



**Intelligent Circulators Suitable for Use in  
Electronic, HVAC Systems  
ECP 32-12-180 Series**

## Intelligent Circulators for use in HVAC Systems ECP 32-12-180 Series

ECP 32-12-180 series pumps are used in single- or dual-pipe systems or in heating water circulation systems. It has advantages such as optional PWM control, high comfort, low noise, low energy consumption.

\* Communication interface: PWM controlled

\* N - Pump body material: Stainless steel



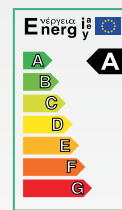
**ECP**



**ECP-N**

### Technical Specifications

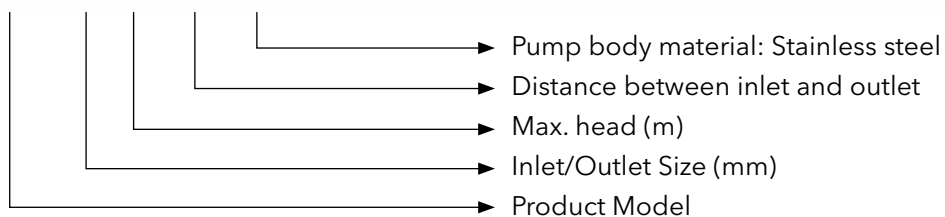
|                    |                          |
|--------------------|--------------------------|
| Maximum Power      | : Up to 220 W            |
| Maximum Flow Rate  | : 10.5 m <sup>3</sup> /h |
| Max. Delivery Head | : 12 m                   |
| System pressure    | : 10 Bars                |
| Fluid temperature: | -10 °C ~ +110 °C         |



**EEI ≤ 0.23**

### Name Detail

**ECP 32-12-180 N**



## Precise Power Utilization, Multiple Protection



Memory with  
restart  
function



Fault  
detection



Slider  
design



Overheating  
protection



Overcurrent  
protection

### Pump Configuration

- Bearing : Ceramic
- Bearing Bush : Brass
- Motor Casing : Aluminum
- Gasket : Silicagel EPDM
- Pump Casing : Cast iron
- Fan (Impeller) : High temperature resistant composite material
- Stainless Case : AISI304
- Protective Shield : AISI304
- Shaft : Ceramic
- Control Box : Nylon + ABS

### Pump Properties

- Class A energy efficiency,  $EEL < 0.23$ ;
- Permanent magnet motor with intelligent frequency control;
- Proportional pressure mode;
- Constant pressure mode;
- Constant speed mode;
- Low noise. No leakage

### Pump Operating Limits

- Installed in heating circulation system;
- Operating Conditions
- Ambient temperature:  $0 \sim 40^{\circ}\text{C}$ ;
- Ambient humidity:  $< 95\%$ ;
- Fluid temperature:  $-10^{\circ}\text{C} \sim +110^{\circ}\text{C}$ ;
- The ambient temperature is lower than the fluid temperature to prevent condensation inside the motor;
- Fluid material: Non-corrosive, non-explosive liquid; free of solid particles, fibers and mineral oil;
- Usage requirements: Do not operate dry for more than 10 seconds.

## Pump Control Modes

Smart control saves time and energy.



Constant pressure mode



Proportional pressure mode



Constant speed mode



Automatic mode

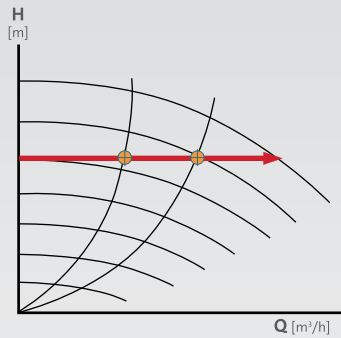


Night mode



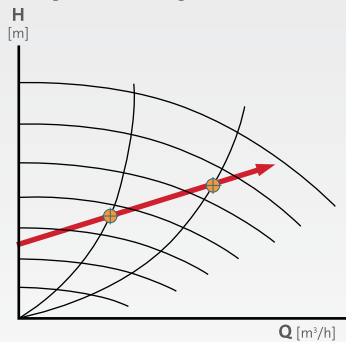
PWM mode

### Constant pressure mode



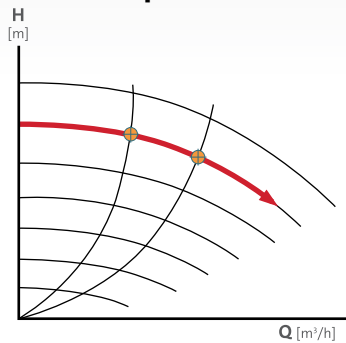
Constant pressure control is used to match pump performance to actual system heat demand, but the pump performance curve depends on the desired pump curve.

