

# NAS 625 (UNS N06625)

## NAS Corrosion-Resistant Nickel Alloy

NAS 625 (NCF 625, UNS N06625) is a nickel-chromium-molybdenum alloy with an additional of niobium. Matrix stiffening provided by molybdenum and niobium results in high strength. The alloy resists a wide range of severe corrosion environments. Uses include parts in chemical and garbage incinerator plants. Nippon Yakin supplies this product in plate, sheet, and strip forms.

### Steel Grade/Standard

NAS	JIS G4902	ASTM B443	EN
NAS 625	NCF 625	UNS N06625	—

### Chemical Composition

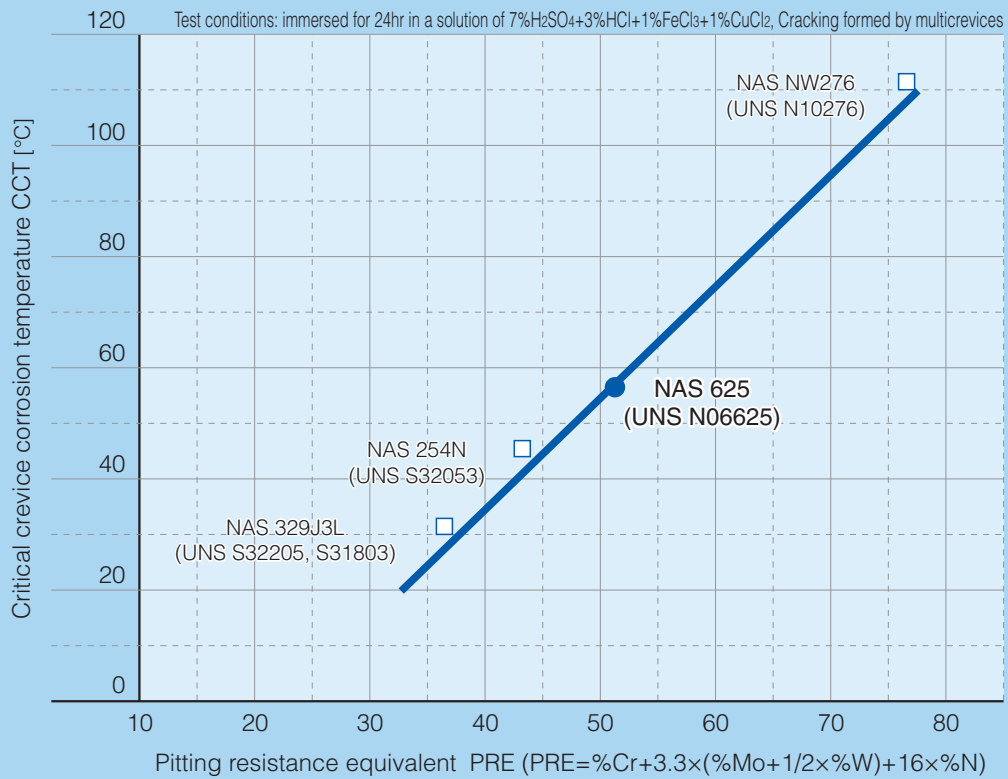
	C	Si	Mn	P	S	Ni	Cr	Mo	Al	Ti	Fe	Co	Nb+Ta
Specification (NCF 625)	≤0.10	≤0.50	≤0.50	≤0.015	≤0.015	≥58.00	20.00~23.00	8.00~10.00	≤0.40	≤0.40	≤5.00	—	3.15~4.15
Specification (UNS N06625)	≤0.10	≤0.50	≤0.50	≤0.015	≤0.015	≥58.0	20.0~23.0	8.0~10.0	≤0.40	≤0.40	≤5.0	≤1.0	3.15~4.15

### Physical Properties

Density	[g/cm <sup>3</sup> ]	8.44
Specific heat	[J/kg · K]	410
Electrical resistivity	[μΩ · cm]	129
Thermal conductivity	[W/m · K]	9.8
Average coefficient of thermal expansion	[10 <sup>-6</sup> /°C] 20~100°C	12.8
Young's modulus	[MPa]	20.4 × 10 <sup>4</sup>
Magnetism		None
Melting range	[°C]	1290~1350

Corrosion Resistance

Critical crevice corrosion temperature (solution treated)



Weldability

Various welding methods are applicable in the same manner as with the standard austenitic stainless steels, including shield metal arc welding, TIG welding, and plasma welding. The welding solidification cracking sensitivity lies between Type 304 and Type 310S.

