

# High efficiency pumps with LED display and stainless steel housing, electronically controlled

HEP Optimo (N) series, T1 product group



Insulation shell  
with installation length  
180 mm included  
in delivery.

**BEST**  
in class

**ERP**  
2015<sup>+</sup>

## TECHNICAL DATA

Rate of flow:	up to 4.4 m <sup>3</sup> /h
Pressure head:	4 m/6 m/8 m
Control range:	4-20 W/5-37 W/6-64 W
Media temperature:	+2 °C to +110 °C
Installation length:	130, 150 and 180 mm
Threaded connection:	1½" and 2"
Protection class:	IP 42
Insulation class:	F
Nominal pressure:	PN 10
Control:	Δpc + Δpv + fixed rpm
EEL:	≤ 0.17 HEP Optimo XX-4.0 NXXX ≤ 0.18 HEP Optimo XX-6.0 NXXX ≤ 0.20 HEP Optimo XX-8.0 NXXX

## PRODUCT FEATURES

- manual start-up feature
- smooth running
- very low energy consumption
- integrated night economy feature
- air-vent screw
- LED display
- convenient operation
- space-saving axially integrated terminal box
- automatic adjustment to pressure conditions
- stainless steel pump housing
- pre-mounted, screwable angle entry-plug
- compact design
- optical fault indication
- optical display control mode

## USE

The electronically controlled HEP Optimo (N) high efficiency wet rotor circulators with LED display and permanent magnet technology are designed for use in heating and solar systems as well as drinking water systems with variable or constant rate of flow.

## MODE OF OPERATION ΔP CONTROL IN HEATING SYSTEMS

When thermostatic valves in systems with a long main supply heating pipe (likely for radiator systems) close, the total flow drops. This results in lower pipe resistance in this main pipe, which means the pump has to create lower head. Using proportional pressure mode PP (L) is the preferred setting for such heating systems, as here the pump decreases head at lower flow.

If the main supply heating pipe has not to be taken into consideration, because it is short or has its own pump (likely for underfloor heating systems with in mixing units integrated pumps or drinking water systems), the best mode to use is constant pressure mode CP (E). In such heating systems, it is important always to have constant pressure for the radiators or ufh-circuits, as the pressure loss in the main pipe is not considered and all other consumers are installed in parallel, which does not influence the maximum pressure loss.

## CONTROL MODES FOR USE IN SOLAR SYSTEMS

As a rule, solar systems are designed for constant flow. High differential pressure at low flow is required. The fixed speed mode (M) is recommended for this. With this setting, the pump generates the highest possible differential pressure.

In the case of solar systems with a variable flow rate, the setting „Constant pressure“ (E) can alternatively be selected. Here, the differential pressure is kept constant regardless of the respective hydraulic situation of the solar system.

The „Proportional pressure“ (L) control mode may only be selected if the solar pump is used in a heating system with thermostatic valves.

**Important:** High efficiency pumps with electronically commutated motor (ECM) and integrated automatic control - such as the HEP Optimo - cannot

be operated via external controls, which control pumps via wave packet or leading edge control. The Armstrong series HEP BB2 is recommended for such cases.

## MAIN AREAS OF USE

- drinking water systems with fixed speed mode (Display indicates M)

## MATERIALS

Component	Material	Material no.
Pump housing	Stainless steel	1.4308
Impeller	Polyamide (PA - GF 35)	
Shaft	Ceramic	
Bearing	Ceramic	
Bearing plate	Stainless steel	1.4301
Can	Stainless steel	1.4301

## FLOW MEDIA

- drinking water up to a temperature of 65 °C and a degree of hardness of 14 °dH (temporary hardness)
- heating water as per VDI 2035
- pure, thin, non-aggressive and non-explosive, mineral oil-free media without solid or long-fibre components
- media with a max. viscosity of 10 mm<sup>2</sup>/s
- operating data must be checked above 20% glycol

## TEMPERATURE RANGE

Ambient temperature:	0 °C to +40 °C
Temperature class:	TF 110
Media temperature:	+2 °C to +110 °C

## AMBIENT TEMPERATURE

To avoid condensation forming in the terminal box and stator, the media temperature must always be the same or higher than the ambient temperature.

Ambient temp.	Media temp. min.	Media temp. max.
0	2	110
10	10	110
20	20	110
30	30	95
35	35	90
40	40	70

## MOTOR PROTECTION

External motor protection is not required.

