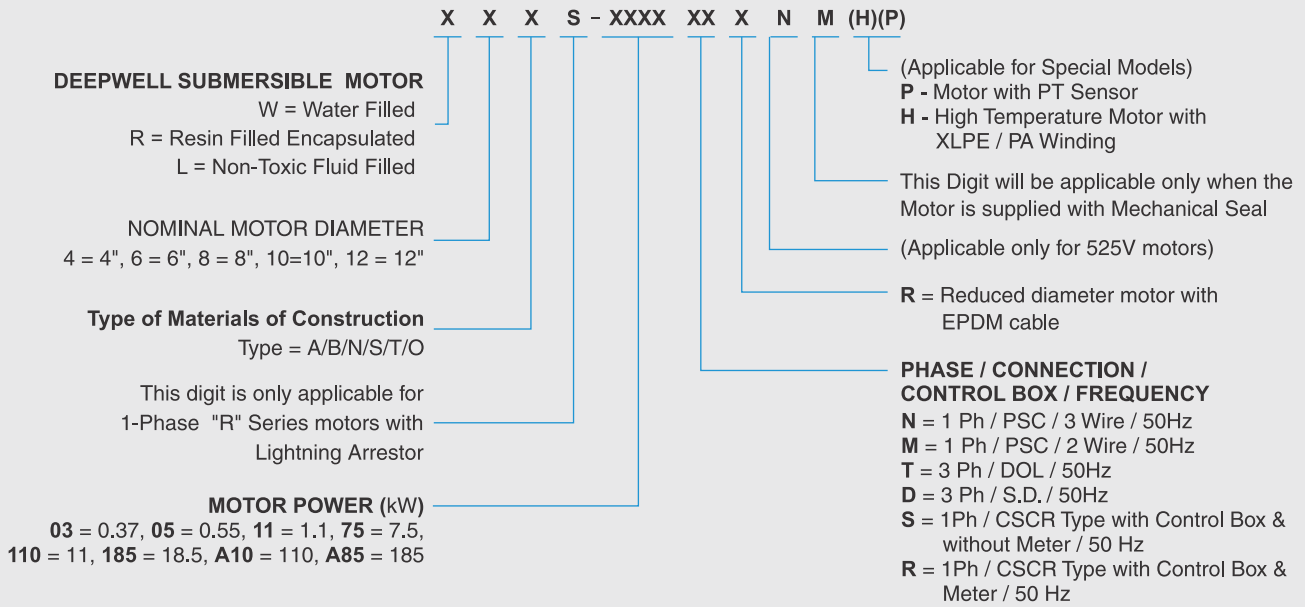


# SUBMERSIBLE MOTORS



# MODEL IDENTIFICATION CODE

## DEEPWELL SUBMERSIBLE MOTOR



<u>DEEPWELL SUBMERSIBLE PUMP SET (Pump + Motor)</u>		
PUMP MODEL	+	MOTOR MODEL
S X X - XXX / XX	+	X X X - XXX X
<u>DEEPWELL SUBMERSIBLE PUMP SET (Pump + Motor)</u>		
PUMP MODEL	+	MOTOR MODEL
S6S - 18 / 03	+	W6A - 22 T

# RESIN FILLED ENCAPSULATED SUBMERSIBLE MOTORS

## 'R' Series Motors

These motors are hermetically sealed, encapsulated and water lubricated type with removable cable lead out. The stator windings are of enameled copper wire and the wound stator is mounted in a stainless steel shell and is completely protected by a stainless steel cylinder and stator room is pre-filled with resin. The resin filled in the space between the stator & the stainless steel cylinder dissipates heat quickly resulting in longer motor life. Except stator, other portions of the motor is pre-filled with deionised water containing propylene glycol (anti-freeze agent) which serves as coolant & lubricant for rotor, bushes and thrust bearing. Dynamically balanced rotors of these motors maintain uniform clearance, thereby giving better efficiency and increase the life cycle of the water lubricated bush bearings. Specially designed high performance thrust bearings are used, that can withstand high axial thrust loads and upthrust loads with minimum wear and tear.

Pressure equalizing rubber diaphragm is provided to balance the pressure and volume variations due to thermal expansion of the water inside the motor. Motor sealings are made by means of 'O' rings, lip seal & Mechanical seal. Shaft seals and sand guard prevents ingress of well water, sand and fibre particles into the motor. Care should be taken to ensure that the motor does not run when it is not submerged in the water. To prevent the motor from dry running, install dry run preventor. The motor needs a constant flow of water passed over it's body to keep it at correct operating temperature. Ideally the motors should be set just above the final yield point of bore well and when the level is not ascertained, fit a "flow inducer pipe" over the pumpset to ensure adequate cooling. It is mandatory to use C.R.I. Control boxes for all motors (except 2 wire motors) with adequate protection & control systems. Mounting dimensions of these motors are in accordance with NEMA standard. Cooling sleeve is mandatory if borewell size is beyond motor size.

