Three Phase Openwell Submersible Monoblocks

Instruction & Operating Manual

Taro™ Pumps

Texmo Industries
Est. 1956

OMOW001A

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Table of Contents

1. Introduction

Thank you for choosing a quality product manufactured by Texmo Industries. We request you to read this manual carefully to ensure that the system you have purchased will be operated correctly.

This manual is intended to provide you with information on your product and information on installation and operation. You will also find information on how you could contact Texmo Industries, should you need further information or help and support.

2. Warranty information

Please refer to your warranty card or visit **www.taropumps.com** for more information on your warranty.

3. Complying with standards

IS 3043: Code of Practice for earthing: specifications
IS 9283: Motors for Submersible Pumpsets: specifications
IS13730: Specifications for particular types of winding wires
IS 14220: Open well Submersible Pumpsets: specifications

4. Contents of the packing box

Based on model you have purchased, your Openwell Submersible Monoblock is packed along with instruction manual and warranty card in either a corrugated box or in a wooden crate.

5. Information about your pump

The discharge of a pump depends on the static suction lift. During summer, the static suction lift increases due to drop in water levels, and this result in reduced discharge. This will require frequent lowering of the pump to reduce the static suction lift. During monsoons, water levels can significantly rise. Under such conditions, there is a possibility that the pump can get submerged, resulting in the motor getting damaged. Such issues are overcome by the use of an Openwell Submersible pump as it operates submerged in water.

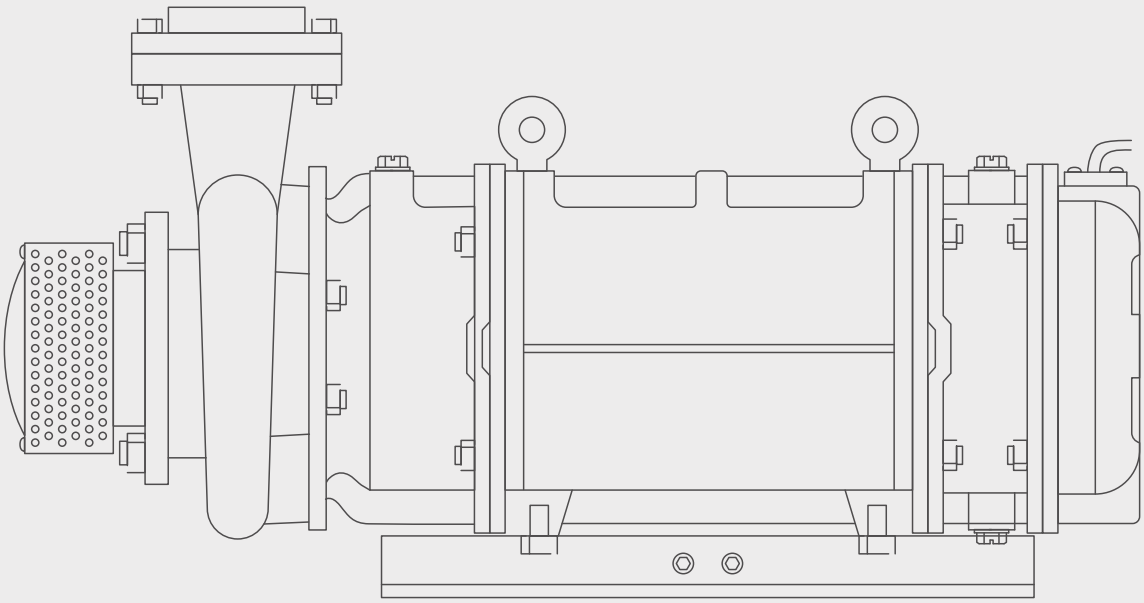
Texmo Openwell Submersibles are manufactured using high quality raw materials and components using state-of-the-art manufacturing facilities and will give trouble free performance if properly installed and maintained. The Openwell Submersible is a compact pumping system with the pump and motor mounted on a common shaft. As a coupling is not required, alignment of the pump and motor is assured. Installation is therefore quick and easy. Openwell Submersible do not require frequent maintenance as the packing rope and grease lubricated deep groove ball bearings are replaced by oil seals and water lubricated journal bearings respectively. Openwell Submersible find application irrigation of farms, domestic water supply, cooling water circulating systems, fountains, dairies, water supply to high rise buildings, housing complexes, bungalows, cattle and poultry farms.

Prior to installation, read this manual carefully and follow the instructions for installation and maintenance of our Openwell Submersibles so as to ensure reliable operation. The Openwell Submersibles should be installed by technically qualified personnel in compliance with national and local electrical codes and as per our instructions in order to avoid electrical shocks, unsatisfactory performance and equipment failure.

