

EVP
OEM

OEM ELECTRONIC CIRCULATORS
FOR CIRCULATION HYDRAULIC SYSTEMS





TECHNICAL DATA

Operating range: 0-11,9 m³/h with head up to 14,0 metres

Pumped liquid temperature range: from -20 °C to +95°C

Working pressure: 16 bar (1600 kPa)

Protection class: IPX4

Insulation class: F

Installation: with horizontal motor axis

Standard power input: single-phase 1x220-240 V~ 50/60 Hz

Power input connection: super-seal with 2mt cable

PWM signal connector: mini super-seal with 2mt cable

Pumped liquid: Clean, free of solids and mineral oils, non-viscous, chemically neutral, with properties similar to water (glycol max 50%)

APPLICATIONS

Low energy consumption OEM electronic pump designed for heating, air conditioning, and refrigeration systems, as well as for solar energy systems and hot water production for domestic use.

ADVANTAGES

The EVP OEM is the new range of DAB circulators, offering the robustness of a mechanical circulator combined with the advantages of an electronic one.

The permanent magnet synchronous motor, frequency converter, EEL efficiency index ≤ 0.20 , combined with the IPX4 protection rating and the integrated air vent cap, make the EVP OEM family one of the best products in its category in terms of efficiency and reliability.

The EVP OEM range is well-suited for replacing older three-speed circulators, both for its compact size and the comprehensive performance it offers.

Additionally, it simplifies the installer's work, thanks to a single sequential setting button and direct access to the motor shaft for potential unlocking.

CONSTRUCTION FEATURES

Cast iron pump body with cataphoresis treatment and wet rotor motor. Aluminium motor housing, technopolymer impeller. Alumina motor shaft mounted on graphite bearings lubricated by the actual fluid being pumped. The rotor sleeve is stainless steel, the stator sleeve is composite with carbon fiber, and the closure flange is stainless steel. Thrust ring in ceramic. Sealing rings in EPDM and air vent cap in brass. Thanks to the internal motor protection, the pump requires no overload protection.

CONTROL PANEL

The operating mode of the EVP OEM can be changed via the control panel located on the cover of the electronic control device. The pump has up to three different regulation modes (Dp-v, Dp-c, V-c) and up to six different curves selectable through the "mode" button.

The pump settings are indicated by seven LED lights on the display.

The EVP OEM PWM1 and EVP OEM PWM2 versions can be controlled by an external control unit via a digital PWM (Pulse Width Modulation) signal. The setpoint of the regulation curve can be either:

- Proportional Pressure
- Constant Speed

and is set through the PWM signal duty cycle according to the VDMA Einheitsblatt 24244 standard "Wet runner circulating pumps – Specification of PWM control signals."

Additionally, an output PWM signal from the board indicates the circulator's operating status as specified below. The EVP OEM range also includes an EVP OEM LIN version that operates via a LIN Bus signal, typically generated by an external control unit.

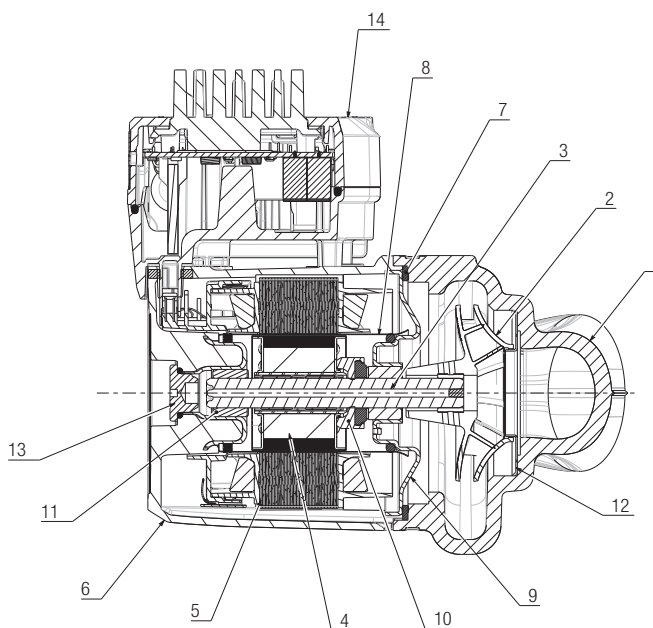
MAIN FEATURES

The motor head can be turned to 3 different positions to accommodate different installations. The auto-control models can vary the rpm to achieve up to six different performance levels (curves).

The main button is disabled if pressed for 10 seconds. Similarly, to restore its function, press and hold for 10 second.

MATERIALS

No	PARTS	MATERIALS
1	PUMP HOUSING	CAST IRON 250 UNI ISO 185 - CTF BRONZE (for SAN version)
2	IMPELLER	TECHNO-POLYMER
3	MOTOR SHAFT	ALUMINA
4	ROTOR	STAINLESS STEEL
5	STATOR	-
6	MOTOR CASING	DIE-CAST ALUMINIUM
7	SEAL RING	EPDM RUBBER
8	STATOR LINER	STAINLESS STEEL
9	CLOSING FLANGE	STAINLESS STEEL
10	THRUST RING SUPPORT	EPDM RUBBER
11	BUSHINGS	GRAPHITE
12	NECK RING	STAINLESS STEEL
13	BREATHER PLUG	BRASS
14	INVERTER BOX	POLY-CARBONATE



- Model Number (example)

SAN = Bronze pump body
"" = Cast iron pump body

Head (dm)

Centre distance (mm)

Pump connection
 15 = DN15 (thread 1")
 25 = DN25 (thread 1" 1/2)
 32 = DN32 (thread 2")

" " = internal control unit

PWM1 = PWM1 = control with external signal PWM1

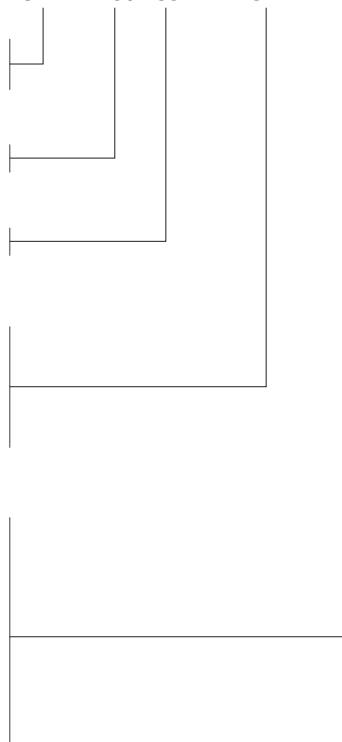
PWM2 = PWM2 = control with external signal PWM2

LIN = control with external signal LIN Bus

Hy = no control or control with external signal PWM1

Hy FF = no control or control with external signal PWM
 + PWM output signal proportional to flow rate

EVP OEM SAN 40 / 180 32 PWM1



PRODUCT RANGE

SUMMARY TABLE OF PRODUCT MODELS BY PIPES DIMENSION AND MAXIMUM HEAD

XXX: Maximum head (dm) - **ZZ:** Pipes dimension

MODEL	MAXIMUM HEAD "XXX"				PIPES DIMENSION "ZZ"			DEFAULT FACTORY SETTINGS
	100	110	120	140	15	25	32	
EVP OEM XXX/180-ZZ	●	●	●	●	-	●	●	PP2
EVP OEM XXX/130-ZZ	●	●	●	●	●	●	-	PP2
EVP OEM XXX/180-ZZ PWM1	●	●	●	●	-	●	●	CS
EVP OEM XXX/130-ZZ PWM1	●	●	●	●	●	●	-	CS
EVP OEM XXX/180-ZZ PWM2	●	●	●	●	-	●	●	CS
EVP OEM XXX/130-ZZ PWM2	●	●	●	●	●	●	-	CS
EVP OEM XXX/180-ZZ LIN	●	●	●	●	-	●	●	*n.a.
EVP OEM XXX/130-ZZ LIN	●	●	●	●	●	●	-	*n.a.
EVP OEM XXX/180-ZZ HY	●	●	●	●	-	●	●	PWM1 - CS
EVP OEM XXX/130-ZZ HY	●	●	●	●	●	●	-	PWM1 - CS
EVP OEM XXX/180-ZZ HY FF	●	●	●	●	-	●	●	PWM1 - CS
EVP OEM XXX/130-ZZ HY FF	●	●	●	●	●	●	-	PWM1 - CS
EVP OEM SAN XXX/180-ZZ	●	●	●	●	-	●	-	PP2
EVP OEM SAN XXX/180-ZZ PWM1	●	●	●	●	-	●	-	CS
EVP OEM SAN XXX/180-ZZ PWM2	●	●	●	●	-	●	-	CS
EVP OEM SAN XXX/180-ZZ LIN	●	●	●	●	-	●	-	*n.a.

*n.a. = not applicable

OPERATING MODE FOR EVP 100 MODEL ONLY

— Fixed LED  Blinking LED

PROPORTIONAL DIFFERENTIAL PRESSURE OPERATION			CONSTANT DIFFERENTIAL PRESSURE OPERATION			CONSTANT CURVE OPERATION					
PP1	PP2	PP3	CP1	CP2	CP3	CS1	CS2	CS3	CS4	CS5	CS6

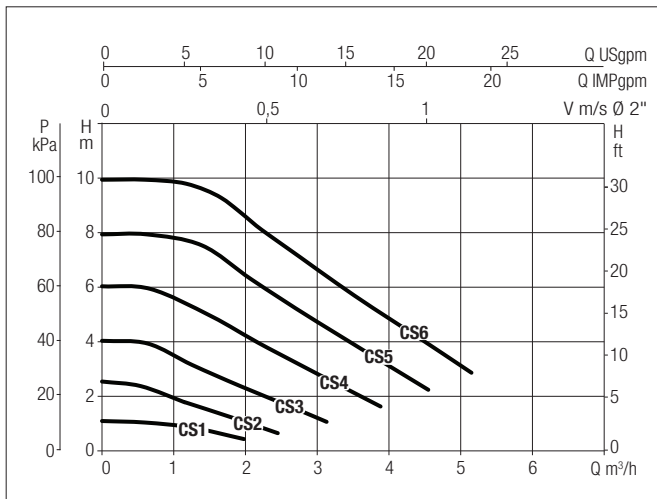
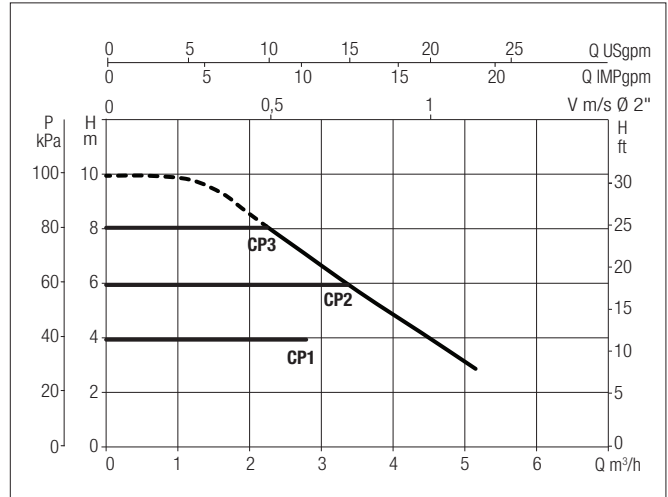
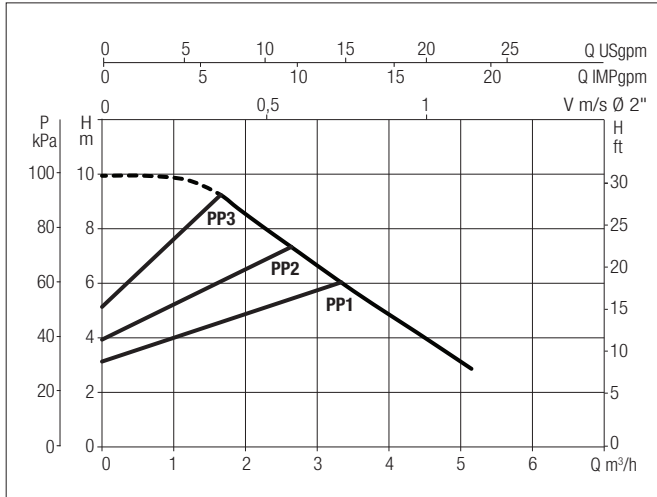
OPERATING MODE FOR EVP 110, EVP 120, EVP 140 MODEL ONLY

— Fixed LED  Blinking LED

PROPORTIONAL DIFFERENTIAL PRESSURE OPERATION			CONSTANT DIFFERENTIAL PRESSURE OPERATION						CONSTANT CURVE OPERATION					
PP1	PP2	PP3	CP1	CP2	CP3	CP4	CP5	CP6	CS1	CS2	CS3	CS4	CS5	CS6

EVP OEM 100/130-15 - UNIONS SINGLE ELECTRONIC WET ROTOR CIRCULATORS FOR RESIDENTIAL HEATING AND AIR CONDITIONING SYSTEMS

Pumped liquid temperature range: from -20 °C to +95 °C - Maximum operating pressure: 16 bar (1600 kPa)



PPx = Proportional differential pressure - curve x
CPx = Constant differential pressure - curve x
CSx = Constant speed - curve x

The curves are based on kinematic viscosity values = 1 mm²/s and density equal to 1000 kg/m³. Curve tolerance according to ISO9906. Fixed speed curves available on the DNA.

MODEL	Q=m ³ h	0	0,5	1,0	1,5	2,0	3,0	4,0	5,0
	Q=l/min	0	8	17	25	33	50	67	83
EVP OEM 100/130-15	H (m)	9,9	9,9	9,8	9,4	8,5	6,6	4,8	3,1

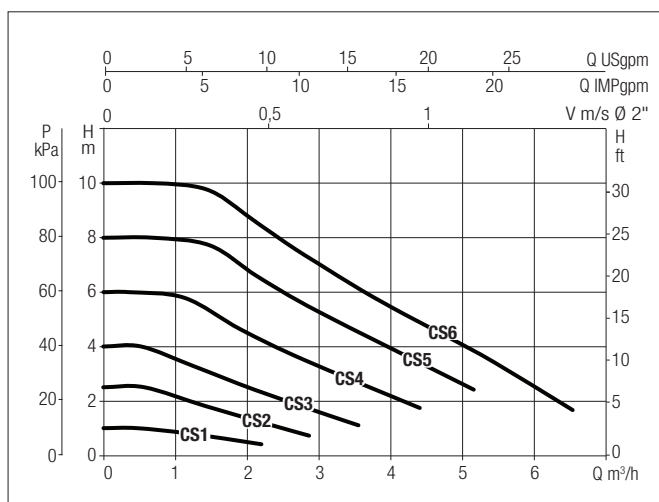
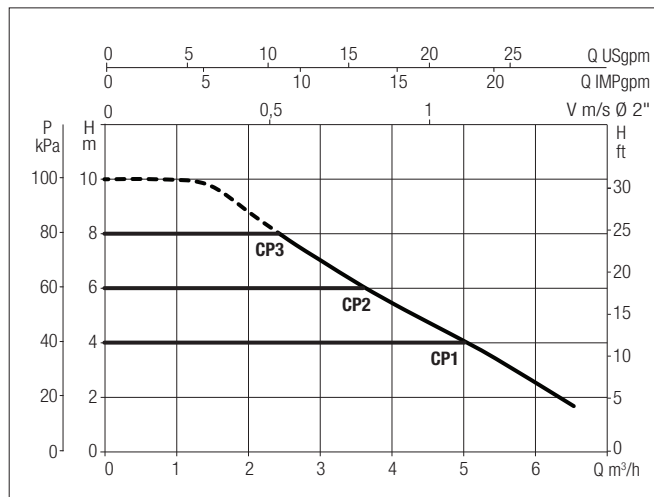
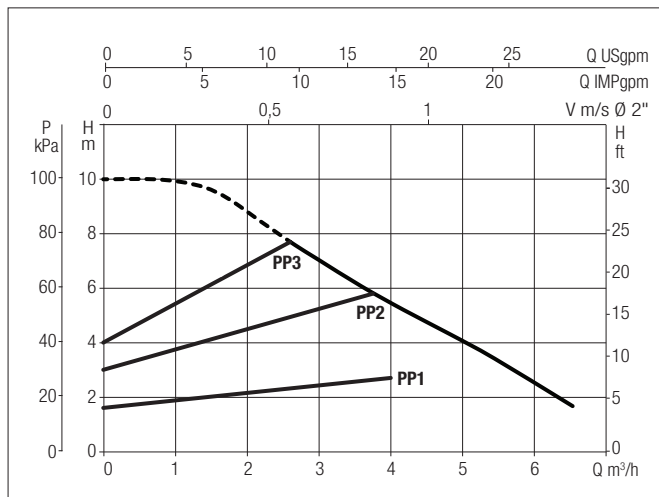
MODEL	CENTRE DISTANCE mm	POWER INPUT 50/60 Hz	P1 MAX W	In A	EEI*	MINIMUM SUCTION PRESSURE			Q.TY x PALLET	WEIGHT kg
						t°	90°	100°		
EVP OEM 100/130-15	130	220/240 V	115	0,91	EEI ≤ 0,23	m.c.a.	20	25	t.b.d	3,4

Data are valid for all versions (PWM1, PWM2, Hy, Hy FF e LIN)

* The parameter of reference for the more efficient circulators is EEI ≤ 0,20

EVP OEM 100/130-25 - UNIONS SINGLE ELECTRONIC WET ROTOR CIRCULATORS FOR RESIDENTIAL HEATING AND AIR CONDITIONING SYSTEMS

Pumped liquid temperature range: from -20 °C to +95 °C - Maximum operating pressure: 16 bar (1600 kPa)



PP_x = Proportional differential pressure - curve x
CP_x = Constant differential pressure - curve x
CS_x = Constant speed - curve x

The curves are based on kinematic viscosity values = 1 mm²/s and density equal to 1000 kg/m³. Curve tolerance according to ISO9906. Fixed speed curves available on the DNA.

