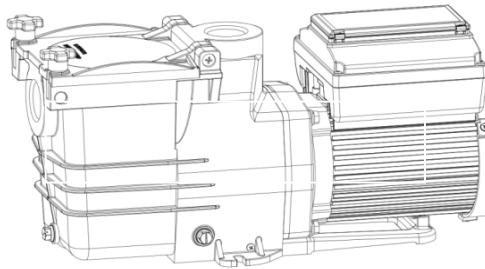


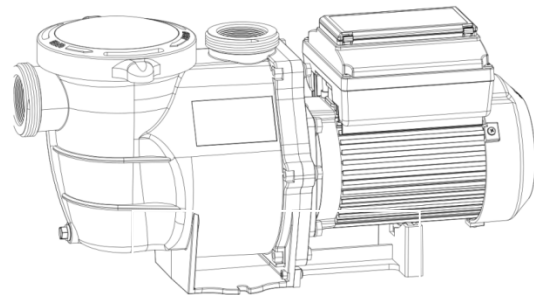
excelpool PRODUCTS

OWNER'S MANUAL

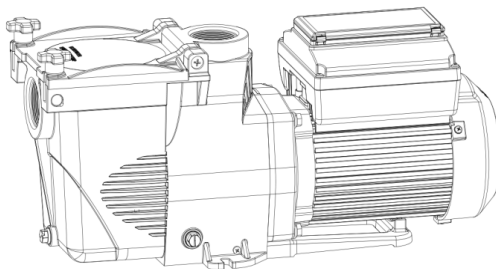
EZ VARIABLE SPEED PUMPS 1.5HP/3HP



5117/5119



72559/72561



89170/89171



To prevent potential injury and to avoid unnecessary service calls, read this manual carefully and completely.

SAVE THIS INSTRUCTION MANUAL

Brief Introduction

This variable speed pump is designed to operate your swimming pool filtration system as well as your spa, waterfall, cleaner, heater, salt chlorine system and other water applications.

Using the control panel, you can run your pump on one of three scheduled programs:

1. **Regular mode:** use three quick start buttons.

ECO (default 1500RPM)/CLEAN(default 2400RPM)/BOOST(default 3250RPM), and then adjust the pump to run at the speeds you selected.

2. **Mode 1:** 16 hours for each clean cycle.

3. **Mode 2:** 24 hours for each clean cycle.

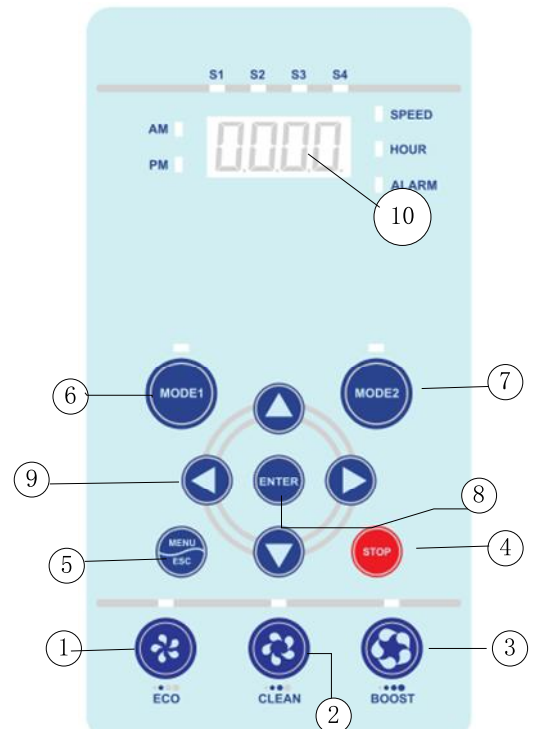
The control panel also has LED indicators for speed as well as alarm indicators and error messages to warn the user against under and over voltage, high temperature, over current and freeze protection.

1. Features of LED Control Panel

- (1) Display and change time
- (2) Display and change running speed
- (3) Quick-start button of ECO/CLEAN/BOOST to run on different speed
- (4) MODE1/MODE2 for scheduled program (16 hours or 24 hours clean cycle)
- (5) Re-start and reset to normal schedule after over current, over voltage, over heat, or unexpected power off.
- (6) Keep records of scheduled programs for maximally 15 days after power off.
- (7) Password needed when to make change of the program. (not effective now)
- (8) Run 5 minutes high speed when first start the pump
- (9) Step-by-step acceleration and deceleration of the speed to extend the use life of the motor and control panel

