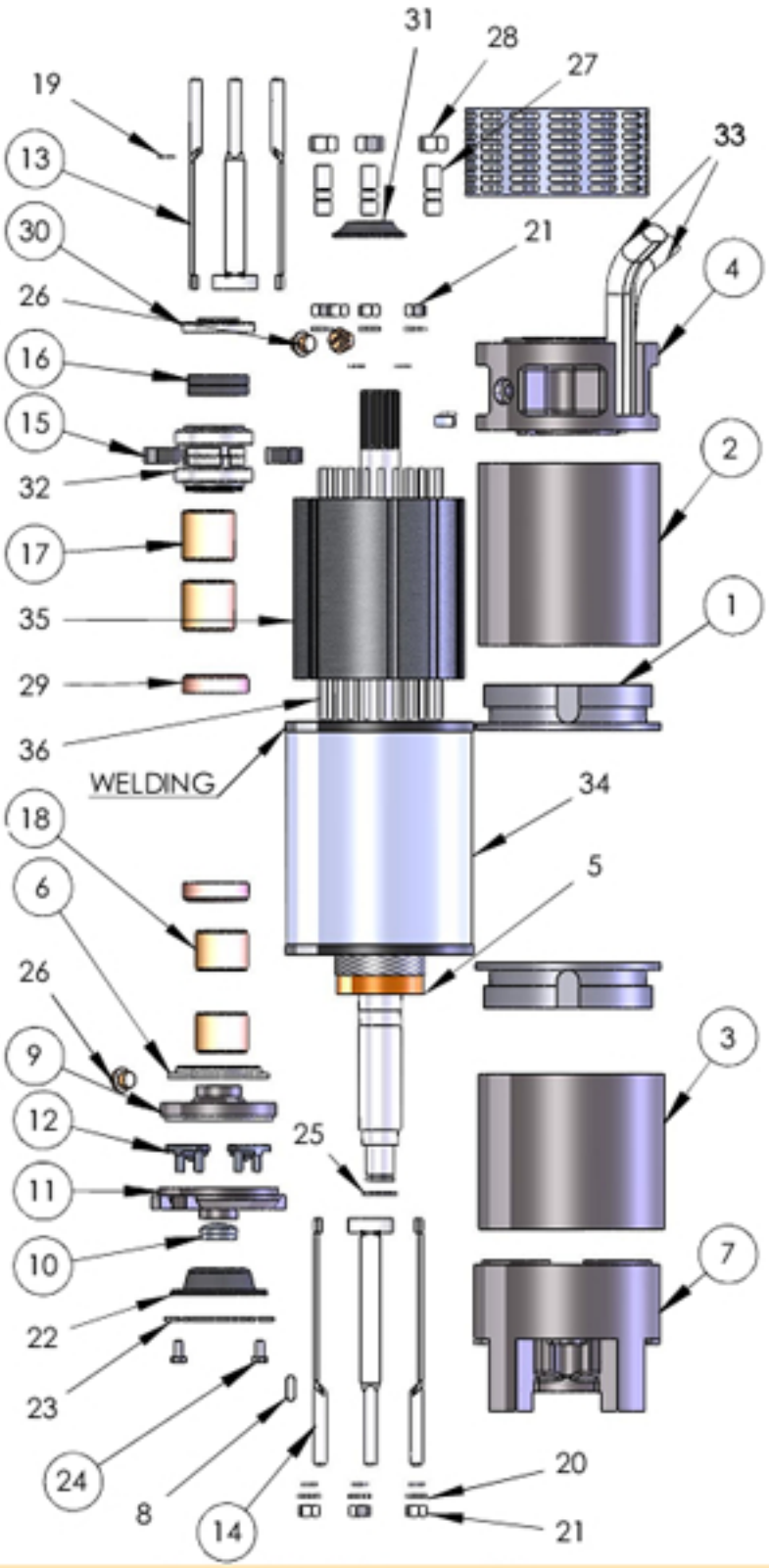

MOTOR BOOK

Exploded View of Spare parts of Motors

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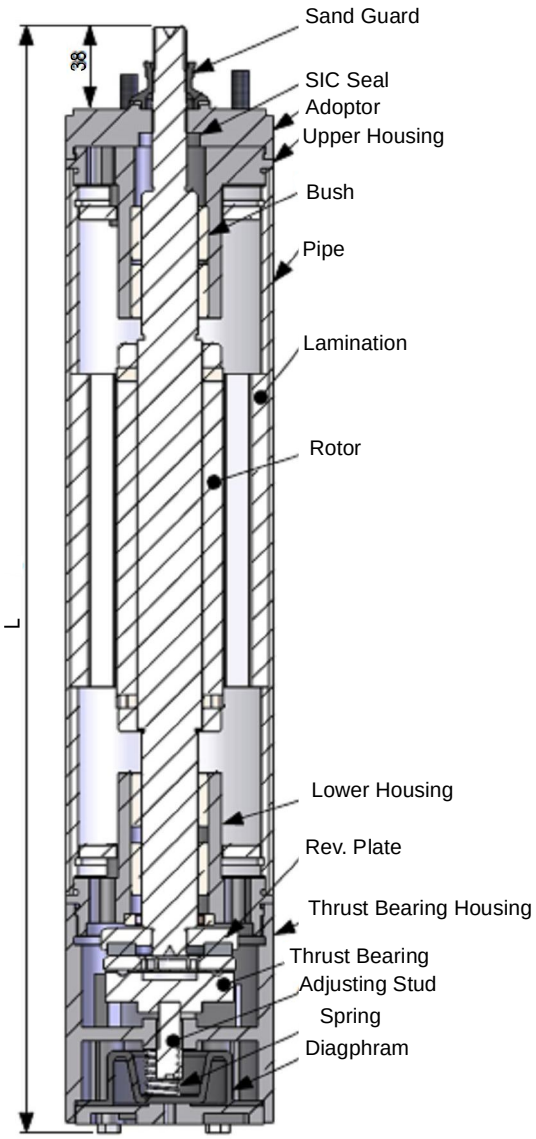
CUT Drawing



OSF-100 SS304

3 Phase		1 Phase	
Power	Power	Power	Power
KW	HP	KW	HP
0.37	0.5	0.37	0.5
0.55	0.75	0.55	0.75
0.75	1.0	0.75	1.0
1.1	1.5	1.1	1.5
1.5	2.0	1.5	2.0
2.2	3	2.2	3
3.0	4		
3.7	5		
4.0	5.5		
5.5	7.5		

Gerenal Information

Application :

4” Rewindable motors are built for dependable operation in 4” diameter or Large water wells.
Water lubricated thrust and radial bearings enable a very less maintenance operation.
A preloaded special diaphragm ensures pressure compensation inside the Motor.

Product advantages :

Cable material according to drinking water regulations.
Sand slinger and SiC mechanical seal for high performance in sand.
High efficiency electrical design for low operation cost.
All motors are pre filled and 100% tested.
Max. storage temperature - 15^0C to $+60^0$C
Approved tilting type thrust bearing (0.37KW to 5.5 KW)

Technical Specification :

Standard 4” NEMA flanges with Studs (M8)
Protection IP 68
Start per hours max.20
Installation position : vertical
Motor lead in 3 m length
Standard voltage: 380-415V/50Hz,460V/60Hz Voltage tolerance: +6%,-10% (Standard415+6%=440V,380V-10%=342V)
Frequency tolerance - $\pm$2% Speed-appox.2850 -2880 rpm at 50Hz.Star alternatives - Direct on line (DOL)
Single phase motors are capacitor start & run voltage 220-230V/50Hz
Allowable Voltage variations +6%,-10%, Frequency tolerance $\pm$2%
Speed-approx.2850-2880rpm at 50Hz
Standard motor with poly wrapped copper winding wire for Max Ambient temp. of 30^0 with a min. cooling flow:
0.37 kw -5.5 kw v=0.2m/s
18.5kw - 37 kw v=0.5m/s

Optional :

Other voltage & Frequency 380 V / 220 V/ 60 Hz
In 60 Hz Speed - Appox. - 3450 Rpm

Performance Data of Single Phase Motors (220-230 Volts / 50 Hz)

PN		Thrurst	Volt	Speed	IN	IA	EFF% at %load			Power Factor At % Load			N T
H.P.	KW	Load(N)		Rpm	(A)	(A)	50%	75%	100%	50%	75%	100%	(Nm)
0.5	**0.37**	**1500**	220	2850	4.2	15.1	51	59	62	0.52	0.64	0.73	1.2
			230	2850	4	14.4	51	59	62	0.52	0.64	0.73	1.2
0.75	**0.55**	**1500**	220	2850	6.2	24.1	52	59	63	0.48	0.59	0.69	1.8
			230	2850	6	23.1	52	59	63	0.48	0.59	0.69	1.8
1	**0.75**	**1500**	220	2850	7.5	29.6	56	62	64	0.54	0.66	0.75	2.5
			230	2850	7.3	28.3	56	62	64	0.54	0.66	0.75	2.5
1.5	**1.1**	**3000**	220	2850	9.6	41.4	58	65	68	0.59	0.71	0.8	3.7
			230	2850	8.9	39.6	58	65	68	0.59	0.71	0.8	3.7
2	**1.5**	**3000**	220	2850	11.6	55.8	60	66	68	0.71	0.81	0.88	4.9
			230	2850	11.1	53.4	60	66	68	0.71	0.81	0.88	4.9
3	**2.2**	**4000**	220	2850	16.7	84	61	68	70	0.72	0.82	0.88	7.4
			230	2850	15.9	88	61	68	70	0.72	0.82	0.88	7.4

Performance Data of Three Phase Motors (380-415 Volts / 50Hz)

PN		Thrurst	Volt	Speed	IN	IA	EFF% at %load			Power Factor At % Load			TN
H.P.	KW	Load(N)		Rpm	(A)	(A)	50%	75%	100%	50%	75%	100%	(Nm)
0.75	**0.55**	**1500**	380	2820	1.9	6	49	57	64	0.42	0.52	0.7	1.9
			400	2830	2	6.4	49	57	64	0.42	0.52	0.64	1.9
			415	2850	2.1	6.6	48	56	63	0.41	0.57	0.6	1.9
1	**0.75**	**1500**	380	2820	2.2	8.9	64	70	73	0.5	0.63	0.75	2.5
			400	2830	2.3	9.3	64	70	73	0.5	0.63	0.72	2.5
			415	2850	2.4	9.8	63	68	73	0.41	0.62	0.65	2.5
1.5	**1.1**	**3000**	380	2820	3.3	13.8	63	69	73	0.47	0.59	0.76	3.8
			400	2830	3.4	14.5	63	69	73	0.47	0.59	0.72	3.7
			415	2850	3.2	15.3	62	68	73	0.41	0.58	0.65	3.7
2	**1.5**	**3000**	380	2820	3.9	18.6	69	72	73	0.59	0.72	0.81	5
			400	2830	4	19.2	66	71	73	0.53	0.66	0.76	5
			415	2850	4.1	20.2	63	69	72	0.48	0.61	0.72	4.9
3	**2.2**	**4000**	380	2820	5.8	28.7	72	75	75	0.58	0.72	0.81	7.6
			400	2830	5.9	28.9	69	73	75	0.51	0.64	0.75	7.5
			415	2850	6.3	30.8	66	71	73	.0.45	0.59	0.69	7.5
4.00	**3.0**	**4000**	380	2820	7.5	30	73	76	76	0.58	0.72	0.81	13.4
			400	2830	7.8	31	70	74	76	0.51	0.65	0.75	13.3
			415	2850	8.2	32	67	73	75	0.46	0.59	0.7	13.3
5.50	**4.0**	**4000**	380	2820	10.8	32.3	63	67	70	0.73	0.79	0.83	19
			400	2830	10.5	34	61	65	68	0.7	0.75	0.82	19
			415	2850	10	35	59	63	66	0.69	0.74	0.81	18.8
7.50	**5.5**	**4000**	380	2820	14.8	50.5	70	73	74	0.75	79	0.84	24.6
			400	2830	14.5	53	68	71	72	0.74	0.78	0.84	24.5
			415	2850	14	55	66	69	71	0.72	0.77	0.83	24.4