MODEL	Q=m ³ h	0	0,5	1,0	1,5	2,0	3,0	4,0	5,0	6,0
	Q=l/min	0	8	17	25	33	50	67	83	100
EVP OEM 100/130-25	H (m)	10	10	10	9,9	8,8	7	5,5	4,1	2,5

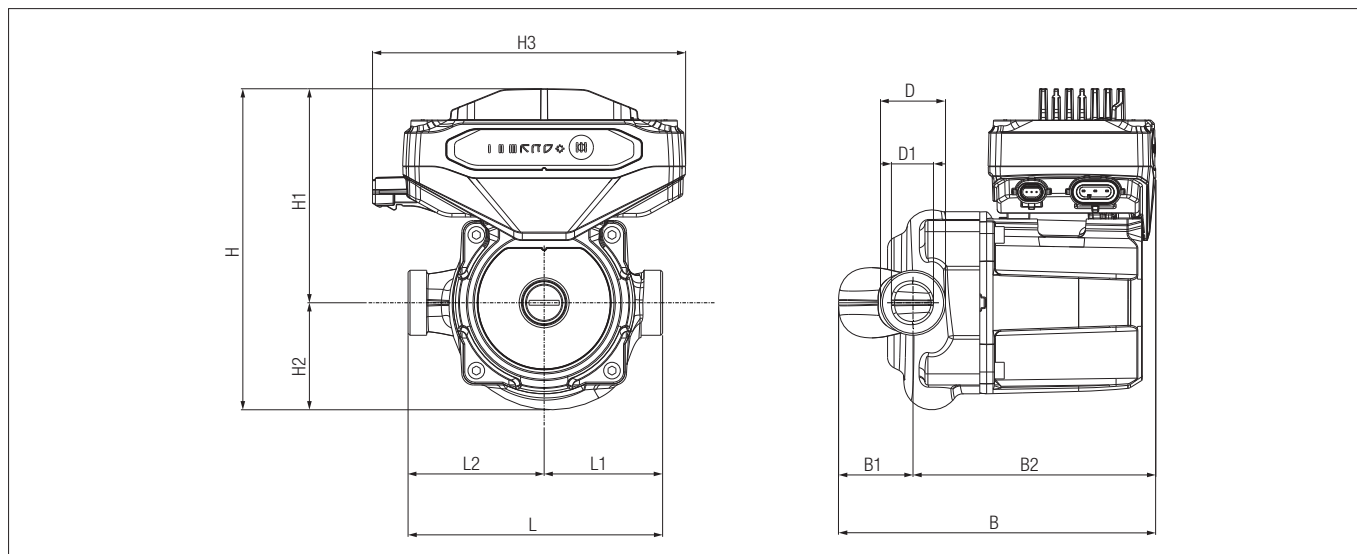
MODEL	CENTRE DISTANCE mm	POWER INPUT 50/60 Hz	P1 MAX W	In A	EEI*	MINIMUM SUCTION PRESSURE			Q.TY x PALLET	WEIGHT kg
						t°	90°	100°		
EVP OEM 100/130-25	130	220/240 V	119	0,93	EEI ≤ 0,23	m.c.a.	20	25	t.b.d	3,4

Data are valid for all versions (PWM1, PWM2, Hy, Hy FF e LIN)

* The parameter of reference for the more efficient circulators is EEI ≤ 0,20

EVP OEM 100/130-15 and EVP OEM 100/130-25 - UNIONS SINGLE ELECTRONIC WET ROTOR CIRCULATORS FOR RESIDENTIAL HEATING AND AIR CONDITIONING SYSTEMS

Pumped liquid temperature range: from -20 °C to +95 °C - Maximum operating pressure: 16 bar (1600 kPa)

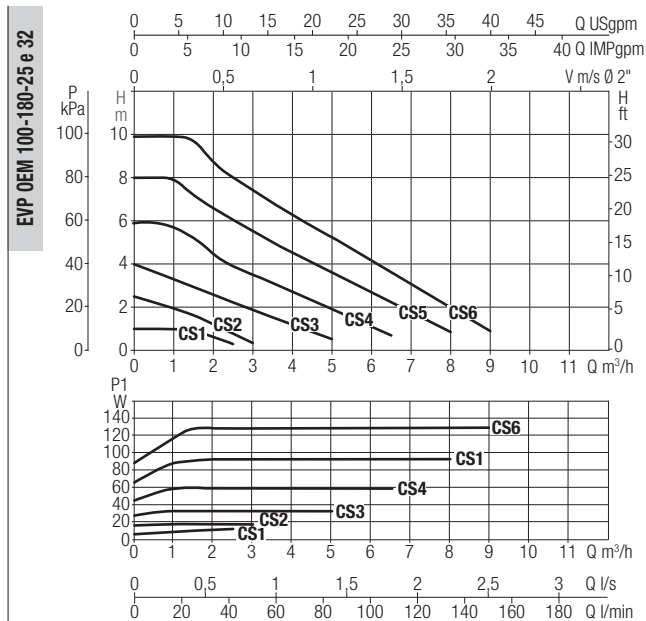
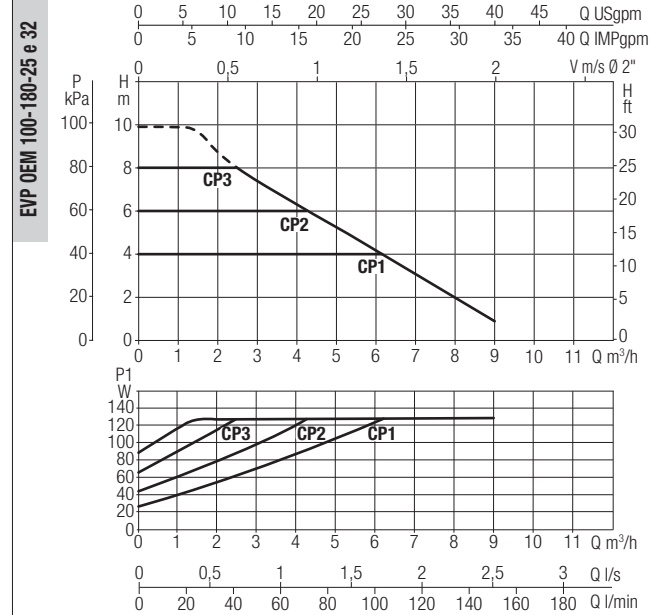
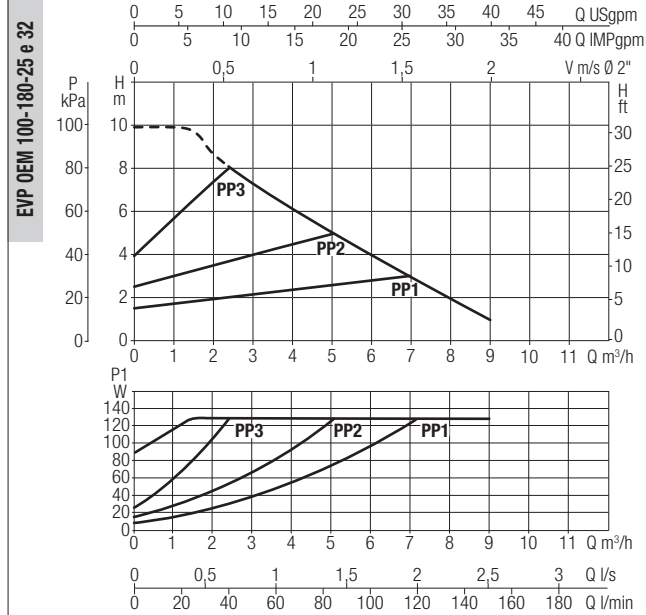


MODEL	B	B1	B2	D	D1	H	H1	H2	H3	L	L1	L2
EVP OEM 100/130-15	160	27	133	1"	20	159	109,5	49,5	159	130	65,5	64,5
EVP OEM 100/130-25	158	27	131	1" ½	27	159	109,5	49,5	159	130	69,5	60,5

Data are valid for all versions (PWM1, PWM2, Hy, Hy FF e LIN)

EVP OEM 100/180-25 and EVP OEM 100/180-32 - UNIONS SINGLE ELECTRONIC WET ROTOR CIRCULATORS FOR RESIDENTIAL HEATING AND AIR CONDITIONING SYSTEMS

Pumped liquid temperature range: from -20 °C to +95 °C - Maximum operating pressure: 16 bar (1600 kPa)



PPx = Proportional differential pressure - curve x
CPx = Constant differential pressure - curve x
CSx = Constant speed - curve x

The curves are based on kinematic viscosity values = 1 mm²/s and density equal to 1000 kg/m³.
 Curve tolerance according to ISO9906. Fixed speed curves available on the DNA.

MODEL	Q=m³h	0	1,5	2,5	4	6	8	10
	Q=l/min	0	25	42	67	100	133	167
EVP OEM 100/180-25	H (m)	9,9	9,7	8,0	6,3	4,2	2,2	-
EVP OEM 100/180-32		9,9	9,7	8,0	6,3	4,2	2,2	-

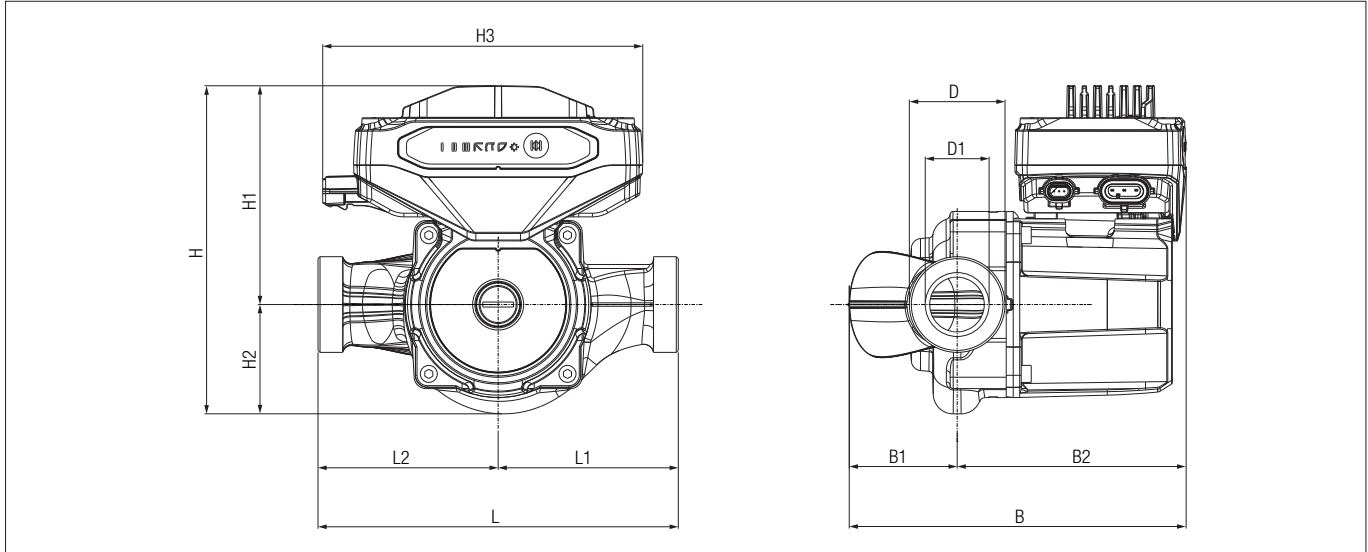
MODEL	CENTRE DISTANCE mm	POWER INPUT 50/60 Hz	P1 MAX W	In A	EEI*	MINIMUM SUCTION PRESSURE			Q.TY x PALLET	WEIGHT kg
						t°	90°	100°		
EVP OEM 100/180-25	180	220/240 V	128	1,04	EEI ≤ 0,21	m.c.a.	20	25	92	3,4
EVP OEM 100/180-32	180	220/240 V	128	1,04	EEI ≤ 0,20	m.c.a.	20	25	92	3,4

Data are valid for all versions (PWM1, PWM2, Hy, Hy FF e LIN)

* The parameter of reference for the more efficient circulators is EEI ≤ 0,20

EVP OEM 100/180-25 and EVP OEM 100/180-32 - UNIONS SINGLE ELECTRONIC WET ROTOR CIRCULATORS FOR RESIDENTIAL HEATING AND AIR CONDITIONING SYSTEMS

Pumped liquid temperature range: from -20 °C to +95 °C - Maximum operating pressure: 16 bar (1600 kPa)

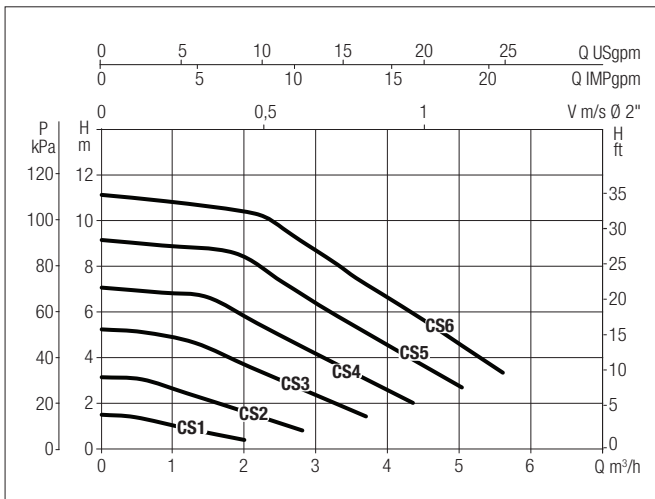
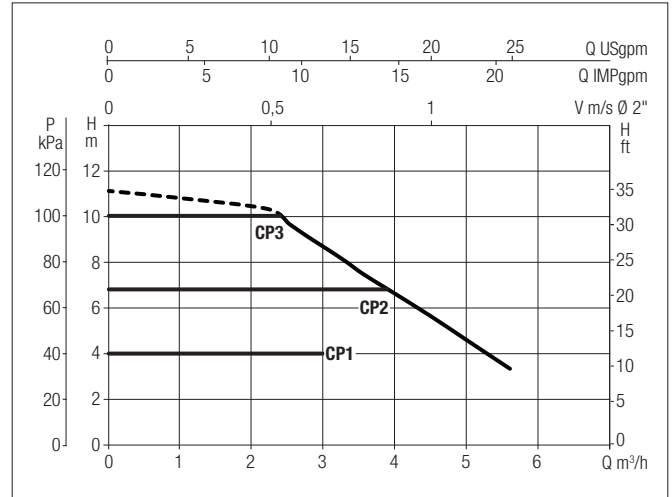
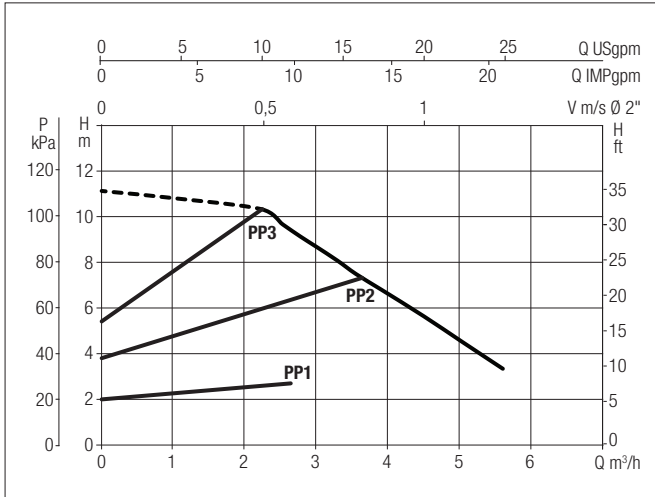


MODEL	B	B1	B2	D	D1	H	H1	H2	H3	L	L1	L2
EVP OEM 100/180-25	168	54	114	1½"	32	164	109	55	159	180	90	90
EVP OEM 100/180-32	168	54	114	2"	32	164	109	55	159	180	90	90

Data are valid for all versions (PWM1, PWM2, Hy, Hy FF e LIN)

EVP OEM 110/130-15 - UNIONS SINGLE ELECTRONIC WET ROTOR CIRCULATORS FOR RESIDENTIAL HEATING AND AIR CONDITIONING SYSTEMS

Pumped liquid temperature range: from -20 °C to +95 °C - Maximum operating pressure: 16 bar (1600 kPa)



PP_x = Proportional differential pressure - curve x
CP_x = Constant differential pressure - curve x
CS_x = Constant speed - curve x

The curves are based on kinematic viscosity values = 1 mm²/s and density equal to 1000 kg/m³. Curve tolerance according to ISO9906. Fixed speed curves available on the DNA.