### Proportional pressure mode



Proportional pressure control is used to match the pump capacity to the actual system heat demand, but the pump capacity depends on the desired pump gradient PP1, PP2 or PP3. Three discs, small, medium and large, are adjustable.

### Constant speed mode



In constant speed mode, the pump operates at a constant speed regardless of the actual flow demand of the system and the performance of the pump is determined by the required performance curve.



Pwm External Speed Control



Low Noise Operation



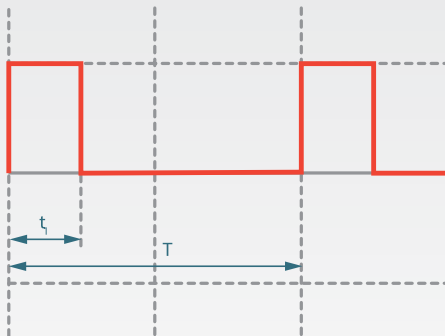
Class A Energy Efficiency

**GT:** In the absence of a PWM signal, the pump operates at the maximum constant speed curve.

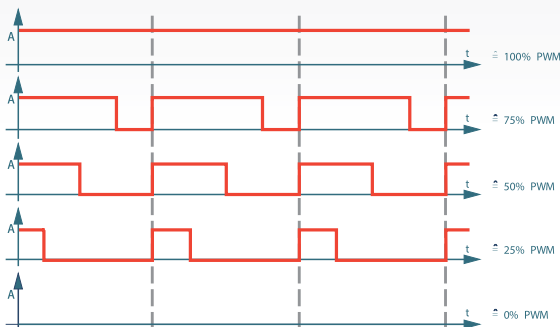
**ST:** If there is no PWM signal, the pump stops.

**External Control by PWM Signal**

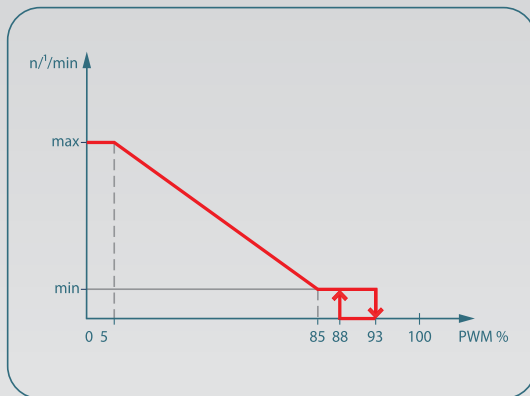
The actual/set-point evaluation required for control is called remote control. The remote control sends a PWM signal to the ECP pump as an operating variable. The PWM signal generator sends a periodic sequence of pulses (duty cycle) to the pump according to DIN IEC 60469-1. The actuation variable is determined by the ratio of pulse duration to pulse period. The duty cycle is 0 ... 1 or 0% ... It is defined as a ratio of 100%. This is explained below using ideal square wave pulses.



$t / T = 0,25 = 25 \%$



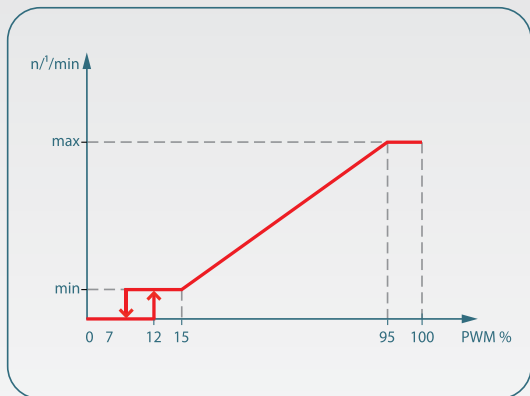
### PWM GT signal logic 1 (heater):



#### PWM input signal [%].

- <5 Pump runs at maximum speed
- 5-85 Pump speed decreases linearly from maximum to minimum
- 85-93 Pump runs at minimum speed (running)
- 85-88 Pump runs at minimum speed (start-up)
- 93-100 Pump stops (standby)

