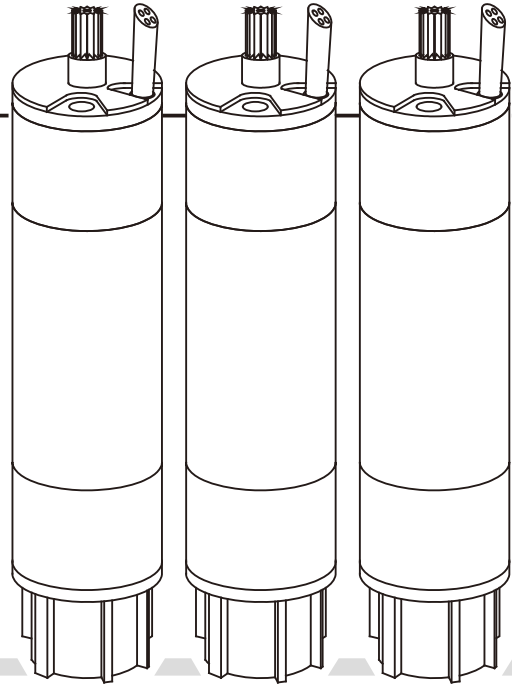


OPERATION INSTRUCTIONS

SUBMERSIBLE MOTORS
EW Series

ENG 



Please check the following points before installation.

- The product is meeting with the specifications ordered.
- Defective or damages, if any.
- All related accessories and tools are ready.
- These instructions contain fundamental information and precautionary notes.
- Please read the manual thoroughly prior to installation of unit for proper operation.
- Keep these instructions near location of operation for easy access.
- Any failure or accidents caused by erroneous installation and/or wrong operation. Non-compliance with the instructions will not be warranted.

General

The pumps have been developed in accordance with state-of-art technology. They are manufactured with utmost care and subject to continuous quality control. These instructions are intended to facilitate familiarity with the pumps and its designated use. The manual contains important information for reliable, proper and efficient operation. Compliance with the operating instruction is of vital important to ensure reliability and a long service life of the pump and to avoid any risks.

Safety

These instructions contain fundamental information, which must be complied with during installation, operation and maintenance. Therefore the manual must be read and understood both by the installing personnel and the responsible trained personnel/operators prior to installation and commissioning, and it must always be kept close to the location of the unit for easy access. Marking of Safety sign in the instructions. The safety instructions contained in this manual non-compliance of which might cause hazards to person are specially marked with the common hazard sign, namely,



(Safety Mark)

Non-compliance with Safety instructions. Non-compliance with safety instructions can jeopardize the safety of personnel, the environment and the machine itself. Non-compliance with these safety instructions will also lead to forfeiture of any and all rights to claim for damages.

In particular, non-compliance can, for example, result in; Failure of important machine / unit functions,

- Failure of prescribed maintenance and servicing practices,
- Hazard to persons by electrical, mechanical and chemical effects.

Safety awareness

It is imperative to comply with the safety instructions contained in this manual, the relevant national and safety regulations and operator's own internal work, operation and safety regulations.

Safety instructions for maintenance, inspection and installation work

The operator is responsible for ensuring that all maintenance, inspection and installation work be performed by authorized, qualified specialist personnel who are thoroughly familiar with the manual. Working on machine must be carried out only during standstill. The shutdown procedure described in the manual for taking the machine out of service must be adhered to without fail. Pump handling media injurious to health must be decontaminated. Immediately following completion of work, all safety-related and protective devices must be re-installed and/or re-activated.

Unauthorized modification and manufacture of spare parts

Modification or alterations of the machine are only permitted after consulted with the manufacturer. Original spare parts and accessories authorized by the manufacturer ensure safety. The use of other parts can invalidate any liability of the manufacturer for consequential damage.



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1 Brief introduction

U-flo Submersible motor are available in 3',4',6',8' and 10' with different materials of construction,together with extremely hardwearing bearings results in a highly durable pump,U-flo submersible motors are engineered to perfection with innovative design and stringent quality control to give you trouble free service.U-flo Motors are robust in construction and tested to a high standard of excellence.Special high grade materials are used to make these pumps durable,efficient and easy to maintain,However,to ensure satisfactory performance of these motors,it is important that the pumps is properly selected,installed and maintained.Proper maintenance does not start with rectification or repairs or replacement of worn parts,rather it starts right from the time of equipment selection.Equally important is proper installation.Negllgence of fundamental precautions, during installation may result in premature failure of the equipment.Finally,good operation depends on good maintenance.

