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## Percon®HS-95 Copper Alloy Conductor Wire

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### Introduction

Percon® HS-95 is a high strength alloy optimally suited for fine and ultra-fine single end wire and stranded constructions. The alloy is engineered and so named to provide a minimum tensile strength of 95,000 psi in soft temper. This provides more than half the conductor break strength specified in ASTM B 624 or, conversely, the same conductor strength but at two AWG wire sizes smaller.

### Key Attributes

- › Very high strength alloy conductor.
- › Resists thermal softening when exposed to elevated temperatures.
- › Excellent resistance to corrosive environments.
- › Has identical chemical, mechanical, and electrical properties to CS-95.

Percon HS-95 is available plated with silver or nickel.

Custom constructions are available, please contact the sales department.

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## Physical Properties and Specifications

PHYSICAL PROPERTIES		
	SOFT TEMPER	HARD DRAWN
Tensile	95 ksi	130 ksi
Elongation	6%	1%
Electrical Conductivity	63% IACS @ 68° F	40% IACS @ 68° F
Electrical Resistivity	16.46 cir mil ohm/ft @ 68°F	25.93 cir mil ohm/ft @ 68°F
Melting Point	-	-
Density	0.317 lbs/in <sup>3</sup>	0.317 lbs/in <sup>3</sup>
Thermal Coefficient of Resistance	0.0011/°F	0.0011/°F

PHYSICAL PROPERTIES - METRIC		
	SOFT TEMPER	HARD DRAWN
Tensile	655 MPa	896 MPa
Elongation	6%	1%
Electrical Conductivity	0.365 megmho/cm @ 20° C	0.232 megmho/cm @ 20° C
Electrical Resistivity	2.736 microhm-cm @ 20°C	4.311 microhm-cm @ 20°C
Melting Point	-	-
Density	8.77g/cm <sup>3</sup>	8.77g/cm <sup>3</sup>
Thermal Coefficient of Resistance	0.002/°C	0.002/°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 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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## 19-Strand Constructions

SILVER PLATED PERCON HS-95 - 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	9.25	29.0	5.90	8.78	139	618
20	19/32	0.0373	0.0382	0.947	0.970	14.5	45.5	3.80	5.66	88.5	394
22	19/34	0.0293	0.0302	0.744	0.744	23.6	73.9	2.37	3.53	54.5	242
24	19/36	0.0231	0.0241	0.587	0.587	37.8	118	1.51	2.25	34.0	151
26	19/38	0.0184	0.0193	0.467	0.467	59.6	185	0.978	1.46	21.6	96.1
28	19/40	0.0142	0.0151	0.361	0.361	100.7	316	0.597	0.888	12.8	56.9
30	19/42	0.0113	0.0123	0.287	0.287	157.4	493	0.396	0.589	8.17	36.3
32 <sup>(1)</sup>	19/44	0.0095	0.0105	0.241	0.241	244.8	803.2	0.259	0.385	5.12	22.8
34 <sup>(1)</sup>	19/46	0.0074	0.0084	0.188	0.188	409.0	1342.0	0.165	0.246	3.06	13.6
(1) These constructions will have 10% silver plate											

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# Percon® HS-95 Copper Alloy Conductor Wire

## 7-Strand Constructions

SILVER PLATED PERCON HS-95 - SOFT TEMPER												
AWG	CONST	PLATE %	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	24.3	79.7	2.17	3.23	51.2	228
24	7/32	-	0.0237	0.0243	0.602	0.617	38.2	125.2	1.40	2.08	32.6	145
26	7/34	-	0.0186	0.0192	0.472	0.488	62.0	203.3	.873	1.30	20.1	89.4
28	7/36	-	0.0147	0.0153	0.373	0.389	99.2	325.5	0.555	0.826	12.5	55.6
30	7/38	-	0.0117	0.0123	0.297	0.312	156.6	513.9	0.360	0.536	7.94	35.3
32	7/40	-	0.0090	0.0096	0.229	0.244	264.7	868.4	0.220	0.327	4.70	20.9
34	7/42	-	0.0072	0.0078	0.183	0.198	413.6	1,357.0	0.145	0.216	3.01	13.4
36	7/44	-	0.0057	0.0063	0.145	0.160	659.9	2,165.0	0.0953	0.142	1.89	8.41
38	7/46	-	0.0044	0.0050	0.111	0.125	1,102.0	3,617.0	0.0602	0.0896	1.129	5.02
40	7/48	-	0.0034	0.0040	0.0864	0.101	1,833.0	6,014.0	0.0388	0.0577	0.679	3.02
42 <sup>(1)</sup>	7/50	15	0.0027	0.0033	0.0686	0.083	3,008.0	9,867.0	0.0257	0.0382	0.414	1.84
44 <sup>(1)</sup>	7/52	15	0.0022	0.0025	0.056	0.063	4,470.0	14,666.0	0.0149	0.0222	0.278	1.24
46 <sup>(1)</sup>	7/54	15	0.0017	0.0020	0.0432	0.050	7,332.0	24,056.0	0.097	0.0144	0.170	0.76

