

Submersible Motors

Product Overview



Franklin Electric

QUALITY IN THE WELL

POWERED BY



Franklin Electric



QUALITY



AVAILABILITY



SERVICE



INNOVATION





Table of contents

4" Encapsulated Motors	
PSC	2
2- wire	3
3- wire	4
3 Phase	5
6" Encapsulated Motors	
Standard	6
HighTemp 90°C	7
6" Rewindable Motors	
Standard	8
8" Encapsulated Motors	
Standard	9
HighTemp 75°C	10
8" Rewindable Motors	
Standard	11
10" Rewindable Motors	
Standard	12
12" Rewindable Motors	
Standard	13
Motor Protection	
SubMonitor	14
SubStartSC	15
SubTronicSC	16
Drives	
SubDrive	17
Motor Accessories	
4" Termination Kit	18
4" Lead for Termination Kit	18
Lead Termination Kit	18
Motor Filling Liquid	18
Motor Filling Kit	18
Permanent Star Plug	19
Motor Coupling	19
Surge Arrestor	19
PT 100 Encapsulated Motors	19
PT 100 Rewindable Motors	20
4" Corrosion Protection	20
Notice	21

4" Encapsulated Motors



4" Super Stainless 1~ PSC

Submersible Motors Quality in the Well

Franklin Electric 4" encapsulated PSC single Phase Motors, manufactured in ISO 9001 certified facilities, for operation with permanent split capacitor and overload.

This motor is built for dependable operation in 4" diameter or larger water wells, with excellent low voltage behavior and a high starting torque. It is fitted with water lubricated radial and thrust bearings for maintenance-free operation. The motor is filled with a special FES93 fluid, providing frost protection down to -40°C storage temperature.

A special diaphragm ensures pressure compensation inside the motor.

Product advantages:

- Hermetically sealed stator. Anti track, self healing stator resin prevents motor burn out
- High efficiency electrical design (low operation cost, cooler winding temperature)
- Removable "Water bloc" lead connector
- Cable material in accordance with regulations for drinking water (KTW approved)
- Water lubricated radial and thrust bearings
- All motors pre-filled and 100% tested.
Non contaminating, FES93-filled design.



Technical Specifications

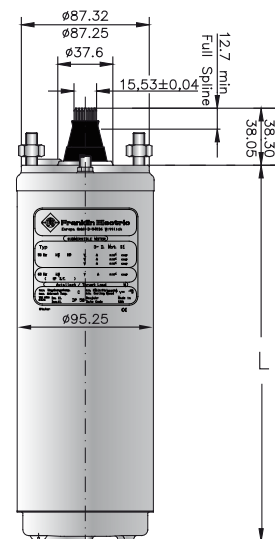
Standard Motor:

- 0,25 - 2,2kW
- 4" NEMA flange
- Rotation: CCW facing shaft end
- Degree of protection: IP 68
- Insulation: Cl. B
- Rated Ambient temp.: 30°C
- Cooling flow: min. 8cm/s
- Starts / h: 20
- Mounting: vertical/horizontal
- Voltage tolerance: +6% / -10% UN
- Motor protection: Select thermal overloads according to EN 60947-4-1. Trip time ≤ 10 s at $5 \times I_N$

Options

- Motor cable VDE, KTW approved (1,5m; special lengths available)
- Motors with factory- installed lead in Single Packing
- Built-in lightning arrestor
- Built-in overload protection(0,25 ... 1,50 kW)

1~ 4" Encapsulated Motors PSC / 220- 230V / 50Hz												
P_N [kW]	Thrust F [N]	U_N [V]	n_N [min ⁻¹]	I_N [A]	I_A [A]	η [%]	$\cos \varphi$ [%]	T_N [Nm]	T_A [Nm]	C [F] 450V	L [mm]	m [kg]
0,25	3000	220	2865	2,3	9,0	51	0,96	0,82	0,73	12,5	214,2	7,4
		230	2875	2,4	9,4	50	0,92	0,83	0,80			
0,37	3000	220	2850	3,2	12,1	54	0,97	1,21	1,07	16	228,2	8,0
		230	2860	3,3	12,6	54	0,91	1,24	1,17			
0,55	3000	220	2840	4,2	16,9	63	0,98	1,85	1,50	20	253,2	9,2
		230	2850	4,3	17,7	63	0,94	1,90	1,63			
0,75	3000	220	2825	5,7	21,7	61	0,99	2,5	2,3	35	282,6	10,4
		230	2845	5,7	22,7	59	0,98	2,5	2,5			
1,1	3000	220	2830	8,1	32,5	65	0,97	3,7	2,9	40	306,6	11,8
		230	2845	8,4	33,9	63	0,92	3,7	3,1			
1,5	3000	220	2820	10,4	39,9	68	0,98	5,1	3,6	50	338,6	12,9
		230	2830	10,7	41,7	66	0,95	5,1	3,9			
2,2	4000	220	2825	14,7	59,2	70	0,99	7,4	5,0	70	436,6	17,3
		230	2840	14,7	61,8	68	0,97	7,4	5,5			



4" Encapsulated Motors



4" Super Stainless 1~ 2- wire

Submersible Motors Quality in the Well

Franklin Electric 4" 2- wire Motors, manufactured in ISO 9001 certified facilities, for the direct connection to the single phase power supply, are built for dependable operation in 4" diameter or larger water wells. Integrated starting components and automatic reversal torque in the case of locked pump offer you a maintenance free long life drive with low installation costs.

It is fitted with water lubricated radial and thrust bearings for maintenance-free operation. The motor is filled with a special FES93 fluid, providing frost protection down to -40°C storage temperature.

A special diaphragm ensures pressure compensation inside the motor.

