

4" Super Stainless 3-wire

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 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.



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 Polyurethane (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
- 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

Optional:

- Motors in full 316SS
- Various cable lengths
- Alternative material executions

4" 3- wire Motor Numbers 50Hz

P _N [kW]	U _N [V]	Digit 1-6	Digit 7-10							
			304SS (Single pack, with Lead)*	304SS (40 motors packing unit)	304SS Pollution Recovery (Single pack, with Lead)*	304SS Pollution Recovery (40 motors packing unit)	316SS (Single pack, with Lead)*	316SS (40 motors packing unit)	316SS Pollution Recovery (Single pack, with Lead)*	316SS Pollution Recovery (40 motors packing unit)
0,25	220 / 230	214 753	6700L	6700	6715L	6715	6800L	6800	6815L	6815
0,37	220 / 230	214 755	6700L	6700	6715L	6715	6800L	6800	6815L	6815
0,55	220 / 230	214 757	6700L	6700	6715L	6715	6800L	6800	6815L	6815
0,75	220 / 230	214 758	6700L	6700	6715L	6715	6800L	6800	6815L	6815
1,10	220 / 230	224 750	6700L	6700	6715L	6715	6800L	6800	6815L	6815
1,50	220 / 230	224 751	6700L	6700	6715L	6715	6800L	6800	6815L	6815
2,20	220 / 230	224 752	6700L	6700	6715L	6715	6800L	6800	6815L	6815

* Lead lengths Motors "L" : up to 1.5kW with 1.5m preassembled cable, starting at 2.2 kW with 2.5m pre-mounted cable

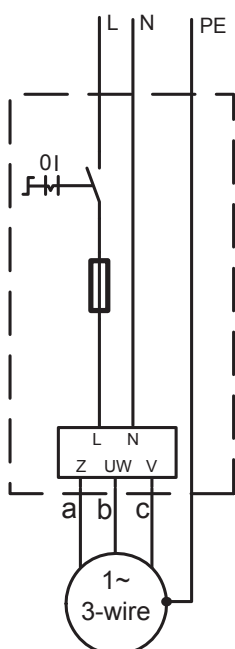
4" 3-Wire Performance Data 50 Hz

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	4000	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	4000	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	4000	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	4000	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	4000	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	4000	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

Standard Windings Resistance 50 Hz 304SS / 316SS Motors

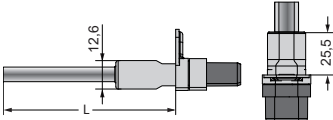
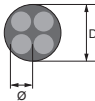
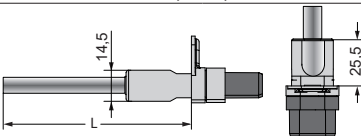
P_N [kW]	U_N [V]	Stator Ref.	Main phase Ohm	Start phase Ohm
0,25	220 / 230	326 807 942 / 952	10,6 - 13,0	38,3 - 46,8
0,37	220 / 230	326 808 942 / 952	7,3 - 8,9	23,9 - 29,3
0,55	220 / 230	326 809 942 / 952	4,8 - 5,8	18,5 - 22,7
0,75	220 / 230	326 810 942 / 952	3,5 - 4,3	14,8 - 18,0
1,10	220 / 230	326 811 942 / 952	2,6 - 3,2	6,9 - 8,4
1,50	220 / 230	326 812 942 / 952	2,0 - 2,4	5,3 - 6,4
2,20	220 / 230	326 813 942 / 952	1,3 - 1,6	3,8 - 4,6

