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Size of cable chart

Electrical current is measured in amps. Each wire size, or wire gauge (AWG), has a maximum current limit that a wire can handle before damage occurs. It is important to pick the correct size of wire so that the wire doesn't overheat. The number of devices connected to the circuit usually determines how much current will flow through the wire.

Conductor	Reference method C of Table 4E4A ("Clipped direct")			
	1 two-core cable, single phase a.c. or d.c.		1 three or four-core cable, three phase a.c.	
C.S.A.	Current carrying capacity	Voltage drop	Current carrying capacity	Voltage drop
mm²	A	mV/A/m	A	mV/A/m
1.5	27	31	23	27
2.5	36	19	31	16
4	49	12	42	10
6	62	7.9	53	6.8
10	85	4.7	73	4.0
16	110	2.9	94	2.5
25	146	1.90a 1.85d	124	1.65
35	180	1.35a 1.35d	154	1.15
50	219	1.00a 0.98d	187	0.87

The number of devices connected to the circuit usually determines how much current will flow through the wire. The wire size chart below shows allowable ampacities of insulated conductors rated up to and including 2000 Volts, 60°C through 90°C (140°F through 194°F), not more than three current-carrying conductors in raceway, cable, or earth (directly buried), based on ambient air temperature of 30°C (86°F). Wire Size Chart and Maximum Amp Ratings Source: NFPA 70, National Electrical Code, Table 310.15(B)(16) SIZE 60°C(140°F) 75°C(167°F) 90°C(194°F) 60°C(140°F) 75°C(167°F) 90°C(194°F) SIZE AWGkcmil TYPESTW,UF TYPESRHW,THW,THWN TYPESTBS,SA,SIS TYPESTW,UF TYPESRHW,THW,THWN TYPESTBS,SA,SIS AWGkcmil COPPER ALUMINUM 14 20 20 25 - - - 14 12 25 25 30 20 20 25 12 10 30 35 40 25 30 35 10 8 40 50 55 30 40 45 8 6 55 65 75 40 50 60 6 4 70 85 95 55 65 75 4 3 85 100 110 65 75 85 3 2 95 115 130 75 90 100 2 1 110 130 150 85 100 115 1 1/0 125 150 170 100 120 135 1/0 2/0 145 175 195 115 135 150 2/0 3/0 165 200 225 130 155 175 3/0 4/0 195 230 260 150 180 205 4/0 250 215 255 290 170 205 230 250 300 240 285 320 190 230 255 300 350 260 310 350 210 250 280 350 400 280 335 380 225 270 305 400 500 320 380 430 260 310 350 500 600 355 420 475 285 340 385 600 700 385 460 520 310 375 420 700 750 400 475 535 320 385 435 750 800 410 490 555 330 395 450 800 900 435 520 585 355 425 480 900 1000 455 545 615 375 445 500 1000 1250 495 590 665 405 485 545 1250 1500 520 625 705 435 520 585 1500 1750 545 650 735 455 545 615 1750 2000 560 665 750 470 560 630 2000 Note: View additional wire size charts from the list below. For ambient temperatures other than 30°C, Correction Factors must be taken into consideration. Visit the Terms of Use and Privacy Policy for this site. Your feedback is greatly appreciated. Let us know how we can improve. Link Navigation This article needs additional citations for verification. Please help improve this article by adding citations to reliable sources.

Length (feet)	Current (amps)															
	5	10	15	20	25	30	40	50	60	70						
15	16	12	10	10	8	8	6	6	4	4						
20	14	12	10	8	8	6	6	4	4	4						
25	14	10	8	8	6	6	4	4	2	2						
30	12	10	8	6	6	4	4	2	2	2						
40	12	8	6	6	4	4	4	2	2	1	1/0					
50	10	8	6	4	4	2	2	1	1/0	1/0						
60	10	6	6	4	2	2	2	1	1/0	2/0	2/0					
70	10	6	4	2	2	2	1/0	2/0	2/0	3/0						
80	8	6	4	2	2	1	1/0	2/0	3/0	3/0						
90	8	4	4	2	1	1/0	2/0	3/0	3/0	4/0						

