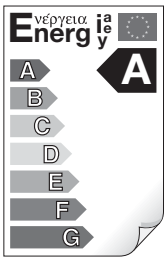
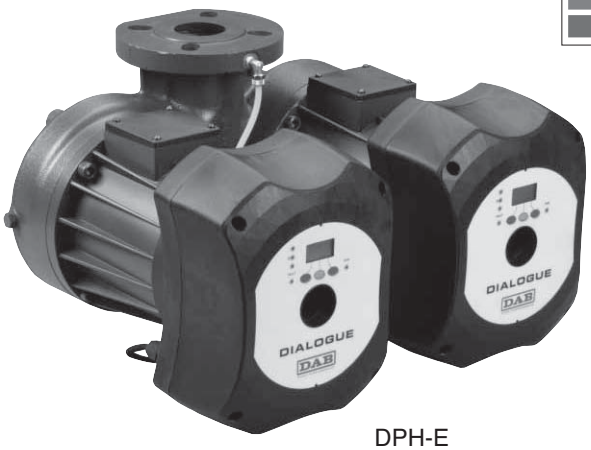
ELECTRONIC CIRCULATORS FOR HEATING AND CONDITIONING SYSTEMS



BPH-E



DPH-E

CE

APPLICATIONS

DIALOGUE electronic circulation pumps can be used in the heating, ventilation and air conditioning systems of apartment and office blocks such as:

- High-rise apartments
- Apartment blocks
- Houses
- Clinics and hospitals
- Schools
- Buildings adapted for offices
- Properties

All models are available both in the single version as well as in the back-up twin version

HEATING APPLICATIONS

Heating required in different applications varies significantly during the day/night due to the outside temperature and by the more or less presence of people within the rooms. In addition to this, the different requirements of the various locations and possible opening and closing of the various branches in complex systems must also be considered.

In practically all correctly dimensioned systems the electronically regulated wet rotor pumps constantly ensure a sufficient amount of energy as well as less noise and greater comfort in addition to a considerable reduction in the running costs. In order to reduce further loss in the single version circulator pump casing, the insulation should ideally be used, which can be ordered as an accessory and supplied separately.

AIR CONDITIONING APPLICATIONS

Unlike conventional electronic pumps, the **DIALOGUE** electronic circulation pumps can also be used in air conditioning systems where the temperature of the pumped liquid is lower than the ambient temperature. In these circumstances, condensation forms on the outer casing of the circulator that does not influence the correct functioning of the electronic and mechanical parts. The particular construction has been designed and assessed in order to allow the drainage of the condensate without damaging the structural components.

For the thermal insulation of the circulator's pump casing with the separately supplied insulating shells (for the single version only – the insulating shells must be specially made for the back-up twin versions), take care not to block the discharge labyrinths so as not to impair its performance.

STRUCTURAL CHARACTERISTICS

Enbloc circulation pump made up of cast iron hydraulic parts and an electric asynchronous motor with wet rotor. Aluminium motor casing. High performance volute pump casing thanks to the detailed design and smooth internal surfaces. In-line suction and delivery ports, flanged with threaded connectors for the introduction of the temperature and pressure sockets. Technopolymer rotor, hardened stainless steel motor

shaft mounted on graphite bushings that are lubricated by the pumped liquid. Stainless steel rotor and stator liner. Ceramic thrust washer, ethylene propylene grommet and brass air vent cap. Two pole asynchronous motor. An automatic type clapet valve is foreseen on the back-up twin version that is incorporated into the delivery port to prevent the circulation of water when the unit is idle. Furthermore, a blank flange is also supplied if one of the two motors requires maintenance. The standard PN10 production of the pump casing is compatible with PN6 counterflanges for the interchangeability of the pump on existing systems. The DN 80 PN 16 version (eight holes) can be supplied on request.

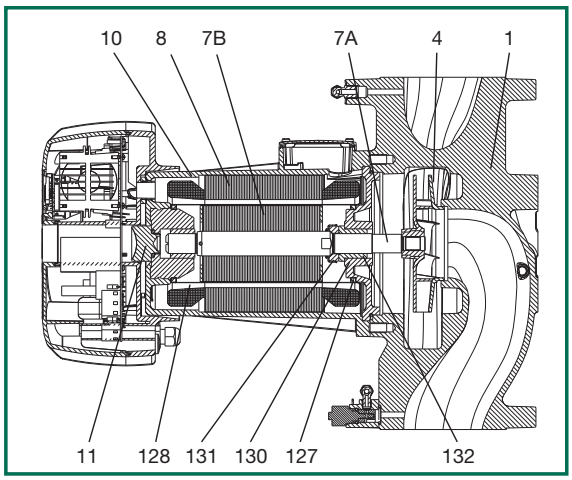
Circulator protection class: IP 44 Insulation class: H
Standard voltage: 230V, 50/60 Hz single-phase
The product complies with the EN 61800-3 – EN 60335-1 – EN 60335-2-51 European standards

DIALOGUE STRUCTURAL CHARACTERISTICS (Electronic devices)
For greater efficiency and strength, the **DIALOGUE** circulators are controlled by a IGBT based device with the latest NPT technology. The specific characteristics are as follows:
- sinusoidal PWM modulation
- High carrier frequency to eliminate any audio band noise
- 32 bit dedicated DPS processor
- "space vector" optimized algorithm

Setting has been made user friendly thanks to an intuitive and functional user interface. The simplified backlit display on the control panel, with three simple navigation keys, a pull-down menu in line with the latest mobile phone trends, and a wide range of functions make the BPH-E **DIALOGUE** circulator a revolutionary product. A reliable a sturdy construction combined to the modern and innovative design completes the product even from an aesthetical point of view.

TECHNICAL DATA

N.	PARTS	MATERIALS
1	PUMP BODY	CAST IRON 200 UNI ISO 185
4	IMPELLER	TECHNOPOLYMER B
7A	MOTOR SHAFT	STAINLESS STEEL AISI 420 C
7B	ROTOR	–
8	STATOR	–
10	MOTOR CASING	DIE CAST ALUMINIUM
11	AIR OUTLET CAP	BRASS P Cu Zn 40 Pb2 UNI 5705
127	SEAL RING	E.P.D.M.
128	STATOR SLEEVE	STAINLESS STEEL AISI 321 – AISI 304
130	CLOSING FLANGE	CAST IRON 200 UNI ISO 185
131	THRUST BOX SUPPORT	STAINLESS STEEL AISI 304 L
132	BRUSHINGS	CARBON EC 941



DENOMINATION INDEX:
(example)

B P H - E 120 / 250 . 40 M

B = single circulator
D = twin circulator

M = 4-pole motor
P = 2-pole motor

H = suitable for both heating and air conditioning

E = electronic **DIALOGUE**

maximum head (dm)
axes centres (mm)
(DN) nominal diameter of the flanged ports

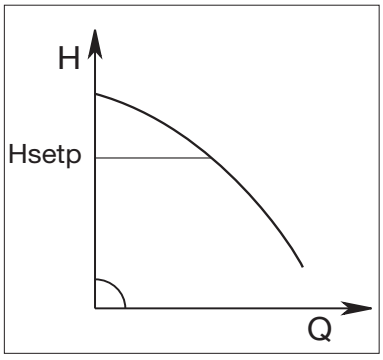
M = single-phase motor

Operating range:	from 13,8 to 59,76 m^3/h with head up to 18,2 metres;
Liquid temperature range:	from –10 °C to +120 °C
Liquid quality requirements:	clean, free from solids, not viscous, not aggressive and close to the characteristics of water. (glicole max 30%).
Maximum operating pressure:	10 bar (1000 kPa)
Flanging:	DN 40, DN 50, DN 65, PN 10 (4 holes), DN 80 in PN 6 / 10 (4 holes)
Minimum head pressure:	see tables.
Special version on request:	Flanging - DN 80 in PN 10 / PN 16 (8 holes)
Accessories:	Counterflange PN 10 / DN 40 - DN 50 - DN 65 - DN 80.
Electromagnetic compatibility:	BPH-E, DPH-E circulators respect standard EN 61800-3, in category C2, for electromagnetic compatibility. **Electromagnetic emissions** - Residential environment (in some cases measures to reduce them may be requested). **Emissions of ducts** - Residential environment (in some cases measures to reduce them may be requested). The models with power lower than 1 kW need a 2.4 mH external filter at input, as requested by standard EN 61000-3-2.

OPERATING MODES

All operations listed below can be consulted by all users (even those less qualified) by means of the Dialogue menu. Access to the settings and modification of the parameters is protected and reserved for qualified users only.

1 - Constant differential pressure regulation mode ΔP-c
The ΔP-c regulation mode maintains the system's differential pressure constant at the set value Hsetp based on the varying flow rate.



This regulation is particularly suitable for the following systems:

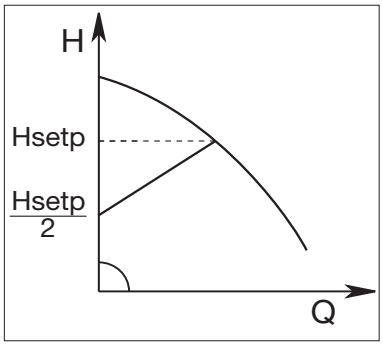
a. Dual pipe heating systems with thermostatic valves and:
- head less than 2 meters;
- natural circulation;
- low head loss in the parts of the system where the total quantity of water flows;
- high differential temperature (central heating).

b. Floor heating systems with thermostatic valves

c. Single pipe heating systems with thermostatic valves and adjustment valves

d. Systems with primary circuit pumps with low head loss

2 - Proportional differential pressure regulation mode ΔP-v
The ΔP-v regulation mode, based on the changing flow rate, linearly varies the delivery value of the head from Hsetp to Hsetp/2.



This regulation is particularly suitable for the following systems:

a. Dual pipe heating systems with thermostatic valves and:
- head over 4 meters;
- exceptionally long piping;
- valves with a wide operating range;
- differential pressure regulator;
- high head loss in the parts of the system where the total quantity of water flows;
- low differential temperature

b. Floor heating systems and systems with thermostatic valves and high head loss in the boiler circuit.

c. Systems with primary circuit pumps with high head loss.

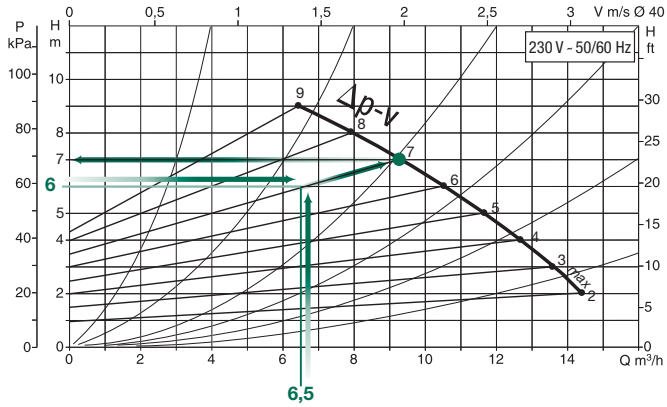
Example of setting the set point with ΔP-v

The following working point is needed:

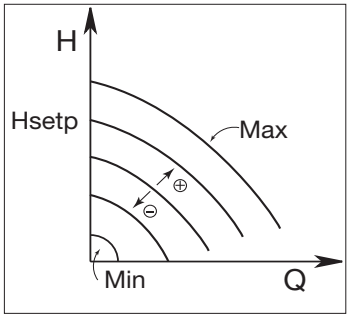
Q = 6,5 m³/h
H = 6 m

PROCEDURE:

1. Put the desired working point in the graph and look for the DIALOGUE curve closest to it (in this case the point is right on the curve)
2. Go up the curve until you cross the extreme curve of the circulator.
3. The reading of the head next to this cluster point will be the set point head to set to get the desired working point.



3 - Constant curve regulation mode

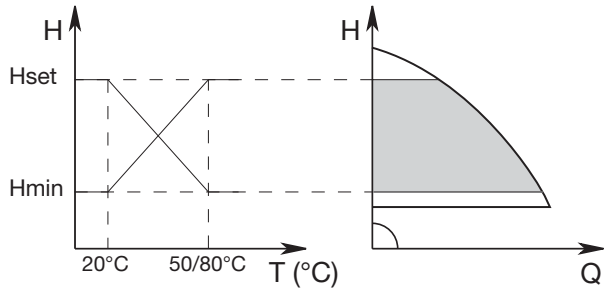


The regulation at constant speed deactivates the regulation of the electronic module. The speed of the pump can be manually regulated at a constant value through the control panel, remote control or by a 0-10V signal where:

V<= 3 Volt the rotation speed is 846 rpm (min speed)
V = 10 Volt the rotation speed is 2820 rpm (max speed)
For V between 3 and 10 Volt linear interpolation of the speed.

This type of regulation is particularly suitable for circulators in already existing systems.

4 - Proportional and constant differential pressure regulation mode based on the water temperature



The Setpoint related to the head of the circulator is reduced and increased base on the water temperature.

The temperature of the liquid can be set at 80°C or 50°C.

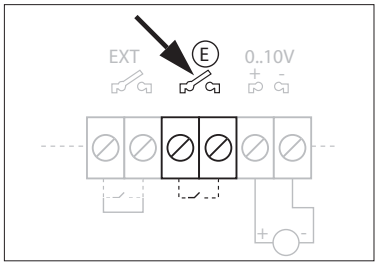
This type of regulation is particularly suitable for the following systems:

a. in systems with a variable flow rate (dual pipe heating systems), where a further reduction of the circulator's performance is ensured due to the drop in temperature of the circulating liquid when less heating is required.

b. in systems with a constant flow rate (single pipe and floor heating systems), where the performance of the circulator can be regulated only when the temperature change function is activated.

This is set by means of the control unit on the lid of the **DIALOGUE** device.

ECONOMY MODE

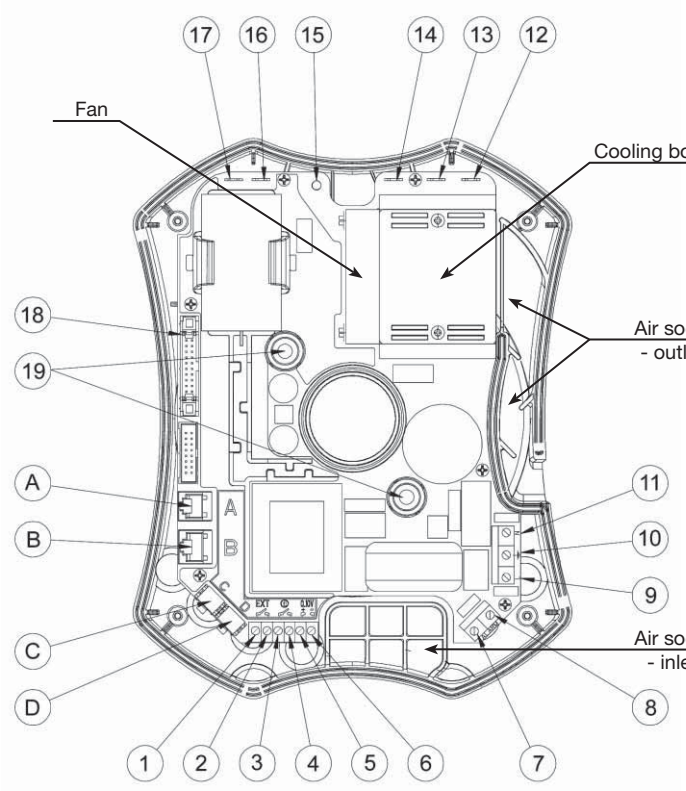


The economy mode can be set directly from the control panel by setting the reduction value (f.rid) that can have a maximum value of 50%.