## INTEGRATED NIGHT ECONOMY FEATURE

When the automatic night economy feature is activated, the circulation pump switches between normal mode and economy mode (characteristic curve MIN). The flow temperature is detected by a temperature sensor, the pump reacts accordingly. For this, it is necessary for the circulation pump to be installed in flow.

## MINIMUM INFLOW PRESSURE

Please determine the minimum inflow pressure for corresponding temperature from the following table.

Media temperature	< 75 °C	> 90 °C
Minimum inflow pressure	0.05 bar	0.28 bar

## SOUND PRESSURE LEVEL

The sound pressure level is < 45 dB (A).

## CHOICE OF CONTROL CHARACTERISTIC

You can set 3 different control modes via the potentiometer on the axial terminal box. Proportional pressure (L), fixed speed (M) and constant pressure (E) can be adjusted continuously variable. The display indicates power consumption in [W] watts. Once the potentiometer is turned, the display first indicates mode of operation and value of set head in [m] meters. If not further turned the display shows the value of power consumption (Watt) and the symbol of the control mode permanently.



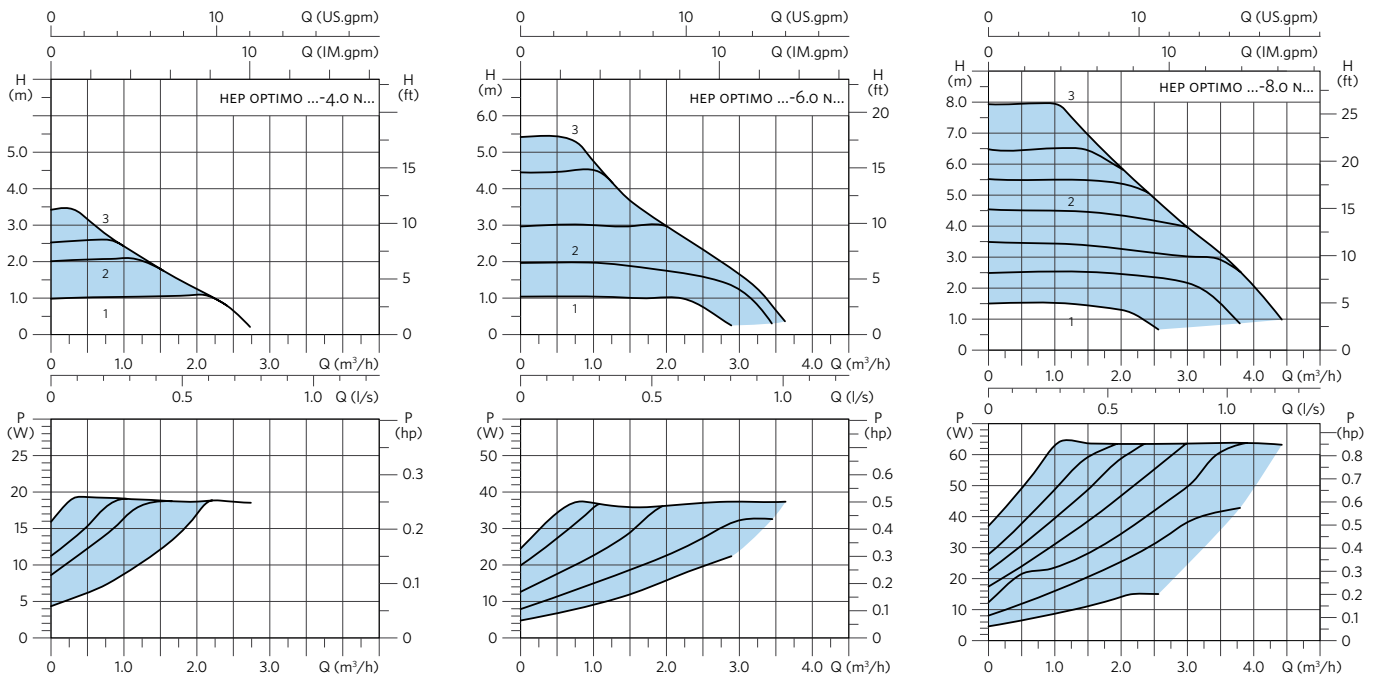
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### TECHNICAL DATA

