

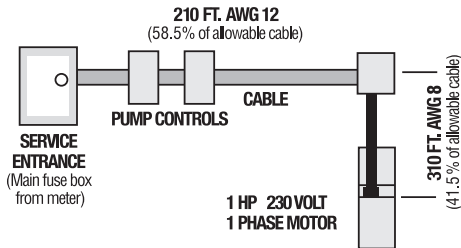
# BERKELEY® Cable Selection

Stainless steel, 4" submersible motors

## TWO DIFFERENT CABLE SIZES CAN BE USED

The example below is for reference. Depending on the installation, any number of combinations may be used, as long as the total percentage length of the two cables used does not exceed 100%. This is to ensure that adequate voltage will be supplied to the motor.

**EXAMPLE:**  
1 HP,  
230 Volt, 3W,  
1 PH Motor



In a replacement installation, the well already has 210 feet of buried #12 cable between the service entrance and the well head. The question is: What size cable is required in the well with a 1 HP, 230 Volt, 1 PH, 3W motor setting at 310 feet?

1. According to the table, #12 cable is large enough for the 1 HP motor so the percent of the maximum allowable cable used by the 210-foot run is  $210 \div 359 = 58.5\%$ , since 359 feet is the total allowable.
2. With 58.5% of the total allowable cable already used between the service entrance and the well head, only 41.5% is left for the well. Therefore, the 310 feet needed in the well can only utilize 41.5% of the total feet allowed in the table.
3. From the table, 41.5% of the 573 feet for #10 cable equals only 238 feet, so a larger size is needed. For #8, 41.5% of 908 feet = 377 feet. As a result, #8 can be used for the 310 feet in the well.

**CAUTION** Use of wire size smaller than listed will void warranty.

## MOTOR LEAD LENGTHS: PENTEK® 2-WIRE PSC MOTORS

60 HZ MOTOR RATING		60C AND 75C INSULATION - AWG COPPER WIRE SIZE												
VOLTS	HP	14	12	10	8	6	4	3	2	1	1/0	2/0	3/0	4/0
115	1/2	107	171	273	432	672	1071	1346	1700	2142	2703	3411	4305	5424
	3/4	457	726	1158	1835	2855	4551	5721	7225	9102	11489			
230	1	267	425	678	1074	1671	2664	3349	4229	5328	6725	8485	10711	
	1-1/2	209	332	530	839	1305	2080	2615	3303	4161	5252	6626	8365	

## MOTOR LEAD LENGTHS: PENTEK 3-WIRE MOTORS

### CSIR CONTROL BOXES

60 HZ MOTOR RATING		60C AND 75C INSULATION - AWG COPPER WIRE SIZE												
VOLTS	HP	14	12	10	8	6	4	3	2	1	1/0	2/0	3/0	4/0
115	1/2	94	150	240	380	591	942	1184	1495	1883	2377	2999	3786	4770
	3/4	348	553	883	1398	2175	3467	4359	5505	6935	8753			
230	1	277	441	704	1115	1734	2765	3476	4390	5530	6981	8807		
	1-1/2	231	367	585	927	1442	2299	2891	3651	4599	5805	7324		

### CSCR CONTROL BOXES

60 HZ MOTOR RATING		60C AND 75C INSULATION - AWG COPPER WIRE SIZE												
VOLTS	HP	14	12	10	8	6	4	3	2	1	1/0	2/0	3/0	4/0
230	1/2	438	697	1112	1761	2740	4369	5492	6936	8738	11029			
	3/4	359	571	912	1444	2246	3581	4502	5685	7162	9040	11406		
	1	296	471	751	1190	1852	2952	3711	4686	5904	7452	9402		
	1-1/2	199	317	505	801	1246	1986	2496	3153	3972	5013	6325		
	2	180	286	456	722	1123	1790	2251	2843	3581	4520	5703		
	3	133	211	337	534	830	1324	1664	2102	2648	3342	4217	5323	
	5			206	326	507	809	1017	1284	1618	2042	2577	3253	

All lengths in feet.

NOTE: Based on service factor amps, 30C ambient and 5% voltage drop.

(1) This table is based on copper wire. If aluminum wire is used it must be two sizes larger.

Example: When the table calls for #12 copper wire you would use #10 aluminum wire.

(2) Cables #14 to 4/0 are AWG sizes.

# BERKELEY® Cable Selection

Stainless steel, 4" submersible motors

MOTOR LEAD LENGTHS: PENTEK® 3-PHASE MOTORS														
60 HZ MOTOR RATING		60C AND 75C INSULATION – AWG COPPER WIRE SIZE												
VOLTS	HP	14	12	10	8	6	4	3	2	1	1/0	2/0	3/0	4/0
200	0.5	629	1000	1595	2526	3931								
	3/4	468	745	1188	1881	2927								
	1	386	614	979	1551	2414	3848	4837						
	1.5	290	461	735	1163	1810	2886	3628						
	2	237	376	600	951	1479	2358	2965	3744	4717	5954			
	3	183	292	465	737	1147	1828	2298	2902	3656	4614			
	5	109	173	276	438	681	1086	1365	1724	2172	2741	3458	4366	5500
	7.5	73	117	186	295	459	731	919	1161	1462	1846	2329	2940	3704
230	0.5	844	1342	2140	3389	5274	8408	10570						
	0.75	633	1006	1605	2542	3956	6306	7927	10011					
	1	516	821	1310	2075	3229	5148	6471	8172					
	1.5	383	610	973	1541	2397	3822	4804	6067	7643	9648			
	2	316	503	803	1271	1978	3153	3964	5006	6306	7960	10042		
	3	251	399	636	1007	1567	2497	3140	3965	4995	6305	7954	10042	12651
	5			367	581	904	1441	1812	2288	2883	3639	4591	5795	7301
	7.5				385	599	955	1201	1517	1911	2412	3043	3842	4840
460	0.5	3374	5367	8561										
	0.75	2531	4025	6420	10168									
	1	2024	3220	5136	8135									
	1.5	1489	2368	3777	5981									
	2	1234	1964	3132	4960	7718								
	3	955	1519	2423	3837	5971								
	5	595	947	1511	2393	3723	5935							
	7.5	375	596	951	1506	2344	3737	4698	5933	7474				
	10	294	468	747	1182	1840	2933	3687	4656	5866				
575	1.5	2433	3870	6173										
	2	1917	3049	4864	7703									
	3	1543	2454	3915	6200									
	5	832	1324	2112	3345	5205								
	7.5	633	1006	1605	2542	3956								

All lengths in feet.

NOTE: Based on service factor amps, 30C ambient and 5% voltage drop.

- (1) This table is based on copper wire. If aluminum wire is used it must be two sizes larger. Example: When the table calls for #12 copper wire you would use #10 aluminum wire.
- (2) The portion of the total cable that is between the service entrance and a 3-phase motor starter should not exceed 25% of the total maximum length to assure reliable starter operation.
- (3) Cables #14 to 4/0 are AWG sizes.



US: 293 WRIGHT STREET, DELAVAN, WI 53115 WWW.BERKELEYPUMPS.COM PH: 888-782-7483 ORDERS FAX: 800-426-9446  
 CANADA: 490 PINEBUSH ROAD, UNIT 4, CAMBRIDGE, ONTARIO N1T 0A5 PH: 800-363-7867 ORDERS FAX: 888-606-5484  
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