

## 電気抵抗材料

## 抵抗値一覧表

## 銅-ニッケル電気抵抗線 (CN49W, CN30W, CN15W, CN10W, CN5W)

表-11 銅-ニッケル抵抗線の線径と導体抵抗値許容差

線径 mm	線径許容差 mm	CN49W Ω/m	CN30W Ω/m	CN15W Ω/m	CN10W Ω/m	CN5W Ω/m	導体抵抗値 許容差%
0.040	±0.003	390	239	119	79.6	39.8	±12
0.050	±0.003	250	153	76.4	50.9	25.5	±11
0.060	±0.003	173	106	53.1	35.4	17.7	±11
0.070	±0.004	127	78.0	39.0	26.0	13.0	±10
0.080	±0.005	97.5	59.7	29.8	19.9	9.95	±10
0.090	±0.005	77.0	47.2	23.6	15.7	7.86	±10
0.100	±0.006	62.4	38.2	19.1	12.7	6.37	±9
0.110	±0.006	51.6	31.6	15.8	10.5	5.26	±9
0.120	±0.006	43.3	26.5	13.3	8.84	4.42	±9
0.130	±0.006	36.9	22.6	11.3	7.53	3.77	±9
0.140	±0.006	31.8	19.5	9.74	6.50	3.25	±8
0.150	±0.006	27.7	17.0	8.49	5.66	2.83	±8
0.160	±0.006	24.4	14.9	7.46	4.97	2.49	±8
0.170	±0.006	21.6	13.2	6.61	4.41	2.20	±8
0.180	±0.008	19.3	11.8	5.89	3.93	1.96	±8
0.190	±0.008	17.3	10.6	5.29	3.53	1.76	±8
0.200	±0.010	15.6	9.55	4.77	3.18	1.59	±8
0.230	±0.010	11.8	7.22	3.61	2.41	1.20	±8
0.250	±0.010	9.98	6.11	3.06	2.04	1.02	±8
0.260	±0.010	9.23	5.65	2.83	1.88	0.942	±8
0.290	±0.013	7.42	4.54	2.27	1.51	0.757	±7
0.300	±0.013	6.93	4.24	2.12	1.41	0.707	±7
0.320	±0.013	6.09	3.73	1.87	1.24	0.622	±7
0.350	±0.013	5.09	3.12	1.56	1.04	0.520	±7
0.400	±0.016	3.90	2.39	1.19	0.796	0.398	±7
0.450	±0.016	3.08	1.89	0.943	0.629	0.314	±7
0.500	±0.016	2.50	1.53	0.764	0.509	0.255	±7
0.550	±0.016	2.06	1.26	0.631	0.421	0.210	±7
0.600	±0.016	1.73	1.06	0.531	0.354	0.177	±6
0.650	±0.020	1.48	0.904	0.452	0.301	0.151	±6
0.700	±0.020	1.27	0.780	0.390	0.260	0.130	±6
0.750	±0.020	1.11	0.679	0.340	0.226	0.113	±6
0.800	±0.020	0.975	0.597	0.298	0.199	0.0995	±6
0.850	±0.020	0.864	0.529	0.264	0.176	0.0881	±6
0.900	±0.025	0.770	0.472	0.236	0.157	0.0786	±6
0.950	±0.025	0.691	0.423	0.212	0.141	0.0705	±6

