

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 AGRICULTURE & SEA WATER TRANSFER PUMPS - SW



**SW
SERIES**



**HORIZONTAL AGRICULTURE &
SEA WATER TRANSFER 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.)

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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 :

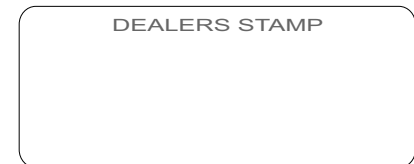
Location :

Strainer Details

Estimated Date of Strainer Cleaning :

Estimated Date of Strainer Change :

Bill No. :
Bill Date :
Serial No. :
Manuf. Dt :



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12.0 Appendix

When the pump is operated under the following conditions, it is necessary to measure the suction pressure “H”

- ◆ High liquid temperature.
- ◆ Actual capacity is obviously bigger than rated capacity.
- ◆ Suction head is too high.
- ◆ Suction pipe is too long.
- ◆ Bad suction conditions.

If the pump suction pressure is lower than the steam pressure of the transported liquid, vapour may happen. To avoid this please make sure there is a minimum pressure at the pump suction. The Maximum Suction Head can be calculated using the following formula:

$$H = P_b \times 10.2 - NPSH - H_f - H_v - H_s$$

Where:

P_b = Atmosphere pressure, unit: kg/cm²g or bar

In the closed system, P_b represents system pressure, unit: kg/cm²g or bar

NPSH = Net Positive Suction Head, unit: m (refer to NPSH curves)

H_f = Lose of Suction Pipe, unit: m

H_v = Vapour Pressure, unit: m

H_s = Safety Allowance=minimum 0.5 m head

If “H” is a positive value, the pump can be operated under the Maximum Suction Head. If “H” is a negative value, a Minimum Suction Pressure, positive “H” m head is required.

For example (transported liquid is fresh water)

$P_b = 1$ bar

Pump model: PL2, 50Hz

Flow: $Q = 2$ m³/h

NPSH (refer to the curve) = 1.5 m

$H_f = 3$ m

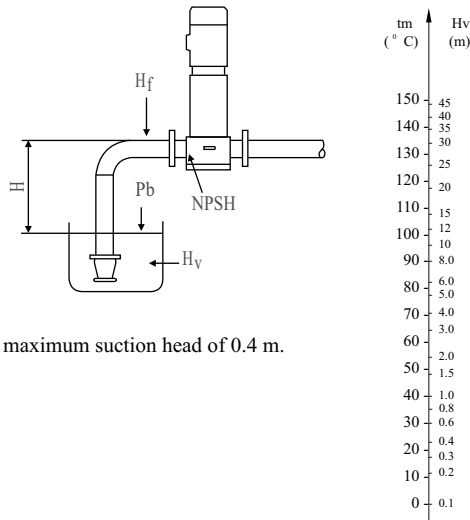
Liquid temperature: +80°C

$H_v = 4.8$ m (see Figure 7)

$$H = P_b \times 10.2 - NPSH - H_f - H_v - H_s$$

$$H = P_b \times 10.2 - 1.5 - 3 - 4.8 - 0.5 = 0.4 \text{ m}$$

This represents the pump can be operated at a maximum suction head of 0.4 m.



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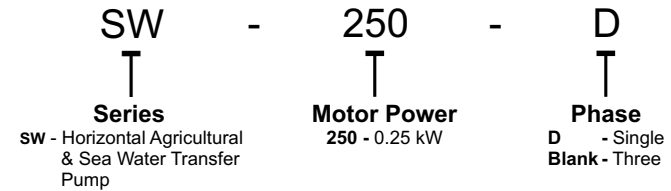
1.0 Features

The SW Horizontal Agriculture & Sea Water Transfer Pumps are manufactured in glassed filled polypropylene where casting, back cover, impeller are made from plastic, mechanical seal is used as the shaft seal, 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 large volume of water reservoirs supplying and emptying, agricultural usage for flowering plants farming, sea water transfer, aquarium, fish farming & industrial water transfer.

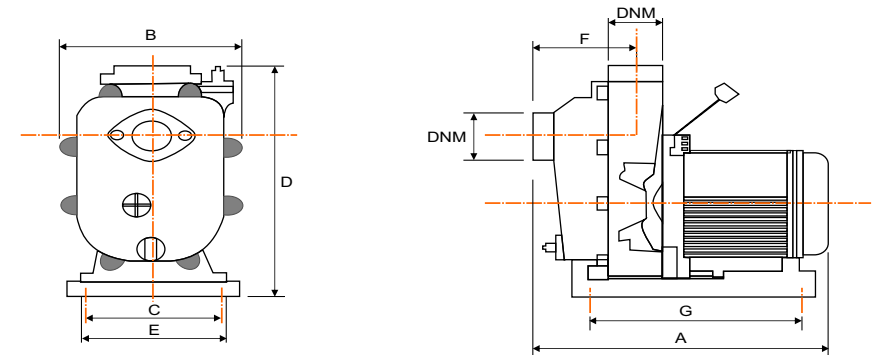
3.0 Model Ordering Code Instructions



4.0 Working Conditions

- 4.1 Ambient temperature +40°C max.
- 4.2 Maximum working temperature: -15°C ~ +40°C
- 4.3 Maximum working pressure: Upto 8 kg/cm²g
- 4.4 Maximum suction head: 8 metres

5.0 Outline Diagram & Dimensions



Model	Dimensions (mm)									Weight Kg.
	A	B	C	D	E	F	G	DNA	DNM	
SW 250	345	200	142	315	170	125	280	38 (1½")	38 (1½")	12

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6.0 Installing the Pump

- 6.1 Check the pump input voltage is identical to the one on the nameplate. Max voltage fluctuation $\pm 5\%$
- 6.2 Seat the pump on a level place, as close to the source of water as possible & away from children’s reach.
- 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 Maintenances 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.

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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

Type of fault	Cause	Remedy
Pump can not start up.	<ol style="list-style-type: none"> 1. No electric power. 2. Wrong electric connection. 3. Motor shaft blocked. 4. Stuck mechanical seal faces. 5. Damaged motor or bearing. 	<ul style="list-style-type: none"> – Check and correct wiring in the terminal box. – Clean it up. – Run the shaft by hand to split them. – Repair or replace motor or bearing.
Pump can not lift water or insufficient capacity.	<ol style="list-style-type: none"> 1. Voltage drops. 2. Motor runs at wrong. 3. Pump not filled with water. 4. Too great resistance of pipe work system. 5. Foot valve blocked. 6. Air-leak on suction pipes. 7. Too great suction height. 8. Too low water level. 	<ul style="list-style-type: none"> – Correct wiring in the terminal box. – Fill up pump body with water. – Check the rationality of pipe work. – Clean the foot valve. – Seal the leakage. – Place pump on a lower position. – Stretch pipe into water.
Insufficient head	<ol style="list-style-type: none"> 1. Vaporloss 2. Damaged impeller. 	<ul style="list-style-type: none"> – Lower water temperature – Replace impeller.
Over current (overload)	<ol style="list-style-type: none"> 1. Damaged ejector Blocked impeller to run. 2. Damaged bearing. 	<ul style="list-style-type: none"> – Replace ejector. – Replace bearing.
Vibration and noise	<ol style="list-style-type: none"> 1. Wrong connections of pipes. 2. Damaged bearing. 3. Motor fan blocked. 	<ul style="list-style-type: none"> – Correct the connections. – Replace bearing. – Clean it up.

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