

# Thermo-6



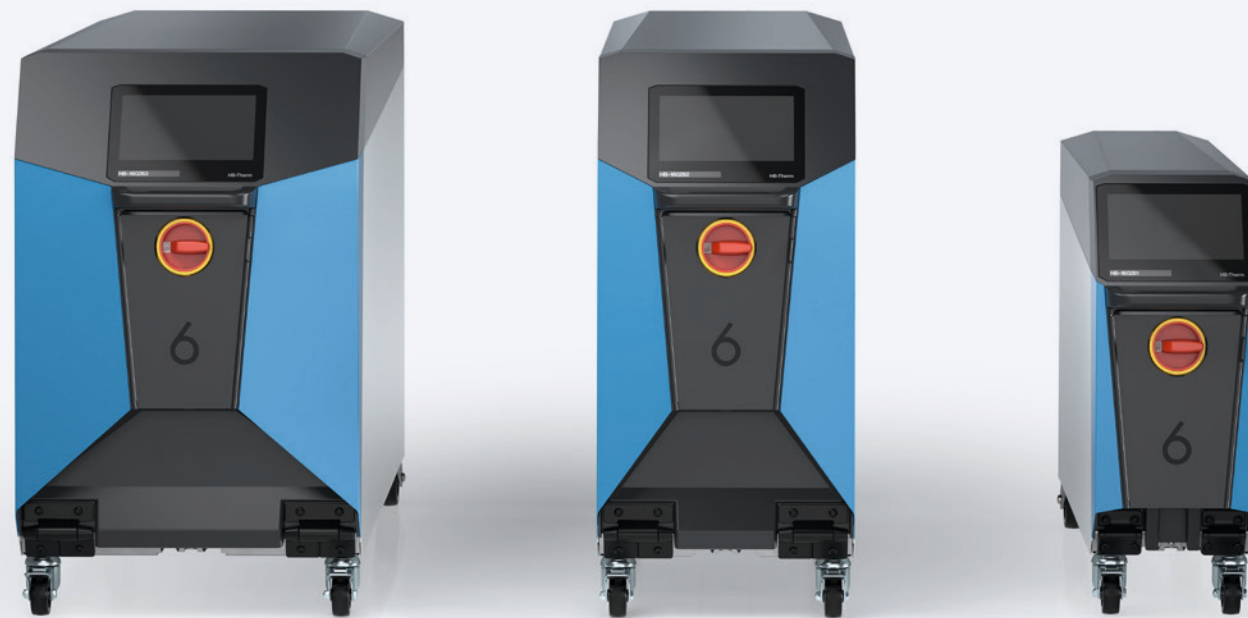
The next Generation.  
Temperature Control Units

Just  
6  
better.

# Just 6 better.

# 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 now also flow meter. “Just better” stands for the consistent advancement of our technology.



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# Thermo-6

## Unrivalled

Lifetime warranty on heater and flow meter.

## Pure energy efficiency

Speed-controlled pump as standard underlines our commitment to the environment. The Energy-Control assistant guides the user to the optimum operating point. 20 % higher efficiency with new exclusive Direct-Drive pump.

## Brilliant touch screen

You will master the unit in just 10 minutes. The simple control and the clear touch screen come with the expert system that provides assistance, warnings, reports and optimizes unit operation.

## 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 – all at once

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

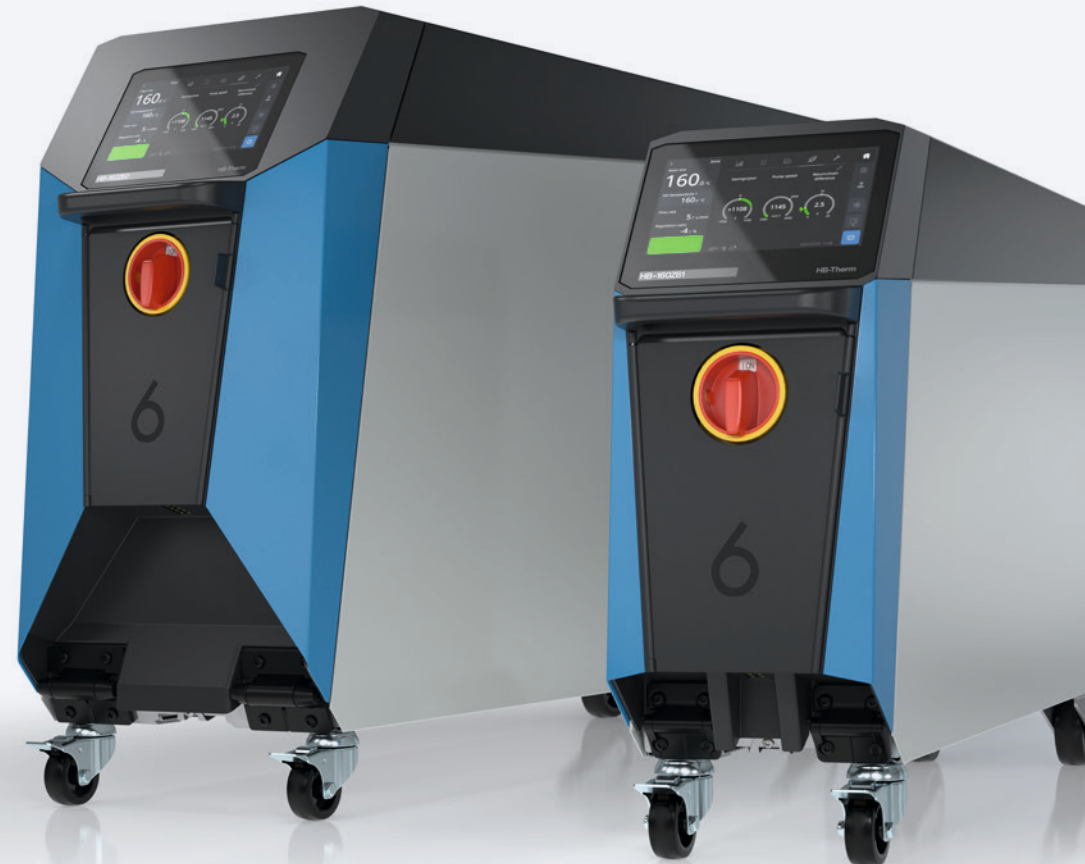
## Reliable. Ultra-low maintenance

We have consistently developed the unit by building on the proven technology of Thermo-5. The low maintenance requirements also make the Thermo-6 attractive in terms of upkeep.

## Passion

We have put all our expertise, ingenuity and passion into the new Thermo-6. For even better performance.

# 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.



## Precise and powerful

- High control accuracy  $\pm 0.1^\circ\text{F}$
- Shortest heating and cooling times
- Short response times
- Calibrated ex works

## Safe and comfortable

- Fully automated process monitoring
- Highly accurate flow rate measurement
- Unit status monitoring
- Elaborate functionality

## Energy efficient and sustainable

- Tankless system
- Speed-controlled pump
- Energy-efficient heating system / heat management

## Reliable and durable

- Heater and flow meter with a lifetime warranty
- Vaporisation-free cooling

“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 assistance systems support the user during commissioning, energy optimisation and process monitoring.



Displays

## Clear and understandable

- 7 inch IPS touch screen
- Intuitive
- Proven logic
- Operation in local language

## Well-arranged and to the point

- Everything at a glance
- Energy-Control
- Dashboard
- Trend-Chart

## Smart and convenient

- Forward-thinking
- Self-diagnosis
- Comprehensive assistance systems

## Independent and flexible

- Remote control via various input devices (app)
- OPC UA is standard
- Configurable display

“ Simple, intuitive and clear as never before ”

Andreas Steiner  
Software Engineering HB-Therm

# Your Possibilities

The temperature control units Thermo-6 are as a standard equipped with an Ethernet interface and communicate via OPC UA with the injection moulding machine or further advanced systems. Combined with an interface server Gate-6 completely new possibilities arise for the user. The Android app “e-cockpit” sends analysis data on the touch of a button or allows the remote access to the unit by a HB-Therm specialist. Additional possibilities are the remote control of a unit and granting access to any external person. Naturally, we adhered to the highest safety standards when developing our digital solutions.

