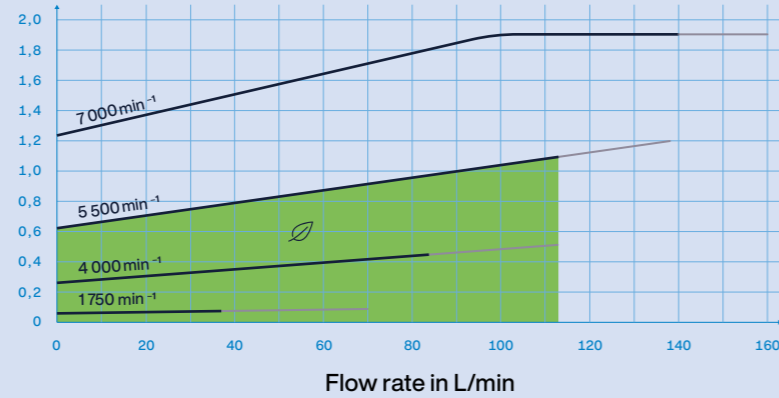
Pressure of pump 6P/6R in bar

Attainable practical values at water 40 °C

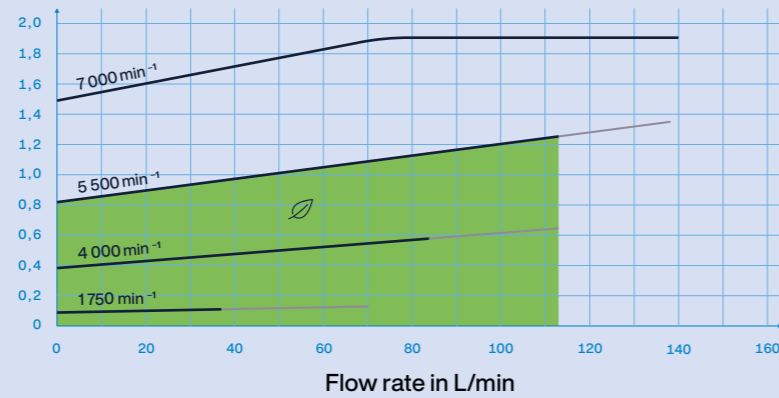


6P/6R – Electrical

Power of pump 6P in kW

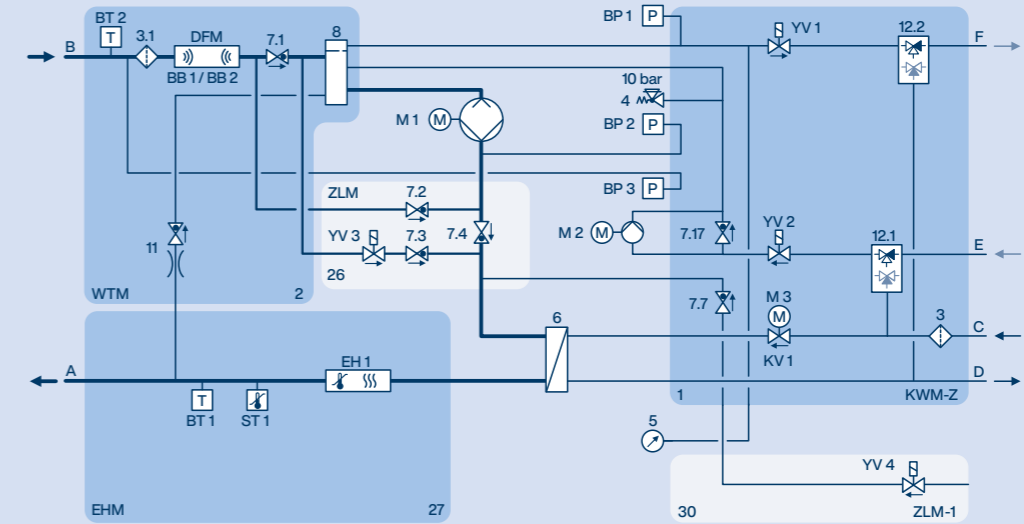


Power of pump 6R in kW

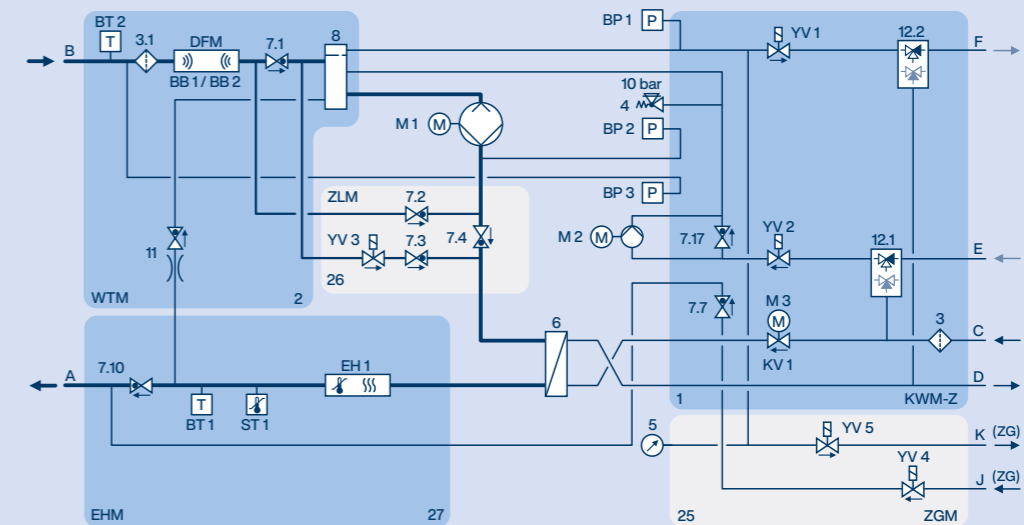


