

# SUBMERSIBLE MOTORS

**6 INCH NG SML**

PRODUCT INFORMATION & SERVICE MANUAL



**SHAKTI**

**THE POWER OF INNOVATION, EFFICIENCY & TECHNOLOGY.**

## CONTENT

---

### 6" PRODUCT INFORMATION

General Data	01
6" Rewindable MOC	02
6" Rewindable Motors - Model Numbers 50 / 60Hz	03-05
Motor Performance Data 50 Hz	06
Motor Performance Data 60 Hz	07
Motor Leads	08
De-Rating Performance Curve	09
Exploded View	10
Sectional View	11
Parts List	12
Replacement Assembly	13
Standard Winding	14
Outline Drawing	15

## PRODUCT APPLICATION AND PRODUCT SPECIFICATION

---

### GENERAL DATA

These 150 mm rewindable motors, manufactured in ISO 9001 : 2015 & ISO 14001 : 2015 certified facilities.

#### Applications

This motor is built for dependable operation in 150 mm diameter or larger water wells. It is fitted with water lubricated radial and thrust bearings for a maintenance – free operations. The motor is filled with a special fluid, Providing frost protection down to -15°C storage temperature . A special diaphragm ensures pressure compensation inside the motor.

#### Product advantages

- High efficiency electrical design (low operation cost, cooler winding temperature).
- Motor with oil seal and sand slinger.
- Cable material in accordance with regulations for drinking water.
- Water lubricated radial and thrust bearing.
- All motors pre-filled and 100% tested.
- Non contaminating, water-filled design.
- Max. storage temperature -15°C to +60°C.

#### Technical specification

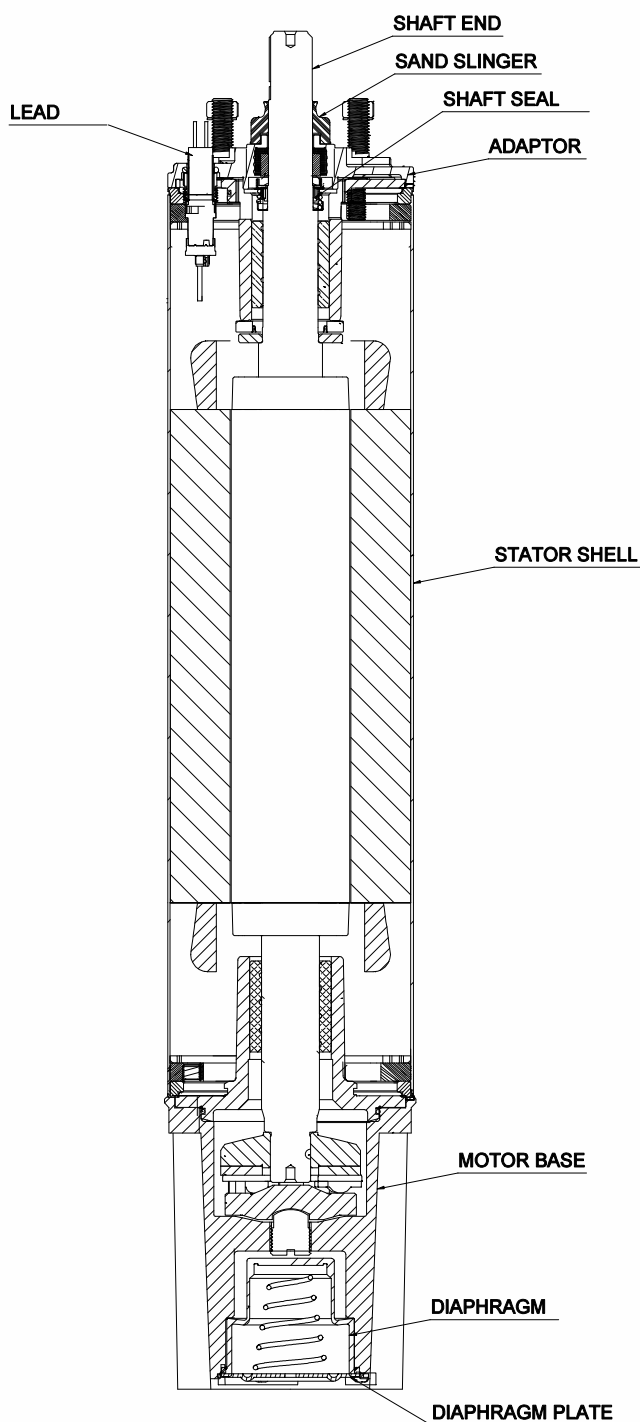
Power range	: 5.5 - 25 HP / 4 - 18.5 kW
Flange	: 150 mm NEMA
Degree of protection	: IP68
Ambient temperature	: 30°C
Cooling flow	: 5.5 - 25 HP / 4 - 18.5 kW = 0.2 m/s
Starts/hr	: 20
Voltage tolerance	: +6% / -10% U <sub>N</sub>

