Maximum Submersible Power Cable Length

Cable length in feet – starter to motor

Motor Rating		AWG Copper Wire Size													MCM Copper Wire Size				
Volts	**HP**	**14**	**12**	**10**	**8**	**6**	**4**	**3**	**2**	**1**	**0**	**00**	**000**	**0000**	**250**	**300**	**350**	**400**	**500**
	½	710	1140	1800	2840	4420													
	¾	510	810	1280	2030	3160													
	1	430	690	1080	1710	2670	4140	5140											
	1½	310	500	790	1260	1960	3050	3780											
20OV-208V	2	240	390	610	970	1520	2360	2940	3610	4430	5420								
60 Hz	3	180	290	470	740	1160	1810	2250	2760	3390	4130								
Three Phase	5	110*	170	280	440	690	1080	1350	1660	2040	2490	3050	3670	4440	5030				
Three Wire	7½	0	0	200	310	490	770	960	1180	1450	1770	2170	2600	3150	3560				
	10	0	0	0	230*	370	570	720	880	1090	1330	1640	1970	2390	2720	3100	3480	3800	4420
	15	0	0	0	160	250*	390	490	600	740	910	1110	1340	1630	1850	2100	2350	2570	2980
	20	0	0	0	0	190*	300*	380	460	570	700	860	1050	1270	1440	1650	1850	2020	2360
	25	0	0	0	0	0	240*	300*	370*	460	570	700	840	1030	1170	1330	1500	1640	1640
	30	0	0	0	0	0	0	250*	310*	380*	470	580	700	850	970	1110	1250	1360	1590
	½	930	1490	2350	3700	5760	8910												
	¾	670	1080	1700	2580	4190	6490	8060	9860										
	1	560	910	1430	2260	3520	5460	6780	8290										
	1½	420	670	l060	1670	2610	4050	5030	6160	7530	9170								
230V	2	320	510	810	1280	2010	3130	3890	4770	5860	7170	8780							
60Hz	3	240	390	620	990	1540	2400	2980	3660	4480	5470	6690	8020	9680					
Three Phase	5	140*	230	370	590	920	1430	1790	2190	2690	3290	4030	4850	5870	6650	7560	8460	9220	
Three Wire	7½	0	160*	260	420	650	1020	1270	1560	1920	2340	2870	3440	4160	4710	5340	5970	6500	7510
	10	0	0	190*	310	490	760	950	1170	1440	1760	2160	2610	3160	3590	4100	4600	5020	5840
	15	0	0	0	210*	330	520	650	800	980	1200	1470	1780	2150	2440	2780	3110	3400	3940
	20	0	0	0	0	250*	400	500	610	760	930	1140	1380	1680	1910	2180	2450	2680	3120
	25	0	0	0	0	0	320*	400	500	610	750	920	1120	1360	1540	1760	1980	2160	2520
	30	0	0	0	0	0	260*	330*	410*	510	620	760	930	1130	1280	1470	1650	1800	2110
	½	3770	6020	9460															
	¾	2730	4350	6850															
	1	2300	3670	5770	9070														
	1½	1700	2710	4270	6730														
	2	1300	2070	3270	5150	8050													
	3	1000	1600	2520	3970	6200													
	5	590	950	1500	2360	3700	5750												
	7½	420	680	1070	1690	2640	4100	5100	6260	7680									
	10	310	500	790	1250	1960	3050	3800	4680	5750	7050								
460V	15	0	340*	540	850	1340	2090	2600	3200	3930	4810	5900	7110						
60Hz	20	0	0	410	650	1030	1610	2000	2470	3040	3730	4580	5530						
Three Phase	25	0	0	330*	530	830	1300	1620	1990	2450	3010	3700	4470	5430					
Three Wire	30	0	0	270*	430	680	1070	1330	1640	2030	2490	306O	3700	4500	5130	5860			
	40	0	0	0	320*	500*	790	980	1210	1490	1830	2250	2710	3290	3730	4250			
	50	0	0	0	0	410*	640	800	980	1210	1480	1810	2190	2650	3010	3420	3830	4180	4850
	60	0	0	0	0	0	540*	670*	830	1020	1250	1540	1850	2240	2540	2890	3240	3540	4100
	75	0	0	0	0	0	440*	550*	680*	840	1030	1260	1520	1850	2100	2400	2700	2950	3440
	100	0	0	0	0	0	0	0	500*	620*	760*	940	1130	1380	1560	1790	2010	2190	2550
	125	0	0	0	0	0	0	0	0	0	600*	740*	890*	1000	1220	1390	1560	1700	1960
	150	0	0	0	0	0	0	0	0	0	0	630*	760*	920*	1050	1190	1340	1460	1690
	175	0	0	0	0	0	0	0	0	0	0	0	670*	810*	930	1060	1190	1300	1510
	200	0	0	0	0	0	0	0	0	0	0	0	590*	710	810*	920*	1030	1130	1310
	250	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	760	865
115V	1/3	130	210	340	540	840	1300	1610	1960	2390	2910	3540	4210	5060	5680	6390	7110	7680	8790
60Hz	1/2	100	160	250	390	620	960	1190	1460	1780	2160	2630	3140	3770	4240	4770	5320	5750	6590
Single Phase																			
	1/3	550	880	1390	2190	3400	5250	6520	7960	9690	11770	14320	17050	20460	22980	25850	28750	31070	35580
	1/2	400	650	1020	1610	2510	3880	4810	5880	7170	8720	10620	12660	15210	17100	19260	21440	23200	26600
	3/4	300	480	760	1200	1870	2890	3580	4370	5330	6470	7870	9380	11250	12640	14220	15810	17090	19570
	1.00	250	400	630	990	1540	2380	2960	3610	4410	5360	6520	7780	9350	10510	11840	13180	14260	16350
230V	1.50	190	310	480	770	1200	1870	2320	2850	3500	4280	5240	6300	7620	8630	9810	10980	11960	13860
60 Hz	2.00	150	250	390	620	970	1530	1910	2360	2930	3620	4480	5470	6700	770	8890	10080	11130	13170
Single Phase	3.00	120	190	300	470	750	1190	1490	1850	2320	2890	3610	4470	5550	6450	7580	8690	9740	11770
	5.00	0	110*	180	280	450	710	890	1110	1390	1740	2170	2680	3330	3870	4550	5210	5840	7060
	7.50	0	0	120*	200	310	490	610	750	930	1140	1410	1720	2100	2400	2760	3120	3430	4040
	10.00	0	0	0	160*	250	390	490	600	750	930	1160	1430	1760	2030	2370	2700	3000	3590
	15.00	0	0	0	0	170*	270	340	430	530	660	820	1020	1260	1460	1700	1940	2170	2610
	1/2	5900	9410																
	3/4	4270	6810																
	1	3630	5800	9120															
	11/2	2620	4180	6580															
	2	2030	3250	5110	8060														
	3	1580	2530	3980	6270														
	5	920	1480	2330	3680	5750													
	71/2	660	1060	1680	2650	4150													
	10	490	780	1240	1950	3060	4770	5940											
575V	15	330*	530	850	1340	2090	3260	4060											
60Hz	20	0	410*	650	1030	1610	2520	3140	3860	4760	5830								
Three Phase	25	0	0	520	830	1300	2030	2530	3110	3840	4710								
Three Wire	30	0	0	430*	680	1070	1670	2080	2560	3160	3880	4770	5780	7030	8000				
	40	0	0	0	500*	790	1240	1540	1900	2330	2860	3510	4230	5140	5830				
	50	0	0	0	410*	640*	1000	1250	1540	1890	2310	2840	3420	4140	4700	5340	5990	6530	7580
	60	0	0	0	0	540*	850	1060	1300	1600	1960	2400	2890	3500	3970	4520	5070	5530	6410
	75	0	0	0	0	0	690*	860	1060	1310	1600	1970	2380	2890	3290	3750	4220	4610	5370
	100	0	0	0	0	0	0	640*	790*	970	1190	1460	1770	2150	2440	2790	3140	3430	3990
	125	0	0	0	0	0	0	0	630*	770*	950	1160	1400	1690	1920	2180	2440	2650	3070
	150	0	0	0	0	0	0	0	0	660*	800	990*	1190	1440	1630	1860	2080	2270	2640
	175	0	0	0	0	0	0	0	0	0	700*	870*	1050*	1270	1450	1650	1860	2030	2360
	200	0	0	0	0	0	0	0	0	0	0	760*	920*	1110*	1260	1440	1620	1760	2050