Electrical connection 3-wire Motors



a	b	c	PE
black	brown	grey	yellow/green

Motor Leads*

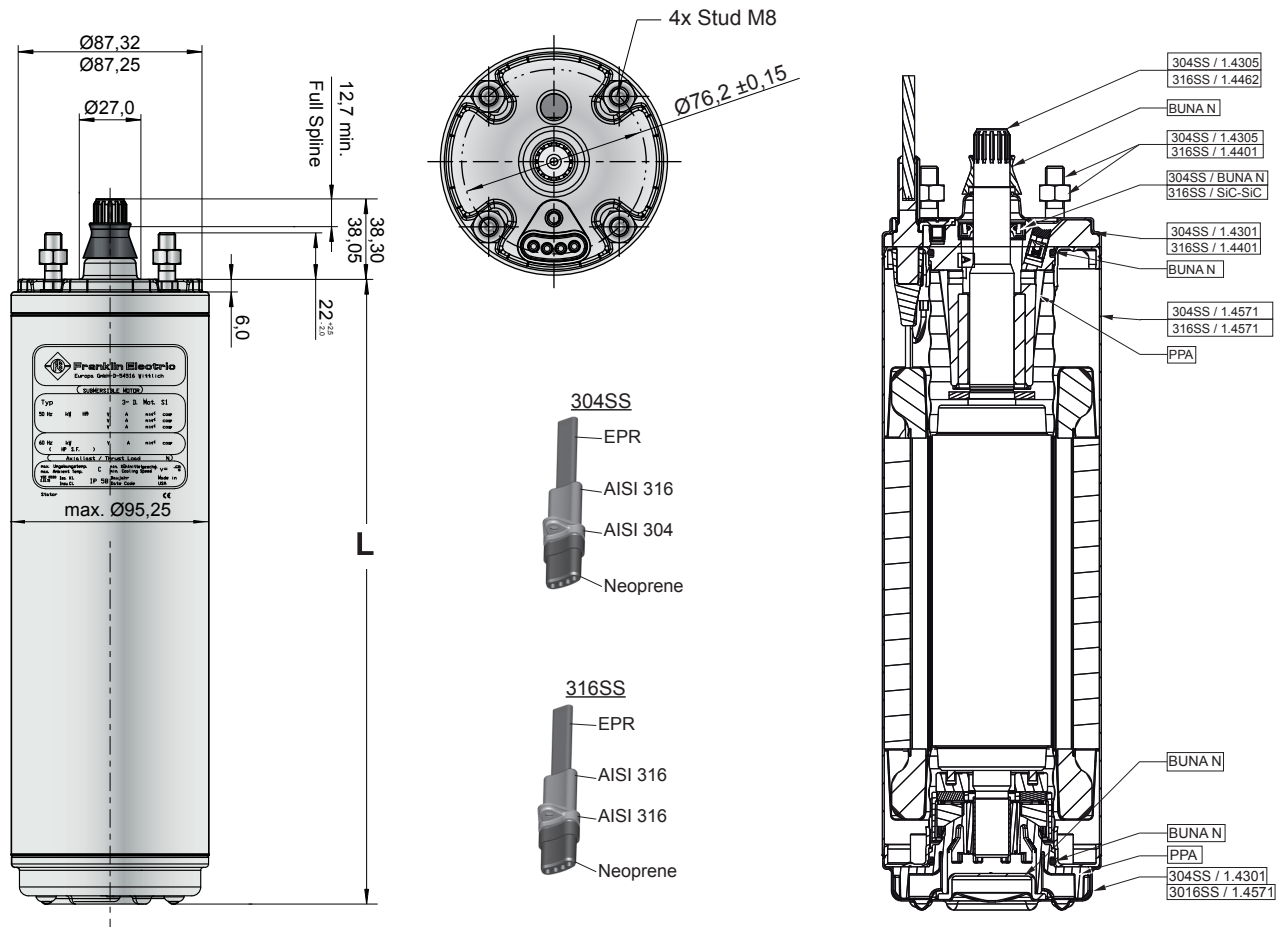
Ø [mm²]	B [mm]	H [mm]
4X1,5	14,6 ± 0,3	5,1 ± 0,3
		
