



Submersible Motors M series

4" to 10"

**& Submersible
Motor Leads**



M Series Submersible Motors

Sterling Pumps produce a wide and versatile range of high efficiency, quality and reliable submersible electric motors. The motors are rewindable and water filled/lubricated.

Sterling submersible motors feature high quality laminations combined with efficient operational design, silicon carbide mechanical seals, oversized journal bearings and rugged high quality thrust bearings to allow reliable service for a diverse range of pumping duties for water supply, irrigation and agricultural, mining, industrial, and municipal applications

M Series Range

4"	0.37 kW to 7.5 kW	Standard all 304SS and 316SS option
6"	5.5 kW to 45 kW	Standard all 304SS and all 316SS constructions
8"	22 kW up to 110 kW	Standard cast iron/304SS and full 316SS constructions
10"	55 kW up to 185 kW	Stand cast iron/304SS and full 316SS constructions

All M Series Motors

Water Temperature	Up to 45°C without derating
Duty	S1 continuous duty
Windings	Class E (PE/PA)
Degree of protection	IP68
Maximum submerged depth	350 metres
Mechanical Seal	Sic/Sic as standard
Shaft/Spline/Mount	Confirm to NEMA standard
Variable frequency/speed	Suitable for use with VFD's
Maintenance	Maintenance free

- Sterling submersible motors are suitable for use in potable drinking water
- All motors feature an earth cable that is terminated to the body from inside and a separate earth cable is provided within the motor for lead (lead type is 3C+E)
- Temperature sensors, RTD can be provided inside the motor up to quantity of three
- All motors feature flat motor leads

Size	Cooling flow required, metres per second	Maximum no. of starts, min. run time of 1 minute
4"	0.15 m/s	20 starts per hour
6"	0.20 m/s	30 starts per hour
8"	0.30 m/s	15 starts per hour
	0.45 m/s	
10"	0.30 m/s	15 starts per hour
	0.50 m/s	

Motor options available

- Construction materials, refer to page 7 for additional materials
- 4 pole motors, refer to page 7
- Longer motor leads, length to suit
- RTD's
- Larger motors up to 20" and up to 600 kW



4" Submersible Motor Performance Data 50 Hz

Single Phase

Model	Pn		Thrust Load (N)	Un Volts	RPM	In	Istart/In	η (efficiency) [%]			COS φ (Power Factor-PF)			Torque Tn (Nm)
	kW	HP						at % Load			at % Load			
						50	75	100	50	75	100			
MA-4A-0.3-1-1A-1000	0.37	0.50	4000	220	2820	3.30	3.45	51.0	55.0	57.0	0.79	0.81	0.83	1.23
				230	2820	3.44	3.50	51.0	55.0	57.0	0.79	0.81	0.82	1.23
MA-4A-0.5-1-1A-1000	0.55	0.75	4000	220	2820	4.50	3.50	55.0	60.0	62.0	0.80	0.81	0.82	1.83
				230	2820	4.70	3.60	56.0	60.0	62.0	0.79	0.81	0.82	1.83
MA-4A-0.7-1-1A-1000	0.75	1.00	4000	220	2820	6.00	3.62	59.0	64.0	65.0	0.79	0.81	0.82	2.50
				230	2820	6.12	3.68	60.0	64.0	65.0	0.79	0.81	0.82	2.50
MA-4A-1.1-1-1A-1000	1.10	1.50	4000	220	2820	8.30	3.70	61.0	66.0	67.0	0.82	0.84	0.85	3.67
				230	2820	8.40	3.80	62.0	66.0	67.0	0.82	0.84	0.85	3.67
MA-4A-1.5-1-1A-1000	1.50	2.00	4000	220	2820	10.40	3.90	61.0	69.0	71.0	0.83	0.86	0.87	5.02
				230	2820	10.56	4.00	62.0	69.0	71.0	0.83	0.86	0.87	5.02
MA-4A-2.2-1-1A-1000	2.20	3.00	4000	220	2820	14.60	4.00	63.0	69.0	72.0	0.86	0.88	0.90	7.38
				230	2820	14.76	4.10	64.0	69.0	72.0	0.86	0.88	0.90	7.38
MA-4A-4.0-1-1A-1000	4.00	5.50	4000	220	2800	24.60	4.00	63.0	69.0	72.0	0.85	0.88	0.90	8.10
				230	2800	24.83	4.10	64.0	69.0	72.0	0.86	0.88	0.90	8.10

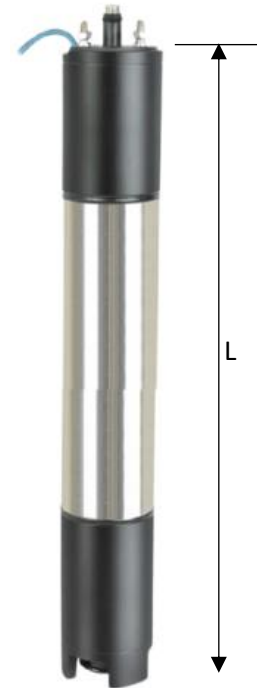
Performance is typical, not guaranteed at specified voltages.

