



C.R.I. SUBMERSIBLE MOTORS - 50Hz





C.R.I. PUMPS

Pumping trust. Worldwide.

T H E B E G I N N I N G

of C.R.I., way back in 1961, was a resolute attempt to produce a few irrigation equipments using the limited facilities of an in-house foundry. Eventually the founder's dream was coming true as the small production unit he started kept growing rapidly. Now, after more than five eventful decades, it is an enormous, widely reputed organization, which produces more than 1500 varieties of perfectly engineered pumps and motors and sells its products in numerous countries spread across 6 continents.

C . R . I . I S O N E A M O N G

the few pioneers in the world to produce 100% stainless steel submersible pumps. Having achieved a record production capacity of over 1.5 million pumps per annum, today C.R.I. is rubbing its shoulders with the best brands in the world, with advanced technology and safety standards as its hallmarks.

T H E I N F R A S T R U C T U R E

of C.R.I. is pretty comprehensive with state-of-the-art machineries and high potential in-house R&D recognised by the ministry of science and technology, Govt. of India - all within its own covered area of 200,000 square metres. The production environment is accredited with ISO 9001 & 14001 certifications and the products are CE, UR/UL, IEC, TSE & ISI certified. The R&D team always stays in tune with the changing scenario and seldom fails in coming up with outstanding solutions every time.

N E E D L E S S T O S A Y ,

behind this legendary growth lies the untiring, innovative, enthusiastic and dedicated team work. and, of course, a flawlessly maintained value system too. The name C.R.I. itself encapsulates the company's ethos: " Commitment, Reliability, Innovation".





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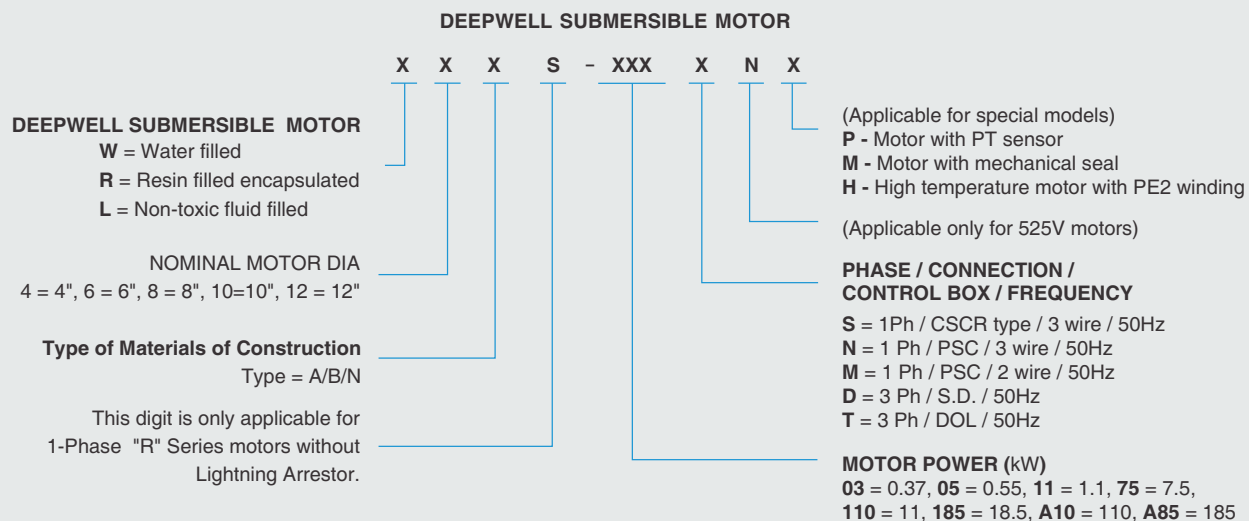
Vision, Mission and values

To be the industry leader providing best - in - class fluid management solutions to individual and institutional customers and societies in our chosen markets.

