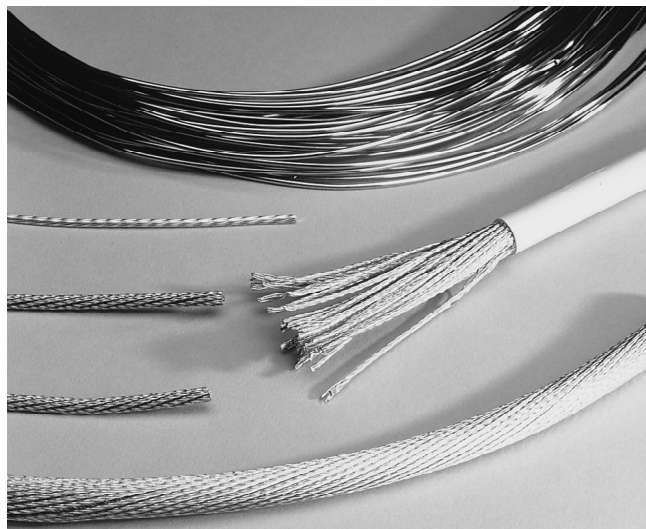


# Conductor Sizes, Strandings, and Resistance Values

## Applications

The conductors used with Raychem wires are concentric in construction and are specifically designed for use with thin-wall insulations. The table below gives nominal values for tin-plated copper, silver-plated copper, and silver-plated high-strength copper alloy (SPHSCA) constructions. Typically, tin-plated copper is suitable for use in applications up to 150°C and silver-plated copper in applications up to 200°C (SPEC 55 wire only).

The current-carrying capacities assume a maximum 60°C increase in temperature of a single wire in free air at 40°C. For details of performance in conditions other than 40°C, refer to Raychem Technical Services.



## Nominal Values of American Wire Gauge (AWG) and Metric Conductors

Size AWG	Approx. metric equivalent (mm <sup>2</sup> )	Stranding		Outside diameter (min.–max)		Resistance in Ω/km (Ω/1000 ft)			Current-carrying capacity (amps)
		Metric conductor No./mm	AWG conductor (No./AWG)	Metric conductor mm	AWG conductor (in)	Tin-copper Metric (AWG cond. (AWG))	Silver-copper Metric (AWG cond. (AWG))	SPHSCA Metric (AWG cond. (AWG))	
32	0.04	—	(7/40)	0.22–0.25	—	608.0 (157)	561.0 (N/A)	638.0 (N/A)	1.0
30	0.06	7/0.08	(7/38)	0.22–0.33	(0.011–0.013)	384.0 (95)	359.0 (100.6)	408.0 (117.4)	3.0
28	0.09	7/0.10	(7/36)	0.36–0.41	(0.013–0.016)	259.0 (68.6)	243.0 (63.8)	276.0 (74.4)	4.0
26	0.15	19/0.12	(19/34)	0.46–0.51	(0.018–0.021)	141.0 (41.2)	152.0 (38.4)	153.0 (44.8)	5.5
24	0.25	19/0.10	(19/36)	0.55–0.62	(0.022–0.033)	94.7 (26.2)	89.0 (24.3)	109.0 (28.4)	7.5
22	0.40	19/0.12	(19/34)	0.70–0.80	(0.029–0.033)	60.0 (16.2)	58.1 (15.1)	N/A (N/A)	10.0
20	0.60	19/0.15	(19/32)	0.95–1.00	(0.037–0.041)	33.2 (9.8)	32.2 (9.2)	N/A (N/A)	13.0
18	1.00	19/0.20	(19/30)	1.20–1.26	(0.046–0.051)	21.1 (6.2)	20.5 (5.8)	N/A (N/A)	17.5
16	1.20	19/0.25	(19/29)	1.45–1.51	(0.051–0.058)	14.5 (4.8)	14.1 (4.5)	N/A (N/A)	20.0
14	2.00	19/0.30	(37/27)	1.68–1.78	(0.064–0.073)	10.9 (3.01)	10.5 (2.89)	N/A (N/A)	28.0
12	3.00	37/0.32	(37/28)	2.12–2.24	(0.083–0.090)	6.8 (2.01)	6.6 (1.89)	N/A (N/A)	37.5
10	5.00	37/0.40	(37/26)	2.70–2.90	(0.106–0.114)	4.2 (1.25)	4.1 (1.28)	N/A (N/A)	53.0
8	9.0	133/0.29	—	—	(0.157–0.172)	N/A (0.70)	N/A (0.67)	N/A (N/A)	78.0
6	13.55	133/0.36	—	—	(0.198–0.216)	N/A (0.45)	N/A (0.42)	N/A (N/A)	105.0
4	21.30	133/0.45	—	—	(0.250–0.274)	N/A (0.27)	N/A (0.27)	N/A (N/A)	142.0
2	33.55	665/0.25	—	—	(0.320–0.340)	N/A (0.18)	N/A (0.18)	N/A (N/A)	196.0
0	53.60	1045/0.25	—	—	(0.394–0.425)	N/A (0.12)	N/A (0.12)	N/A (N/A)	266.0

### Note:

- Abbreviations:  
 Cond. = Conductor  
 SPHSCA = Silver-plated high-strength copper  
 Tin-copper = Tin-plated copper  
 Silver-copper = Silver-plated copper  
 N/A = Not available
- For product details, please refer to relevant specification control drawing.

## Current Derating Factors for Wire Bundles in Free Air

No. of wires	2	3	4	7	9	12	15	18	21	24	27	30	37
Derating factor	.825	.73	.66	.54	.49	.43	.39	.36	.33	.31	.29	.28	.26