HB-Therm®
THERMO-5

Temperature Control Units

Product Catalogue 2025-02

Temperature Control Units Thermo-5

HB-Therm®
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
- ±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

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...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

* Some features may not apply, depending on the model

Some models of Thermo-5 temperature control units have already been replaced by the latest Thermo-6 generation.

Standard Equipment

Hydraulics		Closed system without oxygen contact, with efficient automatic deaeration, automatic filling
		Temperature measurement in main line and return line with sensor Pt 1000
		Continuous maintenance-free ultrasonic flow meter
		Low-scaling and pressure shock-free cooling with cooling water filter and proportional valve
		Proportionally controlled cooler bypass (on units over 100 °C)
		Sealless pump in stainless steel
		Hydraulic circuit made of non-corroding materials
		Heating elements without direct contact to the heat transfer medium
		Easy to modify for separate supply of system water (on water units)
		Booster pump for system filling (on water units over 100 °C)
		Controlled superimposed system pressure (on water units)
		Bypass and return line filter
		Heat transfer circuit with superimposed cold oil (on oil units)
		Tank with level measuring for expansion and mould evacuation (on oil units)
Functions		Mould emptying by pump reversal (not possible with: **8R**)
		Even load distribution at all heating stages with solid-state relays
		Auto-tuning cascade control
		Control on either main line or return line (or external sensor **ZE**)
		Cooling with automatic switch-off programme
		Changeover to 2nd nominal value
		Nominal value ramp and ramp programme
		Cyclical system water exchange (selectable)
Monitoring / Safety		Automatic limit value setting
		Monitoring of various process parameters
		Hose rupture and leakage monitor
		Sensor failure monitor
		Pump and heater current monitor
		Dry-running protection
		Triple safety cut-out for heating
		Pressure enabling with device OFF (not possible with: **8R**)
		Safety relief valve and pressure gauge on rear of unit
		Automatic phase direction adaptation and phase monitor
		Lockable and abrasion resistant castors (PUR)
Command / Display		TFT-Colour display 3,5” with interactive user guidance in 21 languages
		Help button with context sensitive information
		Display of flow rate, pump pressure, process power and energie savings
		Large choice of display windows and values
		Temperature display in 0,1 °C
		Units of measurement for temperature, flow rate and pressure can be set
		Visual and acoustic alarms; volume adjustable
		Store function for mould specific parameters
		Display of date and time
		Timer
		Operating hours counter and service interval display
		Logbook for alarms
		Data input password protected
Interfaces	USB	Connection (Host/Device) for software updates, parameter transfer and data recording
	HB	HB-Therm data interface CAN to connect modular units, flow meters Flow-5 and switching units Vario-5 (1 socket Sub-D 15 pin, female)

Note: Modular units do not have a proper command

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Additional Equipment

ZL	**Leak stopper**	With automatic vacuum optimisation (up to 70 °C; not possible with: **B2**)
ZB	**Connection for alarm and external control**	Alarm using potential-free contact (rating max. 250 VAC, 4 A)
		Unit ON/OFF, ramp programme ON/OFF and switching nominal value 1 or 2 using potential-free contact
		1 socket Harting Han 7D (male), connecting cable 6 m with plug included
ZE	**Connection for external sensor**	Thermocouple type J, K, T or Pt 100 in 3-wire system, with selectable production detector
		1 socket Audio 5 pin (female), connector 90° (male) included
ZD	**Interface DIGITAL**	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
		2 sockets Sub-D 25 pin (female)
ZC	**Interface CAN**	Serial data interface CAN-bus (Sumitomo Demag) and CANopen (EUROMAP 66; Netstal, etc.)
		To remotely control singular units
		2 sockets Sub-D 9 pin (1 male and 1 female)
ZO	**Interface OPC UA**	Ethernet interface (EUROMAP 82.1)
		1 socket RJ-45 (female)
ZP	**Interface PROFIBUS-DP**	Serial data interface PROFIBUS-DP
		1 Sub-D 9-pin socket (not possible with: **ZC**)
ZU	**Pump status monitor**	Additional pressure sensor in main line
ZK	**Keyboard-protection**	Transparent flap over display and controls
ZR	**Clean room package**	Clean room capable version: ‘At Rest’ < ISO class 6 (class 1 000) ‘In Operation’ ISO class 7 (class 10 000)
		Fibre-free insulation
ZG	**Mould evacuation with compressed air**	Replaces mould evacuation by pump reversal
		Connection, compressed air (P. 16, Fig. 5)
		Pressure: 2–8 bar; Thread: G¼; Resistance: 10 bar, 100 °C

Singular unit

Modular unit

Temperature control units Thermo-5 are available as singular or modular units. Contrary to singular units, modular units do not have a proper command and display. They can only be controlled via a singular unit or a control module Panel-5 but thus enable a common changing of parameters as well as a remote control. The units are linked to the master and among each other always via the interface HB. Further, modular units have a cost advantage over the singular units and are distinguished from the latter by adding the letter M to the unit designation (e. g. HB-140Z**M**2).

Communication (P. 13, Fig. 1)

100 °C

Single units
Water, direct cooling

Temperature control unit	Heat transfer medium		Water					
	Cooling		Direct					
Type	with maximum main line temperature in °C		**HB-100X**					
	Housing size (P. 16, Fig. 5)		**1**	**1L**	**2**	**2L**	**3**	**4**
Heating (P. 14, Fig. 2)	kW	**8**	●	●				
		16			●	●	●	●
		32					○	○
Pump	sealless, stainless; 0,5 kW; 30 L/min, 52 m	**2M**	●		●			
(P. 14, Fig. 3)	sealless, stainless; 1,0 kW; 50 L/min, 70 m	**4M**	○		○[1]		○	
Eco-pump,	sealless, stainless; 1,1 kW; 60 L/min, 70 m	**4S**		●		●		
	stainless; 2,8 kW; 110 L/min, 70 m	**6G**					●	
	sealless, stainless; 2,8 kW; 110 L/min, 70 m	**6M**					○	
	stainless; 3,5 kW; 160 L/min, 70 m	**8G**					○	
	sealless, stainless; 3,5 kW; 160 L/min, 70 m	**8M**					○	
Eco-pump,	sealless, stainless; 2,2 kW; 220 L/min, 65 m	**8R**						●
Cooling (P. 15, Fig. 4)	38 kW @ 60 K	**B1**	●	●	●	●		
	110 kW @ 60 K	**E1**					●	●
Additional Equipment								
	Connection for alarm and external control	**ZB**	○	○	○	○	○	○
	Connection for external sensor	**ZE**	○	○	○	○	○	○
	Interface DIGITAL	**ZD**	○	○	○	○	○	○
	Interface CAN	**ZC**	○	○	○	○	○	○
	Interface OPC UA	**ZO**	○	○	○	○	○	○
	Interface PROFIBUS-DP	**ZP**	○	○	○	○	○	○
	Pump status monitor	**ZU**	○	●	○	●	○	●
	Keyboard-protection	**ZK**	○	○	○	○	○	○
	Clean room package	**ZR**	○	○	○	○	○	○
	Mould evacuation with compressed air	**ZG**	○[2]	○[2]	○[2]	○[2]	○[2]	○[2]
Mains voltage	400 V (380–415 V), 50 Hz; 3LPE	**405**	●	●	●	●	●	●
	400 V (380–415 V), 60 Hz (50/60 Hz); 3LPE	**406**	○	○	○	○	○	○
	210 V (200–220 V), 50 Hz; 3LPE	**215**	○	○	○	○	○	○
	210 V (200–220 V), 60 Hz (50/60 Hz); 3LPE	**216**	○	○	○	○	○	○
	460 V (440–480 V), 60 Hz; 3LPE	**466**	○	○	○	○	○	○

