



ASM Aerospace Specification Metals Inc.

Contact Us

AISI Type S21904 (Alloy 21-6-9) Stainless Steel, sheet and strip 0% cold reduction, tested at RT, stress relieved at 675°C (1250°F) for 1 hour

Subcategory: Ferrous Metal; Heat Resisting; Metal; Stainless Steel; T S20000 Series Stainless Steel

Close Analogs: AISI Type S21900

Key Words: UNS S21904, AMS 5595, AMS 5656, ASME SA412, ASTM A269 (XM-11), ASTM A276 (XM-11), ASTM A314 (XM-11), ASTM A412 (XM-11), ASTM A473 (XM-11), ASTM A580 (XM-11)

| Component | Wt. % | Component | Wt. % | Component | Wt. % |
|-----------|----------|-----------|-------|-----------|----------|
| C | Max 0.04 | Mn | 9 | P | Max 0.06 |
| Cr | 20 | N | 0.23 | S | Max 0.03 |
| Fe | 64 | Ni | 6 | Si | Max 1 |

Material Notes:

Austenitic, high strength, excellent corrosion resistance, and low magnetic permeability. Applications include aircraft applications such as ducting and bellows systems, tail pipes and exhaust systems, clamps, fasteners, flanges, and hydraulic tubing.

| Physical Properties | Metric | English | Comments |
|---------------------|------------------|--------------------------|----------|
| Density | <u>7.83 g/cc</u> | 0.283 lb/in ³ | |

Mechanical Properties

| | | | |
|----------------------------|----------------|------------|-------------------------------------|
| Hardness, Brinell | 162 | 162 | Converted from Rockwell B hardness. |
| Hardness, Rockwell B | 94 | 94 | |
| Hardness, Vickers | 213 | 213 | Converted from Rockwell B hardness. |
| Tensile Strength, Ultimate | <u>798 MPa</u> | 116000 psi | |
| Tensile Strength, Yield | <u>492 MPa</u> | 71400 psi | at 0.2% offset |
| Elongation at Break | <u>44 %</u> | 44 % | in 50 mm |
| Modulus of Elasticity | <u>200 GPa</u> | 29000 ksi | Typical for stainless steel |

Machinability 30 % 30 % Based on 100% machinability for AISI 1212 steel.

Electrical Properties

Electrical Resistivity 7.3e-005 ohm-cm 7.3e-005 ohm-cm

Thermal Properties

CTE, linear 20°C 16.7 $\mu\text{m}/\text{m}\text{-}^\circ\text{C}$ 9.28 $\mu\text{in}/\text{in}\text{-}^\circ\text{F}$ at 25-95°C, 17.3 $\mu\text{m}/\text{m}\text{-}^\circ\text{C}$ at 25-205°C. Annealed

CTE, linear 250°C 18.2 $\mu\text{m}/\text{m}\text{-}^\circ\text{C}$ 10.1 $\mu\text{in}/\text{in}\text{-}^\circ\text{F}$ at 25-315°C. Annealed

CTE, linear 500°C 19.1 $\mu\text{m}/\text{m}\text{-}^\circ\text{C}$ 10.6 $\mu\text{in}/\text{in}\text{-}^\circ\text{F}$ at 25-540°C, 20.0 $\mu\text{m}/\text{m}\text{-}^\circ\text{C}$ at 25-760°C, 20.0 $\mu\text{m}/\text{m}\text{-}^\circ\text{C}$ at 25-870°C, 20.5 $\mu\text{m}/\text{m}\text{-}^\circ\text{C}$ at 25-980°C. Annealed

Specific Heat Capacity 0.48 J/g-°C 0.115 BTU/lb-°F Typical value for stainless steel.

Thermal Conductivity 13.8 W/m-K 95.8 BTU-in/hr-ft²-°F 13.8 at 95°C, 7.8 W/m°C at -180°C, 10.9 W/m°C at -73°C, 16.1 W/m°C at 205°C, 18.2 W/m°C at 315°C, 20.2 W/m°C at 425°C, 22.5 W/m°C at 540°C, 24.7 W/m°C at 650°C, 26.8 W/m°C at 760°C, 28.9 W/m°C at 870°C

References for this datasheet.

Some of the values displayed above may have been converted from their original units and/or rounded in order to display the information in a consistent format. Users requiring more precise data for scientific or engineering calculations can click on the property value to see the original value as well as raw conversions to equivalent units. We advise that you only use the original value or one of its raw conversions in your calculations to minimize rounding error.