Performance is typical not gurranteed

4” Rewindable Product Information and Service

Performance Data of Single Phase Motors (230 / 220 V / 60 Hz)

PN		Thrurst	Volt	Speed	IA	EFF% at %load			Power Factor At % Load			Capaciotor	Capaciotor
H.P.	KW	Load(N)		Rpm	(A)	50%	75%	100%	50%	75%	100%	Running	Starting
0.5	**0.37**	**1500**	220	3400	5.9	52	55	57	0.4	0.47	0.48	20	100 -120
0.75	**0.55**	**1500**	220	3400	8	55	58	60	0.46	0.48	0.5	25	100 -120
1	**0.75**	**1500**	220	3400	9.8	58	61	64	0.48	0.5	0.52	36	100 -120
1.5	**1.1**	**3000**	220	3400	12	59	62	66	0.59	0.61	0.63	50	120 -150
2	**1.5**	**3000**	220	3400	13	65	68	71	0.65	0.68	0.7	60	120 -150
3	**2.2**	**4000**	220	3400	16	67	71	75	0.73	0.77	0.8	80	120 -150

Performance Data of Three Phase Motors (230V,380V,460V / 60 Hz)

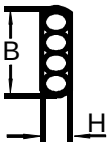
Performance is typical not gurranteed

PN		Thrurst	Volt	Speed	IN	EFF% at %load			Power Factor At % Load		
H.P.	KW	Load(N)		Rpm	(A)	50%	75%	100%	50%	75%	100%
0.75	**0.55**	**1500**	230	3420	4	49	57	64	0.35	0.43	0.54
			380	3420	2.8	48	55	62	0.31	0.38	0.48
			460	3420	2.1	49	54	64	0.33	0.41	0.51
1	**0.75**	**1500**	230	3420	4.2	64	70	73	0.42	0.53	0.61
			380	3420	3.3	62	68	71	0.33	0.42	0.49
			460	3420	2.2	64	70	70	0.42	0.53	0.61
1.5	**1.1**	**3000**	230	3420	6.2	62	69	73	0.4	0.5	0.61
			380	3420	4.4	61	68	72	0.34	0.43	0.7
			460	3420	3.2	63	69	72	0.38	0.48	0.59
2	**1.5**	**3000**	230	3420	8	56.5	67	70	0.39	0.49	0.58
			380	3420	5	63	73	76	0.38	.0.49	0.57
			460	3420	3.8	68	73	73	0.46	0.58	0.68
3	**2.2**	**4000**	230	3420	10.2	69	73	77	0.37	0.55	0.54
			380	3420	6.8	67	73	77	0.33	0.49	0.49
			460	3420	5.6	71	71	75	0.45	0.67	0.66
4.00	**3.0**	**4000**	230	3420	13.5	71	74	74	0.51	0.65	0.75
			380	3420	8.9	71	74	79	0.45	0.56	0.65
			460	3420	7.4	70	74	76	0.46	0.64	0.67
5.50	**4.0**	**4000**	230	3420	17.3	73	77	76	0.62	0.67	0.76
			380	3420	11.4	73	77	76	0.5	0.62	0.7
			460	3420	9.5	73	77	78	0.48	0.59	0.67
7.50	**5.5**	**4000**	230	3420	23.7	71	75	78	0.53	0.66	0.75
			380	3420	15.9	71	75	78	0.48	0.59	0.67
			460	3420	13	71	75	76	0.5	0.62	0.7

Performance is typical not guaranteed

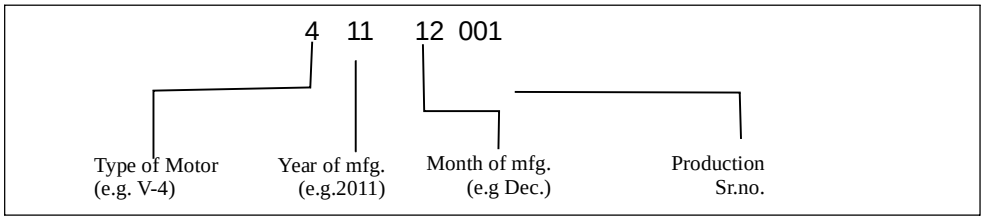
4” Rewindable Product Information and Service

4" Rewindable Motors Flate Cable Leads

DOL	P_N (Kw)	θ (mm^2)	B (mm) Approx.	H (mm) Approx.
	0.37-1.1	3x1.5	6.0±0.3	12.28±0.3
	1.5-5.5	3x2.5	7	19

Insulation Resistance(20^0c/500V)	
New motor without drop cable	200>mohm
Used motor without drop cable	20>mohm
Used motor with drop cable	2>mohm

Determine the age of motor by checking the name plate



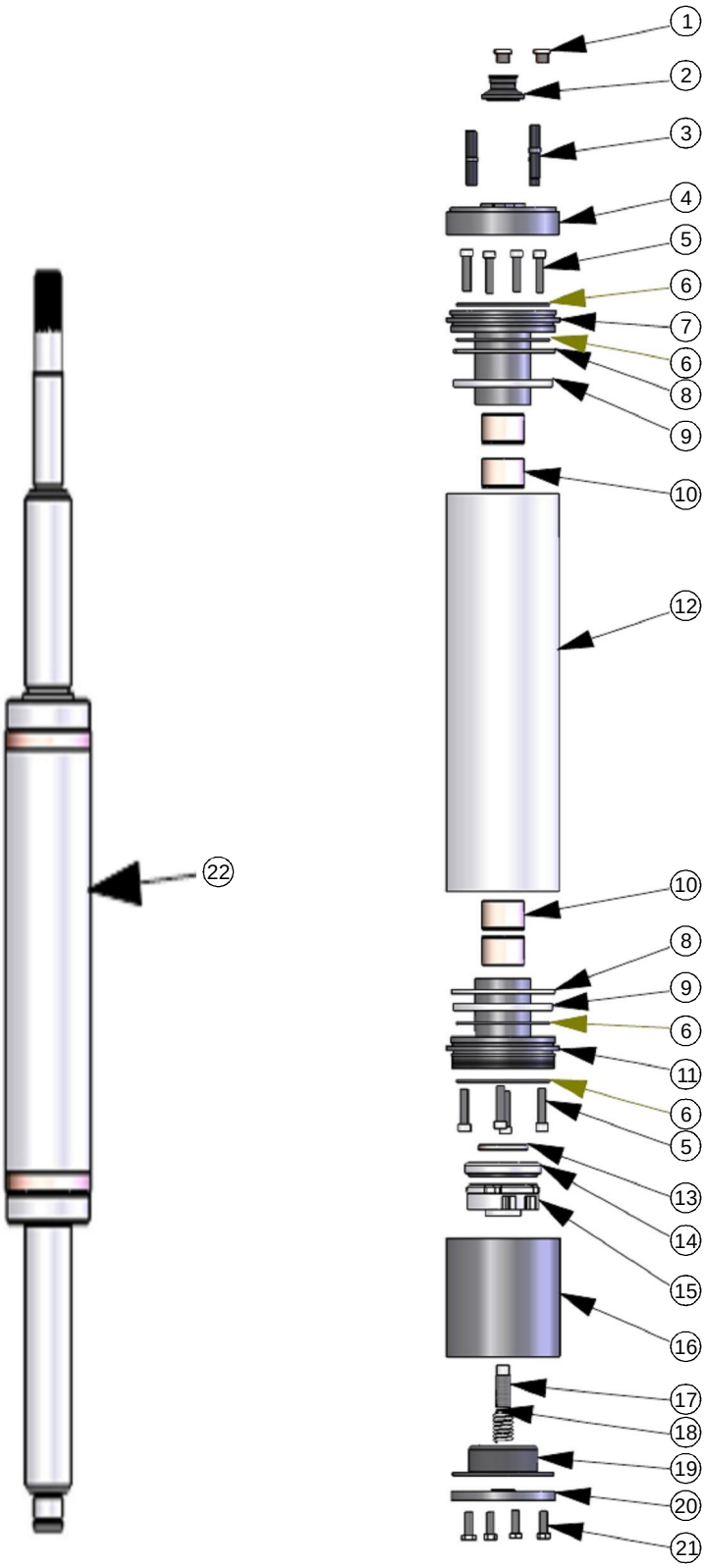
Checking the motor fluid

DANGER

Motor damage due to being insufficiently filled!

- ⇨ *Fill the motor with sufficient motor filled*
- ⇨ *Wear safety goggles and gloves when filling and draining the motor.*

Exploded view



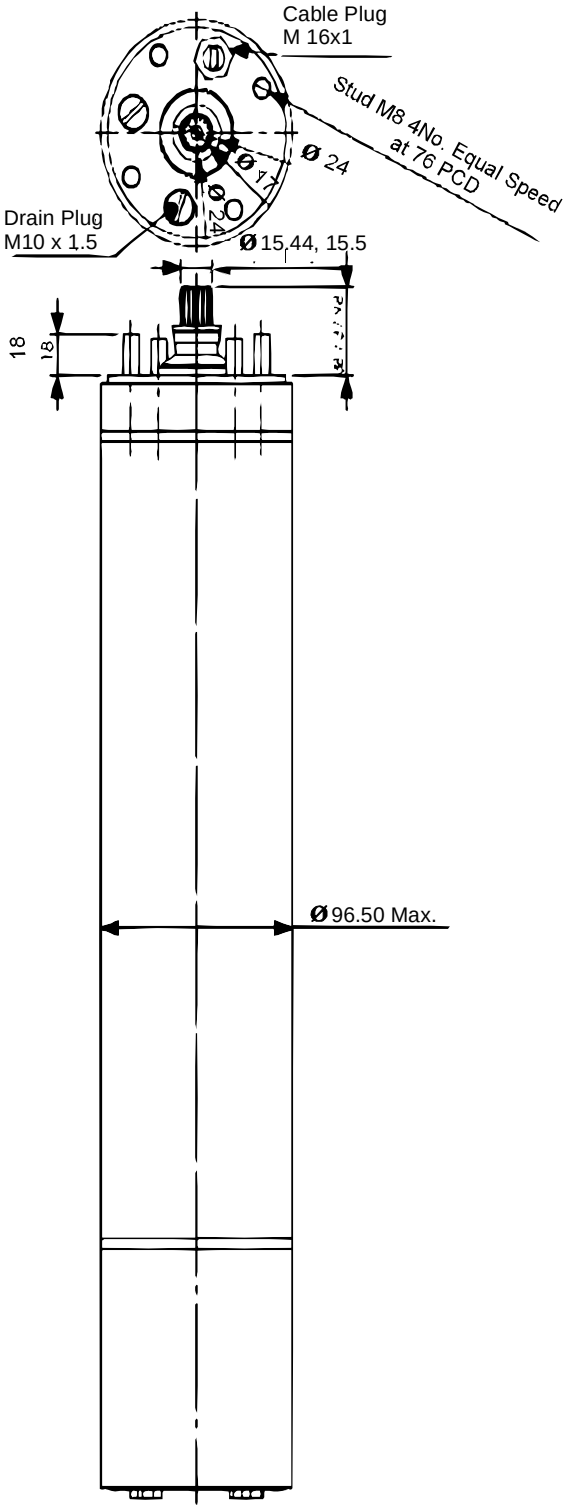
4” Rewindable Product Information and Service

