

# 4" SUPER STAINLESS MOTOR - 3-WIRE DESIGN

STAINLESS STEEL  
**304**

OPTIONAL  
STAINLESS STEEL  
**316**

## FEATURES & BENEFITS

- 4" NEMA mounting design with metric studs
- Stainless steel splined shaft
- Stator shell in 316SS
- Factory filled with Franklin's FES93 water soluble fill solution
- Max. storage temperature -15°C - + 50°C
- Liquid lubricated radial bearings and High capacity Kingsbury type thrust bearing for 100 % maintenance free operation
- Field replaceable lead using Franklin's exclusive Water Bloc technology with extended jam nut in Stainless steel
- optional Franklin Electric 3-wire control boxes for maximum system performance, protection and warranty
- High efficiency electrical design for low operation costs
- ideally be combined with FE 3-wire control boxes for maximum system performance, protection and warranty
- Drinking water approvals
- Suitable for use in water with increased salinity



### Pollution Recovery version:

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

## SPECIFICATION

- Ratings: 0.25 - 2.2 kW
- Voltage rating: 1- - 220-230 V / 50 Hz, 230 V / 60 Hz
- Thrust load: 4 kN
- Nominal ambient temperature: 30 °C with 0.08 m/s cooling flow
- Voltage tolerance: -10 % / +6 % (50 Hz), +/- 10% (60 Hz)
- Protection IP68, insulation class B
- Frequency of starts: 20 starts/ hour (with min. 3 minutes resting time)
- All motors with factory installed leads (1.50 m / 2.50 m)
- Installation orientation: Vertical / horizontal (shaft end heightened)
- Rotation counter clock wise facing shaft end (1 phase motors CW upon request)

## OPTIONS

- Built in lightning arrestors
- 316SS material design
- Special lead lengths



### Hydrodynamic liquid lubricated radial bearings

100 % maintenance free operation

### StatorSHIELD™ - Franklin encapsulation system

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

### Kingsbury type thrust bearing

High capacity 4 kN Kingsbury type thrust bearing for 100 % maintenance free operation

### Pressure-equalizing diaphragm



# 4" SUPER STAINLESS MOTOR - 3-WIRE DESIGN

## MOTOR MODEL NUMBERS 50 HZ - 3-WIRE DESIGN

P <sub>N</sub> [kW]	U <sub>N</sub> [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
0,25	220-230	214 753	6721L	6721	6723L	6723	6821L	6821	6823L	6823
0,37	220-230	214 755	6721L	6721	6723L	6723	6821L	6821	6823L	6823
0,55	220-230	214 757	6721L	6721	6723L	6723	6821L	6821	6823L	6823
0,75	220-230	214 758	6721L	6721	6723L	6723	6821L	6821	6823L	6823
1,1	220-230	224 750	6721L	6721	6723L	6723	6821L	6821	6823L	6823
1,5	220-230	224 751	6721L	6721	6723L	6723	6821L	6821	6823L	6823
2,2	220-230	224 752	6721L	6721	6723L	6723	6821L	6821	6823L	6823

\* lead lengths motors: „L“: up to 1.5 kW with 1.50 m preassembled cable, starting at 2.2 kW with 2.50 m pre-mounted cable

## MOTOR MODEL NUMBERS 60 HZ - 3-WIRE DESIGN

P <sub>N</sub> [kW]	P <sub>Max</sub> [kW]	U <sub>N</sub> [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
0,25	0,33	230	214 70*	6721L	6721	6723L	6723	6821L	6821	6823L	6823
0,37	0,59	230	214 705	6721L	6721	6723L	6723	6821L	6821	6823L	6823
0,55	0,83	230	214 707	6721L	6721	6723L	6723	6821L	6821	6823L	6823
0,75	1	230	214 708	6721L	6721	6723L	6723	6821L	6821	6823L	6823
1,1	1,4	230	224 700	6721L	6721	6723L	6723	6821L	6821	6823L	6823
1,5	1,8	230	224 701	6721L	6721	6723L	6723	6821L	6821	6823L	6823
2,2	2,5	230	224 702	6721L	6721	6723L	6723	6821L	6821	6823L	6823

\* lead lengths motors: „L“: up to 1.5 kW with 1.50 m preassembled cable, starting at 2.2 kW with 2.50 m pre-mounted cable

