Stainless steel 416 | 1.4005 | X12CrS13

Stainless Steel 416 is a free-machining martensitic grade for precision CNC components.

Mechanical properties

Ultimate tensile strength	440 - 580 MPa
Yield strength	275 - 345 MPa
Young's modulus (modulus of elasticity)	200 GPa
Elongation at break	7 - 25 %

Physical properties

Corrosion resistance	Moderate
Magnetism	Magnetic
Weldability	Poor

Thermal properties

Maximum service temperature	675 - 760 °C
Thermal expansion coefficent	9.9 - 11.7 10^-6/ºC
Thermal conductivity	24.9 - 28.7 W/(m·°C)

Electrical properties

Electrical resistivity	57 µΩ*cm

Post treatments

Post-Processing	Cold & hot working, Annealing, Tempering, Hardening
Anodizing compatibility	Not suitable

Common applications

Pump & motor shafts	

Valves	
Gears & bolts	
Washing machine components	
Nuts & studs	
Automatic screw-machined components	

Stainless Steel 416 CNC Machining Applications & Parts

Stainless Steel 416 is a free-machining martensitic grade known for being the most machinable stainless steel. It offers good strength, heat treatability, and moderate corrosion resistance, making it perfect for high-volume turned and milled components.

Typical Parts We Machine from Stainless Steel 416:

- **Automotive:** Valve bodies, pump parts, gears, fasteners
- **Hardware & Appliances:** Screws, nuts, bolts, shafts, knife parts
- **Firearms & Defense:** Small components, pins, fittings

Our Machining Advantage:

We maximize the free-cutting nature of 416 to achieve extremely high production speeds, minimal tool wear, and excellent chip breakage, resulting in cost-efficient manufacturing of precision parts.

Get an Instant Quote for your custom Stainless Steel 416 parts today.