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USA to European Cable Size Chart		
USA Standard Cable Size	Equivalent Cross-Section	Nearest Available Cable Size
20 AWG	0.519 mm2	0.5 mm2 - 0.75 mm2
18 AWG	0.823 mm2	1 mm2
16 AWG	1.31 mm2	1.5 mm2
14 AWG	2.08 mm2	2.5 mm2
12 AWG	3.31 mm2	4 mm2
10 AWG	5.26 mm2	6 mm2
8 AWG	8.37 mm2	10 mm2
6 AWG	13.3 mm2	16 mm2
4 AWG	21.15 mm2	25 mm2
2 AWG	33.62 mm2	35 mm2
1 AWG	42.41 mm2	50 mm2
1/0 AWG	53.49 mm2	70 mm2
2/0 AWG	67.23 mm2	70 mm2
3/0 AWG	85.01 mm2	95 mm2
4/0 AWG	107.2 mm2	120 mm2
250 MCM	126.7 mm2	120 mm2 - 150 mm2
300 MCM	152 mm2	150 mm2
350 MCM	177.3 mm2	185 mm2
400 MCM	202.7 mm2	185 mm2
450 MCM	228 mm2	185 mm2 - 240 mm2
500 MCM	253.4 mm2	240 mm2
550 MCM	278.7 mm2	240 mm2 - 300 mm2
600 MCM	304 mm2	300 mm2
650 MCM	329.4 mm2	300 mm2
700 MCM	354.7 mm2	300 mm2 - 400 mm2
750 MCM	380 mm2	400 mm2
800 MCM	405.4 mm2	400 mm2
850 MCM	430.7 mm2	400 mm2
900 MCM	456 mm2	400 mm2
950 MCM	481.4 mm2	400 mm2
1000 MCM	506.7 mm2	400 mm2 - 630 mm2
1250 MCM	633.4 mm2	630 mm2
1500 MCM	760 mm2	800 mm2
1750 MCM	886.7 mm2	800 mm2 - 1000 mm2
2000 MCM	1013.4 mm2	1000 mm2

Wire Size Chart and Maximum Amp Ratings Source: NFPA 70, National Electrical Code, Table 310.15(B)(16) SIZE 60°C(140°F) 75°C(167°F) 90°C(194°F) 60°C(140°F) 75°C(167°F) 90°C(194°F) SIZE AWGkcmil TYPESTW,UF TYPESRHW,THW,THWN TYPESTBS,SA,SIS TYPESTW,UF TYPESRHW,THW,THWN TYPESTBS,SA,SIS AWGkcmil COPPER ALUMINUM 14 20 20 25 - - - 14 12 25 25 30 20 20 25 12 10 30 35 40 25 30 35 10 8 40 50 55 30 40 45 8 6 55 65 75 40 50 60 6 4 70 85 95 55 65 75 4 3 85 100 110 65 75 85 3 2 95 115 130 75 90 100 2 1 110 130 150 85 100 115 1 1/0 125 150 170 100 120 135 1/0 2/0 145 180 205 4/0 250 215 255 290 170 205 230 250 300 240 285 320 190 230 255 300 350 260 310 350 210 250 280 350 400 280 335 380 225 270 305 400 500 320 380 430 260 310 350 500 600 355 420 475 285 340 385 600 700 385 460 520 310 375 420 700 750 400 475 535 320 385 435 750 800 410 490 555 330 395 450 800 900 435 520 585 355 425 480 900 1000 455 545 615 375 445 500 1000 1250 495 590 665 405 485 545 1250 1500 520 625 705 435 520 585 1500 1750 545 650 735 455 545 615 1750 2000 560 665 750 470 560 630 2000 Note: View additional wire size charts from the list below. For ambient temperatures other than 30°C, Correction Factors must be taken into consideration. Visit the Terms of Use and Privacy Policy for this site. Your feedback is greatly appreciated. Let us know how we can improve. Link Navigation This article needs additional citations for verification. Please help improve this article by adding citations to reliable sources. Unsourced material may be challenged and removed.Find sources: "IEC 60228" – news · newspapers · books · scholar · JSTOR (October 2014) (Learn how and when to remove this template message) IEC 60228 is the International Electrotechnical Commission (IEC)'s international standard on conductors of insulated cables. As of 2023[update] the current version is Third Edition 2004-11[1] Among other things, it defines a set of standard wire cross-sectional areas: 0.5 mm2 0.75 mm2 1 mm2 1.5 mm2 2.5 mm2 4 mm2 6 mm2 10 mm2 16 mm2 25 mm2 35 mm2 50 mm2 70 mm2 95 mm2 120 mm2 150 mm2 185 mm2 240 mm2 300 mm2 400 mm2 500 mm2 630 mm2 800 mm2 1000 mm2 1200 mm2 1400 mm2[note 1] 1600 mm2 1800 mm2[note 1] 2000 mm2 2500 mm2 Comparison of SWG (red), AWG (blue) and IEC 60228 (black) wire gauge sizes from 0.03 to 200 mm² to scale on a 1 mm grid – in the SVG file, hover over a size to highlight it In engineering applications, it is often most convenient to describe a wire in terms of its cross-section area, rather than its diameter, because the cross section is directly proportional to its strength and weight, and inversely proportional to its resistance. The cross-sectional area is also related to the maximum current that a metallic wire can carry safely. This document is one considered fundamental in that it does not contain reference to any other standard. Description The document describes several aspects of the conductors for electrical cables Class This refers to the flexibility and thermal effects i.e temperature of a conductor.

