



C.R.I. MOTORS

Pumping trust. Worldwide.



**C.R.I.
SUBMERSIBLE
MOTORS - 50Hz**





C.R.I. MOTORS

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 2300 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 2 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 300,000 square metres. The production environment is accredited with ISO 9001, ISO 14001 & OHSAS 18001 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".





C.R.I. MOTORS

Pumping trust. Worldwide.

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.

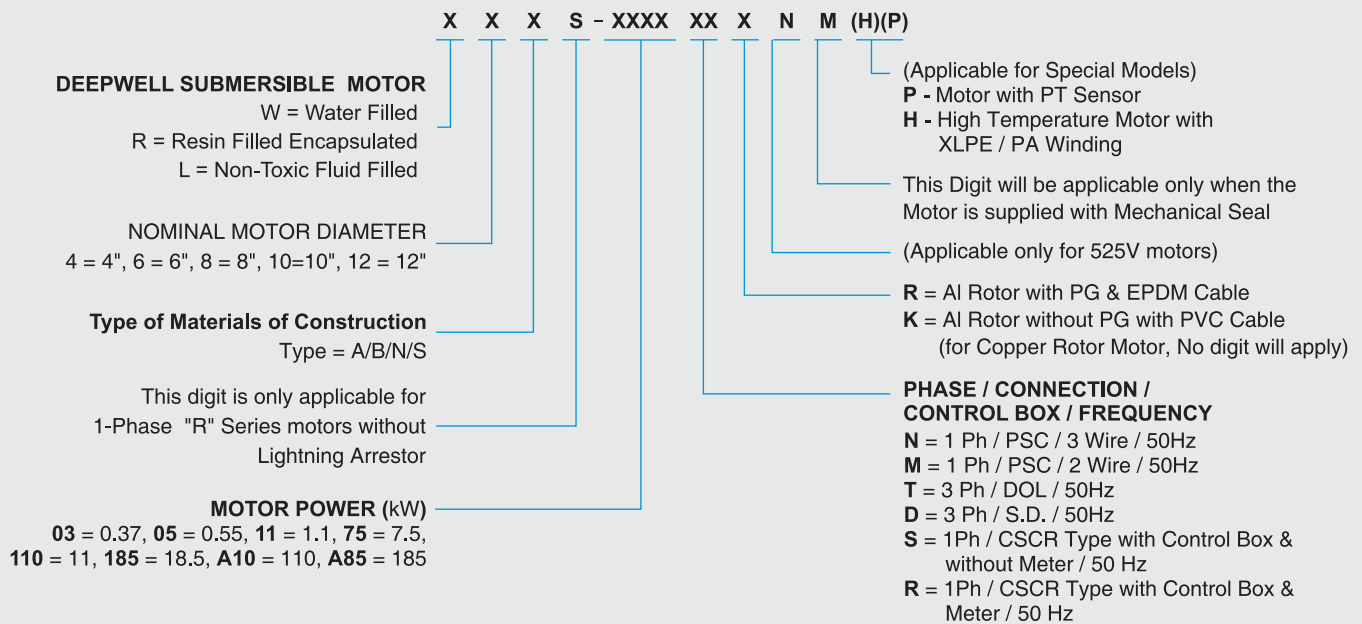
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GENERAL INFORMATION

MODEL IDENTIFICATION CODE

DEEPWELL SUBMERSIBLE MOTOR



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

OIL FILLED SUBMERSIBLE MOTORS

Deepstar

'L' Series Motors

These oil filled motors are one among the proven & successful products from the house of C.R.I. These motors are developed with due diligence complying with all safety standards and giving importance to the customers' need. All the components that are in contact with water are made of AISI 304 stainless steel and the motor is pre-filled with edible grade oil, which acts as coolant media as well as lubricant. The freezing point of the oil used is -10°C .

Ball bearings are used to withstand the high axial load and the lower ball bearings are of angular contact type.

High quality carbon/ceramic mechanical seal and oil seal made of Nitrile rubber are used to ensure better sealing system. Pressure equalizing rubber diaphragm is provided to balance the pressure and volume variations due to thermal expansion of the oil inside the motor. Motor sealing 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 prevent. 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 with adequate protection & control systems. Mounting dimensions of these motors are in accordance with NEMA standard.

Features

- High operating efficiency and lesser power consumption
- Extremely hardwearing ball & angular contact bearings
- Corrosive resistance stainless steel body
- Filled with non-toxic oil
- Can be easily dismantled and repaired

Applications

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

- | | | |
|---------------|---------------------------|--------------------------|
| • Residential | • Industrial water supply | • Ponds |
| • Irrigation | • Sprinkler systems | • Mining |
| • Fountains | • Pressure boosting units | • CBM (coal bed methane) |
| • Gardens | | |



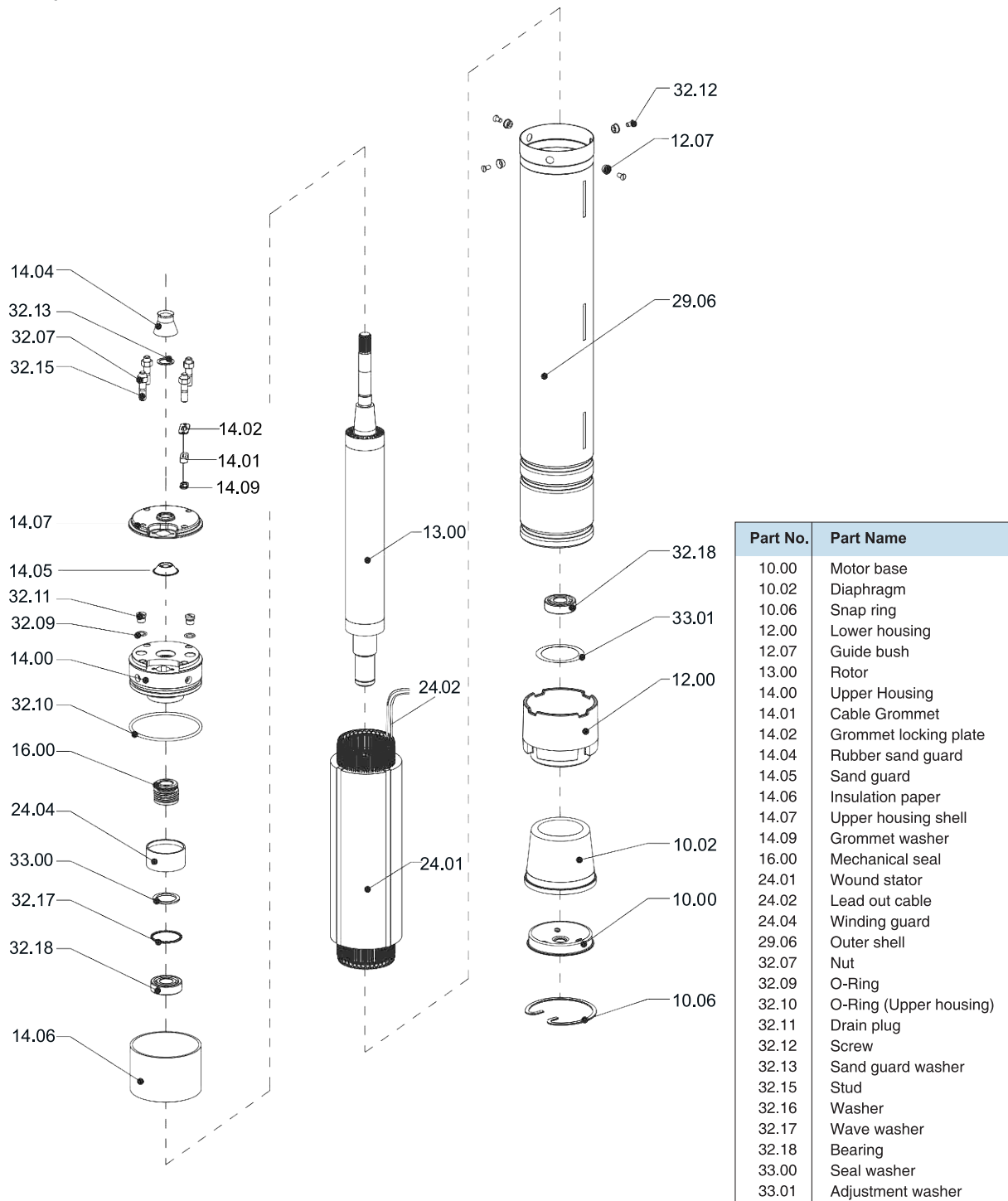
OIL FILLED SUBMERSIBLE MOTORS

Nominal Diameter : 4"

"L" Series

Deepstar

Exploded View



OIL FILLED SUBMERSIBLE MOTORS

Nominal Diameter : **4"**

"L" Series

Deepstar

Specifications

Nominal Dia	4" (100mm)
Maximum Outer Diameter	95 mm
Power Range	0.37 kW to 2.2 kW - Single Phase 0.37 kW to 7.5 kW - Three Phase
Speed	2900 rpm
Version	Single Phase - 230 V, 50 Hz, A.C Supply Three Phase - 380 V & 415 V, 50 Hz, A.C Supply
Class of Insulation	F
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 kW to 0.75 kW - 1500 N 1.1 kW to 4.0 kW - 2500 N 5.5 kW to 7.5 kW - 4500 N
Minimum Cooling Flow Along the Motor	0.15 m/sec
Maximum Liquid Temperature	33°C
Maximum Immersion Depth	150 m
Starts per Hour	30 Times
Shaft Type	Splined as per NEMA Standard
Mounting Standard	NEMA Standard
Method of Starting	Single Phase - Permanent Split Capacitor (PSC) Three Phase - Direct On Line (DOL)
Cable Lead out	3 Wire Permanent Type TPE/EPDM Rubber Flat Cable



Type - A

Materials of Construction

Part Name	Type - A
Outer Shell	SS - 304
Motor Base	SS - 304
Shaft Extension	SS - 420
'O' Ring	High Nitrile Rubber
Mechanical Seal	Carbon / Ceramic
Diaphragm	High Nitrile Rubber
Cable	TPE / EPDM

OIL FILLED SUBMERSIBLE MOTORS

Nominal Diameter : **4"**

"L" Series

Deepstar

Technical Data

SINGLE PHASE, 230V

Model	kW	HP	F.L. Current (A)	Starting Current (A)	Efficiency (%)	Power Factor	Capacitor (MFD)	Thrust Load (N)
L4A-03N	0.37	0.5	3.6	10.4	53	0.88	15	1500
L4A-05N	0.55	0.75	4.8	13.6	58	0.89	20	1500
L4A-07N	0.75	1	6.3	17.6	60	0.90	30	1500
L4A-11N	1.1	1.5	8.6	21.1	64	0.90	40	2500
L4A-15N	1.5	2	10	26.4	70	0.94	50	2500
L4A-22N	2.2	3	14	39.9	74	0.96	60	2500

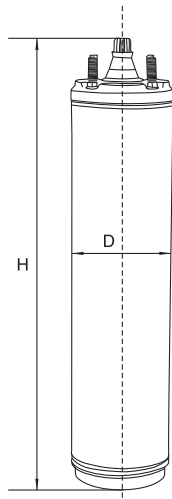
THREE PHASE, 380V

Model	kW	HP	F.L. Current (A)	Starting Current (A)	Efficiency (%)	Power Factor	Thrust Load (N)
L4A-03T	0.37	0.5	1.07	5.2	63	0.80	1500
L4A-05T	0.5	0.75	1.9	9.3	63	0.80	1500
L4A-07T	0.75	1	2.4	11.1	64	0.81	1500
L4A-11T	1.1	1.5	3.15	13	68	0.82	2500
L4A-15T	1.5	2	4.2	19.5	72	0.82	2500
L4A-22T	2.2	3	6	28	72	0.83	2500
L4A-30T	3	4	7.8	40.2	75	0.83	2500
L4A-37T	3.7	5	9.6	48	75	0.83	2500
L4A-40T	4	5.5	10	51	77	0.83	2500
L4A-55T	5.5	7.5	13.6	71.1	78	0.85	4500
L4A-75T	7.5	10	17.6	87.8	79	0.85	4500

THREE PHASE, 415V

Model	kW	HP	F.L. Current (A)	Starting Current (A)	Efficiency (%)	Power Factor	Thrust Load (N)
L4A-03T	0.37	0.5	1.3	7	63	0.74	1500
L4A-05T	0.55	0.75	2.1	11.2	66	0.73	1500
L4A-07T	0.75	1	2.7	13.8	71	0.75	1500
L4A-11T	1.1	1.5	3.7	19	72	0.72	2500
L4A-15T	1.5	2	4.9	25	73	0.72	2500
L4A-22T	2.2	3	6.1	30	73	0.73	2500
L4A-30T	3	4	8	41	73	0.73	2500
L4A-37T	3.7	5	9.9	49	74	0.73	4500
L4A-40T	4	5.5	10.5	56	75	0.73	4500
L4A-55T	5.5	7.5	14.5	73	75	0.74	4500

DIMENSIONS AND WEIGHT



Model	kW	HP	Phase	Dia (mm) D	Height (mm) H	Weight (kg)	Cable Leadouts	
							Cable Size (Sq mm)	Cable Length (m)
L4A-03N	0.37	0.5	Single	95	357	8	1.5	1.5
L4A-05N	0.55	0.75	Single	95	377	8	1.5	1.5
L4A-07N	0.75	1	Single	95	402	9	1.5	1.5
L4A-11N	1.1	1.5	Single	95	432	11	1.5	1.5
L4A-15N	1.5	2	Single	95	475	12	2	1.5
L4N-22N	2.2	3	Single	95	520	14	2.3	2
L4A-03T	0.37	0.5	Three	95	392	8	1.5	1.5
L4A-05T	0.55	0.75	Three	95	407	8	1.5	1.5
L4A-07T	0.75	1	Three	95	427	9	1.5	1.5
L4A-11T	1.1	1.5	Three	95	447	10	1.5	1.5
L4A-15T	1.5	2	Three	95	482	11	1.5	1.5
L4A-22T	2.2	3	Three	95	542	14	1.5	2
L4A-30T	3	4	Three	95	602	19	2	2
L4A-37T	3.7	5	Three	95	602	19	2	2
L4A-40T	4	5.5	Three	95	642	21	2	2
L4A-55T	5.5	7.5	Three	95	762	25	2.3	3
L4A-75T	7.5	10	Three	95	882	31	2.3	3

In view of continuous developments, the information / descriptions / specifications / illustrations are subject to change without notice.

