

Table 15 Continued

Size of conductor		Insulation other than composite layers (see Annex G for required or optional overall covering and Table 22 for jacket thickness)		Composite insulation construction Types RHH, RHW, RHW-2, R90, RW75 and RW90					
				Inner layer EP, XL, Silicone, or EPCV			Outer layer CP, CPE, EPCV, or XL		
				mm					
mm ²	AWG or kcmil	Minimum average thickness	Minimum thickness at any point ^a	Minimum average thickness	Minimum thickness at any point ^a		Minimum average thickness	Minimum thickness at any point ^a	
Larger than 107 – 253	Larger than 4/0 – 500 kcmil	95	86	65	58	65	65	58	52
Larger than 253 – 507	Larger than 500 – 1000	110	99	80	72	78	65	58	52
Larger than 507 – 1010	Larger than 1000 – 2000	125	112	100	90	99	95	85	76

^a The minimum thickness at any point shall not be less than indicated in Column A or B under inner layer with the minimum thickness at any point not less than indicated in the corresponding Column A or B under outer layer. The thickness in Column B under inner layer plus the thickness in Column B under outer layer equals 90 percent of the sum of the average thickness indicated under inner layer and outer layer.

^b Applies to the United States only.

Table 16
Thicknesses of insulation on 1000 V Types RW75, R90, and RW90

(See 4.2.3 and Annex B)

Size of conductor		Non-composite construction		Composite insulation construction					
				Inner layer: EP, XL, Silicone, or EPCV			Outer layer: CP, CPE, EPCV, or XL		
mm ²		AWG or kcmil		Minimum average thickness	Minimum thickness at any point ^a		Minimum average thickness	Minimum thickness at any point ^a	
–	–	–	–	–	A	B	–	A	B
2.08 – 5.26	14 – 10 AWG	1.14	1.01	0.87	0.78	0.82	0.38	0.36	0.3
8.37	8	1.14	1.01	1.21	1.09	1.15	0.76	0.69	0.61
13.3 – 33.6	6 – 2	1.52	1.37	1.27	1.14	1.22	0.76	0.69	0.61
42.4 – 107	1 – 4/0	2.03	1.82	1.52	1.37	1.47	1.14	1.02	0.91
Larger than 107 – 253	Larger than 4/0 – 500 kcmil	2.28	2.05	1.78	1.60	1.75	1.65	1.47	1.32
Larger than 253 – 507	Larger than 500 – 1000	2.28	2.05	2.16	1.94	2.10	1.65	1.47	1.32
Larger than 507 – 1010	Larger than 1000 – 2000	2.79	2.51	2.67	2.40	2.64	2.41	2.16	1.93

				mils					
–	–	–	–	–	A	B	–	A	B
2.08 – 5.26	14 – 10 AWG	45	40	30	27	28	15	14	12
8.37	8	45	40	30	43	45	30	27	24

Table 16 Continued on Next Page

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Table 16 Continued

Size of conductor		Non-composite construction		Composite insulation construction					
				Inner layer: EP, XL, Silicone, or EPCV			Outer layer: CP, CPE, EPCV, or XL		
mm ²	AWG or kcmil	Minimum average thickness	Minimum thickness at any point ^a	Minimum average thickness	Minimum thickness at any point ^a		Minimum average thickness	Minimum thickness at any point ^a	
13.3 – 33.6	6 – 2	60	54	50	45	48	30	27	24
42.4 – 107	1 – 4/0	80	72	60	54	58	45	40	36
Larger than 107 – 253	Larger than 4/0 – 500 kcmil	90	81	70	63	69	65	58	52
Larger than 253 – 507	Larger than 500 – 1000	90	81	85	76	83	65	58	52
Larger than 507 – 1010	Larger than 1000 – 2000	110	99	105	94	104	95	85	76

^a The minimum thickness at any point shall not be less than as indicated in Column A or B under inner layer with the minimum thickness at any point not less than as indicated in the corresponding Column A or B under outer layer. The thickness in Column B under inner layer plus the thickness in Column B under outer layer equals 90 percent of the sum of the average thickness indicated under inner layer and outer layer.