PART LIST / MOC

Pos.	Part Name	Grade
1	Drain Plaug	LTB-4
2	Sand Guard	NBR
3	Stud M 8	SS-304
4	Adopter	CI Casting
5	Allen Bolt	SS-304
6	O Ring	NBR
7	Upper Housing	CI Casting
8	Circlip	Spring Steel
9	Locking plate	M.S.
10	Bush	LTB-4
11	Lower Housing	CI Casting
12	Stator	SS-304 + Lamination
13	Up Thrust Plate	LTB-4
14	Rev. Plate	Carbon + CI casting
15	Thrust Bearing	SS-420 + CI casting
16	T.B. Housing	CI Casting
17	Adjusting Stud	SS-431
18	Spring	SS-304
19	Diaphragm	EPDM
20	Motor Base	CI Casting
21	HH Bolt	SS-304
22	Rotor	SS-410+ Lamination

Outline Drawings

Rewindable Standard Motors Outline Drawing



General safety instructions

The following safety measures must be observed prior to putting the motor into use :

- Do not carry out any other work on the motor other than described in these instructions.
- Only use the motor under water (the motor and the short motor cable must be fully submersed).
- Do not implement any changes or conversions to the motor or its electrical connections.
- Never open the motor.
- Never use the motor in combination with damaged pump units or parts.
- Only work on the motor when it is switched off. No work or checks require the motor to be running.
- Switch off the power supply to the motor before carrying out any work on it.
- Make sure that nobody can switch on the voltage unexpectedly while work is being carried out on the motor
- Never work on electrical systems during a thunderstorm.
- Make sure immediately after ending the work that all protective and safety devices have been fitted again and are operational.
- Before switching on the motor, make sure that all electrical connections and safety devices have been checked and that all fuses and safeties have been set correctly.
- Make sure that no danger zones are freely accessible (e.g. rotating parts, suction locations, pressure output locations, electrical connections). Observe the pump manufacture's commissioning instructions.
- If motor or pump units have been used in contaminated media they must be marked as such before handing them over to a third party (e.g. when submitting then for repair). Pay attention to possible residues in" dead spaces" (diaphragm cover).
- Repair).

Storage, Transport, Disposal

Storage

- ⇨ Store the motor in its original packaging until the time of installing it.
- ⇨ If the motor is stored standing up, make sure that it cannot topple over (shaft always pointing up!).
- ⇨ Do not store the motor in direct sunlight or within the reach of other heat sources.
- ⇨ Observe the storage temperature (- 15 - +60^{0}C, see technical specifications).

Transport

DANGER

Falling loads may cause lethal injuries or may crush parts of the body!

- ⦸ No body is allowed to be located under suspended loads.
- ⇨ Only use approved hoisting gear.
- ⇨ Select the hoisting gear on the basis of the total weight to be transported

Unpacking

- ⇨ After unpacking the motor check it for possible damage e.g. damage to the diaphragm cover, housing, endbell, connection and motor cable.
- ⇨ Immediately inform the supplier fo any damage found.

DANGER

Danger to life due to electrocution if the motor cable is damaged!

- ⦸ Do not install the motor and do not put it into operation.

Disposal

In order to avoid environmental damage:

- Avoid contamination by lubricants, detergents etc.
- Dispose of the motor and the packaging material in a proper, environmentally sound manner.
- Observe local regulations.

4” Rewindable Product Information and Service

Motor Operation

Proper motor cooling

Caution

Damage to the motor and the motor cable due to over heating

- ⇨ *Make sure that the coolant flow speed along the motor is sufficient.*
- ⇨ *Make sure that the short motor cable is always fully surrounded by transport medium for propeer Cooling*

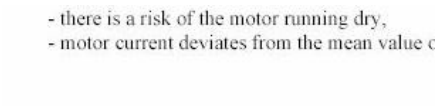


Figure 6-1. Cooling tube

If the required minimum coolant low speed cannot be reached (e.g. if the inlet opening of the well is located above the motor or if using large-diameter wells).

- ⇨ Fit a cooling tube (see figure 6-1)
- ⇨ Make sure that the cooling tube encases the entire motor and the pump water inlet opening

The motor is force-cooled.

Providing a check valve and level sensor

- ⇨ Provide one spring-loaded check valve in the production tube in case no such check valve has been fitted in the pump.
- ⇨ Ensure that the check valve is no further than 7 meters away from the pump
- ⇨ Install a level sensor for wells with a highly varying water inflow.

Switching on the motor

- ☑ All action steps of the previous chapter have been carried out property
- ⇨ Switch on the motor using the mains switch in the control cabinet.
- ⇨ Measure the following values after switching on:

Motor operating current in every phase
Mains voltage when motor is running
Level of the medium to be transported

- ⇨ **Immediately switch off the motor if.**

- the nominal current as specified on the type plate is exceeded.
- voltage tolerances of more than - 10% / +6% relative to the nominal voltage are measured on the motor
- there is a risk of the motor running dry,
- motor current deviates from the mean value of all three currents by more than 5%

Motor Operation

Motor operation with frequency converter

Note
When operating a motor with a frequency converter, the relevant operating manual must be observed!

- ⇨ Make sure that the motor current in all operating levels of the regulating range does not exceed the nominal motor current indicated on the type plate.
- ⇨ Adjust the frequency converter so that the limit values for the nominal motor frequency of min. 30Hz and max the value of the nominal motor frequency (50 or 60 Hz) are observed.
- ⇨ Limit any voltage peaks on the motor when using a frequency converter to the following values: max. voltage rise 500 V/us, max voltage peak 1000 V.
- ⇨ Make sure that the running up time from 0 to 30 Hz and the deceleration time from 30 to 0 Hz is maximum one second.
- ⇨ Dimension the cable such that power loss due to additional filters is taken into consideration.
- ⇨ Make sure that the required coolant flow speed along the motor is also observed with frequency converter operation.

Motor operation with softstarter

Note
When operating a motor with a softstarter, the relevant operating manual must be observed!

- ⇨ Set the starting voltage of the softstarter to 55 % of the nominal voltage and set the running up and delay times to max, three seconds.
- ⇨ Bridge the softstarter after running up, using a contactor.

Maintenance and service

The motor is maintenance-free, no maintenance or service activities are necessary.

Troubleshooting

Fault	Remedy
Unusual noises, problems with the proper running of the pump or the pump switching on and off too frequently.	⇨ Try to find the cause of the fault on the pump unit.
The pump repeatedly switches off	⇨ Have the insulation resistance checked by a professional (see chapter 5.40. ⇨ If no cause can be found in the motor or the motor cable: Have the electrical system checked .

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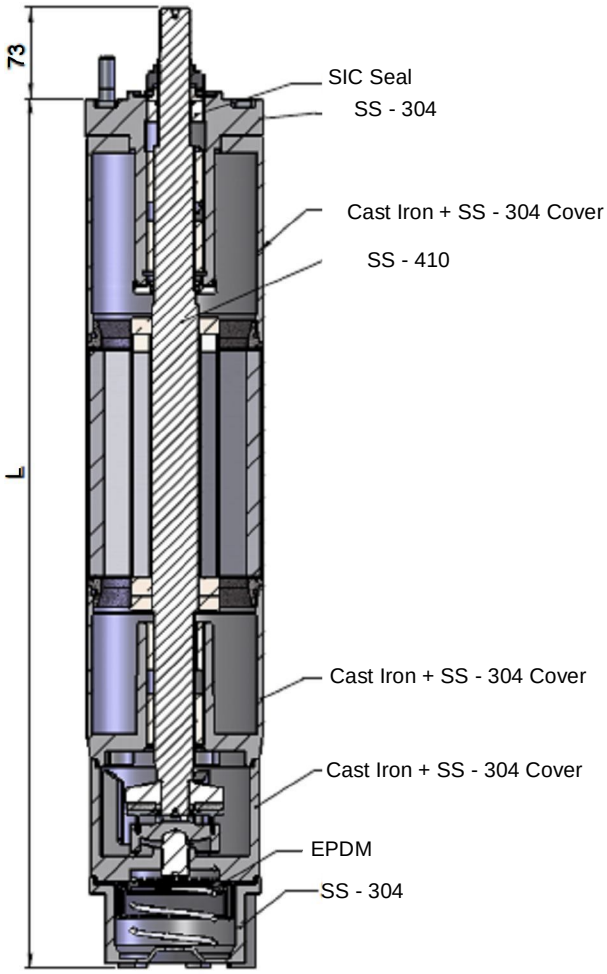
CUT DRAWING



OSF - 150 SS-304

Power KW	Power HP	L (mm) SS 304	Motor weights (KG) Without Packing
2.2	3	715	44
3	4	735	45
3.7	5	755	47
4.5	6	765	48
5.5	7.5	795	53
7.5	10	835	57
9.3	12.5	875	61
11	15	915	66
13	17.5	955	71
15	20	985	74
18.5	25	1045	80
22	30	1145	90
26	35	1245	101
30	40	1345	110
37	50	1430	120

Gernal Information

Application :

6” Rewindable motors are built for dependable operation in 6” diameter or Large water wells.
Water lubricated thrust and radial bearings enable a very less maintenance operation.
A preloaded special diaphragm ensures pressure compensation inside the Motor.

Product advantages :

Cable material according to drinking water regulations.
Sand slinger and SiC mechanical seal for high performance in sand.
High efficiency electrical design for low operation cost.
All motors are pre filled and 100% tested
Max. storage temperature - 15^0 C to $+60^0$ C
Approved tilting type thrust bearing (2.2kw to 15 kw) and
fix type thrust bearing for high thrust load up to (18.5kw to 37 kw)

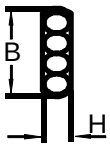
Technical Specification :

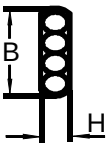
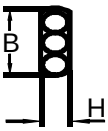
Standard 6" NEMA flanges with Studs (M12)
Protection IP 68
Start per hours max.20
Installation position : vertical
Motor lead in 3 m length
Standard voltage: 380-415V/50Hz,460V/60Hz Voltage tolerance: +6%,-10% (Standard415+6%=440V,380-10%=342)
Frequency tolerance - #2% Speed-appox.2850 -2900 rpm at 50Hz.Star alternatives - Direct on line (DOL) / Star - Delta Starting.
Standard motor with poly wrapped copper winding wire for max Ambient temp. of 30^0 with a min. cooling flow:
4 kw -15 kw v=0.2m/s
18.5kw - 37 kw v=0.5m/s

Optional :

Other voltage & Frequency 380 V / 220 V/ 60 Hz
In 60 Hz Speed - Appox. - 3450 Rpm

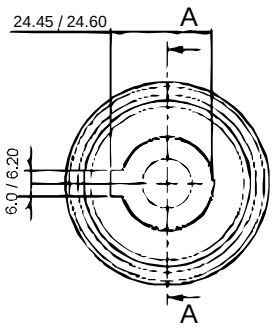
6" Rewindable Motors Leads @ 400 V / 50 Hz

