# NASH840 Heat Resistant Stainless Steel

NASH840 is an austenitic stainless steel with excellent oxidation resistance and high temperature corrosion resistance against chlorides. It is suitable for use in high grade sheathed heater clad tubes. Nippon Yakin supplies NASH840 in sheet and strip forms.



#### **Physical Properties**

Density	[g/cm <sup>3</sup> ]		7.98
Specific heat	[J/kg · K]		450
Electrical resistivity	$[\mu\Omega\cdot cm]$		90.0
Thermal conductivity	[W/m · K]		13.0
Average coefficient of thermal expansion	[10 <sup>-6</sup> /°C]	20~ 300°C	16.7
		20~ 500°C	17.4
		20~ 800°C	18.6
		20~1000°C	19.4
Young's modulus	[MPa]		$19.7 \times 10^{4}$
Magnetism			None
Melting range	[°C]		1365~1417

## **()** NIPPON YAKIN KOGYO CO., LTD.

#### Mechanical Properties at Room Temperature

		0.2% proof stress [MPa]	Tensile strength [MPa]	Elongation [%]	Hardness [HV]
Spe	ecification (NASH840)	≧205	≧520	≧30	≦170
Example	Cold-rolled sheet 0.4mm <sup>t</sup>	270	540	45	130

### High Temperature Strength









Corrosion Resistance

Stress Corrosion Cracking Resistance

	Test I	Test II	
	20%NaCl+1%Na₂Cr₂O7 (boil, 330hr)	30%MgCl₂ (boil, 110hr)	
NASH840	No SCC	No SCC	
NCF800	No SCC	No SCC	
SUS316	SCC	SCC	
SUS304	SCC	SCC	

#### Weldability

NASH840 has superior weldability. After plasma welding, no cracking occurred in the bending test or 30% tensile test.





③Face bending
②Root bending
③Tube expansion
Bending test specimens of NASH840 plasma welded pipe



30% tensile test of NASH840 plasma welded pipe



Heat treatment of NASH840 can be performed in the same manner as with other austenitic stainless steels. The heat treatment temperature range which is normally used is as follows:

Solution treatment: 1030~1100°C; water cooling

Applications

Sheathed heater, Furnace parts.

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:

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. The respective data given on this technical information are typical examples and may be different in some cases from the data obtained from the actual product. No responsibility shall, therefore, be assumed for damages arising from using the technical information data. This information is also subject to change in the future without notice. To obtain the most recent information, please contact Nippon Yakin. No part of this document may be copied or reproduced in any from without the consent of Nippon Yakin.