



4" ENCAPSULATED HIGH THRUST MOTOR - 1-PHASE | 3-WIRE DESIGN



FEATURES & BENEFITS

- NEMA mounting design with studs [5/16-24 UNF]
- Stainless steel splined shaft
- StatorShield™ - Franklin encapsulation system: Franklin Electric encapsulated motors are equipped with hermetically-sealed windings. The stator resin mechanically supports the winding and provides fast heat dissipation.
- Hydrodynamic liquid lubricated radial bearings and High capacity Kingsbury type thrust bearing for 100 % maintenance free operation
- Field replaceable round plug lead using Franklin's exclusive Water Bloc technology with extended jam nut in Stainless steel
- Pressure-equalizing diaphragm
- Stator shell in 304SS
- Factory filled with FES Franklin's non-toxic water soluble fill solution
- Drinking water approvals
- Best performance and protection in combination with Franklin Electric 3-wire control boxes

Pollution Recovery version

- Fluorelastomere (Viton®) rubber parts
- Special Polyurethane (PUR) lead assemblies
- 304SS (316SS stator) graded Stainless Steel as Standard

OPTIONS

- Built-in surge arrestors
- Special lead lengths up to 50 m
- Motors with factory-installed lead in single packing
- Higher-graded materials: Motor complete in 316SS with SiC/SiC seal
- Stator shell in 316SS (Suitable for use in water with increased salinity)
- Special voltages
- Franklin Electric 3-wire control boxes for maximum system performance, protection and warranty



4" encapsulated motors



STANDARD SPECIFICATION

- Ratings: 2.2 - 3.7 kW
- Thrust load: 6.5 kN
- Standard voltage: 1- 220-230 V (50 Hz) | 230 V (60 Hz)
- Max. storage temperature -15 °C - +50 °C
- Nominal ambient temperature: 30 °C (with 0.08 m/s cooling flow)
- Voltage tolerance U_N : -10 % / +6 % (50 Hz), ±10 % (60 Hz)
- Protection IP68
- insulation class B
- Frequency of starts: 20 starts/ hour (with min. 3 minutes resting time), equally distributed
- All motors with factory installed leads (1.50 m / 2.50 m)
- Vertical and horizontal operation, shaftend heightend
- Rotation counter clock wise facing shaft end (1 phase motors CW upon request)



StatorShield™ - Franklin encapsulation system

Franklin Electric encapsulated motors are equipped with hermetically-sealed windings. The stator resin mechanically supports the winding and provides fast heat dissipation.

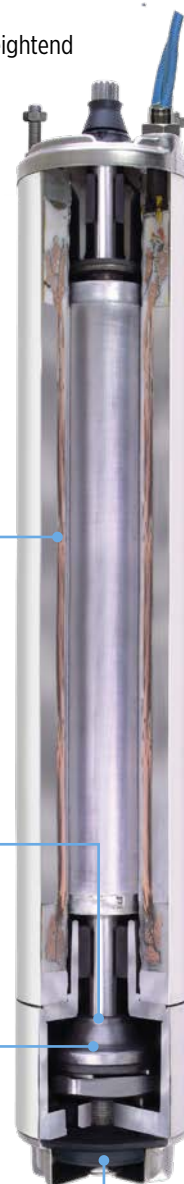
Hydrodynamic liquid lubricated radial bearings

100% maintenance free operation

6.5 kN High Thrust Kingsbury type thrust bearing

High capacity 6.5 kN Kingsbury type thrust bearing for 100 % maintenance free operation.