OIL FILLED SUBMERSIBLE MOTORS

Nominal Diameter : **6"**

"L" Series

Specifications

Nominal Dia	6" (150mm)
Maximum Outer Diameter	144 mm
Power Range	5.5 kW to 45 kW - Three Phase
Speed	2880 rpm
Version	Three Phase - 380 V - 415 V, 50 Hz, A.C Supply
Class of Insulation	F
Degree of Protection	IP 68
Direction of Rotation	Electrically Reversible
Type of Duty	S1 (Continuous)
Down Thrust Load	5.5 kW to 15 kW - 15500 N
	18.5 kW to 45 kW - 30000 N
Minimum Cooling Flow Along the Motor	0.16 m/sec
Maximum Liquid Temperature	30°C
Starts per Hour	20 Times
Shaft Type	Splined as per NEMA Standard
Mounting Standard	NEMA Standard
Method of Starting	Three Phase - Direct On Line (DOL)
Cable Lead out	3 Wire Permanent Type EPDM Rubber Flat Cable



Materials of Construction

Part Name	Type - A	Type - B
Outer Shell	SS - 304	SS - 304
Motor Base	SS - 304	Cast Iron
Shaft Extension	SS - 420	SS - 420
'O' Ring	Nitrile Rubber (NBR)	Nitrile Rubber (NBR)
Mechanical Seal	Carbon / Ceramic	Carbon / Ceramic
Diaphragm	Nitrile Rubber (NBR)	Nitrile Rubber (NBR)
Cable	EPDM	EPDM

OIL FILLED SUBMERSIBLE MOTORS

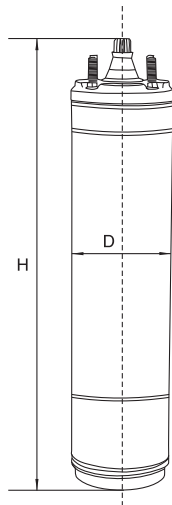
Nominal Diameter : **6"**

"L" Series

Technical Data

THREE PHASE, 380 - 415V

Model	kW	HP	F.L. Current (A)	Starting Current (A)	Efficiency (%)	Power Factor	Speed rpm	Max. Down Thrust Load (N)
L6A-55T	5.5	7.5	12.9	58	76	0.83	2850	15500
L6A-75T	7.5	10	16.5	76	76.5	0.85	2850	15500
L6A-93T	9.3	12.5	19.5	105	77	0.87	2850	15500
L6A-110T	11	15	23	138	78	0.87	2860	15500
L6A-130T	13	17.5	26.3	145	79.5	0.88	2860	15500
L6A-150T	15	20	29.5	200	81	0.88	2860	15500
L6B-185T	18.5	25	36.3	230	82	0.89	2860	30000
L6B-220T	22	30	43.1	275	82.5	0.89	2860	30000
L6B-260T	26	35	50.2	326	82.5	0.90	2860	30000
L6B-330T	30	40	57.4	366	83	0.90	2860	30000
L6B-370T	37	50	70.7	440	83.5	0.91	2860	30000
L6B-450T	45	60	86	522	84	0.91	2860	30000



DIMENSIONS AND WEIGHT

Model	kW	HP	Dia (mm) D	Height (mm) H	Weight (kg)	Cable Leadouts	
						Cable Size (Sq mm)	Cable Length (m)
L6A-55T	5.5	7.5	192	580	31	6	2
L6A-75T	7.5	10	192	620	34.4	6	2
L6A-93T	9.3	12.5	192	655	38	6	2
L6A-110T	11	15	192	685	41.4	6	2.1
L6A-130T	13	17.5	192	715	44	6	2.2
L6A-150T	15	20	192	755	58.3	6	2.3
L6B-185T	18.5	25	192	820	61.4	6	2.5
L6B-220T	22	30	192	880	69	6	2.8
L6B-260T	26	35	192	930	77	6	4.2
L6B-330T	30	40	192	980	84	6	4.2
L6B-370T	37	50	192	1118	92	10	5
L6B-450T	45	60	192	1178	100	10	5

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 pumpends used for

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

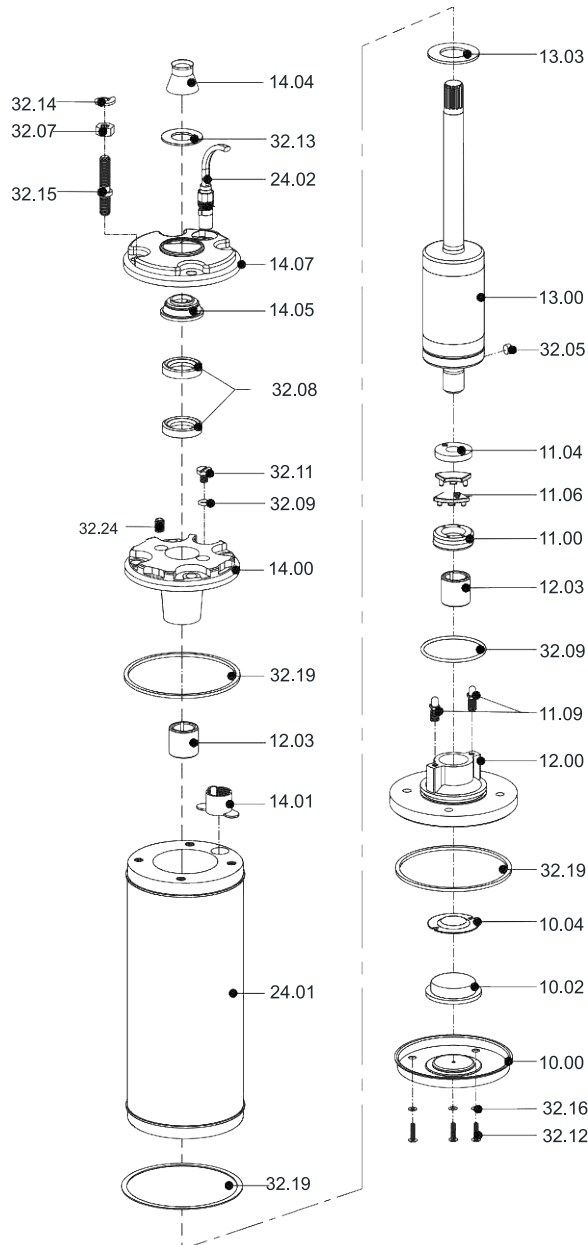


RESIN FILLED ENCAPSULATED SUBMERSIBLE MOTORS

Nominal Diameter : **4"**

"R" Series
(0.37 kW to 2.2 kW)
(*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

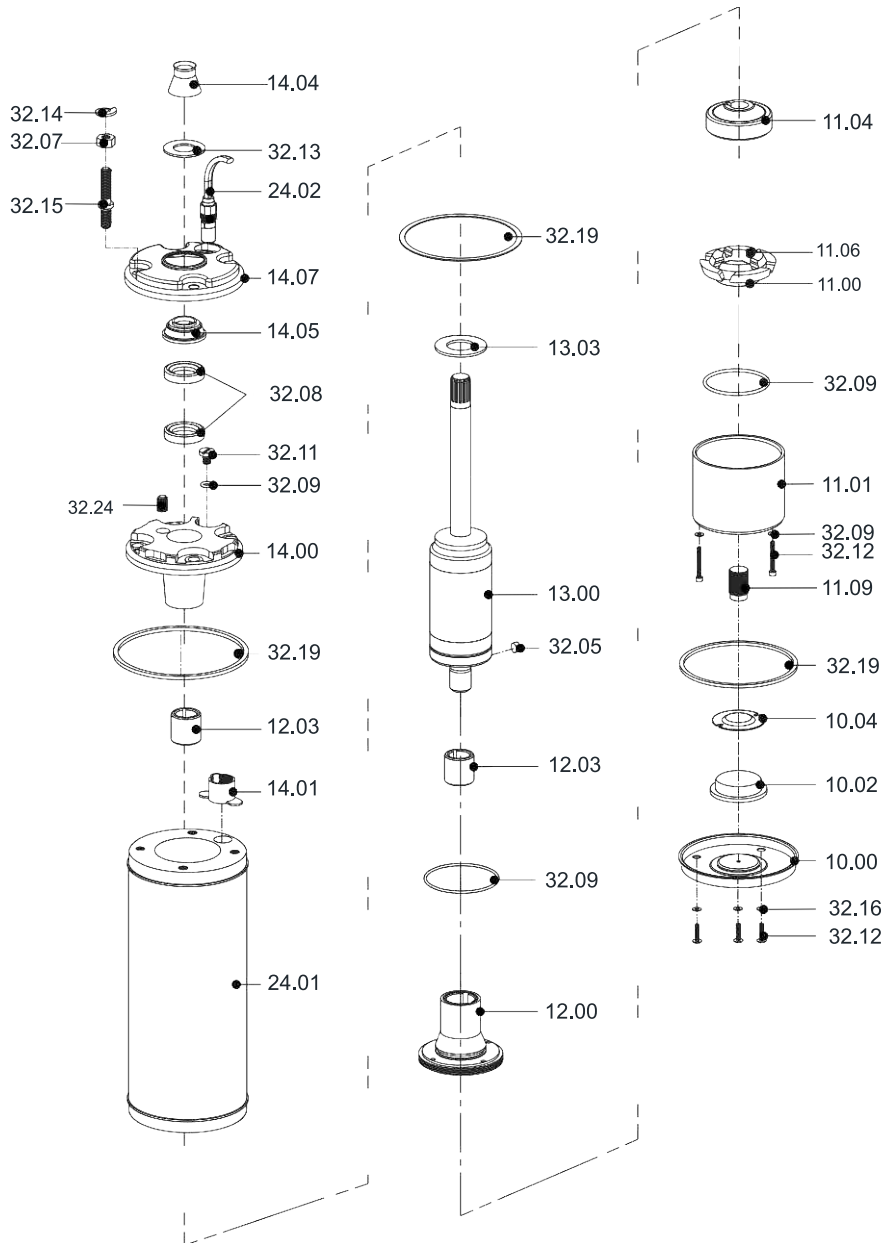
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RESIN FILLED ENCAPSULATED SUBMERSIBLE MOTORS

Nominal Diameter : **4"**

"R" Series
(3.0 kW 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	Upthrust 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 Phase 3 Wire
	Incorporated with Thermal Overload Protector upto 0.75 kW
	0.37 kW to 7.5 kW - Three Phase 3 Wire
Speed	2900 rpm
Version	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 kW to 0.55 kW - 1500 N
	0.75 kW to 1.5 kW - 3000 N
	2.2 kW to 7.5 kW - 6500 N
Minimum Cooling Flow Along the Motor	0.15 m/sec
Maximum Liquid Temperature	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 Lead out	2 & 3 Wire Removable Type TPE Flat Cable



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

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 (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 (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 (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
R4AS-22S	2.2	3	16	68	66	96	6500	13.7	10.59	200	45

4" Three Phase 415V, D.O.L. 3 Wire Motors

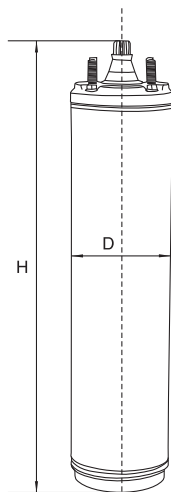
Model	Power		Full Load Current (A)	Starting Current (A)	Full Load		Max. Down Thrust Load (N)	Starting Torque (Nm)	Torque (Nm)
	kW	HP			Eff. (%)	P.F. (%)			
R4A-03T	0.37	0.5	1.2	4.9	66	78	1500	3.3	1.26
R4A-05T	0.55	0.75	1.7	7.8	66	80	1500	5.7	1.89
R4A-07T	0.75	1	2.1	10.6	67	81	3000	8.24	2.52
R4A-11T	1.1	1.5	3.2	14	70	79	3000	13.6	3.82
R4A-15T	1.5	2	4	21	75	83	3000	15.6	5.06
R4A-22T	2.2	3	6	28	76	83	6500	23	7.54
R4A-30T	3	4	7.6	42	76	85	6500	27	10.3
R4A-37T	3.7	5	9.5	46	75	84	6500	34	12.8
R4A-40T	4	5.5	10.5	55	76	84	6500	41	14.5
R4A-55T	5.5	7.5	13	70	75	86	6500	47	19.1
R4A-75T	7.5	10	18.7	100	76	82	6500	60	25.2

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	95	291	9	1.5	1.5
R4AS-05M	0.55	0.75	95	319	10.3	1.5	1.5
R4AS-07M	0.75	1	95	348	11.3	1.5	1.5
R4AS-11M	1.1	1.5	95	396	14	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	95	298	269	10.4	9	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	95	384	345	14.6	13.2	1.5	1.5
R4AS-22S	R4A-22T	2.2	3	95	531	454	23	18.2	2	2
NA	R4A-30T	3	4	95	-	496	-	20	2	2
NA	R4A-37T	3.7	5	95	-	531	-	23	2	2
NA	R4A-40T	4	5.5	95	-	556	-	24	2	2
NA	R4A-55T	5.5	7.5	95	-	686	-	30	2	3
NA	R4A-75T	7.5	10	95	-	756	-	34	2	3



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

In view of continuous developments, the information / descriptions / specifications / illustrations are subject to change without notice.

