

Franklin Electric Europa GmbH

4" Encapsulated Motors

Product Information and Service



Franklin Electric

QUALITY IN THE WELL

POWERED BY



Franklin Electric



QUALITY



AVAILABILITY



SERVICE



INNOVATION





Table of contents

4" Encapsulated Motors

PSC	4 - 9
PSC Motor Set	10 - 11
2- Wire	12 - 17
3- Wire	18 - 29
3 Phase	30 - 47
4" Coal Bed Methane Submersible Motors	44 - 53

Motor Control

SubStartSC	54/55
SubStart3P	56/57
SubTronicSC	58/59
SubTronic3P	60/61

Drives

SubDrive	62
----------------	----

Accessories

4" Termination Kit	63
Lead for Termination Kit 4"	63
Lead Termination Kit 1,5 - 10mm ²	63
PTC Kabel	63
Brackish Water Motor Lead	63
3-wire Motor Control Box	64
4" Corrosion Protection	65
Motor Filling Liquid	65
Motor Filling Kit	65
Motor Coupling 4"	66



4" Encapsulated Motors

4" Super Stainless 1~ PSC



Submersible Motors Quality in the Well

Franklin Electric 4" encapsulated submersible motors, built in ISO 9001/14001 certified facilities for outstanding performance in 4" or larger water wells.

The single phase PSC motor has been electrically optimized to offer reliable pump starting over a wide range of incoming voltages. It should ideally be combined to the Franklin Electric SubStart/ SubTronicSC control boxes for maximum system performance, protection and warranty.

Standard Motor Design Specifications:

- Hermetically sealed stator. Anti track, self healing stator resin prevents motor burn out, mechanically supports the winding and provides fast heat dissipation.
- High efficiency electrical design (low operation cost, cool running winding)
- Removable water bloc lead connector
- Cable material according to drinking water regulations (VDE / ACS / KTW approved)
- No-wear, water lubricated radial and thrust bearings for 100% maintenance free operation
- Non-contaminating FES 93 filling liquid
- Various agency approvals for use in drinking water

Pollution Recovery Motor Version Specifications:

- Fluorelastomere (Viton®) rubber parts
- Special Polyuretane (PUR) lead assemblies
- 304 graded stainless steel as standard, 316SS as an option

Brackish Water Motor Version Specifications:

- For use in water that has more salinity than fresh water, but not as much as seawater.
- The novel Franklin Electric Brackish Water Motor proposes a cost-effective solution wherever standard 4" motors are not giving sufficient service life

Technical specification:

- PSC motor range: 0,25 – 2,2kW
- 4" NEMA flange
- Rotation: CCW facing shaft end (CW upon request)
- Degree of protection: IP68
- Insulation: Cl.B
- Rated ambient temperature: 30°C
- Required cooling flow: min. 0,08m/s
- Max. starts/hr.: 20, equally distributed
- Mounting: vertical to horizontal, shaft upwards
- Voltage tolerance 50Hz from nominal: -10% / +6%
- Protection requirements: EN 61947-4-1

Options

- Motor cable VDE, KTW approved (1,5m; special lengths available)
- Motors with factory- installed lead in Single Packing
- Built in lightning arrestors
- Built in overload protection
- Alternative material executions
- Motor sets including control box, lead and splice kit

4" Encapsulated Motors



4" PSC Motors Model Numbers 50 Hz

P _N [kW]	U _N [V]	Model No.			
		Standard Motors (40 motors packing unit)	Standard Motors (single pack, with Lead)	Pollution Recovery Motors (single pack, with Lead)	Brackish Water Motors (single pack, with Lead)
0,25	220-230	254 803 1621	254 803 1621L	254 803 1622L	254 803 1624L
	230-240	254 813 1621	254 813 1621L	254 813 1622L	254 813 1624L
0,37	220-230	254 805 1621	254 805 1621L	254 805 1622L	254 805 1624L
	230-240	254 815 1621	254 815 1621L	254 815 1622L	254 815 1624L
0,55	220-230	254 807 1621	254 807 1621L	254 807 1622L	254 807 1624L
	230-240	254 817 1621	254 817 1621L	254 817 1622L	254 817 1624L
0,75	220-230	254 808 1621	254 808 1621L	254 808 1622L	254 808 1624L
	230-240	254 818 1621	254 818 1621L	254 818 1622L	254 818 1624L
1,10	220-230	254 809 1621	254 809 1621L	254 809 1622L	254 809 1624L
	230-240	254 819 1621	254 819 1621L	254 819 1622L	254 819 1624L
1,50	220-230	254 810 1621	254 810 1621L	254 810 1622L	254 810 1624L
	230-240	254 820 1621	254 820 1621L	254 820 1622L	254 820 1624L
2,20	220-230	254 811 2521	254 811 2521L	254 811 2522L	254 811 2524L
	230-240	254 821 2521	254 821 2521L	254 821 2522L	254 821 2524L

4" PSC Performance Data 50 Hz

220V - 230V version

P _N [kW]	Thrust F [N]	U _N [V]	n _N [min ⁻¹]	I _N [A]	I _A [A]	η (Eff.) [%] at % load			cos φ (Pf.) at % load			T _N [Nm]	T _A [Nm]	Capacitor μF (U _c =450V)
						50	75	100	50	75	100			
0,25	3000	220	2865	2,3	9,0	33	45	51	0,91	0,93	0,96	0,82	0,73	12,5
		230	2875	2,4	9,4	28	42	50	0,80	0,88	0,92	0,83	0,80	
0,37	3000	220	2850	3,2	12,1	36	47	54	0,86	0,92	0,97	1,21	1,07	16
		230	2860	3,3	12,6	35	46	54	0,78	0,85	0,91	1,24	1,17	
0,55	3000	220	2840	4,2	16,9	46	57	63	0,94	0,97	0,98	1,85	1,50	20
		230	2850	4,3	17,7	45	57	63	0,86	0,91	0,94	1,90	1,63	
0,75	3000	220	2825	5,7	21,7	44	54	61	0,97	0,99	0,99	2,5	2,3	35
		230	2845	5,7	22,7	41	52	59	0,92	0,96	0,98	2,5	2,5	
1,1	3000	220	2830	8,1	32,5	47	59	65	0,86	0,94	0,97	3,7	2,9	40
		230	2845	8,4	33,9	43	56	63	0,77	0,86	0,92	3,7	3,1	
1,5	3000	220	2820	10,4	39,9	52	63	68	0,90	0,95	0,98	5,1	3,6	50
		230	2830	10,7	41,7	48	59	66	0,82	0,90	0,95	5,1	3,9	
2,2	4000	220	2825	14,7	59,2	55	65	70	0,93	0,98	0,99	7,4	5,0	70
		230	2840	14,7	61,8	51	62	68	0,86	0,93	0,97	7,4	5,5	

230V - 240V version

P _N [kW]	Thrust F [N]	U _N [V]	n _N [min ⁻¹]	I _N [A]	I _A [A]	η (Eff.) [%] at % load			cos φ (Pf.) at % load			T _N [Nm]	T _A [Nm]	Capacitor μF (U _c =450V)
						50	75	100	50	75	100			
0,25	3000	230	2865	2,2	8,6	33	45	51	0,91	0,93	0,96	0,82	0,73	12,5
		240	2875	2,3	9,0	28	42	50	0,80	0,88	0,92	0,83	0,80	
0,37	3000	230	2850	3,1	11,6	36	47	54	0,86	0,92	0,97	1,21	1,07	16
		240	2860	3,2	12,1	35	46	54	0,78	0,85	0,91	1,24	1,17	
0,55	3000	230	2840	4,0	16,2	46	57	63	0,94	0,97	0,98	1,85	1,50	20
		240	2850	4,1	16,9	45	57	63	0,86	0,91	0,94	1,90	1,63	
0,75	3000	230	2825	5,5	20,8	44	54	61	0,97	0,99	0,99	2,5	2,3	35
		240	2845	5,5	21,8	41	52	59	0,92	0,96	0,98	2,5	2,5	
1,1	3000	230	2830	7,8	31,1	47	59	65	0,86	0,94	0,97	3,7	2,9	40
		240	2845	8,1	32,5	43	56	63	0,77	0,86	0,92	3,7	3,1	
1,5	3000	230	2820	10,0	38,3	52	63	68	0,90	0,95	0,98	5,1	3,6	50
		240	2830	10,2	40,0	48	59	66	0,82	0,90	0,95	5,1	3,9	
2,2	4000	230	2825	14,0	56,7	55	65	70	0,93	0,98	0,99	7,4	5,0	70
		240	2840	14,1	59,3	51	62	68	0,86	0,93	0,97	7,4	5,5	

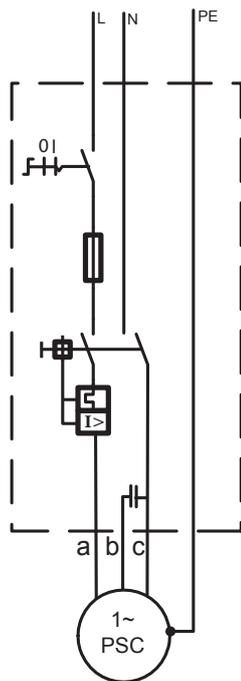


4" Encapsulated Motors

PSC Winding Resistances 50 Hz

P_N [kW]	U_N [V]	Stator-Ref. #	Main Phase [Ohm]	Start Phase [Ohm]
0,25	220 - 230	326 738 912	8,2 - 10,0	31,1 - 38,1
	230 - 240	326 800 912	8,9 - 10,9	26,7 - 32,6
0,37	220 - 230	326 739 912	6,7 - 8,1	21,7 - 26,5
	230 - 240	326 801 912	7,2 - 8,8	20,8 - 25,4
0,55	220 - 230	326 740 912	4,4 - 5,4	13,6 - 16,6
	230 - 240	326 802 912	4,8 - 5,8	13,1 - 16,0
0,75	220 - 230	326 741 912	3,3 - 4,1	8,1 - 9,9
	230 - 240	326 803 912	3,7 - 4,6	7,7 - 9,4
1,1	220 - 230	326 742 912	2,3 - 2,8	6,8 - 8,3
	230 - 240	326 804 912	2,5 - 3,0	6,5 - 7,9
1,5	220 - 230	326 743 912	1,8 - 2,2	4,7 - 5,7
	230 - 240	326 805 912	1,9 - 2,4	4,4 - 5,4
2,2	220 - 230	326 744 912	1,2 - 1,5	3,2 - 3,9
	230 - 240	326 806 912	1,3 - 1,6	3,0 - 3,6

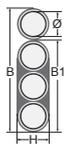
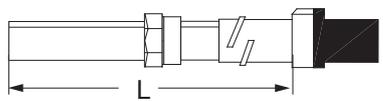
Electrical Connection



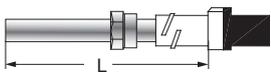
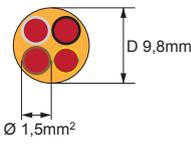
a	b	c	PE
black	brown	grey	yellow/green

VDE / ACS/ KTW Approved Leads*

\emptyset [mm ²]	B (mm)	B1 (mm)	H (mm)
3X1,5+1G1,5	16,8 ± 0,3	10,7 ± 0,3	5,0 ± 0,3

L [M]	PSC Motor Leads		
	Brass	304 SS	316 SS
1,5	310 113 001	310 113 401	310 113 501
2,5	310 113 002	310 113 402	310 113 502
5	310 113 005	310 113 405	310 113 505
10	310 113 010	310 113 410	310 113 510
15	310 113 015	310 113 415	310 113 515
20	310 113 020	310 113 420	310 113 520
30	310 113 030	310 113 430	310 113 530
40	310 113 040	310 113 440	310 113 540
50	310 113 050	310 113 450	310 113 550

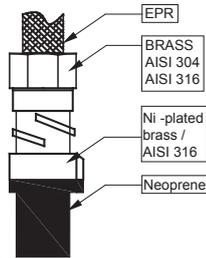
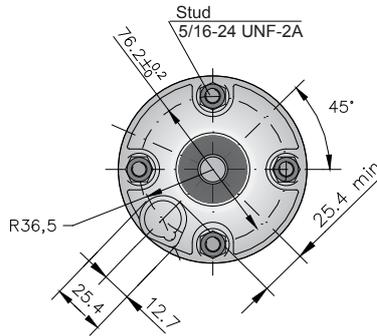
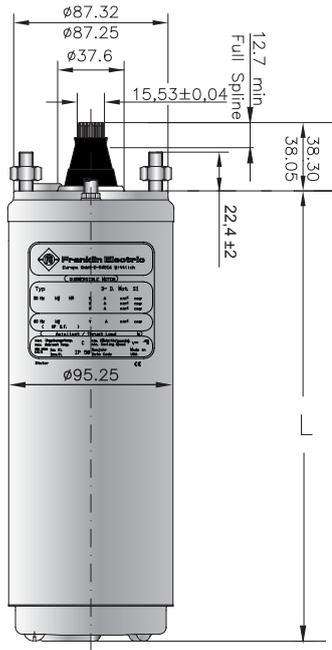
L [M]	Pollution Recovery Motor Leads	
	Model number (only 316SS)	
1,5	310 313 501	 
2,5	310 313 502	
10	310 313 510	
20	310 313 520	
30	310 313 530	
40	310 313 540	
50	310 313 550	

*Cables are designed for submerged operation. For air operation please consult Franklin Electric.

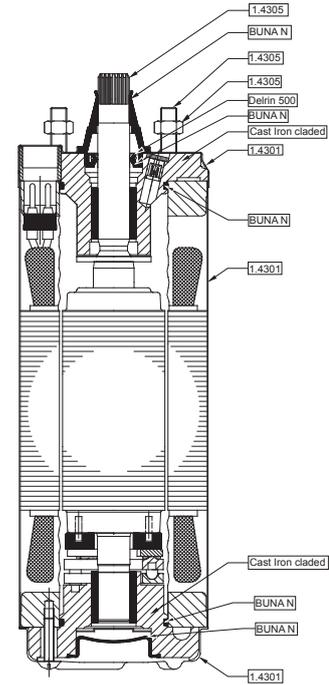
4" Encapsulated Motors



Outline Drawing PSC Motors



Material Description



Tolerances according to NEMA MG 1-18.388

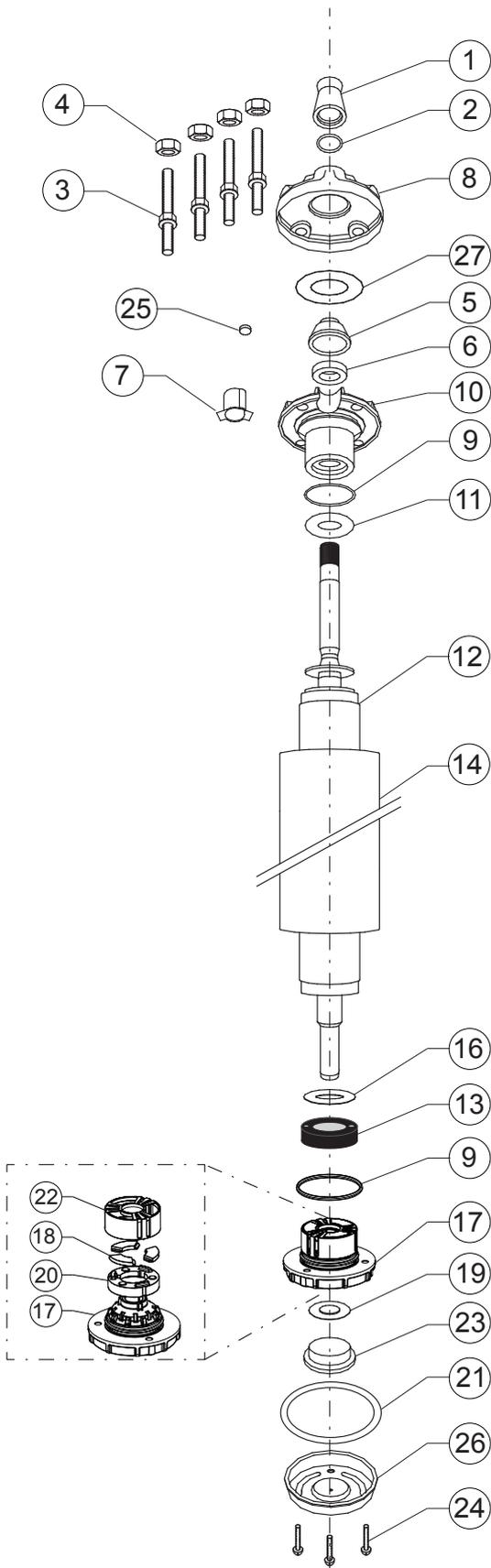
4" PSC Motors Lengths and Weights / Packing sizes

P _N		L [mm]	M [kg]	Motor Package size (40 motors per packing unit)		Motor with Lead in single pack	
[kW]	[HP]			[mm]	[kg]	[mm]	[kg]
0,25	0,33	214,2	7,4	800 x 500 x 870	310,0	400 x 100 x 110	8,6
0,37	0,50	228,2	8,0	800 x 500 x 870	334,0	400 x 100 x 110	9,2
0,55	0,75	253,2	9,2	800 x 500 x 870	382,0	530 x 100 x 110	10,5
0,75	1,00	282,6	10,4	800 x 500 x 870	430,0	530 x 100 x 110	11,7
1,10	1,50	306,6	11,8	800 x 500 x 870	486,0	530 x 100 x 110	13,1
1,50	2,0	338,6	12,9	800 x 500 x 870	530,0	796 x 100 x 110	14,7
2,20	3,0	436,6	17,3	800 x 500 x 870	706,0	796 x 100 x 110	15,5



4" Encapsulated Motors

4" PSC Standard Motor* Part Description



Pos.	Part Description	Qty.	Part No.
1	Protector, Spline	1	Kit B
2	Washer	4	Kit B
3	Stud	4	Kit C
4	Nut	1	Kit C
5	Seal cover	1	Kit
6	Shaft Seal	1	Kit B
7	Connector boss	1	151 820 102
8	Top Endbell, Cover	1	Kit
9	O-Ring	2	Kit B
10	Top Endbell	1	Kit
11	Upthrust washer	1	Kit
12	Rotor	1	page 9
13	Thrust disk assy	1	Kit A
14	Stator	1	page 9
15	Leveling Disk (only 1500N)	1	Kit A
16	Washer	1	Kit A
17	Bottom Endbell	1	Kit
18	Segments	3	Kit A
19	Diaphragm Insert	1	151 314 101
20	Rocking Disk	1	Kit A
21	Gasket	1	Kit B
22	Bearing cage	1	Kit A
23	Diaphragm	1	Kit B
24	Screw, Seal	3	Kit C
25	Filter	1	Kit B
26	Bottom Endbell Cover		156 414 101
27	Washer	1	Kit B

* Spare Parts for Pollution Recovery and Brackish Water Motors on Request

4" Encapsulated Motors



4" PSC Standard Motor* Spare Part Kit's

P_N [kW]	Thrust Bearing	End bell, upper (Pos. 5 - 10, 27)	End bell, lower (Pos. 17)	Up thrust washer (Pos. 11)
0,25 - 0,55	Kit A1	177 231 904	Kit A1	150 954 102
0,75 - 1,5		177 233 904		151 093 105
2,2		(0,75 - 2,2kW)		
Kit 1500N 0,25 - 0,55kW up to 07.2008	Thrust bearing Kit 1500N		inkl. Pos.: 13, 15, 16, 18, 20	308 652 101
Kit A1	End bell (lower) incl. Thrust bearing Kit 3000N/4000N		inkl. Pos.: 9, 13, 16, 17, 18, 20, 22	308 464 901
Kit B1	Seals Kit		inkl. Pos.: 1, 2, 6, 9, 21, 23, 25, 27	308 650 101
Kit B2	Seals Kit (Viton)		inkl. Pos.: 1, 2, 6, 9, 21, 23, 25, 27	308 650 104
Kit C	Screws Kit		inkl. Pos.: 3, 4, 24	308 656 101

PSC Replacement Stator and Rotor 50 Hz

P_N [kW]	Volt	Motor Model No.	Stator	Rotor
0,25	220-230	254 803 1621 / L	305 491 101	178 610 902K
	230-240	254 813 1621 / L	305 491 121	
0,37	220-230	254 805 1621 / L	305 491 102	178 611 902K
	230-240	254 815 1621 / L	305 491 122	
0,55	220-230	254 807 1621 / L	305 491 103	178 612 902K
	230-240	254 817 1621 / L	305 491 123	
0,75	220-230	254 808 1621 / L	305 491 104	178 613 902K
	230-240	254 818 1621 / L	305 491 124	
1,10	220-230	254 809 1621 / L	305 491 105	178 614 902K
	230-240	254 819 1621 / L	305 491 125	
1,50	220-230	254 810 1621 / L	305 491 106	178 615 902K
	230-240	254 820 1621 / L	305 491 126	
2,20	220-230	254 811 2521 / L	305 491 107	178 616 902K
	230-240	254 821 2521 / L	305 491 127	

* Spare Parts for Pollution Recovery and Brackish Water Motors on Request



4" Encapsulated Motors

4" Super Stainless PSC Motor Set

Submersible Motor Set Quality in the Well

In an effort to ease our customers ordering, stock holding and inventory management, Franklin Electric Europa GmbH is introducing the PSC Motor Kit.

Consisting of the submersible motor, control box, motor short lead and splicing kit all packaged into one compact yet sturdy box, this kit is the ideal stock item to drive your pump.



Product advantages:

- One stop shop – no hassle selecting different components to work together
- Everything available at the same time
- All components matched and warranted by Franklin Electric
- Maximum flexibility – one motor kit can drive as many as 5 different pump models
- Any practical drop cable length (up to 10mm2) can be spliced using included kit

Technical Specifications

- Motor range 0,25 - 2,2kW
- 4" PSC Motor with NEMA flange
- Motor protection level: IP 68
- Box protection level: IP 54
- Voltage: 220 - 240V; - 6 / +10 %; 50Hz single phase

Options

- Motor cable VDE / ACS / KTW approved (1,5m; special lengths available)

PSC Motor Set Model numbers

P_N [kW]	U_N [V]	Model No.
0,25	220-230	254 803 1621C
	230-240	254 813 1621C
0,37	220-230	254 805 1621C
	230-240	254 815 1621C
0,55	220-230	254 807 1621C
	230-240	254 817 1621C
0,75	220-230	254 808 1621C
	230-240	254 818 1621C
1,10	220-230	254 809 1621C
	230-240	254 819 1621C
1,50	220-230	254 810 1621C
	230-240	254 820 1621C
2,20	220-230	254 811 2521C
	230-240	254 821 2521C



PSC Motor Set Description

The PSC Motor

Submersible Motors Quality in the Well

Franklin Electric 4" encapsulated submersible motors, built in ISO 9001/14001 certified facilities for outstanding performance in 4" or larger water wells.

The single phase PSC motor has been electrically optimized to offer reliable pump starting over a wide range of incoming voltages. It should ideally be combined to the Franklin Electric SubStart/SubTronicSC control boxes for maximum system performance, protection and warranty.



Product advantages:

- Hermetically sealed stator. Anti track, self healing stator resin prevents motor burn out, mechanically supports the winding and provides fast heat dissipation.
- High efficiency electrical design (low operation cost, cool running winding)
- Removable water bloc lead connector
- Cable material according to drinking water regulations (VDE / ACS / KTW approved)
- No-wear, water lubricated radial and thrust bearings for 100% maintenance free operation
- Non-contaminating FES 93 filling liquid
- Various agency approvals for use in drinking water

Technical specification:

- PSC motor range: 0,25 – 2,2kW
- 4" NEMA flange
- Rotation: CCW facing shaft end (CW upon request)
- Degree of protection: IP68
- Insulation: Cl.B
- Rated ambient temperature: 30°C
- Required cooling flow: min. 0,08m/s
- Max. starts/hr.: 20, equally distributed
- Mounting: vertical to horizontal, shaft upwards
- Voltage tolerance 50Hz from nominal: -10% / +6%
- Protection requirements: EN 61947-4-1

The SubStartSC® Single phase Submersible Motor Starter

The SubStartSC® range covers all PSC motors from 0.25kW to 2.2kW for all voltages. Ergonomic design, attention to detail and unique features make the SubStartSC® motor starter range your first choice when considering submersible motor protection. In conjunction with Franklin Electric submersible motors you now have an tangible water system advantage resulting in ease of installation and reliable protection.

