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SAP NO. 2900001088

VC : 70071

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INSTALLATION & OPERATING INSTRUCTIONS



SINGLE SHAFT VERTICAL MULTISTAGE PUMPS

RO SERIES



EC DECLARATION OF CONFORMITY

IN ACCORDANCE WITH LV & EC MACHINERY DIRECTIVES UNDER SELF DECLARATION

Product Designation : Single Shaft Vertical Multistage Pressure Booster pump set
Model Reference : RO 2-13 (Max. - 3HP)
Intended End Use : used for Pressurization main pipes, high-rise building
pressurization

Pressurization, Pressure tank pressurization, sprinkling /trickling
Irrigation, cooling system & Industrial cleaning
It is used to transfer clean water & Non corrosive liquids with low
Viscosity

Conforming to the requirement of following European Directives:

- a) Low Voltage Directive : 2006/95/EC
- b) EC Machinery Directive : 2006/42/EC

Applicable Harmonized Standards:

EN ISO 12100-2010, EN 809: 1998+A1:2009, EN 60335-1, EN 60335-2-41

We hereby declare that Horizontal Pressure Booster Pump set is indented to be incorporated into or assembled with other machinery to constitute relevant machinery to comply with the essential Health and Safety requirement of the mentioned directives.

This machinery, its components and sub assemblies shall not be put into service until the machinery into which it is to be incorporated has been declared in conformity with the provision of the applicable directives.

The criteria for selection, safety requirement of other associated equipment and installation guideline are detailed in the instruction manual.

- Date of Manufacturer & First CE marking : 24.08.2016
- Place of Manufacturer : Shakti Pumps India Ltd. ,Pithampur

Issued at: SHAKTI PUMPS (I) LTD. , Pithampur

Marking:

The above pump set must not put into service /usage for other than specified in the instruction Manual Date: 24.08.2016

Sanjay Bhatnagar
(Deputy General Manager QA)



INSTALLATION AND OPERATING INSTRUCTIONS

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Before beginning installation procedures, these installation and operating instructions should be studied carefully. The installation and operation should also be in accordance with local regulations and accepted codes of good practice.

INSTALLATION AND OPERATING INSTRUCTIONS

1. GENERAL

The ro series pump are non self priming multi stage centrifugal pump with mechanical seal and shaft extended to the motor (single shaft)

2. APPLICATIONS

- 1) It is applicable to main pipe pressurization, high-rise buildings pressurization, pressure tank pressurization, sprinkling irrigation, trickling irrigation, cooling system and industrial cleaning . etc.
- 2) Transfer to clean water and other non-corrosive liquids with low viscosity; do not transport inflammable, explosive, gasified liquids and liquids containing solid particles or fibers.

2.1 TECHNICAL DATA

HEAD (H): MAX 149 m DISCHARGE : MAX 4.8M³/H
POWER RANGE : 0.37kW - 2.2kW TEMPERATURE : 0 ° C to +90 ° C

3. SHIPMENT INSPECTION

Examine the components carefully to make sure no damage has occurred to the pump during shipment care should be taken to ensure the pump is not dropped or mishandled.

4. MODEL DESCRIPTION

RO - 2 - CI - 08

└─── No of Stage
└─── Material Specification
└─── Model Name

IMPLEMENTATION STANDARDS

IEC/EN 60335-1 Household and similar electrical appliances–safety Part 1 : General requirements.
IEC/EN 60335-2-41 Household and similar electrical appliances–safety
Part 2 -41 : Particular requirements for pump. 2006/95/EC Low voltage directive

MATERIAL SPECIFICATION

CI : CAST IRON SS : SS AISI 304

5. INSTALLATION



This product should be installed and maintained by personnel who is proficient in this manual and has special qualifications. Installation and operation should be in accordance with local regulations and recognized operation standards. Install pipelines properly as stipulated in the manual and meanwhile conduct frost protection measures for the pipeline.



INSTALLATION AND OPERATING INSTRUCTIONS

1. For pump installation, the inlet pipe should be as short as possible with the least turnings. The pump should be installed in ventilated and dry environment. It could be installed outside, provided having proper covering to prevent rain and wind.
2. For pipeline use, valves should be installed on inlet and outlet pipelines and the inlet pipeline should be installed with check valve.

5.1 Installation precautions for inlet pipelines

- 1) While installing the electric pump, do not use too soft rubber tube for the inlet pipeline, avoiding to be sucked flat.
- 3) Joints of the inlet pipelines should be sealed with the least elbows, no water can be sucked.
- 4) Diameter of the inlet pipe should be at least in accordance with that of the water inlet, so as to avoid too much water loss which will influence outlet performance.
- 6) In case the inlet pipe is longer than 10m or its lifting height exceeds 4m, the pipe diameter should exceed diameter of water inlet of the pump.
- 7) Ensure the pumped will not be affected by pipeline pressures while installing the pipelines
- 8) Filter should be installed in inlet pipelines so as to avoid entry of solid particles in to the pump.