Table 2: 2-core, 3-core & 4-core copper conductor – PVC Sheathed, Unarmoured (VV) Armoured (VVV & VFFV) cables – 650 / 1000 Volts													
Unarmoured				Armoured				VVV				VVFFV	
Ref. of cable	Cross-section (mm²)	Class of conductor	Number of conductors	Min. insulation (mm)	Approx. weight (kg/km)	Approx. weight (kg/km)	Approx. weight (kg/km)	Conductor resistance (Ω/km)	Insulation resistance (MΩ/km)	Insulation resistance (MΩ/km)	Insulation resistance (MΩ/km)	Insulation resistance (MΩ/km)	Insulation resistance (MΩ/km)
2	4	1	1.0	13.25	254	1.4	15.2	260	4.81	35	43	43	48
4	2	1.0	13.95	262	1.4	15.6	302	4.81	35	43	41	46	
2	6	1	1.0	16.25	327	1.4	18.2	462	3.08	45	55	50	58
4	2	1.0	16.95	388	1.4	17.2	751	3.08	45	55	50	58	
2	10	2	1.0	16.95	524	4 x 0.9	17.7	587	1.83	60	73	70	81
4	2	1.0	16.95	747	4 x 0.9	20.2	1102	1.83	76	86	80	105	
2	25	2	1.2	23.20	1002	4 x 0.8	23.8	1434	0.727	105	123	115	122
4	2	1.2	23.80	1384	4 x 0.8	26.2	1981	0.727	125	147	140	149	
3	4	1	1.0	14.00	317	1.4	16.00	659	4.81	30	37	36	42
4	2	1.0	14.00	451	1.4	16.00	713	4.81	30	37	36	42	
3	6	1	1.0	15.00	461	1.4	17.00	770	3.08	39	48	45	53
4	2	1.0	15.00	651	1.4	18.10	1095	3.08	39	48	45	53	
3	10	2	1.0	17.95	697	4 x 0.9	19.00	1000	1.83	62	81	69	69
4	2	1.0	20.70	839	4 x 0.8	21.30	1320	1.83	66	81	77	80	
3	25	2	1.2	24.70	1046	4 x 0.8	26.30	1674	0.727	105	120	105	105
4	2	1.2	24.70	1610	4 x 0.8	27.60	2208	0.727	110	120	105	105	
3	16	2	1.0	16.10	566	1.4	17.10	762	4.81	30	37	36	42
4	2	1.0	16.10	806	1.4	17.10	876	4.81	30	37	36	42	
4	6	2	1.0	17.20	599	4 x 0.9	18.20	901	3.08	39	48	45	53
4	10	2	1.0	20.20	897	4 x 0.8	20.60	1200	1.83	62	81	69	69
4	16	2	1.0	22.70	1165	4 x 0.8	23.30	1621	1.15	66	81	77	60
4	25	2	1.2	27.70	1617	4 x 0.8	27.00	2137	0.60	66	80	68	68
4	25	2	1.2	30.20	2128	4 x 0.8	30.00	2812	0.624	110	120	105	105