4" Submersible Motor, Dimension & Weights

Single Phase

Model	kW	HP	Length L (mm)	Dia (mm)	Net Weight (kg)	Gross Weight (kg)
MA-4A-0.3-1-1A-1000	0.37	0.50	431	95	12.3	14.3
MA-4A-0.5-1-1A-1000	0.55	0.75	446		13.2	15.2
MA-4A-0.7-1-1A-1000	0.75	1.00	456		14.7	16.7
MA-4A-1.1-1-1A-1000	1.10	1.50	511		17.1	19.1
MA-4A-1.5-1-1A-1000	1.50	2.00	611		20.6	22.6
MA-4A-2.2-1-1A-1000	2.20	3.00	711		24.4	26.4
MA-4A-4.0-1-1A-1000	4.00	5.50	841		28.3	30.3

For starter information, please contact Sterling Pumps



4" Submersible Motor Performance Data 50 Hz

Three Phase

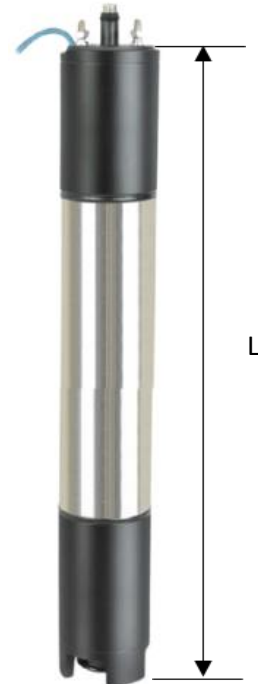
Model	Pn		Thrust Load (N)	Un Volts	RPM	In	Istart/In	η (efficiency) [%]			COS φ (Power Factor-PF)			Torque Tn (Nm)
	kW	HP						at % Load			at % Load			
						50	75	100	50	75	100			
MA-04B-0.5-2-3A-1000	0.55	0.75	4000	380	2830	1.6	6.0	61	67	67	0.59	0.72	0.80	1.9
				400	2855	1.6	6.4	58	64	67	0.54	0.67	0.75	1.9
				415	2870	1.7	6.6	55	63	66	0.50	0.63	0.80	1.9
MA-04B-0.7-2-3A-1000	0.75	1.00	4000	380	2850	2.1	8.9	63	68	70	0.57	0.70	0.79	2.5
				400	2870	2.1	9.3	60	67	69	0.52	0.65	0.75	2.5
				415	2880	2.2	9.8	57	65	68	0.49	0.61	0.71	2.5
MA-04B-1.1-2-3A-1000	1.10	1.50	4000	380	2820	3.0	13.8	69	72	72	0.59	0.73	0.81	3.8
				400	2840	3.0	14.5	66	71	73	0.53	0.67	0.76	3.7
				415	2860	3.1	15.3	64	70	72	0.49	0.62	0.72	3.7
MA-04B-1.5-2-3A-1000	1.50	2.00	4000	380	2840	3.9	18.6	69	72	73	0.59	0.72	0.81	5.0
				400	2855	4.0	19.2	66	71	73	0.53	0.66	0.76	5.0
				415	2870	4.1	20.2	63	69	72	0.48	0.61	0.72	4.9
MA-04B-2.2-2-3A-1000	2.20	3.00	4000	380	2815	5.8	28.7	72	75	75	0.58	0.72	0.81	7.6
				400	2840	5.9	28.9	69	73	75	0.51	0.64	0.75	7.5
				415	2870	6.3	30.8	66	71	73	0.45	0.59	0.69	7.5
MA-4B-4.0-2-3A-1000	4.00	5.50	4000	380	2785	10.8	32.3	63	67	70	0.73	0.79	0.83	13.4
				400	2790	10.5	34.0	61	65	68	0.70	0.75	0.82	13.3
				415	2800	10.0	35.0	59	63	66	0.69	0.74	0.81	13.3
MA-4B-5.5-2-3A-1000	5.50	7.50	4000	380	2785	14.8	50.5	70	73	74	0.75	0.79	0.84	18.94
				400	2790	14.5	53.0	68	71	72	0.74	0.78	0.84	18.92
				415	2800	14.0	55.0	66	69	71	0.72	0.77	0.83	18.80
MA-4B-7.5-2-3A-1000	7.5	10.0	4000	380	2850	18.0	61.0	71	72	73	0.99	0.95	0.91	24.60
				400	2860	18.3	62.0	67	70	71	0.99	0.95	0.91	24.50
				415	2880	18.8	66.0	65	68	69	0.97	0.92	0.87	24.40

Performance is typical, not guaranteed at specified voltages.