Product features:

- Attention to detail – every aspect engineered for the application
- The complete package – The device is 100% compatible with the motor characteristics
- All in one name – Reliability backed by the leader in submersible motors



The Lead Termination Kit 1,5 - 10mm²

- 3M Quality
- 4 wire
- 1,5 - 10mm²
- up to 1,1kV





4" Encapsulated Motors

4" Super Stainless 2- wire



Submersible Motors Quality in the well

Franklin Electric 4" encapsulated submersible motors, built in ISO 9001/14001 certified facilities for outstanding performance in 4" or larger water wells.

The genuine Franklin Electric 2-wire motor is a split phase, control-box less submersible motor for direct connection to a fused power supply. It incorporates a long-life electronic switch that allows it to run without the aid of external controls or capacitors. Furthermore, it offers a reverse impact torque that can help loosening sand-locked pumps and comes factory-equipped with automatic reset overload and surge protectors.(functional description see page 13)

Specifications

- Hermetically sealed stator. Anti track, self healing stator resin prevents motor burn out, mechanically supports the winding and provides fast heat dissipation.
- High efficiency electrical design (low operation cost, cool running winding)
- Removable water bloc lead connector
- Cable material according to drinking water regulations (VDE / ACS / KTW approved)
- No-wear, water lubricated radial and thrust bearings for 100% maintenance free operation
- Non contaminating FES 93 filling liquid
- Various agency approvals for use in drinking water
- Two wire plus ground connection
- Automatic reset overload internal to the motor
- Built-in surge arrestors

Brackish Water Motor Version Specifications:

- For use in water that has more salinity than fresh water, but not as much as seawater.
- The novel Franklin Electric Brackish Water Motor proposes a cost-effective solution wherever standard 4" motors are not giving sufficient service life

Technical specification:

- 2-W motor range: 0,37 – 1,1kW
- 4" NEMA flange
- Rotation: CCW facing shaft end (CW upon request)
- Degree of protection: IP68
- Insulation: Cl.B
- Rated ambient temperature: 30°C
- Required cooling flow: min. 0,08m/s
- Max. starts/hr.: 20, equally distributed
- Mounting: vertical to horizontal, shaft upwards
- Voltage tolerance 50Hz from nominal: -10% / +6%
- Voltage tolerance 60Hz from nominal: ±10%
- Protection requirements: EN 61947-4-1

Options

- Motor cable VDE, KTW approved (1,5m; special lengths available)
- Motors with factory- installed lead in Single Packing



Function Description 2-wire Motors

BIAC Switch Operation/2-Wire Motor Solid State Controls

Power-On: When power is applied to the motor the bi-metal switch contacts are closed so that the TRIAC is conducting. This allows current to pass to the start winding, thus starting the motor.

The BIAC switch responds to voltage from a sensor coil located inside the motor. This sensor coil voltage is proportional to motor speed (RPM).

As speed increases, the increased voltage in the sensor coil generates heat in the bi-metal, causing it to open the start winding circuit. This cuts the starting winding current and the motor continues to run on the main winding only .

Power-off: Approximately 5 seconds after power is cut from the motor, the bi-metal strip cools sufficiently to return into its NC position, and the motor is ready for the next start cycle. If during operation, the motor speed drops for some reason, the lowered voltage in the sensor coil allows the bi-metal contacts to re-close, supplying start winding current to bring the motor back to operation speed.

Reverse Impact Torque:

This unique torque reversing feature will minimize the problems of polluted environments. In a locked rotor condition, the BIAC switch will supply full start winding current for approximately one second. Then the switch begins to open and close rapidly. This action chops the start winding current, switching it between leading and lagging the run winding current. This produces impact torque in both forward and reverse directions.

This reverse impact torque will literally shake and loosen many obstructions. Once cleared, the motor will run in proper rotation.

Extreme Fast Cycling:

(Due to Water - Logged Tank)

The BIAC starting switch will reset within approximately 5 seconds after the motor is stopped. If an attempt is made to restart the motor before the starting switch has reset, the motor may not start; however, there will be current flow through the main winding until the overload protector interrupts the circuit. The reset time for the protector is longer than the reset of the starting switch. So, the start winding switch will have closed and the motor will operate. The repeated on-off cycle will continue until the overload will trip again.

When a severely water – logged condition does occur, the user will be alerted to the problem during the off time (overload reset time), since the pressure will drop dramatically. When a water – logged tank condition is detected, the condition should be corrected to prevent nuisance tripping of the overload protector.

Bound Pump (sand-locked):

When the motor is not free to turn, as with a sand-locked pump, the BIAC switch creates a “reverse impact torque “ as described above. This is a unique feature, particularly interesting in sandy environments or applications where long stand-still periods are to be expected (seasonal usage of water).



4" Encapsulated Motors

4" 2 wire Motors Model numbers

P _N [kW]	Hp	U _N [V]	Model No. 50Hz		
			Standard Motors (40 motors packing unit)	Standard Motors (single pack, with Lead)	Brackish Water Motors (single pack, with Lead)
0,37	0,50	230	244 755 1221	244 755 1221L	244 755 1224L
0,55	0,75	230	244 757 1221	244 757 1221L	244 757 1224L
0,75	1,1	230	244 758 1221	244 758 1221L	244 758 1224L
1,10	1,50	230	244 759 1221	244 759 1221L	244 759 1224L

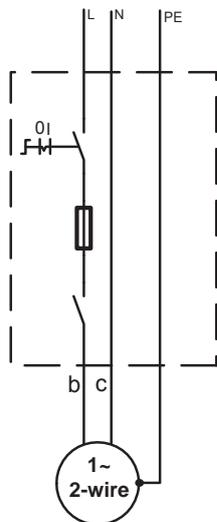
Performance Data 220 / 230 Volt 50 Hz

P _N [kW]	Thrust F[N]	U _N [V]	n _N [min ⁻¹]	I _N [A]	I _A [A]	η (Eff.) at % load [%]			cos φ (Pf.) at % load [%]			T _N [Nm]	T _A [Nm]
						50	75	100	50	75	100		
0,37	3000	220	2875	4,1	24,4	48	55	57	0,57	0,68	0,76	1,24	1,18
		230	2890	4,1	25,5	47	54	57	0,53	0,64	0,73	1,23	1,29
0,55	3000	220	2870	5,7	35,0	50	57	59	0,55	0,67	0,77	1,85	1,7
		230	2890	5,8	36,6	47	55	59	0,51	0,63	0,73	1,85	1,9
0,75	3000	220	2875	7,2	46,6	54	61	62	0,57	0,69	0,78	2,5	2,1
		230	2890	7,3	48,7	51	59	61	0,53	0,65	0,75	2,5	2,3
1,10	3000	220	2880	10,6	57,9	56	62	63	0,56	0,68	0,77	3,7	2,7
		230	2895	10,8	59,7	52	60	63	0,51	0,63	0,73	3,7	2,9

2- wire Winding Resistances 50 Hz

P _N [kW]	Volt	Motor Ref.	Ohm [Ω]
0,37	230	244 755 1221 / L	7,2 - 8,8
0,55		244 757 1221 / L	5,0 - 6,1
0,75		244 758 1221 / L	3,6 - 4,4
1,10		244 759 1221 / L	2,3 - 2,8

Electrical Connection



b	c	PE
brown	grey	yellow/green

VDE / ACS / KTW Approved Leads*

Ø [mm ²]	B [mm]	H [mm]
3X1,5	10,7 ± 0,3	5,0 ± 0,3
L [m]	Part Numbers	
	Standard	304SS
1,5	310 134 001	310 134 401
2,5	310 134 002	310 134 402
5	310 134 005	310 134 405
10	310 134 010	310 134 410
15	310 134 015	310 134 415
20	310 134 020	310 134 420
30	310 134 030	310 134 430
40	310 134 040	310 134 440

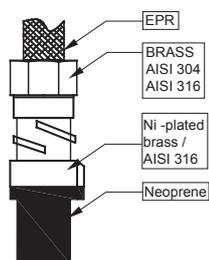
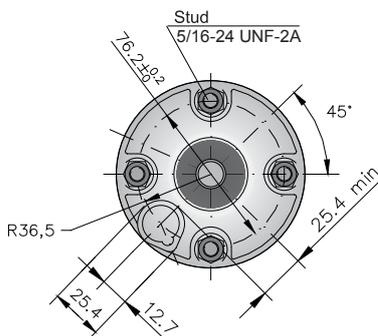
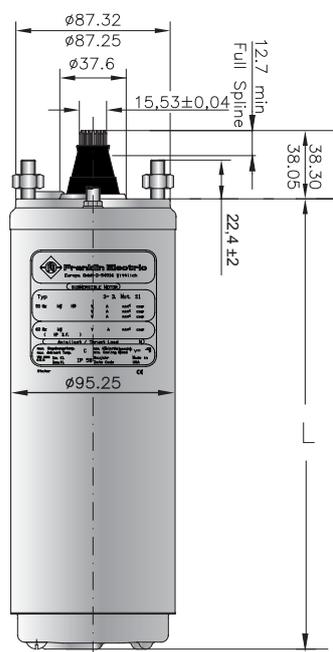
*Cables are designed for submerged operation. For air operation please consult Franklin Electric.

4" Encapsulated Motors

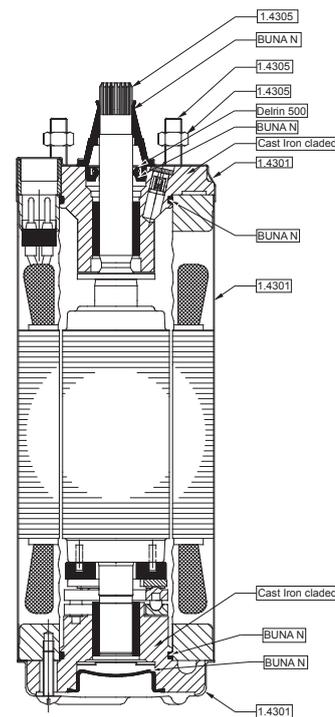


4" 1~ Motor Outlines 2-wire

Outline Drawing



Material Description



Tolerances according to NEMA MG 1-18.388

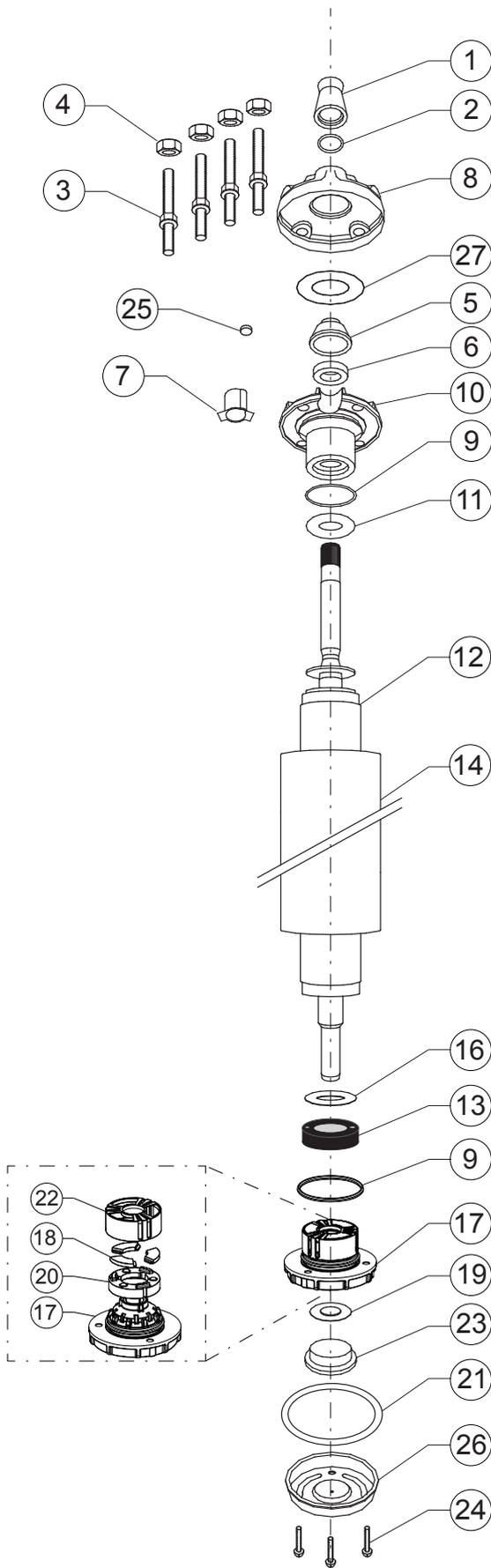
4" 2-wire Standard Lengths & Weights

P_N		L [mm]	M [kg]	Motor Package size (40 motors per packing unit)		Motor with Lead in single pack	
[kW]	[HP]			[mm]	[kg]	[mm]	[kg]
0,37	0,50	228,2	7,8	800 x 500 x 870	340	400 x 100 x 110	9,5
0,55	0,75	248,2	8,5	800 x 500 x 870	355	400 x 100 x 110	9,8
0,75	1,00	282,6	9,9	800 x 500 x 870	450	530 x 100 x 110	12,0
1,10	1,50	338,6	12,3	800 x 500 x 870	600	530 x 100 x 110	14,4



4" Encapsulated Motors

4" 2-wire Standard Motor* 304SS Parts Description



Pos.	Part Description	Qty.	Part No.
1	Protector, Spline	1	Kit B
2	Washer	1	Kit B
3	Stud	4	Kit C
4	Nut	4	Kit C
5	Seal cover	1	Kit
6	Shaft Seal	1	Kit B
7	Connector boss	1	151 820 102
8	Top Endbell, Cover	1	Kit
9	O-Ring	2	Kit B
10	Top Endbell	1	Kit
11	Upthrust washer	1	Kit
12	Rotor	1	page 17
13	Thrust disk assy	1	Kit A
14	Stator	1	page 17
15	Leveling Disk (only 1500N)	1	Kit A
16	Washer	1	Kit A
17	Bottom Endbell	1	Kit
18	Segments	3	Kit A
19	Diaphragm Insert	1	151 314 101
20	Rocking Disk	1	Kit A
21	Gasket	1	Kit B
22	Bearing cage	1	Kit A
23	Diaphragm	1	Kit B
24	Screw, Seal	3	Kit C
25	Filter	1	Kit B
26	Bottom Endbell Cover	1	156 414 101
27	Washer	1	Kit

* Spare Parts for Brackish Water Motors on Request

4" Encapsulated Motors



4" 2- wire Spare Parts

P_N [kW]	End bell, upper Pos. 5 - 10, 27	End bell, lower Pos. 17	Upthrust washer Pos. 11	Thrust bearing
0,37	177 231 924	Kit A1	150 954 102	Kit A1
0,55				
0,75	177 233 924		151 093 105	
1,10				
Kit 1500N 0,25 – 0,55kW up to 07.2008	Thrust bearing Kit		inkl. Pos.: 13, 15, 16, 18	308 652 101
Kit A1	End bell (lower) incl. Thrust bearing Kit 3000N/4000N		inkl. Pos.: 9, 13, 16, 17, 18, 20, 22	308 464 901
Kit B1	Seal Kit		inkl. Pos.: 1, 2, 6, 9, 21, 23, 25, 27	308 650 101
Kit B2	Seal Kit (Viton)		inkl. Pos.: 1, 2, 6, 9, 21, 23, 25, 27	308 650 104
Kit C	Screw Kit		inkl. Pos.: 3, 4, 24	308 656 101

Replacement Standard Motor* Stators and Rotors 50 Hz

P_N [kW]	Volt	Motor Model No.	Stator	Rotor
0,37	220-230	244 755 1221 / L	326 821 914	178 157 902K
0,55		244 757 1221 / L	326 822 914	178 158 902K
0,75		244 758 1221 / L	326 823 914	178 160 902K
1,10		244 759 1221 / L	326 824 914	178 163 902K

* Spare Parts for Brackish Water Motors on Request



4" Encapsulated Motors

4" Super Stainless 3-wire



Submersible Motors Quality in the Well

Franklin Electric 4" encapsulated submersible motors, built in ISO 9001/14001 certified facilities for outstanding performance in 4" or larger water wells.

The single phase 3-wire motor has been designed for highest achievable starting torque and shaft power from single phase power supplies. It is therefore ideally suited for applications where starting torque is paramount and 3 phase motors cannot be used. It should ideally be combined to the Franklin Electric 3-wire control boxes for maximum system performance, protection and warranty.

Product advantages:

- Hermetically sealed stator. Anti track, self healing stator resin prevents motor burn out, mechanically supports the winding and provides fast heat dissipation.
- High efficiency electrical design (low operation cost, cool running winding)
- Removable water bloc lead connector
- Cable material according to drinking water regulations (VDE / ACS / KTW approved)
- No-wear, water lubricated radial and thrust bearings for 100% maintenance free operation
- Non contaminating FES 93 filling liquid
- Various agency approvals for use in drinking water

Brackish Water Motor Version Specifications:

- For use in water that has more salinity than fresh water, but not as much as seawater.
- The novel Franklin Electric Brackish Water Motor proposes a cost-effective solution wherever standard 4" motors are not giving sufficient service life

Technical Specifications

Standard Motor:

- 3-W motor range: 0,25 – 3,7kW
- 4" NEMA flange
- Rotation: CCW facing shaft end (CW upon request)
- Degree of protection: IP68
- Insulation: Cl.B
- Rated ambient temperature: 30°C
- Required cooling flow: min. 0,08m/s
- Max. starts/hr.: 20, equally distributed
- Mounting: vertical to horizontal, shaft upwards
- Voltage tolerance 50Hz from nominal: -10% / +6%
- Voltage tolerance 60Hz from nominal: ±10%
- Protection requirements: EN 61947-4-1

Options

- Motor cable VDE, KTW approved (1,5m; special lengths available)
- Motors with factory- installed lead in Single Packing
- Built in lightning arrestors
- Alternative material executions

4" Encapsulated Motors



4" 3- wire Motor Model Numbers

P _N [kW]	U _N [V]	Digit 1-6	Digit 7-10				
			Standard 304		316 SS		Brackish Water Motor
			(Motors in 40 motors packing unit)	(Motors in single pack, with Lead)	(Motors in 40 motors packing unit)	(Motors in single pack, with Lead)	(Motors in single pack, with Lead)
0,25	220 / 230	214 753	1621	1621L	0521	0521L	1624L
0,37	220 / 230	214 755	1621	1621L	0521	0521L	1624L
0,55	220 / 230	214 757	1621	1621L	0521	0521L	1624L
0,75	220 / 230	214 758	1621	1621L	0521	0521L	1624L
1,10	220 / 230	224 750	1621	1621L	0521	0521L	1624L
1,50	220 / 230	224 751	1621	1621L	0521	0521L	1624L
2,20	220 / 230	224 752	2521	2521L	2221	2221L	2524L

4" 3- wire Motor Model Numbers High Thrust

P _N [kW]	U _N [V]	Digit 1-6	Digit 7-10				
			304		316 SS		Brackish Water Motor
			(Motors in 40 motors packing unit)	(Motors in single pack, with Lead)	(Motors in 40 motors packing unit)	(Motors in single pack, with Lead)	(Motors in single pack, with Lead)
2,2	220 / 230	224 752	3421	3421L	3521	3521L	3424L
3,7	220 / 230	224 753	3421	3421L	3521	3521L	3424L

Standard Windings Resistance 50 Hz

P _N [kW]	U _N [V]	Stator Ref.	Main phase Ohm	Start sphase Ohm
0.25	220 / 230	326 807 912	10,6 - 13,0	38,3 - 46,8
0.37	220 / 230	326 808 912	7,3 - 8,9	23,9 - 29,3
0.55	220 / 230	326 809 912	4,8 - 5,8	18,5 - 22,7
0.75	220 / 230	326 810 912	3,5 - 4,3	14,8 - 18,0
1.1	220 / 230	326 811 912	2,6 - 3,2	6,9 - 8,4
1.5	220 / 230	326 812 912	2,0 - 2,4	5,3 - 6,4
2.2	220 / 230	326 813 912	1,3 - 1,6	3,8 - 4,6
3,7	220 / 230	326 813 912	1,0 - 1,3	2,5 - 3,1



4" Encapsulated Motors

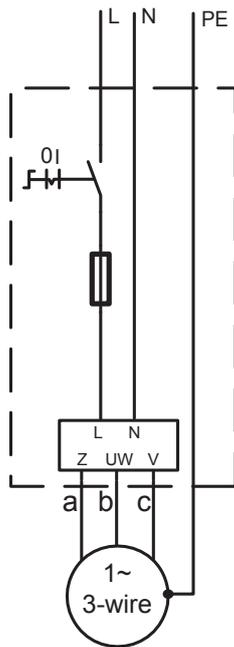
4" 3-Wire Standard Performance Data 50 Hz

P _N [kW]	Thrust F [N]	U _N [V]	n _N [min ⁻¹]	I _N [A]	I _A [A]	η (Eff.) [%] at % load			cos φ (Pf.) at % load			T _N [Nm]	T _A [Nm]
						50	75	100	50	75	100		
0,25	3000	220	2850	2,8	9,3	43	50	53	0,61	0,70	0,78	0,83	1,45
		230	2870	2,8	9,7	42	50	53	0,58	0,67	0,75	0,83	1,65
0,37	3000	220	2855	3,9	13,1	48	55	56	0,58	0,69	0,77	1,23	1,90
		230	2870	4,0	13,7	46	53	56	0,55	0,65	0,74	1,23	2,05
0,55	3000	220	2860	5,9	20,6	46	53	56	0,58	0,69	0,77	1,84	3,0
		230	2880	5,9	21,6	45	53	56	0,53	0,64	0,73	1,82	3,2
0,75	3000	220	2850	7,3	26,6	53	59	60	0,59	0,71	0,79	2,5	3,8
		230	2870	7,3	27,8	51	58	61	0,55	0,67	0,76	2,5	4,2
1,1	3000	220	2875	8,6	41,3	63	68	69	0,69	0,80	0,87	3,7	6,9
		230	2885	8,6	41,2	60	67	68	0,65	0,76	0,84	3,7	6,8
1,5	3000	220	2860	10,6	55,4	66	71	71	0,75	0,85	0,91	5,0	9,6
		230	2875	10,4	53,3	64	70	71	0,69	0,81	0,88	4,9	9,5
2,2	4000	220	2875	15,2	71,2	67	73	74	0,76	0,86	0,91	7,3	13,8
		230	2885	15,3	74,5	63	70	73	0,69	0,80	0,88	7,3	15,0

4" 3-Wire High Thrust Performance Data 50 Hz

P _N [kW]	Thrust F [N]	U _N [V]	n _N [min ⁻¹]	I _N [A]	I _A [A]	η (Eff.) [%] at % load			cos φ (Pf.) at % load			T _N [Nm]	T _A [Nm]
						50	75	100	50	75	100		
2,2	6500	220	2875	15,2	71,2	67	73	74	0,76	0,86	0,91	7,3	13,8
		230	2885	15,3	74,5	63	70	73	0,69	0,80	0,88	7,3	15,0
3,7	6500	220	2880	22,5	97	72	77	78	0,98	0,99	0,99	12,3	16,1
		230	2895	21,4	101	70	76	77	0,97	0,98	0,99	12,2	17,6

Electrical Connection



a	b	c	PE
black	brown	grey	yellow/green

VDE / ACS / KTW Approved Leads*

Ø [mm ²]	B [mm]	B1 [mm]	H [mm]
3X1,5+1G1,5	16,8 ± 0,3	10,7 ± 0,3	5,0 ± 0,3

L [m]	Part Numbers		
	Standard	304 SS	316 SS
1,5	310 113 001	310 113 401	310 113 501
2,5	310 113 002	310 113 402	310 113 502
5	310 113 005	310 113 405	310 113 505
10	310 113 010	310 113 410	310 113 510
15	310 113 015	310 113 415	310 113 515
20	310 113 020	310 113 420	310 113 520
30	310 113 030	310 113 430	310 113 530
40	310 113 040	310 113 440	310 113 540
50	310 113 050	310 113 450	310 113 550

*Cables are designed for submerged operation. For air operation please consult Franklin Electric.