RESIN FILLED ENCAPSULATED SUBMERSIBLE MOTORS

Nominal Diameter : **6"**

"R" Series

Specifications

Nominal Dia	6" (150mm)
Maximum Outer Diameter	139 mm
Power Range	4 kW to 45 kW
Speed	2880 rpm
Version	Three Phase - 380 V - 415 V, 50 Hz, A.C Supply
Class of Insulation	F
Degree of Protection	IP 68
Direction of Rotation	Electrically Reversible
Type of Duty	S1 (Continuous)
Down Thrust Load	4 kW to 22 kW - 15500 N
	30 kW to 45 kW - 27500 N
Minimum Cooling Flow Along the Motor	0.16 m/sec
Maximum Liquid Temperature	4 kW to 30 kW - 30°C, 37 kW & 45 kW - 50°C
Starts per Hour	20 Times
Shaft Type	Splined as per NEMA Standard
Mounting Standard	NEMA Standard
Method of Starting	Three Phase - Direct On Line (DOL)
Cable Lead out	4 Wire Removable Type TPE Flat Cable



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

RESIN FILLED ENCAPSULATED SUBMERSIBLE MOTORS

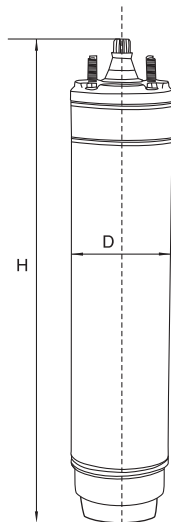
Nominal Diameter : **6"**

"R" Series

Technical Data

6" THREE PHASE 380 - 415V, D.O.L. MOTORS

Model	Power		Full Load Current (A)	Locked Rotor Amps	Full Load		Max. Down Thrust Load (N)	Torque (Nm)
	kW	HP			Eff. (%)	P.F.		
R6A-40T	4	5.5	9.8	41	78	0.82	15500	12.3
R6A-55T	5.5	7.5	13	62	78	0.82	15500	18.6
R6A-75T	7.5	10	17.8	81	78	0.86	15500	25
R6A-93T	9.3	12.5	21.7	105	80	0.8	15500	31.1
R6A-110T	11	15	23.8	118	80	0.85	15500	37.3
R6A-150T	15	20	31.3	159	81	0.85	15500	49.9
R6A-185T	18.5	25	38.3	220	82	0.85	15500	62.4
R6A-220T	22	30	45.6	256	83	0.86	15500	74.7
R6A-300T	30	40	63.4	381	83	0.84	27500	99.4
R6A-370T	37	50	72.8	405	84.5	0.87	27500	123.6
R6A-450T	45	60	93.4	504	86	0.84	27500	148.4



DIMENSIONS AND WEIGHT

Model	Power		Dimension (mm)		Net Weight (kg) (Approx.)	Cable Size (Sq mm)	Cable Length (m)
	kW	HP	D	H1			
R6A-40T	4	5	139	546	34.5	4	3
R6A-55T	5.5	7.5	139	579	37.8	4	3
R6A-75T	7.5	10	139	611	41	4	3
R6A-93T	9.3	12.5	139	644	44.3	4	3
R6A-110T	11	15	139	676	46.5	4	3
R6A-150T	15	20	139	741	53	4	3
R6A-185T	18.5	25	139	806	59.5	4	3
R6A-220T	22	30	139	871	66	4	3
R6A-300T	30	40	139	1001	79	4	3
R6A-370T	37	50	139	1388	117	4	3
R6A-450T	45	60	139	1540	132	4	3

WATER FILLED REWINDABLE SUBMERSIBLE MOTORS

Wellrounder

“W” Series Motors

These motors are eco-friendly, wet type, water filled and rewindable. The stator windings are of water proof synthetic film insulated copper winding wires. It features water lubricated thrust and journal bearings. Motor is pre-filled with clear, cold, pure, fresh, filtered propylene glycon (anti-freeze agent) mixed water. Before commissioning, ensure the pre-filled level of water inside the motor. If any loss of volume is noticed, refill with clear, cold, pure, fresh, filtered water, through water filling plugs / valves provided in the upper housing. Where the use of anti-freeze agent mixed water is not be allowed for special applications, these motors can also be filled with clear, cold, pure, fresh, filtered water and operated. Dynamically balanced rotors maintains 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 to withstand high axial thrust loads and up thrust loads with minimum wear and tear.

The unique design of thrust bearings create 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 of the water inside the motor. Motor sealing 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 with adequate protection & control systems. Mounting dimensions of these motors are in accordance with NEMA standard.

Features

- Water cooled Re-windable motor
- Can be easily dismantled and repaired
- High operating efficiency
- Extremely hardwearing and water lubricated bearings
- Specially designed thrust bearing to withstand high axial loads.
- AISI 630 (17.4 PH) motor shaft extension for longer life.

Applications

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

- | | | |
|---------------------------|---------------------------|--------------------------|
| • Residential | • Pressure boosting units | • Oil & Gas |
| • Irrigation | • Gardens | • De-watering |
| • Fountains | • Sprinkler systems | • CBM (coal bed methane) |
| • Industrial water supply | • Mining | |



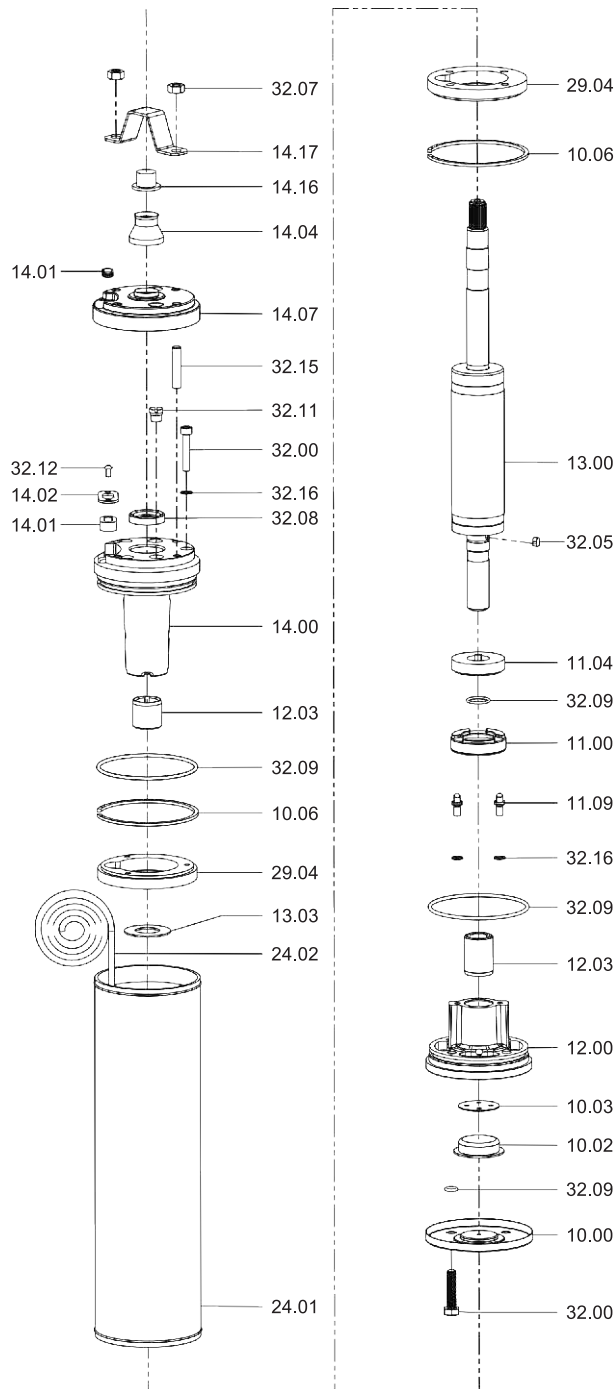
WATER FILLED REWINDABLE SUBMERSIBLE MOTORS

Nominal Diameter : **4"**

"W" Series
(Upto 2 HP)

Wellrounder

Exploded view



Part No.	Part Name
10.00	Motor Base
10.02	Diaphragm
10.03	Diaphragm Plate
10.06	Snap Ring
11.00	Thrust Base
11.04	Thrust Pad
11.09	Rocker Screw
12.00	Lower Housing
12.03	Bush
13.00	Rotor
13.03	Up Thrust Washer
14.00	Upper Housing
14.01	Cable Grommet
14.02	Grommet Clamp
14.04	Rubber Sand Guard
14.07	Upper Housing Shell
14.16	Motor Cap
14.17	Motor Clamp
24.01	Wound Stator
24.02	Lead Out Cable
29.04	Flange
32.00	Bolt
32.05	Key
32.07	Nut
32.08	Oil Seal
32.09	O Ring
32.11	Drain Plug
32.12	Screw
32.15	Stud
32.16	Washer

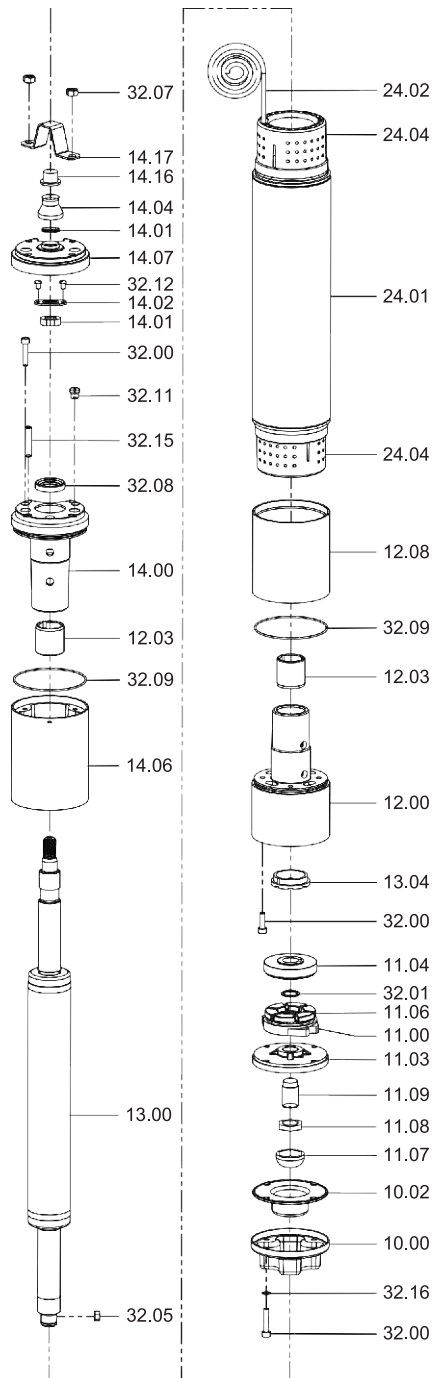
WATER FILLED REWINDABLE SUBMERSIBLE MOTORS

Nominal Diameter : 4"

"W" Series
(3HP & above)

Wellrounder

Exploded view



Part No.	Part Name
10.00	Motor Base
10.02	Diaphragm
11.00	Thrust Base
11.03	Thrust Base Plate
11.04	Thrust Pad
11.06	Thrust Segment
11.07	Rocker Screw Cap
11.08	Rocker Screw Nut
11.09	Rocker Screw
12.00	Lower Housing
12.03	Bush
12.08	Lower Pipe
13.00	Rotor
13.04	Counter Thrust Pad
14.00	Upper Housing
14.01	Cable Grommet
14.02	Grommet Clamp
14.04	Rubber Sand Guard
14.06	Upper Pipe
14.07	Upper Housing Shell
14.16	Motor Cap
14.17	Motor Clamp
24.01	Wound Stator
24.02	Lead Out Cable
24.04	Winding Guard
32.00	Bolt
32.01	Circlip
32.05	Key
32.07	Nut
32.08	Oil Seal
32.09	O Ring
32.11	Drain Plug
32.12	Screw
32.15	Stud
32.16	Washer