Ordering example: HB-100X2L-16-4S-B1-ZD, 405, English

● Standard specification ○ Optional [1] Typical specification
[2] Only possible through the cooling water outlet
□ replaced by Thermo-6

Maximum main line temperature		°C	100	100	100	100	100	100
Flow rate measurement	Measuring range	L/min	0,4–40	0,4–40	0,4–40	0,4–40	2–160	2–200
Circulating volume in unit	approx.	L	1,0	1,0	1,6	1,6	6,5	6,5
Dimensions (P. 16, Fig. 5)	Height	mm	510	510	700	700	850	650
	Width	mm	180	180	240	240	300	400
	Depth	mm	661	731	661	731	982	1065
Weight max.		kg	50	55	62	68	136	140
Connection, main line and return line	Thread		G¾	G¾	G¾	G¾	G1 ¼	G1 ¼
	Resistance	bar, °C	20, 120	20, 120	20, 120	20, 120	20, 120	20, 120
Connection, cooling water	Pressure	bar	2–5	2–5	2–5	2–5	2–5	2–5
	Thread		G⅜	G⅜	G⅜	G⅜	G¾	G¾
	Resistance	bar, °C	10, 100	10, 100	10, 100	10, 100	10, 100	10, 100
Connection, drain	Thread		G⅜	G⅜	G⅜	G⅜	G½	G½

100 °C

Single units
Water, indirect cooling

Temperature control unit	Heat transfer medium		Water					
	Cooling		Indirect					
Type	with maximum main line temperature in °C		**HB-100Z**					
	Housing size (P. 16, Fig. 5)		**1**	**1L**	**2**	**2L**	**3**	**4**
Heating (P. 14, Fig. 2)	kW	**8**	●	●				
		16			●	●	●	●
		32					○	○
Pump	sealless, stainless; 0,5 kW; 30 L/min, 52 m	**2M**	●		●			
(P. 14, Fig. 3)	sealless, stainless; 1,0 kW; 50 L/min, 70 m	**4M**	○		○[1]		○	
Eco-pump,	sealless, stainless; 1,1 kW; 60 L/min, 70 m	**4S**		●		●		
	stainless; 2,8 kW; 110 L/min, 70 m	**6G**					●	
	sealless, stainless; 2,8 kW; 110 L/min, 70 m	**6M**					○	
	stainless; 3,5 kW; 160 L/min, 70 m	**8G**					○	
	sealless, stainless; 3,5 kW; 160 L/min, 70 m	**8M**					○	
Eco-pump,	sealless, stainless; 2,2 kW; 220 L/min, 65 m	**8R**						●
Cooling (P. 15, Fig. 4)	30 kW @ 60 K	**A2**	●	●	●	●		
	50 kW @ 60 K	**B2**	○	○	○	○		
	90 kW @ 60 K	**C2**					●	●
Additional Equipment	Leak stopper	**ZL**	○[3]	○[3]	○[3]	○[3]		
	Connection for alarm and external control	**ZB**	○	○	○	○	○	○
	Connection for external sensor	**ZE**	○	○	○	○	○	○
	Interface DIGITAL	**ZD**	○	○	○	○	○	○
	Interface CAN	**ZC**	○	○	○	○	○	○
	Interface OPC UA	**ZO**	○	○	○	○	○	○
	Interface PROFIBUS-DP	**ZP**	○	○	○	○	○	○
	Pump status monitor	**ZU**	○	●	○	●	○	●
	Keyboard-protection	**ZK**	○	○	○	○	○	○
	Clean room package	**ZR**	○	○	○	○	○	○
	Mould evacuation with compressed air	**ZG**	○	○	○	○	○	○
Mains voltage	400 V (380–415 V), 50 Hz; 3LPE	**405**	●	●	●	●	●	●
	400 V (380–415 V), 60 Hz (50/60 Hz); 3LPE	**406**	○	○	○	○	○	○
	210 V (200–220 V), 50 Hz; 3LPE	**215**	○	○	○	○	○	○
	210 V (200–220 V), 60 Hz (50/60 Hz); 3LPE	**216**	○	○	○	○	○	○
	460 V (440–480 V), 60 Hz; 3LPE	**466**	○	○	○	○	○	○

Ordering example: HB-100Z2L-16-4S-B2-ZE, 405, English

● Standard specification ○ Optional [1] Typical specification
[3] Not possible with: **B2** □ replaced by Thermo-6

Maximum main line temperature		°C	100	100	100	100	100	100
Flow rate measurement	Measuring range	L/min	0,4–40	0,4–40	0,4–40	0,4–40	2–160	2–200
Circulating volume in unit	approx.	L	1,2	1,2	1,8	1,8	6,5	6,5
Dimensions (P. 16, Fig. 5)	Height	mm	510	510	700	700	850	650
	Width	mm	180	180	240	240	300	400
	Depth	mm	661	731	661	731	982	1065
Weight max.		kg	52	57	64	70	147	150
Connection, main line and return line	Thread		G¾	G¾	G¾	G¾	G1 ¼	G1 ¼
	Resistance	bar, °C	20, 120	20, 120	20, 120	20, 120	20, 120	20, 120
Connection, cooling water	Pressure	bar	2–5	2–5	2–5	2–5	2–5	2–5
	Thread		G⅜	G⅜	G⅜	G⅜	G¾	G¾
	Resistance	bar, °C	10, 100	10, 100	10, 100	10, 100	10, 100	10, 100
Connection, separate system water	Pressure	bar	2–5	2–5	2–5	2–5	2–5	2–5
	Thread		G¼	G¼	G¼	G¼	G½	G½
	Resistance	bar, °C	10, 100	10, 100	10, 100	10, 100	10, 100	10, 100
Connection, drain	Thread		G⅜	G⅜	G⅜	G⅜	G½	G½