We will achieve this through our dedicated efforts to enhance the welfare of all our stakeholders and by living by our values of commitment, reliability and Innovation.

GENERAL INFORMATION

MODEL IDENTIFICATION CODE



DEEPWELL SUBMERSIBLE PUMP SET (Pump + Motor)		
PUMP MODEL	+	MOTOR MODEL
S X X - XXX / XX	+	X X X - XXX X
DEEPWELL SUBMERSIBLE PUMP SET (Pump + Motor)		
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.

The unique design of thrust bearings creates a wedge of water between the shoe and the disc and thereby providing better water lubrication and increases the life cycle of the thrust bearings. 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. Shaft seals and sand guard prevents ingress of well water, sand and fiber 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 water level monitor / 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.

Features

- Can be easily dismantled & Repaired
- Higher power factor resulting in lesser power consumption
- 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
- Stator filled with resin for better heat dissipation.

Applications

These prime mover submersible motors are suitable to couple with deepwell submersible pumps used for

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

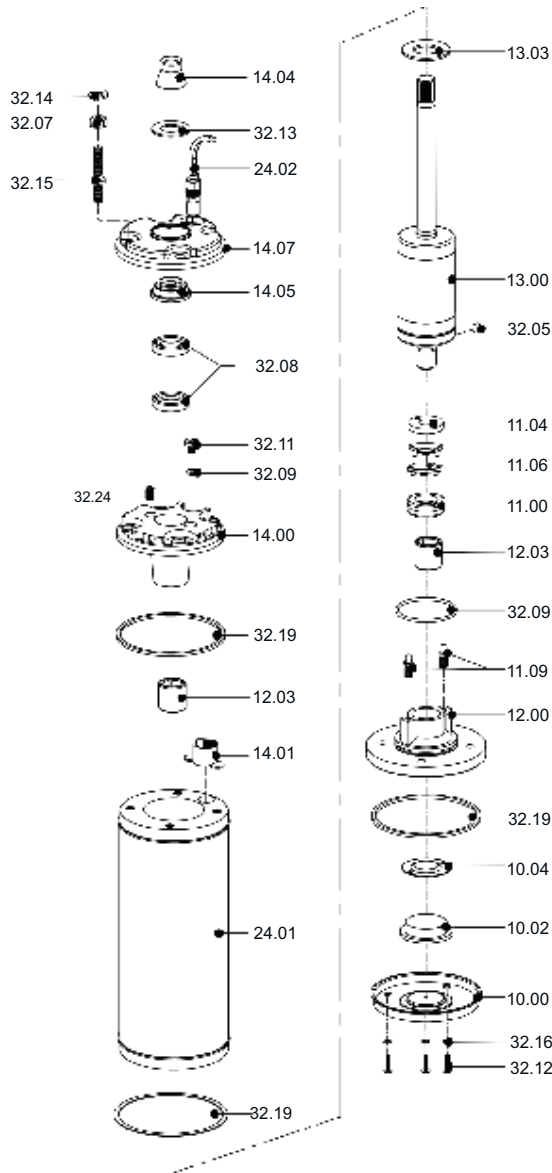


RESIN FILLED ENCAPSULATED SUBMERSIBLE MOTORS

Nominal Diameter : 4"

"R" Series
(0.5 to 3HP)
(*2 wire & 3 wire)

Exploded view



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
14.07	Upper housing shell
21.01	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

