

Identification		
Material number	Reference number	AISI
1.2550	60WCrV8	

Chemical composition Typical analysis in %						
C	Si	Mn	Cr	V	W	
0.60	0.60	0.35	1.10	0.20	2.00	

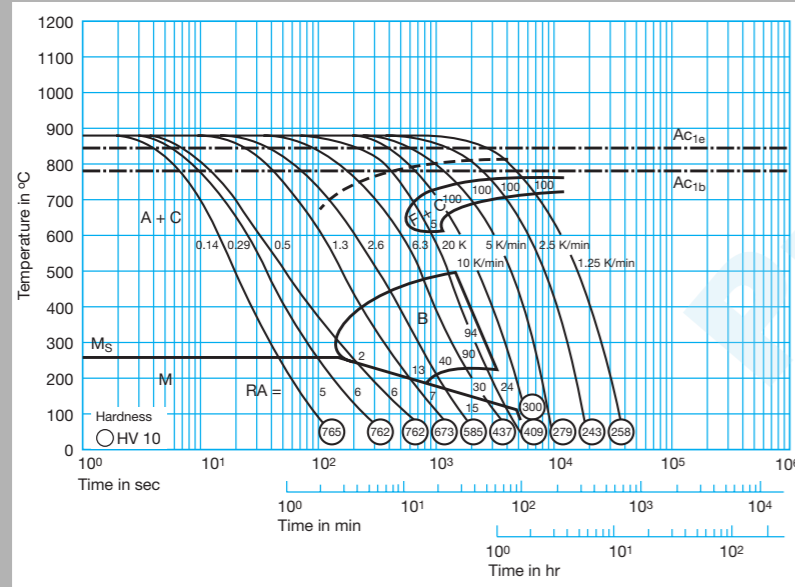
Steel properties
Impact-resistant oil-hardenable steel, characterized by very good toughness in combination with high hardenability.

Physical properties							
Coefficient of thermal expansion $10^{-6} \text{ m}/(\text{m} \cdot \text{K})$	20 – 100 °C	20 – 200 °C	20 – 300 °C	20 – 400 °C	20 – 500 °C	20 – 600 °C	20 – 700 °C
		11.8	12.7	13.1	13.5	14.0	14.3
Thermal conductivity $\text{W}/(\text{m} \cdot \text{K})$	20 °C		350 °C		700 °C		
	34.2		32.6		30.9		

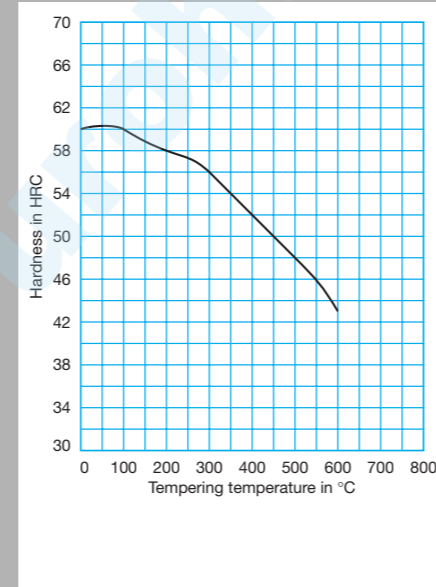
Applications
Blanking dies for cutting sheets up to 12 mm thickness, trimming and splitting dies, cold piercing punches, preforming punches, shear blades, chipping knives, pneumatic chisels, coining tools, cold shear blades, ejectors.

Heat treatment							
Soft annealing °C	Cooling	Hardness HB					
710 – 750	Furnace	max. 225					
Stress-relief annealing °C	Cooling						
approx. 650	Furnace						
Hardening °C	Quenching	Hardness after quenching HRC					
870 – 900	Oil or saltbath (180 – 220 °C)	60					
Tempering °C		100	200	300	400	500	600
		HRC	60	58	56	52	48

Time-temperature-transformation diagram



Tempering diagram



Identification		
Material number	Reference number	AISI
1.2709	(X3NiCoMoTi18-9-5)	18MAR300

Chemical composition Typical analysis in %				
C	Mo	Ni	Co	Ti
< 0.02	5.00	18.00	10.00	1.00

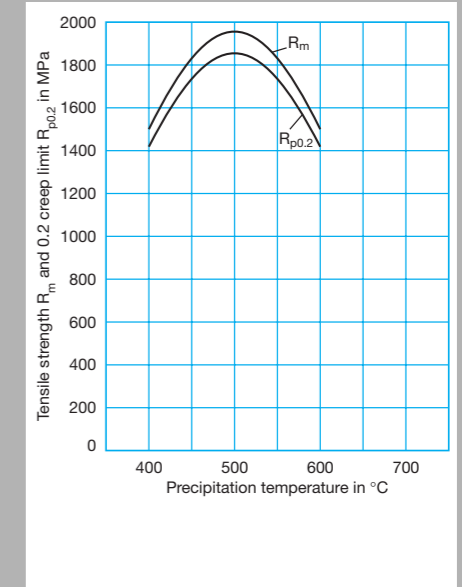
Steel properties
Precipitation-hardenable grade with high yield point and tensile strength combined with good toughness.

Physical properties						
Coefficient of thermal expansion $10^{-6} \text{ m}/(\text{m} \cdot \text{K})$	20 – 100 °C	20 – 200 °C	20 – 300 °C	20 – 400 °C	20 – 500 °C	20 – 600 °C
		10.3	11.0	11.2	11.5	11.8
Thermal conductivity $\text{W}/(\text{m} \cdot \text{K})$	20 °C		350 °C		700 °C	
	14.2		18.5		22.5	

Applications
Casings for cold extrusion tools, cutting and punching tools.

Heat treatment		
Solution annealing °C	Cooling	Hardness HB
820 – 850	Water	max. 340
Precipitation temperature °C	Attainable hardness HRC	
490 / 6 h / Air	approx. 55	

Tempering diagram



Reference numbers in brackets are not standardized in EN ISO 4957.