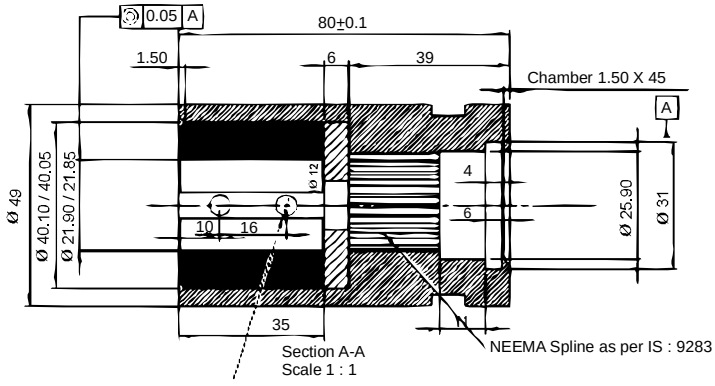
DOL	P_N [kW]	St. #	Ø [mm²]	H / B [mm]
	**4 - 13**	1	4G2,5	7,0 x 19,0
	15- 22	1	4G4	8,2 x 23,0
	26 - 37	1	4G6	9,0 x 25,0

Y△	P_N [kW]	St. #	Ø [mm²]	B / H [mm]
	4 - 22	1	3X2,5	7,3 x 15,3
		1	4G2,5	7,0 x 19,0
	26 - 30	1	3X4	8,5 x 17,8
		1	4G4	8,2 x 23,0
	37	1	3X4	8,5 x 17,8
		1		8,2 x 23,0
Lead opening seal kit	4 - 37 kW DOL / Y△			

Insulation resistance (20°C / 500 VDC)		
New motor without drop cable	200 >	MO
Used motor without drop cable	20 >	MO
New motor with drop cable	2 >	MO
Used motor with drop cable	0,5- 2	MO

6"Rewindable Motor Couplings			
Coupling Material	Dimension A (mm) Max./Min.	Dimension B (mm) Max./Min.	Dimension C (mm) Max./Min.
AISI 304	20.025 / 20.013	22.76 / 22.60	6.05 / 6.00
AISI 304	22.025 / 22.013	25.53 / 25.32	8.03 / 7.98
AISI 304	25.025 / 25.013	28.70 / 28.30	8.03 / 7.98





6" Rewindable Product Information and Service

6" Rewindable Motors Performance Data 50 Hz

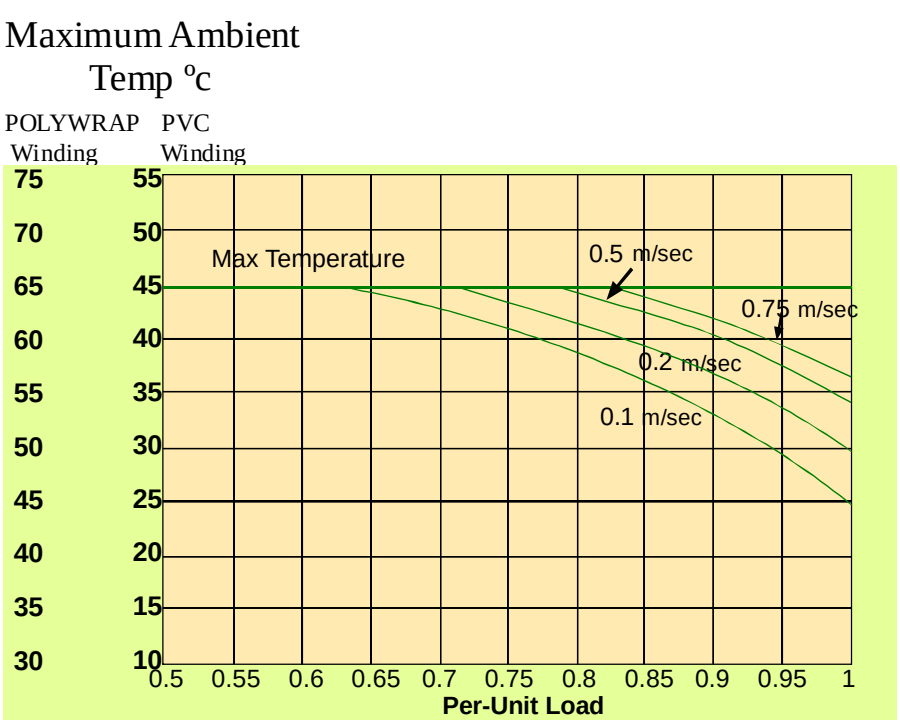
P_N [kW]	Thrust F [N]	U_N [V]	n_N [min-1]	I_N [A]	I_A [A]	n (Eff) [%] at % load			cos Q (PF) at % load			$T_{N.}$ [Nm]	TA [Nm]
						50	75	100	50	75	100		
4	15500	380	2910	10,4	48	0,71	0,75	0,76	0,59	0,71	0,78	13,1	15,5
		400	2930	10,6	51	0,68	0,73	0,76	0,53	0,65	0,73	13,1	17,3
		415	2930	10,9	53	0,65	0,72	0,76	0,50	0,61	0,69	13,0	18,8
5,5	15000	380	2860	13,7	48	0,74	0,76	0,75	0,67	0,78	0,83	18,3	15,5
		400	2890	13,3	51	0,72	0,76	0,76	0,62	0,74	0,81	18,2	17,3
		415	2890	13,4	53	0,71	0,75	0,75	0,59	0,71	0,78	18,1	18,8
7,5	15500	380	2860	18,3	59	0,77	0,78	0,76	0,70	0,80	0,84	25,0	19,2
		400	2880	17,7	63	0,75	0,78	0,77	0,65	0,76	0,82	24,8	21,5
		415	2890	17,7	65	0,73	0,77	0,77	0,61	0,73	0,80	24,7	23,4
9, 3	15500	380	2850	22,0	74	0,79	0,80	0,78	0,71	0,80	0,84	31,1	25,9
		400	2870	21,4	78	0,78	0,79	0,78	0,64	0,76	0,82	31,0	29,0
		415	2880	21,2	81	0,76	0,79	0,78	0,60	0,72	0,80	30,9	31,4
11,0	15500	380	2860	25,8	93	0,78	0,80	0,78	0,71	0,80	0,85	36,7	31,5
		400	2880	25,2	98	0,77	0,80	0,79	0,65	0,76	0,83	36,4	35,3
		415	2890	25,1	102	0,75	0,78	0,79	0,61	0,73	0,80	36,3	38,2
13,0	15500	380	2880	30,1	118	0,80	0,81	0,80	0,68	0,79	0,84	43,1	45,0
		400	2900	29,6	125	0,78	0,80	0,80	0,61	0,74	0,81	42,8	50,3
		415	2900	29,7	130	0,76	0,79	0,80	0,57	0,70	0,78	42,7	54,6
15,0	15500	380	2880	33,9	140	081	0,82	0,81	0,71	0,81	0,85	49,7	53,9
		400	2890	33,1	148	0,79	0,81	0,81	0,65	0,77	0,83	49,4	60,4
		415	2900	33,0	154	0,77	0,80	0,81	0,60	0,73	0,81	49,3	65,5
18,5	15500	380	2860	42,3	172	0,81	0,82	0,81	0,68	0,78	0,84	61,7	75,2
		400	2880	42,0	182	0,78	0,81	0,81	0,61	0,74	0,80	61,2	84,3
		415	2890	42,5	189	0,76	0,79	0,80	0,57	0,70	0,77	61,1	91,3
22,0	15500	380	2880	49,1	218	0,82	0,84	0,83	0,68	0,78	0,84	72,6	91,2
		400	2900	49,0	231	0,80	0,82	0,82	0,61	0,73	0,80	72,5	102,2
		415	2910	49,6	240	0,77	0,81	0,82	0,58	0,69	0,77	72,2	110,7
26	15500	380	2880	57,5	268	0,83	0,84	0,83	0,68	0,79	0,86	86,0	120,4
		400	2900	56,7	284	0,81	0,83	0,83	0,61	0,74	0,83	85,6	134,7
		415	2910	57,3	296	0,78	0,82	0,82	0,56	0,69	0,80	85,3	146,1
30,0	27500	380	2900	66,4	328	0,82	0,84	0,83	0,67	0,78	0,84	98,8	135,0
		400	2910	66,4	347	0,80	0,83	0,83	0,60	0,73	0,80	98,4	151,0
		415	2910	67,5	361	0,77	0,81	0,82	0,55	0,69	0,77	98,2	163,0
37	27500	380	2890	82,0	409	0,83	0,84	0,83	0,67	0,78	0,85	122,1	192,8
		400	2900	81,9	433	0,80	0,83	0,83	0,60	0,72	0,80	121,6	215,8
		415	2910	83,9	450	0,77	0,81	0,82	0,55	.0,68	0,76	121,3	234,0