線径 mm	線径許容差 mm	CN49W Ω/m	CN30W Ω/m	CN15W Ω/m	CN10W Ω/m	CN5W Ω/m	導体抵抗値 許容差%
1.00	±0.025	0.624	0.382	0.191	0.127	0.0637	±6
1.10	±0.025	0.516	0.316	0.158	0.105	0.0526	±6
1.20	±0.025	0.433	0.265	0.133	0.0884	0.0442	±6
1.30	±0.032	0.369	0.226	0.113	0.0753	0.0377	±5
1.40	±0.032	0.318	0.195	0.0974	0.0650	0.0325	±5
1.50	±0.032	0.277	0.170	0.0849	0.0566	0.0283	±5
1.60	±0.032	0.244	0.149	0.0746	0.0497	0.0249	±5
1.70	±0.032	0.216	0.132	0.0661	0.0441	0.0220	±5
1.80	±0.040	0.193	0.118	0.0589	0.0393	0.0196	±5
1.90	±0.040	0.173	0.106	0.0529	0.0353	0.0176	±5
2.00	±0.040	0.156	0.0955	0.0477	0.0318	0.0159	±5
2.30	±0.040	0.118	0.0722	0.0361	0.0241	0.0120	±5
2.60	±0.040	0.0923	0.0565	0.0283	0.0188	0.00942	±5
2.90	±0.050	0.0742	0.0454	0.0227	0.0151	0.00757	±5
3.00	±0.050	0.0693	0.0424	0.0212	0.0141	0.00707	±5
3.20	±0.050	0.0609	0.0373	0.0187	0.0124	0.00622	±5
3.50	±0.050	0.0509	0.0312	0.0156	0.0104	0.00520	±5
4.00	±0.063	0.0390	0.0239	0.0119	0.00796	0.00398	±5
4.50	±0.063	0.0308	0.0189	0.00943	0.00629	0.00314	±5
5.00	±0.063	0.0250	0.0153	0.00764	0.00509	0.00255	±5
5.50	±0.063	0.0206	0.0126	0.00631	0.00421	0.00210	±5
6.00	±0.080	0.0173	0.0106	0.00531	0.00354	0.00177	±5
6.50	±0.080	0.0148	0.00904	0.00452	0.00301	0.00151	±5
7.00	±0.080	0.0127	0.00780	0.00390	0.00260	0.00130	±5
7.50	±0.080	0.0111	0.00679	0.00340	0.00226	0.00113	±5
8.00	±0.090	0.00975	0.00597	0.00298	0.00199	0.000995	±5
8.50	±0.090	0.00864	0.00529	0.00264	0.00176	0.000881	±5
9.00	±0.100	0.00770	0.00472	0.00236	0.00157	0.000786	±5

精密抵抗線 マンガン線(CMW), カーマロイ線(KMW)

表-12

線径 mm	マンガン線 CMW			カーマロイ線 KMW		
	線径許容差 mm	導体抵抗値 Ω/m	導体抵抗値 許容差%	線径許容差 mm	導体抵抗値 Ω/m	導体抵抗値 許容差%
0.015					7526	±10
0.020					4234	±10
0.025					2709	±10
0.030					1882	±10
0.040	±0.003	350	±12	±0.003	1058	±10
0.050	±0.004	224	±11	±0.003	677	±10
0.060	±0.004	156	±11	±0.004	470	±8
0.070	±0.005	114	±10	±0.005	346	±8
0.080	±0.005	87.5	±10	±0.006	265	±8
0.090	±0.005	69.2	±10	±0.006	209	±8

