

4" Super Stainless 1~ PSC

Submersible Motors

Quality in the Well

Franklin Electric 4" encapsulated submersible motors, built in ISO 9001 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.



Features:

- Hermetically sealed stator with 316SS shell. 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
- 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
- 304SS (316SS Stator) graded stainless steel as standard

Technical specification:

- 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 from nominal: -10% / +6%
- Protection requirements: EN 60947-4-1

Options:

- Various cable lengths
- PSC Motor sets available (see Page 12/13) including control box, lead and splice kit
- Alternative material executions

4" PSC Motor Model numbers 50 Hz

P _N [kW]	U _N [V]	304SS		
		Standard Motors (Single pack, with Lead)*	Standard Motors (40 motors packing unit)	Pollution Recovery Motors (Single pack, with Lead)*
0,25	220-230	254 803 6700L	254 803 6700	254 803 6715L
	230-240	254 813 6700L	254 813 6700	254 813 6715L
0,37	220-230	254 805 6700L	254 805 6700	254 805 6715L
	230-240	254 815 6700L	254 815 6700	254 815 6715L
0,55	220-230	254 807 6700L	254 807 6700	254 807 6715L
	230-240	254 817 6700L	254 817 6700	254 817 6715L
0,75	220-230	254 808 6700L	254 808 6700	254 808 6715L
	230-240	254 818 6700L	254 818 6700	254 818 6715L
1,10	220-230	254 809 6700L	254 809 6700	254 809 6715L
	230-240	254 819 6700L	254 819 6700	254 819 6715L
1,50	220-230	254 810 6700L	254 810 6700	254 810 6715L
	230-240	254 820 6700L	254 820 6700	254 820 6715L
2,20	220-230	254 811 6700L	254 811 6700	254 811 6715L
	230-240	254 821 6700L	254 821 6700	254 821 6715L

* Lead lengths Motors "L" : up to 1,5kW with 1,5m preassembled cable, starting at 2,2 kW with 2,5m pre-mounted cable

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	4000	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	4000	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	4000	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	4000	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	4000	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	4000	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	

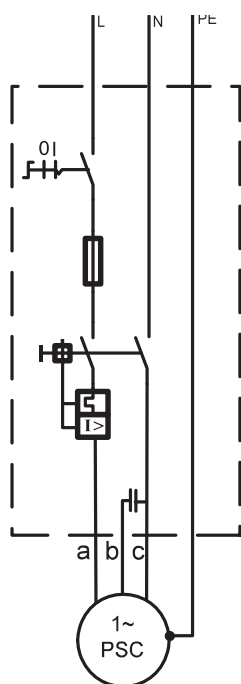
230V - 240V version

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	4000	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	4000	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	4000	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	4000	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	4000	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	4000	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	

PSC Winding resistance 50 Hz

P_N [kW]	U_N [V]	Stator-Ref. # 304SS	Main phase [Ohm]	Start phase [Ohm]
0,25	220 - 230	326 738 942	8,2 - 10,0	31,1 - 38,1
	230 - 240	326 800 942	8,9 - 10,9	26,7 - 32,6
0,37	220 - 230	326 739 942	6,7 - 8,1	21,7 - 26,5
	230 - 240	326 801 942	7,2 - 8,8	20,8 - 25,4
0,55	220 - 230	326 740 942	4,4 - 5,4	13,6 - 16,6
	230 - 240	326 802 942	4,8 - 5,8	13,1 - 16,0
0,75	220 - 230	326 741 942	3,3 - 4,1	8,1 - 9,9
	230 - 240	326 803 942	3,7 - 4,6	7,7 - 9,4
1,1	220 - 230	326 742 942	2,3 - 2,8	6,8 - 8,3
	230 - 240	326 804 942	2,5 - 3,0	6,5 - 7,9
1,5	220 - 230	326 743 942	1,8 - 2,2	4,7 - 5,7
	230 - 240	326 805 942	1,9 - 2,4	4,4 - 5,4
2,2	220 - 230	326 744 942	1,2 - 1,5	3,2 - 3,9
	230 - 240	326 806 942	1,3 - 1,6	3,0 - 3,6