The following values are replaced in all the previously listed settings:

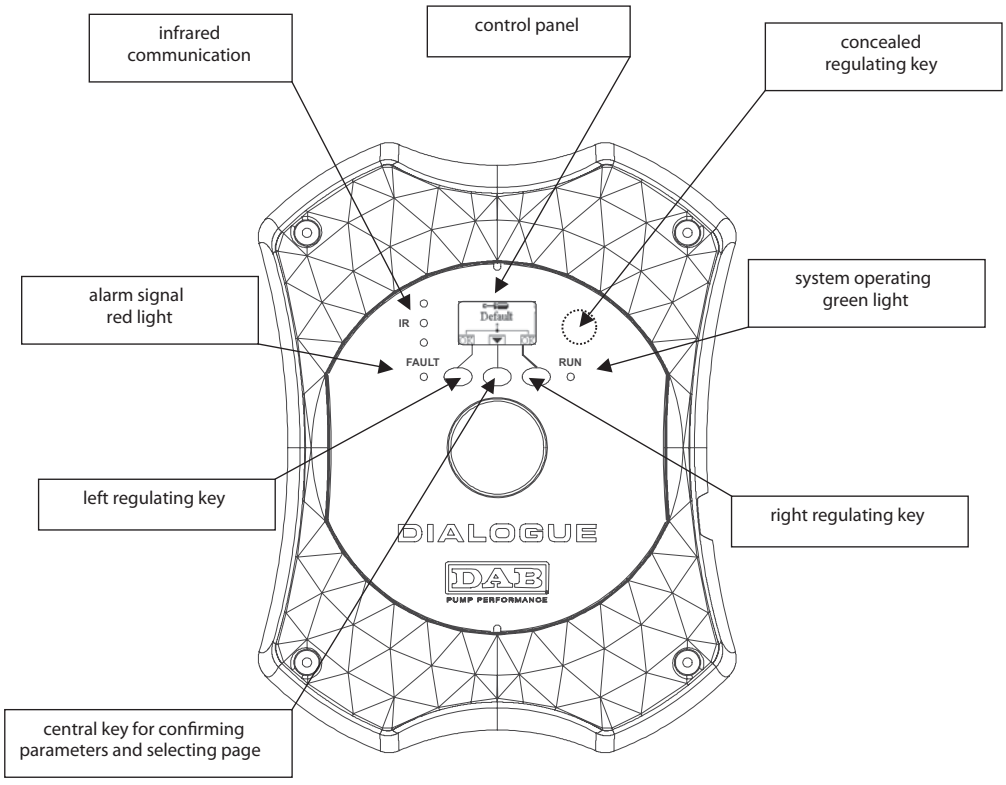
Hset
to a value of
Hset x f.rid

WIRING DIAGRAM



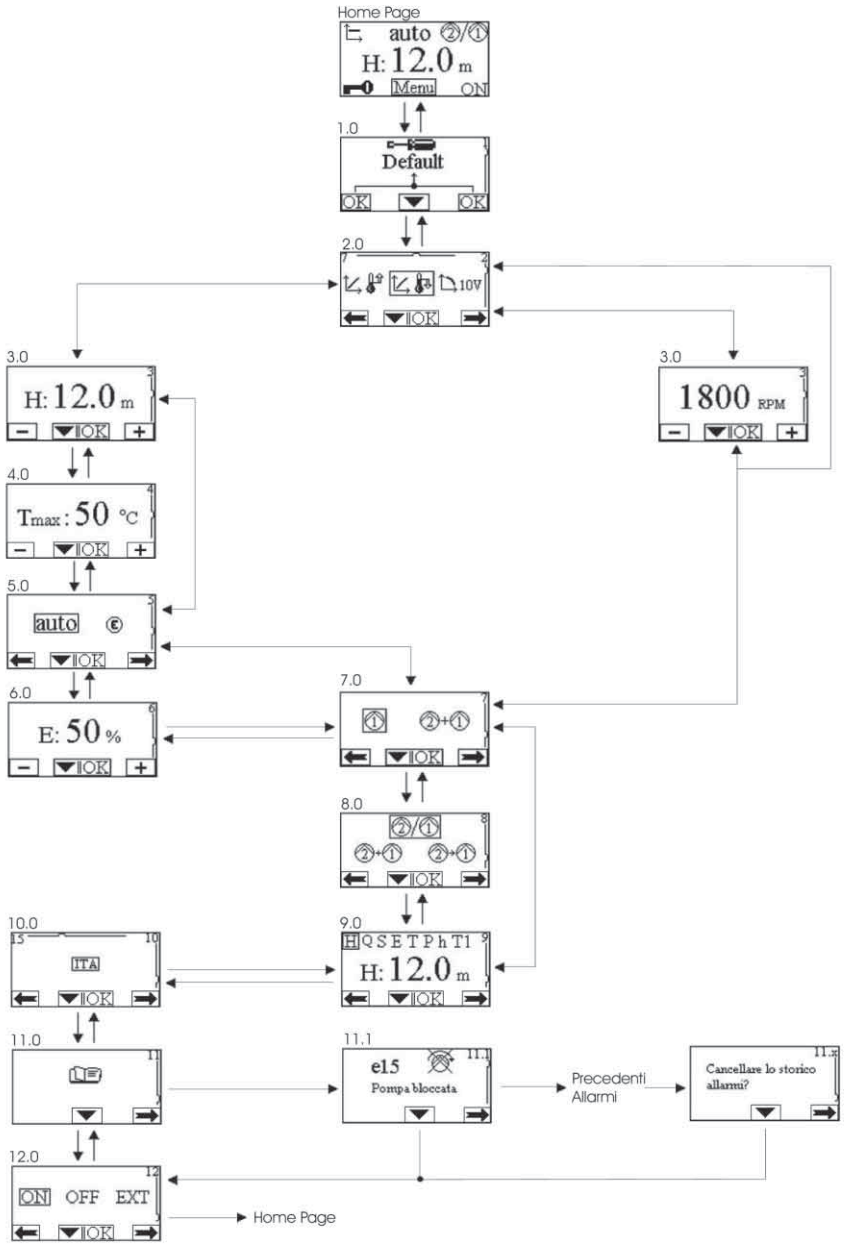
Ref.	Function
A	Connector for RS 485 remote serial connection
B	Connector for twin circulators
C	Connector for remote temperature sensor (optional)
D	Connector for sensor on the circulator (standard)
1-2 (exit)	Connecting terminals for remote control (connect only contacts with no voltage)
3-4 (Ⓔ)	Connecting terminals for economy function input (connect only contacts with no voltage)
5-6 (0-10V)	Connecting terminals for analog input 0-10V dc ref. 5 = +10V ref. 6 = 0V
7-8 (ALARM)	Connecting terminals for remote alarm contact 250V ac 5A
9-10-11	Connecting terminals for power supply line 1x230V 50-60Hz ref. 9 = Line ref. 10 = Earth ref. 11 = Neutral
12-13-14	Faston for connecting the motor cables ref. 12 = red cable ref. 13 = green cable ref. 14 = white cable
15	Motor earthing screw
16-17	Faston for connecting the motor protector – white cable
18	Dialogue display connector
19	Dialogue retaining screw

CONTROL PANEL - DESCRIPTION



DIALOGUE DISPLAY - THE SETTING PARAMETERS

The settings are made when passing from one page to another, in the circulator configuration menu.



DISPLAYABLE QUANTITIES DESCRIPTION

Symbol	Description
H Q S E T P h T1	Shows parameters
H	Head in metres
Q	Flow rate in m³/h **Q < Qmin** when Q is less than 30% of Q_{max} **Q = 0** only when the Dialogue is switched off.
S	Speed in revs/minute (rpm)
E	Analog input 0-10V
T	Liquid temperature in °C – input D
P	Power in kW
h	Working hours
T1	Liquid temperature in °C – input C
T_{MAX}	Maximum liquid temperature in °C depending on regulation

Status

Symbol	Description
①	Single circulator or nr. 1
②	Circulator nr. 2
②/①	Alternate twin circul. (24 h. one motor/24 h. the other motor)
②←①	Principal/reserve twin circulators
②+①	Simultaneous twin circulators
ON	Circulator on
OFF	Circulator off
EXT	Circulator controlled by remote signal (ref. terminals 1-2)

Operating mode

Symbol	Description
auto	Auto
Ⓔ	Economy mode

Regulation mode

Symbol	Description
	Regulation with Δp-c (constant pressure)
	Regulation with Δp-c depending on temperature with positive increase
	Regulation with Δp-c depending on temperature with negative increase
	Regulation with Δp-v (variable pressure)
	Regulation with Δp-v depending on temperature with positive increase
	Regulation with Δp-v depending on temperature with negative increase
	Servomotor regulation with speed set on the display.
10V	Servomotor regulation with speed set by remote signal 0-10V

Miscellaneous

Symbol	Description
	Control panel blocked
▼‖OK ▲‖OK	Multifunction key for confirming parameters and scrolling pages

ALARMS MANAGEMENT

The **DIALOGUE** device can remotely reactivate the alarms that have occurred in the pump itself through a clean contact (250Vac – 5 Amp). These alarms are also memorised in the resident memory for subsequent consultation. The alarms archive can also be cancelled to perform dedicated tests.

ALARMS DISPLAY

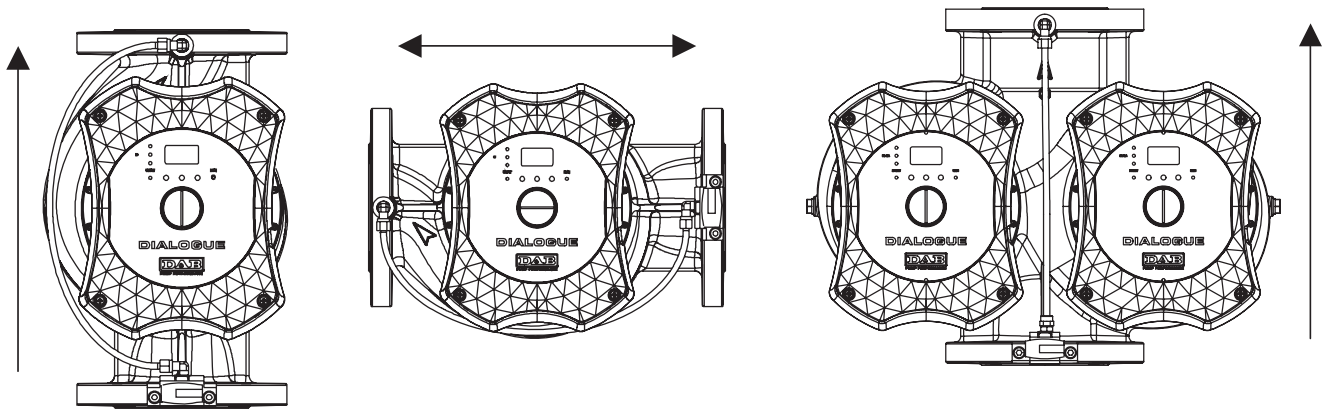
Symbol	Alarm type	
	E01	Pump blocked
	E02	Internal error V18”
min	E03	Low mains voltage” (LP)
max	E04	High mains voltage” (HP)
max	E06	Critical overheating of electronic parts”
	W01	Sensor signal absent”
①↔②	W02	Twin communication absent”
max	W03	Overheating of electronic parts”
	W04	Fault in cooling systems”
Imax	W05	Current overload protection”

W05 Imax: Motor current overload protection
The circulators in the BPH-E and DPH-E series contain a current limitation system to protect the electropumps against any current overloads. The maximum current that can be supplied is set for each size. If this current exceeds the set value, the protection intervenes, reducing the operating frequency (a **Warning W05** is generated in the alarm log). If this current does not fall within the predetermined values, the pump goes into a **blocking error E01** (the fixed red “FAULT” light is lit and the alarm relay closes) and attempts to restart every 10 minutes.

TROUBLESHOOTING

Error condition		
Display indication	**Description**	**Reset sequence**
E01	Pumpblocked	- Free the pump by hand.
E02	InternalerrorV18	- Disconnect power supply to Dialogue. After having waited 5 minutes, restore power supply to Dialogue.If the error persists, change the Dialogue.
E03	Low mains voltage (LP)	- Disconnect power supply to Dialogue. After having waited 5 minutes, restore power supply to Dialogue. Check that the mains voltage is correct, if necessary restore the data plate value.
E04	High mains voltage (HP)	- Disconnect power supply to Dialogue. After having waited 5 minutes, restore power supply to Dialogue. Check that the mains voltage is correct, if necessary restore the data plate value.
E06	Critical overheating of electronic parts	- Disconnect power supply to Dialogue. After having waited 5 minutes, open the cover of the Dialogue. Clean the air sockets and the cooling body with dry air (fig.3 page 5) Close the cover of the Dialogue.
W01	Sensor signal absent	- Check the sensor connection (ref. D). If the sensor is faulty, change it.
W02	Twin communication absent	- Check that the twin communication cable is intact. Check that the circulator is fed.
W03	Overheating of electronic parts	- Disconnect power supply to Dialogue. After having waited 5 minutes, open the cover of the Dialogue. Clean the air sockets and the cooling body with dry air (fig.3 page 5) Close the cover of the Dialogue.
W04	Faulty cooling systems	- Check that the fan is clean and that it moves freely. Change the Dialogue.
W05	Overload protection	- Check that the circulator turns freely. Check that the addition of antifreeze does not exceed the maximum amount of 30%.

INSTALLATION

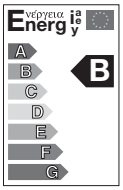


single **twin**

Performance curves based on kinematic viscosity values equal to 1 mm²/s at a density equal to 1000 kg/m³. Curve tolerance in accordance with ISO 9906.

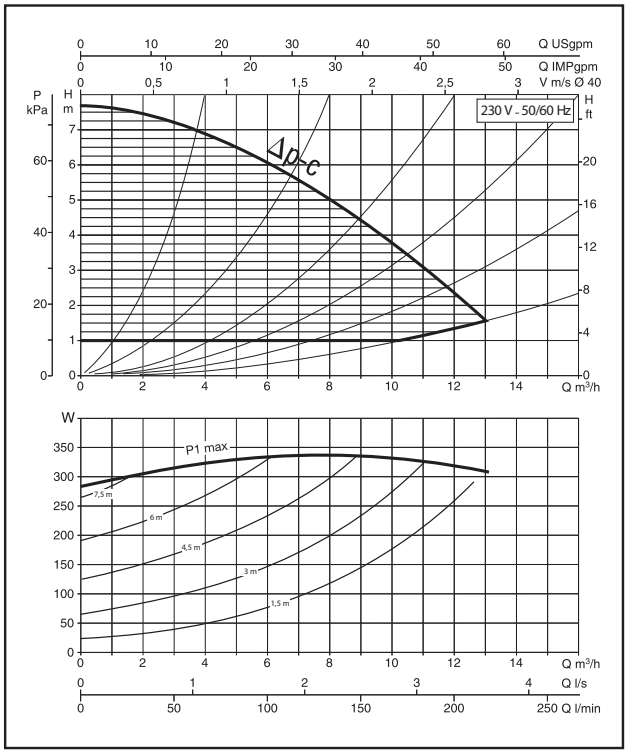
CIRCULATORS FOR HEATING AND AIR-CONDITIONING SYSTEMS

Liquid temperature range: from -10°C to +120°C
Maximum operating pressure: 10 bar (1000 kPa)

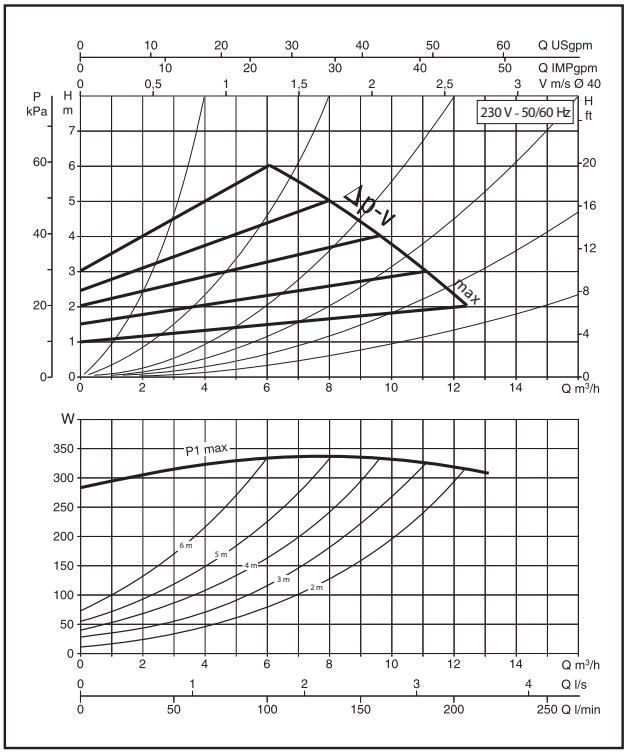


BPH-E 60/250.40 M

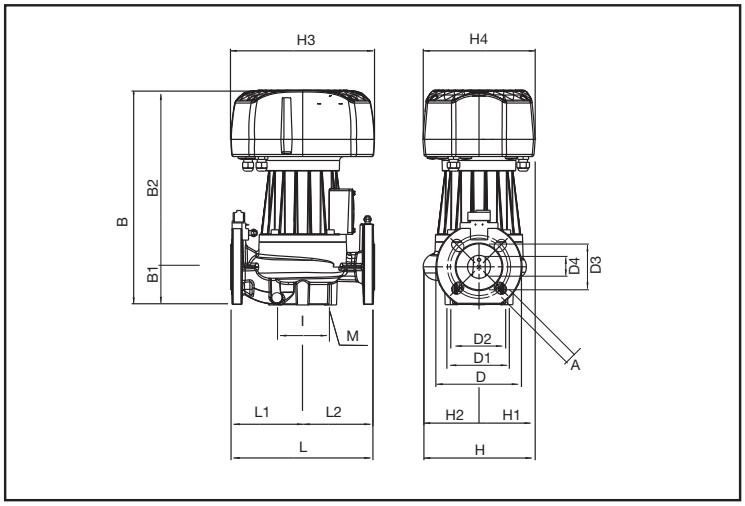
Characteristic curves Δp-c (constant)



Characteristic curves Δp-v (variable)

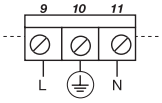


Dimensions



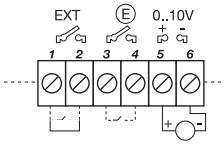
Terminals block layout

Power supply terminal block layout



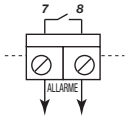
Power supply connection terminals
1x230V 50-60Hz
9 = Line
10 = Earth
11 = Neutral

Service terminal block layout



Remote control connection terminals
1 - 2 (exit)
Economy mode input connection terminals
3 - 4 ((Ⓔ))
Analogue input connection terminals 0-10V dc
5 = + 10V ***6*** = 0 V

Alarms terminal block layout



Remote alarm contact connection terminals
250V ac 5A
7 - 8 (alarm)

DIMENSIONS

L	L1	L2	A	B	B1	B2	D	D1	D2	D3	D4	I	I1	I2	I3	M	H	H1	H2	H3	H4
250	125	125	18	374	66	308	150	110	100	80	40	100	-	-	-	M10	195	83	112	250	196

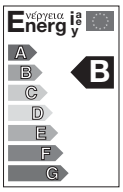
ELECTRICAL DATA

MODEL	VOLTAGE 50/60 Hz	CENTRE DISTANCE mm	CONTROFLANGES ON REQUEST	ELECTRICAL DATA		MINIMUM HEAD PRESSURE				
				P1 MAX W	In A					
BPH-E 60/250-40	230 V	250	DN 40 - PN 10	344	2	t°	75°	90°	110°	120°
						mt.	1,6	4	-	19

Performance curves based on kinematic viscosity values equal to 1 mm²/s at a density equal to 1000 kg/m³. Curve tolerance in accordance with ISO 9906.

