

14.0 Warranty

- 14.1 The warranty period commences on the date of original purchase of the equipment. Evidence of this date of original purchase must be provided when claiming repairs under warranty. It is recommended you retain all receipts in a safe place.
- 14.2 Shah Pneumatics products are warranted to the original user only to be free of defects in material and workmanship for a period of 12 months from date of manufacture. Shah Pneumatics' liability under this warranty shall be limited to repairing or replacing at Shah Pneumatics' option, without material charge however we may levy service charges, FOB Shah Pneumatics' Mumbai distribution center or authorized service agent. Shah Pneumatics will not be liable for any costs of removal, installation, transport or any other charges that may arise in connection with the warranty claim.
- 14.3 This warranty is subject to due compliance by the original purchaser with all directions and conditions set out in the Installation and Operating Instructions. Failure to comply with these Instructions, damage or breakdown caused by fair wear and tear, negligence, misuse, incorrect installation, inappropriate chemicals or additives in the water, inadequate protection against freezing, rain or other adverse weather conditions, corrosive or abrasive water, lightning or high voltage spikes or through unauthorized persons attempting repairs are not covered under warranty.
- 14.4 Shah Pneumatics shall not be liable for any loss of profits or any consequential, indirect or special loss, damage or injury of any kind whatsoever arising directly or indirectly from the product or any defect, and the purchaser shall indemnify Shah Pneumatics against any claim by any other person whatsoever in respect of any such loss, damage or injury.
- 14.5 This warranty applies to all states and territories of India only.
- 14.6 For effective warrantee, user must produce copy of invoice/ warrantee page/ card.
- 14.7 No warranty will be given if the above conditions are not met with the decision of Flowmatics/Shah Pneumatics in relation of any claims or dispute over the warrantee is final.

Shah Pneumatics has a continuous policy of product development and although the Company reserves the right to change specifications, it attempts to keep customers informed of any alterations. This publication is for general information only and customers are requested to contact our Sales Department for detailed specifications and advice on a product's suitability for specific applications. All products are sold subject to the Company's standard conditions of sale.

Flowmatics is a trademark of Shah Pneumatics

WATER MANAGEMENT SYSTEMS

Shah Pneumatics

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FOR DISTRIBUTOR STAMP

101 HORIZONTAL SINGLE TWIN MICRO CENTRIFUGAL PUMPS - PP-2PP

Flowmatics™
WATER MANAGEMENT SYSTEMS



**PP / 2PP
SERIES**

**HORIZONTAL SINGLE / TWIN
STAINLESS STEEL MICRO CENTRIFUGAL PUMPS**

INSTALLATION OPERATION & MAINTENANCE MANUAL

DEALER: This manual must be given to the user of the pump

USER: Before using this pump, read this entire manual and
save for future reference



For more information regarding Flowmatics products,
parts & services, please visit www.shah-pneumatics.com

WARNING:

1. Periodic inspection and maintenance of pumps is essential
2. Transfer of toxic, dangerous, flammable or explosive substances using Flowmatics products is at user's risk
3. Inspection, maintenance & installation of pumps must be made only by experienced, trained & qualified personnel
4. Use of strainer in the suction of the pump is a must for ensuring longer life of pump

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Congratulations for your purchase of Flowmatics pump/products.

We appreciate your trust while opening / unpacking the product, make sure that there is no transit damage, if any, it must be reported to the dealer.

We take no responsibilities in the case of accidents or damages on the basis of carelessness or disregard to the instructions and reject every responsibilities for the damages which originate from the improper use of the pumps.

The purchaser must correctly fill in and mail the last page within 10 days from the date of purchase. No warrantee will be given for incomplete warrantee.

(provide invoice no./ date / dealers name & add with stamp & signature on last page.)

