

# 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.

### EDM

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