

4"

Super Stainless 3 Phase High Thrust

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 three phase motor offers maximum life and highest efficiency under various load conditions in combination with a 6500 N thrust bearing. It should ideally be combined to the Franklin Electric SubStart/SubTronic3P control boxes for maximum system performance, protection and warranty.

Product features

- 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
- 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 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.

Pollution Recovery Motor-version Specifications

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

Technical Specification

- 2,2 – 9,3kW
- 4" NEMA flange
- Thrust capacity: 6500 N
- 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

- Motors in full 316SS with SiC seal
- Motors with factory- installed lead in Single Packing
- Built-in lightning arrestor
- Various cable lengths
- Special voltages on request
- Alternative material executions



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		3529L		

* Lead lengths Motors "L" : with 2.5m pre-mounted cable

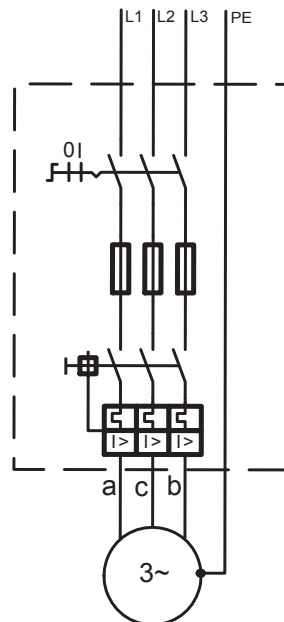
3-Phase High Thrust 50 Hz Performance Data

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

Winding Resistances 50Hz

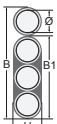
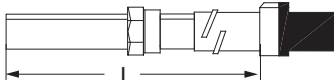
P_N [kW]	U_N [V]	Stator Ref.	U - V / Ohm [Ω]
2,2	220 - 230	326 780 902	2,5 - 3,0
	380 - 400 - 415	326 715 902	7,1 - 8,6
	500	326 792 902	11,9 - 14,5
3,0	220 - 230	326 781 902	1,5 - 1,9
	380 - 400 - 415	326 716 902	4,7 - 5,8
	500	326 793 902	8,4 - 10,2
3,7	220 - 230	326 784 902	1,2 - 1,5
	380 - 400 - 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	326 995 920	1,5 - 1,7

Electrical Connection DOL

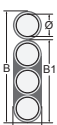
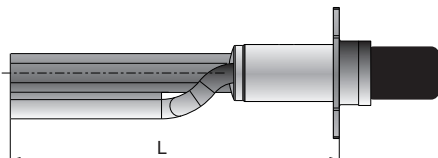
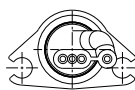


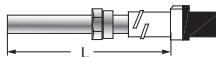
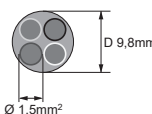
a	b	c	PE
black	brown	grey	yellow/green

Motor cable* 2,2 - 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

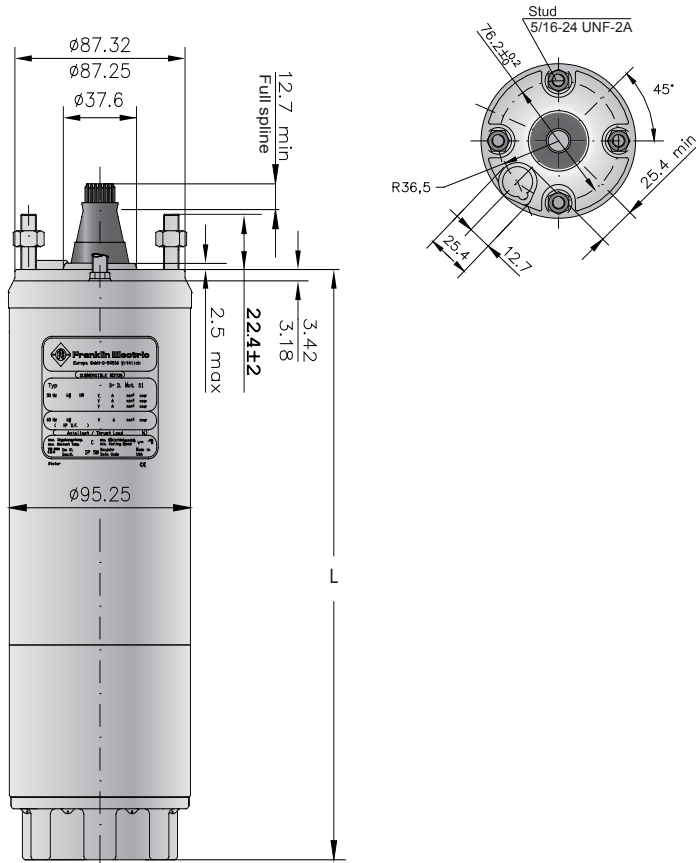
$\emptyset$ [mm ²]	B [mm]	B1 [mm]	H [mm]
3X1,5+1G1,5	16,8 ± 0,3	10,7 ± 0,3	5,0 ± 0,3
	 		