Product advantages:

- Hermetically sealed stator. Anti track, self healing stator resin prevents motor burn out
- High efficiency electrical design (low operation cost, cooler winding temperature)
- Removable "Water bloc" lead connector
- Cable material in accordance with regulations for drinking water (KTW approved)
- Water lubricated radial and thrust bearings
- All motors pre-filled and 100% tested. Non contaminating, FES93-filled design.
- No control box required, built-in overload and surge arrester



Technical Specifications

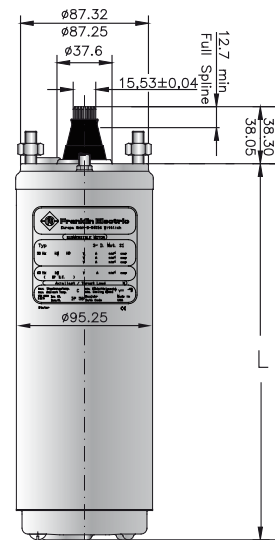
Standard Motor:

- 0,37 - 1,10kW
- 4" NEMA Flange
- Rotation: CCW facing shaft end
- Degree of protection: IP 68
- Insulation: Cl. B
- Rated Ambient temp.: 30°C
- Cooling flow: 0 cm/sec. (not required)
- Starts / h: 20
- Mounting: vertical/horizontal
- Voltage tolerance: +6% / -10% U_N
- Motor protection: Built-in

Options

- Motor cable VDE, KTW approved (1,5m; special lengths available)
- Motors with factory- installed lead in Single Packing

4"											
1~ 2wire / 230 V / 50 Hz											
P_N [kW]	Thrust [N]	n_N [min ⁻¹]	I_N [A]	I_A [A]	η [%]	$\cos \varphi$ [%]	T_N [Nm]	T_A [Nm]	L [mm]	m [kg]	
0,37	1500	2900	4,1	27,5	61	0,72	1,2	1,6	242,1	8,1	
0,55	1500	2910	6,5	37,7	61	0,67	1,8	2,1	270,8	8,5	
0,75	3000	2900	7,6	46,9	63	0,73	2,5	2,7	298,5	10,9	
1,10	3000	2890	10,8	52,9	63	0,73	2,6	3,7	384,0	14,5	



4" Encapsulated Motors



4" Super Stainless 3-wire

Submersible Motors Quality in the Well

Franklin Electric 4" encapsulated 3-wire capacitor single phase Motors, manufactured in ISO 9001 certified facilities, are built for dependable operation in 4" diameter or larger water wells.

Together with the Franklin Electric Control Boxes, they offer you a maintenance free long life operation by high starting torque and included motor protection. The motor is filled with a special FES93 fluid, providing frost protection down to -40°C storage temperature.

A special diaphragm ensures pressure compensation inside the motor.

Product advantages:

- Hermetically sealed stator. Anti track, self healing stator resin prevents motor burn out
- High efficiency electrical design (low operation cost, cooler winding temperature)
- Removable "Water bloc" lead connector
- Cable material in accordance with regulations for drinking water (KTW approved)
- Water lubricated radial and thrust bearings
- All motors pre-filled and 100% tested. Non contaminating, FES93-filled design.
- For use with Franklin Electric control box
- Offer highest starting torque of all single phase motors

Technical Specifications Standard Motor:

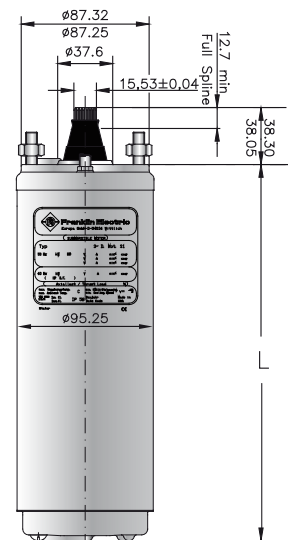
- 0,25 - 3,7kW
- 4" NEMA flange
- Rotation: CCW facing shaft end
- Degree of protection: IP68
- Insulation: Cl. B
- Rated Ambient temp.: 30°C
- Cooling flow: Motors 2,2 kW and larger: min 8 cm/sec
- Starts/h: 20
- Mounting: vertical/horizontal
- Voltage tolerance: +6% / -10% U_N
- Motor protection: included Franklin Electric Control Boxes

Options

- Motor cable VDE, KTW approved (1,5m; special lengths available)
- Motors with factory- installed lead in Single Packing
- Complete 316 SS Motor with SiC seal
- Built-in lightning arrestor



1~ 4" Encapsulated Motors 3 wire / 230 V / 50 Hz										
P _N [kW]	Thrust [N]	N _N [min ⁻¹]	I _N [A]	I _A [A]	η [%]	cos φ [%]	T _N [Nm]	T _A [Nm]	L [mm]	m [kg]
0,25	3000	2870	2,8	9,7	53	0,75	0,8	1,6	214,2	7,2
0,37	3000	2870	4,0	13,7	56	0,74	1,2	2,0	228,2	7,8
0,55	3000	2870	5,9	21,6	56	0,73	1,8	3,2	248,2	8,7
0,75	3000	2870	7,3	27,8	61	0,76	2,5	4,2	282,6	10,0
1,1	3000	2885	8,6	41,2	68	0,84	3,7	6,8	338,6	12,6
1,5	3000	2875	10,4	53,3	71	0,88	4,9	9,5	349,6	13,0
2,2	4000	2885	15,3	74,5	73	0,88	7,3	15,0	436,6	16,9
	*6500	2885	15,3	74,5	73	0,88	7,3	15,0	520,2	21,3
3,7	*6500	2895	21,4	101	77	0,99	12,2	17,6	652,5	26,4
*	High Thrust Version									



4" Encapsulated Motors



4" Super Stainless 3 Phase

Submersible Motors Quality in the Well

These 4" encapsulated three phase motors, manufactured in ISO 9001 certified facilities, are built for dependable operation in 4" diameter or larger water wells. The motor offer you a maintenance free long life submersible pump application.

The motor is filled with a special FES93 fluid, providing frost protection down to -40°C storage temperature. A special diaphragm ensures pressure compensation inside the motor.

Product advantages:

- Hermetically sealed stator. Anti track, self healing stator resin prevents motor burn out
- High efficiency electrical design (low operation cost, cooler winding temperature)
- Removable "Water Bloc™" lead connector
- Cable material according to drinking water regulations (KTW approved)
- Water lubricated radial and thrust bearings
- All motors prefilled and 100% tested. Non contaminating, FES93- filled design



Technical Specifications

Standard Motor:

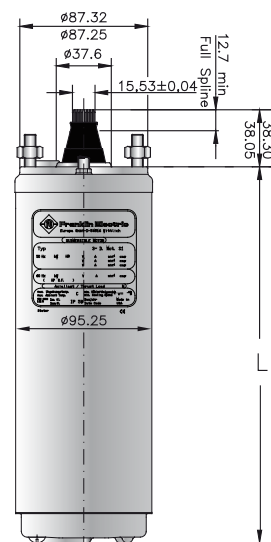
- 0,37 - 7,5kW
- 4" NEMA flange
- Degree of protection: IP68
- Insulation: Cl. B
- Rated ambient temp.: 30°C
- Cooling flow: Motors 2,2 kW and larger: min. 8cm/s
- Starts/h: 20
- Mounting: vertical/horizontal
- Voltage tolerance: 380-415V/50Hz, 460V/60Hz; -10% / +6% U_N [380-415V = (380-10%) - (415+6%)]
- Motor protection: Select thermal overloads according to EN 60947-4-1, Trip time <10 s at $5 \times I_N$

