



S136

Description

S136 is a high-chromium martensitic stainless mold steel developed by ASSAB (Sweden). Its equivalent designation in China is 4Cr13MoV. Renowned for its superior corrosion resistance, excellent polishability, and high precision, it is the preferred material for manufacturing corrosion-resistant, high-polish, and precision injection molds.

Features

This material offers excellent corrosion resistance, polishability, wear resistance, and machinability, with outstanding quenching stability. Its clean and fine microstructure reduces mold maintenance costs, keeping cavity surfaces smooth even after prolonged use. It requires no special protection in humid environments. It is suitable for injection molding of corrosive materials such as PVC and acetates, as well as high-wear electronic components. It is also used in optical applications, including injection molds for mobile phone camera lenses and sunglass lenses.





Parameters

Chemical Composition (Mass Fraction, %)

| Elements | C | Si | Mn | Cr | Mo | V | P |
|---------------|----------------|----------------|----------------|----------------|----------------|----------------|--------|
| Range | 0.36-- 0.42 | 0.60-- 0.90 | 0.40-- 0.60 | 13.2-- 13.8 | 0.50-- 0.70 | 0.15-- 0.25 | ≤0.030 |
| Typical Value | 0.38 | 0.80 | 0.50 | 13.6 | 0.60 | 0.20 | 0.025 |

Mechanical Properties (Pre-Hardened / Quenched and Tempered)

| Properties | Pre-hardened condition (as delivered) | Quenched and tempered condition (commonly used) |
|---------------------|---------------------------------------|---|
| Hardness | HRC30-34 | HRC48-52 (high wear resistance: 50-54) |
| Tensile Strength | 1000-1100 MPa | 1600-1800 MPa |
| Yield strength | 850-950 MPa | 1400-1600 MPa |
| Elongation at Break | ≥12% | ≥8% |
| Impact energy (Akv) | ≥30J | ≥20 J |
| Annealed hardness | ≤250 HB | - |

Physical Properties

Density: 7.75g/cm³

Thermal conductivity (100°C): 24.8 W/(m·K)

Coefficient of linear expansion (20-300°C): 10.5x10⁻⁶/°C

Magnetic Properties: Weakly magnetic

Melting point: ≈1420°C