MODEL	Q=m ³ h	0	0,5	1,0	1,5	2,0	3,0	4,0	5,0
	Q=l/min	0	8	17	25	33	50	67	83
EVP OEM 110/130-15	H (m)	11,1	10,9	10,8	10,6	10,4	8,7	6,6	4,6

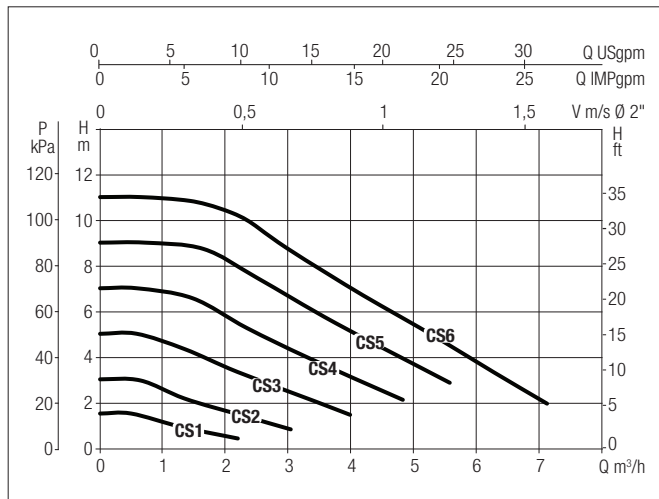
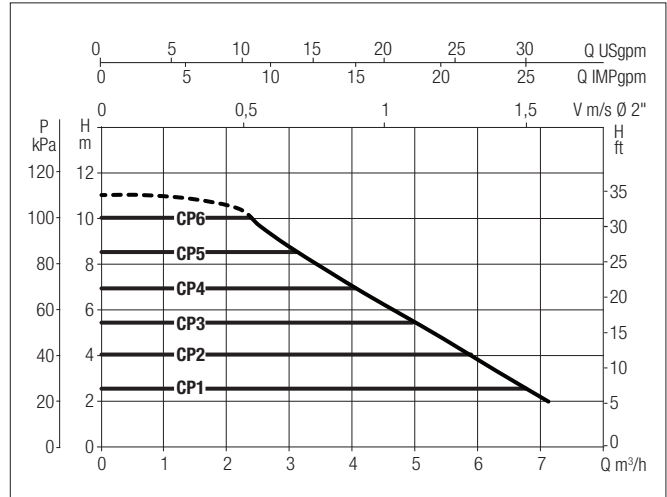
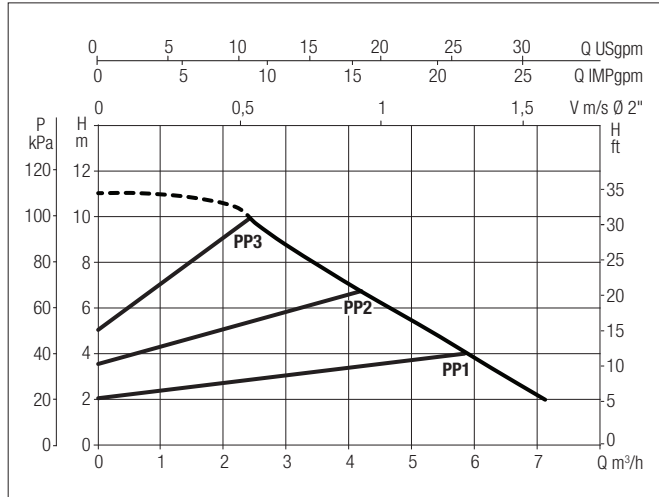
MODEL	CENTRE DISTANCE mm	POWER INPUT 50/60 Hz	P1 MAX W	In A	EEI*	MINIMUM SUCTION PRESSURE			Q.TY x PALLET	WEIGHT kg
						t°	90°	100°		
EVP OEM 110/130-15	130	220/240 V	152	1,19	EEI ≤ 0,23	m.c.a.	20	25	t.b.d	3,4

Data are valid for all versions (PWM1, PWM2, Hy, Hy FF e LIN)

* The parameter of reference for the more efficient circulators is EEI ≤ 0,20

EVP OEM 110/130-25 - UNIONS SINGLE ELECTRONIC WET ROTOR CIRCULATORS FOR RESIDENTIAL HEATING AND AIR CONDITIONING SYSTEMS

Pumped liquid temperature range: from -20 °C to +95 °C - Maximum operating pressure: 16 bar (1600 kPa)



PPx = Proportional differential pressure - curve x
CPx = Constant differential pressure - curve x
CSx = Constant speed - curve x

The curves are based on kinematic viscosity values = 1 mm²/s and density equal to 1000 kg/m³. Curve tolerance according to ISO9906. Fixed speed curves available on the DNA.

MODEL	Q=m ³ /h	0	0,5	1,0	1,5	2,0	3,0	4,0	5,0	6,0	7,0
	Q=l/min	0	8	17	25	33	50	67	83	100	117
EVP OEM 110/130-25	H (m)	11,0	11,0	10,9	10,8	10,6	8,7	7,0	5,4	3,8	2,1

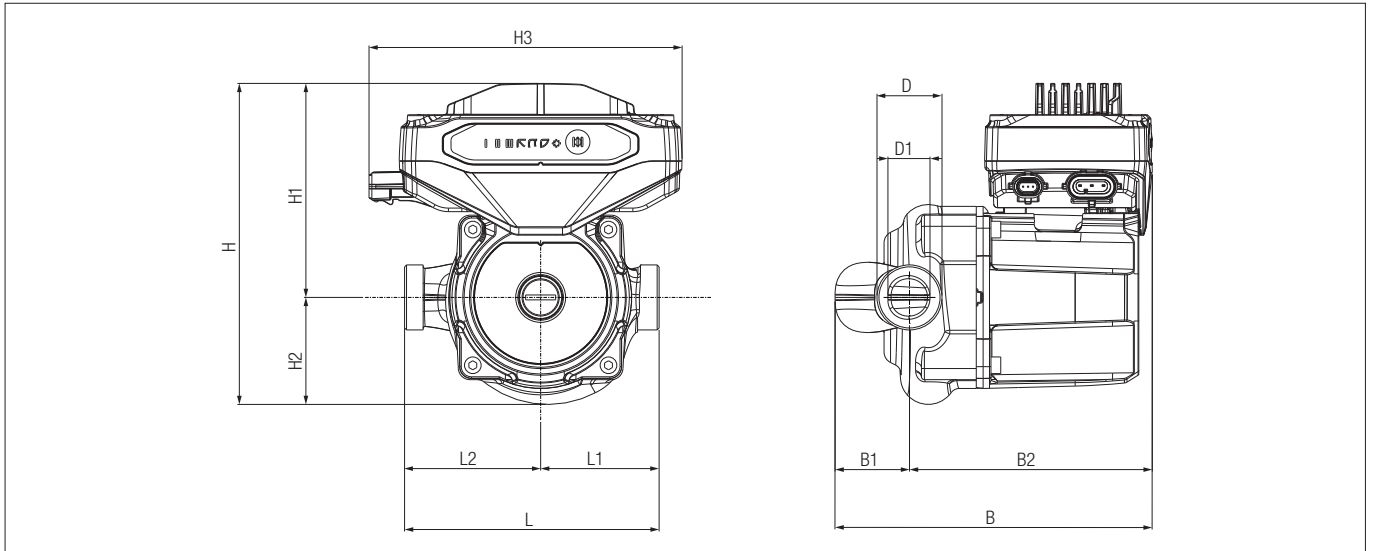
MODEL	CENTRE DISTANCE mm	POWER INPUT 50/60 Hz	P1 MAX W	In A	EEI*	MINIMUM SUCTION PRESSURE			Q.TY x PALLET	WEIGHT kg
						t°	90°	100°		
EVP OEM 110/130-25	130	220/240 V	153	1,19	EEI ≤ 0,23	m.c.a.	20	25	t.b.d	3,4

Data are valid for all versions (PWM1, PWM2, Hy, Hy FF e LIN)

* The parameter of reference for the more efficient circulators is EEI ≤ 0,20

EVP OEM 110/130-15 E 25 - UNIONS SINGLE ELECTRONIC WET ROTOR CIRCULATORS FOR RESIDENTIAL HEATING AND AIR CONDITIONING SYSTEMS

Pumped liquid temperature range: from -20 °C to +95 °C - Maximum operating pressure: 16 bar (1600 kPa)



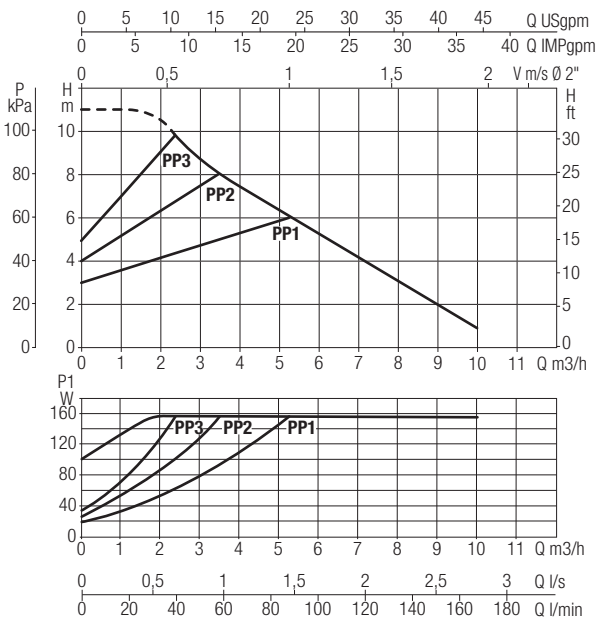
MODEL	B	B1	B2	D	D1	H	H1	H2	H3	L	L1	L2
EVP OEM 110/130-15	160	27	133	1"	20	159	109,5	49,5	159	130	65,5	64,5
EVP OEM 110/130-25	158	27	131	1" ½	27	159	109,5	49,5	159	130	69,5	60,5

Data are valid for all versions (PWM1, PWM2, Hy, Hy FF e LIN)

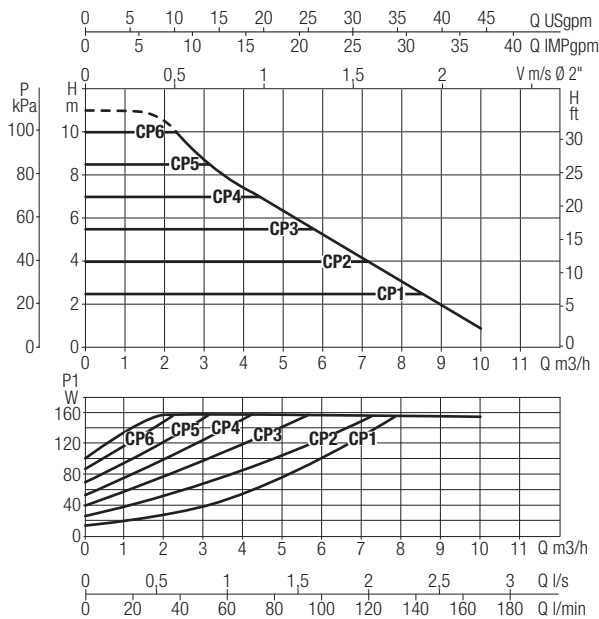
EVP OEM 110/180-25 E 32 - UNIONS SINGLE ELECTRONIC WET ROTOR CIRCULATORS FOR RESIDENTIAL HEATING AND AIR CONDITIONING SYSTEMS

Pumped liquid temperature range: from -20 °C to +95 °C - Maximum operating pressure: 16 bar (1600 kPa)

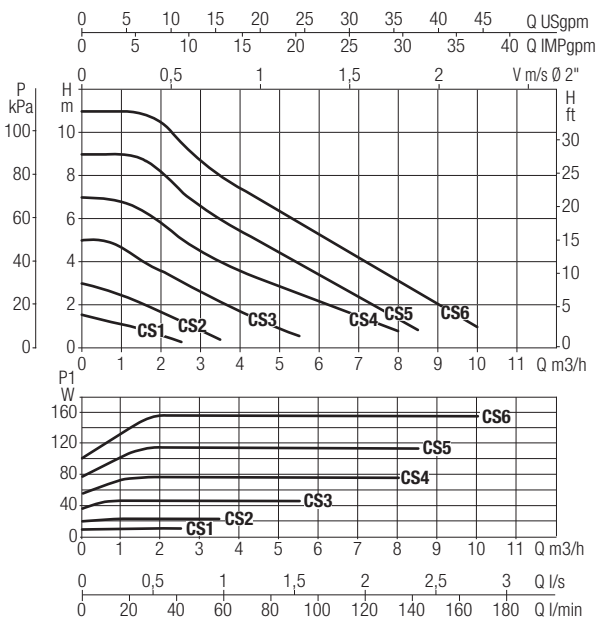
EVP OEM 110-180-32 e 25



EVP OEM 110-180-32 e 25



EVP OEM 110-180-32 e 25



PPx = Proportional differential pressure - curve x
 CPx = Constant differential pressure - curve x
 CSx = Constant speed - curve x

The curves are based on kinematic viscosity values = 1 mm²/s and density equal to 1000 kg/m³. Curve tolerance according to ISO9906. Fixed speed curves available on the DNA.

MODEL	Q=m ³ /h	0	1,5	2,5	4	6	8	10
	Q=l/min	0	25	42	67	100	133	167
EVP OEM 110/180-25	H (m)	11,0	10,9	9,6	7,5	5,3	3,1	0,9
EVP OEM 110/180-32		11,0	10,9	9,6	7,5	5,3	3,1	0,9

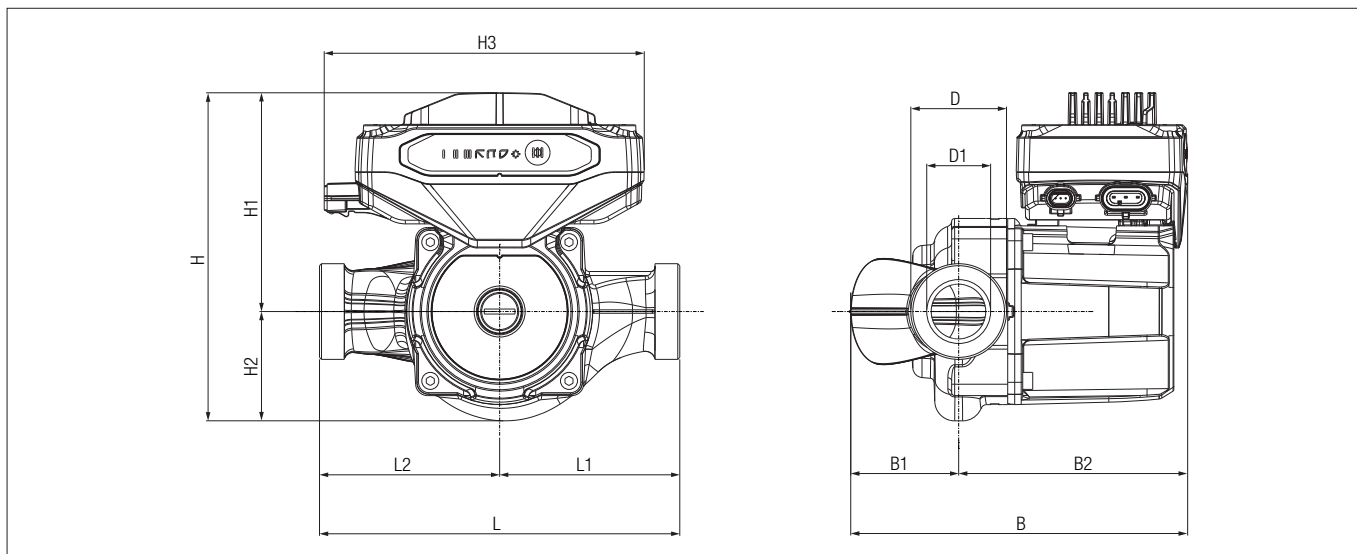
MODEL	CENTRE DISTANCE mm	POWER INPUT 50/60 Hz	P1 MAX W	In A	EEI*	MINIMUM SUCTION PRESSURE			Q.TY x PALLET	WEIGHT kg
						t°	90°	100°		
EVP OEM 110/180-25	180	220/240 V	155	1,24	EEI ≤ 0,21	m.c.a.	20	25	92	3,4
EVP OEM 110/180-32	180	220/240 V	155	1,24	EEI ≤ 0,21	m.c.a.	20	25	92	3,4

Data are valid for all versions (PWM1, PWM2, Hy, Hy FF e LIN)

* The parameter of reference for the more efficient circulators is EEI ≤ 0,20

EVP OEM 110/180-25 E 32 - UNIONS SINGLE ELECTRONIC WET ROTOR CIRCULATORS FOR RESIDENTIAL HEATING AND AIR CONDITIONING SYSTEMS

Pumped liquid temperature range: from -20 °C to +95 °C - Maximum operating pressure: 16 bar (1600 kPa)

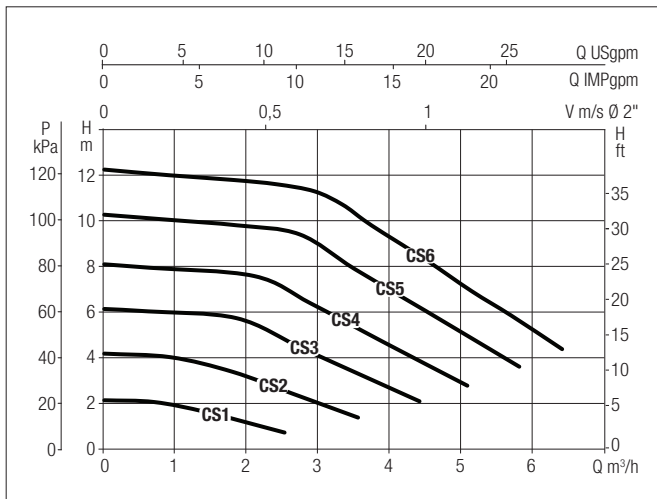
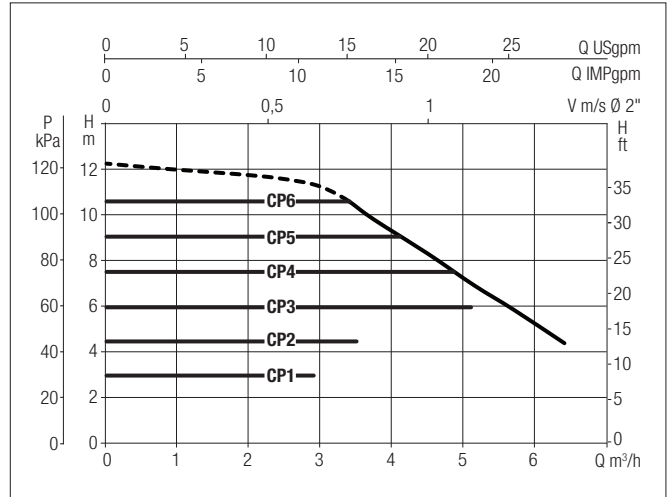
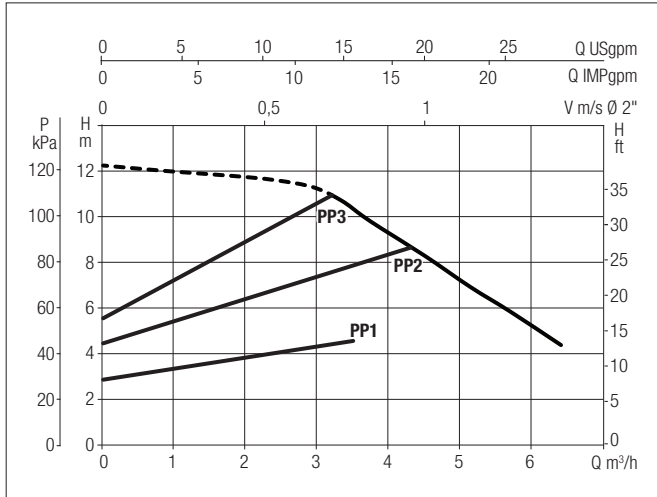


MODEL	B	B1	B2	D	D1	H	H1	H2	H3	L	L1	L2
EVP OEM 110/180-25	168	54	114	1½"	32	164	109	55	159	180	90	90
EVP OEM 110/180-32	168	54	114	2"	32	164	109	55	159	180	90	90

Data are valid for all versions (PWM1, PWM2, Hy, Hy FF e LIN)

EVP OEM 120/130-15 - UNIONS SINGLE ELECTRONIC WET ROTOR CIRCULATORS FOR RESIDENTIAL HEATING AND AIR CONDITIONING SYSTEMS

Pumped liquid temperature range: from -20 °C to +95 °C - Maximum operating pressure: 16 bar (1600 kPa)



PPx = Proportional differential pressure - curve x
CPx = Constant differential pressure - curve x
CSx = Constant speed - curve x

The curves are based on kinematic viscosity values = 1 mm²/s and density equal to 1000 kg/m³. Curve tolerance according to ISO9906. Fixed speed curves available on the DNA.