140 °C

Single units
Water, indirect cooling

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Temperature control unit	Heat transfer medium		Water					
	Cooling		Indirect					
Type	with maximum main line temperature in °C		**HB-140Z**					
	Housing size (P. 16, Fig. 5)		**1**	**1L**	**2**	**2L**	**3**	**4**
Heating (P. 14, Fig. 2)	kW	**8**	●	●				
		16			●	●	●	●
		32					○	○
Pump	sealless, stainless; 0,5 kW; 30 L/min, 52 m	**2M**	●		●			
(P. 14, Fig. 3)	sealless, stainless; 1,0 kW; 50 L/min, 70 m	**4M**	○		○[1]		○	
Eco-pump,	sealless, stainless; 1,1 kW; 60 L/min, 70 m	**4S**		●		●		
	stainless; 2,8 kW; 110 L/min, 70 m	**6G**					●	
	sealless, stainless; 2,8 kW; 110 L/min, 70 m	**6M**					○	
	stainless; 3,5 kW; 160 L/min, 70 m	**8G**					○	
	sealless, stainless; 3,5 kW; 160 L/min, 70 m	**8M**					○	
Eco-pump,	sealless, stainless; 2,2 kW; 220 L/min, 65 m	**8R**						●
Cooling (P. 15, Fig. 4)	30 kW @ 60 K	**A2**	●	●	●	●	●	
	50 kW @ 60 K	**B2**			○	○	○	●
	90 kW @ 60 K	**C2**					○	○
Additional Equipment	Leak stopper	**ZL**	○	○	○[3]	○[3]		
	Connection for alarm and external control	**ZB**	○	○	○	○	○	○
	Connection for external sensor	**ZE**	○	○	○	○	○	○
	Interface DIGITAL	**ZD**	○	○	○	○	○	○
	Interface CAN	**ZC**	○	○	○	○	○	○
	Interface OPC UA	**ZO**	○	○	○	○	○	○
	Interface PROFIBUS-DP	**ZP**	○	○	○	○	○	○
	Pump status monitor	**ZU**	○	●	○	●	○	●
	Keyboard-protection	**ZK**	○	○	○	○	○	○
	Clean room package	**ZR**	○	○	○	○	○	○
	Mould evacuation with compressed air	**ZG**	○	○	○	○	○	○
Mains voltage	400 V (380–415 V), 50 Hz; 3LPE	**405**	●	●	●	●	●	●
	400 V (380–415 V), 60 Hz (50/60 Hz); 3LPE	**406**	○	○	○	○	○	○
	210 V (200–220 V), 50 Hz; 3LPE	**215**	○	○	○	○	○	○
	210 V (200–220 V), 60 Hz (50/60 Hz); 3LPE	**216**	○	○	○	○	○	○
	460 V (440–480 V), 60 Hz; 3LPE	**466**	○	○	○	○	○	○

Ordering example: HB-140Z2L-16-4S-A2-ZE-ZD, 405, English

● Standard specification ○ Optional [1] Typical specification
[3] Not possible with: **B2** □ replaced by Thermo-6

Maximum main line temperature		°C	140	140	140	140	140	140
Flow rate measurement	Measuring range	L/min	0,4–40	0,4–40	0,4–40	0,4–40	2–160	2–200
Circulating volume in unit	approx.	L	1,5	1,5	2,1	2,1	6,5	6,5
Dimensions (P. 16, Fig. 5)	Height	mm	510	510	700	700	850	650
	Width	mm	180	180	240	240	300	400
	Depth	mm	661	731	661	731	982	1065
Weight max.		kg	55	60	67	73	155	160
Connection, main line and return line	Thread		G¾	G¾	G¾	G¾	G1 ¼	G1 ¼
	Resistance	bar, °C	20, 160	20, 160	20, 160	20, 160	20, 160	20, 160
Connection, cooling water	Pressure	bar	2–5	2–5	2–5	2–5	2–5	2–5
	Thread		G⅜	G⅜	G⅜	G⅜	G¾	G¾
	Resistance	bar, °C	10, 100	10, 100	10, 100	10, 100	10, 100	10, 100
Connection, separate system water	Pressure	bar	2–5	2–5	2–5	2–5	2–5	2–5
	Thread		G¼	G¼	G¼	G¼	G½	G½
	Resistance	bar, °C	10, 100	10, 100	10, 100	10, 100	10, 100	10, 100
Connection, drain	Thread		G⅜	G⅜	G⅜	G⅜	G½	G½

160 °C

Single units
Water, indirect cooling

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Temperature control unit	Heat transfer medium		Water					
	Cooling		Indirect					
Type	with maximum main line temperature in °C		**HB-160Z**					
	Housing size (P. 16, Fig. 5)		**1**	**1L**	**2**	**2L**	**3**	**4**
Heating (P. 14, Fig. 2)	kW	**8**	●	●				
		16			●	●	●	●
		32					○	○
Pump	sealless, stainless; 0,5 kW; 30 L/min, 52 m	**2M**	●		●			
(P. 14, Fig. 3)	sealless, stainless; 1,0 kW; 50 L/min, 70 m	**4M**	○		○[1]		●	
Eco-pump,	sealless, stainless; 1,1 kW; 60 L/min, 70 m	**4S**		●		●		
	sealless, stainless; 2,8 kW; 110 L/min, 70 m	**6M**					○[1]	
	sealless, stainless; 3,5 kW; 160 L/min, 70 m	**8M**					○	
Eco-pump,	sealless, stainless; 2,2 kW; 220 L/min, 65 m	**8R**						●
Cooling (P. 15, Fig. 4)	30 kW @ 60 K	**A2**	●	●	●	●	●	
	50 kW @ 60 K	**B2**			○	○	○	●
	90 kW @ 60 K	**C2**					○	○
Additional Equipment	Leak stopper	**ZL**	○	○	○[3]	○[3]		
	Connection for alarm and external control	**ZB**	○	○	○	○	○	○
	Connection for external sensor	**ZE**	○	○	○	○	○	○
	Interface DIGITAL	**ZD**	○	○	○	○	○	○
	Interface CAN	**ZC**	○	○	○	○	○	○
	Interface OPC UA	**ZO**	○	○	○	○	○	○
	Interface PROFIBUS-DP	**ZP**	○	○	○	○	○	○
	Pump status monitor	**ZU**	○	●	○	●	○	●
	Keyboard-protection	**ZK**	○	○	○	○	○	○
	Clean room package	**ZR**	○	○	○	○	○	○
	Mould evacuation with compressed air	**ZG**	○	○	○	○	○	○
Mains voltage	400 V (380–415 V), 50 Hz; 3LPE	**405**	●	●	●	●	●	●
	400 V (380–415 V), 60 Hz (50/60 Hz); 3LPE	**406**	○	○	○	○	○	○
	210 V (200–220 V), 50 Hz; 3LPE	**215**	○	○	○	○	○	○
	210 V (200–220 V), 60 Hz (50/60 Hz); 3LPE	**216**	○	○	○	○	○	○
	460 V (440–480 V), 60 Hz; 3LPE	**466**	○	○	○	○	○	○