Considering continuous product development the information/performance/specifications and illustrations disseminated in this catalogue are subject to change without notice.

## SUBMERSIBLE MOTORS

Material	Stainless Steel 304	Rating	4kW-18.5kW/5.5HP-25HP
Type	Rewindable	Thrust Rating	15500 N

### 6" Rewindable MOC



### List of Material

PART	MATERIAL
ADAPTOR	AISI SS 304
STATOR SHELL	AISI SS 304
SEALS	NBR
SAND SLINGER	NBR
SHAFT END	DUPLEX
SHAFT SEAL	SIC
MOTOR BASE	AISI SS 304
DIAPHRAGM	EPDM
DIAPHRAGM PLATE	AISI SS 304
LEAD	EPR

SUBMERSIBLE MOTORS			
Material	Stainless Steel 304	Rating	4kW-18.5kW/5.5HP-25HP
Type	Rewindable	Thrust Rating	15500 N

### 6" Rewindable Motors - Model Numbers 50 / 60Hz

[HP]	[KW]	[V/Hz]	DOL
			SS
5.5	4	380/400/415 50 Hz	9000029753
		460 60 Hz	
7.5	5.5	380/400/415 50 Hz	9000029754
		460 60 Hz	
10	7.5	380/400/415 50 Hz	9000029755
		460 60 Hz	
12.5	9.3	380/400/415 50 Hz	9000029825
		460 60 Hz	
15	11	380/400/415 50 Hz	9000029756
		460 60 Hz	
17.5	13	380/400/415 50 Hz	9000029889
		460 60 Hz	
20	15	380/400/415 50 Hz	9000029757
		460 60 Hz	
25	18.5	380/400/415 50 Hz	9000029758
		460 60 Hz	

SUBMERSIBLE MOTORS			
Material	Stainless Steel 304	Rating	4kW-18.5kW/5.5HP-25HP
Type	Rewindable	Thrust Rating	15500 N

### 6" Rewindable Motors - Model Numbers 50 / 60Hz

[HP]	[KW]	[V/Hz]	YΔ
			SS
5.5	4	380/400/415 50 Hz	9000029765
		460 60 Hz	
7.5	5.5	380/400/415 50 Hz	9000029766
		460 60 Hz	
10	7.5	380/400/415 50 Hz	9000029767
		460 60 Hz	
12.5	9.3	380/400/415 50 Hz	9000029826
		460 60 Hz	
15	11	380/400/415 50 Hz	9000029768
		460 60 Hz	
17.5	13	380/400/415 50 Hz	9000029926
		460 60 Hz	
20	15	380/400/415 50 Hz	9000029769
		460 60 Hz	
25	18.5	380/400/415 50 Hz	9000029770
		460 60 Hz	

## SUBMERSIBLE MOTORS

Material	Stainless Steel 304	Rating	4kW-18.5kW/5.5HP-25HP
Type	Rewindable	Thrust Rating	15500 N

### 6" Rewindable Motors Performance Data 60 Hz

[HP]	[KW]	[V/Hz]	DOL
			SS
5.5	4	220 60Hz	-
7.5	5.5	220 60Hz	-
10	7.5	220 60Hz	-
12.5	9.3	220 60Hz	-
15	11	220 60Hz	-
17.5	13	220 60Hz	-
20	15	220 60Hz	-
25	18.5	220 60Hz	-

[HP]	[KW]	[V/Hz]	DOL
			SS
5.5	4	380 60Hz	-
7.5	5.5	380 60Hz	-
10	7.5	380 60Hz	-
12.5	9.3	380 60Hz	-
15	11	380 60Hz	-
17.5	13	380 60Hz	-
20	15	380 60Hz	-
25	18.5	380 60Hz	-

