# 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 (Gp	200					
	0-100°C (µm/m/°C)	10.3				
Mean coefficient of	0-350°C (µm/m/°C)	10.7				
thermal expansion	0-538°C (µm/m/°C)	11.1				
Thermal	at 100°C (W/m.K)	26.0				
conductivity	at 500°C (W/m.K)	30.0				
Specific Heat 0-100°C (J	460					
Electrical resistivity (nΩ.	580					
Melting point (°C)	1450					

## **MARKET SECTORS**



Automotive Industry

Chemical Processing

Engine and transmission parts, fasteners, valve components

Pump shafts, valves, fittings



Cutlery, knife blades, other household items



Medical Devices

Surgical tools, dental instruments, implant components



Screws, bolts, fasteners, valves, fittings



Aerospace Industry

Screws, bolts, rivets used in aircraft construction



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