Xometry

Datasheet

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.

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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/cm^3

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