L [m]	Part number		
2,5	310 116 502K		
5	310 116 505K		
10	310 116 510K		
20	310 116 520K		
30	310 116 530K		

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	

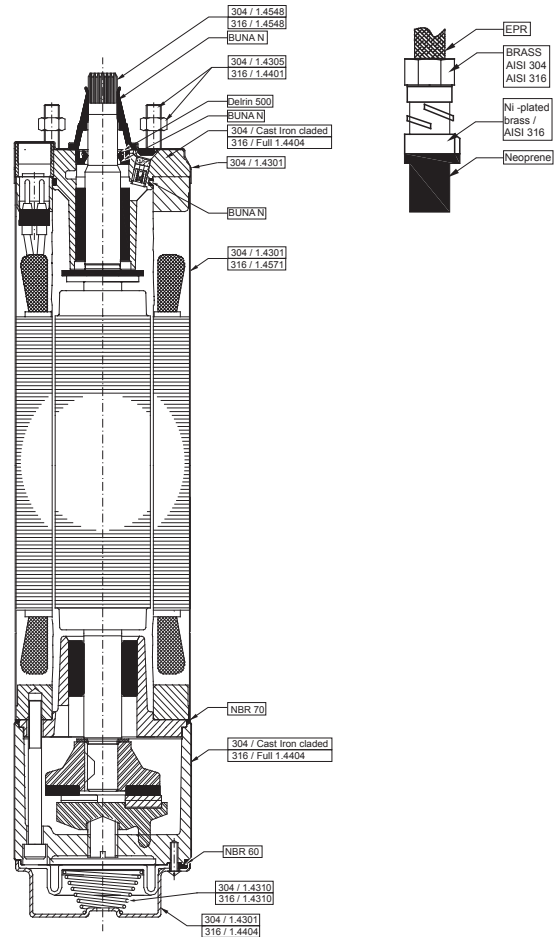
*Cables are designed for submerged operation. For air operation please consult Franklin Electric.