IOM HORIZONTAL SINGLE TWIN MICRO CENTRIFUGAL PUMPS - PP-2PP

13.0 Maintenance Record**Purchase Details**

Date of Purchase :

From: Name :

Address :

Tel. No. :

Fax No. :

Pump Details

Pump Model No.:

Pump Connection :

Installation Details

Date of Installation :

Location :

Strainer Details

Estimated Date of Strainer Cleaning :

Estimated Date of Strainer Change :

Bill No. :

Bill Date :

Serial No. :

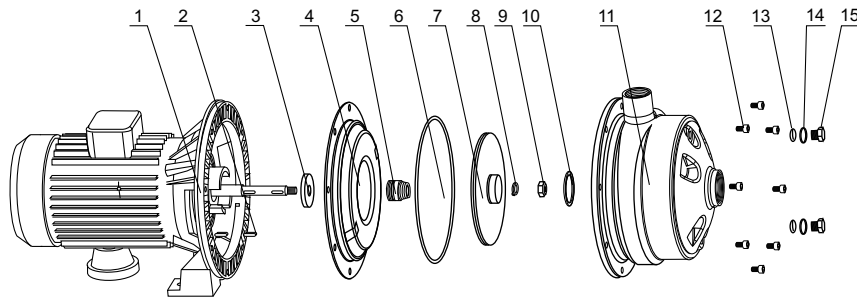
Manuf. Dt :

DEALERS STAMP

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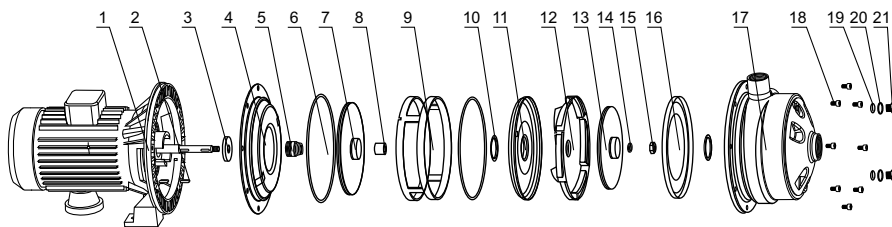
12.0 Part Explosion Diagram

12.1 Single Impeller Models: PP50/PP70/PP120/PP200/PP400



No.	Part Name	No.	Part Name	No.	Part Name
1	Motor	6	“O” Ring	11	Casing
2	Key	7	Impeller	12	Bolt
3	“V” Slinger	8	Spring Washer	13	“O” Ring
4	Back Cover	9	Impeller Nut	14	“L” Washer
5	Mechanical Seal	10	Wear Ring	15	Priming / Drain Bolt

12.2 Twin Impeller Models: 2PP70



No.	Part Name	No.	Part Name	No.	Part Name
1	Motor	8	Shaft Sleeve	15	Impeller Nut
2	Key	9	Position Plate	16	Guide Plate Front Cover
3	“V” Slinger	10	Wear Ring	17	Casing
4	Back Cover	11	Guide Plate Back Cover	18	Bolt
5	Mechanical Seal	12	Guide Plate	19	“O” Ring
6	“O” Ring	13	Impeller I	20	“L” Washer
7	Impeller II	14	Spring Washer	21	Priming / Drain Bolt

1.0 Features

The PP Horizontal Single /Twin Micro Centrifugal Pumps are manufactured in AISI 304 Stainless Steel sheets by using stamping and welding technologies, which make the pumps have the features of light weight, graceful appearance, material saving, and high efficiency.

2.0 Applications

The pumps are suitable for transporting clean water and industrial media which are non-aggressive to stainless steel AISI 304, such as boiler feeding, clean water lifting, tanks and reservoirs supplying and emptying, booster pumping systems, pharmaceutical & food industries, etc.

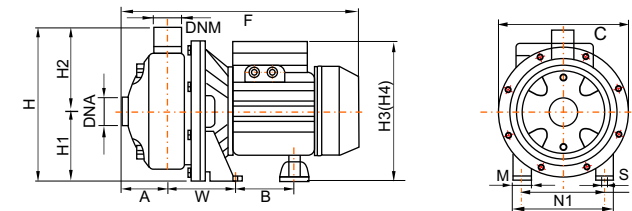
3.0 Model Ordering Code Instructions

2	- PP	- 120 / 150	- D
↓	↓	↓	↓
Impellers	Series	Operating Flow	Motor Power
2 - 2 impeller	PP - Horizontal	050 - 50 litres/min	025 - 0.25 kW
Blank - 1 impeller	Micro Centrifugal Pump	070 - 70 litres/min	037 - 0.37 kW
		120 - 120 litres/min	055 - 0.55 kW
		200 - 200 litres/min	075 - 0.75 kW
		400 - 400 litres/min	110 - 1.10 kW
			150 - 1.50 kW
			185 - 1.85 kW
			Phase
			D - Single
			Blank - Three

