ETNA®

ECP- F Basic Series
Wet Rotor Circulators
Installation and Operating Instruction

Contents

Read this manual carefully before installation. The product can not be used for medical industry which have the potential to cause personal injury, also can not be used for pumping other liquids than water.

1. Instructions for Use

Dear users, thank you for your trust and support. You are welcome to use our company's ECP-F Basic series variable frequency shielded circulation pump (hereinafter referred to as pump) and we will wholeheartedly provide you with excellent service.

Please carefully check whether the received product is consistent with the ordered product, whether the accessories and instruction manuals are complete, and whether there is any damage during transportation. If you find the above situation, please contact our sales department or local dealer in time.

In order to ensure the long-term stable operation of the product, before you install, operate, overhaul or maintain, please read this manual carefully, so as to fully under- stand the relevant safety issues and the technical parameters and operation methods of the pump.

Warning
A clause indicating that there is a risk to personal safety that must be strictly observed.

Attention
Clause indicating that particular attention is required to prevent damage to the pump.

This warning sticker indicates the possible risk of electric shock. Please cut off the power supply before operation during wiring, repair and maintenance. Cover the junction box when operating.

This warning label indicates that please do not touch it when the pump is running or after the operation is stopped when the temperature of the entire pump is still high.

This warning label indicates that the pipe in the pump contains a high-pressure liquid. The valves on both sides should be closed before operation during maintenance and disassembly.

Attention
Before using this product, please read the instruction carefully and follow the opera- tion procedure. Any changes to the product (including the manual) will be made without prior notice.

2. Cautions

To ensure personal safety, please read the following information carefully before you install, operate, repair or maintain.

Warning

The ambient temperature of the pump is 0 ~ 40 °C. Storage temperature is 0-70 °C

Warning

The power supply used must be the same as the power supply identified by the product. The user must confirm that only qualified personnel with professional certifica- tion and proficiency in this manual can install and maintain this product.

Warning

When checking and repairing the pump, the power must be cut off before operation. This can avoid electric shock or sudden start of the pump, which may cause injury or death.

Warning

Before starting the pump, make sure that the motor is grounded and connected to the motor protection switch with proper rating.

Warning

Thee pump shall not be installed in a wet or water splashing area.

Attention

To facilitate maintenance, a globe valve should be installed on each side of the pump.

Warning

Heating pipelines should not always be filled with non-softening water, so as not to increase the calcium content of circulating water in the pipeline, blocking the impeller.

Attention
The ambient temperature of the pump is 0 ~ 40 °C. Storage temperature is 0-70 °C

Attention
In summer or in high temperatures, ventilation must be ensured to avoid condensate may cause failure.

Attention
Liquids may be high temperature and pressure, and the system must be completely drained or the valves on both sides closed before the pump can be moved or removed.

Attention
Do not start the pump without liquid.

Attention
In winter, when the pump system does not work or the ambient temperature drops below 0˚C, the liquid in the system should be completely emptied to avoid the pump body cracking

Attention
If not used for a long time, please close the Pump Inlet and outlet valve and cut off the power supply.

Attention
If the cable is damaged, it must be replaced by qualified personnel.

Attention
If the pump overheats, close the pump inlet valve and cut off the power immediately.
If an electrical problem is detected, contact your supplier or service center immediately.

Attention

If the failure can not be resolved according to the manual, please immediately close the Pump Inlet and outlet valves, cut off the power supply, and immediately contact the supplier or service center.

Attention

This product should be kept out of reach of children. After installation, quarantine measures should be taken to prevent children from entering

Attention

This product should be stored in a dry, well-ventilated, low temperature place.

3. Product Overview

ECP-F Basic series variable frequency shielded circulation pump(hereinafter referred to as electric pump), the electric pump is mainly composed of four parts: motor, pump, seal and controller. The motor is a shielded motor with a permanent magnet rotor, and the drive is controlled by a special inverter. The water pump and the motor are sealed by a shielding sleeve, and a rubber sealing ring is used for static sealing at the sealing part of the fixed stop. This product is suitable for the following systems:

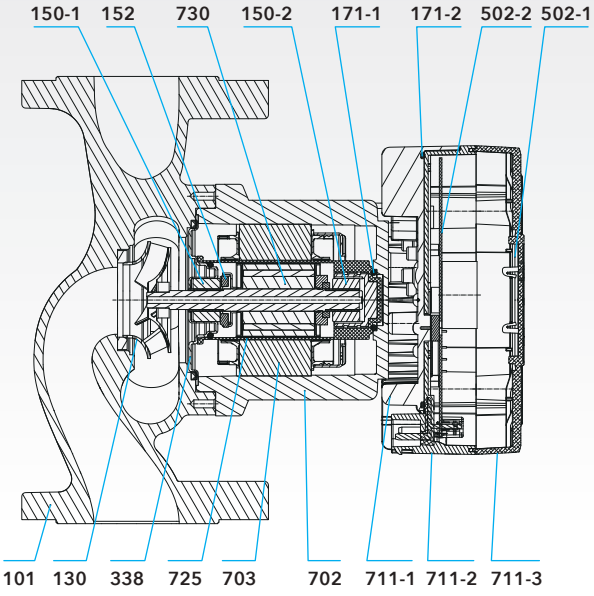
- Stable variable flow heating system
- Variable temperature pipeline heating system HVAC system
- Industrial circulation system
- Domestic heating and domestic water supply system
- The pump is equipped with a control panel and knob on the front for user-friendly operation

