

4" Encapsulated Next Generation Motors PSC / 3- wire / 3- Phase



Franklin Electric



QUALITY



AVAILABILITY



SERVICE



INNOVATION

Quality in the Well



Table of contents

4" Encapsulated Motors

PSC NextGen Motor	04 - 09
3- wire NextGen Motor	10 - 15
3- Phase NextGen Motor	16 - 21

Motor Control

SubStartSC 1- Phase.....	22 - 23
SubTronicSC 1- Phase	24 - 25
SubStart3P 3- Phase.....	26 - 27
SubTronic3P 3- Phase	28 - 29
SubDrive Constant Pressure Control	30
3- wire Motors Control Box	31

Accessories

4" Termination Kit	32
Lead for Termination Kit 4"	32
4" Corrosion Protection	32
Motor Filling Liquid	33
Motor Filling Kit	33
Motor Coupling 4"	34

Notes	35
--------------------	-----------



4" Super Stainless 1~ PSC NextGen



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:

- PSC motor range: 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
- Motor sets including control box, lead and splice kit
- Alternative material executions



4" PSC NextGen 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 6722L
	230-240	254 813 6700L	254 813 6700	254 813 6722L
0,37	220-230	254 805 6700L	254 805 6700	254 805 6722L
	230-240	254 815 6700L	254 815 6700	254 815 6722L
0,55	220-230	254 807 6700L	254 807 6700	254 807 6722L
	230-240	254 817 6700L	254 817 6700	254 817 6722L
0,75	220-230	254 808 6700L	254 808 6700	254 808 6722L
	230-240	254 818 6700L	254 818 6700	254 818 6722L
1,10	220-230	254 809 6700L	254 809 6700	254 809 6722L
	230-240	254 819 6700L	254 819 6700	254 819 6722L
1,50	220-230	254 810 6700L	254 810 6700	254 810 6722L
	230-240	254 820 6700L	254 820 6700	254 820 6722L
2,20	220-230	254 811 6700L	254 811 6700	254 811 6722L
	230-240	254 821 6700L	254 821 6700	254 821 6722L

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

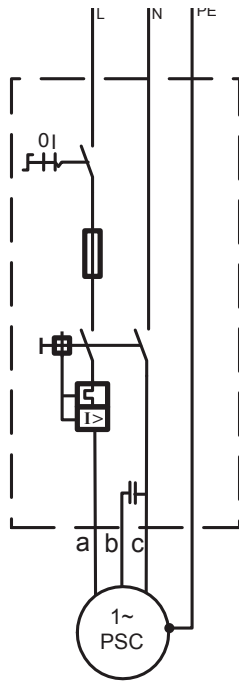
P _N [kW]	Thrust F [N]	U _N [V]	n _N [min ⁻¹]	I _N [A]	I _A [A]	η (Eff.) [%] at % load			cos φ (Pf.) at % load			T _N [Nm]	T _A [Nm]	Capacitor μF (U _C =450V)
						50	75	100	50	75	100			
0,25	4000	230	2865	2,2	8,6	33	45	51	0,91	0,93	0,96	0,82	0,73	12,5
		240	2875	2,3	9,0	28	42	50	0,80	0,88	0,92	0,83	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

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

L [m]	304 SS	316 SS
1,5	310 178 401	310 178 501
2,5	310 178 402	310 178 502
5	310 178 405	310 178 505
10	310 178 410	310 178 510
15	310 178 415	310 178 515
20	310 178 420	310 178 520
30	310 178 430	310 178 530
40	310 178 440	310 178 540
50	310 178 450	310 178 550

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

PSC Motor- Pollution Recovery Round Leads

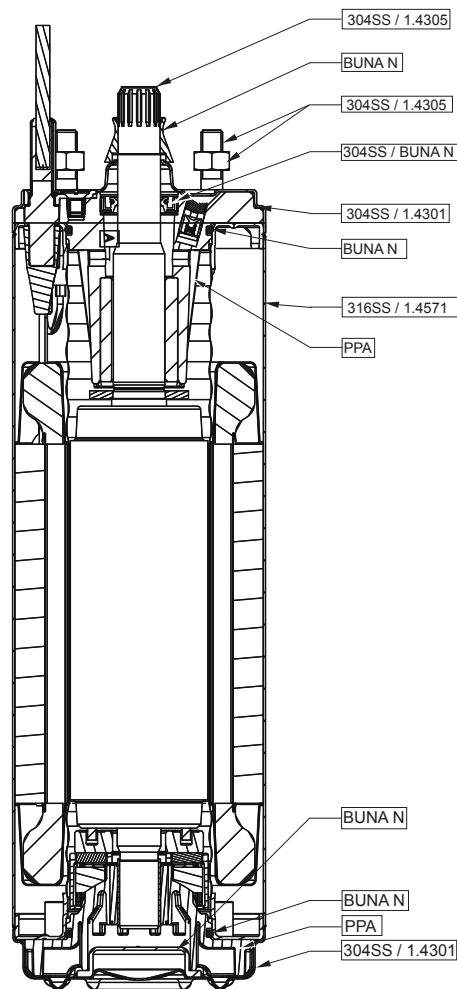
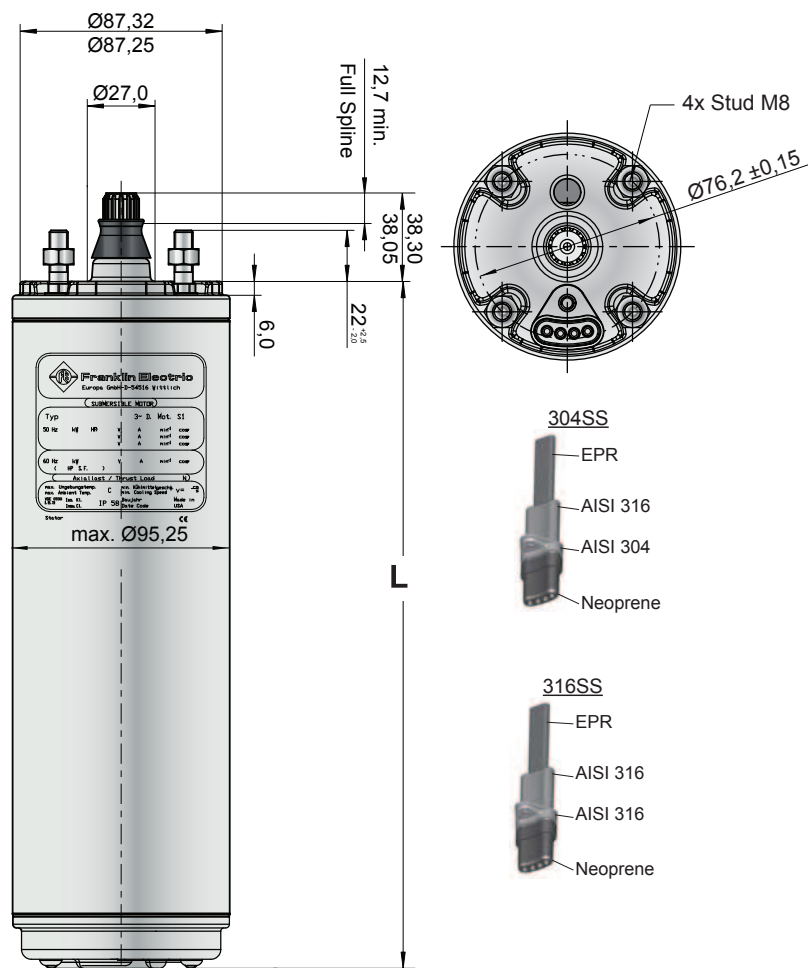
\varnothing [mm ²]	$\varnothing D$ [mm]
4X1,5	9,8 ± 0,3

L [m]	304 SS	316 SS
1,5	310 318 401	310 318 501
2,5	310 318 402	310 318 502
5	310 318 405	310 318 505
10	310 318 410	310 318 510
15	310 318 415	310 318 515
20	310 318 420	310 318 520
30	310 318 430	310 318 530
40	310 318 440	310 318 540
50	310 318 450	310 318 550