線径 mm	マンガン線 CMW			カーマロイ線 KMW		
	線径許容差 mm	導体抵抗値 Ω/m	導体抵抗値 許容差%	線径許容差 mm	導体抵抗値 Ω/m	導体抵抗値 許容差%
0.100	±0.006	56.0	±9	±0.006	169	±8
0.110	±0.006	46.3	±9	±0.006	140	±8
0.120	±0.006	38.9	±9	±0.008	118	±8
0.130	±0.006	33.1	±9	±0.008	100	±8
0.140	±0.008	28.6	±8	±0.008	86.4	±5
0.150	±0.008	24.9	±8	±0.008	75.3	±5
0.160	±0.008	21.9	±8	±0.008	66.1	±5
0.170	±0.008	19.4	±8	±0.008	58.6	±5
0.180	±0.008	17.3	±8	±0.010	52.3	±5
0.190	±0.008	15.5	±8	±0.010	46.9	±5
0.200	±0.010	14.0	±8	±0.010	42.3	±5
0.230	±0.010	10.6	±8	±0.010	32.0	±5
0.250	±0.010	8.96	±8	±0.012	27.1	±5
0.260	±0.010	8.29	±8	±0.012	25.1	±5
0.290	±0.013	6.66	±7	±0.012	20.1	±5
0.300	±0.013	6.22	±7	±0.012	18.8	±5
0.320	±0.013	5.47	±7	±0.015	16.5	±5
0.350	±0.013	4.57	±7	±0.015	13.8	±5
0.400	±0.015	3.50	±7	±0.015	10.6	±5
0.450	±0.015	2.77	±7	±0.015	8.36	±5
0.500	±0.015	2.24	±7	±0.020	6.77	±5
0.550	±0.020	1.85	±7	±0.020	5.60	±5
0.600	±0.020	1.56	±6	±0.020	4.70	±5
0.650	±0.020	1.33	±6	±0.020	4.01	±5
0.700	±0.020	1.14	±6	±0.020	3.46	±5
0.750	±0.020	0.996	±6	±0.025	3.01	±5
0.800	±0.020	0.875	±6	±0.025	2.65	±5
0.850	±0.025	0.775	±6	±0.025	2.34	±5
0.900	±0.025	0.692	±6	±0.025	2.09	±5
0.950	±0.025	0.621	±6	±0.025	1.88	±5
1.00	±0.025	0.560	±6	±0.025	1.69	±5
1.10	±0.025	0.463	±6			
1.20	±0.025	0.389	±6			
1.30	±0.032	0.331	±5			
1.40	±0.032	0.286	±5			
1.50	±0.032	0.249	±5			
1.60	±0.032	0.219	±5			
1.70	±0.032	0.194	±5			
1.80	±0.040	0.173	±5			
1.90	±0.040	0.155	±5			
2.00	±0.040	0.140	±5			
2.30	±0.040	0.106	±5			
2.60	±0.040	0.0829	±5			
2.90	±0.050	0.0666	±5			

線径 mm	マンガン線 CMW			カーマロイ線 KMW		
	線径許容差 mm	導体抵抗値 Ω/m	導体抵抗値 許容差%	線径許容差 mm	導体抵抗値 Ω/m	導体抵抗値 許容差%
3.00	±0.050	0.0622	±5			
3.20	±0.050	0.0547	±5			
3.50	±0.050	0.0457	±5			
4.00	±0.063	0.0350	±5			
4.50	±0.063	0.0277	±5			
5.00	±0.063	0.0224	±5			
5.50	±0.063	0.0185	±5			
6.00	±0.080	0.0156	±5			
6.50	±0.080	0.0133	±5			

■ ニッケル-クロム電気抵抗線 1種, 2種(NCHW-1, NCHW-2)

鉄-クロム電気抵抗線 1種, 2種(FCHW-1, FCHW-2)

