STAINLESS STEEL

416S21 - 1.4005

416S21 - 1.4005

416S21 is a martensitic stainless steel grade known for its exceptional machinability and moderate corrosion resistance. It is a variant of the standard 416 stainless steel with added sulphur to enhance its free-machining properties. Its chemical composition makes it suitable for precision machining operations. However, the trade-off is slightly reduced corrosion resistance compared to other stainless steels.

KEY FEATURES

- Excellent machinability
- Moderate corrosion resistance
- Good strength and hardness
- Can be heat-treated
- Magnetic in annealed & hardened conditions

CHEMICAL PROPERTIES

Chromium (Cr)	Nickel (Ni)	Manganese (Mn)	Silicone (Si)	Sulphur (S)	Carbon (C)	Phosphorus (P)	Iron (Fe)
12-14%	**1.5%**	**1.5%**	**1%**	**0.15-0.35%**	**0.08-0.15%**	**0.06%**	**rest**

MECHANICAL PROPERTIES

Tensile strength (N/mm²)	**515-690**
Yield strength (N/mm²)	**275-380**
Elongation (% in 4D)	**20-30**
Hardness - Rockwell C (HRC) max	**25-35**
Hardness - Brinell (HB) max	**200-260**

PHYSICAL PROPERTIES

Density (kg/m³)		**7750**
Modulus of elasticity (Gpa)		**200**
Mean coefficient of thermal expansion	0-100ºC (µm/m/ºC)	**10.3**
	0-350ºC (µm/m/ºC)	**10.7**
	0-538ºC (µm/m/ºC)	**11.1**
Thermal conductivity	at 100ºC (W/m.K)	**26.0**
	at 500ºC (W/m.K)	**30.0**
Specific Heat 0-100ºC (J/kg.K)		**460**
Electrical resistivity (nΩ.m)		**580**
Melting point (ºC)		**1450**

MARKET SECTORS

Automotive Industry
Engine and transmission parts, fasteners, valve components

Chemical Processing
Pump shafts, valves, fittings

Kitchen Equipment
Cutlery, knife blades, other household items

Medical Devices
Surgical tools, dental instruments, implant components

Engineered Components
Screws, bolts, fasteners, valves, fittings

Aerospace Industry
Screws, bolts, rivets used in aircraft construction

Steel Dynamics UK®

Tel: +44 (0)1204 368600
Email: sales@steel-dynamics.co.uk

Visit our website:
www.steel-dynamics.co.uk