* 2 wire motor's stator is in-built with permanent split capacitor

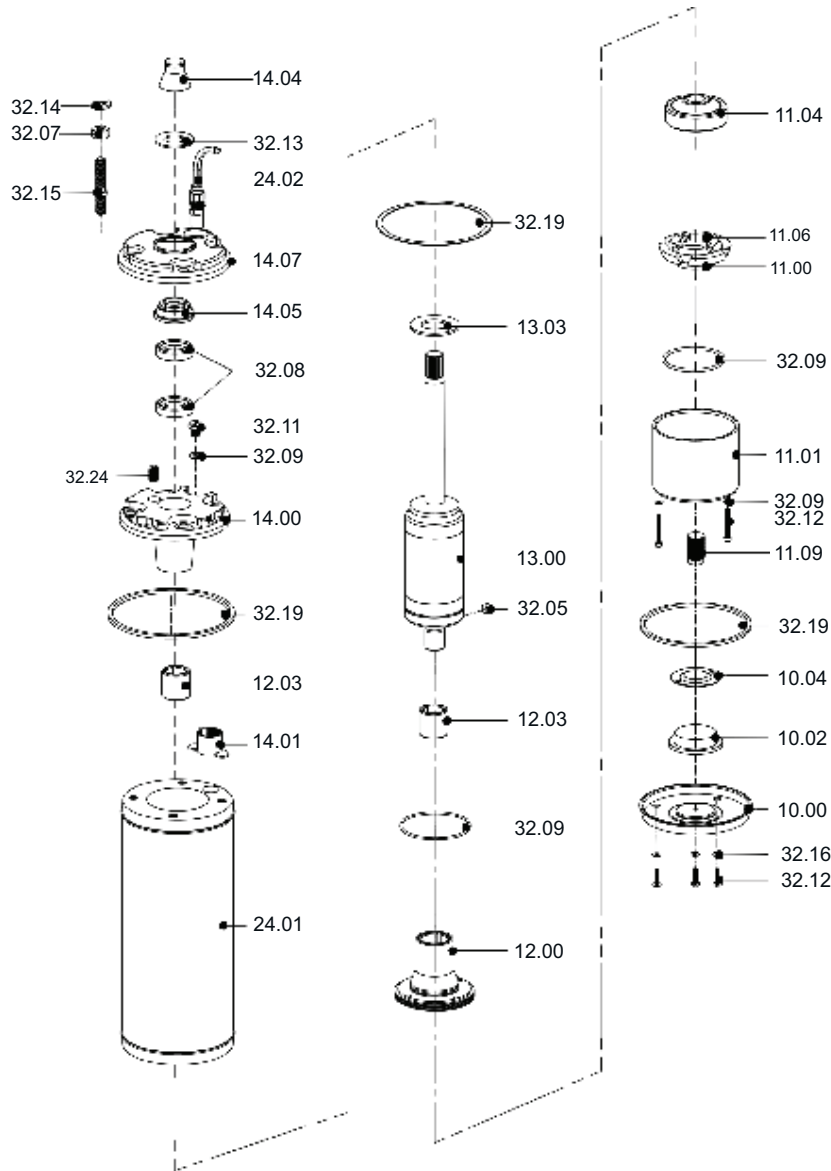
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RESIN FILLED ENCAPSULATED SUBMERSIBLE MOTORS

Nominal Diameter : **4"**

"R" Series
(4HP and above)

Exploded view



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

RESIN FILLED ENCAPSULATED SUBMERSIBLE MOTORS

Nominal Diameter : **4"**

"R" Series

Specifications

Nominal Dia	4" (100mm)
Maximum Outer Diameter	95 mm
Power Range	0.37 kW to 1.1 kW - Single Phase 2 wire 0.37 kW to 2.2 kW - Single 3 wire Incorporated with Thermal Protector upto 0.75 kW 0.37 kW to 7.5 kW - Three phase 3 wire
Speed	2900 rpm
Versions	Single Phase - 230 V, 50 Hz, A.C. Supply Three Phase - 415 V, 50 Hz, A.C. Supply
Class of Insulation	B
Degree of Protection	IP 68
Direction of Rotation	CCW - Single Phase Electrically Reversible - Three Phase
Type of Duty	S1 (continuous)
Down Thrust Load	0.37 - 0.55 kW - 1500N 0.75 - 1.5 kW - 3000N 2.2 - 7.5 kW - 6500N
Minimum Cooling Flow Along the Motor	0.15 m/sec
Maximum Temperature of Liquid	33°C
Starts per Hour	20 times
Shaft Type	Splined as per NEMA standard
Mounting Standard	NEMA Standard
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 TPE flat Cable



