

High-efficiency Drinking Water Pump

Calio-Therm NC

Type Series Booklet



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Type Series Booklet Calio-Therm NC

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Building Services: Heating

Fixed Speed Drinking Water Pumps

Calio-Therm NC



Main applications

- Drinking water supply
- Hot-water supply
- Similar systems in industry and building services applications (e.g. cooling water circulation)

Fluids handled

- Heating water to VDI 2035
- Higher-viscosity fluids (water/glycol mixture up to a mixing ratio of 1:1)
- Drinking water and water for the food and beverage industry, as per German TrinkwV 2001 drinking water regulations

Operating data

Operating properties

Characteristic		Value
Flow rate	Q [m ³ /h]	≤ 9
	Q [l/s]	≤ 2,5
Head	H [m]	≤ 7
Fluid temperature, heating water	T [°C]	≥ +2
		≤ +110
Fluid temperature, drinking water ¹⁾	T [°C]	≤ +65
Hardness of drinking water as fluid handled	[°dH]	≤ 14
Ambient temperature	T [°C]	≥ 0
		≤ +40
Operating pressure	p [bar]	≤ 10
Pressure class	PN [bar]	10
Sound pressure level	[dB(A)]	≤ 45
Pipe union connection	Rp	3/4 - 1

Design details

Design

- Maintenance-free high-efficiency wet rotor pump (glandless)

Drive

- High-efficiency electric motor
- Integrated motor protection
- 1~230 V AC, 50 Hz
- Enclosure IP44
- Thermal class F
- Temperature class TF 110
- Interference emissions EN 61000-6-3
- Interference immunity EN 61000-6-2

Bearings

- Product-lubricated special plain bearing

Connections

- Screw-ended

Operating modes

- Fixed speed operation with three speed levels

Automatic functions

- Soft start
- Full motor protection

Manual functions

- Setting the speed level
- Vent plug
- Deblocking function

1) We recommend fluid temperatures no higher than 65 °C to prevent possible consequences caused by lime sedimentation. Higher fluid temperatures are permissible for short periods (e.g. for thermal disinfection cycles).

Designation

Example: Calio-Therm NC 25-40-130

Designation key

Code	Description	
Calio	Type series	
Therm	Drinking water pump	
NC	Fixed speed	
25	Connection	
	20	G 1 1/4
	25	G 1 1/2
40	Head H [m] × 10 (example: 40 = 4 m)	
130	Overall length	
	130	130 mm

Materials

Overview of available materials

Part number	Component	Material
102	Volute casing	Stainless steel 1.4308
210	Shaft	Ceramics
230	Impeller	Plastic with glass fibre content (PSU-GF20) (PP-GF30 for Calio-Therm NC 25-70)
310	Bearings	Ceramics
817	Can	Stainless steel 1.4301
689	Thermal insulation shells	Polypropylene

Product benefits

- Saving energy by matching output to individual system requirements
- Easy replacement
- All wetted parts are in compliance with KTW recommendations (use of elastomers in drinking water applications).
- Universal use reduces storage costs.

Selection information

Minimum inlet pressure

The minimum inlet pressure p_{min} at the pump suction nozzle serves to avoid cavitation noises at an ambient temperature of +40 °C and the indicated fluid temperature T_{max} .

The indicated values are applicable up to 300 m above sea level. For installation at altitudes > 300 m, an allowance of 0.01 bar / 100 m must be added.

Minimum inlet pressure p_{min} specified for the fluid temperature T_{max}

Fluid temperature [°C]	Minimum inlet pressure [bar]
≤ 80	0,05
81 to 95	0,3
96 to 110	1,1

Permissible fluid temperature

Temperature limits of the fluid handled

Permissible fluid temperature	Heating water	Drinking water ²⁾
Maximum	+110 °C	+65 °C
Minimum	+2 °C	+2 °C

Permissible ambient temperature

Permissible ambient temperatures specified for the fluid temperature

Fluid temperature [°C]	Permissible ambient temperature [°C]
≤ +110	+40
≥ +2	0

2) We recommend fluid temperatures no higher than 65 °C to prevent possible consequences caused by lime sedimentation. Higher fluid temperatures are permissible for short periods (e.g. for thermal disinfection cycles).

