

ASTM B564 UNS N08810 flanges

Specification

ASTM B564 UNS N08810 flanges, also known as Incoloy 800H flanges, are high-performance forged components designed for **high-temperature and corrosive environments**. Manufactured in accordance with ASTM B564 material standard and ASME / ANSI / DIN / EN dimensional standards, these flanges are widely used in petrochemical, power generation, chemical processing, and furnace applications.

Available in a wide range of types including **weld neck, slip on, socket weld, blind, threaded, lap joint, and ring type joint (RTJ)** flanges, N08810 ensures excellent strength, creep resistance, and corrosion resistance in service conditions up to **1100° C (2010° F)**.

Standards & Designation

- **Material Standard:** ASTM B564 (Nickel Alloy Forgings, Flanges, Fittings)
- **Grade:** UNS N08810 (Incoloy 800H)
- **Equivalent Grades:**
 - Alloy 800H
 - Incoloy 800H
 - W.Nr. 1.4958
- **Dimensional Standards:**
 - ASME B16.5 (½" to 24")
 - ASME B16.47 Series A/B (26" to 60")
 - MSS-SP-44, DIN/EN, JIS standard sizes

Available Flange Types

- Weld Neck Flange (WN)
- Slip On Flange (SO)
- Blind Flange (BLRF)
- Socket Weld Flange (SW)
- Threaded Flange (THRF)
- Lap Joint Flange (LJ)
- Ring Type Joint Flange (RTJ)

Size & Pressure Rating

- **Size Range:** ½" (DN15) to 60" (DN1500)
- **Pressure Class:** 150#, 300#, 600#, 900#, 1500#, 2500#
- **Face Types:** Raised Face (RF), Ring Type Joint (RTJ), Flat Face (FF)

Chemical Composition of N08810 Flange

Element	Nickel-Iron-Chromium Alloy (UNS N08800)	Nickel-Iron-Chromium Alloy (UNS N08810)
Nickel	30.0 - 35.0	30.0 - 35.0
Copper	0.75	0.75
Iron	39.5 min	39.5 min
Manganese	1.5	1.5
Carbon	0.1	0.05 - 0.10
Silicon	1	1
Sulfur	0.015	0.015
Chromium	19.0 - 23.0	19.0 - 23.0
Aluminum	0.15 - 0.60	0.15 - 0.60
Titanium	0.15 - 0.60	0.15 - 0.60
Columbium

Mechanical Property of UNS N08810 Flange

Material and Condition	Maximum Section Thickness or Diameter, in. (mm)	Tensile Strength, min, (MPa) ksi	Yield Strength, 0.2 % Offset, min, ksi (MPa)	Elongation in 2 in. or 50 mm or 4D, min, %
UNS N08810 and UNS N08811, annealed	...	65 (448)	25 (172)	30

Heat Treatment Requirement

- Supplied in the **solution-annealed condition**
- **Annealing temperature:** Minimum 1100 ° C (2010 ° F) followed by rapid cooling

- Heat treatment produces **coarse grain structure** for improved creep and rupture strength at high service temperatures

Key Features

- High resistance to **oxidation, carburization, and nitridation** at elevated temperatures
- Excellent **creep and stress-rupture strength** above 600 ° C (1110 ° F)
- Good resistance to chloride stress corrosion cracking and acidic environments

Applications

- Heat exchangers and pressure vessels in chemical processing plants
- Steam piping and superheater headers in power generation
- Petrochemical refinery piping systems
- Furnace equipment, radiant tubes, high-temperature gas handling
- Nuclear and marine engineering applications

Testing & Certification

- Mill Test Certificate (EN 10204 3.1 / 3.2)
- Positive Material Identification (PMI)
- NDT: Ultrasonic, Magnetic Particle, Dye Penetrant
- Tensile, hardness, and impact tests
- Corrosion testing (as required, e.g., ASTM G28)