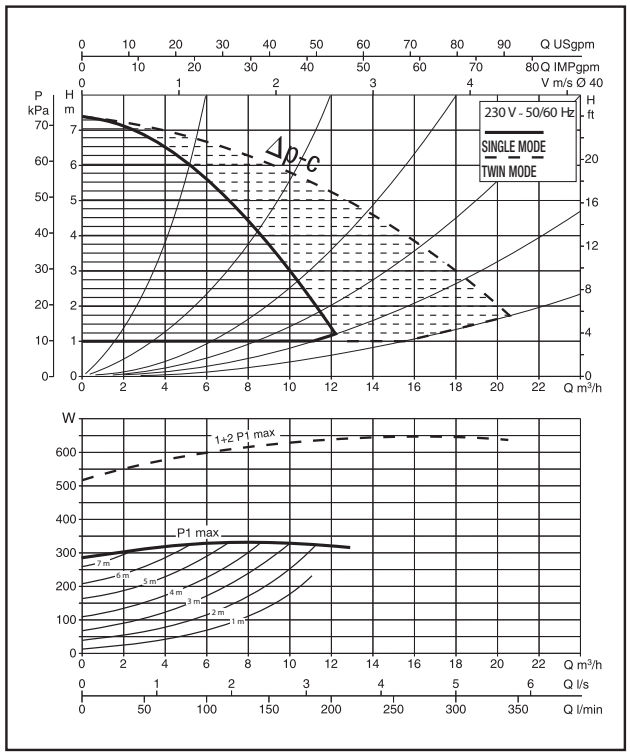
CIRCULATORS FOR HEATING AND AIR-CONDITIONING SYSTEMS

Liquid temperature range: from -10°C to +120°C
Maximum operating pressure: 10 bar (1000 kPa)

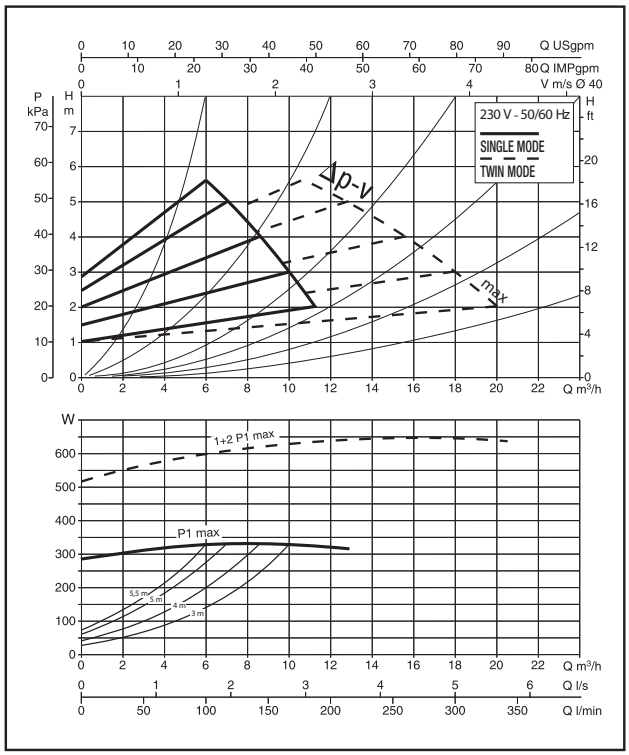


DPH-E 60/250.40 M

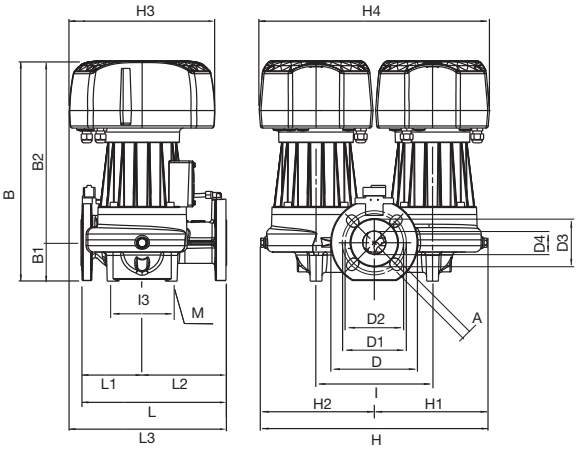
Characteristic curves Δp-c (constant)



Characteristic curves Δp-v (variable)

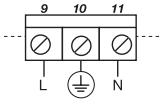


Dimensions



Terminals block layout

Power supply terminal block layout



Power supply connection terminals
1x230V 50-60Hz
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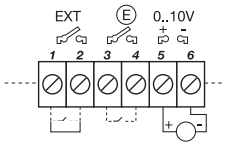
11 = Neutral

Service terminal block layout



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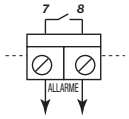
5 = + 10V ***6*** = 0 V

Alarms terminal block layout



Remote alarm contact connection terminals
250V ac 5A
7 - 8 (alarm)

DIMENSIONS

L	L1	L2	L3	A	B	B1	B2	D	D1	D2	D3	D4	I	I1	I2	I3	M	H	H1	H2	H3	H4
250	105	145	270	18	378	66	312	150	110	100	80	40	200	100	100	100	M12	389	194,5	195	250	396

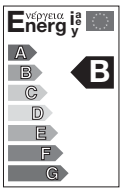
ELECTRICAL DATA

MODEL	VOLTAGE 50/60 Hz	CENTRE DISTANCE mm	CONTROFLANGES ON REQUEST	ELECTRICAL DATA		MINIMUM HEAD PRESSURE				
				P1 MAX W	In A					
DPH-E 60/250-40	230 V	250	DN 40 - PN 10	344	2	t°	75°	90°	110°	120°
						mt.	1,6	4	-	19

Performance curves based on kinematic viscosity values equal to 1 mm²/s at a density equal to 1000 kg/m³. Curve tolerance in accordance with ISO 9906.

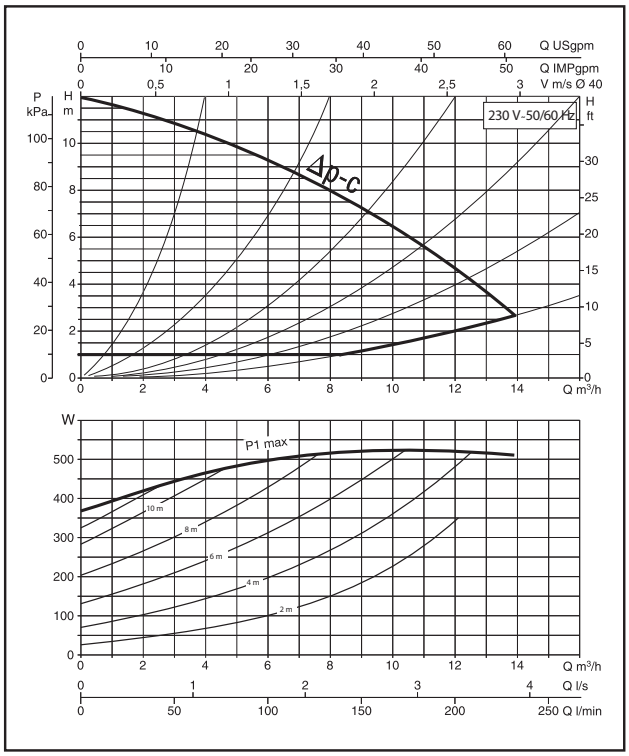
CIRCULATORS FOR HEATING AND AIR-CONDITIONING SYSTEMS

Liquid temperature range: from -10°C to +120°C
Maximum operating pressure: 10 bar (1000 kPa)

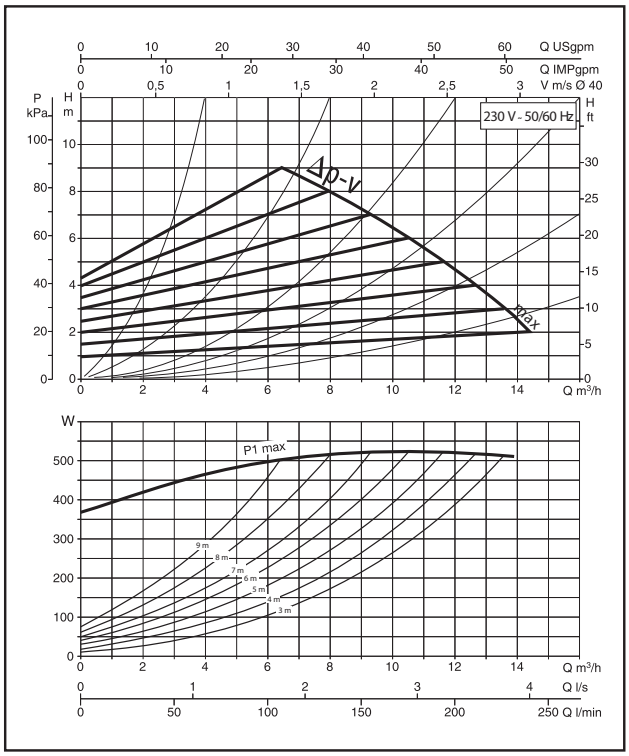


BPH-E 120/250.40 M

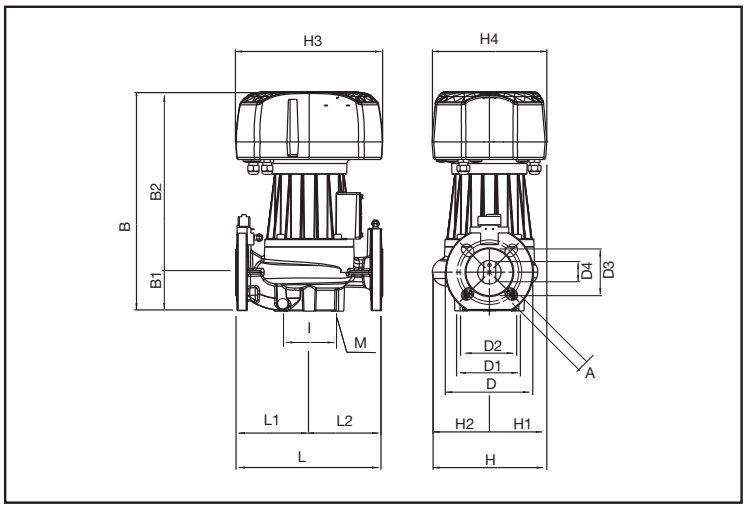
Characteristic curves Δp-c (constant)



Characteristic curves Δp-v (variable)

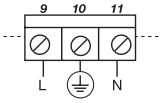


Dimensions



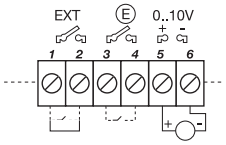
Terminals block layout

Power supply terminal block layout



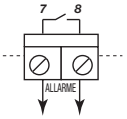
Power supply connection terminals
1x230V 50-60Hz
9 = Line
10 = Earth
11 = Neutral

Service terminal block layout



Remote control connection terminals
1 - 2 (exit)
Economy mode input connection terminals
3 - 4 ((E))
Analogue input connection terminals 0-10V dc
5 = + 10V ***6*** = 0 V

Alarms terminal block layout



Remote alarm contact connection terminals
250V ac 5A
7 - 8 (alarm)

DIMENSIONS

L	L1	L2	A	B	B1	B2	D	D1	D2	D3	D4	I	I1	I2	I3	M	H	H1	H2	H3	H4
250	125	125	18	374	66	308	150	100	100	80	40	100	-	-	-	M10	195	83	112	250	196

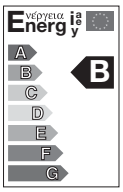
ELECTRICAL DATA

MODEL	VOLTAGE 50/60 Hz	CENTRE DISTANCE mm	CONTROFLANGES ON REQUEST	ELECTRICAL DATA		MINIMUM HEAD PRESSURE				
				P1 MAX W	In A					
BPH-E 120/250-40	230 V	250	DN 40 - PN 10	528	3	t°	75°	90°	110°	120°
						mt.	6	9	-	23

Performance curves based on kinematic viscosity values equal to 1 mm²/s at a density equal to 1000 kg/m³. Curve tolerance in accordance with ISO 9906.

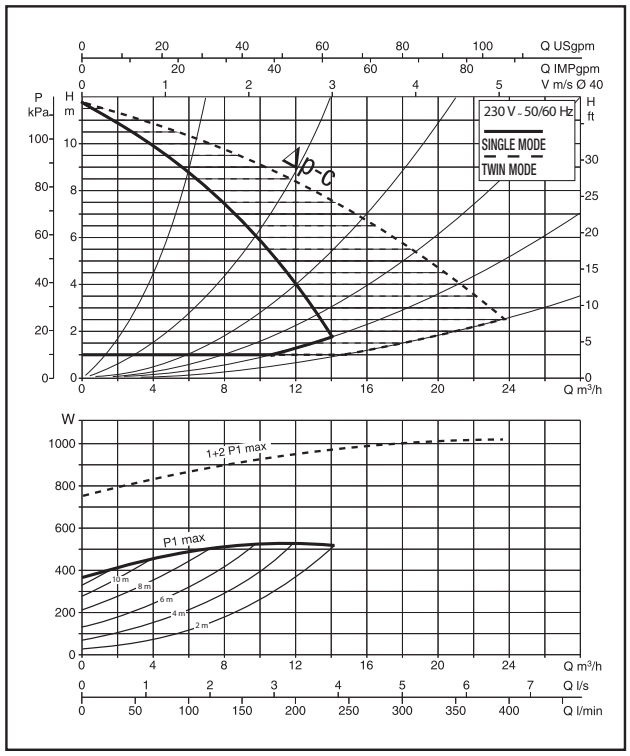
CIRCULATORS FOR HEATING AND AIR-CONDITIONING SYSTEMS

Liquid temperature range: from -10°C to +120°C
Maximum operating pressure: 10 bar (1000 kPa)

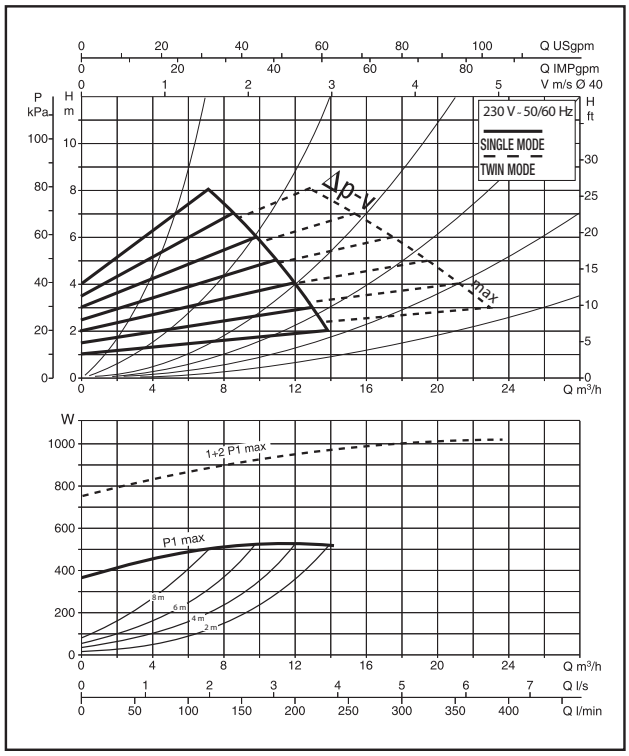


DPH-E 120/250.40 M

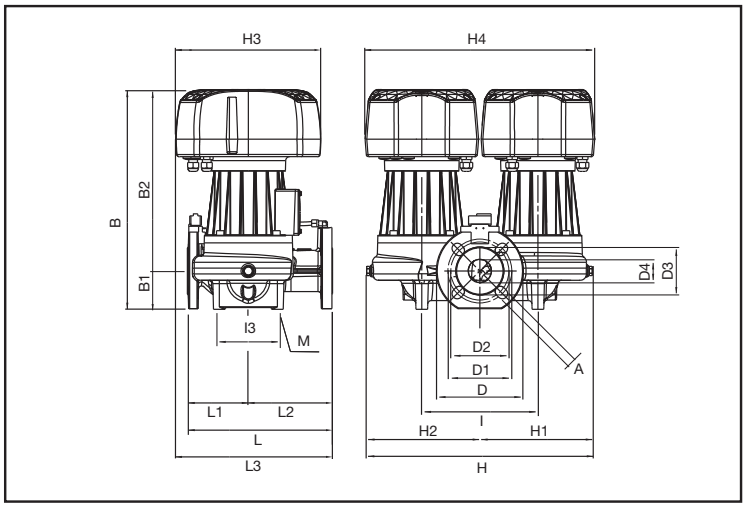
Characteristic curves Δp-c (constant)



Characteristic curves Δp-v (variable)

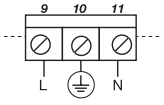


Dimensions



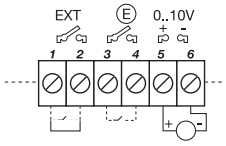
Terminals block layout

Power supply terminal block layout



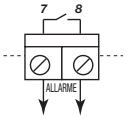
Power supply connection terminals
1x230V 50-60Hz
9 = Line
10 = Earth
11 = Neutral

Service terminal block layout



Remote control connection terminals
1 - 2 (exit)
Economy mode input connection terminals
3 - 4 (Ⓔ)
Analogue input connection terminals 0-10V dc
5 = + 10V ***6*** = 0 V

Alarms terminal block layout



Remote alarm contact connection terminals
250V ac 5A
7 - 8 (alarm)

DIMENSIONS

L	L1	L2	L3	A	B	B1	B2	D	D1	D2	D3	D4	I	I1	I2	I3	M	H	H1	H2	H3	H4
250	105	145	270	18	378	66	312	150	110	100	80	40	200	100	100	100	M12	389	194,5	195	250	396

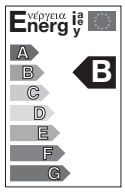
ELECTRICAL DATA

MODEL	VOLTAGE 50/60 Hz	CENTRE DISTANCE mm	CONTROFLANGES ON REQUEST	ELECTRICAL DATA		MINIMUM HEAD PRESSURE				
				P1 MAX W	In A	t°	75°	90°	110°	120°
DPH-E 120/250-40	230 V	250	DN 40 - PN 10	528	3	mt.	6	9	-	23

Performance curves based on kinematic viscosity values equal to 1 mm²/s at a density equal to 1000 kg/m³. Curve tolerance in accordance with ISO 9906.