Outline Drawing PSC Motors

Material Description

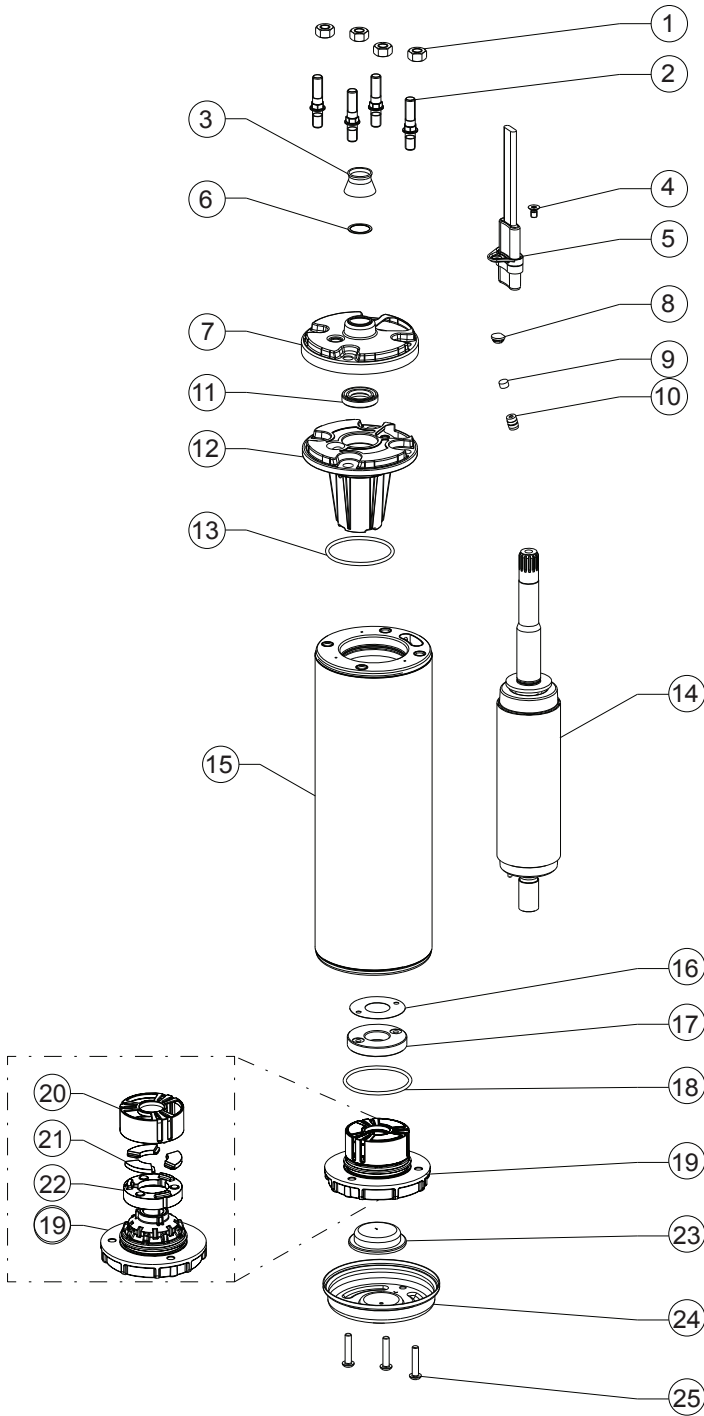


Tolerances according to NEMA MG 1-18.388

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)	
[kW]	[HP]			[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 NextGen Motor Part Description



Pos.	Part Description	Qty.	Part No.
1	Nut	4	Kit C
2	Stud	4	Kit C
3	Protector, Spline	1	Kit B
4	Screw (Motor lead)	1	Kit C
5	Motor lead	1	see page 6
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	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	1	Kit B
24	Bottom Endbell Cover	1	156 414 201
25	Screw, Cover	3	Kit C



4" PSC NextGen Motor Spare Part Kits

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 B	Seal Kit 304SS	incl. Pos.: 3, 6 , 8, 9, 11, 13, 18, 23	308 650 201
Kit C	Fastener Kit 304SS	incl. Pos.: 1, 2, 4, 25	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 6800 / L	305 491 701	178 165 951K
	230-240	254 813 6800 / L	305 491 721	
0,37	220-230	254 805 6800 / L	305 491 702	178 165 952K
	230-240	254 815 6800 / L	305 491 722	
0,55	220-230	254 807 6800 / L	305 491 703	178 165 953K
	230-240	254 817 6800 / L	305 491 723	
0,75	220-230	254 808 6800 / L	305 491 704	178 165 954K
	230-240	254 818 6800 / L	305 491 724	
1,10	220-230	254 809 6800 / L	305 491 705	178 165 955K
	230-240	254 819 6800 / L	305 491 725	
1,50	220-230	254 810 6800 / L	305 491 706	178 165 956K
	230-240	254 820 6800 / L	305 491 726	
2,20	220-230	254 811 6800 / L	305 491 707	178 165 957K
	230-240	254 821 6800 / L	305 491 727	



4" Super Stainless 3-wire NextGen



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

Technical specification:

- 3-wire motor range: 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 NextGen Motor Numbers 50Hz

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

4" 3-Wire NextGen Performance Data 50 Hz

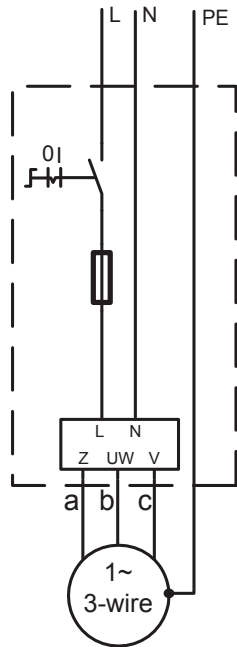
P _N [kW]	Thrust F [N]	U _N [V]	n _N [min ⁻¹]	I _N [A]	I _A [A]	η (Eff.) [%] at % load			cos φ (Pf.) at % load			T _N [Nm]	T _A [Nm]
						50	75	100	50	75	100		
0,25	4000	220	2850	2,8	9,3	43	50	53	0,61	0,70	0,78	0,83	1,45
		230	2870	2,8	9,7	42	50	53	0,58	0,67	0,75	0,83	1,65
0,37	4000	220	2855	3,9	13,1	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
220 / 230	326 807 942 / 952	10,6 - 13,0	38,3 - 46,8	38,3 - 46,8
220 / 230	326 808 942 / 952	7,3 - 8,9	23,9 - 29,3	23,9 - 29,3
220 / 230	326 809 942 / 952	4,8 - 5,8	18,5 - 22,7	18,5 - 22,7
220 / 230	326 810 942 / 952	3,5 - 4,3	14,8 - 18,0	14,8 - 18,0
220 / 230	326 811 942 / 952	2,6 - 3,2	6,9 - 8,4	6,9 - 8,4
220 / 230	326 812 942 / 952	2,0 - 2,4	5,3 - 6,4	5,3 - 6,4
220 / 230	326 813 942 / 952	1,3 - 1,6	3,8 - 4,6	3,8 - 4,6

Electrical connection 3-wire Motors

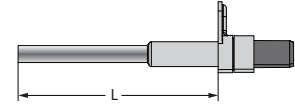
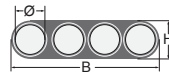


a	b	c	PE
black	brown	grey	yellow/green

Motor Leads*

3- wire Motors- VDE / ACS/ KTW Approved Flat Leads

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



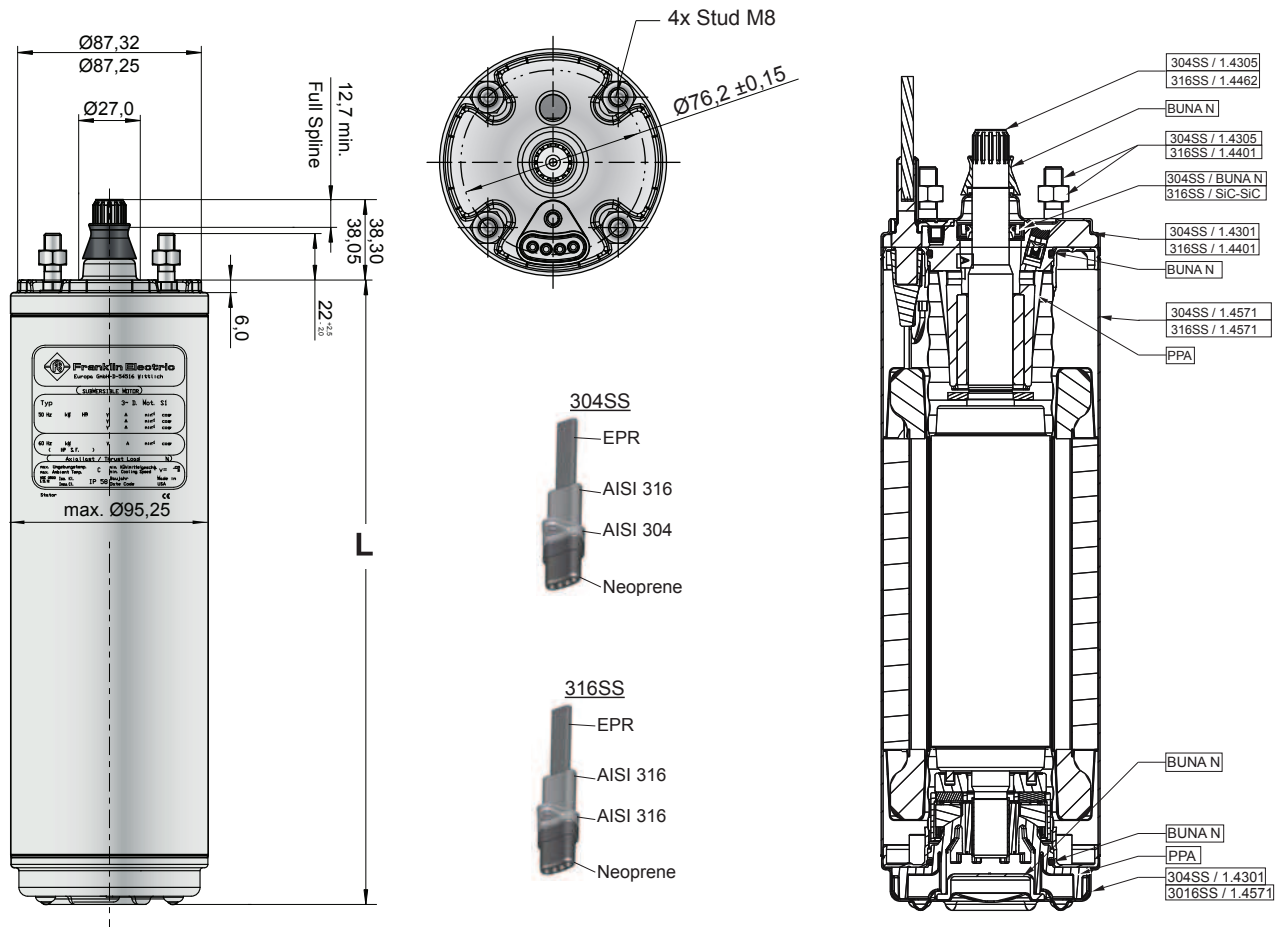
L [m]	304 SS	316 SS
1,5	310 178 401	310 178 501
2,5	310 178 402	310 178 502
5	310 178 405	310 178 505
10	310 178 410	310 178 510
15	310 178 415	310 178 515
20	310 178 420	310 178 520
30	310 178 430	310 178 530
40	310 178 440	310 178 540
50	310 178 450	310 178 550