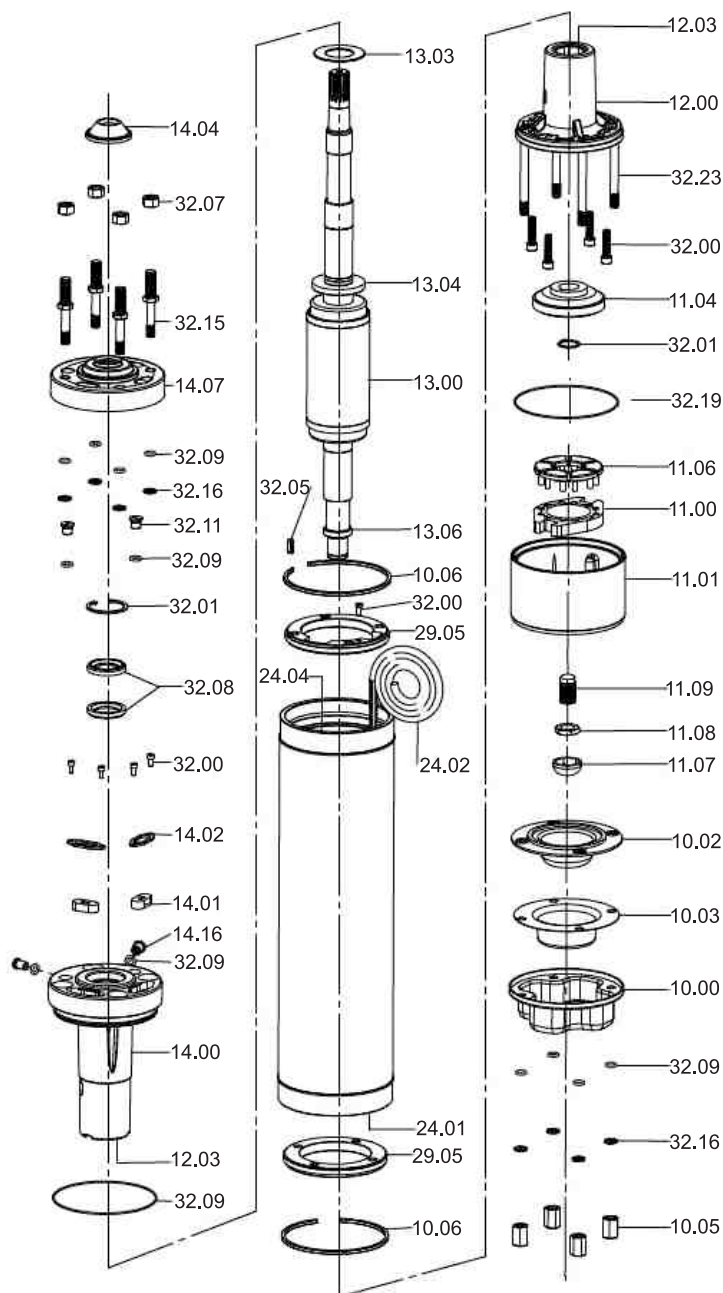
WATER FILLED REWINDABLE SUBMERSIBLE MOTORS

Nominal Diameter : **6"**

"W" Series

Wellrounder

Exploded view



Part No.	Part Name
10.00	Motor Base
10.02	Diaphragm
10.03	Diaphragm Bottom Plate
10.05	Doom Nut
10.06	Snap Ring
11.00	Thrust Base
11.01	Thrust Base Housing
11.04	Thrust pad
11.06	Thrust Segment
11.07	Rocker cap
11.08	Rocker Lock Nut
11.09	Rocker Screw
12.00	Lower Housing
12.03	Bush-Carbon
13.00	Rotor
13.03	Up Thrust Washer
13.04	Counter Thrust Pad
13.06	Pad Supporting Ring
14.00	Upper Housing
14.01	Cable Grommet
14.02	Cable Grommet Lock Plate
14.04	Sand Guard Rubber
14.07	Upper Housing Shell
14.16	Inlet / Outlet Valve
24.01	Wound Stator
24.02	Cable
24.04	Winding Guard
29.05	Retaining Ring
32.00	Bolt
32.01	Circlip
32.05	Key
32.07	Nut
32.08	Oil Seal
32.09	O-Ring
32.11	Plug
32.15	Stud
32.16	Washer
32.19	Gasket
32.23	Tie Rod

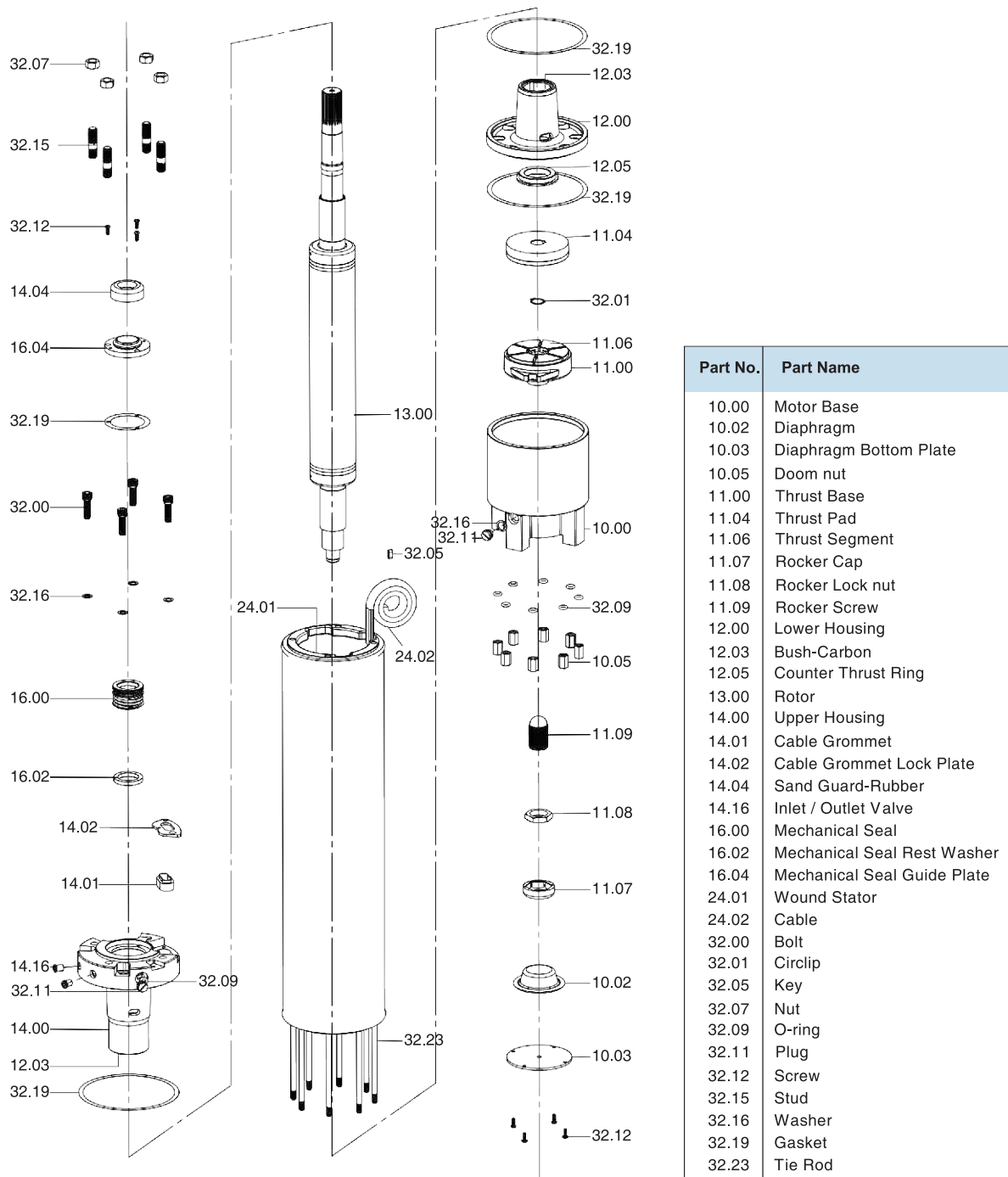
WATER FILLED REWINDABLE SUBMERSIBLE MOTORS

Nominal Diameter : **8"**

"W" Series

Wellrounder

Exploded view



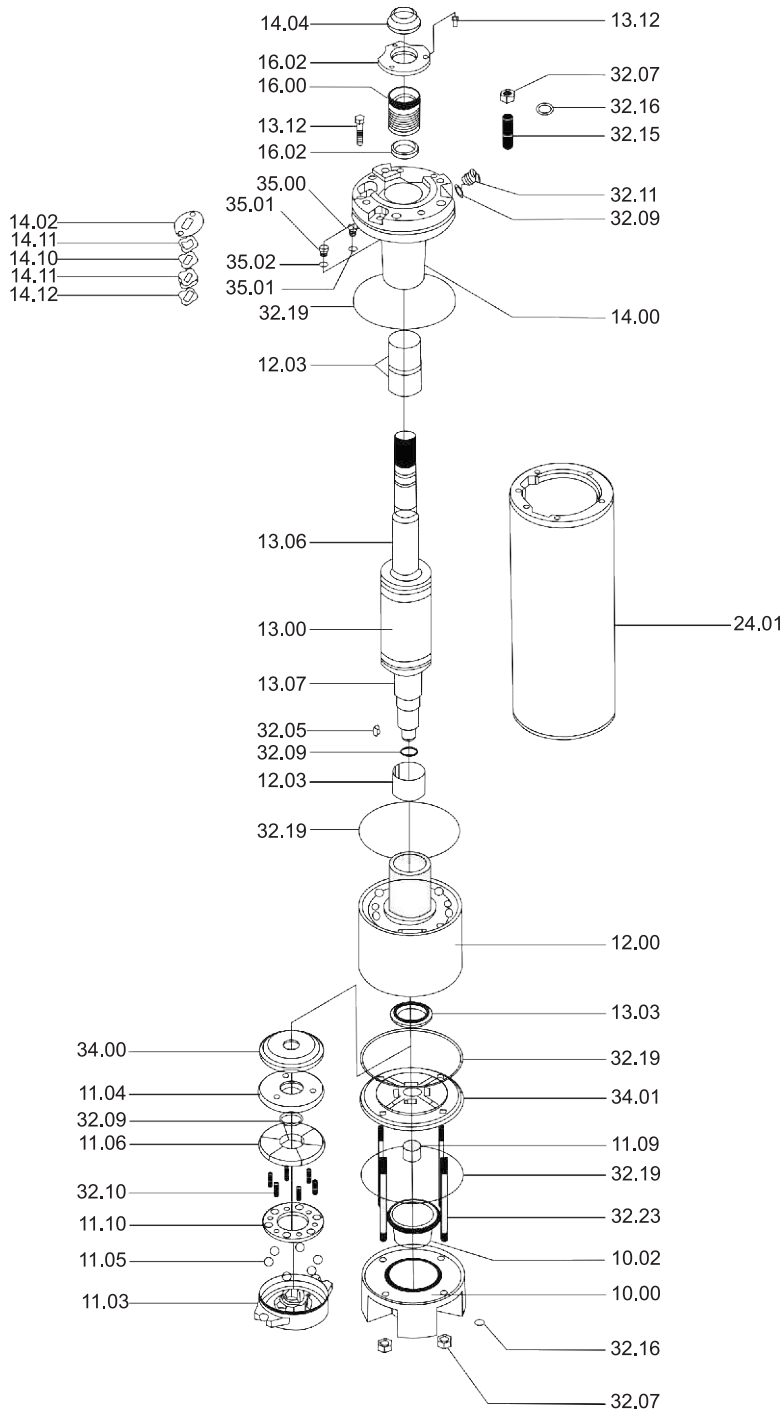
WATER FILLED REWINDABLE SUBMERSIBLE MOTORS

Nominal Diameter : **10"**

"W" Series

Wellrounder

Exploded view



Part No.	Part Name
10.00	Motor Base
10.02	Diaphragm
11.03	Thrust Bearing Bottom
11.04	Thrust Pad
11.05	Ball
11.09	Rocker Screw
12.00	Lower Housing
12.03	Bush
13.00	Rotor
13.03	Upthrust Washer
13.06	Rotor Sleeve
13.07	Rotor Sleeve
14.00	Upper Housing
14.02	Grommet Locking Plate
14.04	Rubber Sand Guard
14.10	Cable clamping Plate
14.11	Cable clamping Plastic
14.12	Cable Clamping Washer
16.00	Mechanical Seal
16.02	Mechanical Seal Clamp Plate
24.01	Wound Stator
32.01	Circlip
32.05	Pad Key
32.07	Nut
32.09	"O" Ring
32.10	Segment Guide Pin
32.11	Drain Plug
32.12	Screw
32.15	Stud
32.16	Washer
32.19	Gasket
32.23	Tie Rod
34.00	Thrust Pad Holder
34.01	Adjustment Cover
35.00	PT Sensor Cap
35.01	PT Sensor Dummy
35.02	'O' Ring