Electrical connection PSC Motors



a	b	c	PE
black	brown	grey	yellow/green

Motor Leads*

PSC Motor- VDE / ACS/ KTW Approved Flat Leads

\emptyset [mm ²]	B [mm]	H [mm]
4X1,5	14,6 ± 0,3	5,1 ± 0,3

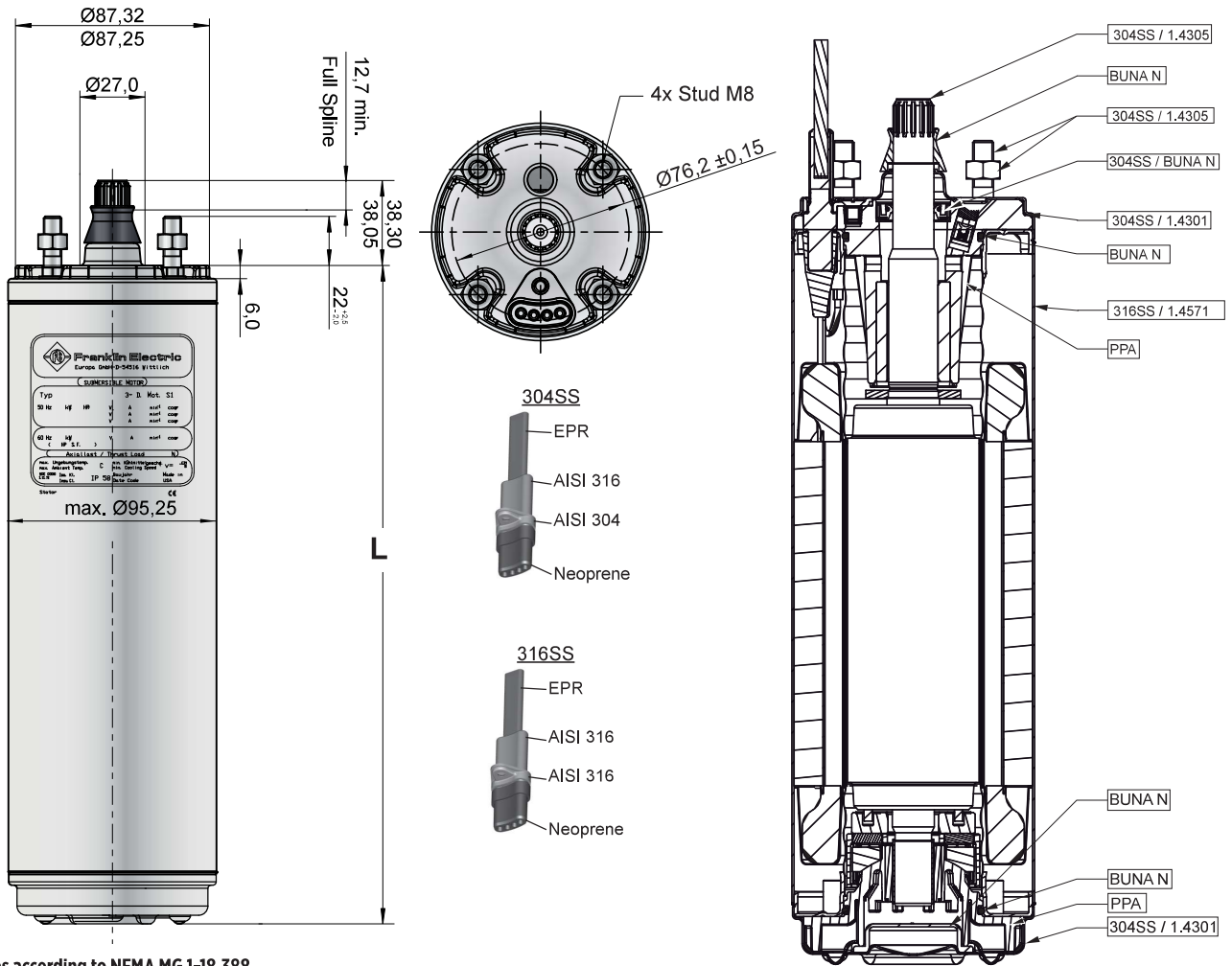
L [m]	304 SS / 316 SS
1,5	310 178 501
2,5	310 178 502
5	310 178 505
10	310 178 510
15	310 178 515
20	310 178 520
30	310 178 530
40	310 178 540
50	310 178 550

