

Current rating as per National Electrical Code of the USA

Current rating of cables in the USA

Excerpt from NEC table T310.15 (B)(16)

Permissible current rating of insulated copper conductors with a nominal voltage of 0 to 2000 V, 60 °C to 90 °C (140 °F to 194 °F). Not more than three current-carrying conductors in any one cable duct, pipe, hose or in one (multi-core) cable or installed underground (direct routing underground), based on an ambient temperature of 30 °C (86 °F).

Excerpt from NEC T310.15 (B)(17)

Permissible current rating of single-core cables with copper conductor with a nominal voltage of 0 to 2000 V, installed in free air, based on an ambient temperature of 30 °C.

(NEC edition 2017)

Conductor cross-section AWG or kcmil (MCM)	Rating in A with a permissible continuous temperature at the conductor			Conductor cross-section AWG or kcmil (MCM)	Rating in A with a permissible continuous temperature at the conductor		
	60 °C (140 °F)	75 °C (167 °F)	90 °C (194 °F)		60 °C (140 °F)	75 °C (167 °F)	90 °C (194 °F)
18	-	-	14*	18	-	-	18
16	-	-	18*	16	-	-	24
14	15*	20*	25*	14	25*	30*	35*
12	20*	25*	30*	12	30*	35*	40*
10	30*	35*	40*	10	40*	50*	55*
8	40	50	55	8	60	70	80
6	55	65	75	6	80	95	105
4	70	85	95	4	105	125	140
3	85	100	115	3	120	145	165
2	95	115	130	2	140	170	190
1	110	130	145	1	165	195	220
1/0	125	150	170	1/0	195	230	260
2/0	145	175	195	2/0	225	265	300
3/0	165	200	225	3/0	260	310	350
4/0	195	230	260	4/0	300	360	405
250	215	255	290	250	340	405	455
300	240	285	320	300	375	445	500
350	260	310	350	350	420	505	570
400	280	335	380	400	455	545	615
500	320	380	430	500	515	620	700
600	350	420	475	600	575	690	780

Correction factors for ambient temperatures other than 30 °C				Correction factors for more than 3 current-carrying conductors in any one cable duct, pipe or in a multi-core cable	
Ambient temperature in °C	60 °C	75 °C	90 °C	Number of current-carrying conductors	Correction factor
21 – 25	1.08	1.05	1.04	4 to 6	0.80
26 – 30	1.00	1.00	1.00	7 to 9	0.70
31 – 35	0.91	0.94	0.96	10 to 20	0.50
36 – 40	0.82	0.88	0.91	21 to 30	0.45
41 – 45	0.71	0.82	0.87	31 to 40	0.40
46 – 50	0.58	0.75	0.82	41 and over	0.35
51 – 55	0.41	0.67	0.76		
56 – 60	-	0.58	0.71		
61 – 65	-	0.47	0.65		
66 – 70	-	0.33	0.58		
71 – 75	-	-	0.50		
76 – 80	-	-	0.41		
81 – 85	-	-	0.29		

*For conductor overcurrent protection please refer to NEC 240.4(D)

NOTE: Please always refer to the valid edition of the NEC. This has to be applied also for all other cases than the above described ones. The current rating of cables in industrial machinery and equipment can be found in section 12, NFPA 79 Edition 2015.