[HP]	[KW]	[V/Hz]	DOL
			SS
5.5	4	460 60Hz	9000029759
7.5	5.5	460 60Hz	9000029760
10	7.5	460 60Hz	9000029761
15	11	460 60Hz	9000029762
20	15	460 60Hz	9000029763
25	18.5	460 60Hz	9000029764

SUBMERSIBLE MOTORS			
Material	Stainless Steel 304	Rating	4kW-18.5kW/5.5HP-25HP
Type	Rewindable	Thrust Rating	15500 N

### 6" Rewindable Motors Performance Data 50 Hz

[kW]	Thrust	U <sub>N</sub>	n <sub>N</sub>	I <sub>N</sub>	I <sub>A</sub>	Efficiency at [%] load			Power factor at [%] load			T <sub>N</sub>	T <sub>A</sub>
	F[N]	[V]	[min <sup>-1</sup> ]	[A]	[A]	50	75	100	50	75	100	[Nm]	[Nm]
4.0	15500	380	2852	10	45	82	82	81	0.74	0.76	0.77	13.6	24.4
		400	2865	10.2	46	82	82	80	0.73	0.73	0.73	13.8	24.7
		415	2880	10.8	49	82	82	80	0.67	0.67	0.67	13.8	24.7
5.5	15500	380	2850	13.1	59	82	82	81	0.77	0.77	0.79	18.4	41.5
		400	2864	13.3	60	81	82	81	0.73	0.74	0.74	18.4	41.5
		415	2870	13.6	61	81	82	81	0.71	0.70	0.72	18.6	41.9
7.5	15500	380	2845	17.2	77	82	83	83	0.64	0.74	0.80	25.4	44.4
		400	2865	17.3	78	81	83	83	0.58	0.69	0.76	25.6	44.8
		415	2875	17.6	79	80	83	83	0.52	0.65	0.73	25.8	45.1
9.3	15500	380	2856	21	101	84	84	84	0.81	0.81	0.80	31.2	77.9
		400	2872	21.5	103	84	84	84	0.77	0.75	0.76	31.6	78.9
		415	2876	22	106	83	84	84	0.75	0.72	0.72	31.8	79.4
11.0	15500	380	2828	25.3	124	84	84	83	0.81	0.80	0.80	37.4	79.4
		400	2846	26.1	128	84	84	83	0.75	0.76	0.75	37.8	80.2
		415	2853	27	132	84	84	82	0.72	0.72	0.71	38.0	80.6
13.0	15500	380	2840	29.5	150	86	86	84	0.80	0.80	0.79	45.1	78.9
		400	2856	30.3	155	85	85	84	0.75	0.75	0.75	45.8	80.1
		415	2867	31.5	161	85	85	84	0.71	0.70	0.70	46.1	80.6
15.0	15500	380	2818	33.6	171	86	84	83	0.80	0.79	0.83	52.0	79.1
		400	2835	34	173	85	84	84	0.75	0.75	0.79	52.7	80.1
		415	2844	34.6	176	85	84	83	0.70	0.70	0.75	53.2	80.9
18.5	15500	380	2795	40.7	199	86	85	82	0.83	0.84	0.84	63.8	89.3
		400	2811	40.8	200	86	85	83	0.80	0.80	0.80	64.2	89.9
		415	2823	41.3	202	86	85	83	0.78	0.77	0.77	65.1	91.1



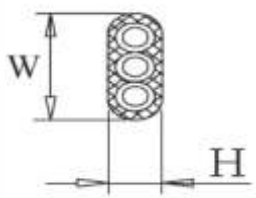
SUBMERSIBLE MOTORS			
Material	Stainless Steel 304	Rating	4kW-18.5kW/5.5HP-25HP
Type	Rewindable	Thrust Rating	15500 N