2 Special instruction

Purchasers/user are cautioned to gothrough carefully the detailed instructions given for proper installation,operation and maintenance of the product and use of genuine spare parts as detailed in company's published literature,manuals,pamphlets or other official publications.Any deviations if made by the customs,will void the warranty obligations and/or product reliability or manufacturer's liability,if any.

Warning

To prevent fatal or serious electric shock, disconnects mainpower supply before working on or around the water system and make sure that it cannot be switched on accidentally.Only technically qualified personnel must perform the works complying with local electrical rules and regulations.Do not use this Motor/Pumaset in swimming places.To reduce the risk of electrical shock during operation of the pumaset,an appropriate earthing is mandatory.For more details read carefully the "Electrical instructions",given in this manual.

3 Technical Data

3.1 Suitable Liquids

The submersible motors Must only be used in Clean,thin,non-aggressive,Non explosive,clear,cold,fresh water with out Abrasives,solid particles or fibres having theFollowing characteristics.

a) Chlorine ion density	500PPM(max)
b) Specific gravity	1.004(max)
c) Hardness(Drinking water)	300(max)
d) Viscosity	1.75*10m ² /sec9(max)
e) Turbidity	50ppm silica scale(max)
f) PH	6,5 to 8,5

3.2 Specifications

Pewer range	4": 0.33to7.5HP 6": 3.0to50HP 8": 20to100HP 10": 110to250HP
Maximum Outer diameter	4": 98mm,6": 143mm 8": 187mm&194mm,10":231mm
Versions	Single Phase-220V-50HZ Three Phase-380V-415V&525V-50HZ
Max.Down Thrust Load	
- 4"	0.33to2.0HP-3500N/800Lbs 3HP to7.5HP-2750N/1500Lbs
- 6"	3.0to30HP-15500N/3500Lbs 35to50HP-27500N/6000Lbs
- 8"	20to25HP-27500N 30to60HP-45500N 75to100HP-50000N
Speed	2900rpm-50HZ 3450rpm-60HZ

Type of duty	S1(Continuous)	
Degree of protection	IP 68	
Class of insulation	F/Y	
Direction of rotation	CCW-1 phase Electrically reversible-3phase	
Starts per hour	4"&6"&8"&10"=20 times	
Shaft Extension	Splined as per NEMA standard	
Mounting Standard	NEMA standard	
Method Starting	Single Phase	CSCR&PSC
	Three Phase	Direct on line wye-delta starting
Voltage tolerance	+6%and-10%	
Maximum liquid temperature	33 C	



3 Technical Data

3.3 Applications

These submersible motors are used as prime movers of deepwell submersible pump ends used for:

- Irrigation, Domestic water supply
- Fountains
- Industrial water supply
- Pressure boosting units
- Ponds, Gardens
- Sprinkler systems and mining

3.4 Inspection

WARNING

Carefully unpack the motor when it is ready for installation so that it is not damaged or mishandled. Make sure the details written in packing slip and name plate are according to the order.

Inspect the motor carefully to make sure no damage has occurred to motor, cable and control box (if any) during transit. You will find a loose data sheet containing name plate details, with an adhesive backing along with the pump set. The data sheet should be completed with pen and affixed to the control box. The motor is equipped with electrical cable. Under no circumstance the cable should be used to support the weight of the motor or complete unit.

WARNING

Only technically qualified personnel must perform the works complying with local electrical rules and regulations.

4 Storage

The motor should be stored securely against any physical damage so as to ensure a smooth and trouble-free operation in its installation. Don't remove the motor from its original packing until it is installed. While storing the motor in vertical position, ensure that it doesn't fall over and the shaft extension parts always facing upward. Protect the motor from direct sunlight or other heat sources.

The motor should never get heated up beyond 60°C as the prefilled fluid may expand and evaporate due to over heat thereby causing damage to the motor later.

Ensure that the temperature while in storage doesn't drop below, 15°C.

WARNING

Don't use cable leads or drop cables to lower or lift the motor or complete unit.

5 Insulation Resistance Test

To perform this test, first switch off the main power supply. Detach the drop cable from the control box/starter. Check the insulation resistance by means of a Megger/insulation Tester.

