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India : Toll Free No. 1800 103 5555 Other Countries : +91-7292 410500

SHAKTI PUMPS (I) LTD.

Sector - 3, Pithampur - 454774, Dist.- Dhar (M.P.) - INDIA
Fax: +91-7292 410645, E-mail: info@shaktipumps.com, sales@shaktipumps.com,
Visit us at : www.shaktipumps.com

SHAKTI
PUMPING LIFE

INSTALLATION & OPERATING INSTRUCTIONS

WASTER WATER PUMP
SSEG SERIES

SHAKTI
PUMPING LIFE

CONTENTS **PAGE NO.**

1. GUIDELINES

Please follow the instructions given in this manual before the installation & maintain your SSEG pump to get reliable operations.

When you order spare parts in future, please inform the nameplate details i.e. serial Number ,pump type and other data.

Name plate with date of mfg.

2. GENERAL DESCRIPTION

SSEG series are constructed with CI FG 260 for pump housing and stator housing. The unique clamp system made up of AISI SS 304 enable to quick and easy dismantling of pump and motor unit. With the help of unique clamp system, enable to rotate 180 degree of motor housing. The SSEG pump suitable for pumping domestic sewage and other liquid with PH value of 4 to 10in permanent installation. SSEG series used in sparsely populated area where gravity sewage system are not available.

Pos.	Description
1	Cable plug
2	Nameplate
3	Discharge flange DN 40/DN50
4	Discharge
5	Lifting bracket
6	Stator housing
7	Oil screw
8	SS Clamp
9	Pump housing

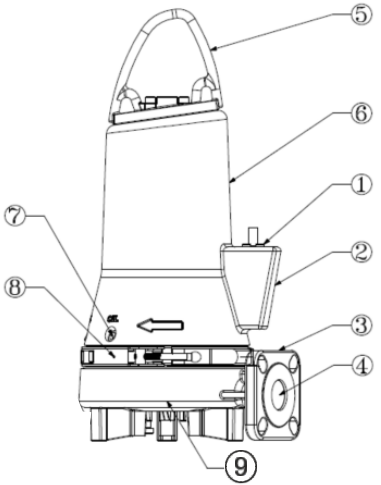

Fig. SSEG Pump

3. SAFETY

The SSEG pump must be only operated in observance of the following safety regulation.

- Operate the pump only under water.
- Check the electrical system and fusing before switching on.
- Protect electrical system and fusing before switching on
- maximum water temperature +40°c, higher temperature for short period (1hr), up to 60°c is permissible.

With generator operation always unload the generator first, i. e.
Start : first the generator, then the pump
Switch-off : first the motor, then the generator

After powering the system check :
Operating current of the motor at each phase
Main voltage with the pump running
Level of the medium to be pumped

Switch off the motor immediately if :
Name plate current is exceeded
Voltage tolerances of more than +6%/-10%
Compared to the rated voltage on the motor are measured

4. APPLICATION

SSEG pumps are designed with a grinder system which grinds solid into small pieces so that they can be led away through pipe relatively small in size, which is applicable for sparsely populated area where gravity sewage system are not available.
Applicable for Drain the waste water from restaurants, hotels, camping sites, etc.

5. DELIVERY & STORAGE

The pump can be transported and stored in vertical or in horizontal position except than roll or fall over. always used the lifting bracket to lift the pump never lifted by motor cable or pipe/hose. the pump must be protected from moisture and heat if it stored for longer periods. before the use after longer period storage make sure that impeller should rotate freely.

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6. INSTALLATION

6.1 FREE-STANDING SUBMERGED INSTALLATION

In free standing submerged installation, fit a flexible union or coupling to the discharge line for easy separation.

If a hose is used. It is insure that during operation hose does not buckle and the inside diameter of hose and discharge port should be matched.

If a rigid pipe is used. Pipe should be connected with appropriate union or coupling, non-return valve and isolating valve. If the pump is installed in muddy areas or uneven spaced support the pump on bricks or similar foundation.