### 6" Rewindable Motors Performance Data 60 Hz

PN [kW]	P (max) [KW]	Thrust	U <sub>N</sub>	n <sub>N</sub>	I <sub>max</sub>	I <sub>A</sub>	Max. Efficiency at [%] load			Max. Power factor at [%] load			T <sub>max</sub>	T <sub>A</sub>
		F[N]	[V]	[min <sup>-1</sup> ]	[A]	[A]	50	75	100	50	75	100	[Nm]	[Nm]
4.0	4.6	15500	220	3440	19	86	72	76	78	0.62	0.70	0.81	12.8	17.2
			230	3448	19	86	71	76	78	0.57	0.67	0.78	12.7	17.2
			380	3432	11	50	72	77	78	0.59	0.72	0.82	12.8	18.6
			460	3468	10.1	45	78	80	80	0.66	0.70	0.72	12.7	22.7
5.5	6.3	15500	220	3432	26.5	119	76	79	80	0.63	0.72	0.78	17.5	23.7
			230	3444	26.1	117	75	79	80	0.58	0.69	0.76	17.5	23.2
			380	3430	15.4	69	76	79	80	0.62	0.72	0.79	17.5	38.6
			460	3460	12.9	58	78	81	81	0.67	0.73	0.76	17.4	39.1
7.5	8.6	15500	220	3432	33.5	151	76	79	81	0.62	0.70	0.83	23.9	51.4
			230	3444	33.8	152	77	80	81	0.59	0.66	0.79	23.8	51.2
			380	3424	20.5	92	77	80	81	0.62	0.72	0.80	24.0	51.5
			460	3455	17.1	77	81	83	84	0.62	0.71	0.76	23.8	51.8
9.3	10.7	15500	220	3452	44.5	218	77	80	81	0.61	0.72	0.78	29.6	59.2
			230	3464	44.4	218	77	80	81	0.57	0.69	0.75	29.5	59.0
			380	3452	25.2	123	77	81	82	0.61	0.72	0.78	29.6	59.2
			460	3460	20.7	101	80	83	84	0.70	0.76	0.78	29.5	73.8
11.0	12.7	15500	220	3416	51	254	79	81	81	0.63	0.75	0.81	35.5	88.7
			230	3424	51.2	255	78	81	81	0.60	0.71	0.77	35.4	88.2
			380	3416	29.4	147	79	82	81	0.65	0.75	0.81	35.4	88.7
			460	3440	25.0	125	82	84	84	0.74	0.75	0.77	35.2	74.7
13.0	15.0	15500	220	3400	56.5	277	81	82	82	0.66	0.74	0.85	42.1	92.6
			230	3412	55.7	273	81	82	82	0.62	0.74	0.83	42.0	92.3
			380	3408	32.3	158	81	83	82	0.70	0.79	0.86	42.0	92.4
			460	3452	29.5	145	84	86	85	0.75	0.86	0.76	41.5	72.6
15.0	17.3	15500	220	3368	65	319	80	82	81	0.63	0.81	0.86	49.0	103.0
			230	3384	64.5	316	80	82	82	0.61	0.77	0.83	48.8	102.5
			380	3380	37	181	80	81	81	0.66	0.77	0.84	48.9	102.6
			460	3430	34	167	86	86	84	0.86	0.86	0.76	48.1	103.5
18.5	21.3	15500	220	3345	76.5	375	84	83	82	0.84	0.84	0.89	60.8	133.7
			230	3365	75.8	371	84	83	83	0.82	0.82	0.86	60.9	132.9
			380	3340	45	221	84	83	82	0.84	0.84	0.88	60.8	133.9
			460	3398	41	201	83	85	83	0.74	0.79	0.79	59.8	131.6

