



High Performance Submersible Pump
PONSTAR
PB SERIES OPERATION MANUAL

- Thank you for choosing Koshin Submersible Pump.
- This manual is prepared for your safety when operating pump. Please read carefully and comprehend fully before use. (Wrong usage could cause injury or death.)
- Please keep this manual handy for future reference.

PLEASE READ THIS MANUAL BEFORE OPERATION.

**"ACCEPTABLE FOR INDOOR OR OUTDOOR USE"
 "SUBMERSIBLE PUMP"**

⚠ CAUTION ⚠

Before use, please make sure to read the instruction manual. Do not operate the pump out of water or insufficient water.

⚠ WARNING ⚠

Risk of electric shock. This pump is supplied with a grounding conductor and grounding-type attachment plug. To reduce risk of electrical shock, connect only to a properly grounded, grounding-type receptacle. TO REDUCE THE RISK OF ELECTRIC SHOCK, INSTALL ONLY ON A CIRCUIT PROTECTED BY A GROUND-FAULT CIRCUIT-INTERRUPTER (GFCI).

⚠ NOTE ⚠

This pump has not been investigated for use in swimming pool or marine areas. This pump has been evaluated for use with water only.

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⚠ CAUTION

1. Leak Current Breaker

For home use, attach a leak current breaker, GFCI (offered separately) to ensure safety.

2. Connect the power source

Absolutely refrain from connecting this pump to any other power source than 110V AC or 220V AC, 50Hz.

3. Water to use

*Absolutely refrain from using the pump for any oil, sea water, strong alkaline or strong acidic solution, or any agricultural chemicals.

4. Do not run dry!

Idling can cause trouble, to prevent short cycling place pump at deepest position as possible.

5. Handling of power cord (cable type cable)

- Never lift or move pump by power cord. Only lift by handle or tie rope supplied to handle.
- Select and use proper size extension cord. Do not run extension cord in water.

6. Using in bath, etc.

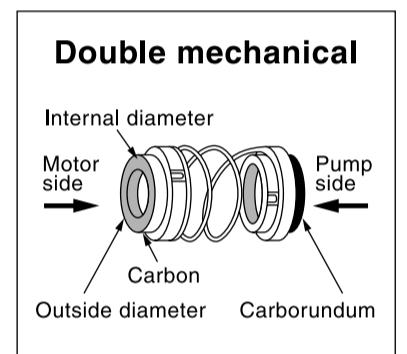
Do not enter the water when pump is being used.

⚠ CAUTION

The pump is used a double mechanical seal. (See figure)

Consulting the following table assemble it.

Mechanical seal	Motor side (Carbon)	Plum side (Carborundum)
Outside diameter	22.5mm	20.5mm
Internal diameter	18.5mm	15.0mm



INSTALLATION AND USE

- An acceptable motor-control switch shall be provided at the time of installation.
- Thermally protected

INSTRUCTIONS FOR USE

- Please check the type, aperture, output, frequency, and voltage indicated on the name plate attached to the upper part of the pump. Pay close attention, in particular, to frequency and voltage as inadequate frequency and voltage can cause lower pump performance and troubles.
- Place to use**
 The pump can be used at almost all places but avoid continuous short-water operation at a sandy place, as such may accelerate wear of the pump. Try to install the pump at a position where water can be collected most easily. When the pump is installed on soft muddy or sandy ground, lay wooden board or block under the body to prevent setting down. Strictly refrain from putting into any pond bath, or swimming pool in which anybody is staying.
- Hose piping**
 When any hose is used for connection, keep the hose as straight as possible as excessively bent hose reduces water quantity. Refrain from placing the discharge port under water. Inverse flow may sometimes be resulted due to siphon effect when the operation is stopped.
- Cable type cable**
 To transfer the pump or to install, hold the pump on the handle or a rope tied to the handle. If the cable type cable is pulled instead of the rope, the core wires may sometimes be cut off. To extend the cable, use a cable of the same or larger size than the one attached to the pump. Strictly refrain from placing the joint between the main line and the extension in water.
- Earth leakage breaker**
 Be sure to ground the earthing wire before connecting the cable type cable to the power source. The green wire is for earthing. Be sure to attach the leakage breaker to prevent any possible leakage trouble.
- After use**
 If the pump is left as it is after used for water of high sand content or other special substances, the sand is accumulated in the pump and will affect the next operation. Before stopping operation, therefore, be sure to keep pumping supernatant water or clean water for some time to clean out the inside.

7. Thermal protector

The pump incorporates a thermal protector to protect the motor, and the motor is stopped automatically at a over-load operation due to any reason.

When the motor stops automatically, be sure to check after turning off the power source.

AFTER USING PUMP

- In cold climates, do not allow pump to freeze. Remove pump from water to prevent damage due to freezing.
- Completely drain and dry pump of water before storing.

