

# PRODUCT CATALOG



## 6" Encapsulated Motos Standard





Quality in the Well

# 6" Encapsulated Motors

Standard: **SAND FIGHTER**

## 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 (VDE / ACS / KTW approved)
- „Sand fighter®“ Motor with SiC-Mechanical Seal and Sand Slinger
- 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
- 45kN Thrust Capacity (Standard in 37kW and 45kW motors)

### Technical Specifications

- 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 50 Hz from nominal: -10%/+6%
- Voltage tolerance 60 Hz from nominal: ±10%
- Motor protection: Select thermal overloads according to DIN 61947-4-1
- Insulation: Class F
- 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 (VDE / ACS / KTW approved)

### Options

- Other voltages
- YΔ - start (pos. of cables 90°)
- 45kN High Thrust Version (standard in 37kw and 45kW motors)
- Motors complete in 304SS and in 316SS
- 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" Standard Model Numbers 50 Hz

P <sub>N</sub> [kW]	U <sub>N</sub> [V]	Model Number Digit 1 – 6		Model Number Digit 7 - 10									
		DOL	YΔ	Standard			with SubMonitor Transmitter			with PTC			45 000N Motor Version
				Cast Iron	304SS	316SS	Cast Iron	304SS	316SS	Cast Iron	304SS	316SS	
<b>4</b>	220, 230	236 680	236 670	9061	1061	3961	6061	1161	4061	2061	1261	3661	**63
	380 - 415	236 610	236 710										
	500	236 700	236 790										
<b>5,5</b>	220, 230	236 681	236 671	9061	1061	3961	6061	1161	4061	2061	1261	3661	**63
	380 - 415	236 611	236 711										
	500	236 701	236 791										
<b>7,5</b>	220, 230	236 682	236 672	9061	1061	3961	6061	1161	4061	2061	1261	3661	**63
	380 - 415	236 612	236 712										
	500	236 702	236 792										
<b>9,3</b>	220, 230	236 015	236 005	9061	1061	3961	6061	1161	4061	2061	1261	3661	**63
	380 - 415	236 001	236 011										
	500	236 008	236 018										
<b>11</b>	220, 230	236 683	236 673	9061	1061	3961	6061	1161	4061	2061	1261	3661	**63
	380 - 415	236 613	236 713										
	500	236 703	236 793										
<b>15</b>	220, 230	236 684	236 674	9061	1061	3961	6061	1161	4061	2061	1261	3661	**63
	380 - 415	236 614	236 714										
	500	236 704	236 794										
<b>18,5</b>	220, 230	236 685	236 675	9061	1061	3961	6061	1161	4061	2061	1261	3661	**63
	380 - 415	236 615	236 715										
	500	236 705	236 795										
<b>22</b>	220, 230	236 686	236 676	9061	1061	3961	6061	1161	4061	2061	1261	3661	**63
	380 - 415	236 616	236 716										
	500	236 706	236 796										
<b>30</b>	220, 230		236 677	9061	1061	3961	6061	1161	4061	2061	1261	3661	**63
	380 - 415	236 617	236 717										
	500	236 707	236 797										
<b>37</b>	380 - 415	276 618	276 718				6161		6361				Standard
<b>45</b>	380 - 415	276 619	276 719				6161		6361				Standard



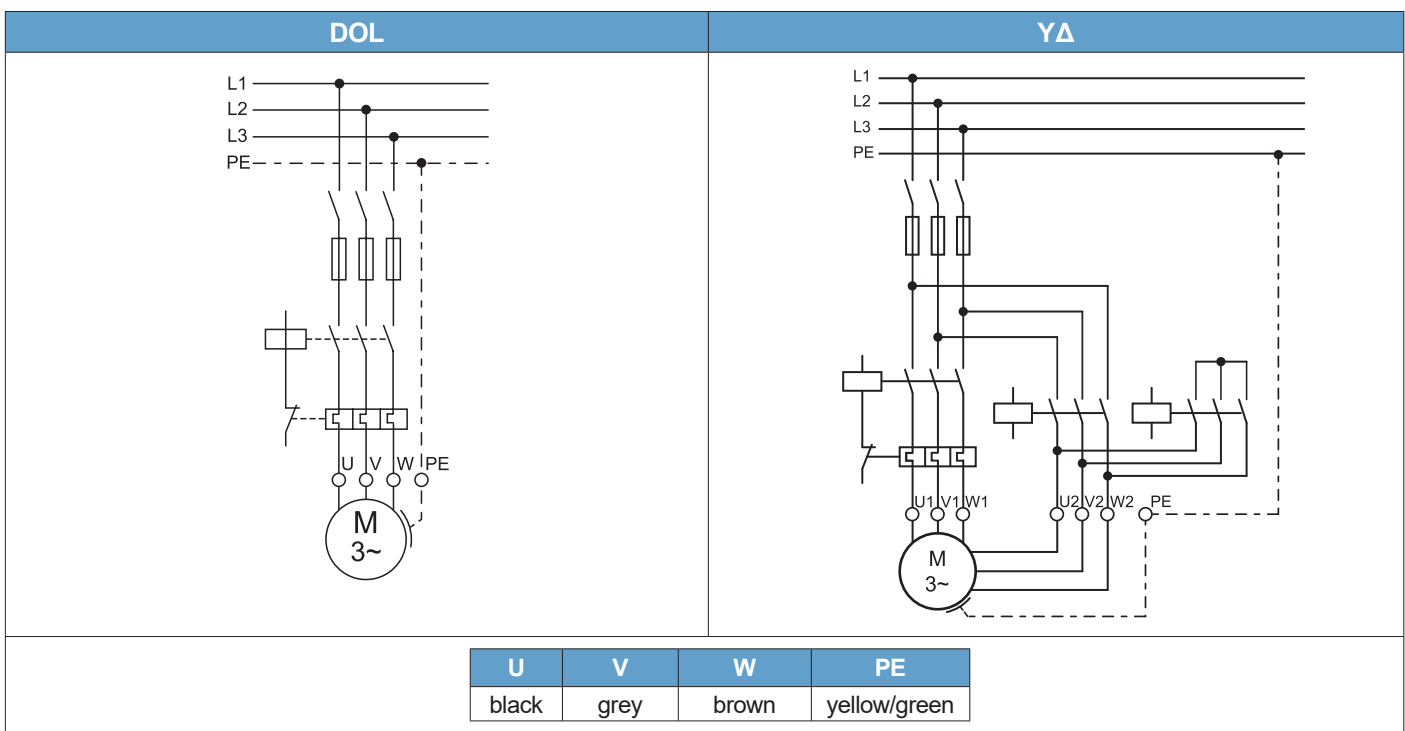
## 6" Performance Data 50 Hz

P <sub>N</sub> [kW]	Thrust F [N]	U <sub>N</sub> [V]	n <sub>N</sub> [min <sup>-1</sup> ]	I <sub>N</sub> [A]	I <sub>A</sub> [A]	η (Eff.) [%] at % load			cos φ (Pf.) at % load			T <sub>N</sub> [Nm]	T <sub>A</sub> [Nm]
						50	75	100	50	75	100		
<b>4,0</b>	15.500	220	2840	16,4	73	76,0	78,5	77,0	0,70	0,80	0,85	12,5	17,9
		230	2860	16,1	75	74,0	77,5	78,0	0,62	0,74	0,82	12,3	20,2
		380	2840	9,5	42	76,0	78,5	77,0	0,70	0,80	0,85	12,5	17,9
		400	2860	9,3	43	74,0	77,5	78,0	0,62	0,74	0,82	12,3	20,2
		415	2880	9,3	46	74,5	78,0	78,5	0,57	0,70	0,78	12,3	20,8
		500	2840	7,2	32	76,0	78,5	77,0	0,70	0,80	0,85	12,5	17,9
<b>5,5</b>	15.500	220	2850	22,1	104	77,0	79,0	78,0	0,70	0,80	0,85	18,7	30,3
		230	2870	21,7	106	74,0	78,0	79,0	0,63	0,75	0,82	18,6	35,0
		380	2850	12,8	60	77,0	79,0	78,0	0,70	0,80	0,85	18,7	30,3
		400	2870	12,5	64	74,0	78,0	79,0	0,63	0,75	0,82	18,6	35,0
		415	2880	12,8	66	74,0	77,5	78,0	0,58	0,70	0,78	18,6	35,9
		500	2850	9,7	46	77,0	79,0	78,0	0,70	0,80	0,85	18,7	30,3
<b>7,5</b>	15.500	220	2850	28,2	143	77,5	79,5	79,0	0,74	0,83	0,87	25,0	43,0
		230	2860	27,7	144	75,0	78,5	79,0	0,70	0,81	0,86	25,0	47,7
		380	2850	16,3	83	77,5	79,5	79,0	0,74	0,83	0,87	25,0	43,0
		400	2860	16,0	83	75,0	78,5	79,0	0,70	0,81	0,86	25,0	47,7
		415	2880	16,2	91	75,0	78,5	79,0	0,61	0,74	0,81	24,7	51,3
		500	2850	12,4	63	77,5	79,5	79,0	0,74	0,83	0,87	25,0	43,0
<b>9,3</b>	15.500	220	2870	36,4	183	79,0	81,0	81,0	0,71	0,81	0,86	31,1	61,6
		230	2870	36,0	189	78,0	81,0	81,0	0,58	0,72	0,80	31,1	68,6
		380	2870	21,0	106	79,0	81,0	81,0	0,71	0,81	0,86	31,1	61,6
		400	2870	20,7	112	78,0	81,0	81,0	0,58	0,72	0,80	31,1	68,2
		415	2890	21,0	116	74,0	79,0	80,0	0,55	0,70	0,78	30,8	74,1
		500	2870	16,0	80	79,0	81,0	81,0	0,71	0,81	0,86	31,1	61,6
<b>11,0</b>	15.500	220	2860	41,5	218	80,0	82,0	81,0	0,73	0,82	0,87	37,4	72,8
		230	2860	40,4	224	78,5	81,0	81,0	0,68	0,79	0,85	37,3	78,3
		380	2860	24,0	126	80,0	82,0	81,0	0,73	0,82	0,87	37,4	72,8
		400	2860	23,3	129	78,5	81,0	81,0	0,68	0,79	0,85	37,3	78,3
		415	2870	24,1	136	74,5	78,5	79,5	0,61	0,74	0,81	37,2	84,8
		500	2860	18,2	96	80,0	82,0	81,0	0,73	0,82	0,87	37,4	72,8
<b>15,0</b>	15.500	220	2850	55,0	283	81,0	83,0	82,0	0,76	0,84	0,86	50,0	104,0
		230	2860	54,2	289	79,0	81,5	81,0	0,70	0,80	0,85	49,9	107,3
		380	2850	32,0	164	81,0	83,0	82,0	0,76	0,84	0,86	50,0	104,0
		400	2860	31,3	169	79,0	81,5	81,0	0,70	0,80	0,85	49,9	107,3
		415	2870	31,0	179	77,0	81,0	81,0	0,65	0,77	0,83	49,6	116,6
		500	2850	24,3	124	81,0	83,0	82,0	0,76	0,84	0,86	50,0	104,0
<b>18,5</b>	15.500	220	2850	69,2	380	82,0	83,0	82,0	0,76	0,84	0,87	62,4	139,7
		230	2860	66,7	392	80,0	82,5	82,0	0,68	0,79	0,85	62,4	159,6
		380	2850	40,0	220	82,0	83,0	82,0	0,76	0,84	0,87	62,4	139,7
		400	2850	38,5	231	80,0	82,5	82,0	0,68	0,79	0,85	62,4	154,6
		415	2850	38,5	240	78,5	81,5	82,0	0,64	0,76	0,83	62,1	166,8
		500	2850	30,5	168	82,0	83,0	82,0	0,76	0,84	0,87	62,4	139,7
<b>22</b>	15.500	220	2840	81,2	441	82,0	83,0	82,0	0,78	0,86	0,88	75,3	160,0
		230	2860	78,5	455	81,0	83,0	83,0	0,71	0,81	0,86	74,7	177,6
		380	2840	47,0	255	82,0	83,0	82,0	0,78	0,86	0,88	75,3	160,0
		400	2860	45,3	268	81,0	83,0	83,0	0,71	0,81	0,86	74,7	177,6
		415	2870	45,0	278	79,5	82,5	82,5	0,66	0,78	0,84	74,5	189,9
		500	2840	35,8	194	82,0	83,0	82,0	0,78	0,86	0,88	75,3	160,0
<b>30</b>	27.500	220	2860	111	645	83,0	83,5	82,5	0,74	0,82	0,85	99,6	237,4
		230	2860	107	670	80,5	83,0	83,0	0,67	0,79	0,84	99,4	263,1
		380	2860	64,1	373	83,0	83,5	82,5	0,74	0,82	0,85	99,6	237,4
		400	2860	63,5	393	80,5	83,0	83,0	0,67	0,79	0,84	99,4	263,1
		415	2880	64,5	407	79,0	82,0	82,5	0,62	0,74	0,81	99,0	283,5
		500	2860	49,0	283	83,0	83,5	82,5	0,74	0,82	0,85	99,6	237,4
<b>37</b>	45.000	380	2850	80,1	387	77	80,0	81,0	0,75	0,82	0,87	124,8	269,8
		400	2870	77,9	411	76	80,0	81,0	0,68	0,78	0,85	124,5	269,8
		415	2880	77,9	423	75	79,0	81,0	0,64	0,75	0,82	123,8	269,8
<b>45</b>	45.000	380	2850	95,5	480	79	81,0	82,0	0,76	0,83	0,87	150,5	287,4
		400	2870	93,9	509	78	80,0	82,0	0,72	0,79	0,84	149,1	325,4
		415	2880	93,2	531	77	80,0	82,0	0,68	0,77	0,82	149,1	355,2