“ Series 6 opens the door to the digital world in temperature control technology ”

Reto Zürcher  
CEO HB-Therm

## Safe and modern

- Our gateway to the digital world of temperature control technology
- Android app “e-cockpit” for mobile devices
- State of the art data security

## Mobile and independent

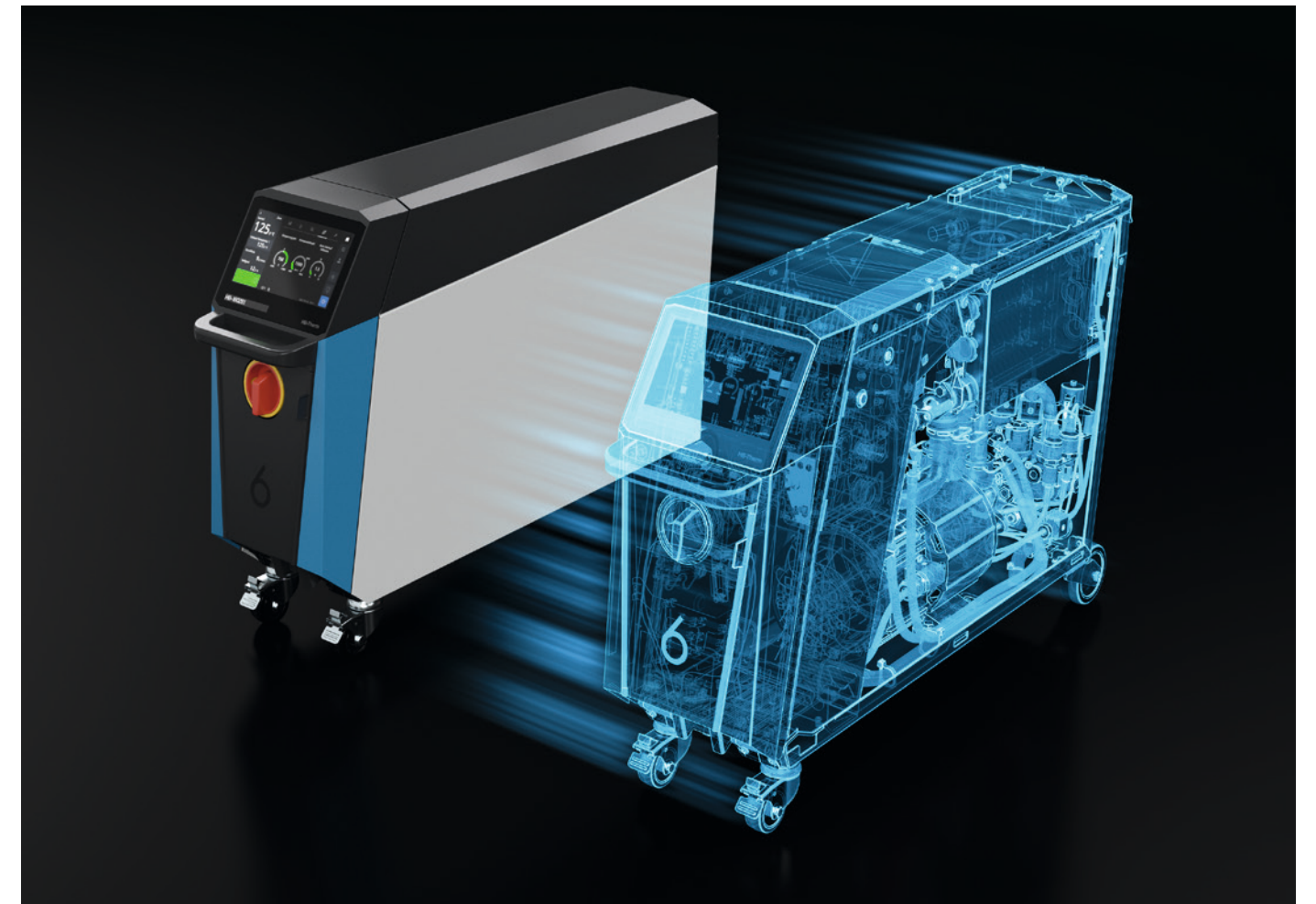
- Remote control via various input devices (app)
- Remote Access from any location

## Convenient and well-arranged

- Overview and information of the connected Gate-6 and Thermo-6
- Unit-specific documentation available online
- Integrated QR-Code scanner

## Supportive and efficient

- Remote access for support cases (Remote Support)
- Direct access to “Knowledge” database
- Transmit analysis data at the touch of a button



# Gate-6

## Our gateway to the digital world

Products and solutions instead of concepts and theories! Gate-6 and “e-cockpit” are the concrete answer to today’s needs and future challenges in the digitalisation of temperature control technology.

## Control from anywhere via e-cockpit

Work even more efficiently and safely with “e-cockpit” on your mobile device. Call up analysis data, allow remote access or scan the fault QR-Code and quickly order any spare parts. With the “e-cockpit” app from any place and any device.

## Everything at a glance

Clear and informative compilation of all important data and documents of the associated Gate-6 and the Thermo-6 temperature control units connected to it.



## Data security

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

## Control, analyse and support – from anywhere and at the touch of a button

Sending analysis data, remote control of the temperature control units or remote access if required – at any time at the touch of a button.

## Securing the future together

We advance the digitalisation of your production. Our new generation of units makes it very easy for you. Open the door to your digital future with us! The digital world of HB-Therm provides you with all the tools you need. Precisely tailored to the needs of your production.

Just  
6  
better.

# Tools

## Interface Server Gate-6

The Thermo-6 temperature control units communicate with the machine control via Ethernet. This can be done either directly via OPC UA or via the Gate-6 interface server. The interface server Gate-6 is capable of translating Euromap 82.1 into various proprietary machine protocols. These are:

- Interface DIGITAL (ZD)
- Interface CAN (ZC)
- Interface PROFIBUS-DP (ZP)

One Gate-6 is required per injection moulding machine, which ideally remains firmly connected to the machine. Gate-6 allows you to assign a specific name for better identification, such as the internal machine designation. The Gate-6 can communicate with the app "e-cockpit" via Bluetooth or WiFi.

## e-cockpit

"e-cockpit" is an app for smartphones and tablets that can access a Gate-6 and the connected Thermo-6 via Bluetooth. "e-cockpit" contains the scanner for the HB-Therm specific QR-Codes on the unit. Currently, analysis data of a Thermo-6 can be sent to the "Ticket" at the push of a button. By registering spare parts via the scanner and assigning them to a unit, the digital twin is updated in the "Ticket". In addition, "e-cockpit" allows "Remote Support" access. This allows an HB-Therm employee to access the unit directly via a secure connection, if necessary. In addition, unit-specific data such as spare parts lists and test certificates are also available in the "e-cockpit" app. Further "e-cockpit" functions such as "Remote Access", which allows access to a Thermo-6 from another company location, or "Remote Control" of a Thermo-6 via tablet or smartphone are also possible at extra cost. Data transfer is secured by best-of-breed technologies. The "e-cockpit" app is available free of charge in the Google Play Store.

\* QR-Codes are HB-Therm specific and can only be read via the scanner of the "e-cockpit" app

## Knowledge

"Knowledge" gives you access to all you need to know for operation and use Series 6 units. QR-Codes \* on the unit can be used to call up the latest information. On the PC, access is directly via the HB-Therm website. This means that the operating instructions and technical data can be called up at any time and from anywhere.



