

S-7 Mold Quality Data Sheet

*Chemical Composition (Nominal Values Weight %)

| C | P | Si | V | Mn | S | Cr | Mo |
|------|------|------|------|------|-------|------|------|
| 0.55 | .010 | 0.35 | 0.25 | 0.70 | 0.005 | 3.25 | 1.40 |

*Composition shown is nominal. Actual chemical composition may vary.

Characteristics

S-7 MQ is a shock resistant alloy tool steel which provides a unique combination of machinability, exceptional toughness, ease of heat treatment and minimum distortion. Special melting and refining practices are utilized to produce a uniform product with high cleanliness and minimum segregation.

Applications

S-7 MQ is suitable for use in applications requiring high impact strength such as shears, punches, blanking dies and chisels. The grade is also widely used for high-hardness plastic molds and zinc die-casting dies.

Heat Treating of S-7 Mold Quality

Annealing

S-7 Mold Quality should be heated thoroughly to 1550°F in an atmosphere controlled furnace. Hold 2 hours, furnace cool at 25°F per/hr to 1100°F, then air cool to room temperature. A maximum hardness of 210 BHN should result.

Hardening

Preheat: 1200-1250°F, equalize temperature, hold 2 hours.
 Austenitize: 1725-1750°F, equalize temperature, hold 30 minutes.
 Quench: Positive pressure (2 bar minimum) quench to below 125°F.
 Temper: Double temper at 400-800°F, equalize temperature, hold 2 hours minimum. Double temper recommended.
 Typical hardness: 48-57 HRC.

Stress Relieving

Annealed material: Heat to 1000-1200°F, hold 2 hours, then air cool.
 Hardened material: Heat to 25-50°F below heat treat tempering temperature, hold 2 hours, then air cool.

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Hardened material: Heat to 25-50°F below heat treat tempering temperature, hold 2 hours, then air cool.