## Winding Resistances 50 Hz

P <sub>N</sub> kW	U <sub>N</sub> [V]	3 ~ DOL		3 ~ YΔ	
		Stator Ref.	U - V / Ohm V - W / Ohm U - W / Ohm	Stator Ref.	U <sub>1</sub> - U <sub>2</sub> / Ohm V <sub>1</sub> - V <sub>2</sub> / Ohm W <sub>1</sub> - W <sub>2</sub> / Ohm
4.0	220, 230	336 694 ...	1.20 - 1.40	336 740 ...	1.75 - 2.15
	380 - 415	336 327 ...	3.40 - 4.20	336 747 ...	5.40 - 6.60
	500	336 787 ...	5.80 - 7.10	337 224 ...	9.00 - 11.0
5.5	220, 230	336 695 ...	0.72 - 0.90	336 741 ...	1.10 - 1.30
	380 - 415	336 328 ...	2.20 - 2.70	336 748 ...	3.70 - 4.50
	500	336 788 ...	4.00 - 4.90	337 225 ...	6.28 - 7.70
7.5	220, 230	336 696 ...	0.59 - 0.72	336 742 ...	0.87 - 1.08
	380 - 415	336 329 ...	1.70 - 2.20	336 749 ...	2.40 - 2.90
	500	336 789 ...	3.20 - 3.90	337 226 ...	4.53 - 5.54
9.3	220, 230	338 100 ...	0.42 - 0.50	338 103 ...	0.63 - 0.77
	380 - 415	337 915 ...	1.25 - 1.55	338 061 ...	1.94 - 2.38
	500	338 220 ...	2.60 - 3.10	338 223 ...	3.27 - 4.00
11.0	220, 230	336 697 ...	0.35 - 0.44	336 743 ...	0.53 - 0.65
	380 - 415	336 330 ...	1.05 - 1.30	336 750 ...	1.64 - 2.00
	500	336 790 ...	1.80 - 2.20	337 227 ...	2.73 - 3.35
15.0	220, 230	336 698 ...	0.25 - 0.30	336 744 ...	0.38 - 0.47
	380 - 415	336 331 ...	0.75 - 0.94	336 751 ...	1.22 - 1.50
	500	336 791 ...	1.30 - 1.60	337 228 ...	2.04 - 2.50
18.5	220, 230	336 699 ...	0.20 - 0.24	336 745 ...	0.29 - 0.36
	380 - 415	336 332 ...	0.59 - 0.73	336 752 ...	0.93 - 1.15
	500	336 792 ...	1.10 - 1.34	337 229 ...	1.70 - 2.10
22.0	220, 230	336 700 ...	0.16 - 0.20	336 746 ...	0.24 - 0.30
	380 - 415	336 333 ...	0.48 - 0.60	336 753 ...	0.74 - 0.92
	500	336 793 ...	0.83 - 1.00	337 230 ...	1.26 - 1.55
30.0	220, 230			337 353 ...	0.16 - 0.20
	380 - 415	336 334 ...	0.32 - 0.40	336 754 ...	0.50 - 0.61
	500	336 794 ...	0.60 - 0.73	337 231 ...	0.91 - 1.11
37.0	380 - 415	336 710 ...	0.25 - 0.32	336 755 ...	0.36 - 0.45
45.0	380 - 415	336 336 ...	0.22 - 0.27	336 756 ...	0.33 - 0.41

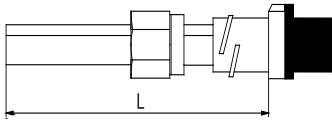
## Electrical Connection





### VDE / ACS / KTW Approved Leads\* 304 / 316SS

DOL	Ø mm <sup>2</sup>	Lenght [m]	St.#	Motor			B [mm] (± 0,3)	B1 [mm] (±0,3)	H [mm] (± 0,3)
				220V	380 - 415V	500V			
	4G4	4	1	4-11kW	4-22 kW	4-30 kW	19,0	-	7,0
	3X8,4+1G8,4	4	1	15-22 kW	30-45 kW		29,5	19,5	8,9
YΔ	Ø mm <sup>2</sup>	Lenght [m]	St.#	Motor			B [mm] (± 0,3)	B1 [mm] (±0,3)	H [mm] (± 0,3)
				220V	380 - 415V	500V			
	4G4 (L=4m)	4	2	4-22kW	4-30 kW		19,0	-	7,0
	3X8,4+1G8,4	4	1	30-37kW	37-45 kW		29,5	19,5	8,9
	3X8,4		1				19,6	-	8,9



#### Lead Part Numbers 304

	4G4mm <sup>2</sup>	3X8,4+1G8,4mm <sup>2</sup>	3X8,4mm <sup>2</sup>
4 m	310 125 004	310 145 004	310 155 004
8 m	310 125 008	310 145 008	310 155 008
10 m	310 125 010	310 145 010	310 155 010
15 m	310 125 015	310 145 015	310 155 015
20 m	310 125 020	310 145 020	310 155 020
25 m	310 125 025	310 145 025	310 155 025
30 m	310 125 030	310 145 030	310 155 030
35 m	310 125 035	310 145 035	310 155 035
40 m	310 125 040	310 145 040	310 155 040
45 m	310 125 045	310 145 045	310 155 045
50 m	310 125 050	310 145 050	310 155 050

#### Lead Part Numbers 316SS

	4G4mm <sup>2</sup>	3X8,4+1G8,4mm <sup>2</sup>	3X8,4mm <sup>2</sup>
4 m	310 125 504	310 145 504	310 155 504
8 m	310 125 508	310 145 508	310 155 508
10 m	310 125 510	310 145 510	310 155 510
15 m	310 125 515	310 145 515	310 155 515
20 m	310 125 520	310 145 520	310 155 520
25 m	310 125 525	310 145 525	310 155 525
30 m	310 125 530	310 145 530	310 155 530
35 m	310 125 535	310 145 535	310 155 535
40 m	310 125 540	310 145 540	310 155 540
45 m	310 125 545	310 145 545	310 155 545
50 m	310 125 550	310 145 550	310 155 550

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

## 6" Motor Design 4- 30 kW

**Cast Iron Version**
**304SS**
**316SS**


### Material DIN / AISI

Part	Cast Iron Version	304	316 SS
<b>Shell</b>	1.4301	1.4301	1.4571
<b>Upper end bell</b>	Cast iron powder coated	1.4301	1.4408
<b>Lower end bell</b>	Cast iron	Cast iron	Cast iron
<b>Thrust housing</b>	Cast iron powder coated	1.4301	1.4408
<b>Mechanical seal</b>	SiC / SiC	SiC / SiC	SiC / SiC
<b>Seal cover</b>	1.4301	1.4301	1.4401
<b>Slinger</b>	NBR	NBR	NBR
<b>Shaft end</b>	1.4305	1.4305	1.4462
<b>Diaphragm</b>	NBR	NBR	NBR
<b>Lead</b>	EPR	EPR	EPR

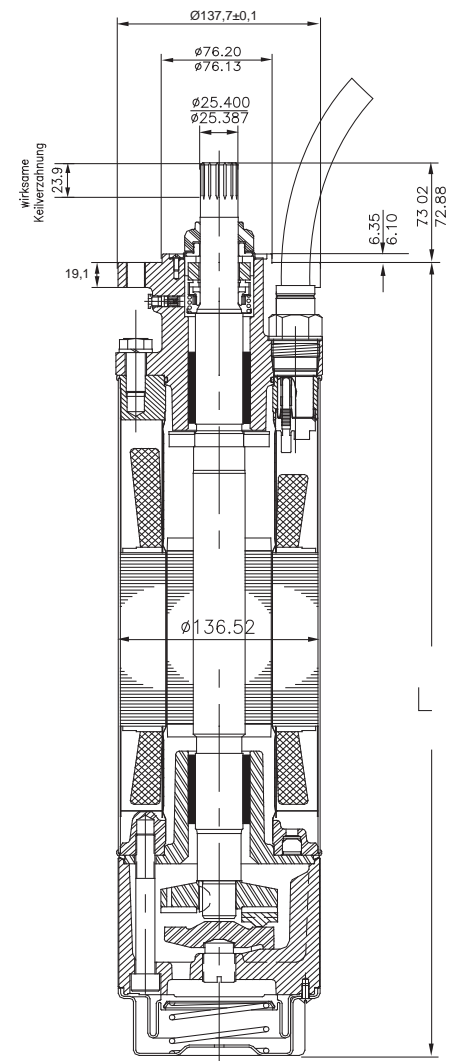
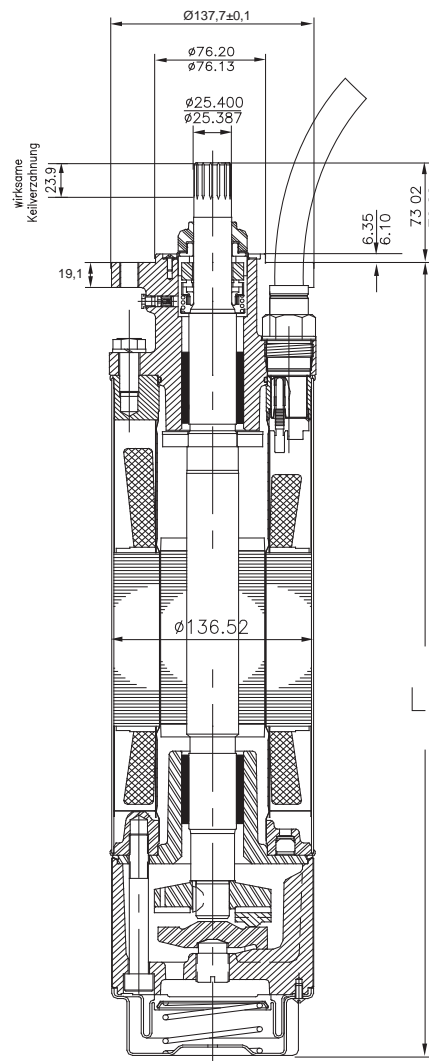
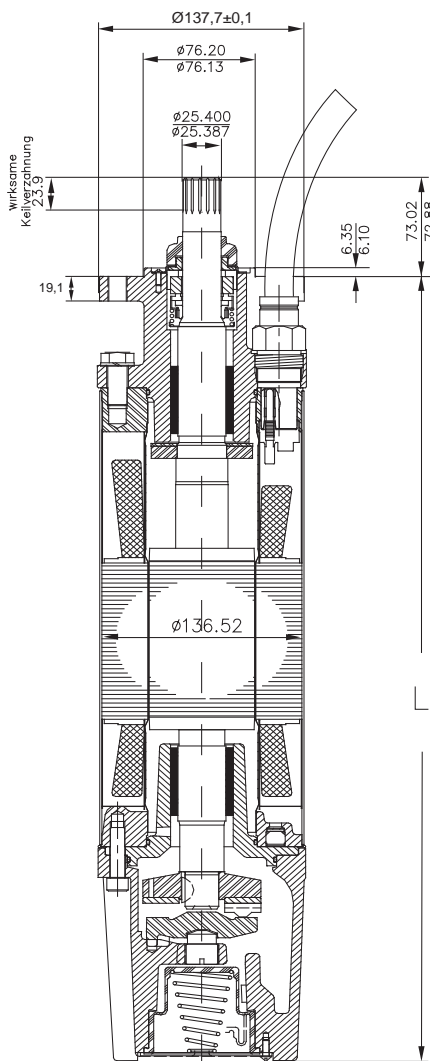