6" Rewindable Motor Performance Data 60 Hz

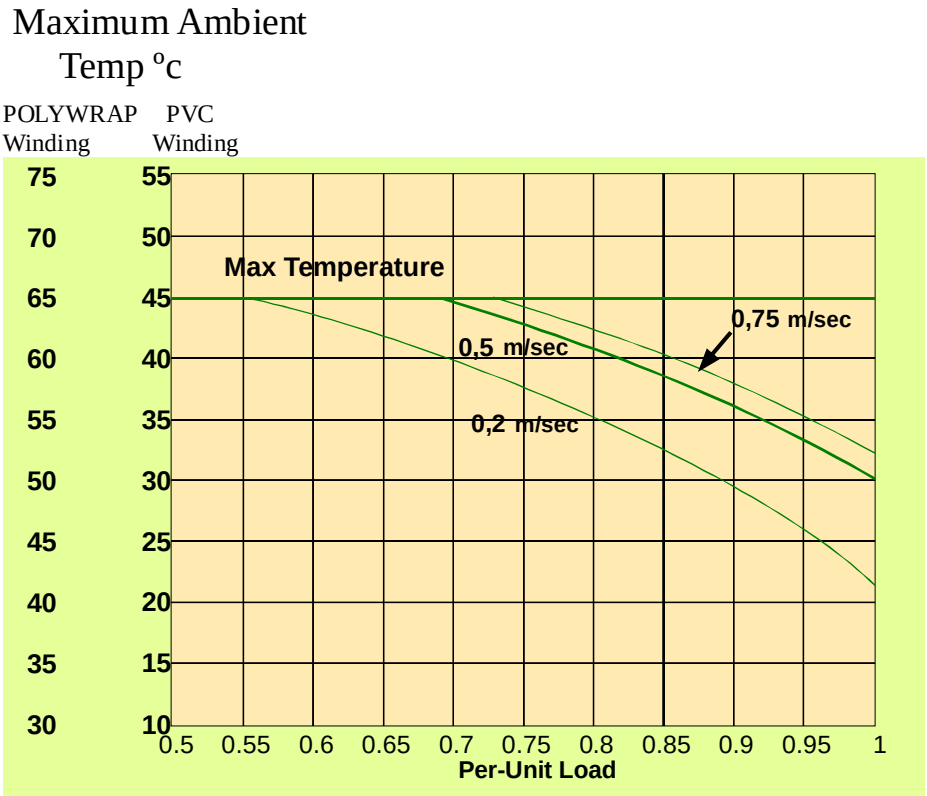
P_N [kW]	P_{max} [kW]	Thrust F [N]	U_N [V]	n_{max} [min1]	I_{max} [A]	I_A [A]	n_{max} (Eff.) [%] at% load			cos Q_{max} (Pf.) at % load			T_{max} [Nm]	T_A [Nm]
							50	75	100	50	75	100		
4	4,6	15500	230	3520	21,0	106	0,70	0,75	0,77	0,52	0,64	0,73	12,5	18,6
			380	3530	13,3	61	0,66	0,72	0,77	0,51	0,63	0,71	12,4	15,0
			460	3520	10,1	51	0,70	0,76	0,78	0,56	0,67	0,75	12,5	15,3
5,5	6,3	15500	230	3490	26,1	106	0,74	0,78	0,78	0,61	0,73	0,80	17,3	15,9
			380	3480	15,4	61	0,76	0,78	0,78	0,64	0,75	0,81	17,3	15,0
			460	3480	12,9	51	0,74	0,77	0,77	0,65	0,76	0,82	17,3	15,1
7,5	8,6	15500	230	3490	35,9	146	0,75	0,79	0,79	0,58	0,71	0,78	23,6	22,4
			380	3480	20,8	81	0,76	0,79	0,79	0,64	0,75	0,81	23,6	20,2
			460	3470	17,2	64	0,75	0,78	0,78	0,67	0,77	0,82	23,7	19,4
9,3	10,7	15500	230	3490	44,4	183	0,75	0,79	0,79	0,59	0,71	0,78	29,3	28,9
			380	3470	25,6	100	0,77	0,80	0,80	0,64	0,75	0,81	29,4	25,9
			460	3460	20,8	78	0,78	0,80	0,80	0,67	0,78	0,82	29,4	24,4
11,0	12,7	15500	230	3490	51,2	220	0,77	0,80	0,81	0,60	0,72	0,79	34,6	35,6
			380	3490	30,3	129	0,77	0,81	0,81	0,62	0,74	0,80	34,5	34,3
			460	3480	25,0	98	0,78	0,81	0,80	0,68	0,77	0,83	34,7	31,5
13,0	15,0	15500	230	3500	62,4	288	0,76	0,80	0,81	0,55	0,68	0,76	40,7	50,5
			360	3500	36,3	164	0,77	0,81	0,82	0,59	0,71	0,78	40,7	47,2
			460	3490	29,0	125	0,78	0,81	0,81	0,65	0,76	0,82	40,9	43,3
15,0	17,3	15500	230	3500	65,9	325	0,80	0,83	0,83	0,63	0,74	0,81	47,0	59,5
			380	3490	39,1	188	0,81	0,83	0,83	0,66	0,77	0,82	47,2	56,5
			460	3490	32,1	151	0,80	0,83	0,83	0,68	0,78	0,84	47,1	55,6
18,5	21,3	15500	230	3490	85,4	402	0,77	0,81	0,82	0,59	0,71	0,78	58,1	81,8
			380	3490	52,5	249	0,76	0,80	0,81	0,58	0,70	0,77	58,1	83,6
			460	3480	40,6	184	0,80	0,82	0,82	0,65	0,76	0,81	58,4	74,5
22,0	25,3	15500	230	3510	100,2	520	0,82	0,84	0,84	0,65	0,74	0,77	68,8	96,6
			380	3510	59,9	309	0,82	0,84	0,84	0,67	0,75	0,78	68,8	94,9
			460	3500	47,1	232	0,83	0,84	0,84	0,72	0,79	0,82	69,1	85,8
26	29,9	15500	230	3510	118,3	657	0,83	0,85	0,85	0,63	0,72	0,76	81,3	135,0
			380	3500	67,5	360	0,83	0,85	0,85	0,62	0,74	0,81	81,6	121,4
			460	3500	55,7	287	0,83	0,85	0,85	0,64	0,76	0,84	81,6	117,2
30,0	34,5	27500	230	3510	135,7	758	0,78	0,82	0,83	0,58	0,71	0,78	93,8	139,6
			380	3510.	79,6	436	0,79	0,83	0,84	0,62	0,74	0,81	93,9	132,9
			460	3500	64,4	346	0,81	0,84	0,84	0,64	0,75	0,82	94,0	126,4
37,0	42,6	27500	230	3510	169,9	937	0,77	0,81	0,82	0,59	0,71	0,78	115,8	193,6
			380	3510	102,8	567	0,77	0,81	0,82	0,59	0,71	0,78	115,8	193,6
			460	3500	79,1	430	0,82	0,84	0,85	0,63	0,75	0,81	116,0	177,8

6" Rewindable Product Information and Service

De-rating Of 6" Rewindable Motors 4 - 15 Kw

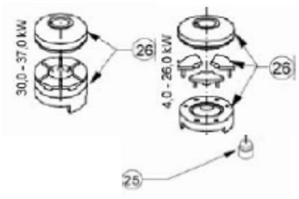


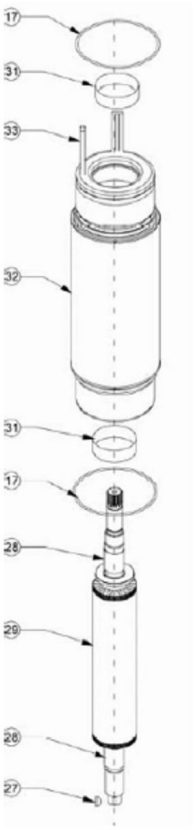
De-rating Of 6" Rewindable Motors 18.5 - 30 Kw

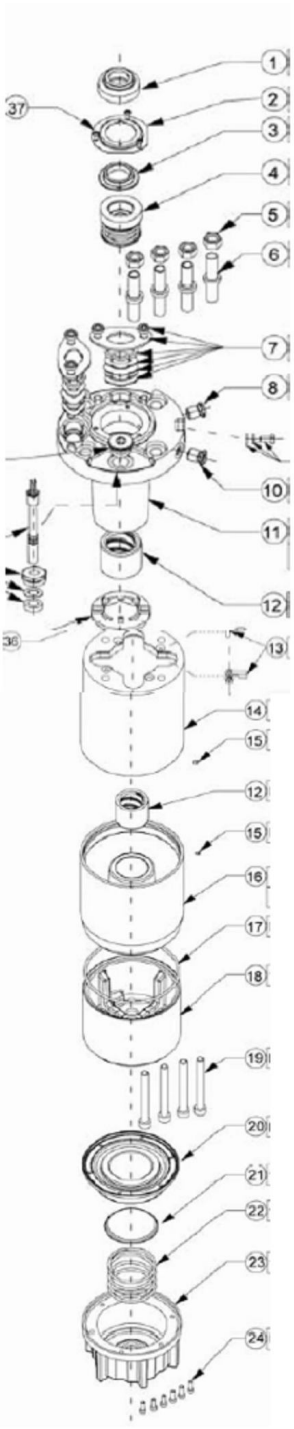


6" Rewindable Product Information and Service

Exploded View



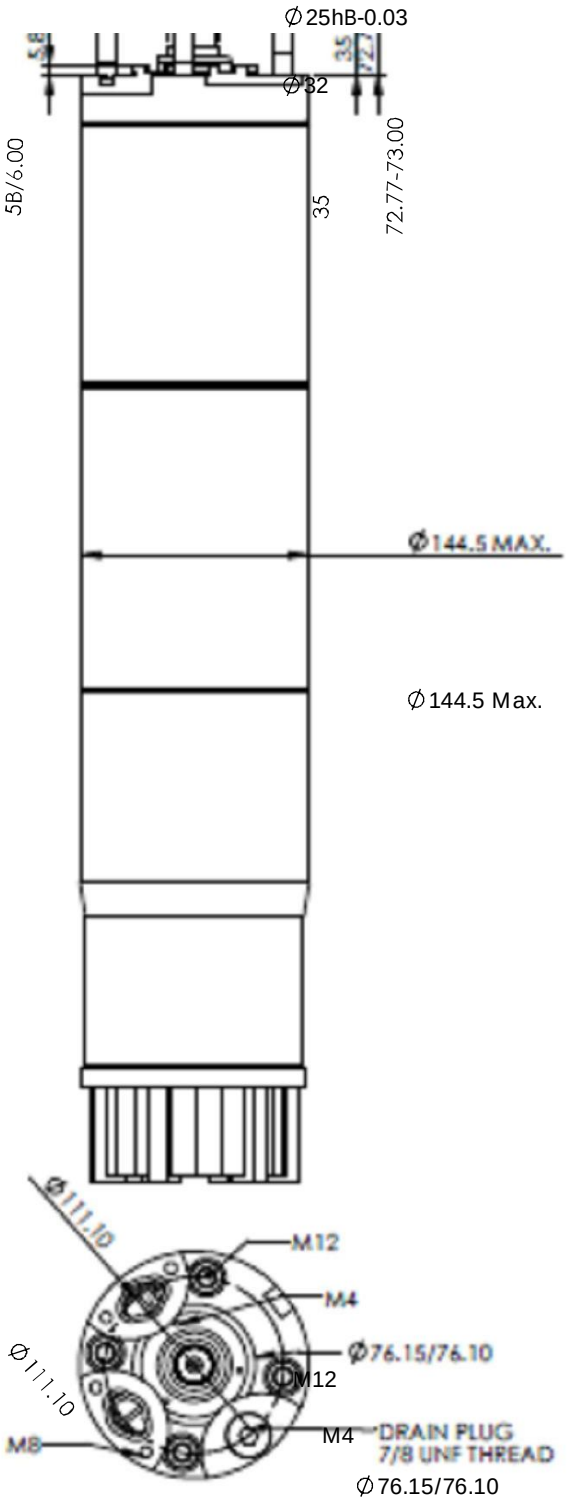




Part List / Moc

Pos.	Part name	Grade
1	Slinger	NBR
2	Screw M4 , Cover Seal	SS-304
3	Bushing	LTB-4
4	Mechanical Seal	
	Mechanical Seal SiC (Sand Fighter)	SiC
5	Nut M12x1.75	SS-304
6	Stud M12	SS-304
7	Lead seal Kit	SS-304+NBR
8	Thread Plug (pressure relief valve)	SS-304
9	Fillter kit	N.A.
10	Thread Plug (pressure relief valve)	SS-304
11	End Bell Upper	SS-304
12	Radial Bushing	LTB-4
13	Screw	SS-304
14	Winding Cover	SS-304 +CI
15	nut	SS-304
16	Bearing Body Lower	SS-304 +CI
17	Stator O ring	NBR
18	Thrust Housing	SS-304 +CI
19	Cyl Screw for Thrust Housing	SS-304
20	Diaphragm	EPDM
21	Spring Plate	SS-304
22	Spring	SS-304
23	Cover Diaphragm	SS-304
24	Cyl Screw Cover Diaphragm	SS-304
25	Adjusting screw	SS-304
26	Thrust Bearing set. Tilting type / fix type	CARBON STEEL
27	Woodruff Key	SS-304
28	Rotor shaft	SS-410
29	Rotor	SS-410 + Lamination
31	Protaction outer cap	PVC
32	Stator	SS-304 + Lamination
34	Drain Plug	LTB-4
36	Up Thrust Bearing	C.I.
37	Screw M4 , Cover Seal	SS-304

6" Rewindable Standard Motors Outline



MB

Drain Plug
7/8 UNF Thread

6" Rewindable Product Information and Service

General safety instructions

The following safety measures must be observed prior to putting the motor into use :

- Do not carry out any other work on the motor other than described in these instructions.
- Only use the motor under water (the motor and the short motor cable must be fully submersed).
- Do not implement any changes or conversions to the motor or its electrical connections.
- Never open the motor.
- Never use the motor in combination with damaged pump units or parts.
- Only work on the motor when it is switched off. No work or checks require the motor to be running.
- Switch off the power supply to the motor before carrying out any work on it.
- Make sure that nobody can switch on the voltage unexpectedly while work is being carried out on the motor
- Never work on electrical systems during a thunderstorm.
- Make sure immediately after ending the work that all protective and safety devices have been fitted again and are operational.
- Before switching on the motor, make sure that all electrical connections and safety devices have been checked and that all fuses and safeties have been set correctly.
- Make sure that no danger zones are freely accessible (e.g. rotating parts, suction locations, pressure output locations, electrical connections). Observe the pump manufacture's commissioning instructions.
- If motor or pump units have been used in contaminated media they must be marked as such before handing them over to a third party (e.g. when submitting then for repair). Pay attention to possible residues in" dead spaces" (diaphragm cover).
- Contaminated motor or pump units must be marked as such before handing them over to a third party (e.g. when submitting them for repair).