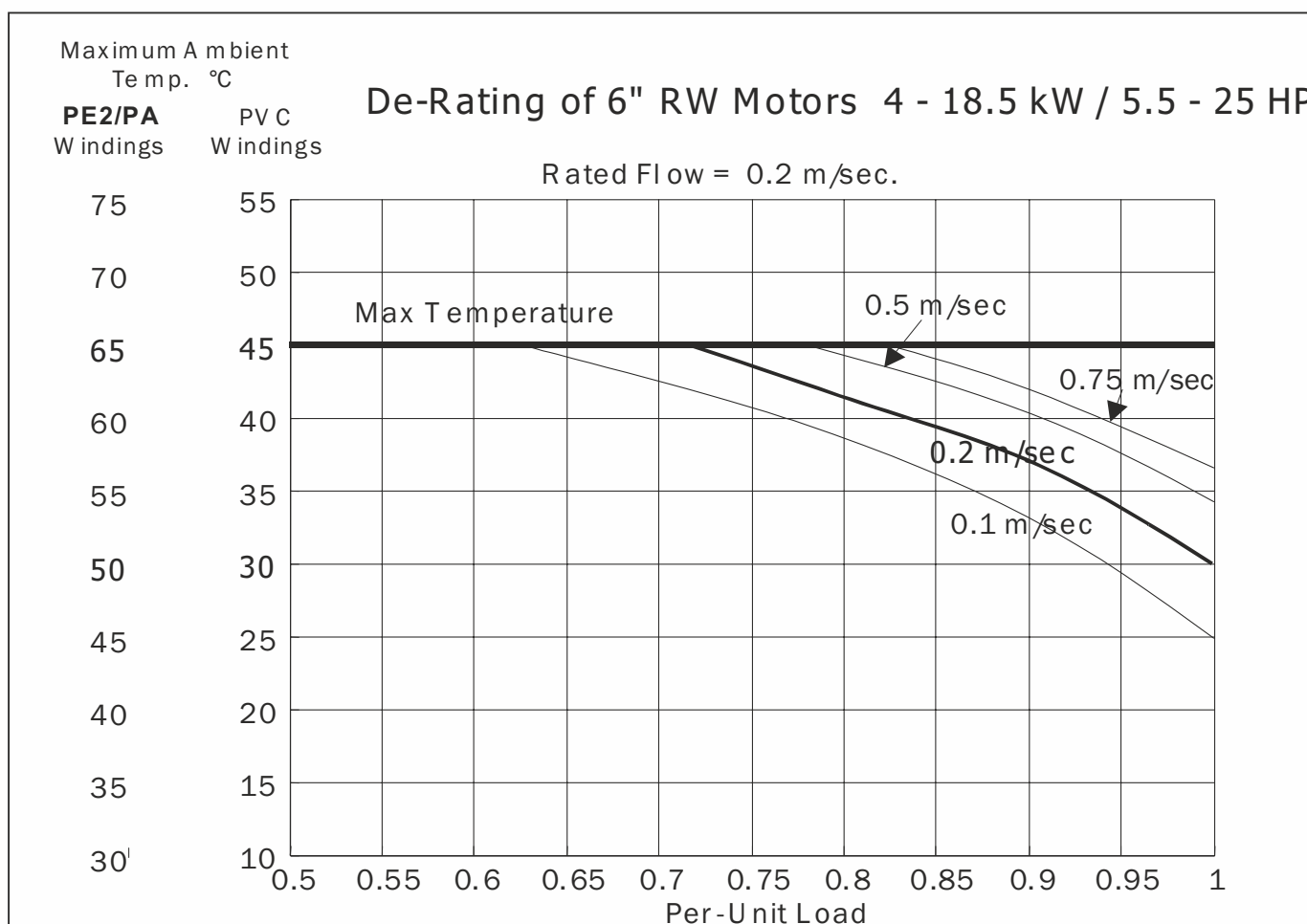
SUBMERSIBLE MOTORS			
Material	Stainless Steel 304	Rating	4kW-18.5kW/5.5HP-25HP
Type	Rewindable	Thrust Rating	15500 N

### 6" Rewindable Motors Leads

LEAD	[HP]	[kW]	Ø [mm <sup>2</sup> ]	W/H [mm]	L [m]
	5.5-10	4.0-7.5	4X3	17.8 X 8.5	3
	15.0-25	11.0-18.5	6X3	19.5 X 9.5	

