NASH330 (UNS N08330) Heat-Resistant Nickel Alloy

NASH330 is a heat resistant nickel alloy with excellent high temperature strength, corrosion resistance, and metallurgical stability. In particular, it provides superior resistance to carburization and nitridation. Because it has a fully austenitic microstructure, it displays good workability. Nippon Yakin supplies NASH330 in plate, sheet, and strip forms.

Steel Grade/Standard

Nippon Yakin Grade	JIS	ASTM B536
NASH330	-	UNS N08330

Chemical Composition

											[wt %]
	С	Si	Mn	Р	S	Ni	Cr	Cu	Pb	Sn	Fe
Specification (UNS N08330)	≦0.08	0.75~ 1.50	≦2.00	≦0.03	≦0.03	34.0~ 37.0	17.0~ 20.0	≦1.00	≦0.005	≦0.025	Bal.

Physical Properties

Density	[g/cm ³]		7.98
Specific heat	[J/kg · K]		480
Electrical resistivity	[μΩ · cm]		100
Thermal conductivity	[W/m · K]		11.9
Average coefficient of thermal expansion	[10 ⁻⁶ /°C]	25~200°C	15.3
		25~400°C	16.0
		25~600°C	16.5
		25~800°C	17.1
Young's modulus	[MPa]		19.6 × 10 ⁴
Magnetism	[µ]		None
Melting range	[°C]		1340~1395

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Mechanical Properties at Room Temperature

			0.2% proof stress [MPa]	Tensile strength [MPa]	Elongation [%]	Hardness [HRBW]
Specificatio	n ASTM B536 (UNS N	08330)	≧207	≧483	≧30	-
Examples	Hot-rolled plate	9.5mm ^t	253	549	46	78
	Cold-rolled sheet	3mm ^t	269	545	45	76

Microstructure

	Heat treatment
Specification ASTM B536 (UNS N08330)	≧1040°C



Typical microstructure of NASH330 Grain Size Number = 5



Work Hardening Property



Results of high-temperature tensile test



Allowable Stress





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 URL: https://www.nyk.co.jp/en/

Note regarding the handling of property data:

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