Pressure-equalizing diaphragm



4" ENCAPSULATED HIGH THRUST MOTOR - 1-PHASE | 3-WIRE DESIGN

4CT HIGH THRUST MOTOR - 1-PHASE | 3-WIRE - MOTOR MODEL NO. | 220-230 V | 50 HZ

P_N [kW]	U_N [V]	Digit 1 - 6	Digit 7 - 10							
			304SS Standard		304SS Pollution Recovery		316SS Standard		316SS Pollution Recovery	
			single pack, with lead	motors in 40 motors packing unit	single pack, with lead	motors in 40 motors packing unit	single pack, with lead	motors in 40 motors packing unit	single pack, with lead	motors in 40 motors packing unit
2.2	220-230	224 752	3421L	3421	3422L	3422	3521L	3521	3522L	3522
3.7	220-230	224 753	3421L	3421	3422L	3422	3521L	3521	3522L	3522

lead lengths motors: „L“ with 2.50 m pre-mounted cable

4CT HIGH THRUST MOTOR - 1-PHASE | 3-WIRE - MOTOR MODEL NO. | 230 V | 60 HZ

P_N [kW]	P_{MAX} [kW]	U_N [V]	Digit 1 - 6	Digit 7 - 10			
				304SS		316SS	
				single pack, with lead	motors in 40 motors packing unit	single pack, with lead	motors in 40 motors packing unit
2.2	2.5	230	214 70*	3421	3421L	3521	3521L
3.7	4.2	230	214 705	3421	3421L	3521	3521L

lead lengths motors: „L“ with 2.50 m pre-mounted cable

4CT HIGH THRUST MOTOR - 1-PHASE | 3-WIRE - MOTOR PERFORMANCE DATA | 220-230 V | 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			$\cos \phi$ (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	0.8	0.88	7.3	15
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

4CT HIGH THRUST MOTOR - 1-PHASE | 3-WIRE - MOTOR PERFORMANCE DATA | 230 V | 60 HZ

P_N [kW]	P_{MAX} [kW]	Thrust F [N]	U_N [V]	n_N [min ⁻¹]	I_N [A]	I_A [A]	η (Eff.) at % load			$\cos \phi$ (Pf.) at % load			T_N [Nm]	T_A [Nm]
							50	75	100	50	75	100		
2.2	2.5	6500	230	3440	15.1	68	66	73	75	0.98	0.98	0.98	7	11.7
3.7	4.2	6500	230	3450	24.5	102	70	76	77	0.98	0.99	0.99	11.7	16.1

