



OHNS | 1.2510 | SKS3| O1

This cold work steel comprises of chromium, manganese, and tungsten and is moderately cheap.

A universally useful oil hardening tool steel reasonable for back up and punch holder plates. Components of this grade incorporate a decent mix of high surface hardness and toughness after hardening and tempering.

CHEMICAL COMPOSITION

W.nr	EQUIVALENT			C	Si	Mn	S	P	Cr	W	Mo	V
	JIS	DIN	AISI/ASTM									
1.2510	SKS 3	100MnCrW 4	O1	0.90 - 1.05	0.15 - 0.35	1.00 - 1.20	<0.0 3	<0.0 3	0.50- 0.70	0.50 - 0.70	0.10	0.05 - 0.15

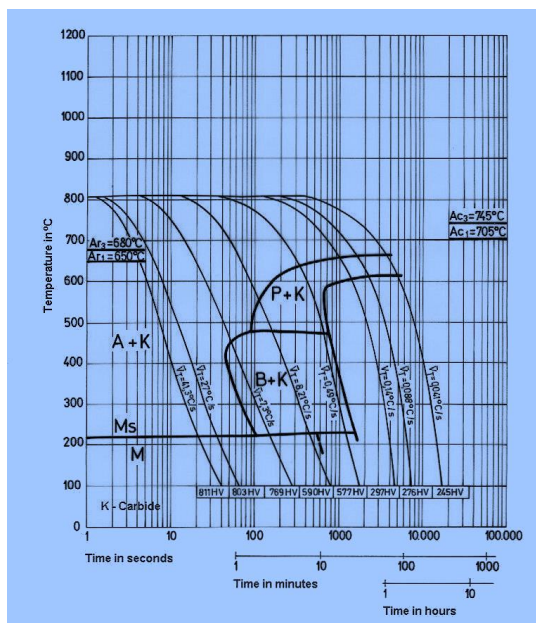
PROPERTIES

Physical Properties		Metric	Imperial
Density (hardened to 62 HRC)		7.81 g/cm ³	0.282 lb/in ³
Density (@399°C/ 750°F, hardened to 62 HRC)		7.70 g/cm ³	0.278 lb/in ³
Density (@191°C/ 375°F, hardened to 62 HRC)		7.75 g/cm ³	0.280 lb/in ³
Melting point		1421°C	2590°F
Mechanical Properties		Metric	Imperial
Hardness, Brinell (soft annealed -delivery condition)		190	190
Hardness, Rockwell C (tempering temp 300-1200°F)		34.0-64.0	34.0-64.0
Elastic modulus (hardened to 62 HRC)		193 GPa	28000 ksi
Elastic modulus (@399°C/750°F, hardened to 62 HRC)		172 GPa	25000 ksi
Elastic modulus (@191°C/375°F, hardened to 62 HRC)		186 GPa	27000 ksi
Compressive yield strength (0.2%, hardened to 50 HRC)		1350 MPa	196000 psi
Compressive yield strength (0.2%, hardened to 55 HRC)		1800 MPa	261000 psi
Compressive yield strength (0.2%, hardened to 60 HRC)		2150 MPa	312000 psi
Compressive yield strength (0.2%, hardened to 62 HRC)		2200 MPa	319000 psi
Thermal Properties		Conditions	
		T (°C)	Treatment
Thermal expansion	10.6 x 10 ⁻⁶ /°C	20-260	-

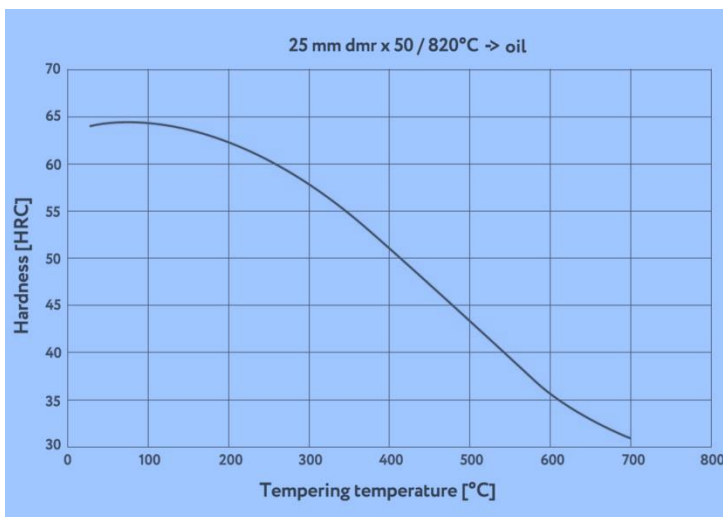
HEAT TREATMENT

TREATMENT	TEMPERATURE	HOLDING TIME (HT)	COOLING
Annealing	Heat to 700 - 720 °C	Min. H.T. for 2 minute /mm	Furnace to 600°C than in air
Stress relieving	Heat to 600 - 650 °C	Min. H.T. for 2 minute /mm	Air or furnace
Hardening	Heat to 790-820 °C	Min. H.T. for 1 minute /mm	Oil or pressure gas (vacuum)

C.C.T. curve



Tempering curve



APPLICATION

Typical applications:

Press Tools, Broaches, Clipping, Marking Punches, Gauges, Jigs, Deep Drawing Dies, Slitting Cutters, Taps & Screwing Tools