

# AISI 1006 Steel, cold drawn

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**Subcategory:** AISI 1000 Series Steel; Carbon Steel; Low Carbon Steel; Metal

**Key Words:** UNS G10060, ASME 5041, ASTM A29, ASTM A510, ASTM A545, FED QQ-W-461, MIL SPEC MIL-S-11310 (CS1006), SAE J403, SAE J412, SAE J414

| Component | Wt. %         |
|-----------|---------------|
| C         | Max 0.08      |
| Fe        | 99.43 - 99.75 |
| Mn        | Max 0.45      |
| P         | Max 0.04      |
| S         | Max 0.05      |

## Material Notes:

The composition shown above is for structural shapes, plates, strip, sheets, and welded tubing only. Semifinished products for forging, hot-rolled and cold finished bars, wire rods, and seamless tubing have a magnesium range of 0.25 - 0.40%.

**Applications:** Soft, very ductile, used in applications which require severe bending and welding such as panels for automobiles or appliances. Also used in magnet core applications.

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| Physical Properties | Metric                     | English                  | Comments |
|---------------------|----------------------------|--------------------------|----------|
| Density             | <a href="#">7.872 g/cc</a> | 0.284 lb/in <sup>3</sup> |          |

## Mechanical Properties

|                            |                         |           |                                  |
|----------------------------|-------------------------|-----------|----------------------------------|
| Hardness, Brinell          | 95                      | 95        |                                  |
| Hardness, Knoop            | 113                     | 113       | Converted from Brinell hardness. |
| Hardness, Rockwell B       | 55                      | 55        | Converted from Brinell hardness. |
| Hardness, Vickers          | 98                      | 98        | Converted from Brinell hardness. |
| Tensile Strength, Ultimate | <a href="#">330 MPa</a> | 47900 psi |                                  |
| Tensile Strength, Yield    | <a href="#">285 MPa</a> | 41300 psi |                                  |
| Elongation at Break        | <a href="#">20 %</a>    | 20 %      | In 50 mm                         |
| Reduction of Area          | <a href="#">45 %</a>    | 45 %      |                                  |
| Modulus of Elasticity      | <a href="#">205 GPa</a> | 29700 ksi | Typical for steel                |
| Bulk Modulus               | <a href="#">140 GPa</a> | 20300 ksi | Typical for steel                |
| Poisson's Ratio            | 0.29                    | 0.29      | Typical For Steel                |

|               |                      |      |  |
|---------------|----------------------|------|--|
| Machinability | <a href="#">50 %</a> | 50 % | Based on AISI 1212 steel. as 100% machinability. The machinability of Group I bar, rod, and wire products can be improved by cold drawing. |
|---------------|----------------------|------|--|

|               |                        |           |                   |
|---------------|------------------------|-----------|-------------------|
| Shear Modulus | <a href="#">80 GPa</a> | 11600 ksi | Typical for steel |
|---------------|------------------------|-----------|-------------------|

### Electrical Properties

|                        |                                  |                  |               |
|------------------------|----------------------------------|------------------|---------------|
| Electrical Resistivity | <a href="#">1.74e-005 ohm-cm</a> | 1.74e-005 ohm-cm | Typical steel |
|------------------------|----------------------------------|------------------|---------------|

### Thermal Properties

|                        |                              |                 |                    |
|------------------------|------------------------------|-----------------|--------------------|
| CTE, linear 20°C       | <a href="#">12.6 µm/m-°C</a> | 7 µin/in-°F     | 0-100°C            |
| CTE, linear 250°C      | <a href="#">13.5 µm/m-°C</a> | 7.5 µin/in-°F   | 0-300°C (68-570°F) |
| CTE, linear 500°C      | <a href="#">14.2 µm/m-°C</a> | 7.89 µin/in-°F  | 0-500°C (68-930°F) |
| CTE, linear 1000°C     | <a href="#">13.7 µm/m-°C</a> | 7.61 µin/in-°F  | 0-1000°C           |
| Specific Heat Capacity | <a href="#">0.481 J/g-°C</a> | 0.115 BTU/lb-°F | 50-100°C           |

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[References](#) for this datasheet.

Some of the values displayed above may have been converted from their original units and/or rounded in order