Hydraulics

HB-100Z61/62-8/16-4T-A2 with additional equipment ZL, ZF, ZG



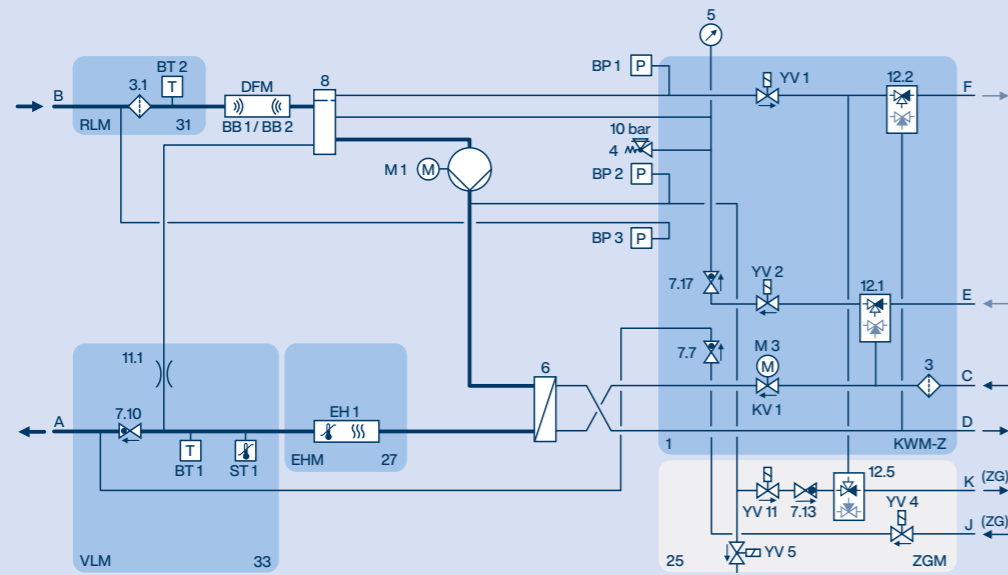
HB-100Z62-16-4T-B2 with additional equipment ZL, ZF, ZG



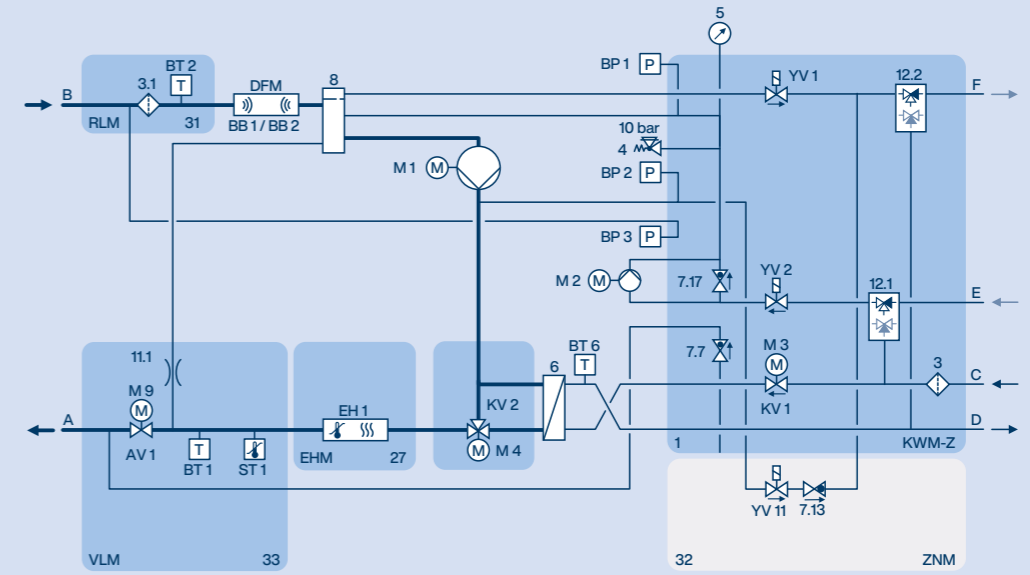
Legend, further hydraulic diagrams and animations of the functional sequences.