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



Standard 0,25 - 3,7kW

Material Description

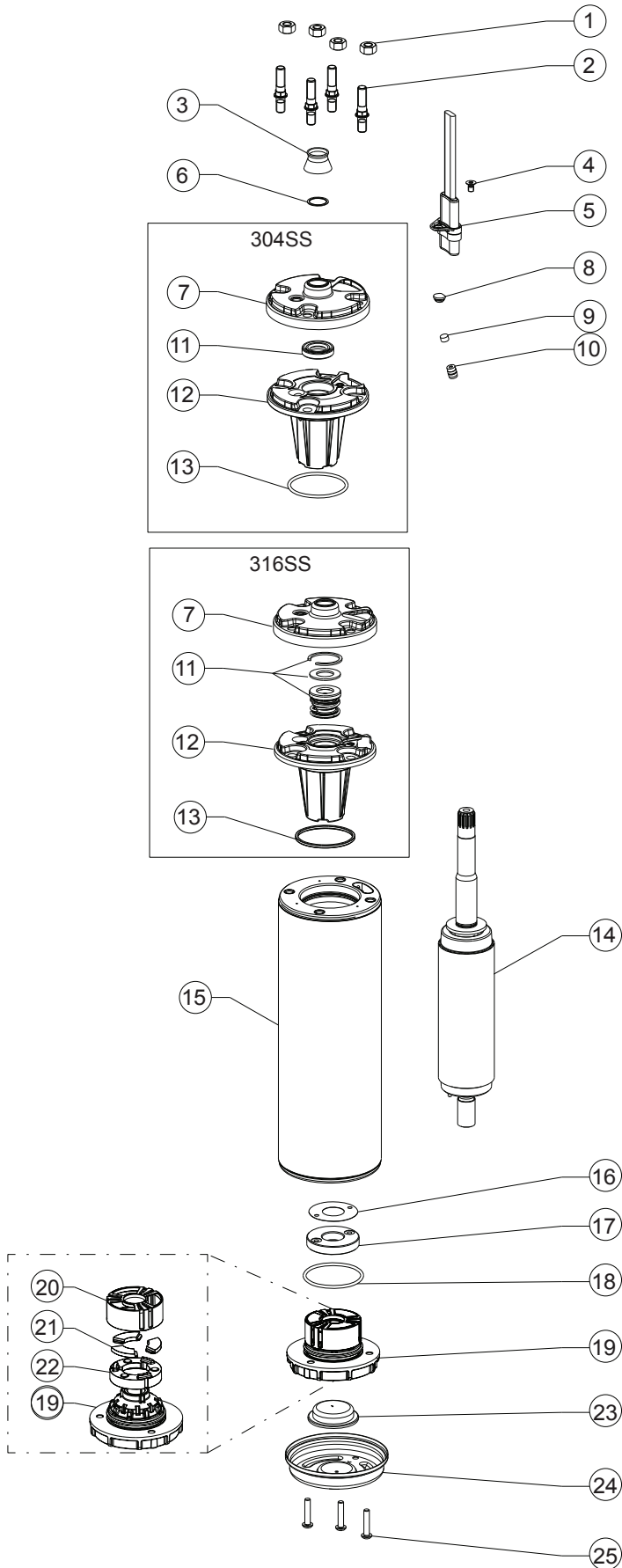


Tolerances according to NEMA MG 1-18.388

4" 3-wire NextGen 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 NextGen Motors Parts Description



Pos.	Part Description	Qty.	Part No.
1	Nut	4	Kit C
2	Stud	4	Kit C
3	Protector, Spline	1	Kit B
4	Screw (Motor lead)	1	Kit C
5	Motor lead	1	see page 12
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 15
15	Stator	1	see page 15
16	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	1	Kit B
24	Bottom Endbell Cover 304SS	1	156 414 201
	Bottom Endbell Cover 316SS		156 414 301
25	Screw, Cover	3	Kit C



4" 3- wire NextGen Spare Parts 304SS and 316SS

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	308 650 201
	Seal Kit 316SS		308 650 251
Kit C	Fastener Kit 304SS	incl. Pos.: 1, 2, 4, 25	308 656 201
	Fastener Kit 316SS		308 656 251

Replacement NextGen 304SS Motors 3- wire Stators and Rotors 50 Hz

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

Replacement NextGen 316SS Motors 3- wire Stators and Rotors 50 Hz

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



4" Super Stainless NextGen 3 Phase



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. It should ideally be combined to the Franklin Electric SubStart/ SubTronic3P 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 graded stainless steel as standard, 316SS as an option

Technical Specification:

- 3 phase motor range: 0,37 – 3kW
- 4" NEMA flange
- 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 from nominal: -10% / +6%
- Protection requirements: EN 60947-4-1

Options:

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



3-Phasen NextGen 304SS / 316SS Model Numbers 50 Hz

P _N [kW]	U _N [V]	Digit 1 - 6	Digit 7 - 10			
			304SS (Single pack, with Lead)	304 (40 motors packing unit)	316SS (Single pack, with Lead)	316SS (40 motors packing unit)
0,37	220, 230	234 751	6700L	6700	6800L	6800
	380 - 415	234 761	6700L	6700	6800L	6800
	500	234 791	6700L	6700	6800L	6800
0,55	220, 230	234 752	6700L	6700	6800L	6800
	380 - 415	234 762	6700L	6700	6800L	6800
	500	234 792	6700L	6700	6800L	6800
0,75	220, 230	234 753	6700L	6700	6800L	6800
	380 - 415	234 763	6700L	6700	6800L	6800
	500	234 793	6700L	6700	6800L	6800
1,10	220, 230	234 754	6700L	6700	6800L	6800
	380 - 415	234 724	6700L	6700	6800L	6800
	500	234 794	6700L	6700	6800L	6800
1,50	220, 230	234 755	6700L	6700	6800L	6800
	380 - 415	234 725	6700L	6700	6800L	6800
	500	234 795	6700L	6700	6800L	6800
2,20	220, 230	234 756	6700L	6700	6800L	6800
	380 - 415	234 726	6700L	6700	6800L	6800
	500	234 796	6700L	6700	6800L	6800
3,00	220, 230	234 766	6700L	6700	6800L	6800
	380 - 415	234 764	6700L	6700	6800L	6800
	500	234 768	6700L	6700	6800L	6800

3-Phase NextGen Performance Data 50 Hz

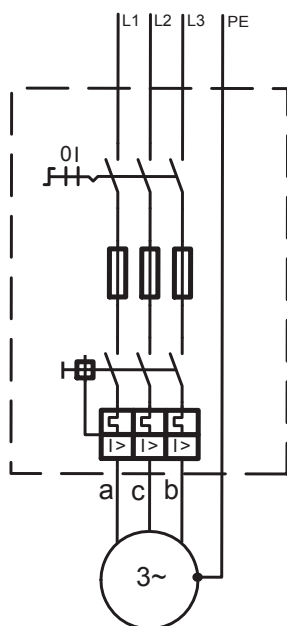
P _N [kW]	Thrust F [N]	U _N [V]	n _N [min ⁻¹]	I _N [A]	I _A [A]	η (Eff.) [%] at % load			cos φ (Pf.) at % load			T _N [Nm]	T _A [Nm]
						50	75	100	50	75	100		
0,37	4000	220	2850	1,91	8,83	55	63	66	0,60	0,71	0,79	1,23	2,70
		230	2870	1,90	9,36	54	63	66	0,55	0,66	0,74	1,22	3,00
		380	2850	1,10	5,10	55	63	66	0,60	0,71	0,79	1,23	2,70
		400	2870	1,10	5,41	54	63	66	0,55	0,66	0,74	1,22	3,00
		415	2880	1,14	5,61	53	61	65	0,51	0,62	0,71	1,23	3,20
0,55	4000	500	2830	0,84	3,88	55	63	68	0,60	0,71	0,79	1,23	2,70
		220	2855	2,7	12,2	57	64	68	0,60	0,71	0,79	1,84	3,80
		230	2870	2,8	12,9	55	63	68	0,53	0,65	0,74	1,82	4,20
		380	2855	1,6	7,0	57	64	68	0,60	0,71	0,79	1,84	3,80
		400	2870	1,6	7,4	55	63	68	0,53	0,65	0,74	1,82	4,20
0,75	4000	415	2880	1,7	7,7	50	60	65	0,50	0,61	0,70	1,82	4,60
		500	2855	1,2	5,3	57	64	68	0,60	0,71	0,79	1,84	3,80
		220	2840	3,5	17,4	63	69	70	0,61	0,73	0,81	2,51	6,05
		230	2865	3,5	18,3	61	68	70	0,55	0,68	0,77	2,49	6,70
		380	2840	2,0	10,1	63	69	70	0,61	0,73	0,81	2,51	6,05
1,1	4000	400	2865	2,0	10,6	61	68	70	0,55	0,68	0,77	2,49	6,70
		415	2875	2,1	10,9	58	66	69	0,51	0,63	0,73	2,48	7,20
		500	2840	1,5	7,6	63	69	70	0,61	0,73	0,81	2,51	6,05
		220	2830	4,9	26,4	68	73	74	0,63	0,75	0,82	3,71	10,23
		230	2850	4,9	27,8	66	72	74	0,57	0,69	0,78	3,67	11,33
1,5	4000	380	2830	2,8	15,3	68	73	74	0,63	0,75	0,82	3,71	10,23
		400	2850	2,8	16,0	66	72	74	0,57	0,69	0,78	3,67	11,33
		415	2865	2,9	16,7	64	70	73	0,52	0,65	0,74	3,64	12,20
		500	2830	2,1	11,6	68	73	74	0,63	0,75	0,82	3,71	10,23
		220	2830	6,7	34,0	67	72	73	0,62	0,74	0,83	5,04	12,77
2,2	4000	230	2855	6,7	35,9	65	71	73	0,55	0,68	0,78	5,00	14,10
		380	2830	3,9	19,7	67	72	73	0,62	0,74	0,83	5,04	12,77
		400	2855	3,9	20,7	65	71	73	0,55	0,68	0,78	5,00	14,10
		415	2865	4,0	21,5	62	69	72	0,50	0,63	0,73	5,00	15,20
		500	2830	2,9	14,9	67	72	73	0,62	0,74	0,83	5,04	12,77
3	4000	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
3	4000	500	2820	4,1	21,5	71	75	75	0,6	0,74	0,82	7,42	19,87
		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
3	4000	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