2. Introduction of LED Control Board

- ① ECO: Press to select and run on default speed 1500PRM, can adjust from 1000 to 2400RPM
- ② CLEAN: Press to select and run on default speed 2400PRM, can adjust from 2400 to 2850RPM
- ③ BOOST: Press to select and run on default speed 3250PRM, can adjust from 2850 to 3450RPM
- ④ STOP: Press to stop the pump. The screen displays the present time
- ⑤ MENU: Accesses the pump menu if the pump is stopped
- ⑥ MODE 1: To run the programmed 16 hours clean cycle.
- ⑦ MODE 2: To run the programmed 24 hours clean cycle.
- ⑧ Enter: Save and exit the menu.
- ⑨ ARROW BUTTONS:
 - UP ARROW – Move up one level in the menu or to increase a digit when changing a setting
 - DOWN ARROW – Move one level down in the menu or to decrease a digit when changing a setting.
 - LEFT ARROW – Moves the cursor left one digit when changing a setting
 - RIGHT ARROW – Moves the cursor right one digit when changing a setting
- ⑩ LED Screen: Composed of four digital tubes. Display current time when in standby. Switch current speed and time back and forth when in running.
- ⑪ AM/PM: Designed for 12-hour system. If pump run on 0:00-11:59, AM light on; if pump run on 12:00-23:59, PM light on.
- ⑫ MODE1 and MODE 2 have 4 stages, S1/S2/S3/S4 is the speed for each stage. If the S1 light is on, the pump is run on first stage, if the light twinkles, the time for the stage is not arrive yet or the pump is not running.
 If SPEED light is on, the screen will display the current RPM
 If HOUR light twinkles, you are ready to set the running time for each stage.
 If ALARM light is on, an alarm condition exists.
- ⑬ Press MODE 1, the light will be lit and one light of S1/S2/S3/S4 will be on or twinkle. (Light twinkle means the current time is not during the set running period), and one of AM or PM light will be on.
- ⑭ Press MODE2, the light will be lit and the one light of S1/S2/S3/S4 will be on or twinkle. (Light twinkle means the current time is not during the set running period), and one of AM or PM light will on.
- ⑮ When the pump is in standby, switch MODE 1 and MODE2, the corresponding light will be lit, and the pump run accordingly.



3. Stop And Run The Pump

3.1 Start The Pump

- 1) Make sure the pump is connected with electricity. When power is on, the display screen will display the time.
- 2) Press one of ECO/CLEAN/BOOST, the pump will run. The light on the corresponding program will be lit. No matter what program you select, the pump will run on 2850RPM for 5 minutes to eliminate the air in the pump, so the impeller will not dry grind thus to cause leakage. After high-speed running, the pump will run the default speed of the selected program.

3.2 Stop The Pump

Press STOP of the running pump, the pump will stop. The lights on the screen twinkle.

3.3 Change Pump Running Speed

- 1) When the pump is running ECO/CLEAN/BOOST, press arrow buttons up or down to change the speed, each press is for 50RPM. It will save automatically, no need to press ENTER.
- 2) Switch ECO/CLEAN/BOOST during pump operation, the pump will not run 5 minutes high speed again.
- 3) For MODE 1 and MODE 2, to change speed of S1 and S3, first press CLEAN, if not work, you will need to stop the pump first. After 5 minutes high speed running, press CLEAN, then press arrow button to increase or decrease RPM. When press MODE 1 or MODE 2 again to run the pump, S1 and S3 will run as just selected.

To adjust S2 and S4, first press ECO, if not work, you will need to stop the pump. After 10 minutes high speed running, press ECO, then press arrow button to increase or decrease RPM . When press MODE 1 or MODE 2 again, S2 and S4 will run as just selected.

NOTE: PRM for S2 and S4 or S1 and S3 are always the same.

The default for S1 and S3 is 2400RPM, the adjustable range is 2400 to 2850RPM.

The default for S2 and S4 is 1500RPM. The adjustable range is 1000 to 2400PRM.

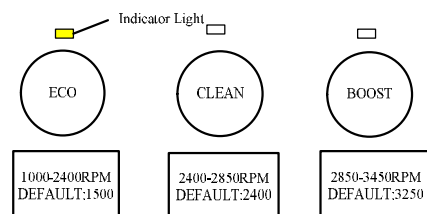
3.4 Pump Run Under Pre-programmed Conditions

Pump has three quick start button ECO/CLEAN/BOOST, as below image.

The default speed is 1500, 2400, 3250RPM respectively.

- 1) Be sure the pump is power on.
- 2) Press one of ECO/CLEAN/BOOST, the LED light on screen will be lit.
- 3) The screen will display STUP for 1 second, and run 2850PRM for 5 minutes.