6. Schematic drawing

View of a Openwell Submersible pump set is shown below in Fig. 1:

Fig. 1 View of Openwell Submersible pump Set



7. Key specifications & features

Standard specification of Openwell Submersible is shown below in TABLE 1:

Power	3.0 - 15 HP
Phase	3
Motor Type	Squirrel cage induction motor – wet type
Starting method	3.0 – 7.5 HP: DOL
	5.0 – 15.0 HP: SD
Operating Voltage	TSM Z / TSM Series: 350 – 440V
	TSM ZR / TSM ZRC Series: 220 – 400V
Frequency	50 Hz
Speed	2850 rpm
Duty	S1 Continuous
Max. Fluid Temperature	33^0C
Impeller Type	Radial
Copper rotor for improved performance	TSM, TSM Z and TSM ZRC Series

Key features

- Wide voltage band operation
- The stator winding is water cooled and is made from poly-wrapped copper wire
- The motor houses water lubricated journal bearings to take up the radial loads

- A water lubricated thrust bearing is provided to take up the thrust load generated by the rotating impeller
- A water lubricated counter thrust bearing is provided to limit the movement of the shaft when the Openwell Submersible is switched OFF
- The rotors are dynamically balanced
- Adequate motor surface area is provided for effective cooling
- The water filled motor is provided with single lip oil seals to prevent the pumped medium from entering the motor
- To prevent sand / small stones from entering the seal chamber, a sand guard is provided
- The impeller is dynamically balanced
- Strainer assembly, fitted on the pump suction flange, prevents the entrance of large size debris into the pump

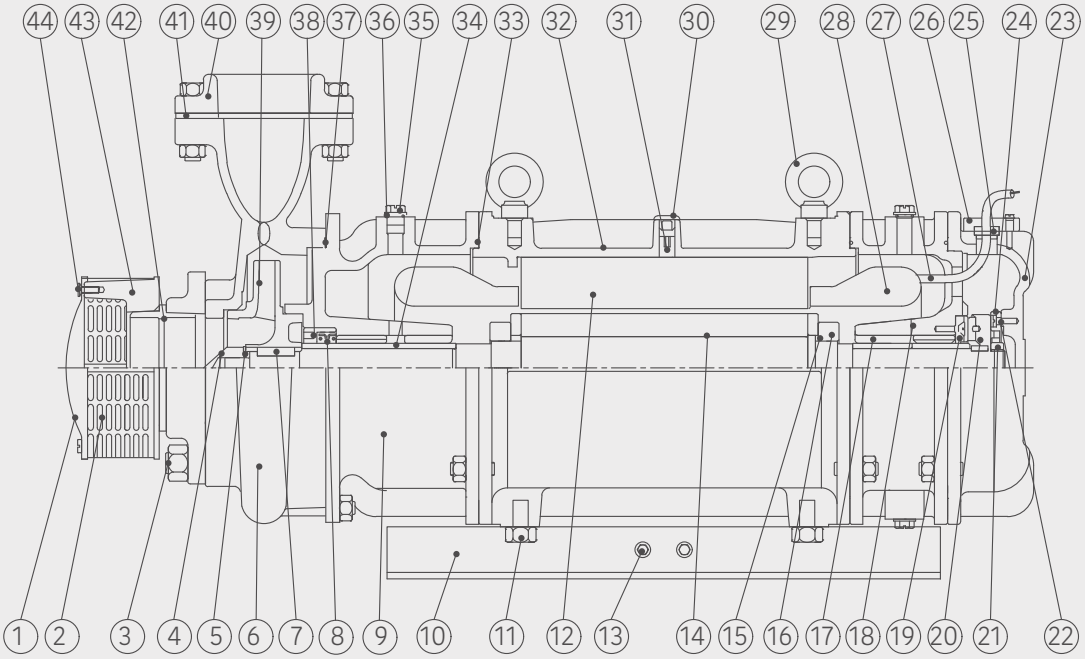
Electrical Connection

- Openwell submersibles to be connected to a DOL starter are provided with a single 3 core PVC flat cable
- Openwell submersibles to be connected to a Star-Delta starter are provided with two separate 3 core PVC flat cables

8. Cross-section view

Cross-section view of TSM / TSM Z Series Openwell Submersible Monoblock is shown below in Fig. 2:

Fig. 2 Cross-section view of open well submersible monoblock TSM / TSM Z



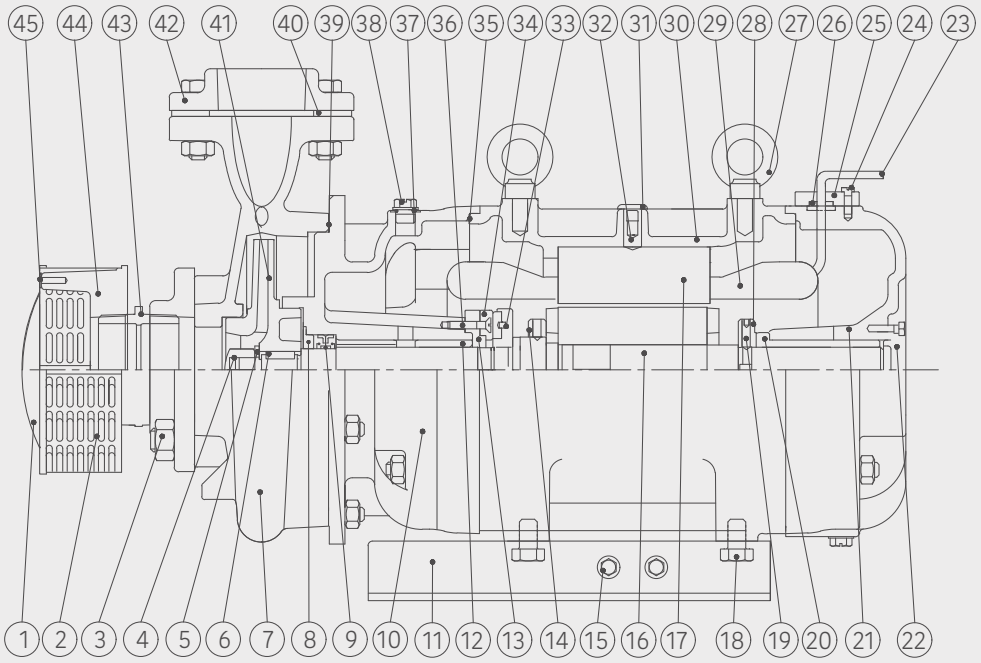
No.	PART NAME
1	Strainer Cap
2	Strainer
3	Stud & Nut
4	Impeller Lock Nut
5	Washer
6	Casing
7	Parallel Key
8	Oil Seal
9	Front Cover
10	Base Plate
11	Hex. Head Bolt
12	Stator Stack
13	Hex. Head Bolt & Washer
14	Rotor With Shaft
15	Rotor Balancing Collar

No.	PART NAME
16	Hex. Socket Set Screw
17	Bush
18	Rear Cover
19	Thrust Pad
20	Thrust Collar
21	Lock Nut
22	C.H Screw
23	End Cover
24	Counter Thrust Ring
25	Cable Gland Bush
26	Cable Gland
27	PVC Insulated Cable
28	Coil
29	Eye Bolt
30	Cap

No.	PART NAME
31	Hex. Socket Set Screw
32	Motor Body
33	O-Ring
34	Sleeve
35	Drain Plug
36	O-Ring
37	Gasket-Circular
38	Seal Housing
39	Impeller
40	Flange Square
41	Gasket-Square
42	Nipple
43	Strainer Bracket
44	CSK Screw

Cross-section view of TSM ZR / TSM ZRC Series Openwell Submersible Monoblock is shown below in Fig. 3:

Fig. 3 Cross-section view of openwell submersible monoblock TSM ZR / ZRC



No.	PART NAME
1	Strainer Cap
2	Strainer
3	Stud & Nut
4	Hex. Dome Nut
5	Washer
6	Parallel Key
7	Casing
8	Sand Guard
9	Oil Seal
10	Front Cover
11	Base Plate
12	Bush
13	Thrust Pad Holder
14	Rotor Balancing Collar
15	Hex. Head Bolt & Washer
16	Rotor With Shaft

No.	PART NAME
17	Stator Stack
18	Hex. Head Bolt
19	Hex. Socket Set Screw
20	Thrust Bush
21	Rear Cover
22	Rear Cap
23	PVC Insulated Cable
24	C.H Screw
25	Cable Gland
26	Cable Gland Bush
27	Eye Bolt
28	CT & BG Collar
29	Coil
30	Motor Body
31	Cap
32	Hex. Socket Set Screw

No.	PART NAME
33	Thrust Collar
34	Thrust Pad
35	Gasket - Circular
36	Csk Head Hex.socket Screw
37	O-Ring
38	Drain Plug
39	Gasket - Circular
40	Gasket-Square
41	Impeller
42	Flange Square
43	Nipple
44	Strainer Bracket
45	CSK Screw

9. Pre-installation requirements

Arrangement for Installation

- Use the services of a professional and trained mechanic with experience in erecting Openwell Submersibles
- Ensure proper safety during installation
- Ensure that the bottom of the well / water source is fairly level before erection of the Openwell Submersibles

