



ST.BS.BC-Series

Submersible Deep Well Pump

INSTRUCTION MANUAL



ISO 9001 Certified

Asia Automatic PUMP CO., LTD

www.evergushpump.com.tw

*****Warning*****

This product must not be operated dry. If testing, please immerse this product entirely in water.

Foreword

The Submersible Pump Assembly consists of two major parts: the pump and the motor. The pump is of a multistage centrifugal assembly, and the motor is a submersible stainless steel motor. This product has a wide range of applications, especially suitable for water supplies or fire safety in buildings, pumping of wells, agricultural irrigation or industrial supply.

To ensure that operation is within normal parameters and thus extend product lifespan, please read the manual carefully before installation and use.

We (EVERGUSH PUMP) are not responsible for any damage or failure arising from negligence to consult the manual and follow its instructions.

Pre-Installation

Please verify that all parts are present and correctly assembled. A complete submersible pump assembly should include the multistage pump, the motor and power supply cables. If any component is missing please contact your vendor immediately.

1. Verification of the Motor

Please verify that the Motor type, output power, voltage, phase and frequency all fit the requirements of the installation site; examine the power supply cord for possible damage and the entire assembly for looseness. Verify via an ohmmeter the resistance of each wire against the motor base: the measured resistance should be 20tera-ohms or more.

2. Verification of the Pump

Verify that the Pump is of the same level and rating as the Motor, and that the pump is tightly secured with the motor. Also verify with a spanner at the pump exit end that the main pump shaft could rotate freely.

3. Power supply and its controls

Verify the voltage, frequency, phase and capacitance (in kVA, kilo-volt-amps) of the power supply satisfies the needs of the motor. The wiring of the power supply, circuit-breakers and groundings should conform to local laws and regulations; also verify that such wirings conform to the needs of the motor.

4. Types of fluids handled

This submersible pump should be used with only fresh water, and should not be used with fluids under high temperature, contains excessive impurities or silts, oily fluids, or are acidic or basic in chemical property.

Notes while Installing

1. Location of the Pump Assembly

This submersible pump assembly can be installed in water pools or wells. It can be installed at any orientation vertical, horizontal, or at an angle (motor at the bottom). However, pumps that are restarted frequently should avoid being installed at an angle or horizontally, in order to avoid excessive wear on the motor bearings and thus extend lifespan. The assembly should be installed at an appropriate depth, some distance away from the bottom to avoid sucking in silt deposits. While operating, the water level and flow must satisfy the operating requirements of the assembly, insufficient flow being supplied to the assembly could cause burn-out due to excessively high running temperature. Installing safeguards to monitor water levels and flow could avoid running the assembly without sufficient water..

2. Special Notes for Operation in Wells

Please avoid installing this pump assembly in new and unclean wells as a temporary pump; new wells may frequently contain a large amount of sand and stone in its water supply, and will cause serious damage to pump mechanisms. If used in wells that contain a large amount of sand and silt, avoid shutting down the assembly to prevent silt build-up in the assembly plumbing thus adversely affecting the operations of the pump assembly.

3. Pipes and Check Valves

Verify that all pipes are attached as tightly as possible, to prevent shaking loose from normal operations. Although the pump system will operate normally without check valves, if used in a high head environment it is recommended to install check valves at suitable points in the exit plumbing, to prevent damage in the pump, motor or plumbing.