Check the insulation resistance between the drop cable lead and ground. Note down the values.

Insulation Resistance Readings, Values between All Leads and Ground.

Insulation resistance varies very little with rating. Motors of all KW, voltage and phase rating have similar values of insulation resistance.

Condition of motor and Leads	MEG.OHM VALUE	
	W-Series	R-Series
Brand new motor (without drop cable)	100	20 (or) above
MOTOR IN BOREWELL Meg ohms readings including drop cable. Brand new motor in the Borewell.	50	2 (or) above
A motor performing in good condition in the borewell	40	0.5—2.0
A motor which do not require pull out, which may be damaged by lightning or with damaged leads.	20	0.02—0.5
A motor which definitely has been damaged or with damaged cable. The pump should be pulled and repairs made to the cable or the motor replaced. The motor will not fall for this reason alone, but it will not run for long period.	10	0.01—0.002
A motor cable insulation completely damaged. The pump must be pulled out for replacing the cable or replacing the motor.	Less than 5	0—0.01

ATTENTION

Check the insulation resistance with the help of a tester/megger to ensure the drop cable & splice are in good condition.



6 Water filling

Ensuring the prefilled water level in all EW series motors before installation is mandatory and water should be topped up if any loss of volume is found. Otherwise it may lead to winding burn out, bushes & thrust bearing worn out. The loss of volume can be topped up with deionised water or clear, cold, pure, fresh filtered water. These motors are prefilled with water with required ratio of propylene glycol (anti freeze agent).

WARNING

Ensure the prefilled water level in case of EW Series motor keeping it in upright position and top up if any loss of volume is found. Motor will be damaged immediately in case of dry running. To avoid dry running, dry run preventor has to be used.

ATTENTION

Don't use distilled water to fill the motor

7 Related Devices

7.1 Coupling

NEMA standards splined shaft extension is provided for easy coupling. Non-toxic FDA approved water proof grease can be used while coupling the motor and pump. This will ensure prolonged spline life of the coupling and motor. It also prevents abrasives entering from the well in to the spline area. Before coupling, check that the mounting faces of pump and motor are free from dirt & dust.

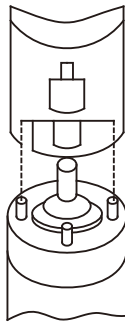
Couple the pump with the motor so that the mounting faces are in contact, then tighten the assembly nuts evenly and firmly complying with tightening torques specified by the manufacturers. If possible, check that the pump shaft is raised slightly by assembly to motor leads and ensure the insulation of motor cable and drop cable are not damaged while assembling or handling of pumpset during installation.

WARNING

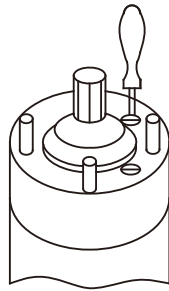
Before coupling, ensure the mounting areas of pump & motor are free from dirt & dust. Align the pump coupling with motor shaft and slide on it. Then tighten the assembly nuts/studs equally and firmly complying with tightening torques specified by the manufacturer.

WARNING

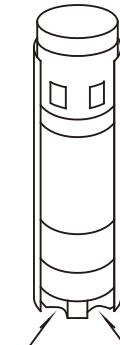
An adequate flow of cooling water is mandatory to avoid over heating.



Coupling



Water Filling



Cooling Tube

7.2 Flow inducer tube

The motor requires a constant flow of water past its body to keep it at the correct operating temperature. Ideally the pumps and motor should be set just below the level at which water enters the borewell. When this level is not ascertained, fit a “flow inducer tube” over the pump and motor to ensure adequate cooling. The operating temperature depends on speed of the water past the motor body and speed of the water flow is determined by well diameter and displacement of pump. Consult your pumpset supplier regarding “flow inducer tube”.

Linear flow requirements are: 4’ & 6’ - 0.15m/sec; 8’ - 0.16m/sec.

7.3 Cable Type

The drop cable used between the Submersible motor and control box, should be an approved one for submersible applications. The conductor may be solid or stranded. The cable may consist of individually insulated conductors twisted together, insulated conductors moulded side by side with a round or flat overall jacket. Refer cable selection charts to select correct size based on the motor power & length of the cable required.