Table 17
Thickness of insulation on 2000 V Types R90, RW75, RW90, RHH, RHW, and RHW-2

(See [4.2.3](#), [Table 36](#), [Table 37](#), and [Table 47](#), and Annex B)

Size of conductor		EP, XL, Silicone, or EPCV: Types R90, RW75, RW90, RHH, RHW, and RHW-2		CP, CPE, or SBR/IIR/NR Types RHH, RHW, RHW-2		Composite insulation construction Types RHH, RHW, RHW-2, R90, RW75, and RW90					
						Inner layer EP, XL, Silicone, or EPCV			Outer layer CP, CPE, EPCV, or XL		
mm ²	AWG or kcmil	Min. avg. thickness	Min. at any point	Min. avg. thickness	Min. at any point	Min. avg. thickness	Min. thickness at any point ^a		Min. avg. thickness	Min. thickness at any point ^a	
2.08 – 5.26 8.37 13.3 – 33.6 42.4 – 107 Larger than 107 – 253 Larger than 253 – 507 Larger than 507 – 1010	14 – 10 AWG 8 6 – 2 1 – 4/0 Larger than 4/0 – 500 kcmil Larger than 500 – 1000 Larger than 1000 – 2000	mm									
		1.52	1.37	2.03	1.83	1.14	1.02	B	0.38	A	B
		1.78	1.60	2.03	1.83	1.40	1.27	1.32	0.76	0.69	0.61
		1.78	1.60	2.41	2.18	1.40	1.27	1.32	0.76	0.69	0.61
		2.29	2.06	2.79	2.51	1.65	1.47	1.60	1.14	1.02	0.91
		2.67	2.39	3.18	2.84	1.90	1.73	1.88	1.65	1.47	1.32
		3.05	2.74	3.56	3.20	2.29	2.06	2.24	1.65	1.47	1.32
		3.56	3.20	3.56	3.20	2.92	2.64	2.87	2.41	2.16	1.93
		mils									
							A	B		A	B

Table 17 Continued on Next Page

Table 17 Continued

Size of conductor		EP, XL, Silicone, or EPCV: Types R90, RW75, RW90, RHH, RHW, and RHW-2		CP, CPE, or SBR/IIR/NR Types RHH, RHW, RHW-2		Composite insulation construction Types RHH, RHW, RHW-2, R90, RW75, and RW90					
						Inner layer EP, XL, Silicone, or EPCV			Outer layer CP, CPE, EPCV, or XL		
mm ²	AWG or kcmil	Min. avg. thickness	Min. at any point	Min. avg. thickness	Min. at any point	Min. avg. thickness	Min. thickness at any point ^a		Min. avg. thickness	Min. thickness at any point ^a	
2.08 – 5.26	14 – 10 AWG	60	54	80	72	45	40	42	15	14	12
8.37	8	70	63	80	72	55	50	52	30	27	24
13.3 – 33.6	6 – 2	70	63	95	86	55	50	52	30	27	24
42.4 – 107	1 – 4/0	90	81	110	99	65	58	63	45	40	36
mils											
Larger than 107 – 253	Larger than 4/0 – 500 kcmil	105	94	125	112	75	68	74	65	58	52
Larger than 253 – 507	Larger than 500 – 1000	120	108	140	126	90	81	88	65	58	52
Larger than 507 – 1010	Larger than 1000 – 2000	140	126	140	126	115	104	113	95	85	76

^a The minimum thickness at any point shall not be less than as indicated in Column A or B under inner layer with the minimum thickness at any point not less than as indicated in the corresponding Column A or B under outer layer. The thickness in Column B under inner layer plus the thickness in Column B under outer layer equals 90 percent of the sum of the average thickness indicated under inner layer and outer layer.

Table 18
Insulation thicknesses on 1000 V Types RWU75 and RWU90

(See 4.2.3 and Annex B)

Conductor size		Insulation thickness			
mm ²	AWG or kcmil	mm		mils	
		Minimum average thickness	Minimum thickness at any point	Minimum average thickness	Minimum thickness at any point
2.08 – 5.26	14 – 10 AWG	1.52	1.37	60	54
8.37	8	2.03	1.83	80	72
13.3 – 33.6	6 – 2	2.03	1.83	80	72
42.4 – 107	1 – 4/0	2.41	2.18	95	86
Larger than 107 – 253	Larger than 4/0 – 500 kcmil	2.79	2.51	110	99
Larger than 253 – 507	Larger than 500 – 1000 kcmil	3.18	2.84	125	112
Larger than 507 – 1010	Larger than 1000 – 2000 kcmil	3.56	3.20	140	126