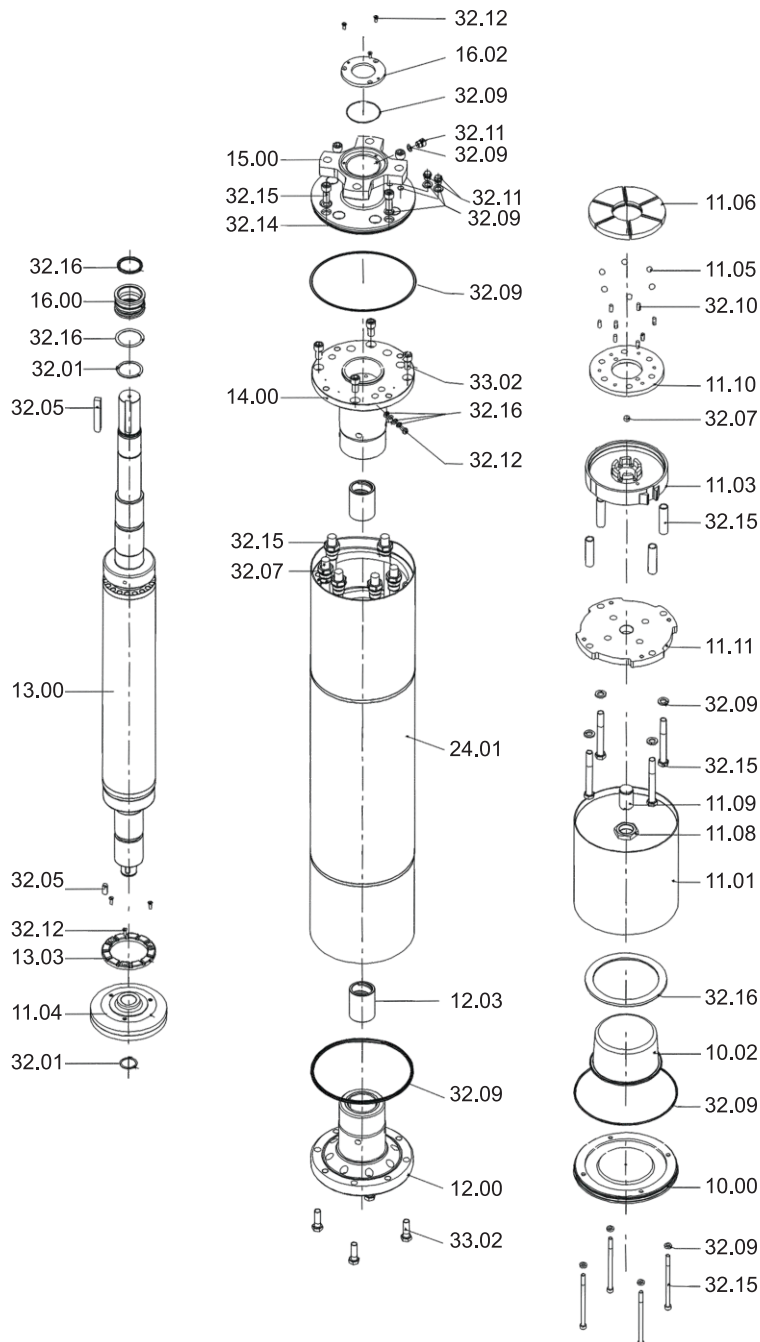
WATER FILLED REWINDABLE SUBMERSIBLE MOTORS

Nominal Diameter : **12"**

"W" Series

Wellrounder

Exploded view



Part No.	Part Name
10.00	Motor base
10.02	Diaphragm
11.01	Thrust base housing
11.03	Thrust bearing bottom
11.04	Thrust Pad
11.05	Ball
11.06	Thrust segment
11.08	Rocker screw nut
11.09	Rocker screw
11.10	Ball guide ring
11.11	Thrust bearing base plate
12.00	Lower housing
12.03	Bush
13.00	Rotor
13.03	Upthrust Washer
14.00	Upper housing
15.00	Seal housing
16.00	Mechanical seal
16.02	Mechanical seal clamp plate
24.01	Wound stator
32.01	Circlip
32.05	Key
32.07	Nut
32.09	O - Ring
32.10	Segment guide pin
32.11	Drain plug
32.12	Screw
32.15	Stud
32.16	Washer
32.23	Tie rod
33.02	Bolt

WATER FILLED REWINDABLE SUBMERSIBLE MOTORS

Nominal Diameter : **4"**

"W" Series

Wellrounder

Specifications

Nominal Dia	4" (100mm)
Maximum Outer Diameter	97 mm
Power Range	0.37 kW to 2.2 kW - Single Phase
	(Incorporated with Thermal Overload Protector)
	0.37 kW to 7.5 kW - Three Phase
Speed	2900 rpm
Version	Single Phase - 230 V, 50 Hz, A.C Supply
	Three Phase - 380 V - 415 V, 50 Hz, A.C Supply
Class of Insulation	Y
Degree of Protection	IP 58
Direction of Rotation	CCW - Single Phase
	Electrically Reversible - Three Phase
Type of Duty	S1 (Continuous)
Down Thrust Load	0.37 kW to 1.5 kW - 3000 N
	2.2 kW to 7.5 kW - 6500 N
Minimum Cooling Flow Along the Motor	0.15 m/sec
Maximum Liquid Temperature	33°C
Starts per Hour	20 Times
Shaft Type	Splined as per NEMA Standard
Mounting Standard	NEMA Standard
Method of Starting	Single Phase - Capacitor Start Capacitor Run (CSCR)
	Three Phase - Direct On Line (DOL)
Cable Lead out	Permanently Connected and Sealed 3/4 Core TPE/EPDM Rubber Flat Cable



Materials of Construction

Part Name	Type - A	Type - N
Shaft Seal	Nitrile Rubber (NBR)	Nitrile Rubber (NBR)
Housing Shell	SS - 304	SS - 316
Stator Shell	SS - 304 / 441	SS - 316
Thrust Pad	Carbon Graphite	Carbon Graphite
Thrust Bearing	SS - 420	SS - 420
Diaphragm	High Nitrile Rubber	High Nitrile Rubber
Motor Base	SS - 304	SS - 316
Bush	LTB	LTB

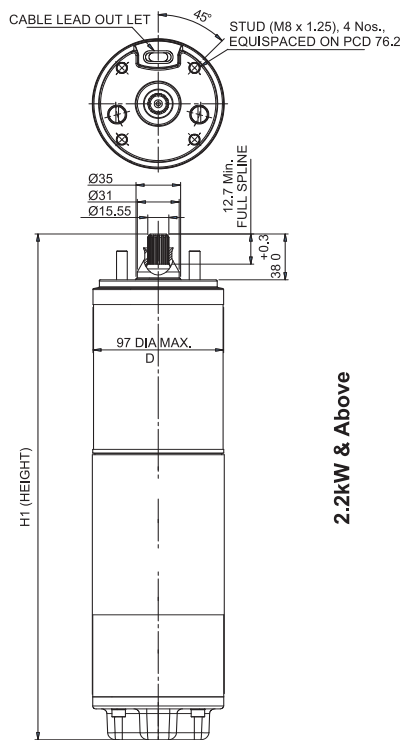
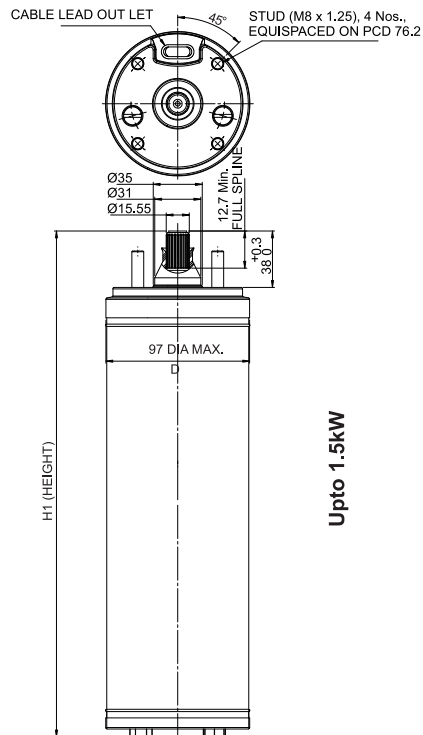
WATER FILLED REWINDABLE SUBMERSIBLE MOTORS

Nominal Diameter : **4"**

"W" Series

Wellrounder

Technical Data



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

4" SINGLE PHASE 230V 3 WIRE MOTORS

Model	Motor Power		Full Load Max.(A)	Starting Current (A)	Full load		Max. Down Thrust Load (N)	Starting Torque (Nm)	Torque (Nm)
	kW	HP			Eff.%	Power Factor			
W4A-03S	0.37	0.5	5	16	39	0.89	3000	2	1.2
W4A-05S	0.55	0.75	6	21	52	0.9	3000	2.9	1.8
W4A-07S	0.75	1	7.5	26	54	0.9	3000	4.1	2.5
W4A-11S	1.1	1.5	10	40	57	0.95	3000	6.1	3.7
W4A-15S	1.5	2	12	48	60	0.95	3000	8.3	4.9
W4A-22S	2.2	3	16.5	66	62	0.95	6500	13.3	7.4

4" THREE PHASE 380-415V D.O.L MOTORS

Model	Motor Power		Full Load Max.(A)	Starting Current (A)	Full load		Max. Down Thrust Load (N)	Starting Torque (Nm)	Torque (Nm)
	kW	HP			Eff. %	Power Factor			
W4A-03T	0.37	0.5	1.8	5	48	0.75	3000	2.2	1.2
W4A-05T	0.55	0.75	2.3	7	57	0.75	3000	3.4	1.9
W4A-07T	0.75	1	2.8	9	64	0.75	3000	4.5	2.5
W4A-11T	1.1	1.5	3.8	15	67	0.76	3000	6.7	3.7
W4A-15T	1.5	2	4.6	19	69	0.79	3000	9	5
W4A-22T	2.2	3	7	32	70	0.73	6500	14.1	7.5
W4A-30T	3	4	9	42	72	0.72	6500	19	10
W4A-37T	3.7	5	10	44	71	0.76	6500	22	12.4
W4A-40T	4	5.5	10.3	47	69	0.76	6500	23	12.4
W4A-55T	5.5	7.5	14	71	70	0.74	6500	33.7	18.7
W4A-75T	7.5	10	18.5	93	73	0.74	6500	45.2	25.1

DIMENSIONS AND WEIGHT

Model	Motor Power		Method of Starting	Dimension (mm)		Nett Weight (kg) (approx.)	Cable leadouts	
	kW	HP		D	H1		Cable Size (Sq.mm)	Cable Length (m)
W4A-03S	0.37	0.5	S	97	496	11.6	1.5	1.5
W4A-05S	0.55	0.75	S	97	511	12.6	1.5	1.5
W4A-07S	0.75	1	S	97	556	13.8	1.5	1.5
W4A-11S	1.1	1.5	S	97	596	15.7	2.5	1.5
W4A-15S	1.5	2	S	97	646	17.7	2.5	1.5
W4A-22S	2.2	3	S	97	806	33.4	2.5	2
W4A-03T	0.37	0.5	T	97	496	11.7	1.5	1.5
W4A-05T	0.55	0.75	T	97	511	13.3	1.5	1.5
W4A-07T	0.75	1	T	97	576	15.2	1.5	1.5
W4A-11T	1.1	1.5	T	97	626	16.6	1.5	1.5
W4A-15T	1.5	2	T	97	666	17.1	1.5	1.5
W4A-22T	2.2	3	T	97	741	27.6	1.5	2
W4A-30T	3	4	T	97	806	29.5	1.5	2
W4A-37T	3.7	5	T	97	846	32.9	2.5	2
W4A-40T	4	5.5	T	97	846	32.9	2.5	2
W4A-55T	5.5	7.5	T	97	970	38.3	2.5	3
W4A-75T	7.5	10	T	97	1210	44.8	2.5	3

* METHOD OF STARTING : S - 1P / CSCR / 3 Wire / 50Hz T - 3P / D.O.L. / 50Hz

In view of continuous developments, the information / descriptions / specifications / illustrations are subject to change without notice.

