

NAS 36

NAS Controlled Expansion Material

NAS 36 is an alloy with nickel (36%) and iron as its main components. Because its coefficient of thermal expansion is extremely low, at about 1/10 that of 18-8 stainless steel, thermal stress caused by temperature changes can be held to a very low level, and complex shapes (wave, bellows, etc.) like those required with other low-temperature materials are not necessary. NAS 36 also shows high toughness at low temperatures and provides excellent weldability. Nippon Yakin supplies NAS 36 in sheet and strip forms.

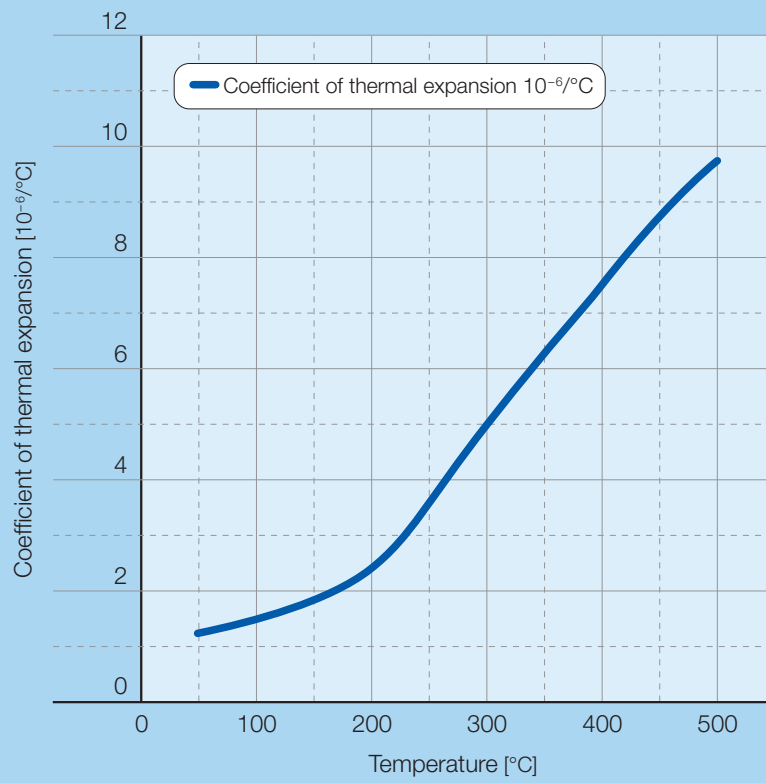
Chemical Composition

					[wt %]
C	Si	Mn	Ni	Fe	
≤0.05	≤0.30	≤0.80	35.0~37.0	bal.	