After 10 minutes, the pump will run on the selected speed.



4. Pump Run Under MODE1/MODE2

4.1 MODE 1/MODE2 Introduction

MODE 1					MODE 2				
16 hours running cycle					24 hours running cycle				
Stage	Start Time	Running Hour	Default Speed	Quick Start Button	Stage	Start Time	Running Hour	Default Speed	Quick Start Button
S1	6:00 AM	3 (adjustable)	2400RPM (adjustable)	CLEAN	S1	12:00 PM	6 (adjustable)	1500RPM (adjustable)	ECO
S2	9:00 AM	5 (adjustable)	1500RPM (adjustable)	ECO	S2	6:00 AM	3 (adjustable)	2400RPM (adjustable)	CLEAN
S3	6:00 PM	3 (adjustable)	2400RPM (adjustable)	CLEAN	S3	9:00 AM	9 (adjustable)	1500RPM (adjustable)	ECO
S4	9:00 PM	5 (adjustable)	1500RPM (adjustable)	ECO	S4	6:00 PM	6 (adjustable)	2400RPM (adjustable)	CLEAN

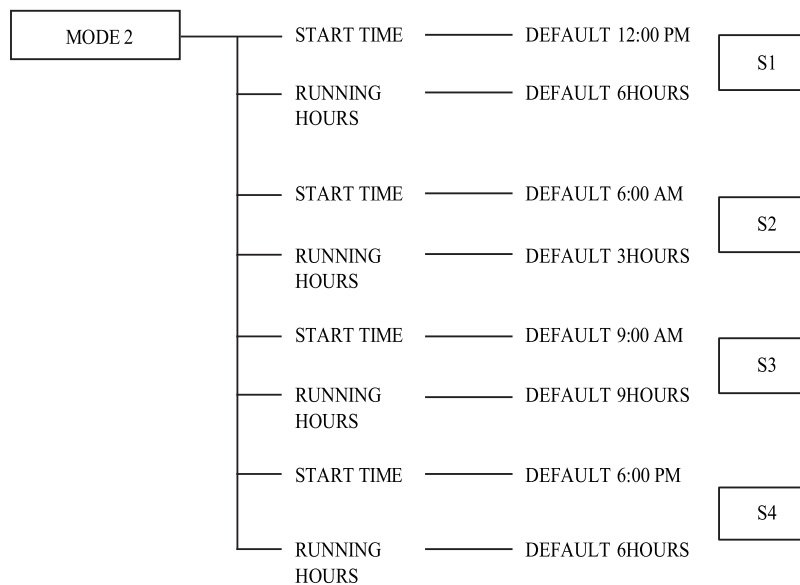
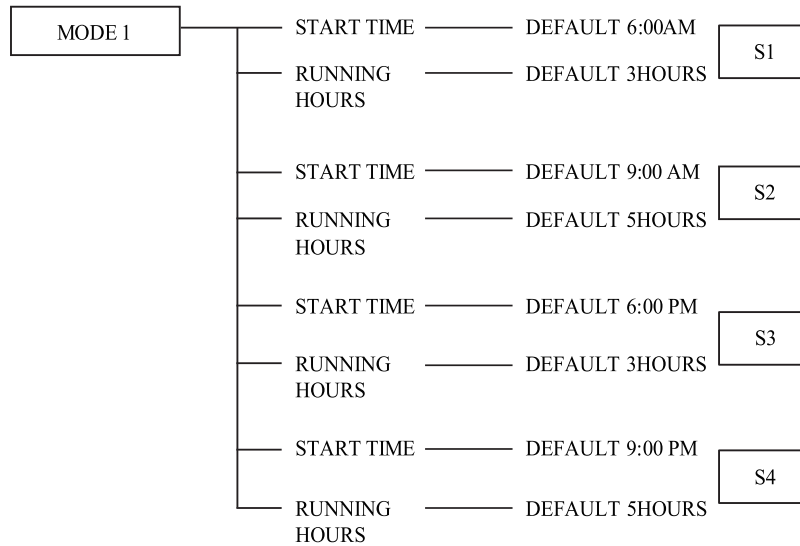
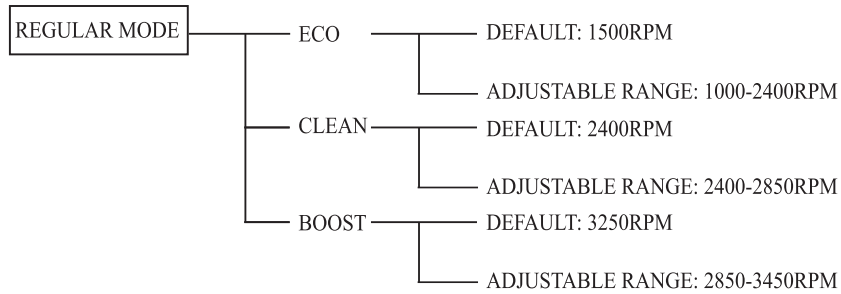
4.2 How to Set and Change Specification of MODE1/MODE2