Pumped Liquids

Pump is suitable for pumping with easy flow, small viscosity, clean, non-corrosive and non-explosive liquid, and the liquid must not contain mechanical or chemical damage to the pump of solid particles or fibers

Outline Structure Diagram

Internal Structure Diagram



101	Pump Body	Cast iron
130	Impeller	Stainless steel
150-1	Bearing	Graphite
150-2	Bearing	Graphite
152	Thrust Bearing	Ceramics
171-1	O-Ring	Rubber
171-2	O-Ring	Rubber
338	Bearing Cover	Stainless steel
502-1	Control Panel	Stainless steel
502-2	Drive Board	Electronic device
702	Motor Case	Aluminium alloy
703	Stator Assembly	Assembly
711-1	Wiring Box Holder	Aluminium alloy
711-2	Wiring Box Holder	Engineering plastics
711-3	Terminal Box Cover	Engineering plastics
725	Shield Sleeve	Plastics
730	Rotor Assembly	Assembly

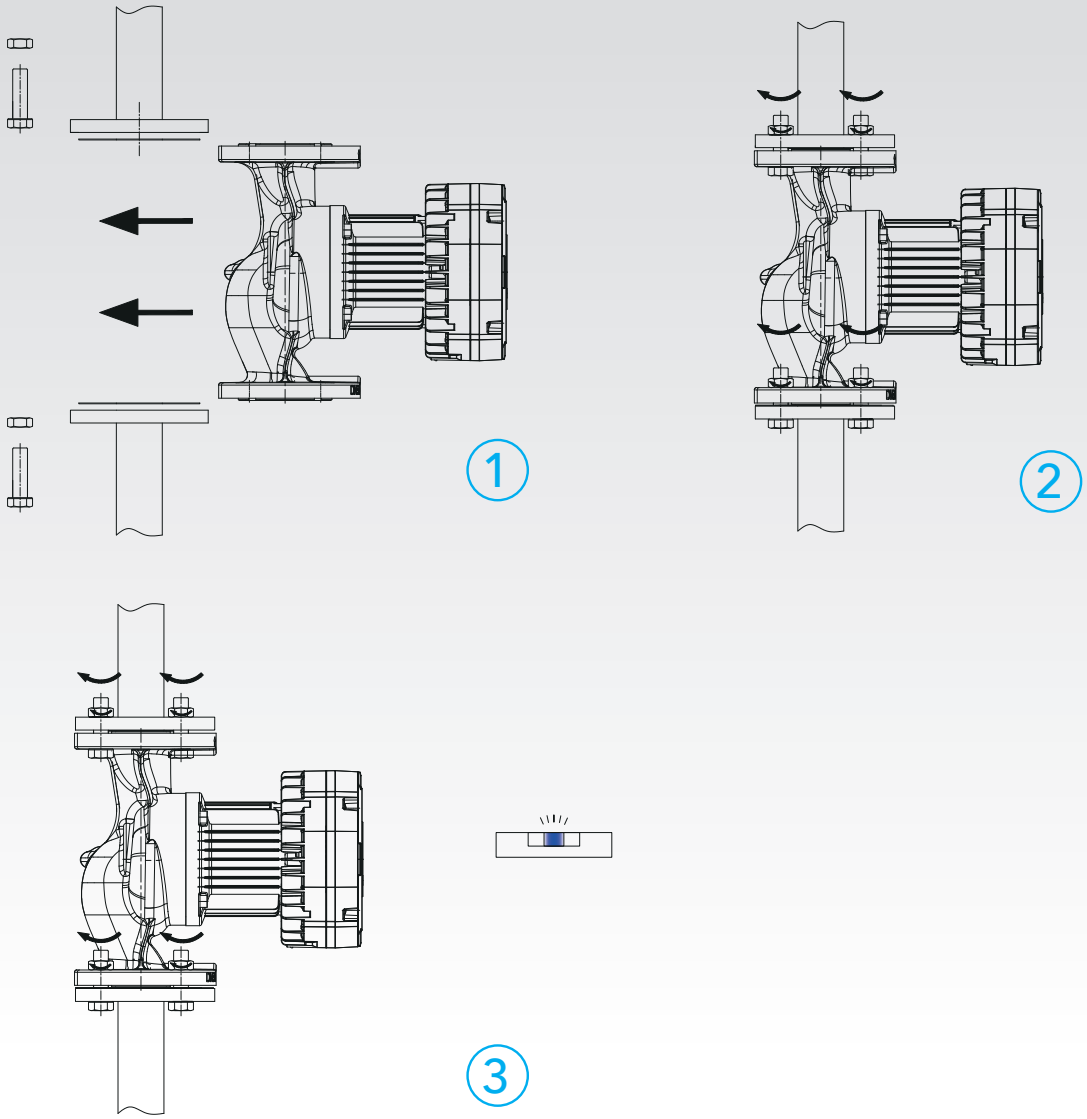
4. Product Installation

4.1 Installation Location

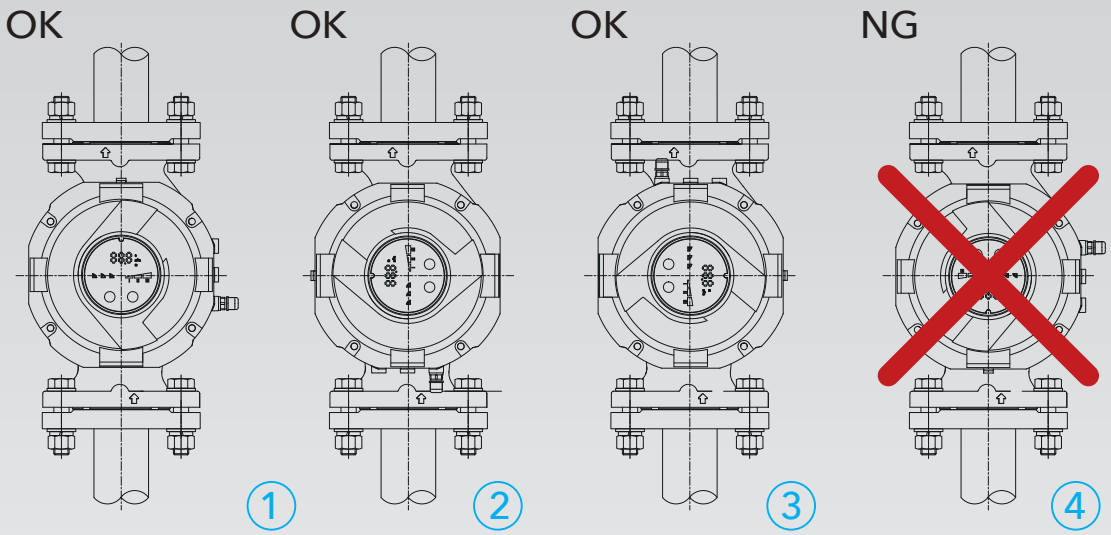
Pumps should be installed indoors.

4.2 Installation

When a circulating pump is installed, the arrows on the pump housing indicate the flow of liquid through the pump;
At installation, the shaft of the electric pump must be horizontal.



4.3 Installation Form



Warning

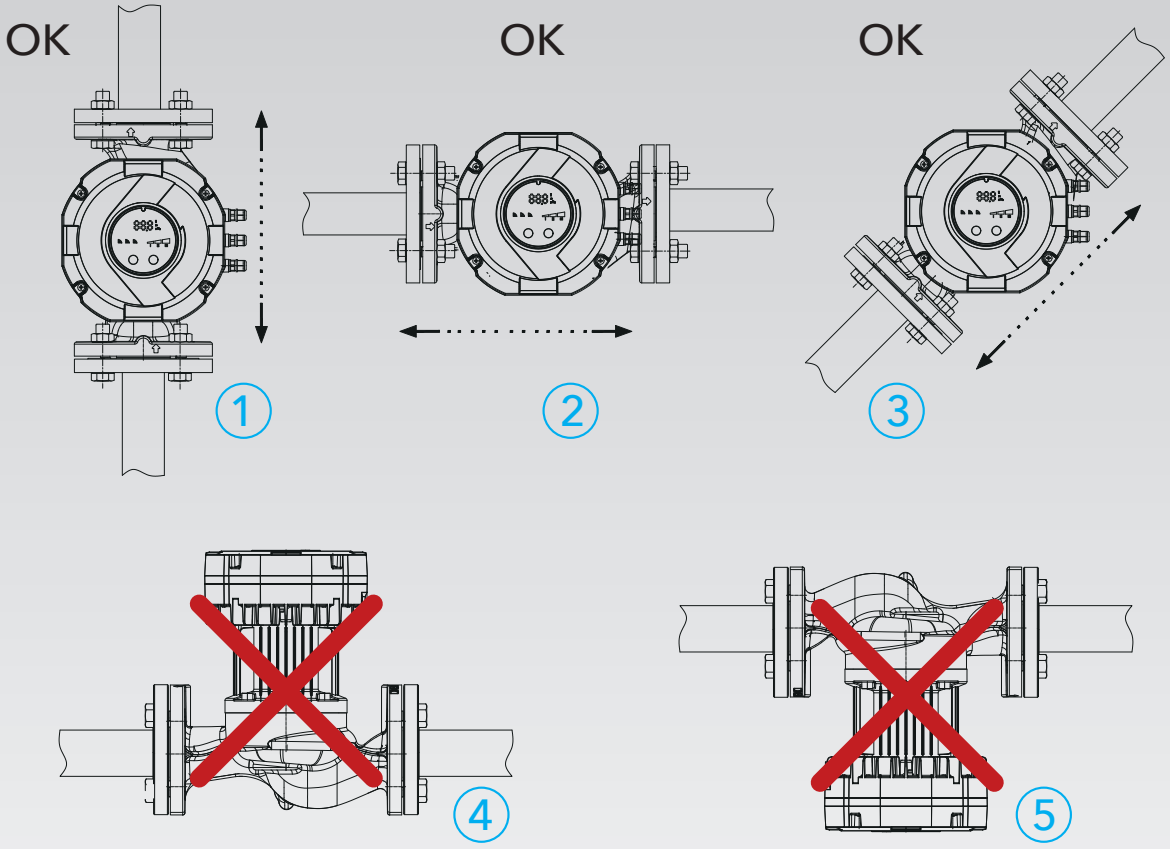
Pump liquid may be high temperature and pressure, in the removal of hexago- nal screw before the system must empty the liquid or close the valve on both sides of the pump.

