



ASM Aerospace Specification Metals Inc.



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AISI Type 430 Stainless Steel annealed at 815°C, tested at 540°C (1000°F)

Subcategory: Ferrous Metal; Metal; Stainless Steel; T 400 Series Stainless Steel

Close Analogs: Composition Notes: Iron content calculated as remainder.

Key Words: UNS S43000, AMS 5503, AMS 5627, ASME SA182, ASME SA240, ASME SA268, ASME SA479, ASTM A176, ASTM A182, ASTM A240, ASTM A268, ASTM A276, ASTM A314, ASTM A473, ASTM A479, ASTM A493, ASTM A511, ASTM A554, ASTM A580, ASTM A651, B.S. 430 S 15, ferritic, DIN 1.4016, AFNOR Z 8 C 17 (Fr), UNI X 8 Cr 17, JIS SUS 430, SS14 2320 (Sweden), FED QQ-S-763, FED QQ-S-766, FED STD-66, MIL SPEC MIL-S-862, SAE J405 (51430), ISO 683/13 8

| Component | Wt. % |
|-----------|----------|
| C | Max 0.12 |
| Cr | 14 - 18 |
| Fe | 79 - 87 |
| Mn | Max 1 |
| P | Max 0.04 |
| S | Max 0.03 |
| Si | Max 1 |

Material Notes:

One of the most widely used "non-hardenable" stainless steels; magnetic in all conditions, good physical and mechanical characteristics, about three-quarters the ductility of low carbon strip and inferior to chrome-nickel grades; cost less than chromium-nickel stainless steels.

Applications: cabinet hardware, decorative appliance and automotive molding and trim, range hoods, restaurant equipment, drawn and formed parts and stampings.

Corrosion Resistance: Excellent resistance to citric and nitric acid, sulfur gases; slightly less corrosion and heat resistant than Types 301, 302, and 304.

Weldability: Poorer than Type 409; use common fusion and resistance techniques, but welds not suitable for rigorous service. Use AWS E/ER 308L or 430 weld filler.

Processing: Annealed 430 is susceptible to stretcher strains and roping. Skin passing after annealing reduces the likelihood of stretcher strains, but can also reduce the ductility somewhat.

Physical Properties

Metric

English

Comments

| | | |
|---------|-----------------|--------------------------|
| Density | <u>7.8 g/cc</u> | 0.282 lb/in ³ |
|---------|-----------------|--------------------------|

Mechanical Properties

| | | | |
|----------------------------|----------------|-----------|----------------|
| Tensile Strength, Ultimate | <u>269 MPa</u> | 39000 psi | |
| Tensile Strength, Yield | <u>169 MPa</u> | 24500 psi | at 0.2% offset |
| Elongation at Break | <u>40 %</u> | 40 % | in 50 mm |
| Modulus of Elasticity | <u>200 GPa</u> | 29000 ksi | |

Electrical Properties

| | | | |
|------------------------|----------------------|---------------|--------------------------|
| Electrical Resistivity | <u>6e-005 ohm-cm</u> | 6e-005 ohm-cm | at 20°C |
| Magnetic Permeability | 600 - 1100 | 600 - 1100 | annealed condition at RT |

Thermal Properties

| | | | |
|----------------------------------|---------------------|-----------------------------------|--|
| CTE, linear 20°C | <u>10.4 μm/m-°C</u> | 5.78 μin/in-°F | from 0-100°C (32-212°F) |
| CTE, linear 250°C | <u>11 μm/m-°C</u> | 6.11 μin/in-°F | at 0-315°C |
| CTE, linear 500°C | <u>11.3 μm/m-°C</u> | 6.28 μin/in-°F | at 0-540°C, 11.9 μm/m-C at 0-650°C, 12.4 μm/m-C at 0-815°C |
| Specific Heat Capacity | <u>0.46 J/g-°C</u> | 0.11 BTU/lb-°F | from 0-100°C (32-212°F) |
| Thermal Conductivity | <u>26.1 W/m-K</u> | 181 BTU-in/hr-ft ² -°F | at 100°C, 26.3 at 500°C |
| Melting Point | 1425 - 1510 °C | 2600 - 2750 °F | |
| Solidus | <u>1425 °C</u> | 2600 °F | |
| Liquidus | <u>1510 °C</u> | 2750 °F | |
| Maximum Service Temperature, Air | <u>815 °C</u> | 1500 °F | Continuous Service |
| Maximum Service Temperature, Air | <u>870 °C</u> | 1600 °F | Intermittent 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.