MAINTENANCE AND INSPECTION

- Periodically check the insulated condition with a megger tester.
To be acceptable, the resistance between the earthing wire and the power cord should be 100Meg ohm and higher
- The shaft of the water-tight mechanism as the most critical part of the pump is sealed with liquid paraffin. The life changes greatly depending on the operating condition but the quantity should be checked periodically.
Use 170cc of Crystal No.70 by Exxon Mobil Corporation for the sealing.
The liquid paraffin can be checked easily by removing the hexagon socket head bolt at a side of the pump body.

TROUBLESHOOTING GUIDE

PROBLEM	POSSIBLE CAUSE	SOLUTION
No start at all or stops immediately after start	Not properly connected to power circuit	Correct the connection
	The GFCI, leakage circuit breaker is actuated	Check the power circuit
	The impeller is caught by foreign substance	Repair the point of leakage
	Motor is burnt	Repair or replace
	Voltage drop	Raise the voltage to the rating
Failure during operation	The protector is actuated	Remove foreign substance if the impeller is clogged Lower the liquid temperature if it is too high
	Voltage drop	Raise the voltage to the rating
No pumping or poor performance	High delivery head	Lower the head
	Discharge pipe is clogged	Overhauling
	Impeller wear	Replacement
	Clogging of foreign matter in strainer pump	Overhauling

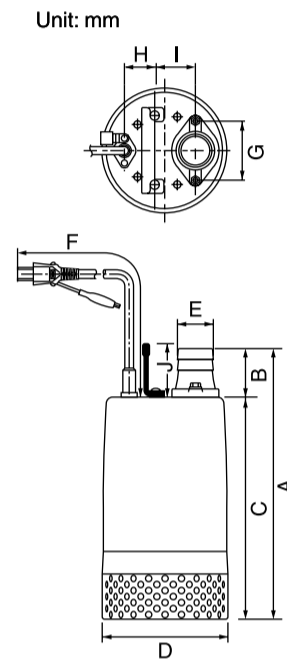
- 5 -

SPECIFICATIONS

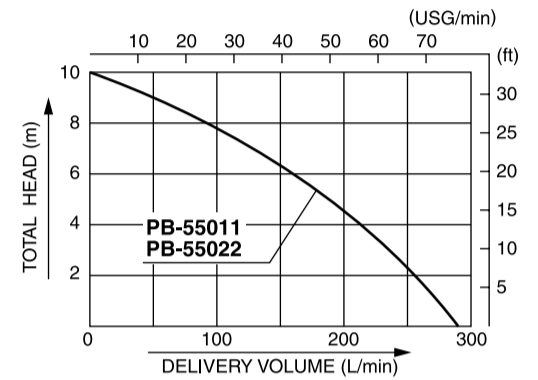
MODEL		PB-55011	PB-55022
PUMP	Connection Dia	50 mm (2")	
	Total Head	10 m (32.8 ft)	
	Delivery Volume	290 L/min (76.6 USG/min)	
MOTOR	Voltage	AC-110V	AC-220V
	Frequency	50 Hz	
	Rated Current	7.3 A	3.6 A
	Out put	400 W	
	Consumption	760 W	680 W
	Revolution	2900 rpm	
	Model	Induction Motor	
	Power Cord	10 m (32.8 ft) [CE model] / 6 m (19.7 ft)	
Standard Accessories		1 Rope 5 m, 1 Hose Band	
Net Weight		15 kg	16 kg

*Starting current is three times higher than rated current.