WATER FILLED REWINDABLE SUBMERSIBLE MOTORS

Nominal Diameter : **6"**

"W" Series

Wellrounder

Specifications

Nominal Dia	6" (150mm)
Maximum Outer Diameter	W6A / N - 143 mm
Power Range	4 kW to 45 kW - Three Phase
Speed	2900 rpm
Version	Three Phase - 380 V, 400 V, 415 V & 525 V, 50 Hz, A.C Supply
Class of Insulation	Y
Degree of Protection	IP 58 / IP 68
Direction of Rotation	Electrically Reversible - Three Phase
Type of Duty	S1 (Continuous)
Down Thrust Load	4 kW to 22 kW - 15500 N
	26 kW to 45 kW - 27500 N
Minimum Cooling Flow Along the Motor	0.15 m/sec
Maximum Liquid Temperature	33°C
Starts per Hour	20 Times
Shaft Type	Splined as per NEMA Standard
Mounting Standard	NEMA Standard
Method of Starting	4 kW to 45 kW - Direct On Line (DOL)
	5.5 kW to 45 kW - Star Delta (SD)
Cable Lead out	Permanently Connected and Sealed 3/4 Core EPDM Rubber Flat Cable
Thermal Protection	High Temperature Motors for 70°C / 90°C can be supplied with PT Sensor and XLPE / PA Winding



Materials of Construction

Part Name	Type - A	Type - N
Shaft Seal / Mechanical Seal	Nitrile Rubber (NBR) / Ceramic - Carbon	Nitrile Rubber (NBR) / Ceramic - Carbon
Upper & Lower Housings	Cast Iron	Cast Iron
Stator Shell	SS - 304 / SS - 441	SS - 316
Thrust Pad	Carbon Graphite	Carbon Graphite
Thrust Bearing	SS - 420	SS - 420
Diaphragm	High Nitrile Rubber	High Nitrile Rubber
Motor Base	SS - 304	SS - 316
Upper Housing Shell	SS - 304	SS - 316
Shaft	EN-8	EN-8
Shaft Extension	17.4 Ph	17.4 Ph
Sleeves	SS - 431	SS - 431

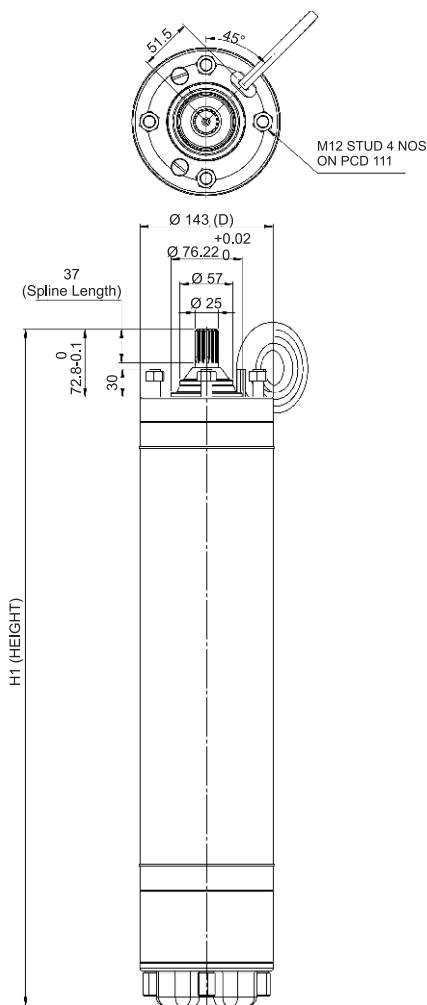
WATER FILLED REWINDABLE SUBMERSIBLE MOTORS

Nominal Diameter : **6"**

"W" Series

Wellrounder

Technical Data



All Dimensions are in mm
Splined Shaft : 15 teeth -
Module 1.5875
Pressure Angle 30°
A.N.S.I.B-92-1-1970
Tolerance Class 5

6" THREE PHASE 380V, D.O.L. & S.D MOTORS

Models		Motor Power		Full Load	Starting	Eff.%	Power	Max. Down	Starting	Torque
D.O.L	S.D	kW	HP	Max (A)	Current (A)		Factor	Thrust Load (N)	Torque (Nm)	(Nm)
W6A-40T	-	4	5.5	11	41	76	0.72	15500N	20	14
W6A-45T	-	4.5	6	12.5	46	76	0.77	15500N	21	15
W6A-55T	W6A-55D	5.5	7.5	13.7	50	78	0.78	15500N	24	18
W6A-75T	W6A-75D	7.5	10	19	67	82	0.76	15500N	27	25
W6A-93T	W6A-93D	9.3	12.5	22	81	82	0.8	15500N	35	31
W6A-110T	W6A-110D	11	15	26	99	82	0.81	15500N	43	37
W6A-130T	W6A-130D	13	17.5	30	115	83	0.81	15500N	51	43
W6A-150T	W6A-150D	15	20	34	145	83	0.82	15500N	62	49
W6A-185T	W6A-185D	18.5	25	43	185	83	0.82	15500N	98	61
W6A-220T	W6A-220D	22	30	50	222	83	0.82	15500N	115	73
W6A-260T	W6A-260D	26	35	57	267	83	0.83	27500N	130	85
W6A-300T	W6A-300D	30	40	68	352	83	0.83	27500N	190	97
W6A-370T	W6A-370D	37	50	84	416	82	0.82	27500N	240	122
W6A-450T	W6A-450D	45	60	95	461	82	0.82	27500N	390	150

6" THREE PHASE 50Hz, 400V, D.O.L. & S.D MOTORS

Models		Motor Power		Full Load	Starting	Eff.%	Power	Max. Down	Starting	Torque
D.O.L	S.D	kW	HP	Max (A)	Current (A)		Factor	Thrust Load (N)	Torque (Nm)	(Nm)
W6A-40T	-	4	5.5	10.8	42	76	0.72	15500N	19	13
W6A-45T	-	4.5	6	12.2	47	77	0.77	15500N	20	14
W6A-55T	W6A-55D	5.5	7.5	13.5	51	78	0.78	15500N	23	17
W6A-75T	W6A-75D	7.5	10	18.5	68	83	0.76	15500N	26	24
W6A-93T	W6A-93D	9.3	12.5	21.5	82	83	0.8	15500N	34	30
W6A-110T	W6A-110D	11	15	25	100	82	0.81	15500N	42	36
W6A-130T	W6A-130D	13	17.5	29.5	116	83	0.81	15500N	50	42
W6A-150T	W6A-150D	15	20	33.5	146	83	0.82	15500N	61	48
W6A-185T	W6A-185D	18.5	25	42.5	186	83	0.82	15500N	97	60
W6A-220T	W6A-220D	22	30	49.5	223	83	0.82	15500N	115	73
W6A-260T	W6A-260D	26	35	56.5	268	83	0.83	27500N	135	85
W6A-300T	W6A-300D	30	40	67.5	353	83?	0.83	27500N	190	97
W6A-370T	W6A-370D	37	50	83	418	83	0.82	27500N	240	122
W6A-450T	W6A-450D	45	60	94	463	83	0.82	27500N	390	150

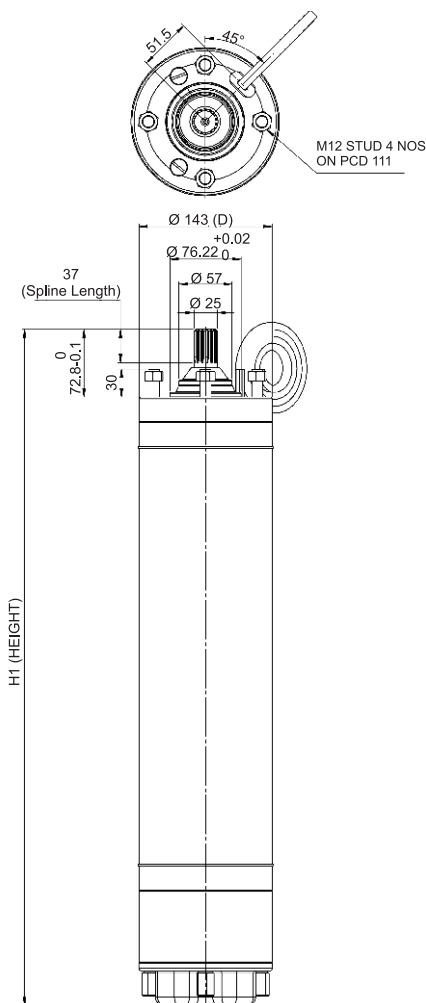
WATER FILLED REWINDABLE SUBMERSIBLE MOTORS

Nominal Diameter : **6"**

"W" Series

Wellrounder

Technical Data



All Dimensions are in mm
Splined Shaft : 15 teeth -
Module 1.5875
Pressure Angle 30°
A.N.S.I.B-92-1-1970
Tolerance Class 5

6" THREE PHASE 415V, D.O.L. & S.D MOTORS

Model		Motor Power		Full Load Max (A)	Starting Current (A)	Full load		Max. Down Thrust Load (N)	Starting Torque (Nm)	Torque (Nm)
D.O.L	S.D	kW	HP			Eff.%	Power Factor			
W6A-40T	-	4	5.5	10.8	43	76	0.70	15500	20	14
W6A-45T	-	4.5	6	12	48	76	0.75	15500	21	15
W6A-55T	W6A-55D	5.5	7.5	13.5	52	78	0.77	15500	24	18
W6A-75T	W6A-75D	7.5	10	18.5	70	82	0.75	15500	27	25
W6A-93T	W6A-93D	9.3	12.5	21	84	82	0.79	15500	35	31
W6A-110T	W6A-110D	11	15	25	102	82	0.80	15500	43	37
W6A-130T	W6A-130D	13	17.5	29.5	118	83	0.80	15500	51	43
W6A-150T	W6A-150D	15	20	33	148	83	0.81	15500	62	49
W6A-185T	W6A-185D	18.5	25	42.5	188	83	0.81	15500	98	61
W6A-220T	W6A-220D	22	30	49.2	225	83	0.81	15500	118	74
W6A-260T	W6A-260D	26	35	56.5	270	83	0.82	27500	138	86
W6A-300T	W6A-300D	30	40	67.2	355	83	0.82	27500	196	98
W6A-370T	W6A-370D	37	50	83	420	82	0.83	27500	245	123
W6A-450T	W6A-450D	45	60	93	465	82	0.83	27500	396	151

6" THREE PHASE 525V, D.O.L. & S.D. MOTORS

Model		Motor Power		Full Load Max (A)	Starting Current (A)	Full load		Max. Down Thrust Load (N)	Starting Torque (Nm)	Torque (Nm)
D.O.L	S.D	kW	HP			Eff.%	Power Factor			
W6A-55TN	W6A-55DN	5.5	7.5	11	45	79.3	0.72	15500	24	18.4
W6A-75TN	W6A-75DN	7.5	10	15	60	75	0.81	15500	28	24.5
W6A-93TN	W6A-93DN	9.3	12.5	19.5	85	78.3	0.8	15500	35	30.6
W6A-110TN	W6A-110DN	11	15	20	95	82.5	0.8	15500	43.2	36.7
W6A-130TN	W6A-130DN	13	17.5	22.5	112	83	0.82	15500	51	43
W6A-150TN	W6A-150DN	15	20	27	135	82.5	0.82	15500	61.8	49
W6A-185TN	W6A-185DN	18.5	25	30.5	152	86	0.82	15500	98.1	61.3
W6A-220TN	W6A-220DN	22	30	38	180	83	0.8	15500	118	73.5
W6A-260TN	W6A-260DN	26	35	44	200	83.5	0.83	27500	138.3	85.8
W6A-300TN	W6A-300DN	30	40	51	235	84	0.83	27500	196.1	98.1
W6A-370TN	W6A-370DN	37	50	63	285	85	0.85	27500	245	122.6
W6A-450TN	W6A-450DN	45	60	75	340	85.5	0.85	27500	396	150

DIMENSIONS AND WEIGHT

Model		Motor Power		*Method of Starting	Dimension (mm)		Nett Weight (Kg) (Approx.)	Cable leadouts		
D.O.L	S.D	kW	HP		D	H1		Cable Size (Sq.mm)		Cable Length (m)
								D.O.L	S.D	
W6A-40T	-	4	5.5	T	143	734	42	2.5	-	3
W6A-45T	-	4.5	6	T	143	754	44	2.5	-	3
W6A-55T	W6A-55D	5.5	7.5	T / D	143	804	50	4	2.5	3
W6A-75T	W6A-75D	7.5	10	T / D	143	854	55	4	2.5	3
W6A-93T	W6A-93D	9.3	12.5	T / D	143	884	58	6	2.5	3
W6A-110T	W6A-110D	11	15	T / D	143	924	63	6	4	3
W6A-130T	W6A-130D	13	17.5	T / D	143	964	67	6	4	3
W6A-150T	W6A-150D	15	20	T / D	143	1004	71	10	4	3
W6A-185T	W6A-185D	18.5	25	T / D	143	1084	80	10	4	3.5
W6A-220T	W6A-220D	22	30	T / D	143	1154	86	10	4	3.5
W6A-260T	W6A-260D	26	35	T / D	143	1174	89	10	6	4.25
W6A-300T	W6A-300D	30	40	T / D	143	1229	94	10	6	4.25
W6A-370T	W6A-370D	37	50	T / D	143	1304	98	16	6	5.25
W6A-450T	W6A-450D	45	60	T / D	143	1379	105	16	10	5.25

* METHOD OF STARTING : T - 3P / DOL / 50Hz

D - 3P / SD / 50Hz

WATER FILLED REWINDABLE SUBMERSIBLE MOTORS

Nominal Diameter : **8"**

"W" Series

Wellrounder

Specifications

Nominal Dia	8" (200mm)
Maximum Outer Diameter	196 mm
Power Range	37 kW to 93 kW - Three Phase
Speed	2900 rpm
Version	Three Phase - 380 V, 400 V, 415 V & 525 V, 50 Hz, A.C Supply
Class of Insulation	Y
Degree of Protection	IP 58 / IP 68
Direction of Rotation	Electrically Reversible - Three Phase
Type of Duty	S1 (Continuous)
Down Thrust Load	45500 N
Minimum Cooling Flow Along the Motor	0.16 m/sec
Maximum Liquid Temperature	33°C
Starts per Hour	15 Times
Shaft Type	Splined as per NEMA Standard
Mounting Standard	NEMA Standard
Method of Starting	Direct On Line (DOL)
	Star Delta (SD)
Cable Lead out	Permanently Connected and Sealed 3/4 Core Rubber Insulated Flat Cable
Thermal Protection	High Temperature Motors for 70°C / 90°C can be supplied with PT Sensor and XLPE / PA Winding



Materials of Construction

Part Name	Type - B	Type - S
Shaft Seal Housing	Cast Iron	SS - 304 Casted
Shaft Seal / Mechanical Seal	Nitrile Rubber (NBR) / Ceramic - Carbon, SiC - SiC	Nitrile Rubber (NBR) / Ceramic - Carbon, SiC - SiC
Upper & Lower Housings	Cast Iron	SS - 304 Casted
Stator Shell	SS - 304	SS - 304
Thrust Pad	Carbon Graphite	Carbon Graphite
Thrust Bearing	SS - 420	SS - 420
Diaphragm	High Nitrile Rubber	High Nitrile Rubber
Motor Base	Cast Iron	SS - 304 Casted
Shaft	EN-8	EN-8
Shaft Extension	17.4 Ph	17.4 Ph
Sleeves	SS - 431	SS - 431

