Medium Voltage Conductor Ampacities

Single Conductor 5kV - 35kV

COPPER

Conductor Size AWG/kcmil	2001 - 5000 V		5001 - 35000 V	
	90°C MV-90	105°C MV-105	90°C MV-90	105°C MV-105
2	130	145	150	165
1	155	175	170	190
1/0	180	200	195	215
2/0	205	225	225	255
3/0	240	270	260	290
4/0	280	305	295	330
250	315	355	330	365
350	385	430	395	440
500	475	530	480	535
750	600	665	585	655
1000	690	770	675	755

Based on NEC Table 310.60(C)(73) Ampacities of an Insulated Triplexed or Three Single Conductor Copper Cables in Isolated Conduit in Air Based on Conductor Temperatures of 90°C (194°F) and 105°C and (221°F) and Ambient Air Temperature of 40°C (104°C)[1].

ALUMINUM

Conductor Size AWG/kcmil	2001 - 5000 V		5001 - 35000 V	
	90°C MV-90	105°C MV-105	90°C MV-90	105°C MV-105
2	100	115	115	130
1	120	135	130	150
1/0	140	155	150	170
2/0	160	175	175	200
3/0	190	210	200	225
4/0	215	240	230	260
250	250	280	255	290
350	305	340	310	350
500	380	425	385	430
750	490	545	485	540
1000	580	645	565	640

Based on NEC Table 310.60(C)(74) Ampacities of an Insulated Triplexed or Three Single Conductor Aluminum Cables in Isolated Conduit in Air Based on Conductor Temperatures of 90°C (194°F) and 105°C and (221°F) and Ambient Air Temperature of 40°C (104°C)[1].

[1]Per NEC 2014. Always refer to latest NEC edition.

Medium Voltage Conductor Ampacities

Single Conductor 5kV - 35kV

COPPER

Conductor Size AWG/kcmil	2001 - 5000 V		5001 - 35000 V	
	90°C MV-90	105°C MV-105	90°C MV-90	105°C MV-105
2	160	175	170	195
1	185	205	195	225
1/0	215	240	225	255
2/0	250	275	260	295
3/0	290	320	300	340
4/0	335	375	345	390
250	375	415	380	430
350	465	515	470	525
500	580	645	580	650
750	750	835	730	820
1000	880	980	850	950

Based on NEC Table 310.60(C)(67) Ampacities of Insulated Single Copper Conductor Cables Triplexed in Air Based on Conductor Temperatures of 90°C (194°F) and 105°C (221°F) and Ambient Air Temperature of 40°C (104°F)[1].

ALUMINUM

Conductor Size AWG/kcmil	2001 - 5000 V		5001 - 35000 V	
	90°C MV-90	105°C MV-105	90°C MV-90	105°C MV-105
2	125	135	130	150
1	145	160	150	175
1/0	170	185	175	200
2/0	195	215	200	230
3/0	225	250	230	265
4/0	265	290	270	305
250	295	325	300	335
350	365	405	370	415
500	460	510	460	515
750	600	665	590	660
1000	715	800	700	780

Based on NEC Table 310.60(C)(68) Ampacities of an Insulated Single Aluminum Conductor Cables Triplexed in Air Based on Conductor Temperatures of 90°C (194°F) and 105°C (221°F) and Ambient Air Temperature of 40°C (104°F)[1].

[1]Per NEC 2014. Always refer to latest NEC edition.

Medium Voltage Conductor Ampacities

Multiconductor Conductor 5kV - 35kV

COPPER

Conductor Size AWG/kcmil	2001 - 5000 V		5001 - 35000 V	
	90°C MV-90	105°C MV-105	90°C MV-90	105°C MV-105
2	135	145	150	160
1	155	165	170	185
1/0	175	190	195	210
2/0	200	220	220	235
3/0	230	250	250	270
4/0	265	285	285	305
250	290	315	310	335
350	355	380	375	400
500	430	460	450	485
750	530	570	545	585
1000	600	645	615	660

Based on NEC Table 310.60(C)(79) Ampacities of Three Insulated Copper Conductors Cabled Within an Overall Covering (Three-Conductor Cable) in Underground Electrical Ducts (One Cable per Electrical Duct) Based on Ambient Earth Temperature of 20°C (68°F), Electrical Duct Arrangement in Accordance with Figure 310.60, 100 Percent Load Factor, Thermal Resistance (RHO) of 90, Conductor Temperatures of 90°C (194°F) and 105°C (221°F).
One Circuit (See Figure 310.60, Detail 1.)[1].