### PWM ST Logic 2 signal (solar power):



#### PWM input signal [%].

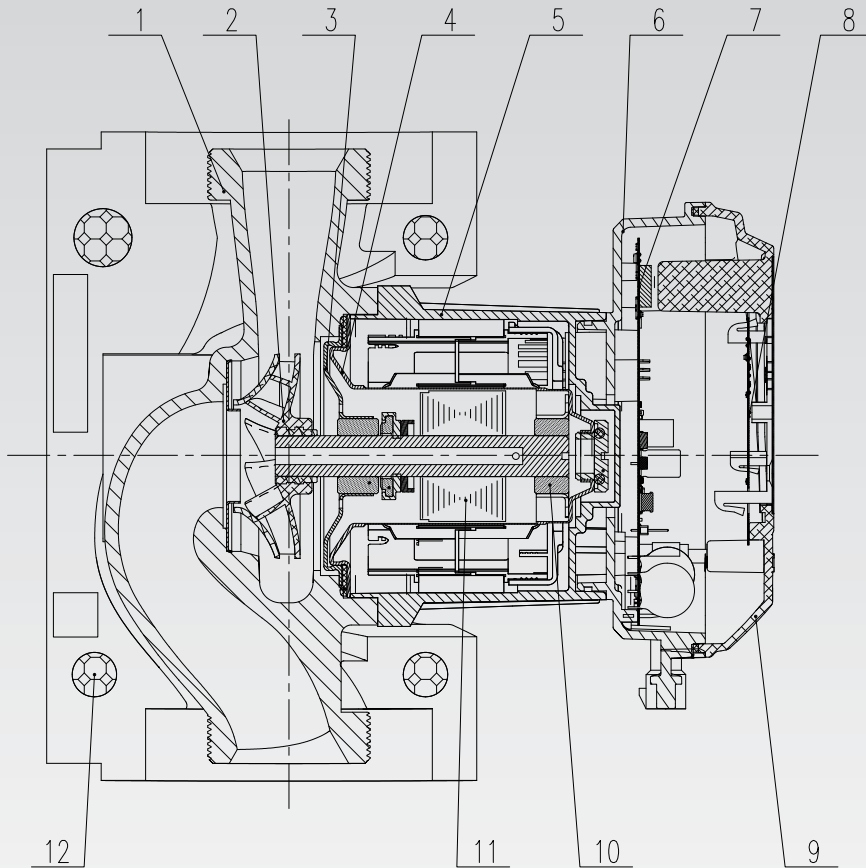
- <7 Pump stops (Standby)
- 7-15 Pump runs at minimum speed (running)
- 12-15 Pump runs at minimum speed (start-up)
- 15-95 Pump speed increases linearly from minimum to maximum
- >95% Pump runs at maximum speed