Winding Resistances 304SS / 316SS 50Hz

P _N [kW]	U _N [V]	Stator Ref.	U - V / Ohm
0,37	220 - 230	326 775 945 / 955	14,6 - 17,8
	380 - 400 - 415	326 710 945 / 955	44,8 - 54,8
	500	326 787 945 / 955	90,8 - 111,0
0,55	220 - 230	326 776 945 / 955	11,3 - 13,8
	380 - 400 - 415	326 711 945 / 955	34,2 - 41,8
	500	326 788 945 / 955	57,3 - 70,0
0,75	220 - 230	326 777 945 / 955	7,6 - 9,2
	380 - 400 - 415	326 712 945 / 955	23,2 - 28,3
	500	326 789 945 / 955	38,7 - 47,3
1,1	220 - 230	326 778 945 / 955	4,5 - 5,4
	380 - 400 - 415	326 713 945 / 955	13,8 - 16,8
	500	326 790 945 / 955	23,1 - 28,3
1,5	220 - 230	326 779 945 / 955	3,6 - 4,3
	380 - 400 - 415	326 714 945 / 955	10,9 - 13,4
	500	326 791 945 / 955	20,7 - 25,3
2,2	220 - 230	326 780 945 / 955	2,5 - 3,0
	380 - 400 - 415	326 715 945 / 955	7,1 - 8,6
	500	326 792 945 / 955	11,9 - 14,5
3	220 - 230	326 781 945 / 955	1,5 - 1,9
	380 - 400 - 415	326 716 945 / 955	4,7 - 5,8
	500	326 793 945 / 955	8,4 - 10,2

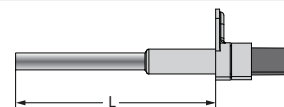
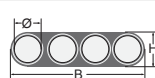
Electrical connection 3 Phase Motors DOL



a	b	c	PE
black	brown	grey	yellow/green

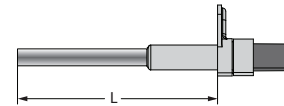
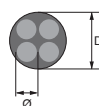
Motor Leads*

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



L [m]	3 ~ Motor- Flat Leads	
	304 SS	316 SS
1,5	310 178 401	310 178 501
2,5	310 178 402	310 178 502
5	310 178 405	310 178 505
10	310 178 410	310 178 510
15	310 178 415	310 178 515
20	310 178 420	310 178 520
30	310 178 430	310 178 530
40	310 178 440	310 178 540
50	310 178 450	310 178 550

Ø [mm ²]	Ø D (mm)
4X1,5	9,8 ± 0,3



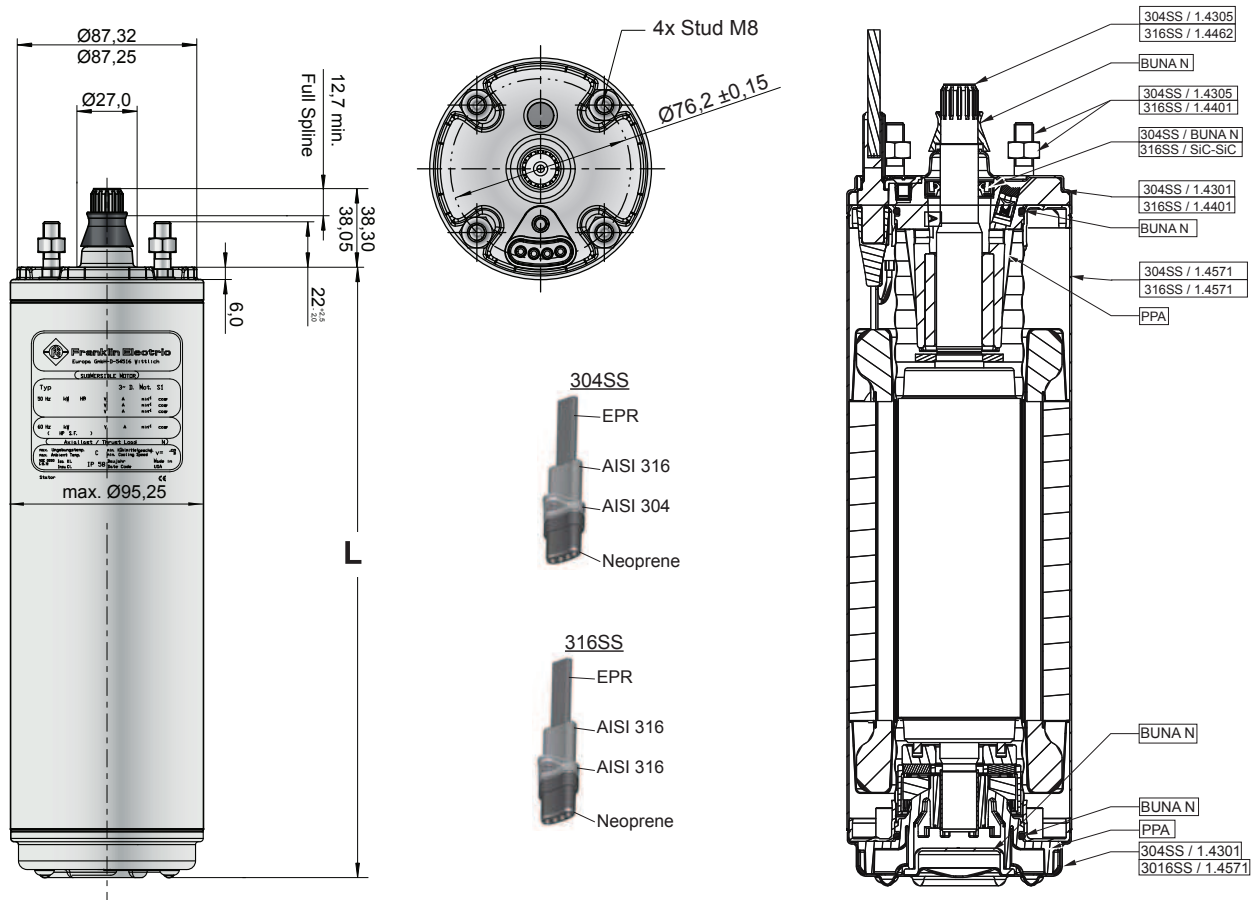
L [m]	3 ~ Motor- Pollution Recovery Round Leads	
	304 SS	316 SS
1,5	310 318 401	310 318 501
2,5	310 318 402	310 318 502
5	310 318 405	310 318 505
10	310 318 410	310 318 510
15	310 318 415	310 318 515
20	310 318 420	310 318 520
30	310 318 430	310 318 530
40	310 318 440	310 318 540
50	310 318 450	310 318 550