Ordering example: HB-160Z4-16-8R-B2-ZE-ZD, 405, English

● Standard specification ○ Optional [1] Typical specification
[3] Not possible with: **B2** □ replaced by Thermo-6

Maximum main line temperature		°C	160	160	160	160	160	160
Flow rate measurement	Measuring range	L/min	0,4–40	0,4–40	0,4–40	0,4–40	2–160	2–200
Circulating volume in unit	approx.	L	1,5	1,5	2,1	2,1	6,5	6,5
Dimensions (P. 16, Fig. 5)	Height	mm	510	510	700	700	850	650
	Width	mm	180	180	240	240	300	400
	Depth	mm	661	731	661	731	982	1065
Weight max.		kg	57	62	69	75	155	160
Connection, main line and return line	Thread		G¾	G¾	G¾	G¾	G1 ¼	G1 ¼
	Resistance	bar, °C	20, 180	20, 180	20, 180	20, 180	20, 180	20, 180
Connection, cooling water	Pressure	bar	2–5	2–5	2–5	2–5	2–5	2–5
	Thread		G⅜	G⅜	G⅜	G⅜	G¾	G¾
	Resistance	bar, °C	10, 100	10, 100	10, 100	10, 100	10, 100	10, 100
Connection, separate system water	Pressure	bar	2–5	2–5	2–5	2–5	2–5	2–5
	Thread		G¼	G¼	G¼	G¼	G½	G½
	Resistance	bar, °C	10, 100	10, 100	10, 100	10, 100	10, 100	10, 100
Connection, drain	Thread		G⅜	G⅜	G⅜	G⅜	G½	G½

180 °C

Single units
Water, indirect cooling

HB-Therm® THERMO-5

Temperature control unit	Heat transfer medium		Water		
	Cooling		Indirect		
Type	with maximum main line temperature in °C		**HB-180Z**		
	Housing size (P. 16, Fig. 5)		**2**	**2L**	**3**
Heating (P. 14, Fig. 2)	kW	**8**	●	●	
		16	o[1]	o[1]	●
		32			o
Pump	sealless, stainless; 0,5 kW; 30 L/min, 52 m	**2M**	●		
(P. 14, Fig. 3)	sealless, stainless; 1,0 kW; 50 L/min, 70 m	**4M**	o[1]		●
Eco-pump,	sealless, stainless; 1,1 kW; 60 L/min, 70 m	**4S**		●	
	sealless, stainless; 2,8 kW; 110 L/min, 70 m	**6M**			o[1]
	sealless, stainless; 3,5 kW; 160 L/min, 70 m	**8M**			o
Cooling (P. 15, Fig. 4)	30 kW @ 60 K	**A2**	●	●	●
	50 kW @ 60 K	**B2**	o	o	o
	90 kW @ 60 K	**C2**			o
Additional Equipment					
	Connection for alarm and external control	**ZB**	o	o	o
	Connection for external sensor	**ZE**	o	o	o
	Interface DIGITAL	**ZD**	o	o	o
	Interface CAN	**ZC**	o	o	o
	Interface OPC UA	**ZO**	o	o	o
	Interface PROFIBUS-DP	**ZP**	o	o	o
	Pump status monitor	**ZU**	o	●	o
	Keyboard-protection	**ZK**	o	o	o
	Clean room package	**ZR**	o	o	o
	Mould evacuation with compressed air	**ZG**	o	o	o
Mains voltage	400 V (380–415 V), 50 Hz; 3LPE	**405**	●	●	●
	400 V (380–415 V), 60 Hz (50/60 Hz); 3LPE	**406**	o	o	o
	210 V (200–220 V), 50 Hz; 3LPE	**215**	o	o	o
	210 V (200–220 V), 60 Hz (50/60 Hz); 3LPE	**216**	o	o	o
	460 V (440–480 V), 60 Hz; 3LPE	**466**	o	o	o

Ordering example: HB-180Z2-8-4M-A2-ZD-ZU, 405, English

● Standard specification o Optional

[1] Typical specification

Maximum main line temperature		°C	180	180	180
Flow rate measurement	Measuring range	L/min	0,4–40	0,4–40	2–160
Circulating volume in unit	approx.	L	2,1	2,1	6,5
Dimensions (P. 16, Fig. 5)	Height	mm	700	700	850
	Width	mm	240	240	300
	Depth	mm	661	731	982
Weight max.		kg	69	75	154
Connection, main line and return line	Thread		G¾	G¾	G1 ¼
	Resistance	bar, °C	25, 200	25, 200	25, 200
Connection, cooling water	Pressure	bar	2–5	2–5	2–5
	Thread		G⅜	G⅜	G¾
	Resistance	bar, °C	10, 100	10, 100	10, 100
Connection, separate system water	Pressure	bar	2–5	2–5	2–5
	Thread		G¼	G¼	G½
	Resistance	bar, °C	10, 100	10, 100	10, 100
Connection, drain	Thread		G⅜	G⅜	G½