- 1) Make sure STOP button is pressed before set up, and pump is not working. Press MENU, LED screen will display the current time (time will not count during set-up), use arrow buttons to adjust the time. LEFT and RIGHT to move the cursor one digit, and UP and DOWN to increase or decrease one digit. (Remarks: 0:00-11:59 is one cycle). For example, the current time is 6:00 and AM light is lit, when change the time after 11:59, the time change to 0:00, PM light will be lit.
- 2) After time set-up, press ENTER to save and quit. Don't press ENTER if to continue change the specification of MODE1 and MODE 2. Press MENU again, the light of MODE 1 and S1 will be lit, screen display 6:00, and AM light is lit. Use arrow buttons to adjust the time. When the time is over 11:59, PM light will be lit, AM light extinguished.
- 3) Press ENTER to save and quit after start time set-up. To continue and adjust the running hour, press MENU, then use arrow buttons to increase and decrease running hours. Each press is for 1 hour. Press ENTER to save and quit. Or press MENU to adjust S2/S3/S4, the same adjustment method as S1.
- 4) Follow MODE 1's adjustment methods to adjust MODE 2.
- 5) **Could not change speed using arrow buttons when running MODE1/MODE2.** Can only change the speed of MODE 1 and MODE 2 by pressing CLEAN/ECO/BOOST, and then use arrow button UP and DOWN to change the RPM. When it is done, the corresponding speed in MODE 1/MODE 2 will also change. You could only change according to the matching quick start button. For example, in MODE 1, S1 and S3 is CLEAN, S2 and S4 is ECO; in MODE 2, S1 and S3 is ECO, S2 and S4 is CLEAN.

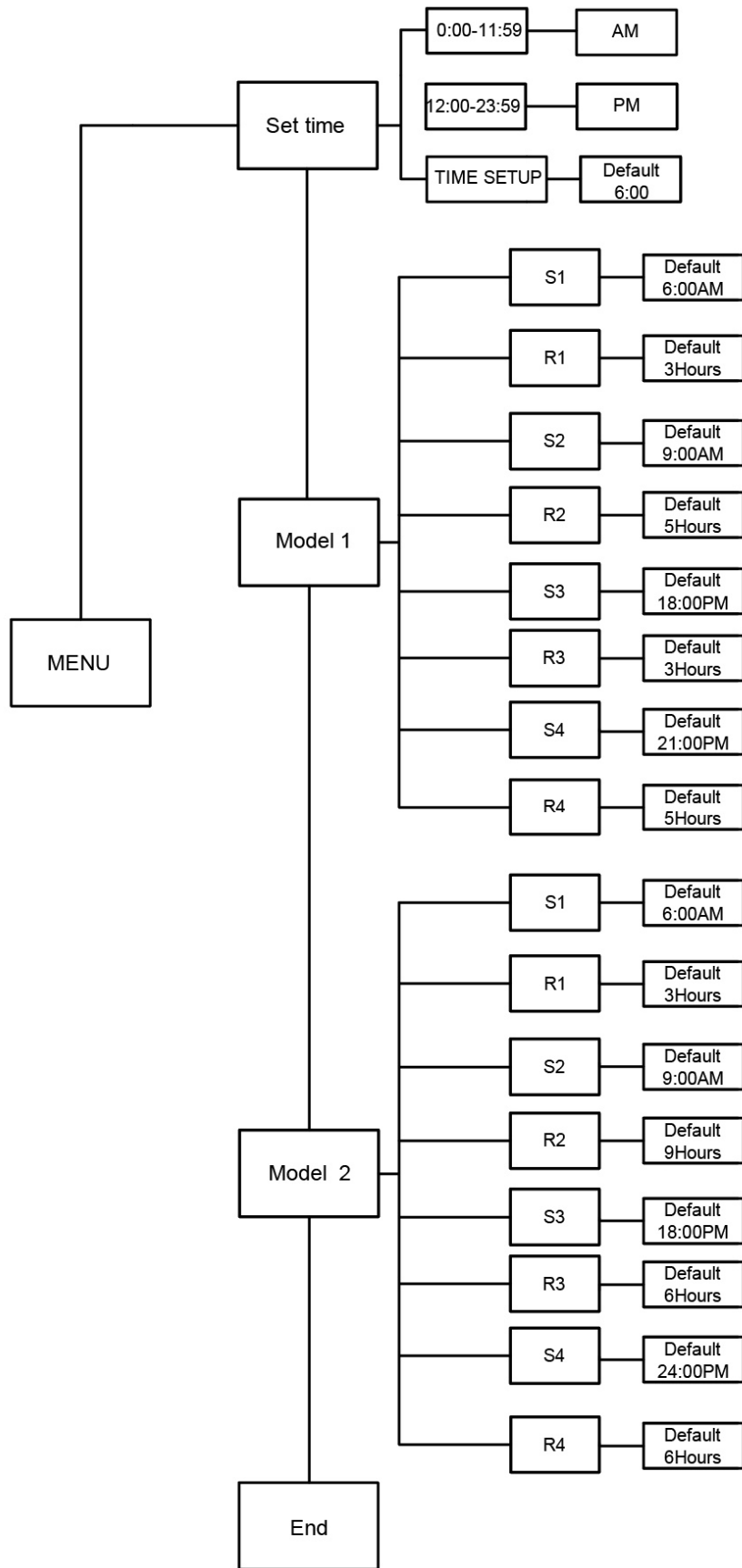
5. How to Operate The Pump?