DEMENSION



PERFORMANCE CURVE

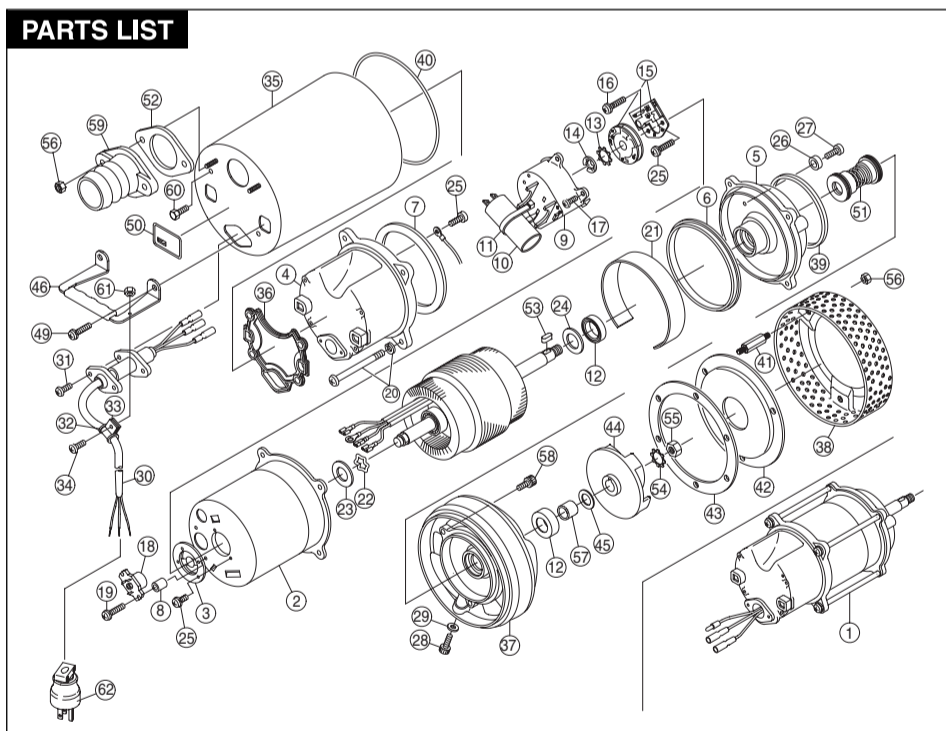


*Performance ratings are guaranteed minimum, not inflated maximum.
** Starting current is three times higher than rated current.

MODEL	Unit: mm									
	A	B	C	D	E	F	G	H	I	J
PB-55011-BAB						10000				
PB-55022-BAA/BAD						6000				
PB-55022-BAD	398	72	326	φ181	φ51	10000	84	43	44	74
PB-55022-BAF						10000				
PB-55022A-BAB						6000				

- 6 -

PARTS LIST



PB-55011-BAB / 55022-BAB / BAD / BAF

No.	PARTS CODE	PARTS NAME	QTY	No.	PARTS CODE	PARTS NAME	QTY	No.	PARTS CODE	PARTS NAME	QTY
1	0438127	PB-55011-BAB Motor Set. (2-27 set)	1	19	708219042	⊕Screw (M4x25 SWRM)	2	44	0390034	PS-50-50Hz Impeller (PB-55011/55022)	1
	0438134	PB-55022-BAA/BAD Motor Set. (2-27 set)	1	20	0430043	⊕Screw (M4x145 SUS)	4	45	0390025	Impeller Adjusting Washer	0-3
	0438130	PB-55022-BAF Motor Set. (2-27 set)	1	21	0430023	PB-50 Supporter	1	46	0430464	PB-50 Press Handle	1
2	0430465	PB-50 Motor Frame	1	22	857627023	Wave Washer	1	49	708105056	⊕Screw (M6x16 SUS)	2
3	0430462	PB-50 Bearing Plate	1	23	0390026	Washer	1	50	0430128	Label	1
4	0430452	PB-50 Head Cover	1	24	0430001	Bearing Washer	1	51	0390003	Mechanical Seal	1
5	0430453	PB-50 Front Bracket	1	25	0430073	⊕Screw (M4x6 SWRM)	5	52	0390092	PS-50 Flange Packing	1
6	0430004	PB-50 Frame Packing	1	26	0340142	SM Seal Ring	1	53	884205023	Key	1
7	0430003	PB-50 Head Packing	1	27	0340153	SM ⊕Screw (M6x8 SUS)	1	54	845255010	Toothed Washer	1
8	0430002	PB-50 Spacer	2	28	0390037	PS Socket Bolt (M10x12 SUS)	1	55	827405010	Nut (M10)	1
9	0430022	PB-40 Centrifugal force Switch-cover	1	29	854255010	Seal Washer	1	56	827405008	Nut (M8)	5
10	0390002	Condenser (125VAC 150μF)	1	30	0438136	Power Cord (PB-55011-BAB)	1	57	0430074	PB-50 Sleeve	1
11	0390142	Band	1		0390008	Power Cord (PB-55022-BAA)	1	58	0430044	Socket Bolt	3
12	893555043	Oil Seal	2		0438136	Power Cord (PB-55022-BAD)	1	59	0390724	PS-50 Delivery Flange	1
13	0390141	Toothed Washer	1		0430467	Power Cord (PB-55022-BAF)	1	60	747805028	Bolt (M6x12 SUS)	4
14	888727008	Stop Ring	1	31	703305102	⊕Screw (M5x14)	2	61	827305005	Nut (M5)	1
15	0390001	PS-40 Centrifugal force Switch	1	32	0390031	PS-40 Cord Supporter	1	62	0430466	Power Cord Plug (PB-55022-BAD Only)	1
16	707825018	⊕Screw (M3x6 BS)	2	33	0260137	BL-3224 Cord Band	1				
17	708119037	⊕Screw (M4x10 SWRM)	2	34	703305100	⊕Screw (M5x10 SUS)	1				
18	0390079	PS-5010 Terminal Protector (Spec. 110V)	1	35	0430008	PB-50 Out Cover	1				
	0390326	PS-5020 Terminal Protector (Spec. 220V)	1	36	0430013	PB-50 Out Packing	1				
				37	0430454	PB-50 Casing	1				
				38	0430463	PB-50 Unified Strainer	1				
				39	889955100	O Ring (G100)	1				
				40	0430025	PB-50 O Ring (φ166)	1				
				41	0430014	PB-50 Stud Bolt	3				
				42	0390712	PS-40 Suction Cover	1				
				43	0390019	PS-40 Suction Packing	1				

- 7 -