4" Submersible Motor, Dimension & Weights

Three Phase

Model	kW	HP	Length L (mm)	Dia (mm)	Net Weight (kg)	Gross Weight (kg)
MA-04B-0.5-2-3A-1000	0.55	0.75	482	95	15.0	17.0
MA-04B-0.7-2-3A-1000	0.75	1.00	482		15.0	17.0
MA-04B-1.1-2-3A-1000	1.10	1.50	517		17.0	19.0
MA-04B-1.5-2-3A-1000	1.50	2.00	589		23.0	25.0
MA-04B-2.2-2-3A-1000	2.20	3.00	639		24.0	26.0
MA-4B-4.0-2-3A-1000	4.0	5.50	739		29.0	31.0
MA-4B-5.5-2-3A-1000	5.5	7.50	879		36.0	38.0
MA-4B-7.5-2-3A-1000	7.5	10.0	1019		48.0	50.0



6" Submersible Motor Performance Data 50 Hz

Model	Pn		Thrust Load (N)	Un Volts	RPM	In	Istart/In	η (efficiency) [%]			COS Ø (Power Factor-PF)			Torque Tn (Nm)
	kW	HP						at % Load			at % Load			
								50	75	100	50	75	100	
M6-SPB5.5	5.5	7.5	15,500	380	2865	13.7	3.43	73	76	76	0.68	0.79	0.83	18.31
				400	2885	13.3	3.76	72	76	76	0.62	0.75	0.81	18.20
				415	2890	13.4	4.03	72	75	75	0.60	0.71	0.79	13.10
M6-SPB7.5	7.5	10	15,500	380	2870	18.3	3.17	77	78	78	0.70	0.80	0.83	25.10
				400	2890	17.7	3.56	76	78	77	0.66	0.75	0.81	24.80
				415	2890	17.7	3.62	73	74	79	0.62	0.74	0.81	24.80
M6-SPB9.3	9.3	12.5	15,500	380	2855	22	3.41	79	80	79	0.70	0.80	0.83	31.11
				400	2860	21.3	3.62	79	79	78	0.63	0.75	0.81	31.00
				415	2885	21.1	3.84	77	79	78	0.60	0.72	0.82	30.91
M6-SPB11	11	15	15,500	380	2865	25.8	3.61	77	80	78	0.71	0.8	0.84	36.60
				400	2880	25.2	3.65	77	80	80	0.66	0.75	0.83	36.40
				415	2890	25.1	4.02	75	78	80	0.61	0.73	0.81	36.30
M6-SPB15	15	20	15,500	380	2880	33.9	4.13	80	82	81	0.72	0.82	0.85	49.71
				400	2895	33.1	4.44	80	81	81	0.66	0.78	0.84	49.40
				415	2900	33	4.7	78	80	81	0.61	0.74	0.82	49.20
M6-SPB18.5	18.5	25	15,500	380	2870	42.3	4.04	80	82	81	0.66	0.79	0.84	61.72
				400	2880	42	4.33	77	80	81	0.61	0.73	0.81	61.33
				415	2895	42.5	4.42	76	80	80	0.58	0.71	0.78	61.00
M6-SPB22	22	30	15,500	380	2875	49.1	4.42	82	83	84	0.69	0.78	0.83	72.62
				400	2900	49	4.71	80	82	83	0.61	0.74	0.81	72.48
				415	2910	49.6	4.82	76	81	82	0.57	0.68	0.78	72.20
M6-SPB26	26	35	15,500	380	2890	57.5	4.64	82	84	83	0.69	0.79	0.85	86.10
				400	2905	56.7	4.99	81	82	83	0.60	0.74	0.84	85.50
				415	2910	57.4	5.14	77	83	83	0.56	0.70	0.81	85.20
M6-SPB30	30	40	27,500	380	2895	66.4	4.96	81	84	83	0.68	0.77	0.84	98.82
				400	2910	66.4	5.21	80	82	82	0.61	0.74	0.81	98.41
				415	2910	67.5	5.33	77	81	82	0.56	0.69	0.78	98.22
M6-SPB37	37	50	27,500	380	2890	82	4.95	82	83	83	0.68	0.76	0.83	122.00
				400	2910	81.9	5.27	81	82	83	0.60	0.73	0.81	121.50
				415	2910	83.9	5.35	78	80	82	0.56	0.67	0.77	121.20
M6-SPA45	45	60	27,500	380	2890	93	5.4	81	83	84.5	0.72	0.81	0.87	148.77
				400	2900	92.4	5.3	82	84	85.5	0.67	0.80	0.86	148.26
				415	2900	94.2	5.32	82.2	84.2	85.6	0.64	0.76	0.84	147.00

Performance is typical, not guaranteed at specified voltages.

