



Percon®17 Copper Alloy Conductor Wire

Introduction

Percon® 17 was developed to replace cadmium copper C162, specifically soft temper cadmium copper. This alloy is also available in hard temper.

Key Attributes

- › Is not engineered for Conductors specifying ASTM B624 [see Percon 24 and Percon 28]
- › Does not contain any cadmium or environmentally hazardous elements.
- › Has excellent resistance to corrosive environments.

Percon 17 is available in bare, or plated with silver, nickel, or tin.

Custom constructions are available, please contact the sales department.

Fisk Alloy Wire, Inc.
P.O. Box 26
10 Thomas Road
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Physical Properties and Specifications

PHYSICAL PROPERTIES		
	HARD DRAWN	SOFT
Tensile	95 ksi	58 ksi
Elongation	1%	6%
Electrical Conductivity	80% IACS @ 68°F	85% IACS @ 68°F
Electrical Resistivity	12.96 Ω-cmil/ft @ 68°F	12.20 Ω-cmil/ft @ 68°F
Melting Point	1986°F	1986°F
Density	0.319 lbs/in ³	0.319 lbs/in ³
Thermal Coefficient of Resistance	0.00179/°F	0.00179/°F

SPECIFICATIONS
ASTM B250
ASTM B465
ASTM B888

PHYSICAL PROPERTIES - METRIC		
	HARD DRAWN	SOFT
Tensile	655 MPa	400 MPa
Elongation	1%	6%
Electrical Conductivity	0.464 MΩ/cm @ 20°C	0.493 MΩ/cm @ 20°C
Electrical Resistivity	2.155 MΩ/cm @ 20°C	2.028MΩ/cm @ 20°C
Melting Point	1078°C	1078°C
Density	8.83 g/cm ³	8.83 g/cm ³
Thermal Coefficient of Resistance	0.00322/°C	0.00322/°C

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Alloy Characteristics

ALLOY NAME	TEMPER	TENSILE STRENGTH	CONDUCTIVITY	ELONGATION	FLEX LIFE	MECHANICAL PROCESSING	AVAILABLE PLATINGS	SOFTENING RESISTANCE
COPPER	Soft	32,000	100%	15%	P	E	S, N, T	-
COPPER	Hard	60,000	96%	1%	P	E	S, N, T	P
PERCON 24	Soft	60,000	90%	8%	E	E	S, N	E
C18135	Soft	60,000	90%	8%	E	E	S, N	E
PERCON 11	Hard	80,000	90%	1/5	G	VG	S, N, T	VG
PERCON 17	Soft	58,000	85%	6%	G	E	S, N	VG
PERCON 17	Hard	95,000	80%	1%	VG	E	S, N, T	G
PERCON 19	Hard	110,000	73%	1%	E	E	S, N, T	G
CALCIUM COPPER	Hard	100,000	80%	1%	VG	VG	S, N, T	G
CCS (40%)	Hard	110,000	39%	1%	E	G	S, N, T	G

E = Excellent, VG = Very Good, G = Good, P = Poor, S = Silver Plate, N = Nickel Plate, T = Tin Plate

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7-Strand Constructions

BARE PERCON 17 - HARD DRAWN											
AWG	CONST	DIAMETER				RESISTANCE		WEIGHT		BREAK STRENGTH	
		inch		mm		max		max		min	
		min	max	min	max	Ω/mft	Ω/km	lb/mft	kg/km	lb	N
24	7/32	0.0237	0.0243	0.602	0.617	30.0	98.4	1.39	2.07	32.6	145
26	7/34	0.0186	0.0192	0.472	0.488	48.7	159.8	0.871	1.30	20.1	89.4
28	7/36	0.0147	0.0147	0.373	0.389	77.9	255.6	0.553	0.823	12.5	55.6
30	7/38	0.0117	0.0117	0.297	0.312	122.6	402.2	0.356	0.530	7.94	35.3
32	7/40	0.0090	0.0090	0.229	0.244	207.9	682.1	0.218	0.324	4.70	20.9
34	7/42	0.0072	0.0072	0.183	0.198	324.9	1,066	0.144	0.214	3.01	13.4
36	7/44	0.0057	0.0057	0.145	0.160	516.5	1,695	0.0935	0.139	1.89	8.41
38	7/46	0.0044	0.0044	0.110	0.126	857.1	2,182	0.0594	0.0884	1.13	5.02