MODEL	Q=m ³ h	0	0,5	1,0	1,5	2,0	3,0	4,0	5,0	6,0
	Q=l/min	0	8	17	25	33	50	67	83	100
EVP OEM 120/130-15	H (m)	12,2	12,1	11,9	11,8	11,7	11,2	9,2	7,1	5,2

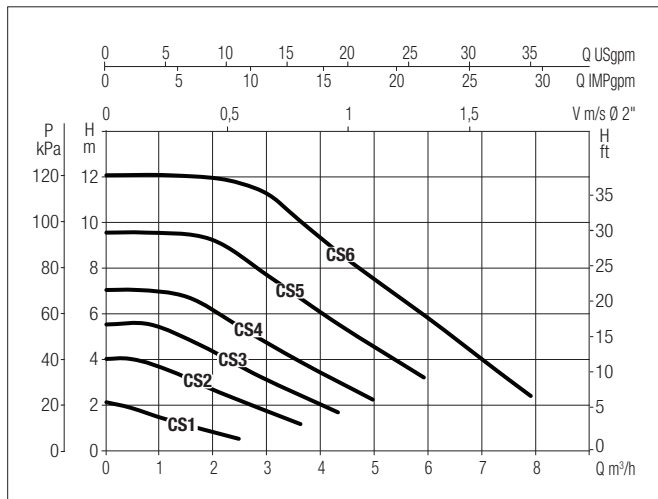
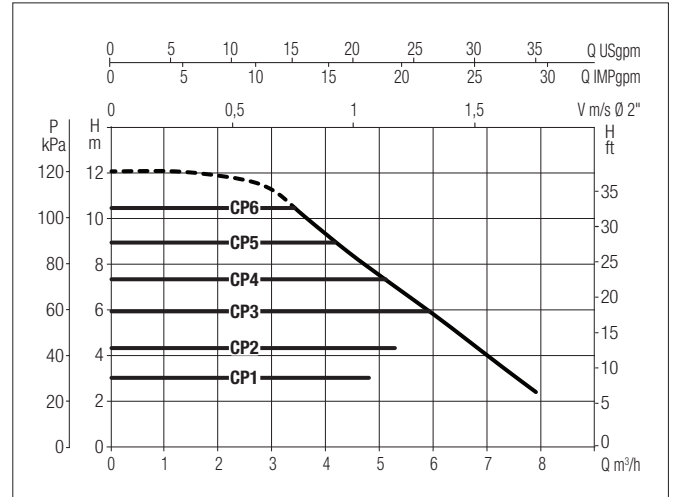
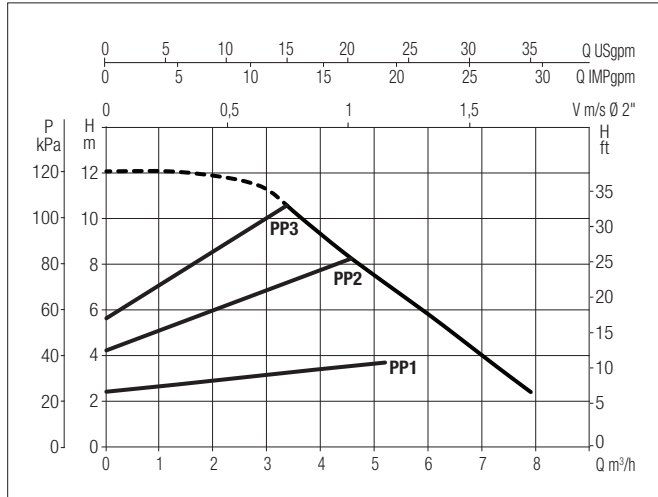
MODEL	CENTRE DISTANCE mm	POWER INPUT 50/60 Hz	P1 MAX W	In A	EEI*	MINIMUM SUCTION PRESSURE			Q.TY x PALLET	WEIGHT kg
						t°	90°	100°		
EVP OEM 120/130-15	130	220/240 V	204	1,56	EEI ≤ 0,23	m.c.a.	20	25	t.b.d	3,4

Data are valid for all versions (PWM1, PWM2, Hy, Hy FF e LIN)

* The parameter of reference for the more efficient circulators is EEI ≤ 0,20

EVP OEM 120/130-25 - UNIONS SINGLE ELECTRONIC WET ROTOR CIRCULATORS FOR RESIDENTIAL HEATING AND AIR CONDITIONING SYSTEMS

Pumped liquid temperature range: from -20 °C to +95 °C - Maximum operating pressure: 16 bar (1600 kPa)



PPx = Proportional differential pressure - curve x
CPx = Constant differential pressure - curve x
CSx = Constant speed - curve x

The curves are based on kinematic viscosity values = 1 mm²/s and density equal to 1000 kg/m³. Curve tolerance according to ISO9906. Fixed speed curves available on the DNA.

MODEL	Q=m ³ h	0	0,5	1,0	1,5	2,0	3,0	4,0	5,0	6,0	7,0
	Q=l/min	0	8	17	25	33	50	67	83	100	117
EVP OEM 120/130-25	H (m)	12	12	12	12	11,8	11,3	9,2	7,4	5,7	4,0

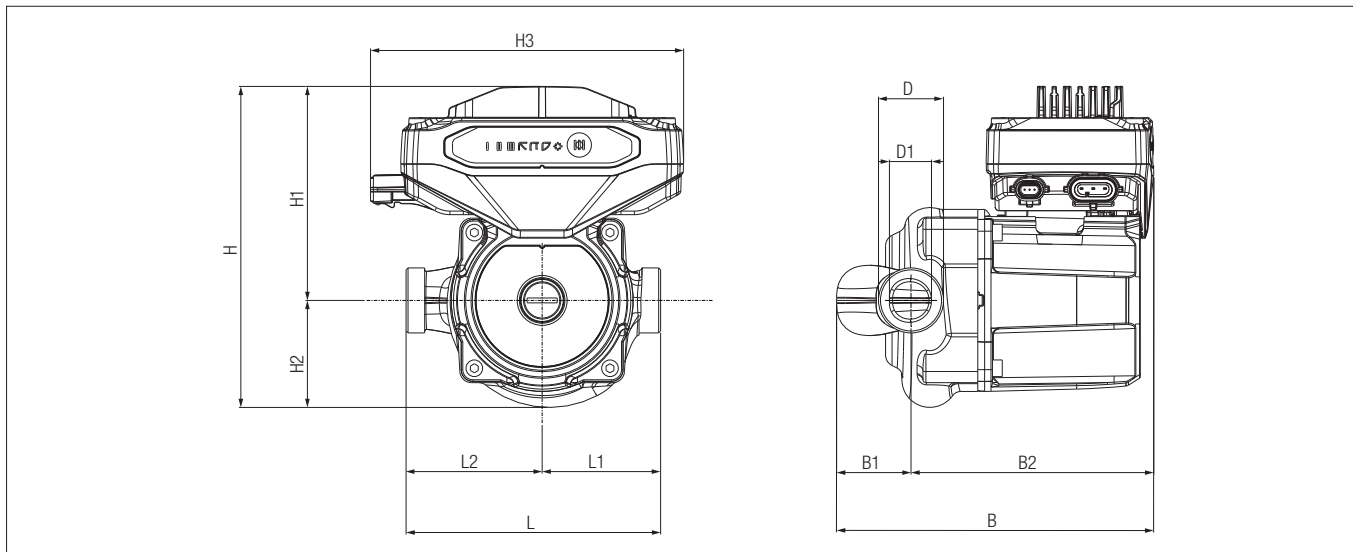
MODEL	CENTRE DISTANCE mm	POWER INPUT 50/60 Hz	P1 MAX W	In A	EEI*	MINIMUM SUCTION PRESSURE			Q.TY x PALLET	WEIGHT kg
						t°	90°	100°		
EVP OEM 120/130-25	130	220/240 V	198	1,51	EEI ≤ 0,23	m.c.a.	20	25	t.b.d	3,4

Data are valid for all versions (PWM1, PWM2, Hy, Hy FF e LIN)

* The parameter of reference for the more efficient circulators is EEI ≤ 0,20

EVP OEM 120/130-15 E 25 - UNIONS SINGLE ELECTRONIC WET ROTOR CIRCULATORS FOR RESIDENTIAL HEATING AND AIR CONDITIONING SYSTEMS

Pumped liquid temperature range: from -20 °C to +95 °C - Maximum operating pressure: 16 bar (1600 kPa)

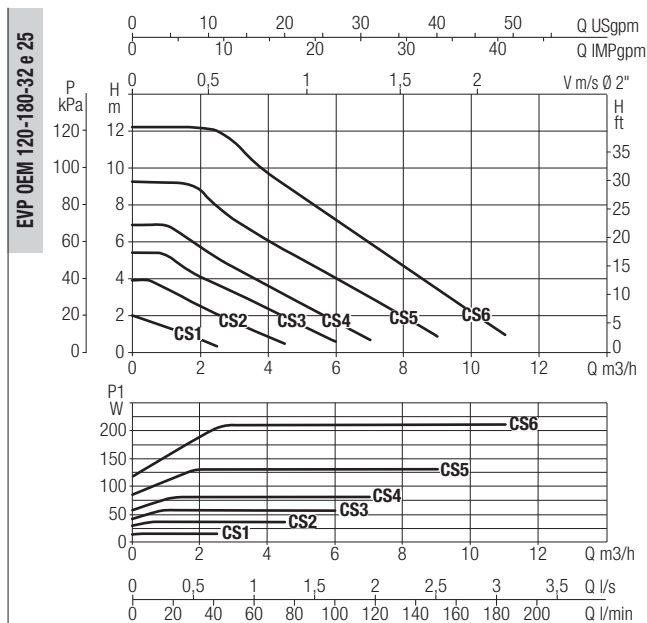
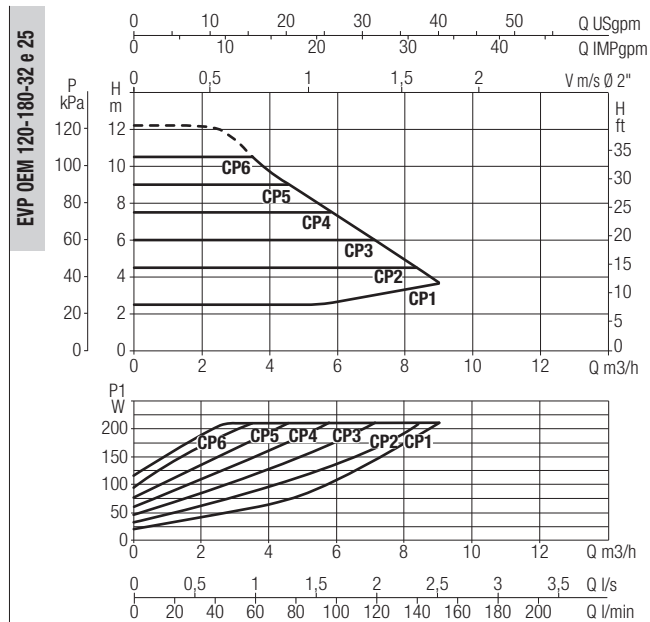
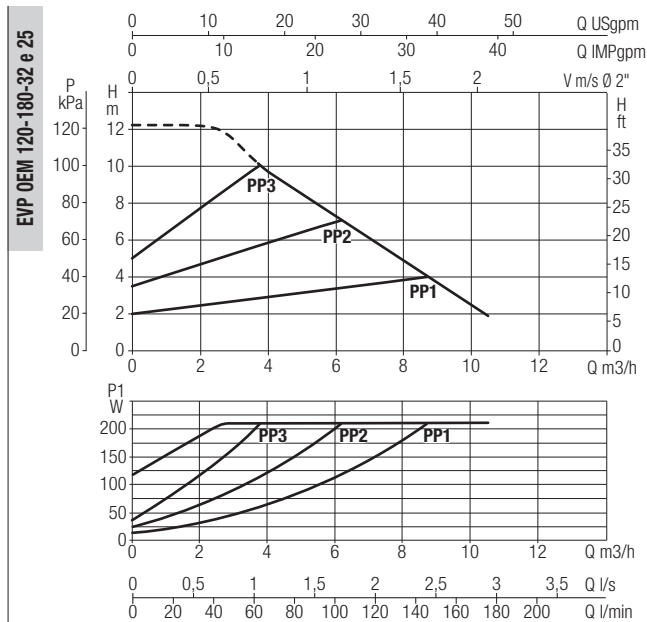


MODEL	B	B1	B2	D	D1	H	H1	H2	H3	L	L1	L2
EVP OEM 120/130-15	160	27	133	1"	20	159	109,5	49,5	159	130	65,5	64,5
EVP OEM 120/130-25	158	27	131	1" ½	27	159	109,5	49,5	159	130	69,5	60,5

Data are valid for all versions (PWM1, PWM2, Hy, Hy FF e LIN)

EVP OEM 120/180-25 E 32 - UNIONS SINGLE ELECTRONIC WET ROTOR CIRCULATORS FOR RESIDENTIAL HEATING AND AIR CONDITIONING SYSTEMS

Pumped liquid temperature range: from -20 °C to +95 °C - Maximum operating pressure: 16 bar (1600 kPa)



PPx = Proportional differential pressure - curve x
CPx = Constant differential pressure - curve x
CSx = Constant speed - curve x

The curves are based on kinematic viscosity values = 1 mm²/s and density equal to 1000 kg/m³. Curve tolerance according to ISO9906. Fixed speed curves available on the DNA.