1. *Lengths without asterisk meet U.S. NEC ampacity for either individual or jacketed conductors at 75°C (167°F) and 30°C (86°F) ambient.
2. *Lengths marked with asterisk * meet U.S. NEC ampacity only for individual conductors at 75°C in free air or water, not inconduit.
3. The NEC ampacity requirement for motor branch circuits is based on a 25% continuous motor overload.
4. Flat molded cable is considered to be jacketed.
5. Table based on a maintaining motor terminal voltage at 95% of service entrance voltage, running at maximum nameplate amperes. If a maximum allowable voltage drop is 3% (i.e. 97% of service entrance voltage) multiply tabulated values to be .6 for maximum cable limits. In general voltage drop should be maintained at 3V/100 ft. or less.
6. Table based on copper wire. If aluminum wire is used, it should be at least two sizes larger (i.e. #12 Copper = #10 Aluminum) or multiply tabulated cable length values by .5.
7. Cable length corrections factor for ambient temperature are listed as follows:

Ambient Temp.	10°C/50°F	20°C/68°F	30°C/86°F	40°C/104°F	50°C/122°F
Cable Length Correction Factor	1.18	1.10	1.00	.82	.58

8. 1 foot = .305 meter
9. The cable length between the service entrance (metering) to a three phase motor starter/ controller should not exceed 25% of the tabulated lengths above, to assure reliable starting.