General Installation Precautions

- Open the packaging and note down the serial number and model for future reference
- Ensure all fasteners are tightened properly
- Use prescribed pipe sizes as mentioned on the product name plate
- To prevent the motor from getting exposed during pumping, ensure the suction strainer is fitted above the level of the motor. This is done by fitting one end of a bend to the pump suction flange and the strainer to the other end of the bend, thereby ensuring that the level does not fall below the strainer
- Use a Check valve fitted on the delivery line when the Openwell Submersibles has high delivery heads
- Use a power cable, without joints, from the Openwell Submersibles to the starter. It is not recommended to use a power cable with large number of joints as this can result in a significant voltage drop
- Check the level of silt at the bottom of the well. De-silt if necessary
- Check the availability of three phase power
- Ensure availability of a starter with inbuilt single phase preventer, overload protection and high voltage and low voltage protection
- Fill the motor with water pure drinking water before installation
- In case of rapid rise of water levels during the rainy season, provide a throttle valve in the delivery pipe line
- While installing the Openwell Submersibles , ensure the Openwell Submersibles is not subject to shock loads which can damage the Openwell Submersibles parts

 Note	If you detect damage or discrepancy in the product, contact the dealer from whom the pump was purchased
 Warning	Do not use this pump for oil or toxic, acetic, corrosive and flammable liquids. Pumping flammable liquids could cause explosion
 Caution	Use the eye bolt for lifting/lowering the Openwell Submersibles . Ensure suitable precautions are taken while lifting and lowering the product
 Caution	Use trained professionals to install the Openwell Submersibles
 Warning	Use a power supply cable that has sufficient rating. Factor in low voltage operation
 Warning	Provide proper earthing. Improper earthing can cause electrical shock
 Caution	Use a megger to verify the insulation resistance of the motor. Insulation resistance should be 20MΩ minimum
 Caution	Do not run the Openwell Submersibles dry as it contains water lubricated bearings and oil seals
 Warning	Mount the pump with its axis horizontal
 Note	It is recommended to use a starter

 Note	Check the bottom of the well. In case there is mud accumulated at the well bottom, de-silt the well
 Note	Periodically de-silt the bottom of the well so that the Openwell Submersibles rests on the rocky bottom

Operation Precautions

 Warning	Switch OFF the power before working on electrical lines
 Caution	Do not use this pump for pumping liquid exceeding 33^0C as this may lead to product failure
 Warning	Do not switch ON the pump if there is any human contact with the pumped medium. If any electrical leakage occurs, this could be fatal
 Caution	The Openwell Submersibles has water lubricated journal and thrust bearings and therefore shall not be run dry. Starting of the Openwell Submersibles without water must be strictly avoided as it will cause damage to the bearings. Fill with pure drinking water
 Note	During monsoons, the pump will run with higher flooded suction resulting in the pump running with higher discharge. This results in increase in the current drawn being higher than that specified on the name plate. Fit a gate valve in the delivery line to throttle the discharge till the current is lower than that specified on the name plate
 Caution	Ensure proper direction of rotation of the pump on powering up.

10. Installation procedure

Please follow the below procedure to install the openwell submersible monoblock.

Caution	The supply voltage should be within the specified voltage range. Water temperature for operation of the pump should not exceed 33^{0}C Failure to observe the precautions given above could cause the pump to malfunction and may lead to current leakage or electrical shock.
Warning	If you find any abnormalities like vibration, noise, smell, etc. from the pump during trial operation, switch OFF the pump and contact the dealer where this pump was purchased.

Installation

The following steps are executed prior to installation

- ✔ Open the filling plugs and top up, if necessary, the motor with pure drinking water
- ✔ Measure the insulation resistance using a megger of 500 VDC
- ✔ Ensure contact points are clean
- ✔ Check the direction of rotation
- ✔ Connect the measuring cable to the ground conductor
- ✔ Connect the other measuring cable to every core of the motor cable in succession
- ✔ Ensure that the insulation resistance, as shown on the megger, is a minimum of 20MΩ
- ✔ Use prescribed pipe sizes as mentioned on the product name plate
- ✔ Refer Fig. 4, shown below, for locating the OWS for operation with flooded suction.