3 Wire 2 Wire

Materials 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
Cable	TPE



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RESIN FILLED ENCAPSULATED SUBMERSIBLE MOTORS

Nominal Diameter : **4"**

"R" Series

Technical Data

4" Single Phase 230V, 2 Wire Motors (PSC)

Model	Power		Full Load Current (A)	Starting Current (A)	Full Load		Max. Down Thrust Load (N)	Starting Torque (Nm)	Torque (Nm)	Start Capacitor Value (µf)
	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	1.0	6.0	18.5	61	93	3000	1.6	2.65	35
R4AS-11M	1.1	1.5	8.0	23	68	93	3000	2.1	3.8	45

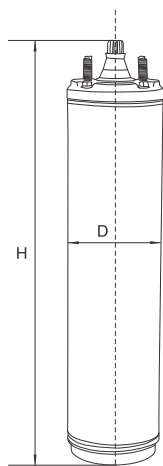
4" Single Phase 230V, 3 Wire Motors (CSCR)

Model	Power		Full Load Current (A)	Starting Current (A)	Full Load		Max. Down Thrust Load (N)	Starting Torque (Nm)	Torque (Nm)	Start Capacitor Value (µf)	Run Capacitor Value (µf)
	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	1.0	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	2.0	11	53	68	88	3000	7.7	4.98	125	30
R4AS-22S	2.2	3.0	16	68	66	96	6500	13.7	10.59	200	45

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	78	1500	3.3	1.26
R4A-05T	0.55	0.75	1.7	7.8	66	80	1500	5.7	1.89
R4A-07T	0.75	1.0	2.1	10.6	67	81	3000	8.24	2.52
R4A-11T	1.1	1.5	3.2	14	70	79	3000	13.6	3.82
R4A-15T	1.5	2.0	4.0	21	75	83	3000	15.6	5.06
R4A-22T	2.2	3.0	6.0	28	76	83	6500	23	7.54
R4A-30T	3.0	4.0	7.6	42	76	85	6500	27	10.3
R4A-37T	3.7	5.0	9.5	46	75	84	6500	34	12.8
R4A-40T	4.0	5.5	10.5	55	76	84	6500	41	14.5
R4A-55T	5.5	7.5	13.0	70	75	86	6500	47	19.1
R4A-75T	7.5	10.0	18.7	100	76	82	6500	60	25.2

Dimensions and Weight details for 2 Wire Motors



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

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	95	291	9.0	1.5	1.5
R4AS-05M	0.55	0.75	95	319	10.3	1.5	1.5
R4AS-07M	0.75	1.0	95	348	11.3	1.5	1.5
R4AS-11M	1.1	1.5	95	396	14.0	1.5	1.5

Dimensions and Weight details for 2 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	95	241	224	8.1	7.2	1.5	1.5
R4AS-05S	R4A-05T	0.55	0.75	95	269	241	9.5	8.1	1.5	1.5
R4AS-07S	R4A-07T	0.75	1.0	95	298	269	10.4	9.0	1.5	1.5
R4AS-11S	R4A-11T	1.1	1.5	95	345	298	13.2	10.4	1.5	1.5
R4AS-15S	R4A-15T	1.5	2.0	95	384	345	14.6	13.2	1.5	1.5
R4AS-22S	R4A-22T	2.2	3.0	95	531	454	23.0	18.2	2.0	2.0
NA	R4A-30T	3.0	4.0	95	-	496	-	20.0	2.0	2.0
NA	R4A-37T	3.7	5.0	95	-	531	-	23.0	2.0	2.0
NA	R4A-40T	4.0	5.5	95	-	556	-	24.0	2.0	2.0
NA	R4A-55T	5.5	7.5	95	-	686	-	30.0	2.0	3.0
NA	R4A-75T	7.5	10.0	95	-	756	-	34.0	2.0	3.0

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