5.2 Installation Precautions of the outlet pipeline

Pipe diameter of the outlet pipeline should be at least in accordance with that of the water outlet, so as to reduce its voltage drop, high flow rate and noise to the minimum

6. ELECTRICAL CONNECTION



Unless the power is off, do not wiring the Junction box The electric pump should have reliable grounding to prevent current leakage with leakage protection switch being equipped

- 1) Electrical connection and protection should be conducted according to stipulations. Specification of working voltage is marked on the nameplate. please ensure the motor is in accordance with power supply
- 2) In case the working area of the electric pump is too far from the power supply, power transmission lines should be of a heavier gauge. Otherwise the electric pump cannot work normally because the voltage drop is too drastic.
- 3) A rubber extension cable shall be applied for the electric pump in case of outdoor use
- 4) Check whether operation of the electric pump is normal, rotation is correct. which could be observed from the fan blade terminal, e.g. clockwise rotation means correct direction. In case the rotation is incorrect, cut off power and exchange the two power cables.

INSTALLATION AND OPERATING INSTRUCTIONS

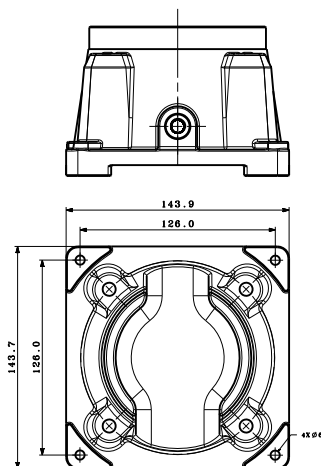
7. START-UP AND MAINTENANCE



- Do not start up the pump before the pump chamber is filled with water.
- Do not touch the electric pump unless its power has been cut off for at least 5 minutes.
- Do not dismount the pump body unless water in the pump chamber is emptied.

Rotate the fan blade before start-up, check whether the pump rotation is free and then unscrew the water-filling plug, fill the pump chamber with clean, water from the water injection ' hole, then tighten the plug screw after the air has been completely discharged. The valve should be shut tightly while starting up the pump. After the pump discharges of water and operates normally. adjust the valve to the required flow (working range is displayed on the nameplate).

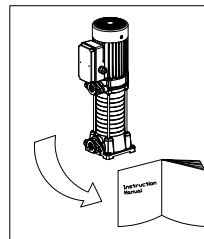
8. MOUNTING POSITION



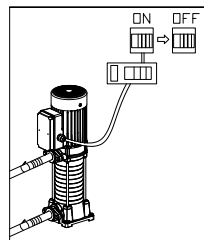
INSTALLATION AND OPERATING INSTRUCTIONS



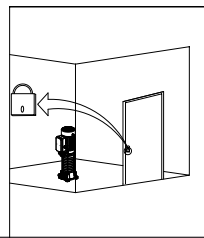
9. SAFETY PRECAUTIONS



1. To ensure normal and safety operation of the electric pump, read the manual carefully before use.

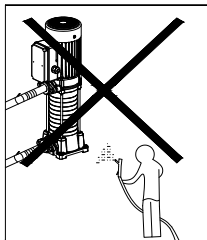


2. The electric pump should have reliable grounding to prevent short circuit; for safety, leakage protection switch should be equipped and be careful not to wet the power plug; socket should be connected in damp - proof area.

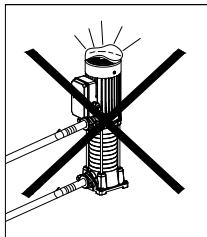


3. Do not touch the electric pump while working; do not wash, swim near working area or let livestock into the water to avoid accidents.

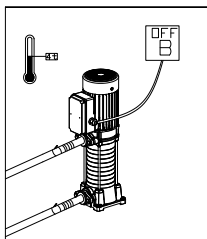
INSTALLATION AND OPERATING INSTRUCTIONS



4. Avoid splashing pressured water to the electric pump as well as prevent the pump immersed by water.

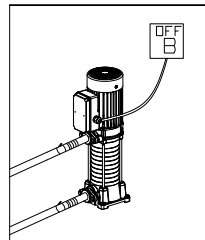


5. Keep the pump in well ventilated area.



6. In case ambient temperature is lower than 4°C, or the pump is not used for a long time, empty liquid the pipeline system to avoid ice cracking of the pump chamber. Do not operate the pump for a long time without water in it.

INSTALLATION AND OPERATING INSTRUCTIONS



7. The pumped liquid may be hot and under high pressure, before moving and demounting the pump, valves in both sides of the pump should be turned off first and then empty liquids in the pump and pipelines so as not to be scalded.

8. Do not transfer any inflammable, explosive or gasified liquids that beyond the stipulation.

9. Ensure the pump will not be accidentally turned on while installing and maintenance if not used for a long time, cut off the power first and then turn off valves in inlet and outlet of the pump.

10. Power supply should be in accordance with the voltage stated in the nameplate. If not used for a long time, put the pump in dry, ventilated and cool place under room temperature.