4" Encapsulated Motors

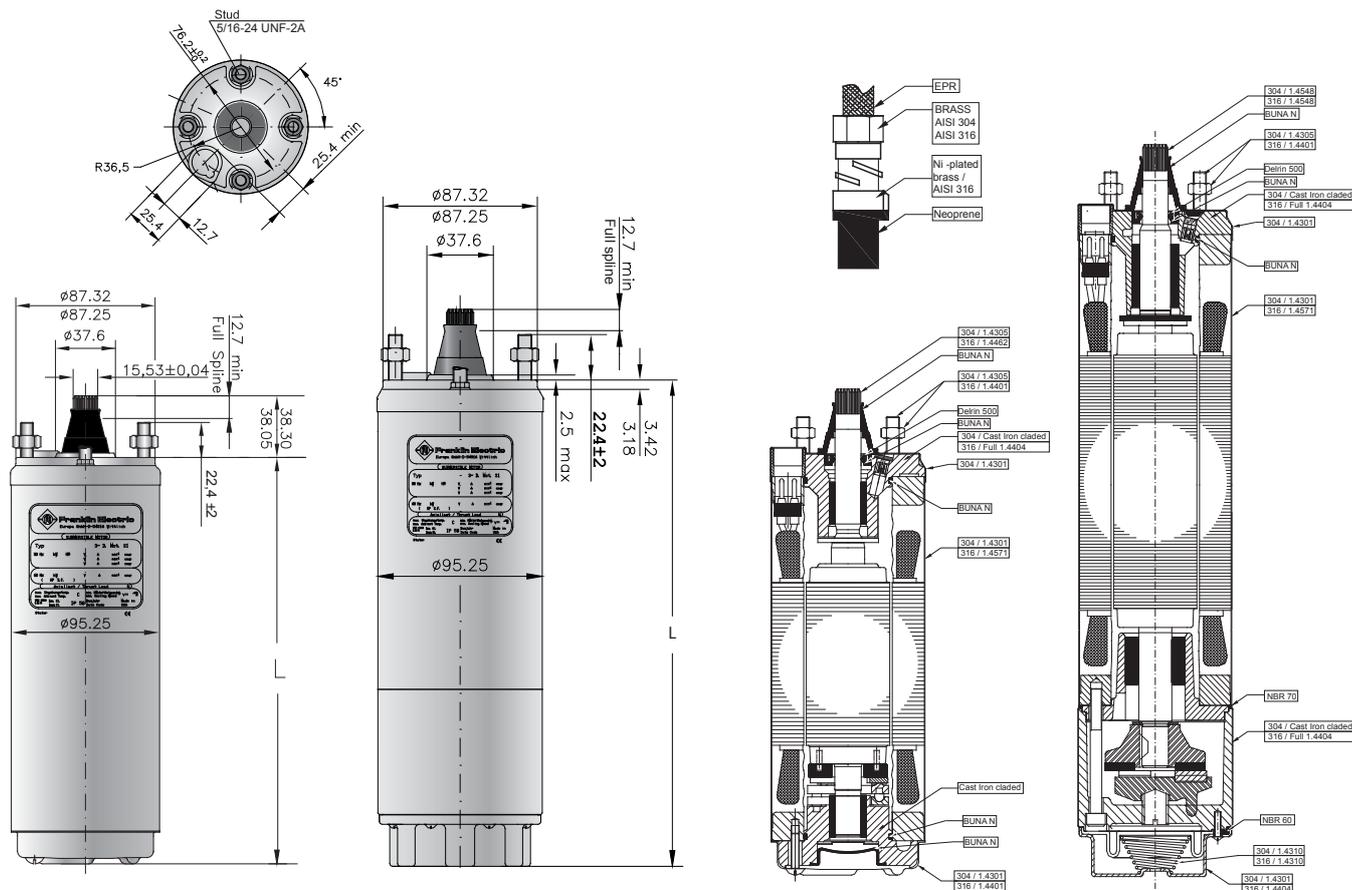


4" 3-wire Motors Lengths & Weights

Standard 0,25 - 3,7kW

High Thrust 2,2 - 3,7kW

Material Description



Tolerances according to NEMA MG 1-18.388

Standard Motors

P _N [kW]	304 L [mm]	316SS L [mm]	304 M [Kg]	316SS M [Kg]	Motor Package size (40 motors per packing unit)			Motor with Lead (in single pack)		
					[mm]	304 [Kg]	316SS [Kg]	[mm]	304 [Kg]	316SS [Kg]
0,25	214,2	228,9	7,2	7,7	800 x 500 x 870	302,0	322,0	400 x 100 x 110	8,4	8,9
0,37	228,2	242,9	7,8	8,3	800 x 500 x 870	326,0	346,0	400 x 100 x 110	9,0	9,5
0,55	248,2	262,9	8,7	9,2	800 x 500 x 870	362,0	382,0	530 x 100 x 110	10,0	10,7
0,75	282,6	290,2	10,0	10,5	800 x 500 x 870	414,0	434,0	530 x 100 x 110	11,3	11,8
1,10	338,6	346,2	12,6	13,1	800 x 500 x 870	518,0	538,0	530 x 100 x 110	13,9	14,5
1,50	349,6	357,2	13,0	13,5	800 x 500 x 870	534,0	554,0	796 x 100 x 110	14,8	15,3
2,20	436,6	444,2	16,9	17,4	800 x 500 x 870	690,0	710,0	796 x 100 x 110	18,7	19,2

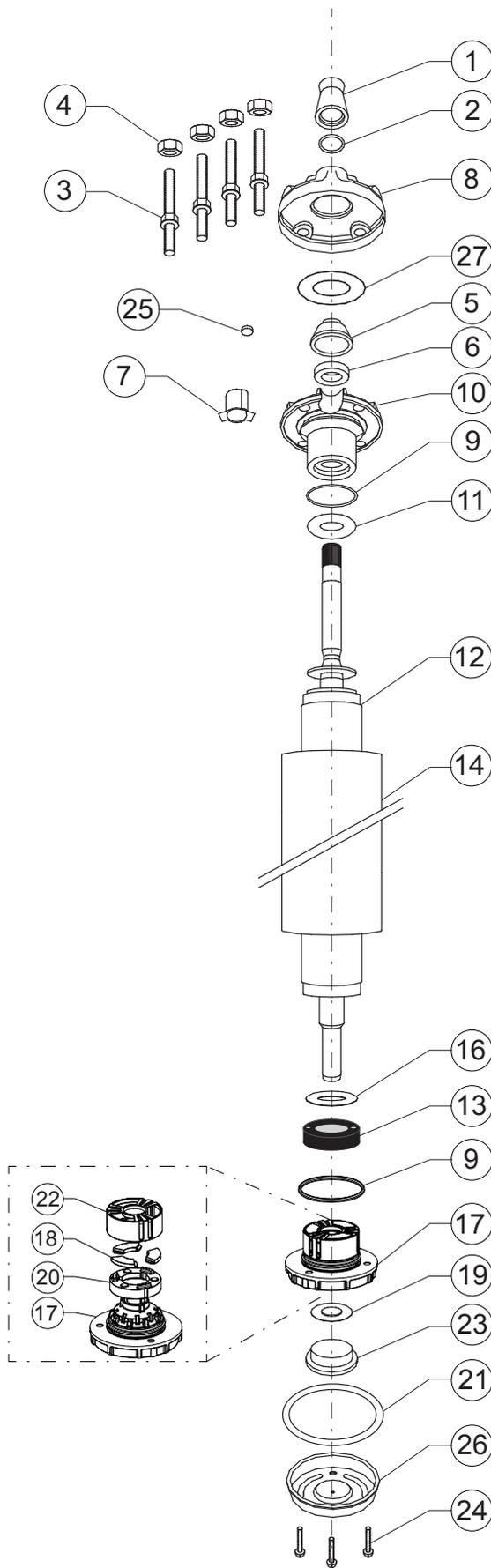
Standard High Thrust Version

P _N [kW]	304 L [mm]	316SS L [mm]	304 M [Kg]	316SS M [Kg]	Motor with Lead (in single pack)		
					[mm]	304 [Kg]	316SS [Kg]
2,2	520,2	529,4	21,3	21,8	796 x 100 x 110	23,1	23,6
3,7	652,5	661,7	26,4	27,3	904 x 100 x 110	28,5	29,4



4" Encapsulated Motors

4" 3- wire Standard Motor* 304SS Parts Description



Pos.	Part Description	Qty.	Part No.
1	Protector, Spline	1	Kit B
2	Washer	1	Kit B
3	Stud	4	Kit C
4	Nut	4	Kit C
5	Seal cover	1	Kit
6	Shaft Seal	1	Kit B
7	Connector boss	1	151 820 102
8	Top Endbell, Cover	1	Kit
9	O-Ring	2	Kit B
10	Top Endbell	1	Kit
11	Upthrust washer	1	Kit
12	Rotor	1	page 23
13	Thrust disk assy	1	Kit A
14	Stator	1	page 23
15	Leveling Disk (only 1500N)	1	Kit A
16	Washer	1	Kit A
17	Bottom Endbell	1	Kit
18	Segments	3	Kit A
19	Diaphragm Insert	1	151 314 101
20	Rocking Disk	1	Kit A
21	Gasket	1	Kit B
22	Bearing cage	1	Kit A
23	Diaphragm	1	Kit B
24	Screw, Seal	3	Kit C
25	Filter	1	Kit B
26	Bottom Endbell Cover	1	156 414 101
27	Washer	1	Kit

* Spare Parts for Brackish Water Motors on Request

4" Encapsulated Motors



4" 3- wire Spare Parts 304SS

P_N [kW]	Thrust Bearing	End bell upper Pos. 5 - 10, 27	End bell, Lower Pos. 17	Upthrust washer Pos. 11
0,25 - 0,55	Kit A1	177 231 904	Kit A1	150 954 102
0,75		177 233 904		151 093 105
1,10 - 1,5		177 233 904		
2,2				
Kit 1500N 0,25 - 0,55kW up to 07.2008	Thrust bearing Kit		incl. Pos.: 13, 15, 16, 18	308 652 101
Kit A1	End bell (lower) incl. Thrust bearing Kit 3000N / 4000N		inkl. Pos.: 9, 13, 16, 17, 18, 20, 22	308 464 901
Kit B1	Seal Kit		incl. Pos.: 1, 2, 6, 9, 21, 23, 25, 27	308 650 101
Kit B2	Seal Kit (Viton)		incl. Pos.: 1, 2, 6, 9, 21, 23, 25, 27	308 650 104
Kit C	Screw Kit		incl. Pos.: 3, 4, 24	308 656 101

Replacement Standard Motors* Stators and Rotors 50 Hz

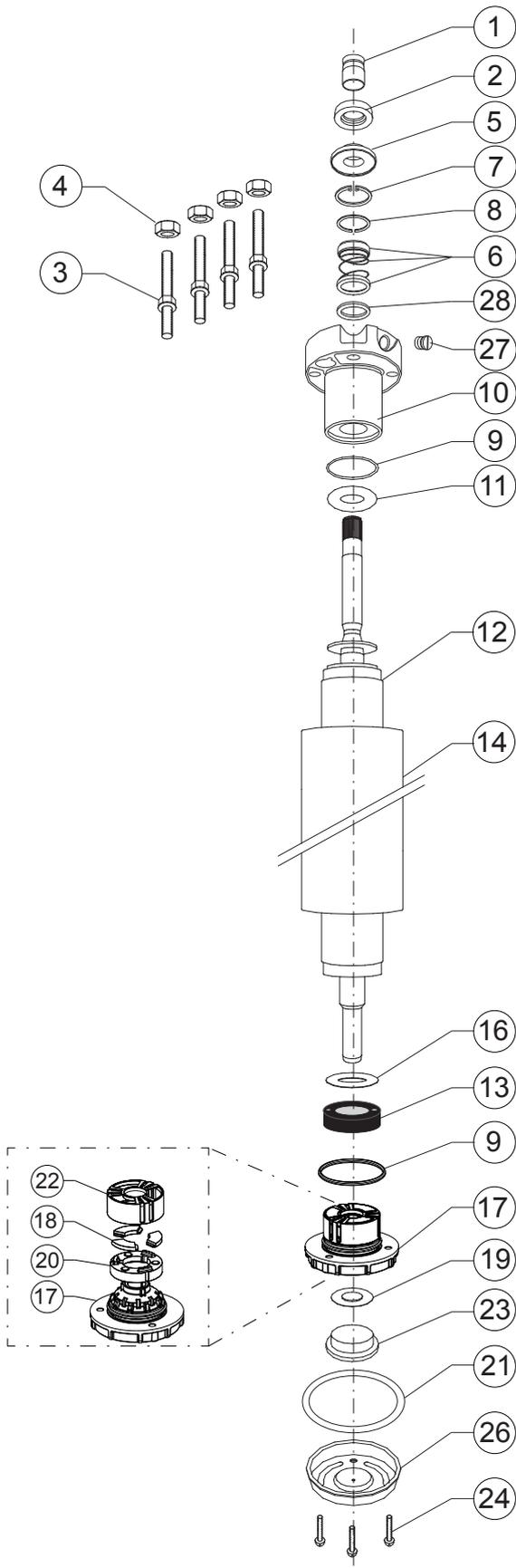
P_N [kW]	U_N [V]	Motor No.	Stator	Rotor
0,25	220 / 230	214 753 1621 / L	305 491 141	178 156 902K
0,37	220 / 230	214 755 1621 / L	305 491 142	178 157 902K
0,55	220 / 230	214 757 1621 / L	305 491 143	178 158 902K
0,75	220 / 230	214 758 1621 / L	305 491 144	178 160 902K
1,10	220 / 230	224 750 1621 / L	305 491 145	178 163 902K
1,50	220 / 230	224 751 1621 / L	305 491 146	178 124 902K
2,20	220 / 230	224 752 2521 / L	305 491 147	178 126 902K

* Spare Parts for Brackish Water Motors on Request



4" Encapsulated Motors

4" 3- wire Standard Motor* 316SS Parts Description



Pos.	Part Description	Qty.	Part No.
1	Protector, Spline	1	Kit C
2	Slinger	1	Kit C
3	Stud	4	Kit D
4	Nut	4	Kit D
5	Seal cover	1	Kit B + C
6	Shaft Seal	1	Kit B
7	Retain Ring	1	Kit B
8	Ring	1	Kit B
9	O-Ring	2	Kit B
10	Top Endbell	1	Kit
11	Upthrust washer	1	Kit
12	Rotor	1	page 25
13	Thrust disk assy	1	Kit A
14	Stator	1	page 25
15	Leveling Disk (only 1500N)	1	Kit A
16	Washer	1	Kit A
17	Bottom Endbell	1	Kit
18	Segments	3	Kit A
19	Diaphragm Insert	1	151 314 101
20	Rocking Disk	1	Kit A
21	Gasket	1	Kit B
22	Bearing cage	1	Kit A
23	Diaphragm	1	Kit B
24	Screw, Seal	3	Kit D
25	Valve		Incl. Pos.: 10
26	Bottom Endbell Cover	1	151 871 102
27	Sealing Screw	1	308 279 903
28	Washer	1	308 747 201

* Spare Parts for Brackish Water Motors on Request

4" Encapsulated Motors



4" 3- wire Spare Parts 316SS

P_N [kW]	Thrust Bearing	End bell, upper (Pos. 10)	End bell, lower (Pos. 17)	Upthrust washer (Pos. 11)
0,25 - 0,55	Kit A1	177 390 955	Kit A1	308 268 104
0,75				
1,1 - 1,5				
2,2 - 3,0				
Kit 1500N up to 07.2008	Thrust bearing Kit		inkl. Pos.: 13, 15, 16, 18, 20	308 652 101
Kit A1	End bell (lower) incl. Thrust bearing Kit 3000N / 4000N		inkl. Pos.: 9, 13, 16, 17, 18, 20, 22	308 464 901
Kit B	Seals		inkl. Pos.: 5, 6, 7, 8, 9, 21, 23	308 650 105
Kit B2	Seal Kit (Viton)		inkl. Pos.: 5, 6, 7, 8, 9, 21, 23	308 650 106
Kit C	Sand Protection Seal Kit		inkl. Pos.: 1, 2, 5	308 825 201
Kit D	Screw Kit		inkl. Pos.: 3, 4, 24	308 656 102

Replacement Standard Motor* Stators and Rotors 50 Hz

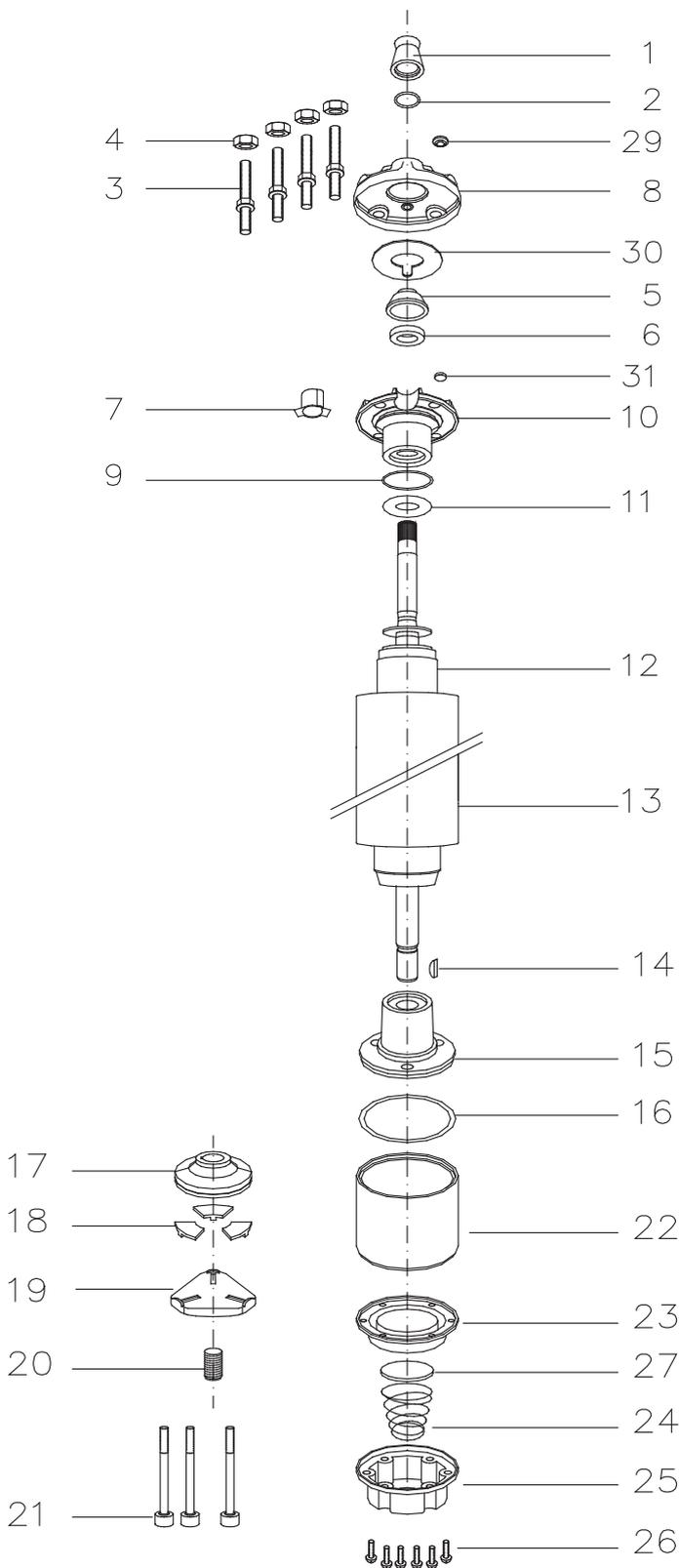
P_N [kW]	U_N [V]	Motor No.	Stator	Rotor
0,25	220 / 230	214 753 0521 / L	305 491 501	178 156 912K
0,37	220 / 230	214 755 0521 / L	305 491 502	178 157 912K
0,55	220 / 230	214 757 0521 / L	305 491 503	178 158 912K
0,75	220 / 230	214 758 0521 / L	305 491 504	178 160 912K
1,10	220 / 230	224 750 0521 / L	305 491 505	178 163 912K
1,50	220 / 230	224 751 0521 / L	305 491 506	178 124 912K
2,20	220 / 230	224 752 2221 / L	305 491 507	178 126 912K

* Spare Parts for Brackish Water Motors on Request



4" Encapsulated Motors

4" 3- wire Standard Motor* Parts List High Thrust 304



Pos.	Part Description	Qty.	Part No.
1	Protector, Spline	1	Kit B
2	Washer	1	Kit B
3	Stud	4	Kit C
4	Nut	4	Kit C
5	Seal cover	1	Kit D
6	Shaft Seal	1	Kit B+D
7	Connector boss	1	Kit D
8	Top Endbell, Cover	1	Kit D
9	O-Ring	1	Kit B+D
10	Top Endbell	1	Kit D
11	Upthrust washer	1	Kit
12	Rotor	1	page 27
13	Stator	1	page 27
14	Woodruff key	1	275 250 104
15	Bottom Endbell	1	Kit
16	O-Ring	1	Kit B
17	Thrust disc	1	Kit A
18	Segment	1	Kit A
19	Leveling disc	1	155 660 101
20	Screw, adj.	1	151 048 102
21	Screw	3	Kit C
22	Thrust housing	1	177 378 901
23	Diaphragm	1	Kit B
24	Spring	1	151 449 101
25	Cover, Diaphragm	1	155 647 101
26	Screw	6	Kit C
27	Cup spring, Diaphragm	1	151 448 101
29	Sealing stopper	1	Kit B+D
30	Seal	1	Kit D
31	Filter	1	Kit B+D

* Spare Parts for Brackish Water Motors on Request

4" Encapsulated Motors



4" 3- wire Standard Motors* Spare Parts High Thrust 304SS

P_N [kW]	End bell upper (Kit D1) inkl. Pos.: 5, 6, 7, 8, 9, 10, 29,30, 31	End bell, Lower (Pos. 15)	Upthrust washer (Pos. 11)
2,2	308 233 509	177 379 921	308 268 104
3,7	308 434 501	177 379 921	308 317 901
Kit A 6500N	Thrust Bearing Kit	inkl. Pos.: 17, 18	308 700 301
Kit B	Seal Kit	inkl. Pos.: 1, 2, 6, 9, 16, 23,29, 31	308 900 351
Kit B1	Seal Kit Pollution Recovery	inkl. Pos.: 1, 2, 6, 9, 16, 23,29, 31	308 900 401
Kit C	Screw Kit	inkl. Pos.: 3, 4, 21, 26	308 658 351

