Tool steel A3 - Annealed state

Tool Steel A3 is general-purpose tool steel for dies and fixtures.

Mechanical properties

Ultimate tensile strength	700 MPa
Yield strength	340 MPa
Young's modulus (modulus of elasticity)	190 GPa
Elongation at break	21 %

Physical properties

Corrosion resistance	Poor
Magnetism	Magnetic
Weldability	Poor

Thermal properties

Thermal expansion coefficent	11.8 - 14.3 10^-6/ºC
Thermal conductivity	37 W/(m·°C)

Electrical properties

Electrical resistivity	24.5 - 30.2 µΩ*cm

Post treatments

Post-Processing	Cold work, Annealing, Quenching, Tempering, Hardening
Anodizing compatibility	Not suitable

Common applications

Shear blades	
Knurling tools	

Cold forging dies	
Cold forging & heading dies	

Tool Steel A3 CNC Machining Applications & Parts

Tool Steel A3 is an air-hardening, medium-alloy cold work tool steel that offers a good balance of toughness, wear resistance, and dimensional stability during heat treatment. Its excellent machinability in the annealed condition makes it suitable for various precision tooling applications.

Typical Parts We Machine from Tool Steel A3:

- **Precision Gauges:** Measuring instruments, inspection gauges, precision fixtures
- **Forming Tools:** Blanking dies, forming punches, bending tools
- **Machine Components:** Bushings, guides, sleeves, precision bearings

Our Machining Advantage:

We leverage A3's excellent machinability in the annealed state to achieve tight tolerances and fine surface finishes, followed by precise heat treatment to deliver components with optimal hardness and performance.

Get an Instant Quote for your custom Tool Steel A3 parts today.