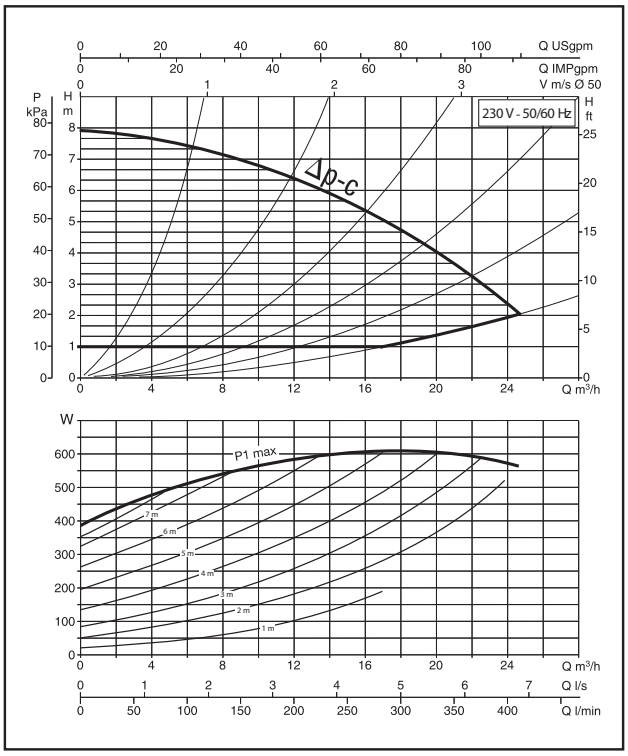
CIRCULATORS FOR HEATING AND AIR-CONDITIONING SYSTEMS

Liquid temperature range: from -10°C to +120°C
Maximum operating pressure: 10 bar (1000 kPa)

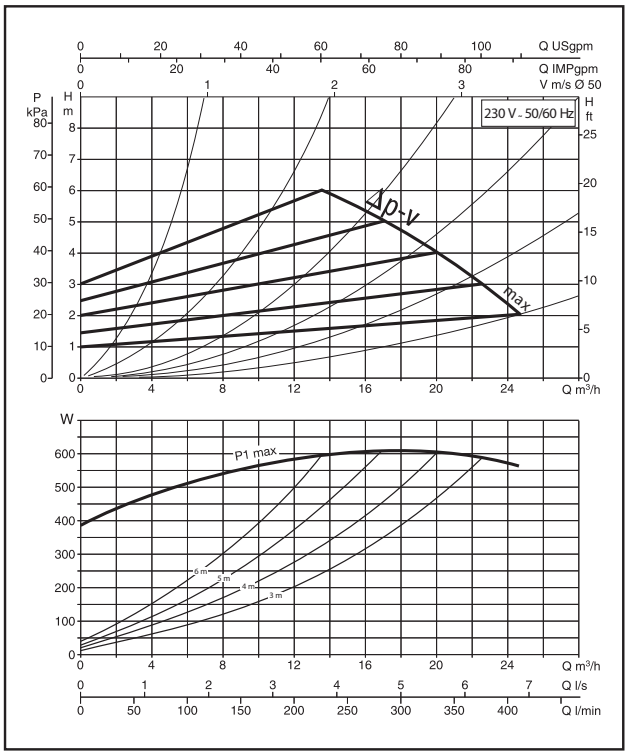


BPH-E 60/280.50 M

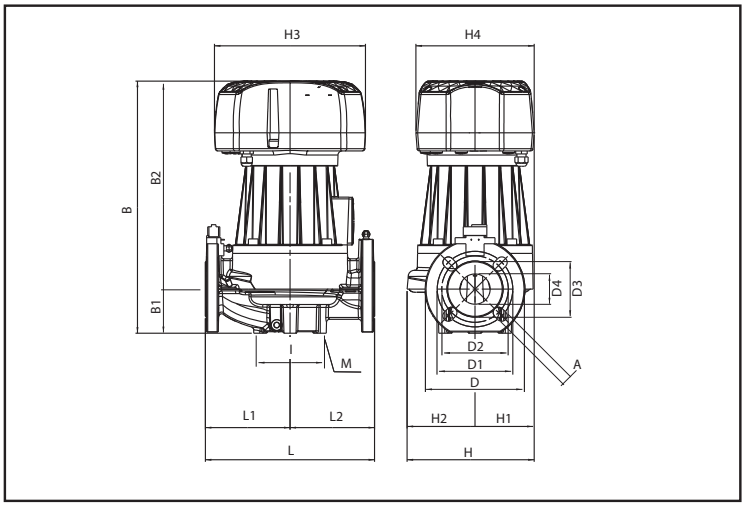
Characteristic curves Δp-c (constant)



Characteristic curves Δp-v (variable)

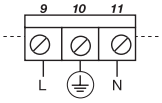


Dimensions



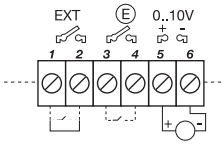
Terminals block layout

Power supply terminal block layout



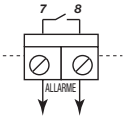
Power supply connection terminals
1x230V 50-60Hz
9 = Line
10 = Earth
11 = Neutral

Service terminal block layout



Remote control connection terminals
1 - 2 (exit)
Economy mode input connection terminals
3 - 4 ((Ⓔ))
Analogue input connection terminals 0-10V dc
5 = + 10V ***6*** = 0 V

Alarms terminal block layout



Remote alarm contact connection terminals
250V ac 5A
7 - 8 (alarm)

DIMENSIONS

L	L1	L2	A	B	B1	B2	D	D1	D2	D3	D4	I	I1	I2	I3	M	H	H1	H2	H3	H4
280	140	140	18	417	73	344	165	125	110	90	50	100	-	-	-	M10	210	96	114	250	196

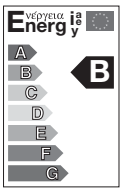
ELECTRICAL DATA

MODEL	VOLTAGE 50/60 Hz	CENTRE DISTANCE mm	CONTROFLANGES ON REQUEST	ELECTRICAL DATA		MINIMUM HEAD PRESSURE				
				P1 MAX W	In A					
BPH-E 60/280-50	230 V	280	DN 50 - PN 10	606	3,37	t°	75°	90°	110°	120°
						mt.	4	7,5	-	21

Performance curves based on kinematic viscosity values equal to 1 mm²/s at a density equal to 1000 kg/m³. Curve tolerance in accordance with ISO 9906.

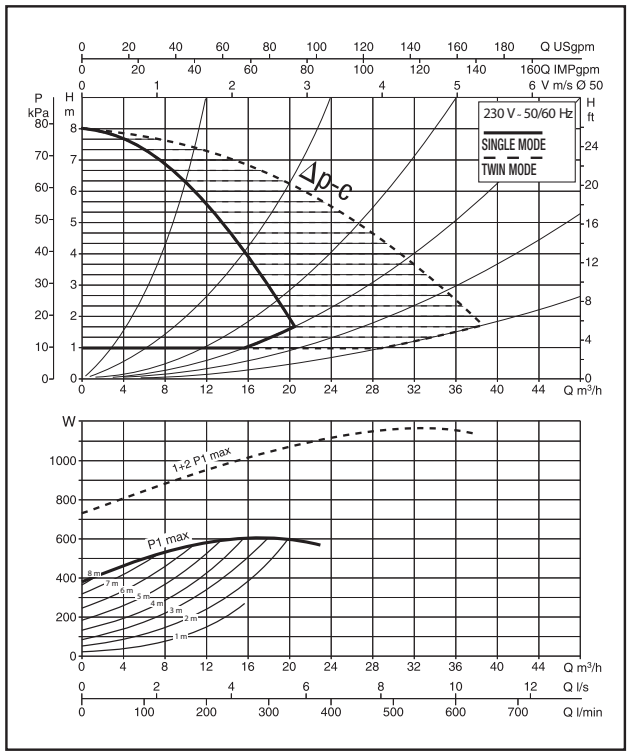
CIRCULATORS FOR HEATING AND AIR-CONDITIONING SYSTEMS

Liquid temperature range: from -10°C to +120°C
Maximum operating pressure: 10 bar (1000 kPa)

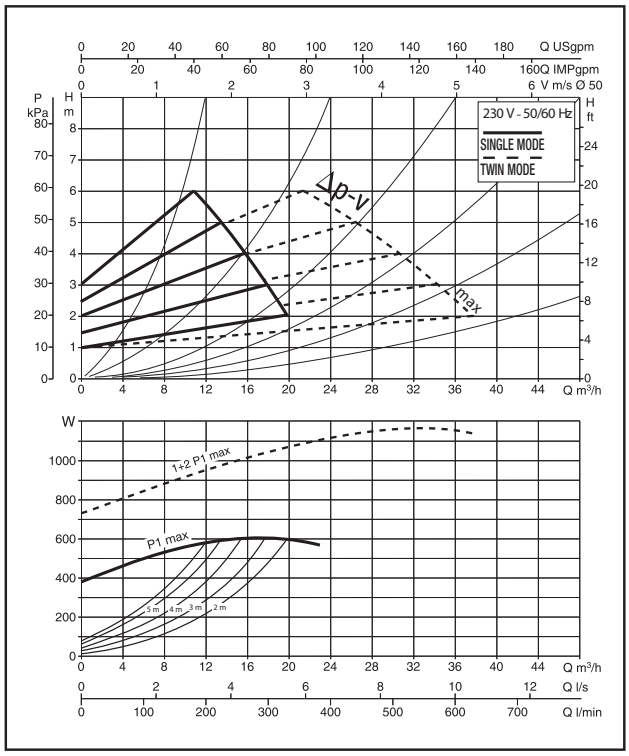


DPH-E 60/280.50 M

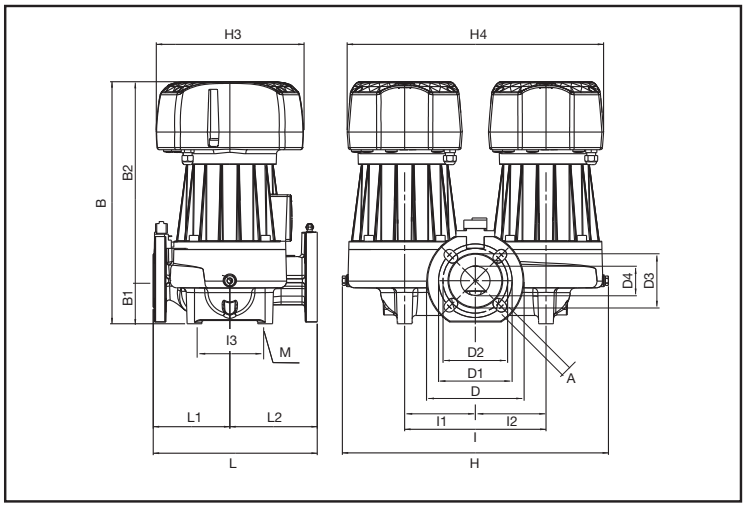
Characteristic curves Δp-c (constant)



Characteristic curves Δp-v (variable)

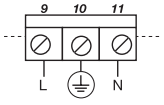


Dimensions



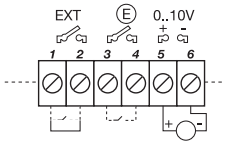
Terminals block layout

Power supply terminal block layout



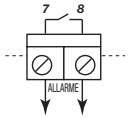
Power supply connection terminals
1x230V 50-60Hz
9 = Line
10 = Earth
11 = Neutral

Service terminal block layout



Remote control connection terminals
1 - 2 (exit)
Economy mode input connection terminals
3 - 4 (Ⓔ)
Analogue input connection terminals 0-10V dc
5 = + 10V ***6*** = 0 V

Alarms terminal block layout



Remote alarm contact connection terminals
250V ac 5A
7 - 8 (alarm)

DIMENSIONS

L	L1	L2	A	B	B1	B2	D	D1	D2	D3	D4	I	I1	I2	I3	M	H	H1	H2	H3	H4
280	130	150	18	411	73	338	165	125	110	90	50	240	120	120	120	M14	452	226	226	250	436

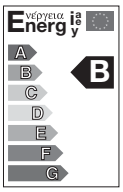
ELECTRICAL DATA

MODEL	VOLTAGE 50/60 Hz	CENTRE DISTANCE mm	CONTROFLANGES ON REQUEST	ELECTRICAL DATA		MINIMUM HEAD PRESSURE				
				P1 MAX W	In A					
DPH-E 60/280-50	230 V	280	DN 50 - PN 10	606	3,37	t°	75°	90°	110°	120°
						mt.	4	7,5	-	21

Performance curves based on kinematic viscosity values equal to 1 mm²/s at a density equal to 1000 kg/m³. Curve tolerance in accordance with ISO 9906.

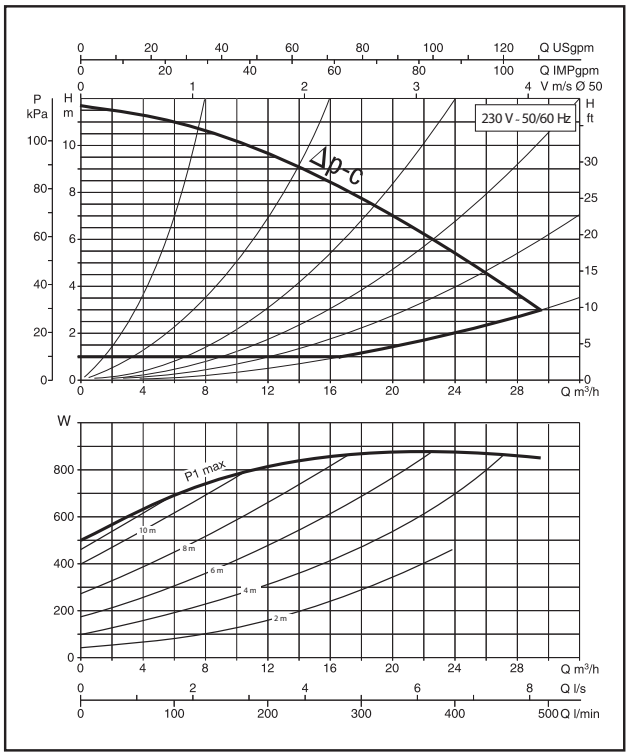
CIRCULATORS FOR HEATING AND AIR-CONDITIONING SYSTEMS

Liquid temperature range: from -10°C to +120°C
Maximum operating pressure: 10 bar (1000 kPa)

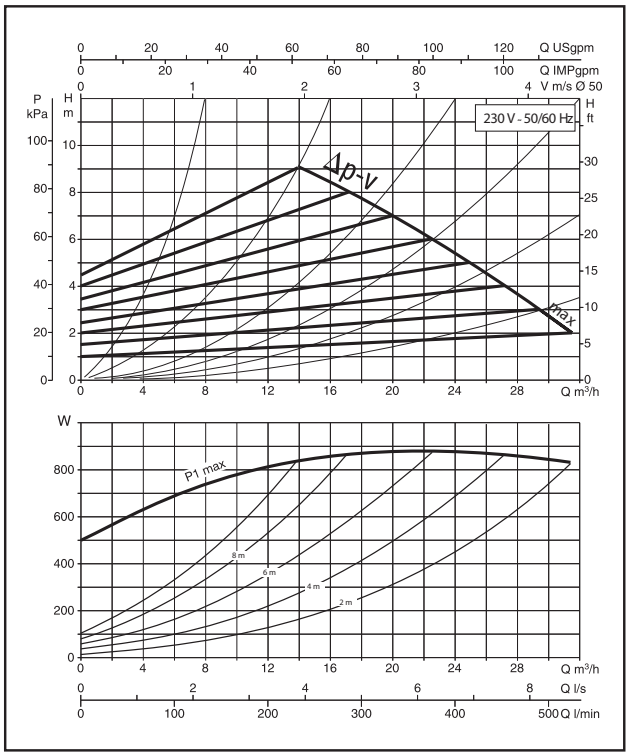


BPH-E 120/280.50 M

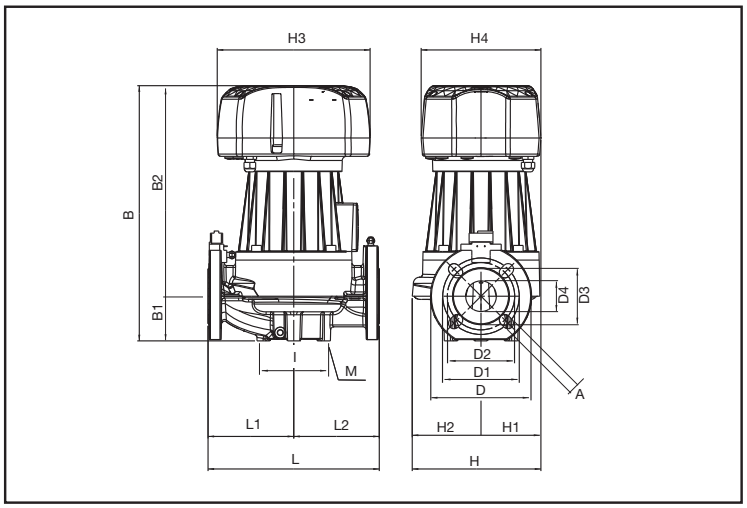
Characteristic curves Δp-c (constant)



Characteristic curves Δp-v (variable)

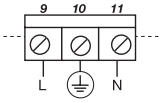


Dimensions



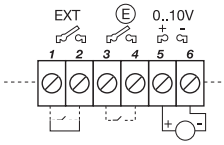
Terminals block layout

Power supply terminal block layout



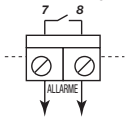
Power supply connection terminals
1x230V 50-60Hz
9 = Line
10 = Earth
11 = Neutral

Service terminal block layout



Remote control connection terminals
1 - 2 (exit)
Economy mode input connection terminals
3 - 4 ((Ⓔ))
Analogue input connection terminals 0-10V dc
5 = + 10V ***6*** = 0 V

Alarms terminal block layout



Remote alarm contact connection terminals
250V ac 5A
7 - 8 (alarm)

DIMENSIONS

L	L1	L2	A	B	B1	B2	D	D1	D2	D3	D4	I	I1	I2	I3	M	H	H1	H2	H3	H4
280	140	140	18	417	73	344	165	125	110	90	50	100	-	-	-	M10	210	96	114	250	196

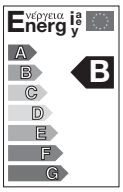
ELECTRICAL DATA

MODEL	VOLTAGE 50/60 Hz	CENTRE DISTANCE mm	CONTROFLANGES ON REQUEST	ELECTRICAL DATA		MINIMUM HEAD PRESSURE				
				P1 MAX W	In A					
BPH-E 120/280-50	230 V	280	DN 50 - PN 10	893	4,84	t°	75°	90°	110°	120°
						mt.	2	5	-	20

Performance curves based on kinematic viscosity values equal to 1 mm²/s at a density equal to 1000 kg/m³. Curve tolerance in accordance with ISO 9906.