Table 19
Thickness of composite insulations on 1000 V Types RWU75 and RWU90

(See [4.2.3](#))

Size of conductor		Composite construction				Composite construction			
		Inner Layer:		Outer Layer:		Inner Layer:		Outer Layer:	
		XL		CP, CPE, EPCV, or XL		EP, EPCV		CP, CPE, EPCV, or XL	
mm ²	AWG or kcmil	Minimum average thickness	Minimum at any point	Minimum average thickness	Minimum at any point	Minimum average thickness	Minimum at any point	Minimum average thickness	Minimum at any point
mm									
2.08 – 5.26	14 – 10 AWG	1.16	1.04	0.38	0.30	1.16	1.04	1.14	0.91
8.37	8	1.35	1.22	0.76	0.60	1.35	1.22	1.14	0.91
13.3 – 33.6	6 – 2	1.69	1.52	0.76	0.60	1.69	1.52	1.65	1.32
42.4 – 107	1 – 4/0	2.02	1.82	1.14	0.91	2.02	1.82	1.65	1.32
Larger than 107 – 253	Larger than 4/0 – 500 kcmil	2.36	2.12	1.65	1.32	2.36	2.12	2.41	1.93
Larger than 253 – 507	Larger than 500 – 1000	2.87	2.58	1.65	1.32	2.87	2.58	2.41	1.93
Larger than 507 – 1010	Larger than 1000 – 2000	3.55	3.20	2.41	1.93	3.55	3.20	3.17	2.54
mils									
2.08 – 5.26	14 – 10 AWG	45	35	15	12	39	35	45	36
8.37	8	53	48	30	24	53	48	45	36
13.3 – 33.6	6 – 2	67	60	30	24	67	60	65	52
42.4 – 107	1 – 4/0	80	72	45	36	80	72	65	52
Larger than 107 – 253	Larger than 4/0 – 500 kcmil	93	83	65	52	93	83	95	76
Larger than 253 – 507	Larger than 500 – 1000 kcmil	113	102	65	52	113	102	95	76
Larger than 507 – 1010	Larger than 1000 – 2000	140	126	95	76	140	126	125	100

Table 20
Insulations and protective coverings

(See [4.2.1.1](#), [4.3.1](#), [4.9.1.1](#), [Table 37](#), [Table 46](#), [Table 47](#), [G.1.1](#), [G.1.3](#), and Annex B)

Type designation	Insulation	Jacket or fibrous covering	
		Over finished single conductor or single conductor core of a multiconductor cable	Over two or more parallel or twisted conductors
XXH, XHHW, and XHHW-2 SA or SF 2.08 – 8.37 mm ² (14 – 8 AWG)	XL or EPCV Silicone	None One or more glass or aramid braid fibrous coverings	Jacket or fibrous covering ^a Fibrous covering

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Table 20 Continued

Type designation	Insulation	Jacket or fibrous covering	
SA or SF 13.3 – 1010 mm ² (6 AWG – 2000 kcmil)	Silicone	Two or more glass or aramid braid fibrous coverings	Fibrous covering
SIS	XL, EPCV, CP or CPE	None	Not applicable
RHH, RHW, RHW-2 [600 V or 1000 V ^b , 2.08 – 8.37 mm ² (14 – 8 AWG)]	EP, SBR/IIR, NR	Jacket or one or more fibrous coverings ^a	Jacket or fibrous covering ^a
RHH, RHW, RHW-2 [600 V or 1000 V ^b , 13.3 – 1010 mm ² (6 AWG – 2000 kcmil)] and all 2 kV	EP, SBR/IIR, NR	Jacket or two or more fibrous coverings ^a	Jacket or fibrous covering ^a
RHH, RHW, and RHW-2	XL, EPCV, CP, CPE, Composite	Jacket or fibrous covering ^a (optional)	Jacket or fibrous covering ^a
R90, RW75, RW90	EP	Jacket	Jacket
RWU75, RWU90	EP or EPCV	Jacket	Jacket (optional)
R90, RW75, RW90	XL or EPCV	Jacket (optional)	Jacket
RWU75, RWU90	XL	Jacket (optional)	Jacket (optional)
R90, RW75, RW90	Silicone	Jacket	Jacket
R90, RW75, RW90	Composite	Jacket (optional)	Jacket
RHH, RHW, or RHW-2 (600 V, 1000 V ^b or 2000 V)	Silicone	Jacket or two or more fibrous coverings ^a	Jacket or fibrous covering ^a
^a In the United States, for Types other than SA, the use of a fibrous covering(s) in this table is an alternative to a jacket.			
^b Applies to the United States only.			
In Mexico, for types other than SF, the use of fibrous coverings does not apply.			
In Canada, the use of fibrous coverings does not apply.			