4" ENCAPSULATED HIGH THRUST MOTOR - 1-PHASE | 3-WIRE DESIGN

4CT HIGH THRUST MOTOR - 1-PHASE | 3-WIRE - WINDING RESISTANCE DATA | 220-230 V | 50 HZ

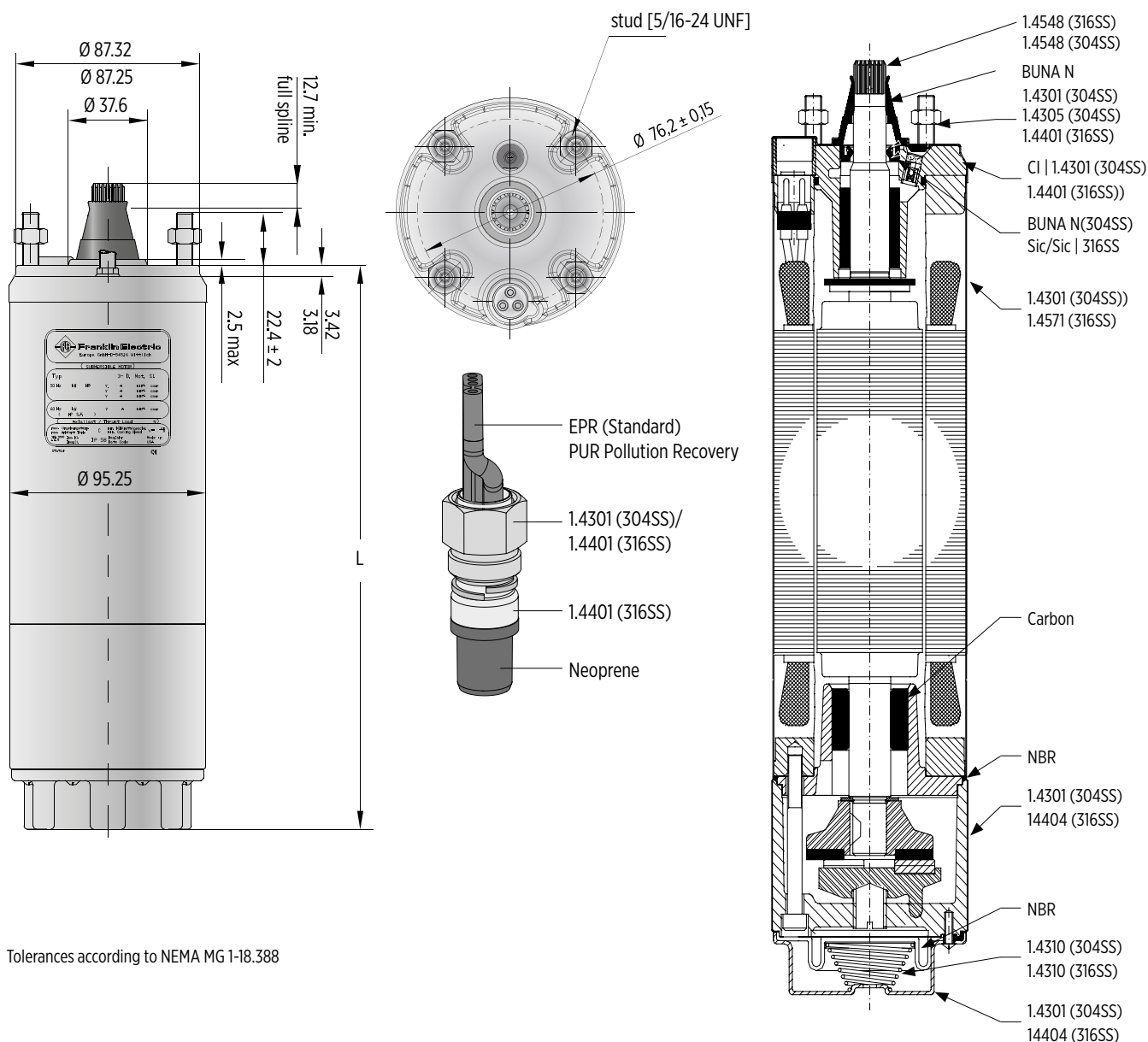
P_N [kW]	U_N [V]	stator reference no.	main phase [Ohm]	start phase [Ohm]
2.2	220 / 230	326 813 912	1,3 - 1,6	3,8 - 4,6
3.7	220 / 230	326 813 912	1,0 - 1,3	2,5 - 3,1

4CT HIGH THRUST MOTOR - 1-PHASE | 3-WIRE - WINDING RESISTANCE DATA | 230 V | 60 HZ

P_N [kW]	P_{MAX} [kW]	U_N [V]	stator reference no.	main phase [Ohm]	start phase [Ohm]
2.2	2.5	230	326 897	1,3 - 1,6	3,5 - 4,3
3.7	4.2	230	326 898	0,9 - 1,1	1,7 - 2,1