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6-Hydraulic-EN

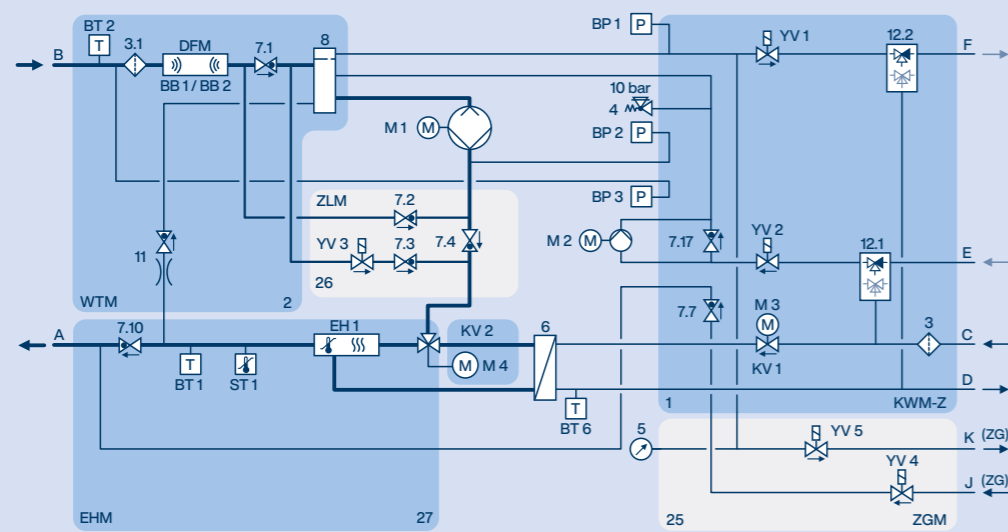
HB-100Z62-16-6P-B2/E2 with additional equipment ZF, ZG



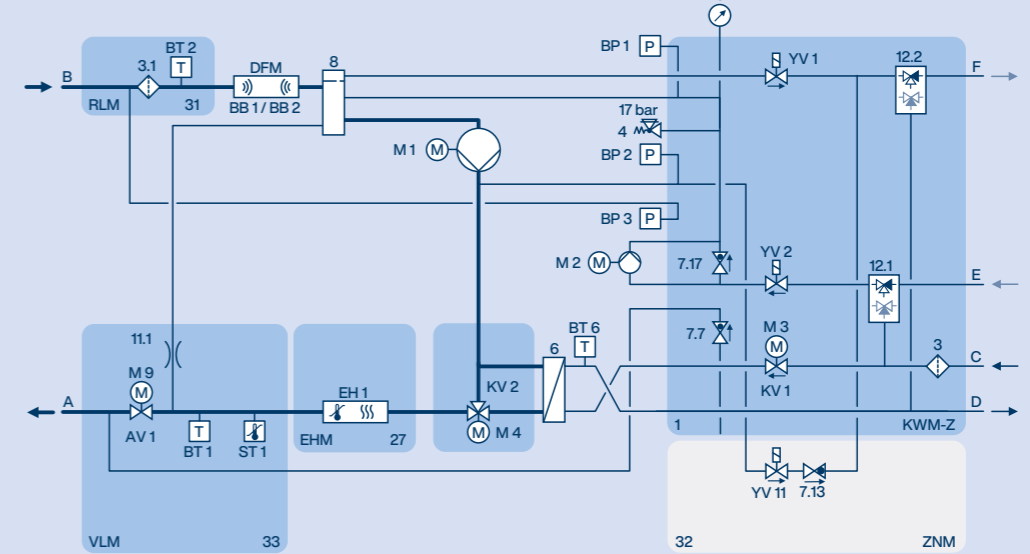
HB-140/160Z62-16-6R-B2/E2 with additional equipment ZF, ZN





HB-140/160Z61/62-8/16-4S-A2 with additional equipment ZL, ZF, ZG



HB-180Z62-16-6R-B2/E2 with additional equipment ZF, ZN



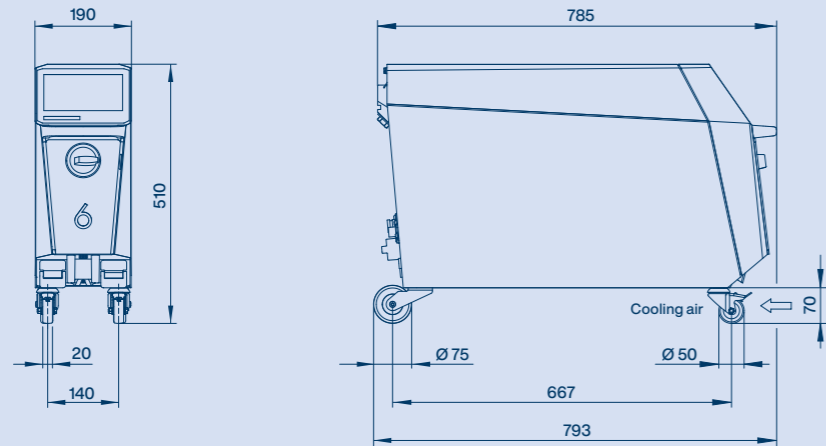
 Legend, further hydraulic diagrams and animations of the functional sequences.
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 Legend, further hydraulic diagrams and animations of the functional sequences.
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Dimensions