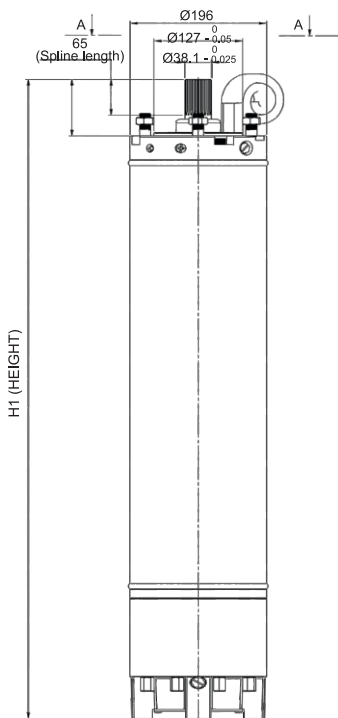
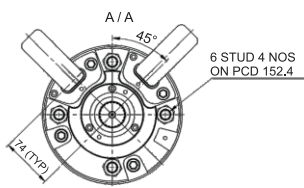
WATER FILLED REWINDABLE SUBMERSIBLE MOTORS

Nominal Diameter : **8"**

"W" Series

Wellrounder

Technical Data



All Dimensions are in mm
Splined Shaft : 23 teeth -
Module 1.5875 Pressure Angle 30°
A.N.S.I.B92-1 Tolerance Class 5

8" THREE PHASE 380V, D.O.L. & S.D MOTORS

Model		Motor Power		Full Load Max (A)	Starting Current (A)	Full load		Max. Down Thrust Load (N)	Starting Torque (Nm)	Torque (Nm)
DOL	SD	kW	HP			Eff. %	Power Factor			
W8B-370T	W8B-370D	37	50	69	380	83.6	0.86	45500	160	122
W8B-450T	W8B-450D	45	60	94.5	480	84	0.87	45500	225	148
W8B-550T	W8B-550D	55	75	116	620	84.5	0.87	45500	310	182
W8B-630T	W8B-630D	63	85	130	710	85	0.87	45500	350	208
W8B-750T	W8B-750D	75	100	156	855	85	0.88	45500	420	248
W8B-930T	W8B-930D	93	125	186	1050	87	0.87	45500	570	308

8" THREE PHASE 400V, D.O.L. & S.D MOTORS

Model		Motor Power		Full Load Max (A)	Starting Current (A)	Full load		Max. Down Thrust Load (N)	Starting Torque (Nm)	Torque (Nm)
DOL	SD	kW	HP			Eff. %	Power Factor			
W8B-370T	W8B-370D	37	50	75	390	84.5	0.85	45500	180	122
W8B-450T	W8B-450D	45	60	90	490	85	0.86	45500	250	148
W8B-550T	W8B-550D	55	75	114	650	85.8	0.86	45500	348	181
W8B-630T	W8B-630D	63	85	127	715	86	0.86	45500	380	207
W8B-750T	W8B-750D	75	100	148	900	85	0.88	45500	480	247
W8B-930T	W8B-930D	93	125	188	1200	87	0.88	45500	660	307

8" THREE PHASE 415V, D.O.L. & S.D MOTORS

Model		Motor Power		Full Load Max (A)	Starting Current (A)	Full load		Max. Down Thrust Load (N)	Starting Torque (Nm)	Torque (Nm)
DOL	SD	kW	HP			Eff. %	Power Factor			
W8B-370T	W8B-370D	37	50	80	400	86	0.84	45500	200	122
W8B-450T	W8B-450D	45	60	92	520	85	0.84	45500	268	149
W8B-550T	W8B-550D	55	75	112	660	87	0.84	45500	370	180
W8B-630T	W8B-630D	63	85	126	720	88	0.86	45500	410	206
W8B-750T	W8B-750D	75	100	151	930	89	0.86	45500	520	246
W8B-930T	W8B-930D	93	125	188	1250	88	0.86	45500	680	306

8" THREE PHASE 525V, D.O.L. & S.D MOTORS

Model		Motor Power		Full Load Max (A)	Starting Current (A)	Full load		Max. Down Thrust Load (N)	Starting Torque (Nm)	Torque (Nm)
DOL	SD	kW	HP			Eff. %	Power Factor			
W8B-450TN	W8B-450DN	45	60	80	320	85	0.82	45500	320	154
W8B-550TN	W8B-550DN	55	75	92	365	85	0.84	45500	450	185
W8B-630TN	W8B-630DN	63	85	103	410	86	0.88	45500	500	211
W8B-750TN	W8B-750DN	75	100	118	470	87	0.9	45500	620	251
W8B-930TN	W8B-930DN	93	125	145	580	87	0.88	45500	685	311

DIMENSIONS AND WEIGHT

Model	Motor Power		*Method of Starting	Dimension (mm)		Nett Weight (Kg) (Approx.)	Cable Leadouts		
	kW	HP		D	H1		Cable Size (Sq.mm)		Cable Length (m)
W8B-370	37	50	T / D	196	1181	153	D.O.L	S.D	
W8B-450	45	60	T / D	196	1231	164	16	10	4
W8B-550	55	75	T / D	196	1281	180	35	25	5
W8B-630	63	85	T / D	196	1351	193	35	25	5
W8B-750	75	100	T / D	196	1466	215	35	25	5
W8B-930	93	125	T / D	196	1556	235	35	35	5

* METHOD OF STARTING : T - 3P / DOL / 50Hz D - 3P / SD / 50Hz

In view of continuous developments, the information / descriptions / specifications / illustrations are subject to change without notice.

WATER FILLED REWINDABLE SUBMERSIBLE MOTORS

Nominal Diameter : **10"**

"W" Series

Wellrounder

Specifications

Nominal Dia	10" (250mm)
Maximum Outer Diameter	Upto 185 kW - 236 mm / 220 kW - 240 mm
Power Range	81 kW to 220 kW - Three Phase
Speed	2900 rpm
Version	Three Phase - 380 V - 415 V, 50 Hz, A.C Supply
Class of Insulation	Y
Degree of Protection	IP 68
Direction of Rotation	Electrically Reversible - Three Phase
Type of Duty	S1 (Continuous)
Down Thrust Load	60000 N
Minimum Cooling Flow Along the Motor	0.16 m/sec
Maximum Liquid Temperature	33°C
Starts per Hour	10 Times
Shaft Type	Splined as per NEMA Standard
Mounting Standard	NEMA Standard
Method of Starting	Direct On Line (DOL)
	Star Delta (SD)
Cable Lead out	Permanently Connected and Sealed 3/4 Core Rubber Insulated Flat Cable
Thermal Protection	High Temperature Motors for 70°C / 90°C can be supplied with PT Sensor and PE2 / PA Winding



Type - A/N

Type - B

Materials of Construction

Part Name	Type - A	Type - N	Type - B
Shaft Seal Housing	SS - 304	SS - 316	Cast Iron
Shaft Seal / Mechanical Seal	Nitrile Rubber (NBR) / Ceramic - Carbon, SiC - SiC	Nitrile Rubber (NBR) / Ceramic - Carbon, SiC - SiC	Nitrile Rubber (NBR) / Ceramic - Carbon, SiC - SiC
Upper & Lower Housings	SS - 304	SS - 316	Cast Iron
Stator Shell	SS - 304	SS - 316	SS - 304
Thrust Pad	Carbon Graphite	Carbon Graphite	Carbon Graphite
Thrust Bearing	SS - 420	SS - 420	SS - 420
Diaphragm	Nitrile Rubber (NBR)	Nitrile Rubber (NBR)	Nitrile Rubber (NBR)
Motor Base	SS - 304	SS - 316	Cast Iron

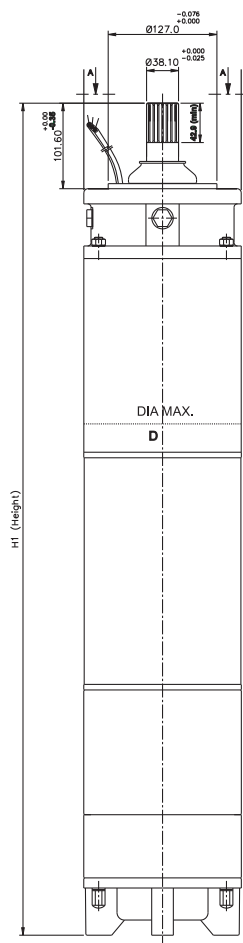
WATER FILLED REWINDABLE SUBMERSIBLE MOTORS

Nominal Diameter : **10"**

"W" Series

Wellrounder

Technical Data



ALL DIMENSIONS ARE IN mm.

10" THREE PHASE - 380 V - 415 V DOL & SD MOTORS

Model		Motor Power		Full Load Max (A)	Starting Current (A)	Eff. %	Power Factor	Max. Down Thrust Load (N)
DOL	SD	kW	HP					
W10A-750T	W10A-750D	75	100	150	1500	86	0.87	60000
W10A-810T	W10A-810D	81	110	166	1600	86	0.87	60000
W10A-930T	W10A-930D	93	125	181	1810	87	0.89	60000
W10A-A10T	W10A-A10D	110	150	220	2200	87	0.89	60000
W10A-A30T	W10A-A30D	130	175	255	2550	87	0.89	60000
W10A-A50T	W10A-A50D	150	200	290	2900	88	0.89	60000
W10A-A65T	W10A-A65D	165	225	325	3250	88	0.89	60000
W10A-A85T	W10A-A85D	185	250	355	3550	89	0.90	60000
W10A-B22T	-	220	300	425	4250	88	0.86	60000

DIMENSIONS AND WEIGHT

Model		Motor Power		Method of Starting	Dimension (mm)		Nett Weight (Kg) (Approx.)	Cable Leadouts			
DOL	SD	kW	HP		D	H1		Cable Size(Sq.mm)		Cable Length (m)	
								D.O.L	# No. of Leadouts	S.D	
W10A-750T	W10A-750D	75	100	T/D	236	1226	240	25	1	16	4
W10A-810T	W10A-810D	81	110	T/D	236	1266	260	25	1	16	4
W10A-930T	W10A-930D	93	125	T/D	236	1316	274	25	1	16	4
W10A-A10T	W10A-A10D	110	150	T/D	236	1446	314	25	2	25	4
W10A-A30T	W10A-A30D	130	175	T/D	236	1546	343	25	2	25	4
W10A-A50T	W10A-A50D	150	200	T/D	236	1736	366	35	2	35	4
W10A-A65T	W10A-A65D	165	225	T/D	236	1856	409	35	2	35	4
W10A-A85T	W10A-A85D	185	250	T/D	236	1956	439	35	2	35	4
W10A-B22T ^s	-	220	300	T	240	2183	500	70	6	-	-

* **METHOD OF STARTING** : T - 3P / DOL / 50Hz

D - 3P / SD / 50Hz

[#] Applicable for only DOL Motor.

^s Open Switching

WATER FILLED REWINDABLE SUBMERSIBLE MOTORS

Nominal Diameter : **12"**

"W" Series

Wellrounder

Specifications

Nominal Dia	12" (300mm)
Maximum Outer Diameter	273 mm
Power Range	150 kW to 300 kW - Three Phase
Speed	2850 rpm
Version	Three Phase - 380 V, 400 V & 415 V, 50 Hz, A.C Supply
Class of Insulation	Y
Degree of Protection	IP 68
Direction of Rotation	Electrically Reversible - Three Phase
Type of Duty	S1 (Continuous)
Down Thrust Load	60000 N
Minimum Cooling Flow Along the Motor	0.5 m/sec (30°C), 2 m/sec (50°C)
Maximum Liquid Temperature	30°C
Starts per Hour	10 Times
Shaft Type	Key Way Type
Mounting Standard	International Standard
Method of Starting	Direct On Line (DOL) Star Delta (SD)
Cable Lead out	Permanently Connected and Sealed 3/4 Core Rubber Insulated Flat Cable
Thermal Protection	High Temperature Motors for 50°C can be supplied with PT Sensor and XLPE / PA Winding



Type - A/N

Type - B

Materials of Construction

Part Name	Type - A	Type - N	Type - B
Seal Housing	SS - 304	SS - 316	Cast Iron
Mechanical Seal	Carbon / Ceramic SiC - SiC*	SiC - SiC	Carbon / Ceramic SiC - SiC*
Upper & Lower Housings	SS - 304	SS - 316	Cast Iron
Stator Shell	SS - 304	SS - 316	SS - 304
Thrust Pad	SS / Carbon	SS / Carbon	SS / Carbon
Thrust Bearing	SS / Carbon	SS / Carbon	SS / Carbon
Diaphragm	NBR	NBR	NBR
Motor Base	SS - 304	SS - 316	Cast Iron
Shaft	SS - 304	Duplex Steel	SS - 304

* Optional

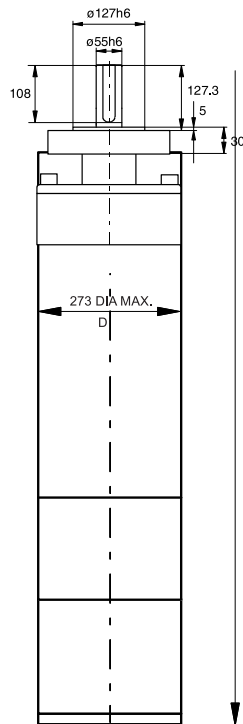
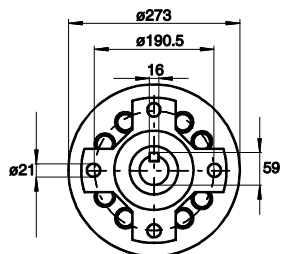
WATER FILLED REWINDABLE SUBMERSIBLE MOTORS

Nominal Diameter : **12"**

"W" Series

Wellrounder

Technical Data



ALL DIMENSIONS ARE IN mm.