Description of the characteristic curve

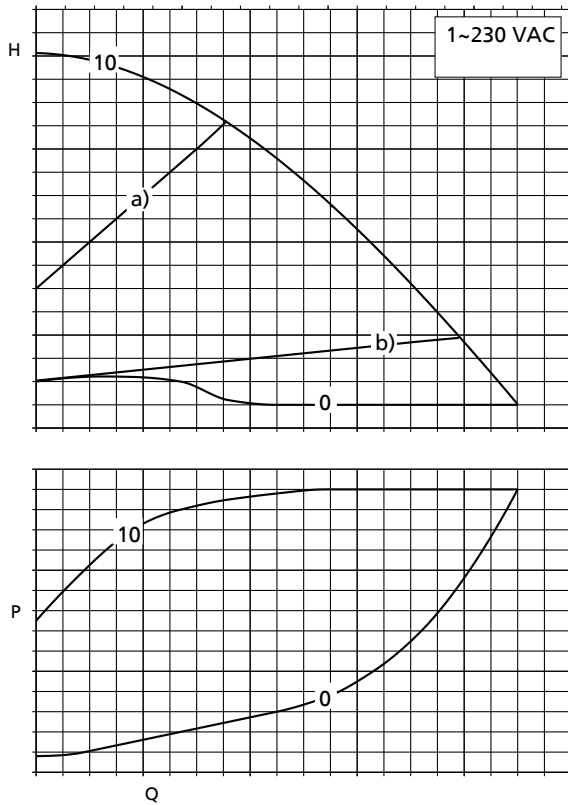


Fig. 1: Selection example

The characteristic curve can be adjusted between a) and b) by turning the press&turn dial.

0	Level 0 = open-loop control, minimum speed (corresponds to a setting of 0 %)
10	Level 10 = open-loop control, maximum speed (corresponds to a setting of 100 %)