200 / 230 °C

Single units
Water, indirect cooling

HB-Therm® THERMO-5

Temperature control unit	Heat transfer medium		Water	
	Cooling		Indirect	
Type	with maximum main line temperature in °C		**HB-200Z**	**HB-230Z**
	Housing size (P. 16, Fig. 5)		**2B**	**2B**
Heating (P. 14, Fig. 2)	kW	**16**	●	●
Pump	sealless, stainless; 0,5 kW; 30 L/min, 52 m	**2M**	●	●
(P. 14, Fig. 3)	sealless, stainless; 1,0 kW; 50 L/min, 70 m	**4M**	o[1]	o[1]
Eco-pump,	sealless, stainless; 1,1 kW; 60 L/min, 70 m	**4S**	o	o
Cooling (P. 15, Fig. 4)	30 kW @ 60 K	**A2**	●	●
	50 kW @ 60 K	**B2**	o	o
Additional Equipment				
	Connection for alarm and external control	**ZB**	o	o
	Connection for external sensor	**ZE**	o	o
	Interface DIGITAL	**ZD**	o	o
	Interface CAN	**ZC**	o	o
	Interface OPC UA	**ZO**	o	o
	Interface PROFIBUS-DP	**ZP**	o	o
	Pump status monitor	**ZU**	o[4]	o[4]
	Keyboard-protection	**ZK**	o	o
	Clean room package	**ZR**	o	o
	Mould evacuation with compressed air	**ZG**	o	o
Mains voltage	400 V (380–415 V), 50 Hz; 3LPE	**405**	●	●
	400 V (380–415 V), 60 Hz (50/60 Hz); 3LPE	**406**	o	o
	210 V (200–220 V), 50 Hz; 3LPE	**215**	o	o
	210 V (200–220 V), 60 Hz (50/60 Hz); 3LPE	**216**	o	o
	460 V (440–480 V), 60 Hz; 3LPE	**466**	o	o

Ordering example:HB-230Z2B-16-4M-A2-ZE-ZD, 405, English

● Standard specification o Optional

[1] Typical specification

[4] Included with: **4S**

Maximum main line temperature		°C	200	230
Flow rate measurement	Measuring range	L/min	0,4–40	0,4–40
Circulating volume in unit	approx.	L	1,6	1,6
Dimensions (P. 16, Fig. 5)	Height	mm	700	700
	Width	mm	300	300
	Depth	mm	962	962
Weight max.		kg	115	115
Connection, main line and return line	Thread		G¾	G¾
	Resistance	bar, °C	31, 220	47, 250
Connection, cooling water	Pressure	bar	2–5	2–5
	Thread		G⅜	G⅜
	Resistance	bar, °C	10, 100	10, 100
Connection, separate system water	Pressure	bar	2–5	2–5
	Thread		G¼	G¼
	Resistance	bar, °C	10, 100	10, 100
Connection, drain	Thread		G⅜	G⅜

200 / 250 °C

Single units
Oil, indirect cooling

Temperature control unit	Heat transfer medium		Oil	
	Cooling		Indirect	
Type	with maximum main line temperature in °C		**HB-200T**	**HB-250T**
	Housing size (P. 16, Fig. 5)		**2**	**3**
Heating (P. 14, Fig. 2)	kW	**8**	●	●
		16		○
Pump	sealless, stainless; 0,5 kW; 30 L/min, 52 m	**2M**	●	●
(P. 14, Fig. 3)	sealless, stainless; 1,0 kW; 50 L/min, 70 m	**4M**	○	○
Cooling (P. 15, Fig. 4)	34 kW @ 120 K	**A3**	●	●
	60 kW @ 120 K	**C3**		○
Additional Equipment				
	Connection for alarm and external control	**ZB**	○	○
	Connection for external sensor	**ZE**	○	○
	Interface DIGITAL	**ZD**	○	○
	Interface CAN	**ZC**	○	○
	Interface OPC UA	**ZO**	○	○
	Interface PROFIBUS-DP	**ZP**	○	○
	Pump status monitor	**ZU**	○	○
	Keyboard-protection	**ZK**	○	○
Mains voltage	400 V (380–415 V), 50 Hz; 3LPE	**405**	●	●
	400 V (380–415 V), 60 Hz (50/60 Hz); 3LPE	**406**	○	○
	210 V (200–220 V), 50 Hz; 3LPE	**215**	○	○
	210 V (200–220 V), 60 Hz (50/60 Hz); 3LPE	**216**	○	○
	460 V (440–480 V), 60 Hz; 3LPE	**466**	○	○

Ordering example: HB-250T3-8-2M-A3-ZE-ZD-ZU, 405, English

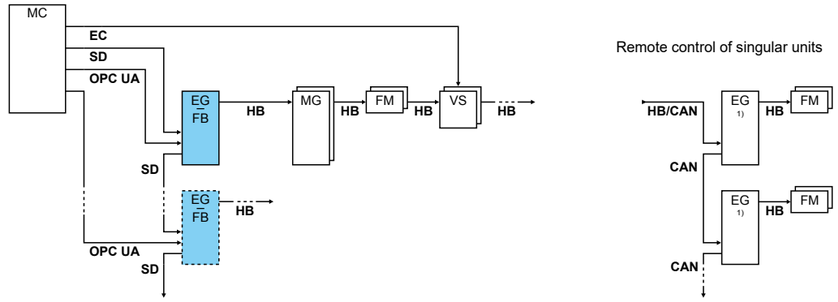
● Standard specification ○ Optional

Maximum main line temperature		°C	200	250
Flow rate measurement	Measuring range	L/min	0,4–40	0,4–40
Circulating volume in unit	approx.	L	1,6	3,5
Volume of internal expansion tank	approx.	L	5,5	15
Dimensions (P. 16, Fig. 5)	Height	mm	700	850
	Width	mm	240	300
	Depth	mm	684	945
Weight max.		kg	59	101
Connection, main line and return line	Thread		G¾	G¾
	Resistance	bar, °C	10, 220	10, 270
Connection, cooling water	Pressure	bar	2–5	2–5
	Thread		G⅜	G⅜
	Resistance	bar, °C	10, 100	10, 100
Connection, drain	Thread		G⅜	G⅜

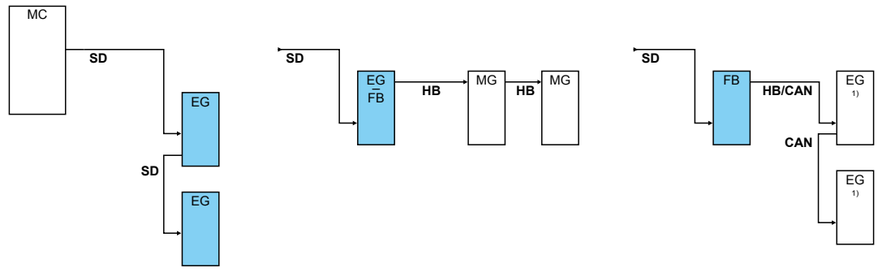
HB-Therm® THERMO-5

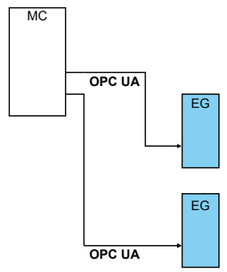
Communication (Fig. 1)