4.0 Working Conditions

- 4.1 Ambient temperature +40°C max.
- 4.2 Working Temperature Range: -15°C to +80°C
- 4.3 Maximum working pressure: 6~8 kg/cm²g

5.0 Outline Diagram & Dimensions



Model	Dimensions (mm)																Weight Kg.
	A	C	F	H	H1	H2	H3*	H4*	M	N	N1	S	W	B	DNA	DNM	
PP50/025D	52	170	302	196	88	108	208	181	30	100	130	9	80	82	32(1¼")	25(1")	5.1
PP50/037D	52	170	302	196	88	108	208	181	30	100	130	9	80	82	32(1¼")	25(1")	6.1
PP70/037D	52	213	315	232	108	124	241	213	39	120	158	9	92	82	32(1¼")	25(1")	8.1
PP70/055D	52	213	315	232	108	124	241	213	39	120	158	9	92	82	32(1¼")	25(1")	8.8
PP70/075D	52	213	315	232	108	124	241	213	39	120	158	9	92	82	32(1¼")	25(1")	10
PP70/090D	52	213	315	232	108	124	241	213	39	120	158	9	92	82	32(1¼")	25(1")	11
PP70/110D	52	235	386	252	120	132	234	234	39	140	180	9	94	82	32(1¼")	25(1")	14.6
PP120/075D	52	213	315	232	108	124	241	213	39	120	158	9	92	82	32(1¼")	25(1")	10
PP120/110D	52	213	370	232	108	124	224	224	39	120	158	9	92	82	32(1¼")	25(1")	11.6
PP120/150D	52	235	386	252	120	132	234	234	39	140	180	9	94	82	32(1¼")	25(1")	15.8
PP120/185D	52	235	386	252	120	132	234	234	39	140	180	9	94	82	32(1¼")	25(1")	17
PP200/110D	52	213	370	232	108	124	224	224	39	120	158	9	92	82	38(1½")	25(1")	11.6
PP200/150D	52	213	370	232	108	124	224	224	39	120	158	9	92	82	38(1½")	25(1")	15
PP200/185D	52	213	370	232	108	124	224	224	39	120	158	9	92	82	38(1½")	25(1")	16
PP400/150D	82	213	410	258	108	150	213	213	39	120	158	9	102	82	38(1½")	25(1")	-
PP400/185D	82	213	410	258	108	150	213	213	39	120	158	9	102	82	38(1½")	25(1")	-
2PP-70/150D	87	235	416	252	120	132	234	234	39	140	180	9	94	82	32(1¼")	25(1")	17.8
2PP-70/185D	87	235	416	252	120	132	234	234	39	140	180	9	94	82	32(1¼")	25(1")	19.6

NOTE: H3 : For Single Phase motor ; H4 : For Three Phase motor ; For 3 phase input voltage, remove (D) in Model code

6.0 Installing the Pump

- 6.1 Check the pump input voltage is identical to the one on the nameplate.
- 6.2 Seat the pump on a level place, as close to the source of water as possible.
- 6.3 In avoiding any damage of internal parts, check and tighten any possible loose tightening-parts and remove any possible foreign particles inside the pump body prior to installation.
- 6.4 Connections of pipe work must be sealed properly, poor sealing on the pipe work may cause air-leak and give bad performances.
- 6.5 When pumping water from a lower source, fix a non-return foot valve at the send of suction hose to avoid water draws back when stopping pumping.
- 6.6 Hold the pipe work with supports, the pump should not stand the weight of pipe work.
- 6.7 Pump should be effectively earthed, or provided with a creepage breaker.
- 6.8 Inlet diameter of the pipe must never be smaller than that of outlet pump connection.