## 6" Motor Design 4 - 30 kW

Cast Iron Version

304SS

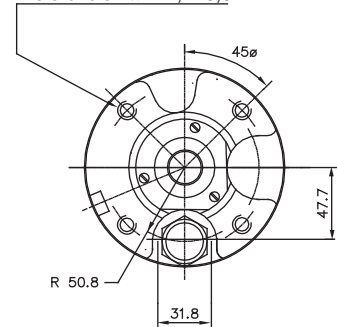
316SS



### Motor Sizes

P <sub>N</sub> [kW]	Cast Iron L [mm]	304SS L [mm]	316SS L [mm]	Motor Package Size [mm]	Shipping Weight [kg]	
					DOL	YΔ
4	581,2	570,7	570,7	155 x 212 x 800	41,3	40,3
5,5	614,4	604,0	604,0	155 x 212 x 800	44,9	43,9
7,5	646,2	635,8	635,8	155 x 212 x 800	49,0	48,0
9,3	678,7	668,3	668,3	155 x 212 x 1070	51,3	50,3
11	711,2	700,8	700,8	155 x 212 x 1070	54,7	53,7
15	776,2	765,8	765,8	155 x 212 x 1070	60,5	59,5
18,5	841,5	831,1	831,1	155 x 212 x 1070	67,1	66,1
22	906,5	896,1	896,1	155 x 212 x 1070	73,1	72,1
30	1036,6	1026,2	1026,2	155 x 212 x 1200	87,7	87,7

4 threaded holes  
1/2-20 UNF-2B  
hole circle - Ø111,2±0,3



## 6" Motor Design 37- 45 kW

Cast Iron Version

316SS



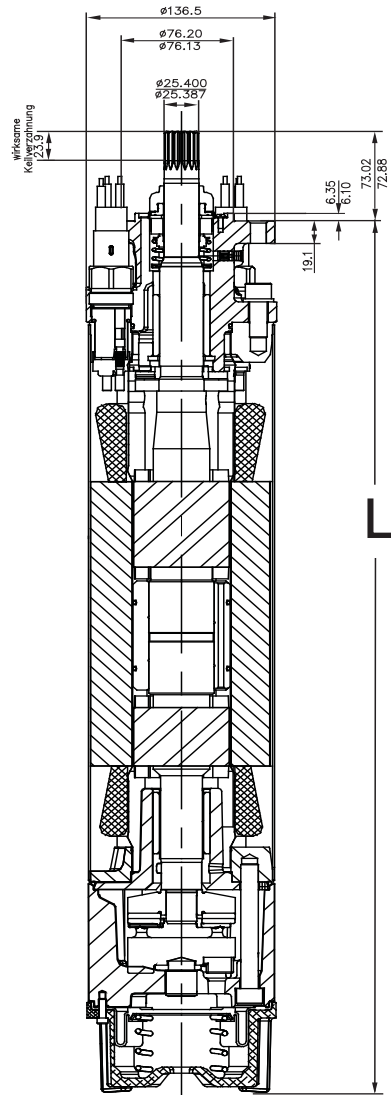
### Material DIN / AISI

Part	Cast Iron Version	316 SS
Shell	1.4301	1.4571
Upper end bell	Cast iron powder coated	1.4408
Lower end bell	Cast iron	Cast iron
Thrust housing	Cast iron powder coated	1.4408
Mechanical seal	SiC / SiC	SiC / SiC
Seal cover	1.4301	1.4401
Slinger	Viton	Viton
Shaft end	1.4305	1.4542
Diaphragm	Viton	Viton
Lead	EPR	EPR
Jam Nut (Lead)	Brass	1.4401
Lead bushing	Rubber	Rubber

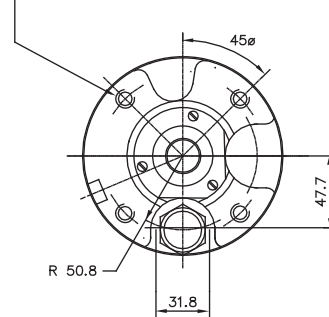


## 6" Motor Design 37- 45 kW

Cast Iron / 316SS



4 threaded holes  
1/2-20 UNF-2B  
hole circle -  $\varnothing 111,2 \pm 0,3$



### Motor Sizes

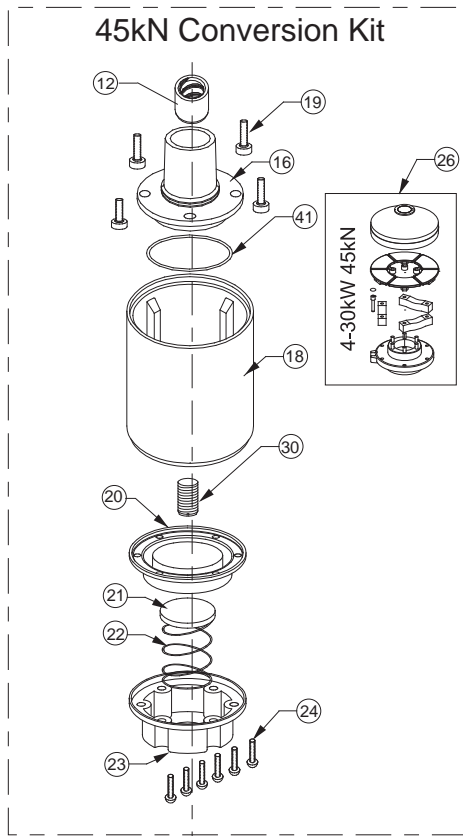
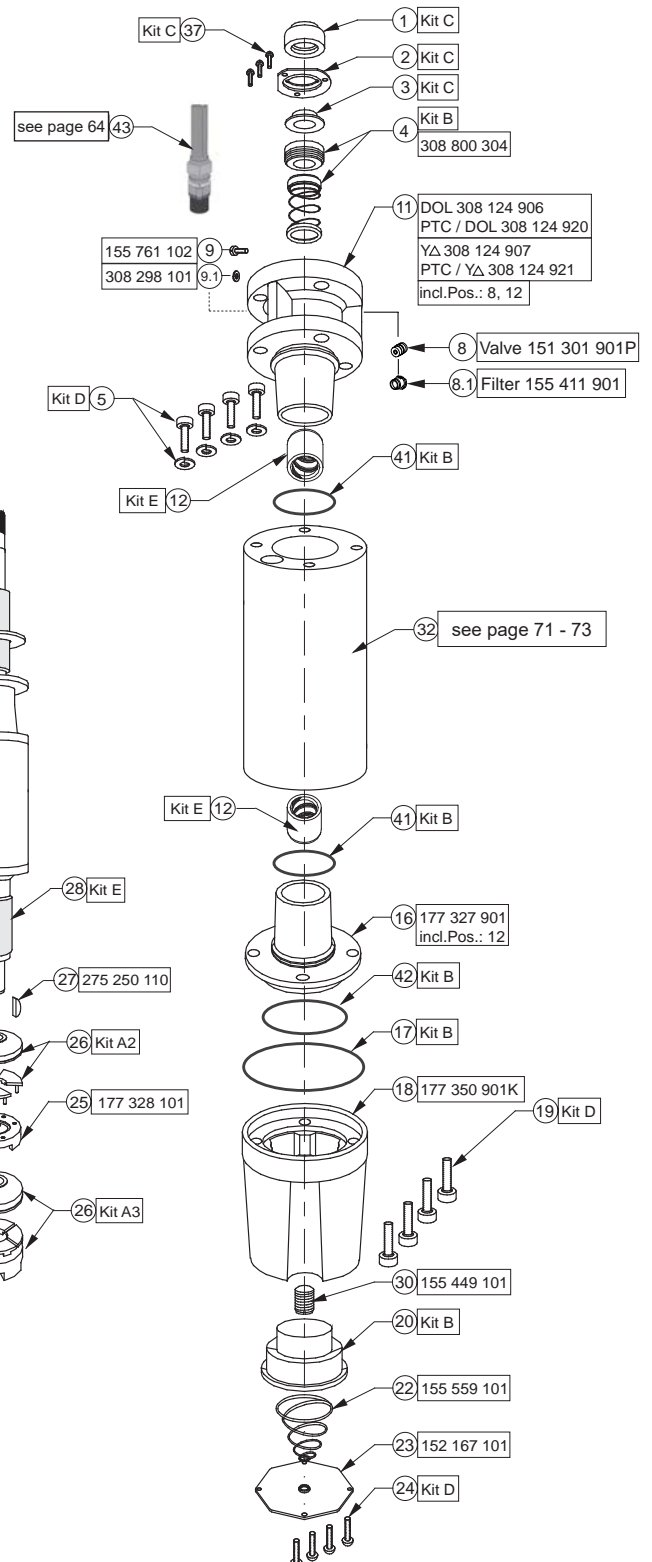
$P_N$ [kW]	304 L [mm]	316 L [mm]	Motor Package Size [mm]	Shipping Weight [kg]
37	1476,7	1476,7	223 x 267 x 1823	140
45	1629,2	1629,2	223 x 267 x 1823	156

## 6" Encapsulated Cast Iron Version

### 4 - 30kW

<b>Rotor Kit 6500N to 15.500N</b>	<b>4,0 kW</b>	incl. Pos.: 25; 26, 29	<b>305 330 901</b>
	<b>5,5 kW</b>	incl. Pos.: 25; 26, 29	<b>305 330 902</b>
<b>Kit A2 15.500N / 4-22kW</b>	<b>Thrust Bearing Kit</b>	incl. Pos.: 26	<b>308 750 120</b>
<b>Kit A3 27.500N / 30kW</b>	<b>Thrust Bearing Kit</b>	incl. Pos.: 26	<b>308 750 200</b>
<b>Kit A4</b>	<b>Thrust Bearing Kit 45.000N</b>	incl. Pos.: 26	<b>308 750 510</b>
<b>45kN Conversion Kit 4,0 - 30kW</b>		incl. Pos.: 12; 16; 18; 19; 20; 21; 22; 23; 24; 26; 30; 41	<b>308 750 500</b>
<b>Kit B1 4 - 30kW</b>	<b>Seal Kit</b>	incl. Pos.: 4; 17; 20; 41; 42	<b>308 800 125</b>
<b>Kit C1</b>	<b>Slinger Kit</b>	incl. Pos.: 1; 2; 3; 37	<b>308 725 101</b>
<b>Kit D3 up to 07.2002</b>	<b>Screw Kit</b>	incl. Pos.: 5; 19; 24	<b>308 659 120</b>
<b>Kit D4 starting 07.2002</b>	<b>Screw Kit</b>	incl. Pos.: 5; 19; 24	<b>308 659 121</b>
<b>Kit E* 4 - 30 kW</b>	<b>Radial Bearing Kit</b>	incl. Pos.: 12; 28	<b>308 678 101</b>