WARNING

Make sure the main power supply is switched off before working on or around the water systems and that it cannot be accidentally switched on to prevent fatal or serious electrical shock.

7.4 ELECTRICAL INSTRUCTIONS

The pumping system must be earthed using an appropriate size of copper conductor. Earthing must be made in accordance with the local electrical codes and regulations. A bare copper conductor at least to the equivalent size of the power supply conductor to the pumpset must be used for earthing. When fixing earth conductor, first connect it to the earth point and then to the motor earth lead and to the earthing screws in the control box/starter.

WARNING

Provide proper earthing to reduce risk of electrical shock or injuries.



Reduce the length of the earth wire as much as possible and connect to the good earthing points such as earth rod driven deeply into the water. Alternatively a good earth point can be the steel casing pipes, when used in the borewell, which is submerged in water and driven into the ground lower than the pump setting depth, Do not use gas supply pipes as earthing points.

Check the power source for voltage, frequency and phase with the name plates of the motor and capacitor box or starter if voltage variations are more than $\pm 6\%$ & 8-10% do not operate the motor.

7.5 LIGHTING(Surge)ARRESTOR

Certain models of 4' single phase resin filled motors up to 2HP are fitted with lightning arrestors, Lightning arrestors are used to give protection to the submersible motors against high voltage surges created by lightning or switching operation in main power distribution lines, which carries high voltage. For all three phase motors and single phase motors supplied without inbuilt lightning arrestors by the installer. The lightning arrestors of required voltage shall be fixed in the supply power line of the control box/starter, Lightning arrestor must be installed by technically qualified personnel, complying with the local electrical codes and regulations.

7.6 GENERATOR POWER SUPPLY

While choosing generator the starting current and other tolerance have to be taken into account. Make sure that constant and sufficient power is available. During start up the voltage must be at least 65% of the nominal voltage.

Fix a temporary pipe to the riser pipe of the pump after gate valve. Close the gate valve in such a way that only 1/3 of the pipe is open. At any point of time do not operate the pumpset with the fully closed gate valve as this will lead to serious damage to the motor and pump.

WARNING

Avoid using defective pump ends for safety and better efficiency.

a) Direction of Rotation

All three phase motors must be checked for direction of rotation as these will run in either direction. To ensure that it is connected for correct direction of rotation, start the pumpset and observe the water discharge. Then switch off the pumpset and power mains. Interchange any two phases of the power connection. Again start the pumpset and observe water discharge. The connection which gives higher discharge of water is the correct direction of rotation.

b) Unbalance-Current Check

In case of three phase motors check the current in all the three phases when the pumpset is in operation. Unbalance current between each phase shall not exceed 5% under normal conditions, If unbalance is noticed more than 5%, please check the electricity supply service once again.

WARNING

Don't use pipe wrench on the motor to avoid damages.

c) Final pipe Connections

After completing the direction of rotation & unbalance-current checks.start the pumpset and leave it till the discharged water comes out of the well without sand & silt.Open the valve slowly to get the required flow.Ensure that when the pumpset is operated,the water level does not drop below the estimated draw down water level and the pumpset is always submerged by atleast 15 feet.You can now proceed for final pipe connections after removingthe temporary pipes.

WARNING

Drop cables should be secured to the riser pipe at frequent intervals to prevent damage.

d) Shut Down Periods

The motor must not remain idle for more than a week since it might lead to jamming of moving parts.If the pumpset is to remain idle for longer periods,it has to be run atleast once in every week for ten minutes.This will ensure that the pumpset is ready for service at any desired time.

Switching frequency

The life of a submersible pumping system is depends upon the average number of starts per day over a period of months or years.The life of control components such as pressure switches,starters,relays,capacitors,splines& bearings will affect due to excessive cycling.Rapid cycling can also cause motor over heating and winding failure.To dissipate heat generated current,motor must be allowed to run starts per day the pump capacity.tank size and other control devices must be selected.

The stand still time of the pump between switching off and switching on again should be atleast 3 minutes.

e) Supervision

Generally our motor do not require day-to-day maintenance under normal operating conditions,if properly selected and installed.However,it is mandatory to check the whole pumping system at regular intervals with regard to current drawn in each phases,voltage,water discharge,draw down water level,starters,cable,wiring,Earthing and other electricals,When any abnormality is noticed or if the motor fails to work,please refer Trouble shooting chart.

