

MATERIAL DATA SHEET · NICKEL ALLOYS

Alloy 800 / 800H / 800HT — Chemical Composition & Mechanical Properties

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Alloy 800 / 800H / 800HT is a nickel alloys grade for nickel alloy forgings, fittings & pipe (UNS N08800 / N08810 / N08811, EN / W.Nr 1.4876 / 1.4958 / 1.4959). It is also known as Incoloy 800 / 800H / 800HT (trade names). This sheet summarises its chemical composition limits, minimum mechanical properties, heat treatment and typical service. Teshi Group manufactures flanges and fittings in this grade.

At a glance

Material family	Nickel alloys
Product form	Nickel alloy forgings, fittings & pipe
UNS	N08800 / N08810 / N08811
EN / W.Nr	1.4876 / 1.4958 / 1.4959
Also known as	Incoloy 800 / 800H / 800HT (trade names)

Mechanical properties

Tensile strength, min	517 MPa
Yield strength (0.2 % offset), min	207 MPa
Elongation, min	30 %
800H / 800HT tensile, min	450 MPa
800H / 800HT yield, min	170 MPa
Hardness	Not specified

Chemical composition (weight %)

Ni 30.0–35.0	Cr 19.0–23.0	Fe 39.5 min	C 0.10 max (800), 0.05–0.10 (800H), 0.06–0.10 (800HT)	Mn 1.50 max
Si 1.0 max	S 0.015 max	Cu 0.75 max	Al 0.15–0.60	Ti 0.15–0.60
Al+Ti 0.85–1.20 (800HT)				

Single values are maximums unless shown as a range or “min”.

Heat treatment

800: annealed; 800H: solution annealed 1121 °C (2050 °F) min;
800HT: solution annealed 1149 °C (2100 °F) min; 800H/800HT
grain size ASTM 5 or coarser

Typical service

Reformer and cracker piping, heat exchangers, high-temperature
service

International equivalents (nearest)

USA — specification	Alloy 800 / 800H / 800HT
USA — UNS	N08800 / N08810 / N08811
Europe — EN designation	X10NiCrAlTi32-21 / X5NiCrAlTi31-20
Europe — W.Nr	1.4876 / 1.4958 / 1.4959
Japan — JIS	NCF800 / NCF800H
China — GB / NB	NS1101 / NS1102 (GB/T 15007)
China — old GB designation	0Cr20Ni32AlTi
UK — BS (withdrawn)	NA15 / NA15H

Same alloy in other product forms

Flanges & forged fittings	ASTM B564 N08800 / N08810 / N08811
Butt-weld fittings	ASTM B366 WPNIC / WPNIC10 / WPNIC11
Seamless pipe	ASTM B407
Plate	ASTM B409
Bar	ASTM B408

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