\* Radial Bearing Parts are unfinished



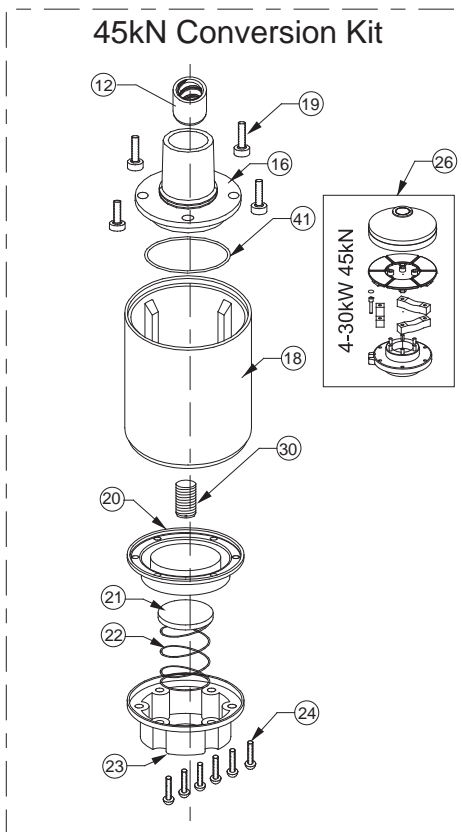
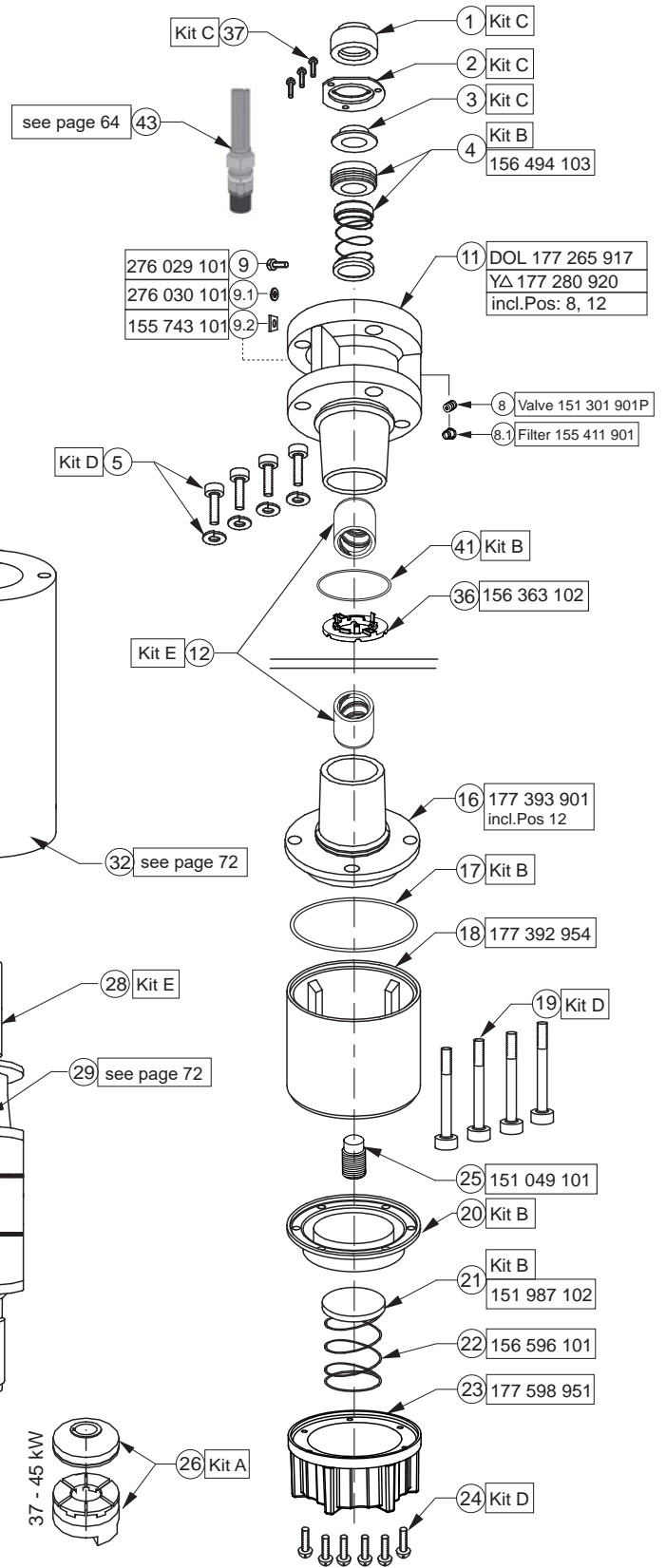


## 6" Encapsulated Cast Iron Version

**37- 45 Kw**

<b>Kit A3</b>	<b>Thrust Bearing Kit 27.500N</b>	incl. Pos.: 26	<b>308 750 200</b>
<b>Kit A4</b>	<b>Thrust Bearing Kit 45.000N</b>	incl. Pos.: 26	<b>308 750 510</b>
<b>45kN Conversion Kit 37 - 45kWkW</b>		incl. Pos.: 12; 16; 18; 19 ; 20; 21; 22; 23; 24; 26; 30; 41	<b>308 750 500</b>
<b>Kit B3</b>	<b>Seal Kit</b>	incl. Pos.: 4; 17; 20; 21, 41; 44	<b>308 800 250</b>
<b>Kit C3</b>	<b>Slinger Kit</b>	incl. Pos.: 1; 2; 3; 37	<b>308 725 150</b>
<b>Kit D5</b>	<b>Screw Kit</b>	incl. Pos.: 5; 19; 24	<b>308 659 155</b>
<b>Kit E*</b>	<b>Radial Bearing Kit</b>	incl. Pos.: 12; 28	<b>308 678 101</b>

\* Radial Bearing Parts are unfinished



## Replacement Stators and Rotors Cast Iron Version / 50 Hz

3 ~ ohne SubMonitor Transmitter 3 ~ without SubMonitor Transmitter	3 ~ sans transm. SubMonitor 3 ~ senza trasmettitore SubMonitor	3 ~ sin transmissor SubMonitor 3 ~ sem transmissor SubMonitor
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P <sub>N</sub> [kW]	U <sub>N</sub> [V]	Thrust F [N]	DOL		YΔ (*)		Rotor Model No.
			Motor Model No.	Stator Model No.	Motor Model No.	Stator Model No.	
<b>4,0</b>	220, 230	15.500	236 680 90**	305 478 927	236 670 90**	305 478 930	178 117 912K
	380, 400, 415		236 610 90**	305 478 928	236 710 90**	305 478 931	
	500		236 700 90**	305 478 929	236 790 90**	305 478 932	
<b>5,5</b>	220, 230	15.500	236 681 90**	305 479 930	236 671 90**	305 479 933	178 118 911K
	380, 400, 415		236 611 90**	305 479 931	236 711 90**	305 479 934	
	500		236 701 90**	305 479 932	236 791 90**	305 479 935	
<b>7,5</b>	220, 230	15.500	236 682 90**	305 480 932	236 672 90**	305 480 935	178 119 906K
	380, 400, 415		236 612 90**	305 480 933	236 712 90**	305 480 936	
	500		236 702 90**	305 480 934	236 792 90**	305 480 937	
<b>9,3</b>	220, 230	15.500	236 015 90**	305 481 921	236 005 90**	305 481 924	178 182 906K
	380, 400, 415		236 001 90**	305 481 922	236 011 90**	305 481 925	
	500		236 008 90**	305 481 923	236 018 90**	305 481 926	
<b>11,0</b>	220, 230	15.500	236 683 90**	305 482 933	236 673 90**	305 482 936	178 120 906K
	380, 400, 415		236 613 90**	305 482 934	236 713 90**	305 482 937	
	500		236 703 90**	305 482 935	236 793 90**	305 482 938	
<b>15,0</b>	220, 230	15.500	236 684 90**	305 484 933	236 674 90**	305 484 936	178 121 906K
	380, 400, 415		236 614 90**	305 484 934	236 714 90**	305 484 937	
	500		236 704 90**	305 484 935	236 794 90**	305 484 938	
<b>18,5</b>	220, 230	15.500	236 685 90**	305 485 930	236 675 90**	305 485 933	178 122 906K
	380, 400, 415		236 615 90**	305 485 931	236 715 90**	305 485 934	
	500		236 705 90**	305 485 932	236 795 90**	305 485 935	
<b>22,0</b>	220, 230	15.500	236 686 90**	305 486 934	236 676 90**	305 486 937	178 123 906K
	380, 400, 415		236 616 90**	305 486 935	236 716 90**	305 486 938	
	500		236 706 90**	305 486 936	236 796 90**	305 486 939	
<b>30,0</b>	220, 230	27.500			236 677 90**	305 488 923	178 115 906K
	380, 400, 415		236 617 90**	305 488 921	236 717 90**	305 488 924	
	500		236 707 90**	305 488 922	236 797 90**	305 488 925	

(\*) : **Kabel 90° versetzt**  
**Pos. of leads 90°**  
**Pos. des câbles 90°**

**Pos. de cavi 90°**  
**Pos. de los cables 90°**  
**Pos. dos cabos 90°**



## Replacement Stators and Rotors Cast Iron Version / 50 Hz

3 ~ mit SubMonitor Transmitter 3 ~ with SubMonitor Transmitter	3 ~ avec transm. SubMonitor 3 ~ con trasmettitore SubMonitor	3 ~ con transmissor SubMonitor 3 ~ com transmissor SubMonitor
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P <sub>N</sub> [kW]	U <sub>N</sub> [V]	Thrust F [N]	DOL		YΔ (*)		Rotor Model No.
			Motor Model No.	Stator Model No.	Motor Model No.	Stator Model No.	
<b>4,0</b>	220, 230	15.500	236 680 60**	305 478 907	236 670 60**	305 478 910	178 117 912K
	380, 400, 415		236 610 60**	305 478 908	236 710 60**	305 478 911	
	500		236 700 60**	305 478 909	236 790 60**	305 478 912	
<b>5,5</b>	220, 230	15.500	236 681 60**	305 479 910	236 671 60**	305 479 913	178 118 911K
	380, 400, 415		236 611 60**	305 479 911	236 711 60**	305 479 914	
	500		236 701 60**	305 479 912	236 791 60**	305 479 915	
<b>7,5</b>	220, 230	15.500	236 682 60**	305 480 912	236 672 60**	305 480 915	178 119 906K
	380, 400, 415		236 612 60**	305 480 913	236 712 60**	305 480 916	
	500		236 702 60**	305 480 914	236 792 60**	305 480 917	
<b>9,3</b>	220, 230	15.500	236 015 60**	305 481 901	236 005 60**	305 481 904	178 182 906K
	380, 400, 415		236 001 60**	305 481 902	236 011 60**	305 481 905	
	500		236 008 60**	305 481 903	236 018 60**	305 481 906	
<b>11,0</b>	220, 230	15.500	236 683 60**	305 482 913	236 673 60**	305 482 916	178 120 906K
	380, 400, 415		236 613 60**	305 482 914	236 713 60**	305 482 917	
	500		236 703 60**	305 482 915	236 793 60**	305 482 918	
<b>15,0</b>	220, 230	15.500	236 684 60**	305 484 913	236 674 60**	305 484 916	178 121 906K
	380, 400, 415		236 614 60**	305 484 914	236 714 60**	305 484 917	
	500		236 704 60**	305 484 915	236 794 60**	305 484 918	
<b>18,5</b>	220, 230	15.500	236 685 60**	305 482 910	236 675 60**	305 485 913	178 122 906K
	380, 400, 415		236 615 60**	305 485 911	236 715 60**	305 485 914	
	500		236 705 60**	305 482 912	236 795 60**	305 485 915	
<b>22,0</b>	220, 230	15.500	236 686 60**	305 486 914	236 676 60**	305 486 917	178 123 906K
	380, 400, 415		236 616 60**	305 486 915	236 716 60**	305 486 918	
	500		236 706 60**	305 486 916	236 796 60**	305 486 919	
<b>30,0</b>	220, 230	27.500			236 677 60**	305 488 907	178 115 906K
	380, 400, 415		236 617 60**	305 488 905	236 717 60**	305 488 908	
	500		236 707 60**	305 488 906	236 797 60**	305 488 909	
<b>37,0</b>	380, 400, 415	45.000	276 618 6161	305 489 920	276 718 6161	305 489 919	305 223 920
<b>45,0</b>	380, 400, 415	45.000	276 619 6161	305 490 920	276 719 6161	305 490 919	305 223 921