L [m]	3 wireMotor- Flat Leads 304SS / 316 SS	
1,5	310 178 501	
2,5	310 178 502	
5	310 178 505	
10	310 178 510	
15	310 178 515	
20	310 178 520	
30	310 178 530	
40	310 178 540	
50	310 178 550	
Ø [mm²]	Ø D (mm)	
4X1,5	9,8 ± 0,3	
		
L [m]	3 wire Motor- Pollution Recovery Round Leads 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	

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

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Standard 0,25 - 3,7kW

Material Description

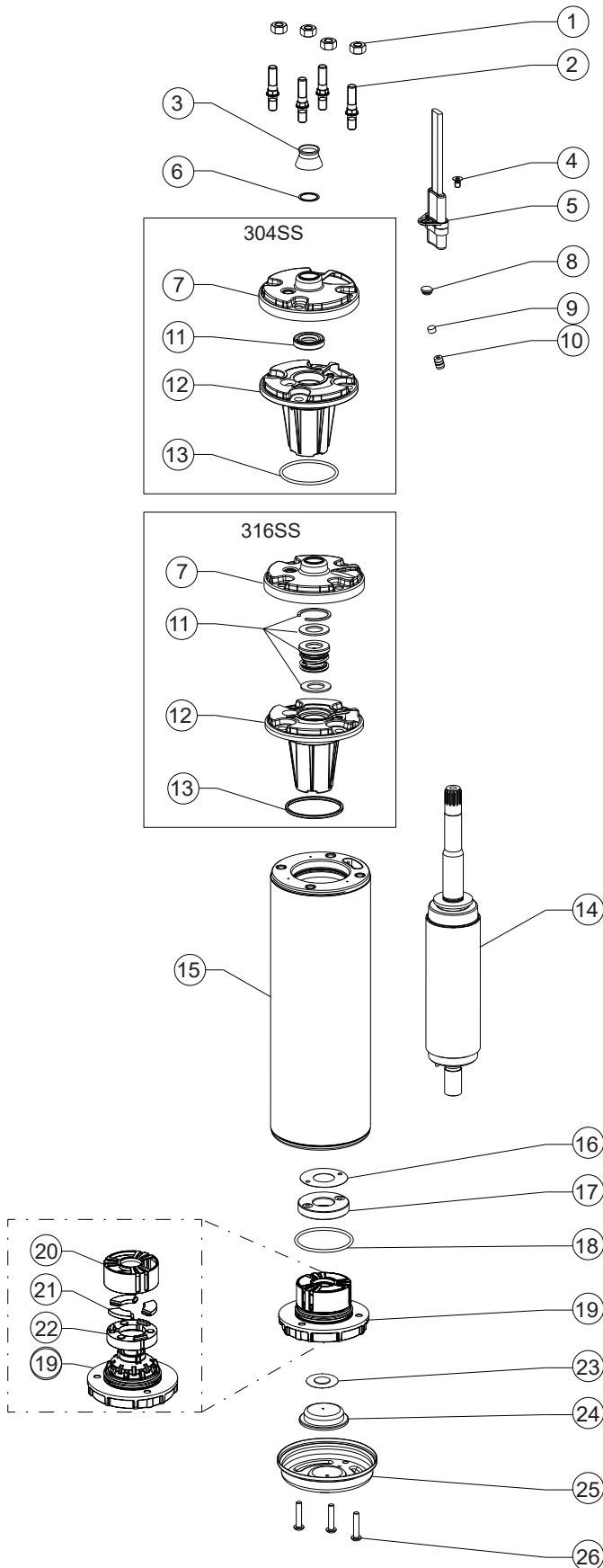


Tolerances according to NEMA MG 1-18.388

4" 3-wire 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)	
[kW]	[HP]			[mm]	[kg]	[mm]	[kg]
0,25	0,33	237,2	5,58	400 x 100 x 110	6,3	800 x 500 x 870	242
0,37	0,50	251,1	6,40	400 x 100 x 110	7,2	800 x 500 x 870	274,8
0,55	0,75	271,2	7,25	530 x 100 x 110	8,0	800 x 500 x 870	308,8
0,75	1,00	297,2	8,55	530 x 100 x 110	9,3	800 x 500 x 870	360,8
1,10	1,50	353,2	11,05	796 x 100 x 110	11,8	800 x 500 x 870	460,8
1,50	2,0	364,2	11,5	796 x 100 x 110	12,3	800 x 500 x 870	478,8
2,20	3,0	451,2	16,65	796 x 100 x 110	17,35	800 x 500 x 870	684,8