BARE PERCON 17 - SOFT TEMPER											
AWG	CONST	DIAMETER				RESISTANCE		WEIGHT		BREAK STRENGTH	
		inch		mm		max		max		min	
		min	max	min	max	Ω/mft	Ω/km	lb/mft	kg/km	lb	N
22	7/30	0.0297	0.0303	0.754	0.770	18.1	59.4	2.18	3.24	31.3	139
24	7/32	0.0237	0.0243	0.602	0.617	28.2	92.5	1.39	2.07	19.9	88.5
26	7/34	0.0186	0.0192	0.472	0.488	45.8	150.3	0.871	1.30	12.3	54.7
28	7/36	0.0147	0.0153	0.373	0.389	73.4	240.8	0.553	0.823	7.66	34.1
30	7/38	0.0117	0.0123	0.297	0.312	115.4	378.6	0.356	0.530	4.85	21.6
32	7/40	0.0090	0.0096	0.229	0.244	195.7	642.1	0.218	0.324	2.87	12.8
34	7/42	0.0072	0.0078	0.183	0.198	305.8	1,003	0.144	0.214	1.84	8.18
36	7/44	0.0057	0.0063	0.145	0.160	486.1	1,595	0.0935	0.139	1.15	5.12
38	7/46	0.00435	0.0050	0.110	0.126	815.1	2,674	0.0594	0.0884	0.689	3.06

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19-Strand Unilay Constructions

BARE PERCON 17 - HARD DRAWN											
AWG	CONST	DIAMETER				RESISTANCE		WEIGHT		BREAK STRENGTH	
		inch		mm		max		max		min	
		min	max	min	max	Ω/mft	Ω/km	lb/mft	kg/km	lb	N
18	19/30	0.0467	0.0476	1.186	1.209	7.27	23.9	5.73	8.53	139	618
20	19/32	0.0372	0.0382	0.945	0.970	11.4	37.4	3.69	5.49	88.5	394
22	19/34	0.0292	0.0302	0.742	0.767	18.6	61.0	2.32	3.45	54.5	242
24	19/36	0.0231	0.0240	0.587	0.610	29.6	97.1	1.46	2.17	34.0	151
26	19/38	0.0184	0.0193	0.467	0.490	46.9	153.9	0.946	1.41	21.6	96.1
28	19/40	0.0141	0.0151	0.358	0.384	79.1	259.5	0.576	0.857	12.8	56.9
30	19/42	0.0113	0.0123	0.287	0.312	123.1	403.9	0.383	0.570	8.17	36.3
32	19/44 ⁽¹⁾	0.0095	0.0105	0.241	0.267	192.8	632.5	0.257	0.382	5.12	22.8
34	19/46 ⁽¹⁾	0.0074	0.0084	0.188	0.213	322.1	1,057	0.162	0.241	3.06	13.6
(1) True Concentric											
BARE PERCON 17 - SOFT TEMPER											
AWG	CONST	DIAMETER				RESISTANCE		WEIGHT		BREAK STRENGTH	
		inch		mm		max		max		min	
		min	max	min	max	Ω/mft	Ω/km	lb/mft	kg/km	lb	N
18	19/30	0.0467	0.0476	1.186	1.209	6.84	22.4	5.73	8.53	84.8	377
20	19/32	0.0372	0.0382	0.945	0.970	10.7	35.1	3.69	5.49	54.0	240
22	19/34	0.0292	0.0302	0.742	0.767	17.5	57.4	2.32	3.45	33.3	148
24	19/36	0.0231	0.0240	0.587	0.610	27.9	91.5	1.46	2.17	20.8	92.5
26	19/38	0.0184	0.0193	0.467	0.490	44.1	144.7	0.946	1.41	13.2	58.7
28	19/40	0.0141	0.0151	0.358	0.384	74.5	244.4	0.576	0.857	7.79	34.7
30	19/42	0.0113	0.0123	0.287	0.312	115.9	380.2	0.383	0.570	4.99	22.2
32	19/44 ⁽¹⁾	0.0095	0.0105	0.241	0.267	181.4	595.1	0.257	0.382	3.12	13.9
34	19/46 ⁽¹⁾	0.0074	0.0084	0.188	0.213	303.1	994.4	0.162	0.241	1.87	8.32