## Ticket

"Ticket" is the new service management system that handles all customer requests and events. To ensure global support, every end customer has access to the "Ticket" and to the "Knowledge" database. The cutting-edge IT tool is designed for current and future requirements.

### Contents:

- Spare parts list
- Test certificates
- Unit specification
- Status information





# Standard Equipment

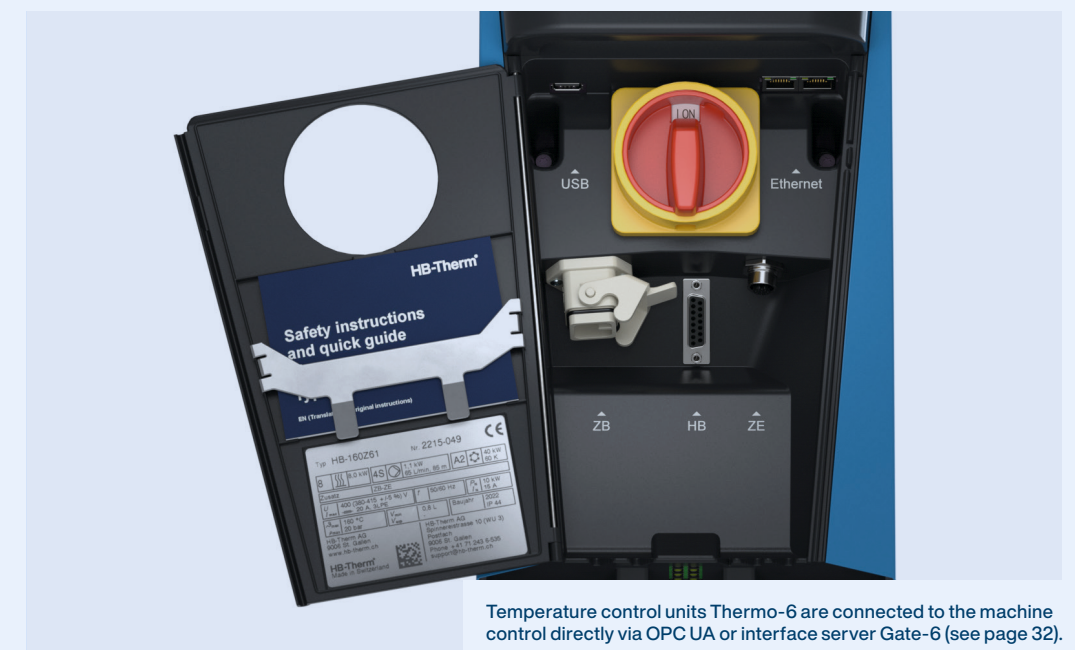
Topic	Feature	
Hydraulics	Speed-controlled, sealless pump in stainless steel, IE4	
	Heating elements without direct contact to the heat transfer medium	
	Continuous maintenance-free ultrasonic flow meter	
	Low-scaling cooling system with plate heat exchanger	
	Proportionally controlled cooler bypass (on units over 212 °F)	
	Pressure shock-free cooling with proportional valve	
	Controlled superimposed system pressure	
	Booster pump for system filling (on units above 212 °F)	
	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	Mould evacuation by pump reversal
Pump modes (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 and ramp programme *		
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	Pump status monitor	
	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	7 inch IPS touch screen with interactive user guidance in local language
		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		
Units of measurement for temperature, flow rate and pressure can be set		
Timer		

Interfaces	Feature	Description
Interfaces	Ethernet	OPC UA interface (EUROMAP 82.1, OPC 40082-1) Switch with 2 RJ-45 sockets
	HB	HB-Therm data interface CAN for connection of flow meters Flow-5 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 158 °F)
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

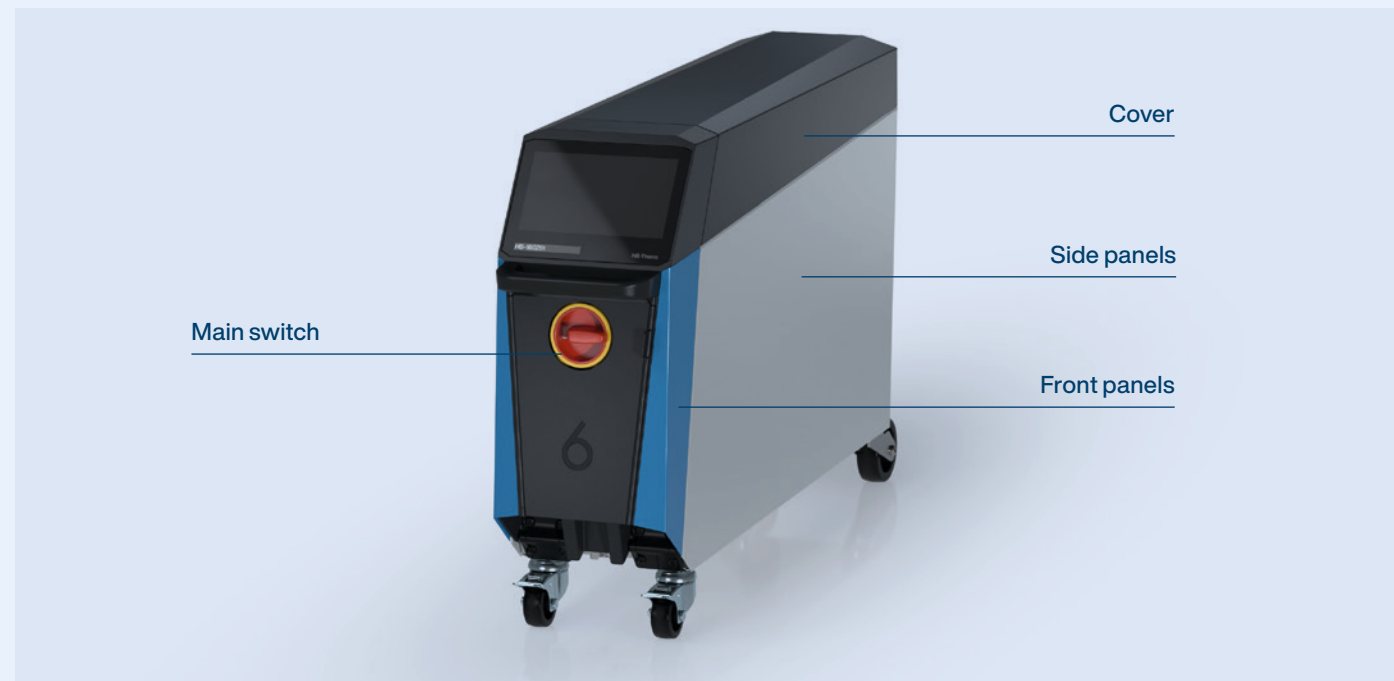
\* on request



Temperature control units Thermo-6 are connected to the machine control directly via OPC UA or interface server Gate-6 (see page 32).