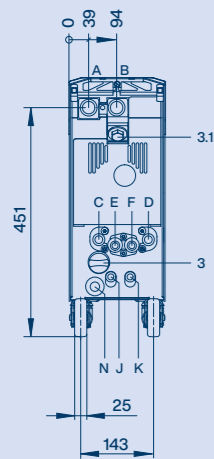
Housing size 61

Front and side view



Rear view

HB-100Z61-4T-A2
 HB-140Z61-4S-A2
 HB-160Z61-4S-A2

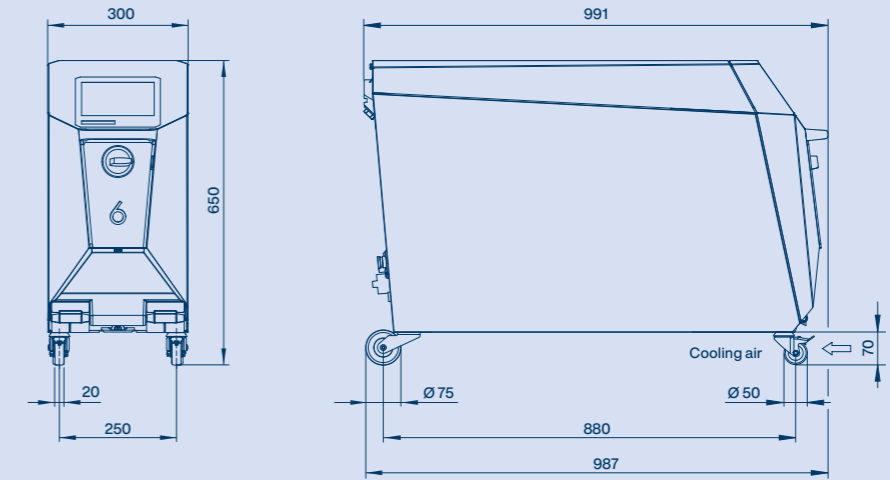


- | | | | |
|------------------------|-----------------------------|------------------------------|------------------------------|
| A Main line | E System water inlet | K Compressed air outlet (ZG) | 3 Filter cooling water inlet |
| B Return line | F System water outlet | N Mains connection cable | 3.1 Filter return line |
| C Cooling water inlet | J Compressed air inlet (ZG) | | |
| D Cooling water outlet | | | |



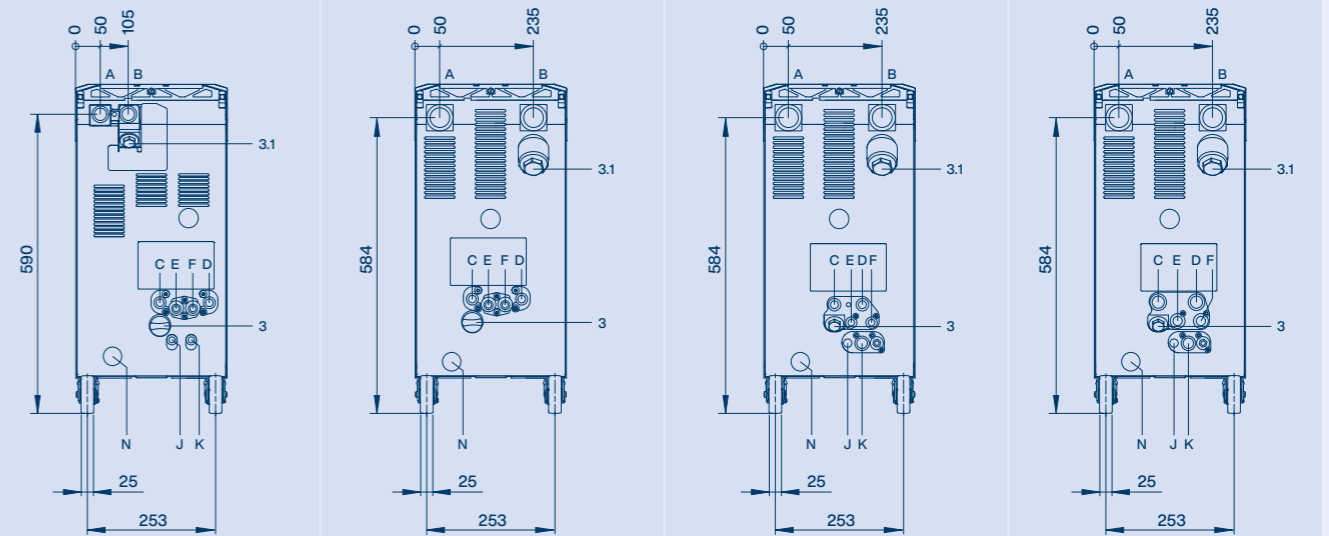
Housing size 62

Front and side view



Rear view

HB-100Z62-16-4T-A2/B2	HB-100Z62-16-6P-B2 (without ZG/ZN)	HB-100Z62-16-6P-B2 (with ZG or ZN)	HB-100Z62-16-6P-E2
HB-140Z62-16-4S-A2/B2	HB-140Z62-16-6R-B2 (without ZG/ZN)	HB-140Z62-16-6R-B2 (with ZG or ZN)	HB-140Z62-16-6R-E2
HB-160Z62-16-4S-A2/B2	HB-160Z62-16-6R-B2 (without ZG/ZN)	HB-160Z62-16-6R-B2 (with ZG or ZN)	HB-160Z62-16-6R-E2
		HB-180Z62-16-6R-B2	HB-180Z62-16-6R-E2