Voltage Test

Measure the vottage by means of a voltmeter at the control box or starter.For three phase motors measure voltage between the two phases.For single phase motors measure voltage between the line and neutral(see fig.3).

Please note variations beyond $\pm 10\%$ will weaken the insulation of the motor winding.Hence do not run the motor till the voltage variations are rectified.Contact your electric power supplier to rectify this problem.

Current Test

Measure the current on each power lead at the control box or starter by means of an ammeter.Current must be measured when the pumpset is running in full load(see fig.4).Compare the measured current with motor name plate current



8 OPERATION

If the current exceeds the full load Amps mentioned in motor name plate or when the current unbalance is more than 5%, the following checks should be made.

- Check for high or low voltage supply * Check control box or in overload of motor * Windings of the motor are weakened/shorted * Check the power contacts in the starter/control box for burn/defects/loose contacts * Check winding resistance * Check insulation resistance.
- Check winding resistance * Check insulation resistance.

INSTALLATION POSITION

All the U-flo motors are recommended for vertical installation, however they can be installed in slanting position, with minimum of 30° angle.

Voltage Test
Supply Leads

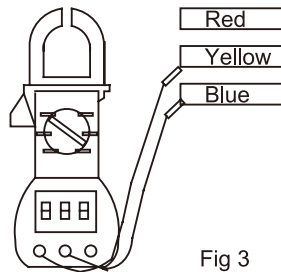


Fig 3

Current Test
Motor Leads

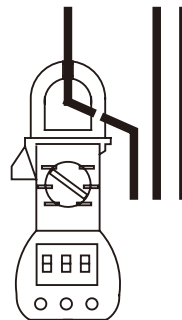


Fig 4

9 TROUBLE SHOOTING

Phenomenon	Reasons	Solution
Motor does not work	No Power at pump control box/starter	Check the wiring to control box/starter
	Defective control box/starter or incorrect wiring	Rectify or replace defective parts of control box/starter. Reconnect the control; box/starter correctly. Change the relay and coil size of the control box/starter for actual requirement
	Faulty pressure or other control devices	Rectify or replace faulty pressure switch or control devices
	Defective submersible motor or cable	When ohm meter reading shows less than the values shown in page 3. Remove the pumpset and cable and recheck values on the ground. Check the cable splice. Repair or replace motor and/or cable.
	Defective capacitor (for single phase)	Replace the capacitor
	Gate valve/check valve fitted in the riser pipe is defective/closed	If closed open the gate valve. If defective, rectify or replace.
Motor works but pump does not deliver water	Low water level in borewell or insufficient yield.	If possible lower the pumpset. When water yield is not sufficient adjust the gate valve to match the yield of the borewell or install water level monitors.
Delivering insufficient water	Water inlet strainer/impeller of the pump is clogged/damaged	Clean the strainer/impeller. If the strainer/impeller is damaged, replace
	Pumping system total head is higher than pump head capacity	Select and change the pumpset suitable for the system head

Phenomenon	Reasons	Solution
Circuit breakers tripping or fuses blowing	In case of three phase motors,wrong direction of rotation	Interchange any two phases of the power line connection.Start the pump and check the water discharge
	Low or high voltage	Contact electricity suppliers and correct the voltage fluctuations when cable sizes are found inadequate;change to a proper size of cables.
Motor starts very often	Leakage in the system	Arrest leakage or replace components wherever necessary
	Inadequate size of tank	Check tank size against consumption and change to an adequately sized tank.

ATTENTION

To prevent fatal or serious electrical shock,disconnect main power supply before working on or around the water system.

CABLE SELECTION CHART.50HZ

(MAXIMUM LENGTH OF COPPER CABLE IN METERS)SINGLE PHASE 3 WIRE(D.O.L)MOTOR

MOTOR RATING		CABLE SIZE SQUARE MILLIMETRES										
Volts	KW	1.5	2.5	4	6	10	16	25	35	50	70	95
220/240 Volt 50HZ	0.37	120	200	320	480	810	1260	1900	2590	3580	4770	5920
	0.55	80	130	220	320	550	850	1290	1760	2430	3230	4000
	0.75	60	100	170	250	430	670	1010	1380	1910	2550	3160
	1.10	40	70	120	180	300	470	710	980	1360	1850	2320
	1.50	30	60	90	130	230	360	550	760	1060	1440	1820
	2.20		40	60	90	150	230	350	490	680	920	1160