### Features

- Can be easily dismantled & Repaired
- High operating efficiency
- Extremely hardwearing water lubricated bearings
- Specially designed thrust bearing to withstand high axial thrust loads
- Larger shaft diameter for better power transmission
- Corrosive resistant stainless steel body

### Applications

These submersible motors are suitable to couple with deepwell submersible pumpsets used for

- Residential
- Irrigation
- Fountains
- Industrial water supply
- Pressure boosting units
- Gardens
- Sprinkler systems and mining
- Mining
- Oil & Gas
- De-Watering



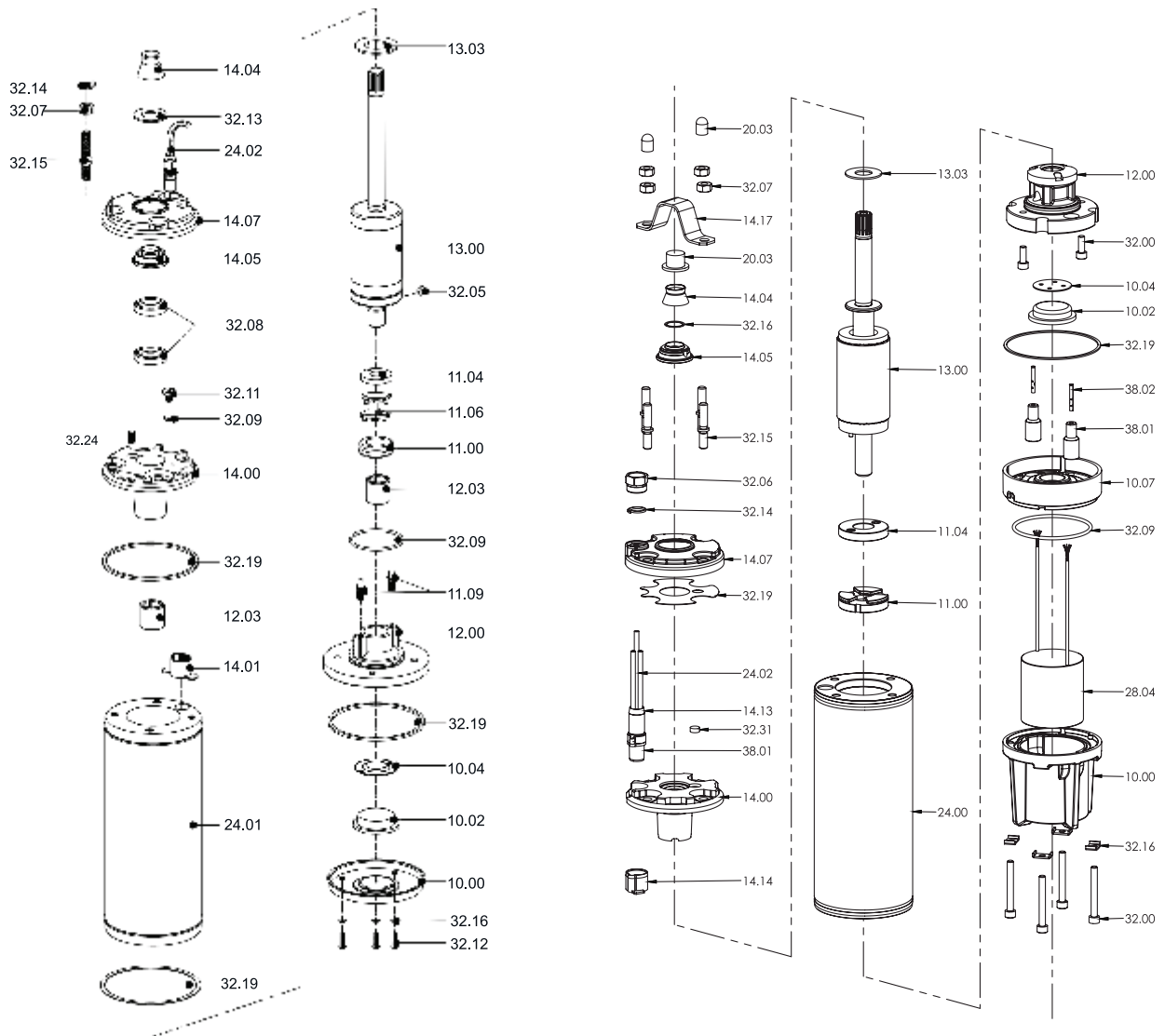
# RESIN FILLED ENCAPSULATED SUBMERSIBLE MOTORS