6" Submersible Motor, Dimension & Weights

Model	kW	HP	Length L (mm)	Dia (mm)	Net Weight (kg)	Gross Weight (kg)
M6-SPB5.5	5.5	7.5	747	144	49	54.2
M6-SPB7.5	7.5	10	777		54	57.8
M6-SPB9.3	9.3	12.5	803		59	63
M6-SPB11	11	15	847		63	66.6
M6-SPB15	15	20	937		71	75.2
M6-SPB18.5	18.5	25	992		80	83.5
M6-SPB22	22	30	1067		90	94.3
M6-SPB26	26	35	1127		97	101
M6-SPB30	30	40	1247		100	105
M6-SPB37	37	50	1347		125.5	130.5
M6-SPB45	45	60	1350		135	141



8" Submersible Motor Performance Data 50 Hz

Model	Pn		Thrust Load(N)	Un Volts	RPM	In	Istart/In	η (efficiency) [%]			COS φ (Power Factor-PF)			Torque Tn (Nm)			
	kW	HP						Amps (A)			50	75	100		50	75	100
								50	75	100							
M8-SPA22	22	30	45,000	380	2,890	49	4.5	79	82	83.2	0.69	0.78	0.84	72.73			
				400	2,900	45.6	4.6	80	83	84	0.66	0.79	0.84	72.49			
				415	2,900	44.6	4.5	79.6	82.4	83.4	0.66	0.78	0.85	72.49			
M8-SPA26	26	35	45,000	380	2,890	57	4.5	79.2	82.2	83.4	0.69	0.78	0.85	85.96			
				400	2,900	53.8	4.6	80.2	83	84	0.68	0.79	0.85	85.66			
				415	2,900	53	4.55	80	82.6	83.6	0.67	0.80	0.86	85.66			
M8-SPA30	30	40	45,000	380	2,890	63	4.5	79.8	83.2	84.2	0.71	0.82	0.89	99.19			
				400	2,900	60	4.6	81	84	85	0.70	0.83	0.89	98.84			
				415	2,900	58	4.65	80.6	83.8	84.9	0.68	0.82	0.88	98.84			
M8-SPA37	37	50	45,000	380	2,890	77.8	4.7	80	83	84.1	0.73	0.83	0.88	122.30			
				400	2,900	74.8	4.8	81.2	84	85	0.71	0.82	0.86	121.90			
				415	2,900	73.8	4.85	80.6	83.4	84.4	0.69	0.79	0.84	121.90			
M8-SPA45	45	60	45,000	380	2,890	93	4.7	80.2	83.2	85.5	0.72	0.86	0.88	148.80			
				400	2,900	90	4.8	81.4	84	85.9	0.71	0.80	0.86	148.30			
				415	2,900	89	4.9	81.2	83.8	85.8	0.69	0.79	0.84	148.30			
M8-SPA55	55	75	45,000	380	2,890	114	4.9	80.4	84	85.7	0.73	0.83	0.88	181.84			
				400	2,910	109.9	5	81.8	85	86.4	0.71	0.81	0.86	180.60			
				415	2,910	109	5.1	81.4	84.6	86.2	0.68	0.79	0.84	180.60			
M8-SPA75	75	100	45,000	380	2,890	150.4	4.9	80.8	84.6	86.2	0.73	0.84	0.89	247.96			
				400	2,910	146.6	5	81.8	85.4	87	0.71	0.82	0.87	246.26			
				415	2,910	145	5.1	81.6	85.2	86.6	0.69	0.78	0.84	246.26			
M8-SPA93	93	125	45,000	380	2,900	187	4.9	80.4	84.4	86.5	0.74	0.83	0.88	306.40			
				400	2,910	181.5	5	86.3	86.3	87.8	0.70	0.80	0.86	305.36			
				415	2,910	180	5.05	81.6	85.4	87	0.69	0.78	0.84	304.31			
M8-SPA110	110	150	45,000	380	2,890	231	4.92	79	83.3	85	0.72	0.81	0.85	363.68			
				400	2,900	224	5.02	79.5	84.1	85.5	0.71	0.79	0.83	362.42			
				415	2,900	220	5.08	80	84.7	86	0.69	0.77	0.81	362.42			

Performance is typical, not guaranteed at specified voltages.

8" Submersible Motor, Dimension & Weights

Model	kW	HP	Length L (mm)	Dia (mm)	Net Weight (kg)	Gross Weight (kg)
M8-SPA22	22	30	1076	190	130	150
M8-SPA26	26	35	1076		140	170
M8-SPA30	30	40	1146		140	170
M8-SPA37	37	50	1216		179	219
M8-SPA45	45	60	1266		188	231
M8-SPA55	55	75	1381		210	255
M8-SPA75	75	100	1519		265	315
M8-SPA93	93	125	1659		281	337
M8-SPA110	110	150	1789		310	359