4" 3- wire Motors Parts 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 22
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 25
15	Stator	1	see page 25
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 B
24	Diaphragm	1	Kit B
25	Bottom Endbell Cover 304SS	1	156 414 201
	Bottom Endbell Cover 316SS		156 414 301
26	Screw, Cover	3	Kit C

4" 3- wire Spare Parts 304SS and 316SS 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
	End bell, upper 316SS (Pos. 7 - 13)		308 462 951
Kit A2	Endbell lower incl. Thrust Bearing Kit 4000N	incl. Pos.: 16 - 22	308 464 911
Kit B	Seal Kit 304SS	incl. Pos.: 3, 6, 8, 9, 11, 13, 18, 23, 24	308 650 201
	Seal Kit 304SS Pollution Recovery		308 650 251
	Seal Kit 316SS		308 650 251
	Seal Kit 316SS Pollution Recovery		308 650 252
Kit C	Fastener Kit 304SS	incl. Pos.: 1, 2, 4, 26	308 656 201
	Fastener Kit 316SS		308 656 251

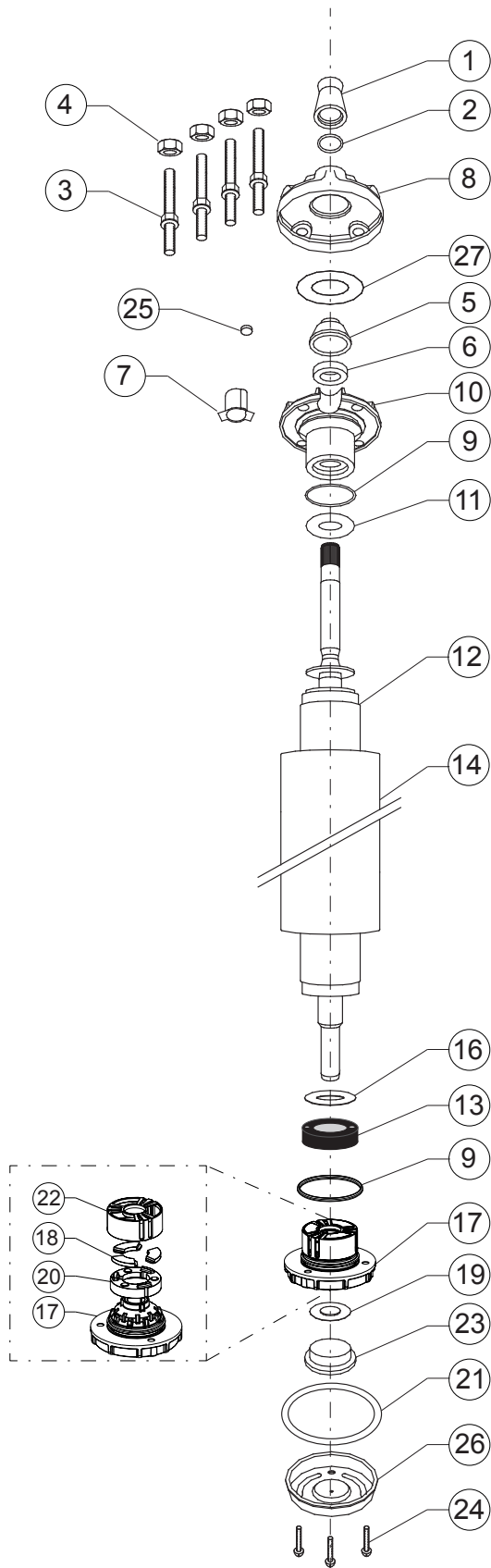
Replacement 304SS Motors 3- wire Stators and Rotors 50 Hz Design start 07.2016