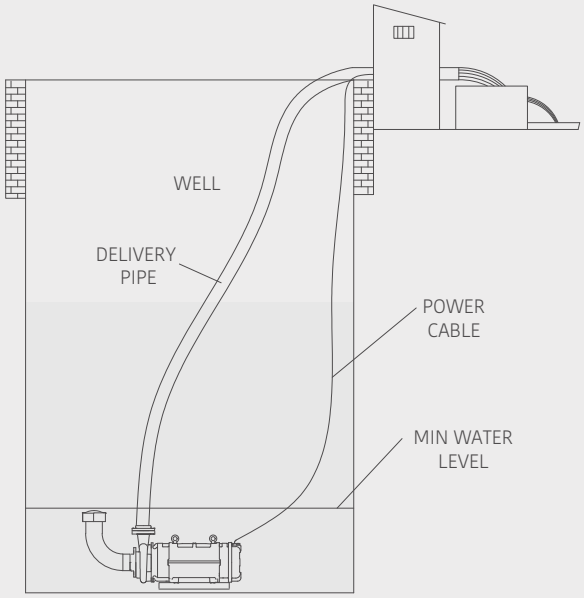


Fig. 4 Openwell Submersible with Flooded Suction

Prior to installation, unscrew the Brass Plugs 1 and 2, fitted on top of the motor as shown in Fig. 4 below, and fill the motor with pure drinking water till water overflows from the other filling hole. Gently rock the motor to release air bubbles and further top up if necessary. Then replace the two plugs.

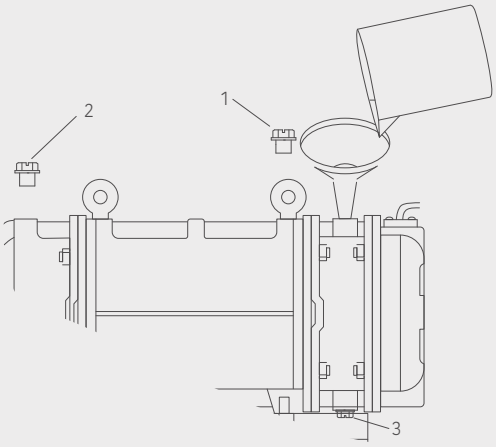


Fig. 5 Filling the motor Of OWS with pure drinking Water

The Brass Plug 3 mounted on the bottom of the motor, is used for draining the water from within the motor. Ensure all three brass plugs are tightened to prevent leakage of water from within the motor. Check for leakages before lowering the Openwell Submersibles.

Waterproofing the Submersible motor cable - supply cable Joint

Danger

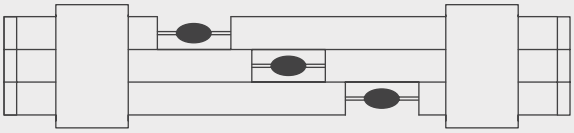
Hazardous voltage will cause death , serious injury, electrocution
Disconnect all power before working on this equipment and that it cannot be accidentally switched ON.

- DOL Openwell Submersibles motors are supplied with a single 3 core PVC insulated flat cable of length 3 meters
- The free end of the 3 core cable of the motor needs to be connected to the supply cable from the starter
- As this joint is always nearly submerged in water, the joint needs to be water proof

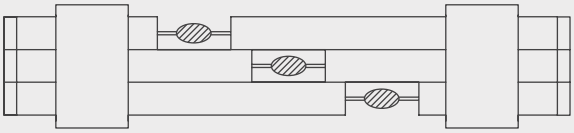
Refer the sequence shown in Fig. 6 below for insulating the cable joint for under water application:

Procedure for joining and insulating the 3 core conductors:

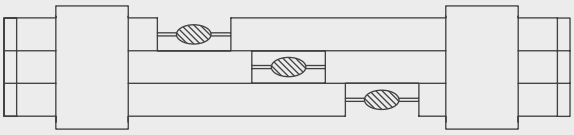
Step 1: Soldering / knot the copper strands



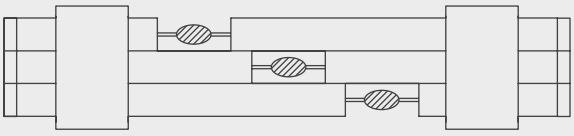
Step 2: Layer 1 - 1st layer of virgin rubber insulation



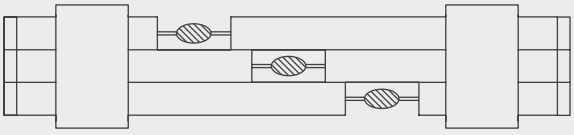
Step 3: Layer 2 - 1st layer of PVC Insulation tape



Step 4: Layer 3 - 2nd layer of virgin rubber insulation

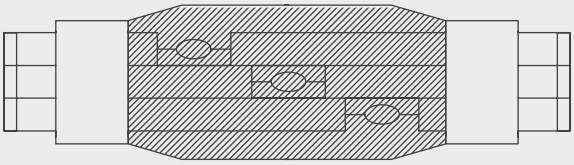


Step 5: Layer 4 - 2nd layer of PVC Insulation tape

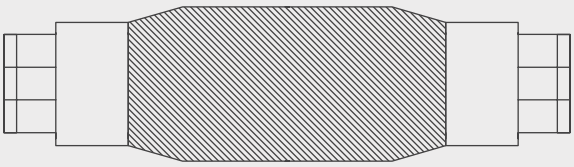


Procedure for joining and insulating the cable joint for under-water cable:

Step 6: Layer 1 - 1st layer of virgin rubber insulation



Step 7: Layer 2 - 1st layer of PVC Insulation tape



Step 8: Layer 3 - 2nd layer of PVC Insulation tape

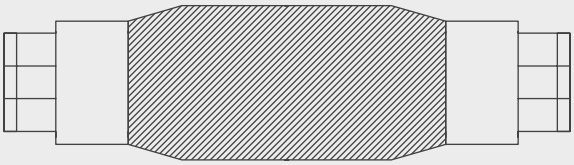


Fig. 5 Cable Joint for Under Water Application

- Star-Delta models are provided with two separate 3-core PVC-insulated flat cables, each 3 metres long
- Repeat the procedure for both 3-core PVC flat cables from the motor to the two cables from the starter

Cable lead wire connection to starter

Direct online starter

Cable	Terminal
Red	U
Yellow	V
Blue	W

Star delta starter

Cable 1	Terminal	Cable 2	Terminal
Red	U1	Red	U2
Yellow	V1	Yellow	V2
Blue	W1	Blue	W2

Cable Selection

The pumpset is provided with a 3m long 3-core PVC-insulated flat cable emerging from the motor, one cable for DOL versions and two cables for SD versions. Refer TABLE 2 for the selection of cables from starter to Submersible Motor:

Submersible Cable Selection Chart (For 415 V, 50 Hz Ac power supply)

FL Current (Amps)	Motor Rating		Cable size in Sq.mm								
			1.5	2.5	4.0	6.0	10.0	16.0	25.0	35.0	50.0
	KW	HP	Maximum Length of Cable in Metres								
2.75	0.75	1	262	437	705						
3.25	1.1	1.5	222	370	596	895					
4.5	1.5	2	160	267	430	646					
6.5	2.2	3	111	185	298	447	773				
8.5	3	4	84	141	228	342	590	933			
10	3.7	5	72	120	193	290	502	793			
12	4.5	6	60	100	161	242	426	661			
14.5	5.5	7.5 DOL		82	133	200	346	547			
14.5	5.5	7.5 SD	86	143	231	347	600	947			
18	6.7	9	89	115	186	279	483	763			
19.5	7.5	10	69	106	172	258	446	704			
25	9.3	12.5	64	83	134	201	348	549	852		
29	11	15		71	155	173	300	473	735		
34	13	17.5			98	148	256	404	626	822	
39	15	20			87	129	223	352	546	769	
43	18.5	25			78	117	202	319	495	697	
52	22.5	30				96	167	264	409	577	828
60	26	35					145	229	355	500	717
65	30	40					133	211	327	461	662

Notes:

- Table shows maximum allowable length of submersible cable for the given full load current where site voltage is normal ie 415 V
- For other voltages, the cable size is to be selected for the length which is calculated as follows.
- Calculated length = (415 / Actual voltage) x Actual length
- 7.5 HP and above are SD motors. For these motors, the actual current is $1/\sqrt{3}$ the FL current
- The cable size and maximum allowable length are arrived at accordingly

Checking direction of rotation of Openwell Submersible

Danger

Hazardous voltage will cause death, serious injury, electrocution.
All electrical work must be performed by an authorized electrician, in compliance with local electrical equipment standards and internal wiring codes.

- Connect the Openwell Submersibles to the starter, power up the Openwell Submersibles and observe the discharge from the pump
- Next interchange any two phase wires, power up the Openwell Submersibles and observe the discharge from the pump
- In case the discharge is more after interchanging any two phase wires, then the impeller is rotating in the correct direction within the volute casing
- If the discharge after interchanging any two phase wires is lower, then the previous phase wire connection was correct. Now revert back to the old phase wire connection

Electrical Installation

- Check the power supply voltage and frequency and compare with the product requirements specified on the name plate
- Observe relevant EB regulations while giving power supply to the motor
- As far as possible, do not use multiple joints in the electrical cabling while connecting the starter to the Openwell Submersibles
- Ground the Openwell Submersibles using the two earth screws provided on the leg of the motor body
- Ensure electrical joints, if any, are properly and adequately insulated
- Connect the cable properly to the starter terminals to avoid loose connections
- Factor in low voltage operation while selecting cable size

Electrical Installation

 Warning	All electrical work must be performed by an authorised electrician in compliance with local electrical equipment standards and internal wiring codes. Improper wiring can lead to current leakage, electrical shock, or fire

Earthing

 Warning	Be sure to install the ground wire securely. Failure to observe this precaution could damage the pump and cause current leakage, which may lead to electrical shock
 Caution	Do not connect the ground wire to a gas pipe, water pipe, lightning rod, or telephone ground wire. Improper grounding could cause electrical shock

Connecting the power supply

 Caution	Observe relevant electricity board regulations while powering up the pump set
 Warning	Before inserting the power plug or connecting the wires to the terminal board, make sure the power supply is properly disconnected. Failure to do so may lead to electrical shock, short, or injury caused by the unintended starting of the pump.
 Caution	Do not use damaged cables, power plugs, or loose power outlets. Failure to observe this precaution could lead to electrical shock, short circuit or fire.

