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Nazwa gatunku: WCLV/1.2344/X40CrMoV5-1

Nazwa: HOT WORK TOOL STEEL

NORM: ISO 4957

APPLICATION

Steel susceptible to hot forming tools, die inserts for presses and upsetting machines, extrusion tools from light metals, forging dies, pressure casting tools, hot shear knives, tools for plastic industry and rollers for copper rolling.

CHEMICAL COMPOSITION:

C	Si	Mn	P	S	Cr	Mo	W	V	Co	Ni
0,35-0,42	0,80-1,20	0,25-0,50	Max 0,030	Max 0,030	4,80-5,50	1,20-1,50	-	0,85-1,15	-	-

MECHANICAL PROPERTIES:

Hardness after	Tempering °C	Symbol	Value
Soft annealing	-	HB	≤229
Quenching with 1020 °C in oil	-	HRC	56
Quenching with 1020 °C in oil and tempering (cooling during quenching can be performed gradually in the salt bath at around 550 °C and then cooled in the air)	550	HRC	≥50
	350	HRC	53
	400	HRC	54
	450	HRC	55.5
	500	HRC	56
	550	HRC	52.5
	600	HRC	48
650	HRC	43	

PHYSICAL PROPERTIES:

Property	Unit	Value
Density, ρ	$\text{g}\cdot\text{cm}^{-3}$	7.79
Linear expansivity, $\alpha_{20-100^\circ\text{C}}$	K^{-1}	$10,7\cdot 10^{-6}$
Specific thermal conductivity, $\lambda_{20^\circ\text{C}}$	$\text{W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$	38

Technological treatment processes:

Technological treatment processes		Possible application	Temperature, °C	
Hot forming	Forging	+	1100-850	
	Rolling	+	1100-850	
Treatment	Heat treatment	Quenching	+	1010-1060
		Tempering	+	480-570
	Precipitation strengthening	Supersaturation	-	-
		Ageing	-	-
	Annealing	Soft annealing	+	800-840
		Stress relieving	+	600-680
Thermochemical treatment	Nitriding	+	470-550	
	Other	-	-	

INTERNATIONAL STEEL GRADES:

ISO		CEN		Rosja	
X40CrMoV5-1	ISO 4957:2004	X40CrMoV5-1	ISO 4957:2004	4H5MF1S	GOST 5950-73
USA		Japonia		Chiny	
H13	ASTM A 681-91	SKD 61	JIS G 4404-1983	4Cr5MoSiV1	GB 1299-85