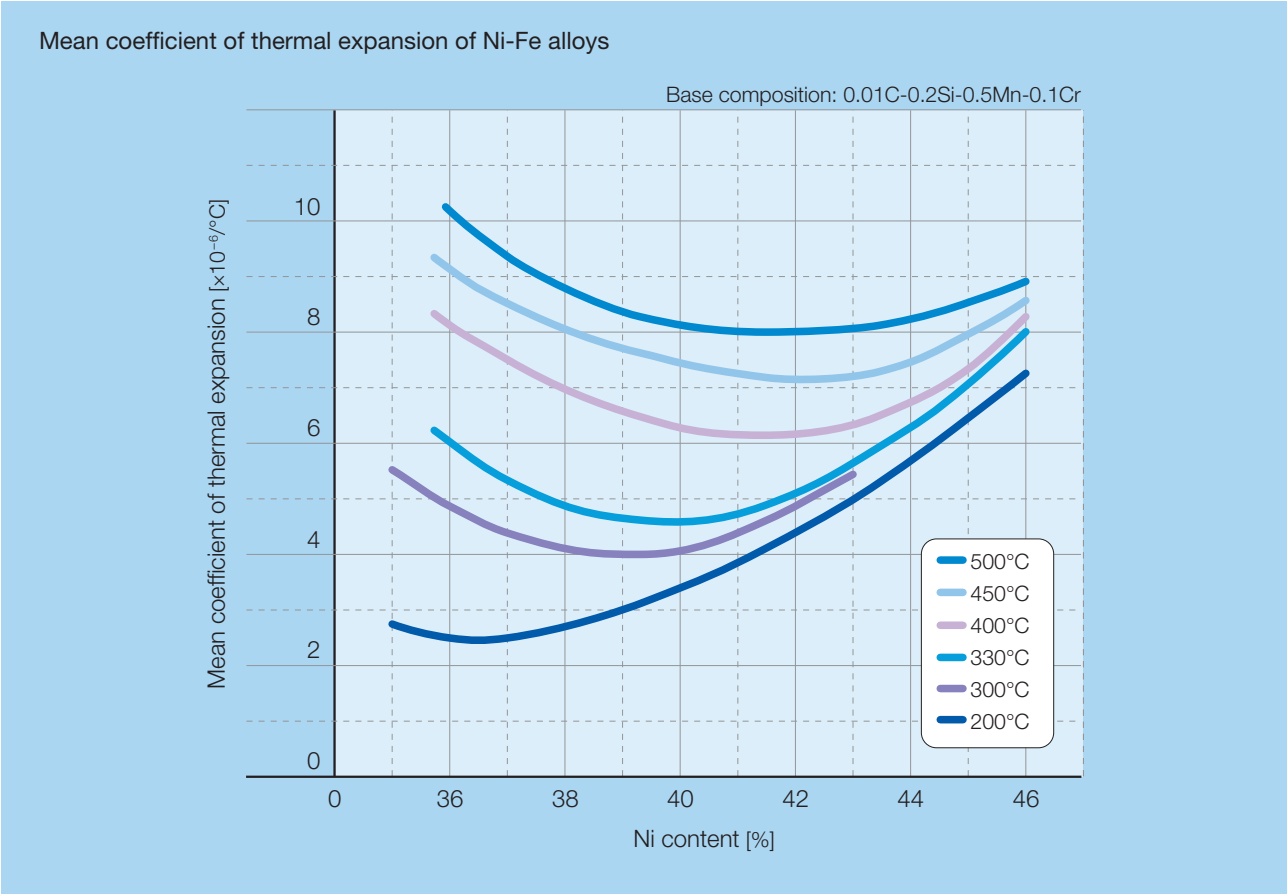
Physical Properties

Density	[g/cm ³]		8.14
Specific heat	[J/kg · K]	-196~20°C	0.092
Electrical resistivity	[μΩ · cm]	at 20°C	78
Thermal conductivity	[W/m · K]	at 20°C	10.5
		at 50°C	5.4
Average coefficient of thermal expansion	[10 ⁻⁶ /°C]	25~100°C	1.5±0.5
Young's modulus	[MPa]		14.5 × 10 ⁴
Curie point	[°C]		240~260
Melting range	[°C]		1415~1465

Coefficient of Thermal Expansion



Mechanical Properties



Annealed Condition

Proof stress [MPa]	Tensile strength [MPa]	Elongation [%]	Hardness [HV]
245	412	35	122

Weldability

NAS 36 has good weldability. Joints of thin sheet materials can be welded by TIG welding without a filler, even in seam welding.

Applications

Bimetals, LNG tankers, molds, parts requiring low coefficient of thermal expansion.

For more information, please contact:
Nippon Yakin Kogyo Co., Ltd.
Material Solutions Sales Department
San-Ei Bldg., 5-8, 1-chome Kyobashi, Chuo-ku,
Tokyo 104-8365 Japan
TEL: +81-3-3273-4649 FAX: +81-3-3273-4642
E-Mail: inquiry@nyk.co.jp
URL: <http://www.nyk.co.jp/en/>

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