TYPE	CONNECTION PIPE	THREADED CONNECTION	INSTALLATION LENGTH (MM)	VOLTAGE / FREQUENCY	P1 (W)	I <sub>MAX</sub> (A)	NET-WEIGHT (KG)	PRODUCT NO.	EEL
HEP OPTIMO 25-4.0 N180	1"	1½"	180	230 V 50/60 HZ	4 ... 20	0,26	2,5	0653-34204.1-71	≤ 0,17
HEP OPTIMO 25-6.0 N180	1"	1½"	180	230 V 50/60 HZ	5 ... 37	0,41	2,5	0653-34206.1-71	≤ 0,18
HEP OPTIMO 25-8.0 N180	1"	1½"	180	230 V 50/60 HZ	6 ... 64	0,61	2,5	0653-34208.1-71	≤ 0,20
HEP OPTIMO 15-4.0 N130	1"	1½"	130	230 V 50/60 HZ	4 ... 20	0,26	2,2	0653-34004.11571	≤ 0,17
HEP OPTIMO 15-6.0 N130	1"	1½"	130	230 V 50/60 HZ	5 ... 37	0,41	2,2	0653-34006.11571	≤ 0,18
HEP OPTIMO 15-8.0 N130	1"	1½"	130	230 V 50/60 HZ	6 ... 64	0,61	2,2	0653-34008.11571	≤ 0,20
HEP OPTIMO 20-4.0 N150	¾"	1¼"	150	230 V 50/60 HZ	4 ... 20	0,26	2,3	0652-34104.1-71	≤ 0,17
HEP OPTIMO 20-6.0 N150	¾"	1¼"	150	230 V 50/60 HZ	5 ... 37	0,41	2,3	0652-34106.1-71	≤ 0,18
HEP OPTIMO 20-8.0 N150	¾"	1¼"	150	230 V 50/60 HZ	6 ... 64	0,61	2,3	0652-34108.1-71	≤ 0,20
HEP OPTIMO 25-4.0 N130	1"	1½"	130	230 V 50/60 HZ	4 ... 20	0,26	2,5	0653-34004.1-71	≤ 0,17
HEP OPTIMO 25-6.0 N130	1"	1½"	130	230 V 50/60 HZ	5 ... 37	0,41	2,5	0653-34006.1-71	≤ 0,18
HEP OPTIMO 25-8.0 N130	1"	1½"	130	230 V 50/60 HZ	6 ... 64	0,61	2,5	0653-34008.1-71	≤ 0,20