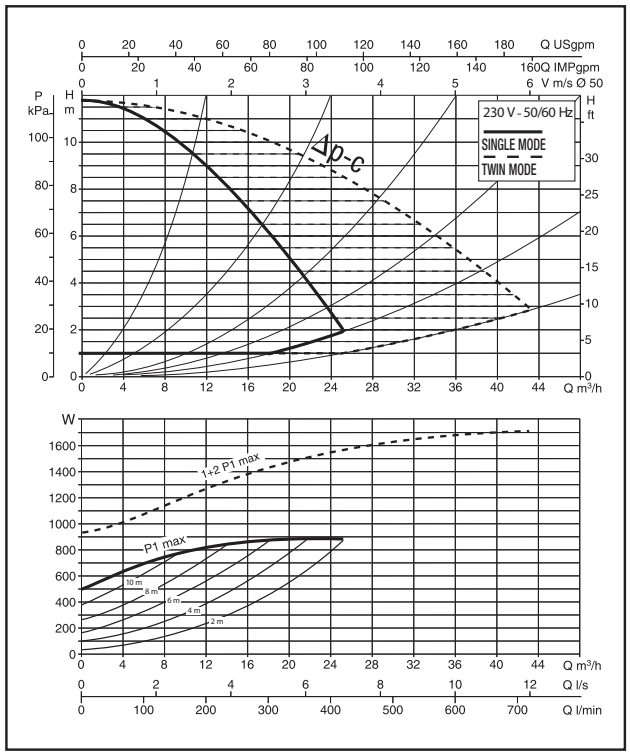
CIRCULATORS FOR HEATING AND AIR-CONDITIONING SYSTEMS

Liquid temperature range: from -10°C to +120°C
Maximum operating pressure: 10 bar (1000 kPa)

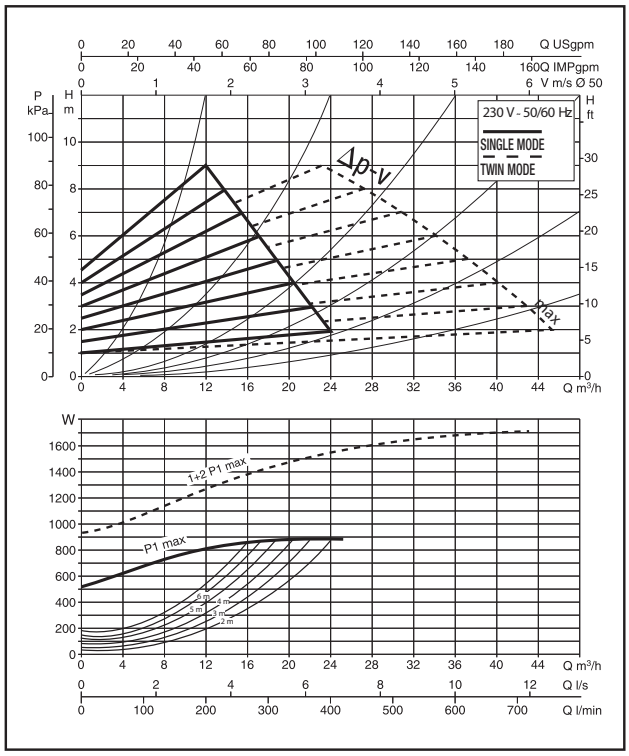


DPH-E 120/280.50 M

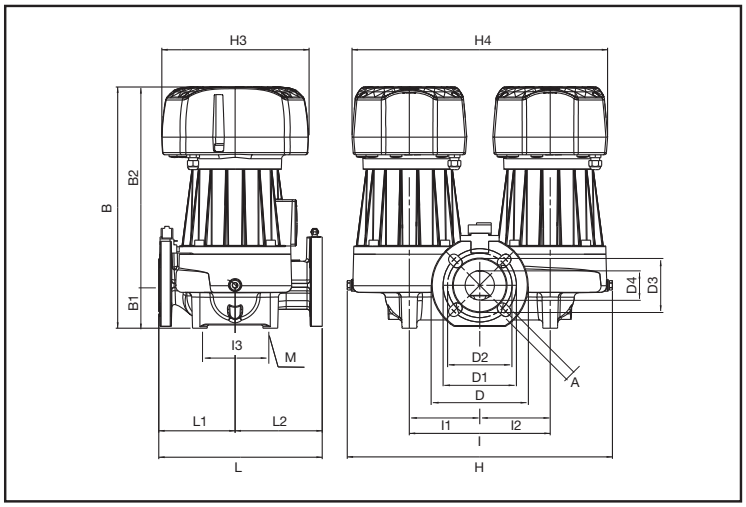
Characteristic curves Δp-c (constant)



Characteristic curves Δp-v (variable)

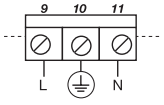


Dimensions



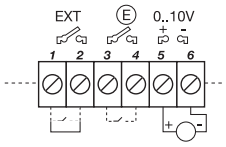
Terminals block layout

Power supply terminal block layout



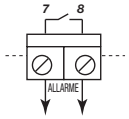
Power supply connection terminals
1x230V 50-60Hz
9 = Line
10 = Earth
11 = Neutral

Service terminal block layout



Remote control connection terminals
1 - 2 (exit)
Economy mode input connection terminals
3 - 4 (Ⓔ)
Analogue input connection terminals 0-10V dc
5 = + 10V ***6*** = 0 V

Alarms terminal block layout



Remote alarm contact connection terminals
250V ac 5A
7 - 8 (alarm)

DIMENSIONS

L	L1	L2	A	B	B1	B2	D	D1	D2	D3	D4	I	I1	I2	I3	M	H	H1	H2	H3	H4
280	130	150	18	411	73	338	165	125	110	90	50	240	120	120	120	M14	452	226	226	250	436

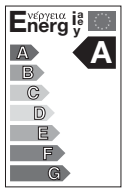
ELECTRICAL DATA

MODEL	VOLTAGE 50/60 Hz	CENTRE DISTANCE mm	CONTROFLANGES ON REQUEST	ELECTRICAL DATA		MINIMUM HEAD PRESSURE				
				P1 MAX W	In A	t°	75°	90°	110°	120°
DPH-E 120/280-50	230 V	280	DN 50 - PN 10	893	4,84	mt.	2	5	-	20

Performance curves based on kinematic viscosity values equal to 1 mm²/s at a density equal to 1000 kg/m³. Curve tolerance in accordance with ISO 9906.

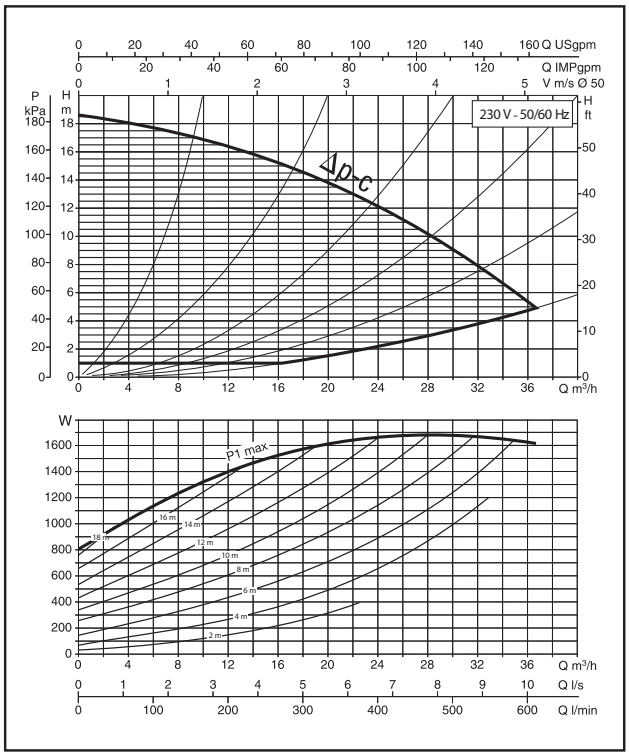
CIRCULATORS FOR HEATING AND AIR-CONDITIONING SYSTEMS

Liquid temperature range: from -10°C to +120°C
Maximum operating pressure: 10 bar (1000 kPa)

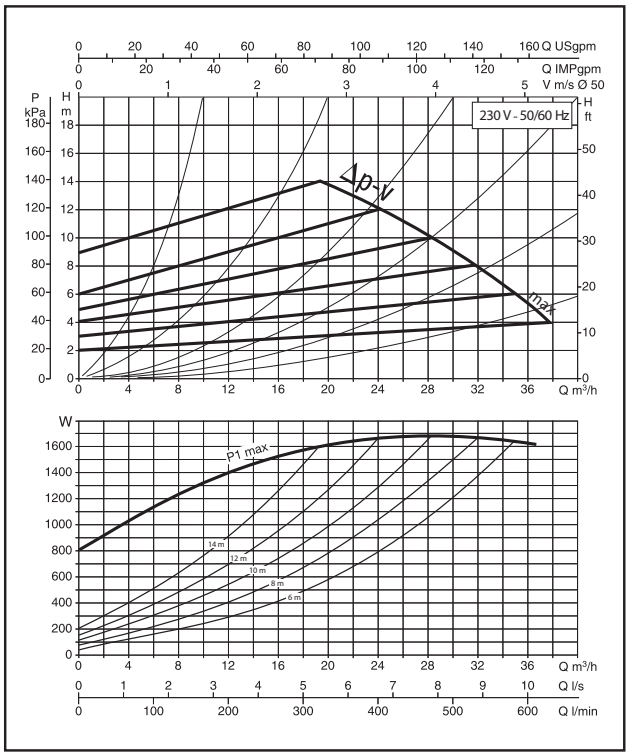


BPH-E 180/280.50 M

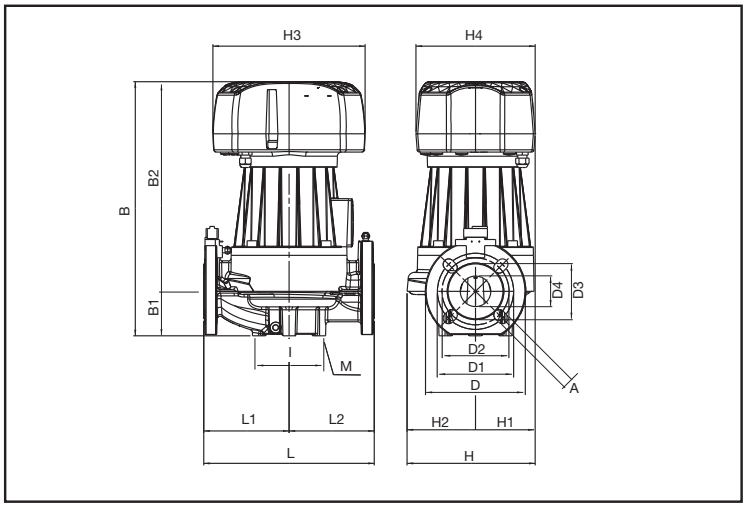
Characteristic curves Δp-c (constant)



Characteristic curves Δp-v (variable)

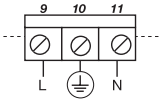


Dimensions



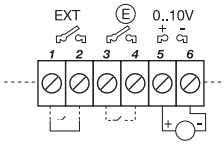
Terminals block layout

Power supply terminal block layout



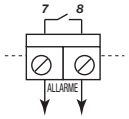
Power supply connection terminals
1x230V 50-60Hz
9 = Line
10 = Earth
11 = Neutral

Service terminal block layout



Remote control connection terminals
1 - 2 (exit)
Economy mode input connection terminals
3 - 4 ((Ⓔ))
Analogue input connection terminals 0-10V dc
5 = + 10V ***6*** = 0 V

Alarms terminal block layout



Remote alarm contact connection terminals
250V ac 5A
7 - 8 (alarm)

DIMENSIONS

L	L1	L2	A	B	B1	B2	D	D1	D2	D3	D4	I	I1	I2	I3	M	H	H1	H2	H3	H4
280	140	140	18	467	73	394	165	125	110	90	50	100	-	-	-	M10	210	96	114	250	196

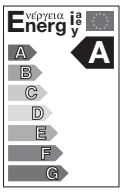
ELECTRICAL DATA

MODEL	VOLTAGE 50/60 Hz	CENTRE DISTANCE mm	CONTROFLANGES ON REQUEST	ELECTRICAL DATA		MINIMUM HEAD PRESSURE				
				P1 MAX W	In A					
BPH-E 180/280-50	230 V	280	DN 50 - PN 10	1693	9,2	t°	75°	90°	110°	120°
						mt.	2	5	-	20

Performance curves based on kinematic viscosity values equal to 1 mm²/s at a density equal to 1000 kg/m³. Curve tolerance in accordance with ISO 9906.

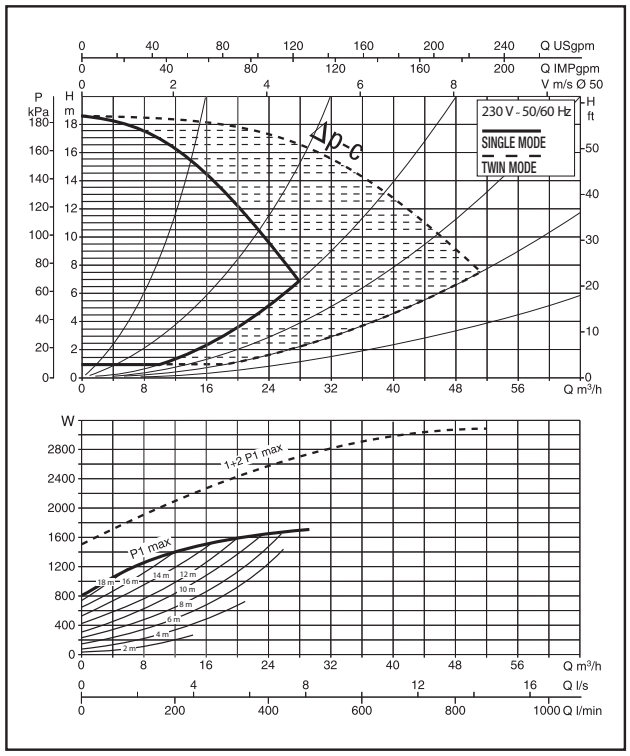
CIRCULATORS FOR HEATING AND AIR-CONDITIONING SYSTEMS

Liquid temperature range: from -10°C to +120°C
Maximum operating pressure: 10 bar (1000 kPa)

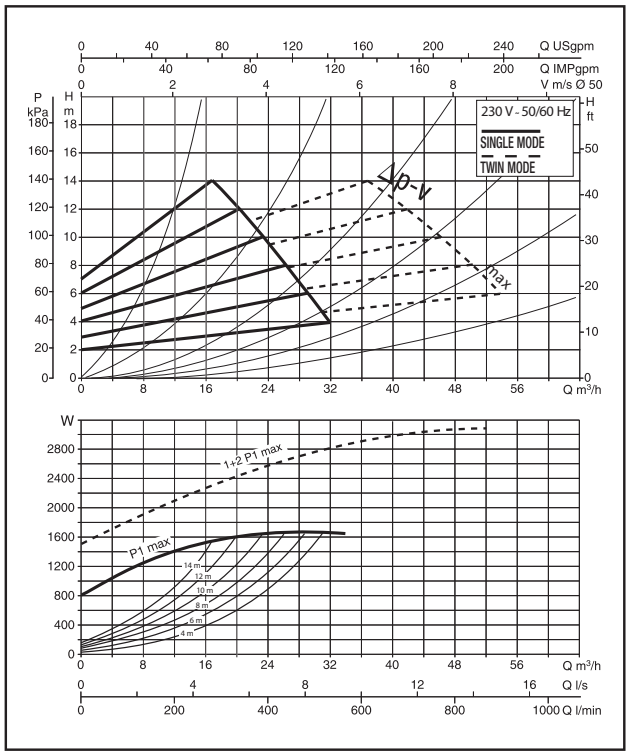


DPH-E 180/280.50 M

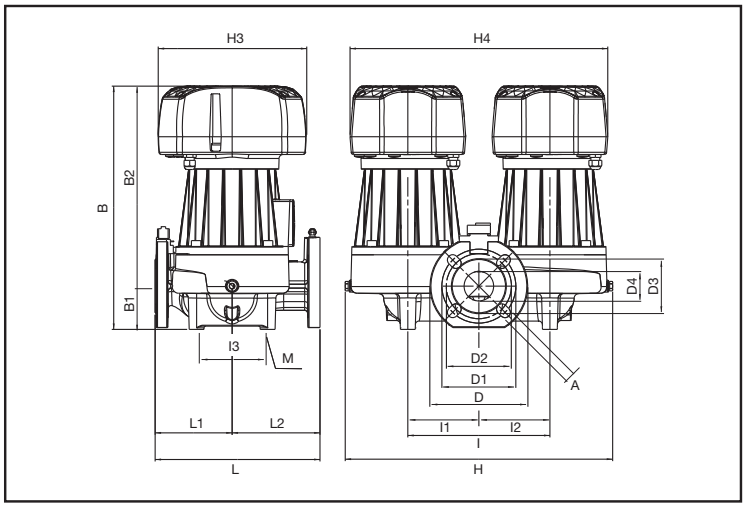
Characteristic curves Δp-c (constant)



