BH DÖVME METAL SANAYİ ve TİCARET LTD. ŞTİ.
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Grade	Code	UNS	Nickel Alloys
Incoloy 800H	Alloy 800H (1.4958)	N08810	

Nickel Alloy Properties

Incoloy 800H / Alloy 800H is a Ni-Fe-Cr-based austenitic nickel alloy with enhanced high-temperature creep resistance and stress-rupture strength due to its controlled carbon content and coarse grain structure. For **Incoloy 800H / Alloy 800H**, the carbon content is controlled. In high-temperature service, the grain size should generally be evaluated as ASTM 5 or coarser to maintain the 800H characteristics.

Chemical Analysis (Incoloy 800H / Alloy 800H)

Ni %	Cr %	C %	Fe %	Mn %	Si %	S %	Cu %	Al %	Ti %	Al + Ti %
30.00 – 35.00	19.00 – 23.00	0.05 – 0.10	39.50 min.	1.50 max.	1.00 max.	0.015 max.	0.75 max.	0.15 – 0.60	0.15 – 0.60	0.30 – 1.20

Mechanical Properties (Solution Annealed)

Product form	Rp0.2, MPa	Rm, MPa	Elongation, %	Hardness, HB	Density, g/cm³
Solid Round Bar	≥ 170	450 – 700	≥ 30	≤ 192*	8.00
Plate	≥ 170	450 – 700	≥ 30	≤ 192*	8.00

** Note: The ≤192 HB value is given as a general catalogue upper limit. Final hardness and mechanical properties should be verified against the manufacturer's MTC and evaluated according to the relevant product and standard requirements.*

Application Areas

Industry	Products
Heat Treatment and Industrial Furnaces	Furnace muffles, furnace baskets, furnace fixtures
Petrochemical and Refining	Cracking furnace tubes, pigtail tubes, header / manifold components
Chemical Industry	High-temperature process pipes, reactor internals, heat-exchanger components
Electrical Heating and Resistance Systems	Resistance sleeves, heater protection tubes, heating element sheaths
Power Generation and Boiler Systems	High-temperature piping components, steam generator equipment, heat-transfer tubes
Environmental Technologies / Waste Treatment	Incineration plant equipment, high-temperature gas ducts, burner components
Automotive and Exhaust Systems	Burner components, high-temperature fasteners, exhaust / thermal process components

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Description

Incoloy 800H / Alloy 800H has good formability and weldability due to its austenitic structure and can be welded by standard methods such as TIG, MIG and shielded metal arc welding. However, as with other nickel alloys, it tends to work harden; therefore, sharp tools, rigid clamping, adequate cooling and low-to-medium cutting speeds should be preferred in machining. Cold forming is possible, but intermediate annealing may be required after heavy deformation. Post-weld heat treatment is generally not mandatory; however, the welding procedure and filler metal selection should be carefully controlled for high-temperature or critical corrosion service.

Specification

Incoloy 800H, Alloy 800H, Nickel Alloy 800H, UNS N08810, W.Nr. 1.4958 / 1.4876, X5NiCrAlTi31-20, X10NiCrAlTi32-20

Standards

Product form	ASTM / ASME	Description
Round Bar	ASTM B408 / ASME SB408	Main ASTM/ASME standard for bar and round bar forms of Incoloy 800H / UNS N08810. The purchase order should specify UNS N08810, the carbon range and, where required, the grain size requirement.
Plate / Sheet / Strip	ASTM B409 / ASME SB409; also ASTM A240 / ASME SA240	Main ASTM/ASME standards for plate, sheet and strip forms of Incoloy 800H / UNS N08810. The relevant ASME equivalents should also be checked for pressure-equipment and high-temperature applications.
Forgings / Forging Stock	ASTM B564 / ASME SB564	May be used for forgings and forging stock. Product form, UNS N08810 and heat-treatment condition should be clearly stated in the purchase order.
Seamless Pipe / Tube	ASTM B407 / ASME SB407	Used for seamless pipe and tube products.
Seamless Heat-Exchanger / Condenser Tube	ASTM B163 / ASME SB163	Applicable to seamless tubes used in heat-exchanger and condenser applications.
Welded Pipe	ASTM B514 / ASME SB514	Covers welded, cold-worked and annealed pipe products.
Welded Boiler / Heat-Exchanger / Condenser Tube	ASTM B515 / ASME SB515	Used for welded boiler, heat-exchanger and condenser tubes.

Alternative Grades

1. Inconel 600
2. Inconel 601
3. Incoloy 800

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