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Single End Constructions

BARE PERCON 17 - HARD DRAWN											
AWG	DIAMETER					RESISTANCE		WEIGHT		BREAK STRENGTH	
	inch			mm		max		max		min	
	Nom	min	max	min	max	Ω/mft	Ω/km	lb/mft	kg/km	lb	N
30	0.0100	0.0099	0.0101	0.251	0.257	132.2	433.7	0.307	0.458	7.31	32.5
31	0.0089	0.0088	0.0090	0.224	0.229	167.4	549.2	0.244	0.363	5.78	25.7
32	0.0080	0.0079	0.0081	0.201	0.206	207.7	681.4	0.197	0.293	4.66	20.7
33	0.0070	0.0069	0.0071	0.175	0.180	272.2	893.0	0.152	0.226	3.55	15.8
34	0.0063	0.0062	0.0064	0.157	0.163	337.1	1,106	0.123	0.183	2.87	12.8
35	0.0056	0.0055	0.0057	0.140	0.145	428.4	1,405	0.0978	0.146	2.26	10.1
36	0.0050	0.0049	0.0051	0.124	0.130	539.8	1,771	0.0783	0.117	1.79	7.96
37	0.0045	0.0044	0.0046	0.112	0.117	669.4	2,196	0.0637	0.0948	1.44	6.41
38	0.0040	0.0039	0.0041	0.099	0.104	852.1	2,796	0.0506	0.0753	1.129	5.02
39	0.0035	0.0034	0.0036	0.086	0.091	1,121	3,678	0.0390	0.0580	0.863	3.84
40	0.0031	0.0030	0.0032	0.076	0.081	1,440	4,724	0.0308	0.0458	0.672	2.99
41	0.0028	0.0027	0.0029	0.069	0.074	1,848	6,063	0.0253	0.0377	0.544	2.42
42	0.0025	0.0024	0.0026	0.061	0.066	2,339	7,674	0.0203	0.0302	0.430	1.91
43	0.0022	0.0021	0.0023	0.053	0.058	3,054	10,020	0.0159	0.0237	0.329	1.46
44	0.0020	0.0019	0.0021	0.048	0.053	3,731	12,241	0.0133	0.0198	0.269	1.20
45	0.00178	0.00166	0.0019	0.042	0.048	4,888	16,037	0.0104	0.0155	0.206	0.916
46	0.00157	0.00147	0.00167	0.037	0.042	6,234	20,453	0.0084	0.0125	0.161	0.716
47	0.00140	0.0013	0.0015	0.033	0.038	8,094	26,555	0.0067	0.0100	0.124	0.552
48	0.00120	0.0011	0.0013	0.028	0.033	10,365	34,005	0.0054	0.0080	0.097	0.431
49	0.00110	0.00100	0.0012	0.025	0.030	13,205	43,323	0.0044	0.0065	0.067	0.338
50	0.00099	0.00089	0.00109	0.023	0.028	17,159	56,295	0.0035	0.0052	0.059	0.262

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BARE PERCON 17 - SOFT TEMPER											
AWG	DIAMETER					RESISTANCE		WEIGHT		BREAK STRENGTH	
	inch			mm		max		max		min	
	Nom	min	max	min	max	Ω/mft	Ω/km	lb/mft	kg/km	lb	N
30	0.0100	0.0099	0.0101	0.251	0.257	124.5	408.5	0.307	0.458	4.46	19.8
31	0.0089	0.0088	0.0090	0.224	0.229	157.6	517.1	0.244	0.363	3.53	15.7
32	0.0080	0.0079	0.0081	0.201	0.206	195.5	641.4	0.197	0.293	2.84	12.6
33	0.0070	0.0069	0.0071	0.175	0.180	249.0	816.9	0.152	0.226	2.23	9.92
34	0.0063	0.0062	0.0064	0.157	0.163	317.4	1,041	0.123	0.183	1.75	7.78
35	0.0056	0.0055	0.0057	0.140	0.145	403.3	1,323	0.0978	0.146	1.38	6.14
36	0.0050	0.0049	0.0051	0.124	0.130	508.2	1,667	0.0783	0.117	1.09	4.85
37	0.0045	0.0044	0.0046	0.112	0.117	630.2	2,068	0.0637	0.0948	0.882	3.92
38	0.0040	0.0039	0.0041	0.099	0.104	802.2	2,632	0.0506	0.0753	0.693	3.08
39	0.0035	0.0034	0.0036	0.086	0.091	1,055	3,461	0.0390	0.0580	0.527	2.34
40	0.0031	0.0030	0.0032	0.076	0.081	1,356	4,449	0.0308	0.0458	0.410	1.82
41	0.0028	0.0027	0.0029	0.069	0.074	1,674	5,492	0.0253	0.0377	0.332	1.48
42	0.0025	0.0024	0.0026	0.061	0.066	2,118	6,949	0.0203	0.0302	0.262	1.17
43	0.0022	0.0021	0.0023	0.053	0.058	2,767	9,078	0.0159	0.0237	0.201	0.894
44	0.0020	0.0019	0.0021	0.048	0.053	3,380	11,089	0.0133	0.0198	0.164	0.730

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