

DIN - Material - No.

1.2344

Code

X40CrMoV5-1

Comparable standards

AISI: H13, EU: X40CrMoV5 1 1

Chemical composition

(Typical analysis %)

C	Si	Mn	Cr	Mo	V
0.40	1.05	0.40	5.15	1.35	1.00

Steel properties

Good hot wear resistance and thermal conductivity. It maintains high hardness and strength at elevated temperatures. Resistance to thermal fatigue, hot cracking, erosion and wear. Very high toughness. Good ductility and hardenability - air cooling. Tools can be water cooled.

Physical properties

Thermal conductivity W/(m.K)	20	500	600°C					
	25	28.5	29.3					
Density g/cm ³	20	500	600°C					
	7.78	7.64	7.60					
Coefficient of linear thermal expansion								
10 ⁻⁶ °C ⁻¹	20-100	20-200	20-300	20-400	20-500	20-600	20-700	20-800°C
	10.7	11.9	12.2	12.5	12.7	13.1	13.5	13.7

Applications

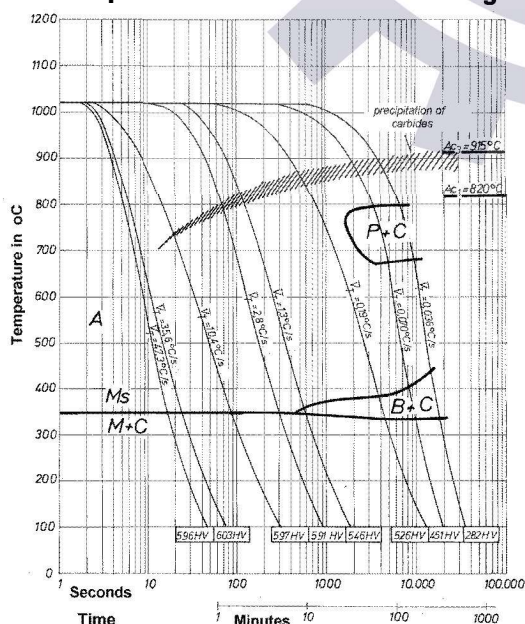
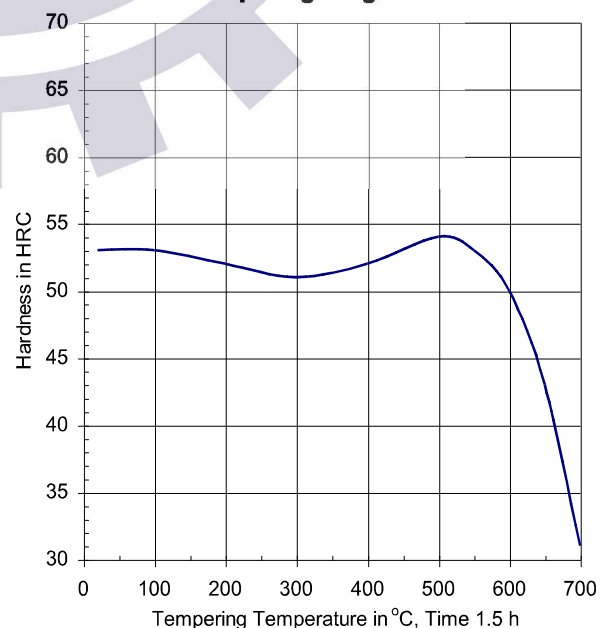
Wear resisting tools, pressure die casting and extrusion dies, pressing tools for light and heavy metal. Used for ejector pins, tool holders and shrink fit chucks. For the highest requirements we recommend UTOPM02 ESR EFS.

Stress Relieving

At approx 650° C for one hour.

Heat treatment

Soft annealing°C		Cooling					Hardness HB				
760 - 810		furnace					max. 229				
Hardening from°C		in					Hardness after quenching HRC				
1020 - 1060		oil, air; thermal bath ca. 450 - 550°C					52 - 56				
Tempering	°C	100	200	300	400	500	550	600	650	700	
	HRC	53	52	51	52	54	53	50	43	31	
	N/mm²	1845	1790	1730	1790	1910	1845	1680	1360	995	

Time - Temperature - Transformation - Diagram

Tempering Diagram


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Mechanical properties at elevated temperature

hardened and tempered on 1370 N/mm²

