Invar 36

Invar 36 offers low thermal expansion for precision instruments.

Mechanical properties

Ultimate tensile strength	450 - 480 MPa
Yield strength	260 - 280 MPa
Young's modulus (modulus of elasticity)	137 - 148 GPa
Elongation at break	30 - 35 %
Hardness	90 - 98 HRC

Physical properties

Corrosion resistance	Poor to Medium
Magnetism	Magnetic
Weldability	Moderate to Good

Thermal properties

Maximum service temperature	320 - 430 °C
Thermal expansion coefficent	0.5 - 2 10^-6/ºC
Thermal conductivity	10 - 15 W/(m·°C)

Electrical properties

Electrical resistivity	75 - 85 µΩ*cm

Post treatments

Post-Processing	Cold working, annealing and quenching
Anodizing compatibility	Not suitable

Common applications

Aircraft control	
Optical & laser systems	
Electronic devices	

Invar 36 CNC Machining Applications & Parts

Invar 36 is a unique nickel-iron alloy renowned for its exceptionally low coefficient of thermal expansion (CTE) at room and slightly elevated temperatures. This "dimensionally stable" superalloy is ideal for applications requiring extreme precision despite temperature fluctuations. Our specialized CNC machining processes are tailored to handle Invar 36's work-hardening characteristics to deliver highly stable components.

Typical Parts We Machine from Invar 36:

- **Aerospace & Defense:** Laser housing components, satellite structures, precision mounts, optical platform supports
- **Telecommunications:** Waveguide components, RF cavity resonators, microwave filter bodies
- **Scientific Instruments:** Metrology frames, telescope parts, clock pendulums, precision measuring equipment
- **Molding & Tooling:** Composite molding tools, fixtures for composite layup, dimensionally stable jigs

Our Machining Advantage:

We employ slow, controlled machining speeds with sharp, specialized tooling to effectively manage Invar 36's tendency to work-harden, ensuring stress-free cuts and maintaining the critical dimensional stability the alloy is known for.

Get an Instant Quote for your custom Invar 36 parts today.