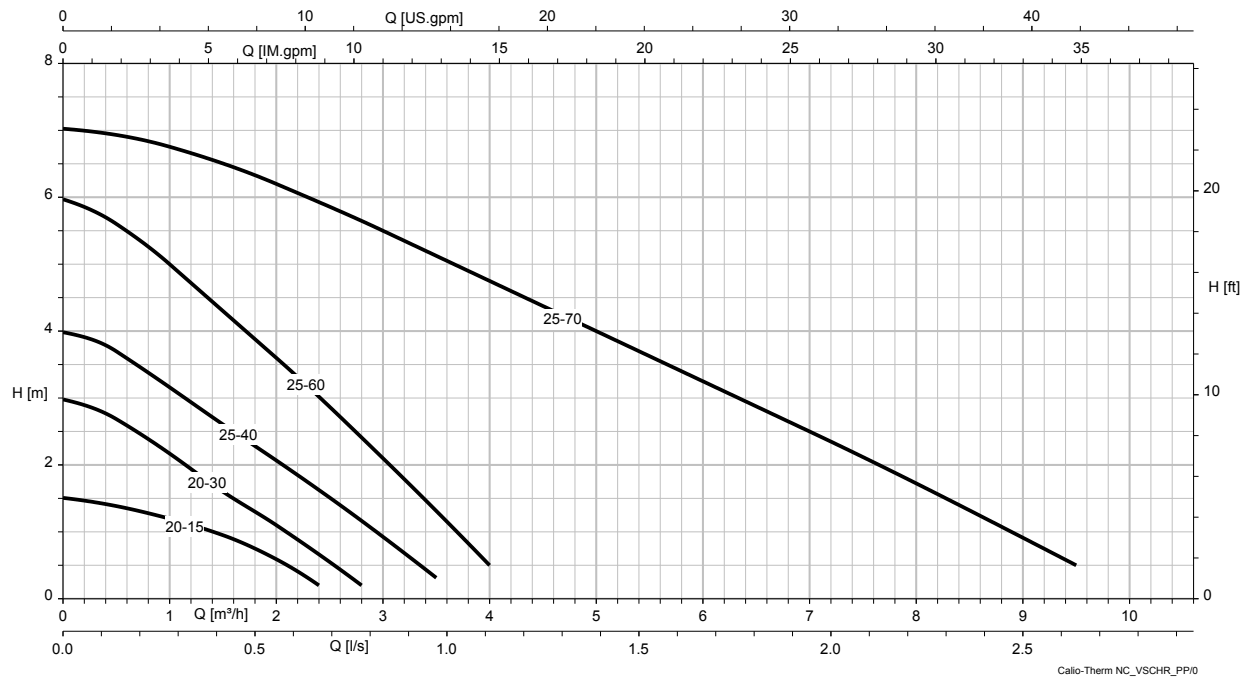
Technical data

Calio-Therm NC selection table

Size	Connection		PN [bar]	n		P ₁ [W]	Signalling contacts	I _N 1~230 VAC, 50 Hz [A]	Mat. No.	[kg]
	Pipe	Pump		Min.	Max.					
				[rpm]	[rpm]					
20-15	Rp 3/4	G 1 1/4	10	1300	2800	26 - 34	-	0,11 - 0,15	29134843	2,7
20-30	Rp 3/4	G 1 1/4	10	1300	2800	27 - 35	-	0,12 - 0,15	29134844	2,7
25-40-130	Rp 1	G 1 1/2	10	1800	2800	33 - 44	-	0,14 - 0,19	29134845	2,7
25-40	Rp 1	G 1 1/2	10	1800	2800	33 - 44	-	0,14 - 0,19	29134846	2,8
25-60	Rp 1	G 1 1/2	10	1800	2800	6 - 85	-	0,03 - 0,50	29134847	2,8
25-70	Rp 1	G 1 1/2	10	1800	2800	220 - 260	-	1,03 - 1,13	29134848	6,5