10" Submersible Motor Performance Data 50 Hz

Model	Pn		Thrust Load (N)	Un Volts	RPM	In	Istart/I	η (efficiency) [%] at % Load			COS φ (Power Factor-PF) at % Load			Torque Tn (Nm)
	kW	HP						50	75	100	50	75	100	
						Amps (A)								
M10-SPA55	55	75	45,000	380	2890	119	4.55	77	81	82.6	0.67	0.76	0.82	181.84
				400	2900	115	4.6	79.2	82.2	83	0.68	0.78	0.83	181.21
				415	2900	113	4.65	79.2	82	83	0.67	0.78	0.83	181.21
M10-SPA66	66	90	45,000	380	2890	141	4.6	78.5	81.6	83.2	0.67	0.77	0.82	218.20
				400	2900	136.6	4.7	80	83	84	0.68	0.78	0.83	217.45
				415	2900	134	4.75	79.8	82.8	84	0.67	0.78	0.83	217.45
M10-SPA75	75	100	45,000	380	2890	157	4.64	79	82	84	0.68	0.78	0.83	247.96
				400	2900	153	4.7	80	84	85	0.69	0.79	0.84	247.11
				415	2900	151	4.72	80	83	84	0.68	0.79	0.84	247.11
M10-SPA93	93	125	60,000	380	2890	192	4.74	79.5	83.5	85	0.69	0.80	0.85	307.47
				400	2900	188	4.8	80.5	83.8	85	0.69	0.79	0.84	306.41
				415	2900	186	4.83	80.6	84	85	0.68	0.78	0.85	306.41
M10-SPA110	110	150	60,000	380	2900	226	4.8	79.8	85	87	0.68	0.82	0.87	362.42
				400	2910	222	4.8	80.6	85.8	86	0.68	0.79	0.83	361.20
				415	2910	222	4.83	80.8	85	86	0.69	0.79	0.82	361.20
M10-SPA135	135	180	60,000	380	2900	266	4.8	79.8	85	87	0.68	0.82	0.87	444.80
				400	2910	256	4.9	81	87	88	0.69	0.81	0.86	443.27
				415	2910	255	4.95	80.8	85.8	87	0.69	0.80	0.84	443.27
M10-SPA150	150	200	60,000	380	2900	302	4.8	79.8	84.6	86	0.68	0.83	0.88	494.22
				400	2910	294	4.9	81	86	87	0.70	0.80	0.85	492.52
				415	2920	291	4.94	81	84.8	87	0.69	0.80	0.84	490.83
M10-SPA166	166	225	60,000	380	2900	336	4.9	80	84	86	0.69	0.82	0.87	543.64
				400	2910	326	5	81.5	85.5	87	0.70	0.80	0.85	541.77
				415	2910	322	5.05	81.2	85.7	87	0.70	0.80	0.85	541.77
M10-SPA185	185	250	60,000	380	2900	375	4.9	80.2	85.2	87	0.69	0.81	0.86	609.53
				400	2910	365	5	81.8	86.8	88	0.70	0.80	0.85	607.44
				415	2920	361	5.05	81.5	84.5	86	0.70	0.81	0.85	607.44

Performance is typical, not guaranteed at specified voltages.

10" Submersible Motor, Dimension & Weights

Model	kW	HP	Length L (mm)	Dia (mm)	Net Weight (kg)	Gross Weight (kg)
M10-SPA55	55	75	1352	240	252	309
M10-SPA66	66	90	1422		270	330
M10-SPA75	75	100	1522		295	361
M10-SPA93	93	125	1572		312	378
M10-SPA110	110	150	1622		327	397
M10-SPA135	135	180	1682		344	419
M10-SPA150	150	200	1722		358	433
M10-SPA165	165	225	1772		373	451
M10-SPA185	185	250	1822		387	472



M Series Submersible Motors – Options Available

As a well established quality pump and motor manufacturer, Sterling Pumps possesses a diverse range of capabilities and resources to offer materials, variances and options to best suit your pumping and fluid duties and applications.

If not listed below, please contact our technical sales staff.

904 – Duplex Stainless Steel

6" to 20"

Duplex 22054, PREN value 34
value 45

Zeron 100

6" to 20"

S32760, PREN value > 40

Copper Nickel – CuNi 90/10

6" to 20"

Super Duplex Stainless Steel

6" to 20"

Super Duplex 2507 (S32750) PREN

Nickel Aluminium Bronze

6" to 20"

Inconel 625

6" to 20"



*20" 600kW Super Duplex motor
designed in 3D CAD*

4 Pole Motors

8" – 10" – 12" and 14"

High Voltage

690V, 1000V, 2300V, 3300V

Larger kWA motors

12" up to 20" and up to 600kW

High Temperature Windings

For water temperature up to 105°C and high voltage motors

60 Hertz Motors

All kW sizes

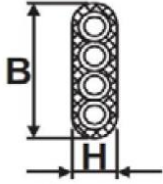


*1 of 4 x 14" 330kW Super
Duplex SS motor and pump*

Submersible Motor Leads

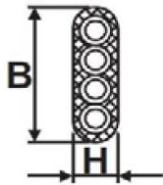
4" Motors

Contact Sterling Pumps for the diameter and number of conductors for 4" leads



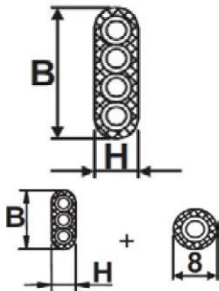
kW	Starting Method	Number of conductors	Diameter ϕ mm ²	B x H mm	Length m
Single Phase					
0.5 to 1.0	DOL	TBA	TBA	15.8 x 6	2.5
1.5 to 5.5	DOL	TBA	TBA	18 x 6.5	2.5
Three Phase					
0.5 to 3.0	DOL	TBA	TBA	15.8 x 6	2.5
4.0 to 7.5	DOL	TBA	TBA	18 x 6.5	2.5