Options

- Motor cable VDE / KTW approved (1,5m; 2,5m; special lengths available)
- Motors with factory- installed lead in Single Packing
- Special voltages on request
- Δ - start (pos. of cables 90°) in motors 316SS on request
- Motor complete in AISI 316SS with SiC seal

3~ 4" Encapsulated Motors 400V / 50Hz											
P_N [kW]	Thrust F [N]	U_N [V]	n_N [min ⁻¹]	I_N [A]	I_A [A]	η [%]	$\cos \varphi$ [%]	T_N [Nm]	T_A [Nm]	L [mm]	m [kg]
0,37	3000	400	2870	1,1	5,41	66	0,74	1,22	3,00	214,2	7,2
0,55	3000	400	2870	1,6	7,4	68	0,74	1,82	4,20	228,2	7,7
0,75	3000	400	2865	2,0	7,0	70	0,77	2,49	6,70	248,2	8,7
1,1	3000	400	2850	2,8	16,0	74	0,78	3,67	11,33	282,6	10,2
1,5	3000	400	2855	3,9	20,7	73	0,78	5,00	14,10	306,6	11,2
2,2	3000	400	2845	5,5	29,8	75	0,77	7,37	22,0	338,6	12,6
	6500*	400	2845	5,5	29,8	75	0,77	7,37	22,0	422,2	15,0
3,0	3000	400	2845	7,5	42,0	76	0,77	10,06	31,93	393,6	15,0
	6500*	400	2845	7,5	42,0	76	0,77	10,06	31,93	477,2	17,0
3,7	6500*	400	2840	9,0	52,3	78	0,78	12,5	41,5	520,2	19,1
4,0	6500*	400	2840	9,9	57,0	78	0,77	13,4	44,0	543,2	20,0
5,5	6500*	400	2865	12,6	77,2	79	0,81	18,3	56,5	652,5	26,6
7,5	6500*	400	2855	17,1	99,3	79	0,81	25,1	73,1	730,5	30,6

* High Thrust Version



6" Encapsulated Motors



6" Encapsulated Motors



Submersible Motors Quality in the Well

These 6" encapsulated motors, manufactured in ISO 9001 certified facilities, are built for dependable operation in 6" diameter or larger water wells. Water lubricated thrust and radial bearings enable a maintenance free operation. A special diaphragm ensures pressure compensation inside the motor. The motor is filled with a special FES91 fluid, providing frost protection down to -15°C storage temperature. The Sand fighter® SiC seal system is standard.

Product advantages:

- Hermetically sealed stator, Anti track, self healing stator resin prevents motor burn out
- 37 and 45kW up to 50°C ambient temperature
- Removable "Water Bloc" lead connector
- Cable material according to drinking water regulations (KTW approved)
- „Sand fighter®“ Motor with SiC-Mechanical Seal
- High efficiency electrical design for low operation cost
- All motors prefilled and 100% tested
Max. storage temperature -15°C - + 60°C
- Non contaminating FES91 -filled design

Technical Specifications

Standard Motor:

- 4 ... 45 kW
- 6" NEMA flange
- Protection: IP 68
- Starts per hour: 20
- Installation: vertical/horizontal
- Standard voltage: 380-415V / 50Hz, 460V/60Hz;
Voltage tolerance: +6% / -10% (Standard: 415 + 6% = 440V, 380 - 10% = 342V)
- Motor protection: Select thermal overloads according to DIN 60947-4-1, trip class 10 or 10A, trip time < 10 s at 5 x I_N
- Insulation: Class F
- YΔ - start (pos. of cables 90°)
- „Sand fighter®“ Motor with SiC-Mechanical Seal
- Rated ambient temperature: 4- 30kW up to 30°C; 37 & 45 kW up to 50°C
- Cooling flow: min. 0,16 m/s
- Motor lead in 4m length (KTW approved)

Options

- Other voltages
- Motors complete in 316 SS
- PT 100 temperature sensor (sold separately)
- Special Lead lengths up to 50m
- Built-in PTC temperature sensor
- Built-in SubMonitor Transmitter (standard for 37&45kW)



6"										
3~ / 400 V / 50 Hz										
P _N [kW]	Thrust [N]	n _N [min ⁻¹]	I _N [A]	I _A [A]	η [%]	cos φ [%]	T _N [Nm]	T _A [Nm]	L [mm]	m [kg]
4,0	15500	2860	9,3	43	78,0	0,82	12,3	20,2	581,2	37,5
5,5	15500	2870	12,5	64	79,0	0,82	18,6	35,0	614,4	41,1
7,5	15500	2860	16,0	83	79,0	0,86	25,0	47,7	646,2	45,2
9,3	15500	2870	20,7	112	81,0	0,80	31,1	68,2	678,7	47,5
11,0	15500	2860	23,3	129	81,0	0,85	37,3	78,3	711,2	50,9
15,0	15500	2860	31,3	169	81,0	0,85	49,9	107,3	776,2	56,7
18,5	15500	2860	38,5	231	82,0	0,85	62,4	154,6	841,5	63,3
22,0	15500	2860	45,3	268	83,0	0,86	74,7	177,6	906,5	69,3
30,0	27500	2860	63,5	393	83,0	0,84	99,4	263,1	1036,6	83,9
37,0	27500	2875	79,0	411	81,0	0,85	123,6	280,8	1421,4	138
45,0	27500	2875	95,2	509	82,0	0,84	148,4	332,3	1573,8	152





6" Encapsulated Motors „HighTemp 90°C“



Submersible Motors

Quality in the Well

These 6" encapsulated motors, manufactured in ISO 9001 certified facilities, are built for dependable operation in 6" diameter or larger water wells with ambient temperature up to 90°C.

Water lubricated thrust and radial bearings enable a maintenance free operation. A special diaphragm ensures pressure compensation inside the motor. The motor is filled with a special FES92 fluid, providing frost protection down to -15°C storage temperature.

The Sand fighter® SiC seal system is standard.