Basic circuit diagram



Examples





Legend	Description	Note
MC	Machine control	max. 1
FB	Control modul Panel-5	max. 1
EG	Temperature control unit Thermo-5, singular unit	max. 16 (per command)
MG	Temperature control unit Thermo-5, modular unit	
FM	Flow meter Flow-5	max. 32 (at 4 circuits each)
VS	Switching unit Vario-5	max. 8
SD	Communication via serial data interface DIGITAL (**ZD**), CAN (**ZC**), PROFIBUS-DP (**ZP**)	Maximum number of units, operating range and transfer of flow rate values depend on machine control and protocol
OPC UA	Communication OPC UA via Ethernet (**ZO**)	
HB 2)	Communication interface HB	Order of connection is not relevant
HB/CAN 2)	Communication interface HB/CAN	To remotely control singular units
CAN	Communication interface CAN (**ZC**)	
EC	External control	Assignment dependent on machine control unit

■ Command 1) Command deactivated 2) max. length cable HB: Total 50 m

Heating Capacity, Electricity Supply (Fig. 2)

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

The heating capacity applies at rated voltage (400 V, 460 V or 210 V) and varies max. ±10 % within the range indicated.

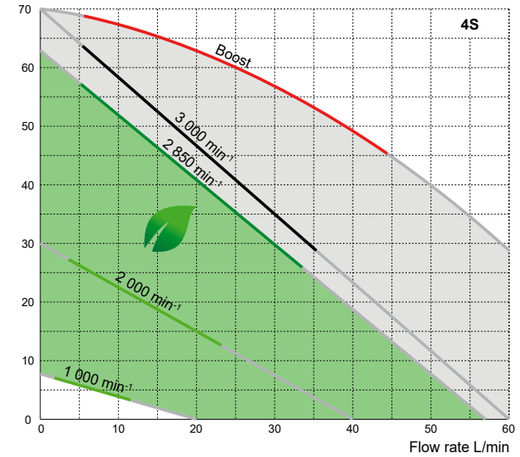
Maximum fusing; Cross-section through unit mains cable (with mains voltage)

Heating	**400 V or 460 V**	**210 V**
8 kW	3x20 A; 2,5 mm²	3x32 A; 6 mm²
16 kW	3x32 A; 6 mm²	3x63 A; 16 mm²
32 kW	3x63 A; 16 mm²	3x125 A; 50 mm²

Pump Capacity Curve (Fig. 3)

Eco-pump, Variable speed Eco-pump (Energy efficiency class IE4)

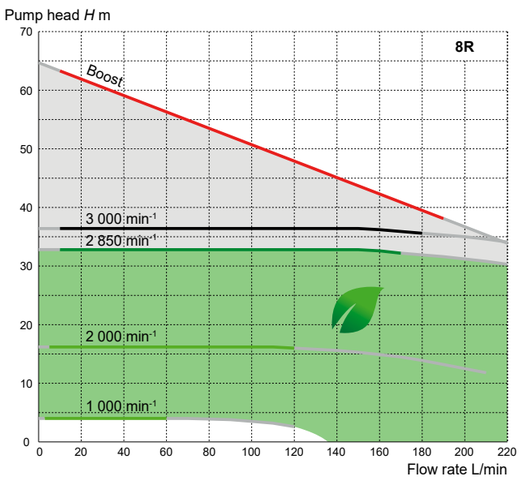
Pump head *H* m



In Eco-mode the unit will control the speed depending on either actual speed or flow rate or pump pressure or temperature difference between main- and return line. Energy savings are announced and registered.

- Energy savings range
- High power range
- Boost-mode (max. speed)
- Normal operation 2 850 min-1

Pump head *H* m

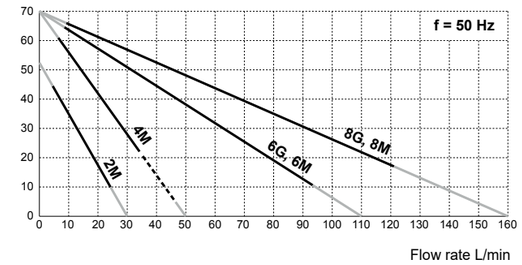


Note: Pressure p in bar = 0,1 · Pump head H in m · density ρ in kg/dm3

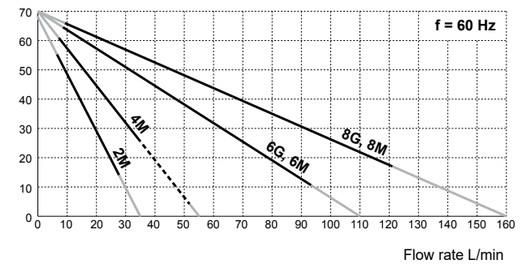
HB-Therm®
THERMO-5

Fixed speed pumps

Pump head *H* m



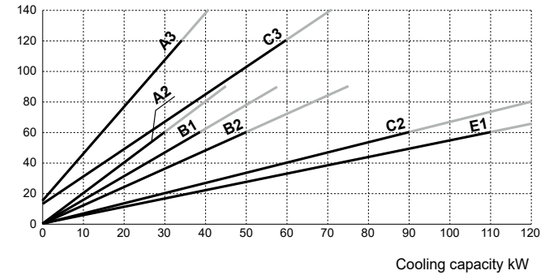
Pump head *H* m



- Attainable practical values
- Attainable practical values with housing size 3

Cooling Capacity (Fig. 4)

Temperature difference between heat transfer medium and cooling water K (Kelvin)



Cooling water quantity at 2 bar:

A2	12 L/min
A3	14 L/min
B1	9 L/min
B2	16 L/min
C2	34 L/min
C3	16 L/min
E1	27 L/min