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



0,37kW - 3,0kW

Material Description

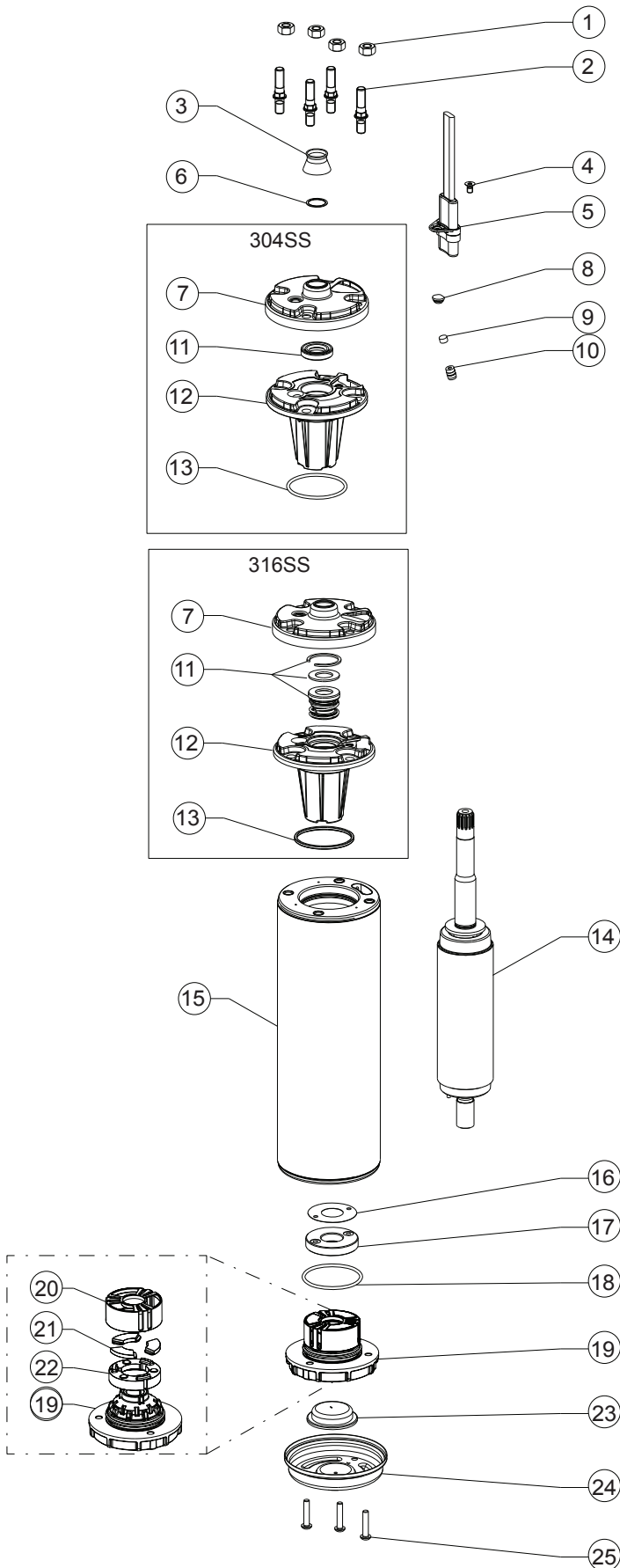


Tolerances according to NEMA MG 1-18.388

4" 3- Phase NextGen Motors Lengths & Weights

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]
0,37	0,5	237,2	5,58	400 x 100 x 110	6,3	800 x 500 x 870	242
0,55	0,75	251,1	6,40	400 x 100 x 110	7,2	800 x 500 x 870	274,8
0,75	1,0	271,2	7,25	530 x 100 x 110	8,0	800 x 500 x 870	308,8
1,10	1,5	297,2	8,55	530 x 100 x 110	9,3	800 x 500 x 870	360,8
1,50	2,0	321,2	9,55	530 x 100 x 110	10,3	800 x 500 x 870	400,8
2,20	3,0	353,2	11,05	796 x 100 x 110	11,8	800 x 500 x 870	460,8
3,0	4,0	408,2	13,55	796 x 100 x 110	14,3	800 x 500 x 870	560,8

4" 3-Phase NextGen Motors Part Description



Pos.	Part Description	Qty.	Part No.
1	Nut	4	Kit C
2	Stud	4	Kit C
3	Protector, Spline	1	Kit B
4	Screw (Motor lead)	1	Kit C
5	Motor lead	1	see page 18
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 21
15	Stator	1	see page 21
16	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	1	Kit B
24	Bottom Endbell Cover 304SS	1	156 414 201
	Bottom Endbell Cover 316SS		156 414 301
25	Screw, Cover	3	Kit C



4" 3- Phase Spare Parts 304SS/316SS

P_N [kW]	0,37- 3,0 kW		
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	308 650 201
	Seal Kit 316SS		308 650 251
Kit C	Fastener Kit 304SS	incl. Pos.: 1, 2, 4, 25	308 656 201
	Fastener Kit 316SS		308 656 251

Replacement 304SS Motors Stator and Rotor 50 Hz

P_N [kW]	U_N [V]	Motor Nb.	Stator Nb.	Rotor
0,37	220, 230	234 751 6700 / L	305 491 751	178 164 901K
	380, 400, 415	234 761 6700 / L	305 491 761	
	500	234 791 6700 / L	305 491 771	
0,55	220, 230	234 752 6700 / L	305 491 752	178 164 902K
	380, 400, 415	234 762 6700 / L	305 491 762	
	500	234 792 6700 / L	305 491 772	
0,75	220, 230	234 753 6700 / L	305 491 753	178 164 903K
	380, 400, 415	234 763 6700 / L	305 491 763	
	500	234 793 6700 / L	305 491 773	
1,10	220, 230	234 754 6700 / L	305 491 754	178 164 905K
	380, 400, 415	234 724 6700 / L	305 491 764	
	500	234 794 6700 / L	305 491 774	
1,50	220, 230	234 755 6700 / L	305 491 755	178 164 907K
	380, 400, 415	234 725 6700 / L	305 491 765	
	500	234 795 6700 / L	305 491 775	
2,20	220, 230	234 756 6700 / L	305 491 756	178 164 908K
	380, 400, 415	234 726 6700 / L	305 491 766	
	500	234 796 6700 / L	305 491 776	
3,00	220, 230	234 766 6700 / L	305 491 757	178 164 910K
	380, 400, 415	234 764 6700 / L	305 491 767	
	500	234 768 6700 / L	305 491 777	

Replacement 316SS Motors Stator and Rotor 50 Hz

P_N [kW]	U_N [V]	Motor Nb.	Stator Nb.	Rotor
0,37	220, 230	234 751 6700 / L	305 491 751	178 164 951K
	380, 400, 415	234 761 6800 / L	305 491 761	
	500	234 791 6800 / L	305 491 771	
0,55	220, 230	234 752 6800 / L	305 491 752	178 164 952K
	380, 400, 415	234 762 6800 / L	305 491 762	
	500	234 792 6800 / L	305 491 772	
0,75	220, 230	234 753 6800 / L	305 491 753	178 164 953K
	380, 400, 415	234 763 6800 / L	305 491 763	
	500	234 793 6800 / L	305 491 773	
1,10	220, 230	234 754 6800 / L	305 491 754	178 164 955K
	380, 400, 415	234 724 6800 / L	305 491 764	
	500	234 794 6800 / L	305 491 774	
1,50	220, 230	234 755 6800 / L	305 491 755	178 164 957K
	380, 400, 415	234 725 6800 / L	305 491 765	
	500	234 795 6800 / L	305 491 775	
2,20	220, 230	234 756 6800 / L	305 491 756	178 164 958K
	380, 400, 415	234 726 6800 / L	305 491 766	
	500	234 796 6800 / L	305 491 776	
3,00	220, 230	234 766 6800 / L	305 491 757	178 164 960K
	380, 400, 415	234 764 6800 / L	305 491 767	
	500	234 768 6800 / L	305 491 777	



SubStartSC® Single phase Submersible Motor Starter

The SubStartSC® range covers all PSC motors from 0.25kW to 2.2kW for all voltages. Ergonomic design, attention to detail and unique features make the SubStartSC® motor starter range your first choice when considering submersible motor protection. In conjunction with Franklin Electric submersible motors you now have an tangible water system advantage resulting in ease of installation and reliable protection.

Product features:

- Attention to detail – every aspect engineered for the application
- The complete package – The device is 100% compatible with the motor characteristics
- All in one name – Reliability backed by the leader in submersible motors



Ergonomically designed	
Mounting	Easy wall mounting without destroying the protection rating of the enclosure.
Wiring	Sufficient space is provided for ease of wiring.
Enclosure	
Protection	IP54
Material	PVC / Polycarbonat
Components	
ON/OFF switch	Illuminated integral ON/OFF switch for ease of power
Circuit breaker	Thermal circuit breaker for protection of the motor.
Capacitor	High quality motor run capacitor for long life
Terminal board	Terminal board suitable for ease of reliable connections
Cable glands	Cable glands to ensure IP54 rating

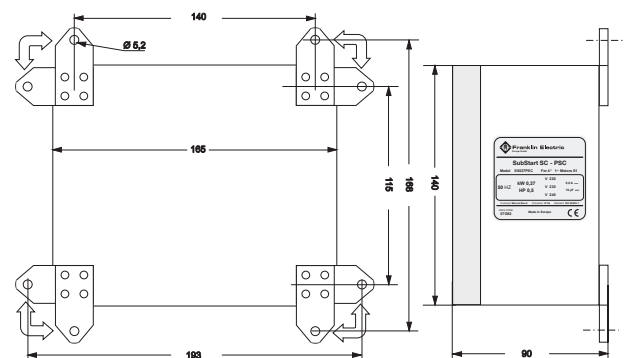
Technical Specifications:	
Mechanical	
Protection level	IP54
External dimensions	168 x 142 x 85mm
Weight	0,6 - 1,0 kg
Mounting	Wall mounting (mounting hardware provided)
Temperature	-5°C - +40°C
Humidity	50% at 55°C (without condensation)
Electrical	
Voltage	220 - 240V; - 6 / +10 %; 50Hz single phase
Current	2,2 - 16 A
Power	0,25 - 2,2 kW
Standards	
IEC 60439-1	

Submersible Motor Starter Specifications					
Part Number ¹	Type ²	Motor rating [kW]	Nominal Current ³ [A]	Maximal expected current ⁴ [A]	Capacitor [μF] 450V ac
284 623 3510	SS025SC	0,25	2,4	9,4	12,5
284 624 3510	SS037SC	0,37	3,3	12,6	16
284 625 3510	SS055SC	0,55	4,3	17,7	20
284 626 3510	SS075SC	0,75	5,7	22,7	35
284 627 3510	SS110SC	1,10	8,4	33,9	40
284 628 3510	SS150SC	1,50	10,7	41,7	50
284 629 3510	SS220SC	2,20	14,7	61,8	70

Notes:

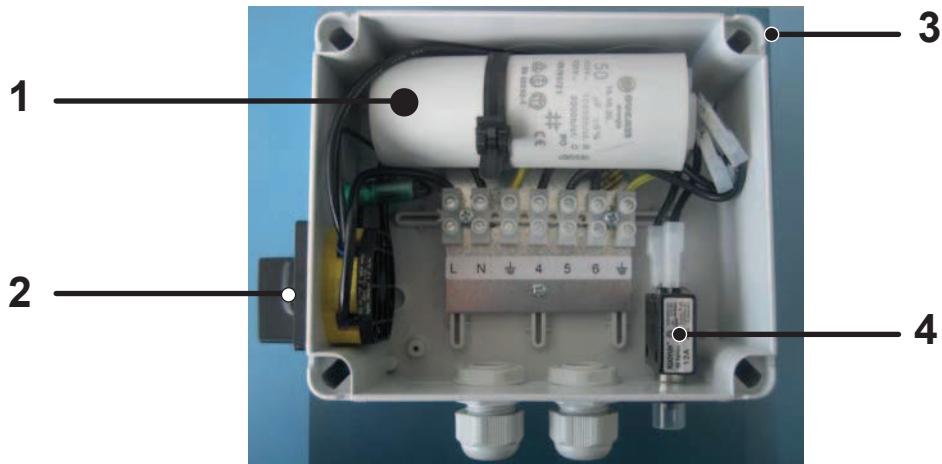
1. Can be used with both 220-230V and 230-240V PSC motor ranges.
2. Type indicates motor power rating and motor type.
3. Nominal supply current at nominal voltage
4. Motor starting current under nominal conditions