Product advantages:

- Up to 90°C ambient temperature
- Increase thrust capacity up to 30°C
- No cooling flow in larger wells (12" / open reservoirs) up to 30°C ambient
- Hermetically sealed encapsulated stator, Anti track, self healing stator resin
- Removable "Water Bloc" lead connector
- „Sand fighter®“ Motor with SiC-Mechanical Seal
- High efficiency electrical design for low operation cost
- All motors prefilled and 100% tested. Max. storage temperature -15°C - + 60°C
- High temperature leads
- Non contaminating FES92 -filled design

Technical Specifications

Standard Motor:

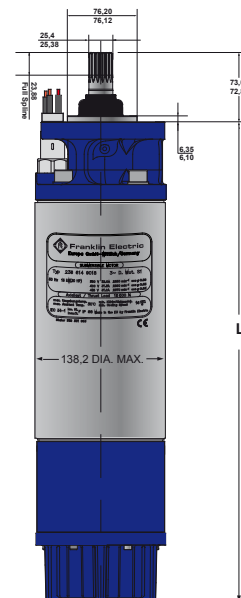
- 3,7 ... 30 kW
- 6" NEMA double flange
- Protection: IP 68
- Starts per hour: 20
- Installation: vertical/horizontal
- Standard voltage: 380-415V / 50Hz, 460V / 60Hz
Voltage tolerance: +6% / -10% (Standard: 415 + 6% = 440V, 380 - 10% = 342V)
- Motor protection: Select thermal overloads according to DIN 60947-4-1, trip class 10 or 10A, trip time < 10 s at 5 x I_N
- Insulation: Class F
- Rated ambient temperature: 90°C
- Cooling flow: min. 0,16 m/s
- YΔ - start (pos. of cables 90°)
- Motor lead in 4m length

Options

- Other voltages
- Motors complete in 316 SS
- Special Lead lengths up to 45m

6" Encapsulated Motor HighTemp 90°C
3~ / 400V / 50 Hz

P _N [kW]	Thrust F [N]	U _N [V]	n _N [min ⁻¹]	I _N [A]	I _A [A]	η [%]	cos φ [%]	T _N [Nm]	L [mm]	m [kg]
3,7	15.500	400	2880	8,5	52,5	75	0,86	12,3	716	53
5,5	15.500	400	2890	12,3	83,0	77	0,86	18,3	752	59
7,5	15.500	400	2890	16,0	110	81	0,85	24,9	780	66
11,0	15.500	400	2890	24,2	160	80	0,82	36,6	846	71
15,0	15.500	400	2885	33,0	205	80	0,83	49,9	909	79
18,5	27.500	400	2890	40,5	266	83	0,82	61,5	1041	92
22	27.500	400	2885	48,0	304	81	0,85	73,2	1410	136
30	27.500	400	2885	64,5	441	83	0,82	99,8	1562	150





6" Rewindable Motors



Submersible Motors Quality in the Well

These 6" rewindable motors, manufactured in ISO 9001 certified facilities, are built for dependable operation in 6" diameter or larger water wells. Water lubricated thrust and radial bearings enable a maintenance free operation. A special diaphragm ensures pressure compensation inside the motor. The motor is filled with a special FES93 fluid, providing frost protection down to -15°C storage temperature.

The Sand fighter® SiC seal system is the option for sandy applications. For applications in aggressive media, motors made of 316SS and 904L are available.

Product advantages:

- Cable material according to drinking water regulations (KTW approved)
- Sand slinger and mechanical seal for high performance in sand
- High efficiency electrical design for low operation cost
- All motors prefilled and 100% tested
- Max. storage temperature -15°C - +60°C
- Design for retrofitable PT100 sensor
- Approved Franklin Electric „Kingsbury Type“ thrust bearing
- Non contaminating FES 93 -filled design

Technical Specifications

Standard Motor:

- 4,0 - 37,0kW
- 6" NEMA flange with Studs (M 12)
- Protection: IP 68
- Starts per hour: max. 20
- Installation position: vertical / horizontal
- Motor Lead in 4m length (KTW approved)
- Standard voltage: 380-415V/50Hz, 460V/60Hz; Voltage tolerance: +6% / -10% (Standard: 415 + 6% = 440V, 380 - 10% = 342V)
- Motor protection: Select thermal overloads according to EN 60947-4-1, trip class 10 or 10A, trip time < 10 s at $5 \times I_N$
- YΔ - start (pos. of cables 90°)
- Standard motor with PVC winding insulation (37kW in standard with PE2/PA insulation) for max. ambient temp. of 30°C with a min. cooling flow:
 - 4 kW - 15 kW $v = 0,2$ m/s
 - 18,5 kW - 37 kW $v = 0,5$ m/s

Options

- Other voltages
- Motors in complete 316 SS and 904 L
- Motors up to 30kW with PE2/PA winding insulation for max. ambient temp. of 50°C at the same cooling conditions as standard (37 kW max. 45°C)
- PT 100 temperature sensor (sold separately)
- Sand fighter® Motor with SiC-Shaft Seal
- Lead in different lengths up to 50m

6" Rewindable Motors 3~ /400 V / 50 HZ										
P _N [kW]	Thrust [N]	n _N [min-1]	I _N [A]	I _A [A]	η [%]	cos φ [%]	T _N [Nm]	T _A [Nm]	L [mm]	m [kg]
4	15500	2930	10,6	51	0,76	0,73	13,1	17,3	699	48
5,5	15500	2890	13,3	51	0,76	0,81	18,2	17,3	699	48
7,5	15500	2880	17,7	63	0,77	0,82	24,8	21,5	719	50
9,3	15500	2870	21,4	78	0,78	0,82	31,0	29,0	749	53
11	15500	2880	25,2	98	0,79	0,83	36,4	35,3	779	56
13	15500	2900	29,6	125	0,80	0,81	42,8	50,3	829	61
15	15500	2890	33,1	148	0,81	0,83	49,4	60,4	874	66
18,5	15500	2880	42,0	182	0,81	0,80	61,2	84,3	919	70
22	15500	2900	49,0	231	0,82	0,80	72,5	102,2	1009	79
26	15500	2900	56,7	284	0,83	0,83	85,6	134,7	1114	90
30	27500	2910	66,4	347	0,83	0,80	98,4	151,0	1214	100
37	27500	2900	81,9	433	0,83	0,80	121,6	215,8	1294	107



8" Encapsulated Motors



8" Encapsulated Motors

Optional: **SAND FIGHTER**



Submersible Motors Quality in the Well

These 8" encapsulated motors, manufactured in ISO 9001 certified facilities, are built for dependable operation in 8" diameter or larger water wells. It is fitted with water lubricated radial and thrust bearings for maintenance-free operation. A special diaphragm ensures pressure compensation inside the motor. The motor is filled with a special FES91 fluid, providing frost protection down to -15°C storage temperature. The Sand fighter® SiC seal system is the option for sandy applications.