Standard Motors* High Thrust Replacement Stator and Rotor 304 50 Hz

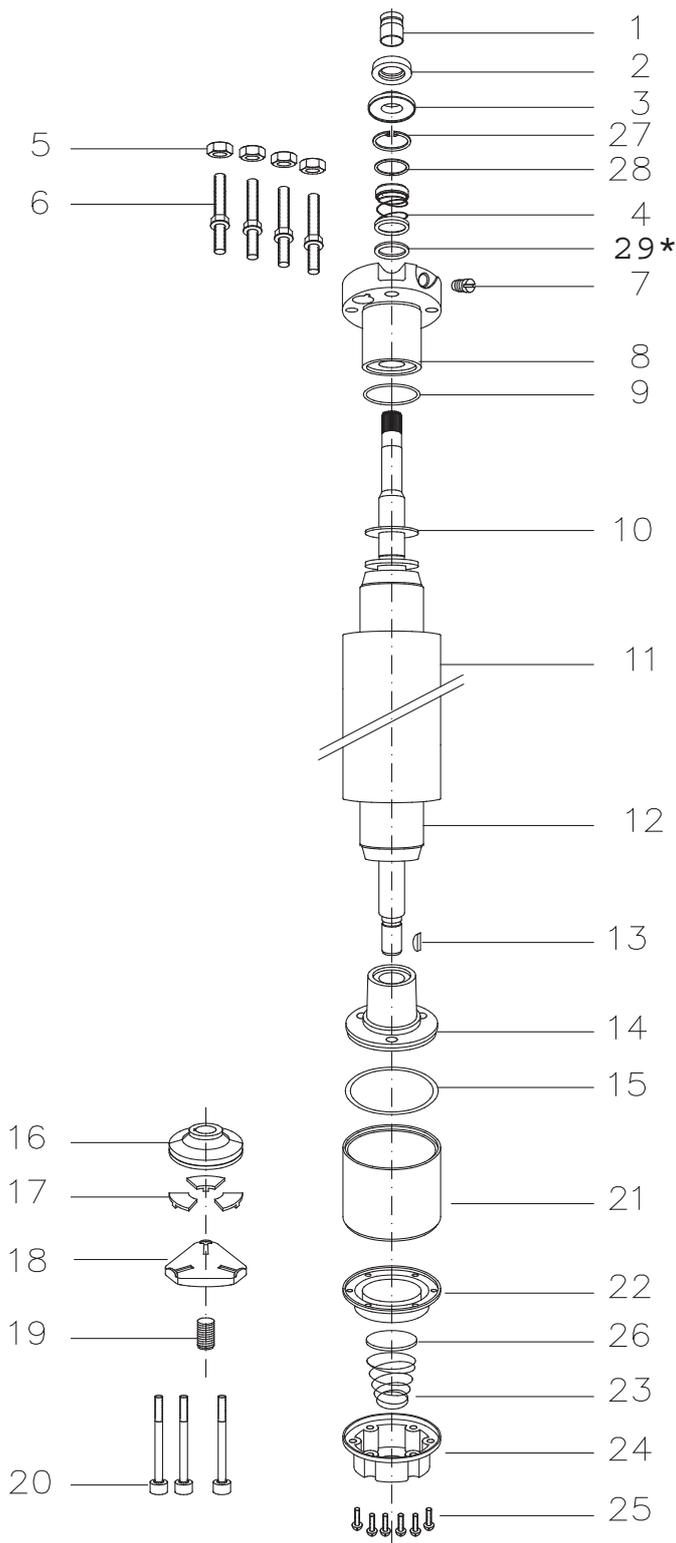
P_N [kW]	U_N [V]	Motor No.	Stator	Rotor
2,2	220 / 230	224 752 3421 / L	305 491 181	178 126 903K
3,7	220 / 230	224 753 3421 / L	305 491 182	178 135 903K

* Spare Parts for Brackish Water Motors on Request



4" Encapsulated Motors

4" 3- wire Standard Motors* 316SS High Thrust Parts List



Pos.	Part Description	Qty.	Part No.
1	Protector, Spline	1	Kit C
2	Slinger	1	Kit C
3	Seal cover	1	Kit B + C
4	Shaft Seal	1	Kit B
5	Stud	4	Kit D
6	Nut	4	Kit D
7	Sealing Screw	1	308 279 903
8	Top Endbell	1	Kit
9	O-Ring	1	Kit B
10	Upthrust washer	1	Kit
11	Stator	1	page 29
12	Rotor	1	page 29
13	Woodruff key	1	275 250 104
14	Bottom Endbell	1	Kit
15	O-Ring	1	Kit B
16	Thrust disc	1	Kit A
17	Segments	1	Kit A
18	Leveling disc	1	155 660 101
19	Screw, adj.	1	151 048 102
20	Screw	3	Kit D
21	Thrust housing	1	177 378 951
22	Diaphragm	1	Kit B
23	Spring	1	151 449 101
24	Cover, Diaphragm	1	155 647 201
25	Screw	6	Kit D
26	Cup spring, Diaphragm	1	151 448 101
27	Ring	1	Kit B
28	Retain Ring	1	Kit B
29*	Washer	1	308 747 201

* only for 2,2 - 3kW

* Spare Parts for Brackish Water Motors on Request

4" Encapsulated Motors



4" 3- wire Standard Motors* Spare Parts High Thrust 316SS

P_N [kW]	End bell upper (Pos 8)	End bell, Lower (Pos. 14)	Upthrust washer (Pos. 10)
2,2	177 390 955	177 379 921	308 317 901
3,7			
Kit A 6500N	Thrust bearing Kit	inkl. Pos.: 16, 17	308 700 301
Kit B	Seal Kit	inkl. Pos.: 4, 9, 15, 22, 27, 28	308 900 302
Kit C	Sand Protection Kit	inkl. Pos.: 1, 2, 3	308 825 201
Kit D	Screw Kit	inkl. Pos.: 5, 6, 20, 25	308 658 301

Standard Motors* High Thrust Replacement Stator and Rotor 316SS / 50 Hz

P_N [kW]	U_N [V]	Motor Model No.	Stator	Rotor
2,2	220 / 230	224 752 3521 / L	305 491 541	178 126 913K
3,7	220 / 230	224 753 3521 / L	305 491 542	178 135 913K

* Spare Parts for Brackish Water Motors on Request



4" Encapsulated Motors

4" Super Stainless 3 Phase

Submersible Motors Quality in the Well

Franklin Electric 4" encapsulated submersible motors, built in ISO 9001/14001 certified facilities for outstanding performance in 4" or larger water wells. The three phase motor offers maximum life and highest efficiency under various load conditions.



Product advantages:

- Hermetically sealed stator. Anti track, self healing stator resin prevents motor burn out, mechanically supports the winding and provides fast heat dissipation.
- High efficiency electrical design (low operation cost, cool running winding)
- Removable water bloc lead connector
- Cable material according to drinking water regulations (VDE / ACS / KTW approved)
- No-wear, water lubricated radial and thrust bearings for 100% maintenance free operation
- Non contaminating FES 93 filling liquid
- Various agency approvals for use in drinking water

Pollution Recovery Motor Version Specifications:

- Fluorelastomere (Viton®) rubber parts
- Special Polyuretane (PUR) lead assemblies
- 304 graded stainless steel as standard, 316SS as an option

Brackish Water Motor Version Specifications:

- For use in water that has more salinity than fresh water, but not as much as seawater.
- The novel Franklin Electric Brackish Water Motor proposes a cost-effective solution wherever standard 4" motors are not giving sufficient service life

Heat Pump Motor Version Specifications:

- Many modern heating systems extract heat that is stored in aquifer / river water. Such so-called two-pit or open systems require low-power, high efficiency 3-phase submersible motors. To meet the demands of this niche market, Franklin Electric has developed a special 4" encapsulated submersible motor optimized for shallow settings and low power consumption
- available in 0,25kW; 380-415V/50Hz

Technical Specifications

Standard Motor:

- 3 phase motor range: 0,25 – 9,3kW
- 4" NEMA flange
- Rotation: reversible
- Degree of protection: IP68
- Insulation: Cl.B
- Rated ambient temperature: 30°C
- Required cooling flow: min. 0,08m/s
- Max. starts/hr.: 20, equally distributed
- Mounting: vertical to horizontal, shaft upwards
- Voltage tolerance 50Hz from nominal: -10% / +6%
- Voltage tolerance 60Hz from nominal: ±10%
- Protection requirements: EN 61947-4-1

Options

- Motor cable VDE / ACS / KTW approved (1,5m; 2,5m; special lengths available)
- Motors with factory- installed lead in Single Packing
- Special voltages on request
- Motor complete in AISI 316SS with SiC seal

4th Encapsulated Motors



3- Phase Standard Model Numbers 50 Hz

P _N [kW]	U _N [V]	Digit 1 - 6	Digit 7-10						Heat Pump Motor (with Lead and Single Pack)
			304 (Motors in 40 motors packing unit)	304 (with Lead and Single Pack)	316 SS (Motors in 40 motors packing unit)	316SS (with Lead and Single Pack)	Pollution Recovery Motor (with Lead and Single Pack)	Brackish Water Motor (with Lead and Single Pack)	
0,25	380 - 415	234 870							1621L
	220, 230	234 751	1621	1621L	0521	0521L	1622L	1624L	
0,37	380 - 415	234 761	1621	1621L	0521	0521L	1622L	1624L	
	500	234 791	1621	1621L	0521	0521L	1622L	1624L	
0,55	220, 230	234 752	1621	1621L	0521	0521L	1622L	1624L	
	380 - 415	234 762	1621	1621L	0521	0521L	1622L	1624L	
	500	234 792	1621	1621L	0521	0521L	1622L	1624L	
0,75	220, 230	234 753	1621	1621L	0521	0521L	1622L	1624L	
	380 - 415	234 763	1621	1621L	0521	0521L	1622L	1624L	
	500	234 793	1621	1621L	0521	0521L	1622L	1624L	
1,10	220, 230	234 754	1621	1621L	0521	0521L	1622L	1624L	
	380 - 415	234 724	1621	1621L	0521	0521L	1622L	1624L	
	500	234 794	1621	1621L	0521	0521L	1622L	1624L	
1,50	220, 230	234 755	1621	1621L	0521	0521L	1622L	1624L	
	380 - 415	234 725	1621	1621L	0521	0521L	1622L	1624L	
	500	234 795	1621	1621L	0521	0521L	1622L	1624L	
2,20	220, 230	234 756	2521	2521L	2221	2221L	2522L	2524L	
	380 - 415	234 726	2521	2521L	2221	2221L	2522L	2524L	
	500	234 796	2521	2521L	2221	2221L	2522L	2524L	
3,00	220, 230	234 766	2521	2521L	2221	2221L	2522L	2524L	
	380 - 415	234 764	2521	2521L	2221	2221L	2522L	2524L	
	500	234 768	2521	2521L	2221	2221L	2522L	2524L	

3- Phase High Thrust Model Numbers 50 Hz

P _N [kW]	U _N [V]	Digit 1-6		Digit 7-10					
		DOL	YΔ (only in 316SS)	304 (Motors in 40 motors packing unit)	304 (with Lead and Single Pack)	316SS (Motors in 40 motors packing unit)	316 SS (with Lead and Single Pack)	Pollution Recovery Motor (with Lead and Single Pack)	Brackish Water Motor (with Lead and Single Pack)
2,2	220, 230	234 756	234 780	3421	3421L	3521	3521L	3422L	3424L
	380 - 415	234 726	234 770	3421	3421L	3521	3521L	3422L	3424L
	500	234 796	-	3421	3421L	3521	3521L	3422L	3424L
3,0	220, 230	234 766	234 781	3421	3421L	3521	3521L	3422L	3424L
	380 - 415	234 764	234 771	3421	3421L	3521	3521L	3422L	3424L
	500	234 768	-	3421	3421L	3521	3521L	3422L	3424L
3,7	220, 230	234 757	234 782	3421	3421L	3521	3521L	3422L	3424L
	380 - 415	234 727	234 772	3421	3421L	3521	3521L	3422L	3424L
	500	234 797	-	3421	3421L	3521	3521L	3422L	3424L
4,0	220, 230	234 767	234 783	3421	3421L	3521	3521L	3422L	3424L
	380 - 415	234 765	234 773	3421	3421L	3521	3521L	3422L	3424L
	500	234 769	-	3421	3421L	3521	3521L	3422L	3424L
5,5	220, 230	234 758	234 784	3421	3421L	3521	3521L	3422L	3424L
	380 - 415	234 728	234 778	3421	3421L	3521	3521L	3422L	3424L
	500	234 798	-	3421	3421L	3521	3521L	3422L	3424L
7,5	220, 230	-	-	3421	3421L	3521	3521L	3422L	3424L
	380 - 415	234 729	234 779	3421	3421L	3521	3521L	3422L	3424L
	500	234 799	-	3421	3421L	3521	3521L	3422L	3424L
9,3	380 - 415	234 788	-		3429L				



4th Encapsulated Motors

3-Phase Standard Performance Data 50 Hz

P _N [kW]	Thrust F [N]	U _N [V]	n _N [min ⁻¹]	I _N [A]	I _A [A]	η (Eff.) [%] at % load			cos φ (Pf.) at % load			T _N [Nm]	T _A [Nm]
						50	75	100	50	75	100		
0,25	3000	380	2850	0,69	3,47	61	67	70	0,63	0,73	0,80	0,84	2,30
		400	2865	0,68	3,67	60	67	70	0,59	0,70	0,77	0,83	2,50
		415	2880	0,68	3,77	59	67	70	0,57	0,67	0,75	0,83	2,70
0,37	3000	220	2850	1,91	8,83	55	63	66	0,60	0,71	0,79	1,23	2,70
		230	2870	1,90	9,36	54	63	66	0,55	0,66	0,74	1,22	3,00
		380	2850	1,10	5,10	55	63	66	0,60	0,71	0,79	1,23	2,70
		400	2870	1,10	5,41	54	63	66	0,55	0,66	0,74	1,22	3,00
		415	2880	1,14	5,61	53	61	65	0,51	0,62	0,71	1,23	3,20
		500	2830	0,84	3,88	55	63	68	0,60	0,71	0,79	1,23	2,70
0,55	3000	220	2855	2,7	12,2	57	64	68	0,60	0,71	0,79	1,84	3,80
		230	2870	2,8	12,9	55	63	68	0,53	0,65	0,74	1,82	4,20
		380	2855	1,6	7,0	57	64	68	0,60	0,71	0,79	1,84	3,80
		400	2870	1,6	7,4	55	63	68	0,53	0,65	0,74	1,82	4,20
		415	2880	1,7	7,7	50	60	65	0,50	0,61	0,70	1,82	4,60
		500	2855	1,2	5,3	57	64	68	0,60	0,71	0,79	1,84	3,80
0,75	3000	220	2840	3,5	17,4	63	69	70	0,61	0,73	0,81	2,51	6,05
		230	2865	3,5	18,3	61	68	70	0,55	0,68	0,77	2,49	6,70
		380	2840	2,0	10,1	63	69	70	0,61	0,73	0,81	2,51	6,05
		400	2865	2,0	10,6	61	68	70	0,55	0,68	0,77	2,49	6,70
		415	2875	2,1	10,9	58	66	69	0,51	0,63	0,73	2,48	7,20
		500	2840	1,5	7,6	63	69	70	0,61	0,73	0,81	2,51	6,05
1,1	3000	220	2830	4,9	26,4	68	73	74	0,63	0,75	0,82	3,71	10,23
		230	2850	4,9	27,8	66	72	74	0,57	0,69	0,78	3,67	11,33
		380	2830	2,8	15,3	68	73	74	0,63	0,75	0,82	3,71	10,23
		400	2850	2,8	16,0	66	72	74	0,57	0,69	0,78	3,67	11,33
		415	2865	2,9	16,7	64	70	73	0,52	0,65	0,74	3,64	12,20
		500	2830	2,1	11,6	68	73	74	0,63	0,75	0,82	3,71	10,23
1,5	3000	220	2830	6,7	34,0	67	72	73	0,62	0,74	0,83	5,04	12,77
		230	2855	6,7	35,9	65	71	73	0,55	0,68	0,78	5,00	14,10
		380	2830	3,9	19,7	67	72	73	0,62	0,74	0,83	5,04	12,77
		400	2855	3,9	20,7	65	71	73	0,55	0,68	0,78	5,00	14,10
		415	2865	4,0	21,5	62	69	72	0,50	0,63	0,73	5,00	15,20
		500	2830	2,9	14,9	67	72	73	0,62	0,74	0,83	5,04	12,77
2,2	4000	220	2820	9,3	49,0	71	75	75	0,6	0,74	0,82	7,42	19,87
		230	2845	9,5	51,6	69	74	75	0,52	0,66	0,77	7,37	22
		380	2820	5,4	28,3	71	75	75	0,6	0,74	0,82	7,42	19,87
		400	2845	5,5	29,8	69	74	75	0,52	0,66	0,77	7,37	22
		415	2855	5,8	30,9	65	72	74	0,47	0,61	0,72	7,33	23,67
		500	2820	4,1	21,5	71	75	75	0,6	0,74	0,82	7,42	19,87
3	4000	220	2820	12,8	69,1	73	77	77	0,61	0,74	0,82	10,16	28,80
		230	2845	13,0	72,8	70	76	76	0,53	0,67	0,77	10,06	31,93
		380	2820	7,4	39,9	73	77	77	0,61	0,74	0,82	10,16	28,80
		400	2845	7,5	42,0	70	76	76	0,53	0,67	0,77	10,06	31,93
		415	2855	7,9	43,6	67	73	75	0,47	0,61	0,72	10,04	34,33
		500	2820	5,6	30,3	73	77	77	0,61	0,74	0,82	10,16	28,80

4th Encapsulated Motors



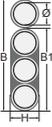
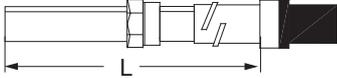
3-Phase High Thrust 50 Hz Performance Data

P _N [kW]	Thrust F [N]	U _N [V]	n _N [min ⁻¹]	I _N [A]	I _A [A]	η (Eff.) [%] at % load			cos φ (Pf.) at % load			T _N [Nm]	T _A [Nm]
						50	75	100	50	75	100		
2,2	6500	220	2820	9,3	49,0	71	75	75	0,6	0,74	0,82	7,42	19,87
		230	2845	9,5	51,6	69	74	75	0,52	0,66	0,77	7,37	22
		380	2820	5,4	28,3	71	75	75	0,6	0,74	0,82	7,42	19,87
		400	2845	5,5	29,8	69	74	75	0,52	0,66	0,77	7,37	22
		415	2855	5,8	30,9	65	72	74	0,47	0,61	0,72	7,33	23,67
		500	2820	4,1	21,5	71	75	75	0,6	0,74	0,82	7,42	19,87
3	6500	220	2820	12,8	69,1	73	77	77	0,61	0,74	0,82	10,16	28,80
		230	2845	13,0	72,8	70	76	76	0,53	0,67	0,77	10,06	31,93
		380	2820	7,4	39,9	73	77	77	0,61	0,74	0,82	10,16	28,80
		400	2845	7,5	42,0	70	76	76	0,53	0,67	0,77	10,06	31,93
		415	2855	7,9	43,6	67	73	75	0,47	0,61	0,72	10,04	34,33
		500	2820	5,6	30,3	73	77	77	0,61	0,74	0,82	10,16	28,80
3,7	6500	220	2815	15,3	86,1	75	79	78	0,62	0,75	0,83	12,6	37,5
		230	2840	15,5	90,6	73	77	78	0,54	0,69	0,78	12,5	41,5
		380	2815	8,8	49,7	75	79	78	0,62	0,75	0,83	12,6	37,5
		400	2840	9,0	52,3	73	77	78	0,54	0,69	0,78	12,5	41,5
		415	2850	9,3	54,3	70	76	77	0,49	0,63	0,73	12,4	44,7
		500	2815	6,7	37,8	75	79	78	0,62	0,75	0,83	12,6	37,5
4	6500	220	2820	16,7	93,7	75	78	78	0,60	0,74	0,82	13,5	39,7
		230	2840	17,2	98,7	72	77	78	0,52	0,67	0,77	13,4	44,0
		380	2820	9,7	54,1	75	78	78	0,60	0,74	0,82	13,5	39,7
		400	2840	9,9	57,0	72	77	78	0,52	0,67	0,77	13,4	44,0
		415	2855	10,4	59,1	69	75	77	0,47	0,61	0,72	13,4	47,4
		500	2820	7,3	41,1	75	78	78	0,60	0,74	0,82	13,5	39,7
5,5	6500	220	2845	21,9	127,0	77	80	79	0,66	0,79	0,85	18,5	51,0
		230	2865	21,8	133,7	75	79	79	0,59	0,73	0,81	18,3	56,5
		380	2845	12,6	73,3	77	80	79	0,66	0,79	0,85	18,5	51,0
		400	2865	12,6	77,2	75	79	79	0,59	0,73	0,81	18,3	56,5
		415	2875	12,8	80,1	73	77	79	0,54	0,68	0,77	18,2	60,9
		500	2845	9,6	55,7	77	80	79	0,66	0,79	0,85	18,5	51,0
7,5	6500	380	2830	17,2	94,3	78	80	79	0,66	0,79	0,86	25,3	65,9
		400	2855	17,1	99,3	75	79	79	0,58	0,72	0,81	25,1	73,1
		415	2865	17,6	103,0	73	78	79	0,52	0,67	0,77	25,0	78,6
		500	2830	13,1	71,7	78	80	79	0,66	0,79	0,86	25,3	65,9
9,3	6500	380	2825	21,2	108,0	77	80	79	0,65	0,78	0,86	31,4	73,8
		400	2850	21,4	113,0	75	79	79	0,56	0,71	0,81	31,1	81,8
		415	2860	22,1	118,0	72	77	78	0,47	0,58	0,76	31,0	88,0

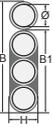
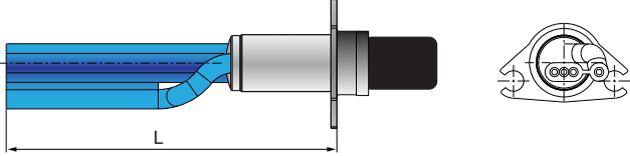


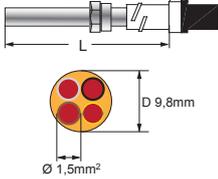
4" Encapsulated Motors

Motor cable* 0,25 - 7,5kW

\emptyset [mm ²]	B [mm]	B1 [mm]	H [mm]
3X1,5+1G1,5	16,8 ± 0,3	10,7 ± 0,3	5,0 ± 0,3
			
L [m]	Part numbers		
	Standard	304 SS	316 SS
1,5	310 113 001	310 113 401	310 113 501
2,5	310 113 002	310 113 402	310 113 502
5	310 113 005	310 113 405	310 113 505
10	310 113 010	310 113 410	310 113 510
15	310 113 015	310 113 415	310 113 515
20	310 113 020	310 113 420	310 113 520
30	310 113 030	310 113 430	310 113 530
40	310 113 040	310 113 440	310 113 540
50	310 113 050	310 113 450	310 113 550

Motor cable* 9,3kW

\emptyset [mm ²]	B [mm]	B1 [mm]	H [mm]
3X1,5+1G1,5	16,8 ± 0,3	10,7 ± 0,3	5,0 ± 0,3
			
L [m]	Part number		
2,5	310 116 502K		

L [m]	Pollution Recovery Motor cable*	
	Modelnb. (only in 316SS)	
1,5	310 313 501	
2,5	310 313 502	
10	310 313 510	
20	310 313 520	
30	310 313 530	
40	310 313 540	
50	310 313 550	

*Cables are designed for submerged operation. For air operation please consult Franklin Electric.