4" ENCAPSULATED HIGH THRUST MOTOR - 1-PHASE | 3-WIRE DESIGN

4CT HIGH THRUST MOTOR - 1-PHASE | 3-WIRE - MOTOR DESIGN | 304SS



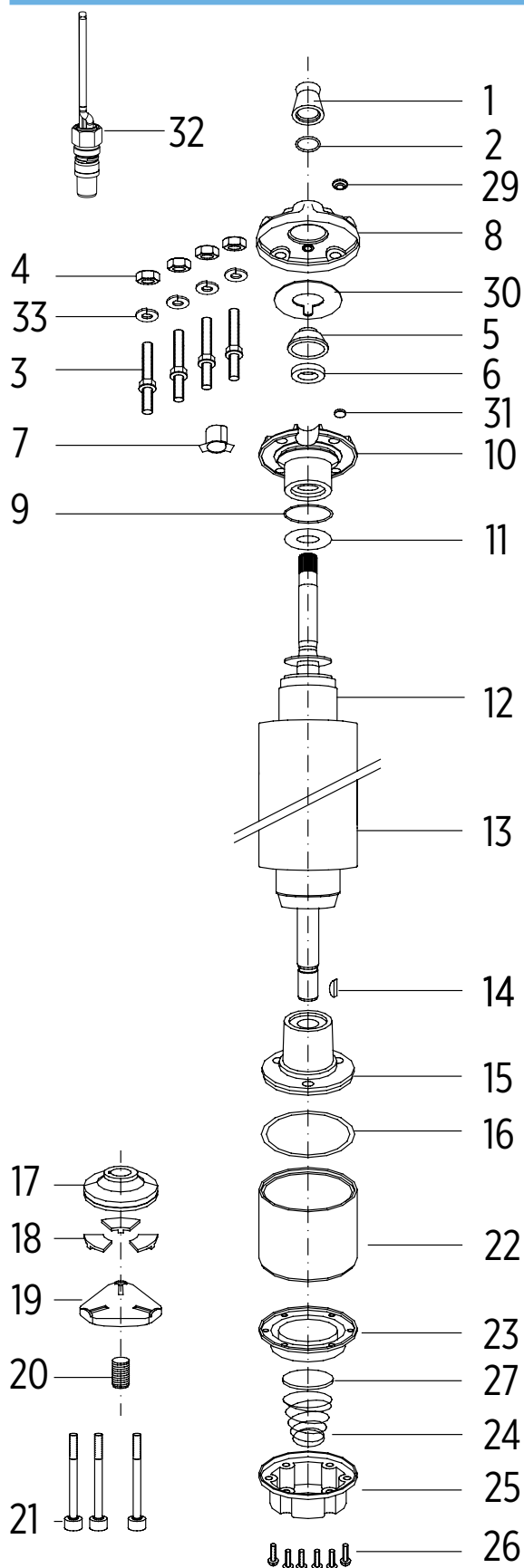
Tolerances according to NEMA MG 1-18.388

4CT HIGH THRUST MOTOR - 1-PHASE | 3-WIRE - DIMENSIONS AND WEIGHTS

P_N		motor				motor with lead in single pack		
[kW]	[HP]	length [mm]		weight [kg]		dimensions [mm]	weight [kg]	
		304SS	316SS	304SS	316SS		304SS	316SS
2.2	2.5	520.2	529.4	21.3	21.8	796 x 100 x 110	23.1	23.6
3.7	4.2	652.5	661.7	26.4	27.3	904 x 100 x 110	28.5	29.4

4" ENCAPSULATED HIGH THRUST MOTOR - 1-PHASE | 3-WIRE DESIGN

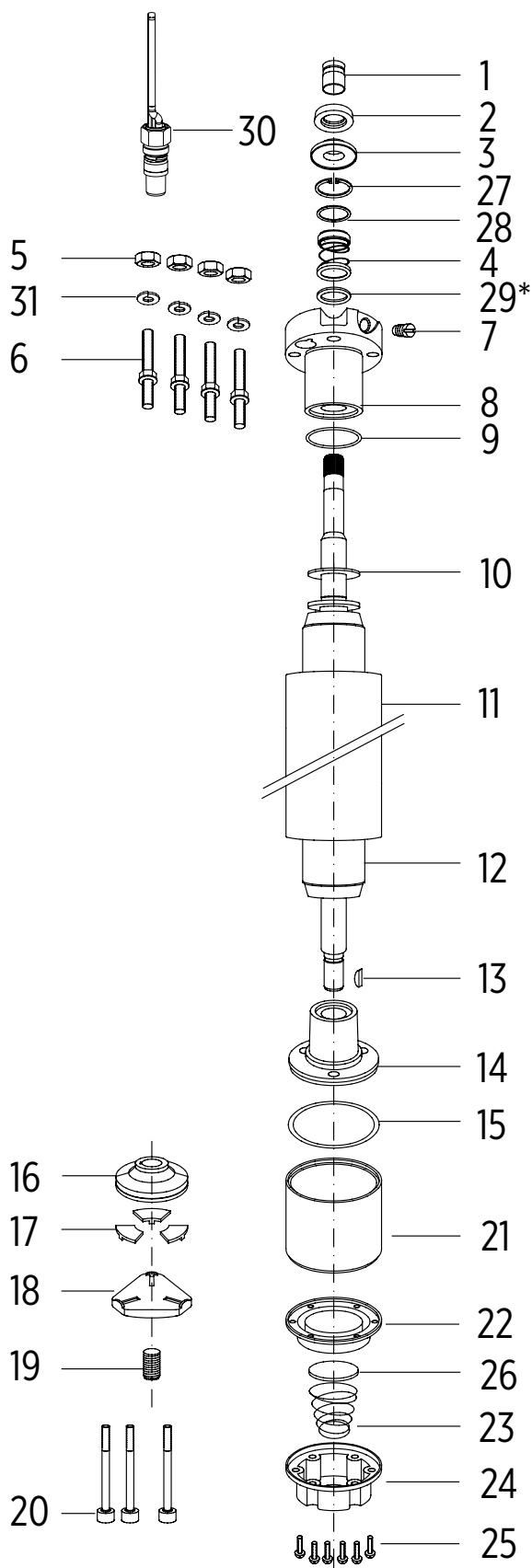
4CT HIGH THRUST MOTOR - 1-PHASE | 3-WIRE - MOTOR PART DESCRIPTION | 304SS