### MOTOR PERFORMANCE DATA 50 HZ - 3-WIRE DESIGN

P <sub>N</sub> [kW]	Thrust F [N]	U <sub>N</sub> [V]	n <sub>N</sub> [min <sup>-1</sup> ]	I <sub>N</sub> [A]	I <sub>A</sub> [A]	η (Eff.) [%] at % load			cos φ (Pf.) at % load			T <sub>N</sub> [Nm]	T <sub>A</sub> [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

### MOTOR PERFORMANCE DATA 60 HZ - 3-WIRE DESIGN

P <sub>N</sub> [kW]	P <sub>MAX</sub> [kW]	Thrust F [N]	U <sub>N</sub> [V]	n <sub>N</sub> [min <sup>-1</sup> ]	I <sub>N</sub> [A]	I <sub>A</sub> [A]	η (Eff.) [%] at % load			cos φ (Pf.) at % load			T <sub>N</sub> [Nm]	T <sub>A</sub> [Nm]
							50	75	100	50	75	100		
0,25	0,33	4000												
0,37	0,59	4000	230	3470	5,6	21,6	53	59	62	0,64	0,69	0,78	1,0	2,7
0,55	0,83	4000	230	3470	7,6	30,4	54	60	62	0,59	0,71	0,79	1,5	3,7
0,75	1	4000	230	3470	9,2	37,0	56	62	64	0,60	0,72	0,80	2,0	4,9
1,1	1,4	4000	230	3460	10,2	46	60	67	70	0,75	0,83	0,88	3,9	5,5
1,5	1,8	4000	230	3425	12,2	51	66	71	72	0,82	0,89	0,92	5,0	5,6
2,2	2,5	4000	230	3440	15,1	68	66	73	75	0,98	0,98	0,98	7,0	11,7

### WINDING RESISTANCE DATA 50 HZ 220-230V - 3-WIRE DESIGN

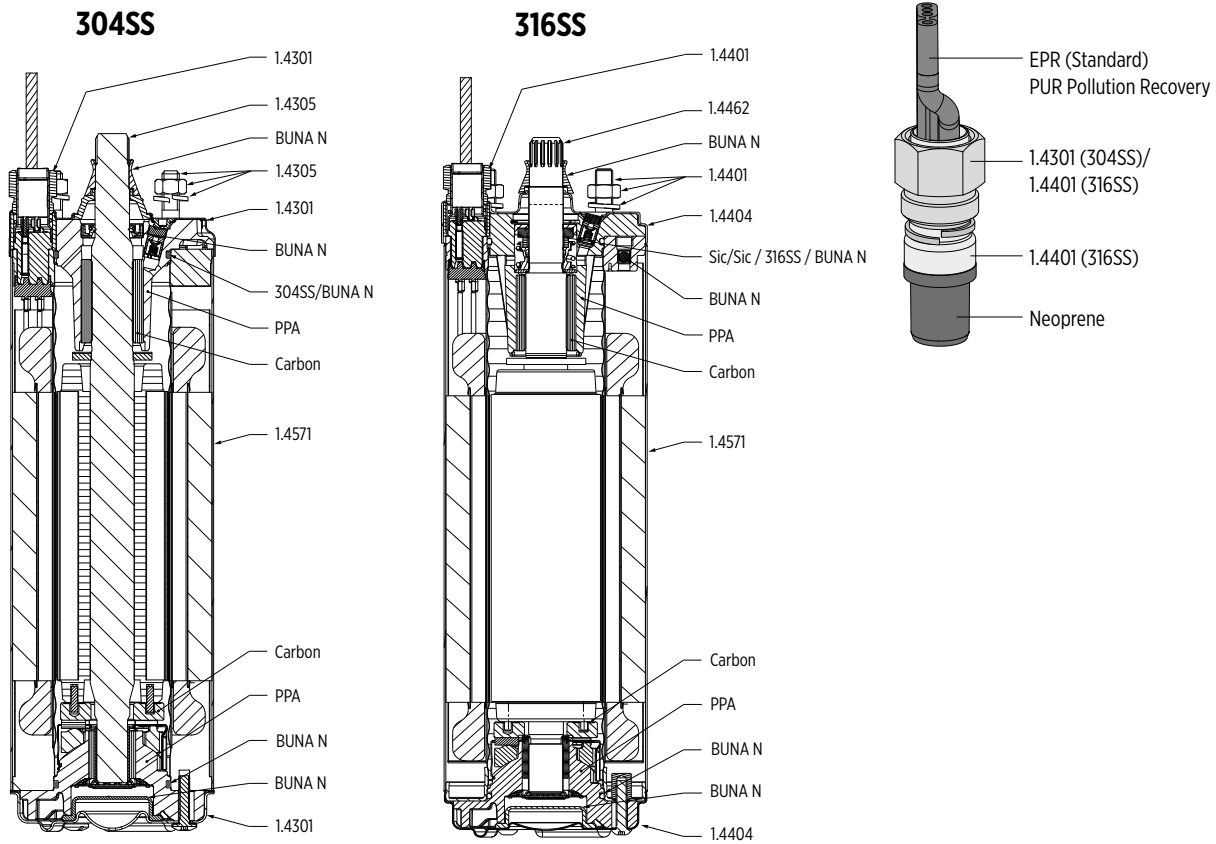
P <sub>N</sub> [kW]	U <sub>N</sub> [V]	Stator-Ref.	Main phase [Ohm]	Start phase [Ohm]
0,25	220 / 230	326 807 ***	10,6 - 13,0	38,3 - 46,8
0,37	220 / 230	326 808 948	7,3 - 8,9	23,9 - 29,3
0,55	220 / 230	326 809 948	4,8 - 5,8	18,5 - 22,7
0,75	220 / 230	326 810 948	3,5 - 4,3	14,8 - 18,0
1,10	220 / 230	326 811 948	2,6 - 3,2	6,9 - 8,4
1,50	220 / 230	326 812 948	2,0 - 2,4	5,3 - 6,4
2,20	220 / 230	326 813 948	1,3 - 1,6	3,8 - 4,6