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

PSC Motor- Pollution Recovery Round Leads

\emptyset [mm ²]	$\emptyset D$ [mm]
4X1,5	9,8 ± 0,3

L [m]	304SS / 316 SS
1,5	310 318 501
2,5	310 318 502
5	310 318 505
10	310 318 510
15	310 318 515
20	310 318 520
30	310 318 530
40	310 318 540
50	310 318 550

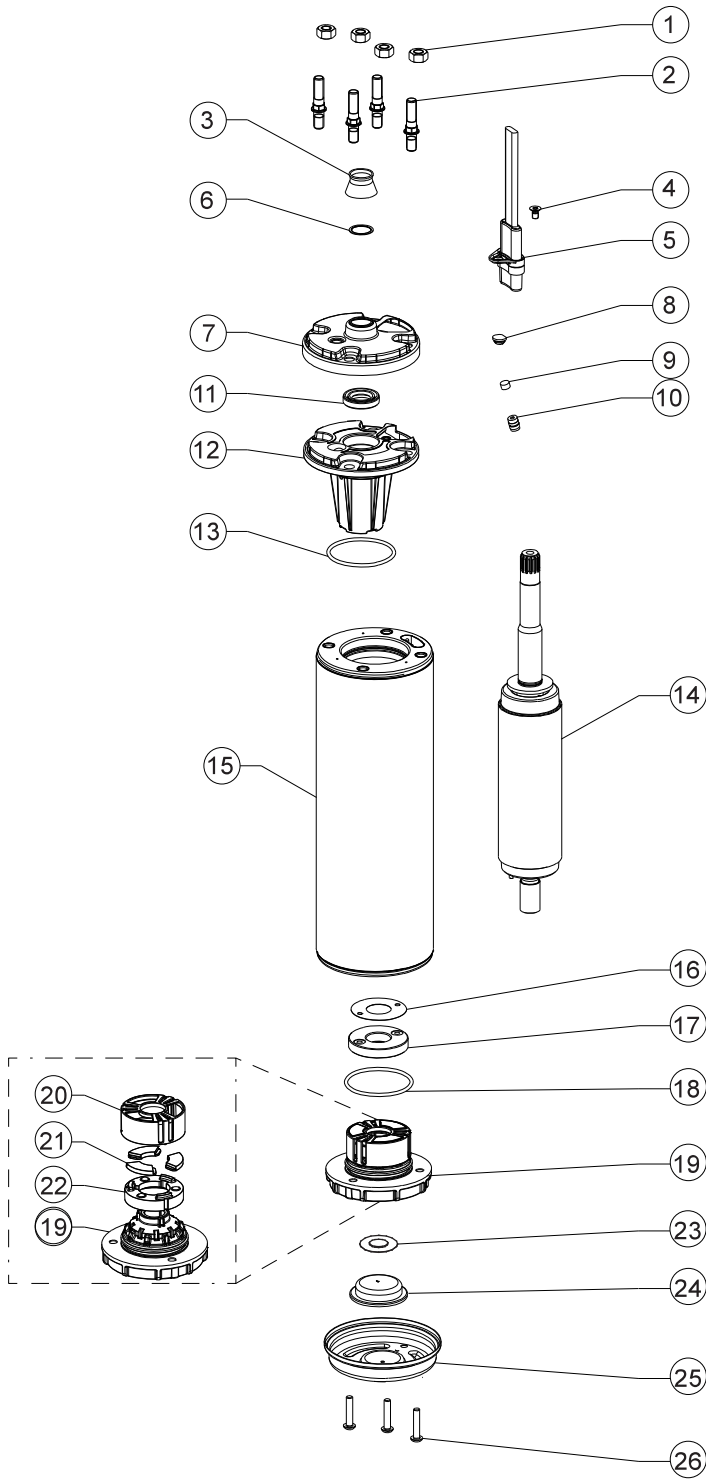
Outline Drawing PSC Motors
Material Description