Attention

When the junction box is changed, the pump can be started only when the system is filled with pumping fluid or when the valves on both sides of the pump are opened.

4.4 Control Box Position

The junction box can be rotated within 90°
The procedure for changing the junction box location is as follows
A. Close the inlet and outlet valves to relieve pressure
B. Unscrew and remove the four inner hexagonal screws fixing the pump body;
C. Rotate the motor to the desired position and align it with the four screw holes;
D. Re-install the screw, and tighten the diagonal clockwise;
E. Open the inlet and outlet valves



4.5 Electrical Installation

Attention

Carry out electrical connection and protection according to local regulations. Check that the power supply voltage and frequency values are consistent with the values listed on the nameplate. The power switch is locked at 0-bit, model and requirements as specified in EN 60204-1,5.3.2.

Warning

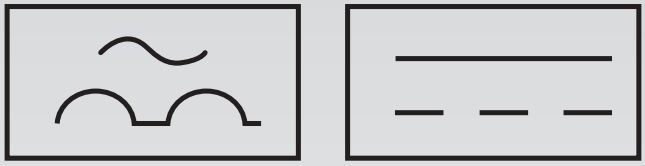
Electric shock

Death or serious personal injury

- Connect the pump to an external power switch with a minimum contact gap of 3 mm between the electrodes.
- Grounding or electrical neutralization can be used for protection against indirect contact.

Electrical Connections and Safety

- Make sure the pump is connected to the external main switch. The pump does not require an external motor switch.
- If the pump is connected to an electric installation where an electrical circuit breaker (voltage sensing ELCB, residual-current device RCD or residual-current circuit device RCCB) is used as an additional protection, this circuit breaker must be marked with the first or both of the symbols shown below.



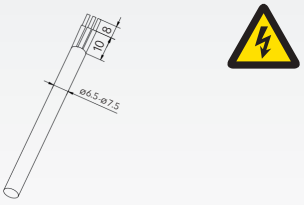
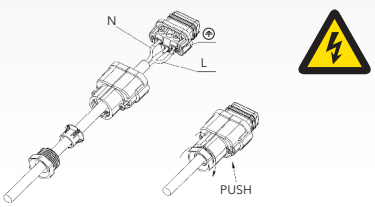
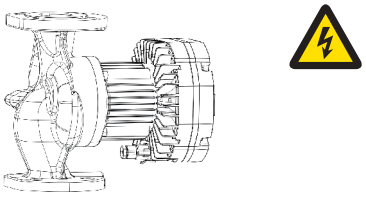
Motor Protection and Startup

- The motor is equipped with a thermal protection device to prevent slow overload and stalling.
- After powering up the pump, it will start in about 5 seconds.

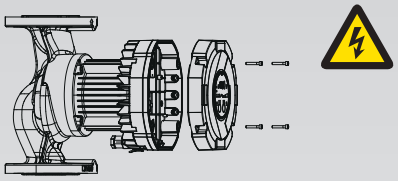
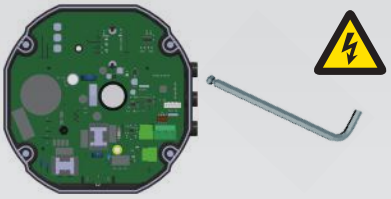
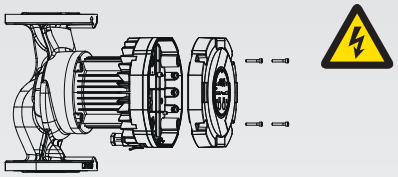
Supply Voltage

1X230V ± 10% , 50/60Hz, PE.