Table 21
Physical properties of jackets

(See [4.3.1](#), [4.9.1.1](#), [4.10.1](#), [4.10.2](#), [5.20](#), [7.2.4](#), and Annex B)

Condition	Test		Material and properties				
			Neoprene, CP, CPE, NBR/PVC		PVC		XL
			75°C	90°C	75°C	90°C	90°C
Before aging	Elongation	Minimum	200 percent	200 percent	100 percent	100 percent	150 percent
	Tensile strength	Minimum	8.3 MPa (1200 lbf/in ²)	8.3 MPa (1200 lbf/in ²)	10.3 MPa (1500 lbf/in ²)	10.3 MPa (1500 lbf/in ²)	10.3 MPa (1500 lbf/in ²)
	Air-oven test	Temperature	100 ±1°C	110 ±1°C	100 ±1°C	121 ±1°C	110 ±1°C
After accelerated aging		Time	10 d	10 d	10 d	7 d	10 d
	Minimum percent of results obtained on	Elongation	50	50	45	45	75
		Tensile strength	50	50	70	85	75

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Table 21 Continued

Condition	Test		Material and properties				
			Neoprene, CP, CPE, NBR/PVC		PVC		XL
			75°C	90°C	75°C	90°C	90°C
	unaged specimens						
Oil-immersion test (IRM 902)	Temperature		121 ±1°C	121 ±1°C	70 ±1°C	70 ±1°C	121 ±1°C
	Time		18 h	18 h	4h	4h	18 h
	Minimum percent of results obtained on unaged specimens	Elongation	60	60	75	75	60
		Tensile strength	60	60	75	75	40

Table 22
Thicknesses of jacket on 600 V, 1000 V, and 2000 V single-conductor Types RW75, RW90, R90, RHW, RHW-2, and RHH

(See [4.3.1](#), [Table 15](#), and Annex [B](#))

Conductor size		600 V and 1000 V				2000 V			
		Minimum average jacket thickness	Minimum jacket thickness at any point	Minimum average jacket thickness	Minimum jacket thickness at any point	Minimum average jacket thickness	Minimum jacket thickness at any point	Minimum average jacket thickness	Minimum jacket thickness at any point
mm ²	AWG or kcmil	mm	mm	mils	mils	mm	mm	mils	mils
2.08 – 3.31	14 – 12 AWG	0.38	0.30	15	12	0.38	0.30	15	12
5.26	10	0.38	0.30	15	12	0.76	0.61	30	24
8.37 – 26.7	8 – 3	0.76	0.61	30	24	0.76	0.61	30	24
33.6	2	0.76	0.61	30	24	1.14	0.91	45	36
42.4 – 85.0	1 – 3/0	1.14	0.91	45	36	1.14	0.91	45	36
107	4/0	1.14	0.91	45	36	1.65	1.32	65	52
127 – 507	250 – 1000 kcmil	1.65	1.32	65	52	1.65	1.32	65	52
Larger than 507 – 1010	Larger than 1000 – 2000	2.41	1.93	95	76	2.41	1.93	95	76

Table 23
Thicknesses of jacket on 1000 V single-conductor Type RWU75 and RWU90

(See [4.3.1](#) and Annex [B](#))

Conductor size		Thickness of jacket							
		XL insulated				EP or EPCV insulated			
		Minimum average		Minimum at any point		Minimum average		Minimum at any point	
mm ²	AWG or kcmil	mm	mils	mm	mils	mm	mils	mm	mils
2.08 – 5.26	14 – 10 AWG	0.38	15	0.30	12	1.14	45	0.91	36
8.37	8	0.76	30	0.60	24	1.14	45	0.91	36
13.3 – 26.7	6 – 3	0.76	30	0.60	24	1.65	65	1.32	52
33.6 – 85.0	2 – 3/0	1.14	45	0.91	36	1.65	65	1.32	52
107	4/0	1.65	65	1.32	52	1.65	65	1.32	52
127 – 507	250 – 1000 kcmil	1.65	65	1.32	52	2.41	95	1.93	76
633 – 1010	1250 – 2000	2.41	95	1.93	76	3.17	125	2.54	100