Signal Frequency 150 Hz-5000 Hz

Signal Amplitude 2.8 V-24 V

Signal Polarity None

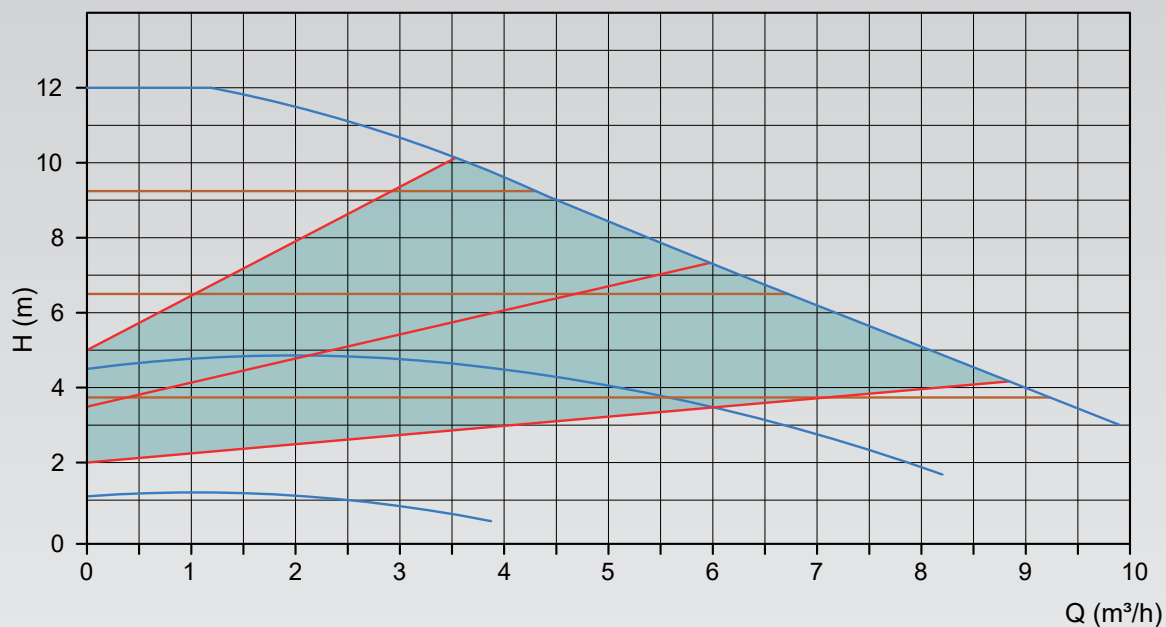
## Material Specifications



| POS. | COMPONENT             | CONSTRUCTION CHARACTERISTICS  |
|------|-----------------------|---|
| 1    | Pump Head             | Cast iron surface electrophoresis treatment, exterior paint treatment   |
| 2    | Impeller              | PES (High temperature resistant thermoplastic)  |
| 3    | Stainless Steel Cover | Stainless steel material  |
| 4    | Protective Sleeve     | Stainless steel material, mirror finish inner wall  |
| 5    | Sleeve                | Aluminum alloy sleeve with black electrophoretic surface treatment.   |
| 6    | Casing                | Plastic spray treatment on the outside  |
| 7    | Driver                | Electronic device   |
| 8    | Control Board         | Electronic device   |
| 9    | Cover                 | High strength plastic, surface texture treatment,<br>Secondary vulcanization process on insulation material, beautiful and elegant appearance |
| 10   | Bearing               | Brown ceramic   |
| 11   | Rotor                 | Brown ceramic   |

# Performance Graph

## ECP 32-12-180

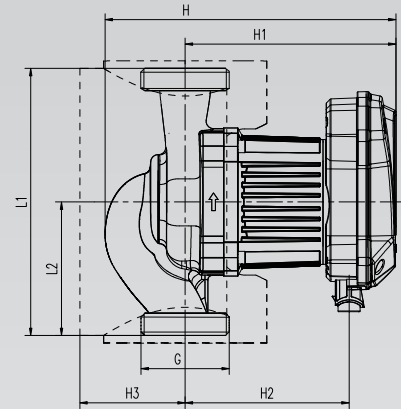
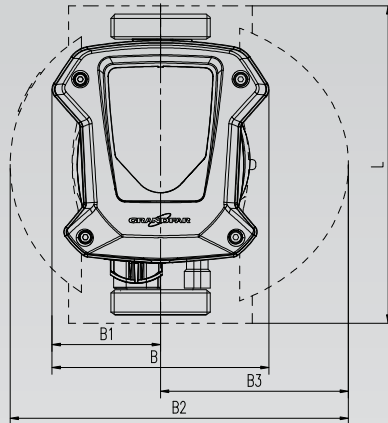


■ Proportional Pressure ■ Constant Pressure ■ Constant Speed

| Model           | Nominal voltage (V) | Power frequency | Input Power | Rated Current | Max. Flow rate (m³/sa) | Max. head (m) | Max pressure | Interface between ports [mm] | G.W (kg) | N.W (kg) | Outer case UxGxY (mm) |
|-----------------|---------------------|-----------------|-------------|---------------|------------------------|---------------|--------------|------------------------------|----------|----------|-----------------------|
| ECP32-12-180(N) | 1X230 V             | 50/60 Hz        | 9-220 W     | 0.84A         | 9.7                    | 12            | 10 bars      | 180                          | 4.4      | 3.3      | 260X190X140           |

\* Communication interface: Optional with PWM control





| Model           | Pump Casing Material |                 | Dimensions (mm) |    |     |    |     |     |       |    |     |       |    |      |
|-----------------|----------------------|-----------------|-----------------|----|-----|----|-----|-----|-------|----|-----|-------|----|------|
|                 | Cast Iron            | Stainless Steel | L               | L1 | L2  | B  | B1  | B2  | B3    | N  | H1  | H2    | H3 | G    |
| ECP32-12-180(N) | ●                    | ●               | 180             | 90 | 130 | 65 | 196 | 142 | 110.5 | 2" | 142 | 110.5 | 71 | 1.5" |

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