Totally three pre-programmed schedules: Regular Mode (including ECO; CLEAN; BOOST) and MODE 1/MODE 2.

Can change the speed in the mode of ECO/CLEAN/BOOST freely.

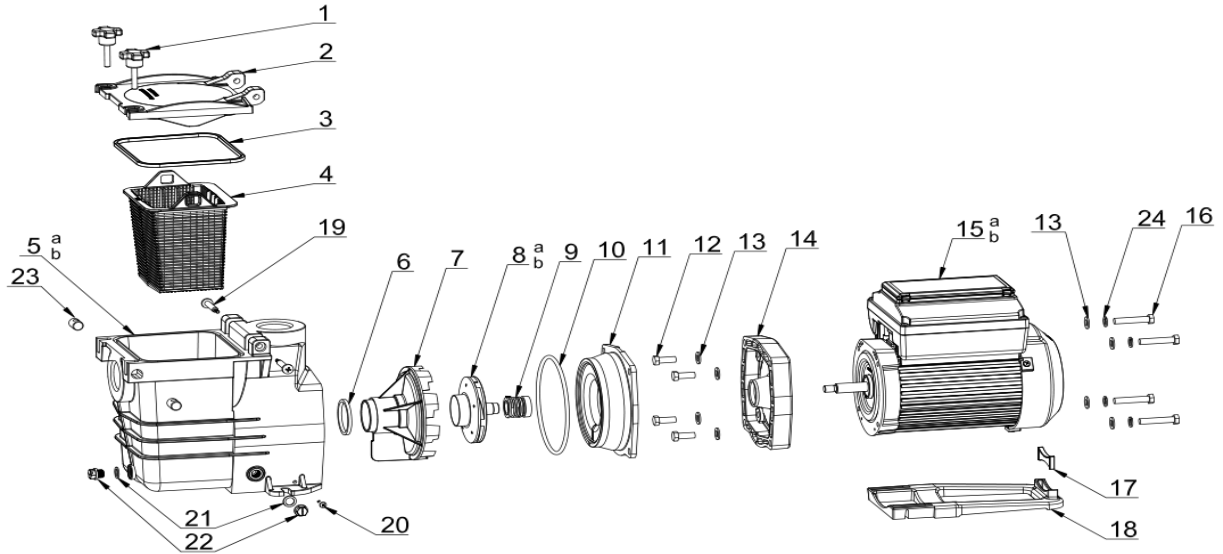


6. Control Panel Menu Structure



7. Parts Breakdown

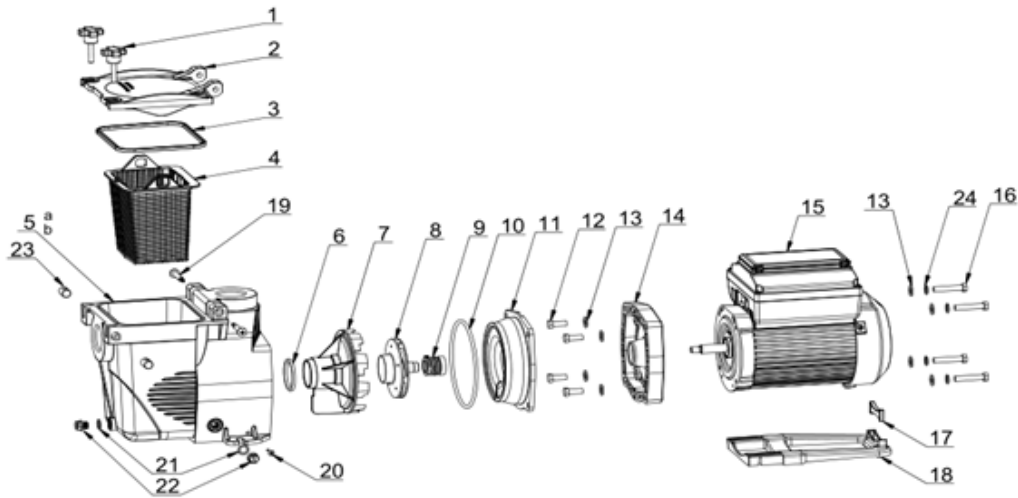
5117/5119



Ref. No.	Part No.	Description	QTY
1	648910606080	Handle Screws	2
2	48915102089	Cover	1
3	65432053080	Gasket	1
4	48910402001	Basket	1
5a	648915105080	Pump Housing 1.5"	1
5b	648915104080	Pump Housing 2"	1
6	65432040080	O-ring	1
7	647258001080	Diffuser	1
8a	89106201	Impeller for 5117	1
8b	72580071	Impeller for 5117	1