### WINDING RESISTANCE DATA 60 HZ 230V - 3-WIRE DESIGN

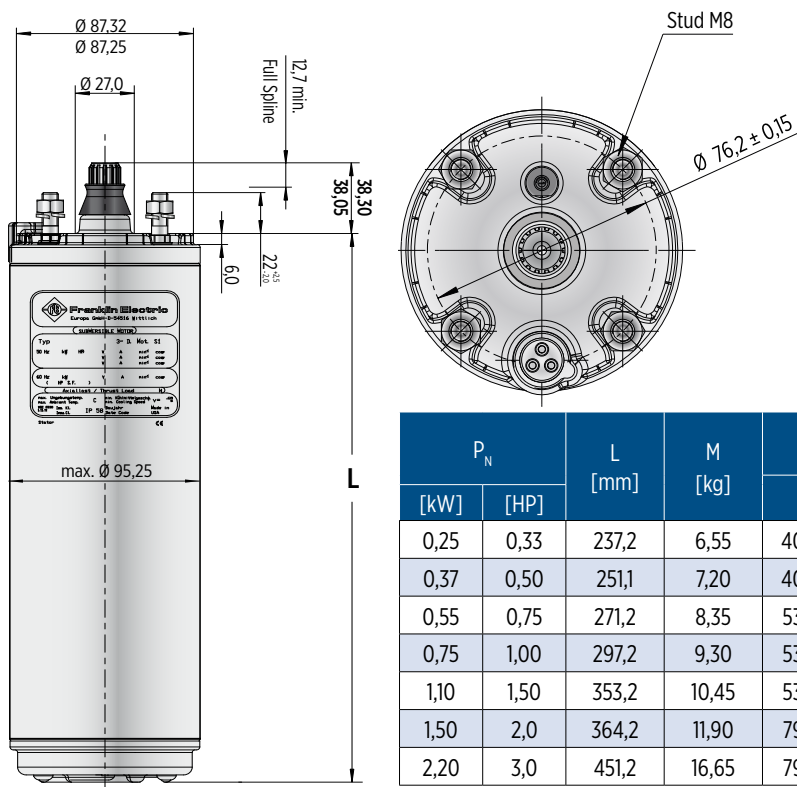
P <sub>N</sub> [kW]	P <sub>MAX</sub> [kW]	U <sub>N</sub> [V]	Stator-Ref.	Main phase [Ohm]	Start phase [Ohm]
0,25	0,33	230			
0,37	0,59	230	326 892 ***	4,5 - 5,5	14,4 - 17,6
0,55	0,83	230	326 893	3,3 - 4,0	10,7 - 13,1
0,75	1	230	326 894	2,6 - 3,1	8,7 - 10,7
1,10	1,4	230	326 895	2,0 - 2,5	6,8 - 8,3
1,50	1,8	230	326 896	1,7 - 2,1	5,9 - 7,2
2,20	2,5	230	326 897	1,3 - 1,6	3,5 - 4,3