# Special Executions

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



Main switch		Code
Red/yellow		Standard
Black		C007

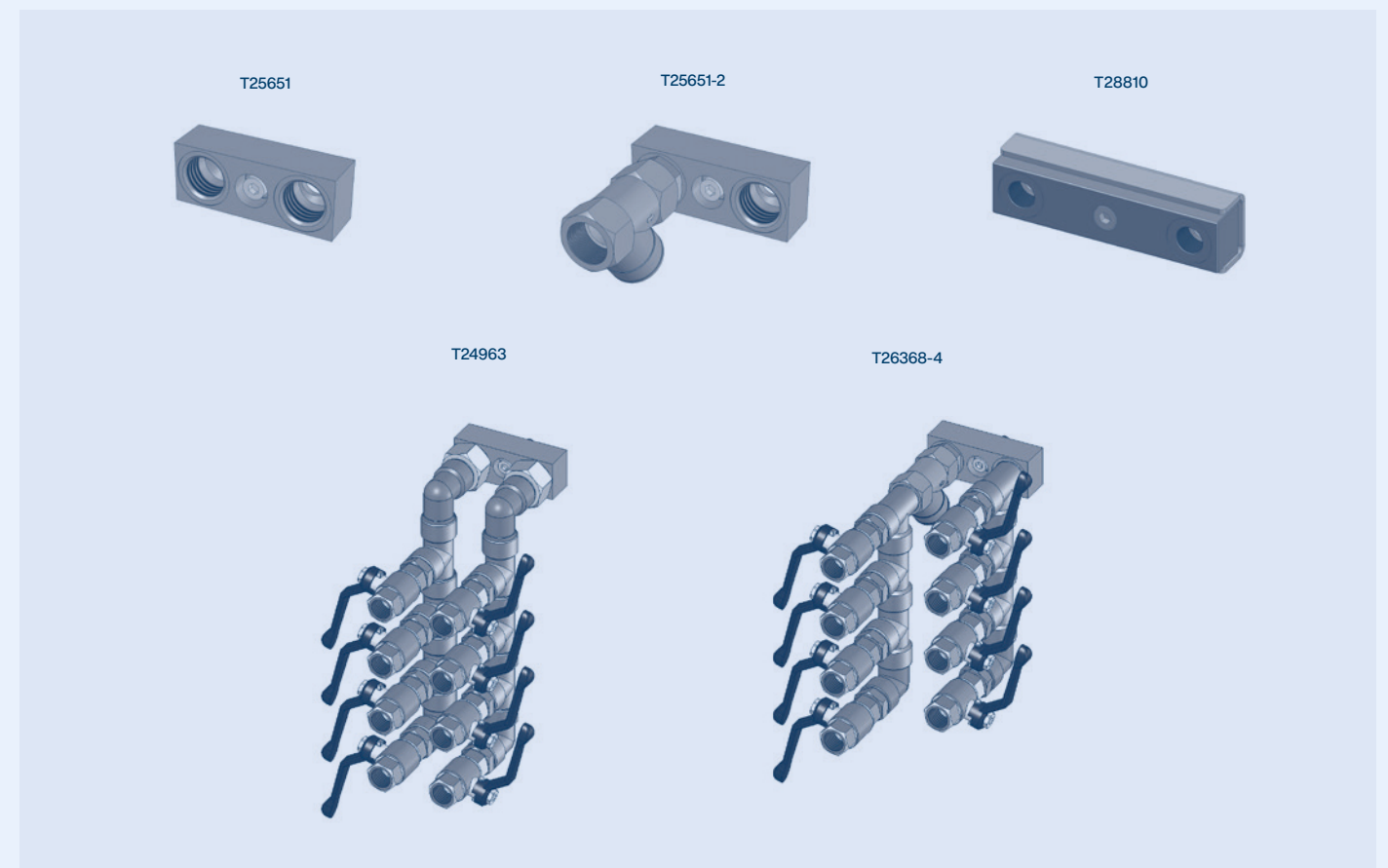
Mains cable		Code
Rubber (H07RN-F)	Length 4 m	Standard
	Length 0,5 to 15 m	C001 'z,z' m
PUR (H07BQ-F)	Length 0,5 to 15 m	C002 'z,z' m
UL	Length 0,5 to 15 m	C003 'z,z' m

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

\* RAL/NCS (matt/glossy)

# Accessories

Hydraulic	O/ID
Adapter for central coupling, main line / return line	T25651
Adapter for central coupling, main line / return line including filter in main line	T25651-2
Adapter for central coupling, cooling water	T28810
4-way manifold with shut-off valves	T24963
4-way manifold with shut-off valves and filter in main line	T26368-4



Electrical
Interface cables, mains connectors and other, refer to accessories program D8064-EN



# 212 °F

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) 1.5 hp; 17.2 gpm, 123 psi	4T	●
Cooling	(40 kW @ 60 K) 11.4 tons @ 108 °F	A2	●
	(60 kW @ 60 K) 17.1 tons @ 108 °F	B2	○*
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	○
Mains voltage			
	460 V (440–480 V ±5 %), 50/60 Hz; 3LPE	466	●
	400 V (380–415 V ±5 %), 50/60 Hz; 3LPE	406	○
	220 V (200–220 V ±5 %), 50/60 Hz; 3LPE	226	○

Ordering example: HB-100Z61-8-4T-A2-ZE-466-English

● Standard specification

○ Optional

\* expected availability: July 2024

Technical data	Type	HB-100Z61	
		Housing size	
		61	62
Maximum main line temperature	°F	212	212
Flow rate measurement	gpm	0.1–15.9	0.1–15.9
Circulating volume in unit	gal	0.37	0.53
Dimensions			
	Height	in	20.1
	Width	in	7.5
	Depth	in	31.2
Weight max.	lbs	122	161
Connection, main line and return line			
	Thread	G¾	
	Resistance	psi, °F	290, 248
Connection, cooling water			
	Pressure	psi	29–72
	Thread	G¾	
	Resistance	psi, °F	145, 212
Connection, separate system water			
	Pressure	psi	29–72
	Thread	G¾	
	Resistance	psi, °F	145, 212
Connection, mould evacuation with compressed air (ZG)			
	Pressure	psi	29–116
	Thread	G¾	
	Resistance	psi, °F	145, 212

# 284 °F

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) 1.5 hp; 17.2 gpm, 123 psi	4S	●
Cooling	(40 kW @ 60 K) 11.4 tons @ 108 °F	A2	●
	(60 kW @ 60 K) 17.1 tons @ 108 °F	B2	○*
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	○
Mains voltage	460 V (440–480 V ±5 %), 50/60 Hz; 3LPE	466	●
	400 V (380–415 V ±5 %), 50/60 Hz; 3LPE	406	○
	220 V (200–220 V ±5 %), 50/60 Hz; 3LPE	226	○

Ordering example: HB-140Z62-16-4S-A2-ZE-466-English

● Standard specification

○ Optional

\* expected availability: July 2024

Technical data	Type	HB-140Z61	
		Housing size 61	62
Maximum main line temperature	*F	284	284
Flow rate measurement	gpm	0.1–15.9	0.1–15.9
Circulating volume in unit	gal	0.37	0.53
Dimensions	Height	in	20.1
	Width	in	7.5
	Depth	in	31.2
Weight max.	lbs	131	172
Connection, main line and return line	Thread	G¾	G¾
	Resistance	psi, °F	290, 320
Connection, cooling water	Pressure	psi	29–72
	Thread		G¾
	Resistance	psi, °F	145, 212
Connection, separate system water	Pressure	psi	29–72
	Thread		G¾
	Resistance	psi, °F	145, 212
Connection, mould evacuation with compressed air (ZG)	Pressure	psi	29–116
	Thread		G¾
	Resistance	psi, °F	145, 212

# 320 °F

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) 1.5 hp; 17.2 gpm, 123 psi	4S	●
Cooling	(40 kW @ 60 K) 11.4 tons @ 108 °F	A2	●
	(60 kW @ 60 K) 17.1 tons @ 108 °F	B2	○*
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	○
Mains voltage	460 V (440–480 V ±5 %), 50/60 Hz; 3LPE	466	●
	400 V (380–415 V ±5 %), 50/60 Hz; 3LPE	406	○
	220 V (200–220 V ±5 %), 50/60 Hz; 3LPE	226	○

Ordering example: HB-160Z61-8-4S-A2-ZB-ZE-466-English

● Standard specification

○ Optional

\* expected availability: July 2024

Technical data	Type	HB-160Z61	
		Housing size 61	62
Maximum main line temperature	*F	320	320
Flow rate measurement	gpm	0.1–15.9	0.1–15.9
Circulating volume in unit	gal	0.37	0.53
Dimensions	Height	in	20.1
	Width	in	7.5
	Depth	in	31.2
Weight max.	lbs	130	172
Connection, main line and return line	Thread	G¾	G¾
	Resistance	psi, °F	290, 356
Connection, cooling water	Pressure	psi	29–72
	Thread		G¾
	Resistance	psi, °F	145, 212
Connection, separate system water	Pressure	psi	29–72
	Thread		G¾
	Resistance	psi, °F	145, 212
Connection, mould evacuation with compressed air (ZG)	Pressure	psi	29–116
	Thread		G¾
	Resistance	psi, °F	145, 212