4th Encapsulated Motors



Winding Resistances 50Hz

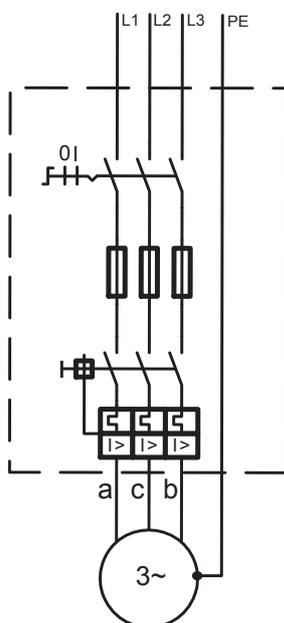
Standard

High Thrust

P_N [kW]	U_N [V]	Stator Ref.	U - V / Ohm
0,37	220 - 230	326 775 925	14,6 - 17,8
	380 - 400 - 415	326 710 925	44,8 - 54,8
	500	326 787 925	90,8 - 111,0
0,55	220 - 230	326 776 925	11,3 - 13,8
	380 - 400 - 415	326 711 925	34,2 - 41,8
	500	326 788 925	57,3 - 70,0
0,75	220 - 230	326 777 925	7,6 - 9,2
	380 - 400 - 415	326 712 925	23,2 - 28,3
	500	326 789 925	38,7 - 47,3
1,1	220 - 230	326 778 925	4,5 - 5,4
	380 - 400 - 415	326 713 925	13,8 - 16,8
	500	326 790 925	23,1 - 28,3
1,5	220 - 230	326 779 925	3,6 - 4,3
	380 - 400 - 415	326 714 925	10,9 - 13,4
	500	326 791 925	20,7 - 25,3
2,2	220 - 230	326 780 925	2,5 - 3,0
	380 - 400 - 415	326 715 925	7,1 - 8,6
	500	326 792 925	11,9 - 14,5
3	220 - 230	326 781 925	1,5 - 1,9
	380 - 400 - 415	326 716 925	4,7 - 5,8
	500	326 793 925	8,4 - 10,2

P_N [kW]	U_N [V]	Stator Ref.	U - V / Ohm
2,2	220 - 230	326 780 902	2,5 - 3,0
	380 - 400 - 415	326 715 902	7,1 - 8,6
	500	326 792 902	11,9 - 14,5
3,0	220 - 230	326 781 902	1,5 - 1,9
	380 - 400 - 415	326 716 902	4,7 - 5,8
	500	326 793 902	8,4 - 10,2
3,7	220 - 230	326 784 902	1,2 - 1,5
	380 - 400 - 415	326 717 902	3,7 - 4,5
	500	326 796 902	6,5 - 7,9
4,0	220 - 230	326 785 902	1,1 - 1,3
	380 - 400 - 415	326 718 902	3,3 - 4,0
	500	326 797 902	5,8 - 7,1
5,5	220 - 230	326 786 902	0,9 - 1,1
	380 - 400 - 415	326 719 902	2,6 - 3,2
	500	326 798 902	4,6 - 5,7
7,5	380 - 400 - 415	326 720 902	1,9 - 2,3
	500	326 799 902	3,3 - 4,1
9,3	380 - 400 - 415	326 995 902	0,76 - 0,84

Electrical Connection DOL



a	b	c	PE
black	brown	grey	yellow/green



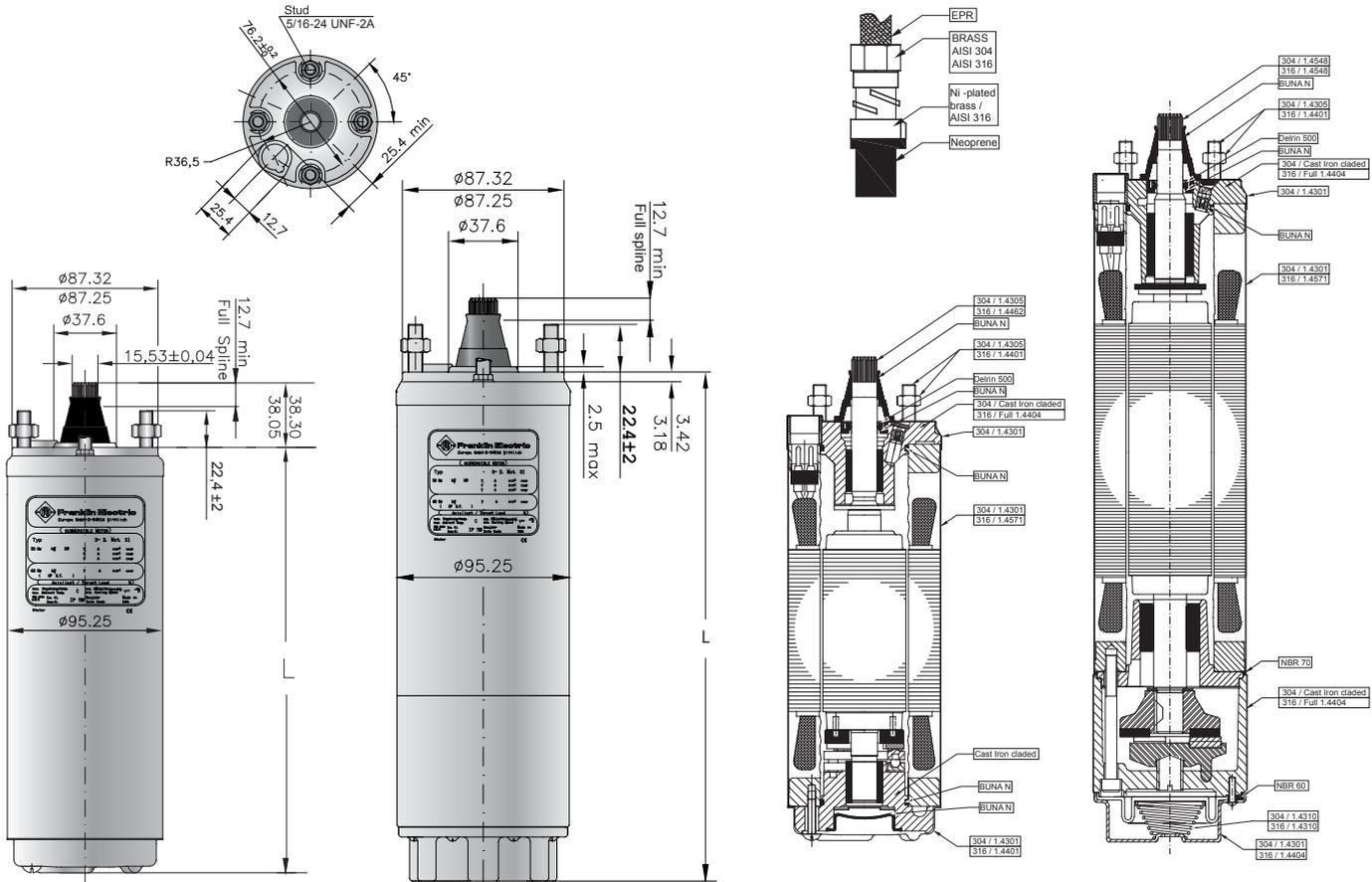
4" Encapsulated Motors

4" 3~ Motor Outlines 0,25 up to 7,5kW

Standard 0,25kW - 3,0kW

High Thrust 2,2kW - 7,5kW

Material Description



Tolerances according to NEMA MG 1-18.388

4" 3- Phase Standard Motors Lengths & Weights

P _N [kW]	304 L [mm]	316SS L [mm]	304 [kg]	316SS [kg]	Motor Package size (40 motors per packing unit)			Motor with Lead in single pack		
					[mm]	304 [kg]	316SS [kg]	[mm]	304 [kg]	316SS [kg]
0,25	214,2		7,2		800 x 500 x 870	302,0		400 x 100 x 110	8,4	
0,37	214,2	228,9	7,2	7,7	800 x 500 x 870	302,0	322,0	400 x 100 x 110	8,4	8,9
0,55	228,2	242,9	7,7	8,2	800 x 500 x 870	322,0	342,0	400 x 100 x 110	8,9	9,4
0,75	248,2	262,9	8,7	9,2	800 x 500 x 870	362,0	382,0	530 x 100 x 110	10,0	10,5
1,10	282,6	290,2	10,2	10,7	800 x 500 x 870	422,0	442,0	530 x 100 x 110	12,5	12,0
1,50	306,6	314,2	11,2	11,7	800 x 500 x 870	462,0	482,0	530 x 100 x 110	13,5	13,0
2,20	338,6	346,2	12,6	13,1	800 x 500 x 870	518,0	538,0	796 x 100 x 110	14,4	14,9
3,0	393,6	401,2	15,0	15,5	800 x 500 x 870	614,0	634,0	796 x 100 x 110	16,8	17,3

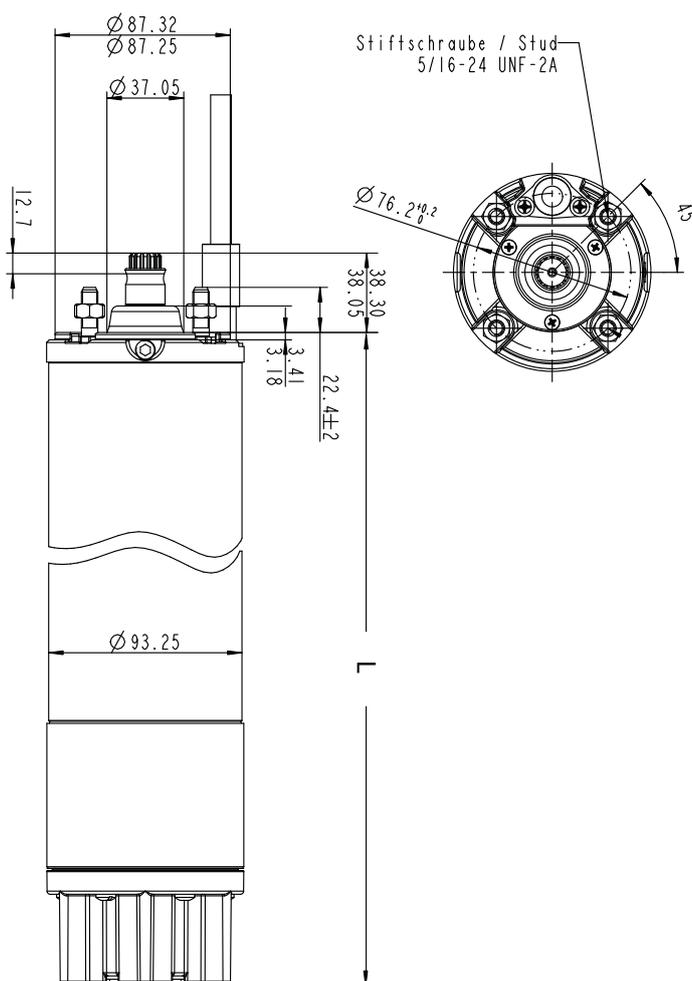
4" 3- Phase High Thrust Motors Lengths & Weights

P _N [kW]	304 L [mm]	316SS L [mm]	304 [kg]	316SS [kg]	Motor with Lead in single pack	
					[mm]	[kg]
2,2	422,2	431,4	15,0	15,5	796 x 100 x 110	16,8
3,0	477,2	486,4	17,0	17,5	796 x 100 x 110	18,9
3,7	520,2	529,4	19,1	19,6	796 x 100 x 110	20,9
4,0	543,2	552,4	20,0	20,5	796 x 100 x 110	21,8
5,5	652,5	661,7	26,6	27,1	904 x 100 x 110	28,7
7,5	730,5	739,7	30,6	31,1	904 x 100 x 110	32,7

4" Encapsulated Motors



4" 3~ Motor Outlines 9,3kW



Tolerances according to NEMA MG 1-18.388

Motors Lengths & Weights

P _N [kW]	L [mm]	M [kg]	Motor with Lead in single pack	
			[mm]	[kg]
9,3	855,1	37,9	904 x 100 x 110	41,3

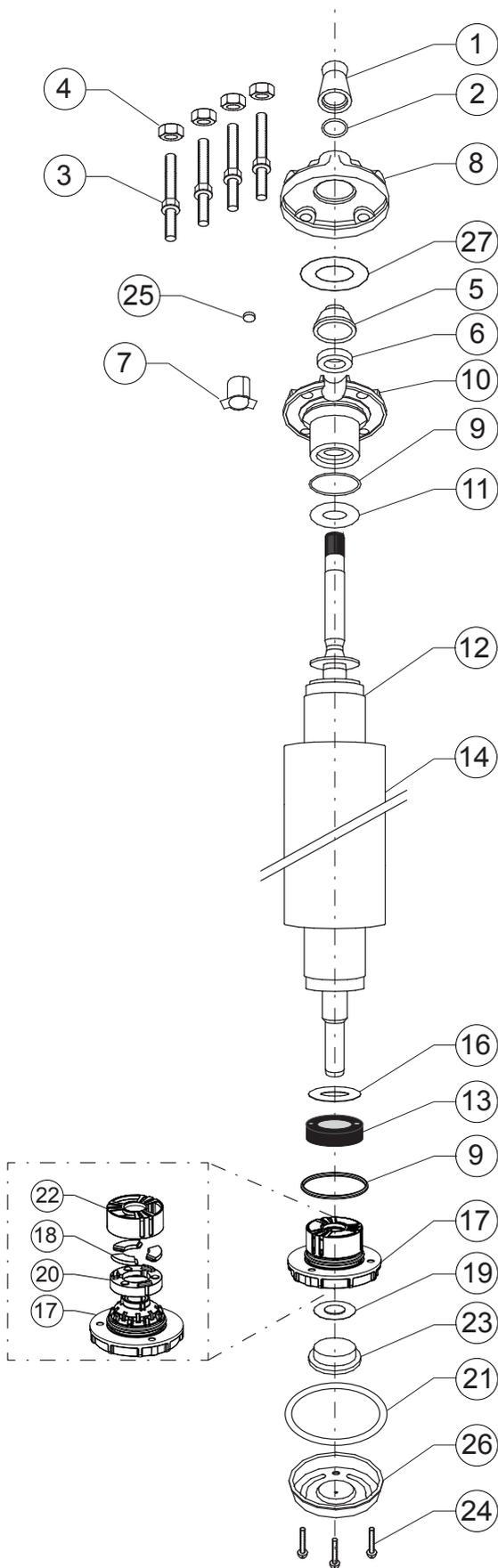
Material DIN / AISI

Part	Material description
Shell	1.4301
End bell, upper	1.4401
End bell, lower	Cast iron
Thrust housing	1.4401
Shaft Seal	SiC / SiC
Seal Cover	1.4401
Slinger	NBR
Shaft Extensions	17-4 SS
Diaphragm	NBR
Diaphragm housing	Cast iron / 1.4301
Motor Lead	EPR
Seals	NBR 70



4" Encapsulated Motors

4" 3- phase Standard Motor* Part Standard 304SS



Pos.	Part Description	Qty.	Part No.
1	Protector, Spline	1	Kit B
2	Washer	1	Kit B
3	Stud	4	Kit C
4	Nut	4	Kit C
5	Seal cover	1	Kit
6	Shaft Seal	1	Kit B
7	Connector boss	1	151 820 102
8	Top Endbell, Cover	1	Kit
9	O-Ring	2	Kit B
10	Top Endbell	1	Kit
11	Upthrust washer	1	Kit
12	Rotor	1	page 39
13	Thrust disk assy	1	Kit A
14	Stator	1	page 39
15	Leveling Disk (only 1500N)	1	Kit A
16	Washer	1	Kit A
17	Bottom Endbell	1	Kit
18	Segments	3	Kit A
19	Diaphragm Insert	1	151 314 101
20	Rocking Disk	1	Kit A
21	Gasket	1	Kit B
22	Bearing cage	1	Kit A
23	Diaphragm	1	Kit B
24	Screw, Seal	3	Kit C
25	Filter	1	Kit B
26	Bottom Endbell Cover		156 414 101
27	Washer	1	Kit

* Spare Parts for Heat Pump, Pollution Recovery and Brackish Water Motors on Request

4" Encapsulated Motors



4" 3- phase Spare Parts 304SS

P_N [kW]	Thrust Bearing	End bell, Upper Pos. 5 - 10, 27	End bell, Lower Pos. 17	Upthrust washer Pos. 11
0,25 - 0,75	Kit A1	177 231 904	Kit A1	150 954 102
1,10 - 1,5		177 233 904		151 093 105
2,2 - 3,0				
Kit 1500N 0,25 - 0,75kW up to 07.2008	Thrust bearing Kit		inkl. Pos.: 13, 15, 16, 18, 20	308 652 101
Kit A1	End bell (lower) incl. Thrust Bearing Kit 3000N / 4000N		inkl. Pos.: 9, 13, 16, 17, 18, 20, 22	308 464 901
Kit B1	Seal Kit		inkl. Pos.: 1, 2, 6, 9, 21, 23, 25, 27	308 650 101
Kit B2	Seal Kit (Viton)		inkl. Pos.: 1, 2, 6, 9, 21, 23, 25, 27	308 650 104
Kit C	Screw Kit		inkl. Pos.: 3, 4, 24	308 656 101

Replacement Standard Motor* Stator and Rotor 50 Hz

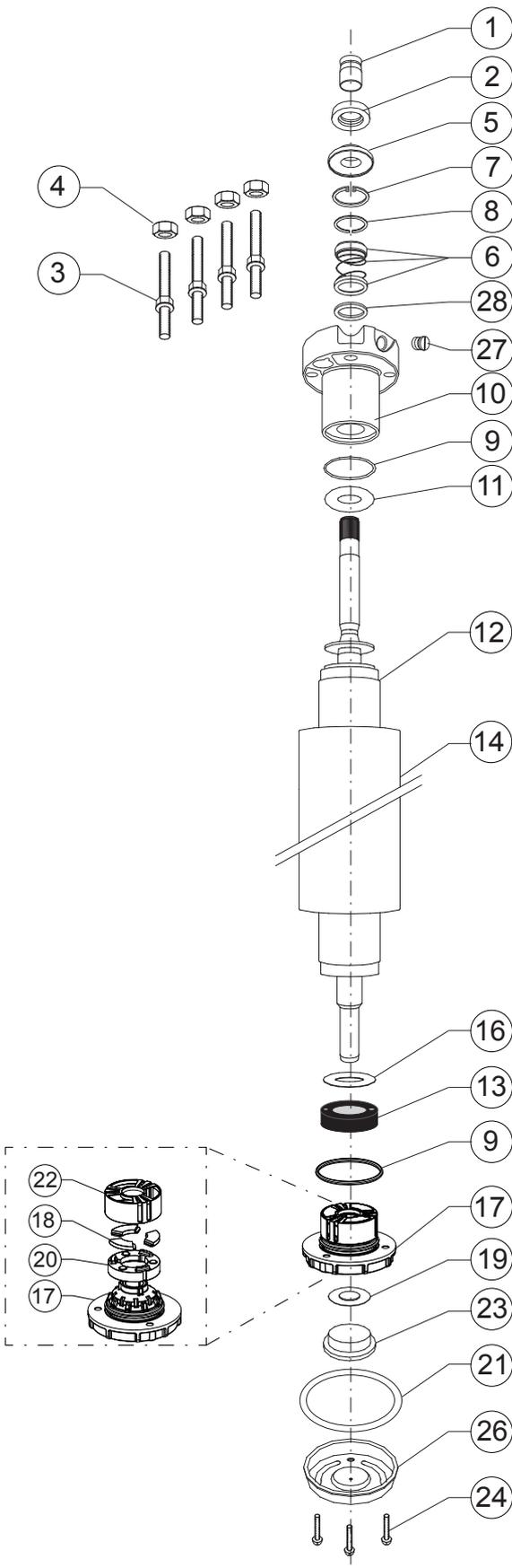
P_N [kW]	U_N [V]	Motor Model No.	Stator Model No.	Rotor
0,37	220, 230	234 751 1621	305 491 301	178 156 902K
	380, 400, 415	234 761 1621	305 491 321	
	500	234 791 1621	305 491 341	
0,55	220, 230	234 752 1621	305 491 302	178 157 902K
	380, 400, 415	234 762 1621	305 491 322	
	500	234 792 1621	305 491 342	
0,75	220, 230	234 753 1621	305 491 303	178 158 902K
	380, 400, 415	234 763 1621	305 491 323	
	500	234 793 1621	305 491 343	
1,10	220, 230	234 754 1621	305 491 304	178 160 902K
	380, 400, 415	234 724 1621	305 491 324	
	500	234 794 1621	305 491 344	
1,50	220, 230	234 755 1621	305 491 305	178 162 902K
	380, 400, 415	234 725 1621	305 491 325	
	500	234 795 1621	305 491 345	
2,20	220, 230	234 756 2521	305 491 306	178 163 902K
	380, 400, 415	234 726 2521	305 491 326	
	500	234 796 2521	305 491 346	
3,00	220, 230	234 766 2521	305 491 307	178 125 902K
	380, 400, 415	234 764 2521	305 491 327	
	500	234 768 2521	305 491 347	

* Spare Parts for Heat Pump, Pollution Recovery and Brackish Water Motors on Request



4" Encapsulated Motors

4" 3- phase Motor Standard Motor* Part Standard 316SS



Pos.	Part Description	Qty.	Part No.
1	Protector, Spline	1	Kit C
2	Slinger	1	Kit C
3	Stud	4	Kit D
4	Nut	4	Kit D
5	Seal cover	1	Kit B + C
6	Shaft Seal	1	Kit B
7	Retain Ring	1	Kit B
8	Ring	1	Kit B
9	O-Ring	2	Kit B
10	Top Endbell	1	Kit
11	Upthrust washer	1	Kit
12	Rotor	1	page 41
13	Thrust disk assy	1	Kit A
14	Stator	1	page 41
15	Leveling Disk (only 1500N)	1	Kit A
16	Washer	1	Kit A
17	Bottom Endbell	1	Kit
18	Segments	3	Kit A
19	Diaphragm Insert	1	151 314 101
20	Rocking Disk	1	Kit A
21	Gasket	1	Kit B
22	Bearing cage	1	Kit A
23	Diaphragm	1	Kit B
24	Screw, Seal	3	Kit D
25	Valve		Incl. Pos.: 10
26	Bottom Endbell Cover	1	151 871 102
27	Sealing Screw	1	308 279 903
28	Washer	1	308 747 201

* Spare Parts for Heat Pump, Pollution Recovery and Brackish Water Motors on Request

4" Encapsulated Motors



4" 3- phase Spare Part Kits 316SS Standard

P_N [kW]	Thrust Bearing	End bell, upper (Pos. 10)	End bell, lower (Pos. 17)	Upthrust washer (Pos. 11)
0,37 - 0,75	Kit A1	177 390 955	Kit A1	308 268 104
1,1 - 1,5				
2,2 - 3,0				
Kit A1	End bell (lower) incl. Thrust Bearing Kit 3000N / 4000N		inkl. Pos.: 9, 13, 16, 17, 18, 20, 22	308 464 901
Kit B1	Seals Kit		inkl. Pos.: 5,6,7,8,9,21,23	308 650 105
Kit B2	Seals Kit (Viton)		inkl. Pos.: 5,6,7,8,9,21,23	308 650 106
Kit C	Sand Protectionn Kit		inkl. Pos.: 1,2,5	308 825 201
Kit D	Screw Kit		inkl. Pos.: 3, 4, 24	308 656 102