# MOTOR DESIGN AND DIMENSIONS

MOTORDSIGN 304SS 4000N 0,25 - 2,2 KW



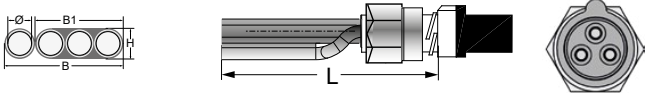
## LENGTHS AND WEIGHTS - 3-WIRE DESIGN

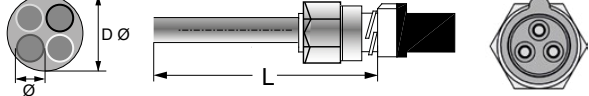


Tolerances according to NEMA MG 1-18.388

# MOTOR LEADS

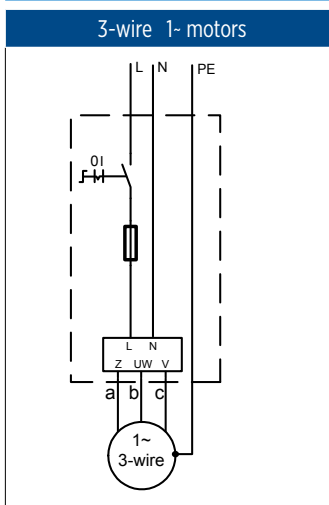
## MOTOR LEADS 3-WIRE DESIGN

3-wire motor leads			
0.25 - 3.0 kW			
Ø [mm <sup>2</sup> ]	B [mm]	B1 [mm]	H [mm]
3X1,5 + 1G1,5	16,8	10,7	5,0
			
L [m]	Model numbers 304SS	Model numbers 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	
50	310 113 450	310 113 550	

3-wire Pollution Recovery motor leads	
0.25 - 3.0 kW	
Ø [mm <sup>2</sup> ]	D Ø [mm]
1,5	9,8
	
L [m]	Model numbers 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.