P_N [kW]	U_N [V]	Motor Nb.	Stator	Rotor
0,25	220 / 230	214 753 6700/6715	305 491 741	178 164 901K
0,37	220 / 230	214 755 6700/ 6715	305 491 742	178 164 902K
0,55	220 / 230	214 757 6700/ 6715	305 491 743	178 164 903K
0,75	220 / 230	214 758 6700/ 6715	305 491 744	178 164 905K
1,10	220 / 230	224 750 6700/ 6715	305 491 745	178 164 908K
1,50	220 / 230	224 751 6700/ 6715	305 491 746	178 164 909K
2,20	220 / 230	224 752 6700/ 6715	305 491 747	178 164 911K

Replacement 316SS Motors 3- wire Stators and Rotors 50 Hz Design start 07.2016

P_N [kW]	U_N [V]	Motor Nb.	Stator	Rotor
0,25	220 / 230	214 753 6800/6815	305 491 741	178 164 951K
0,37	220 / 230	214 755 6800/6815	305 491 742	178 164 952K
0,55	220 / 230	214 757 6800/6815	305 491 743	178 164 953K
0,75	220 / 230	214 758 6800/6815	305 491 744	178 164 955K
1,10	220 / 230	224 750 6800/6815	305 491 745	178 164 958K
1,50	220 / 230	224 751 6800/6815	305 491 746	178 164 959K
2,20	220 / 230	224 752 6800/6815	305 491 747	178 164 961K

4" 3- wire Motors* 304SS Parts Description Design up to 06.2016



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 27
13	Thrust disk assy	1	Kit A
14	Stator	1	page 27
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, 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

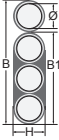
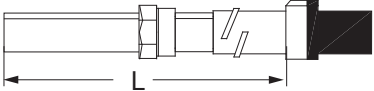
4" 3- wire Spare Parts 304SS Design up to 06.2016

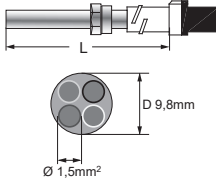
P _N [kW]	Thrust Bearing	End bell upper Pos. 5 - 10, 27	End bell, Lower Pos. 17	Upthrust washer Pos. 11
0,25 - 0,55	Kit A1	177 231 904	Kit A1	150 954 102
0,75		177 233 904		151 093 105
1,10 - 1,5				
2,2		177 233 904		
Kit 1500N 0,25 - 0,55kW up to 07.2008	Thrust bearing Kit		incl. Pos.: 13, 15, 16, 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 Stators and Rotors 50 Hz Design up to 06.2016

