

SINOXX^{...} 316H

AUSTENITIC STAINLESS STEELS

SINOXX 316H is a chromium-nickel-molybdenum austenitic stainless steel, with a higher carbon content than SINOXX 4401 (316). This results in higher strength at elevated temperatures, making the steel suitable for structural and pressure vessel applications above 500 °C (932 °F). The steel also delivers higher tensile and yield strength than SINOXX 4401 and SINOXX 4404 and its austenitic structure provides excellent toughness even at cryogenic temperatures.

APPLICATIONS

- Petrochemistry
- Pressure vessels
- Marine
- Shipbuilding
- Food industry

SPECIFICATIONS

| SIJ | AISI | UNS | Standards |
|-------------|------|--------|------------------------------------|
| SINOXX 316H | 316H | S31609 | ASTM A240/A240M, ASME SA240/SA240M |

CHEMICAL COMPOSITION [wt. %]

| | C | Mn | P | S | Si | Cr | Ni | Mo | N |
|-------------|------|-----|-------|-------|------|-----------|-----------|---------|-----|
| SINOXX 316H | 0.05 | 1.5 | 0.035 | 0.001 | 0.40 | 16.8–17.1 | 10.0–10.3 | 2.0–2.3 | 0.1 |

PHYSICAL PROPERTIES

| Density [g/cm ³] | Specific heat [J/kgK]* | Thermal conductivity [W/mK]* | Electrical resistivity [Ωmm ² /m]* | PREN** | Magnetisation |
|---------------------------------|---------------------------|---------------------------------|--|--------|---------------|
| 8.0 | 450 | 16 | 0.77 | 24 | No |

* values at 20 °C in accordance with EN 10088-1

** (Cr%) + 3.3 (Mo%) + 16 (N%)

MECHANICAL PROPERTIES

| 0.2 % Yield strength min. [MPa] | Tensile strength [MPa] | Elongation min. [%] | Hardness max. [HB] | Impact Charpy V, 20 °C min. [J] |
|------------------------------------|---------------------------|------------------------|-----------------------|------------------------------------|
| 205 | 515 | 40 | 217 | 100 |

GRAIN SIZE

The average grain size of ASTM is No. 7 or coarser than SINOXX 4948, as measured by test methods E112.

CORROSION RESISTANCE

The corrosion resistance of SINOXX 316H is comparable to SINOXX 4401 and SINOXX 4404 and is superior to SINOXX 4307 in moderately corrosive environments. SINOXX 316H has good resistance to atmospheric corrosion, as well as in moderately oxidising and reducing environments. It is often used in process streams containing chlorides or halides.

| Grade | Tested per the following corrosion standards |
|-------------|--|
| SINOXX 316H | ASTM A262 Practice A, ASTM A262 Practice E, EN ISO 3651-2 Method A |

HOT FORMING

The hot forming temperature ranges between 950 °C and 1200 °C (1742–2192 °F).

HOT TREATMENT

Solution annealing at min. 1070 °C (1958 °F), followed by rapid cooling.

SURFACE FINISH

Plates are supplied in pickled condition (bright surface) – 1D / No. 1 Finish.

DIMENSIONS

| SINOXX 316H | Thickness [mm] | Max. width [mm] | Max. length [mm] | Max. weight [kg] |
|---------------|---------------------------|--------------------|---------------------|---------------------|
| Quarto plates | 7.0–8.0 (0.28–0.31 in.) | 2000 (84.65 in.) | 12000 (472.44 in.) | 9600 (21164 lbs) |
| Quarto plates | 8.0–130.0 (0.31–5.11 in.) | 2500 (98.42 in.) | 12000 (472.44 in.) | 9600 (21164 lbs) |

The information and data in this product data sheet are intended for informative purpose only and may be revised at any time without notice. Presented typical properties of the materials are described only to help readers make their own evaluations and decisions. They are not guaranteed.