MODEL	Q=m ³ /h	0	1,5	2,5	4	6	8	10
	Q=l/min	0	25	42	67	100	133	167
EVP OEM 120/180-25	H (m)	12,2*	12,2*	12,0*	9,7*	7,3*	4,9*	2,5*
EVP OEM 120/180-32		12,2*	12,2*	12,0*	9,7*	7,3*	4,9*	2,5*

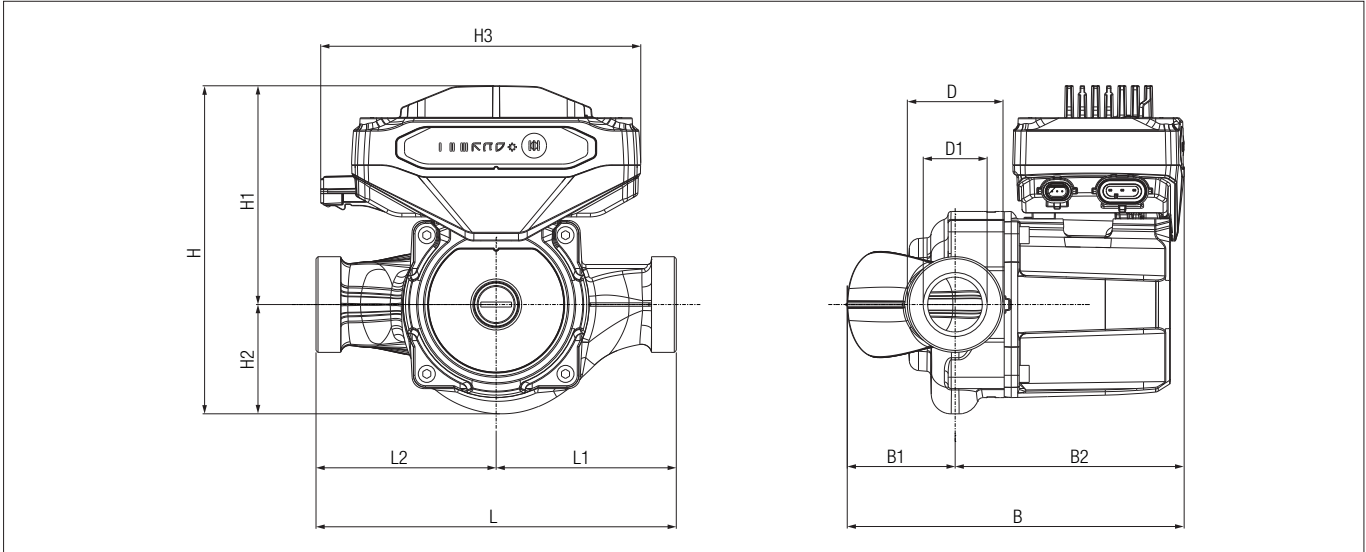
MODEL	CENTRE DISTANCE mm	POWER INPUT 50/60 Hz	P1 MAX W	In A	EEI*	MINIMUM SUCTION PRESSURE			Q.TY x PALLET	WEIGHT kg
						t°	90°	100°		
EVP OEM 120/180-25	180	220/240 V	212	1,67	EEI ≤ 0,21	m.c.a.	20	25	92	3,4
EVP OEM 120/180-32	180	220/240 V	212	1,67	EEI ≤ 0,20	m.c.a.	20	25	92	3,4

Data are valid for all versions (PWM1, PWM2, Hy, Hy FF e LIN)

* The parameter of reference for the more efficient circulators is EEI ≤ 0,20

EVP OEM 120/180-25 E 32 - UNIONS SINGLE ELECTRONIC WET ROTOR CIRCULATORS FOR RESIDENTIAL HEATING AND AIR CONDITIONING SYSTEMS

Pumped liquid temperature range: from -20 °C to +95 °C - Maximum operating pressure: 16 bar (1600 kPa)

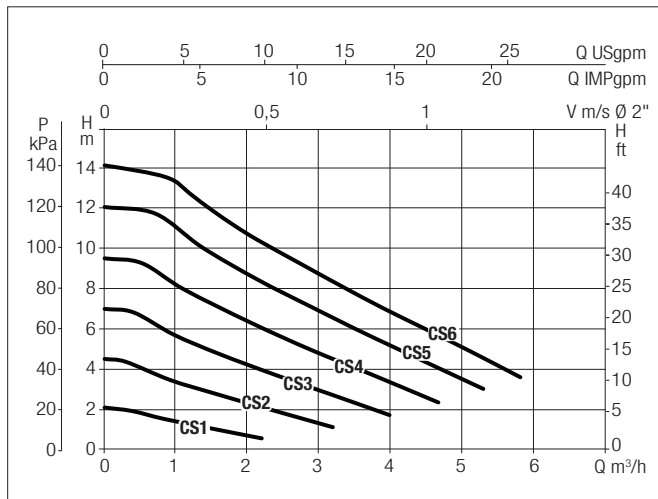
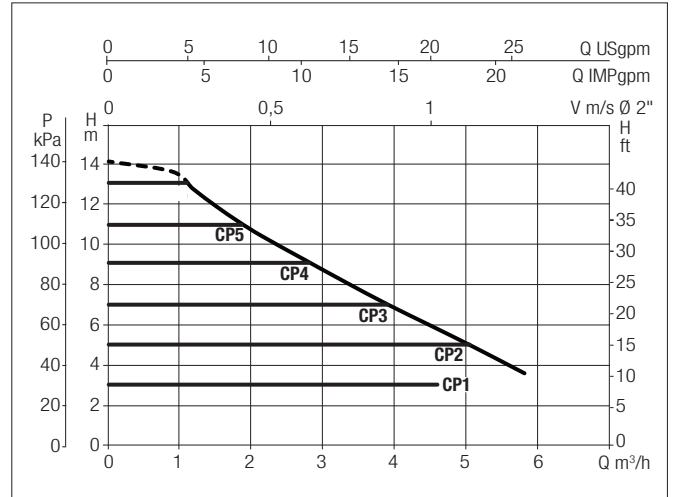
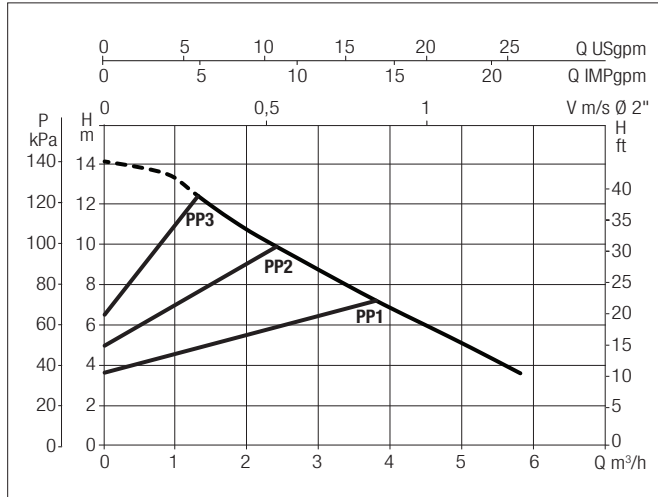


MODEL	B	B1	B2	D	D1	H	H1	H2	H3	L	L1	L2
EVP OEM 120/180-25	168	54	114	1½"	32	164	109	55	159	180	90	90
EVP OEM 120/180-32	168	54	114	2"	32	164	109	55	159	180	90	90

Data are valid for all versions (PWM1, PWM2, Hy, Hy FF e LIN)

EVP OEM 140/130-15 - UNIONS SINGLE ELECTRONIC WET ROTOR CIRCULATORS FOR RESIDENTIAL HEATING AND AIR CONDITIONING SYSTEMS

Pumped liquid temperature range: from -20 °C to +95 °C - Maximum operating pressure: 16 bar (1600 kPa)



PP_x = Proportional differential pressure - curve x
CP_x = Constant differential pressure - curve x
CS_x = Constant speed - curve x

The curves are based on kinematic viscosity values = 1 mm²/s and density equal to 1000 kg/m³. Curve tolerance according to ISO9906. Fixed speed curves available on the DNA.

MODEL	Q=m ³ /h	0	0,5	1,0	1,5	2,0	3,0	4,0	5,0
	Q=l/min	0	8	17	25	33	50	67	83
EVP OEM 140/130-15	H (m)	14,2	13,9	13,5	11,9	10,7	8,7	6,8	5,1

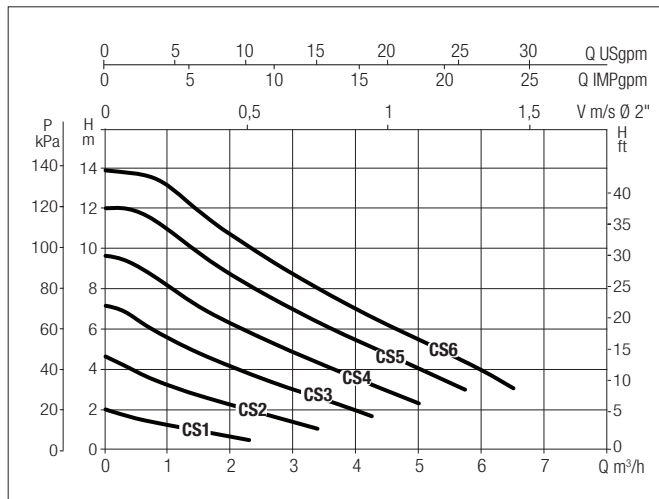
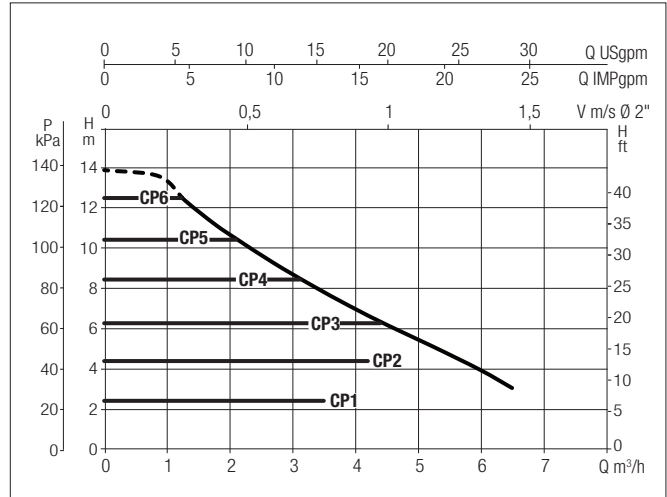
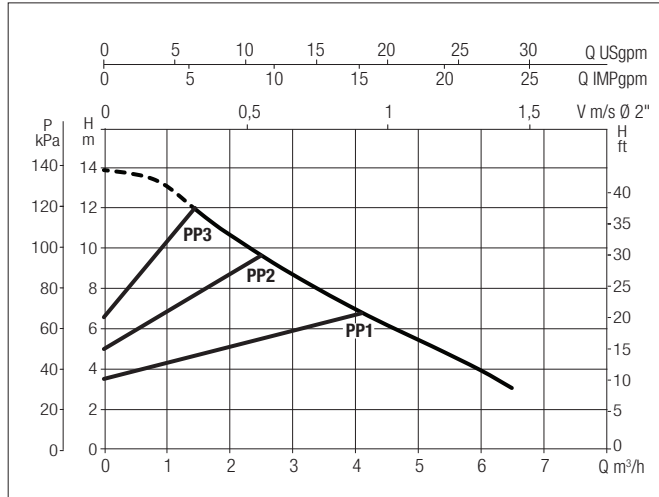
MODEL	CENTRE DISTANCE mm	POWER INPUT 50/60 Hz	P1 MAX W	In A	EEI*	MINIMUM SUCTION PRESSURE			Q.TY x PALLET	WEIGHT kg
						t°	90°	100°		
EVP OEM 140/130-15	130	220/240 V	153	1,19	EEI ≤ 0,23	m.c.a.	20	25	t.b.d	3,4

Data are valid for all versions (PWM1, PWM2, Hy, Hy FF e LIN)

* The parameter of reference for the more efficient circulators is EEI ≤ 0,20

EVP OEM 140/130-25 - UNIONS SINGLE ELECTRONIC WET ROTOR CIRCULATORS FOR RESIDENTIAL HEATING AND AIR CONDITIONING SYSTEMS

Pumped liquid temperature range: from -20 °C to +95 °C - Maximum operating pressure: 16 bar (1600 kPa)



PPx = Proportional differential pressure - curve x
CPx = Constant differential pressure - curve x
CSx = Constant speed - curve x

The curves are based on kinematic viscosity values = 1 mm²/s and density equal to 1000 kg/m³. Curve tolerance according to ISO9906. Fixed speed curves available on the DNA.

MODEL	Q=m ³ /h	0	0,5	1,0	1,5	2,0	3,0	4,0	5,0	6,0
	Q=l/min	0	8	17	25	33	50	67	83	100
EVP OEM 140/130-25	H (m)	14,0	13,9	13,5	11,9	10,8	8,7	7,0	5,5	3,9

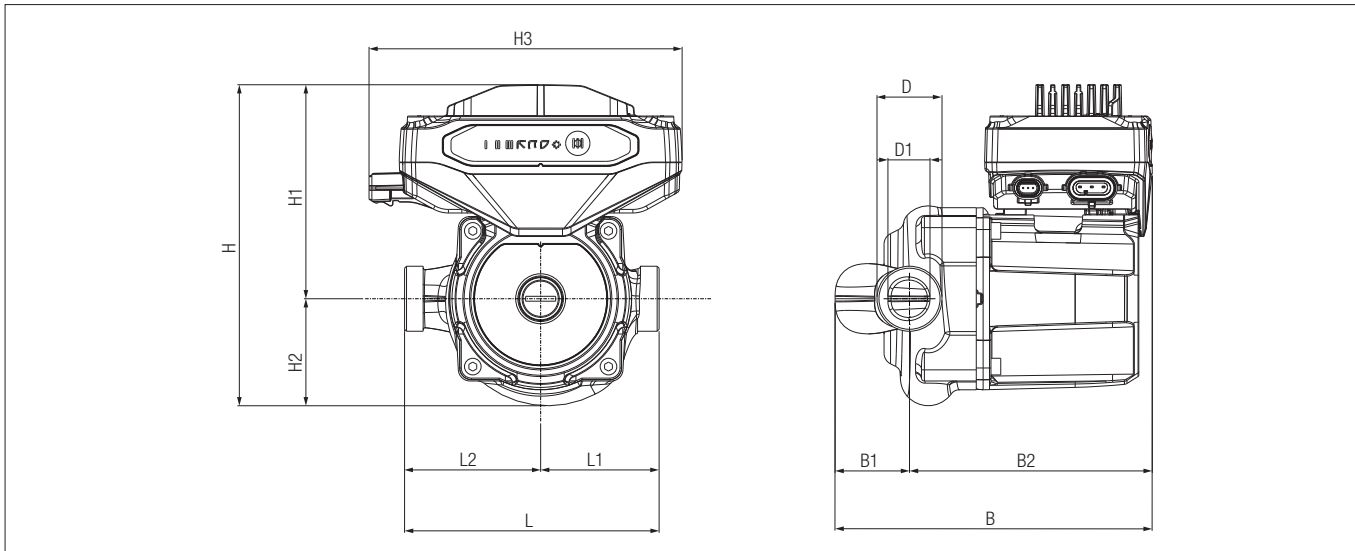
MODEL	CENTRE DISTANCE mm	POWER INPUT 50/60 Hz	P1 MAX W	In A	EEI*	MINIMUM SUCTION PRESSURE			Q.TY x PALLET	WEIGHT kg
						t°	90°	100°		
EVP OEM 140/130-25	130	220/240 V	152	1,19	EEI ≤ 0,23	m.c.a.	20	25	t.b.d	3,4

Data are valid for all versions (PWM1, PWM2, Hy, Hy FF e LIN)

* The parameter of reference for the more efficient circulators is EEI ≤ 0,20

EVP OEM 140/130-15 E 25 - UNIONS SINGLE ELECTRONIC WET ROTOR CIRCULATORS FOR RESIDENTIAL HEATING AND AIR CONDITIONING SYSTEMS

Pumped liquid temperature range: from -20 °C to +95 °C - Maximum operating pressure: 16 bar (1600 kPa)

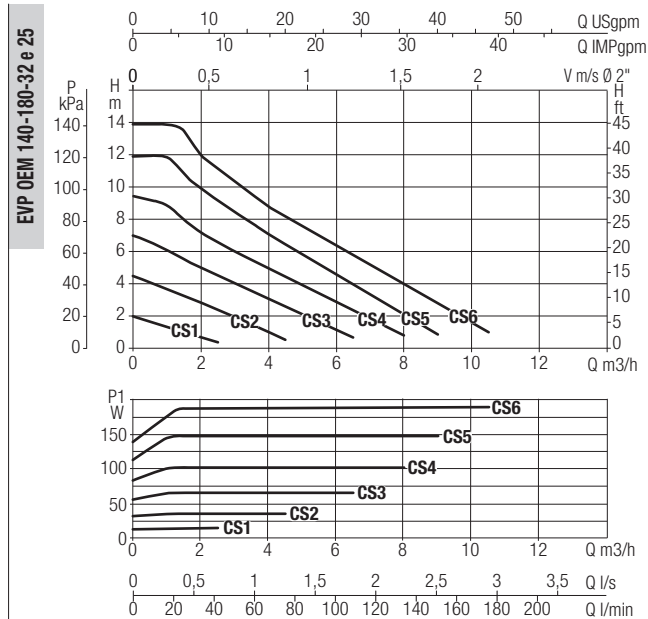
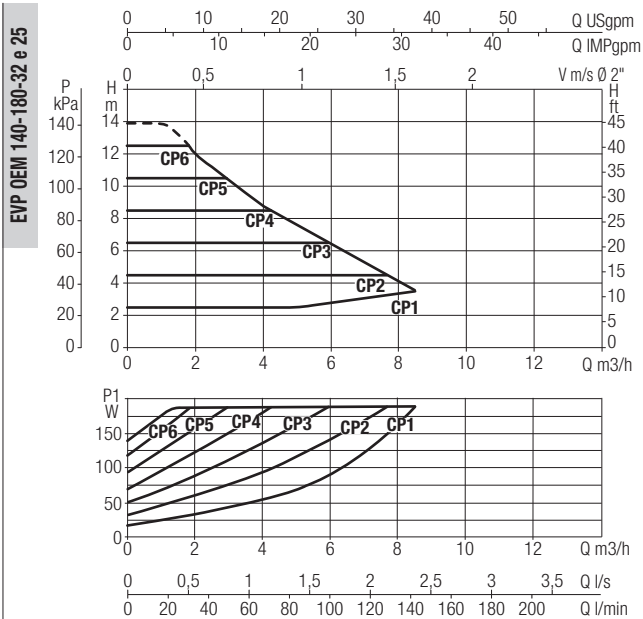
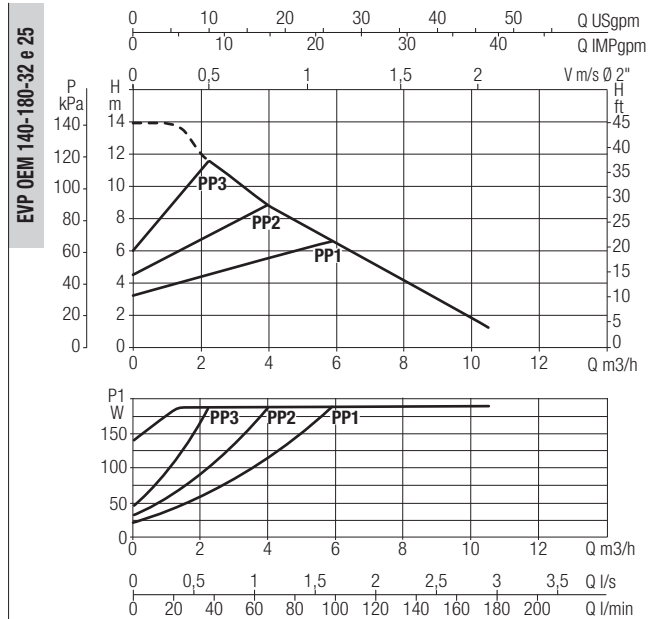


MODEL	B	B1	B2	D	D1	H	H1	H2	H3	L	L1	L2
EVP OEM 140/130-15	160	27	133	1"	20	159	109,5	49,5	159	130	65,5	64,5
EVP OEM 140/130-25	158	27	131	1" ½	27	159	109,5	49,5	159	130	69,5	60,5

Data are valid for all versions (PWM1, PWM2, Hy, Hy FF e LIN)

EVP OEM 140/180-25 E 32 - UNIONS SINGLE ELECTRONIC WET ROTOR CIRCULATORS FOR RESIDENTIAL HEATING AND AIR CONDITIONING SYSTEMS

Pumped liquid temperature range: from -20 °C to +95 °C - Maximum operating pressure: 16 bar (1600 kPa)



PPx = Proportional differential pressure - curve x
CPx = Constant differential pressure - curve x
CSx = Constant speed - curve x

The curves are based on kinematic viscosity values = 1 mm²/s and density equal to 1000 kg/m³. Curve tolerance according to ISO9906. Fixed speed curves available on the DNA.