6.2 GUIDELINES FOR PUMP INSTALLATION :

1. Fit a 90° elbow to the discharge port and connect the discharge pipe/hose on the elbow.
2. Submerged the pump into liquid with the help of chain connected to the lifting bracket by mean of hook.
3. Lift the pump with the help of chain by mean of suitable hook in such a way chain not in contact with pump housing.
4. The length of the cable should be maintain by coiling to ensure that cable is not damaged during operation. Make sure that the cable are not sharply bend or pinched.
5. Connect the Motor cable and the monitoring cable, if any.
6. Before starting work on the pump, make sure that electricity supply has been switched off and that it can not be accidentally switched on.
7. Provide earth leakage circuit breaker in the panel board to avoid electric shock in case of earth leakage. Provide proper earth to the pump.
8. Ensure to connect with appropriate power supply.
9. Ensure correct direction of rotation. Before installation, if found wrong inter change any two wire from incoming supply.
10. To ensure the correct direction firstly measure the flow or discharge pressure then interchange the any two incoming supply wire, further measure the flow or discharge pressure now compare the both result . The result which is gives the higher discharge or pressure is the correct direction of rotation.
11. Check the condition of the oil in the oil chamber.
12. Don't keep the power supply terminals exposed to sun and rain.
13. For pump supplied with a level switch, the difference in level between start & stop can be set by adjusting the free cable between the level switch and the pump handle. The longer the lengths of free cable the larger the difference in level between start & stop.
14. Ensure free movement of float cable inside the sump.
15. Don't be in the water when pump is running.
16. If cable found cut, damaged & punctured, don't run the pump. Replace the cable.
17. Don't lift the pump by using cable . Use hook or rope to lift the pump via lifting bracket.
18. Position the pump, the suction strainer should not be blocked or partly blocked by sludge mud or similar material. If blocked means grinder system is worn , replace the grinder head.
19. Don't service the pump when the power supply is on.
20. Don't touch the pump when it is hot. Properly clean and store the pump after every usage

6.3 TECHNICAL SPECIFICATION:

DESCRIPTION	VALUE
Model	1Ø - 0.9-1.2 kw
	3Ø - 0.9-3.1 kw
Voltage Range	1Ø - 230v
	3Ø - 230-400v
Voltage Tolerance	+6/-10% of rated voltage
Speed	Appx. 2900 RPM, 50 Hz
Start Alternative	Direct Starting
Switching Frequency	Max 20 switching action per hour with a minimum off time of 90S
Protection	IP68
Insulation Class	F
Liquid Temperature	0°c to + 40°c, for short period up to +60°c
Immersion Depth	Max 10m
Sound Pressure Level	<=70 dB (A)
Float Switch	Only for single phase version
Capacitor	
PH value	4 to 10

7. ELECTRIC CONNECTION

The electric connection should be according to local regulations.

- The motor starter should be set to the current consumption of the pump which are mention on the nameplate.
- Control boxes and pump controller are not installed near the potentially explosive environment.
- The supply voltage and frequency mark on the pump nameplate. The voltage tolerance should be within +6% to -10% of the rated voltage.
- All pumps are supplied with 10 m of cable.
- All pumps are supplied without control box.

Wiring diagram for single and three phase :-

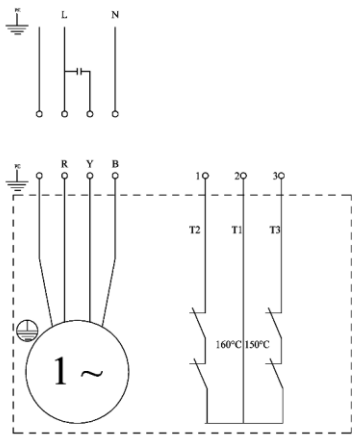

Fig. Wiring diagram for single-phase pumps

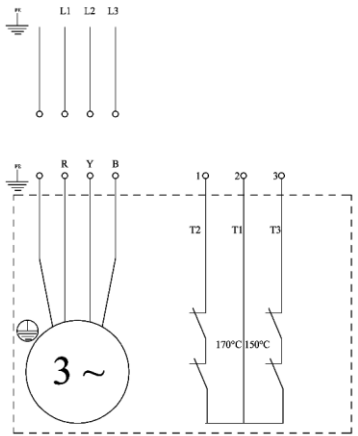

Fig. Wiring diagram for three-phase pumps

8. MAINTENANCE AND SERVICE

- Before starting work on the pump, all rotating part must be stopped moving and no any power supply to the pump.
- Before carrying out maintenance and service pump must be flushed with clean water.
- The pressure may have built up inside the oil chamber so do not remove the oil screw until the pressure has been fully relieved.