Product advantages:

- Hermetically sealed stator, Anti track, self healing stator resin prevents motor burn out
- Removable "Water Bloc" lead connector
- Cable material according to drinking water regulations (KTW approved)
- Sand slinger and Mechanical seal for high performance in sand
- High efficiency electrical design for low operation cost
- All motors prefilled and 100% tested
Max. storage temperature -15°C - + 60°C
- Non contaminating FES91 -filled design

Technical Specifications

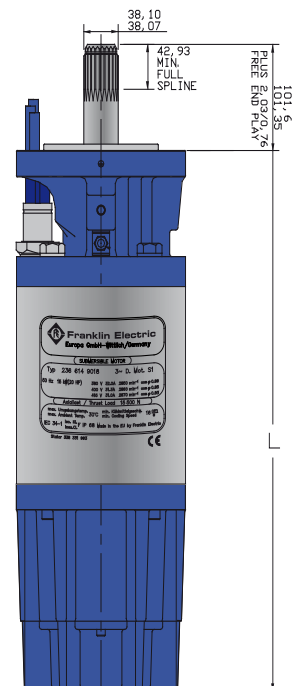
Standard Motor:

- 30 ... 150 kW
- 8" NEMA flange
- Protection: IP 68
- Starts per hour: 20
- Installation: vertical/horizontal
- Standard voltage: 380 - 415V / 50Hz, 460V/60Hz
Voltage tolerance: +6% / -10% (Standard: 415 + 6% = 440V, 380 - 10% = 342V)
- Motor protection: Select thermal overloads according to DIN 60947-4-1, trip class 10 or 10A, trip time < 10 s at $5 \times I_N$
- Insulation: Class F
- YΔ - start (pos. of cables 90°)
- Rated ambient temperature: 30°C
- Cooling flow: min. 0,16 m/s
- Built-in Subtrol Heat Sensor
- Motor lead in 8 m length (KTW approved)

Options

- Other voltages
- Motors complete in 316 SS
- PT 100 temperature sensor (sold separately)
- „Sand fighter®“ Motor with SiC- Mechanical seal

8" Encapsulated Motors 3~ /400 V / 50 Hz										
P _N [kW]	Thrust F [N]	n _N [min ⁻¹]	I _N [A]	I _A [A]	η [%]	cos φ [%]	T _N [Nm]	T _A [Nm]	L [mm]	m [kg]
30	45000	2900	61	418	86	0,84	97	255	909	116
37	45000	2920	74	534	87	0,86	121	295	986	131
45	45000	2920	89	645	87	0,85	145	395	1062	145
55	45000	2920	108	862	88	0,87	182	563	1204	175
75	45000	2925	145	1157	87	0,87	242	561	1395	213
93	45000	2930	190	1332	87	0,83	302	567	1747	291
110	45000	2930	222	1597	88	0,84	363	769	1975.6	334
130	45000	2920	252	1738	88	0,87	424	927	2178.8	380
150	45000	2920	284	1858	88	0,88	485	1034	2407.4	429



8" Encapsulated Motors



8" Encapsulated Motors „HighTemp 75°C“



Submersible Motors Quality in the Well

These 8" encapsulated motors, manufactured in ISO 9001 certified facilities, are built for dependable operation in 8" diameter or larger water wells with ambient temperature up to 75°C.

It is fitted with water lubricated radial and thrust bearings for maintenance-free operation. The motor is filled with a special FES92 fluid, providing frost protection down to -15°C storage temperature.

A special diaphragm ensures pressure compensation inside the motor. The Sand fighter® SiC seal system is standard.

Product advantages:

- Up to 75°C ambient temperature
- Increase thrust capacity up to 30°C
- No cooling flow in larger wells (open reservoirs) up to 30°C ambient
- Hermetically sealed encapsulated stator, Anti track, self healing stator resin
- Removable "Water Bloc" lead connector
- „Sand fighter®“ Motor with SiC-Mechanical Seal
- High efficiency electrical design for low operation cost
- All motors prefilled and 100% tested. Max. storage temperature -15°C - + 60°C
- High temperature leads
- Non contaminating FES 92 filled design

Technical Specifications

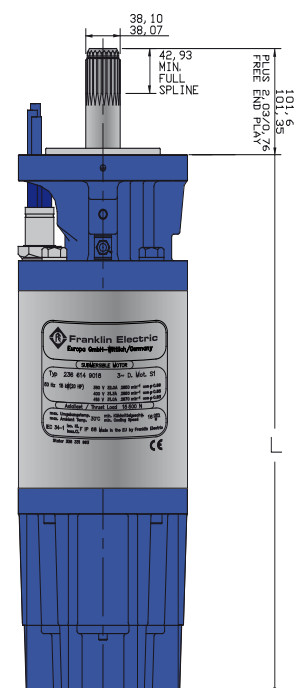
Standard Motor:

- 30 ... 110 kW
- 8" NEMA double flange
- Protection: IP 68
- Starts per hour: 20
- Installation: vertical/horizontal
- Standard voltage: 380-415V / 50Hz, 460V / 60Hz Voltage tolerance: +6% / -10% (Standard: 415 + 6% = 440V, 380 - 10% = 342V)
- Motor protection: Select thermal overloads according to DIN 60947-4-1, trip class 10 or 10A, trip time < 10 s at 5 x I_N
- Insulation: Class F
- Rated ambient temperature: 75°C
- Cooling flow: min. 0,16 m/s
- YΔ - start (pos. of cables 90°)
- Motor lead in 4m length

Options

- Other voltages
- Motors complete in 316 SS
- Motor lead in 8m length

8" Encapsulated HighTemp 75 3~ / 400V / 50Hz											
P _N [kW]	Thrust [N]	U _N [V]	n _N [min ⁻¹]	I _N [A]	I _A [A]	η [%]	cos φ [%]	T _N [Nm]	T _A [Nm]	L [mm]	m [kg]
30	45000	400	2930	65,5	499	80	0,83	97,8	298	1138	182
37	45000	400	2940	79,6	692	82	0,84	120	398	1265	207
45	45000	400	2945	93,1	884	84	0,84	146	465	1455	252
56	45000	400	2930	115	927	84	0,85	182	526	1748	318
75	45000	400	2935	151	1254	86	0,85	244	695	1976	382
93	45000	400	2925	186	1482	86	0,86	304	949	2179	421
110	45000	400	2935	224	1690	86	0,85	358	1002	2408	473





8" Rewindable Motors



Submersible Motors Quality in the Well

These 8" rewindable motors, manufactured in ISO 9001 certified facilities, are built for dependable operation in 8" diameter or larger water wells. It is fitted with water lubricated radial and thrust bearings for maintenance-free operation. The motor is filled with a special FES93 fluid, providing frost protection down to -15°C storage temperature.