Tolerances according to NEMA MG 1-18.388

4" PSC Motors Lengths and Weights / Packing sizes

P_N		L [mm]	M [kg]	Motor with Lead in single pack		Motor Package size (40 motors per packing unit)	
				[mm]	[kg]	[mm]	[kg]
0,25	0,33	237,2	6,55	400 x 100 x 110	7,25	800 x 500 x 870	262,0
0,37	0,50	251,1	7,20	400 x 100 x 110	7,9	800 x 500 x 870	306,8
0,55	0,75	276,2	8,35	530 x 100 x 110	9,05	800 x 500 x 870	352,8
0,75	1,00	297,2	9,30	530 x 100 x 110	10,0	800 x 500 x 870	390,8
1,10	1,50	321,2	10,45	530 x 100 x 110	11,15	800 x 500 x 870	436,8
1,50	2,0	353,2	11,90	796 x 100 x 110	12,6	800 x 500 x 870	494,8
2,20	3,0	451,2	16,65	796 x 100 x 110	17,35	800 x 500 x 870	684,8

4" PSC Motor Part Description Design start: 07.2016



Pos.	Part Description	Qty.	Part No.
1	Nut M8	4	Kit C
2	Stud M8	4	Kit C
3	Protector, Spline	1	Kit B
4	Screw (Motor lead)	1	Kit C
5	Motor lead	1	see page 11
6	Washer	1	Kit B
7	Top Endbell, Cover	1	Kit
8	Plug	1	Kit B
9	Filter	1	Kit B
10	Valve	1	Kit
11	Shaft Seal	1	Kit B
12	Top Endbell	1	Kit
13	O- Ring	1	Kit B
14	Rotor	1	see page 9
15	Stator	1	see page 9
16	Level washer	1	Kit A
17	Thrust disk assy	1	Kit A
18	O- Ring	1	Kit B
19	Bottom Endbell	1	A1
20	Bearing cage	1	Kit A
21	Segments	3	Kit A
22	Rocking Disk	1	Kit A
23	Diaphragm washer	1	Kit B1
24	Diaphragm	1	Kit B
25	Bottom Endbell Cover	1	156 414 201
26	Screw, Cover	3	Kit C

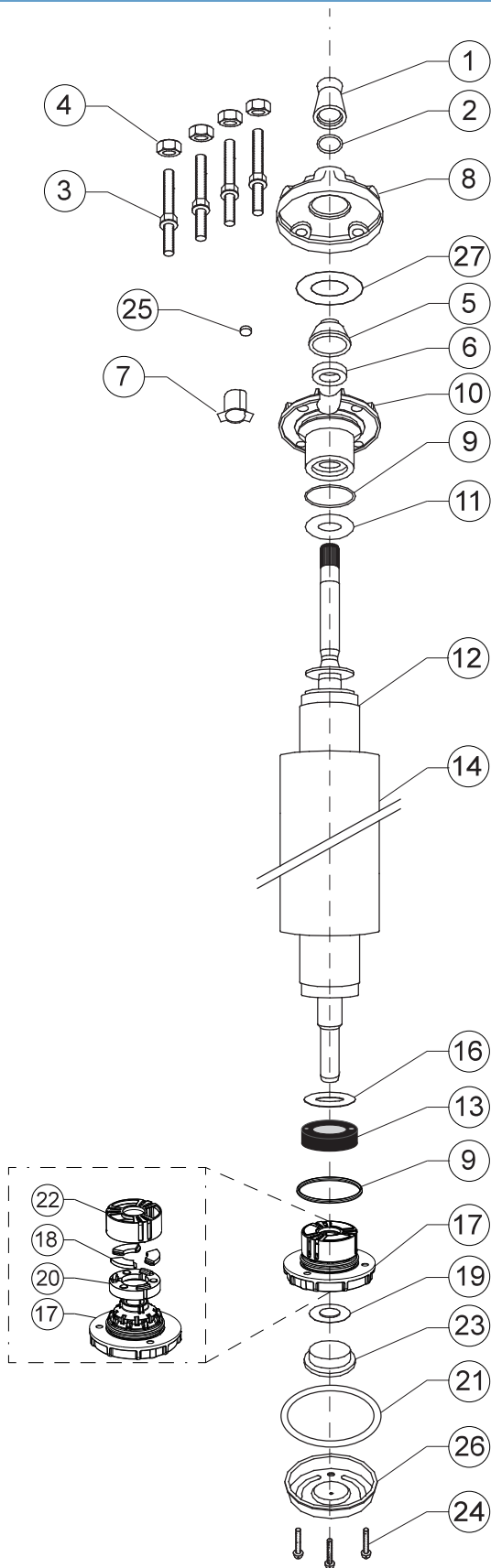
4" PSC Motor Spare Part Kits Design start: 07.2016