- | | | | |
|------------------------|-----------------------------|------------------------------|------------------------------|
| A Main line | E System water inlet | K Compressed air outlet (ZG) | 3 Filter cooling water inlet |
| B Return line | F System water outlet | N Mains connection cable | 3.1 Filter return line |
| C Cooling water inlet | J Compressed air inlet (ZG) | | |
| D Cooling water outlet | | | |





General Technical Data

Feature	Data	
Mains cable to unit	3LPE, 4 m (plug on request)	
Environment	Temperature range	5–40 °C
	Relative humidity	35–85 % RH (non-condensing)
Colour	Front panels	RAL 5015 (glossy sky blue)
	Side panels	RAL 7035 (glossy light grey)
	Cover, Control panel, Door	RAL 9011 (matt graphite black)
Continuous sound pressure level	< 70 dB(A)	
Protection class	IP 44	
Cleanroom capability	Clean room capable version: 'At Rest' < ISO class 6 (class 1000) 'In Operation' ISO class 7 (class 10 000)	
Standards	EN 12953-6, EN 61010-1, EN 61010-2-10, EN 60730-2-9, EN IEC 61000-6-2, EN IEC 61000-6-4, EN IEC 63000, EN ISO 12100, EN ISO 13732-1	
Certification/Approval	CE, UKCA, MET as a special execution (currently only available for Thermo-6, housing size 61; size 62 in preparation)	
Temperature measurement	Resolution	0,1 °C
	Control accuracy	±0,1 °C
	Tolerance	±0,8 °C
Flow rate measurement	Resolution	0,1 L/min
	Tolerance: Pump 4T/4S	±(5 % of measured value + 0,1 L/min)
	Tolerance: Pump 6P/6R	±(5 % of measured value + 0,25 L/min)
Pump pressure indicator	Tolerance	±10 % of rated value



Gate-6

Standard Equipment

Topic	Feature
Functions	Communication with e-cockpit app via Bluetooth and WiFi Converter for optional interfaces to the machine control
Command / Display	Status LED (green: OK, flashing green: Connecting, red: Error)
Housing	Robust plastic housing Fold-out handle (wall mounting or table stand) Rubberized magnets (e.g. for mounting on machine base) Splash-proof plug-in connections with strain relief Cleanroom capable
Interfaces	Ethernet Interface OPC UA (EUROMAP 82.1, OPC 40082-1) for connection to Thermo-6 temperature control units and to the machine Switch with 2 RJ-45 sockets
	Ethernet ext. Ethernet connection to the company network or cloud (connection not mandatory) 1 socket RJ-45 (female)
	USB For service purposes USB-A
	Bluetooth  , WiFi  Interface for communication with e-cockpit app (range approx. 10 m)
Power supply	24 VDC, 30 W (plug included)

Additional Equipment

Designation	Code	Description
Interface DIGITAL	ZD	Serial data interface 20 mA, RS-232 or RS-422/485 Various protocols selectable: Arburg, Billion, Bühler, Dr. Boy, Engel, Ferromatik Milacron, Haitian, KraussMaffei, MODBUS * (RTU mode), Negri Bossi, SPI (Fanuc, etc.), Stork, Sumitomo Demag, Wittmann Battenfeld, Zhafir 1 socket Sub-D 25 pin (female)
Interface CAN	ZC	Serial data interface CAN-bus (Sumitomo Demag) and CANopen (EUROMAP 66; Netstal, etc.) 1 socket Sub-D 9 pin (female)
Interface PROFIBUS-DP	ZP	Serial data interface PROFIBUS-DP for max. 4 temperature control units 1 socket Sub-D 9 pin (female)



Temperature control units Thermo-6 are connected to the machine control directly via OPC UA or interface server Gate-6.

Interface server	Type	HB-GATE61
		
Additional equipment	Interface DIGITAL	ZD <input type="radio"/>
	Interface CAN	ZC <input type="radio"/>
	Interface PROFIBUS-DP	ZP <input type="radio"/>

Ordering example: HB-GATE61-ZD

Optional

Accessories

Accessories Program

- Interface cables
- mains connectors
- etc.

