

High Speed Steel

TG M-42



Smelting method : 15T intermediate frequency furnace (EAF+LF+VD+ESR)

Main characteristics : High steel hardness, reaching 68HRC after quenching and tempering, favorable hot hardening, capable of manufacturing various complicated tools with high precision.

Major applications : • Capable of manufacturing abrasion resistant and impact resistant tools for various types of powerful cutting. • High-level trimming dies, screw dies, formed punches of complicated shapes requiring tenacity, etc.; • Scrapers, hobs, drilling bits, etc. • Cold forging molds.

Chemical Composition : (%)

C	Si	Mn	W	Cr	Mo	V	Co	P	S
1.08	0.3	0.3	1.45	3.95	9.40	1.15	7.85	≤0.020	≤0.001
O (ppm)			N (ppm)			H (ppm)			
≤1.08			≤100			≤2.5			

Physical Property :

Room temperature density (Kg/m ³)	Specific heat of room temperature (J/Kg.K)	200°C thermal conductivity (W/m.K)	Elastic modulus (N/mm ²)	Linear expansivity (x10 ⁻⁶ /K)	
				20 ~ 200°C	20 ~ 400°C
8.01	460	19.00	220,000	10.8	11.6

Ultrasonic flaw detection: As per SEP1921 E/e or customer requirements.

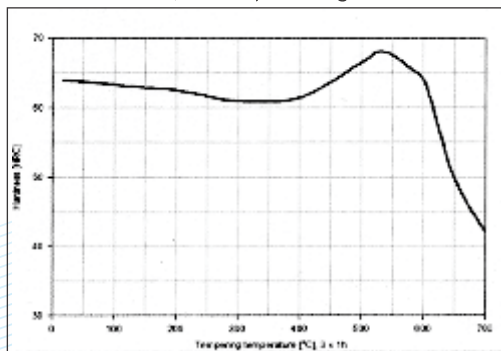
Purity :

Class A		Class B		Class C		Class D	
Fine	Coarse	Fine	Coarse	Fine	Coarse	Fine	Coarse
0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

Delivery state : (1) Delivery under balling annealing state, delivery hardness ≤269HB.

Thermal Treatment		
Softening annealing	Quenching	Tempering
Heating to 850°C for heat insulation; cooling to 550°C slowly and then removing from the furnace	1,175-1,180°C quenching; high-speed gas quenching or hot oil cooling	Tempering temperature 540-570°C, at least three times of tempering

1,180°C quenching



Tempering temperature and hardness relation curve