6" Motors



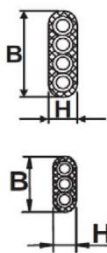
kW	Starting Method	Number of conductors	Diameter ϕ mm ²	B x H mm	Length m
5.5 to 11	DOL	1 x 4C	2.5	17.8 x 7	3
15 to 22	DOL	1 x 4C	4	20.8 x 8	3
26 to 45	DOL	1 x 4C	6	24.3 x 8	3

8" Motors



kW	Starting Method	Number of conductors	Diameter ϕ mm ²	B x H mm	Length m
22	DOL	1 x 4C	4	17.2 x 7.4	3
26 to 30	DOL	1 x 4C	6	18.7 x 8	3
37 to 93	DOL	1 x 4C	16	37.6 x 14	5
110	DOL	1 x 3C 1 x 4C	35 16	35 x 15.3 8 ϕ	5

10" Motors



kW	Starting Method	Number of conductors	Diameter ϕ mm ²	B x H mm	Length m
55 to 93	Y Δ	2 x 4C	4	17.2 x 7.4	3
		2 x 3C*	6	18.7 x 8	3
110 to 185	Y Δ	2 x 3C*	50	45.5 x 20.5	5

A separate earth lead must be supplied by the installer
Y Δ = Wye Delta or Star Delta windings

Motor lead material is drinking water compatible
Dimensions given as a guyed, if critical, contact Sterling Pumps

Motor leads are considered to be a part of the motor windings.
The motor lead is rated for use in water only and must be always fully submerged. The splice should also be fully submerged in water.

The drop cable is rated and sized for use in air with radiated solar heat, which is why the drop cable is usually of a larger diameter than the motor lead diameter

Cable Selection Guide for Submersible Motors

3 Wire, 415V, 2 Pole, 3 Phase, 50Hz

Rated Output		Cable Selection (mm2)														
kW	HP	1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240
3	4	127	211	338												
4	5.5	98	163	262	390											
5.5	7.5	75	124	200	297											
7.5	10	56	93	149	222	379										
9.3	12.5	46*	77	123	184	314	488									
11	15	39*	65	104	155	364	410									
13	17.5		55*	89	132	225	350									
15	20		49*	78	117	199	310	471								
18.5	25			65*	97	166	258	391								
22	30			55*	82	140	217	330	455							
26	35				68*	116	180	274	377							
30	40					101	157	239	330	469						
37	50					82*	128	195	268	382						
45	60						106*	161	222	315	433					
52	70						95*	145	199	283	833	491				
59	80							125	172	245	335	424				
67	90							112*	154	219	300	380	467			
75	100								137	195	267	337	415	492		
93	125								116*	164	226	286	352	419	480	
110	150									138*	190	242	299	358	412	
135	180										156*	199	246	294	338	420
150	200										140*	179	222	266	306	381
170	230											158*	195	234	269	334
185	250											148*	184	221	254	318
220	300												154*	184*	211	262
260	350													157*	180*	224

* Valid for cables with EPR insulation only

Cable Selection (mm2) 2 Lines in Parallel					
2x50	2x70	2x95	2x120	2x150	2x185
489					
438					
390					
329	451				
276	380	484			
226	312	397	491		
203	281	358	443		
180*	248	316	391	468	
168*	232	296	367	441	
	195*	248	307	368	423
		211*	282	313	360

* Valid for cables with EPR insulation only

Lengths are shown in metres from motor to control panel and are maximum lengths

Rated Output		Generator Power DOL Starting		Generator Power Star-Delta Starting	
kW	HP	kW	KVA	kW	KVA
4	5.5	10	12.5	8	10
5.5	7.5	12.5	15.6	10.8	13.5
7.5	12.5	15	18.8	14	17.5
9.3	15	18.5	23.5	17.2	21.5
11	15	22.5	28	20.5	25.5
15	20	30	38	27	34
18.5	25	40	50	33	42
22	30	45	57	40	50
26	35	52	65	45	57
30	40	60	75	52	65
37	50	75	94	65	81
45	60	90	112	77	97
55	70	120	150	102	128
66	80	135	170	115	144
75	90	150	190	128	160
93	100	185	230	158	198
110	125	210	260	190	237
135	150	260	323	228	284
150	180	280	360	254	316
165	200	325	404	285	354
185	230	365	545	320	398

Chart provides guidelines only. Confirm with generator supplier for sizing and selection.