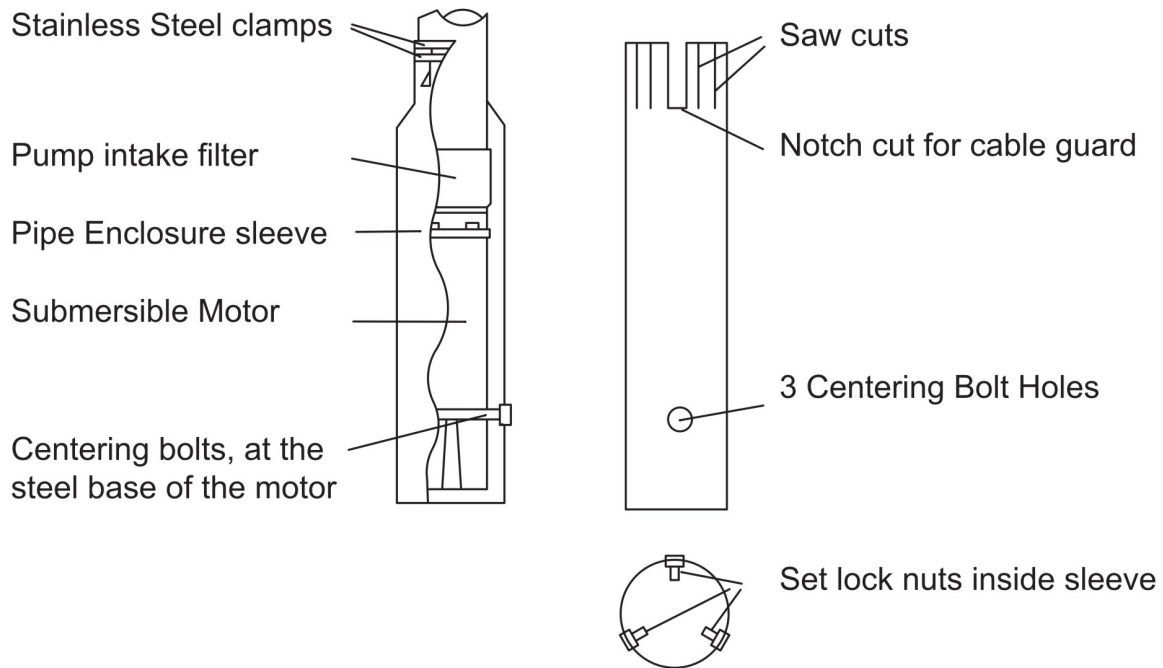
4. Cooling of the Submersible Pump

The pump requires sufficient cooling water flowing in the assembly. The flow requirement can be found on the motor housing labels. If the water supply is not assured, or if the water temperature exceeds 30°C, please provide forced cooling via coolant pipes to extend system lifespan.

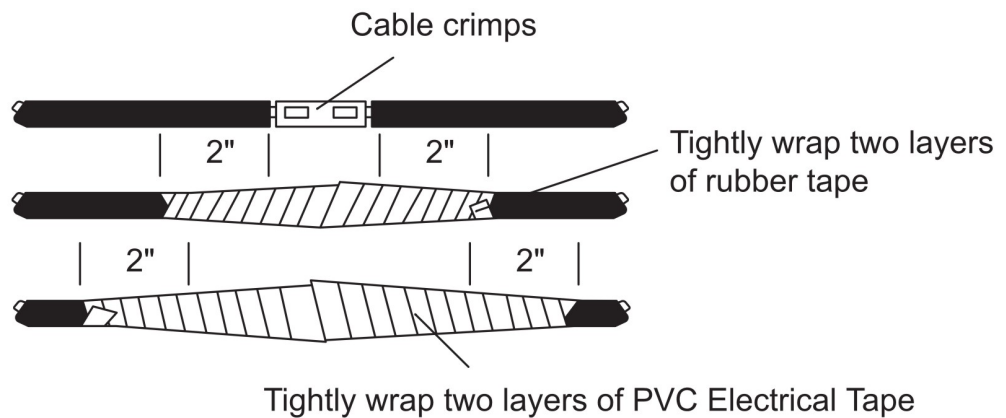
5. Selection of Extension Cord or Drop Cable

If the provided power cord is of insufficient length and requires extension through additional drop cables, the ends should be securely joined with bootlace cable crimps and protected with water-proof rubber insulation and PVC electrical tape. Cables should be suitable for use under water, and of a diameter sufficient for the electrical current without overheating in air or water. Please refer to the chart below to select a suitable cable. First measure the length of cable needed from the power supply to the motor assembly (in feet), then according to the voltage and the power output of the motor, find the row that corresponds to the motor's rated voltage and power, but has a length that is larger than your measured cable length, and go to the head of the column to find the corresponding cable properties. If none is exactly suitable, select the cable that is rated higher.

Forced Cooling by Flow Induction



How to make a watertight wire connection



Motor Rating		American Wire Gage, A WG Cable Size(mm ²)										
Volts	HP	#14 (2.08)	#12 (3.30)	#10 (5.26)	#8 (8.37)	#6 (13.3)	#4 (21.2)	#3 (26.7)	#2 (33.6)	#1 (42.2)	#0 (53.5)	#00 (67.4)
1∅110V	0.5	100	160	250	390	620	960	1190	1460	1780	2160	2630
	0.5	400	650	1020	1610	2510	3880	4810	5880	7170	8720	
	1	250	400	630	990	1540	2380	2960	3610	4410	5360	6520
	2	150	250	390	620	970	1530	1910	2360	2930	3620	4480
3∅220V	3	120	190	300	470	750	1190	1490	1850	2320	2890	3610
	0.5	930	1490	2350	3700	5760	8910					
	1	560	910	1430	2260	3520	5460	6780	8290			
	2	320	510	810	1280	2010	3130	3890	4770	5860	7170	8780
	3	240	390	620	990	1540	2400	2980	3660	4480	5470	6690
3∅380V	5	140	230	370	590	920	1430	1790	2190	2690	3290	4030
	0.5	2690	4290	6730								
	1	1620	2580	4060	6390	9980						
	2	870	1390	2180	3450	5400	8380					
	3	680	1090	1710	2690	4200	6500	8020	9830			
	5	400	640	1010	1590	2490	3870	4780	5870	7230	8830	

Notes on Electrical Installation of the Submersible Pump System

To maintain proper operation and prevent burn-out, all pumps should be installed with a fused disconnect or circuit breaker. The pump must also be properly grounded to prevent electrical shock hazards.