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

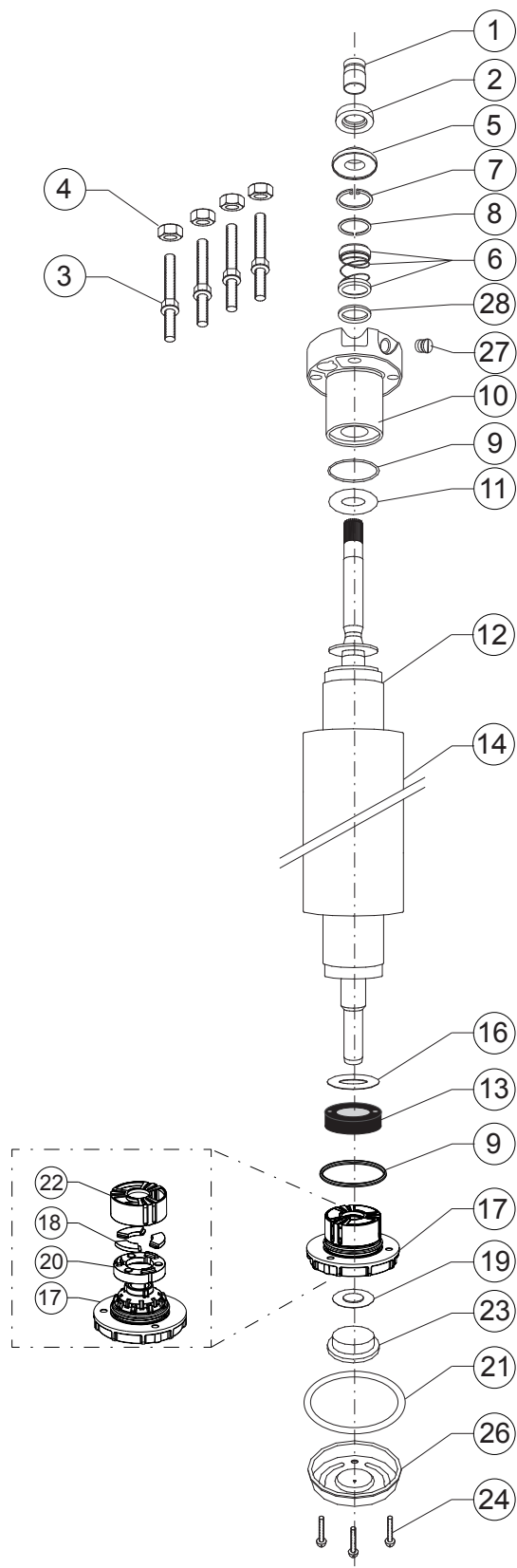
VDE / ACS / KTW Approved Leads* Design up to 06.2016

Ø [mm ²]	B [mm]	B1 [mm]	H [mm]	L [m]	Part Numbers	
					Standard	304 SS
3X1,5+1G1,5	16,8 ± 0,3	10,7 ± 0,3	5,0 ± 0,3	1,5	310 113 001	310 113 401
				2,5	310 113 002	310 113 402
				5	310 113 005	310 113 405
				10	310 113 010	310 113 410
				15	310 113 015	310 113 415
				20	310 113 020	310 113 420
				30	310 113 030	310 113 430
				40	310 113 040	310 113 440
				50	310 113 050	310 113 450

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.

4" 3- wire Motors* 316SS Parts Description Design up to 06.2016



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 29
13	Thrust disk assy	1	Kit A
14	Stator	1	page 29
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, Seal	3	Kit D
25	Valve		Incl. Pos.: 10
26	Bottom Endbell Cover	1	156 414 102
27	Sealing Screw	1	308 279 903
28	Washer	1	308 747 201

* Spare Parts for Brackish Water Motors on Request

4" 3- wire Spare Parts 316SS Design up to 06.2016

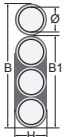
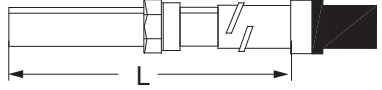
P _N [kW]	Thrust Bearing	End bell, upper (Pos. 10)	End bell, lower (Pos. 17)	Upthrust washer (Pos. 11)
0,25 - 0,55	Kit A1	177 390 955	Kit A1	308 268 104
0,75				
1,1 - 1,5				
2,2 - 3,0				
Kit 1500N up to 07.2008	Thrust bearing Kit		inkl. Pos.: 13, 15, 16, 18, 20	308 652 101
Kit A1	End bell (lower) 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

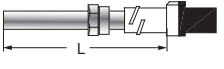
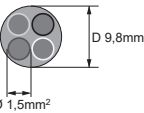
VDE / ACS / KTW Approved Leads* Design up to 06.2016

Ø [mm²]	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 316SS
1,5	310 113 501
2,5	310 113 502
5	310 113 505
10	310 113 510
15	310 113 515
20	310 113 520
30	310 113 530
40	310 113 540
50	310 113 550

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.