416 Stainless
Technical Datasheet

Martensitic Stainless Steel Alloy with added Sulphur

Typical Applications
- Automotive components
- General engineering
- Washing machine parts
- Motor shafts
- Gears
- Valves & pumps

Product Description
Type 416 stainless is a martensitic steel alloy with added sulphur - this gives the alloy excellent machining properties, infact, they are best of any stainless steel. The added sulphur also improves non-galling characteristics. However, this performance comes at a cost. Corrosion resistance is limited, as is formability and weldability.

Key features
- Addition of sulphur to this martensitic alloy gives it the best machining properties of any stainless steel.
- This comes at a cost in terms of reduced corrosion resistance, formability & weldability.

Machinability
Excellent machinability.

Weldability
Poor.

Availability
Round Bar, plate, sheet, wire tube.

Corrosion resistance
Highly resistant to acids, alkalis, fresh water and dry air.

Chemical Composition (weight %)

<table>
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<th></th>
<th>C</th>
<th>Cr</th>
<th>Mn</th>
<th>Si</th>
<th>P</th>
<th>S</th>
<th>Fe</th>
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<td>0.35</td>
<td>Bal</td>
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Mechanical Properties

| Tensile strength | 500 - 1400 MPa |
| Proof Stress    | 280 - 1110 MPa |
| Elongation A5   | 11 - 30 %     |

Physical Properties

| Density          | 7.75 g/cm³ |
| Modulus of Elasticity | 200 GPA   |
| Electrical Resistivity | 0.057  Ω.m |
| Thermal Conductivity  | 24.9 W/m.K |
| Thermal Expansion    | 9.9 x10⁻⁶ /K |

Technical Assistance

Our knowledgeable staff backed up by our resident team of qualified metallurgists and engineers, will be pleased to assist further on any technical topic.

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