INSTALLATION AND OPERATING INSTRUCTIONS

10. ATTENTION

- 1). In case no water is discharged after being started for more than 5 minutes with water filled, turn off the electric pump, re-fill water or check whether the inlet pipeline has leakages.
- 2). In case of any frost and ice damages, please open the drain plug to empty water in the pump chamber. When start up the pump again, open the drain plug, fill water and tighten it and then the pump is usable.
- 3). In case not use for a long time, water in the pump should be emptied. The pump body, impeller and support should be cleaned and coated with anti corrosive oil before they are put in a ventilated and dry place for use
- 4). In case the pump is halted for a long time, start it up again according to above diagram
- 5). In summer or when the ambient temperature is high, pay attention to ventilation, avoid dew on electrical parts which will result in electrical faults.
- 6). In case the motor is hot or abnormal, cut off the power immediately and check faults according to the following table.

11. TROUBLESHOOTING



Check the pump after power cut-off.

Symptom	Cause	Corrective action
The motor can not be started	Single-phase power supply a. poor connection of the power switch b. fuse is burned out c. loose power lead d. phase failure of the cable	a. repair switch contact or replace the switch b. replace the safety fuse c. check and tighten the power connector d. repair or replace cables.
	Capacitor is burned out	Replace with a same type capacitor (send to the maintenance point for repair).
	The rotating shaft and bearing are jammed.	Replace the bearing (send to the maintenance point for repair).
	Impeller is jammed.	Turn rotating shaft of the fan blade terminal with screw driver to let it

INSTALLATION AND OPERATING INSTRUCTIONS

Symptom	Cause	Corrective action
The motor can not be started	Impeller is jammed.	rotate flexibly or demount the pump body to clear sundries.
	Stator winding is damaged.	Replace winding coils (send to the maintenance point for repair).
The motor is in operation, but no water is discharged	Incorrect direction of pump rotation.	Invert two-phase wiring of the motor (three-phase motor).
	The pump is not fully filled with water.	Re-fill the pump with water.
	The impeller is damaged.	Replace the impeller (send to the maintenance point for repair).
	Leakage of the suction pipe.	Check sealing of various joints of the inlet pipelines.
	Water level is too low.	Adjust installation height of the pump.
	Freeze caused by accumulated water in the pipeline or the chamber.	Start up the pump after ice is melted.
Insufficient pressure	Incorrect pump type.	Select suitable pump.
	The inlet pipeline is too long or with too many bends, pipe diameter is not selected as required.	Apply the pipe with the stipulated diameter and make the inlet pipe short.
	Inlet pipe line filter screen or pump chamber is blocked by foreign materials.	Clean Pipeline, Foot valve or Pump chamber, clear sundries
Motor works intermittently or the starter winding is burned out	The Impeller is jammed or under overload operation for a long time.	Clear sundries in the pump chamber operate the pump under the rated flow as much as possible.
	Incorrect grounding, broken cable or the electric pump is hit by lightning.	Seek for the reason and replace winding coils
Leakage of mechanical seal	The mechanical seal is worn and torn by impurities	Clear or replace the mechanical seal.
Abnormal noise from the pump	Noise from the bearing.	Replace with the same type bearing.
	Impeller is jammed	Remove foreign materials.

INSTALLATION AND OPERATING INSTRUCTIONS

WARRANTY CERTIFICATE

Dear Customer,
Congratulation, for purchasing our product.

Pump and Motor are warranted against defects in workmanship and material under normal use, service & specified duty conditions. We provide one time warranty service for twelve months from the date of purchase by the first user.

Shakti Pumps (I) Ltd warrants this product to be free from damage/ defects in material and workmanship under normal use and service for Twelve Months from the date of purchase by the first user. The user shall produce valid and original copy of invoice for availing warranty. The user shall carry defective pump set to nearest authorized service center

This warranty does not cover any loss or damage/ defect of any nature resulting from wrong product selection/ improper installation or installation by unauthorized/ untrained person/ sandy condition/ dry running and improper use of the pump sets.

The warranty also does not cover consequential losses/ damages arising due to failure of pump/ motor. No warranty will be provided on mechanical seal, rubber parts, fasteners, cables in pump, motor / pump sets.

Our obligation is limited to recycling or repairing or replacing product/ parts ex-factory. Equipment for repairs should be returned free of cost to us.

The foregoing is subject to the provision that the user does not open the unit and make any change or repair without prior approval of authorized service center during the warranty period.

This warranty excludes every condition whether statutory or otherwise, whatsoever not herein expressly set out.

Customer name:Customer's phone:.....

Customer Address:

Invoice number:Invoice date:.....

Model Name:Model Serial Number:.....

Dealer's Name:Dealer's phone:.....

Dealer's Address:.....

APPROVED BY:

DATE OF ISSUE

17-05-2016

INSTALLATION AND OPERATING INSTRUCTIONS

INSTALLATION REPORT

Customer's Name: - _____

Customer's Address: - _____

Customer's Ph. No.: _____

Dealer's Name: - _____

Dealer's Address: _____

Dealer's Ph. No. _____

Pump Model:- _____ S.L.No: _____

Project/Application: _____

Pressure In Kg:- _____ Flow in m³/hr: _____

Liquid:- _____ Temp.: _____

Voltage:- _____ Current: _____

Packing Condition:- _____

Remarks: _____

Date:- _____

Customer's Signature

BOOK-POST

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