Storage

- ⇨ Store the motor in its original packaging until the time of installing it.
- ⇨ If the motor is stored standing up, make sure that it cannot topple over (shaft always pointing up!).
- ⇨ Do not store the motor in direct sunlight or within the reach of other heat sources.
- ⇨ Observe the storage temperature (- 15 - +60^{0}C, see technical specifications).

Transport

DANGER

Falling loads may cause lethal injuries or may crush parts of the body!

- ⦸ No body is allowed to be located under suspended loads.
- ⇨ Only use approved hoisting gear.
- ⇨ Select the hoisting gear on the basis of the total weight to be transported

Unpacking

- ⇨ After unpacking the motor check it for possible damage e.g. damage to the diaphragm cover, housing, endbell, connection and motor cable.
- ⇨ Immediately inform the supplier fo any damage found.

DANGER

Danger to life due to electrocution if the motor cable is damaged!

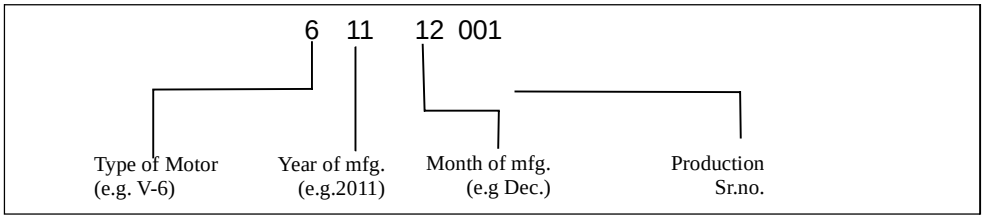
- ⦸ Do not install the motor and do not put it into operation.

Disposal

In order to avoid environmental damage:

- Avoid contamination by lubricants, detergents etc.
- Dispose of the motor and the packaging material in a proper, environmentally sound manner.
- Observe local regulations.

General safety instructions



Checking the motor fluid

DANGER

Motor damage due to being insufficiently filled!

- ⇨ *Fill the motor with sufficient motor filled*
- ⇨ *Wear safety goggles and gloves when filling and draining the motor.*

Filling Volumes

- 6" approx. 5 litres
- 8" approx . 12 litres
- 10" approx. 20 litres
- 12" approx 41 litres

Motor Operation

Proper motor cooling

Caution

Damage to the motor and the motor cable due to over heating

- ⇨ *Make sure that the coolant flow speed along the motor is sufficient.*
- ⇨ *Make sure that the short motor cable is always fully surrounded by transport medium for propeer Cooling*

- there is a risk of the motor running dry,
- motor current deviates from the mean value c

Figure 6-1. Cooling tube

If the required minimum coolant low speed cannot be reached (e.g. if the inlet opening of the well is located above the motor or if using large-diameter wells).

- ⇨ Fit a cooling tube (see figure 6-1)
- ⇨ Make sure that the cooling tube encases the entire motor and the pump water inlet opening

The motor is force-cooled.

Providing a check valve and level sensor

- ⇨ Provide one spring-loaded check valve in the production tube in case no such check valve has been fitted in the pump.
- ⇨ Ensure that the check valve is no further than 7 meters away from the pump
- ⇨ Install a level sensor for wells with a highly varying water inflow.

Switching on the motor

- ☑ All action steps of the previous chapter have been carried out property
- ⇨ Switch on the motor using the mains switch in the control cabinet.
- ⇨ Measure the following values after switching on:

Motor operating current in every phase
Mains voltage when motor is running
Level of the medium to be transported

- ⇨ **Immediately switch off the motor if.**

- the nominal current as specified on the type plate is exceeded.
- voltage tolerances of more than - 10% / +6% relative to the nominal voltage are measured on the motor
- there is a risk of the motor running dry,
- motor current deviates from the mean value of all three currents by more than 5%

Motor operation with frequency converter

Motor operation with frequency converter

Note

When operating a motor with a frequency converter, the relevant operating manual must be observed!

- ⇨ Make sure that the motor current in all operating levels of the regulating range does not exceed the nominal motor current indicated on the type plate.
- ⇨ Adjust the frequency converter so that the limit values for the nominal motor frequency of min. 30Hz and max the value of the nominal motor frequency (50 or 60 Hz) are observed.
- ⇨ Limit any voltage peaks on the motor when using a frequency converter to the following values: max. voltage rise 500 V/us, max voltage peak 1000 V.
- ⇨ Make sure that the running up time from 0 to 30 Hz and the deceleration time from 30 to 0 Hz is maximum one second.
- ⇨ Dimension the cable such that power loss due to additional filters is taken into consideration.
- ⇨ Make sure that the required coolant flow speed along the motor is also observed with frequency converter operation.

Motor operation with softstarter

Note

When operating a motor with a softstarter, the relevant operating manual must be observed!

- ⇨ Set the starting voltage of the softstarter to 55 % of the nominal voltage and set the running up and delay times to max, three seconds.
- ⇨ Bridge the softstarter after running up, using a contactor.

Maintenance and service

The motor is maintenance-free, no maintenance or service activities are necessary.

Troubleshooting

Fault	Remedy
Unusual noises, problems with the proper running of the pump or the pump switching on and off too frequently.	⇨ Try to find the cause of the fault on the pump unit.
The pump repeatedly switches off	⇨ Have the insulation resistance checked by a professional (see chapter 5.40. ⇨ If no cause can be found in the motor or the motor cable: Have the electrical system checked .

Max.length in meters for 400V/50Hz and 5%voltage drop at 30ºamb.temp.

Direct Start																	
rating		cable size mm², copper wire - 70°C rated insulation															
KW	HP	2,5	4	6	10	16	25	35	50	70	95	120	150	185	240	300	400
4	5,5	180	290	430	710												
5,5	7,5	130	210	320	530	830											
7,5	10	80	150	230	390	610	940										
9,3	12,5	.80	130	190	320	510	770										
11	15	60	100	160	270	430	650	890									
13	17,5		90	140	230	370	560	770									
15	20		80	120	200	320	490	880	920								
18,5	25			100	160	260	400	540	740	980							
22	30				140	220	340	470	630	840							
26	35				120	190	290	380	540	720	920						
30	40					150	250	340	470	520	790	940					
37	50					130	200	280	380	600	640	760	890	1020			
45	60						170	240	330	440	570	890	810	940			
52	70						150*	210	290	390	500	800	710	820	980		
55	75						140*	190	270	360	470	5600	660	770	910		
60	80							180	250	340	440	530	630	730	870	1010	
67	90							160*	220	300	390	460	550	630	750	860	1000
75	100								200*	270	350	420	490	570	680	780	910
83	111								180*	250	320	390	450	530	630	730	850
85	114									230	290	350	410	480	570	650	750
93	125									220*	280	340	390	460	550	620	720
110	150										220	270	310	360	420	480	550
130	175										200*	240	280	330	390	440	520
150	200											200*	240	280	330	380	440
185	250													210*	250	280	330

Wye - Delta start																	
rating		cable size mm², copper wire - 70°C rated insulation															
KW	HP	2,5	4	6	10	16	25	35	50	70	95	120	150	185	240	300	400
4	5,5	270	430	640													
5,5	7,5	190	310	480	790												
7,5	10	130	220	340	580	910											
9,3	12,5	120	180	280	480	760											
11	15	80	150	240	400	640	970										
13	17,5	70	130	210	340	550	840										
15	20	70	120	180	300	480	730	1020									
18,5	25	60	90	150	240	390	600	810									
22	30		70	120	210	330	510	700	940								
26	35		60*	100	180	280	430	580	810								
30	40			90	150	240	370	610	700	930							
37	50				120	190	300	420	570	750	950						
45	60				100	160	250	360	490	550	850						
52	70				90*	150	220	310	430	580	750	800					
55	75					130	210	280	400	540	700	840	890				
60	80					120	190	270	370	510	660	790	940				
67	90					100	180	240	330	450	580	690	820	940			
75	100					90*	150	210	300	400	520	630	730	850	1020		
83	111						130	190	270	370	480	580	670	790	940		
85	114						180*	180	250	340	430	520	610	720	850	870	
93	125						120*	160	240	330	420	510	580	690	820	830	
110	150							130*	190	250	330	400	460	540	630	720	820
130	175								160*	220	300	360	420	490	580	660	780
150	200								.150*	190	250	300	360	420	490	570	660
185	250										180*	240	270	310	370	420	490

*only for individual conductor cable

6" Rewindable Product Information and Service

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Product Information

50 Hz

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60 Hz

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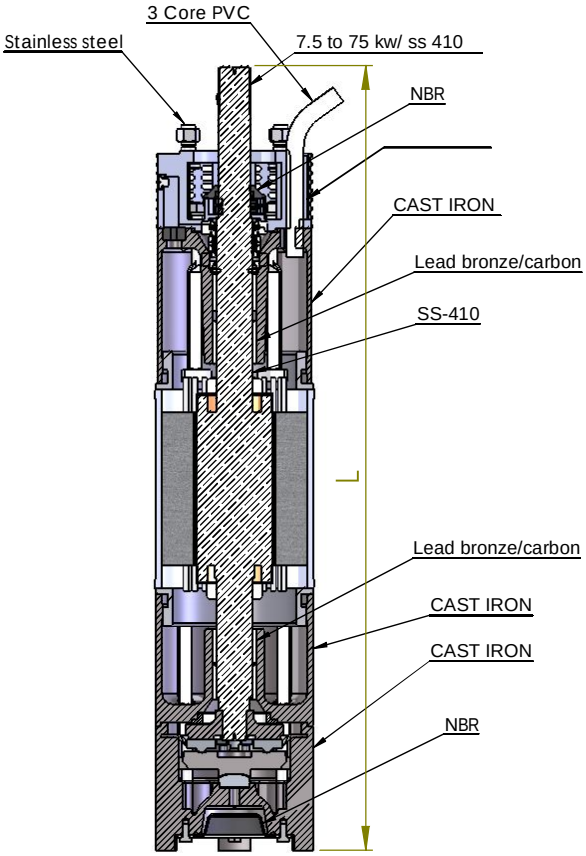
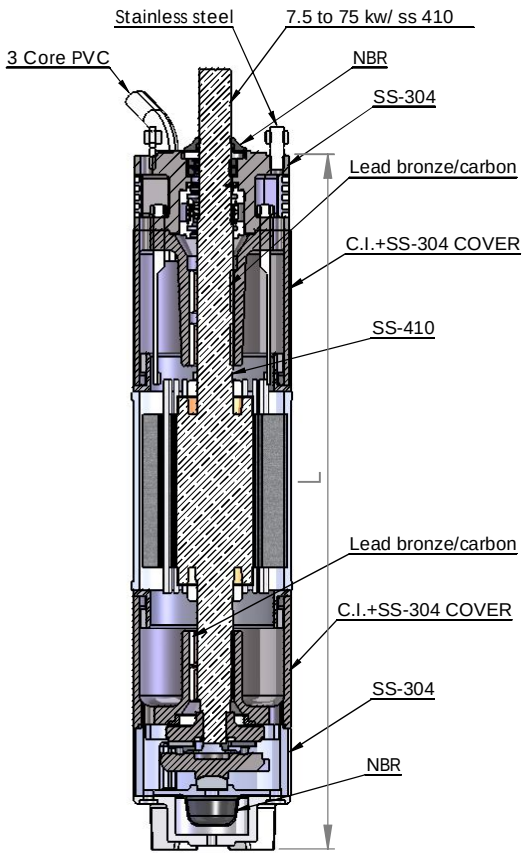
Cross - sectional View