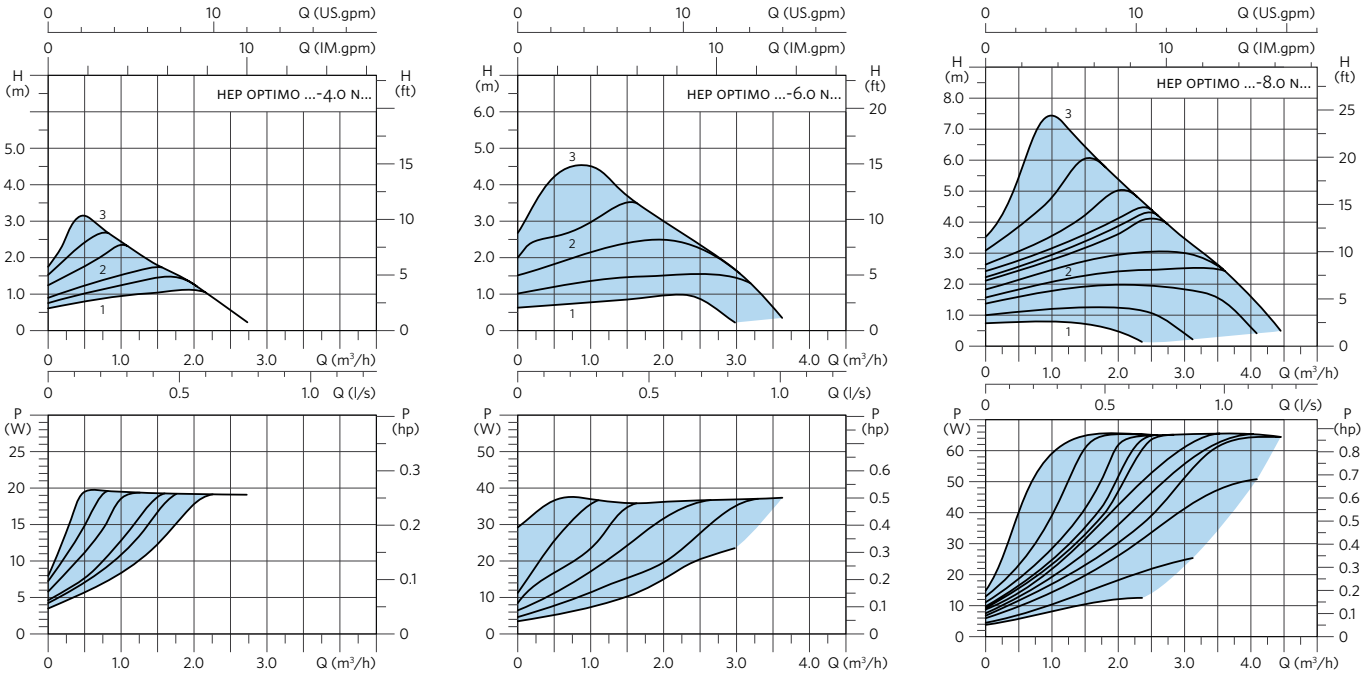
### CONSTANT PRESSURE



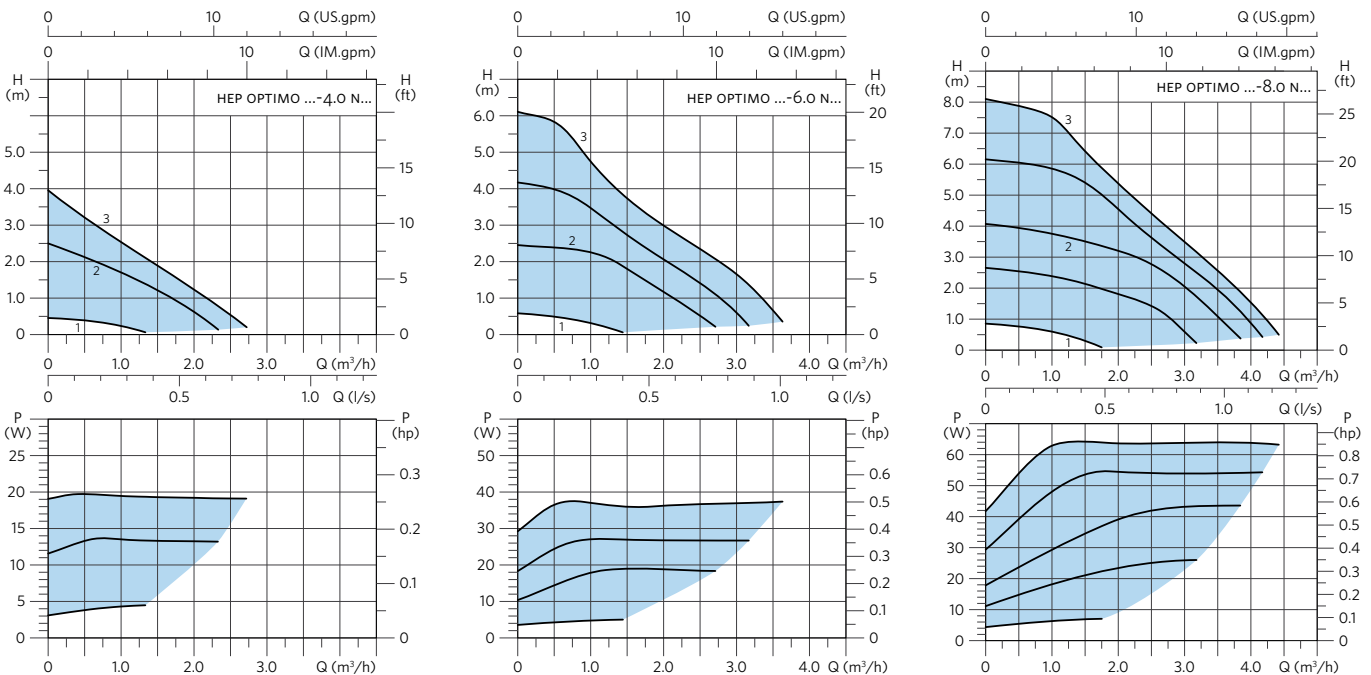
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### PROPORTIONAL PRESSURE



### FIXED RPM



### DIMENSIONS

TYPE	L1 (MM)	L2 (MM)	L3 (MM)	L4 (MM)
HEP OPTIMO (N)	130/150/180	98	127	163

### DIMENSION ILLUSTRATION