Use motor amps for correct sizing

Caution with frequency and motor speed relating to pump affinity laws



Generator Sizing Guidelines for Submersible Motors

6"		8"		10"		12"		Nominal Rated Power		Generator Power DOL Starting		Generator Power Star-Delta Rating	
2 pole		2 pole	4 pole	2 pole	4 pole	2 pole	4 pole	kW	HP	kW	KVA	kW	KVA
								4	5.5	10	12.5	7.5	9.4
								5.5	7.5	12.5	15.6	11	12.5
								7.5	10	18	22.5	13.5	17
								9.3	12.5	20	25	16.5	20.6
								11	15	25	31.3	20.25	25.5
								15	20	35	43.8	27	33.8
								18.5	25	40	50	35	43.8
								22	30	50	62.5	40	50
								26	35	60	75	47	58.8
								30	40	70	87.5	50	62.5
								37	50	75	93.8	60	75
								45	60	90	112.5	75	93.8
								55	75	110	137.5	90	112.5
								66	90	135	168.8	110	137.5
								75	100	150	187.5	125	156.3
								93	125	185	231.3	150	187.5
								110	150	210	260	175	218.8
								132	180	250	312.5	220	275
								150	200	300	375	250	312.5
								165	225	340	425	275	343.8
								185	250	380	475	300	375
								220	300	450	562.5	360	450
								260	350	520	650	440	518.8
								300	400	600	750	500	625

Chart provides guidelines only

Use motor amps for correct sizing

Values are for self excited alternators

Confirm with generator supplier for sizing and selection

- Starting voltage at least 55% of nominal voltage
- Start generator before starting submersible motor
- Stop the submersible motor before stopping the generator

Caution with frequency and motor speed relating to pump affinity laws

Increase in speed increases flow however proportional increases in power (kW) may overload motor
 DO NOT operate the submersible motor above full load nameplate amps
 Changing the speed (RPM) of the generator above or below 50hz directly affects the pump flow, head and input kilowatts of the pump in different proportions.
 Changing the speed (increase or decrease) affects the flow through the pump, (faster or slower flow) by a proportion equal to the increase or decrease in speed.
 The pump head is changed by the square of the proportion of the speed change while the kilowatt is changed by the cube of the proportion of speed change.
 DO NOT allow generator to run out of fuel as the 'hunting' affects the pump speed, and the related proportional flow and power.
 Generator hunting can also cause motor thrust bearing wear

Insulation Resistance

Motor and Lead Condition	Megohm Value
New motor (without drop cable)	200 MΩ or more
Used motor (without drop cable)	20 MΩ or more
New motor with drop cable	4 MΩ or more
Used motor with drop cable	1 MΩ or more
Insulation damage	Less than 1 MΩ

Motors of all kilowatt ratings have similar values of insulation resistance
Above is recommended from using a megohm meter at 500VDC, 1 min

Testing the insulation

- Connect lead/probe to the ground/earth
- Ensure contact points are clean
- Connect the other lead/probe to every core in succession.
- View and record the meter reading for each measurement

What test result means:

If the ohms values meet or exceed the values in the table above, the motor is not Down To Earth (DTE) or grounded and the motor lead insulation is not damaged.

If tested with a drop cable fitted, then the drop cable, splice, motor lead and motor windings as an assembly are not damaged.

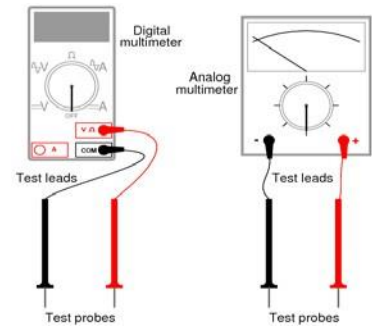
If the ohms values are below the values in the table above, either the windings are damaged or down to earth or the motor lead is damaged or is faulty.

If connected to a drop cable, the check the drop cable for damage and/or the splice for damage or poor connections.

When installing:

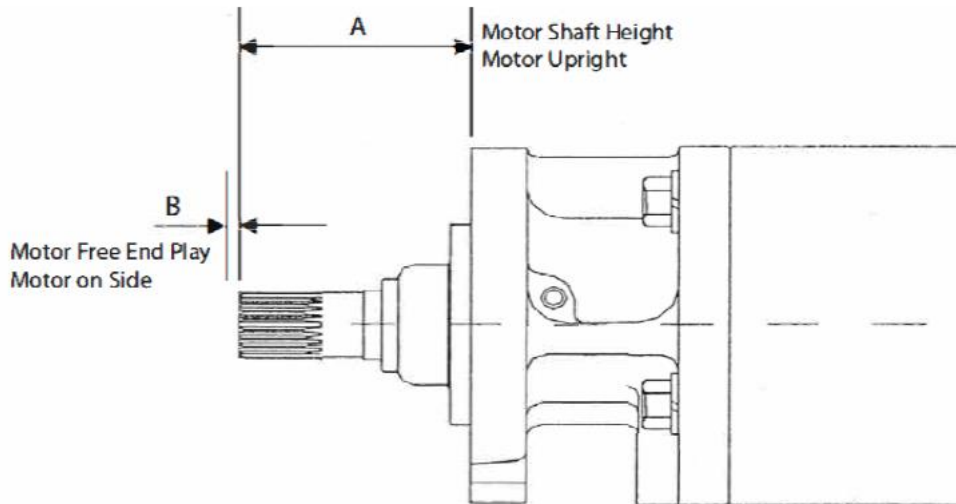
- Test for insulation resistance of the new motor.
- Test insulation resistance after splice and fitting drop cable.
- Test insulation resistance when the motor and splice area are submerged in water.
- Test insulation when the motor is at its final position in bore/well.