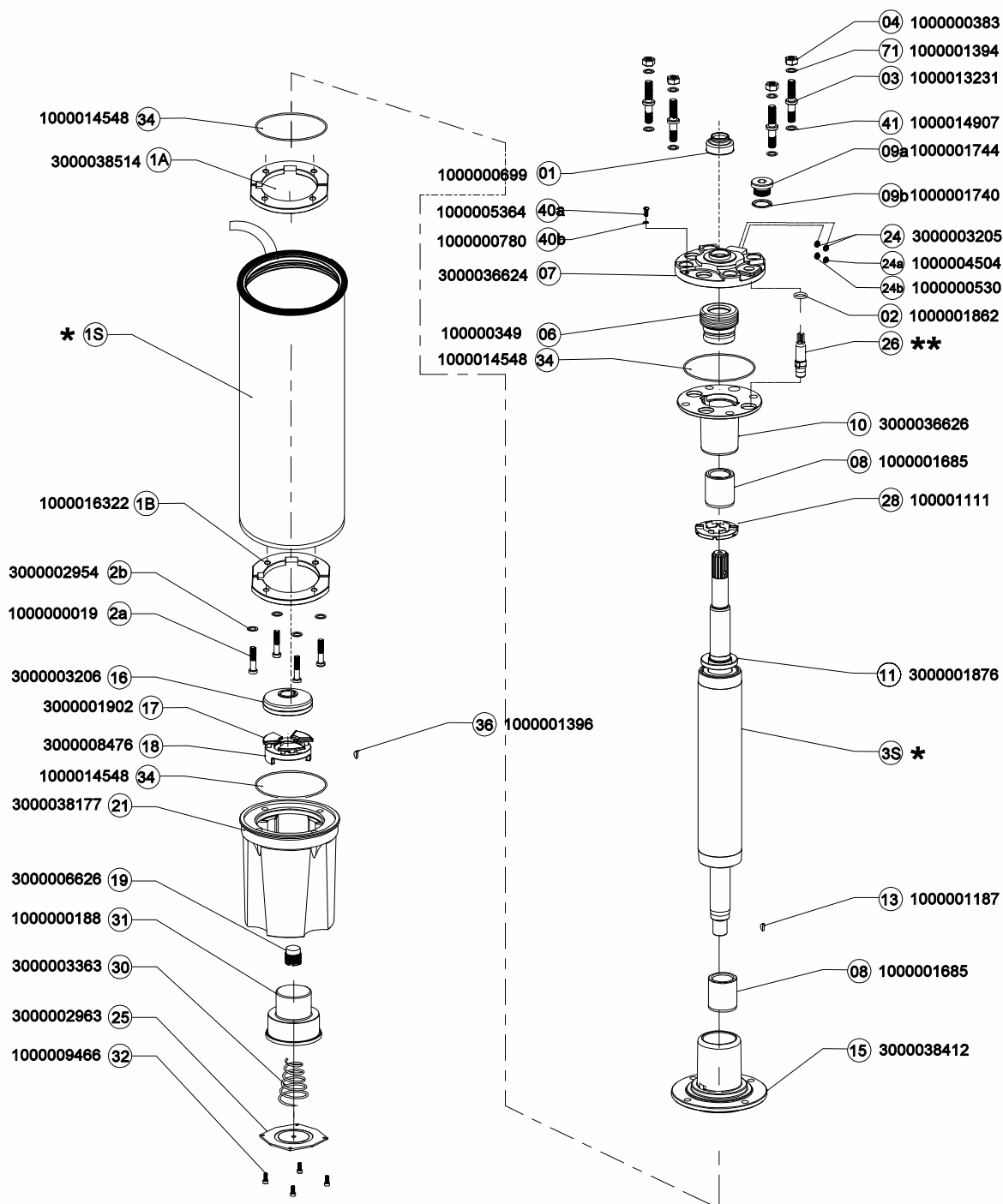
SUBMERSIBLE MOTORS			
Material	Stainless Steel 304	Rating	4kW-18.5kW/5.5HP-25HP
Type	Rewindable	Thrust Rating	15500 N