THREE PHASE 3 WIRE (DOL) motors

MOTOR RATING		CABLE SIZE SQUARE MILLIMETRES														
Volts	KW	1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240
380/ 415 Volt 50HZ	0.37	810	1350	2160	3240	550	8530									
	0.55	550	920	1480	2230	3780	5860	8890								
	0.75	410	680	1090	1640	2780	4330	6570	9010							
	1.1	300	500	710	1210	2060	3200	4850	6640	9220						
	1.5	220	370	590	880	1500	2340	3560	4890	6830	9230					
	2.2	150	250	400	600	1030	1600	2440	3350	4880	6340	7990				
	3	110	190	310	460	790	1230	1880	2590	3630	4930	6230				
	3.7	90	150	240	370	630	980	1490	2050	2870	3900	4920				
	4	80	140	230	340	460	790	1230	1880	2590	3630	4520				
	4.5	70	130	220	320	550	860	1310	1790	2510	3390	4260				
	5.5	60	110	170	260	440	690	1060	1450	2030	2750	3460				
	7.5	50	80	130	200	340	530	810	1110	1560	2120	2680				
	9.3		60	110	160	280	440	670	920	1310	1780	2250				
	11		50	90	130	230	360	550	750	1060	1440	1820				
	13			80	110	200	310	480	650	920	1250	1580				
	15			70	100	170	270	410	570	800	1080	1370				
	18.5				80	140	210	330	450	630	860	1090				
	22				70	120	180	280	380	540	740	930				
	26					100	150	230	310	440	610	770	870			
	30					90	130	210	280	400	540	680	780			
37						110	170	230	320	440	550	700				
45							140	190	260	360	460	560				
55								160	220	290	380	480				
75									160	220	300	370				
93										170	220	260	310			
112											190	230	270	320	390	
132												200	240	280	340	
150													180	210	250	310

THREE PHASE 6 WIRE(SD) MOTORS

MOTOR RATING		CABLE SIZE SQUARE MILLIMETRES														
Volts	KW	1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240
380/ 415 Volt 50HZ	5.5	100	165	255	390	660	1035	1590	2170	3240	4120					
	7.5	70	120	190	300	510	800	1210	1765	2340	3180					
	9.3		90	165	240	420	660	1000	1380	1930	2670					
	11		80	130	200	350	540	820	1130	1590	2160	2730				
	13		70	120	165	300	4695	720	90	1380	1870	2370				
	15		60	100	150	250	400	610	855	1200	1620	2050				
	18.5			80	120	210	310	490	670	945	1290	1630	2030			
	22			70	105	180	270	420	570	810	1110	1395	1740			
	26					150	225	340	460	660	910	1160	1310			
	30					135	190	315	420	600	810	1020	1260	1480	1760	
	37					100	160	250	345	480	660	825	1050	1200	1430	
	45						140	210	290	400	550	690	850	1000	1200	1460
	55						110	170	240	340	460	580	720	840	1010	1230
	75						90	130	180	260	350	440	550	650	780	950
	93								140	190	260	330	400	470	560	680
	112								120	160	220	280	350	400	480	580
132									140	190	250	300	360	430	520	
150									130	170	220	280	320	380	460	

CABLE SELECTION CHART.60HZ

HP	3Ph,460V,3 WIRE(DOL)MOTORS(MAXIMUM LENGTH OF COPPER CABLE IN FEET)													
	CABLE SIZE IN AMERICAN WIRE GAGE													
	14	12	10	8	6	4	3	2	1	0	00	000	0000	
1/2	3770	6020	9460											
3/4	2730	4350	6850											
1	2300	3670	5770	9070										
1.1/2	1700	3710	4270	6730										
2	1300	2070	3270	5150	8050									
3	1000	1600	2520	3970	6200									
5	590	950	1500	2360	3700	5750								
7.1/2	420	680	1070	1690	2640	4100	5100	6260	7180					
10	310	500	790	1250	1960	3050	3800	4680	5750	7050				