*Any failures of insulation, lift the pump and motor assembly and troubleshoot which area could be the issue; the motor, motor lead, splice or drop cable. Replace or repair as required.



Shaft Height and Free End Play

Submersible Motor Shaft Height and Free End Play Measurements



Motor Size	Nominal Shaft Height	Dim 'A'	Dim 'B'	
		Shaft Height Dimension Tolerance	Free End Play	
			Min.	Max.
6"	73.00 mm	73.02 mm – 72.88 mm	0.75 mm	1.25 mm
8"	101.5 mm	101.6 mm to 101.35 mm	0.20 mm	0.50 mm
8" motor with 6" motor mount	73.00 mm	73.02 mm – 72.88 mm	0.20 mm	0.50 mm

For 10" motors and larger, refer to specific manual for dimensions

If the height, measured from the pump mounting surface of the motor is low and/or the end play exceeds the limit, then the motor thrust bearing or upthrust washer is possibly damaged and should be inspected and/or replaced

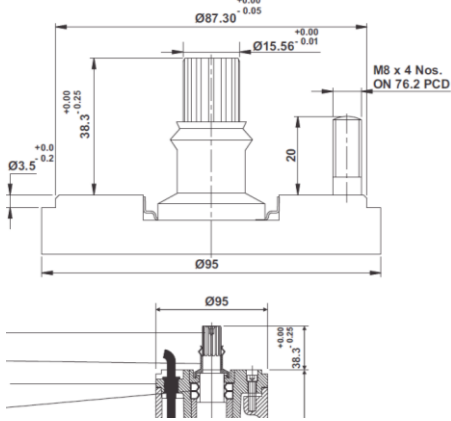
Contact Sterling Pumps for information regarding 4" motors

These dimensions are applicable for Sterling manufactured submersible motors

Mounting Details

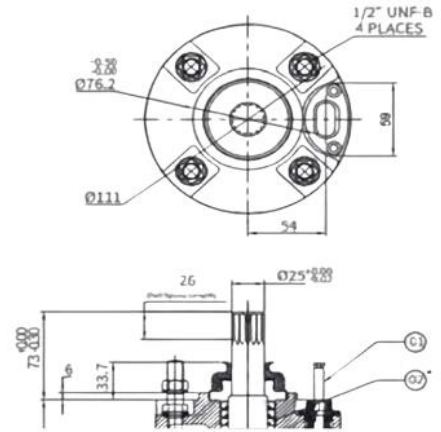
4" NEMA

Motor diameter: 95 mm



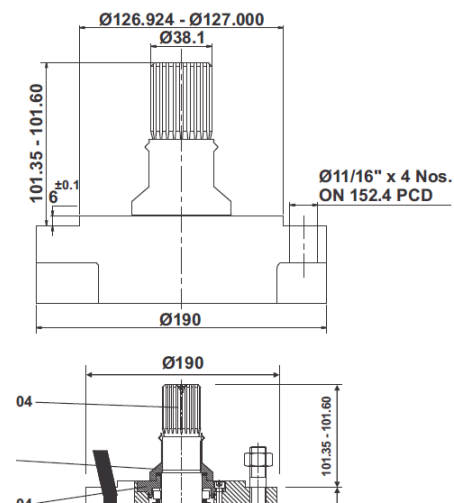
6" NEMA

Motor Diameter: 114 mm



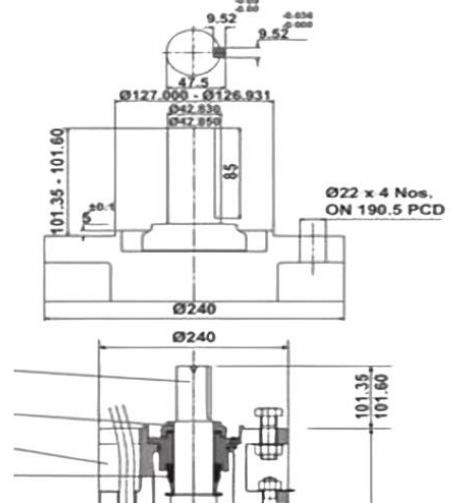
8" NEMA

Motor diameter: 190 mm



10" NEMA

Motor diameter: 240 mm





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