Characteristic curves Δp-v (variable)

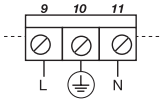


Dimensions



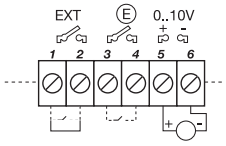
Terminals block layout

Power supply terminal block layout



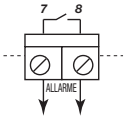
Power supply connection terminals
1x230V 50-60Hz
9 = Line
10 = Earth
11 = Neutral

Service terminal block layout



Remote control connection terminals
1 - 2 (exit)
Economy mode input connection terminals
3 - 4 (Ⓔ)
Analogue input connection terminals 0-10V dc
5 = + 10V ***6*** = 0 V

Alarms terminal block layout



Remote alarm contact connection terminals
250V ac 5A
7 - 8 (alarm)

DIMENSIONS

L	L1	L2	A	B	B1	B2	D	D1	D2	D3	D4	I	I1	I2	I3	M	H	H1	H2	H3	H4
280	130	150	18	461	73	388	165	125	110	90	50	240	120	120	120	M14	452	226	226	250	436

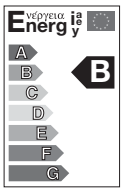
ELECTRICAL DATA

MODEL	VOLTAGE 50/60 Hz	CENTRE DISTANCE mm	CONTROFLANGES ON REQUEST	ELECTRICAL DATA		MINIMUM HEAD PRESSURE				
				P1 MAX W	In A					
DPH-E 180/280-50	230 V	280	DN 50 - PN 10	1693	9,2	t°	75°	90°	110°	120°
						mt.	2	5	-	20

Performance curves based on kinematic viscosity values equal to 1 mm²/s at a density equal to 1000 kg/m³. Curve tolerance in accordance with ISO 9906.

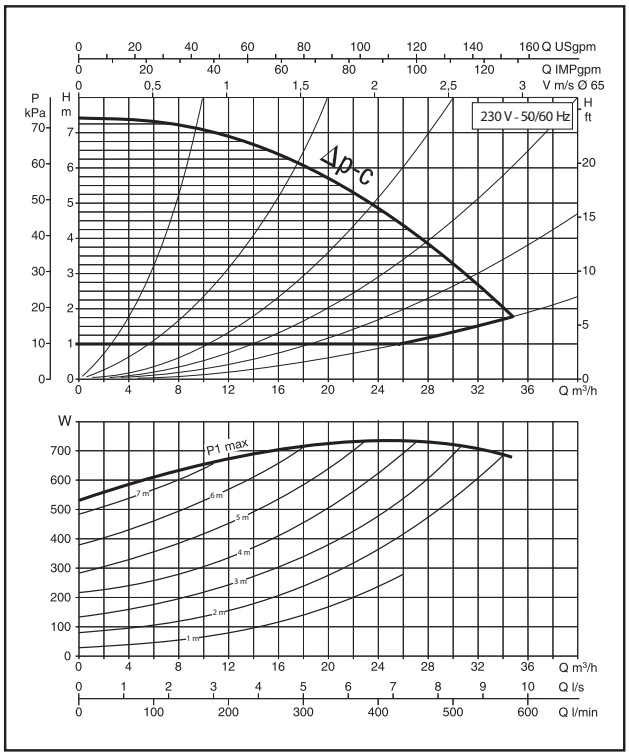
CIRCULATORS FOR HEATING AND AIR-CONDITIONING SYSTEMS

Liquid temperature range: from -10°C to +120°C
Maximum operating pressure: 10 bar (1000 kPa)

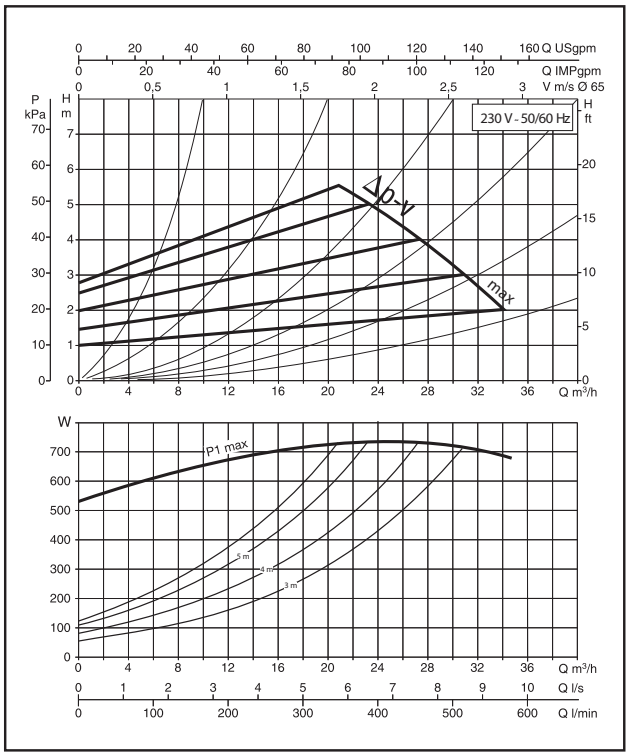


BPH-E 60/340.65 M

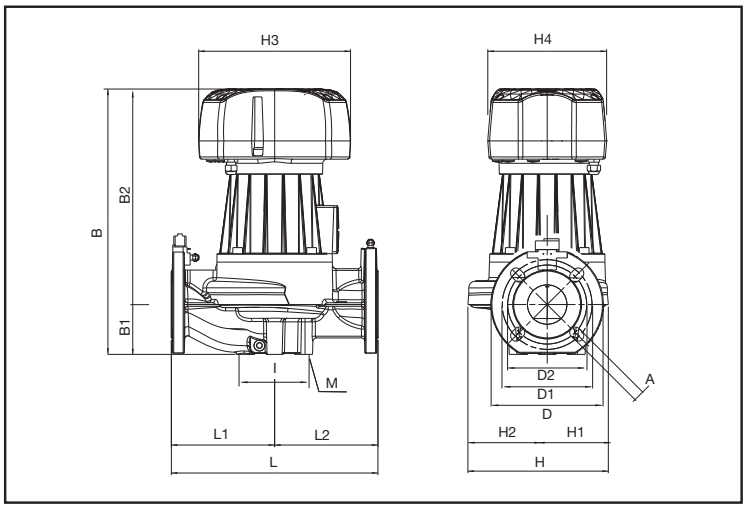
Characteristic curves Δp-c (constant)



Characteristic curves Δp-v (variable)

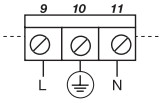


Dimensions



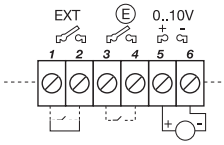
Terminals block layout

Power supply terminal block layout



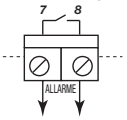
Power supply connection terminals
1x230V 50-60Hz
9 = Line
10 = Earth
11 = Neutral

Service terminal block layout



Remote control connection terminals
1 - 2 (exit)
Economy mode input connection terminals
3 - 4 ((E))
Analogue input connection terminals 0-10V dc
5 = + 10V ***6*** = 0 V

Alarms terminal block layout



Remote alarm contact connection terminals
250V ac 5A
7 - 8 (alarm)

DIMENSIONS

L	L1	L2	A	B	B1	B2	D	D1	D2	D3	D4	I	I1	I2	I3	M	H	H1	H2	H3	H4
340	170	170	18	437	82	355	185	145	130	110	65	100	-	-	-	M12	231	100	131	250	196

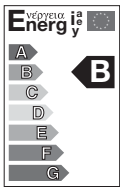
ELECTRICAL DATA

MODEL	VOLTAGE 50/60 Hz	CENTRE DISTANCE mm	CONTROFLANGES ON REQUEST	ELECTRICAL DATA		MINIMUM HEAD PRESSURE				
				P1 MAX W	In A					
BPH-E 60/340-65	230 V	340	DN 65 - PN 10	744	4,1	t°	75°	90°	110°	120°
						mt.	1	4	-	18

Performance curves based on kinematic viscosity values equal to 1 mm²/s at a density equal to 1000 kg/m³. Curve tolerance in accordance with ISO 9906.

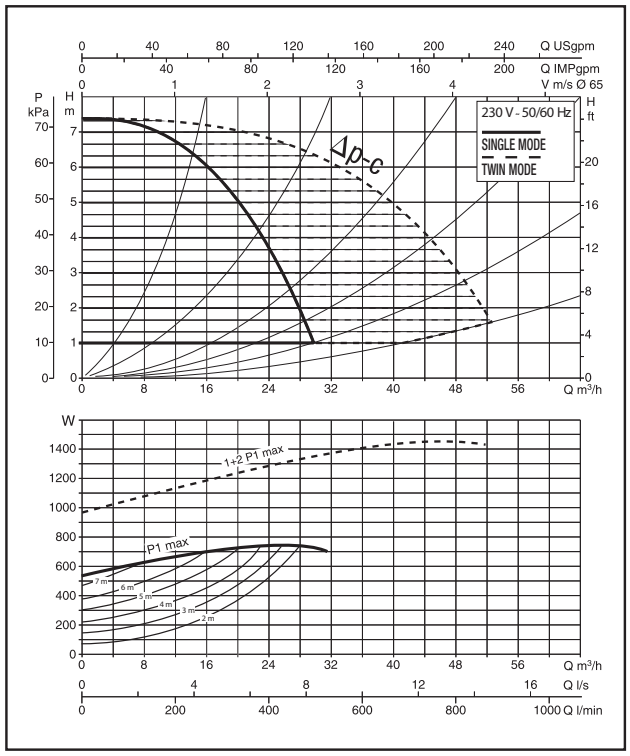
CIRCULATORS FOR HEATING AND AIR-CONDITIONING SYSTEMS

Liquid temperature range: from -10°C to +120°C
Maximum operating pressure: 10 bar (1000 kPa)

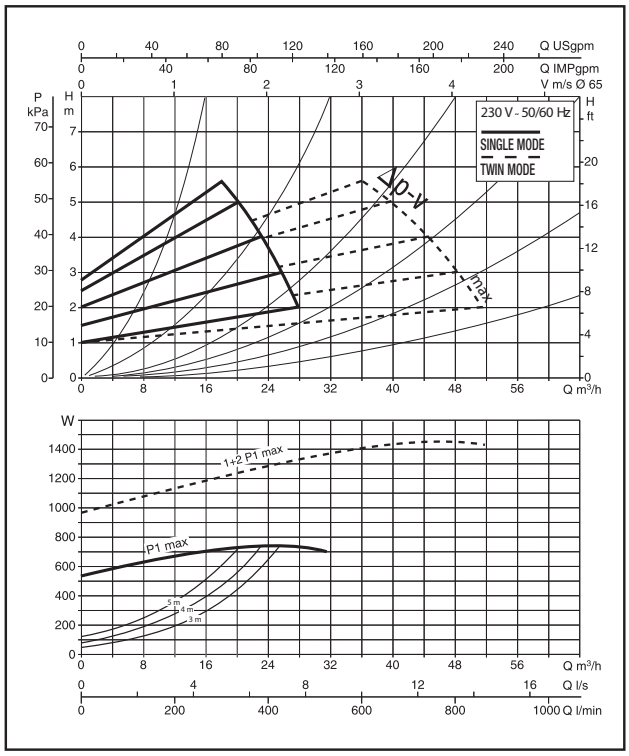


DPH-E 60/340.65 M

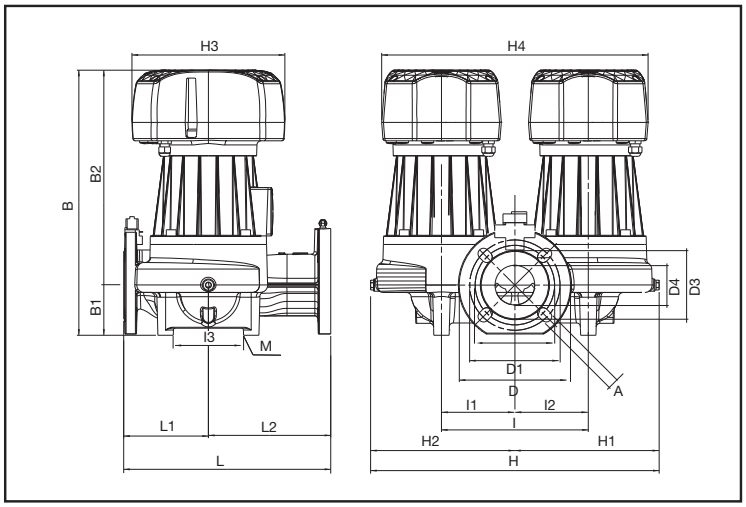
Characteristic curves Δp-c (constant)



Characteristic curves Δp-v (variable)

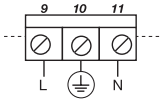


Dimensions



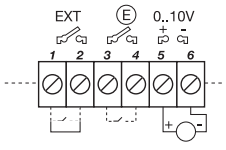
Terminals block layout

Power supply terminal block layout



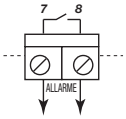
Power supply connection terminals
1x230V 50-60Hz
9 = Line
10 = Earth
11 = Neutral

Service terminal block layout



Remote control connection terminals
1 - 2 (exit)
Economy mode input connection terminals
3 - 4 (Ⓔ)
Analogue input connection terminals 0-10V dc
5 = + 10V ***6*** = 0 V

Alarms terminal block layout



Remote alarm contact connection terminals
250V ac 5A
7 - 8 (alarm)

DIMENSIONS

L	L1	L2	A	B	B1	B2	D	D1	D2	D3	D4	I	I1	I2	I3	M	H	H1	H2	H3	H4
340	138,5	201,5	18	433	82	351	185	145	130	110	65	240	120	120	140	M14	472	236	236	250	436

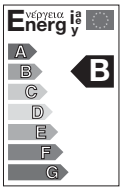
ELECTRICAL DATA

MODEL	VOLTAGE 50/60 Hz	CENTRE DISTANCE mm	CONTROFLANGES ON REQUEST	ELECTRICAL DATA		MINIMUM HEAD PRESSURE				
				P1 MAX W	In A					
DPH-E 60/340-65	230 V	340	DN 65 - PN 10	744	4,1	t°	75°	90°	110°	120°
						mt.	1	4	-	18

Performance curves based on kinematic viscosity values equal to 1 mm²/s at a density equal to 1000 kg/m³. Curve tolerance in accordance with ISO 9906.