ALUMINUM

Conductor Size AWG/kcmil	2001 - 5000 V		5001 - 35000 V	
	90°C MV-90	105°C MV-105	90°C MV-90	105°C MV-105
2	105	110	115	125
1	120	130	135	145
1/0	140	150	150	165
2/0	160	170	170	185
3/0	180	195	195	210
4/0	205	220	220	240
250	230	245	245	265
350	280	310	295	315
500	340	365	355	385
750	425	460	440	475
1000	495	535	510	545

Based on NEC Table 310.60(C)(80) Ampacities of Three Insulated Aluminum Conductors Cabled Within an Overall Covering (Three-Conductor Cable) in Underground Electrical Ducts (One Cable per Electrical Duct) Based on Ambient Earth Temperature of 20°C (68°F), Electrical Duct Arrangement in Accordance with Figure 310.60, 100 Percent Load Factor, Thermal Resistance (RHO) of 90, Conductor Temperatures of 90°C (194°F) and 105°C (221°F).
One Circuit (See Figure 310.60, Detail 1.)[1].

[1]Per NEC 2014. Always refer to latest NEC edition.

Medium Voltage Conductor Ampacities

Multiconductor Conductor 5kV - 35kV

COPPER

Conductor Size AWG/kcmil	2001 - 5000 V		5001 - 35000 V	
	90°C MV-90	105°C MV-105	90°C MV-90	105°C MV-105
2	180	190	185	200
1	200	215	210	225
1/0	230	245	240	255
2/0	260	280	270	290
3/0	295	320	305	330
4/0	335	360	350	375
250	365	395	380	410
350	440	475	460	495
500	530	570	550	590
750	650	700	665	720
1000	730	785	750	810

Based on NEC Table 310.60(C)(83) Ampacities of Three Insulated Copper Conductors Cabled Within an Overall Covering (Three-Conductor Cable) Directly Buried in Earth Based on Ambient Earth Temperature of 20°C (68°F), Arrangement per Figure 310.60, 100 Percent Load Factor, Thermal Resistance (RHO) of 90, Conductor Temperatures of 90°C (194°F) and 105°C (221°F).
One Circuit (See Figure 310.60, Detail 5.)[1]

ALUMINUM

Conductor Size AWG/kcmil	2001 - 5000 V		5001 - 35000 V	
	90°C MV-90	105°C MV-105	90°C MV-90	105°C MV-105
2	140	150	145	155
1	155	170	165	175
1/0	180	190	185	200
2/0	205	220	210	225
3/0	230	250	240	260
4/0	260	280	270	295
250	285	310	300	320
350	345	375	360	390
500	420	450	435	470
750	520	560	540	580
1000	600	650	620	665

Based on NEC Table 310.60(C)(84) Ampacities of Three Insulated Aluminum Conductors Cabled Within an Overall Covering (Three-Conductor Cable) Directly Buried in Earth Based on Ambient Earth Temperature of 20°C (68°F), Arrangement per Figure 310.60, 100 Percent Load Factor, Thermal Resistance (RHO) of 90, Conductor Temperatures of 90°C (194°F) and 105°C (221°F).
One Circuit (See Figure 310.60, Detail 5.)[1]

[1]Per NEC 2014. Always refer to latest NEC edition.

Ambient Temperature Correction Factors

Temperature Rating of the Conductor			
Ambient Temperature (°C)	90°C	105°C	Ambient Temperature (°F)
10 or less	1.26	1.21	50 or less
11-15	1.22	1.18	51-59
16-20	1.18	1.14	60-68
21-25	1.14	1.11	69.77
26-30	1.10	1.07	78-86
31-35	1.05	1.04	87-95
36-40	1.00	1.00	96-104
41-45	0.95	0.96	105-113
46-50	0.89	0.92	114-122
51-55	0.84	0.88	123-131
56-60	0.77	0.83	132-140
61-65	0.71	0.78	141-149
66-70	0.63	0.73	150-158
71-75	0.55	0.68	159-167
76-80	0.45	0.62	168-176
81-85	0.32	0.55	177-185
86-90	-	0.48	186-194
91-95	-	0.39	195-203
96-100	-	0.28	204-212

Based on NEC Table 310.60(C)(4). For ambient temperatures other than 40°C (104°F), multiply the allowable ampacities specified in the ampacity tables by the appropriate factor shown above.[1]

[1]Per NEC 2014. Always refer to latest NEC edition.

Medium Voltage Cables (MV-105 and MV UD) Voltage Ratings

Voltage Rating	Insulation Level	Nominal Thickness (mils)
5kV	100%	90
5kV	133%	115
8kV	100%	115
8kV	133%	140
15kV	100%	175
15kV	133%	220
25kV	100%	260
28kV	100%	280
25kV	133%	320
28kV	133%	345
35kV	100%	345
35kV	133%	420

Voltage and insulation level, per UL 1072, ICEA S 93-639 and ICEA S 97-682, section 4, table 4-7.

Minimum Size (AWG)

Voltage Rating	Minimum Size (AWG)
5kV	8
8kV	6
15kV	2
25kV	1
35kV	1/0