A special diaphragm ensures pressure compensation inside the motor. The Sand fighter® SiC seal system is standard. For applications in aggressive media, motors made of 316SS and 904L are available.

Product advantages:

- Easy to assemble with double flange
- Cable material according to drinking water regulations (KTW approved)
- Sand fighter® SiC seal system for high performance in sand
- High efficiency electrical design for low operation cost
- All motors prefilled and 100% tested
- Max. storage temperature -15°C - + 60°C
- Design for retrofitable PT100 sensor
- Non contaminating FES 93 filled design

Technical Specifications

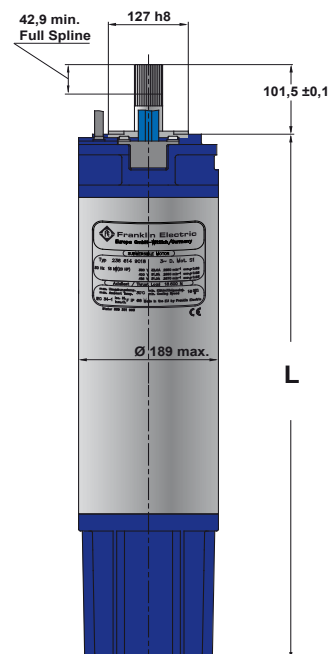
Standard Motor:

- 30,0 - 93,0kW
- 8" NEMA flange
- Protection: IP 68
- Starts per hour: max. 20
- Installation position: vertical / horizontal (**93 kW** motors may not be installed horizontally)
- Motor Lead in 6 m length (KTW approved)
- Standard voltage: 380-415V/50Hz, 460V60Hz; Voltage tolerance: +6% / -10% (Standard: 415 + 6% = 440V, 380 - 10% = 342V)
- Motor protection: Select thermal overloads according to EN 60947-4-1, trip class 10 or 10A,
- trip time < 10 s at 5 x I_N
- YΔ - start (pos. of cables 90°)
- Standard motor with PVC winding insulation
- for max. ambient temp. of 30°C with a min. cooling flow:
 - 30 kW - 52 kW v = 0,2 m/s
 - 55 kW - 93 kW v = 0,5 m/s

Options

- Other voltages
- Motors in complete 316 SS and 904 L
- YΔ - start (pos. of cables 90°)
- PE2/PA winding insulation for max. ambient temp. of 50°C at the same cooling conditions as standard
- PT 100 temperature sensor (sold separately)
- Lead in different lengths up to 50m

8" Rewindable Motors 3~400 V / 50 Hz										
P _N [kW]	Thrust [N]	n _N [min ⁻¹]	I _N [A]	I _A [A]	η [%]	cos φ [%]	T _N [Nm]	T _A [Nm]	L [mm]	m [kg]
30	45 000	2900	60	318	0,84	0,89	99	141	1140	140
37	45 000	2900	76	400	0,84	0,86	122	176	1140	140
45	45 000	2910	90	520	0,86	0,86	148	241	1230	156
52	45 000	2910	103	608	0,86	0,87	175	318	1340	179
55	45 000	2915	110	660	0,86	0,86	181	340	1340	179
60	45 000	2910	116	725	0,87	0,88	197	357	1470	198
67	45 000	2910	133	797	0,87	0,86	220	359	1470	198
75	45 000	2910	148	942	0,87	0,87	246	472	1560	215
83	45 000	2920	160	1077	0,88	0,88	273	544	1560	247
93	45 000	2920	183	1276	0,88	0,86	305	626	1740	247





10" Rewindable Motors



Submersible Motors Quality in the Well

These 10" rewindable motors, manufactured in ISO 9001 certified facilities, are built for dependable operation in 10" diameter or larger water wells. It is fitted with water lubricated radial and thrust bearings for maintenance-free operation. The motor is filled with a special FES93 fluid, providing frost protection down to -15°C storage temperature. A special diaphragm ensures pressure compensation inside the motor. The Sand fighter® SiC seal system is standard. For applications in aggressive media, motors made of 316SS and 904L are available.

Product advantages:

- Easy to assemble with double flange
- Cable material according to drinking water regulations (KTW approved)
- Sand fighter® SiC seal system for high performance in sand
- High efficiency electrical design for low operation cost
- All motors prefilled and 100% tested
- Max. storage temperature -15°C - +60°C
- Design for retrofitable PT100 sensor
- Non contaminating FES 93 filled design

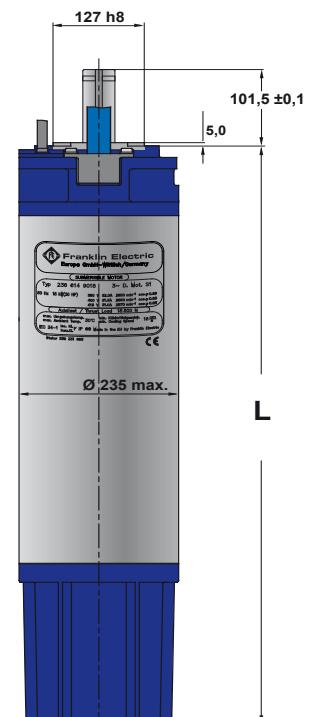
Technical Specifications Standard Motor:

- 85,0 - 185,0kW
- 10" flange
- Protection: IP 68
- Starts per hour: max. 10
- Installation position: vertical / horizontal (185 kW motors may not be installed horizontally)
- Motor Lead in 6 m length (KTW approved)
- Standard voltage: 380-415V/50Hz, 460V/60Hz; Voltage tolerance: +6%/-10% (Standard: 415 + 6% = 440V, 380 - 10% = 342V)
- Motor protection: Select thermal overloads according to EN 60947-4-1, trip class 10 or 10A, trip time < 10 s at 5 x I_N
- YΔ - start (pos. of cables 90°)
- Standard motor with PVC winding insulation for max. ambient temperature of 25°C with a min. cooling flow: v = 0,5 m/s