# Heating Capacity

### Electricity Supply

We recommend using a Class B Ground Fault Circuit Interrupter (GFCI), as the temperature control units are equipped with a frequency converter. Class A GFCIs 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 <sup>2</sup> (AWG 12)	3x32 A; 6 mm <sup>2</sup> (AWG 10)
16 kW	3x32 A; 6 mm <sup>2</sup> (AWG 10)	3x63 A; 16 mm <sup>2</sup> (AWG 6)

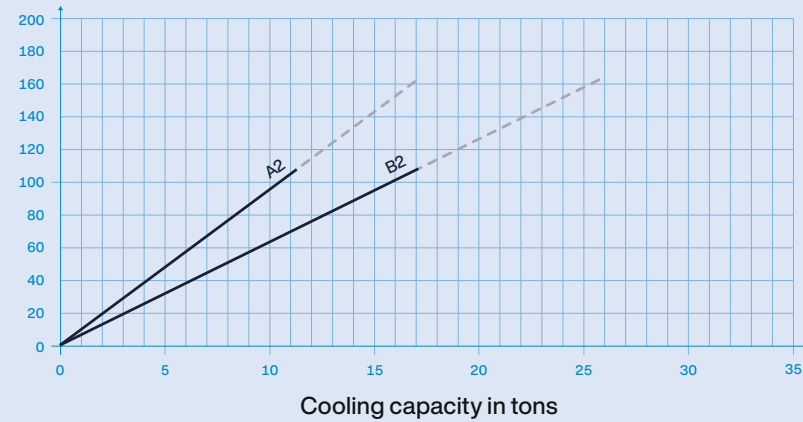
# Cooling Capacity

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

Cooling water quantity at 29 psi:

- A2 3.7 gpm
- B2 5 gpm

Attainable practical values

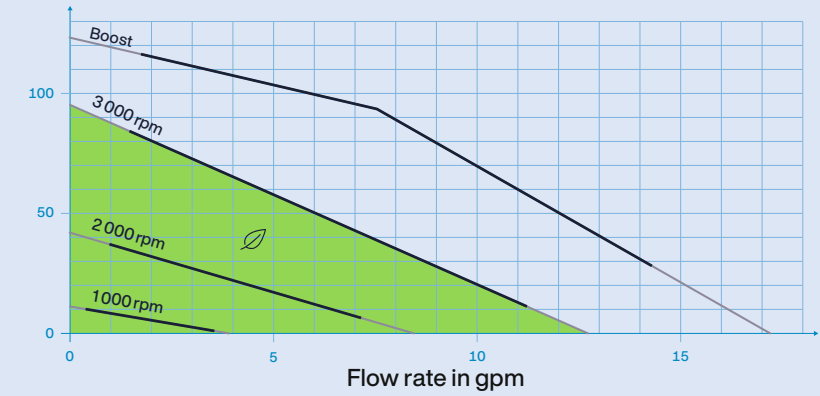


# Pump Capacity Curve

### Hydraulic

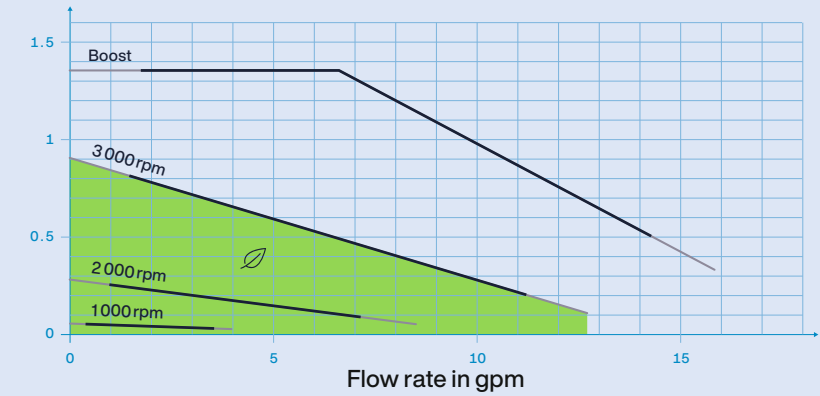
Pressure of pump 4T/4S in psi

Attainable practical values at water 104 °F and acceleration due to gravity

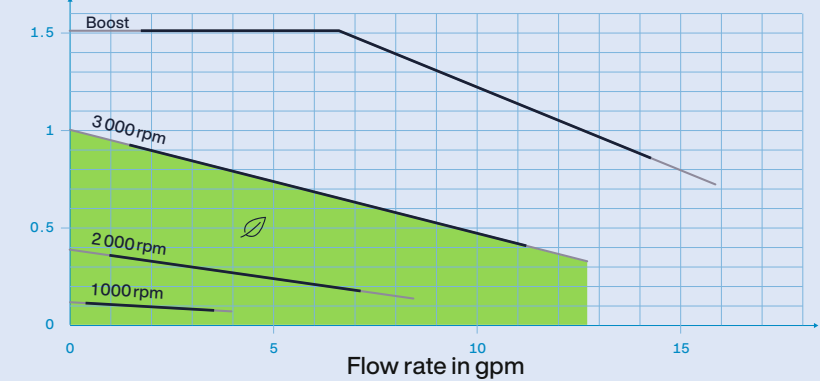


### Electrical

Power of pump 4T in kW

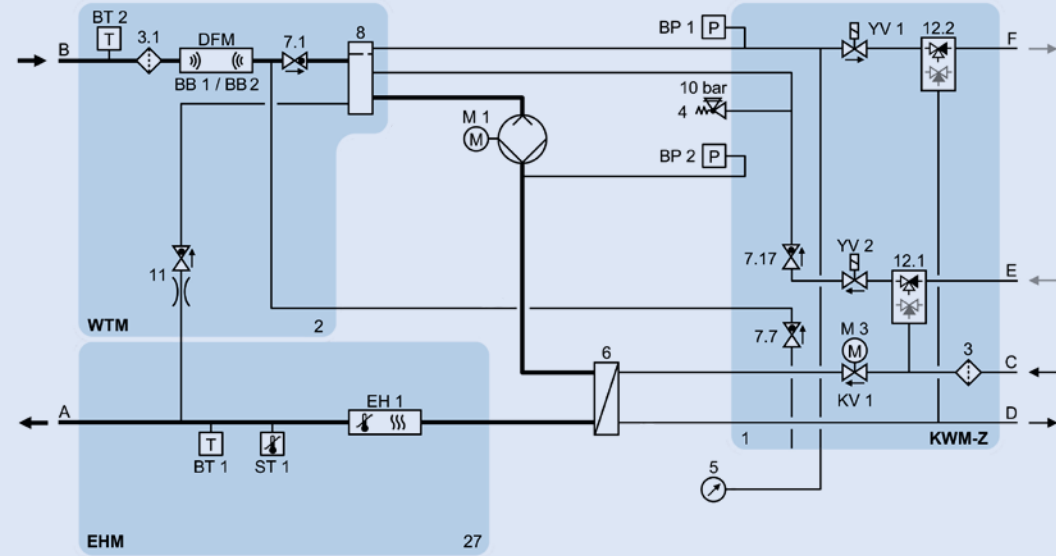


Power of pump 4S in kW

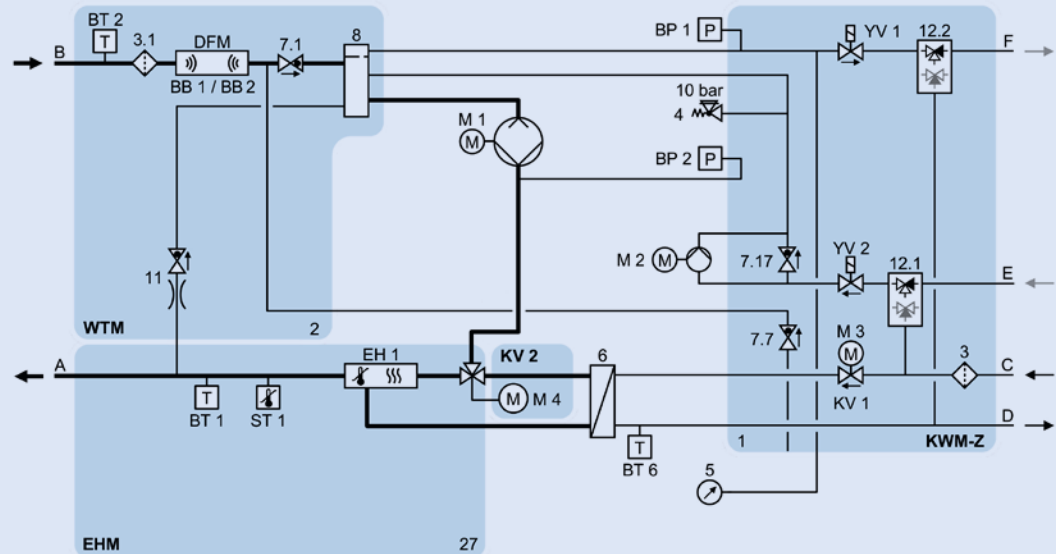


# Hydraulics

HB-100Z61/62



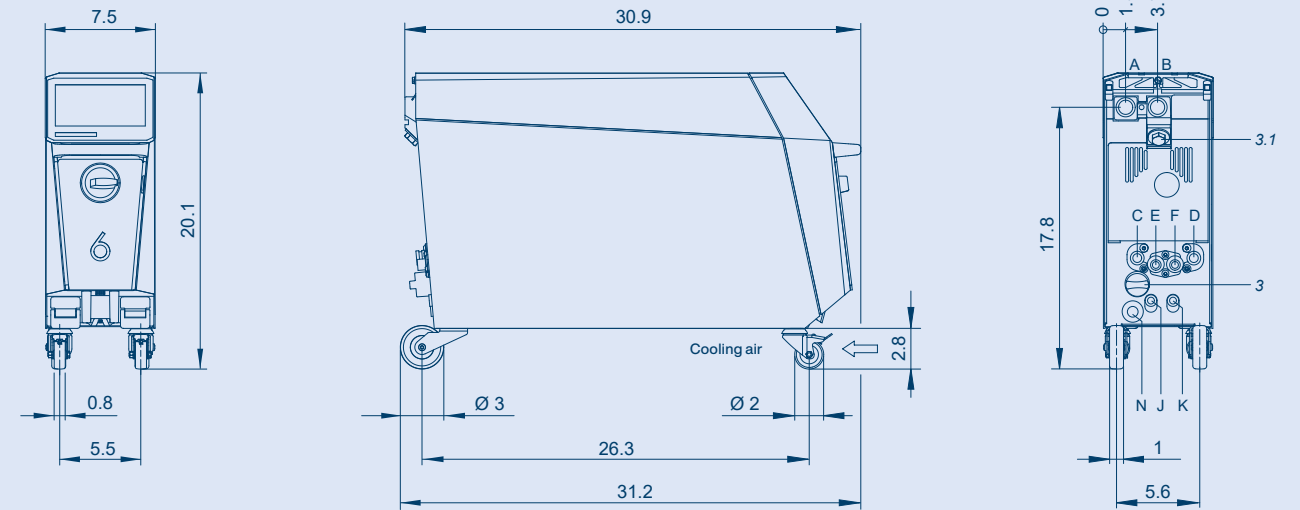
HB-140/160Z61/62



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

# Dimensions

HB-100/140/160Z61



- A Main line
- B Return line
- C Cooling water inlet
- D Cooling water outlet

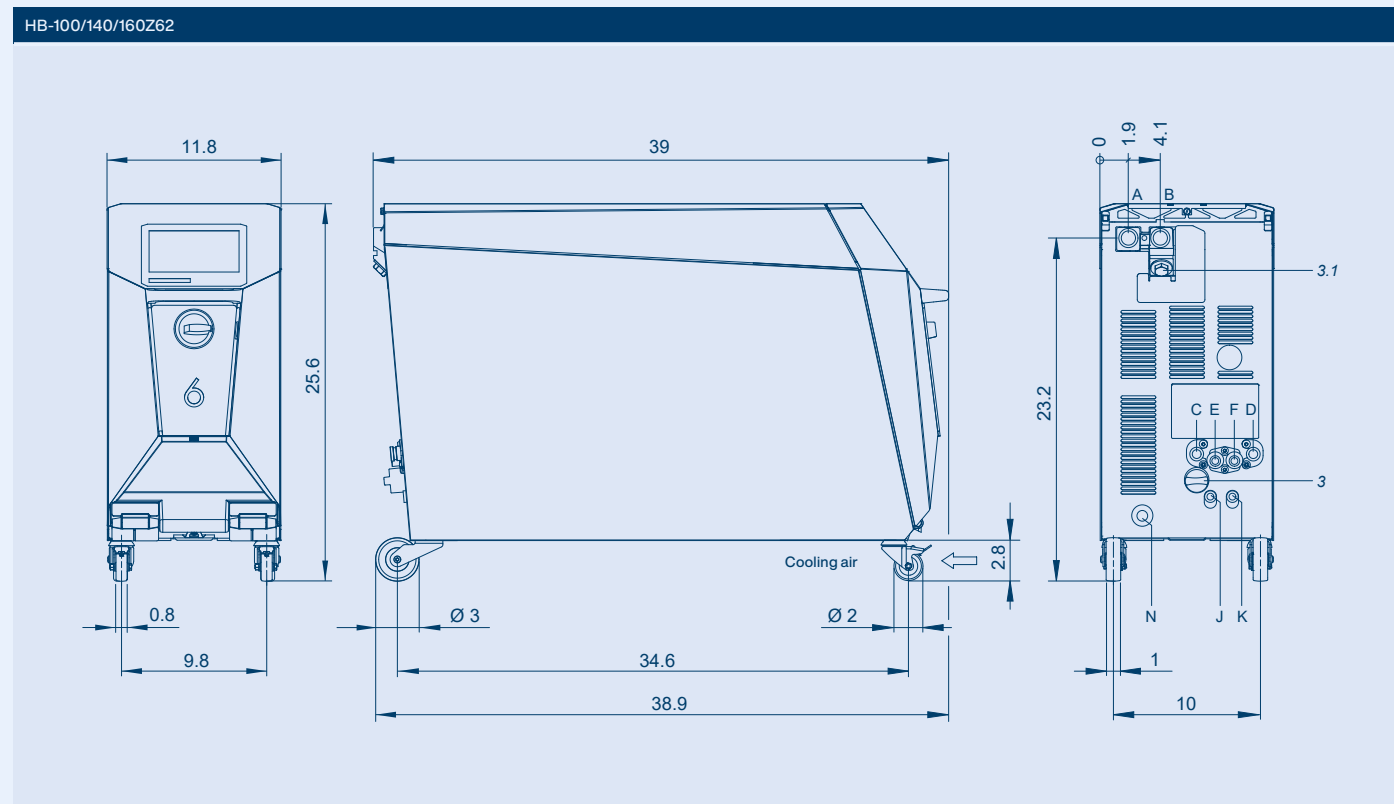
- E System water inlet
- F System water outlet
- J Compressed air inlet (ZG)

- K Compressed air outlet (ZG)
- N Mains connection cable

- 3 Filter cooling water inlet
- 3.1 Filter return line



3D product models



HB-100/140/160Z62



3D product models



# General Technical Data

Feature		Data
Mains cable to unit		3LPE, 4 m (13.1 ft)
Environment	Temperature range	41–104 °F
	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 1 000) '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 (compliance with relevant CE directives)
Temperature measurement	Resolution	0.1 °F
	Control accuracy	±0.1 °F
	Tolerance	±0.8 °F
Flow rate measurement	Resolution	0.1 gpm
	Tolerance	±(5 % of measured value + 0.026 gpm)
Pump pressure indicator	Tolerance	±10 % of rated value





# Standard Equipment

Topic		Feature
Functions		Communication with e-cockpit 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	OPC UA interface (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 1 socket RJ-45 (female)
	USB	For service purposes USB-A
	Bluetooth  , WiFi 	Interface for communication with e-cockpit app (range approx. 33 ft)

# 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)

\* on request



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

Designation	Code	Type HB-GATE61
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

\* on request

# Accessories

Topic	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.