C.I. MOTORS



S.S. MOTORS

P_N		L in (mm)		Motor Weight (Kg.)		Motor Weight (Incl.pkg) (Kg.)	
(H.P.)	(Kw)	S.S.-304 410	C.I.	S.S.-304 410	C.I.	S.S.-304 410	C.I.
10.00	7.5	945	971	105.280	104.880	125.280	125.780
12.5	9.3	975	1001	108.610	108.210	129.610	130.110
15.00.	11.0	1005	1031	111.940	111.540	133.940	134.440
17.50	13.0	1035	1061	115.650	115.250	138.650	139.150
20.00	15.0	1065	1091	118.600	118.200	142.600	143.100
25.00	13.5	1125	1151	125.260	124.860	151.260	151.760
30.00	22.0	1185	1211	131.920	131.520	159.220	160.420

P_N		L in (mm)		Motor Weight (Kg.)		Motor Weight (Incl.pkg) (Kg.)	
(H.P.)	(Kw)	S.S.-304 410	C.I.	S.S.-304 410	C.I.	S.S.-304 410	C.I.
35.00	26.0	1245	1271	138.580	138.180	168.080	168.580
40.00	30.0	1295	1321	144.130	143.730	175.130	175.630
50.00	37.0	1438	1464	160.000.	159.600	194.000	194.500
60.00	45.0	1508	1534	167.770	167.370	204.770	205.270
75.00	56.0	1608	1634	178.810	178.410	217.810	218.310
100.00	71.5	1698	1724	188.860	188.460	229.860	230.360

Technical Specifications

50 Hz

8” Oswal Water lubricated Motors are rewindable.
Flange and shaft Portion are as per NEMA standards.
Winding wire : PVC.
Degree of protection : IP68.
Max Water temperature : 50 C .
Start per hr : 20 time (Max.).
Allowable voltage variation : +6% - 10%.
Motor shaft of Stainless Steel.
Stator shell of Stainless Steel.
Max depth immersion : 450M
Mounting : Vertical / Horizontal.
Motor Cable length : 3 Meter / 3 Core with separate earth cable & 4 Core.
Cooling Flow : V:0.2 M/S.
Coolant : Clear Water.
VERSIONS:
Three Phase 7.5 kW to 75 kW / 380-415 Volt / 50 Hz, 460V/60Hz/ 2900 RPM
Motor With Other Voltage and Frequency ratings are available on specific Demand.
Upper / Lower Bracket and Motor Base are available in Cast iron with Epoxy Paint/
Cast iron With Ceramic Coating / SS 304 / SS 410 on Specific Demand.

60 Hz

8” Oswal Water lubricated Motors are rewindable.
Flange and shaft Portion are as per NEMA standards.
Winding wire : PVC.
Degree of protection : IP68.
Max Water temperature : 50 C .
Start per hr : 20 time (Max.).
Allowable voltage variation : +6% - 10%.
Motor shaft of Stainless Steel.
Stator shell of Stainless Steel.
Max depth immersion : 450M
Mounting : Vertical / Horizontal.
Motor Cable length : 3 Meter / 3 Core.
Cooling Flow : V:0.2 M/S.
Coolant : Clear Water.
VERSIONS:
Three Phase 7.5 kW to 75 kW / 380 / 60 Hz/ 3480 RPM
Motor With Other Voltage and Frequency ratings are available on specific Demand.
Upper / Lower Bracket and Motor Base are available in Cast iron with Epoxy Paint/
Cast iron With Ceramic Coating / SS 304 / SS 410 on Specific Demand.

Product Model Code Numbers of 8" Standard Rewindable Motors

50 Hz

P_N		UN / f [V] / [Hz]	Model Number Digit 1 - 10	
[H.P.]	[kW]		DOL	YΔ
10.00	7.5	380 - 415/50	8SSWM-A1-3PH	8SSWM-A-3PH
12.5	9.3	380 - 415/50	8SSWM-B1-3PH	8SSWM-B-3PH
15.00	11.0	380 - 415/50	8SSWM-C1-3PH	8SSWM-C-3PH
17.50	13.0	380 - 415/50	8SSWM-D1-3PH	8SSWM-D-3PH
20.00	15.0	380 - 415/50	8SSWM-E1-3PH	8SSWM-E-3PH
25.00	18.5	380 - 415/50	8SSWM-F1-3PH	8SSWM-F-3PH
30.00	22.0	380 - 415/50	8SSWM-G1-3PH	8SSWM-G-3PH
35.00	26.0	380 - 415/50	8SSWM-H1-3PH	8SSWM-H-3PH
40.00	30.0	380 - 415/50	8SSWM-I1-3PH	8SSWM-I-3PH
50.00	37.0	380 - 415/50	8SSWM-K1-3PH	8SSWM-K-3PH
60.00	45.0	380 - 415/50	8SSWM-L1-3PH	8SSWM-L-3PH
75.00	56.0	380 - 415/50	8SSWM-M1-3PH	8SSWM-M-3PH
100.00	75.0	380 - 415/50	8SSWM-N1-3PH	8SSWM-N-3PH

60 Hz

P_N		UN / f [V] / [Hz]	Model Number Digit 1 - 10	
[H.P.]	[kW]		DOL	YΔ
10.00	7.5	380 / 60	8SSWM-A1-3PH	8SSWM-A-3PH
12.5	9.3	380 / 60	8SSWM-B1-3PH	8SSWM-B-3PH
15.00	11.0	380 / 60	8SSWM-C1-3PH	8SSWM-C-3PH
17.50	13.0	380 / 60	8SSWM-D1-3PH	8SSWM-D-3PH
20.00	15.0	380 / 60	8SSWM-E1-3PH	8SSWM-E-3PH
25.00	18.5	380 / 60	8SSWM-F1-3PH	8SSWM-F-3PH
30.00	22.0	380 / 60	8SSWM-G1-3PH	8SSWM-G-3PH
35.00	26.0	380 / 60	8SSWM-H1-3PH	8SSWM-H-3PH
40.00	30.0	380 / 60	8SSWM-I1-3PH	8SSWM-I-3PH
50.00	37.0	380 / 60	8SSWM-K1-3PH	8SSWM-K-3PH
60.00	45.0	380 / 60	8SSWM-L1-3PH	8SSWM-L-3PH
75.00	56.0	380 / 60	8SSWM-M1-3PH	8SSWM-M-3PH
100.00	75.0	380 / 60	8SSWM-N1-3PH	8SSWM-N-3PH

Performance Data of 8" Standard Rewindable Motors / 50 Hz

P_N		Thrust Load [N]	U_N [V]	n_N [min-1]	I_N [A]	I_A [A]	□(Eff.) [%] at % load			COS φ (PF) at % load			T_N [Nm]	T_A [Nm]
[H.P.]	[kW]						50	75	100	50	75	100		
10.00	7.5	15500	380	2865	18.0	63.0	79	81	81	0.75	0.80	0.81	24.5	30.3
			400	2870	16.0	67.0	81	81	79	0.73	0.79	0.81	24.5	36.0
			415	2880	15.5	70.0	80	81	80	0.72	0.78	0.80	24.4	40.0
12.50	9.3	15500	380	2865	22.5	90.0	80	82	81	0.79	0.81	0.82	30.7	35.4
			400	2870	21.5	94.5	82	81	80	0.74	0.80	0.82	30.6	43.7
			415	2880	20.0	100.0	81	82	81	0.73	0.79	0.81	30.5	47.0
15.00	11	15500	380	2860	26.0	116.0	81	83	81	0.80	0.82	0.83	36.85	52.8
			400	2870	24.0	120.0	83	82	80	0.75	0.81	0.82	36.7	58.5
			415	2880	22.0	125.0	82	83	82	0.73	0.80	0.82	36.6	63.0
17.50	13.00	15500	380	2860	32.0	152.0	81	83	81	0.77	0.84	0.85	43.0	66.2
			400	2870	29.0	154.0	83	82	80	0.76	0.83	0.84	42.85	73.0
			415	2880	28.0	160.0	82	83	82	0.75	0.82	0.83	42.7	79.0
20.00	15.00	15500	380	2875	36.0	171.0	82	84	82	0.78	0.84	0.85	48.9	75.2
			400	2880	34.0	180.0	83	83	81	0.77	0.83	0.85	48.8	84.5
			415	2885	32.0	182.0	82	84	83	0.75	0.82	0.84	48.7	91.0
25.00	18.50	15500	380	2880	44.0	209.0	82	84	83	0.80	0.84	0.86	61.0	73.8
			400	2890	42.0	223.0	83	83	82	0.77	0.83	0.86	60.8	83.5
			415	2900	40.0	228.0	82	85	84	0.76	0.82	0.85	60.6	90.0
30.00	22.00	15500	380	2880	54.0	256.0	82	84	83	0.85	0.84	0.87	73.2	117.0
			400	2890	51.0	270.0	83	84	83	0.80	0.84	0.87	73.0	130.0
			415	2900	48.0	274.0	82	85	84	0.76	0.83	0.86	72.7	140.0
35.00	26.00	15500	380	2880	59.0	280.0	82	84	83	0.85	0.84	0.87	85.4	133.0
			400	2900	56.0	297.0	83	85	84	0.80	0.84	0.87	84.8	147.0
			415	2910	54.0	308.0	83	85	84	0.76	0.83	0.86	84.5	158.0
40.00	30.00	15500	380	2880	63.0	300.0	83.5	84.4	83.1	0.89	0.88	0.89	99.0	126.0
			400	2900	60.0	318.0	83.6	85	84.3	0.80	0.86	0.89	99.0	141.0
			415	2910	58.0	332.0	83.5	85.2	84.9	0.77	0.79	0.88	98.0	151.0
50.00	37.00	15500	380	2890	79.0	378.0	84.6	85.3	84.9	0.80	0.86	0.88	122.0	156.0
			400	2900	76.0	400.0	84.9	85.2	84.6	0.74	0.82	0.86	122.0	176.0
			415	2910	75.0	412.0	84.6	84.5	84.3	0.7	0.80	0.84	121.0	190.0
60.00	45.00	15500	380	2900	93.0	491.0	85.8	86.4	85.2	0.79	0.86	0.88	149.0	218.0
			400	2910	90.0	520.0	85.3	86.5	85.9	0.74	0.82	0.86	148.0	241.0
			415	2910	89.0	541.0	84.5	86.2	85.8	0.69	0.79	0.84	175.0	263.0
75.00	55.00	15500	380	2900	114.0	624.0	86.5	86.9	85.7	0.78	0.85	0.88	181.0	301.0
			400	2910	110.0	660.0	85.9	87	86.4	0.72	0.82	0.86	181.0	340.0
			415	2920	109.0	688.0	84.8	86.4	86.2	0.67	0.78	0.84	198.0	366.0
100.00	75.00	15500	380	2920	154.0	892.0	86.7	87.1	85.9	0.79	0.86	0.84	247.0	419.0
			400	2910	148.0	942.0	86.2	87.3	86.7	0.74	0.83	0.89	246.0	472.0
			415	2920	147.0	982.0	85.4	86.9	86.6	0.69	0.79	0.87	245.0	510.0