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 2.2 kW	1	308 268 104
	Upthrust washer 3.7 kW		308 317 901
12	rotor	1	cf. section
13	stator	1	cf. section
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	segments	1	Kit A
19	leveling disc	1	155 660 101
20	screw adjusted	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	164 100 50
26	screw	6	Kit C
27	cup spring, diaphragm	1	151 448 201
29	sealing stopper	1	Kit B+D
30	seal	1	Kit D
31	filter	1	Kit B+D
32	motor lead	1	cf. section
33	lock washer	4	Kit C

4" ENCAPSULATED HIGH THRUST MOTOR - 1-PHASE | 3-WIRE DESIGN

4CT HIGH THRUST MOTOR - 1-PHASE | 3-WIRE - MOTOR PART DESCRIPTION | 316SS

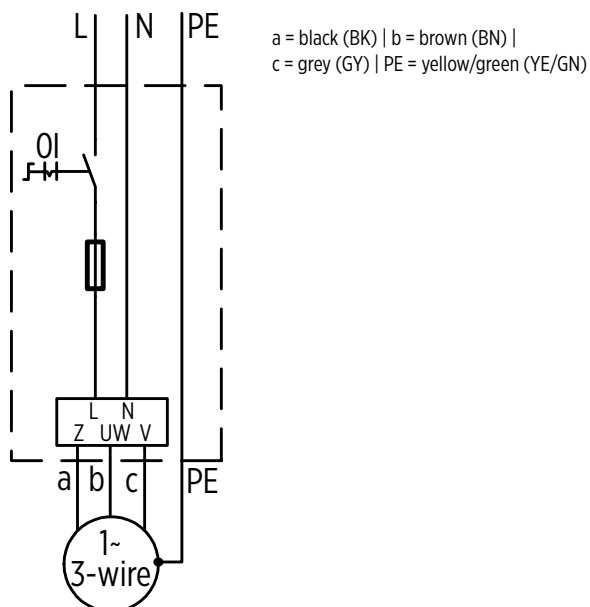


Pos.	part description	qty.	part no.
1	protector (spline)	1	Kit C
2	sand slinger	1	Kit C
3	seal cover	1	Kit B + C
4	shaft seal	1	Kit B
5	nut	4	Kit D
6	stud	4	Kit D
7	sealing screw	1	308 279 903
8	top endbell	1	Kit
9	O-ring	1	Kit B
10	Upthrust washer 2.2 kW	1	308 268 104
	Upthrust washer 3.7 kW		308 317 901
11	stator	1	cf. section
12	rotor	1	cf. section
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 adjusted	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	364 100 50
25	screw	6	Kit C
26	cup spring, diaphragm	1	151 448 201
27	ring	1	Kit B
28	retain ring	1	Kit B
29*	washer	1	308 747 201
30	motor lead	1	cf. section
31	lock washer	4	Kit C