Options

- Other voltages
- Motors in complete 316 SS and 904 L
- PE2/PA winding insulation for max. ambient temp. of 45°C at the same cooling conditions as standard
- PT 100 temperature sensor (sold separately)
- Lead in different lengths up to 50m

10" Rewindable Motors 3~/400 V / 50 Hz										
P _N [kW]	Thrust [N]	n _N [min ⁻¹]	I _N [A]	I _A [A]	η [%]	cos φ [%]	T _N [Nm]	T _A [Nm]	L [mm]	m [kg]
85	60 000	2900	174	828	0,85	0,85	280	316	1419	280
110	60 000	2920	232	1158	0,86	0,82	360	467	1529	315
130	60 000	2920	256	1344	0,88	0,86	425	546	1659	362
150	60 000	2920	298	1590	0,87	0,85	491	635	1769	413
185	60 000	2920	384	2148	0,88	0,81	605	1022	1919	449





12" Rewindable Motors



Submersible Motors Quality in the Well

These 12" rewindable motors, manufactured in ISO 9001 certified facilities, are built for dependable operation in 12" diameter or larger water wells.

It is fitted with water lubricated radial and thrust bearings for maintenance-free operation. The motor is filled with a special FES93 fluid, providing frost protection down to -15°C storage temperature. A special diaphragm ensures pressure compensation inside the motor.

Product advantages:

- Easy to assemble with double flange
- Cable material according to drinking water regulations (KTW approved)
- Sand fighter® SiC seal system for high performance in sand
- High efficiency electrical design for low operation cost
- All motors prefilled and 100% tested
- Max. storage temperature -15°C - + 60°C
- Design for retrofitable PT100 sensor
- Non contaminating FES 93 filled design

Options

- 80kN thrust load
- Other voltages
- PT 100 temperature sensor (sold separately)
- Special lead lengths upon request



Technical Specifications Standard Motor:

- 185kW - 400kW
- 12" flange
- Protection: IP 68
- Starts per hour: max. 5
- Installation position: vertical / horizontal
- Motor Lead in 6 m length (KTW approved)
- Standard voltage:
 - 380-415V/50Hz, 460V/60Hz
 - 500V/50Hz
 - 1000V/50Hz
- Voltage tolerance: +6%/-10% (i.e.: 415 +6% = 440V, 380 -10% = 342V)
- Motor protection: Select thermal overloads according to EN 60947-4-1, trip class 10 or 10A,
- trip time < 10 s at 5 x I_N
- YΔ - start (pos. of cables 90°)
- 30°C ambient temperature with a min. cooling flow: v = 0,5 m/s

12" Rewindable Motors 3~/400 V / 50 Hz											
P _N [kW]	Drucklast F [N]	U _N [V]	n _N [min-1]	I _N [A]	I _A [A]	η [%]	cos φ [%]	T _N [Nm]	T _A [Nm]	L [mm]	m [kg]
185	60 000	400	2940	357	1892	87	0,87	600	666	1703	595
220	60 000	400	2940	418	2257	88	0,88	714	850	1893	663
250	60 000	400	2935	481	2501	88	0,88	812	772	1893	663
300	60 000	400	2945	551	3085	88	0,90	971	913	2043	726
350	60 000	400	2930	676	3515	87	0,88	1137	1024	2143	769
400	60 000	400	2930	750	3600	90	0,87	1301	1093	2193	794





SubMonitor Motor Protection

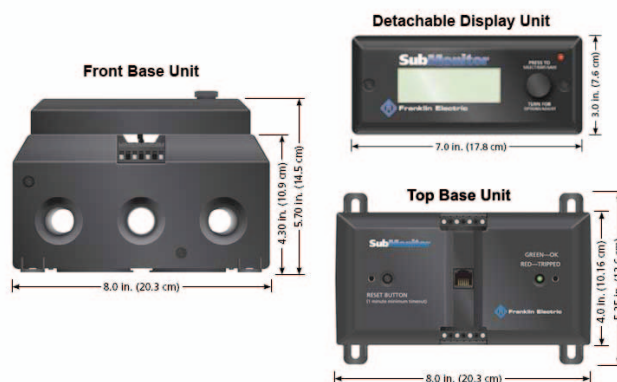
The SubMonitor is designed to protect 3-phase pumps with horsepower ratings between 3 and 200 Hp. Current, voltage and motor temperature are monitored using three integrated current transformers. A digital display provides current and voltage readings for all three legs and allows the user to set up the SubMonitor quickly and easily. The SubMonitor is the latest innovation in 3-phase pump protection from Franklin Electric. Using state-of-the-art technology, the SubMonitor provides the ultimate protection for a pump and motor. There is simply no better way to protect a large 3-phase submersible pump investment than with a SubMonitor. It's the protection device that can sense overheating straight from the motor windings! And it is made by the world leader in submersible motors - Franklin Electric.



Product advantages:

- Quick setup to monitor a motor, simply enter the Line Frequency (Hz), Line Voltage (volts), and Motor Service Factor Amp rating
- Digital display indicates voltage and current on all three legs at the same time, and fault messages are in easily understandable text
- Monitors - Under/Overload; Under/Overtorque; Current Unbalance; Overheated Motor (Subtrol Equipped); False Start (Chattering); Phase Reversal
- For motors with service factor amp ratings between 3 and 359 amps
- One unit covers the entire range from 190 to 600 Volts
- No need to make additional turns around the CT or add external CTs
- Password Protection Option
- DIN Rail Mounting Option
- Stores fault, setting changes, and pump run-time, that can be accessed through the display
- Detachable NEMA 3R display unit can be mounted on panel door
- UL 508 Listed

Model number	
Premium Package	586 000 5100
Input Voltage	190 – 600 VAC
Frequency	60/50 Hz
Motor Service Factor Amps	3 to 359 Amps
Maximum Conductor Size Through Sensors	
Max. Diameter	0.920 in. (23 mm)
Trip Response	
Motor, Under / Overload, Under / Overtorque, Overheat Unbalance	3 seconds
Control Circuit Rating	1.5 Amp AC, up to 600 volts
Signal Circuit Rating	1 Amp AC, up to 250 volts (Incandescent: 100 watts max.)
Wiring Terminals	
Wire Gauge	#12 to #18 AWG
Tighten to	4.5 in-lbs
Weight (SubMonitor)	3.3 lbs/7,3 kg
Carton Size (Std. Unit)	7,75 in x 11,5 in x 6,75 in (19,7 cm x 29,2 cm x 17,1 cm)
Shipping Weight (Std. Unit)	3.5 Lbs./7.5 kg