### 6" Rewindable Motors De-Rating



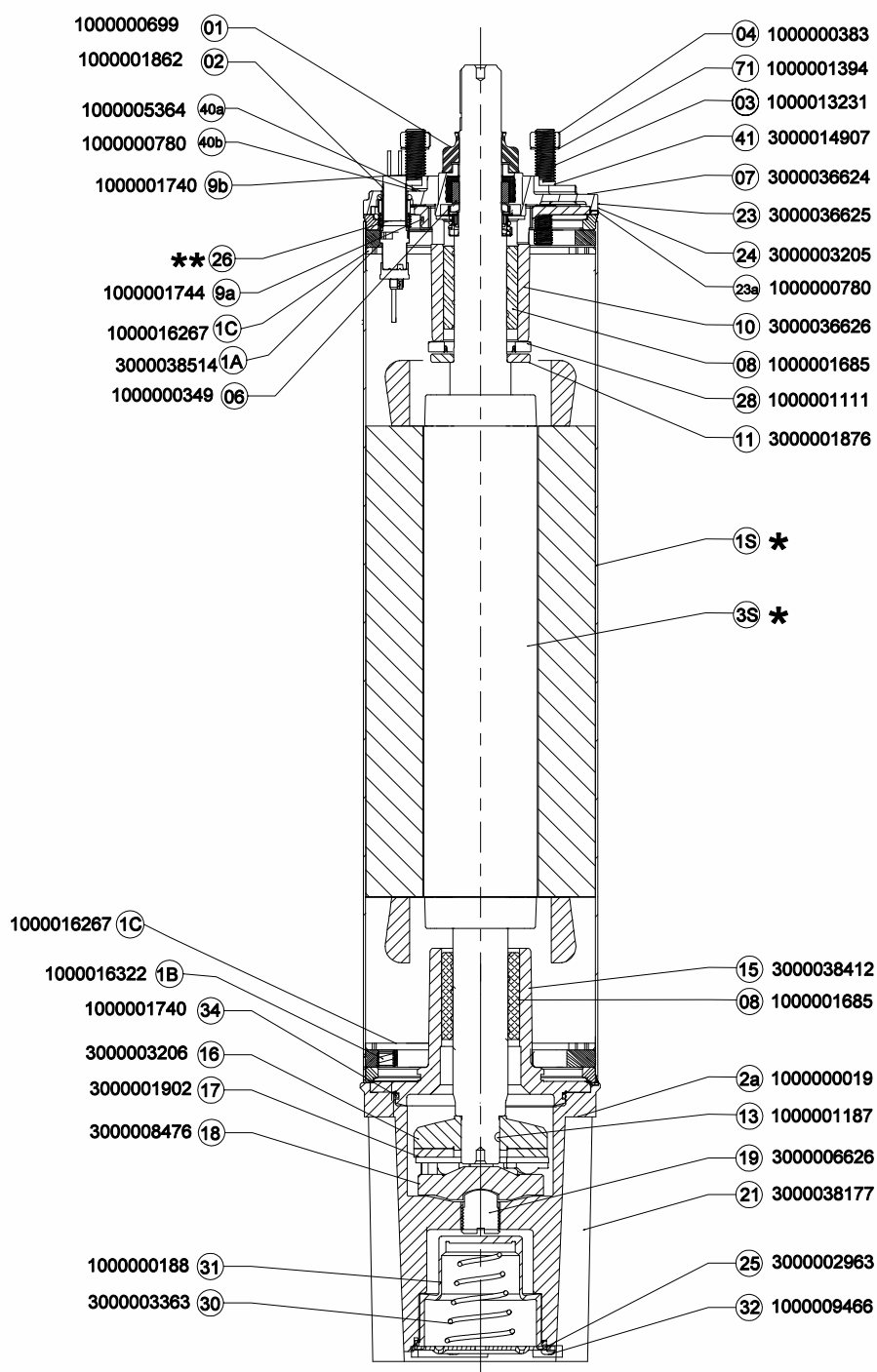
SUBMERSIBLE MOTORS			
Material	Stainless Steel 304	Rating	4kW-18.5kW/5.5HP-25HP
Type	Rewindable	Thrust Rating	15500 N

### Exploded View



SUBMERSIBLE MOTORS			
Material	Stainless Steel 304	Rating	4kW-18.5kW/5.5HP-25HP
Type	Rewindable	Thrust Rating	15500 N

### Sectional View



## SUBMERSIBLE MOTORS

Material	Stainless Steel 304	Rating	4kW-18.5kW/5.5HP-25HP
Type	Rewindable	Thrust Rating	15500 N