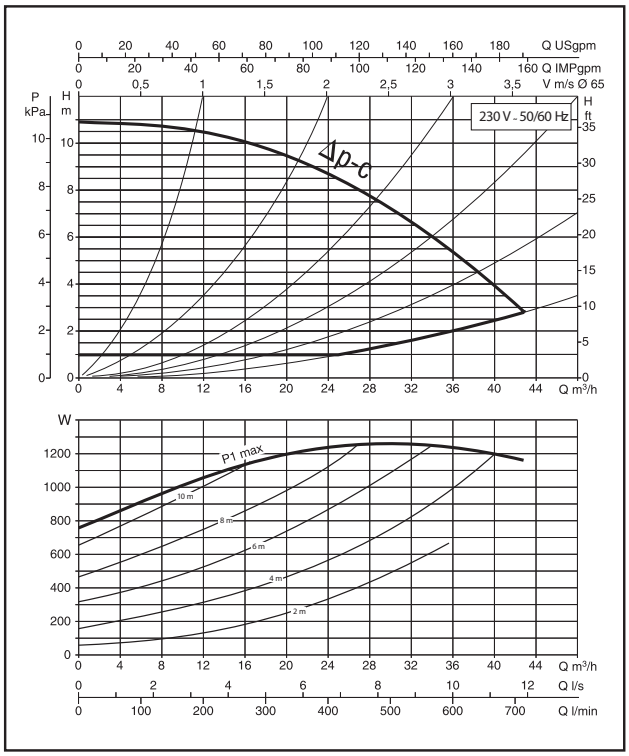
CIRCULATORS FOR HEATING AND AIR-CONDITIONING SYSTEMS

Liquid temperature range: from -10°C to +120°C
Maximum operating pressure: 10 bar (1000 kPa)

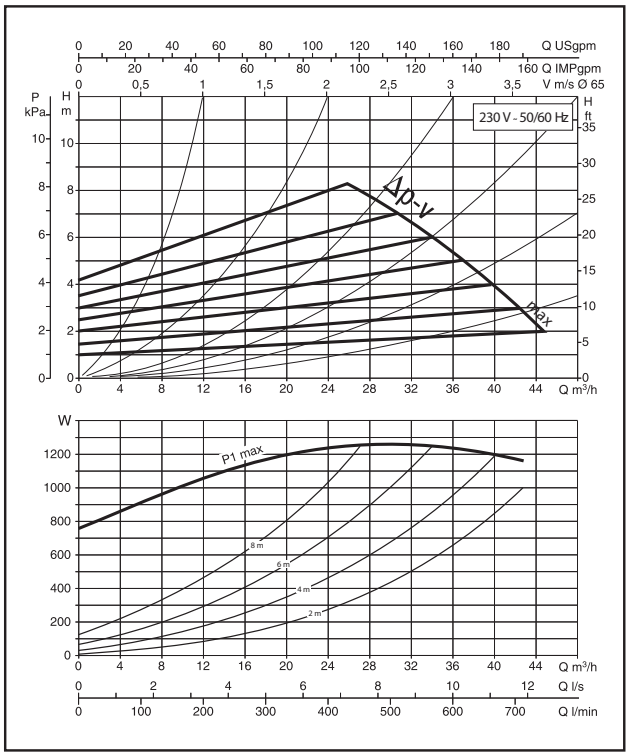


BPH-E 120/340.65 M

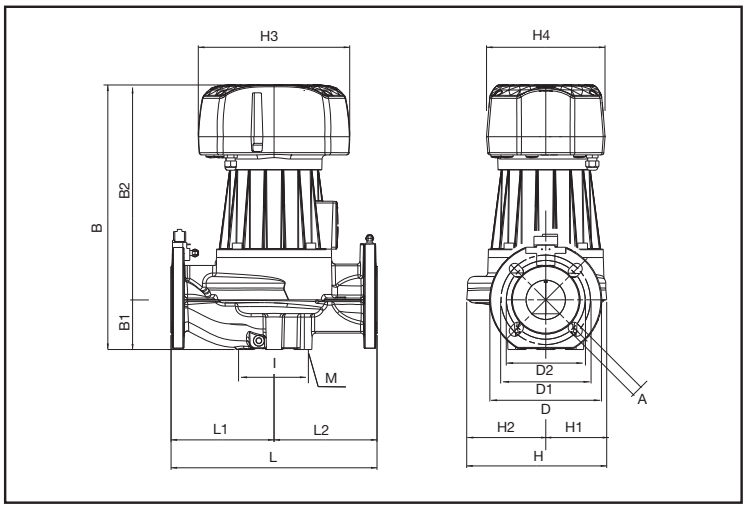
Characteristic curves Δp-c (constant)



Characteristic curves Δp-v (variable)

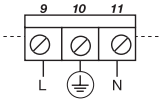


Dimensions



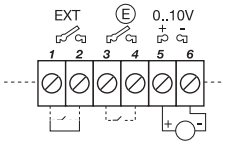
Terminals block layout

Power supply terminal block layout



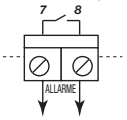
Power supply connection terminals
1x230V 50-60Hz
9 = Line
10 = Earth
11 = Neutral

Service terminal block layout



Remote control connection terminals
1 - 2 (exit)
Economy mode input connection terminals
3 - 4 (Ⓔ)
Analogue input connection terminals 0-10V dc
5 = + 10V ***6*** = 0 V

Alarms terminal block layout



Remote alarm contact connection terminals
250V ac 5A
7 - 8 (alarm)

DIMENSIONS

L	L1	L2	A	B	B1	B2	D	D1	D2	D3	D4	I	I1	I2	I3	M	H	H1	H2	H3	H4
340	170	170	18	487	82	405	185	145	130	110	65	100	-	-	-	M12	231	100	131	250	196

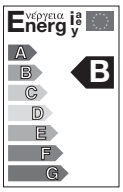
ELECTRICAL DATA

MODEL	VOLTAGE 50/60 Hz	CENTRE DISTANCE mm	CONTROFLANGES ON REQUEST	ELECTRICAL DATA		MINIMUM HEAD PRESSURE				
				P1 MAX W	In A					
BPH-E 120/340-65	230 V	340	DN 65 - PN 10	1262	6,72	t°	75°	90°	110°	120°
						mt.	7	11	18	-

Performance curves based on kinematic viscosity values equal to 1 mm²/s at a density equal to 1000 kg/m³. Curve tolerance in accordance with ISO 9906.

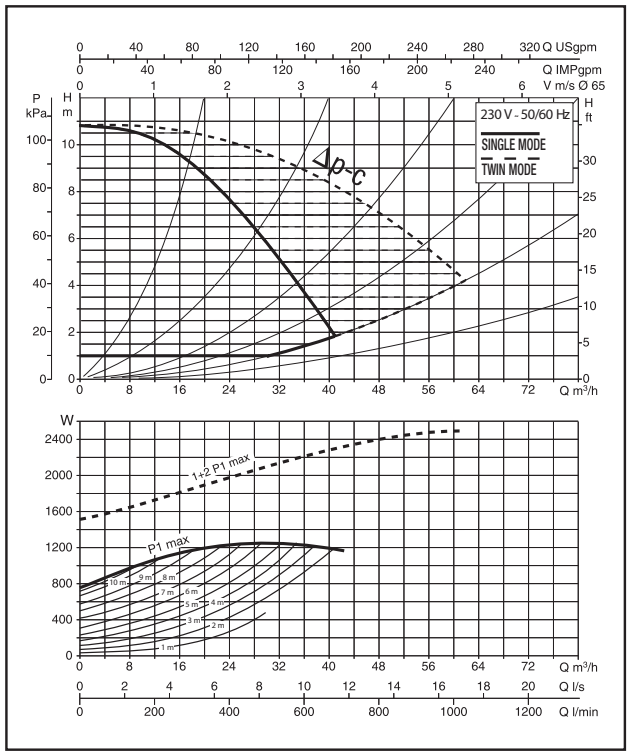
CIRCULATORS FOR HEATING AND AIR-CONDITIONING SYSTEMS

Liquid temperature range: from -10°C to +120°C
Maximum operating pressure: 10 bar (1000 kPa)

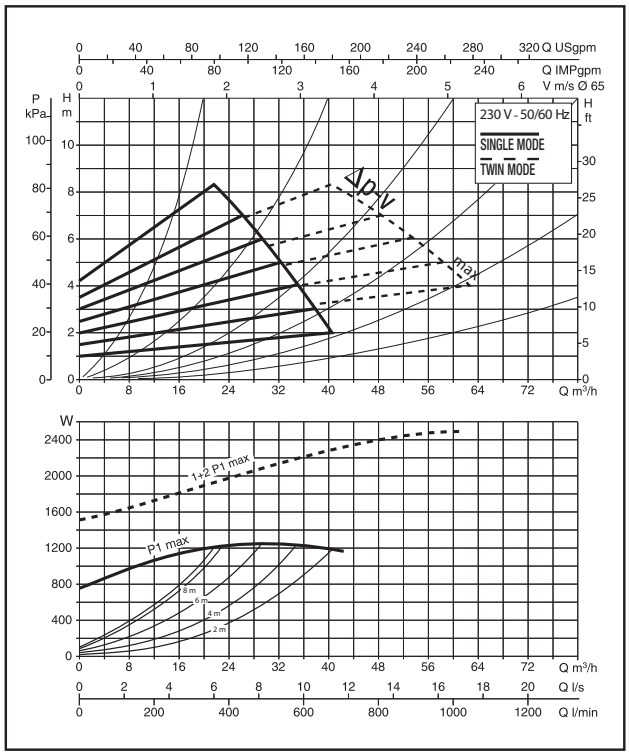


DPH-E 120/340.65 M

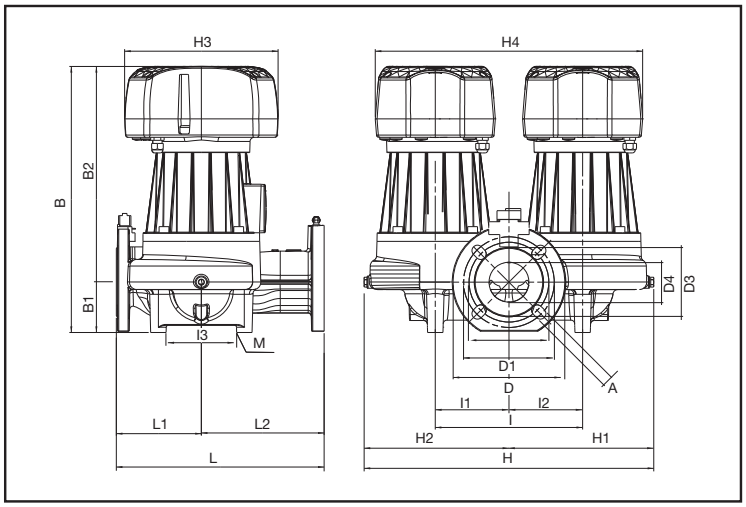
Characteristic curves Δp-c (constant)



Characteristic curves Δp-v (variable)

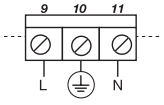


Dimensions



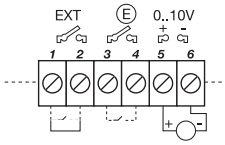
Terminals block layout

Power supply terminal block layout



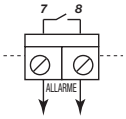
Power supply connection terminals
1x230V 50-60Hz
9 = Line
10 = Earth
11 = Neutral

Service terminal block layout



Remote control connection terminals
1 - 2 (exit)
Economy mode input connection terminals
3 - 4 (Ⓔ)
Analogue input connection terminals 0-10V dc
5 = + 10V ***6*** = 0 V

Alarms terminal block layout



Remote alarm contact connection terminals
250V ac 5A
7 - 8 (alarm)

DIMENSIONS

L	L1	L2	A	B	B1	B2	D	D1	D2	D3	D4	I	I1	I2	I3	M	H	H1	H2	H3	H4
340	138,5	201,5	18	483	82	220	185	145	130	110	65	240	120	120	140	M14	472	236	236	250	436

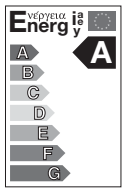
ELECTRICAL DATA

MODEL	VOLTAGE 50/60 Hz	CENTRE DISTANCE mm	CONTROFLANGES ON REQUEST	ELECTRICAL DATA		MINIMUM HEAD PRESSURE				
				P1 MAX W	In A					
DPH-E 120/340-65	230 V	340	DN 65 - PN 10	1262	6,72	t°	75°	90°	110°	120°
						mt.	7	11	18	-

Performance curves based on kinematic viscosity values equal to 1 mm²/s at a density equal to 1000 kg/m³. Curve tolerance in accordance with ISO 9906.

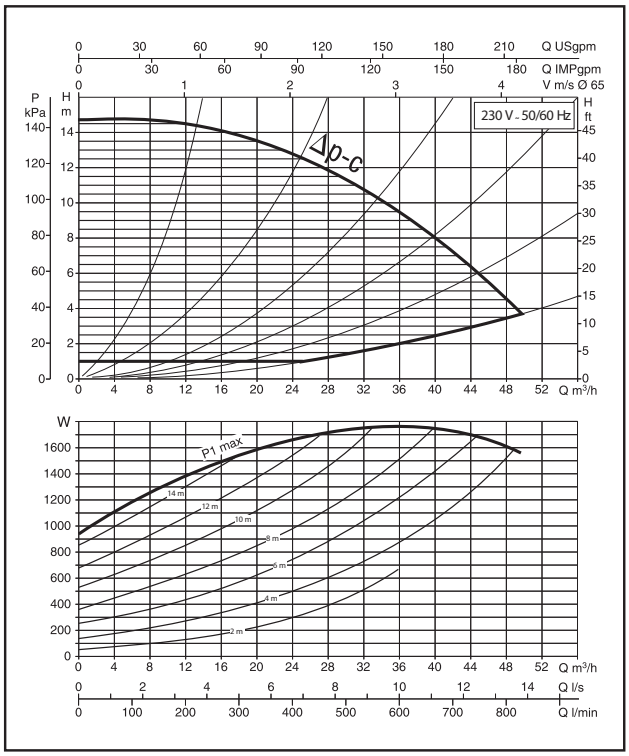
CIRCULATORS FOR HEATING AND AIR-CONDITIONING SYSTEMS

Liquid temperature range: from -10°C to +120°C
Maximum operating pressure: 10 bar (1000 kPa)

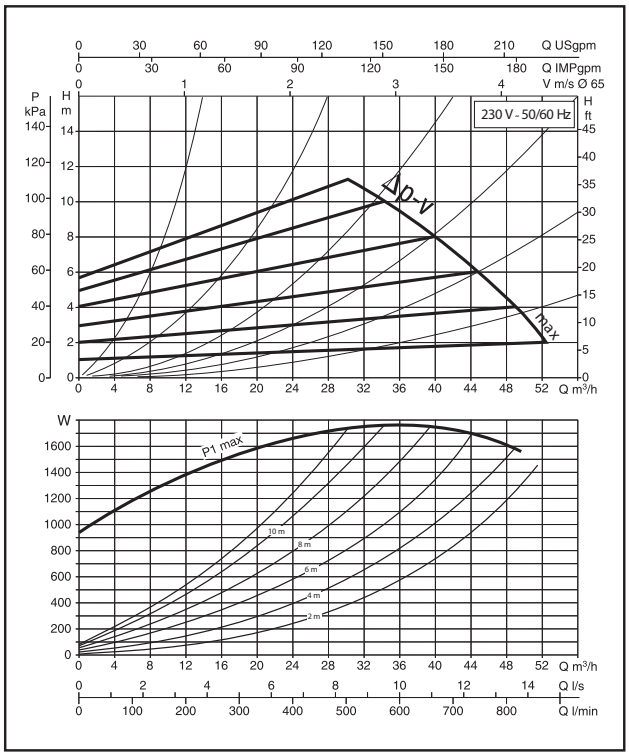


BPH-E 150/340.65 M

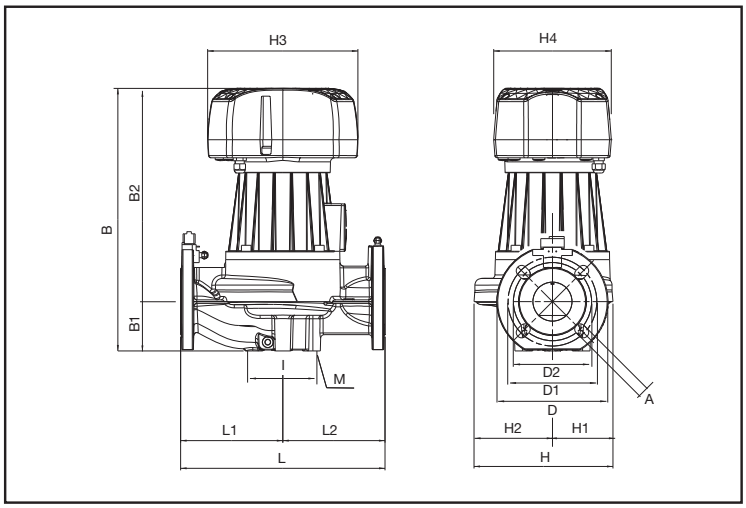
Characteristic curves Δp-c (constant)



Characteristic curves Δp-v (variable)

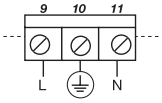


Dimensions



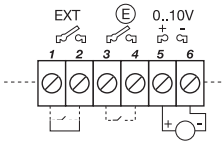
Terminals block layout

Power supply terminal block layout



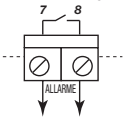
Power supply connection terminals
1x230V 50-60Hz
9 = Line
10 = Earth
11 = Neutral

Service terminal block layout



Remote control connection terminals
1 - 2 (exit)
Economy mode input connection terminals
3 - 4 (Ⓔ)
Analogue input connection terminals 0-10V dc
5 = + 10V ***6*** = 0 V

Alarms terminal block layout



Remote alarm contact connection terminals
250V ac 5A
7 - 8 (alarm)

DIMENSIONS

L	L1	L2	A	B	B1	B2	D	D1	D2	D3	D4	I	I1	I2	I3	M	H	H1	H2	H3	H4
340	170	170	18	487	82	405	185	145	130	110	65	100	-	-	-	M12	231	100	131	250	196

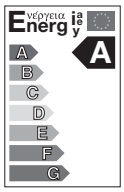
ELECTRICAL DATA

MODEL	VOLTAGE 50/60 Hz	CENTRE DISTANCE mm	CONTROFLANGES ON REQUEST	ELECTRICAL DATA		MINIMUM HEAD PRESSURE				
				P1 MAX W	In A					
BPH-E 150/340-65	230 V	340	DN 65 - PN 10	1767	9,2	t°	75°	90°	110°	120°
						mt.	7	11	18	-

Performance curves based on kinematic viscosity values equal to 1 mm²/s at a density equal to 1000 kg/m³. Curve tolerance in accordance with ISO 9906.