Dimensions





SubStartSC® Spare Parts

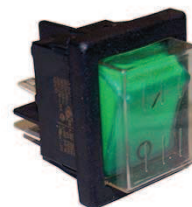


1 Part: Capacitor - Kit

Rating [kw]	Mod. Nb.		μF
0,25	308 005 801	-	12,5
0,37	308 005 802	-	16
0,55	308 005 803	-	20
0,75	308 005 804	-	35
1,1	308 005 805	-	40
1,5	308 005 806	-	50
2,2	308 005 807	-	70

4 Part: Overload - Kit

Rating [kw]	Mod. Nb.		Amp
0,25	308 005 811	-	3
0,37	308 005 812	-	5
0,55	308 005 813	-	6
0,75	308 005 814	-	8
1,1	308 005 815	-	10
1,5	308 005 816	-	13
2,2	308 005 817	-	18



2 Part: Rotary - Switch - Kit

Mod. Nb.
308 005 822

3 Part: Rocker - Switch - Kit

Mod. Nb.
308 005 821



SubTronicSC® Single Phase Motor Protection

The SubTronicSC® range covers all PSC motors from 0.25kW to 2.2kW for all voltages. Ergonomic design, attention to detail and unique features make the SubTronicSC® motor starter range your first choice when considering submersible motor protection. In conjunction with Franklin Electric submersible motors you now have an tangible water system advantage resulting in ease of installation and reliable protection.

Product features:

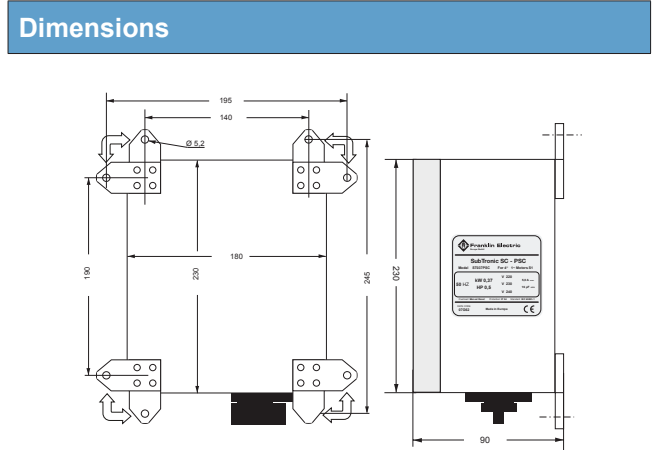
- Attention to detail – every aspect engineered for the application
- The complete package – The device is 100% compatible with the motor characteristics
- All in one name – Reliability backed by the leader in submersible motors



Ergonomically designed	
Mounting	Easy wall mounting offering various options without destroying the protection rating of the enclosure.
Wiring	Reliable connectors are provided for ease of wiring.
Motor compatible design	
Matching range	The SubTronicSC® Protector range was designed to match the Franklin Electric range of PSC motors.
Wide range of operation	Compatibility with motor design allows for a wide range of operation resulting in minimized nuisance tripping.
Intelligent Protection and Management features	
Dry-run detection (without probes)	Prevents motor and pump damage due to running the pump without water based on a proprietary reliable detection method.
Dry-run auto- reset	Automatic dry-run reset time is based on a proprietary search algorithm to find the best operating point for weak wells. Reset time 6 to 60 minutes.
Over & Under voltage	Prevents motor damage that may be caused by abnormal voltage conditions without limiting the range of operation, made possible by matching the design of the SubTronicSC® Protector with the motor. Reset time approximately 3 minutes.
Over current protection	Prevents operation under conditions where motor current may exceed safe levels due to bound pump or other fault condition. Detection is based on current heating capacity measurement to prevent unnecessary nuisance tripping. Reset time approximately 10 minutes.
Faulty Start Protection	Prevents system damage due to factors such as faulty contacts or switch. Contact failure detection reacts fast and will prevent damage to system components.
Rapid Cycle Protection	Prevents system damage due to factors such as continuous rapid cycling and excessive motor thermal cycling caused by waterlogged tank, faulty contacts or faulty pressure switch.
Indicators	
Status	Indication shows normal operation or other condition.
Voltage	Faulty voltage condition is indicated.
Fault conditions	Dry-run, Over current, Rapid Cycling, and Faulty start are indicated.

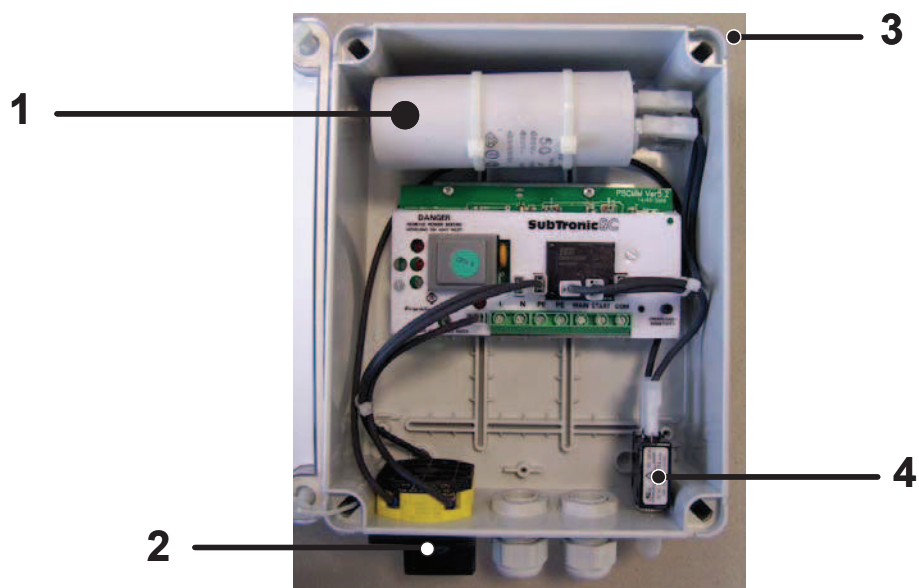
Technical Specifications	
Mechanical	
Protection level	IP54
External dimensions	290 x 230 x 95mm
Weight	0,6 - 1,0 kg
Mounting	Wall mounting (with options)
Temperature	-5°C - +40°C
Humidity	50% at 55°C (without condensation)
Electrical	
Voltage	220 - 240V; ± 10 %; 50Hz single phase
Current	16 A
Power	0,25 - 2,2 kW
Standards	
IEC 60439-1 when supplied with suitably fused supply.	

SubTronic SC Motor Protection Specifications						
Part Number	Type	Motor rating [kW]	Nominal Current [A]	Maximal expected current [A]	Capacitor [µF] 450V ac	
284 623 3511	ST025PSC	0,25	2,4	9,4	12,5	
284 624 3511	ST037PSC	0,37	3,3	12,6	16	
284 625 3511	ST055PSC	0,55	4,3	17,7	20	
284 626 3511	ST075PSC	0,75	5,7	22,7	35	
284 627 3511	ST110PSC	1,10	8,4	33,9	40	
284 628 3511	ST150PSC	1,50	10,7	41,7	50	
284 629 3511	ST220PSC	2,20	14,7	61,8	70	





SubTronicSC® Spare Parts



1 Part: Capacitor - Kit

Rating [kw]	Mod. Nb.		μF
0,25	308 005 801	-	12,5
0,37	308 005 802	-	16
0,55	308 005 803	-	20
0,75	308 005 804	-	35
1,1	308 005 805	-	40
1,5	308 005 806	-	50
2,2	308 005 807	-	70

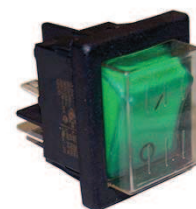
4 Part: Overload - Kit

Rating [kw]	Mod. Nb.		Amp
0,25	308 005 811	-	3
0,37	308 005 812	-	5
0,55	308 005 813	-	6
0,75	308 005 814	-	8
1,1	308 005 815	-	10
1,5	308 005 816	-	13
2,2	308 005 817	-	18



2 Part: Rotary - Switch - Kit

Mod. Nb.
308 005 822



3 Part: Rocker - Switch - Kit

Mod. Nb.
308 005 821



SubStart3P® Three phase Submersible Motor Starter

The SubStart3P® range covers all 3 phase motors from 0.37kW to 7,5kW. Ergonomic design, attention to detail and unique features make the SubStart3P® motor starter range your first choice when considering submersible motor protection. In conjunction with Franklin Electric submersible motors you now have an tangible water system advantage resulting in ease of installation and reliable protection

Product features:

- Attention to detail – every aspect engineered for the application
- The complete package – The device is 100% compatible with the motor characteristics
- All in one name – Reliability backed by the leader in submersible motors

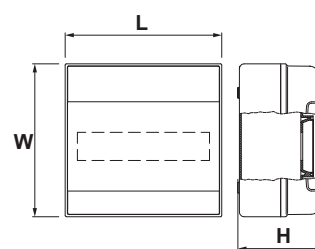


Ergonomically designed	
Mounting	Easy wall mounting without destroying the protection rating of the enclosure.
Wiring	Sufficient space is provided for ease of wiring.
Enclosure	
Protection	IP54
Material	PVC / Polycarbonate
Components	
ON/OFF Switch	Manual motor starter switch
Circuit breaker	Integrated thermal and magnetic overload protection
Auxiliary relay	Powered auxiliary contactor for use with external switches
Cable glands	Ensure IP54 rating