P_N [kW]	0,25 - 2,2kW		
Kit A1	End bell, upper 304SS (Pos. 7 - 13)	incl. Pos.: 7 - 13	308 462 901
Kit A2	Endbell lower incl. Thrust Bearing Kit 4000N	incl. Pos.: 16 - 22	308 464 911
Kit B1	Seal Kit 304SS	incl. Pos.: 3, 6, 8, 9, 11, 13, 18, 23, 24	308 650 201
Kit B2	Seal Kit Pollution Recovery	incl. Pos.: 3, 6, 8, 9, 11, 13, 18, 23, 24	308 650 202
Kit C	Fastener Kit 304SS	incl. Pos.: 1, 2, 4, 26	308 656 201

PSC Replacement Stator (316SS) and Rotor 50 Hz

P_N [kW]	Volt	Motor Model No.	Stator	Rotor
0,25	220-230	254 803 6700 / L	305 491 701	178 165 951K
	230-240	254 813 6700 / L	305 491 721	
0,37	220-230	254 805 6700 / L	305 491 702	178 165 952K
	230-240	254 815 6700 / L	305 491 722	
0,55	220-230	254 807 6700 / L	305 491 703	178 165 953K
	230-240	254 817 6700 / L	305 491 723	
0,75	220-230	254 808 6700 / L	305 491 704	178 165 954K
	230-240	254 818 6700 / L	305 491 724	
1,10	220-230	254 809 6700 / L	305 491 705	178 165 955K
	230-240	254 819 6700 / L	305 491 725	
1,50	220-230	254 810 6700 / L	305 491 706	178 165 956K
	230-240	254 820 6700 / L	305 491 726	
2,20	220-230	254 811 6700 / L	305 491 707	178 165 957K
	230-240	254 821 6700 / L	305 491 727	

4" PSC Standard Motor* Part Description Design up to: 06.2016



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 11
13	Thrust disk assy	1	Kit A
14	Stator	1	page 9
15	Leveling Disk (only 1500N)	1	Kit A
16	Level washer	1	Kit A
17	Bottom Endbell	1	Kit
18	Segments	3	Kit A
19	Diaphragm washer	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, Cover	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" PSC Standard Motor* Spare Part Kit's Design up to: 06.2016

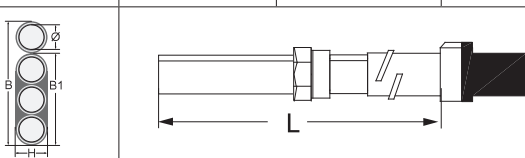
P_N [kW]	Thrust Bearing	End bell, upper (Pos. 5 - 10, 27)	End bell, lower (Pos. 17)	Up thrust washer (Pos. 11)
0,25 - 0,55	Kit A1	177 231 904	Kit A1	150 954 102
0,75 - 1,5		177 233 904		151 093 105
2,2		(0,75 - 2,2kW)		
Kit A1	End bell (lower) incl. Thrust bearing Kit 3000N/4000N		inkl. Pos.: 9, 13, 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	

VDE / ACS/ KTW Approved Standard Motor Leads*

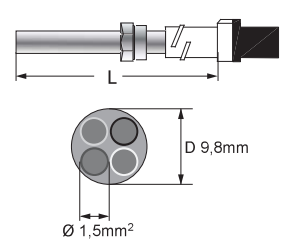
\varnothing [mm ²]	B (mm)	B1 (mm)	H (mm)
3X1,5+1G1,5	16,8 ± 0,3	10,7 ± 0,3	5,0 ± 0,3



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

Pollution Recovery Motor Leads
Model number (only 316SS)

L [m]	Model number
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.