
Properties and characteristics of various metal

TOKYO RESISTANCE WIRE CO., LTD.

1-8-29 Kamata Ohta-Ku, Tokyo 144-0052

Phone : +81-3-3736-5201

Faxmile : +81-3-3736-5429

mail : mail@tokyo-resistance-wire.com

http : [//main.tokyo-resistance-wire.com](http://main.tokyo-resistance-wire.com)

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Metal type	Code	Electrical Resistivity ($\mu\Omega\text{m}$)		Average TCR ($\times 10^{-6}/^{\circ}\text{C}$)	Thermal Expansion Coefficient ($\times 10^{-6}/^{\circ}\text{C}$)	Melting Point ($^{\circ}\text{C}$)	Density ($\text{g}\cdot\text{cm}^3$)	Max Operating Temperature ($^{\circ}\text{C}$)
Nickel Chrome	NCH1	1.08	± 0.05	* 80	17.0	1400	8.41	1100
	NCH2	1.12	± 0.05	* 180	17.0	1400	8.25	1000
	Nikrothal 80	1.09				1400	8.30	1200
	Nikrothal 60	1.11				1390	8.20	1125
Fe-Chrome	FCH1	1.42	± 0.06	* -20	13.0	1520	7.20	1250
	FCH2	1.23	± 0.06	* 90	12.5	1500	7.35	1100
	No.30	1.42	± 0.06		13.0	1520	7.20	1300
Kanthal Fe-Cr Alloy	Kanthal A-1	1.45			15.0	1500	7.10	1400
	Kanthal AF	1.39			15.0	1500	7.15	1300
	Kanthal D	1.35			15.0	1500	7.25	1300
Precision resistance wire	Nikrothal LX	* 1.33		$\pm 5, \pm 10$		1390	8.30	250
K thermocouple strands	Alumel KN(-)	0.28		2200	12.0	1399	8.60	Depends on wire diameter
	Chromel KP(+)	0.69		350	13.1	1427	8.73	Depends on wire diameter
Copper Nickel Resistance Wire	CN49 (CuNi44)	0.49	± 0.03	* ± 40	13.5	1240	8.90	400
	CN30 (CuNi23)	0.30	± 0.024	* 180	17.5	1150	8.90	300
	CN15 (CuNi10)	0.15	± 0.015	* 490	17.5	1100	8.90	250
	CN10 (CuNi6)	0.10	± 0.012	* 710	17.5	1090	8.90	220
	CN5 (CuNi2)	0.05	± 0.0075	* 1300	17.5	1080	8.90	200
	Monel 400	0.50			13.9	1350	8.80	400
Manganin 44 μ	CM44	0.44	± 0.03	* ± 50	18.0	* 1020	8.44	150
Pure Nickel	Ni(NW2200)	* 0.095	± 0.015	* 4500	15.0	1400	8.90	400
	Ni(NW2201)	* 0.095	± 0.015	* 4500	15.0	1400	8.90	400
	Ni99.6	* 0.095	± 0.015	* 4500	15.0	1400	8.90	400
Manganese nickel	2%MnNi	* 0.11		* 4300	14.0	1360	8.90	400
Fe-Nickel	42%NiFe	* 0.65		* 2360	* 4.0~7.4		8.10	
	52%NiFe	* 0.37		* 3900	* 9.7~10.5		8.35	
Iron-nickel-cobalt	Kovar KOV	0.49		* 3500	4.9~6.2	1450	8.24	
Stainless steel	SUS 304	0.72		1100	17.3	1400	7.93	
	SUS 310S	0.78			14.4	1400	7.98	
	SUS 316L	0.77			16.0	1370	7.98	
phosphor bronze	PBW2(C5191)	0.115			18.0	1050	8.83	
	PBW3(C5212)	0.140			18.2	1040	8.80	
iron wire 60C	SWRH62A	0.204					7.8~7.9	
Inconel 600	INCONEL 600	1.03					8.47(8.415)	

(*)Reference value

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