11. Basic troubleshooting

Please follow the below procedure to install the Openwell Submersible.

Warning

To prevent serious accidents, disconnect the power supply before inspecting the pump.

Read this operation manual thoroughly before requesting repair. Contact the dealer from whom the pump was purchased. Servicing and troubleshooting must be handled by qualified persons with proper tools and equipment. Common faults, root causes for these, and suggested actions are provided in TABLE 2 below:

Fault	Possible causes	Suggested actions
Pump does not run	No power supply to the motor	Check for availability of power
	Motor coil burnt	Rewind the motor
	Low voltage operation	Operate in the recommended voltage range
	The motor starter overload has tripped	Reset the motor starter overload. If it trips again, check the voltage
	Pump is jammed	Dismantle the pump and clear the jammed parts
	Blown fuse	Replace fuse
	Loose connections	Tighten the electrical connections
	Pump has been kept idle for a long time	Ensure free rotation of shaft by running the pump for a few minutes at least every alternate day
Less discharge from pump	Low voltage operation	Check the supply voltage, Operate in the recommended voltage range
	Wrong direction of rotation	Interchange the supply connections of any two phases
	Increased delivery head	Ensure delivery head within specified value

Fault	Possible causes	Suggested actions
Less discharge from pump	Smaller pipe size used when compared to name plate recommendations	Replace with suggested pipe size
	Discharge pipe internally coated with depositions	Clean the pipe
	Foreign bodies lodged in impellers	Check the impellers and remove the foreign bodies
	The valve in the discharge pipe is partly closed / blocked	Check and clean / replace the valves, if necessary
	The check valve of the pump is partly blocked	Check and clean check valve. Replace if necessary.
	Impeller is worn out	Check and replace
	Leakage in the pipework	Check and repair / replace piping
Total head developed is too low	Abrasive wear of pump hydraulics due to operation in water of higher sand content or corrosiveness	Change the worn-out pump parts
	Change in the static head	Check the actual static head
	Running at low voltage	Wait for voltage to increase or contact local EB representative
Current consumption in excess	Damage of thrust bearing	Replace the worn out bearing
	Voltage too low	Check the voltage
	Defective rotor	Change the rotor
	Excessive wear and tear due to rubbing of parts	Service the pump replacing the worn out parts
	Low system head and therefore higher discharge	Throttle the discharge

Fault	Possible causes	Suggested actions
Pump runs rough and noisy	Dry running of pump	Keep pump idle for sometime/reduce the discharge by throttling
	Shaft is bent	Replace the shaft
	Excessive wear and tear	Service the pump replacing the worn out parts
Pump leaks excessively	Gaskets / O-rings damaged	Check and replace gaskets / O- rings
	Pipe line damaged	Check and replace piping

 Note	Conduct trial operation after maintenance
 Note	Dispose replaced components with appropriate care so as to protect the environment
 Warning	Do not try to solve unspecified troubles of OWS as it may lead to severe damage to the pump or injury to personnel. Contact the dealer where this pump was purchased
 Caution	If the Openwell submersible runs with unusual noise, stop it immediately. Check (a) the journal bearings for wear (b) rotor outer diameter rubbing against stator inner diameter

12. Preventive maintenance checks

PRECAUTIONS TO BE TAKEN

 Warning	Disconnect the power supply before starting maintenance or inspection of the pump to avoid electrical shock
 Note	If you find any damages or abnormalities, switch OFF the pump and report the problem to the dealer from whom the set was purchased

NOTE: The manufacturer assumes no responsibility for damage or injury due to disassembly in the field.

A definite schedule of preventive maintenance inspections should be established to avoid breakdown, serious damage and extensive downtime. The schedule will depend on operating conditions and experience with similar equipment. The below check list does not represent an exhaustive survey of maintenance steps necessary to ensure safe operation of the submersible pump.