4" 3- Motor Outlines 2,2 up to 7,5kW

High Thrust 2,2kW - 7,5kW



Material Description

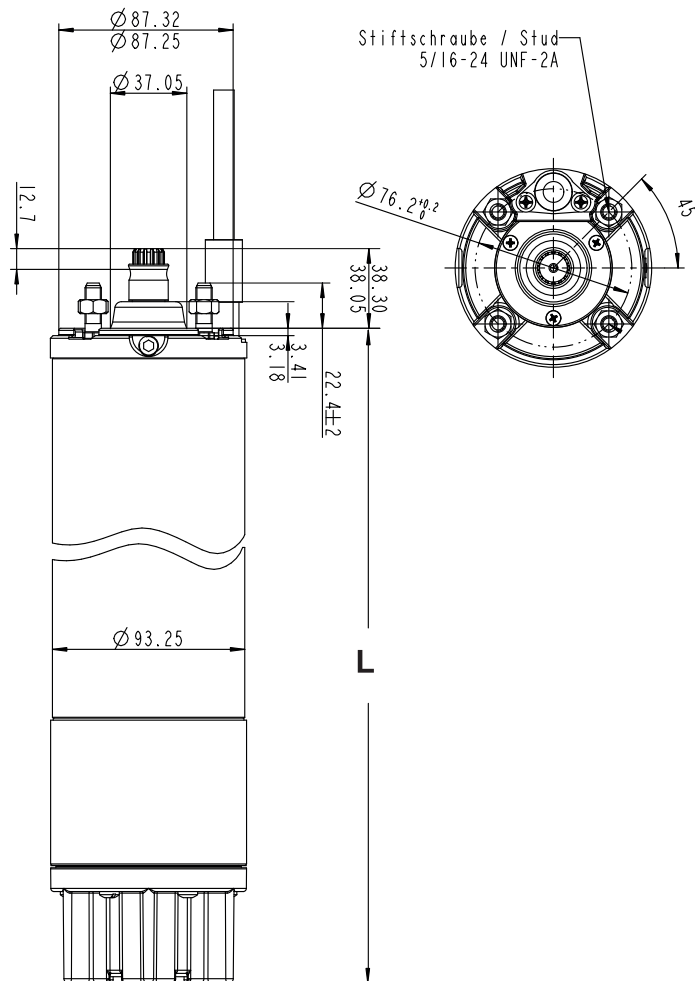


Tolerances according to NEMA MG 1-18.388

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" 3~ Motor Outlines 9,3kW



Tolerances according to NEMA MG 1-18.388

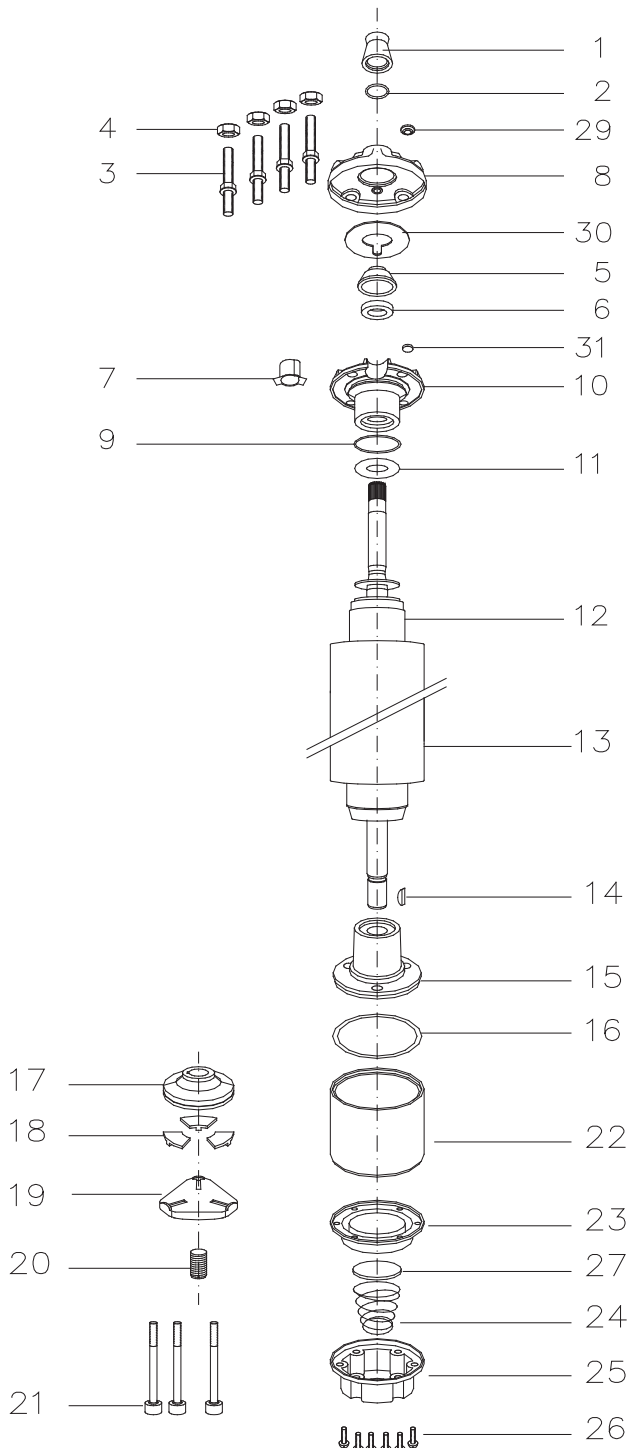
Motors Lengths & Weights

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" 3- phase Standard Motor* High Thrust 2,2 - 7,5kW Motor Parts 304SS



* Spare Parts for Brackish Water Motors on Request

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 60
13	Stator	1	page 60
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