9	65028026000	Seal Assembly	1
10	65431121080	O-ring	1
11	647258002080	Pump Cover	1
12	5225007000	Screw 3/8-16UNC*25.4mm	4
13	65244015000	Gasket M10	8
14	648910602080	Over Cover	1
15a	65023333000	Variable Speed 1.5HP Motor	1
15b	65023337000	Variable Speed 3.0HP Motor	1
16	65225008000	Screw 3/8-16UNC*50.8mm	4
17	648912301080	Supporting Foot	1
18	648910608080	Mounting Foot	1
19	65212058000	Screw ST4.8*9	2
20	65212013000	Screw ST4.8*25	2
21	65432002080	Gasket	2
22	648860105080	Drain Plug	2
23	648910607080	Reseller	2

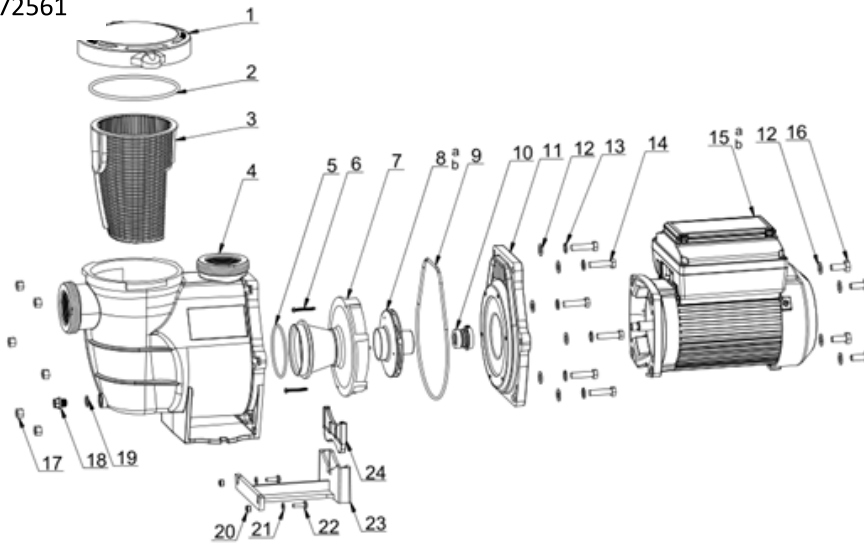
24	65244032000	Spring Washer	4
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89170/89171