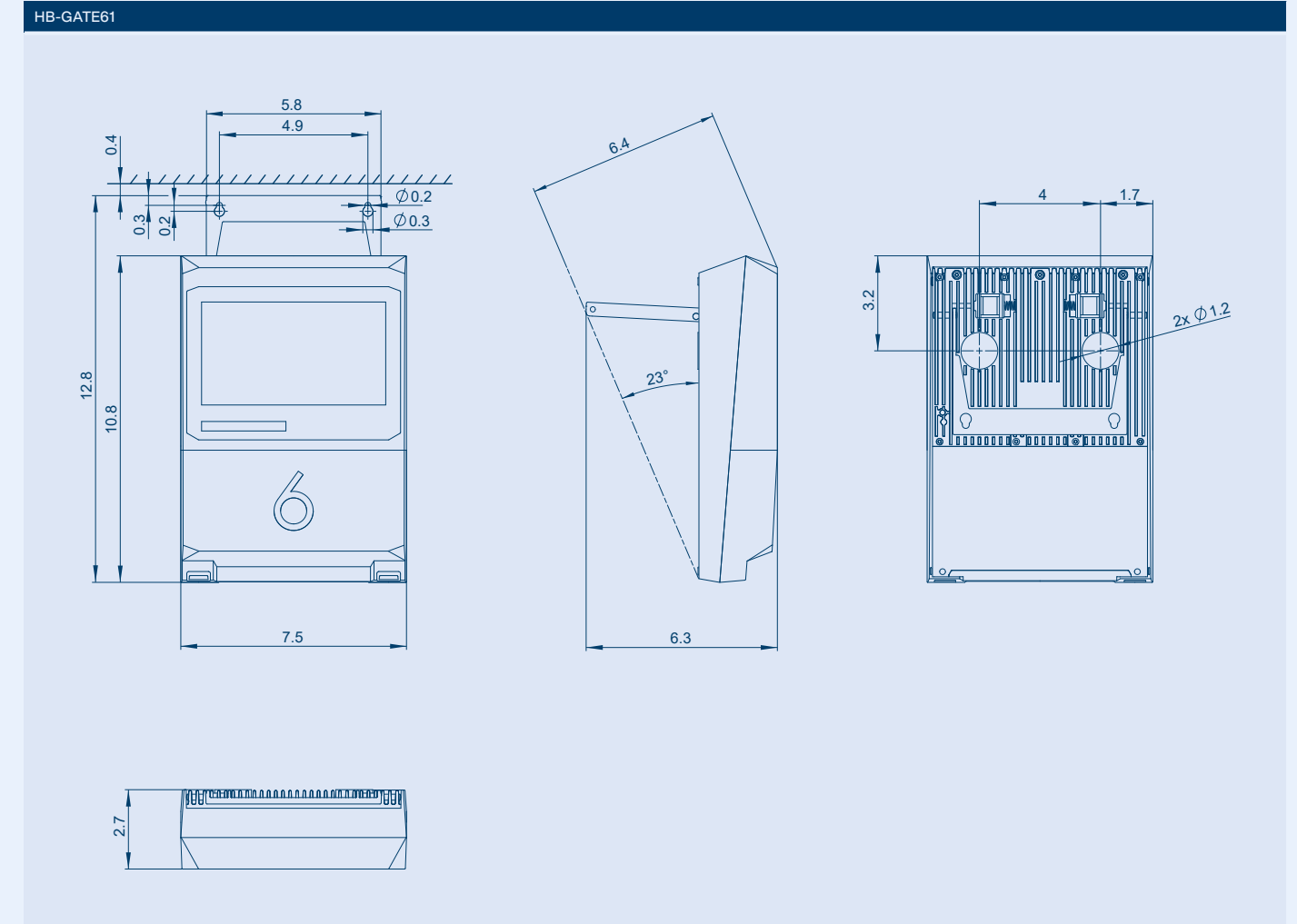
# Service Package

Package	Content
Remote	Remote Control: Remote control via e-cockpit app using a mobile input device (Android) Remote Access: External access to the unit from any e-mail address

# General Technical Data

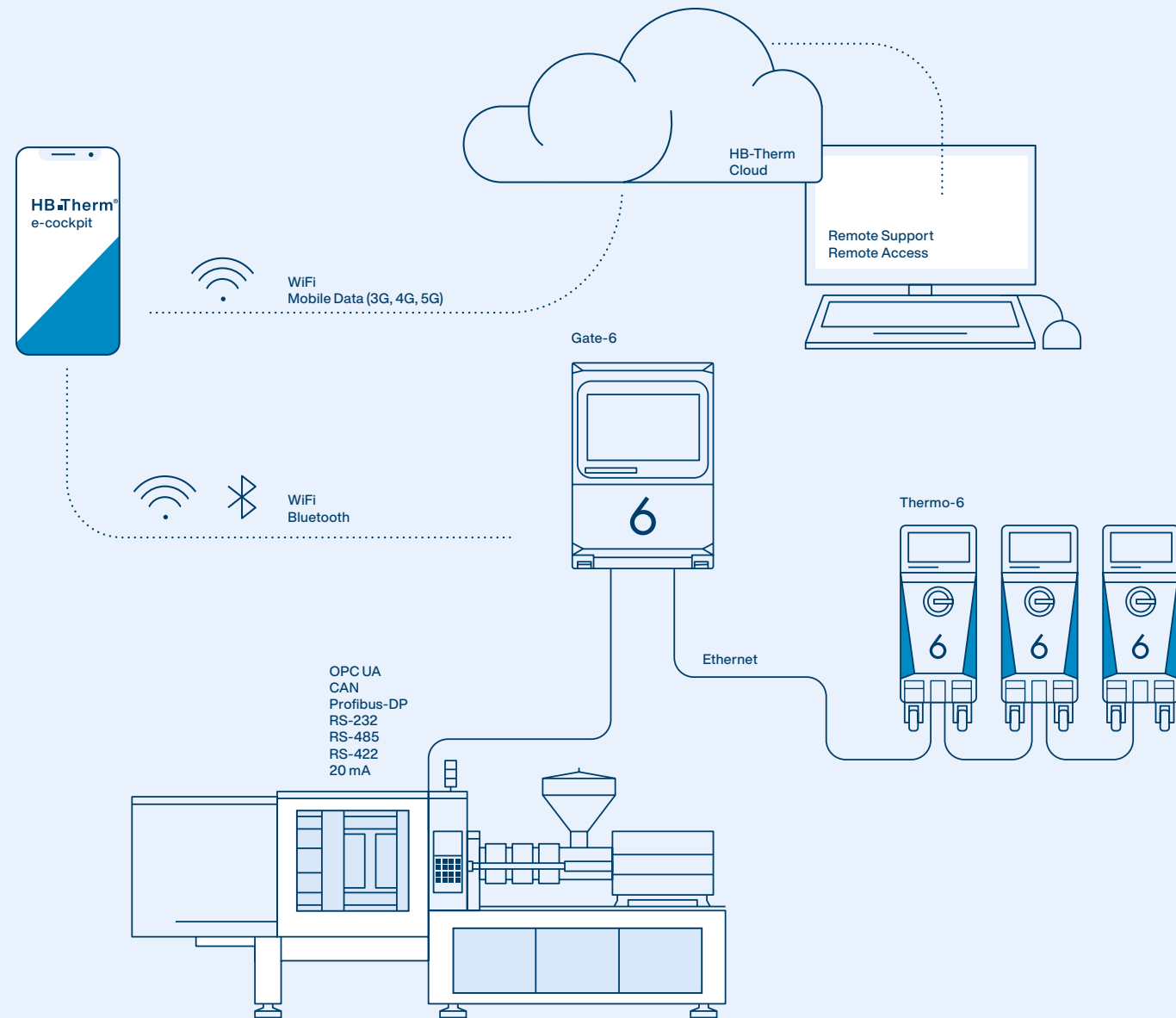
Feature	Data	
Power supply *	24 VDC, 30 W	
Environment	Temperature range	41–104 °F
	Relative humidity	35–85 % RH (non-condensing)
Colour	Top covers	RAL 9011 (matt graphite black)
	Cover bottom	RAL 7035 (light grey matt)
Dimensions	Height	10.9 in
	Width	7.5 in
	Depth	2.7 in
Weight max.	4 lbs	
Protection class	IP 44	
Cleanroom capability	ISO class 6 (class 1 000)	
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 (compliance with relevant CE directives)	