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D8064-EN



Electrical (Accessories extract)	Article	O/ID
Power supply with power adapter	Power supply 85–265 VAC / 24 VDC, 36 W; 1,5 m (EU/UK/US plugs included)	T28949
	Extension cable for power supply T28949 with EU plug; 1,8 m	T28741-182
	Extension cable for power supply T28949 with UK plug; 2 m	T28740-202
	Extension cable for power supply T28949 with US plug; 2 m	T28739-202
Power supply with Thermo-6 *	Cable HB/Gate-6 (Sub-D 15-p./Plug 3-p.), 5 m	T29390-502

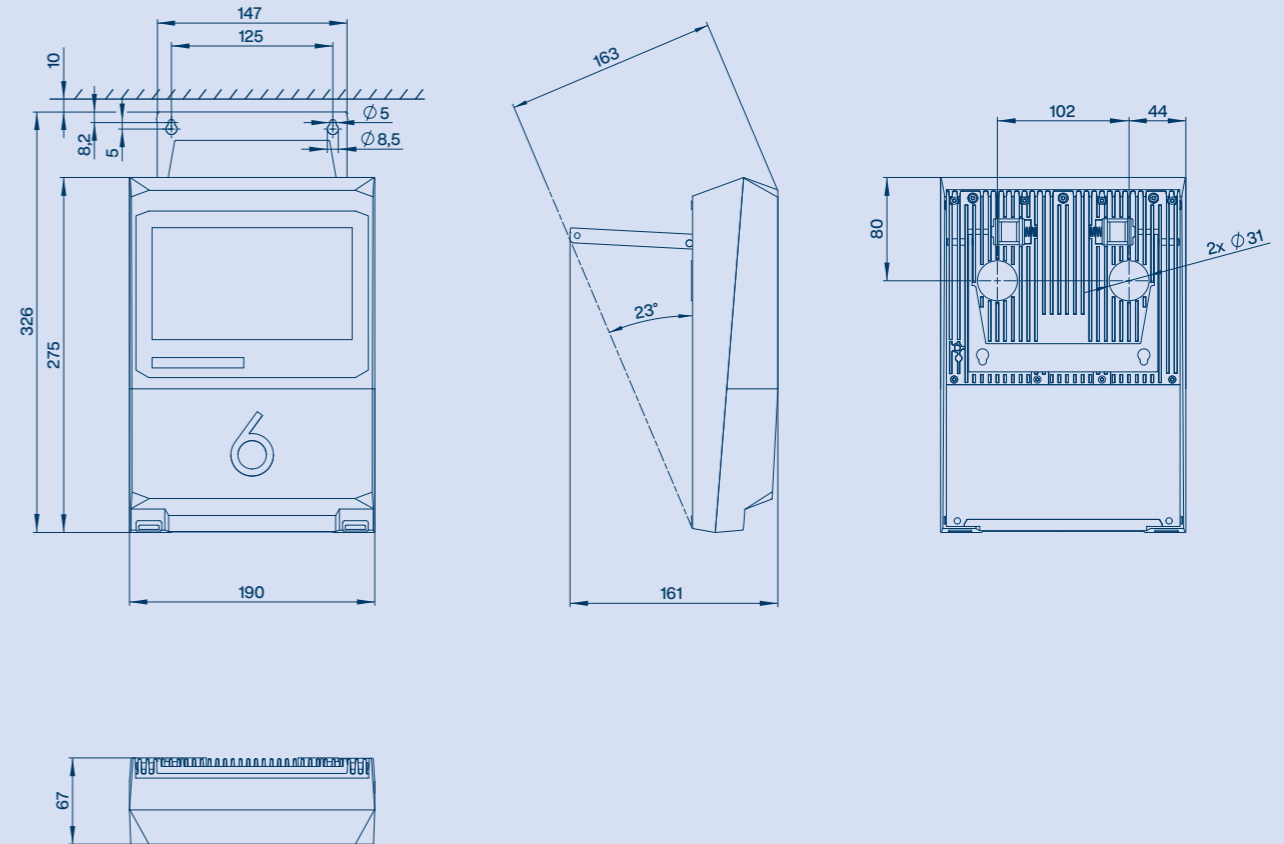
* For the power supply of the Gate-6 interface server, we recommend either the direct connection to the machine control (24 VDC) or the use of our power supply unit T28949. If no flow meter Flow-5 is connected to the temperature control unit Thermo-6, the Gate-6 can alternatively be supplied with power via the interface HB of the temperature control unit using the cable T29390-502. For performance reasons, it is not possible to supply Gate-6 and Flow-5 with power via the interface HB at the same time.

General Technical Data

Feature	Data	
Environment	Temperature range	5–40 °C
	Relative humidity	35–85 % RH (non-condensing)
Colour	Top covers	RAL 9011 (matt graphite black)
	Cover bottom	RAL 7035 (light grey matt)
Dimensions	Height	275 mm
	Width	190 mm
	Depth	67 mm
Weight max.	1,8 kg	
Protection class	IP 44	
Cleanroom capability	ISO class 6 (class 1000)	
Standards	EN 61010-1, EN 61010-2-201, UL 61010-1, CSA-C22.2 No. 61010-1-12, EN 61326-1, EN 300328, EN 301893, EN 301489-1, EN 301489-17, EN ISO 12100, EN IEC 63000, EN ISO 13732-1	
Certification/Approval	CE, UKCA, MET (Complies with UL 61010-1, CSA C22.2 No. 61010-1; E115902)	