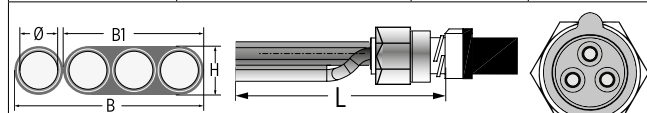
*only for 2.2 - 3 kW

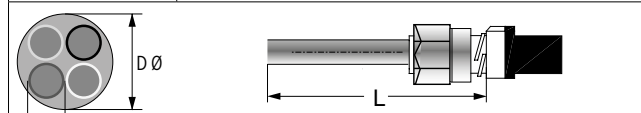
4" ENCAPSULATED HIGH THRUST MOTOR - 1-PHASE | 3-WIRE DESIGN

4CT HIGH THRUST MOTOR - 1-PHASE | 3-WIRE - CONNECTIONS



4CT HIGH THRUST MOTOR - 1-PHASE | 3-WIRE - MOTOR LEADS

4CT High Thrust motor - 3-phase			
Ø [mm²]	B [mm]	B1 [mm]	H [mm]
3X1,5 + 1G1,5	16.8	10.7	5
			
length [m]	model no.		
	304SS	316SS	
1.5	310 113 401	310 113 501	
2.5	310 113 402	310 113 502	
5	310 113 405	310 113 505	
10	310 113 410	310 113 510	
15	310 113 415	310 113 515	
20	310 113 420	310 113 520	
30	310 113 430	310 113 530	
40	310 113 440	310 113 540	

4CT High Thrust motor - 3-phase - Pollution Recove	
Ø [mm²]	D [mm]
1.5	9.8
	
length [m]	model no.
	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 HIGH THRUST MOTOR - 1-PHASE | 3-WIRE DESIGN

4CT HIGH THRUST MOTOR - 1-PHASE | 3-WIRE - MOTOR SPARE PARTS - KITS

Kit	description	included positions	part no.
Kit	End bell, upper 304SS 2,2 kW	5, 6, 7, 8, 9, 10, 29,30, 31	308 462 902
	End bell, upper 316SS 2,2 kW	8	177 390 955
Kit	End bell, upper 304SS 3,7 kW	5, 6, 7, 8, 9, 10, 29, 30, 31	308 434 501
	End bell, upper 316SS 3,7 kW	8	177 390 955
Kit A	thrust bearing kit 6500N	17, 18	308 700 301
Kit B	seal kit 304SS	1, 2, 6, 9, 16, 23, 29, 31	308 900 351
	seal kit 316SS	4, 9, 15, 22, 27, 28	308 900 302
Kit B1	Seal kit Pollution Recovery 304SS	1, 2, 6, 9, 16, 23,29, 31	308 900 401
Kit B2	sand slinger kit 316SS motors	1, 2, 3	308 825 201
Kit C	screw kit 304SS	3, 4, 21, 26, 33	308 658 351
	screw kit 316SS	5, 6, 20, 25, 31	308 658 301

4CT HIGH THRUST MOTOR - 1-PHASE | 3-WIRE - STATOR AND ROTOR | 304SS | 50 HZ

P_N [kW]	U_N [V]	model no.	
		stator 304SS [50 Hz]	rotor 304SS [50 Hz]
2.2	220 / 230	305 491 181	178 126 903K
3.7	220 / 230	305 491 182	178 133 903K

4CT HIGH THRUST MOTOR - 1-PHASE | 3-WIRE - STATOR AND ROTOR | 316SS | 50 HZ

P_N [kW]	U_N [V]	model no.	
		stator 316SS [50 Hz]	rotor 316SS [50 Hz]
2.2	220 / 230	305 491 541	178 126 913K
3.7	220 / 230	305 491 542	178 133 913K

4CT HIGH THRUST MOTOR - 1-PHASE | 3-WIRE - STATOR AND ROTOR | 316SS | 60 HZ

P_N [kW]	P_{MAX} [kW]	U_N [V]	model no.	
			stator 316SS [60 Hz]	rotor 316SS [60 Hz]
2.2	2.5	230	326 897 ***	178 126 903K
3.7	4.2	230	326 898 ***	178 135 903K