Model Parameters				
Motor Rating (kW)	Type 3~ 400V 50Hz	Model Number	Nom. Current (A)	Starting Current (A)
0,37	SS037P3	288 500 3510	1,1	5,4
0,55	SS055P3	288 501 3510	1,6	7,4
0,75	SS075P3	288 502 3510	2	10,6
1,10	SS110P3	288 503 3510	2,8	16
1,50	SS150P3	288 504 3510	3,9	20,7
2,20	SS220P3	288 505 3510	5,5	29,8
3,0	SS300P3	288 506 3510	7,5	42
3,7	SS370P3	288 507 3510	9	52,3
4,0	SS400P3	288 508 3510	9,9	57
5,5	SS550P3	288 509 3510	12,6	77,2
7,5	SS750P3	288 510 3510	17,1	99,3

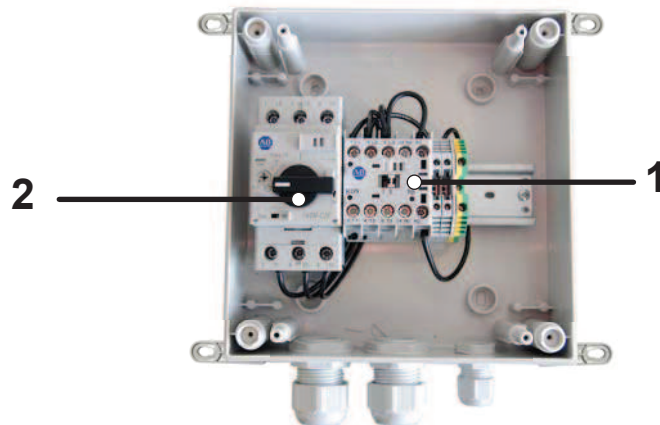
Specifications	
Mechanical Specification	
Protection level	IP 54
Environment	This equipment is suitable for environment B according to IEC/EN 61439 - 1 : 2010
Altitude	max 2000m above sea level
External dimensions	190x184x106mm <= 4kW 250x256x140mm >= 5,5kW
Weight	1,2 kg <= 4kW 2,3 kg >= 7,5kW
Mounting	Wall mounting (mounting hardware provided)
Storage temperature	-25°C to +55°C
Operation temperature	-5°C to +40°C
Humidity	50% at 40°C (without condensation)
Electrical Specifications	
Working Voltage	3~ / 50Hz 380 - 415V / -10% +6%
Voltage tolerance	380V -10% / 415V+6%
Rated insulation voltage	400 Vac
Rated short-time withstand current	50 kA
Rated conditional short-circuit current	50 kA
Current	5A, 9A, 16 A
Power	0,37kW - 7,5kW
Standards	
IEC/EN 61439 - 1 : 2010	

Dimensions			
Motor Rating (kW)	W [mm]	L [mm]	H [mm]
0,37kW - 4,0kW	190	184	106
5,5kW - 7,5kW	250	256	140





SubStart3P® Spare parts



1 Part: Contactor

Rating [kw]	Mod. Nb.
0,37	308 027 201
0,55	308 027 201
0,75	308 027 201
1,1	308 027 201
1,5	308 027 201
2,2	308 027 202
3,0	308 027 202
3,7	308 027 203
4,0	308 027 203
5,5	308 027 204
7,5	308 027 205

2 Part: Motor Starter

Rating [kw]	Mod. Nb.
0,37	308 027 101
0,55	308 027 102
0,75	308 027 102
1,1	308 027 103
1,5	308 027 104
2,2	308 027 104
3,0	308 027 105
3,7	308 027 105
4,0	308 027 106
5,5	308 027 106
7,5	308 027 107



SubTronic3P® Three Phase Motor Protection

The SubTronic3P® range covers all 4 inch 3 phase motors from 0.37kW to 7,5kW. Ergonomic design, attention to detail and unique features make the SubTronic3P® range your first choice when considering submersible motor protection and management. Together with Franklin Electric submersible motors you have an undisputable advantage, resulting in ease of installation, sophisticated system management and peace of mind.



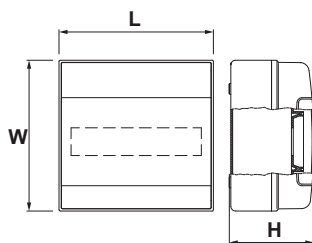
Product features:

- Attention to detail – every aspect engineered for the application
- The complete package – The device is 100% compatible with the motor characteristics
- All in one name – Reliability backed by the leader in submersible motors

Ergonomically designed	
Mounting	Easy wall mounting offering various options without destroying the protection rating of the enclosure.
Wiring	Reliable connectors are provided for ease of wiring.
Motor compatible design	
Matching range	The SubTronic3P® Protector range was designed to match the Franklin Electric range of 3 phase motors.
Wide range of operation	Compatibility with motor design allows for a wide range of operation resulting in minimized nuisance tripping.
Intelligent Protection and Management features	
Dry-run detection (without probes)	Prevents motor and pump damage due to running the pump without water based on a proprietary reliable detection method.
Dry-run auto- reset	Automatic dry-run reset time is based on a proprietary search algorithm to find the best operating point for weak wells. Reset time in max. 60 minutes.
Over & Under voltage	Prevents motor damage that may be caused by abnormal voltage conditions without limiting the range of operation, made possible by matching the design of the SubTronic3P® Protector with the motor. Reset time approximately 3 minutes.
Over current protection	Prevents operation under conditions where motor current may exceed safe levels due to bound pump or other fault condition. Detection is based on current heating capacity measurement to prevent unnecessary nuisance tripping. Auto-reset in 15 minutes. Manual reset possible in approximately 5 minutes by reapplying power.
Rapid Cycle Protection	Prevents system damage due to factors such as continuous rapid cycling and excessive motor thermal cycling caused by waterlogged tank, faulty contacts or faulty pressure switch. Auto-reset in 5 minutes if condition clears. Manual reset possible in approximately 5 minutes by reapplying power.
Indicators	
Status	Indication shows normal operation or other condition.
Voltage	Faulty voltage condition is indicated.
Fault conditions	Dry-run, Over Current, Rapid Cycling, Over Voltage and Under Voltage are indicated.

Dimensions

Motor Rating [kW]	W [mm]	L [mm]	H [mm]
0,37kW - 3kW	190	184	106
3,7kW - 7,5kW	250	256	140



Specifications	
Mechanical Specification	
Protection level	IP 54
Environment	This equipment is suitable for environment B according to IEC/ EN 61439 - 1 : 2010
Altitude	max 2000m above sea level
External dimensions	190 x 184 x 106 mm <= 3kW 250 x 256 x 140 mm >= 3,7kW
Weight	1,2 kg <= 3kW 2,5 kg >= 3,7kW
Mounting	Wall mounting (mounting hardware provided)
Storage temperature	-25°C to +55°C
Operation temperature	-5°C to +40°C
Humidity	50% at 40°C (without condensation)
Electrical Specifications	
Rated Voltage	3~ / 50Hz 380 - 415V
Voltage tolerance	380V -10% / 415V+6%
Rated insulation voltage	400 Vac
Rated short-time withstand current	50 kA
Rated conditional short-circuit current	50 kA
Current	5 A ; 9 A ; 25 A
Power	0,37 - 7,5kW
Standards	
IEC/EN 61439 - 1 : 2010	

SubTronic3P Motor Protection Specifications

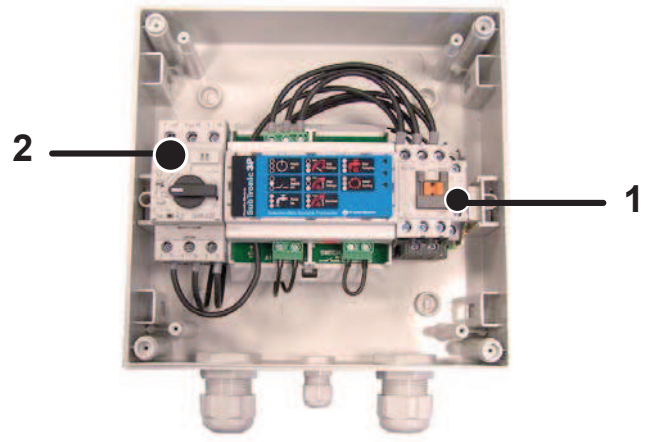
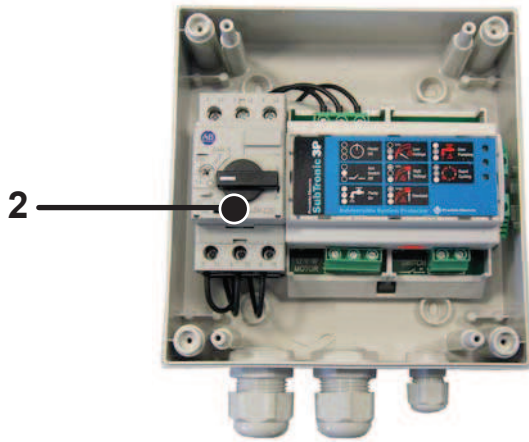
Motor Rating [kW]	Type 3phase / 400V 50Hz	Model Number	Nom. Current [A]	Max. Current [A]
0,37	ST037P3	288 500 3511	1,1	5,4
0,55	ST055P3	288 501 3511	1,6	7,4
0,75	ST075P3	288 502 3511	2	10,6
1,10	ST110P3	288 503 3511	2,8	16
1,50	ST150P3	288 504 3511	3,9	20,7
2,20	ST220P3	288 505 3511	5,5	29,8
3	ST300P3	288 506 3511	7,5	42
3,7	ST370P3	288 507 3511	9	52,3
4	ST400P3	288 508 3511	9,9	57
5,5	ST550P3	288 509 3511	12,6	77,2
7,5	ST750P3	288 510 3511	17,1	99,3



SubTronic3P® Spare Parts

0,37kW - 3,0kW

3,7kW - 7,5kW



1 Part: Contactor - > 3,7kW

Rating [kW]	Mod. Nb.
0,37	-
0,55	-
0,75	-
1,1	-
1,5	-
2,2	-
3,0	-
3,7	308 027 206
4,0	308 027 206
5,5	308 027 204
7,5	308 027 205

2 Part: Motor Starter

Rating [kW]	Mod. Nb.
0,37	308 027 101
0,55	308 027 102
0,75	308 027 102
1,1	308 027 103
1,5	308 027 104
2,2	308 027 104
3,0	308 027 105
3,7	308 027 105
4,0	308 027 106
5,5	308 027 106
7,5	308 027 107



SubDrive® Constant-pressure Controller

Franklin Electric's SubDrive constant pressure controller provides constant pressure by continually adjusting the speed of the pump to match water demand. Instead of draining and filling a large tank, a SubDrive system pumps more or less water as you need it. Finally, you'll be able to run the dishwasher, do laundry and water the lawn – all at the same time!

