

Voltage Drop Tables

When electrical current moves through a wire it is pushed by electrical potential (voltage) and it needs to surpass a certain level of contrary pressure caused by the wire. The voltage drop is the amount of electrical potential (voltage) loss caused by the contrary pressure of the wire.

Excessive voltage drop in a circuit can cause lights to flicker or burn dimly, heaters to heat poorly, and motors to run hotter than normal and burn out. The National Electrical Code states that the voltage drop of a feeder circuit must not exceed 5%. The Voltage tables below are suggested guidelines to help choose the optimal wire size to meet voltage drop limits based on the voltage, total load, and expected circuit length.

6 VOLTS MAXIMUM VOLTAGE DROP 5% PER NATIONAL ELECTRIC CODE - WIRING DISTANCE IN FEET

Wire Size	Watts	4	6	8	10	12	13	16	18	20	24	25	28	35	44	50	75	100	150	200	250	
#12		111	89	67	53	45	41	33	30	27	22	21	19	15	12	11	8	6	4			
#10		177	141	106	85	71	65	53	47	42	35	32	30	24	19	17	11	9	6			
#8		281	225	106	135	113	110	84	75	68	56	54	48	39	31	27	18	14	9	7		
#6		447	358	268	215	179	165	134	120	107	89	86	77	62	49	43	29	22	15	11	9	

12 VOLTS MAXIMUM VOLTAGE DROP 5% PER NATIONAL ELECTRIC CODE - WIRING DISTANCE IN FEET

Wire Size	Watts	4	8	12	13	16	18	24	25	28	35	44	50	75	100	150	200	250	300	
#12		534	267	178	165	134	110	89	85	76	61	49	42	29	21	14	10	8		
#10		849	425	283	260	212	190	142	136	121	97	77	68	45	34	23	17	14	11	
#8		1351	675	450	415	338	300	225	215	193	154	123	108	72	54	36	27	21	18	
#6		2148	1073	716	660	537	485	358	340	307	245	195	170	114	86	57	43	34	28	

24 VOLTS MAXIMUM VOLTAGE DROP 5% PER NATIONAL ELECTRIC CODE - WIRING DISTANCE IN FEET

Wire Size	Watts	13	18	25	28	35	44	50	75	100	150	200	250	300	400
#12		660	440	340	305	244	194	168	116	84	56	40	32	26	21
#10		1040	760	544	485	388	309	272	180	136	92	68	52	44	34
#8		1668	1200	860	772	616	491	432	288	216	144	108	84	72	54
#6		2640	1900	1360	1227	980	781	650	456	344	228	172	136	112	85

Circular Mill Chart		
AWG	AMP Capacity	C/M
12	20	6530
10	25	10,380
8	30	16,510
6	50	26,250