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## Percon®19 Copper Alloy Conductor Wire

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### Introduction

Percon® 19 is a cadmium free copper alloy developed to replace cadmium copper C162.

### Key Attributes

- › Engineered to be hard drawn for high strength and high flex life, exceeding the performance of cadmium copper.
- › Greater and more uniform flex life than cadmium copper.
- › Excellent resistance to corrosive environments.
- › Does not contain any cadmium or environmentally hazardous elements.

Percon 19 is available hard drawn, bare or plated with nickel, tin, silver or gold.

Custom constructions are available, please contact the sales department.

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Fisk Alloy Wire, Inc.  
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## Physical Properties and Specifications

PHYSICAL PROPERTIES		
PROPERTY	ENGLISH	METRIC
Tensile	110 ksi	758 MPa
Elongation	1%	1%
Electrical Conductivity	73% IACS @ 68 °F	0.423 MΩ/cm @ 20°C
Electrical Resistivity	14.21 Ω-cmil/ft @ 68°F	2.362 μΩ-cm @ 20°C
Melting Point	----	----
Density	0.321 lbs/in <sup>3</sup>	8.89 g/cm <sup>3</sup>
Thermal Coefficient of Resistance	0.00169/°F	0.00305/°C

SPECIFICATIONS
ASTM B250

## 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 15	Hard	95,000	70%	1%	VG	G	S, N, T	P
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
PERCON 24	Soft	60,000	90%	8%	E	E	S, N	E
PERCON 28	Soft	80,000	85%	6%	E	E	S, N	E
PERCON HS-95	Soft	95,000	63%	6%	E	VG	S, N	VG
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 19 - 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
22	7/30	0.0297	0.0303	0.754	0.770	21.0	68.9	2.19	3.26	59.3	264
24	7/32	0.0237	0.0243	0.602	0.617	32.9	107.9	1.41	2.10	37.7	168
26	7/34	0.0186	0.0192	0.472	0.488	53.5	175.5	0.879	1.31	23.2	103
28	7/36	0.0147	0.0153	0.373	0.389	85.6	280.8	0.558	0.830	14.5	64.5
30	7/38	0.0117	0.0123	0.297	0.312	135.2	443.6	0.361	0.537	9.20	40.9
32	7/40	0.0090	0.0096	0.229	0.244	228.4	749.3	0.220	0.327	5.44	24.2
34	7/42	0.0072	0.0072	0.183	0.198	356.9	1,171	0.145	0.216	3.48	15.5
36	7/44	0.0057	0.0057	0.145	0.160	569.5	1,868	0.0946	0.141	2.18	9.70
38	7/46	0.0044	0.0044	0.110	0.126	951.4	3,121	0.0598	0.0890	1.31	5.83
40	7/48	0.0034	0.0034	0.086	0.102	1,582	5,190	0.0385	0.0573	0.786	3.50
42	7/50	0.0027	0.0027	0.069	0.084	2,596	8,517	0.0255	0.0379	0.479	2.13

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# Percon®19 Copper Alloy Conductor Wire

## 19-Strand Unilay Constructions

BARE PERCON 19 - 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	7.98	26.2	5.77	8.59	161.0	716
20	19/32	0.0373	0.0382	0.947	0.970	12.5	41.0	3.71	5.52	102.0	454
22	19/34	0.0293	0.0302	0.744	0.767	20.4	66.9	2.32	3.45	63.1	281
24	19/36	0.0231	0.0241	0.587	0.612	32.6	107	1.47	2.19	39.4	175
26	19/38	0.0184	0.0193	0.467	0.490	51.4	169	0.951	1.42	25.0	111
28	19/40	0.0142	0.0151	0.361	0.384	86.9	285	0.580	0.863	14.8	65.8
30	19/42	0.0113	0.0123	0.287	0.312	135.8	446	0.383	0.570	9.45	42.0
32	19/44 <sup>(1)</sup>	0.0095	0.0105	0.241	0.267	211.3	693	0.259	0.385	5.93	26.4
34	9/46 <sup>(1)</sup>	0.0074	0.0084	0.188	0.213	0.0084	1,158	0.164	0.244	3.55	15.8
(1) True Concentric											

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## Single End Constructions

BARE PERCON 19 - 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	145.0	475.7	0.309	0.460	8.47	37.7
31	0.0089	0.0088	0.0090	0.224	0.229	183.5	602.0	0.245	0.365	6.69	29.8
32	0.0080	0.0079	0.0081	0.201	0.206	227.6	746.7	0.198	0.295	5.39	24.0
33	0.0070	0.0069	0.0071	0.175	0.183	289.9	951.1	0.157	0.234	4.23	18.8
34	0.0063	0.0062	0.0064	0.157	0.163	369.6	1213	0.124	0.185	3.32	14.8
35	0.0056	0.0055	0.0057	0.140	0.145	469.6	1541	0.0983	0.146	2.61	11.6
36	0.0050	0.0049	0.0051	0.124	0.130	591.7	1941	0.0787	0.117	2.07	9.21
37	0.0045	0.0044	0.0046	0.112	0.117	733.8	2407	0.0640	0.0952	1.67	7.43
38	0.0040	0.0039	0.0041	0.099	0.104	934.0	3064	0.0509	0.0757	1.31	5.83
39	0.0035	0.0034	0.0036	0.086	0.091	1,229	4032	0.0392	0.0583	0.999	4.44
40	0.0031	0.0030	0.0032	0.076	0.081	1,579	5180	0.0310	0.0461	0.778	3.46
41	0.0028	0.0027	0.0029	0.0686	0.0737	1,949	6394	0.0254	0.0378	0.630	2.80
42	0.0025	0.0024	0.0026	0.0610	0.0660	2,466	8090	0.0205	0.0305	0.498	2.22
43	0.0022	0.0021	0.0023	0.0533	0.0584	3,222	10571	0.016	0.0238	0.381	1.69
44	0.0020	0.0019	0.0021	0.0483	0.0533	3,935	12910	0.0133	0.0198	0.312	1.39
45	0.00178	0.00166	0.0019	0.0422	0.0472	5,156	16916	0.0105	0.0156	0.238	1.06
46	0.00157	0.00147	0.00167	0.0373	0.0424	6,575	21571	0.00844	0.01256	0.187	0.832
47	0.00140	0.0013	0.0015	0.033	0.038	8,406	27578	0.0068	0.0101	0.146	0.649
48	0.00120	0.0011	0.0013	0.029	0.034	10,932	35866	0.00543	0.00808	0.112	0.498
49	0.00110	0.00100	0.0012	0.026	0.031	13,927	45692	0.00443	0.00659	0.088	0.391
50	0.00099	0.00089	0.00109	0.0226	0.0277	17,936	58844	0.0036	0.00534	0.068	0.302

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