表-13

線径 mm	線径許容差 mm	NCHW-1 Ω/m	NCHW-2 Ω/m	FCHW-1 Ω/m	FCHW-2 Ω/m	導体抵抗値 許容差%
0.040	±0.004	859	891			±13
0.050	±0.004	550	570			±12
0.060	±0.004	382	396			±11
0.070	±0.005	281	291			±11
0.080	±0.005	215	223			±10
0.090	±0.005	170	176			±10
0.100	±0.006	138	143	181	157	±9
0.110	±0.006	114	118	149	129	±9
0.120	±0.006	95.5	99.0	126	109	±9
0.130	±0.006	81.4	84.4	107	92.7	±9
0.140	±0.008	70.2	72.8	92.2	79.9	±8
0.150	±0.008	61.1	63.4	80.4	69.6	±8
0.160	±0.008	53.7	55.7	70.6	61.2	±8
0.170	±0.008	47.6	49.3	62.6	54.2	±8
0.180	±0.008	42.4	44.0	55.8	48.3	±8
0.190	±0.008	38.1	39.5	50.1	43.4	±8
0.200	±0.010	34.4	35.7	45.2	39.2	±8
0.230	±0.010	26.0	27.0	34.2	29.6	±8
0.250	±0.010	22.0	22.8	28.9	25.1	±8
0.260	±0.010	20.3	21.1	26.7	23.2	±8
0.290	±0.013	16.4	17.0	21.5	18.6	±7
0.300	±0.013	15.3	15.8	20.1	17.4	±7
0.320	±0.013	13.4	13.9	17.7	15.3	±7
0.350	±0.013	11.2	11.6	14.8	12.8	±7
0.400	±0.016	8.59	8.91	11.3	9.79	±7
0.450	±0.016	6.79	7.04	8.93	7.73	±7
0.500	±0.016	5.50	5.70	7.23	6.26	±7

線径 mm	線径許容差 mm	NCHW-1 $\Omega/m$	NCHW-2 $\Omega/m$	FCHW-1 $\Omega/m$	FCHW-2 $\Omega/m$	導体抵抗値 許容差%
0.550	±0.016	4.55	4.71	5.98	5.18	±7
0.600	±0.016	3.82	3.96	5.02	4.35	±6
0.650	±0.020	3.25	3.38	4.28	3.71	±6
0.700	±0.020	2.81	2.91	3.69	3.20	±6
0.750	±0.020	2.44	2.54	3.21	2.78	±6
0.800	±0.020	2.15	2.23	2.83	2.45	±6
0.850	±0.020	1.90	1.97	2.50	2.17	±6
0.900	±0.025	1.70	1.76	2.23	1.93	±6
0.950	±0.025	1.52	1.58	2.00	1.74	±6
1.00	±0.025	1.38	1.43	1.81	1.57	±6
1.10	±0.025	1.14	1.18	1.49	1.29	±6
1.20	±0.025	0.955	0.990	1.26	1.09	±6
1.30	±0.032	0.814	0.844	1.07	0.927	±5
1.40	±0.032	0.702	0.728	0.922	0.799	±5
1.50	±0.032	0.611	0.634	0.804	0.696	±5
1.60	±0.032	0.537	0.557	0.706	0.612	±5
1.70	±0.032	0.476	0.493	0.626	0.542	±5
1.80	±0.040	0.424	0.440	0.558	0.483	±5
1.90	±0.040	0.381	0.395	0.501	0.434	±5
2.00	±0.040	0.344	0.357	0.452	0.392	±5
2.30	±0.040	0.260	0.270	0.342	0.296	±5
2.60	±0.040	0.203	0.211	0.267	0.232	±5
2.90	±0.050	0.164	0.170	0.215	0.186	±5
3.00	±0.050	0.153	0.158	0.201	0.174	±5
3.20	±0.050	0.134	0.139	0.177	0.153	±5
3.50	±0.050	0.112	0.116	0.148	0.128	±5
4.00	±0.063	0.0859	0.0891	0.113	0.0979	±5
4.50	±0.063	0.0679	0.0704	0.0893	0.0773	±5
5.00	±0.063	0.0550	0.0570	0.0723	0.0626	±5
5.50	±0.063	0.0455	0.0471	0.0598	0.0518	±5
6.00	±0.080	0.0382	0.0396	0.0502	0.0435	±5
6.50	±0.080	0.0325	0.0338	0.0428	0.0371	±5
7.00	±0.080	0.0281	0.0291	0.0369	0.0320	±5
7.50	±0.080	0.0244	0.0254	0.0321	0.0278	±5
8.00	±0.080	0.0215	0.0223	0.0283	0.0245	±5
8.50	±0.080	0.0190	0.0197	0.0250	0.0217	±5
9.00	±0.100	0.0170	0.0176	0.0223	0.0193	±5