(\*) : **Kabel 90° versetzt**      **Pos. de cavi 90°**  
**Pos. of leads 90°**      **Pos. de los cables 90°**  
**Pos. des câbles 90°**      **Pos. dos cabos 90°**

## Replacement Stators and Rotors Cast Iron Version / 50 Hz

3 ~ mit PTC 3 ~ with PTC	3 ~ avec PTC 3 ~ con PTC	3 ~ con PTC 3 ~ com PTC
-----------------------------	-----------------------------	----------------------------

P <sub>N</sub> [kW]	U <sub>N</sub> [V]	Thrust F [N]	DOL		YΔ (*)		Rotor Model No.
			Motor Model No.	Stator Model No.	Motor Model No.	Stator Model No.	
<b>4,0</b>	220, 230	15.500	236 680 20**	305478933	236 670 20**	305478936	178 117 912K
	380, 400, 415		236 610 20**	305478934	236 710 20**	305478937	
	500		236 700 20**	305478935	236 790 20**	305478938	
<b>5,5</b>	220, 230	15.500	236 681 20**	305479936	236 671 20**	305479939	178 118 911K
	380, 400, 415		236 611 20**	305479937	236 711 20**	305479940	
	500		236 701 20**	305479938	236 791 20**	305479941	
<b>7,5</b>	220, 230	15.500	236 682 20**	305480938	236 672 20**	305480941	178 119 906K
	380, 400, 415		236 612 20**	305480939	236 712 20**	305480942	
	500		236 702 20**	305480940	236 792 20**	305480943	
<b>9,3</b>	220, 230	15.500	236 015 20**	305481927	236 005 20**	305481930	178 182 906K
	380, 400, 415		236 001 20**	305481928	236 011 20**	305481931	
	500		236 008 20**	305481929	236 018 20**	305481932	
<b>11,0</b>	220, 230	15.500	236 683 20**	305482939	236 673 20**	305482942	178 120 906K
	380, 400, 415		236 613 20**	305482940	236 713 20**	305482943	
	500		236 703 20**	305482941	236 793 20**	305482944	
<b>15,0</b>	220, 230	15.500	236 684 20**	305484939	236 674 20**	305484942	178 121 906K
	380, 400, 415		236 614 20**	305484940	236 714 20**	305484943	
	500		236 704 20**	305484941	236 794 20**	305484944	
<b>18,5</b>	220, 230	15.500	236 685 20**	305485936	236 675 20**	305485939	178 122 906K
	380, 400, 415		236 615 20**	305485937	236 715 20**	305485940	
	500		236 705 20**	305485938	236 795 20**	305485941	
<b>22,0</b>	220, 230	15.500	236 686 20**	305486940	236 676 20**	305486943	178 123 906K
	380, 400, 415		236 616 20**	305486941	236 716 20**	305486944	
	500		236 706 20**	305486942	236 796 20**	305486945	
<b>30,0</b>	220, 230	27.500			236 677 20**	305488928	178 115 906K
	380, 400, 415		236 617 20**	305488926	236 717 20**	305488929	
	500		236 707 20**	305488927	236 797 20**	305488930	

(\*) : **Kabel 90° versetzt**      **Pos. de cavi 90°**  
**Pos. of leads 90°**      **Pos. de los cables 90°**  
**Pos. des câbles 90°**      **Pos. dos cabos 90°**

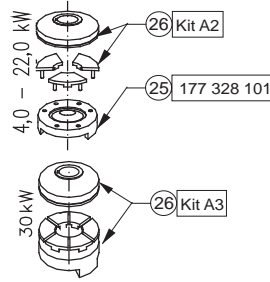
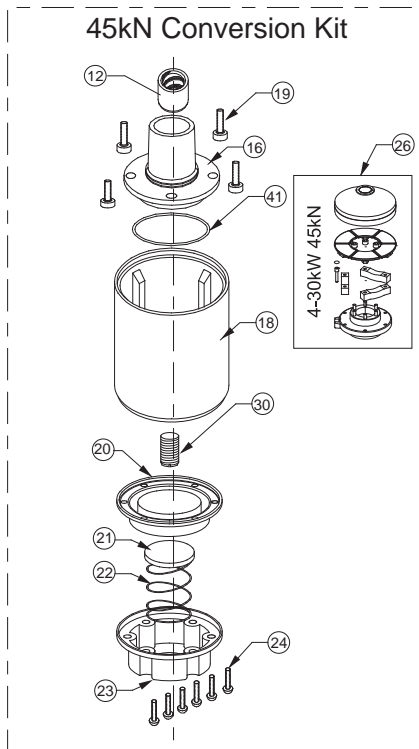
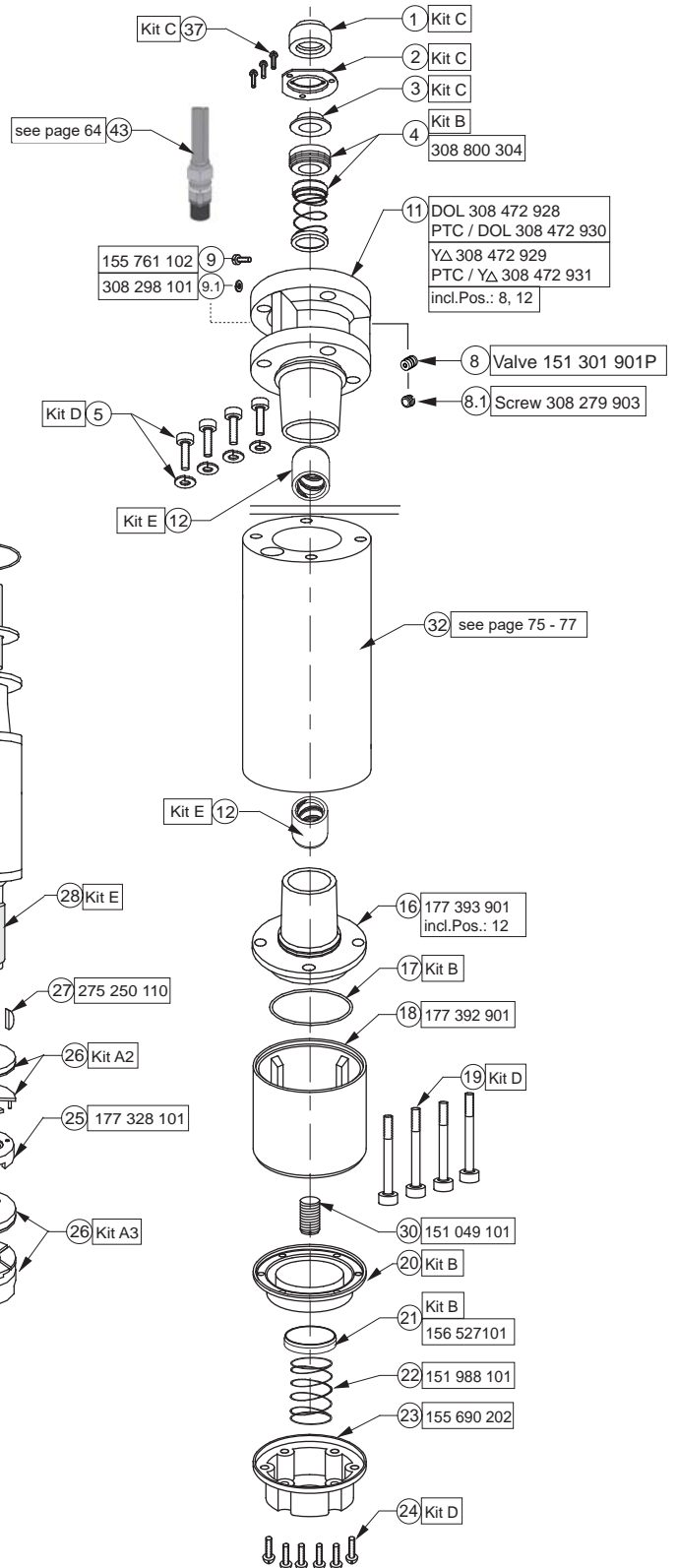


## 6" Encapsulated 304SS

**4 - 30kW**

<b>Kit A2</b> 15.500N / 4-22kW	<b>Thrust Bearing Kit</b>	incl. Pos.: 26	<b>308 750 120</b>
<b>Kit A3</b> 27.500N / 30kW	<b>Thrust Bearing Kit</b>	incl. Pos.: 26	<b>308 750 200</b>
<b>Kit A4</b> 45.000N / 30kW	<b>Thrust Bearing Kit</b>	incl. Pos.: 26	<b>308750 510</b>
<b>45kN Conversion Kit</b> 4,0 - 30kW		incl. Pos.: 12; 16; 18; 19; 20; 21; 22; 23; 24; 26; 30; 41	<b>308 750 500</b>
<b>Kit B2</b> 4 - 30kW	<b>Seal Kit</b>	incl. Pos.: 4; 17; 20; 21, 22, 41	<b>308 800 302</b>
<b>Kit C2</b>	<b>Slinger Kit</b>	incl. Pos.: 1; 2; 3; 37	<b>308 725 302</b>
<b>Kit D4</b>	<b>Screw Kit</b>	incl. Pos.: 5; 19; 24	<b>308 659 302</b>
<b>Kit E*</b> 4 - 30 kW	<b>Radial Bearing Kit</b>	incl. Pos.: 12; 28	<b>308 678 101</b>

\* Radial Bearing Parts are unfinished



### Replacement Stators and Rotors 304SS / 50 Hz

3 ~ ohne SubMonitor Transmitter 3 ~ without SubMonitor Transmitter	3 ~ sans transm. SubMonitor 3 ~ senza trasmettitore SubMonitor	3 ~ sin transmissor SubMonitor 3 ~ sem transmissor SubMonitor
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P <sub>N</sub> [kW]	Volts	Thrust F [N]	DOL		Y <sub>Δ</sub> (*)		Rotor Model No.
			Motor Model No.	Stator Model No.	Motor Model No.	Stator Model No.	
<b>4,0</b>	220, 230	15.500	236 680 10**	305 478 ***	236 670 10**	305 478 ***	178 117 912K
	380, 400, 415		236 610 10**	305 478 ***	236 710 10**	305 478 ***	
	500		236 700 10**	305 478 ***	236 790 10**	305 478 ***	
<b>5,5</b>	220, 230	15.500	236 681 10**	305 479 ***	236 671 10**	305 479 ***	178 118 911K
	380, 400, 415		236 611 10**	305 479 ***	236 711 10**	305 479 ***	
	500		236 701 10**	305 479 ***	236 791 10**	305 479 ***	
<b>7,5</b>	220, 230	15.500	236 682 10**	305 480 ***	236 672 10**	305 480 ***	178 119 906K
	380, 400, 415		236 612 10**	305 480 ***	236 712 10**	305 480 ***	
	500		236 702 10**	305 480 ***	236 792 10**	305 480 ***	
<b>9,3</b>	220, 230	15.500	236 015 10**	305 481 ***	236 005 10**	305 481 ***	178 182 906K
	380, 400, 415		236 001 10**	305 481 ***	236 011 10**	305 481 ***	
	500		236 008 10**	305 481 ***	236 018 10**	305 481 ***	
<b>11,0</b>	220, 230	15.500	236 683 10**	305 482 ***	236 673 10**	305 482 ***	178 120 906K
	380, 400, 415		236 613 10**	305 482 ***	236 713 10**	305 482 ***	
	500		236 703 10**	305 482 ***	236 793 10**	305 482 ***	
<b>15,0</b>	220, 230	15.500	236 684 10**	305 484 ***	236 674 10**	305 484 ***	178 121 906K
	380, 400, 415		236 614 10**	305 484 ***	236 714 10**	305 484 ***	
	500		236 704 10**	305 484 ***	236 794 10**	305 484 ***	
<b>18,5</b>	220, 230	15.500	236 685 10**	305 485 ***	236 675 10**	305 485 ***	178 122 906K
	380, 400, 415		236 615 10**	305 485 ***	236 715 10**	305 485 ***	
	500		236 705 10**	305 485 ***	236 795 10**	305 485 ***	
<b>22,0</b>	220, 230	15.500	236 686 10**	305 486 ***	236 676 10**	305 486 ***	178 123 906K
	380, 400, 415		236 616 10**	305 486 ***	236 716 10**	305 486 ***	
	500		236 706 10**	305 486 ***	236 796 10**	305 486 ***	
<b>30,0</b>	220, 230	27.500			236 677 10**	305 488 ***	178 115 906K
	380, 400, 415		236 617 10**	305 488 ***	236 717 10**	305 488 ***	
	500		236 707 10**	305 488 ***	236 797 10**	305 488 ***	