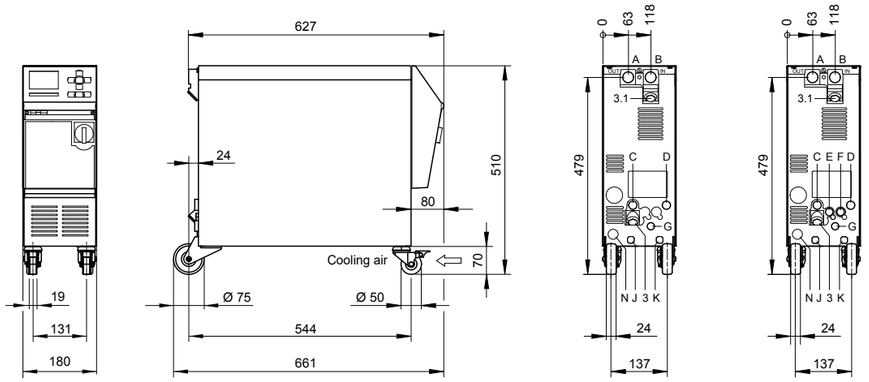
- Attainable practical values

General Technical Data

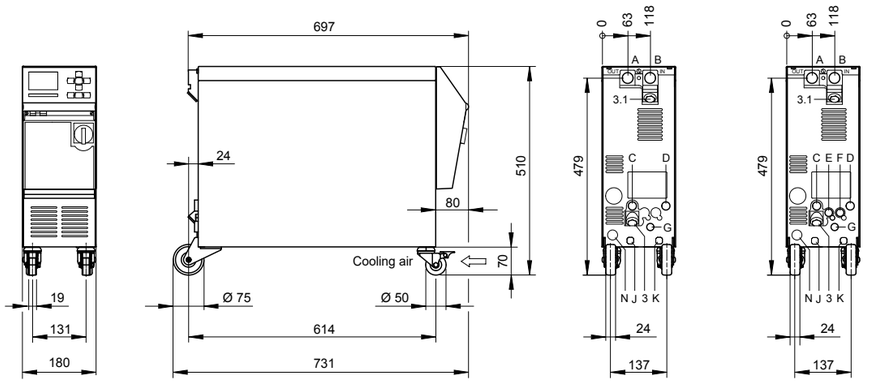
Mains cable to unit		3LPE, 4 m (plug on request)
Environment	Temperature range	5–40 °C
	Relative humidity	35–85 % RH (non-condensing)
Colour	Cover	RAL 7035 (glossy light grey), RAL 5012 (glossy light blue)
	Control panel	RAL 7012 (basalt grey)
	Access cover	RAL 7021 (glossy black grey)
Continuous sound pressure level		<67 dB(A)
Protection class		IP 44
Standards (depending on unit type)		EN 12828, EN 12953-6, EN 60204-1, EN 60730-2-9, EN IEC 61000-6-2, EN IEC 61000-6-4, EN ISO 12100, EN IEC 63000, EN ISO 13732-1, DIN 4754
Certification/Approval		CE, UKCA
Temperature measurement	Resolution	0,1 °C
	Control accuracy	±0,1 K
	Tolerance	±0,8 K
Flow rate measurement	Resolution	0,1 L/min
	Tolerance: Housing size 1, 1L, 2, 2L, 2B	±(5 % of measured value + 0,1 L/min)
	Tolerance: Housing size 3, 4	±(5 % of measured value + 0,5 L/min)
Pump pressure indicator	Tolerance	±10 % of rated value

Dimensions (Fig. 5)

Housing size 1, scale 1:15 — HB-100X1 — HB-___Z1



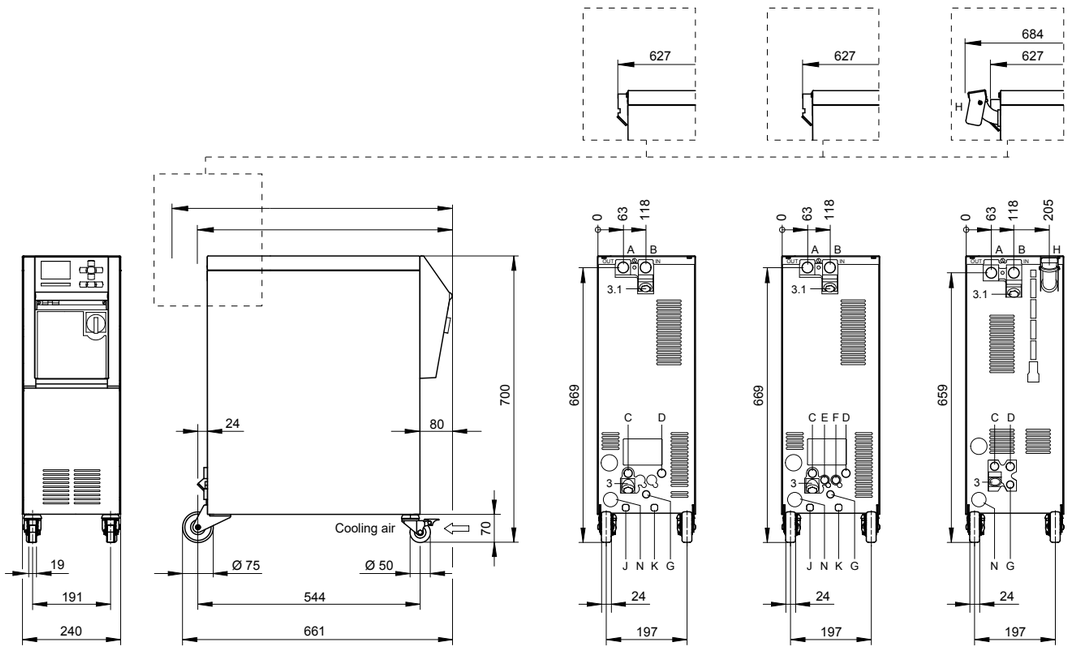
Housing size 1L, scale 1:15 — HB-100X1L — HB-___Z1L



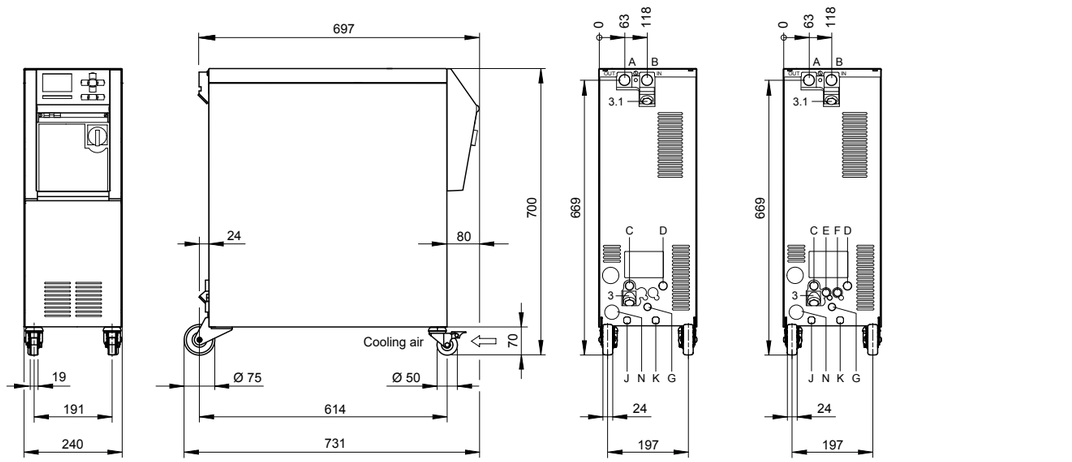
A Main line
B Return line
C Cooling water inlet
D Cooling water outlet
E System water inlet
F System water outlet
G Drain
H Filling (on oil units)
J Compressed air inlet (**ZG**)
K Compressed air outlet (**ZG**)
N Mains connection cable
3 Filter cooling water inlet
3.1 Filter return line