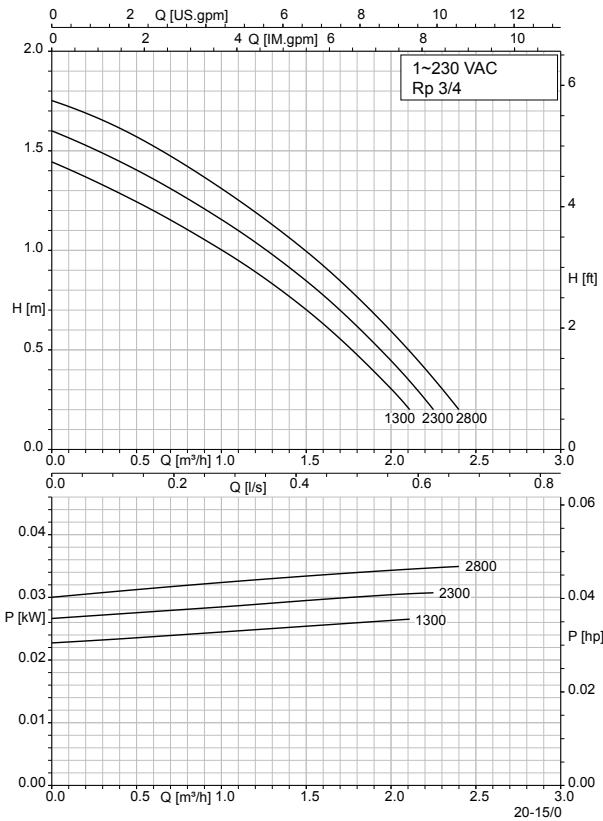
Selection chart

Calio-Therm NC

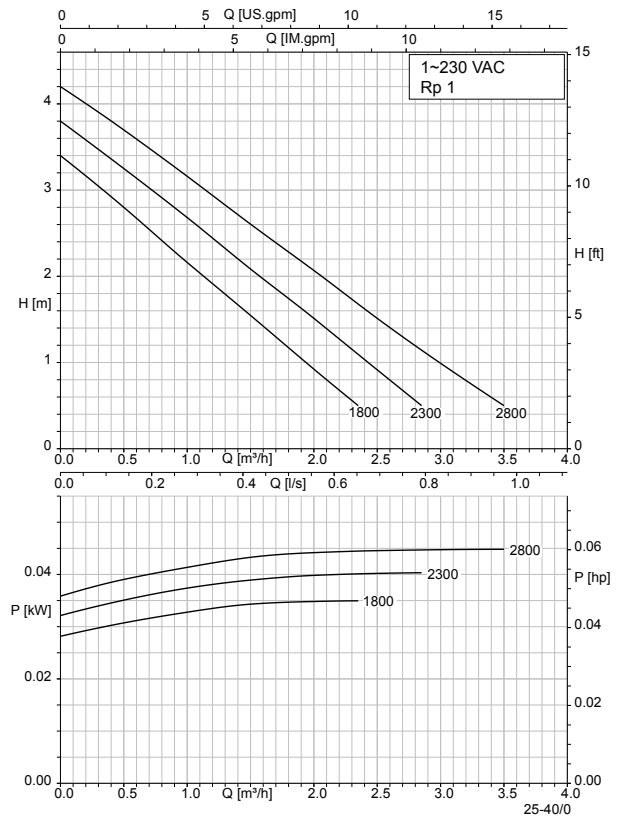


Characteristic curves

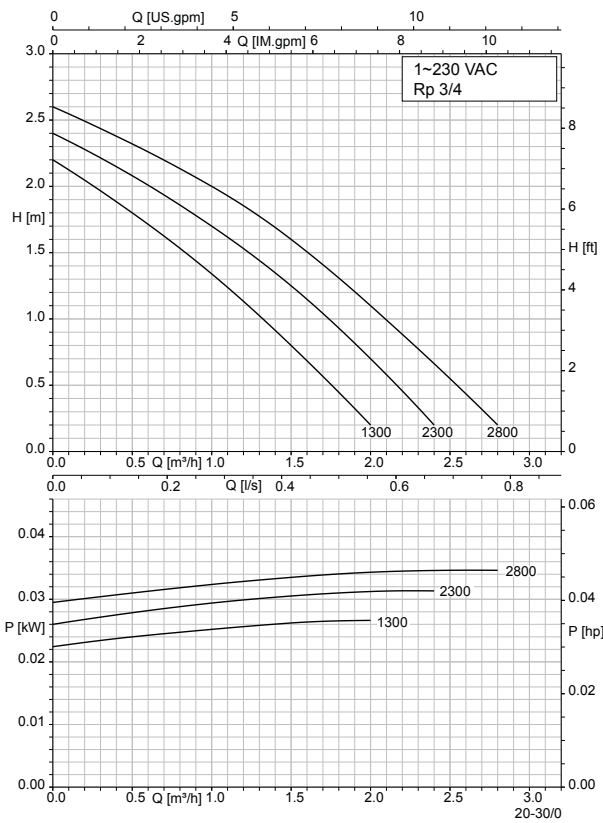
Calio-Therm NC 20-15



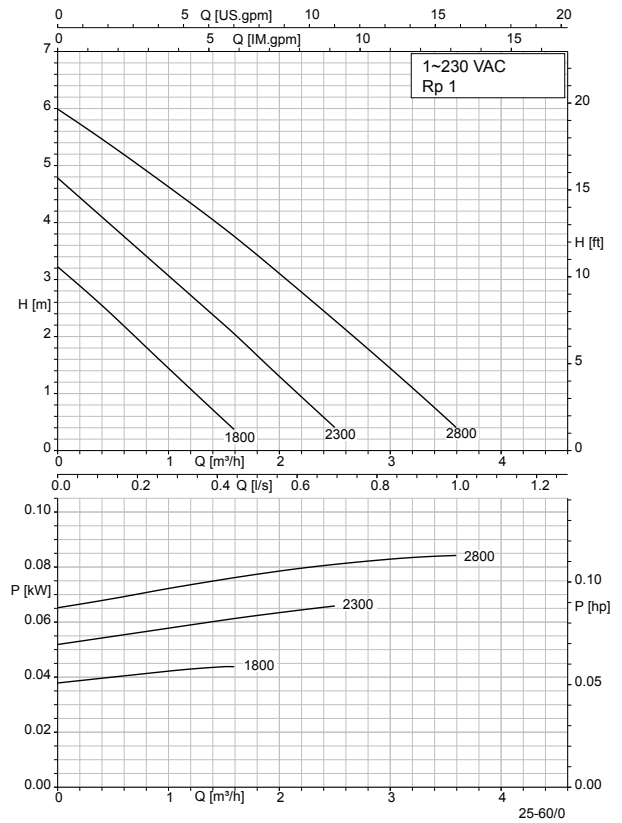
Calio-Therm NC 25-40



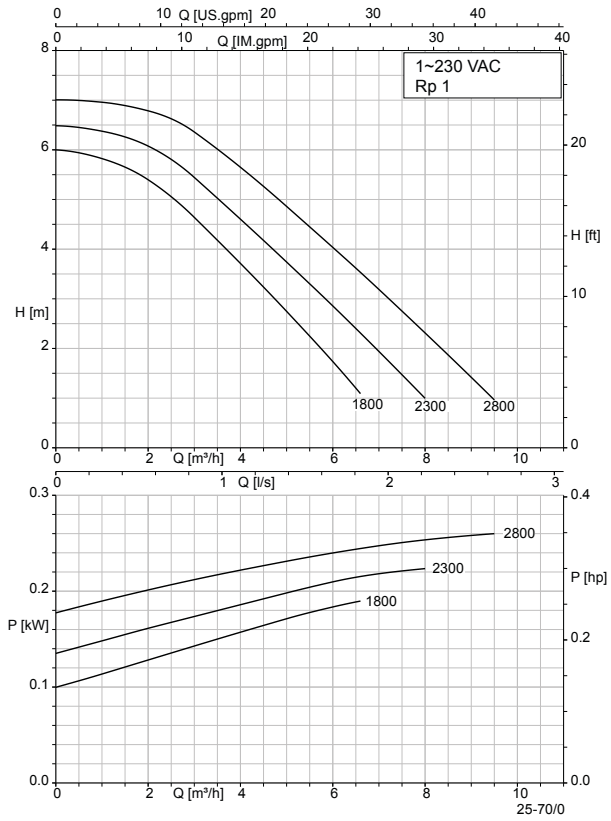
Calio-Therm NC 20-30



Calio-Therm NC 25-60



Calio-Therm NC 25-70



Dimensions

Calio-Therm NC

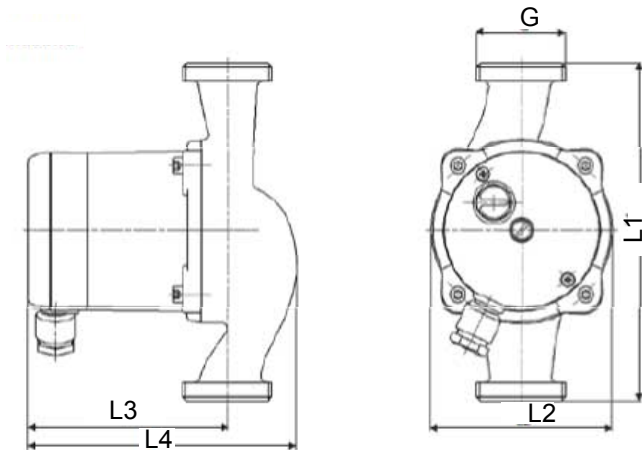


Fig. 2: Dimensions of sizes 20-15 to 25-60

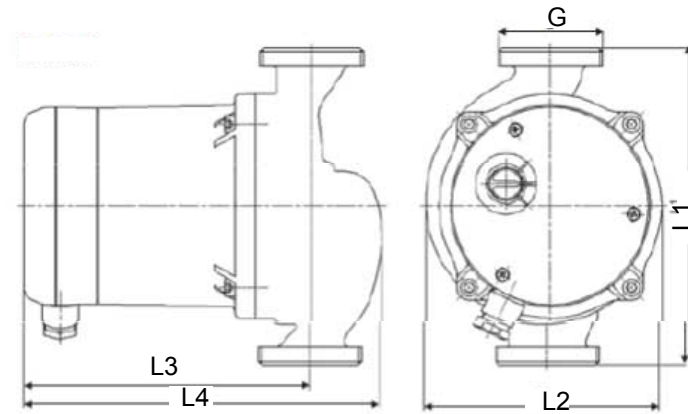


Fig. 3: Dimensions of size 25-70

Dimensions

Size	Connection			L1 [mm]	L2 [mm]	L3 [mm]	L4 [mm]
	Rp	G	DN				
20-15	$\frac{3}{4}$	1 $\frac{1}{4}$	-	150	98	108	145