 Warning	The pump must not be operated with the delivery valve shut-off for more than a few seconds; otherwise the motor will overheat, possibly causing permanent damage
 Warning	Utilise the services of an electrician to carry out electrical measurements / checking the functioning of the starter

It is good practice to monitor the conditions and performance of the Openwell Submersibles. Diagnosis may be carried out by checking the following:

- Close the delivery valve for a few seconds and check the shut-off head generated by the pump. Do not run at shut-off conditions for a prolonged period of time as the water in the volute casing will get hot.
- Check the current drawn by the pump at the duty flow rate
- Both these data should be compared to corresponding data recorded when the unit was initially installed
- Any reduction in shut-off head may indicate wear of the pump hydraulics
- Any increase in motor current at duty flow rate indicates a possible overload condition
- Measure the insulation resistance of the winding to check the condition of the motor
- Open the filling plugs and check the level of water inside the motor. Top up, if required, with pure drinking water
- Check the level of silt at the bottom of the well and de-silt if necessary
- Check the direction of rotation of the Openwell Submersibles
- Check all electrical connections are proper

13. Do’s and don’ts

Do’s	Don’ts
Before installation, rotate the shaft to ensure that pump is not jammed	Do not use piping smaller than what is mentioned on the name plate
Ensure proper earthing is provided	Do not run the pump without adequate cooling when the set is used to pump with static suction lift
Mount the monoblock on a fairly level surface	Do not place the pump at the bottom of the well as it can sink in the mud at the well bottom. Ensure the pump rests on a firm surface
Check the direction of rotation of the monoblock matches the arrow mark cast on the volute casing	Do not have multiple joints on the cable. More the cable joints, more will be the voltage drop
Rubber gaskets assembled on the monoblock do not have a central hole. Cut out the central hole and re-install	Do not remove the strainer as debris can get sucked into the pump and jam it
Check all fasteners are tight	Do not use to pump corrosive and flammable liquids
Use a starter with inbuilt single phase preventer, overload protection and high voltage and low voltage protection	Do not earth to a water line or gas line
In case of high static delivery head, use a check valve in the delivery line	Do not use undersized electric cables between pump and starter panel. Factor in low voltage usage
In case of flooded suction, ensure pump suction portion is kept above the motor body to prevent the motor from getting exposed during running and resulting in poor heat dissipation	In case of pumping with static suction lift, do not keep the pump suction pipe tapering down towards the pump suction to prevent air lock
Water levels rise significantly during monsoons. Under such conditions, pumps will operate with higher discharges and therefore higher current. It is advisable to install a flow control valve in the delivery pipeline and throttle the discharge till the current is less than that specified on the product name plate	Do not place the pump on the bottom of the well if it is not flat

Do’s	Don’ts
Use the eye bolts provided on the motor body for lifting / lowering the set	Do not use the power cable for lifting / lowering the pump
When not in use for a long period of time, run the pump for a few minutes every week to prevent the pump from getting jammed	Do not switch off pump while pumping sandy water. Continue to run until clear water flows
Cut out the center portion of the rubber gaskets on the pump flanges before installing pipes	Do not operate the pump at shut-off conditions to prevent the pump set from getting overheated

14. Important safety instructions

Only qualified personnel should be involved for inspection, maintenance and repairs. The successful and safe operation of such a product depends on proper handling, installation and maintenance. It is suggested that in case of non-functioning of the product, the customer is requested to contact the dealer through whom the purchase was made.

Danger

Hazardous voltage will cause death, serious injury, electrocution.
Disconnect all power before working on this equipment.
Maintenance should be performed by only qualified personnel.

15. Storage & handling

- The Openwell Submersibles are supplied from the factory in proper packing in which they should remain until they are to be installed
- The product should be stored in a closed, dry and well ventilated room
- Do not store the products in direct sunlight
- Handle the pumps with care and do not expose the product to unnecessary impact and shocks
- During unpacking and prior to installation, care must be taken when handling the pump to ensure that the product is not subjected to shock loads
- If the product has been stored for a very long period, check the condition of the rubber gaskets, free rotation of the shaft and level of water inside the motor

 Caution	If the motors are stored, the shaft must be turned by hand at least once a month
 Caution	If the motor has been stored for more than one year before installation, dismantle the motor and check the rotating parts and rubber components before use
 Caution	After a long period of storage, the pump should be inspected before it is put in operation. Ensure the impeller can rotate freely when turned by hand
 Caution	Oil Seals, in back to back configuration, are provided to prevent water from inside the motor from escaping. Do not attempt to run the pump dry. If used to lift water from bore wells, ensure the pump is primed and then only run it

16. Company contact information

For most up to date information on Texmo Industries, please visit www.taropumps.com

P.B.No. 5303,
Mettupalayam Road,
Coimbatore - 641 029, India

1800-102-8888
www.taropumps.com
info@taropumps.com

Taro™ Pumps

Texmo Industries
Est. 1956