7.0 Pump Electrical Connection

- 7.1 Check voltage, frequency and phase of power source are identical to the corresponding data on the pump nameplate.
- 7.2 A wiring diagram can be seen inside the cover of terminal box. The pump must be effectively earthed in accordance with local electric regulations. It is recommended that earth-leakage protection be provided by connection of a residual current circuit breaker.

8.0 Starting, Operating and Stopping the Pump

- 8.1 Run the motor fan by hand to check whether pump is running freely and quietly. Start up the pump for a second to check the rotational direction, the correct way is always in clockwise when viewing the motor fan from the motor end.
- 8.2 Switch open the suction valve, remove the priming plug on the top of the pump casing and fill the pump body with water till it overflows, then put the plug on and tighten it up. Never run the pump dry, it would cause serious damages of internal parts.
- 8.3 Start up the pump and set the discharge valve to control the pressure to the required duty point.
- 8.4 When stopping pumping, close the discharge valve and switch off power.
- 8.5 Frequent start-up and stop of pump or prolonged operation of pump with the discharge valve closed may cause damage.
- 8.6 If the pump is to remain inactive for a long period, empty it completely and wash it with clean water, to prevent breakage of the pump body when there is a risk of frost.
- 8.7 If strange noises make by the pump are hard, stop pumping and check the causes.

9.0 Maintenance

- 9.1 Make sure the power is shut off before maintenance.
- 9.2 Maintenance of the splined shaft and shaft seal are not necessary.
- 9.3 When the temperature of the transported liquid is lower than its freezing temperature, make sure the liquid is not frozen inside the pump before starting the pump. During frost season, always drain the pump completely after using the pump.
- 9.4 Under normal working condition pumps requires no servicing until 2000hrs of operation.

10.0 Attention

- 10.1 It is strictly forbidden to operate the pump without water inside the pump body.
- 10.2 Avoid frequent starting and stopping of the pump. Switch off the pump if the power is interrupted.
- 10.3 It is forbidden to control capacity by setting the valve on the suction pipe.
- 10.4 Switch off power when the pumped water is interrupted or there is lack of water.
- 10.5 If strange noise made by the pump are heard, stop pumping immediately and check the cause.
- 10.6 When the pump is to remain inactive for a long period, drain the water from the pump body by unscrewing the draining plug and filling plug. Wash the pump body with clean water and make sure the pump body is completely drained to avoid breakage by frozen water in winter times.

11.0 Troubleshooting

Trouble	Possible cause	Remedy
1. No water is pumped out.	1. Too low liquid level. 2. Suction/discharge pipes or impeller is blocked. 3. Pipe connection leakage.	1. Reinstall; reduce the distance from the pump to the liquid lever. 2. Clean pipes and the volute. 3. Seal the connections.
2. Insufficient capacity.	1. Suction/discharge pipes is blocked 2. Sealing ring damaged or corroded. 3. Motor runs at low speed.	1. Clean pipes and the pump. 2. Replace the sealing ring. 3. Check the input voltage.
3. Too low head	1. Too high liquid temperature or air cavity occurs. 2. Wrong rotational direction. 3. Impeller damaged.	1. Lower the water temperature and fill up the pump body with water. 2. Correct electric connections (for three phase only) 3. Replace the impeller.
4. Overload (motor gets heat)	1. Too big capacity (pump operates beyond its performance limit.) 2. Mechanical friction. 3. Input voltage too low or motor fan damaged.	1. Check the pump model is correct, or make the pump to work within its performance limit by setting the discharge valve. 2. Check the cause and clean it up. 3. Raise up input voltage or replace motor fan.
5. Pump leakage	1. Mechanical seal damaged. 2. "O" ring damaged.	1. Replace mechanical seal. 2. Replace "O" ring.
6. Motor vibrates and makes noise or shaft heats.	1. Motor bearings damaged or lack of lubrication. 2. Base not firmly fixed.	1. Adjust the concentricity between motor and pump body, replace or clean bearings and lubricate with grease. 2. Place motor on the level and tighten up each screw on the base.
7. Pump makes noise	1. Too big capacity and air cavity occurs. 2. Screws loose.	1. Check the pump model is correct or reduce capacity by setting discharge valve. 2. Tighten up the screw.