Voltage tolerance only for the power supply voltage changes in the range, not in the nameplate marked the voltage of other voltage under the operation of the pump

Step	Measures	Illustration
1	For the power supply, peel off the outer sheath of the lead wire as shown in the figure.	
2	Connect the L/n/ground lead wire of peeling skin to the connector and lock the nut	
3	Press under the connector and insert the connector into the power outlet on the pump	

Install the Signal Cable

Step	Measures	Illustration
1	Remove the four Phillips head screws from the mask and turn on the inverter	
2	Screw out the plug of the signal line and connect the signal line	
3	In step 1, re-screw the cap in place	

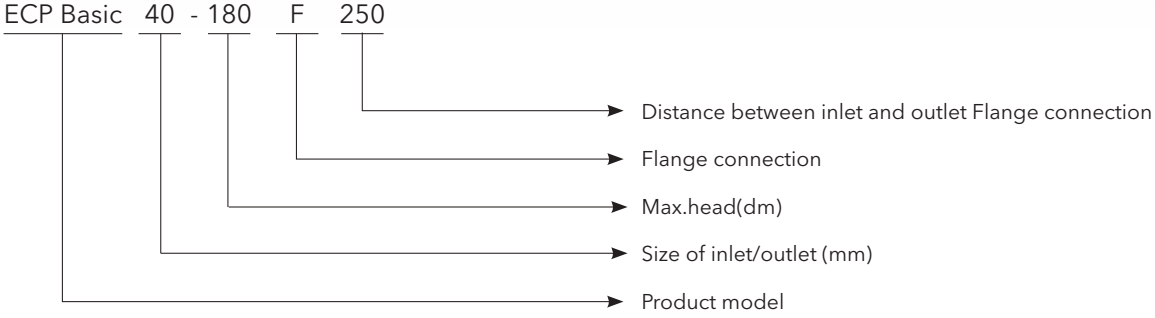
Power line Brown Line connected to the Control Board L sign (fire line) , blue line connected to the N sign (zero line) , yellow and green line connected to the PE sign (ground).

Cable harness specifications: 3 * 1mm2 * 1.5 M, standard European plug, other plug available.