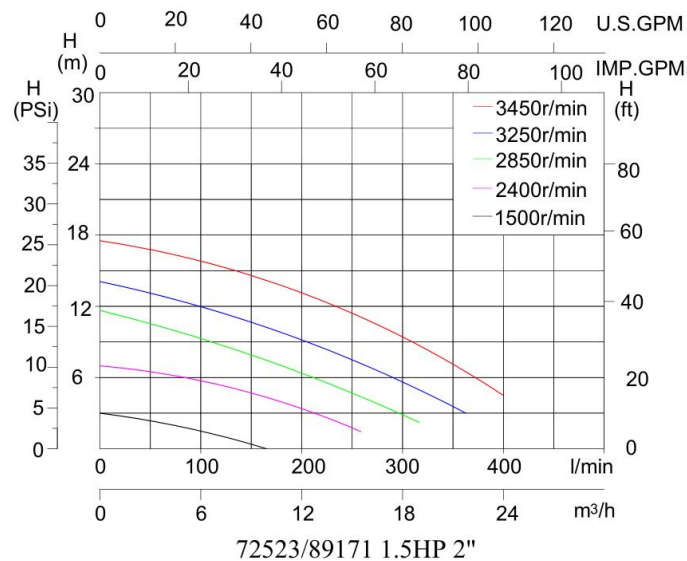
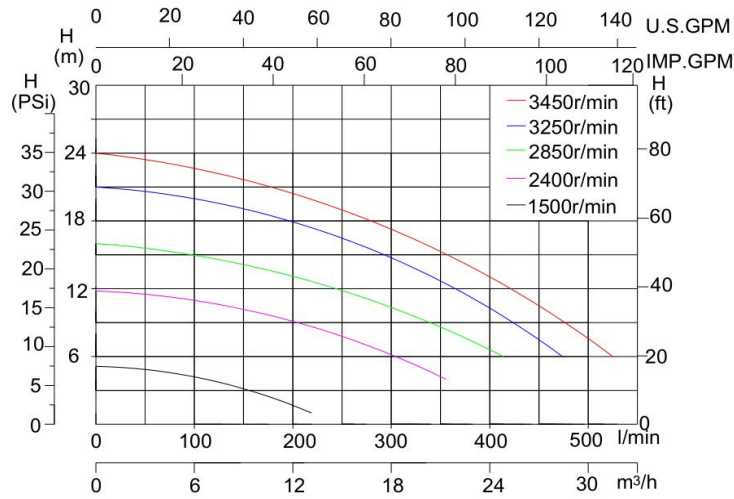
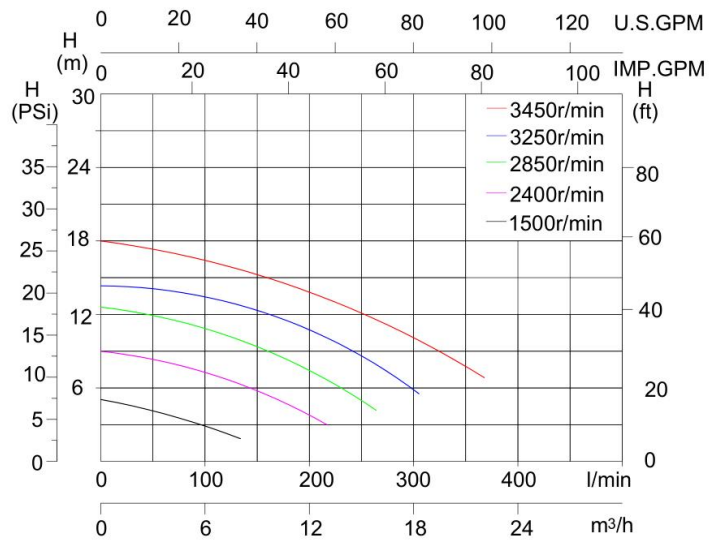
Ref. No.	Part No.	Description	QTY
1	648910606080	Handle Screws	2
2	48915102089	Cover	1
3	65432053080	Gasket	1
4	48910402001	Basket	1
5a	648915103080	Pump Housing 1.5"	1
5b	648915101080	Pump Housing 2"	1
6	65432040080	O-ring	1
7	647258001080	Diffuser	1
8	89106201	Impeller	1
9	65028026000	Seal Assembly	1
10	65431121080	O-ring	1
11	647258002080	Pump Cover	1
12	5225007000	Screw 3/8-16UNC*25.4mm	4
13	65244015000	Gasket M10	8
14	648910602080	Over Cover	1
15	65023333000	Variable Speed 1.5HP Motor	1
16	65225008000	Screw 3/8-16UNC*50.8mm	4
17	648912301080	Supporting Foot	1
18	648910608080	Mounting Foot	1
19	65212058000	Screw ST4.8*9	2
20	65212013000	Screw ST4.8*25	2
21	65432002080	Gasket	2
22	648860105080	Drain Plug	2
23	648910607080	Reseller	2
24	65244032000	Spring Washer	4

