

Drop Wire Selection Table for Deep Well Pump								
Motor Rating (Single Phase)		Cable Size / Maximum run in feet						
HP	Voltage	#14	#12	#10	#8	#6	#4	#2
1/2	115V	100'	160'	250'	390'	620'	960'	1460'
1/2	230V	400'	650'	1020'	1610'	2510'	3880'	5880'
3/4	230V	300'	480'	760'	1200'	1870'	2890'	4370'
1	230V	250'	400'	630'	990'	1540'	2380'	3610'
1 1/2	230V	190'	310'	480'	770'	1200'	1870'	2850'
2	230V	150'	250'	390'	620'	970'	1530'	2360'
3	230V	120'	190'	300'	470'	750'	1190'	1850'
5	230V	0	0	180'	280'	450'	710'	1110'
7.5	230V	0	0	0	200'	310'	490'	750'
10	230V	0	0	0	0	250'	390'	600'
15	230V	0	0	0	0	0	270'	530'
Motor Rating (Three Phase)		Cable Size / Maximum run in feet						
HP	Voltage	#14	#12	#10	#8	#6	#4	#2
3	230V	210'	340'	540'	860'	1340'	2080'	3170'
5	230V	0	200'	320'	510'	800'	1240'	1900'
7.5	230V	0	0	230'	360'	570'	890'	1350'
10	230V	0	0	0	270'	420'	660'	1010'
15	230V	0	0	0	0	290'	450'	690'
20	230V	0	0	0	0	0	350'	530'
25	230V	0	0	0	0	0	260'	430'
30	230V	0	0	0	0	0	0	350'
2	460V	1300'	2070'	3270'	5150'	8050'		
3	460V	1000'	1600'	2520'	3970'	6200'		
5	460V	590'	960'	1500'	2360'	3700'	5750'	
7.5	460V	420'	680'	1070'	1690'	2640'	4100'	6260'
10	460V	310'	500'	790'	1250'	1960'	3050'	4680'
15	460V	0	0	540'	850'	1340'	2090'	3200'
20	460V	0	0	430'	650'	1030'	1610'	2470'
25	460V	0	0	0	530'	830'	1300'	1990'
30	460V	0	0	0	430'	680'	1070'	1640'
40	460V	0	0	0	0	0	790'	1210'
50	460V	0	0	0	0	0	640'	980'

Combining Multiple Wires of Different Gauge (AWG)

You may combine, 2 or more, different gauged (AWG) wire for your installation. Use the formula below to ensure that National Electrical Code (NEC) requirements are met.

Formula:

$$\frac{\text{Wire1 length}}{\text{Maximum run 1}} + \frac{\text{Wire2 length}}{\text{Maximum run 2}} + \dots \leq 1.00$$

Where maximum run is the maximum length permitted for that specific gauge of wire. See our drop wire selection table for maximum run information.

Example:

You have 375 feet of #6 wire buried between the service entrance and the wellhead. A new 3HP 230V single phase pump will be installed to replace a smaller pump. The new pump will be set at 200 feet below the wellhead.

What wire gauge is suitable?

From the drop wire selection table, #6 can be use for up to 750 feet and #10 for up to 300 feet, $(375 \div 750) + (200 \div 300) = 1.167$ which is greater than 1, so #10 can't be used; #8 wire can be used for up to 470 feet. Using the same formula, $(375 \div 750) + (200 \div 470) = 0.9255$, this is less than 1 and will meet NEC standards.

Continuing the above example...

In the same installation, you also have 110 feet #10 submersible wire from your existing well. Can you add 90 feet wire to achieve 200 feet? What wire gauge?

The answer is yes, and you can use 90 feet #6 wire.

$$(375 \div 750) + (110 \div 300) + (90 \div 750) = 0.9866$$

Now the decision is whether to buy a brand new 200 feet of #8, or 90 feet of #6. Check the prices for each wire to make a smart decision.