Three-Phase-Three-Wire Motors: To maintain proper operation, please install phase-reversal relays and three-phase solenoid relays. Any costs associated with damage due to a failure to install certified protection relays shall be borne by the user alone. When installing the three-phase motor, please ensure that the motor rotation direction is consistent with its marking; if testing is required, remember to fully immerse the pump in water before testing.

Notes on Operation

1. Start the pump; visually examine the water output condition. If the output is insufficient or nil, please ensure that the water supply, all plumbing and all wiring are correct. In the case of three-phase motors, such a problem may be caused by the motor turning in the wrong direction; simply switch any two motor power cables to reverse the motor direction, and test again.

2. Examine the motor operating current, and ensure that its amperage does not exceed the maximum current according to the label on the motor itself. For three-phase motors, the electrical balance should be within 5% of the average value; Imbalance exceeding 5% will result in the motor overheating or overloading, significantly decreasing system lifespan or even cause burn-out. Usually, an imbalance in three-phase power supplies is caused by the power source. If the motor phase remains abnormal after switching the connection order of the power cables to the source, examine the power cabling for damage. If the imbalance cannot be resolved, please contact your vendor, or EVERGUSH Pump.

Problem-Solving

Note! Once a problem is solved, please remember to reset the solenoid relay, to restart pump operations.

1. Fuse burnout or protective relays tripping on motor startup

Cause	Solution
A. Abnormal input voltage. The input voltage must be within 10% of the motor's rated voltage.	If problem occurred at power supply end, improve power supply . Else select a power cable with a higher rate to avoid excessive voltage drop across the cable.
B. Fuse or overload protectors are of incorrect specification.	Select correct fuses and/or protectors.
C. Damage or short in the power supply cable.	Examine cable joints or replace cables.
D. Motor burnout.	Replace motor
E. Pump main shaft jamming, causing abnormalities in the electrical current.	Examine the pump for excessive dirt buildup; clean the pump.

2. Fuse burnout or solenoid relay tripping during motor operation

Cause	Solution
A. Abnormal voltage input.	Improve power supply.
B. Solenoid relay damaged.	Replace solenoid relay.
C. Damage or short in the power supply cable.	Examine cable joints or replace cables.
D. Fuse burnout.	Examine pump and motor for abnormalities.

Cause	Solution
E. Insufficient flow causing motor overheat.	Improve operating environment; use forced cooling.
F. Pump main shaft jamming.	Examine the pump for excessive dirt buildup; clean the pump.

3. Motor operates normally but water output is abnormal

Cause	Solution
A. Check valve incorrectly installed or jammed.	Examine the check valves and correct the problem.
B. Insufficient water at source, or water level lower than entry point.	Install water level control switches.
C. Leakage in pump output plumbing.	Examine and/or replace plumbing and joints.
D. Pump input filter clogged.	Clean the pump input filter.
E. Wear and tear on pump mechanisms.	Examine output water pressure, replace worn parts.

Limited Warranty

Products manufactured by “Asia Automatic Pump Co.,Ltd” are warranted to the first user only to be free of defects in material and workmanship for a period of 12 months from date of installation, but no more than 24 months from date of shipment. EVERGUSH’s liability under this warranty shall be limited to repairing or replacing at our election, without charge, FOB EVERGUSH distribution center or authorized service agent. EVERGUSH will not be liable for any cost of removal, installation, transportation or any other charges that may arise in connection with warranty claim.

The warranty period commences on the date of original purchase of the equipment. Proof of purchase and installation date, failure date, and supporting installation data must be provided when claiming repairs under warranty .

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 .

EVERGUSH will not be liable for any incidental or consequential damages, losses, or expenses, arising from installation, use, or any other causes. There are no express or implied warranties, including merchantability or fitness for a particular purpose, which extend beyond those warranties described or referred to above.

Certain states do not permit the exclusion or limitation of incidental or consequential damages or the placing of limitations on the duration of an implied warranty , therefore, the limitations or exclusions herein may not apply . This warranty sets forth specific legal rights and obligations, however , additional rights may exist, which may vary from state to state.



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