



ASM Aerospace Specification Metals Inc.



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## AISI Type 303 Stainless Steel, annealed, tested at 760°C (1400°F)

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

**Close Analogs:** AISI Type 303 Se

**Key Words:** T303, T 303, 303SS, 303 SS, AFNOR Z 10 CNF 18.09 (Fr), UNI X 10 CrNiS 18 09, SUS 303, SS14 2346 (Sweden), B.S. 303 S 21, UNS S30300, AMS 5640 (1), ASME SA194, ASME SA320, ASTM A194, ASTM A314, ASTM A320, ASTM A320, ASTM A473, ASTM A581, ASTM A582, MIL SPEC MIL-S-862, SAE J405 (30303), DIN 1.4305, X12CrNiS188, EN 58M, austenitic, ISO 683/13 17, 18-8

| Component | Wt. %    | Component | Wt. %   | Component | Wt. %    |
|-----------|----------|-----------|---------|-----------|----------|
| C         | Max 0.15 | Mn        | Max 2   | P         | Max 0.2  |
| Cr        | 18       | Mo        | Max 0.6 | S         | Min 0.15 |
| Fe        | 69       | Ni        | 9       | Si        | Max 1    |

### Material Notes:

Short time tensile test, 5 MPa stress for 1% creep at 10,000 hours

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

### Mechanical Properties

|                            |                 |           |                |
|----------------------------|-----------------|-----------|----------------|
| Tensile Strength, Ultimate | <u>205 MPa</u>  | 29700 psi |                |
| Tensile Strength, Yield    | <u>145 MPa</u>  | 21000 psi | at 0.2% offset |
| Elongation at Break        | <u>31 %</u>     | 31 %      | in 50 mm       |
| Modulus of Elasticity      | <u>193 GPa</u>  | 28000 ksi | tension        |
| Poisson's Ratio            | 0.25            | 0.25      | Calculated     |
| Shear Modulus              | <u>77.2 GPa</u> | 11200 ksi |                |

### Electrical Properties

|                        |                        |                 |
|------------------------|------------------------|-----------------|
| Electrical Resistivity | <u>7.2e-005 ohm-cm</u> | 7.2e-005 ohm-cm |
|------------------------|------------------------|-----------------|

## Thermal Properties

|                        |  |  |   |
|------------------------|--|--|---|
| CTE, linear 250°C      | <u>17.8 <math>\mu\text{m}/\text{m}\cdot^\circ\text{C}</math></u> | 9.89 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$ | at 0-315°C (32-600°F)   |
| CTE, linear 500°C      | <u>18.4 <math>\mu\text{m}/\text{m}\cdot^\circ\text{C}</math></u> | 10.2 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$ | at 0-540°C, 18.7 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$ at 0-650°C |
| Specific Heat Capacity | <u>0.5 J/g<math>\cdot^\circ\text{C}</math></u>                   | 0.12 BTU/lb $\cdot^\circ\text{F}$                | from 0-100°C (32-212°F)   |
| Thermal Conductivity   | <u>16.2 W/m-K</u>  | 112 BTU-in/hr-ft $^2\cdot^\circ\text{F}$         | at 100°C (212°F), 21.5 W/m-K at 500°C (930°F)                         |
| Melting Point          | 1400 - 1420 °C   | 2550 - 2590 °F                                   |   |
| Solidus                | <u>1400 °C</u>   | 2550 °F  |   |
| Liquidus               | <u>1420 °C</u>   | 2590 °F  |   |

## 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.