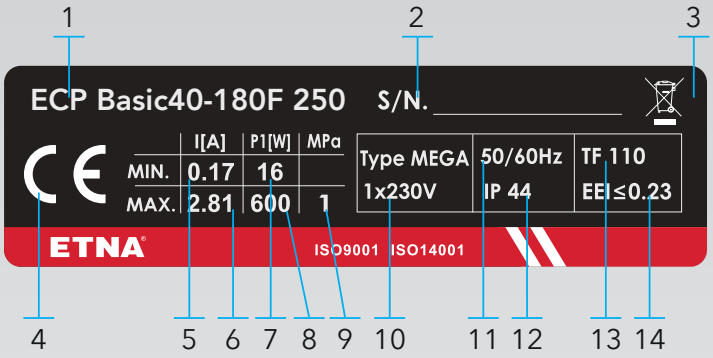
5. Product introduction

5.1 Model Composition and Meaning

Example: ECP Basic 40-180F 250

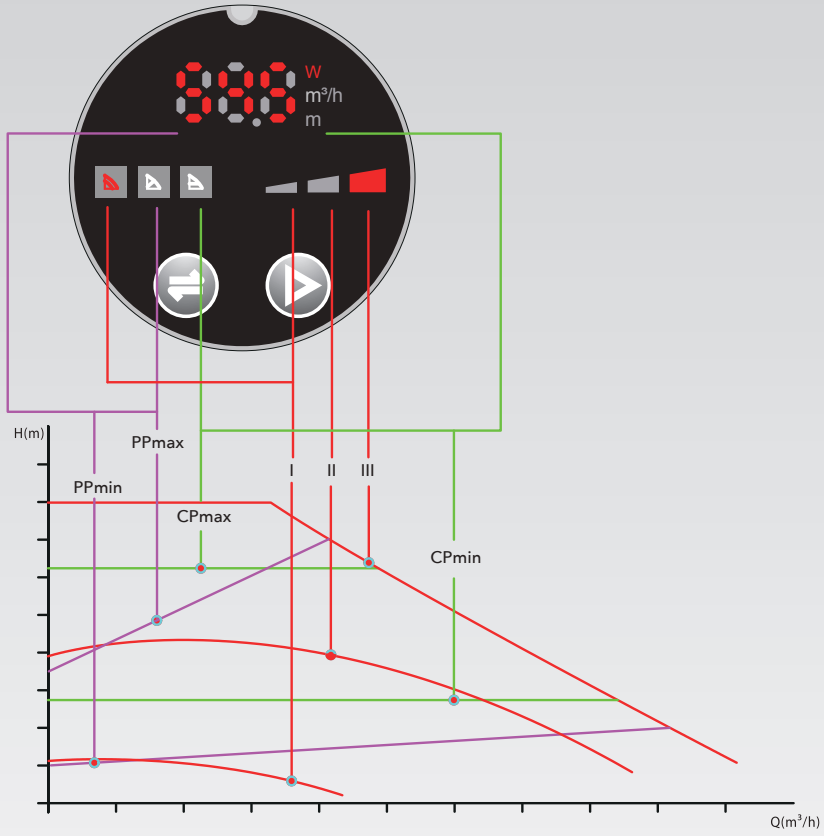


5.2 Nameplate



No	Description
1	Model
2	Serial number
3	Environmental label
4	CE marking and approval
5	Minimum Current
6	Maximum Current
7	Minimum power
8	Maximum power
9	Maximum system pressure
10	Voltage
11	Frequency
12	Shell protection rating
13	Temperature grade
14	Energy Efficiency Index, EEI

5.3 Control Functions

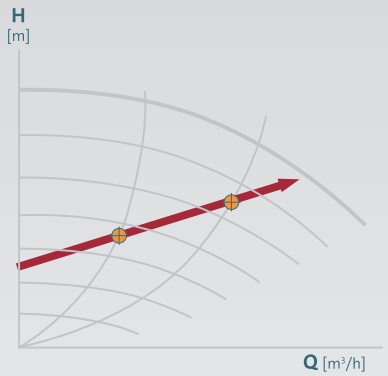


Set Up	Pump curve	Function
PPmin	Min pressure difference curve	The pump's operating point moves up or down the minimum proportional pressure curve, depending on the flow required. The pump head decreases when the flow demand decreases and increases when the flow demand increases.
PPmax	Max pressure difference curve	The pump's operating point moves up or down the maximum proportional pressure curve, depending on the flow required. The pump head decreases when flow demand decreases and increases when flow demand increases.

Set Up	Pump curve	Function
CPmin	Minimum constant pressure curve	The pump's operating point moves back and forth on the minimum constant pressure curve, depending on the flow required by the system. The head remains constant, regardless of the flow demand.
CPmax	Maximum constant pressure curve	The pump's operating point moves back and forth on the highest constant pressure curve, depending on the flow required by the system. The head remains constant, regardless of the flow demand.
III	Speed III	The pump runs on a constant curve, i.e. at a constant speed. At speed III, the pump is set to run at the maximum curve under all operating conditions. The pump can be set to speed III for short periods of time to achieve rapid exhaust.
II	Speed II	The pump runs on a constant curve, i.e. maintains a constant speed. At speed II, the pump is set to run on a medium curve under all operating conditions.
I	Speed I	The pump runs on a constant curve, i.e. maintains a constant speed. At speed I, the pump is set to run on a medium curve under all operating conditions.

Proportional Pressure Curve

Proportional pressure control is used to adjust the performance of the pump according to the actual system heat demand, but the pump performance depends on the desired pump curve. Various gears are adjustable, the adjustment range is 0.5m, and can be set by yourself.

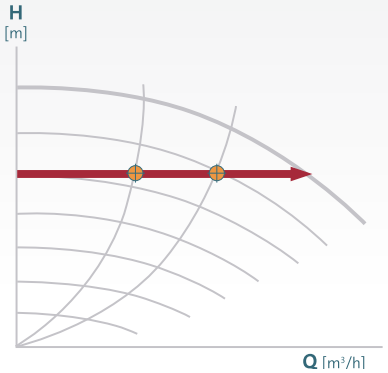


Proportional Pressure curve/setting

Choosing the correct proportional pressure setting depends on the characteristics of the heating system and the actual heat demand.

Delta-Pressure Curves

The Delta-Pressure control is used to adjust the pump performance according to the actual system heat demand, but the pump performance curve will depend on the required pump curve. Various gears are adjustable with an adjustable range of 0.5 m and can be set by oneself.

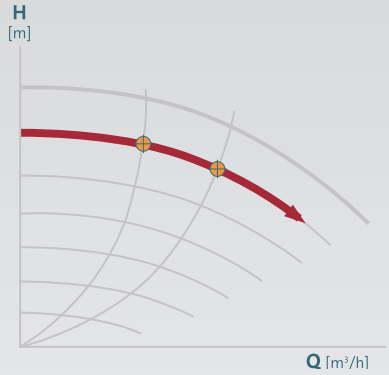


Delta-Pressure scurve/setting

Choosing the correct constant pressure setting depends on the characteristics of the heating system and the actual heat demand.

Constant Speed Curve (III, II, I)

At a constant speed, the pump runs at a constant speed, independent of the actual flow requirements of the system, pump performance according to the required system can be determined by the curve. Pump speed set 3 optional, according to the needs of their own choice.



Constant speed curve/setting

Choosing the correct constant speed setting depends on the characteristics of the heating system.