Table 24
Thicknesses of optional jacket on each insulated conductor in 2-conductor flat parallel wire or cable, and on each insulated conductor in a multiple-conductor cable or assembly

(See [4.3.1](#) and Annex [B](#))

Calculated diameter of insulation under jacket		Thicknesses of jacket ^a			
mm	inch	Average		Minimum at any point	
		mm	mils	mm	mils
0 – 6.35	0 – 0.250	0.38	15	0.30	12
6.36 – 10.80	0.251 – 0.425	0.64	25	0.51	20
10.81 – 17.80	0.426 – 0.700	0.76	30	0.61	24
17.81 – 38.10	0.701 – 1.500	1.27	50	1.02	40
38.11 – 63.50	1.501 – 2.500	2.03	80	1.62	64

^a Not applicable to a colored coating on an insulated conductor.

Table 25
Maximum length of lay of multiple-conductor cables

(See [4.5.1.3](#))

Number of conductors	Maximum length of lay
2	30 times diameter of finished insulated conductor
3	35 times diameter of finished insulated conductor
4	40 times diameter of finished insulated conductor
5 or more, or assemblies with more than one conductor size	15 times the overall diameter of the assembly, except that in a multiple layer cable, the length of lay of the conductors in any inner layer shall be not more than 20 times the overall diameter of that layer

Table 26
Minimum size of equipment-grounding conductor in multiple-conductor cable Types XHHW-2, XHHW, XHH, RHH, RHW, RHW-2, R90, RW75, RWU75, RWU90, SA, and SF

(See [4.5.2.1](#) and [7.2.2](#))

Circuit conductor size		Size of equipment-grounding conductor							
		75°C (RHW, RW75, RWU75)				90°C (XHHW, XHHW-2, XHH, RHH, RHW-2, R90, RW90, RWU90, SA, SF)			
mm ²	AWG or kcmil	Copper		Aluminum		Copper		Aluminum	
		mm ²	AWG	mm ²	AWG	mm ²	AWG	mm ²	AWG
Copper									
2.08	14 AWG	2.08	14	—	—	2.08	14	—	—
3.31	12	3.31	12			3.31	12		
5.26	10	5.26	10	—	—	5.26	10	—	—
8.37	8	5.26	10	8.37	8	5.26	10	8.37	8
13.3, 21.2	6, 4	8.37	8	13.3	6	8.37	8	13.3	6
26.7	3	8.37	8	13.3	6	13.3	6	21.2	4
33.6 – 67.4	2 – 2/0	13.3	6	21.2	4	13.3	6	21.2	4
85.0	3/0	13.3	6	21.2	4	21.2	4	33.6	2
107 – 152	4/0 – 300 kcmil	21.2	4	33.6	2	21.2	4	33.6	2
177 – 203	350 – 400	26.7	3	42.4	1	26.7	3	42.4	1
253	500	26.7	3	42.4	1	33.6	2	53.5	1/0
304 – 380	600 – 750	33.6	2	53.5	1/0	33.6	2	53.5	1/0
405	800	33.6	2	53.5	1/0	42.4	1	67.4	2/0
456 – 507	900 – 1000	42.4	1	67.4	2/0	42.4	1	67.4	2/0
633	1250	42.4	1	67.4	2/0	53.5	1/0	85.0	3/0
887 – 1010	1500 – 2000	53.5	1/0	85.0	3/0	53.5	1/0	85.0	3/0
Aluminum									
3.31	12 AWG	2.08	14	3.31	12	2.08	14	3.31	12
5.26	10	3.31	12	5.26	10	3.31	12	5.26	10
8.37	8	5.26	10	8.37	8	5.26	10	8.37	8
13.3	6	5.26	10	8.37	8	5.26	10	8.37	8
221.2 – 33.6	4 – 2	8.37	8	13.3	6	8.37	8	13.3	6
42.4	1	8.37	8	13.3	6	13.3	6	21.2	4
53.5 – 85	1/0 – 3/0	13.3	6	21.2	4	13.3	6	21.2	4
107	4/0	13.3	6	21.2	4	21.2	4	33.5	2
126 – 177	250 – 350 kcmil	21.2	4	33.6	2	21.2	4	33.6	2
202	400	21.2	4	33.6	2	26.7	3	42.4	1
253 – 354	500 – 700	26.7	3	42.4	1	26.7	3	42.4	1
380 – 405	750 – 800	26.7	3	42.4	1	33.6	2	53.5	1/0
456 – 507	900 – 1000	33.6	2	53.5	1/0	33.6	2	53.5	1/0
633	1250	33.6	2	53.5	1/0	42.4	1	67.4	2/0
760	1500	42.4	1	67.4	2/0	42.4	1	67.4	2/0
887 – 1010	1750 – 2000	42.4	1	67.4	2/0	53.5	1/0	85.0	3/0