MODEL	Q=m ³ /h	0	1,5	2,5	4	6	8	10
	Q=l/min	0	25	42	67	100	133	167
EVP OEM 140/180-25	H (m)	13,9	13,5	11,2	8,8	6,5	4,1	1,8
EVP OEM 140/180-32		13,9	13,5	11,2	8,8	6,5	4,1	1,8

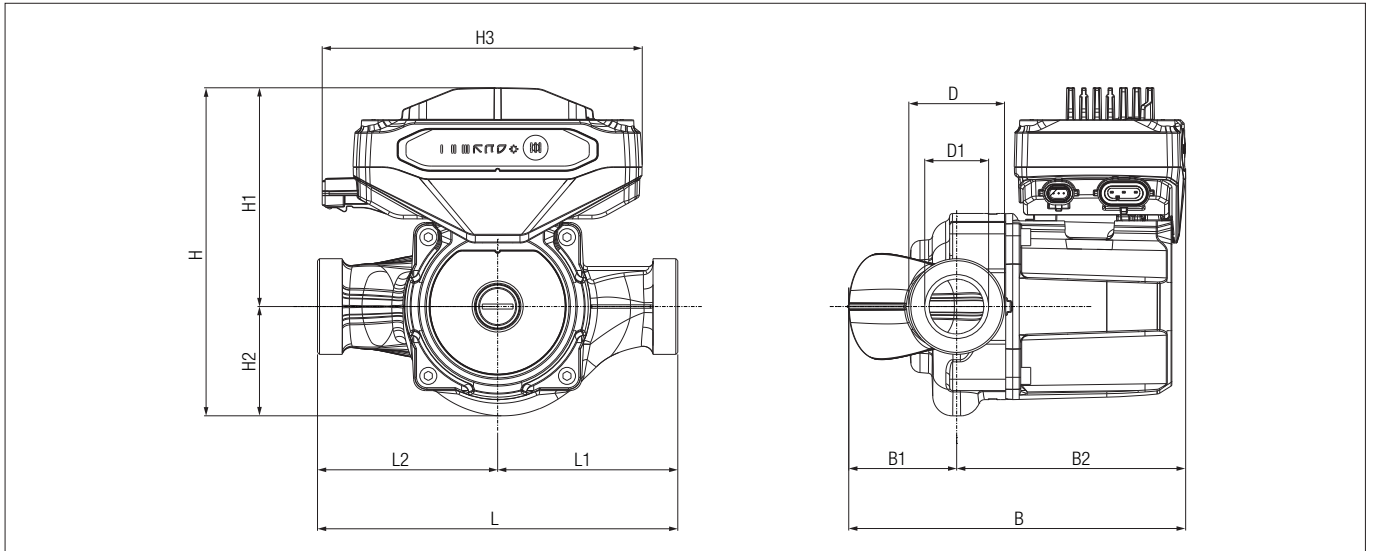
MODEL	CENTRE DISTANCE mm	POWER INPUT 50/60 Hz	P1 MAX W	In A	EEI*	MINIMUM SUCTION PRESSURE			Q.TY x PALLET	WEIGHT kg
						t°	90°	100°		
EVP OEM 140/180-25	180	220/240 V	189	1,49	EEI ≤ 0,21	m.c.a.	20	25	92	3,4
EVP OEM 140/180-32	180	220/240 V	189	1,49	EEI ≤ 0,20	m.c.a.	20	25	92	3,4

Data are valid for all versions (PWM1, PWM2, Hy, Hy FF e LIN)

* The parameter of reference for the more efficient circulators is EEI ≤ 0,20

EVP OEM 140/180-25 E 32 - UNIONS SINGLE ELECTRONIC WET ROTOR CIRCULATORS FOR RESIDENTIAL HEATING AND AIR CONDITIONING SYSTEMS

Pumped liquid temperature range: from -20 °C to +95 °C - Maximum operating pressure: 16 bar (1600 kPa)

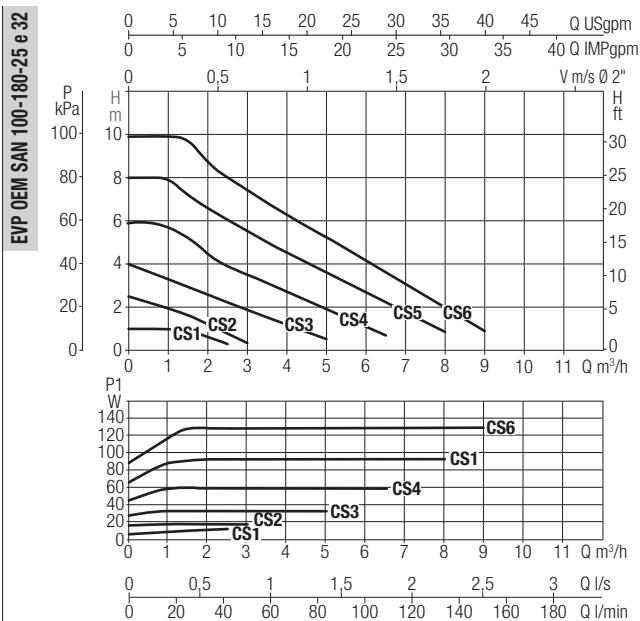
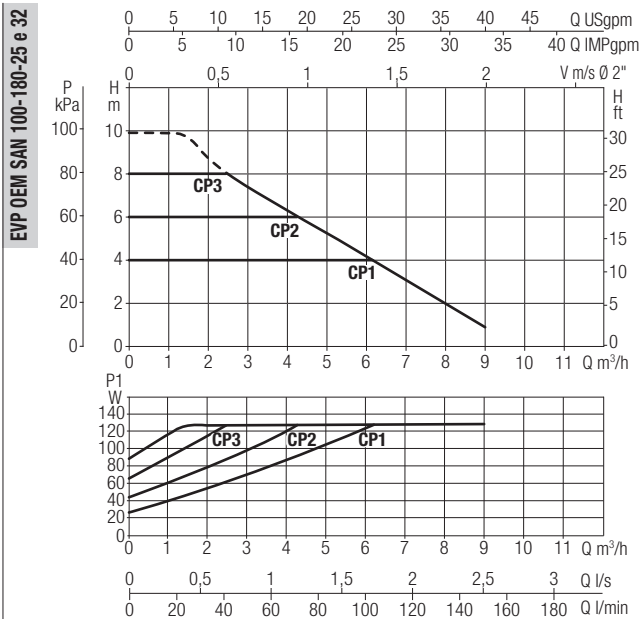
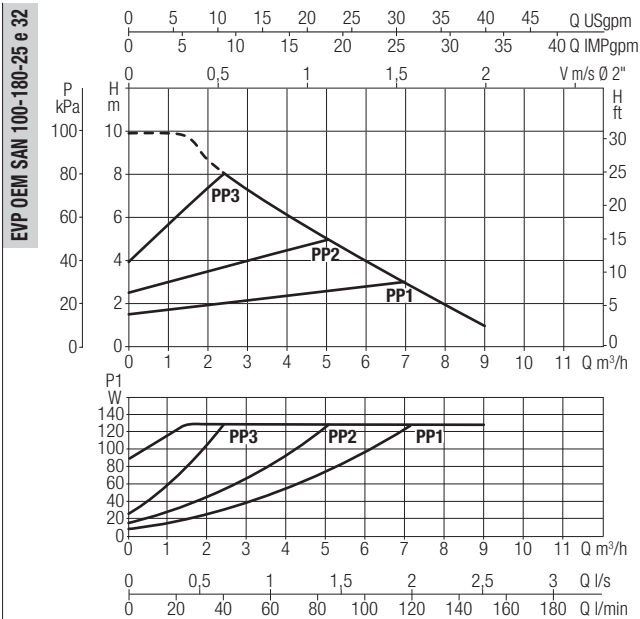


MODEL	B	B1	B2	D	D1	H	H1	H2	H3	L	L1	L2
EVP OEM 140/180-25	168	54	114	1½"	32	164	109	55	159	180	90	90
EVP OEM 140/180-32	168	54	114	2"	32	164	109	55	159	180	90	90

Data are valid for all versions (PWM1, PWM2, Hy, Hy FF e LIN)

EVP OEM SAN 100/180-25 - UNIONS SINGLE ELECTRONIC WET ROTOR CIRCULATORS FOR RESIDENTIAL HEATING AND AIR CONDITIONING SYSTEMS

Pumped liquid temperature range: from -20 °C to +95 °C - Maximum operating pressure: 16 bar (1600 kPa)



PPx = Proportional differential pressure - curve x

CPx = Constant differential pressure - curve x

CSx = Constant speed - curve x

The curves are based on kinematic viscosity values = 1 mm²/s and density equal to 1000 kg/m³. Curve tolerance according to ISO9906. Fixed speed curves available on the DNA.

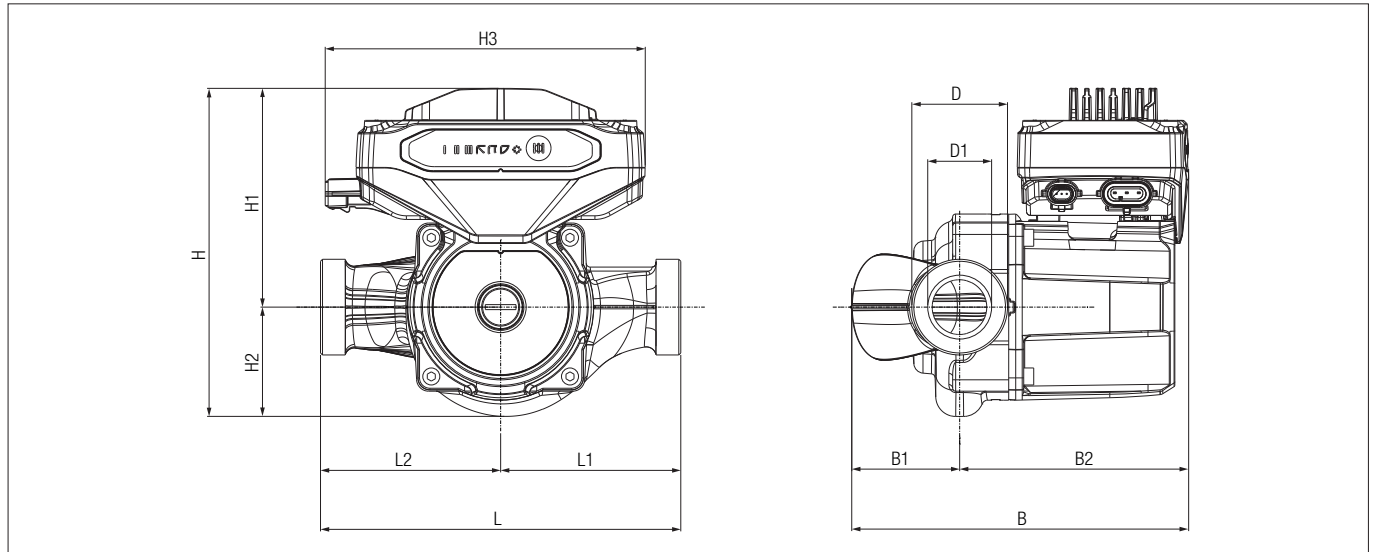
MODEL	Q=m ³ h	0	1,5	2,5	4	6	8	10
	Q=l/min	0	25	42	67	100	133	167
EVP OEM SAN 100/180-25	H (m)	9,9	9,7	8,0	6,3	4,2	2,2	-
EVP OEM SAN 100/180-25 PWM1		9,9	9,7	8,0	6,3	4,2	2,2	-
EVP OEM SAN 100/180-25 PWM2		9,9	9,7	8,0	6,3	4,2	2,2	-
EVP OEM SAN 100/180-25 LIN		9,9	9,7	8,0	6,3	4,2	2,2	-

EVP OEM SAN 100/180-25 - UNIONS SINGLE ELECTRONIC WET ROTOR CIRCULATORS FOR RESIDENTIAL HEATING AND AIR CONDITIONING SYSTEMS

Pumped liquid temperature range: from -20 °C to +95 °C - Maximum operating pressure: 16 bar (1600 kPa)

MODEL	CENTRE DISTANCE mm	POWER INPUT 50/60 Hz	P1 MAX W	In A	EEI*	MINIMUM SUCTION PRESSURE			Q.TY x PALLET	WEIGHT kg
						t°	90°	100°		
EVP OEM SAN 100/180-25	180	220/240 V	128	1,04	EEI ≤ 0,21	m.c.a.	20	25	92	3,7
EVP OEM SAN 100/180-25 PWM1	180	220/240 V	128	1,04	EEI ≤ 0,21	m.c.a.	20	25	92	3,7
EVP OEM SAN 100/180-25 PWM2	180	220/240 V	128	1,04	EEI ≤ 0,21	m.c.a.	20	25	92	3,7
EVP OEM SAN 100/180-25 LIN	180	220/240 V	128	1,04	EEI ≤ 0,21	m.c.a.	20	25	92	3,7

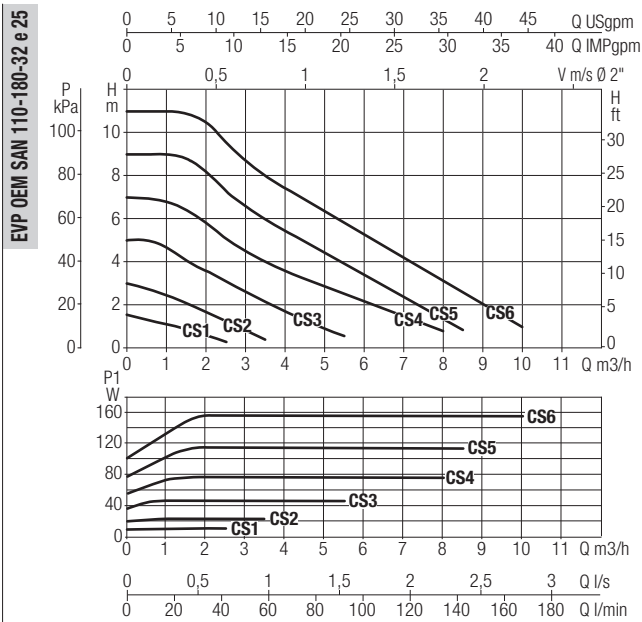
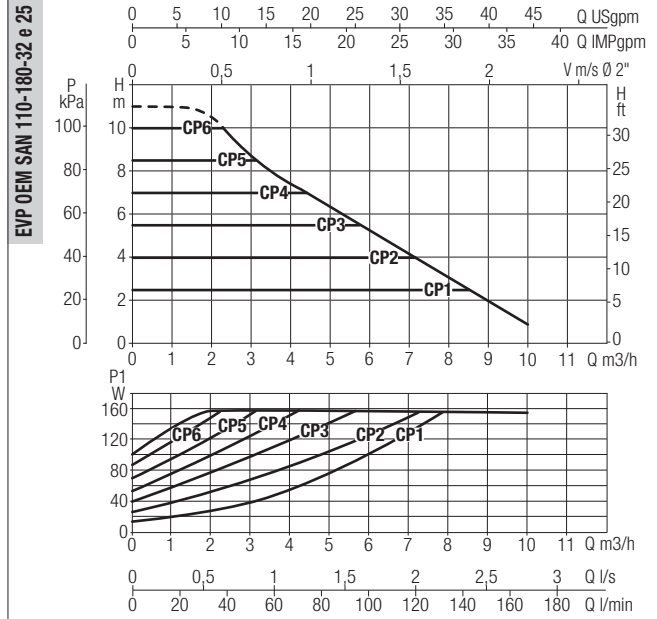
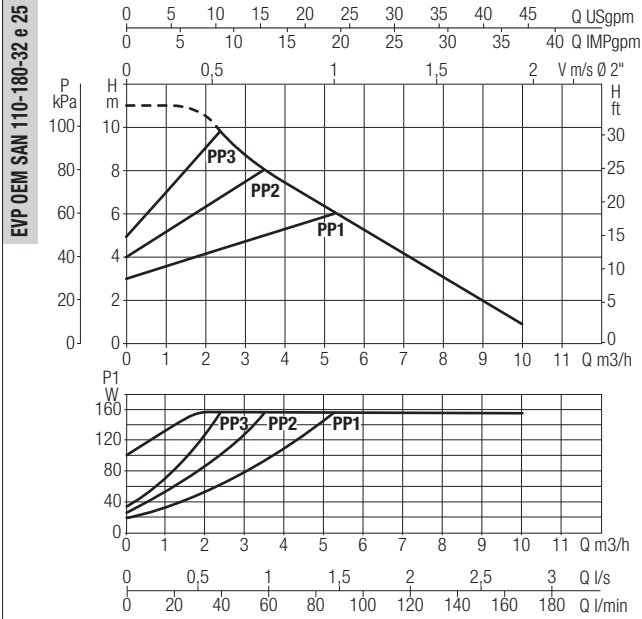
* The parameter of reference for the more efficient circulators is EEI ≤ 0,20



MODEL	B	B1	B2	D	D1	H	H1	H2	H3	L	L1	L2
EVP OEM SAN 100/180-25	168	54	114	1½"	32	164	109	55	159	180	90	90
EVP OEM SAN 100/180-25 PWM1	168	54	114	1½"	32	164	109	55	159	180	90	90
EVP OEM SAN 100/180-25 PWM2	168	54	114	1½"	32	164	109	55	159	180	90	90
EVP OEM SAN 100/180-25 LIN	168	54	114	1½"	32	164	109	55	159	180	90	90

EVP OEM SAN 110/180-25 - UNIONS SINGLE ELECTRONIC WET ROTOR CIRCULATORS FOR RESIDENTIAL HEATING AND AIR CONDITIONING SYSTEMS

Pumped liquid temperature range: from -20 °C to +95 °C - Maximum operating pressure: 16 bar (1600 kPa)



PPx = Proportional differential pressure - curve x

CPx = Constant differential pressure - curve x

CSx = Constant speed - curve x

The curves are based on kinematic viscosity values = 1 mm²/s and density equal to 1000 kg/m³. Curve tolerance according to ISO9906. Fixed speed curves available on the DNA.