6. Initial startup and operation

6.1 Before start

Warning

Before starting the pump, make sure the system is full of liquid and the air has been completely eliminated. The inlet of the pump must reach the minimum inlet pressure.

6.2 Evacuate the pump

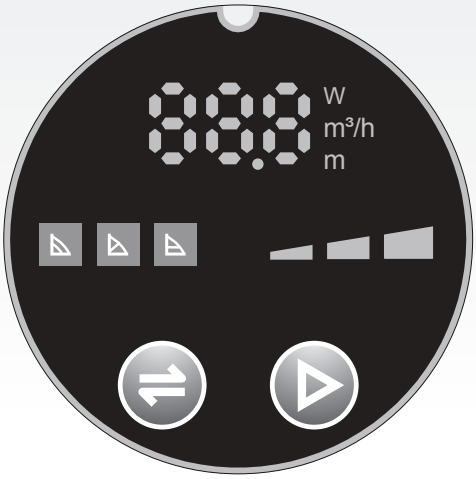
Pump through the system exhaust, the system must be at the highest point exhaust. The air in the pump may make noise, which will disappear after a few minutes of operation.

6.3 Start-up Products

Step	Measures	Illustration
1	(Normal state) After power on, the display panel lights up and counts down for 5 seconds. After the countdown ends, it enters the last setting interface	
2	The operation panel starts first.	
3	The pump leaves the factory with a constant speed III curve, and the control mode is selected according to the application of the system	

6.4 Product setup

6.4.1 Operation panel



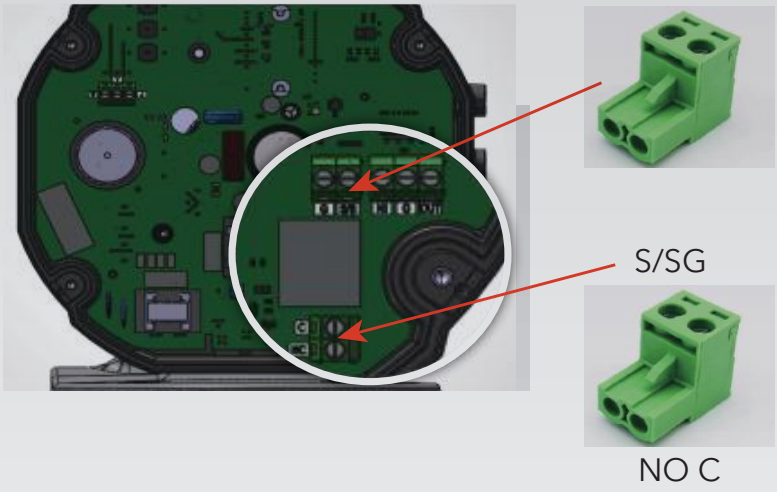
Indicator light/key	Functions
	Power Indicator/ head set indicator/flow indicator
	Gear Indicator
	Mode indicator light
	Head switch
	Shift/flow display switch

6.4.2 Set control function

Press the button	Activate the lights	Description
0		Constant speed III (ex-factory setting)
1 		Constant speed II
2 		Constant speed I
3 		Proportional pressure
		The low-high-low cycle sets the head
4 		Delta-Pressure
		The low-high-low cycle sets the head
5 		Constant speed III (ex-factory setting)
		Hold for 5 seconds to display the current flow rate

Communication, control and monitoring

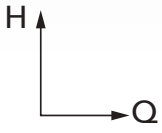
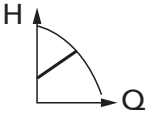
ECP-F Basic provides external control and monitoring through start/stop input, digital input (Start/Stop) , and fault relay output.



6.4.3 Digital input (start/stop)

To use the digital inputs, connect control lines to Start/Stop (S/S) and Common (G). The picture above shows the start/stop signal input interface, which can input 3V~24V DC or AC level signals. Start when the level is low and stop when the level is high (the default is low level when there is no external signal).

Picture	Contact symbols	Functions
	S/S	Start/stop
	G	Public end

Voltage	Start/stop	
Low level		Stop
High level		Normal work

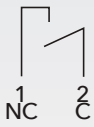
6.4.4 Fault relay output

The fault relay is equipped with a passive contact for external fault indication.
The relay output can be used as part of a control strategy or for monitoring. For example,if the pump fails, the failure relay sends a signal to the controller, which will then follow The policy you choose triggers further events. To use the fault relay output, press Follow the instructions in the diagram below.

Relays can be used for up to 250V, 2A output.

Factory Settings for Relays:

Picture	Contact symbols	Functions
	NO	Always open
	C	Public end

Fault relays	The alarm signal
	Not active: • Power Cut. • the pumps were working.
	Activate: • The pump recorded a malfunction

7. Troubleshooting Table

Warning
Electric shock, death or serious personal injury. Power must be cut off for at least 3 minutes before any operation on the product.