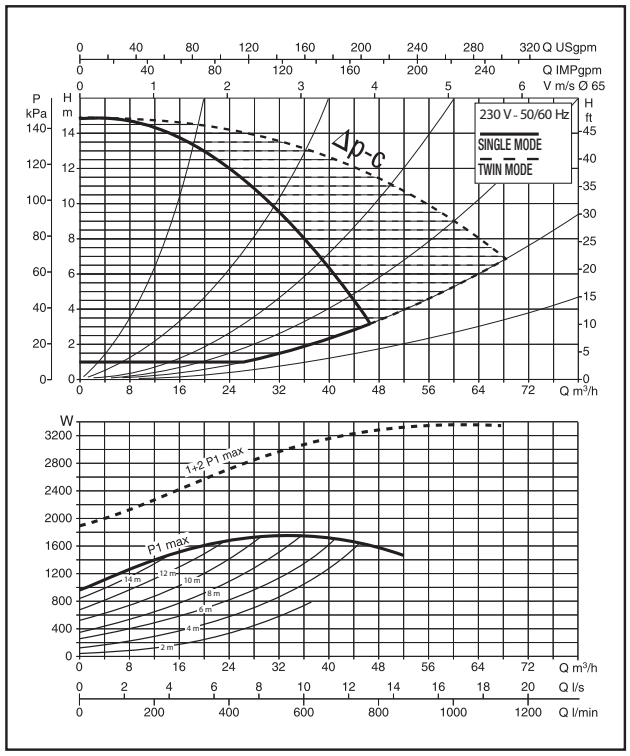
CIRCULATORS FOR HEATING AND AIR-CONDITIONING SYSTEMS

Liquid temperature range: from -10°C to +120°C
Maximum operating pressure: 10 bar (1000 kPa)

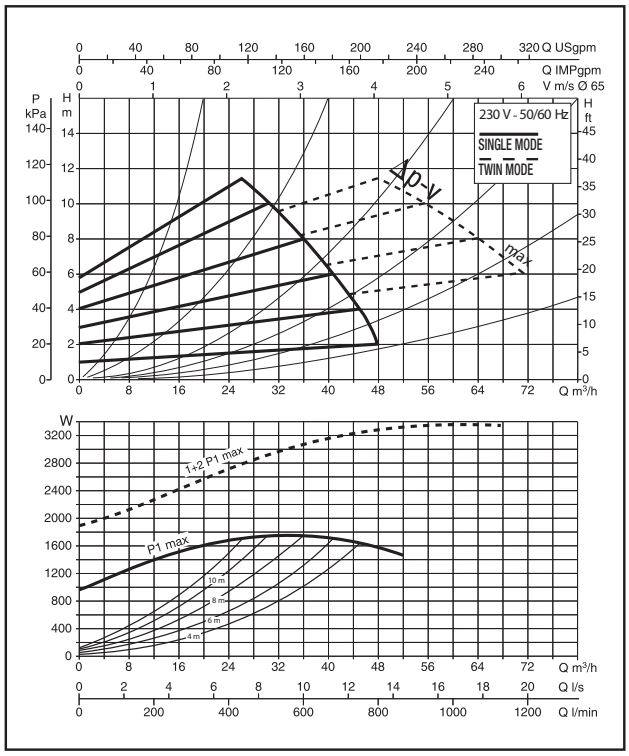


DPH-E 150/340.65 M

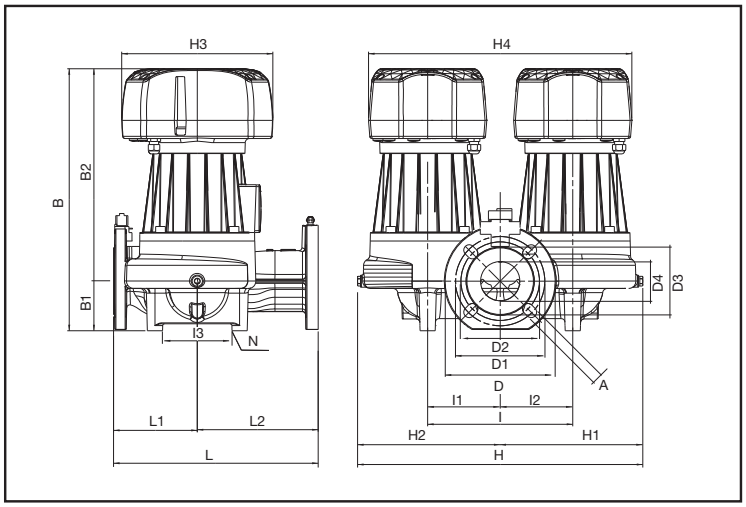
Characteristic curves Δp-c (constant)



Characteristic curves Δp-v (variable)

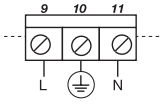


Dimensions



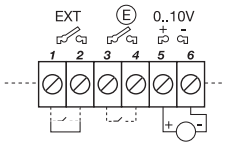
Terminals block layout

Power supply terminal block layout



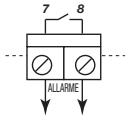
Power supply connection terminals
1x230V 50-60Hz
9 = Line
10 = Earth
11 = Neutral

Service terminal block layout



Remote control connection terminals
1 - 2 (exit)
Economy mode input connection terminals
3 - 4 (Ⓔ)
Analogue input connection terminals 0-10V dc
5 = + 10V ***6*** = 0 V

Alarms terminal block layout



Remote alarm contact connection terminals
250V ac 5A
7 - 8 (alarm)

DIMENSIONS

L	L1	L2	A	B	B1	B2	D	D1	D2	D3	D4	I	I1	I2	I3	M	H	H1	H2	H3	H4
340	138,5	201,5	18	483	82	220	185	145	130	110	65	240	120	120	140	M14	472	236	236	250	436

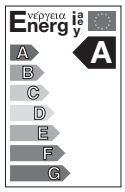
ELECTRICAL DATA

MODEL	VOLTAGE 50/60 Hz	CENTRE DISTANCE mm	CONTROFLANGES ON REQUEST	ELECTRICAL DATA		MINIMUM HEAD PRESSURE				
				P1 MAX W	In A					
DPH-E 150/340-65	230 V	340	DN 65 - PN 10	1767	9,2	t°	75°	90°	110°	120°
						mt.	7	11	18	-

Performance curves based on kinematic viscosity values equal to 1 mm²/s at a density equal to 1000 kg/m³. Curve tolerance in accordance with ISO 9906.

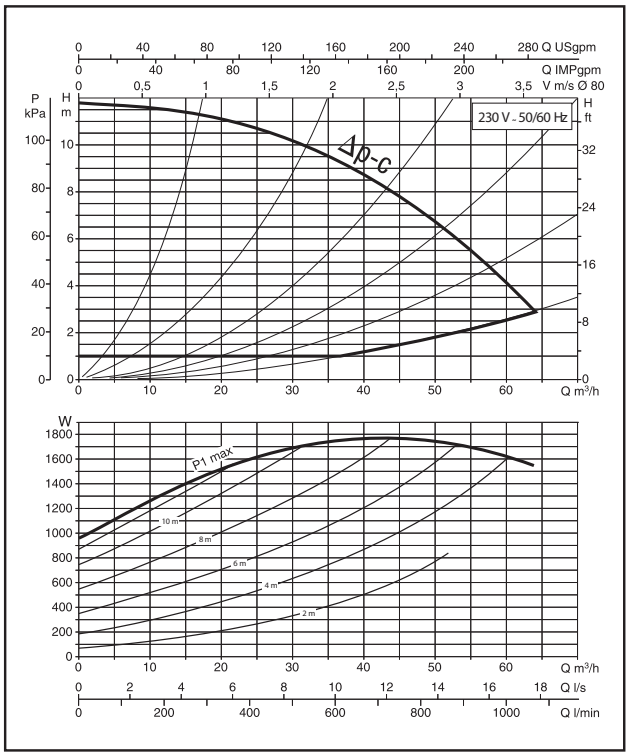
CIRCULATORS FOR HEATING AND AIR-CONDITIONING SYSTEMS

Liquid temperature range: from -10°C to +120°C
Maximum operating pressure: 10 bar (1000 kPa)

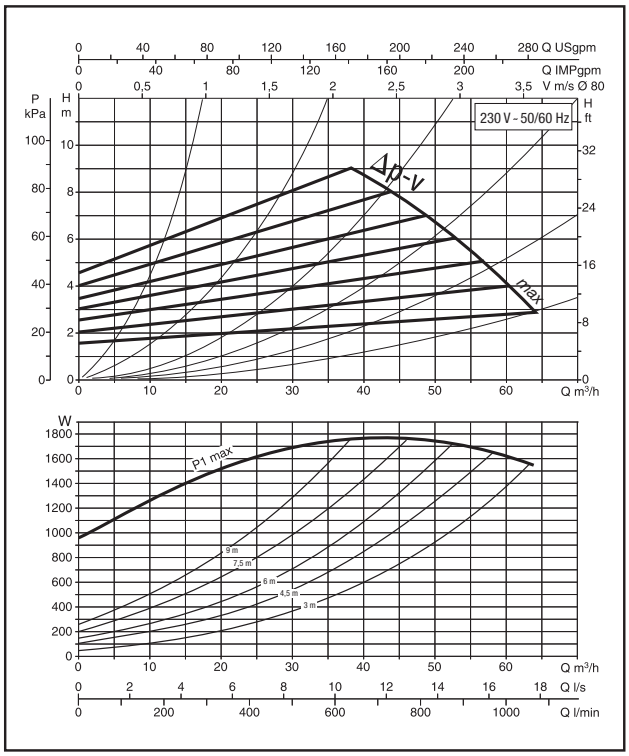


BPH-E 120/360.80 M

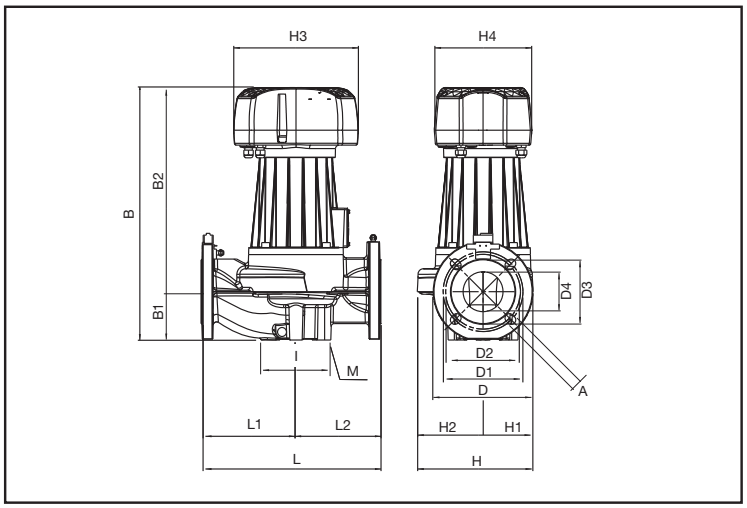
Characteristic curves Δp-c (constant)



Characteristic curves Δp-v (variable)

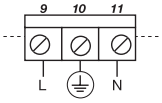


Dimensions



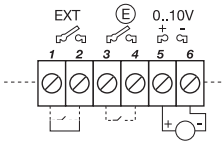
Terminals block layout

Power supply terminal block layout



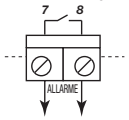
Power supply connection terminals
1x230V 50-60Hz
9 = Line
10 = Earth
11 = Neutral

Service terminal block layout



Remote control connection terminals
1 - 2 (exit)
Economy mode input connection terminals
3 - 4 ((Ⓔ))
Analogue input connection terminals 0-10V dc
5 = + 10V ***6*** = 0 V

Alarms terminal block layout



Remote alarm contact connection terminals
250V ac 5A
7 - 8 (alarm)

DIMENSIONS

L	L1	L2	A	B	B1	B2	D	D1	D2	D3	D4	I	I1	I2	I3	M	H	H1	H2	H3	H4
360	190	170	18	506	97	409	200	160	150	130	80	115	-	-	-	M12	232	100	132	250	196

ELECTRICAL DATA

MODEL	VOLTAGE 50/60 Hz	CENTRE DISTANCE mm	CONTROFLANGES ON REQUEST	ELECTRICAL DATA		MINIMUM HEAD PRESSURE				
				P1 MAX W	In A					
BPH-E 120/360-80	230 V	360	DN 80 - PN 10	1789	9,23	t°	75°	90°	110°	120°
						mt.	6	10	-	22

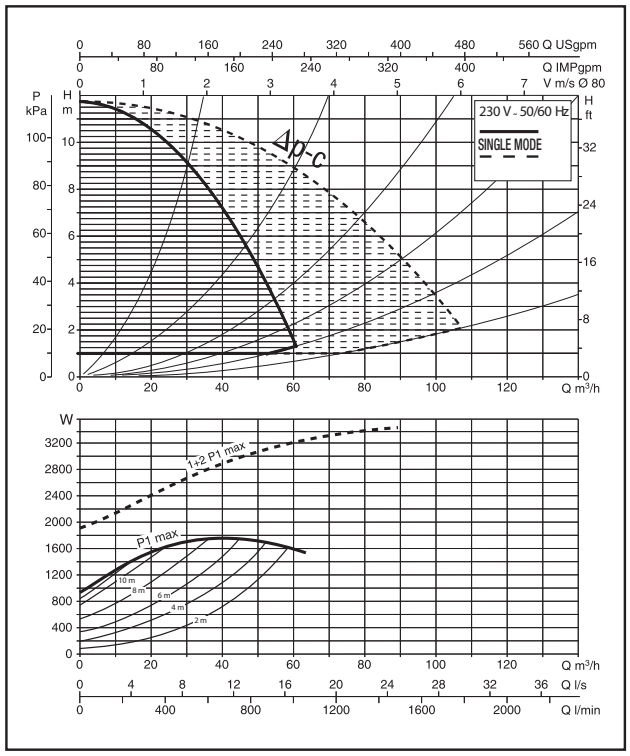
Performance curves based on kinematic viscosity values equal to 1 mm²/s at a density equal to 1000 kg/m³. Curve tolerance in accordance with ISO 9906.

CIRCULATORS FOR HEATING AND AIR-CONDITIONING SYSTEMS

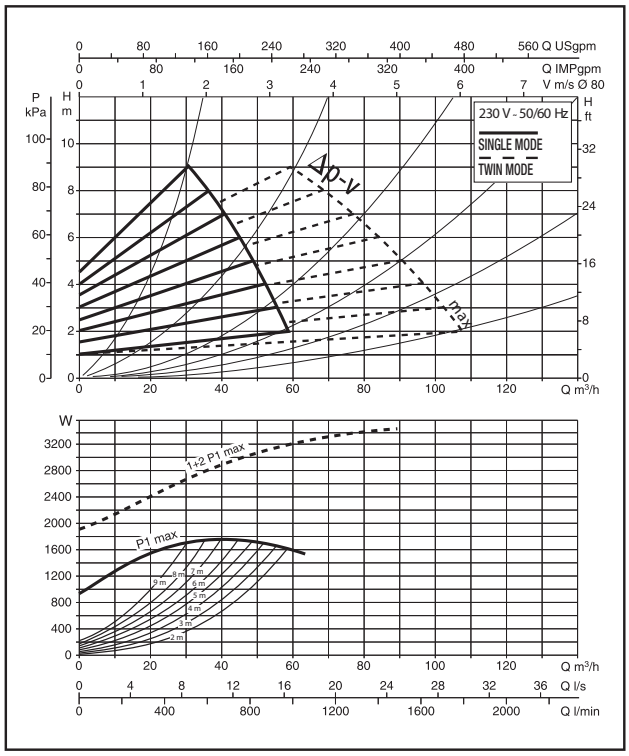
Liquid temperature range: from -10°C to +120°C
Maximum operating pressure: 10 bar (1000 kPa)

DPH-E 120/360.80 M

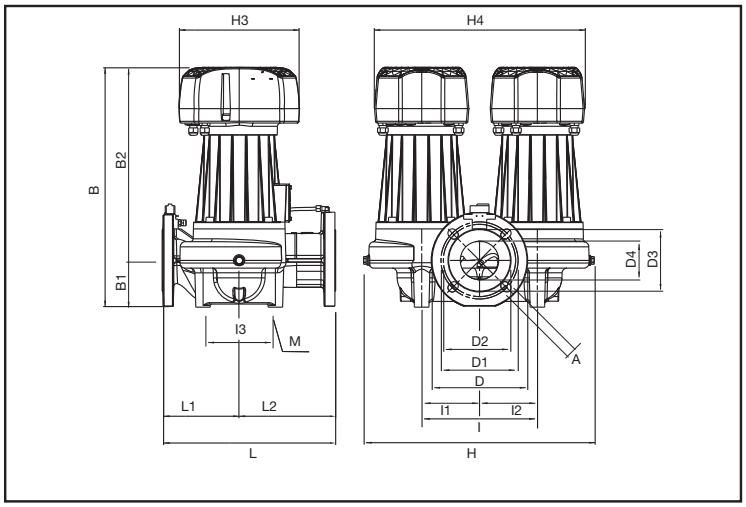
Characteristic curves Δp-c (constant)



Characteristic curves Δp-v (variable)

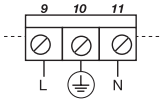


Dimensions



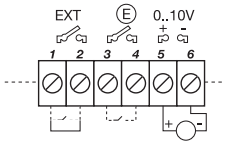
Terminals block layout

Power supply terminal block layout



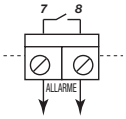
Power supply connection terminals
1x230V 50-60Hz
9 = Line
10 = Earth
11 = Neutral

Service terminal block layout



Remote control connection terminals
1 - 2 (exit)
Economy mode input connection terminals
3 - 4 (Ⓔ)
Analogue input connection terminals 0-10V dc
5 = + 10V ***6*** = 0 V

Alarms terminal block layout



Remote alarm contact connection terminals
250V ac 5A
7 - 8 (alarm)

DIMENSIONS

L	L1	L2	A	B	B1	B2	D	D1	D2	D3	D4	I	I1	I2	I3	M	H	H1	H2	H3	H4
360	160	200	18	497	97	400	200	160	150	130	80	240	120	120	150	M14	478	239	239	250	436

ELECTRICAL DATA

MODEL	VOLTAGE 50/60 Hz	CENTRE DISTANCE mm	CONTROFLANGES ON REQUEST	ELECTRICAL DATA		MINIMUM HEAD PRESSURE				
				P1 MAX W	In A					
DPH-E 120/360-80	230 V	360	DN 80 - PN 10	1789	9,20	t°	75°	90°	110°	120°
						mt.	6	10	-	22