Table 27
Thickness of overall jacket on multiple-conductor cable

(See [4.9.2](#) and Annex [B](#))

Calculated diameter under jacket of round cable or calculated length of major axis under jacket of 2-conductor flat parallel		Thickness of jacket			
mm	inch	Minimum average		Minimum at any point	
		mm	mils	mm	mils
0 – 10.80	0 – 0.425	1.14	45	0.91	36
10.81 – 17.80	0.426 – 0.700	1.52	60	1.22	48
17.81 – 38.10	0.701 – 1.500	2.03	80	1.62	64
38.11 – 63.50	1.501 – 2.500	2.79	110	2.23	88
Over 63.50	Over 2.500	3.55	140	2.85	112

Table 28
Maximum direct-current resistance at 20°C of solid aluminum, bare copper, and coated-copper conductors

(See [5.2.1](#) and [5.2.2](#) and Annex [B](#))

Size of conductor		Aluminum		Bare copper		Coated copper	
mm ²	AWG	Ohms per km	Ohms per 1000 ft	Ohms per km	Ohms per 1000 ft	Ohms per km	Ohms per 1000 ft
2.08	14	–	–	8.45	2.57	8.78	2.68
3.31	12	8.71	2.65	5.31	1.62	5.53	1.68
5.26	10	5.48	1.67	3.34	1.02	3.48	1.06
8.37	8	3.45	1.05	2.10	0.641	2.16	0.659
13.3	6	2.17	0.661	1.32	0.403	1.36	0.415
21.2	4	1.36	0.416	0.832	0.254	0.856	0.261
26.7	3	1.08	0.330	0.660	0.201	0.679	0.207
33.6	2	0.857	0.261	0.523	0.159	0.538	0.164
42.4	1	0.680	0.207	0.415	0.126	0.427	0.130
53.5	1/0	0.539	0.164	0.329	0.100	0.337	0.103
67.4	2/0	0.428	0.130	0.261	0.0795	0.267	0.0814
85.0	3/0	0.339	0.103	0.207	0.0631	0.212	0.0655
107	4/0	0.269	0.0820	0.164	0.0500	0.168	0.0512

Table 29
Maximum direct-current resistance at 20°C of aluminum and bare copper conductors – concentric-stranded Classes B, C, and D; compact-stranded, compressed-stranded, and combination unilay^a

(See [5.2.1](#), [5.2.2](#), and [D.3](#) and Annex [B](#))