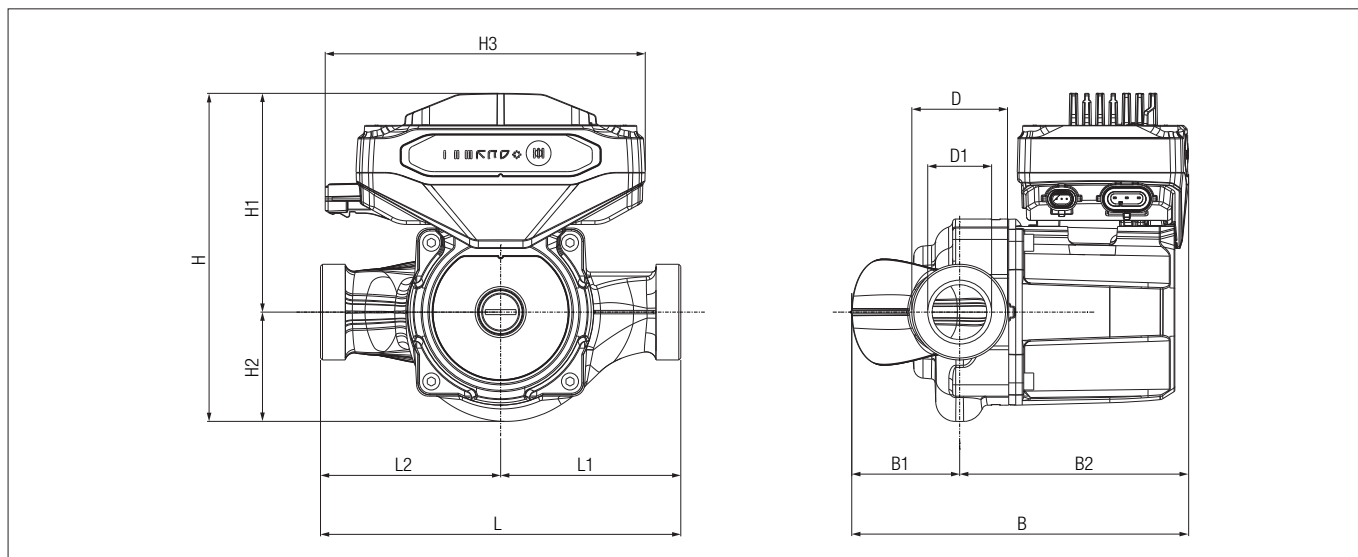
MODEL	Q=m ³ /h	0	1,5	2,5	4	6	8	10
	Q=l/min	0	25	42	67	100	133	167
EVP OEM SAN 110/180-25	H (m)	11,0	10,9	9,6	7,5	5,3	3,1	0,9
EVP OEM SAN 110/180-25 PWM1		11,0	10,9	9,6	7,5	5,3	3,1	0,9
EVP OEM SAN 110/180-25 PWM2		11,0	10,9	9,6	7,5	5,3	3,1	0,9
EVP OEM SAN 110/180-25 LIN		11,0	10,9	9,6	7,5	5,3	3,1	0,9

EVP OEM SAN 110/180-25 - UNIONS SINGLE ELECTRONIC WET ROTOR CIRCULATORS FOR RESIDENTIAL HEATING AND AIR CONDITIONING SYSTEMS

Pumped liquid temperature range: from -20 °C to +95 °C - Maximum operating pressure: 16 bar (1600 kPa)

MODEL	CENTRE DISTANCE mm	POWER INPUT 50/60 Hz	P1 MAX W	In A	EEI*	MINIMUM SUCTION PRESSURE			Q.TY x PALLET	WEIGHT kg
						t°	90°	100°		
EVP OEM SAN 110/180-25	180	220/240 V	155	1,24	EEI ≤ 0,21	m.c.a.	20	25	92	3,7
EVP OEM SAN 110/180-25 PWM1	180	220/240 V	155	1,24	EEI ≤ 0,21	m.c.a.	20	25	92	3,7
EVP OEM SAN 110/180-25 PWM2	180	220/240 V	155	1,24	EEI ≤ 0,21	m.c.a.	20	25	92	3,7
EVP OEM SAN 110/180-25 LIN	180	220/240 V	155	1,24	EEI ≤ 0,21	m.c.a.	20	25	92	3,7

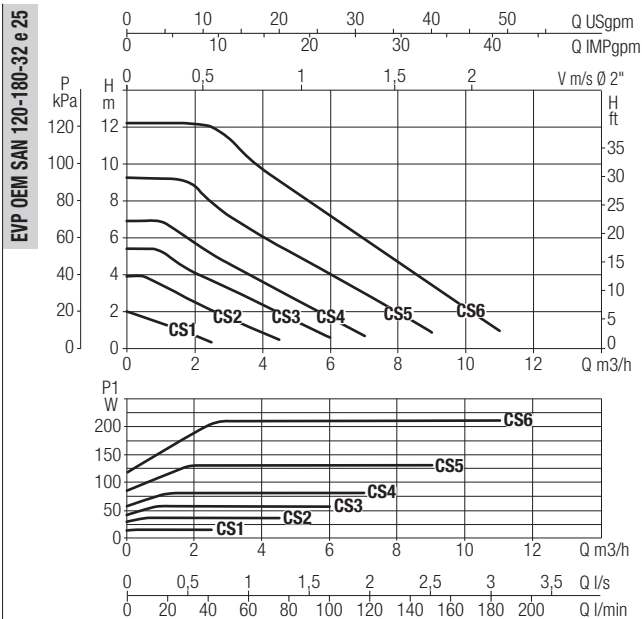
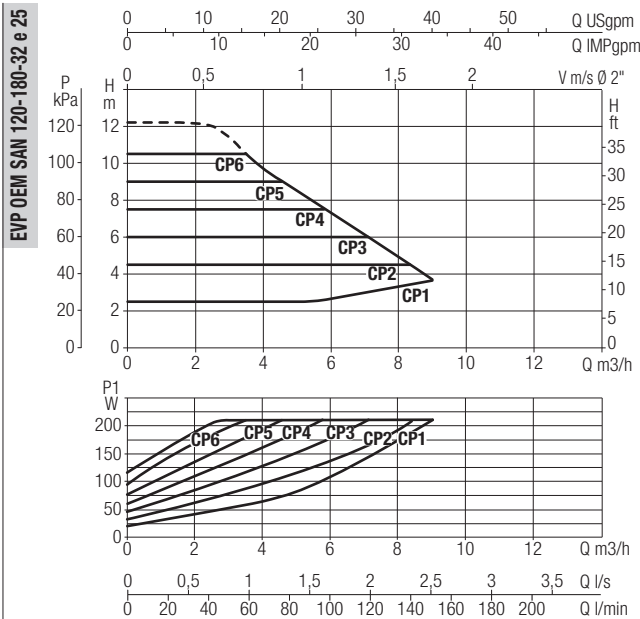
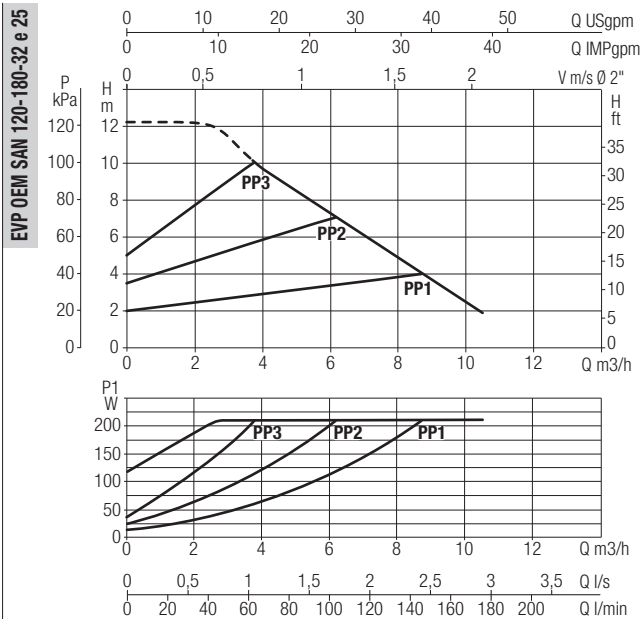
* The parameter of reference for the more efficient circulators is EEI ≤ 0,20



MODEL	B	B1	B2	D	D1	H	H1	H2	H3	L	L1	L2
EVP OEM SAN 110/180-25	168	54	114	1½	32	164	109	55	159	180	90	90
EVP OEM SAN 110/180-25 PWM1	168	54	114	1½	32	164	109	55	159	180	90	90
EVP OEM SAN 110/180-25 PWM2	168	54	114	1½	32	164	109	55	159	180	90	90
EVP OEM SAN 110/180-25 LIN	168	54	114	1½	32	164	109	55	159	180	90	90

EVP OEM SAN 120/180-25 - UNIONS SINGLE ELECTRONIC WET ROTOR CIRCULATORS FOR RESIDENTIAL HEATING AND AIR CONDITIONING SYSTEMS

Pumped liquid temperature range: from -20 °C to +95 °C - Maximum operating pressure: 16 bar (1600 kPa)



PPx = Proportional differential pressure - curve x
CPx = Constant differential pressure - curve x
CSx = Constant speed - curve x

The curves are based on kinematic viscosity values = 1 mm²/s and density equal to 1000 kg/m³. Curve tolerance according to ISO9906. Fixed speed curves available on the DNA.

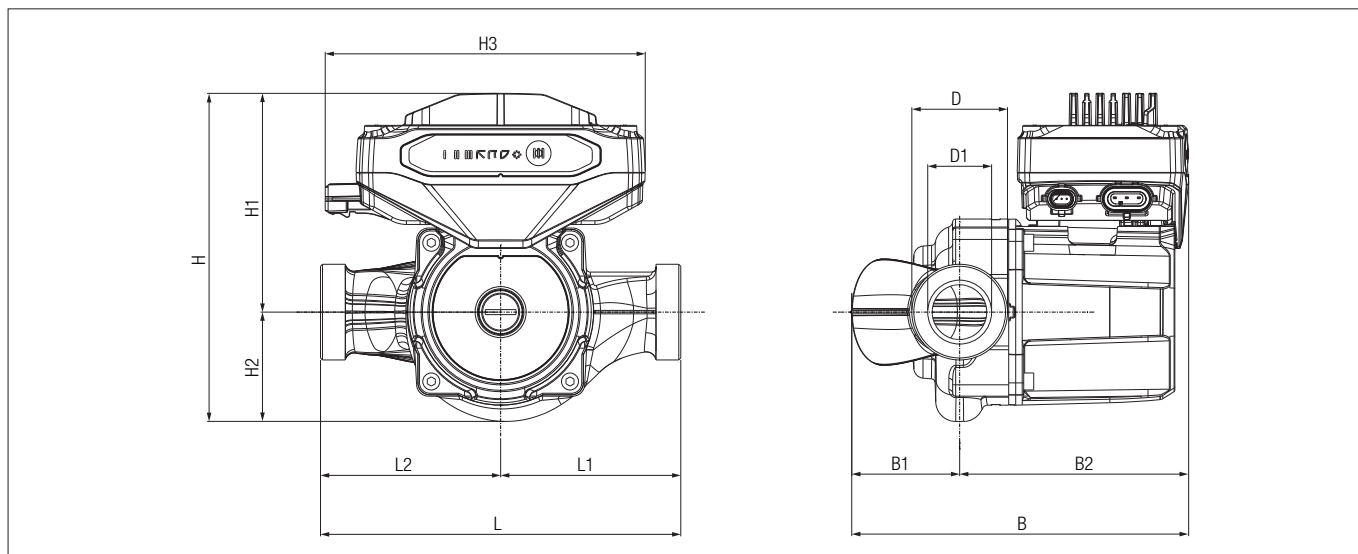
MODEL	Q=m ³ /h	0	1,5	2,5	4	6	8	10
	Q=l/min	0	25	42	67	100	133	167
EVP OEM SAN 120/180-25	H (m)	12,2	12,2	12,0	9,7	7,3	4,9	2,5
EVP OEM SAN 120/180-25 PWM1		12,2	12,2	12,0	9,7	7,3	4,9	2,5
EVP OEM SAN 120/180-25 PWM2		12,2	12,2	12,0	9,7	7,3	4,9	2,5
EVP OEM SAN 120/180-25 LIN		12,2	12,2	12,0	9,7	7,3	4,9	2,5

EVP OEM SAN 120/180-25 - UNIONS SINGLE ELECTRONIC WET ROTOR CIRCULATORS FOR RESIDENTIAL HEATING AND AIR CONDITIONING SYSTEMS

Pumped liquid temperature range: from -20 °C to +95 °C - Maximum operating pressure: 16 bar (1600 kPa)

MODEL	CENTRE DISTANCE mm	POWER INPUT 50/60 Hz	P1 MAX W	In A	EEI*	MINIMUM SUCTION PRESSURE			Q.TY x PALLET	WEIGHT kg
						t°	90°	100°		
EVP OEM SAN 120/180-25	180	220/240 V	212	1,67	EEI ≤ 0,20	m.c.a.	20	25	92	3,7
EVP OEM SAN 120/180-25 PWM1	180	220/240 V	212	1,67	EEI ≤ 0,20	m.c.a.	20	25	92	3,7
EVP OEM SAN 120/180-25 PWM2	180	220/240 V	212	1,67	EEI ≤ 0,20	m.c.a.	20	25	92	3,7
EVP OEM SAN 120/180-25 LIN	180	220/240 V	212	1,67	EEI ≤ 0,20	m.c.a.	20	25	92	3,7

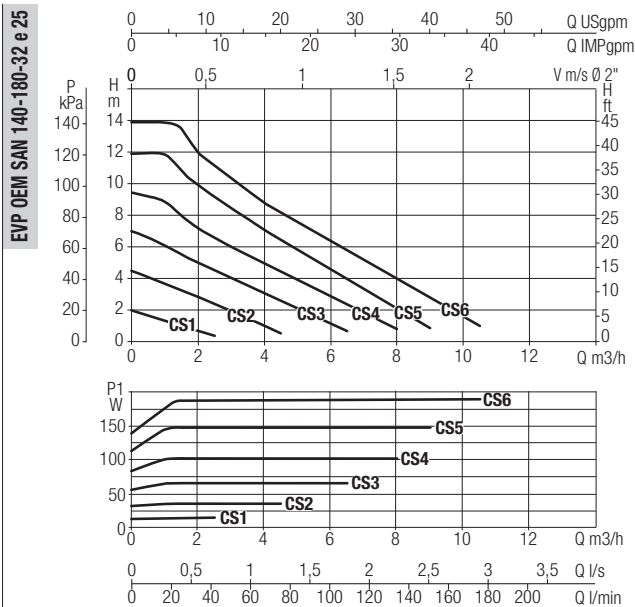
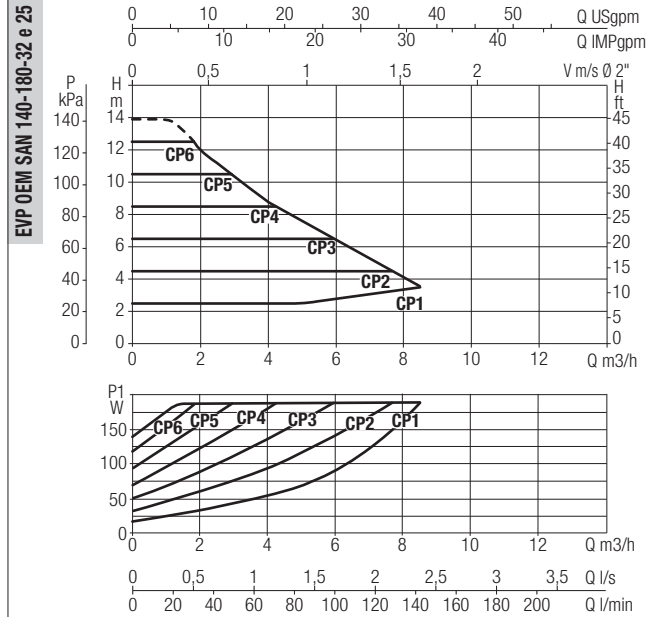
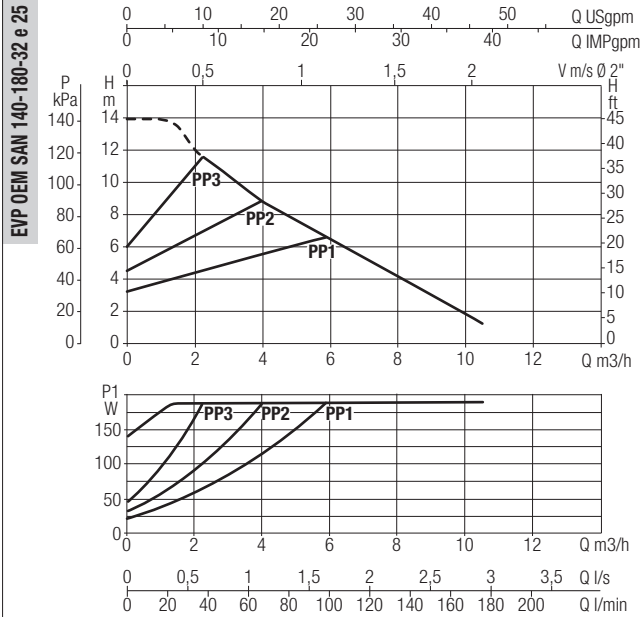
* The parameter of reference for the more efficient circulators is EEI ≤ 0,20



MODEL	B	B1	B2	D	D1	H	H1	H2	H3	L	L1	L2
EVP OEM SAN 120/180-25	168	54	114	1½	32	164	109	55	159	180	90	90
EVP OEM SAN 120/180-25 PWM1	168	54	114	1½	32	164	109	55	159	180	90	90
EVP OEM SAN 120/180-25 PWM2	168	54	114	1½	32	164	109	55	159	180	90	90
EVP OEM SAN 120/180-25 LIN	168	54	114	1½	32	164	109	55	159	180	90	90

EVP OEM SAN 140/180-25 - UNIONS SINGLE ELECTRONIC WET ROTOR CIRCULATORS FOR RESIDENTIAL HEATING AND AIR CONDITIONING SYSTEMS

Pumped liquid temperature range: from -20 °C to +95 °C - Maximum operating pressure: 16 bar (1600 kPa)



PPx = Proportional differential pressure - curve x

CPx = Constant differential pressure - curve x

CSx = Constant speed - curve x

The curves are based on kinematic viscosity values = 1 mm²/s and density equal to 1000 kg/m³. Curve tolerance according to ISO9906. Fixed speed curves available on the DNA.