Nominal Diameter : 4"

**"R" Series**  
(0.37 kW to 1.1 kW)  
2 wire

## Exploded view

3 wire (0.37 kW to 7.5 kW)



Part No.	Part Name
10.00	Motor base
10.02	Diaphragm
10.04	Diaphragm guide plate
11.00	Thrust Base
11.04	Thrust Pad
11.06	Thrust segment
11.09	Rocker screw
12.00	Lower housing
12.03	Bush
13.00	Rotor
13.03	Upthrust washer
14.00	Upper housing
14.01	Cable grommet clamp
14.04	Rubber sand guard
14.05	Sand guard

Part No.	Part Name
14.07	Upper housing shell
24.01	Wound stator
24.02	Lead out cable
32.05	Pad key
32.07	Nut
32.08	Oil seal
32.09	O - Ring
32.11	Drain Plug
32.12	Screw
32.13	Sand guard washer
32.14	Spring washer
32.15	Stud
32.16	Washer
32.19	Gasket
32.24	Vent plug

Part No.	Part Name
32.00	Bolt
32.16	Washer
10.00	Motor base
28.04	Capacitor
32.09	Nut
10.07	Capacitor Plate
38.01	Connector Bush
38.02	Cable Socket Pin
32.19	Gasket
10.02	Diaphragm
10.04	Diaphragm Plate
12.00	Lower Housing
24.00	Stator Body
11.00	Thrust Base
11.04	Thrust Pad
13.00	Rotor Shaft

Part No.	Part Name
13.03	Upthrust Washer
14.14	Cable plug sleeve
14.00	Upper housing
38.01	Connector Bush
32.31	Valve Filter Sponge
14.13	Cable Plug Shell
24.02	Cable
14.07	Upper housing shell
32.14	Spring Washer
32.06	Cable Plug nut
32.15	Diaphragm Plate
14.05	Plastic Sand Guard
14.04	Rubber Sand Guard
20.03	Motor Cap
14.17	Motor Clamp
32.07	Nut
20.03	Stud Cap

In view of continuous developments, the informations / descriptions / specifications / illustrations are subject to change without notice. Refer general information for performance curve conditions and for other details. Curve tolerance according to ISO : 9906, Grade 3B

# RESIN FILLED ENCAPSULATED SUBMERSIBLE MOTORS

Nominal Diameter : **4"**

**"R"** Series

## Technical Specifications

Nominal Dia	<b>4" (100mm)</b>
Maximum Outer Diameter	96 mm
Power Range	0.37 kW to 1.1 kW - Single Phase 2 Wire
	0.37 kW to 1.5 kW - Single Phase 3 Wire Incorporated with Thermal Overload Protector
	0.37 kW to 1.5 kW - Three Phase
Speed	2900 rpm
Version	Single Phase - 230 V, 50 Hz, A.C Supply
	Three Phase - 380 - 415 V, 50 Hz, A.C Supply
Class of Insulation	F
Degree of Protection	IP 68
Direction of Rotation	CCW - When viewed from driving end - Single Phase
	Electrically Reversible - Three Phase
Type of Duty	S1 (Continuous)
Down Thrust Load	0.37 kW to 0.55 kW - 1500 N
	0.75 kW to 1.5 kW - 3000 N
Minimum Cooling Flow Along the Motor	0.15 m/sec
Maximum Liquid Temperature	33°C
Max. Starts per Hour	Single phase - 4 Times
	Three phase - 12 Times
Shaft End	Splines
Mounting Standard	NEMA
Method of Starting	Single Phase-3 Wire - Capacitor Start Capacitor Run (CSCR)
	Single Phase-2 Wire - Permanent Split Capacitor (PSC)
	Three Phase - Direct On Line (DOL)
Cable leadout	2/3 wire, Removable type XLPE individual leads



## Material of Construction

Part Name	Type - A
Housings Shell	SS - 304
Stator Shell	SS - 304
Thrust Pad	Carbon Graphite
Thrust Bearing	SS - 420
'O' Ring	Nitrile Rubber (NBR)
Diaphragm	Nitrile Rubber (NBR)
Motor Base	SS - 304
Shaft	SS 431