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This document is one considered fundamental in that it does not contain reference to any other standard. Description The document describes several aspects of the conductors for electrical cables Class This refers to the flexibility and thermal effects i.e temperature of a conductor. Class 1: Solid conductor Class 2: Stranded conductor intended for fixed installation Class 5: Flexible conductor Class 6: Very Flexible conductor Size The nominal (see below) cross-sectional area for standard conductors including the following: Class 2: Minimum number of strands required to make particular conductor size Class 5 and 6: Maximum diameter of any component strand of the conductor Resistance The maximum permissible resistance per unit length (in ohms per kilometre ~ Ω/km) of each conductor size, class and type (both plain copper and metal coated) Purpose of the document This document and its precursors were created due to a need for a standard definition of cable conductor size. The main problem being that not all copper has the same resistivity value, so, for example, a 4 mm2 conductor from two different suppliers may have different resistance values. Instead this document describes conductors by their nominal size, determined by resistance rather than physical dimensions. This is a key distinction as it makes a standardized definition of conductors based solely on their electrical characteristics. Almost all characteristics of conductors, resistance, current carrying capacity etc. are dependent on the physical dimensions of the conductor. However this document allows an easy reference whereby the standard conductor sizes and reference to physical dimensions are maintained but given an exact meaning in terms of the electrical characteristics of a conductor. Footnotes ~ a b Non-preferred size See also Circular mil, Unusual unit used as the North American Electrical industry standard for wires larger than 4/0. American wire gauge (AWG), used primarily in the US and Canada Standard wire gauge (SWG), the British imperial standard BS3737, superseded by the metric. Stubs Iron Wire Gauge Jewelry wire gauge Body jewelry sizes Electrical wiring Number 8 wire, a term used in the New Zealand vernacular References ~ "IEC 60228:2004 - Conductors of insulated cables".

Conductor	Current carrying capacity and associated voltage drop									
	60°C rubber insulated					90°C rubber insulated ^d				
	C.S.A. 1 two-core cable* or 2 single core cables touching ^f		1 three-core, four-core or five-core cable		1 two-core cable* or 2 single core cables touching ^f		1 three-core, four-core or five-core cable			
d.c. or single phase a.c.		three phase a.c.		d.c. or single phase a.c.		three phase a.c.				
mm ²	A	mV/A/m	A	mV/A/m	A	mV/A/m	A	mV/A/m		
4	30	12	26	10	42	13.2	37	11		
6	39	7.8	34	6.7	55	8.5	49	7.3		
10	51	4.6	47	4.0	76	5.1	66	4.3		
16	73	2.9	63	2.5	103	3.2	89	2.7		
25	97	1.8d 1.85a	83	1.55	136	2.03d 2.04a	119	1.73		
35	140	1.31d 1.32a	102	1.15	200	1.42d 1.46a	146	1.23		
50	175	0.91d 0.93a	124	0.84	250	1.00d 1.02a	177	0.93		
70	216	0.64d 0.67a	158	0.58	310	0.71d 0.73a	225	0.64		
95	258	0.49d 0.53a	192	0.44	369	0.54a 0.57d	273	0.49		
120	302	0.38d 0.43a	222	0.36	432	0.42d 0.46a	316	0.39		
150	347	0.31d 0.36a	255	0.30	497	0.34d 0.39a	363	0.32		
185	394	0.25d 0.32a	291	0.26	564	0.27d 0.33a	414	0.27		
240	471	0.19d 0.27a	343	0.21	673	0.21d 0.28a	487	0.23		
300	541	0.15d 0.24a	394	0.185	773	0.167d 0.25a	560	0.195		
400	644	0.115d 0.21a	-	-	885	0.127d 0.22a	-	-		
500	738	0.090d 0.20a	-	-	1017	0.100d 0.20a	-	-		
630	861	0.068d 0.185a	-	-	1190	0.074d 0.190a	-	-		

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Body jewelry sizes
Electrical wiring
Number 8 wire, a term used in the New Zealand vernacular
References
^ "IEC 60228:2004 - Conductors of insulated cables". 2004. Retrieved 2020-05-15.
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