(\*) : **Kabel 90° versetzt**      **Pos. de cavi 90°**  
**Pos. of leads 90°**      **Pos. de los cables 90°**  
**Pos. des câbles 90°**      **Pos. dos cabos 90°**



## Replacement Stators and Rotors 304SS / 50 Hz

3 ~ mit SubMonitor Transmitter  
3 ~ with SubMonitor Transmitter

3 ~ avec transm. SubMonitor  
3 ~ con trasmettitore SubMonitor

3 ~ con transmissor SubMonitor  
3 ~ com transmissor SubMonitor

P <sub>N</sub> [kW]	Volts	Thrust F [N]	DOL		Y <sub>Δ</sub> (*)		Rotor Model No.
			Motor Model No.	Stator Model No.	Motor Model No.	Stator Model No.	
4,0	220, 230	15.500	236 680 11**	305 478 ***	236 670 11**	305 478 ***	178 117 912K
	380, 400, 415		236 610 11**	305 478 ***	236 710 11**	305 478 ***	
	500		236 700 11**	305 478 ***	236 790 11**	305 478 ***	
5,5	220, 230	15.500	236 681 11**	305 479 ***	236 671 11**	305 479 ***	178 118 911K
	380, 400, 415		236 611 11**	305 479 ***	236 711 11**	305 479 ***	
	500		236 701 11**	305 479 ***	236 791 11**	305 479 ***	
7,5	220, 230	15.500	236 682 11**	305 480 ***	236 672 11**	305 480 ***	178 119 906K
	380, 400, 415		236 612 11**	305 480 ***	236 712 11**	305 480 ***	
	500		236 702 11**	305 480 ***	236 792 11**	305 480 ***	
9,3	220, 230	15.500	236 015 11**	305 481 ***	236 005 11**	305 481 ***	178 182 906K
	380, 400, 415		236 001 11**	305 481 ***	236 011 11**	305 481 ***	
	500		236 008 11**	305 481 ***	236 018 11**	305 481 ***	
11,0	220, 230	15.500	236 683 11**	305 482 ***	236 673 11**	305 482 ***	178 120 906K
	380, 400, 415		236 613 11**	305 482 ***	236 713 11**	305 482 ***	
	500		236 703 11**	305 482 ***	236 793 11**	305 482 ***	
15,0	220, 230	15.500	236 684 11**	305 484 ***	236 674 11**	305 484 ***	178 121 906K
	380, 400, 415		236 614 11**	305 484 ***	236 714 11**	305 484 ***	
	500		236 704 11**	305 484 ***	236 794 11**	305 484 ***	
18,5	220, 230	15.500	236 685 11**	305 485 ***	236 675 11**	305 485 ***	178 122 906K
	380, 400, 415		236 615 11**	305 485 ***	236 715 11**	305 485 ***	
	500		236 705 11**	305 485 ***	236 795 11**	305 485 ***	
22,0	220, 230	15.500	236 686 11**	305 486 ***	236 676 11**	305 486 ***	178 123 906K
	380, 400, 415		236 616 11**	305 486 ***	236 716 11**	305 486 ***	
	500		236 706 11**	305 486 ***	236 796 11**	305 486 ***	
30,0	220, 230	27.500			236 677 11**	305 488 ***	178 115 906K
	380, 400, 415		236 617 11**	305 488 ***	236 717 11**	305 488 ***	
	500		236 707 11**	305 488 ***	236 797 11**	305 488 ***	

(\*) : **Kabel 90° versetzt**  
**Pos. of leads 90°**  
**Pos. des câbles 90°**

**Pos. de cavi 90°**  
**Pos. de los cables 90°**  
**Pos. dos cabos 90°**

## Replacement Stators and Rotors 304SS / 50 Hz

3 ~ mit PTC  
3 ~ with PTC

3 ~ avec PTC  
3 ~ con PTC

3 ~ con PTC  
3 ~ com PTC

P <sub>N</sub> [kW]	Volts	Thrust F [N]	DOL		Y <sub>Δ</sub> (*)		Rotor Model No.
			Motor Model No.	Stator Model No.	Motor Model No.	Stator Model No.	
<b>4,0</b>	220, 230	15.500	236 680 12**	305 478 ***	236 670 12**	305 478 ***	178 117 912K
	380, 400, 415		236 610 12**	305 478 ***	236 710 12**	305 478 ***	
	500		236 700 12**	305 478 ***	236 790 12**	305 478 ***	
<b>5,5</b>	220, 230	15.500	236 681 12**	305 479 ***	236 671 12**	305 479 ***	178 118 911K
	380, 400, 415		236 611 12**	305 479 ***	236 711 12**	305 479 ***	
	500		236 701 12**	305 479 ***	236 791 12**	305 479 ***	
<b>7,5</b>	220, 230	15.500	236 682 12**	305 480 ***	236 672 12**	305 480 ***	178 119 906K
	380, 400, 415		236 612 12**	305 480 ***	236 712 12**	305 480 ***	
	500		236 702 12**	305 480 ***	236 792 12**	305 480 ***	
<b>9,3</b>	220, 230	15.500	236 015 12**	305 481 ***	236 005 12**	305 481 ***	178 182 906K
	380, 400, 415		236 001 12**	305 481 ***	236 011 12**	305 481 ***	
	500		236 008 12**	305 481 ***	236 018 12**	305 481 ***	
<b>11,0</b>	220, 230	15.500	236 683 12**	305 482 ***	236 673 12**	305 482 ***	178 120 906K
	380, 400, 415		236 613 12**	305 482 ***	236 713 12**	305 482 ***	
	500		236 703 12**	305 482 ***	236 793 12**	305 482 ***	
<b>15,0</b>	220, 230	15.500	236 684 12**	305 484 ***	236 674 12**	305 484 ***	178 121 906K
	380, 400, 415		236 614 12**	305 484 ***	236 714 12**	305 484 ***	
	500		236 704 12**	305 484 ***	236 794 12**	305 484 ***	
<b>18,5</b>	220, 230	15.500	236 685 12**	305 485 ***	236 675 12**	305 485 ***	178 122 906K
	380, 400, 415		236 615 12**	305 485 ***	236 715 12**	305 485 ***	
	500		236 705 12**	305 485 ***	236 795 12**	305 485 ***	
<b>22,0</b>	220, 230	15.500	236 686 12**	305 486 ***	236 676 12**	305 486 ***	178 123 906K
	380, 400, 415		236 616 12**	305 486 ***	236 716 12**	305 486 ***	
	500		236 706 12**	305 486 ***	236 796 12**	305 486 ***	
<b>30,0</b>	220, 230	27.500			236 677 12**	305 488 ***	178 115 906K
	380, 400, 415		236 617 12**	305 488 ***	236 717 12**	305 488 ***	
	500		236 707 12**	305 488 ***	236 797 12**	305 488 ***	

(\*) : **Kabel 90° versetzt**      **Pos. de cavi 90°**  
**Pos. of leads 90°**      **Pos. de los cables 90°**  
**Pos. des câbles 90°**      **Pos. dos cabos 90°**

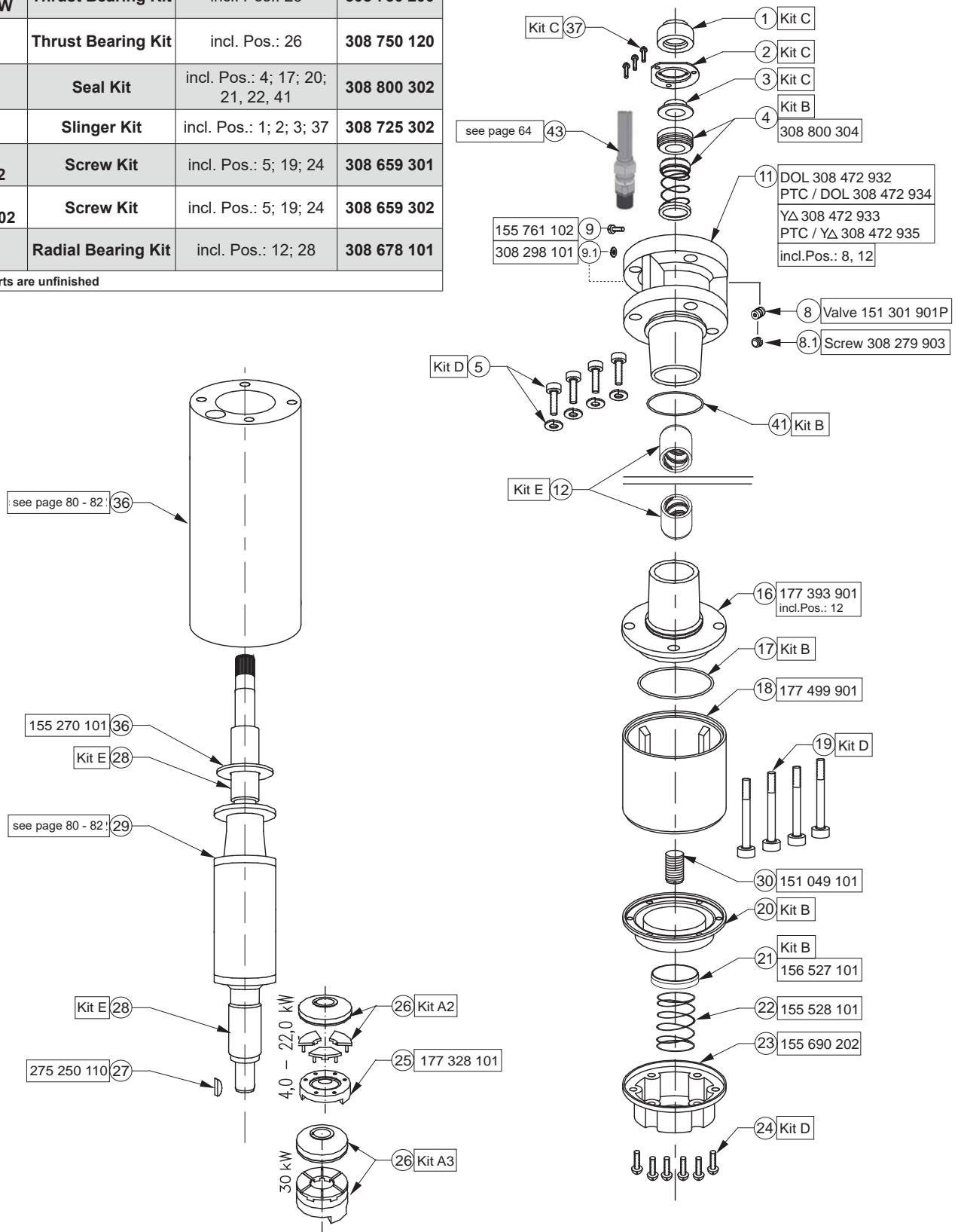


## 6" Encapsulated 316SS

### 4- 30 kW

Rotor Kit 6500N to 15.500N	4,0 kW	incl. Pos.: 25; 26, 29	305 330 911
	5,5 kW	incl. Pos.: 25; 26, 29	305 330 912
Kit A2 15.500N / 4-22kW	Thrust Bearing Kit	incl. Pos.: 26	308 750 120
Kit A3 27.500N / 30kW	Thrust Bearing Kit	incl. Pos.: 26	308 750 200
Kit A4 45.000N	Thrust Bearing Kit	incl. Pos.: 26	308 750 120
Kit B2 4 - 30kW	Seal Kit	incl. Pos.: 4; 17; 20; 21, 22, 41	308 800 302
Kit C2	Slinger Kit	incl. Pos.: 1; 2; 3; 37	308 725 302
Kit D3 up to 07.2002	Screw Kit	incl. Pos.: 5; 19; 24	308 659 301
Kit D4 starting 07.2002	Screw Kit	incl. Pos.: 5; 19; 24	308 659 302
Kit E* 4 - 30 kW	Radial Bearing Kit	incl. Pos.: 12; 28	308 678 101