(1) These constructions will have 10% silver plate

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## Single End Construction

SILVER PLATED PERCON HS-95 - SOFT TEMPER												
AWG	PLATE %	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	168.0	551.1	0.306	0.455	7.31	32.5
31	---	0.0089	0.0088	0.0090	0.224	0.229	212.6	697.4	0.243	0.362	5.78	25.7
32	---	0.0080	0.0079	0.0081	0.201	0.206	263.8	865.4	0.197	0.293	4.66	20.7
33	---	0.0071	0.0070	0.0072	0.178	0.183	336.0	1,102.0	0.156	0.232	3.66	16.3
34	---	0.0063	0.0062	0.0064	0.157	0.163	428.2	1,405.0	0.123	0.183	2.87	12.8
35	---	0.0056	0.0055	0.0057	0.140	0.145	544.2	1,785.0	0.098	0.146	2.26	10.1
36	---	0.0050	0.0049	0.0051	0.124	0.130	685.6	2,249.0	0.078	0.117	1.79	7.96
37	---	0.0045	0.0044	0.0046	0.112	0.117	850.3	2,790.0	0.064	0.0949	1.44	6.41
38	---	0.0040	0.0039	0.0041	0.099	0.104	1,082.0	3,51.0	0.051	0.0755	1.129	5.02
39	---	0.0035	0.0034	0.0036	0.086	0.091	1,424.0	4,672.0	0.039	0.0583	0.863	3.84
40	---	0.0031	0.0030	0.0032	0.0762	0.0813	1,829.0	6,001.0	0.031	0.0461	0.672	2.99
41	---	0.0028	0.0027	0.0029	0.0686	0.0737	2,258.0	7,409.0	0.026	0.0379	0.544	2.42
42	---	0.0025	0.0024	0.0026	0.0610	0.0660	2,858.0	9,337.0	0.021	0.0305	0.430	1.91
43	---	0.0022	0.0021	0.0023	0.0533	0.0584	3,733.0	12,247.0	0.016	0.0240	0.329	1.46
44	---	0.0020	0.0019	0.0021	0.0483	0.0533	4,560.0	14,961.0	0.013	0.0199	0.269	1.20
45	---	0.00176	0.00166	0.00186	0.0422	0.0472	5,974.0	19,600.0	0.011	0.0158	0.206	0.916
46	---	0.00157	0.00147	0.00167	0.0373	0.0424	7,618.0	24,994.0	0.009	0.0128	0.173	0.716
47 <sup>(1)</sup>	---	0.00140	0.00130	0.00150	0.0330	0.0381	15,342.0	50,334.0	0.007	0.0103	0.161	0.770
48 <sup>(1)</sup>	---	0.000124	0.00124	0.00134	0.0290	0.0340	19,950.0	65,454.0	0.006	0.0082	0.133	0.592
49 <sup>(1,2)</sup>	15	0.000111	0.00101	0.00121	0.0257	0.0307	25,417.0	83,388.0	0.005	0.0067	0.104	0.463
50 <sup>(1,2)</sup>	15	0.00099	0.00089	0.00109	0.0226	0.0277	32,733.0	107,390.0	0.004	0.0055	0.081	0.360

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51 <sup>(1,2)</sup>	15	0.00089	0.00081	0.00096	0.0206	0.0244	40,010.0	131,267.0	0.003	0.0042	0.066	0.294
52 <sup>(1,2)</sup>	15	0.00079	0.00071	0.00086	0.0180	0.0218	52,165.0	171,146.0	0.002	0.0034	0.051	0.227
53 <sup>(1,2)</sup>	15	0.00070	0.00065	0.00075	0.0165	0.0191	61,367.0	201,335.0	0.002	0.0025	0.043	0.191
54 <sup>(1,2)</sup>	15	0.00062	0.00057	0.00067	0.0145	0.0170	79,801.0	261,816.0	0.001	0.0021	0.033	0.147
(1) These constructions will have 10% silver plate (2) These single end sizes will be hard temper												

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