Dimensions

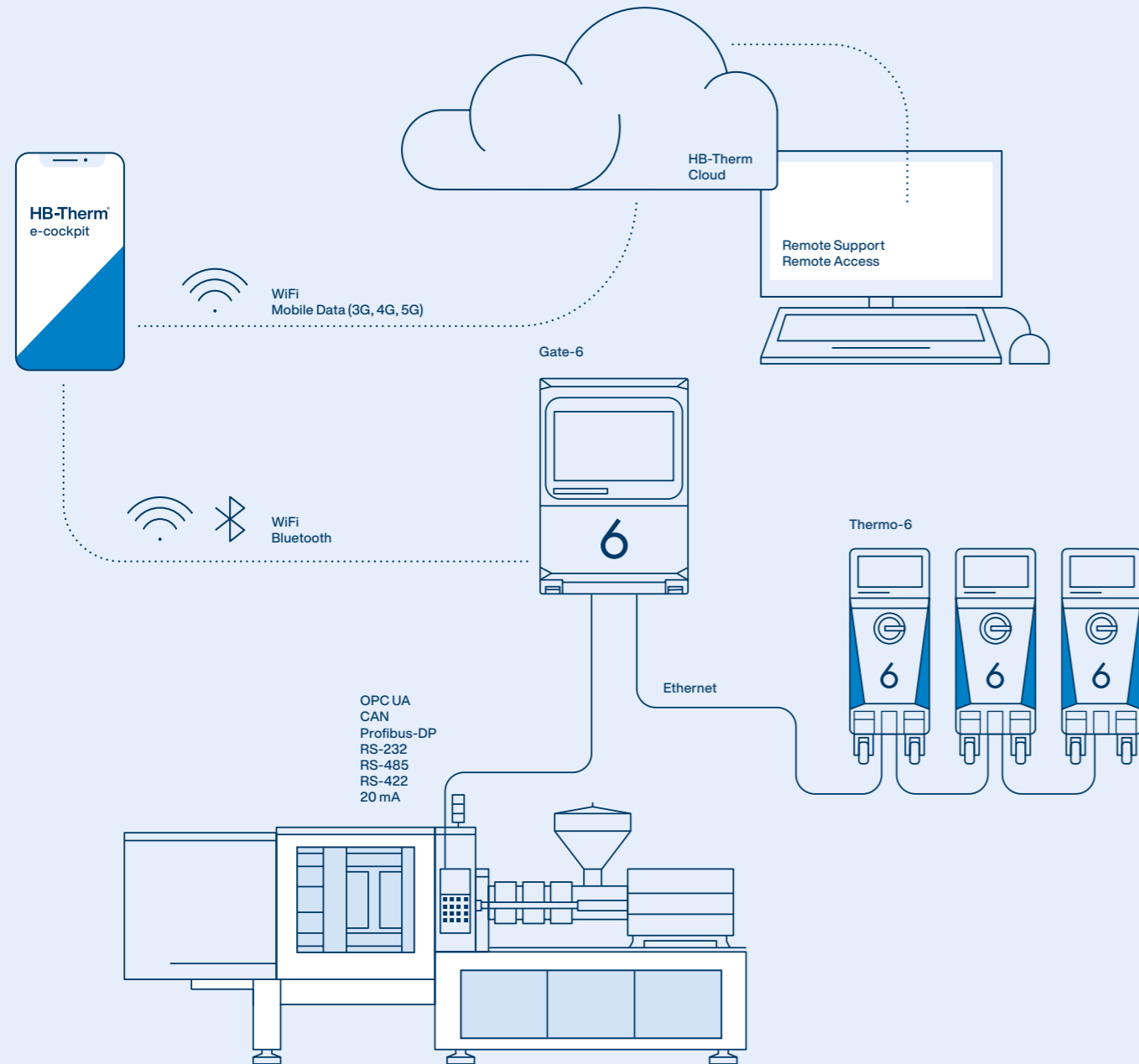
HB-GATE61



3D product models

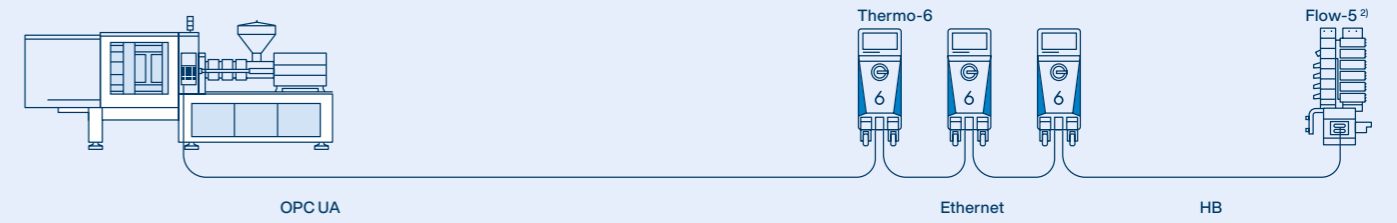
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6-3D-Model-EN