12" THREE PHASE - 380 V DOL & SD MOTORS

Model		Motor Power		Full Load Max (A)	Starting Current (A)	Full load		Max. Down Thrust Load (N)	Torque Ratio Ma/Mn	Torque Ratio Mk/Mn
D.O.L	S.D	kW	HP			Eff.%	Power Factor			
W12A-A50T	-	150	200	308	1571	87	0.85	60000	1.0	2.5
W12A-A85T	-	185	250	380	1862	87	0.85	60000	1.0	2.5
W12A-B25T	-	225	300	462	2217	87	0.85	60000	1.0	2.6
W12A-B60T	W12A-B60D	260	350	540	2700	86	0.85	60000	1.1	2.5
W12A-C00T	W12A-C00D	300	400	624	2995	86	0.85	60000	1.0	2.6

12" THREE PHASE - 400 V DOL & SD MOTORS

Model		Motor Power		Full Load Max (A)	Starting Current (A)	Full load		Max. Down Thrust Load (N)	Torque Ratio Ma/Mn	Torque Ratio Mk/Mn
D.O.L	S.D	kW	HP			Eff.%	Power Factor			
W12A-A50T	-	150	200	295	1505	87	0.85	60000	1.0	2.5
W12A-A85T	-	185	250	365	1789	87	0.85	60000	1.0	2.5
W12A-B25T	-	225	300	440	2112	87	0.85	60000	1.0	2.6
W12A-B60T	W12A-B60D	260	350	515	2575	86	0.85	60000	1.1	2.5
W12A-C00T	W12A-C00D	300	400	595	2856	86	0.85	60000	1.0	2.6

12" THREE PHASE - 415 V DOL & SD MOTORS

Model		Motor Power		Full Load Max (A)	Starting Current (A)	Full load		Max. Down Thrust Load (N)	Torque Ratio Ma/Mn	Torque Ratio Mk/Mn
D.O.L	S.D	kW	HP			Eff.%	Power Factor			
W12A-A50T	-	150	200	282	1438	87	0.85	60000	1.0	2.5
W12A-A85T	-	185	250	348	1705	87	0.85	60000	1.0	2.5
W12A-B25T	-	225	300	423	2030	87	0.85	60000	1.0	2.6
W12A-B60T	W12A-B60D	260	350	495	2475	86	0.85	60000	1.1	2.5
W12A-C00T	W12A-C00D	300	400	571	2741	86	0.85	60000	1.0	2.6

* Ma / Mn - Starting Torque / Rated Torque, Mk / Mn - Breakdown Torque / Rated Torque

DIMENSIONS AND WEIGHT

Model		Motor Power		Method of Starting	Dimension (mm)		Nett Weight (Kg) (Approx.)	Cable Leadouts			
D.O.L	S.D	kW	HP		D	H1		Cable Size(Sq.mm)		# No. of Leadouts	Cable Length (m)
D.O.L	S.D	kW	HP					D.O.L	S.D		
W12A-A50T	-	150	200	T	273	1699	414	70	3	-	7
W12A-A85T	-	185	250	T	273	1769	449	95	3	-	7
W12A-B25T	-	225	300	T	273	1859	495	120	3	-	7
W12A-B60T	W12A-B60D	260	350	T/D	273	1934	534	70	6	70	7
W12A-C00T	W12A-C00D	300	400	T/D	273	2034	585	70	6	95	7

* **METHOD OF STARTING** : T - 3P / DOL / 50Hz D - 3P / SD / 50Hz

* Applicable for only DOL Motor.

CABLE SELECTION TABLE

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

Motor Rating			Cable Size in Square Millimetres						MAXIMUM LENGTH IN METRES
VOLTS	kW	HP	1.5	2.5	4	6	10	16	
230 VOLT 50Hz	0.37	0.5	120	200	320	480	810		
	0.55	0.75	80	130	220	320	550		
	0.75	1	60	100	170	250	430		
	1.1	1.5	40	70	120	180	300		
	1.5	2	30	60	90	130	230	360	
	2.2	3		40	60	90	150	230	

FOR THREE PHASE 6WIRE (S/D) MOTOR MAXIMUM LENGTH OF COPPER CABLE

Voltage drop - 3%

Motor Rating			Cable Size in Square Millimetres																			
VOLTS	kW	HP	1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240	300	400	500	630	
380-415 VOLT 50Hz	5.5	7.5	91	143	234	351	572	896	1377	1884												
	7.5	10	65	104	169	260	403	650	974	1338												
	9.3	12.5		91	143	221	364	572	870	1182	1624											
	11	15		78	130	182	299	481	714	974	1377	1832										
	13	17.5			104	143	260	403	611	844	1156	1533										
	15	20			91	130	221	351	533	740	1026	1364	1741									
	18.5	25				104	182	273	429	585	799	1065	1364	1624								
	22	30					156	234	364	494	688	922	1169	1403	1650							
	26	35					130	195	299	403	572	792	1000	1221	1429	1650						
	30	40					117	169	273	364	520	675	870	1013	1208	1390	1624					
	37	50						143	221	299	416	546	701	831	974	1117	1312	1494				
	45	60							182	247	338	468	598	727	870	1013	1208	1377				
	55	75								208	286	377	494	611	714	831	987	1137				
	63	85								188	260	299	442	546	637	740	870	1000				
	75	100									208	286	377	455	533	611	727	831	974			
	93	125										234	299	364	429	494	585	662	779			
	110	150											260	312	377	429	520	598	701	786		
	130	175												221	266	325	377	442	520	598	688	760
	150	200													234	279	325	390	455	539	604	669
	166	225														234	286	338	390	455	520	578
	185	250															260	312	364	429	481	539
	220	300																247	286	331	372	410
	260	350																	247	286	325	357
	300	400																		214	247	273

These are maximum length of cable in METRES from POWER SOURCE to MOTOR. Exceeding these length will void warranty.

CABLE SELECTION TABLE

FOR THREE PHASE 3 WIRE (D.O.L.) MOTOR MAXIMUM LENGHT OF COPPER CABLE

Voltage drop - 3%

Motor Rating			Cable Size in Square Millimetres																			
VOLTS	kW	HP	1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240	300	400	500	630	
380-415 VOLT 50Hz	0.37	0.5	473	788	1260																	
	0.55	0.75	398	660	1050																	
	0.75	1	311	518	825																	
	1.1	1.5	203	338	533	795																
	1.5	2	161	270	428	638																
	2.2	3	113	188	300	450	731															
	3	4	86	143	233	345	566	885														
	3.7	5	71	120	188	285	465	735														
	4	5.5	67	113	176	263	435	683	1043													
	4.5	6	64	105	169	255	420	653	998	1358												
	5.5	7.5	53	83	135	203	330	518	795	1088												
	7.5	10	38	60	98	150	233	375	563	773												
	9.3	12.5		53	83	128	210	330	503	683	938											
	11	15		45	75	105	173	278	413	563	795	1058										
	13	17.5			60	83	150	233	353	488	668	885										
	15	20			53	75	128	203	308	428	593	788	1005									
	18.5	25				60	105	158	248	338	461	615	788	938								
	22	30					90	135	210	285	398	533	675	810	953							
	26	35					75	113	173	233	330	458	578	705	825	953						
	30	40					68	98	158	210	300	390	503	585	698	803	938					
	37	50						83	128	173	240	315	405	480	563	645	758	863				
	45	60							105	143	195	270	345	420	503	585	698	795				
	55	75								120	165	218	285	353	413	480	570	656				
	63	85								109	150	173	255	315	368	428	503	578				
	75	100									120	165	218	263	308	353	420	480	563			
	93	125										135	173	210	248	285	338	383	450			
	110	150											150	180	218	248	300	345	405	454		
	130	175											128	154	188	218	255	300	345	398	439	
	150	200												135	161	188	225	263	311	349	386	
	166	225													135	165	195	225	263	300	334	
	185	250														150	180	210	248	278	311	
	220	300															143	165	191	215	237	
	260	350																143	165	188	206	
	300	400																124	143	158	180	

MAXIMUM LENGTH IN METRES

These are maximum length of cable in METRES from POWER SOURCE to MOTOR. Exceeding these length will void warranty.

CONVERSION TABLE

FLOW RATE

litre per second l/s	litre per minute l/min	cubic meter per hour m ³ /h	cubic foot per hour ft ³ /h	cubic foot per minute ft ³ /min	Imp.gallon per minute Imp.gal./min	US gallon per minute Us gal./min	Us barrel per day ls barrel/d (Petroleum)
1	60	3.6	127.133	2.1189	13.2	15.85	543.439
0.017	1	0.06	2.1189	0.0353	0.22	0.264	9.057
0.278	16.667	1	35.3147	0.5886	3.666	4.403	150.955
0.008	0.472	0.0283	1	0.0167	0.104	0.125	4.275
0.472	28.317	1.6990	60	1	6.229	7.480	256.475
0.076	4.546	0.2728	9.6326	0.1605	1	1.201	41.175
0.063	3.785	0.2271	8.0209	0.1337	0.833	1	34.286
0.002	0.110	0.0066	0.2339	0.0039	0.024	0.029	1

LIQUID

Cubic meter m ³	litre l	Milli litre ml	Imp. gallon Imp. Gal	US gallon US gal	cubic foot ft ³
1	1000	1 x 10 ⁶	220	264.2	35.3147
0.001	1	1000	0.22	0.2642	0.0353
1 x 10 ⁻⁶	0.001	1	2.2 X 10 ⁻⁴	2.642 x 10 ⁻⁴	3.53 x 10 ⁻⁶
0.00455	4.546	4546	1	1.201	0.1605
0.00378	3.785	3785	0.8327	1	0.1337
0.0283	28.317	28317	6.2288	7.4805	1

LIQUID HEAD AND PRESSURE

newton per square meter N/m ² (Pa)	kilo pascal kPa	bar bar	kilogram force per square centimeter Kgf/cm ²	pound force per square inch psi	foot for water ft H ₂ O	meter of water m H ₂ O	millimeter of mercury mm Hg	inch of mercury in Hg
1	0.001	1 x 10 ⁻⁵	1.02 x 10 ⁻⁵	1.45 x 10 ⁻⁴	3.35 x 10 ⁻⁴	1.02 x 10 ⁻⁴	0.0075	2.95 x 10 ⁻⁴
1000	1	0.01	0.0102	0.145	0.335	0.102	7.5	0.295
1 x 10 ⁻⁵	100	1	1.02	14.5	33.52	10.2	750.1	29.53
98,067	98.07	0.981	1	14.22	32.81	10	735.6	28.96
6895	6.895	0.069	0.0703	1	2.31	0.703	51.72	2.036
2984	2.984	0.03	0.0305	0.433	1	0.305	22.42	0.882
9789	9.789	0.098	0.1	1.42	3.28	1	73.42	2.891
133.3	0.133	0.0013	0.0014	0.019	0.045	0.014	1	0.039
3386	3.386	0.0338	0.0345	0.491	1.133	0.0345	25.4	1

LENGTH

millimeter mm	centimeter cm	meter m	inch in	foot ft	yard yd
1	0.1	0.001	0.0394	0.0033	0.0011
10	1	0.01	0.3937	0.0328	0.0109
1000	100	1	39.3701	3.2808	1.0936
25.4	2.54	0.0254	1	0.0833	0.0278
304.8	30.48	0.3048	12	1	0.3333
914.4	91.44	0.9144	36	3	1

1 Kilometer = 1000 metres = 0.62137 miles 1 mile = 1609.37 metres = 1.60934 kilometers

MASS

kilogram kg	pound lb	hundred weight (cwt)	tonne t	ton long tn	short ton sh tn
1	2.205	0.0197	0.001	9.84 x 10 ⁻⁴	0.0011
0.454	1	0.0089	4.54 x 10 ⁻⁴	4.46 x 10 ⁻⁴	5.0 x 10 ⁻⁴
50.802	112	1	0.0508	0.05	0.056
1000	2204.6	19.684	1	0.9842	1.1023
1016	2240	20	1.0161	1	1.102
907.2	2000	17.857	0.9072	0.8929	1

TEMPERATURE

To Convert From	To	Use Formula
Temperature Celsius, tc	Temperature Kelvin, tk	K = tc + 273.15
Temperature Fahrenheit, tf	Temperature Kelvin, tk	K = (tf + 459.67 / 1.8)
Temperature Celsius, tc	Temperature Fahrenheit, tf	F = 1.8 tc + 32
Temperature Fahrenheit, tf	Temperature Celsius, tc	C = (tf - 32) / 1.8
Temperature Kelvin, tk	Temperature Celsius, tc	C = tk - 273.15
Temperature Kelvin, tk	Temperature Fahrenheit, tf	F = 1.8tk - 459.67

W I N N I N G W A Y S

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