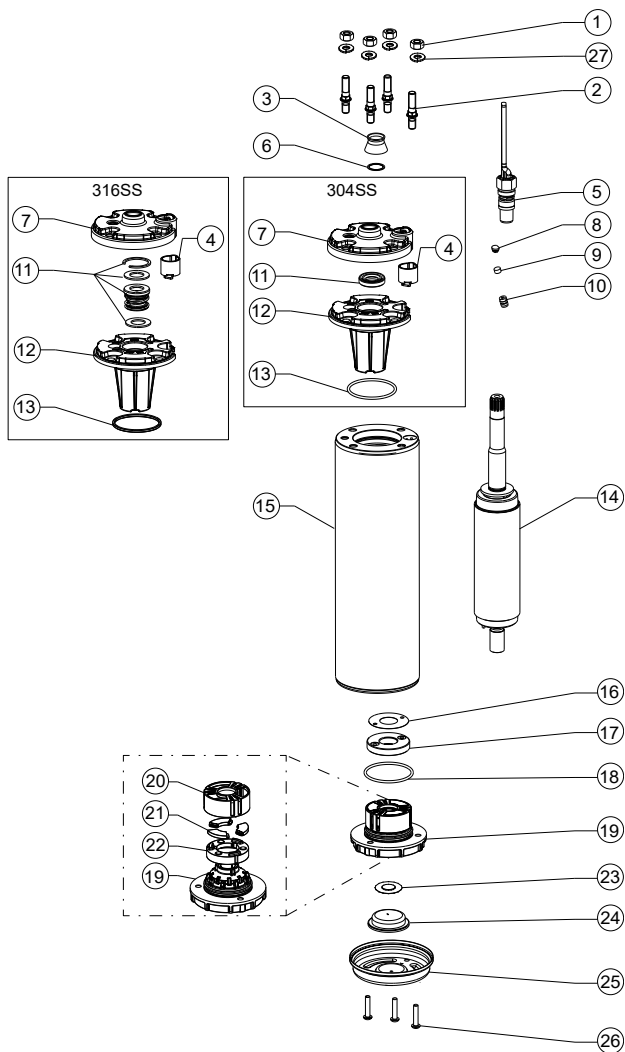
## CONNECTION - 3-WIRE DESIGN



a = black | b = brown | c = grey | PE = yellow/green

# MOTOR PART DESCRIPTION

## MOTOR DESIGN 0.25 -2.2 KW



Pos.	Part Description	Qty.	Part No.
1	Nut	4	Kit C
2	Stud	4	Kit C
3	Protector, Spline	1	Kit B
4	Connector boss	1	151 820 103
5	Motor Lead	1	Page 19
6	Washer	1	Kit B
7	Top Endbell, Cover 304SS	1	150 262 151
	Top Endbell, Cover 316SS	1	150 262 251
8	Filter plug	1	Kit
9	Filter	1	Kit
10	Valve	1	Kit
11	Shaft Seal	1	Kit B
12	Top Endbell	1	Kit
13	O-Ring	1	Kit B
14	Rotor	1	Page 21
15	Stator	1	Page 21
16	Level washer	1	Kit A2
17	Thrust disk assy	1	Kit A2
18	O-Ring	1	Kit B / Kit A2
19	Bottom Endbell	1	Kit A2
20	Bearing cage	1	Kit A2
21	Segments	3	Kit A2
22	Gasket	1	Kit A2
23	Diaphragm washer	1	151 314 101 / Kit A2
24	Diaphragm	1	Kit B / Kit A2
25	Bottom Endbell Cover 304SS	1	156 414 201 / Kit A2
	Bottom Endbell Cover 316SS	1	156 414 301 / Kit A2
26	Screw, Cover	3	Kit C
27	Lock washer	4	Kit C

# MOTOR SPARE PARTS

## SPARE PARTS KITS

$P_N$ [kW]	0.25 - 3.0 kW		
Kit A1	Top Endbell 304SS	incl. pos. 4, 7, 8, 9, 10, 11, 12, 13	308 462 902
	Top Endbell 316SS*		308 462 952
Kit A2	Bottom Endbell 304SS incl. Thrust Bearing Kit 4000N	incl. pos. 16 - 22	308 464 911
	Bottom Endbell 316SS incl. Thrust Bearing Kit 4000N		308 464 912
Kit B	Seal Kit Standard 304SS	incl. pos. 3, 6, 8, 9, 11, 13, 18, 23, 24	308 650 201
	Seal Kit Standard 316SS*		308 650 251
	Seal Kit Pollution Recovery 304SS		308 650 202
	Seal Kit Pollution Recovery 316SS		308 650 252
Kit C	Fastener Kit 304SS	incl. pos. 1, 2, 26, 27	308 656 202
	Fastener Kit 316SS		308 656 252

## SPARE PARTS 50HZ 3-WIRE DESIGN - STATOR AND ROTOR 0.25 - 2.2 KW

$P_N$ [kW]	$U_N$ [V]	Model no. stator 304SS / 316SS	Model no. rotor 304SS	Model no. rotor 316SS
0,25	220 / 230	305 491 841	178 164 901K	178 164 921K
0,37	220 / 230	305 491 842	178 164 902K	178 164 922K
0,55	220 / 230	305 491 843	178 164 903K	178 164 923K
0,75	220 / 230	305 491 844	178 164 905K	178 164 925K
1,1	220 / 230	305 491 845	178 164 908K	178 164 928K
1,5	220 / 230	305 491 846	178 164 909K	178 164 929K
2,2	220 / 230	305 491 847	178 164 911K	178 164 931K

## SPARE PARTS 60HZ 3-WIRE DESIGN - STATOR AND ROTOR 0.25 - 2.2 KW

$P_N$ [kW]	$P_{max}$ [kW]	$U_N$ [V]	Model no. stator 304SS / 316SS	Model no. rotor 304SS	Model no. rotor 316SS
0,37	0,59	230	305 491 931	178 164 902 K	178 164 923K
0,55	0,83	230	305 491 932	178 164 903 K	178 164 925K
0,75	1	230	305 491 933	178 164 905 K	178 164 927K
1,10	1,4	230	305 491 934	178 164 908K	178 164 928K
1,50	1,8	230	305 491 935	178 164 909K	178 164 929K
2,20	2,5	230	305 491 936	178 164 911K	178 164 931K