Note: 3D data available

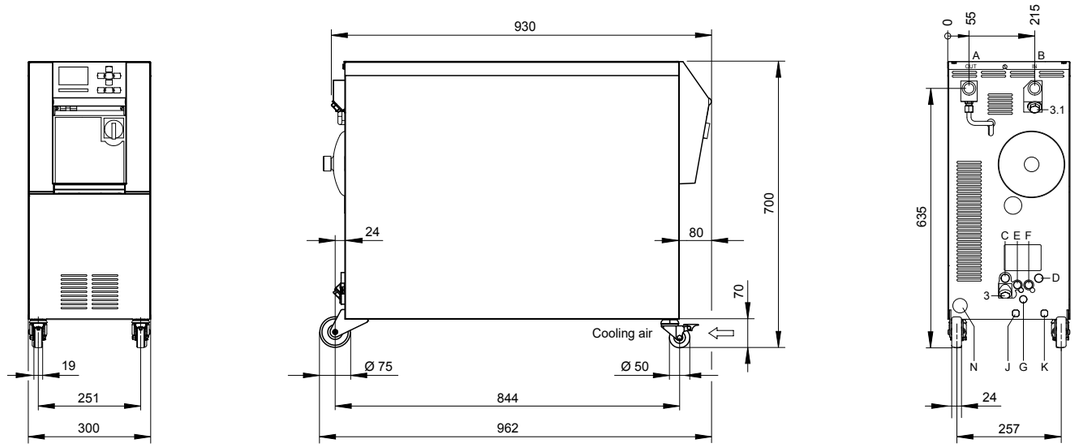
Housing size 2, scale 1:15 — HB-100X2 — HB-___Z2 — HB-200T2



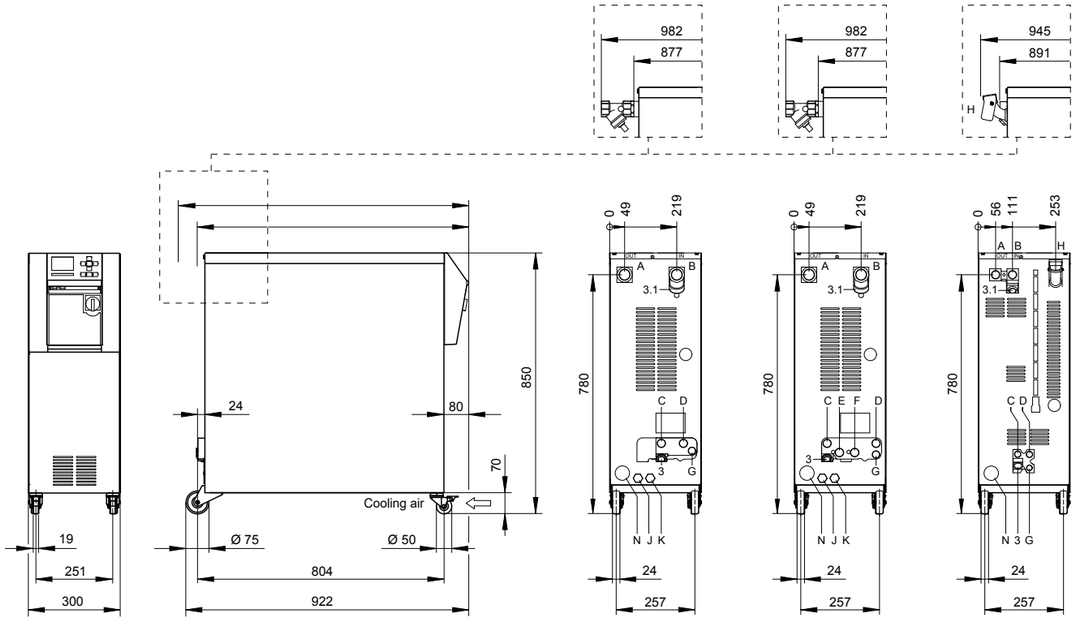
Housing size 2L, scale 1:15 — HB-100X2L — HB-___Z2L



Housing size 2B, scale 1:15 | HB-___Z2B



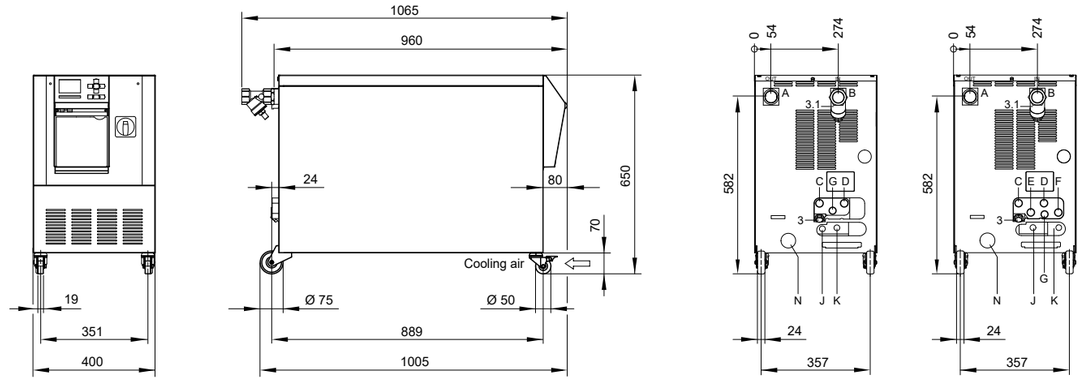
Housing size 3, scale 1:20 | HB-100X3 | HB-___Z3 | HB-250T3



A Main line
B Return line
C Cooling water inlet
D Cooling water outlet
E System water inlet
F System water outlet
G Drain
H Filling (on oil units)
J Compressed air inlet (**ZG**)
K Compressed air outlet (**ZG**)
N Mains connection cable
3 Filter cooling water inlet
3.1 Filter return line

Note: 3D data available

Housing size 4, scale 1:20 | HB-100X4 | HB-___Z4



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Electrical and hydraulic connections and other accessories.

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