\* Radial Bearing Parts are unfinished

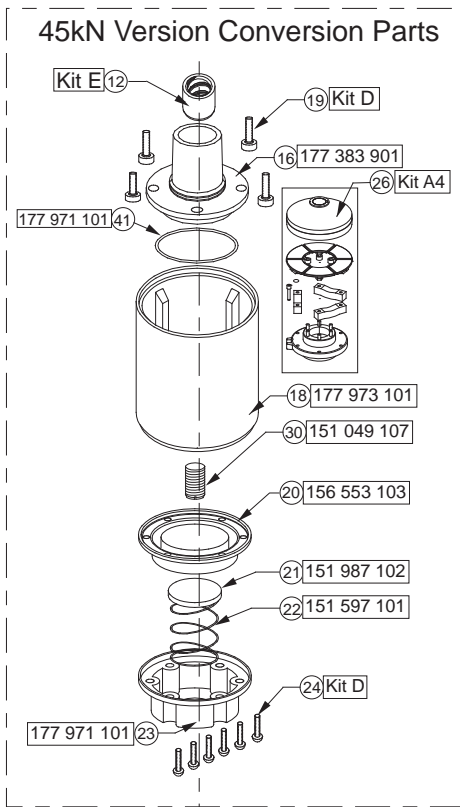
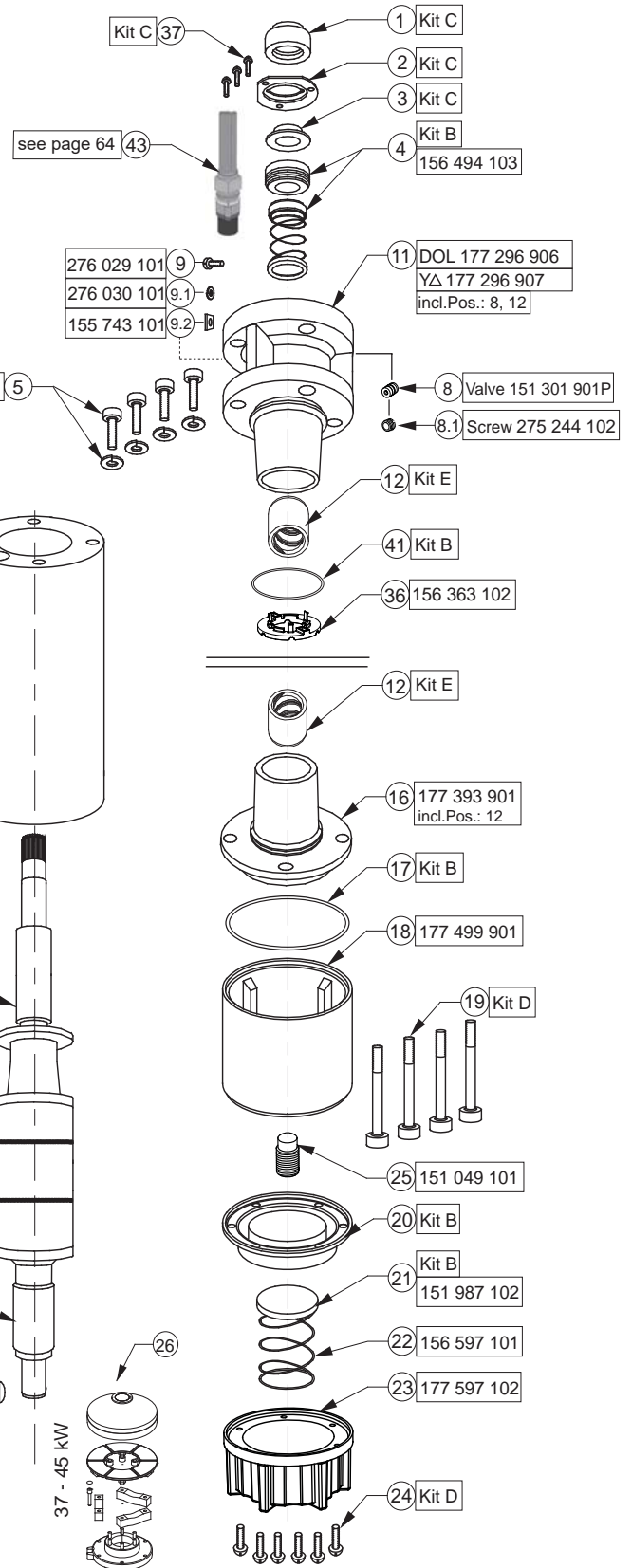


## 6" Encapsulated 316SS

**37- 45 kW**

<b>Kit A3</b>	<b>Thrust Bearing Kit 27.500N</b>	incl. Pos.: 26	<b>308 750 200</b>
<b>Kit A4</b>	<b>Thrust Bearing Kit 45.000N</b>	incl. Pos.: 26	<b>308 750 510</b>
<b>Kit B3</b>	<b>Seal Kit</b>	incl. Pos.: 4; 17; 20; 21, 41; 44	<b>308 800 250</b>
<b>Kit C4</b>	<b>Slinger Kit</b>	incl. Pos.: 1; 2; 3; 37	<b>308 725 155</b>
<b>Kit D5</b>	<b>Screw Kit</b>	incl. Pos.: 5; 19; 24	<b>308 659 155</b>
<b>Kit E*</b>	<b>Radial Bearing Kit</b>	incl. Pos.: 12; 28	<b>308 678 101</b>

\* Radial Bearing Parts are unfinished





## Replacement Stators and Rotors 316SS / 50 Hz

3 ~ ohne SubMonitor Transmitter  
3 ~ without SubMonitor Transmitter

3 ~ sans transm. SubMonitor  
3 ~ senza trasmettitore SubMonitor

3 ~ sin transmissor SubMonitor  
3 ~ sem transmissor SubMonitor

P <sub>N</sub> [kW]	U <sub>N</sub> [V]	Thrust (N)	DOL		YΔ (*)		Rotor Model No.
			Motor Model No.	Stator Model No.	Motor Model No.	Stator Model No.	
4,0	220, 230	15.500	236 680 39**	305478917	236 670 39**	305478920	178 117 913K
	380 - 415		236 610 39**	305478918	236 710 39**	305478921	
	500		236 700 39**	305478919	236 790 39**	305478922	
5,5	220, 230	15.500	236 681 39**	305479920	236 671 39**	305479923	178 118 912K
	380 - 415		236 611 39**	305479921	236 711 39**	305479924	
	500		236 701 39**	305479922	236 791 39**	305479925	
7,5	220, 230	15.500	236 682 39**	305480922	236 672 39**	305480925	178 119 908K
	380 - 415		236 612 39**	305480923	236 712 39**	305480926	
	500		236 702 39**	305480924	236 792 39**	305480927	
9,3	220, 230	15.500	236 015 39**	305481911	236 005 39**	305481914	178 182 907K
	380 - 415		236 001 39**	305481912	236 011 39**	305481915	
	500		236 008 39**	305481913	236 018 39**	305481916	
11,0	220, 230	15.500	236 683 39**	305482923	236 673 39**	305482926	178 120 908K
	380 - 415		236 613 39**	305482924	236 713 39**	305482927	
	500		236 703 39**	305482925	236 793 39**	305482928	
15,0	220, 230	15.500	236 684 39**	305484923	236 674 39**	305484926	178 121 907K
	380 - 415		236 614 39**	305484924	236 714 39**	305484927	
	500		236 704 39**	305484925	236 794 39**	305484928	
18,5	220, 230	15.500	236 685 39**	305485920	236 675 39**	305485923	178 122 907K
	380 - 415		236 615 39**	305485921	236 715 39**	305485924	
	500		236 705 39**	305485922	236 795 39**	305485926	
22,0	220, 230	15.500	236 686 39**	305486924	236 676 39**	305486927	178 123 907K
	380 - 415		236 616 39**	305486925	236 716 39**	305486928	
	500		236 706 39**	305486926	236 796 39**	305486929	
30,0	220, 230	27.500			236 677 39**	305488915	178 115 906K
	380 - 415		236 617 39**	305488913	236 717 39**	305488916	
	500		236 707 39**	305488914	236 797 39**	305488917	

(\*) : Kabel 90° versetzt  
Pos. of leads 90°  
Pos. des câbles 90°

Pos. de cavi 90°  
Pos. de los cables 90°  
Pos. dos cabos 90°

## Replacement Stators and Rotors 316SS / 50 Hz

3 ~ mit SubMonitor Transmitter 3 ~ with SubMonitor Transmitter	3 ~ avec transm. SubMonitor 3 ~ con trasmettitore SubMonitor	3 ~ con transmissor SubMonitor 3 ~ com transmissor SubMonitor
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P <sub>N</sub> [kW]	U <sub>N</sub> [V]	Thrust F (N)	DOL		YΔ (*)		Rotor Model No.
			Motor Model No.	Stator Model No.	Motor Model No.	Stator Model No.	
4,0	220, 230	15.500	236 680 40**	305 478 947	236 670 40**	305 478 950	178 117 913K
	380 - 415		236 610 40**	305 478 948	236 710 40**	305 478 951	
	500		236 700 40**	305 478 949	236 790 40**	305 478 952	
5,5	220, 230	15.500	236 681 40**	305 479 950	236 671 40**	305 479 953	178 118 912K
	380 - 415		236 611 40**	305 479 951	236 711 40**	305 479 954	
	500		236 701 40**	305 479 952	236 791 40**	305 479 955	
7,5	220, 230	15.500	236 682 40**	305 480 952	236 672 40**	305 480 955	178 119 908K
	380 - 415		236 612 40**	305 480 953	236 712 40**	305 480 956	
	500		236 702 40**	305 480 954	236 792 40**	305 480 957	
9,3	220, 230	15.500	236 015 40**	305 481 941	236 005 40**	305 481 944	178 182 907K
	380 - 415		236 001 40**	305 481 942	236 011 40**	305 481 945	
	500		236 008 40**	305 481 943	236 018 40**	305 481 946	
11,0	220, 230	15.500	236 683 40**	305 482 953	236 673 40**	305 482 956	178 120 908K
	380 - 415		236 613 40**	305 482 954	236 713 40**	305 482 957	
	500		236 703 40**	305 482 955	236 793 40**	305 482 958	
15,0	220, 230	15.500	236 684 40**	305 484 953	236 674 40**	305 484 956	178 121 907K
	380 - 415		236 614 40**	305 484 954	236 714 40**	305 484 957	
	500		236 704 40**	305 484 955	236 794 40**	305 484 958	
18,5	220, 230	15.500	236 685 40**	305 485 950	236 675 40**	305 485 953	178 122 907K
	380 - 415		236 615 40**	305 485 951	236 715 40**	305 485 954	
	500		236 705 40**	305 485 952	236 795 40**	305 485 955	
22,0	220, 230	15.500	236 686 40**	305 486 954	236 676 40**	305 486 957	178 123 907K
	380 - 415		236 616 40**	305 486 955	236 716 40**	305 486 958	
	500		236 706 40**	305 486 956	236 796 40**	305 486 959	
30,0	220, 230	27.500			236 677 40**	305 488 939	178 115 906K
	380 - 415		236 617 40**	305 488 937	236 717 40**	305 488 940	
	500		236 707 40**	305 488 938	236 797 40**	305 488 941	
37,0	380 - 415	45.000	276 618 6361X	338 710 908	276 718 6361X	336 755 906	305 223 920
45,0	380 - 415	45.000	276 619 6361X	305 490 921	276 719 6361X	336 756 103	305 223 921

