

Nippon Koshuha Steel Co., Ltd.'s

Electric heating material, Low expansion material, Sealing material.

From heating wire to precision machinery

— we meet customer needs with exceptional accuracy.



As ICs become smaller and more densely integrated, materials supporting cutting-edge microtechnology must exhibit excellent properties such as thermal conductivity and thermal expansion. Nippon Koshuha Steel Co., Ltd.'s materials for electronic components offer low thermal expansion and sealing capabilities, achieving a stable coefficient of thermal expansion. These materials are highly regarded for use in precision machinery parts, LCD backlight components, and lead wires for electronic components. Our electric heating material feature minimal variation in volume resistivity, along with corrosion resistance, heat resistance, and workability. They are used in components such as heaters and resistors. All of these products reflect the high quality born from Nippon Koshuha Steel Co., Ltd.'s proven manufacturing technologies. We confidently recommend them for a wide range of applications.

■ Electric heating material

Major classification	Steel Grade Name by Nippon Koshuha Steel Co., Ltd.	Equivalent Steel Grade	Main Components	volume resistivity ($\mu\Omega/\text{cm}^2$)	Maximum operating temperature ($^{\circ}\text{C}$)	mechanical properties		Application example
						tensile strength (N/mm^2)	elongation (%)	
nichrome	KTA-NC1	NCHW-1	80Ni-20Cr	108 \pm 6	1100	690~780	\geq 20	heating wire
	KTA-NC2	NCHW-2	60Ni-17Cr-Fe	112 \pm 6	1000	590~680	\geq 20	

■ Low expansion material & Sealing materials

Major classification	Steel Grade Name by Nippon Koshuha Steel Co., Ltd.	Equivalent Steel Grade	Main Components	thermal expansion coefficient $\sim 100^{\circ}\text{C} (\times 10^{-6}/^{\circ}\text{C})$	thermal conductivity ($\text{cal}/\text{cm}\cdot\text{S}\cdot^{\circ}\text{C}$)	volume resistivity ($\mu\Omega/\text{cm}^2$)	curie point ($^{\circ}\text{C}$)	Application example
Low expansion material	KTA-IN	INVAR	36Ni-Fe	0.5~2.0	0.033	80	225	<ul style="list-style-type: none"> precision machinery parts Bimetallic low expansion material
	KTA-SI	SUPER INVAR	32Ni-4Co-Fe	0.01~0.5	-	78	-	
Sealing material	KTA-KV	KOVAR	29Ni-17Co-Fe	5.1~5.5	0.040	49	435	<ul style="list-style-type: none"> lead frame Dumet Wire magnetic shield
	KTA42N	42Ni	42Ni-Fe	6.4~7.4	0.035	70	375	
	KTA46N	46Ni	46Ni-Fe	8.2~8.9	0.027	45	450	
	KTA52N	52Ni	52Ni-Fe	9.6~10.1	0.032	43	510	
	KTA426	42Ni-6Cr	42Ni-6Cr-Fe	9.7~10.4	0.029	95	295	