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	IN
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	16 A
Power	0,25 - 2,2 kW
Standards	
IEC 60439-1	

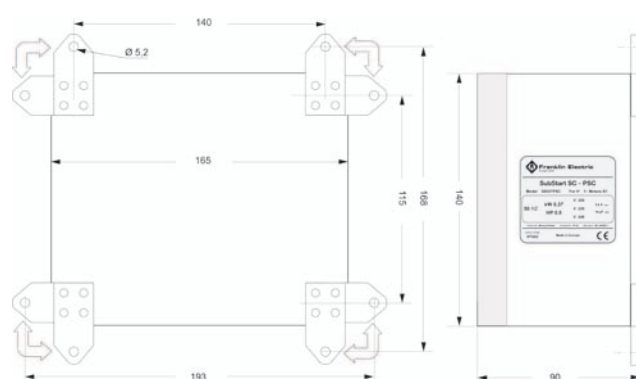
Submersible Motor Starter Specifications

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	2,5	8,4	12,5
284 624 3510	SS037SC	0,37	3,4	11,2	16
284 625 3510	SS055SC	0,55	4,3	16,1	20
284 626 3510	SS075SC	0,75	5,8	21,1	35
284 627 3510	SS110SC	1,10	8,6	31,5	40
284 628 3510	SS150SC	1,50	10,6	35,4	50
284 629 3510	SS220SC	2,20	16,0	54,2	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



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:

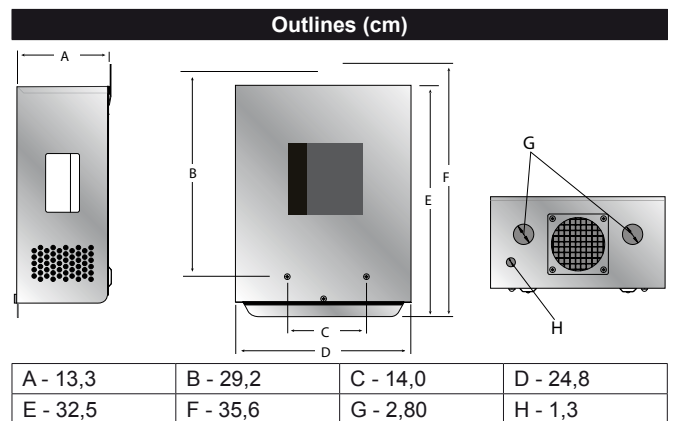
- Works with a standard three-phase, 60Hz, 230V Franklin Electric submersible motor
- IP 23(Indoor) enclosure
- Three phase performance with single-phase input
 - High starting torque
 - More efficient
 - Smooth running
- Constant water pressure with a wide range of settings (2 to 6 bar)
- Soft start 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



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 (Constant)	1 (Constant)	1 (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]	8,1 A	10,9 A	17,8 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 (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

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



Double Plug Lead for Termination Kit

- 2-wire / 3-wire
- 1,5m / 2,5m Lead length
- with / without Strain relief
- Max. current 16 Amps.
- KTW approved



Lead Termination Kit 1,5 - 10mm²

- 3M Quality
- 4 wire
- 1,5 - 10mm²
- up to 1,1kV



Filling Liquid

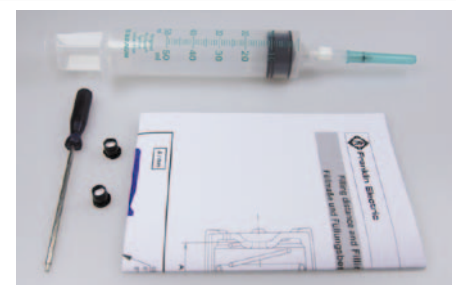
Filling liquid 5 L FES92

4" Encapsulated	→	FES93	8" Encapsulated Standard	→	FES91
6" Encapsulated Standard	→	FES91	8" Encapsulated HighTemp75	→	FES92
6" Encapsulated HighTemp90	→	FES92	Rewindable Motors All	→	FES93



Motor Filling Kit

This kit offers all tools for control the level of the engine filling liquid and to fill up if necessary!



6" Permanent Star Plug

Application

For some applications it may be necessary to permanently run a star-delta submersible motor in star connection. This may be achieved by using the PERMANENT-STAR-PLUG. This connector short-circuits all three pins in one of the two motor sockets and is designed to replace one lead.



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" and 6" couplings assure positive bearing between motor and pump shafts, and assure full support for downward thrust created by the pump.

8" couplings DO NOT contain hardened spacer discs, since the motor shaft itself is hardened.



Surge Arrestor

Application

These surge arrestors or their equivalents are highly recommended for protecting submersible motors from a variety of commonly occurring high voltage spikes which can damage the motor insulation system and cause motor winding failure. These arrestors will not, as is true of any surge protection equipment, protect the motor from a direct lightning strike



PT100 for 6" and 8" Encapsulated Motors

Application

The PT100 is a precision platinum wire resistor that is specified occasionally as a temperature input for process control equipment. A jacketed control lead must be run from the PT100 lead to the above-ground equipment. The above-ground equipment is not available from Franklin Electric and is typically part of a custom panel or data acquisition system.

PT100 sensor retrofit kits from Franklin Electric come with complete instructions and allow for easy field installation



PT100 Rewindable Motors

Application

- Fitted into the upper end bell flange , all end bells 6" ,8" , 10" and 12" Rewindable are prepare for installation PT 100
- Measures the temperature of the filling liquid
- Conductor with a resistance proportional to the temperature
- Allows monitoring the temperature continuously



The above-ground equipment is not available from Franklin Electric and is typically part of a custom panel or data acquisition system .PT100 sensor retrofit kits from Franklin Electric come with complete instructions and allow for easy field installation

Corrosion Protection 4"

Application

The sacrificial anode attaches to the bottom end bell of Franklin Electric 4" Super Stainless submersible motors. Since cast iron is more chemically active than the metals that make up the motor and pump, it is the cast iron that reacts to the corrosive elements in the water. This results in longer motor and pump life in aggressive / corrosive water conditions.



QUALITY
MADE BY



Franklin Electric

Franklin Electric Europa GmbH
Rudolf-Diesel-Strasse 20
D-54516 Wittlich/Germany
Tel.: +49 (0) 6571 / 105-0
Fax: +49 (0) 6571 / 105-520
e-mail: info@franklin-electric.de
www.franklin-electric.de