Replacement Standard Motor* Stator and Rotor 50 Hz DOL

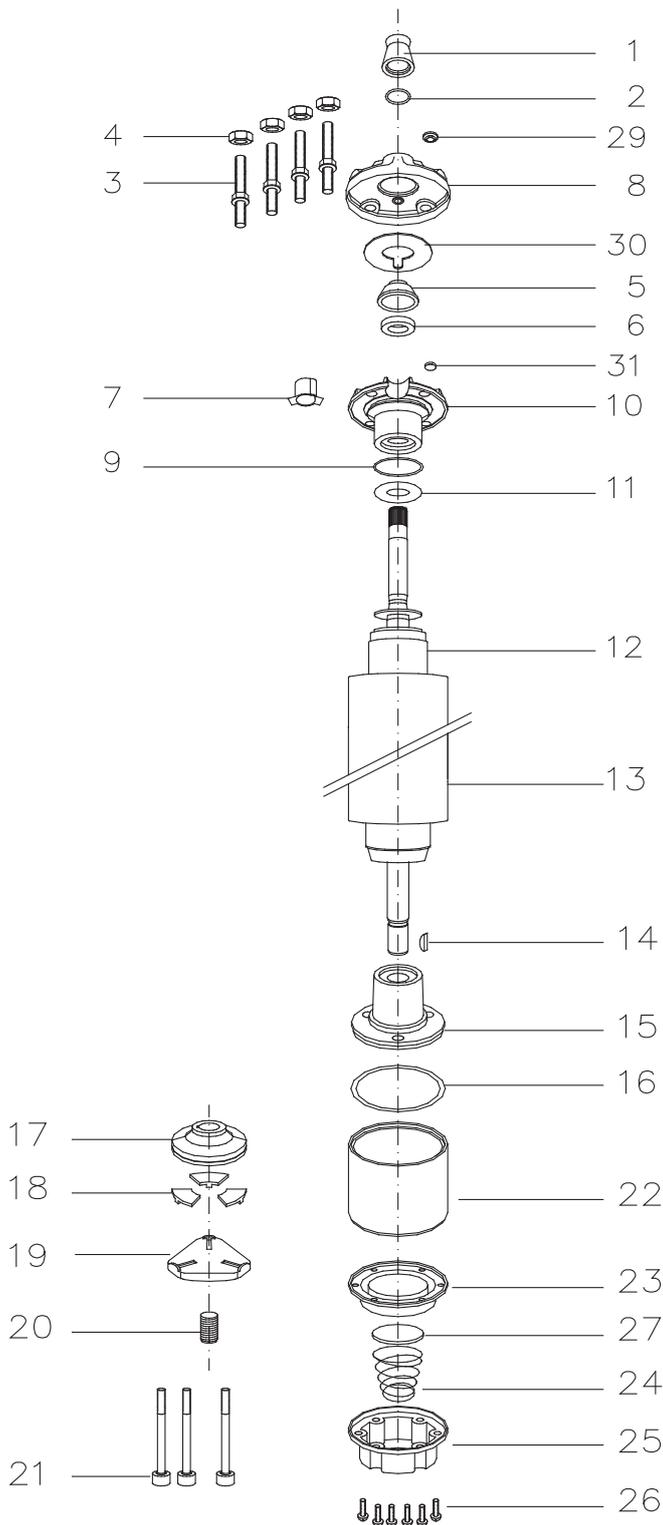
P_N [kW]	U_N [V]	Motor Model No.	Stator Model No.	Rotor
0,37	220, 230	234 751 0521	305 491 581	178 156 912K
	380, 400, 415	234 761 0521	305 491 601	
	500	234 791 0521	305 491 621	
0,55	220, 230	234 752 0521	305 491 582	178 157 912K
	380, 400, 415	234 762 0521	305 491 602	
	500	234 792 0521	305 491 622	
0,75	220, 230	234 753 0521	305 491 583	178 158 912K
	380, 400, 415	234 763 0521	305 491 603	
	500	234 793 0521	305 491 623	
1,10	220, 230	234 754 0521	305 491 584	178 160 912K
	380, 400, 415	234 724 0521	305 491 604	
	500	234 794 0521	305 491 624	
1,50	220, 230	234 755 0521	305 491 585	178 162 912K
	380, 400, 415	234 725 0521	305 491 605	
	500	234 795 0521	305 491 625	
2,20	220, 230	234 756 2221	305 491 586	178 163 912K
	380, 400, 415	234 726 2221	305 491 606	
	500	234 796 2221	305 491 626	
3,00	220, 230	234 766 2221	305 491 587	178 125 912K
	380, 400, 415	234 764 2221	305 491 607	
	500	234 768 2221	305 491 627	

* Spare Parts for Heat Pump, Pollution Recovery and Brackish Water Motors on Request



4" Encapsulated Motors

4" 3- phase Standard Motor* High Thrust Motor Parts 304SS



Pos.	Part Description	Qty.	Part No.
1	Protector, Spline	1	Kit B
2	Washer	1	Kit B
3	Stud	4	Kit C
4	Nut	4	Kit C
5	Seal cover	1	Kit D
6	Shaft Seal	1	Kit B+D
7	Connector boss	1	Kit D
8	Top Endbell, Cover	1	Kit D
9	O-Ring	1	Kit B+D
10	Top Endbell	1	Kit D
11	Upthrust washer	1	Kit
12	Rotor	1	page 43
13	Stator	1	page 43
14	Woodruff key	1	275 250 104
15	Bottom Endbell	1	Kit
16	O-Ring	1	Kit B
17	Thrust disc	1	Kit A
18	Segment	1	Kit A
19	Leveling disc	1	155 660 101
20	Screw, adj.	1	151 048 102
21	Screw	3	Kit C
22	Thrust housing	1	177 378 901
23	Diaphragm	1	Kit B
24	Spring	1	151 449 101
25	Cover, Diaphragm	1	155 647 101
26	Screw	6	Kit C
27	Cup spring, Diaphragm	1	151 448 101
29	Sealing stopper	1	Kit B+D
30	Seal	1	Kit D
31	Filter	1	Kit B+D

* Spare Parts for Heat Pump, Pollution Recovery and Brackish Water Motors on Request

4" Encapsulated Motors



4" 3- phase Spare Part Kits 304SS High Thrust

P_N [kW]	Thrust Bearings	End bell upper (Pos. 10)	End bell, lower (Pos. 15)	Upthrust washer (Pos. 11)
2,2	6500 N / KIT A	Kit D1	177 379 921	308 268 104
3,0				
3,7				
4,0		Kit D2	177 379 901	308 317 901
5,5				
7,5				
Kit A 6500N	Thrust Bearing Kit		incl. Pos.: 17, 18	308 700 301
Kit B	Seal Kit		incl. Pos.: 1, 2, 6, 9, 16, 23, 29, 31	308 900 351
Kit B1	Seal Kit Pollution Recovery		incl. Pos.: 1, 2, 6, 9, 16, 23, 29, 31	308 900 401
Kit C	Screw Kit		incl. Pos.: 3, 4, 21, 26	308 658 351
Kit D1	End bell PE 2,2- 4,0kW		incl. Pos.: 5, 6, 7, 8, 9, 10, 29, 30, 31	308 233 509
Kit D2	End bell PE 5,5- 7,5kW		incl. Pos.: 5, 6, 7, 8, 9, 10, 29, 30, 31	308 434 501

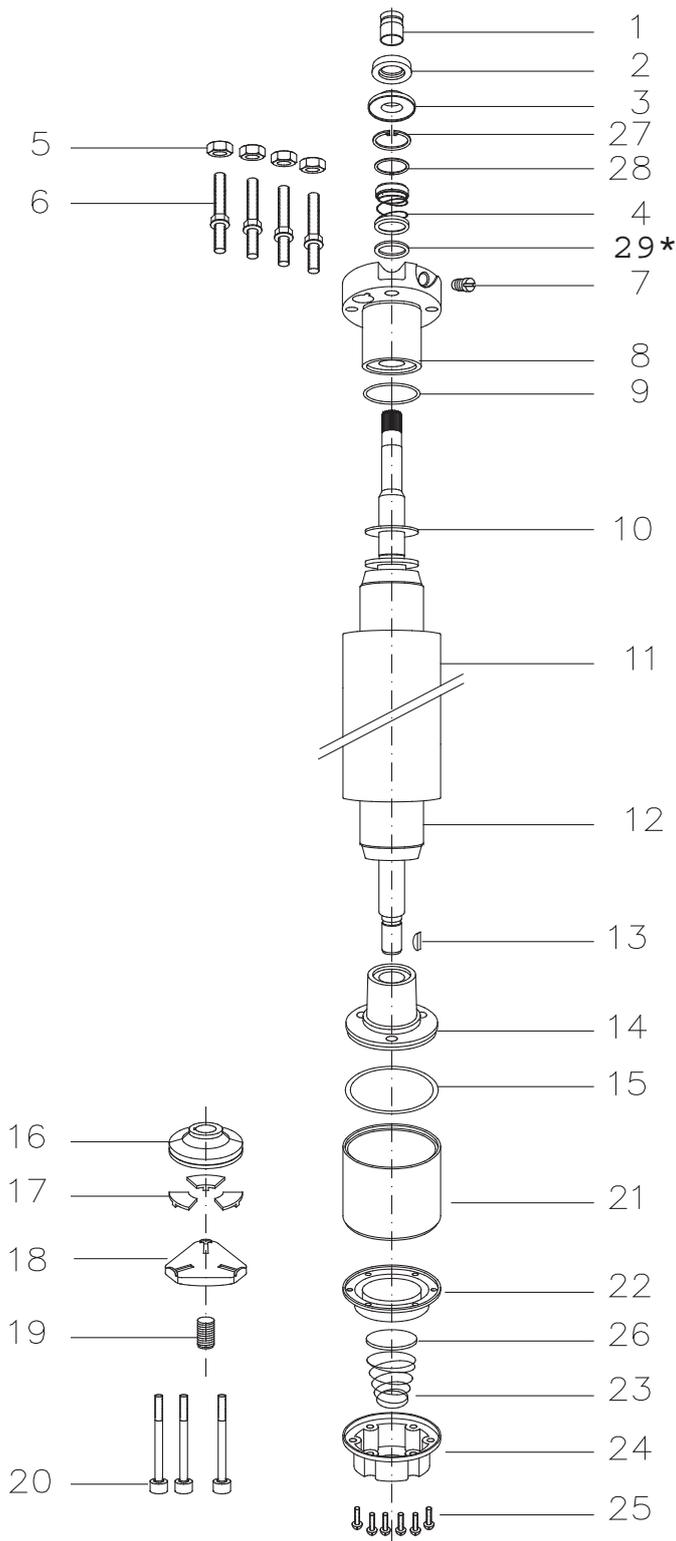
Replacement Standard Motor* Stator and Rotor 50 Hz

P_N [kW]	U_N [V]	Motor Model No.	Stator Model No.	Rotor
2,2	220, 230	234 756 3421 / L	305 491 361	178 163 903K
	380, 400, 415	234 726 3421 / L	305 491 381	
	500	234 796 3421 / L	305 491 401	
3,0	220, 230	234 766 3421 / L	305 491 362	178 125 903K
	380, 400, 415	234 764 3421 / L	305 491 382	
	500	234 768 3421 / L	305 491 402	
3,7	220, 230	234 757 3421 / L	305 491 363	178 126 903K
	380, 400, 415	234 727 3421 / L	305 491 383	
	500	234 797 3421 / L	305 491 403	
4,0	220, 230	234 767 3421 / L	305 491 364	178 127 903K
	380, 400, 415	234 765 3421 / L	305 491 384	
	500	234 769 3421 / L	305 491 404	
5,5	220, 230	234 758 3421 / L	305 491 365	178 133 903K
	380, 400, 415	234 728 3421 / L	305 491 385	
	500	234 798 3421 / L	305 491 405	
7,5	380, 400, 415	234 729 3421 / L	305 491 386	178 134 903K
	500	234 799 3421 / L	305 491 406	



4" Encapsulated Motors

4" 3- phase Standard Motor* High Thrust Parts 316SS



Pos.	Part Description	Qty.	Part No.
1	Protector, Spline	1	Kit C
2	Slinger	1	Kit C
3	Seal cover	1	Kit B + C
4	Shaft Seal	1	Kit B
5	Nut	4	Kit D
6	Stud	4	Kit D
7	Sealing Screw	1	308 279 903
8	Top Endbell	1	Kit
9	O-Ring	1	Kit B
10	Upthrust washer	1	Kit
11	Stator	1	page 45
12	Rotor	1	page 45
13	Woodruff key	1	275 250 104
14	Bottom Endbell	1	Kit
15	O-Ring	1	Kit B
16	Thrust disc	1	Kit A
17	Segments	1	Kit A
18	Leveling disc	1	155 660 101
19	Screw, adj.	1	151 048 102
20	Screw	3	Kit D
21	Thrust housing	1	177 378 951
22	Diaphragm	1	Kit B
23	Spring	1	151 449 101
24	Cover, Diaphragm	1	155 647 201
25	Screw	6	Kit D
26	Cup spring, Diaphragm	1	151 448 101
27	Ring	1	Kit B
28	Retain Ring	1	Kit B
29*	Washer	1	308 747 201

* only for 2,2 - 3kW

* Spare Parts for Heat Pump, Pollution Recovery and Brackish Water Motors on Request

4" Encapsulated Motors



4" 3- phase Spare Part Kits 316SS High Thrust

P _N [kW]	End bell, upper (Pos 8)		End bell, lower (Pos. 14)	Upthrust washer (Pos. 10)
	3 ~ DOL	3 ~ YΔ		
2,2 - 4,0	177 390 955	177 390 956	177 379 921	308 317 901
5,5 - 7,5	177 390 951	177 390 953	177 379 901	
Kit A 6500N	Thrust bearing Kit		inkl. Pos.: 16, 17	308 700 301
Kit B	Seal Kit		inkl. Pos.: 3, 4, 9, 15, 22, 27, 28	308 900 302
Kit B1	Seal Kit Pollution Recovery		inkl. Pos.: 1, 2, 3, 4, 9, 15, 22, 27, 28	308 900 402
Kit C	Slinger Kit		inkl. Pos.: 1, 2, 3	308 825 201
Kit D	Screw Kit		inkl. Pos.: 5, 6, 20, 25	308 658 301

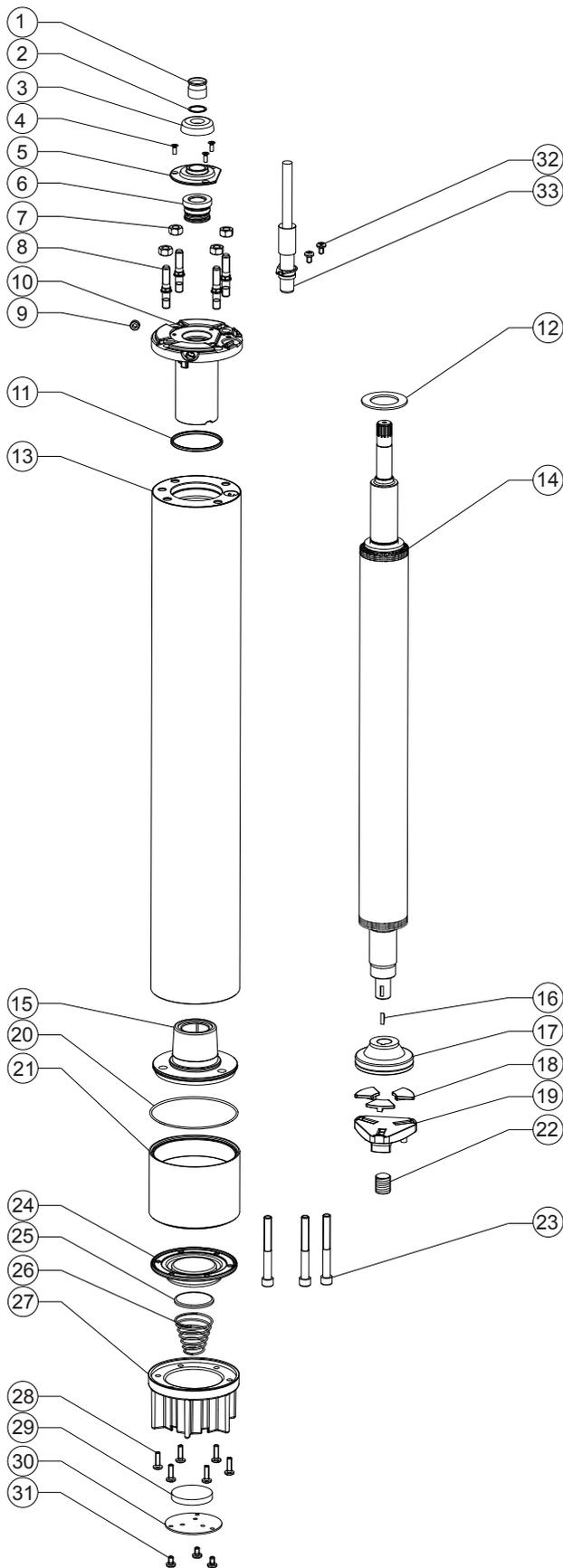
Replacement Standard Motor* Stator and Rotor High Thrust 50 Hz DOL

P _N [kW]	U _N [V]	Motor Model No.	Stator Model No.	Rotor
2,2	220, 230	234 756 3521 / L	305 491 641	178 163 913K
	380, 400, 415	234 726 3521 / L	305 491 661	
	500	234 796 3521 / L	305 491 681	
3,0	220, 230	234 766 3521 / L	305 491 642	178 125 913K
	380, 400, 415	234 764 3521 / L	305 491 662	
	500	234 768 3521 / L	305 491 682	
3,7	220, 230	234 757 3521 / L	305 491 643	178 126 913K
	380, 400, 415	234 727 3521 / L	305 491 663	
	500	234 797 3521 / L	305 491 683	
4,0	220, 230	234 767 3521 / L	305 491 644	178 127 913K
	380, 400, 415	234 765 3521 / L	305 491 664	
	500	234 769 3521 / L	305 491 684	
5,5	220, 230	234 758 3521 / L	305 491 645	178 133 913K
	380, 400, 415	234 728 3521 / L	305 491 665	
	500	234 798 3521 / L	305 491 685	
7,5	380, 400, 415	234 729 3521 / L	305 491 666	178 134 913K
	500	234 799 3521 / L	305 491 686	



4" Encapsulated Motors

4" 3- Phasen Standard Motor* High Thrust 9,3kW 316SS Parts



Pos.	Description	Qty.	Part Nb.
1	Protector, Spline	1	Kit B
2	Washer	1	275 542 102
3	Slinger	1	Kit B
4	Screw, Seal cover	3	Kit C
5	Seal cover	1	156 275 102
6	Shaft Seal	1	Kit B
7	Nut	4	Kit C
8	Stud	4	Kit C
9	Plug screw	1	282 230 101
10	Top Endbell	1	177 553 901
11	O-Ring	1	Kit B
12	Upthrust washer	1	308 317 901
13	Stator	1	see page 47
14	Rotor	1	see page 47
15	Bottom Endbell	1	177 379 901
16	Woodruff key	1	275 250 104
17	Thrust disc	1	Kit A
18	Segments	3	Kit A
19	Leveling disc	1	155 660 101
20	O- Ring	1	Kit B
21	Thrust housing	1	177 378 901
22	Screw, adj.	1	151 048 102
23	Screw	3	Kit C
24	Diaphragm	1	Kit B
25	Cup spring, Diaphragm	1	151 448 201
26	Spring	1	151 449 101
27	Diaphragm housing	1	177 965 101
28	Screw	6	Kit C
29	Filter	1	156 276 101
30	Cover, Diaphragm	1	156 278 101
31	Screw	3	Kit C
32	Screw	2	Kit C
33	Motor cable, 2,5m	1	see page 34

4" Encapsulated Motors



4" 3- phase Spare Part Kits 316SS High Thrust 9,3kW

P_N [kW]	Thrust Bearing	End bell, upper (Pos. 10)	End bell, bottom (Pos. 15)	Upthrust-Disc (Pos. 12)
9,3	6500 N / KIT A	177 553 901	177 379 901	308 317 901
Kit A 6500N	Thrust Bearing Kit		incl. Pos.: 17, 18	308 700 301
Kit B	Seal Kit		incl. Pos.: 1; 3; 6; 11; 20; 24	308 900 501
Kit C	Screw Kit		incl. Pos.: 4; 7; 8; 23; 28; 31; 32	308 658 501

Replacement 9,3kW High Thrust Stator and Rotor 50 Hz

P_N [kW]	U_N [V]	Motor nb.	Stator nb.	Rotor
9,3	380 - 415	234 788	326 995 920	178 139 915



4" Encapsulated Motors

4" Coal Bed Methane Submersible Motors

Franklin Electric 4" Submersible Coalbed Methan Encapsulated Motors, manufactured in ISO 9001 certified facilities.

This coalbed methane motors are built for superior dependability in 4" diameter- or larger coalbed methane wells.

A special diaphragm ensures pressure compensation inside the motor.



Basic Features

- Anti-track self-healing resin system
- Hermetically-sealed windings
- Water lubricated bearings
- Kingsbury-type thrust bearing rated for 6500N downthrust
- Pressure equalizing diaphragm
- Removable Water-Bloc™ lead
- NEMA pump mounting dimensions

Coalbed Methane Motor Features:

- Exclusive Sand Fighter™ sealing system
- Reinforced diaphragm housing resists damage from bottom tagging
- Protective filter shields diaphragm from debris

Option:

- Motor Cable in special lengths available on request

Technical specification:

- 3,7kW up to 9,3kW
- 4" NEMA flange
- Voltage rating: 380-415V/50Hz; 380V/60Hz
- Thrust capacity: 6500N
- Rotation: electrically reversible
- Degree of protection: IP 68
- Insulation: Cl. B
- Voltage tolerance: -10% / + 6% of nominal U
- max. Rated Ambient temp.: 50°C
- Cooling flow: min. 8 cm/s
- Starts / h: 20 max.
- Mounting: vertical/horizontal
- Motor protection: 3- phase - Select thermal overloads according to EN 61947-4-1

4th Encapsulated Motors



CBM Model Numbers 50 Hz

P _N [kW]	U _N [V]	Digit 1 - 6	Digit 7-10
			CBM+*
3,7	380 - 415	234 727	3525L
4,0	380 - 415	234 765	3525L
5,5	380 - 415	234 728	3525L
7,5	380 - 415	234 729	3525L
9,3	380 - 415	234 788	3525L

* CBM+ means reinforced construction (full stainless upper end bell, stator end rings, thrust and diaphragm hsg, viton elastomers), with PUR round motor short leads attached

3-Phase Standard Performance Data 50 Hz

P _N [kW]	Thrust F [N]	U _N [V]	n _N [min ⁻¹]	I _N [A]	I _A [A]	η (Eff.) [%] at % load			cos φ (Pf.) at % load			T _N [Nm]	T _A [Nm]
						50	75	100	50	75	100		
3,7	6500N	380	2810	9,1	43,0	70,4	74,2	74,7	0,65	0,77	0,84	12,6	35,3
		400	2830	9,2	45,3	68,3	73,1	74,3	0,57	0,71	0,80	12,5	35,8
		415	2845	9,4	47,0	65,9	71,9	74,4	0,52	0,66	0,75	12,4	38,5
4,0	6500N	380	2820	9,7	54,1	75	78	78	0,60	0,74	0,82	13,5	39,7
		400	2840	9,9	57,0	72	77	78	0,52	0,67	0,77	13,4	44,0
		415	2855	10,4	59,1	69	75	77	0,47	0,61	0,72	13,4	47,4
5,5	6500N	380	2845	12,6	73,3	77	80	79	0,66	0,79	0,85	18,5	51,0
		400	2865	12,6	77,2	75	79	79	0,59	0,73	0,81	18,3	56,5
		415	2875	12,8	80,1	73	77	79	0,54	0,68	0,77	18,2	60,9
7,5	6500N	380	2830	17,2	94,3	78	80	79	0,66	0,79	0,86	25,3	65,9
		400	2855	17,1	99,3	75	79	79	0,58	0,72	0,81	25,1	73,1
		415	2865	17,6	103,0	73	78	79	0,52	0,67	0,77	25,0	78,6
9,3	6500N	380	2825	21,2	108,0	77	80	79	0,65	0,78	0,86	31,4	73,8
		400	2850	21,4	113,0	75	79	79	0,56	0,71	0,81	31,1	81,8
		415	2860	22,1	118,0	72	77	78	0,47	0,58	0,76	31,0	88,0

Winding Resistance 50Hz

P _N [kW]	U _N [V]	Stator Ref.	U - V / Ohm
3,7	380 - 400 - 415	326 717 902	3,7 - 4,5
4,0	380 - 400 - 415	326 718 902	3,3 - 4,0
5,5	380 - 400 - 415	326 719 902	2,6 - 3,2
7,5	380 - 400 - 415	326 720 902	1,9 - 2,3
9,3	380 - 400 - 415	326 995 100	0,76 - 0,84