Attention
Pressurization system, minor or moderate personal injury, before removing the pump, empty the system or close the isolation valve at both ends of the pump. The pumping fluid may be hot and under high pressure.

7.1 Operation Status

Warning and alarm code	Fault	Method of exclusion
E01	Block the turn	Clean the pump and remove any foreign matter or impurities that hinder the pump's rotation
E02	Lack of appearance	Contact the after-sales department
E03	Overheated	Contact the after-sales department
E04	IPM protection	Contact the after-sales department
E07	Undervoltage failure	Make sure the input voltage is in the 220V ± 20% range
E08	Overvoltage fault	"Make sure the input voltage is in the 220V ± 20% range"

8. Technical Data

Power supply voltage	1X220 V ± 20% , 50/60 Hz, PE	
Motor protection	The pump does not require external motor protection	
Protection grade	IP44	
Insulation class	F	
Relative humidity	Max 95%	
Max. ambient temperature	0~+40 °C	
Temperature environment	TF110 (EN60335-2-51)	
Liquid temperature	2~+110 °C	
System pressure	1.0 MPa	
Pumps can withstand the test pressure of EN 60335-2-51	PN10: 1.2 mpa	
Inlet pressure	Liquid temperature	Min inlet pressure
	75°C	0.01 Mpa
	95°C	0.05 Mpa
	110°C	0.1 MPa
Surface temperature	The maximum surface temperature is not higher than 125 °C	

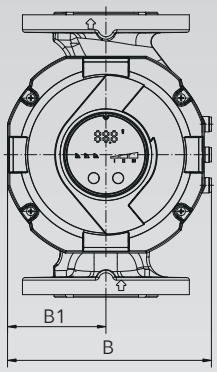
Attention

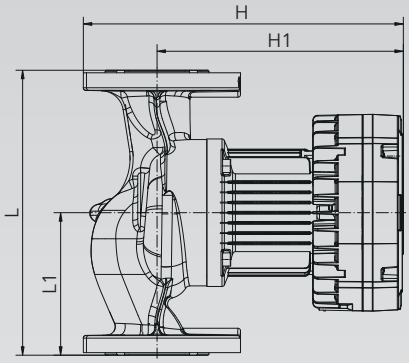
The actual inlet pressure plus the pump shutoff pressure should always be below the maximum system pressure allowed by the pump.

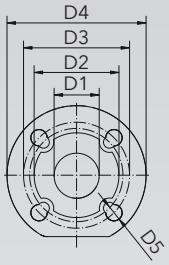
Attention

The minimum inlet relative pressure applies to pumps installed at sea level not exceeding 300 m. For an elevation above 300 metres, the required relative inlet pressure must increase by 0.01 bar per 100 metres of altitude.

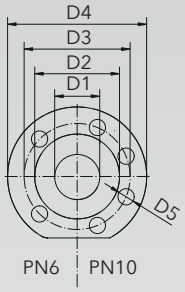
9. Dimension







DN40 ~ DN65



DN80

Pump type	Dimensions												
	L	L1	B	B1	H	H1	D1	D2	D3		D4	D5	
									PN6	PN10		PN6	PN10
ECP Basic 40-120F 250	250	125	200	97	310	240	40	84	100	110	150	4-φ14	4-φ19
ECP Basic 40-150F 250	250	125	200	97	310	240	40	84	100	110	150	4-φ14	4-φ19
ECP Basic 50-120F 280	280	120	200	97	320	243	50	102	110	125	165	4-φ14	4-φ19
ECP Basic 50-180F 280	280	120	200	97	320	243	50	102	110	125	165	4-φ14	4-φ19

10. Maintenance

After 2000 hours of normal use, the following steps should be taken to maintain the pump:

(1) disassembly: check whether there is contact, foreign body inside the motor, if there should be a timely clean-up.

(2) air tightness test: after disassembling the machine to repair or replace all kinds of seals, the water (air) pressure test must be carried out on the pump, the test pressure is 0.2 mpa (mpa) , and there should be no leakage and perspiration after 3 minutes.

(3) when the air temperature is below 4˚C, anti-freezing work should be done in order to avoid freezing crack pump body.

(4) if the electric pump is not used for a long time, the pipe should be unloaded, drain the water in the pump, scrub the main components clean, rust-proof treatment, placed in a dry and ventilated place, and properly kept.

11. Warranty Terms

The warranty period of ECP-F Basic series circulation pump is 2 (two) years from the date of purchase. During the warranty period, free repair and maintenance service will be provided for malfunctions caused by manufacturing defects. Failures caused by operating conditions will also provide paid service.

(1) Malfunctions caused by operating conditions.

(2) Damages caused by installation pollution.

(3) Faults caused by faulty wiring or unsuitable power supply.

(4) Disassembly or intervention of the product outside the authorised service.

(5) Failures caused by improper installation shall be considered outside the scope of warranty.

NOTES

Rev 07/2025

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