8.1 INSPECTION INTERVALS

Check the pump at list once in year or after 3000 hr under normal condition. Check the pump in shorter period if it work in the very muddy or sandy area.

- Power consumption : see pump nameplate.
- Oil level and oil condition : After change the shaft seal check the level of the oil after one week operation. The oil become grayish white like milk when it contain water. It show the defective shaft seal.

Pump type	Quantity of oil in oil chamber (l)
SSEG up to 1.5 kW	0.17
SSEG 2.2 to 4.0 kW	0.42

- Cable entry : cable entry should be watertight and not sharply bend or pinched.
- Pump part : check and replace the defective part such as impeller, grinder head, grinder ring etc.
- Ball bearing : replace the defective ball bearing if shaft rotation is noisy or heavy (rotate the shaft by hand).
- Grinder : In case of frequently choke -ups, check the grinder system. system/parts

8.2 REPLACING THE GRINDER SYSTEM:

If the edges of the grinder system are round or worn replace the grinder head . Before start to replace the grinder it is ensure that fuses has been removed or main switch should be off and electric supply should not be accidentally switch on. All rotating part must have stopped moving.

Procedure for removing the grinder system:

- Loose the Allen bolt which are mounted at the bottom of the pump housing.
- Rotate the grinder ring by knocking in the clockwise direction.
- Remove the grinder ring.
- Remove the screw from the shaft end.
- Remove the grinder head.

Adjustment of impeller clearance:

- Gently tighten the nut by spanner size 24 until the impeller cannot rotate .
- Slacken the nut by ¼ turn.

Fitting the grinder systems:

- when fitting the grinder head the projection of the grinder head must engage with the hole of the impeller.
- Tighten the Allen bolt to connect the grinder head and shaft by applied torque up to 20 N-m
- engage the bayonet socket for grinder ring.
- Knock the bayonet socket counter clock to fastened the grinder ring.
- Tighten the Allen bolt at the bottom of the pump housing.
- Rotate the grinder head, it must be free to rotate and properly fitted.

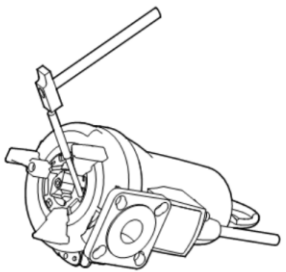

Fig. Removal of grinder ring

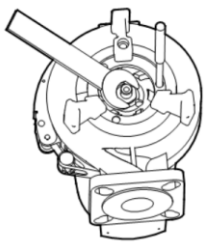

Fig. Adjustment of impeller clearance

8.3 CLEANING THE PUMP HOUSING:

" Loose and remove the SS clamp and separate the pump housing and motor body.
" Clean the pump housing and impeller by clean water.
" To assemble the pump housing and motor body place the motor part with impeller and grinder head in the pump housing. Fit and tighten the SS clamp.

8.4 CHECKING/REPLACING THE SHAFT SEAL

To make sure that shaft seal is intact, the oil should be checked. If the oil become greyish white like milk or contains a large quantity of water, the primary part of the shaft seal is worm so shaft seal should be replaced. If shaft seal is further used then the motor will be damaged.

To change the shaft seal, proceed as follows:

" Remove the grinder ring.
" Remove the grinder head.
" Loose and remove the SS clamp and disengage the pump housing and motor body.
" Lift the motor body and remove the impeller.
" Drain the oil chamber.
During the opening the screw of the oil chamber, pressure may have built up into the oil chamber . So do not remove the screw until the pressure has been fully relieved.
" Remove the retainer shaft seal.
" Lift the shaft seal out of the oil chamber according to lever principle using the two dismounting holes in the shaft seal carrier and two screw drivers.
" Check the condition of the shaft where the secondary seal of the shaft seal touches the shaft. The bush fitted to the shaft must be intact. If it is worn then must be replace.

If shaft is intact, proceed as follows:

" clean/check the oil chamber.
" Lubricated with oil the face of the shaft which are contact with shaft seal.
" Insert new shaft seal using the plastic bush .
" Tighten the screw securing the shaft seal up to 16 N-m.
" Fit the impeller. It is ensure that the key is fitted properly.
" Fit the pump housing and motor body by SS clamp.
" Fill the oil chamber with oil.