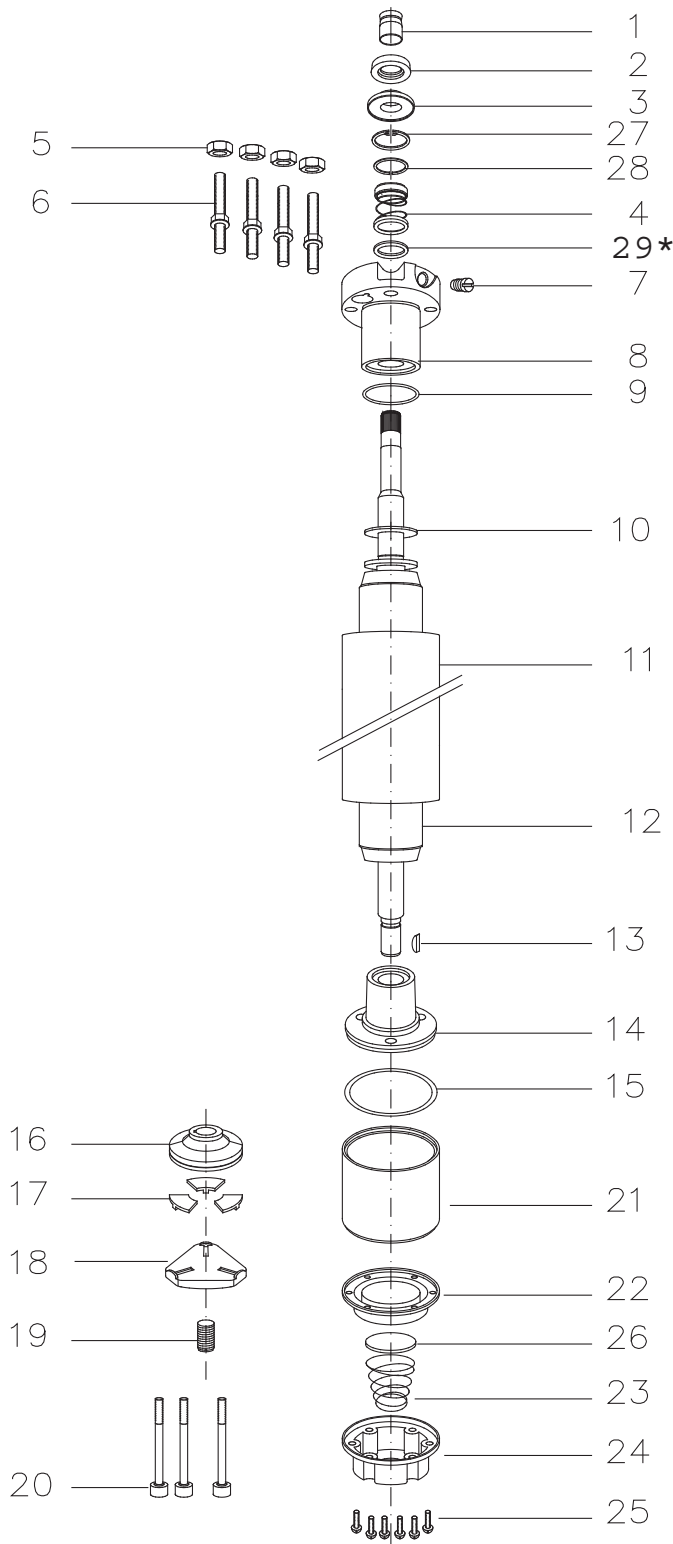
4" 3- phase Spare Part Kits 304SS High Thrust

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				
5,5		Kit D2	177 379 901	308 317 901
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 3421/3422	305 491 361	178 163 903K
	380, 400, 415	234 726 3421/3422	305 491 381	
	500	234 796 3421/3422	305 491 401	
3,0	220, 230	234 766 3421/3422	305 491 362	178 125 903K
	380, 400, 415	234 764 3421/3422	305 491 382	
	500	234 768 3421/3422	305 491 402	
3,7	220, 230	234 757 3421/3422	305 491 363	178 126 903K
	380, 400, 415	234 727 3421/3422	305 491 383	
	500	234 797 3421/3422	305 491 403	
4,0	220, 230	234 767 3421/3422	305 491 364	178 127 903K
	380, 400, 415	234 765 3421/3422	305 491 384	
	500	234 769 3421/3422	305 491 404	
5,5	220, 230	234 758 3421/3422	305 491 365	178 133 903K
	380, 400, 415	234 728 3421/3422	305 491 385	
	500	234 798 3421/3422	305 491 405	
7,5	380, 400, 415	234 729 3421/3422	305 491 386	178 134 903K
	500	234 799 3421/3422	305 491 406	

