



ASM Aerospace Specification Metals Inc.

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AISI Type 347 Stainless Steel, annealed, plate

Subcategory: Ferrous Metal; Heat Resisting; Metal; Stainless Steel; T 300 Series Stainless Steel

Close Analogs: AISI Type 348

Key Words: AFNOR Z 6 CNNb 18.10, UNI X 8 CrNiNb 18 11, JIS SUS 347, SS14 2338 (Sweden), UNS S34700, AMS 5512, AMS 5556, AMS 5558, AMS 5571, AMS 5575, AMS 5646, AMS 5654, AMS 5674, AMS 5680, AMS 5681, ASME SA182, ASME SA193, ASME SA194, austenitic, ASME SA213, ASME SA240, ASME SA249, ASME SA312, ASME SA320 (B8C), ASME SA358, ASME SA376, ASME SA403, ASME SA409, ASME SA430, ASME SA473, ASME SA479, ASME SA493, ASME SA511, ASME SA554, ASME SA580, ASME SA633, FED QQ-S-763, FED QQ-S-766, B.S. 347 S 17, B.S. En. 58 F, B.S. En. 58 G, B.S. ANC 3 Grade B, FED QQ-W-423, MIL SPEC MIL-S-862, MIL SPEC MIL-S-23196, SAE J405 (30347), DIN 1.4550, ISO 683/13 16

| Component | Wt. % | Component | Wt. % | Component | Wt. % |
|-----------|----------|-----------|-------|-----------|-----------|
| C | Max 0.08 | Mn | Max 2 | P | Max 0.045 |
| Cr | 17 | Nb + Ta | 0.8 | S | Max 0.03 |
| Fe | 68 | Ni | 11 | Si | Max 1 |

Material Notes:

Niobium plus Tantalum is ten times the minimum carbon content

| Physical Properties | Metric | English | Comments |
|---------------------|---------------|--------------------------|----------|
| Density | <u>8 g/cc</u> | 0.289 lb/in ³ | |

Mechanical Properties

| | | | |
|----------------------------|----------------|-----------|----------------------------------|
| Hardness, Brinell | 160 | 160 | |
| Hardness, Knoop | 180 | 180 | Converted from Brinell hardness. |
| Hardness, Rockwell B | 83 | 83 | Converted from Brinell hardness. |
| Hardness, Vickers | 167 | 167 | Converted from Brinell hardness. |
| Tensile Strength, Ultimate | <u>620 MPa</u> | 89900 psi | |
| Tensile Strength, Yield | <u>240 MPa</u> | 34800 psi | at 0.2% offset |
| Elongation at Break | <u>50 %</u> | 50 % | in 50 mm |

| | | |
|-----------------------|-------------------------|------------------|
| Modulus of Elasticity | 195 GPa | 28300 ksi |
| Poisson's Ratio | 0.27 | 0.27 |
| Charpy Impact | 160 J | 118 ft-lb |
| Izod Impact | 120 - 160 J | 88.5 - 118 ft-lb |
| Shear Modulus | 77 GPa | 11200 ksi |

Electrical Properties

| | | | |
|------------------------|---------------------------------|-----------------|---------|
| Electrical Resistivity | 7.3e-005 ohm-cm | 7.3e-005 ohm-cm | at 20°C |
| Magnetic Permeability | 1.008 | 1.008 | at RT |

Thermal Properties

| | | | |
|----------------------------------|------------------------------|-----------------------------------|---|
| CTE, linear 20°C | 17.3 μm/m-°C | 9.61 μin/in-°F | from 0-100°C (32-212°F) |
| CTE, linear 250°C | 17.8 μm/m-°C | 9.89 μin/in-°F | at 0-260°C (32-500°F) |
| CTE, linear 500°C | 18.4 μm/m-°C | 10.2 μin/in-°F | at 0-540°C, 18.7 μm/m-C at 0-650°C |
| Specific Heat Capacity | 0.5 J/g-°C | 0.12 BTU/lb-°F | from 0-100°C (32-212°F) |
| Thermal Conductivity | 16.3 W/m-K | 113 BTU-in/hr-ft ² -°F | at 100°C (212°F), 21.5 W/m-K at 500°C (930°F) |
| Melting Point | 1400 - 1425 °C | 2550 - 2600 °F | |
| Solidus | 1400 °C | 2550 °F | |
| Liquidus | 1425 °C | 2600 °F | |
| Maximum Service Temperature, Air | 870 °C | 1600 °F | Intermittent Service |
| Maximum Service Temperature, Air | 925 °C | 1700 °F | Continuous Service |

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.