(\*) : **Kabel 90° versetzt**      **Pos. de cavi 90°**  
**Pos. of leads 90°**        **Pos. de los cables 90°**  
**Pos. des câbles 90°**      **Pos. dos cabos 90°**



## Replacement Stators and Rotors 316SS / 50 Hz

3 ~ mit PTC 3 ~ with PTC	3 ~ avec PTC 3 ~ con PTC	3 ~ con PTC 3 ~ com PTC
-----------------------------	-----------------------------	----------------------------

P <sub>N</sub> [kW]	U <sub>N</sub> [V]	Thrust F (N)	DOL		YΔ (*)		Rotor Model No.
			Motor Model No.	Stator Model No.	Motor Model No.	Stator Model No.	
4,0	220, 230	15.500	236 680 36**	305 478 953	236 670 36**	305 478 956	178 117 913K
	380 - 415		236 610 36**	305 478 954	236 710 36**	305 478 957	
	500		236 700 36**	305 478 955	236 790 36**	305 478 958	
5,5	220, 230	15.500	236 681 36**	305 479 956	236 671 36**	305 479 959	178 118 912K
	380 - 415		236 611 36**	305 479 957	236 711 36**	305 479 960	
	500		236 701 36**	305 479 958	236 791 36**	305 479 961	
7,5	220, 230	15.500	236 682 36**	305 480 958	236 672 36**	305 480 961	178 119 908K
	380 - 415		236 612 36**	305 480 959	236 712 36**	305 480 962	
	500		236 702 36**	305 480 960	236 792 36**	305 480 963	
9,3	220, 230	15.500	236 015 36**	305 481 947	236 005 36**	305 481 950	178 182 907K
	380 - 415		236 001 36**	305 481 948	236 011 36**	305 481 951	
	500		236 008 36**	305 481 949	236 018 36**	305 481 952	
11,0	220, 230	15.500	236 683 36**	305 482 959	236 673 36**	305 482 962	178 120 908K
	380 - 415		236 613 36**	305 482 960	236 713 36**	305 482 963	
	500		236 703 36**	305 482 961	236 793 36**	305 482 964	
15,0	220, 230	15.500	236 684 36**	305 484 959	236 674 36**	305 484 962	178 121 907K
	380 - 415		236 614 36**	305 484 960	236 714 36**	305 484 963	
	500		236 704 36**	305 484 961	236 794 36**	305 484 964	
18,5	220, 230	15.500	236 685 36**	305 485 956	236 675 36**	305 485 959	178 122 907K
	380 - 415		236 615 36**	305 485 957	236 715 36**	305 485 960	
	500		236 705 36**	305 485 958	236 795 36**	305 485 961	
22,0	220, 230	15.500	236 686 36**	305 486 960	236 676 36**	305 486 963	178 123 907K
	380 - 415		236 616 36**	305 486 961	236 716 36**	305 486 964	
	500		236 706 36**	305 486 962	236 796 36**	305 486 965	
30,0	220, 230	27.500			236 677 36**	305 488 944	178 115 906K
	380 - 415		236 617 36**	305 488 942	236 717 36**	305 488 945	
	500		236 707 36**	305 488 943	236 797 36**	305 488 946	

(\*) : **Kabel 90° versetzt**      **Pos. de cavi 90°**  
**Pos. of leads 90°**        **Pos. de los cables 90°**  
**Pos. des câbles 90°**      **Pos. dos cabos 90°**

# 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/Overtension; 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	
<b>Premium Package</b>	586 000 5100
<b>Input Voltage</b>	190 – 600 VAC
<b>Frequency</b>	60/50 Hz
<b>Motor Service Factor Amps</b>	3 to 359 Amps
Maximum Conductor Size Through Sensors	
Max. Diameter	0.920 in. (23 mm)
Trip Response	
Motor, Under / Overload, Under / Overtension, Overheat Unbalance	3 seconds
<b>Control Circuit Rating</b>	1.5 Amp AC, up to 600 volts
<b>Signal Circuit Rating</b>	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
<b>Weight (SubMonitor)</b>	3.3 lbs/7,3 kg
<b>Carton Size (Std. Unit)</b>	7,75 in x 11,5 in x 6,75 in (19,7 cm x 29,2 cm x 17,1 cm)
<b>Shipping Weight (Std. Unit)</b>	3.5 Lbs./7.5 kg



## SubMonitor Accessory



### D3 Data Download Tool

D3 is a service tool that provides the capability to download data from SubMonitor and transfer that data to a PC.

#### Includes:

- D3 unit
- Transfer software
- USB cable

**Part Nb.: 585 001 1100**

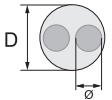
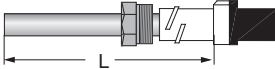
## Lead Termination Kit 1,5 - 10mm<sup>2</sup>

- 3M Quality
- 4 wire
- 1,5 - 10mm<sup>2</sup>
- up to 1,1kV

**Part number: 308 090 921**



### PTC Lead (only as spare parts)

$\varnothing = 2 \times 0,75 \text{ mm}^2$	$D = 7,0 \text{ mm}$	L (m)	Mod.-No.
		4	310 364 004
		10	310 364 010
		20	310 364 020
		30	310 364 030


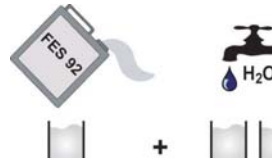
## Motor Filling Liquid

### Filling liquid 5 L FES92

4" Encapsulated	→	FES93	8" Encapsulated Standard	→	FES91
6" Encapsulated Standard	→	FES91	8" Encapsulated HighTemp75	→	FES92
6" Encapsulated HighTemp90	→	FES92	6" / 8" / 10" / 12" Rew Motors 6" / 8" Rew PM Motors		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**

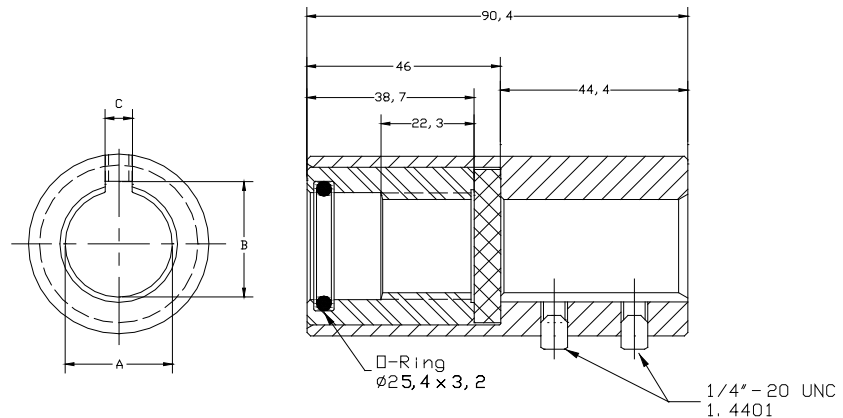


## 6" Motor – Pump Couplings

- 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

**Outline Drawing:**

### 6" Couplings



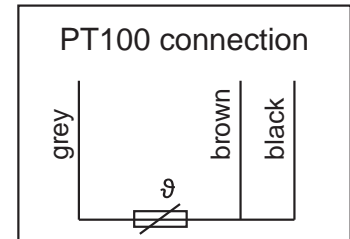
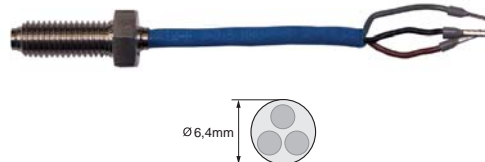
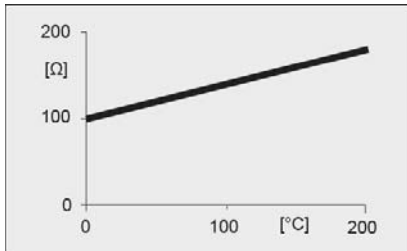
### Ordering information

No.	Coupling Material DIN / AISI	Dimension A (mm) Max. / Min.	Dimension B (mm) Max. / Min.	Dimension C (mm) Max. / Min.
<b>151 935 902</b>	1.4005 (304)	19,075 / 19,063	20,70 / 20,52	4,84 / 4,79
<b>151 935 922</b>	1.4401 (316SS)			
<b>151 935 910</b>	1.4005 (304)	20,025 / 20, 013	22,76 / 22,60	6,05 / 6,00
<b>151 935 927</b>	1.4401 (316SS)			
<b>151 935 908</b>	1.4005 (304)	22,025 / 22,013	25,53 / 25,32	8,03 / 7,98
<b>151 935 928</b>	1.4401 (316SS)			
<b>151 935 901</b>	1.4005 (304)	22,250 / 22,238	24,54 / 24,36	6,43 / 6,38
<b>151 935 921</b>	1.4401 (316SS)			
<b>151 935 906</b>	1.4005 (304)	25,025 / 25, 013	28,70 / 28,30	8,03 / 7,98
<b>151 935 926</b>	1.4401 (316SS)			
<b>151 935 909</b>	1.4005 (304)	25,425 / 25,413	27,74 / 27,56	6,43 / 6,38
<b>151 935 929</b>	1.4401 (316SS)			

## PT100 for 6" and 8" Encapsulated Motors

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.



To install the PT100 sensor bolt, remove the top end bell bolt that is opposite of the lead and replace it with the PT100 screw. Tighten the sensor bolt to the torque values shown below.

6" PT100 - 4kW- 45kW	54- 61 Nm
8" PT100 - 30kW- 45kW	54- 61 Nm
55kW- 150kW	115- 122 Nm

Franklin Electric does not offer the required sensing device, it is available from speciality dealers.

Conditions	Temp. of the water without motor operation	Max. Trip temp. / Resistance Setting (for standard Lead length)
<b>Motor operating at nameplate output with 0.16 m/sec flow past the motor</b>	10°C	40°C / 115,5 Ω
	15°C	44°C / 117,0 Ω
	20°C	48°C / 118,6 Ω
	25°C	51°C / 119,7 Ω
	30°C	55°C / 121,3 Ω
<b>Motor that has been <u>Derated</u> with 1 m/sec flow past the motor</b>	35°C	59°C / 122,8 Ω
	40°C	63°C / 124,3 Ω
	45°C	66°C / 125,5 Ω
	50°C	70°C / 127,0 Ω
	55°C	74°C / 128,6 Ω
	60°C	78°C / 130,1 Ω

### 6" PT100 CT

Kit Number	Motor Type	Wire Insul.	max. Medium Temp.	Lead (mm <sup>2</sup> )	Lead length (m)
<b>305 327 903</b>	6" all Ratings ½ - 13 UNC Europe Motors starting 07. 2002 US Motors starting 11.2001 on	Rubber	60°C	3X0,5	10

### 8" PT100 CT

Kit Number	Motor Type	Wire Insul.	max. Medium Temp.	Lead (mm <sup>2</sup> )	Lead length (m)
<b>305 326 902</b>	30 - 45kW (Type 2.1)	Rubber	60°C	3X0,5	10
<b>305 326 901</b>	55 - 150kW (Type 1)	Rubber	60°C	3X0,5	10

## 6" Permanent Star Plug

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.



**Part- Nb.: 304- 308 065 901**

**Part- Nb.: 316SS - 308 065 951**

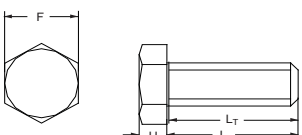
## Surge Arrestor

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.



**Part-Nb.: 155 440 902**

## 6" CT - Pump connection screw Kit's

	Material	L / L <sub>T</sub> [mm]	H [mm]	F [mm]	Mod.- No.:
	<b>316SS</b>	38,1	8	19	308 659 318





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