# RESIN FILLED ENCAPSULATED SUBMERSIBLE MOTORS

Nominal Diameter : **4"**

**"R"** Series

## Technical Data

### 4" SINGLE PHASE 230V, 2 WIRE MOTORS

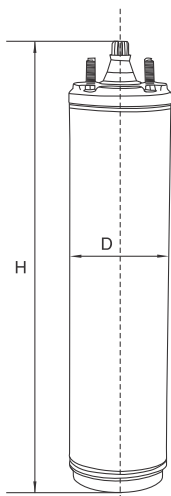
Model	Power		Full Load Current (A)	Starting Current (A)	Full Load		Max. Down Thrust Load (N)	Starting Torque (Nm)	Torque (Nm)	Start Capacitor Value (mf)
	kW	HP			Eff. (%)	P.F. (%)				
R4AS-03M	0.37	0.5	3.5	11	52	92	1500	1.1	1.23	25
R4AS-05M	0.55	0.75	4.7	16	58	92	1500	1.3	1.86	30
R4AS-07M	0.75	1	6	18.5	61	93	3000	1.6	2.65	35
R4AS-11M	1.1	1.5	8	23	68	93	3000	2.1	3.8	45

### 4" SINGLE PHASE 230V, 3 WIRE MOTORS

Model	Power		Full Load Current (A)	Starting Current (A)	Full Load		Max. Down Thrust Load (N)	Starting Torque (Nm)	Torque (Nm)	Start Capacitor Value (mf)	Run Capacitor Value (mf)
	kW	HP			Eff. (%)	P.F. (%)					
R4AS-03S	0.37	0.5	4.3	15	55	72	1500	2.2	1.24	60	10
R4AS-05S	0.55	0.75	6.5	23	58	69	1500	3.2	1.86	80	10
R4AS-07S	0.75	1	7.6	29	62	73	3000	4.5	2.47	80	15
R4AS-11S	1.1	1.5	9.4	46	65	87	3000	6	3.75	100	20
R4AS-15S	1.5	2	11	53	68	88	3000	7.7	4.98	125	30

### 4" THREE PHASE 415V, D.O.L. 3 WIRE MOTORS

Model	Power		Full Load Current (A)	Starting Current (A)	Full Load		Max. Down Thrust Load (N)	Starting Torque (Nm)	Torque (Nm)
	kW	HP			Eff. (%)	P.F. (%)			
R4A-03T	0.37	0.5	1.2	4.9	66	66	1500	3.3	1.26
R4A-05T	0.55	0.75	1.7	7.8	66	76	1500	5.7	1.89
R4A-07T	0.75	1	2.1	10.6	67	71	3000	8.24	2.52
R4A-11T	1.1	1.5	3.2	14	70	75	3000	13.6	3.82
R4A-15T	1.5	2	4	21	75	75	3000	15.6	5.06



All dimensions are in mm  
 Splined shaft 14 Teeth - module 1.5875  
 Pressure angle 30° A.N.S.I.B - 92 - 1 - 1970  
 Coupling Class 5

### DIMENSIONS AND WEIGHT DETAILS FOR 2 WIRE MOTORS

Model	Power		Dimension (mm)		Weight (kg)	Cable Leadouts	
	kW	HP	D	H		Cable Size (Sq mm)	Cable Length (m)
R4AS-03M	0.37	0.5	96	291	9	1.5	1.5
R4AS-05M	0.55	0.75	93	319	10.3	1.5	1.5
R4AS-07M	0.75	1	96	348	11.3	1.5	1.5
R4AS-11M	1.1	1.5	96	396	14	1.5	1.5

### DIMENSIONS AND WEIGHT DETAILS FOR 3 WIRE MOTORS

Model		Power		Dimension (mm)			Net Weight (kg) (Approx.)		Cable Leadouts	
1 Phase	3 Phase	kW	HP	D	H 1Phase	H 3Phase	1Phase	3Phase	Cable Size (Sq mm)	Cable Length (m)
R4AS-03S	R4A-03T	0.37	0.5	96	241	224	8.1	7.2	1.5	1.5
R4AS-05S	R4A-05T	0.55	0.75	96	269	241	9.5	8.1	1.5	1.5
R4AS-07S	R4A-07T	0.75	1	96	298	269	10.4	9	1.5	1.5
R4AS-11S	R4A-11T	1.1	1.5	96	345	298	13.2	10.4	1.5	1.5
R4AS-15S	R4A-15T	1.5	2	96	384	345	14.6	13.2	1.5	1.5