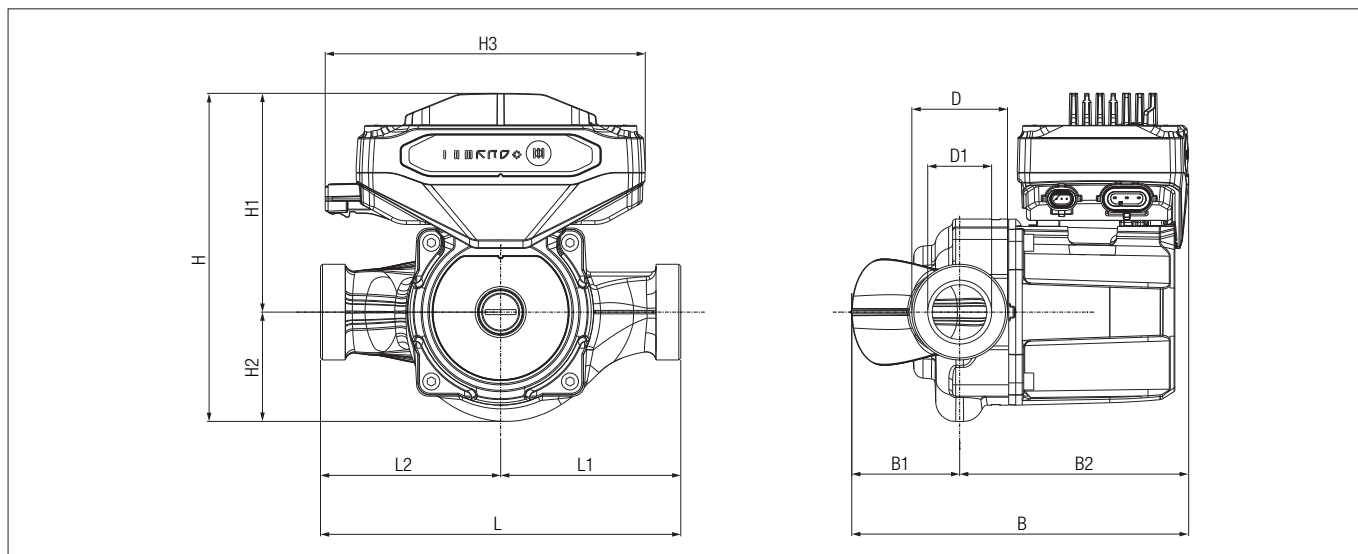
MODEL	Q=m ³ /h	0	1,5	2,5	4	6	8	10
	Q=l/min	0	25	42	67	100	133	167
EVP OEM SAN 140/180-25	H (m)	13,9	13,5	11,2	8,8	6,5	4,1	1,8
EVP OEM SAN 140/180-25 PWM1		13,9	13,5	11,2	8,8	6,5	4,1	1,8
EVP OEM SAN 140/180-25 PWM2		13,9	13,5	11,2	8,8	6,5	4,1	1,8
EVP OEM SAN 140/180-25 LIN		13,9	13,5	11,2	8,8	6,5	4,1	1,8

EVP OEM SAN 140/180-25 - UNIONS SINGLE ELECTRONIC WET ROTOR CIRCULATORS FOR RESIDENTIAL HEATING AND AIR CONDITIONING SYSTEMS

Pumped liquid temperature range: from -20 °C to +95 °C - Maximum operating pressure: 16 bar (1600 kPa)

MODEL	CENTRE DISTANCE mm	POWER INPUT 50/60 Hz	P1 MAX W	In A	EEI*	MINIMUM SUCTION PRESSURE			Q.TY x PALLET	WEIGHT kg
						t°	90°	100°		
EVP OEM SAN 140/180-25	180	220/240 V	189	1,49	EEI ≤ 0,21	m.c.a.	20	25	92	3,7
EVP OEM SAN 140/180-25 PWM1	180	220/240 V	189	1,49	EEI ≤ 0,21	m.c.a.	20	25	92	3,7
EVP OEM SAN 140/180-25 PWM2	180	220/240 V	189	1,49	EEI ≤ 0,21	m.c.a.	20	25	92	3,7
EVP OEM SAN 140/180-25 LIN	180	220/240 V	189	1,49	EEI ≤ 0,21	m.c.a.	20	25	92	3,7

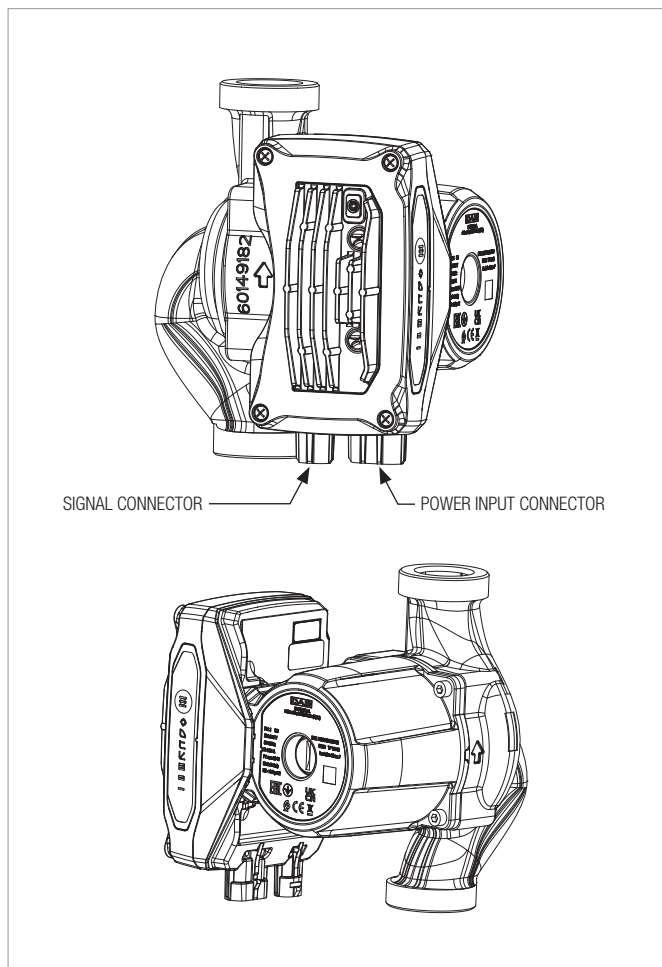
* The parameter of reference for the more efficient circulators is EEI ≤ 0,20



MODEL	B	B1	B2	D	D1	H	H1	H2	H3	L	L1	L2
EVP OEM SAN 140/180-25	168	54	114	1"½	32	164	109	55	159	180	90	90
EVP OEM SAN 140/180-25 PWM1	168	54	114	1"½	32	164	109	55	159	180	90	90
EVP OEM SAN 140/180-25 PWM2	168	54	114	1"½	32	164	109	55	159	180	90	90
EVP OEM SAN 140/180-25 LIN	168	54	114	1"½	32	164	109	55	159	180	90	90

EVP OEM - UNIONS SINGLE ELECTRONIC WET ROTOR CIRCULATORS FOR RESIDENTIAL HEATING AND AIR CONDITIONING SYSTEMS

Pumped liquid temperature range: from -20°C to +95°C - Maximum operating pressure: 16 bar (1600 kPa)



PWM - SIGNAL CABLE		
No.	COLOUR	SIGNAL
1	BROWN	PWM IN
2	BLUE	REFERENCE
3	BLACK	PWM OUT

POWER INPUT CABLE		
No.	COLOUR	SIGNAL
1	BLUE	NEUTRAL
2	YELLOW / GREEN	GROUND
3	BROWN	LINE

LIN BUS - SIGNAL CABLE		
No.	COLOUR	SIGNAL
1	BROWN	LINE
2	BLUE	GROUND
3	BLACK	VBAT

MODEL	CABLE LENGTH
POWER INPUT CONNECTOR *	2 m
PWM OR LIN SIGNAL CONNECTOR *	2 m

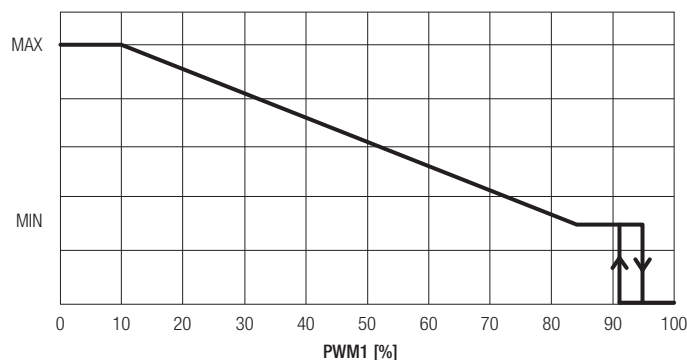
* on request

EVP OEM - UNIONS SINGLE ELECTRONIC WET ROTOR CIRCULATORS FOR RESIDENTIAL HEATING AND AIR CONDITIONING SYSTEMS

Pumped liquid temperature range: from -20°C to +95°C - Maximum operating pressure: 16 bar (1 600 kPa)

INPUT PWM1 SIGNAL

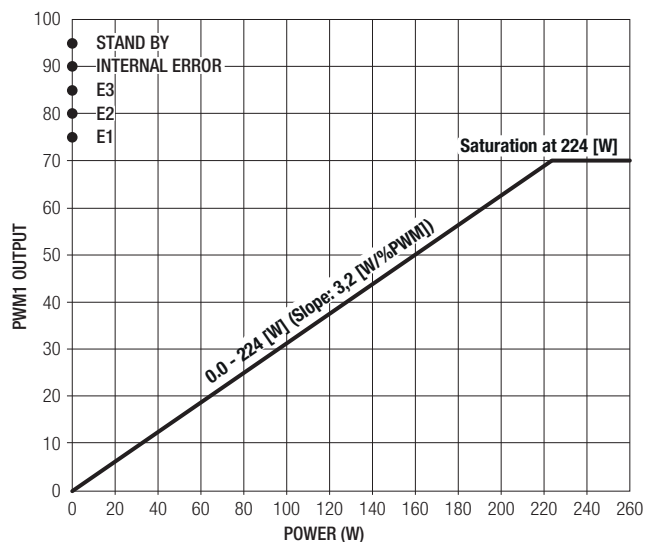
- Inactive level:** < 1V
- Active level:** from 4V-24V
- Active level minimum current:** 10 mA
- Frequency:** 100Hz - 5 kHz
- Protection class:** Class 2
- ESD class:** Compliance with IEC 61000-4-2 (ESD)



WORKING AREA	WORKING CYCLE PWM1
STANDBY MODE	> 95 % / ≤ 100 %
HYSTERESIS AREA	> 91 % / ≤ 95 %
MINIMUM SET POINT	> 84 % / ≤ 91 %
VARIABLE SET POINT	≥ 10 % / ≤ 84 %
MAXIMUM SET POINT	< 10 %

OUTPUT PWM1 SIGNAL

- Type:** open collector
- Maximum voltage:** 24V
- Maximum current on output transistor:** 50 mA
- Maximum power on output resistor:** 1 mW
- Maximum power on output zener 36 V:** 500 mW
- Frequency:** 75 Hz +/- 2%
- Protection class:** Class 2
- ESD class:** Compliance with IEC 61000-4-2 (ESD)



WORKING AREA	WORKING CYCLE PWM1
RUNNING PUMP (for flow rate values, see PWM1 OUTPUT/POWER graph)	1%-70%
ERROR 1 DRY RUN	75%
ERROR 2 LOCKED ROTOR	80%
ERROR 3 SHORT CIRCUIT	85%
INTERNAL ERROR	90%
STANDBY (STOP) BY PWM INPUT SIGNAL	95%

EVP OEM - UNIONS SINGLE ELECTRONIC WET ROTOR CIRCULATORS FOR RESIDENTIAL HEATING AND AIR CONDITIONING SYSTEMS

Pumped liquid temperature range: from -20°C to +95°C - Maximum operating pressure: 16 bar (1600 kPa)

INPUT PWM2 SIGNAL

Inactive level: <1V

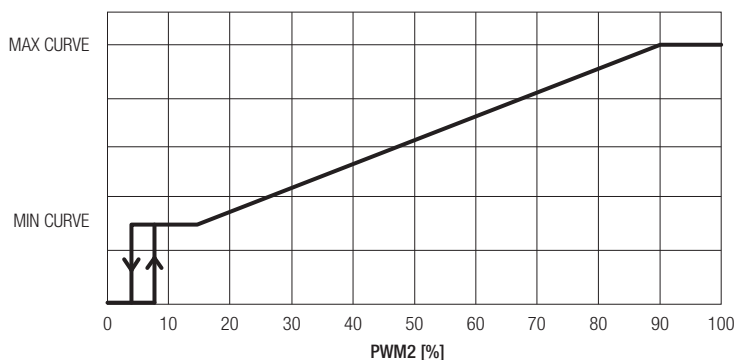
Active level: from 4V-24V

Active level minimum current: 10 mA

Frequency: 100Hz - 5 kHz

Protection class: Class 2

ESD class: Compliance with IEC 61000-4-2 (ESD)



WORKING AREA	WORKING CYCLE PWM2
STANDBY MODE	< 5%
HYSTERESIS AREA	≥ 5 % / < 9 %
MINIMUM SET POINT	≥ 9 % / < 16 %
VARIABLE SET POINT	≥ 16 % / ≤ 90 %
MAXIMUM SET POINT	≥ 90 % / ≤ 100 %

OUTPUT PWM2 SIGNAL

Type: open collector

Maximum voltage: 24V

Maximum current on output transistor: 50 mA

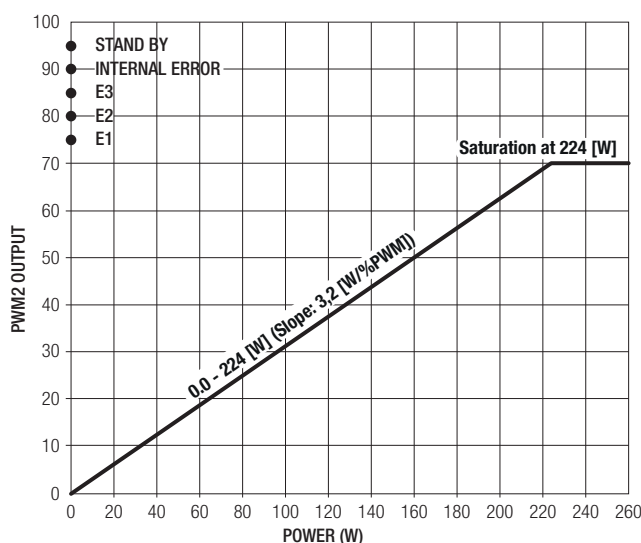
Maximum power on output resistor: 1 mW

Maximum power on output zener 36 V: 500 mW

Frequency: 75 Hz +/- 2%

Protection class: Class 2

ESD class: Compliance with IEC 61000-4-2 (ESD)



WORKING AREA	WORKING CYCLE PWM1
RUNNING PUMP (for flow rate values, see PWM2 OUTPUT/POWER graph)	1%-70%
ERROR 1 DRY RUN	75%
ERROR 2 LOCKED ROTOR	80%
ERROR 3 SHORT CIRCUIT	85%
INTERNAL ERROR	90%
STANDBY (STOP) BY PWM INPUT SIGNAL	95%

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