HP	3Ph,460V,3 WIRE(DOL)MOTORS(MAXIMUM LENGTH OF COPPER CABLE IN FEET)												
	CABLE SIZE IN AMERICAN WIRE GAGE												
	14	12	10	8	6	4	3	2	1	0	00	000	0000
15		340	540	850	1340	2090	2600	3200	3930	4810	5900	7110	
20			340	650	1030	1610	2000	2470	3040	3730	4580	5530	
25				530	830	1300	1620	1990	2450	3010	3700	4470	5430
30				430	680	1070	1330	1640	2030	2490	3060	3700	4500
40					500	790	980	1210	1490	1830	2250	2710	3192
50						640	800	1020	1210	1480	1810	2190	2650
60						540	670	840	1020	1250	1540	1850	2240
75								620	840	1030	1260	1520	1850
100									620	760	940	1130	1380
125											740	890	1000
150												760	920
175													810

HP	3Ph,460V,3 WIRE(WYE DELTA)MOTORS(MAXIMUM LENGTH OF COPPER CABLE IN FEET)												
	CABLE SIZE IN AMERICAN WIRE GAGE												
	14	12	10	8	6	4	3	2	1	0	00	000	0000
5	880	420	2250	3450	5550	8620							
7.1/2	630	1020	1600	2530	3960	6150	7650	9390					
10	460	750	1180	1870	2940	4570	5700	7020	8620				
15	310	510	810	1270	2010	3130	3900	4800	5800	7210	8850		
20	230	380	610	970	1540	2410	3000	3700	4560	5590	6870	8290	
25	190	310	490	790	1240	1950	2430	2980	3670	4510	5550	6700	8140
30		250	410	640	1020	1600	1990	2460	3040	3730	4590	5550	6750
40			300	480	750	1180	1470	1810	2230	2740	3370	4080	4930
50				370	590	960	1200	1470	1810	2220	2710	3280	3970
60				320	500	810	1000	1240	1530	1870	2310	2770	3360
75					420	660	810	1020	1260	1540	1890	2280	2770
100						500	610	760	930	1140	1410	1690	2070
125							470	590	730	880	1110	1330	1500
150								510	630	770	950	1140	1380
175									550	680	830	1000	1220
200										590	730	880	1070

CABLE SELECTION CHART-60HZ

1Ph,230V,2/3 WIRE MOTORS(MAXIMUM LENGTH OF COPPER CABLE IN FEET)													
CABLE SIZE IN AMERICAN WIRE GAGE													
HP	14	12	10	8	6	4	3	2	1	0	00	000	0000
0.33	541	869	1381	2179	3389	5243	6510	7950	9679	11759			
0.5	390	640	1007	1601	2500	3872	4800	5870	7159	8411			
0.75	289	469	751	1191	1860	2881	3570	4360	5319	6460	7861		
1.0	240	390	620	981	1529	2369	2950	3603	4400	5351	6510		
1.5	180	295	469	761	1192	1860	2310	2841	3491	4269	5230		
2.0	141	240	381	610	961	1519	1900	2349	2920	3609	4469		
3.0	112	180	289	459	742	1181	1480	1841	2310	2881	3603		
5.0	0	0	180	279	449	699	879	1099	1381	1729	2159	2672	
7.5	0	0	0	190	299	479	600	742	919	1129	1398	1710	
10	0	0	0	0	240	381	489	591	742	919		1420	1751

10 Declaration

10.1 Manufacturer Declaration

In accordance with Machinery Directive 98/37/EC Annex IIB, We hereby declare that our 4',6',8'&10' submersible motor models of the following series viz;

Herewith we declare that 4 inch,6 inch,8 inch and 10 inch submersible motors with model of the following series;

4inch:W4N,W4A,R4A

6inch:W6A,R6B

8inch:W8A,W8B

10inch:W10B

Are Designed to be incorporated into machinery covered by this Directive but must not be put into services until the machinery into which it is to be incorporated has been declared in conformity with applicable Directive(s).

10.2 Declaration of Conformity

We additionally declare that the above mentioned 4 inch,6 inch,8 inch and 10 inch submersible motors conform to the provision of EMC Directive 89/336/EEC and Low Voltage 73/23/EEC.

Applicable Directive/Harmonized Standards:

Low Voltage Directive: 73/23/EEC amended by 93/68/EEC(Low voltage Directive)

EN 60034-1

EN 60204-1

89/336/EEC (EMC Directive)

EN 50081-1

EN 50082-2