4" Encapsulated Motors

4" Motor Leads and Connection

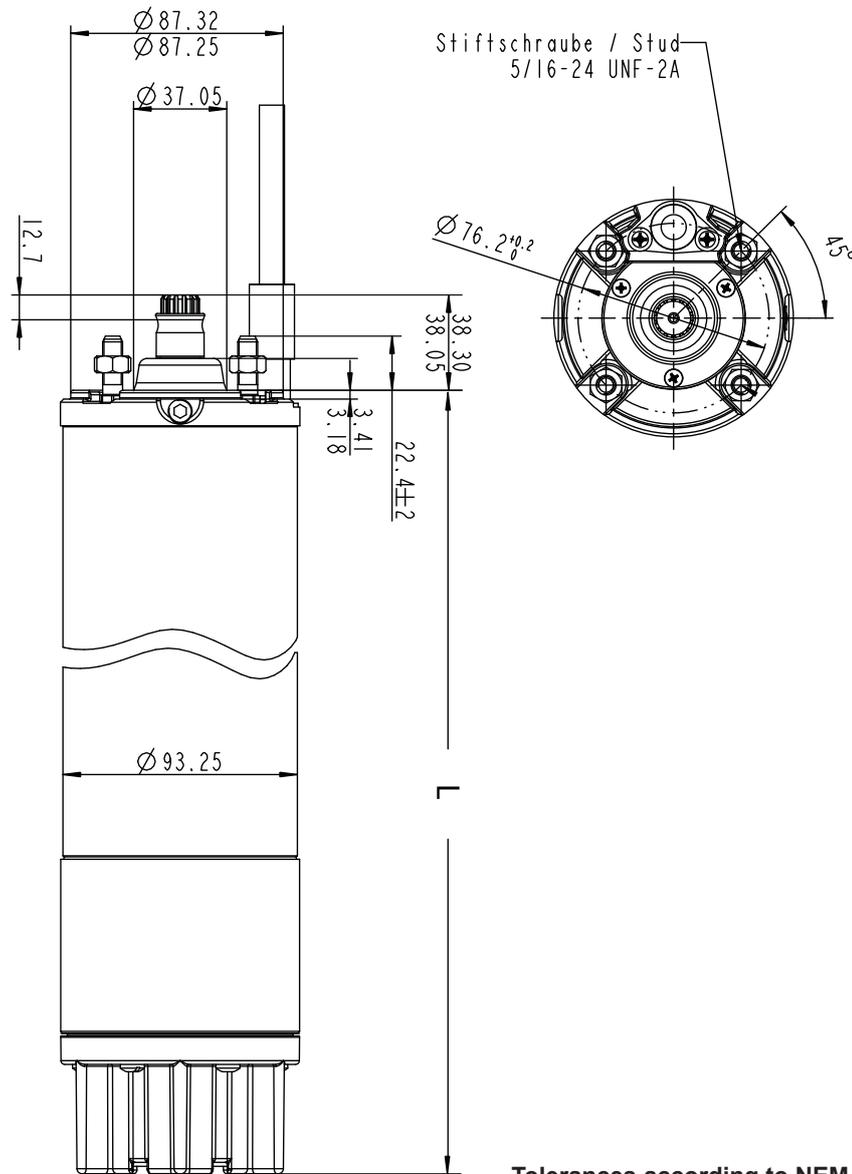
Electrical Connection	Lead Drawing		
	\varnothing [mm ²] 4X1,5	$D \varnothing$ [mm] 10	
	L [m] 2,5	Part Numbers Standard	
		310 386 502K	

a	b	c	PE
black	brown	grey	yellow/green

4" Encapsulated Motors



4" CBM Motor Outlines



Tolerances according to NEMA MG 1-18.388

4" CBM Motors Lengths & Weights

P _N [kW]	L [mm]	M [kg]	Motor with Lead in single pack	
			[mm]	[kg]
3,7	562,3	20,6	796 x 100 x 110	22
4,0	585,3	21,5	796 x 100 x 110	22,8
5,5	687,1	28,9	796 x 100 x 110	30,2
7,5	765,1	32,1	796 x 100 x 110	33,4
9,3	855,1	37,9	904 x 100 x 110	41,3

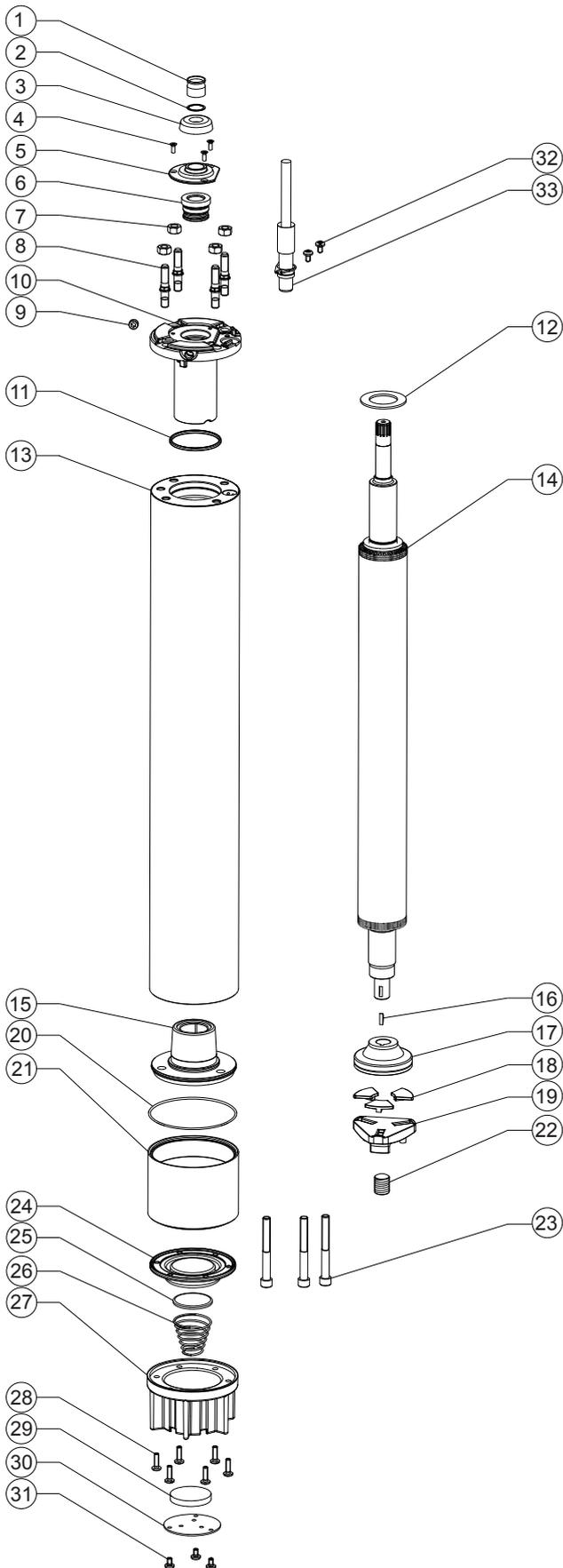
Material DIN / AISI

Part	
Shell	1.4301
Upper end bell	1.4401
Lower end bell	Cast iron
Thrust housing	1.4401
Mechanical seal	SiC / SiC
Seal cover	1.4401
Slinger	Viton
Shaft end	17-4 SS
Diaphragm	Viton
Diaphragm housing	1.4401
Lead	PUR
Other seals	BUNA N



4" Encapsulated Motors

4" CBM Motor Spare Parts



Pos.	Part Description	Qty.	Part No.
1	Spline Protector	1	Kit B
2	Washer	1	275 542 102
3	Slinger	1	Kit B
4	Screw, Seal cover	3	Kit C
5	Seal cover	1	156 275 102
6	Mechanical seal	1	Kit B
7	Nut	4	Kit C
8	Stud	4	Kit C
9	Pug screw	1	282 230 101
10	End bell, upper	1	177 553 901
11	O-Ring	1	Kit B
12	Upthrust washer	1	308 317 901
13	Stator	1	see page 53
14	Rotor	1	see page 53
15	End bell, lower	1	177 379 901
16	Woodruff key	1	275 250 104
17	Thrust disc	1	Kit A
18	Segment set	3	Kit A
19	Leveling disc	1	155 660 101
20	O- Ring	1	Kit B
21	Thrust housing	1	177 559 901
22	Screw, adj.	1	151 048 102
23	Screw	3	Kit C
24	Diaphragm	1	Kit B
25	Cup spring, Diaphragm	1	151 448 201
26	Spring	1	156 506 101
27	Housing, Diaphragm	1	177 965 101
28	Screw	6	Kit C
29	Filter	1	156 276 101
30	Cover, Diaphragm	1	156 278 101
31	Screw	3	Kit C
32	Screw	2	Kit C
33	Motor short lead 2,5m	1	see page 50



4" CBM Motor Spare Part Kits

P_N [kW]	Thrust Bearings	End bell upper (Pos. 10)	End bell, lower (Pos. 15)	Upthrust washer (Pos. 12)
3,7	6500 N / KIT A	177 553 901	177 379 901	308 317 901
4,0				
5,5				
7,5				
9,3				
Kit A 6500N	Thrust bearing		inkl. Pos.: 17, 18	308 700 301
Kit B	Seals		inkl. Pos.: 1; 3; 6; 11; 20; 24	308 900 502
Kit C	Screws		inkl. Pos.: 4; 7; 8; 23; 28; 31; 32	308 658 501

Replacement Stator and Rotor 50 Hz

P_N [kW]	U_N [V]	Motor Model No.	Stator Model No.	Rotor
3,7	380 - 415	234 727	326 717 919	178 137 915
4,0	380 - 415	234 765	326 718 919	178 138 915
5,5	380 - 415	234 728	326 719 919	178 133 915
7,5	380 - 415	234 729	326 720 919	178 134 915
9,3	380 - 415	234 788	326 995 920	178 139 915



Motor Control

SubStartSC® Single phase Submersible Motor Starter

The SubStartSC® range covers all PSC motors from 0.25kW to 2.2kW for all voltages. Ergonomic design, attention to detail and unique features make the SubStartSC® motor starter range your first choice when considering submersible motor protection. In conjunction with Franklin Electric submersible motors you now have an tangible water system advantage resulting in ease of installation and reliable protection.

Product features:

- Attention to detail – every aspect engineered for the application
- The complete package – The device is 100% compatible with the motor characteristics
- All in one name – Reliability backed by the leader in submersible motors



Ergonomically designed	
Mounting	Easy wall mounting without destroying the protection rating of the enclosure.
Wiring	Sufficient space is provided for ease of wiring.
Enclosure	
Protection	IP54
Material	PVC / Polycarbonat
Components	
ON/OFF switch	Illuminated integral ON/OFF switch for ease of power
Circuit breaker	Thermal circuit breaker for protection of the motor.
Capacitor	High quality motor run capacitor for long life
Terminal board	Terminal board suitable for ease of reliable connections
Cable glands	Cable glands to ensure IP54 rating

Technical Specifications:	
Mechanical	
Protection level	IP54
External dimensions	168 x 142 x 85mm
Weight	0,6 - 1,0 kg
Mounting	Wall mounting (mounting hardware provided)
Temperature	-5°C - +40°C
Humidity	50% at 55°C (without condensation)
Electrical	
Voltage	220 - 240V; - 6 / +10 %; 50Hz single phase
Current	2,2 - 16 A
Power	0,25 - 2,2 kW
Standards	
IEC 60439-1	

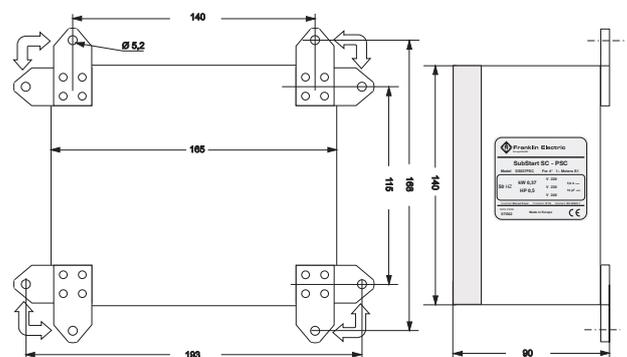
Submersible Motor Starter Specifications

Part Number ¹	Type ²	Motor rating (kW)	Nominal Current ³ (A)	Maximal expected current ⁴ (A)	Capacitor (µF) 450V ac
284 623 3510	SS025SC	0,25	2,4	9,4	12,5
284 624 3510	SS037SC	0,37	3,3	12,6	16
284 625 3510	SS055SC	0,55	4,3	17,7	20
284 626 3510	SS075SC	0,75	5,7	22,7	35
284 627 3510	SS110SC	1,10	8,4	33,9	40
284 628 3510	SS150SC	1,50	10,7	41,7	50
284 629 3510	SS220SC	2,20	14,7	61,8	70

Notes:

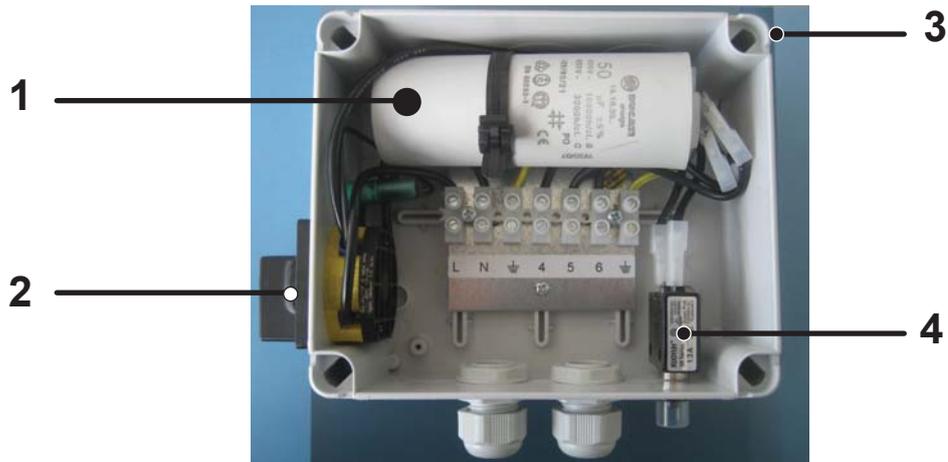
1. Can be used with both 220-230V and 230-240V PSC motor ranges.
2. Type indicates motor power rating and motor type.
3. Nominal supply current at nominal voltage
4. Motor starting current under nominal conditions

Dimensions





SubStartSC® Spare Parts



1 Part: Capacitor - Kit

Rating [kw]	Mod. Nb.		μF
0,25	308 005 801	-	12,5
0,37	308 005 802	-	16
0,55	308 005 803	-	20
0,75	308 005 804	-	35
1,1	308 005 805	-	40
1,5	308 005 806	-	50
2,2	308 005 807	-	70

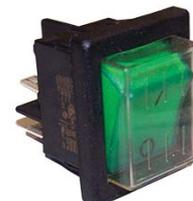
4 Part: Overload - Kit

Rating [kw]	Mod. Nb.		Amp
0,25	308 005 811	-	3
0,37	308 005 812	-	5
0,55	308 005 813	-	6
0,75	308 005 814	-	8
1,1	308 005 815	-	10
1,5	308 005 816	-	13
2,2	308 005 817	-	18



2 Part: Rotary - Switch - Kit

Mod. Nb.
308 005 822



3 Part: Rocker - Switch - Kit

Mod. Nb.
308 005 821



Motor Control

SubStart3P® Three phase Submersible Motor Starter

The SubStart3P® range covers all 3 phase motors from 0.37kW to 7,5kW. Ergonomic design, attention to detail and unique features make the SubStart3P® motor starter range your first choice when considering submersible motor protection. In conjunction with Franklin Electric submersible motors you now have an tangible water system advantage resulting in ease of installation and reliable protection

Product features:

- Attention to detail – every aspect engineered for the application
- The complete package – The device is 100% compatible with the motor characteristics
- All in one name – Reliability backed by the leader in submersible motors



Ergonomically designed	
Mounting	Easy wall mounting without destroying the protection rating of the enclosure.
Wiring	Sufficient space is provided for ease of wiring.
Enclosure	
Protection	IP54
Material	PVC / Polycarbonate
Components	
ON/OFF Switch	Manual motor starter switch
Circuit breaker	Integrated thermal and magnetic overload protection
Auxiliary relay	Powered auxiliary contactor for use with external switches
Cable glands	Ensure IP54 rating

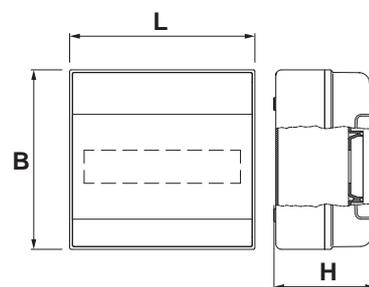
Specifications	
Mechanical Specification	
Protection level	IP 54
Environment	This equipment is suitable for environment B according to IEC/EN 61439 - 1 : 2010
Altitude	max 2000m above sea level
External dimensions	190x184x106mm <= 4kW
	250x256x140mm >= 5,5kW
Weight	1,2 kg <= 4kW
	2,3 kg >= 7,5kW
Mounting	Wall mounting (mounting hardware provided)
Storage temperature	-25°C to +55°C
Operation temperature	-5°C to +40°C
Humidity	50% at 40°C (without condensation)

Model Parameters				
Motor Rating (kW)	Type 3~ 400V 50Hz	Model Number	Nom. Current (A)	Starting Current (A)
0,37	SS037P3	288 500 3510	1,1	5,4
0,55	SS055P3	288 501 3510	1,6	7,4
0,75	SS075P3	288 502 3510	2	10,6
1,10	SS110P3	288 503 3510	2,8	16
1,50	SS150P3	288 504 3510	3,9	20,7
2,20	SS220P3	288 505 3510	5,5	29,8
3,0	SS300P3	288 506 3510	7,5	42
3,7	SS370P3	288 507 3510	9	52,3
4,0	SS400P3	288 508 3510	9,9	57
5,5	SS550P3	288 509 3510	12,6	77,2
7,5	SS750P3	288 510 3510	17,1	99,3

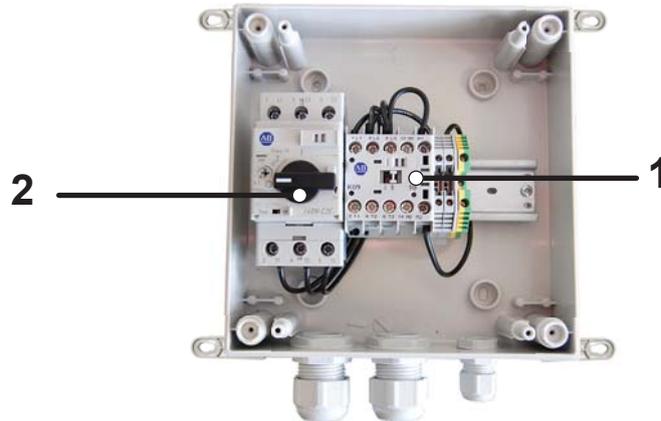
Electrical Specifications	
Working Voltage	3~ / 50Hz 380 - 415V / -10% +6%
Voltage tolerance	380V -10% / 415V+6%
Rated insulation voltage	400 Vac
Rated short-time withstand current	50 kA
Rated conditional short-circuit current	50 kA
Current	5A, 9A, 16 A
Power	0,37kW - 7,5kW

Standards
IEC/EN 61439 - 1 : 2010

Dimensions			
Motor Rating (kW)	B (mm)	L (mm)	H (mm)
0,37kW - 4,0kW	190	184	106
5,5kW - 7,5kW	250	256	140



SubStart3P® Spare parts



1 Part: Contactor

Rating [kw]	Mod. Nb.
0,37	308 027 201
0,55	308 027 201
0,75	308 027 201
1,1	308 027 201
1,5	308 027 201
2,2	308 027 202
3,0	308 027 202
3,7	308 027 203
4,0	308 027 203
5,5	308 027 204
7,5	308 027 205

2 Part: Motor Starter

Rating [kw]	Mod. Nb.
0,37	308 027 101
0,55	308 027 102
0,75	308 027 102
1,1	308 027 103
1,5	308 027 104
2,2	308 027 104
3,0	308 027 105
3,7	308 027 105
4,0	308 027 106
5,5	308 027 106
7,5	308 027 107



Motor Control

SubTronicSC® Single Phase Motor Protection

The SubTronicSC® range covers all PSC motors from 0.25kW to 2.2kW for all voltages. Ergonomic design, attention to detail and unique features make the SubTronicSC® motor starter range your first choice when considering submersible motor protection. In conjunction with Franklin Electric submersible motors you now have an tangible water system advantage resulting in ease of installation and reliable protection.

Product features:

- Attention to detail – every aspect engineered for the application
- The complete package – The device is 100% compatible with the motor characteristics
- All in one name – Reliability backed by the leader in submersible motors

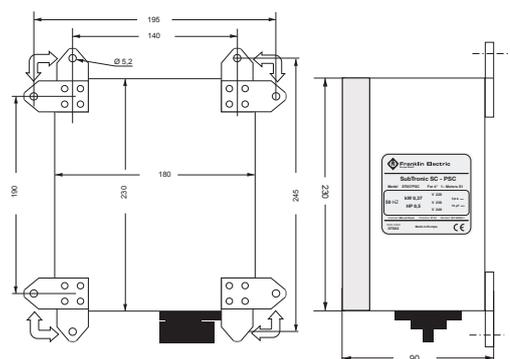


Ergonomically designed	
Mounting	Easy wall mounting offering various options without destroying the protection rating of the enclosure.
Wiring	Reliable connectors are provided for ease of wiring.
Motor compatible design	
Matching range	The SubTronicSC® Protector range was designed to match the Franklin Electric range of PSC motors.
Wide range of operation	Compatibility with motor design allows for a wide range of operation resulting in minimized nuisance tripping.
Intelligent Protection and Management features	
Dry-run detection (without probes)	Prevents motor and pump damage due to running the pump without water based on a proprietary reliable detection method.
Dry-run auto- reset	Automatic dry-run reset time is based on a proprietary search algorithm to find the best operating point for weak wells. Reset time 6 to 60 minutes.
Over & Under voltage	Prevents motor damage that may be caused by abnormal voltage conditions without limiting the range of operation, made possible by matching the design of the SubTronicSC® Protector with the motor. Reset time approximately 3 minutes.
Over current protection	Prevents operation under conditions where motor current may exceed safe levels due to bound pump or other fault condition. Detection is based on current heating capacity measurement to prevent unnecessary nuisance tripping. Reset time approximately 10 minutes.
Faulty Start Protection	Prevents system damage due to factors such as faulty contacts or switch. Contact failure detection reacts fast and will prevent damage to system components.
Rapid Cycle Protection	Prevents system damage due to factors such as continuous rapid cycling and excessive motor thermal cycling caused by waterlogged tank, faulty contacts or faulty pressure switch.
Indicators	
Status	Indication shows normal operation or other condition.
Voltage	Faulty voltage condition is indicated.
Fault conditions	Dry-run, Over current, Rapid Cycling, and Faulty start are indicated.

Technical Specifications	
Mechanical	
Protection level	IP54
External dimensions	290 x 230 x 95mm
Weight	0,6 - 1,0 kg
Mounting	Wall mounting (with options)
Temperature	-5°C - +40°C
Humidity	50% at 55°C (without condensation)
Electrical	
Voltage	220 - 240V; ± 10 %; 50Hz single phase
Current	16 A
Power	0,25 - 2,2 kW
Standards	
IEC 60439-1 when supplied with suitably fused supply.	