Heat Treatment

Solution heat treatment: above 1093°C; rapid cooling  
 Annealing: above 871°C; rapid cooling

Applications

Chemical plants, nuclear power, seawater applications, jet engine parts, aircraft material, heat treatment furnace material, evaporators

## Mechanical Properties

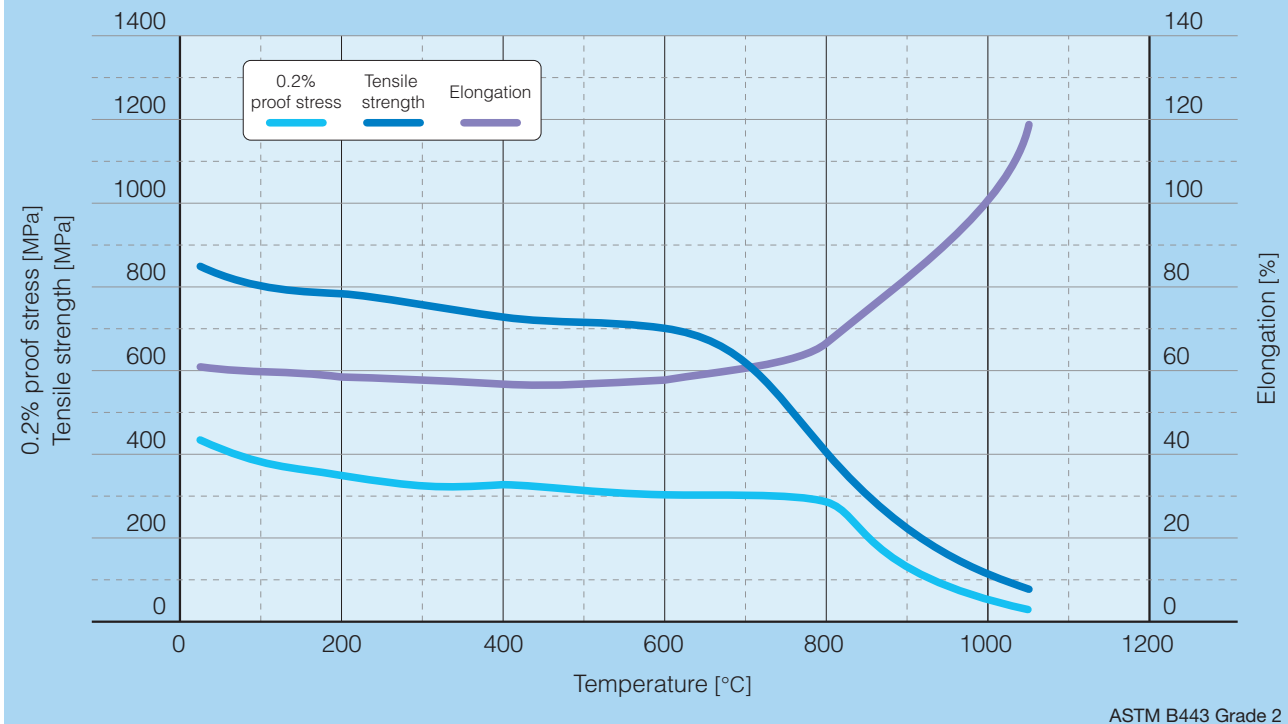
### Mechanical Properties at Room Temperature

		0.2% proof stress [MPa]	Tensile strength [MPa]	Elongation [%]	Hardness
JIS G4902 NCF625 (annealed)	>0.5mm, ≤3.0mm	≥415	≥830	≥30	—
	>3.0mm, ≤70mm	≥380	≥760	≥30	—
JIS G4902 NCF625 (solution treated)	>0.5mm, ≤70mm	≥275	≥690	≥30	—
ASTM B443 Grade 1 UNS N06625 (annealed)	Cold-rolled sheet, strip	≥414	≥827	≥30	—
	Hot-rolled plate (≤70mm)	≥379	≥758	≥30	—
	Cold-rolled sheet (≤9.5mm)	≥379	≥758	≥30	—
ASTM B443 Grade 2 UNS N06625 (solution annealed)		≥276	≥690	≥30	—
Example	Hot-rolled plate 11mm <sup>t*</sup>	407	826	62	HB 201
	Cold-rolled sheet 2.5mm <sup>t*</sup>	392	832	57	Hv 197

\*All were solution annealed

## High Temperatures Strength

Results of high-temperature tensile test



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**Note regarding the handling of property data:**

The technical information contained in this product guide is representative values obtained in property tests and other items used to explain the performance of the product. With the exception of items specifically mentioned as provisions of a "Standard," the contents do not represent guaranteed upper limit or lower limit values. This information is also subject to change in the future without notice. To obtain the most recent information, please contact Nippon Yakin.