# Dimensions



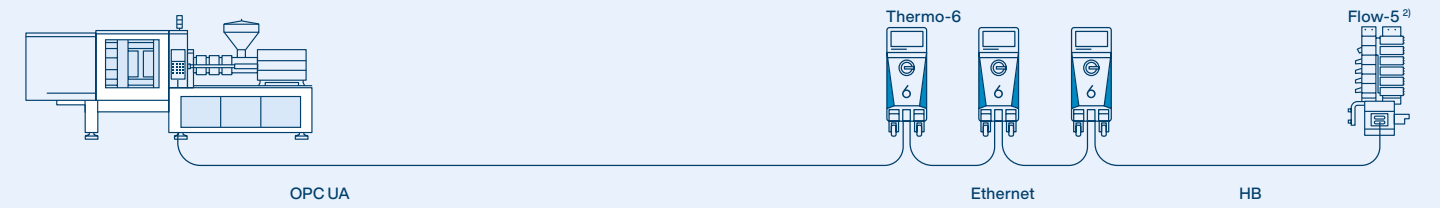
3D product models

# The world of Thermo-6 with Gate-6



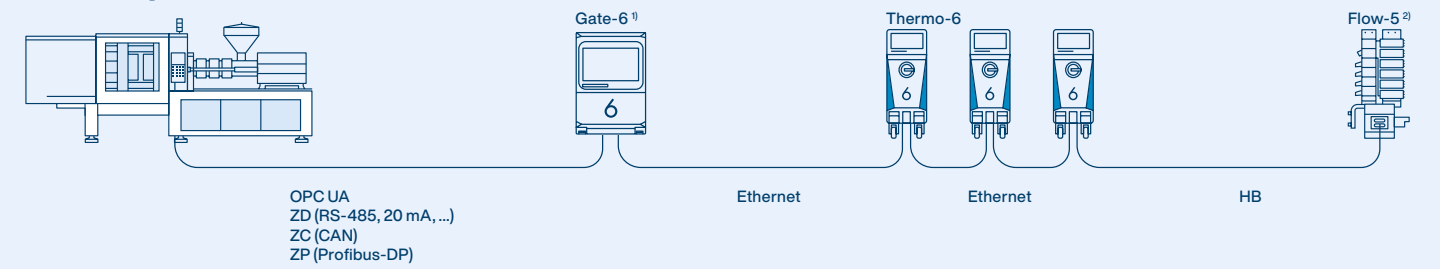
## Example 1

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



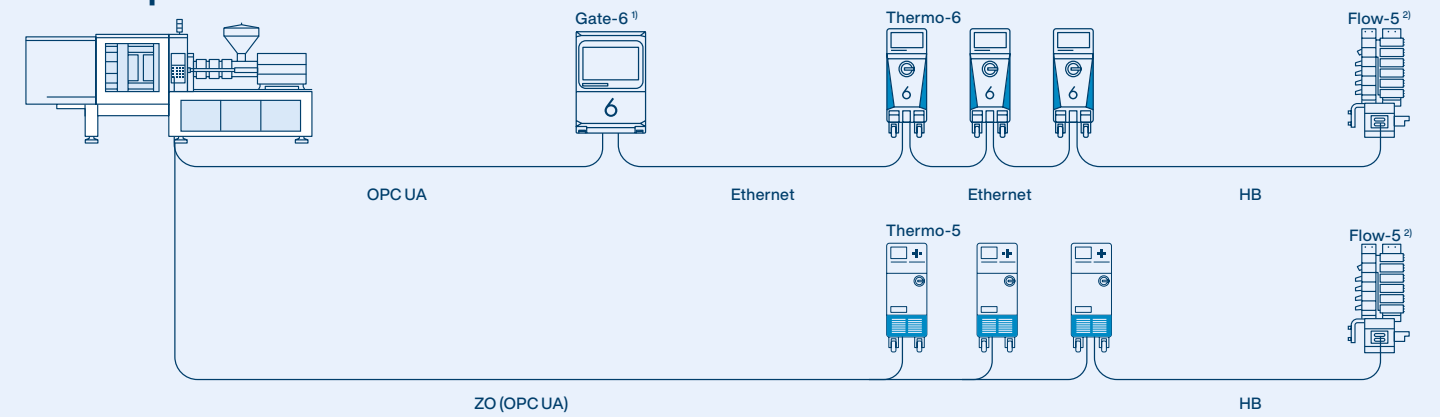
## Example 2

Gate-6 and Thermo-6 with any interface



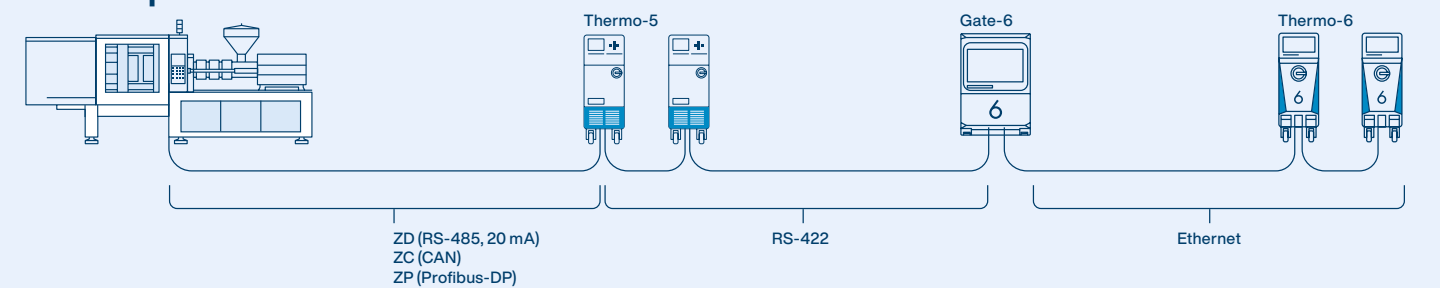
## Example 3

Thermo-5 and Thermo-6 with OPC UA



## Example 4

Thermo-5 and Thermo-6 with any interface



<sup>1)</sup> optional with OPC UA

<sup>2)</sup> possible connection Flow-5: Thermo-6, Thermo-5, Panel-5



HB-Therm AG  
St. Gallen, Switzerland

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