

Description

430F-Mod/1.4104 is a free-machining ferritic stainless steel grade, known for its improved machinability compared to standard 430 due to the addition of sulfur. It is primarily used in applications requiring moderate corrosion resistance and good formability, but it does not respond to heat treatment.

Chemical Composition

The typical chemical composition of 430F-Mod is as follows:

Element	Composition (%)
Carbon (C)	0.12 (max)
Manganese (Mn)	1.25 (max)
Silicon (Si)	1.00 (max)
Phosphorus (P)	0.06 (max)
Sulfur (S)	0.15 (min)
Chromium (Cr)	16.0 - 18.0
Iron (Fe)	Balance

Mechanical Properties

The mechanical properties of **430F-Mod/1.4104** are as follows:

Property	Value
Yield Strength (0.2% Proof)	379 MPa (min)
Tensile Strength	552 MPa (min)
Elongation (% in 50mm)	25 (min)
Hardness (Brinell)	262 (max)

Thermal & Physical Properties

The thermal and physical properties include:

Property	Value
Density	7750 kg/m ³
Elastic Modulus	200 GPa
Coefficient of Thermal Expansion	10.4 $\mu\text{m}/\text{m}/^\circ\text{C}$

Thermal Conductivity	11.0 W/m·K
Electrical Resistivity	360 nΩ·m

Other Designations

- UNS: S43020
- DIN: 1.4104
- JIS: SUS 430F
- AFNOR: Z 13 CF 17
- GOST: 12Ch17
- BS: 430S15

Fabrication and Heat Treatment

430F-Mod is not hardenable by heat treatment. It can be cold worked through moderate operations. Welding is possible but not recommended due to the sulfur content, which can lead to reduced mechanical properties.

Applications

Common applications of **430F-Mod/1.4104** include:

- Automotive parts
- Fasteners (bolts, screws, nuts)
- Valve and pump bodies
- Machine parts and cutlery
- Petrochemical equipment
- Gears and shafts

Supplied Form

430F-Mod is available in various forms, such as:

- Round bars
- Square bars
- Hexagonal bars

- Flat bars
- Seamless and welded pipes
- Hot and cold rolled plates and sheets
- Forged bars and flanges

Features

- Excellent machinability due to sulfur content
- Moderate corrosion resistance
- Good formability
- Limited weldability
- Not suitable for heat treatment

This datasheet provides a comprehensive overview of the 430F-Mod grade, suitable for engineers and designers in selecting materials for specific applications.