* P_N - Rated Output
* $F_{[N]}$ - Axial Thrust Load
* U_N - Rated Voltage
* n_N - RPM
* I_N - Full Load Current
* I_A - Starting Current
* □ - Motor Efficiency
* cos φ - Power Factor
* T_N - Full Load Torque
* T_A - Starting Torque

Performance Data of 8" Standard Rewindable Motors / 60 Hz

P_N		Thrust Load [N]	U_N [V]	n_N [min-1]	I_N [A]	I_A [A]	□(Eff.) [%] at % load			COS φ (PF) at % load			T_N [Nm]	T_A [Nm]
[H.P.]	[kW]						50	75	100	50	75	100		
10.00	7.5	15500	230	3500	36.0	138.0	78	82	81	0.70	0.75	0.77	24.0	32.3
			380	3490	20.0	73.0	82	81	80	0.74	0.77	0.81	24.1	34.0
			460	3480	14.0	68.0	76	83	79	0.75	0.81	0.83	24.0	38.0
12.50	9.3	15500	230	3510	45.0	198.0	78	82	81	0.74	0.78	0.80	30.1	36.5
			380	3490	25.8	103.0	81	81	80	0.75	0.81	0.84	30.0	44.0
			460	3500	18.0	97.0	77	82	79	0.76	0.82	0.85	29.9	45.0
15.00	11	15500	230	3500	52.0	261.0	78	83	81	0.75	0.75	0.85	36.0	51.0
			380	3490	29.0	134.0	82	81	80	0.76	0.79	0.87	36.1	60.0
			460	3500	20.0	121.0	81	82	80	0.77	0.82	0.88	36.3	61.5
17.50	13.00	15500	230	3510	64.0	340.0	80	83	82	0.72	0.79	0.82	42.1	67.0
			380	3490	35.0	174.0	80	83	81	0.74	0.82	0.85	42.0	72.0
			460	3480	25.0	150.0	81	81	80	0.77	0.82	0.87	41.8	77.0
20.00	15.00	15500	230	3520	72.0	380.0	82	82	82	0.74	0.83	0.85	47.8	76.0
			380	3510	40.5	203.0	81	83	81	0.78	0.83	0.86	46.7	82.0
			460	3500	29.0	170.0	83	84	80	0.79	0.80	0.88	47.1	89.0
25.00	18.50	15500	230	3500	88.0	470.0	81	84	83	0.74	0.83	0.86	58.0	71.0
			380	3490	50.0	251.0	82	83	82	0.78	0.84	0.87	58.5	81.0
			460	3480	36.0	215.0	83	85	81	0.80	0.84	0.89	58.1	88.0
30.00	22.00	15500	230	3510	108.0	580.0	81	84	83	0.80	0.86	0.88	70.1	115.0
			380	3490	40.8	307.0	82	84	84	0.75	0.86	0.89	70.3	128.0
			460	3480	43.2	261.0	83	85	83	0.77	0.82	0.89	70.2	130.0
35.00	26.00	15500	230	3520	117.0	635.0	83	83	83	0.78	0.85	0.87	81.4	133.0
			380	3500	67.2	340.0	82	84	84	0.79	0.87	0.88	81.0	145.0
			460	3490	48.6	300.0	81	85	83	0.79	0.86	0.89	81.7	155.0
40.00	30.00	15500	230	3500	135.0	680.0	82	83	83.5	0.76	0.80	0.85	98.5	138.0
			380	3500	74.0	394.0	82.4	84.6	84.5	0.78	0.86	0.88	99.0	141.0
			460	3490	61.0	324.0	81.5	83.6	83.5	0.79	0.87	0.89	99.0	130.0
50.00	37.00	15500	230	3500	160.0	825.0	83	84	84.5	0.77	0.80	0.83	121.2	175.0
			380	3510	92.0	514.0	83	85.2	85.4	0.79	0.81	0.84	122.0	178.0
			460	3490	75.0	407.0	83.6	85.3	84.8	0.77	0.84	0.87	123.0	162.0
60.00	45.00	15500	230	3510	195.0	970.0	83.5	84.5	85	0.72	0.76	0.81	147.5	235.0
			380	3510	111.0	660.0	83.8	85.7	85.8	0.73	0.81	0.85	149.0	240.0
			460	3500	89.0	524.0	85	86.6	86.3	0.77	0.84	0.87	149.0	221.0
75.00	55.00	15500	230	3520	235.0	1210.0	84	85	85.8	0.7	0.77	0.82	181.5	317.0
			380	3520	138.0	842.0	84.4	86.5	86.5	0.71	0.80	0.88	182.0	321.0
			460	3510	109.0	657.0	85.8	87.1	86.7	0.77	0.84	0.84	181.0	287.0
100.00	75.00	15500	230	3520	310.0	1600.0	85	86	86.2	0.74	0.82	0.84	246.3	425.0
			380	3510	179.0	1143.0	86.3	87.8	87.4	0.77	0.85	0.87	247.0	427.0
			460	3510	145.0	947.0	86.3	87.8	87.4	0.77	0.85	0.88	247.0	427.0

* P_N - Rated Output
* $F_{[N]}$ - Axial Thrust Load
* U_N - Rated Voltage
* n_N - RPM
* I_N - Full Load Current
* I_A - Starting Current
* □- Motor Efficiency
* cos φ - Power Factor
* T_N - Full Load Torque
* T_A - Starting Torque

8" Rewindable Product Information and Service

Flate Cable Leads for 8" Standard Rewindable Motor, 415 V

50 Hz

P_N [kW]	Cross Sectional Area (mm^2)	Length [m]
7.5 - 11	4 mm^2	3
13 - 22	6 mm2	3
26 - 37	10 mm2	3
45 - 55	16 mm2	3
60 - 75	25 mm2	3

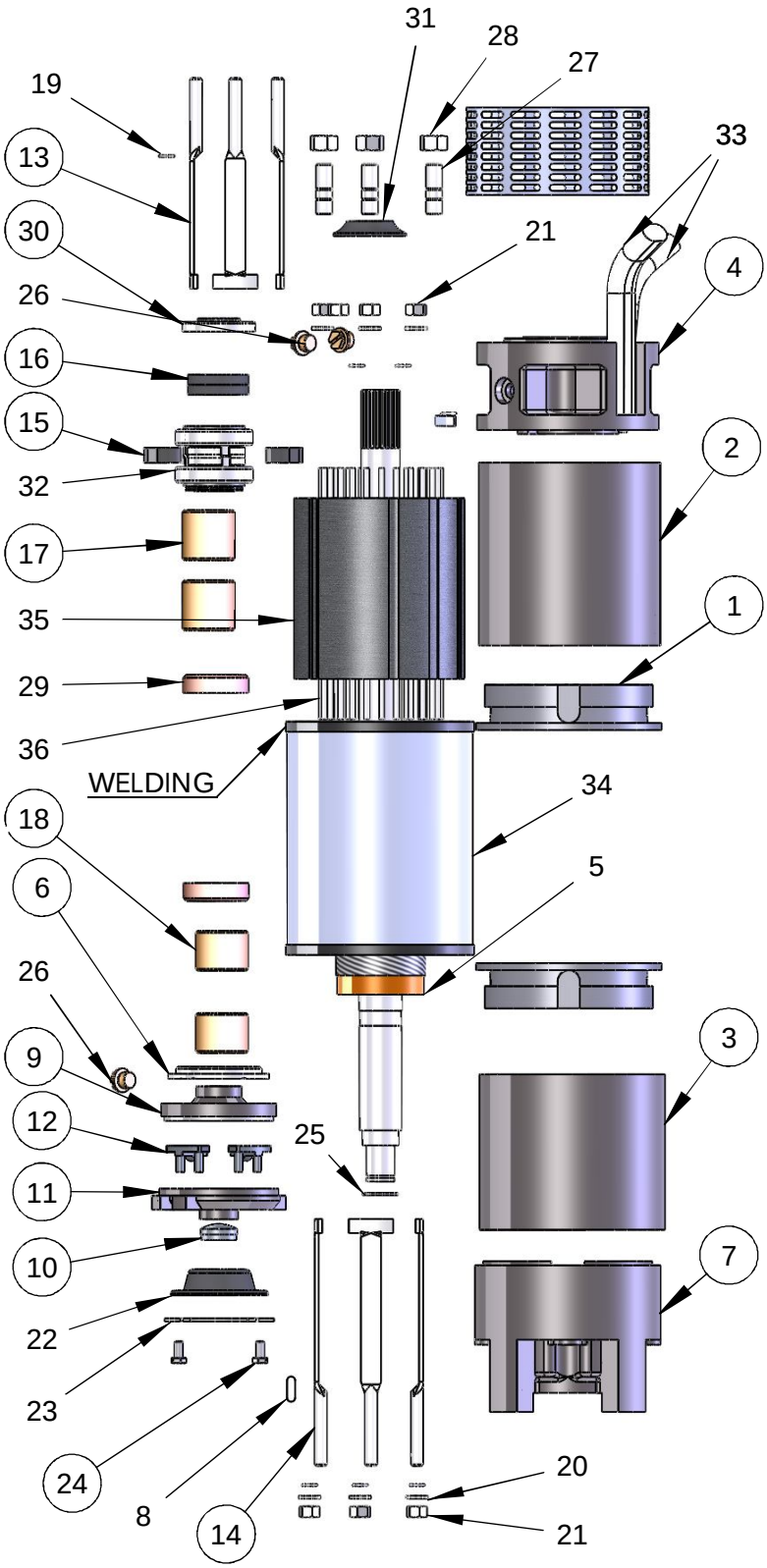
* Separate Earth Cable On Request / On Demand

60 Hz

P_N [kW]	Cross Sectional Area (mm^2)	Length [m]
7.5 - 11	4 mm^2	3
13 - 22	6 mm2	3
26 - 37	10 mm2	3
45 - 55	16 mm2	3
60 - 75	25 mm2	3

* Separate Earth Cable On Request / On Demand

Exploded View of Spare parts of Motors



ITEM NO.	DESCRIPTION
36	WINDING WIRE
35	STAMPING
34	STATOR PIPE
33	CABLE
32	MECHANICAL SEAL
31	SAND GUARD
30	SEAL GUARD
29	BALANCING RING
28	HEX. NUT (M16X1.75)
27	STUD (M16X50)
26	WATER PLUG
25	CIRCLIP (EXTERNAL)
24	ALEN BOLT (M8X20)
23	MOTOR BASE PLATE
22	DIAGPHARAGM
21	HEX. NUT (M12X1.75)
20	WASHER
19	O-RING
18	BEARING BUSH (45X55X40)
17	BEARING BUSH (45X55X50)
16	OIL SEAL
15	GROMET
14	T-BOLT (LOWER)
13	T-BOLT (UPPER)
12	SEGMENT
11	SEGMENT BASE
10	ROCKER SUPPORT
9	THRUST BEARING
8	KEY (8X6X24)
7	MOTOR BASE
6	COUNTER BEARING
5	ROTOR ASSEMBLY
4	ADOPTER
3	LOWER HOUSING
2	UPPER HOUSING
1	END RING

Outline Drawing