

HM Wire International, Inc.

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REQUEST
A
QUOTATION

Alloy 120 - Precision Resistance

Chemical Composition

Nominal Composition	Fe%	Ni%	
	30	70	

Mechanical Properties

Melting Point	1,425°C (2,600°F)
Max Operating Temp	590°C (1,095°F)
Soft Tensile	70 - 100,000 PSI
Elongation	15 - 30%
Yield Point	40 - 60,000 PSI

Physical Properties

Ω/cir.mil.ft:	120
Conductivity:	29 w / m K
Coeffiecent of Linear Expansion , 10 ⁻⁶ :	15.0 (20 - 100°C)
Temp. coeffiecent of Resistance:	0.0045
Weight/Density:	0.305 lbs/cu.in. (8.4 g/cm ³)
Specific Heat:	0.125 cal./gm @ 20°C
Specific Gravity:	8.46

*To be used as a guideline only.

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Resistance Chart

Diameter			Resistance @ 68°F/20°C Ω/ft	Sq. in/Ω	Weight	Ω/lb.	Ft/Lb	Cross Sectional area (in ²)
AWG	Inches	Mm		68°F	lb/1000 ft			
20	0.032	0.812	0.1171	9.800	2.94	39.78	339.7	0.000804
21	0.0285	0.723	0.1477	6.930	2.317	63.75	431.6	0.000638
22	0.0253	0.644	0.1860	4.850	1.825	101.9	547.9	0.000507
23	0.0226	0.573	0.2350	3.450	1.468	160.1	681.2	0.000401
24	0.0201	0.51	0.2970	2.430	1.15	258.3	869.6	0.000314
25	0.0179	0.455	0.3746	1.720	0.9201	396.3	1,087	0.000254
26	0.0159	0.405	0.4746	1.200	0.7262	653.5	1,377	0.000199
27	0.0142	0.361	0.5952	0.857	0.5797	1,027	1,725	0.000158
28	0.0126	0.321	0.7556	0.599	0.4585	1,648	2,181	0.000125
29	0.0113	0.286	0.9389	0.432	0.3606	2,606	2,773	0.000100
30	0.01	0.255	1.200	0.299	0.2873	4,177	3,481	0.0000785
31	0.0089	0.227	1.515	0.211	0.2276	6,657	4,394	0.0000626
32	0.008	0.202	1.875	0.153	0.1839	10,200	5,438	0.0000496
33	0.0071	0.18	2.38	0.107	0.1448	16,440	6,906	0.0000394
34	0.0063	0.16	3.022	0.075	0.114	26,510	8,772	0.0000312
35	0.0056	0.143	3.826	0.053	0.09011	42,090	11,000	0.0000247
36	0.005	0.127	4.80	0.0374	0.07184	66,820	13,920	0.0000196
37	0.0045	0.113	5.926	0.0273	0.02816	101,900	17,190	0.0000152
38	0.004	0.101	7.5	0.0206	0.04598	163,100	21,750	0.0000126
39	0.0035	0.09	9.796	0.0138	0.03517	278,500	28,430	0.00000979
40	0.0031	0.08	12.49	0.0096	0.027580	452,900	36,260	0.00000779
41	0.0028	0.07	15.86	0.0067	0.021720	730,342	46,029	0.00000616
42	0.0025	0.063	19.20	0.00503	0.01795	1,069,363	55,696	0.00000487

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