The world of Thermo-6 with Gate-6



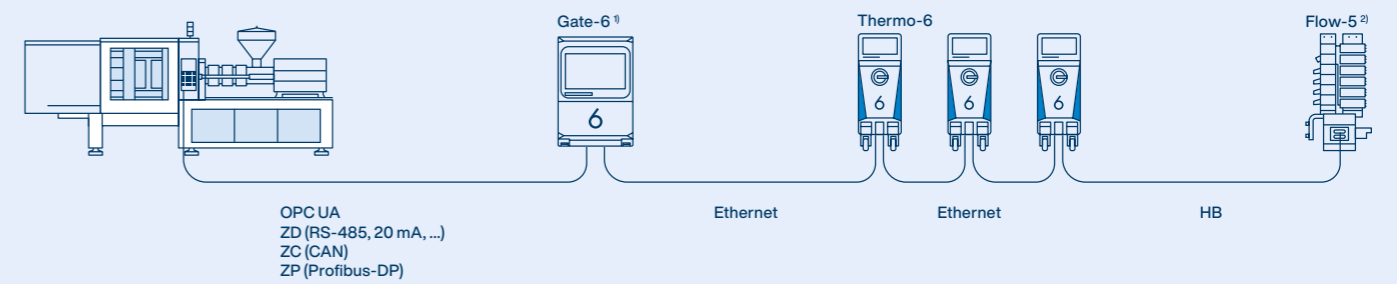
Example 1

Thermo-6 with OPC UA (without Gate-6)



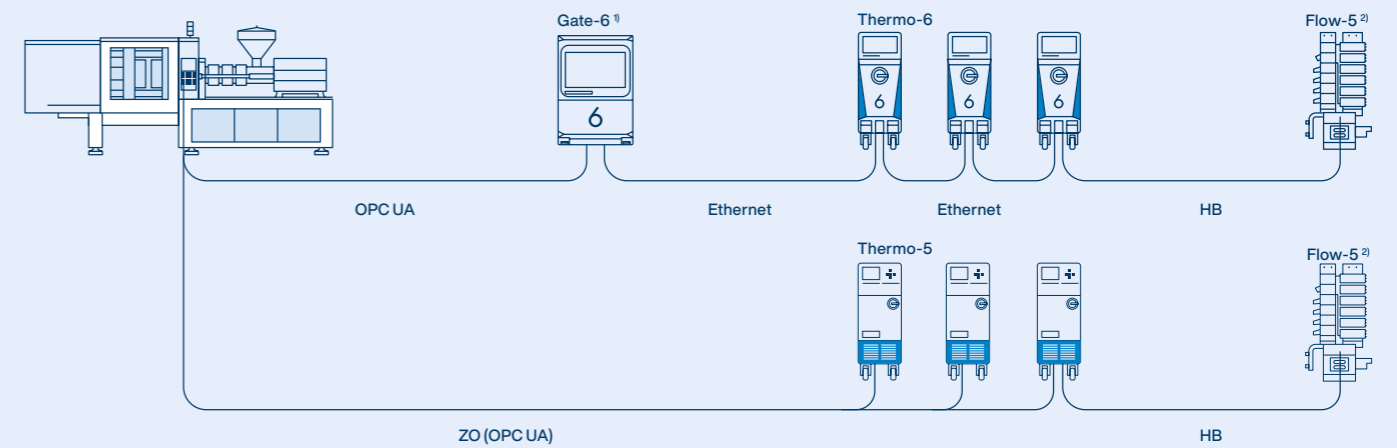
Example 2

Gate-6 and Thermo-6 with any interface



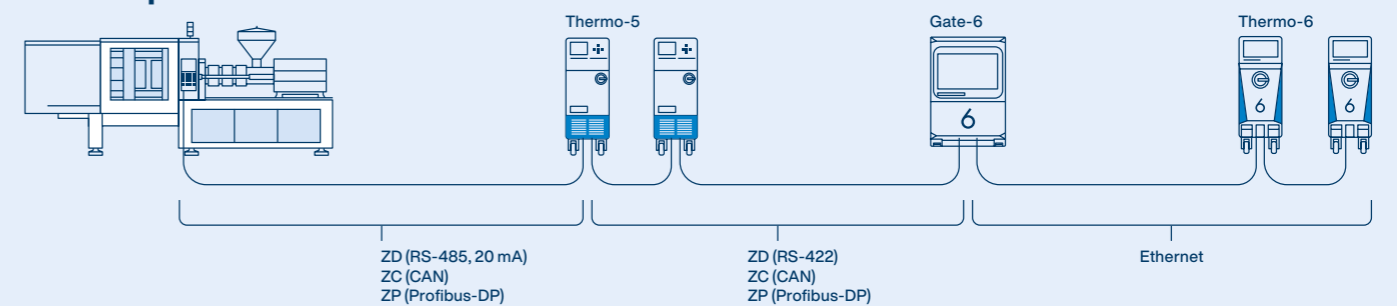
Example 3

Thermo-5 and Thermo-6 with OPC UA



Example 4

Thermo-5 and Thermo-6 with any interface



¹ optional with OPC UA

² possible connection Flow-5: Thermo-6, Thermo-5, Panel-5

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