### Part list

POS.	MATERIAL CODE	DESCRIPTION	QTY	MATERIAL
1	1000000699	SAND SLINGER	1	NBR
6	1000000349	MECH SEAL	1	SIC VS SIC
41	1000014907	GASKET WASHER M10	4	PAPER
9a	1000001744	DRAIN PLUG MCIP	1	BRASS
9b	1000001740	O RINGID 9THK 1.7mm	1	NBR
4	1000000383	NUT M12(HH)	4	AISI SS-304
71	1000001394	SPRING WASHER M12	4	AISI SS-304
3	1000013231	STUD(M12)	4	AISI SS-304
2	1000001862	GROMATE 2.5 SQMM SML- 150 (34)	1	NBR
20	1000000111	CONNECTOR RING SML 150 (32)	1	AISI SS-304
26	**	CONNECTOR FEMALE	1	NA
7	3000038515	ADAPTER	1	AISI SS-304
24	3000003205	PRV ASSLY	2	NA
24 a	1000004504	PVC CAP GREEN	1	PVC
24b	1000000530	PVC CAP WHITE	1	PVC
40b	1000000780	SPRING WASHER M5	1	AISI SS-304
40a	1000005364	PAN HEAD PHILP SCREW M5	1	AISI SS-304
28	1000001111	UPTHRUST BEARING	1	PP
10	3000041234	END BELL UPPER M/C	1	CI FG-260
8	1000001685	CARBON BUSH	1	REGIN IMPREGATED CARBON
11	3000001876	UPTHRUST WASHER	1	AISI SS-304
	*	ROTOR SUB ASSLY	1	NA
13	1000001187	WOOD RUFF KEY	1	EN8
8	1000001685	CARBON BUSH	1	REGIN IMPREGATED CARBON
15	3000038412	END BELL LOWER MC	1	NA
	*	STATOR ASSLY M/C	1	NA
16	3000003206	REVOLVING PLATE ASSLY	1	NA
17	3000001902	THRUST BRG. SEG.	1	NA
18	3000008476	THRUST BRG. PLT	1	AISI SS -420
21	3000038177	MOTOR BASE	1	AISI SS -304
2b	3000002954	COPPER WASHER	4	COPPER
19	3000006626	ADJUSTING STUD	1	AISI SS -304
31	1000000188	DIAPHRAGM	1	EPDM
30	3000003363	DIAPHRAGM SPRING	1	AISI SS-304
25	3000002963	DIAPHRAGM COVER	1	AISI SS -304
32	1000009466	ALLEN BOLT M4X8	4	AISI SS -304
2a	1000000019	ALLEN BOLT M8X35 MM	4	AISI SS -304
34	1000014548	GASKET	2	NBR
36	1000001396	MAGNET	1	MAGNET
1A	3000038514	FLANGE (U) SML 150C-TYPE	1	MS EN 8 (FORGED)
1B	1000016322	FLANGE (L) SML150 C-TYPE	1	MS EN 8 (FORGED)
1C	1000016267	INTERNAL CIRCLIP FOR STATOR-SML-150	2	SPRING STEEL

SUBMERSIBLE MOTORS			
Material	Stainless Steel 304	Rating	4kW-18.5kW/5.5HP-25HP
Type	Rewindable	Thrust Rating	15500 N

### Replacement Rotor Assly

POS	P <sub>N</sub>	P <sub>N</sub>	MODEL NO.
	[HP]	[kW]	
12.01	5.5	4	3000038300
12.02	7.5	5.5	3000038301
12.03	10	7.5	3000038302
12.04	15	11	3000038303
12.05	20	15	3000038304
12.06	25	18.5	3000038305

### Replacement Stator Assly

POS	P <sub>N</sub>	P <sub>N</sub>	MODEL NO.
	[HP]	[kW]	
14.01	5.5	4	3000038325
14.02	7.5	5.5	3000038326
14.03	10	7.5	3000038327
14.04	15	11	3000038328
14.05	20	15	3000038329
14.06	25	18.5	3000038859

SUBMERSIBLE MOTORS			
Material	Stainless Steel 304	Rating	4kW-18.5kW/5.5HP-25HP
Type	Rewindable	Thrust Rating	15500 N

### Standard Windings (380 - 415 / 460 Volts and 50/60 Hz)

[HP]	[KW]	TURNS PER COIL	WIRE DIAMETER [MM]	TYPE OF ISOLATION	GROUP CONNECTION	TOTAL WIRE LENGTH [M]	RESISTANT COIL [Ω]	RESISTANT YΔ [Ω]	RESISTANT DoI (U1-V1) [Ω]
5.5	4	44-44-44	1.3	PVC	SERIES	322	1.4	1.51	2.8
7.5	5.5	58-58-58	1.1	PVC	SERIES	482	2.8	3.01	1.9
10	7.5	48-48-48	1.2	PVC	SERIES	442	2.1	2.3	1.4
12.5	9.3	37-37-37	1.4	PVC	SERIES	377	1.33	1.45	0.89
15	11	37-37-37	1.4	PVC	SERIES	377	1.33	1.45	0.89
17.5	13	32-32-32	1.5	PVC	SERIES	355	1.08	1.18	0.72
20	15	32-32-32	1.5	PVC	SERIES	355	1.08	1.18	0.72
25	18.5	28-28-28	1.6	PVC	SERIES	338	0.93	1.01	0.62