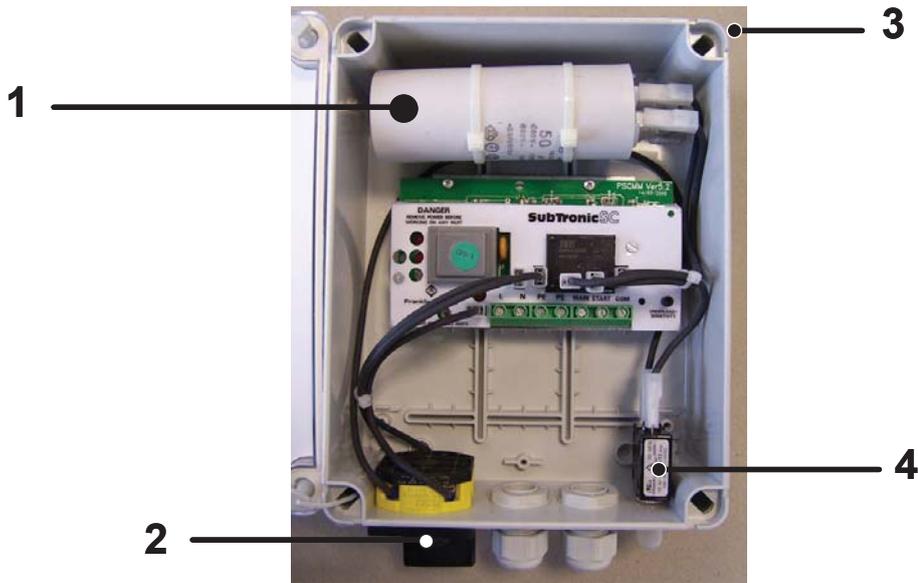
SubTronic SC Motor Protection Specifications					
Part Number	Type	Motor rating (kW)	Nominal Current (A)	Maximal expected current (A)	Capacitor (µF) 450V ac
284 623 3511	ST025PSC	0,25	2,4	9,4	12,5
284 624 3511	ST037PSC	0,37	3,3	12,6	16
284 625 3511	ST055PSC	0,55	4,3	17,7	20
284 626 3511	ST075PSC	0,75	5,7	22,7	35
284 627 3511	ST110PSC	1,10	8,4	33,9	40
284 628 3511	ST150PSC	1,50	10,7	41,7	50
284 629 3511	ST220PSC	2,20	14,7	61,8	70

Dimensions



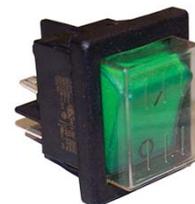


SubTronicSC® Spare Parts



1 Part: Capacitor - Kit			
Rating [kw]	Mod. Nb.		µF
0,25	308 005 801	-	12,5
0,37	308 005 802	-	16
0,55	308 005 803	-	20
0,75	308 005 804	-	35
1,1	308 005 805	-	40
1,5	308 005 806	-	50
2,2	308 005 807	-	70

4 Part: Overload - Kit			
Rating [kw]	Mod. Nb.		Amp
0,25	308 005 811	-	3
0,37	308 005 812	-	5
0,55	308 005 813	-	6
0,75	308 005 814	-	8
1,1	308 005 815	-	10
1,5	308 005 816	-	13
2,2	308 005 817	-	18



2 Part: Rotary - Switch - Kit	
Mod. Nb.	308 005 822

3 Part: Rocker - Switch - Kit	
Mod. Nb.	308 005 821



Motor Control

SubTronic3P® Three Phase Motor Protection

The SubTronic3P® range covers all 4 inch 3 phase motors from 0.37kW to 7,5kW. Ergonomic design, attention to detail and unique features make the SubTronic3P® range your first choice when considering submersible motor protection and management. Together with Franklin Electric submersible motors you have an undisputable advantage, resulting in ease of installation, sophisticated system management and peace of mind.

Product features:

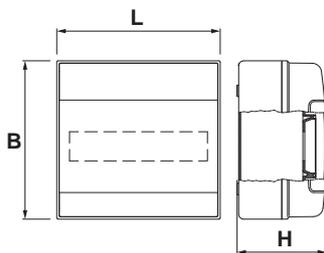
- Attention to detail – every aspect engineered for the application
- The complete package – The device is 100% compatible with the motor characteristics
- All in one name – Reliability backed by the leader in submersible motors



Ergonomically designed	
Mounting	Easy wall mounting offering various options without destroying the protection rating of the enclosure.
Wiring	Reliable connectors are provided for ease of wiring.
Motor compatible design	
Matching range	The SubTronic3P® Protector range was designed to match the Franklin Electric range of 3 phase motors.
Wide range of operation	Compatibility with motor design allows for a wide range of operation resulting in minimized nuisance tripping.
Intelligent Protection and Management features	
Dry-run detection (without probes)	Prevents motor and pump damage due to running the pump without water based on a proprietary reliable detection method.
Dry-run auto- reset	Automatic dry-run reset time is based on a proprietary search algorithm to find the best operating point for weak wells. Reset time in max. 60 minutes.
Over & Under voltage	Prevents motor damage that may be caused by abnormal voltage conditions without limiting the range of operation, made possible by matching the design of the SubTronic3P® Protector with the motor. Reset time approximately 3 minutes.
Over current protection	Prevents operation under conditions where motor current may exceed safe levels due to bound pump or other fault condition. Detection is based on current heating capacity measurement to prevent unnecessary nuisance tripping. Auto-reset in 15 minutes. Manual reset possible in approximately 5 minutes by reapplying power.
Rapid Cycle Protection	Prevents system damage due to factors such as continuous rapid cycling and excessive motor thermal cycling caused by waterlogged tank, faulty contacts or faulty pressure switch. Auto-reset in 5 minutes if condition clears. Manual reset possible in approximately 5 minutes by reapplying power.
Indicators	
Status	Indication shows normal operation or other condition.
Voltage	Faulty voltage condition is indicated.
Fault conditions	Dry-run, Over Current, Rapid Cycling, Over Voltage and Under Voltage are indicated.

Dimensions

Motor Rating (kW)	B (mm)	L (mm)	H (mm)
0,37kW - 3kW	190	184	106
3,7kW - 7,5kW	250	256	140



Specifications

Mechanical Specification	
Protection level	IP 54
Environment	This equipment is suitable for environment B according to IEC/ EN 61439 - 1 : 2010
Altitude	max 2000m above sea level
External dimensions	190 x 184 x 106 mm <= 3kW 250 x 256 x 140 mm >= 3,7kW
Weight	1,2 kg <= 3kW 2,5 kg >= 3,7kW
Mounting	Wall mounting (mounting hardware provided)
Storage temperature	-25°C to +55°C
Operation temperature	-5°C to +40°C
Humidity	50% at 40°C (without condensation)
Electrical Specifications	
Rated Voltage	3~ / 50Hz 380 - 415V
Voltage tolerance	380V -10% / 415V+6%
Rated insulation voltage	400 Vac
Rated short-time withstand current	50 kA
Rated conditional short-circuit current	50 kA
Current	5 A ; 9 A ; 25 A
Power	0,37 - 7,5kW
Standards	
IEC/EN 61439 - 1 : 2010	

SubTronic3P Motor Protection Specifications

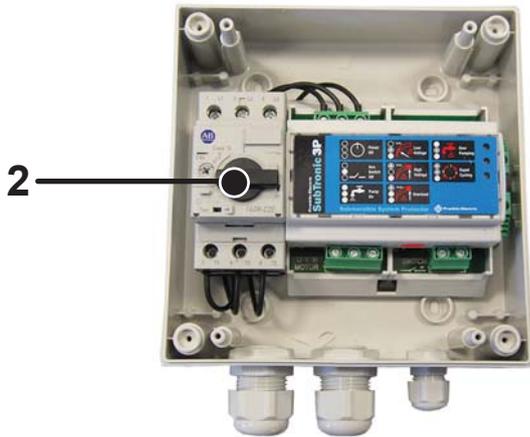
Motor Rating (kW)	Type 3phase / 400V 50Hz	Model Number	Nom. Current (A)	Max. Current (A)
0,37	ST037P3	288 500 3511	1,1	5,4
0,55	ST055P3	288 501 3511	1,6	7,4
0,75	ST075P3	288 502 3511	2	10,6
1,10	ST110P3	288 503 3511	2,8	16
1,50	ST150P3	288 504 3511	3,9	20,7
2,20	ST220P3	288 505 3511	5,5	29,8
3	ST300P3	288 506 3511	7,5	42
3,7	ST370P3	288 507 3511	9	52,3
4	ST400P3	288 508 3511	9,9	57
5,5	ST550P3	288 509 3511	12,6	77,2
7,5	ST750P3	288 510 3511	17,1	99,3



SubTronicSC® Spare Parts

0,37kW - 3,0kW

3,7kW - 7,5kW



1 Part: Contactor - > 3,7kW

Rating [kw]	Mod. Nb.
0,37	-
0,55	-
0,75	-
1,1	-
1,5	-
2,2	-
3,0	-
3,7	308 027 206
4,0	308 027 206
5,5	308 027 204
7,5	308 027 205

2 Part: Motor Starter

Rating [kw]	Mod. Nb.
0,37	308 027 101
0,55	308 027 102
0,75	308 027 102
1,1	308 027 103
1,5	308 027 104
2,2	308 027 104
3,0	308 027 105
3,7	308 027 105
4,0	308 027 106
5,5	308 027 106
7,5	308 027 107



SubDrive® Constant-pressure Controller

Franklin Electric's SubDrive constant pressure controller provides constant pressure by continually adjusting the speed of the pump to match water demand. Instead of draining and filling a large tank, a SubDrive system pumps more or less water as you need it. Finally, you'll be able to run the dishwasher, do laundry and water the lawn – all at the same time!

Product Features:

- Works with a standard three-phase, 60Hz, 230V Franklin Electric submersible motor
- IP 20 (Indoor) enclosure
- Three phase performance with single-phase input
 - High starting torque
 - More efficient
 - Smooth running
- Constant water pressure with a wide range of settings (2 to 6 bar)
- Soft start feature prevents water hammer and increases motor life
- Works with small pressure tanks or existing larger tanks
- Smart Reset™ technology allows well recovery before restarting the pump
- Complete well management included
- Absolutely easy to install
- Excellent radio frequency interference shielding

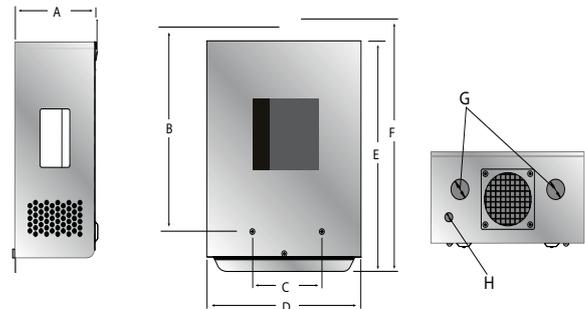


Built-in Diagnostics and Protection

SubDrive products all include diagnostic features and built-in protection for conditions that would be harmful to the system.

- Surge protection
- Underload
- Undervoltage
- Locked pump
- Open circuit
- Short circuit
- Overheated controller

Outlines (cm)



A - 13,3	B - 29,2	C - 14,0	D - 24,8
E - 32,5	F - 35,6	G - 2,80	H - 1,3

Constant Pressure Controls Specifications

	SubDrive75	SubDrive100	SubDrive150
Rated Power	1,1kW	1,5kW	2,2kW
Model No.	587 020 3380	587 020 4100	587 020 4150
Input (From Power Source)			
Voltage [V]	190-260 V / 1 Phase	190-260 V / 1 Phase	190-260 V / 1 Phase
Frequency [Hz]	60 / 50 Hz	60 / 50 Hz	60 / 50 Hz
Max. Amps (RMS) [A]	11 A	19 A	23 A
Power Factor	1.0 (Constant)	1.0 (Constant)	1.0 (Constant)
Output (To Motor)			
Voltage [V]	Variable / 3 Phase	Variable / 3 Phase	Variable / 3 Phase
Frequency [Hz]	Variable (30-80 Hz)	Variable (30-80 Hz)	Variable (30-80 Hz)
Max. Amps (RMS) [A]	5,9 A	8,1 A	10,9 A
For Use With:			
Pump Rating [kW]	0,55, 0,75 or 1,1 kW (Selectable)	0,75, 1,1 or 1,5 kW (Selectable)	1,1, 1,5 or 2,2 kW (Selectable)
Motor Rating [kW]	1,1 kW, 230 VAC, 60Hz (3-Phase)	1,5 kW, 230 VAC, 60Hz (3-Phase)	2,2 kW, 230 VAC, 60Hz (3-Phase)
Pressure Sensor (Included)	External	External	External
Controller Weight [kg]	7,0	8,0	8,0
Carton Size (H x W x D) [cm]	42 x 31 x 23	42 x 31 x 23	42 x 31 x 23
Shipping Weight [kg]	10	10	10



Termination Kit 4"

This proven, sturdy solution is your choice of cable joining in temporary pump applications or when re-usage if the drop cable is desired. Furthermore, the flexibility and safety it provides for under field service conditions makes it the preferred choice over conventional, not breakable splicing kits.

Kit- Type	Mod. Number	Description
Standard	308 090 901	without . Strain relief Attention: (Limited shelf life of Resin and Hardener)
Strain Relief	308 090 902	incl. Strain relief Attention: (Limited shelf life of Resin and Hardener)



Double Plug Lead for Termination Kit

Required for use of lead termination kit. Connected between termination kit and 4" motor

- PSC / 2-wire / 3-wire Motors and 3 ~ Motors up to 2,2kW
- Material: Connector- Ni plated brass; Lead: rubber
- 2 / 3 wire lead with ground
- Optional strain relief
- Max. current 16 amps.
- Approvals: KTW



Mod. No.	2 - wire	Mod. No.	PSC / 3 - wire / 3-Phase (up to 2,2kW)
310 131 001	3X1,5mm ² 1,5 m - without . Strain relief	310 111 001	3X1,5+1G1,5mm ² 1,5 m - without . Strain relief
310 131 002	3X1,5mm ² 2,5 m - without . Strain relief	310 111 002	3X1,5+1G1,5mm ² 2,5 m - without . Strain relief
310 132 001	3X1,5mm ² 1,5 m - incl. Strain relief	310 112 001	3X1,5+1G1,5mm ² 1,5 m - incl. Strain relief
310 132 002	3X1,5mm ² 2,5 m - incl. Strain relief	310 112 002	3X1,5+1G1,5mm ² 2,5 m - incl. Strain relief

Lead Termination Kit 1,5 - 10mm²

- 3M Quality
- 4 wire
- 1,5 - 10mm²
- up to 1,1kV

Part number: 308 090 921



PTC Lead (only as spare parts)

$\varnothing = 2 \times 0,75 \text{ mm}^2$	$D = 7,0 \text{ mm}$	L (m)	Mod.-No.
		4	310 364 004
		10	310 364 010
		20	310 364 020
		30	310 364 030

Brackish Water Motor Lead (only as spare parts)

$\varnothing = 4 \times 1,5 \text{ mm}^2$	L (m)	Mod.-No.
	2,5	310 113 402G

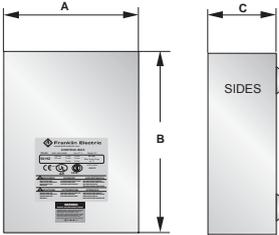
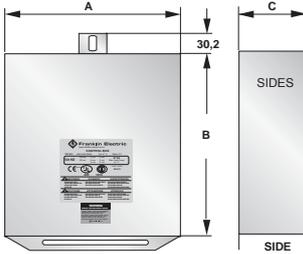
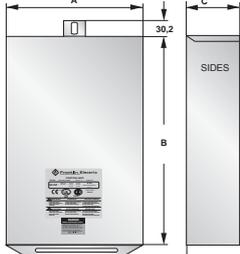


Accessories

3- wire Motor Control Boxes

Application:	Control and Protection of Franklin Electric 3-wire single phase motors.		
Specification:	<ul style="list-style-type: none"> • Voltage: 220 – 230 V • Degree of protection: IP 23 • Metal version • Includes starting capacitor • Manual reset overload • Temperature range: -20°C - +50°C • 50 Hz 		
Ordering information:	Motor Rating	Control Box Mod. Number	Weights (kg)
220 / 230 / 240 V	0,25	280 355 4115	1,36
	0,37		
	0,55		
	0,75	280 358 4115	2,8
	1,1	282 350 8114	
	1,5	282 351 8114	
	2,2	282 352 8114	
	3,7	282 253 4014	

Outline Drawing [mm]

0,25 – 0,75 kW			1,1 kW / 1,5 kW / 2,2kW			3,7 kW		
								
A	B	C	A	B	C	A	B	C
125	215	68	205	216	154	205	384	154

Spare Parts Control Boxes 50 Hz

P_N [kW]	Box Nb.	Relay-Kit	Qty.	Start Capacitor	Qty.	Run Capacitor	Qty.	Overload relay of main phases	Qty.	Overload relay of start phases	Qty.
		Pos. 1		Pos. 2		Pos. 3		Pos. 4		Pos. 5	
0,37	2803554115	305213912	1	305218957 48µF 220V	1	-----	0	*	1	-----	0
0,55	2803574115	305213912	1	305218906 65µF 220V	1	-----	0	*	1	-----	0
0,75	2803584115	305213912	1	305218918 95µF 220V	1	-----	0	*	1	-----	0
1,1	2823508114	305213912	1	305207913 115µF 220V	1	305 204 902 10µF 370V	1	305 215 914	1	-----	0
1,5	2823518114	305213912	1	305208915 208µF 220V	1	305 204 903 20µF 370V	1	305 215 902	1	305 215 906	1
2,2	2823528114	305213912	1	305208919 300µF 220V	1	305 203 902 35µF 370V	1	305 215 907	1	305 214 907	1
3,7	2822534014	305213912	1	305208915 208µF 220V	2	305 203 909 45µF 370V	1	305 214 902	1	305 215 902	1
						305 203 901 30µF 370V	1				



4" Corrosion protection in aggressive water

Application:

Wells with extremely high levels of chlorides and other elements in combination with high temperatures will aggressively attack and corrode nearly any type of metal, including stainless steel. Typical severe applications are geothermal wells and mine wells, and applications with low service times.

Material Specification: GG25

LT	HT
	
308 250 912	308 250 913

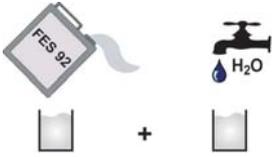
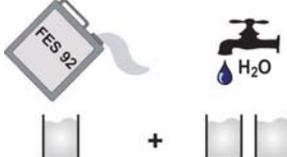
Motor Filling Liquid

Filling liquid 5 L FES92

4" Encapsulated	→	FES93	8" Encapsulated Standard	→	FES91
6" Encapsulated Standard	→	FES91	8" Encapsulated HighTemp75	→	FES92
6" Encapsulated High-Temp90	→	FES92	Rewindable Motors All	→	FES93



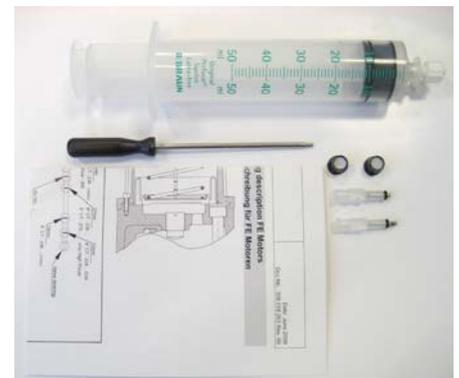
Part number:
308 353 941

FES91	FES92	FES93
		

Motor Filling Kit

This kit contains all necessary tools to check and replenish Franklin Electric submersible motors with FES 91, 92 or 93 filling liquid (fill solution/concentrate must be ordered separately).

Part number: 308 726 103

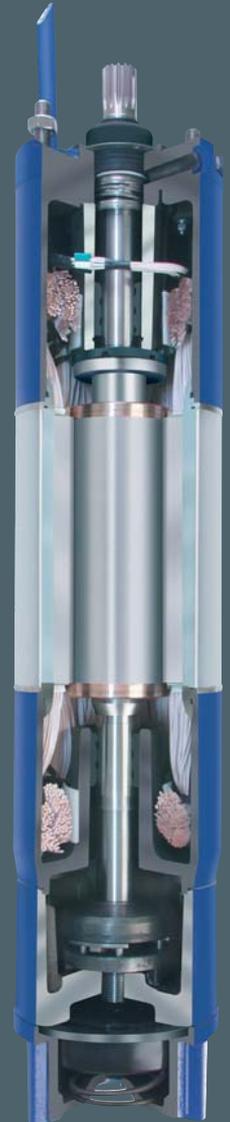


QUALITY IN THE WELL

POWERED BY

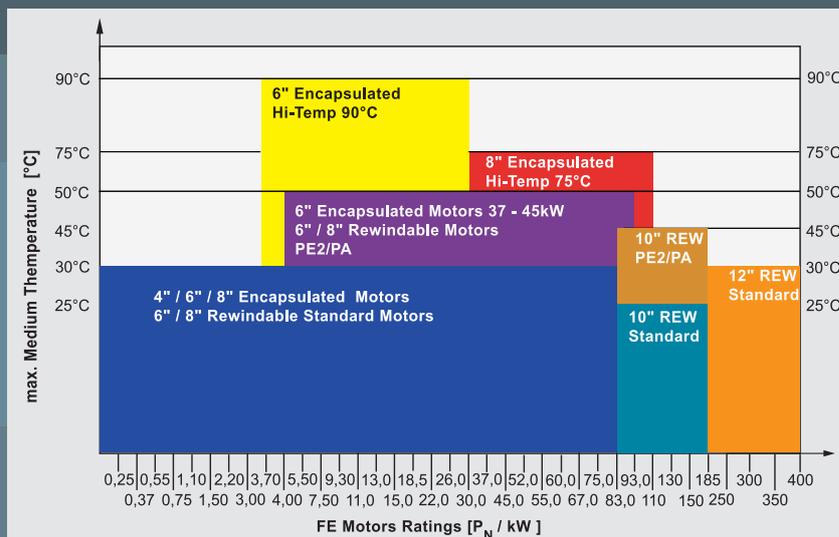


Franklin Electric



- GB** Franklin Electric is the world largest manufacturer of submersible motors. Our broad product line, quality manufacturing, on time delivery and outstanding service make us the number one choice of pumps manufacturers, distributors and installers worldwide. We invite you to visit our web site at: www.franklin-electric.eu
- D** Franklin Electric ist der größte Hersteller von Unterwassermotoren weltweit. Unsere weite Produktfamilie, die hohe Qualität der Fertigung, die gute Verfügbarkeit und der außerordentliche Service machen uns zur ersten Wahl für Pumpenhersteller, Händler und Installateure weltweit. Bitte besuchen sie unsere Internet Homepage unter: www.franklin-electric.eu
- F** Franklin Electric est le plus grand constructeur mondial de moteurs électriques immergés. Notre large gamme de produits, la qualité de nos fabrications, nos délais de livraison courts et notre support client hors du commun, font que nous sommes le choix préférentiel des fabricants de pompes, distributeurs et installateur dans le monde entier. Nous vous invitons à visiter notre site Internet: www.franklin-electric.eu
- E** Franklin Electric es la mayor fabricante mundial de motores eléctricos suimergibles. Nuestra amplia gama de productos, fabricación de calidad, entregas puntuales y excepcional servicio hace de nosotros la elección número uno entre los fabricantes de bombas, distribuidores e instaladores en todo el mundo. Le invitamos a visitar nuestra página web en: www.franklin-electric.eu

Franklin Electric Product Line





Franklin Electric

Franklin Electric Europa GmbH
Rudolf-Diesel-Strasse 20
D-54516 Wittlich/Germany
Tel.: +49 (0) 6571 / 105-0
Fax: +49 (0) 6571 / 105-520
e-mail: info@franklin-electric.de
www.franklin-electric.eu