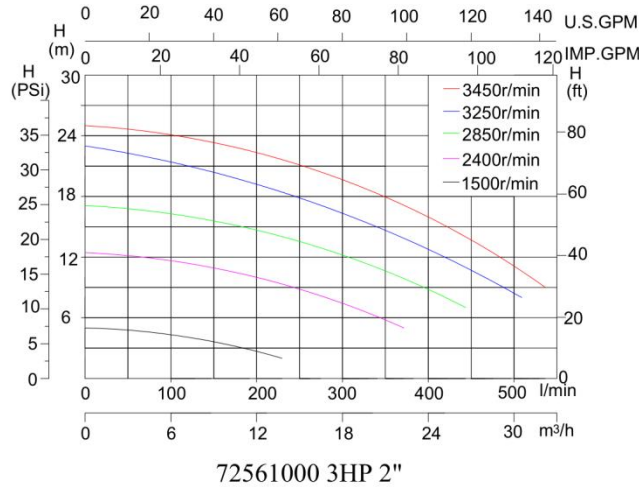
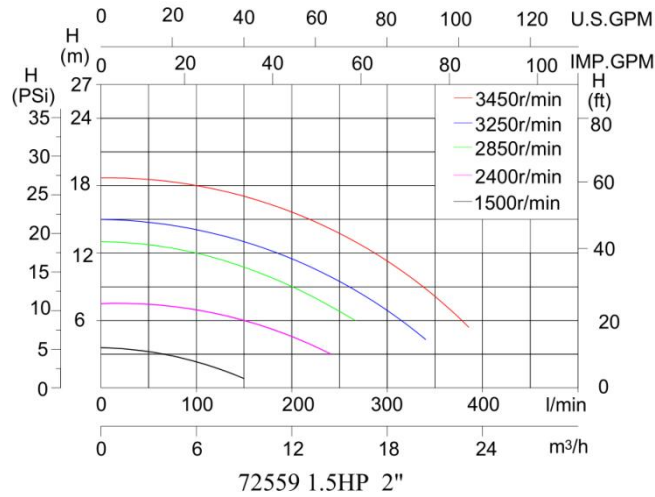
72559/72561



Ref. No.	Part No.	Description	QTY
1	647252772	Cover	1
2	65431042080	O-Ring	1
3	647252704	Basket	1
4	647254701	Pump Housing	1
5	65431032080	O-Ring	1
6	65212025000	Screw ST4.2*38	2
7	647254703	Diffuser	1
8a	647274871000	Impeller for 72559	1
8b	647255671000	Impeller for 72561	1
9	65431168080	O-Ring	1
10	65028014000	Seal Assembly	1
11	647254702	Pump Cover	1
12	65244015000	Gasket M10	10
13	65244032000	Spring Washer M10	6
14	65225003000	Screw 3/8-16*1 1/2 UNC	6
15a	65023332000	Variable Speed 1.5HP Motor for 72559	1
15b	65023334000	Variable Speed 3HP Motor for 72561	1
16	65221008000	Screw M10*25	4
17	65232001106	Nut 3/8-16	6
18	648860105	Drain Plug	2
19	65432002080	Drain Plug Gasket	2
20	65231002106	Nut M6	2
21	65244016000	Gasket M6	2
22	65224003000	Screw M6*20	2
23	647254704	Mounting Foot	1
24	647255301	Supporting Foot	1

8. Performance Curve





9.Alert and Warnings

The pump displays all alerts and warnings on the control panel. When an alarm or warning condition exists, the corresponding LED will be lit on the display. All control panel buttons are disabled until the alarm or warning is acknowledged with the ENTER button. move the power until the display off..

POWER OUT FAILURE – Incoming supply voltage is less than 190 VAC.

PRIMINZG ERROR – If the pump is not defined as primed within the maximum priming time it will stop and generate a priming alarm for 10 minutes, then attempt to prime again. If the pump cannot prime within 5 attempts it will generate a permanent alarm and have to be manually reset.

OVERHEAT ALERT – If the drive temperature gets over 103 Degrees Fahrenheit the pump will slowly reduce speed until the temperature condition clears.

OVER CURRENT – Indicates that the drive is overloaded or the motor has an electrical problem. The drive will restart after to over current condition clears.

OVER VOLTAGE – Indicates excessive supply voltage or an external water source is causing the pump and motor to rotate thereby generating excessive voltage in the drives internal DC buss. You can press the STOP button or other mode to re-run the pump

Alert code details:

Code	Error	Remarks
1	Get blocked or short circuit or overheat	
2	Voltage input exceeds limit	
4	High input voltage	
8	Low input voltage	
16	Exceeds maximum speed	
32	Speed is 0	
64	Motor phase loss	
128	Abnormal start-up	
256	System configuration error	
512	Stall at startup	
1024	System operation error	Contact the manufacturer when this error causes
4096	Hardware test error	Contact the manufacturer when this error causes