8.5 OIL CHANGE

After operating 3000 hours or once a year or change the mechanical seal.

" Draining of oil
During the opening the screw of the oil chamber, pressure may have built up into the oil chamber . So do not remove the screw until the pressure has been fully relieved.
" Loose and remove the both oil screw and drain out the oil from the oil chamber.
" Place the pump on plan, horizontal surface.
" Fill the oil into the oil chamber through upper hole up to the oil drain out from second hole. For quantity of oil see table in 8.1
" fit both the oil screws using the packing material.

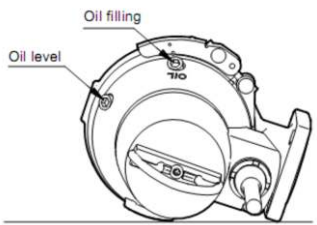

Fig. Oil filling holes

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8.6 SERVICE KIT

Service kit	Contents	Order number
Shaft Seal kit	• Shaft Seal Complete	1000005799
O -Ring kit	• O -ring 144.3x5.7 • O -ring 90x4.0 • O -ring 204x3.0 • Gaskets for oil screws	1000005795 1000005800 1000005796 1000005810
Grinder System	• Grinder head • Grinder ring	3000022155 3000022154
Impeller *	• Impeller • Adjusting nut • Shaft screw • Key	3000022157 3000022161 1000002536 1000005793
Oil	• 1 litre of oil, type shell onida 917	1000001980

9. FAULT FINDING CHART

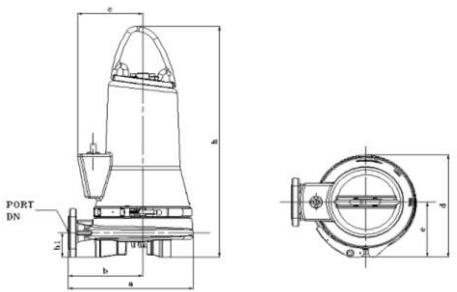
Fault	Cause	Remedy
• Motor does not start • Fuses blow • Starter trips out immediately.	• Supply failure ; short circuit ; earth–leakage fault in cable or motor winding. • Fuses blow due to wrong type fuse usage. • Impeller blocked by impurities. • Level pickup due to float switch or electrode out of adjustment or defective	• Check the cable and motor and repaired by qualified electrician • install fuses of the correct type. • Clean the impeller • check level, float switch or electrode
• Pump operate at below standard power consumption and performance	• Wrong direction of rotation • Impeller blocked due to impurities	• Check direction of rotation by interchange any two incoming power supply wire • clean the impeller
• Pump operates without flow of liquid.	• Air in pump • Discharge valve is closed or blocked • Non return valve blocked	• Vent the pump • check discharge valve and clean it • clean non – return valve
• Pump is chocked	• Grinder system is worn	• Compare the edges of grinder head and replace the grinder system

10. DISPOSAL

Disposal of this product or part of it must be use the local public or private waste collection service.

11.FREE STANDING INSTALLATION

OUTLINE DIAGRAM



MODEL		DIMENSIONS (mm)							PORT		W.T. (kg)
Single Phase	Three Phase	h	h1	a	b	c	d	e	mm	1Ø	3Ø
SSEG.40.09.02	SSEG.40.09.0B	456	72	255	154	123	216	99	40	38	38
SSEG.40.12.02	SSEG.40.12.0B	456	72	255	154	123	216	99	40	38	38
	SSEG.40.15.0B	456	72	255	154	123	216	99	40		38
	SSEG.40.26.0B	527	60	292	173	143	256	119	40		57
	SSEG40.31.0B	567	60	292	173	144	256	119	40		65
	SSEG.40.40.0B	567	60	292	173	144	256	119	40		65

INSTALLATION AND OPERATING INSTRUCTIONS

SHAKTI PUMPING LIFE

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 m^3/hr: _____

Liquid:- _____ Temp.: _____

Voltage:- _____ Current: _____

Packing Condition:- _____

Remarks: _____

_____

_____

Date:- _____

Customer's Signature

BOOK-POST

Stamp

To,
Shakti Pumps (I) Ltd.
Regd. Office & Works : Plot No. 401, Sector - 3,
Pithampur - 454774, Dist.- Dhar (M.P.) - INDIA
Tel: +91-7292 410500, Fax: +91-7292 410645,
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