4" 3- phase Standard Motor* High Thrust 2,2 - 7,5kW 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 62
12	Rotor	1	page 62
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	Cup spring, Diaphragm	1	151 448 101
25	Ring	1	Kit B
26	Retain Ring	1	Kit B
27	Washer	1	308 747 201
28			
29*			

* only for 2,2 - 3kW

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

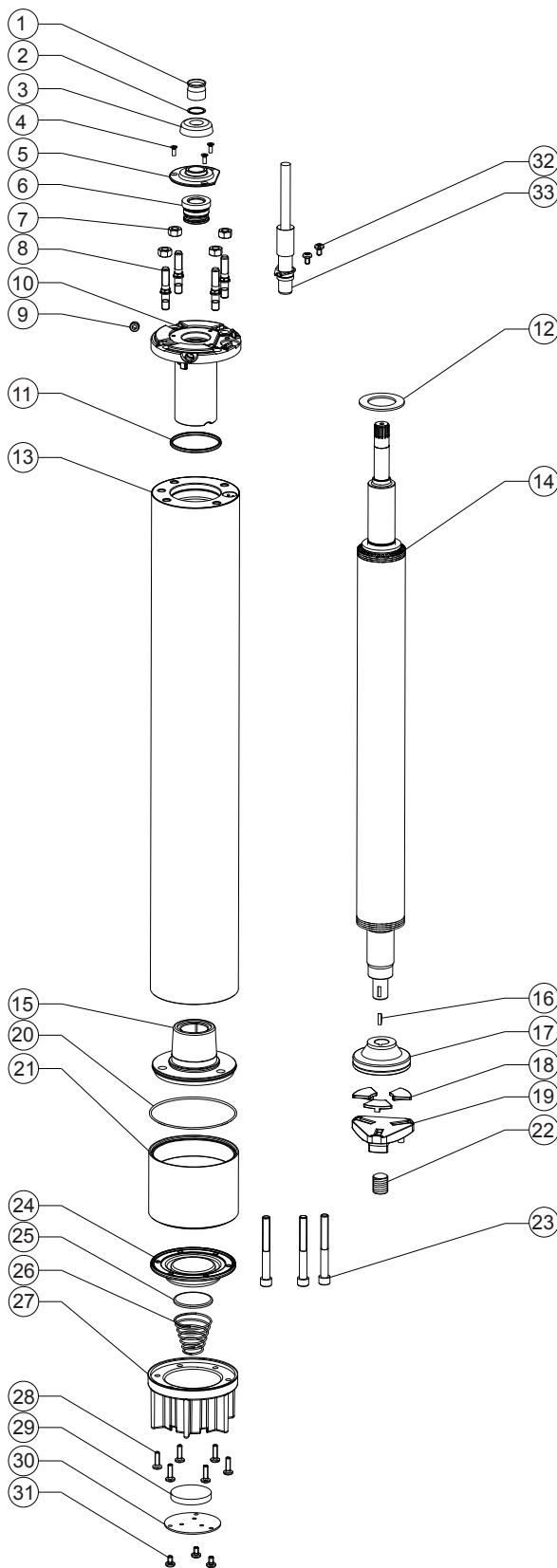
4" 3- phase Spare Part Kits 316SS High Thrust

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 3521/3522	305 491 641	178 163 913K
	380, 400, 415	234 726 3521/3522	305 491 661	
	500	234 796 3521/3522	305 491 681	
3,0	220, 230	234 766 3521/3522	305 491 642	178 125 913K
	380, 400, 415	234 764 3521/3522	305 491 662	
	500	234 768 3521/3522	305 491 682	
3,7	220, 230	234 757 3521/3522	305 491 643	178 126 913K
	380, 400, 415	234 727 3521/3522	305 491 663	
	500	234 797 3521/3522	305 491 683	
4,0	220, 230	234 767 3521/3522	305 491 644	178 127 913K
	380, 400, 415	234 765 3521/3522	305 491 664	
	500	234 769 3521/3522	305 491 684	
5,5	220, 230	234 758 3521/3522	305 491 645	178 133 913K
	380, 400, 415	234 728 3521/3522	305 491 665	
	500	234 798 3521/3522	305 491 685	
7,5	380, 400, 415	234 729 3521/3522	305 491 666	178 134 913K
	500	234 799 3521/3522	305 491 686	

4" 3- phase Standard Motor* High Thrust 9,3kW 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 64
14	Rotor	1	see page 64
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 56

4" 3- phase Spare Part Kits 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