Product Features:

- Works with a standard three-phase, 60Hz, 230V Franklin Electric submersible motor
- IP 20 (Indoor) enclosure
- Three phase performance with single-phase input
 - High starting torque
 - More efficient
 - Smooth running
- Constant water pressure with a wide range of settings (2 to 6 bar)
- Soft start feature prevents water hammer and increases motor life
- Works with small pressure tanks or existing larger tanks
- Smart Reset™ technology allows well recovery before restarting the pump
- Complete well management included
- Absolutely easy to install
- Excellent radio frequency interference shielding

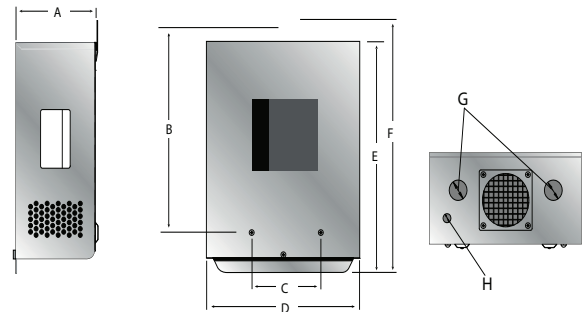


Built-in Diagnostics and Protection

SubDrive products all include diagnostic features and built-in protection for conditions that would be harmful to the system.

- Surge protection
- Underload
- Undervoltage
- Locked pump
- Open circuit
- Short circuit
- Overheated controller

Outlines (cm)




A - 13,3	B - 29,2	C - 14,0	D - 24,8
E - 32,5	F - 35,6	G - 2,80	H - 1,3

Constant Pressure Controls Specifications

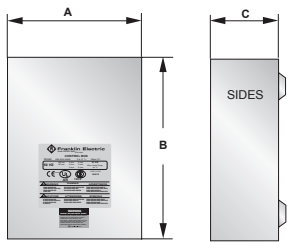
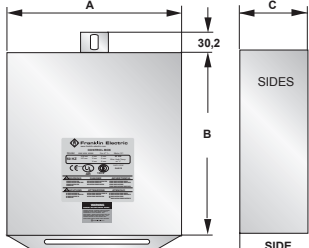
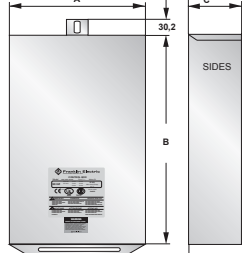
	SubDrive75	SubDrive100	SubDrive150
Rated Power	1,1kW	1,5kW	2,2kW
Model No.	587 020 3380	587 020 4100	587 020 4150
Input (From Power Source)			
Voltage [V]	190-260 V / 1 Phase	190-260 V / 1 Phase	190-260 V / 1 Phase
Frequency [Hz]	60 / 50 Hz	60 / 50 Hz	60 / 50 Hz
Max. Amps (RMS) [A]	11 A	19 A	23 A
Power Factor	1.0 (Constant)	1.0 (Constant)	1.0 (Constant)
Output (To Motor)			
Voltage [V]	Variable / 3 Phase	Variable / 3 Phase	Variable / 3 Phase
Frequency [Hz]	Variable (30-80 Hz)	Variable (30-80 Hz)	Variable (30-80 Hz)
Max. Amps (RMS) [A]	5,9 A	8,1 A	10,9 A
For Use With:			
Pump Rating [kW]	0,55, 0,75 or 1,1 kW (Selectable)	0,75, 1,1 or 1,5 kW (Selectable)	1,1, 1,5 or 2,2 kW (Selectable)
Motor Rating [kW]	1,1 kW, 230 VAC, 60Hz (3-Phase)	1,5 kW, 230 VAC, 60Hz (3-Phase)	2,2 kW, 230 VAC, 60Hz (3-Phase)
Pressure Sensor (223 995 904 Included)	External	External	External
Controller Weight [kg]	7,0	8,0	8,0
Carton Size (H x W x D) [cm]	42 x 31 x 23	42 x 31 x 23	42 x 31 x 23
Shipping Weight [kg]	10	10	10



3- wire Motor Control Boxes

Application:	Control and Protection of Franklin Electric 3-wire single phase motors.		
Specification:	<ul style="list-style-type: none"> Voltage: 220 – 230 V Degree of protection: IP 23 Metal version Includes starting capacitor Manual reset overload Temperature range: -20°C - +50°C 50 Hz 		
Ordering information:	Motor Rating	Control Box Mod. Number	Weights (kg)
220 / 230 / 240 V	0,25	280 355 2115	1,36
	0,37		
	0,55		
	0,75	280 358 2115	2,8
	1,1	282 350 8114	
	1,5	282 351 8114	
	2,2	282 352 8114	
	3,7	282 253 4014	4,7

Outline Drawing [mm]

0,25 – 0,75 kW			1,1 kW / 1,5 kW / 2,2kW			3,7 kW		
								
A	B	C	A	B	C	A	B	C
125	215	68	205	216	154	205	384	154

Spare Parts Control Box 50 Hz

P_N [kW]	Box Nb.	Relay-Kit	Qty.	Start Capacitor	Qty.	Run Capacitor	Qty.	Overload relay of main phases	Qty.	Overload relay of start phases	Qty.
		Pos. 1		Pos. 2		Pos. 3		Pos. 4		Pos. 5	
0,37	2803552115	305213912	1	305218957 48µF 220V	1	-----	0	*	1	-----	0
0,55	2803572115	305213912	1	305218906 65µF 220V	1	-----	0	*	1	-----	0
0,75	2803582115	305213912	1	305218918 95µF 220V	1	-----	0	*	1	-----	0
1,1	2823508114	305213912	1	305207913 115µF 220V	1	305 204 902 10µF 370V	1	305 215 914	1	-----	0
1,5	2823518114	305213912	1	305208915 208µF 220V	1	305 204 903 20µF 370V	1	305 215 902	1	305 215 906	1
2,2	2823528114	305213912	1	305208919 300µF 220V	1	305 203 902 35µF 370V	1	305 215 907	1	305 214 907	1
3,7	2822534014	305213912	1	305208915 208µF 220V	2	305 203 909 45µF 370V	1	305 214 902	1	305 215 902	1
						305 203 901 30µF 370V	1				



Termination Kit 4"

This proven, sturdy solution is your choice of cable joining in temporary pump applications or when re-usage if the drop cable is desired. Furthermore, the flexibility and safety it provides for under field service conditions makes it the preferred choice over conventional, not breakable splicing kits.

Kit- Type	Mod. Number	Description
Standard	308 090 901	without . Strain relief Attention: Limited shelf life of Resin and Hardener



Double Plug Lead for Termination Kit

Required for use of lead termination kit. Connected between termination kit and 4" motor.

- PSC Motors / 3-wire Motors and 3 ~ Motors up to 2,2kW
- Material: Connector- Ni plated brass; Lead: rubber
- 3 wire lead with ground
- Max. current 16 amps.
- Approvals: KTW



Mod. No.	PSC / 3 - wire / 3-Phase (up to 2,2kW)
309 111 401	3X1,5+1G1,5mm ² 1,5 m - without . Strain relief

4" Corrosion protection in aggressive water

Application:

Wells with extremely high levels of chlorides and other elements in combination with high temperatures will aggressively attack and corrode nearly any type of metal, including stainless steel. Typical severe applications are geothermal wells and mine wells, and applications with low service times.

These sacrificial anodes, affixed to the motor body, will increase the service life of the motor when used in such environments.

Material Specification: GG25





Motor Filling Liquid

Filling liquid 5 L FES92

4" Encapsulated	→	FES93
-----------------	---	-------



**Part number:
308 353 941**

FES91	FES92	FES93

Motor Filling Kit

This kit contains all necessary tools to check and replenish Franklin Electric submersible motors with FES 91, 92 or 93 filling liquid (fill solution/concentrate must be ordered separately)

Part number: 308 726 103





Couplings

Application

Franklin Electric offers this line of motor-pump couplings for maximum customer convenience in matching the Franklin motor to a variety of pump shafts. Couplings are designed to transmit the pump thrust to the motor in order to provide maximum benefits from the Franklin internal thrust bearing construction.

Hardened stainless steel spacer discs in the 4" couplings assure positive bearing between motor and pump shafts, and assure full support for downward thrust created by the pump.



4" Motor - Pump couplings

Application: Allow connection of pump to motors shaft.

- Specification:**
- Material: 304 / 316 SS
 - NEMA standard measuring on motor shaft
 - separation washer between motor & pump shafts

Coupling 1	304		316SS	Coupling Insert only (316SS)
	151 551 911		151 551 931	
	Dimension D Max. / Min.	Dimension N Max. / Min.	Dimension H Max. / Min.	
	19,075 / 19,063	4,838 / 4,788	20,70 / 20,53	

Coupling 2	316SS	
	308 712 904	
	Dimension D Max. / Min.	17,50 / 17,48



Franklin Electric

Franklin Electric Europa GmbH
Rudolf Diesel Strasse 20
54516 Wittlich / Germany

franklin-electric.eu

DOC.NB. 308-018-656 REV. 4 02-16