20-30	$\frac{3}{4}$	1 $\frac{1}{4}$	-	150	98	108	145
25-40-130	1	1 $\frac{1}{2}$	-	130	98	108	145
25-40	1	1 $\frac{1}{2}$	-	180	98	108	145
25-60	1	1 $\frac{1}{2}$	-	180	98	108	145
25-70	1	1 $\frac{1}{2}$	-	180	135,5	166	206

Installation information

Permissible installation positions

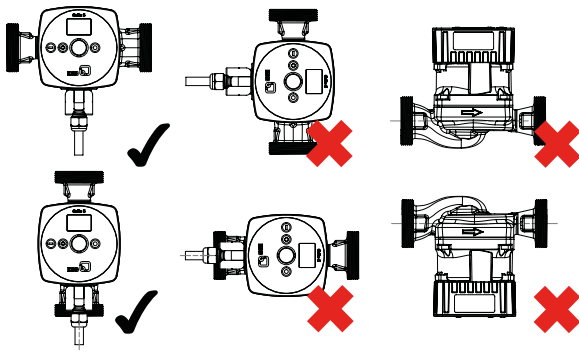


Fig. 4: Permissible installation positions

Scope of supply

Depending on the model, the following items are included in the scope of supply:

- Pump set
- Sealing elements
- Plug-type connector
- Two-piece thermal insulation shell (only for overall length ≥ 180 mm)
- Installation/operating manual

Accessories

Pipe unions

	Description	Mat. No.	[kg]
	2 pipe unions with G 1 1/2 union nut and insert with Rp 3/4 internal thread, steel For pumps with G 1 1/2 external thread / Rp 3/4 pipe connection	19075560	0,2
	2 pipe unions with G 1 1/2 union nut and insert with Rp 1 internal thread, steel For pumps with G 1 1/2 external thread / Rp 1 pipe connection	19075561	0,2
	2 pipe unions with G 1 1/4 union nut and insert with Rp 3/4 internal thread, brass For pumps with G 1 1/4 external thread / R 3/4 pipe connection	40982167	0,2
	2 pipe unions with G 1 1/2 union nut and insert with Rp 1 internal thread, brass For pumps with G 1 1/2 external thread / R 1 pipe connection	19075564	0,2



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