Size of conductor		Conductor resistance			
		Aluminum		Bare copper	
mm ²	AWG or kcmil	Ohms per km	Ohms per 1000 ft	Ohms per km	Ohms per 1000 ft
2.08	14 AWG	–	–	8.62	2.62
3.31	12	8.88	2.71	5.43	1.65
5.26	10	5.59	1.70	3.41	1.04
8.37	8	3.52	1.07	2.14	0.654
13.3	6	2.21	0.674	1.35	0.411
21.2	4	1.39	0.424	0.848	0.259
26.7	3	1.10	0.336	0.673	0.205
33.6	2	0.875	0.267	0.534	0.163
42.4	1	0.693	0.211	0.423	0.129
53.5	1/0	0.550	0.168	0.335	0.102
67.4	2/0	0.436	0.133	0.266	0.0811
85.0	3/0	0.346	0.106	0.211	0.0643
107	4/0	0.274	0.0836	0.167	0.0510
127	250 kcmil	0.232	0.0708	0.142	0.0432
152	300	0.194	0.0590	0.118	0.0360
177	350	0.166	0.0505	0.101	0.0308
203	400	0.145	0.0442	0.0885	0.0270
228	450	0.129	0.0393	0.0787	0.0240
253	500	0.116	0.0354	0.0709	0.0216
279	550	0.106	0.0322	0.0644	0.0196
304	600	0.0967	0.0295	0.0590	0.0180
329	650	0.0893	0.0272	0.0545	0.0166
355	700	0.0829	0.0253	0.0506	0.0154
380	750	0.0774	0.0236	0.0472	0.0144
405	800	0.0725	0.0221	0.0443	0.0135
456	900	0.0645	0.0197	0.0393	0.0120
507	1000	0.0580	0.0177	0.0354	0.0108
557	1100	0.0528	0.0161	0.0322	0.00981
608	1200	0.0484	0.0147	0.0295	0.00899
633	1250	0.0464	0.0142	0.0283	0.00863
659	1300	0.0447	0.0136	0.0272	0.00823
709	1400	0.0415	0.0126	0.0253	0.00771
760	1500	0.0387	0.0118	0.0236	0.00719
811	1600	0.0363	0.0111	0.0221	0.00674

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Table 29 Continued

Size of conductor		Conductor resistance			
		Aluminum		Bare copper	
mm ²	AWG or kcmil	Ohms per km	Ohms per 1000 ft	Ohms per km	Ohms per 1000 ft
861	1700	0.0341	0.0104	0.0208	0.00635
887	1750	0.0332	0.0101	0.0202	0.00617
912	1800	0.0322	0.00983	0.0197	0.00600
963	1900	0.0306	0.00931	0.0186	0.00568
1010	2000	0.0290	0.00884	0.0177	0.00540

^a Combination unilay strand sizes for copper are 2.08 – 107 mm² (14 – 4/0 AWG), for aluminum 13.3 – 107 mm² (6 – 4/0 AWG).

Note: Nominal strand configuration and number of wires are found in ASTM B8 or NMX-J-012-ANCE for copper conductors, and NMX-J-032-ANCE for aluminum conductors.

Table 30
Maximum direct-current resistance at 20°C of copper conductors, concentric-stranded and compressed-stranded Class B, C, and D with each strand coated, and combination unilay^a with each strand coated

(See [5.2.1](#), [5.2.2](#), and [D.3](#) and Annex [B](#))

Size of conductor		Class B		Class C and Combination Unilay		Class D	
mm ²	AWG or kcmil	Ohms per km	Ohms per 1000 ft	Ohms per km	Ohms per 1000 ft	Ohms per km	Ohms per 1000 ft
2.08	14 AWG	8.96	2.73	9.15	2.78	9.25	2.82
3.31	12	5.64	1.72	5.75	1.75	5.75	1.75
5.26	10	3.55	1.08	3.55	1.08	3.62	1.10
8.37	8	2.23	0.679	2.23	0.679	2.23	0.679
13.3	6	1.40	0.427	1.41	0.427	1.41	0.427
21.2	4	0.882	0.269	0.882	0.269	0.882	0.269
26.7	3	0.700	0.213	0.700	0.213	0.700	0.213
33.6	2	0.555	0.169	0.555	0.169	0.555	0.169
42.4	1	0.440	0.134	0.440	0.134	0.440	0.134
53.5	1/0	0.349	0.106	0.349	0.106	0.349	0.106
67.4	2/0	0.276	0.0843	0.276	0.0844	0.276	0.0844
85.0	3/0	0.219	0.0669	0.219	0.0669	0.219	0.0669
107	4/0	0.172	0.0525	0.174	0.0530	0.174	0.0530
127	250 kcmil	0.147	0.0449	0.147	0.0449	0.147	0.0449
152	300	0.122	0.0374	0.122	0.0374	0.122	0.0374
177	350	0.105	0.0320	0.105	0.0320	0.105	0.0320
203	400	0.0911	0.0278	0.0920	0.0280	0.0920	0.0280
228	450	0.0810	0.0247	0.0818	0.0248	0.0818	0.0249
253	500	0.0729	0.0222	0.0736	0.0224	0.0736	0.0224
279	550	0.0669	0.0204	0.0669	0.0204	0.0669	0.0204

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