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Nazwa gatunku: 40H/1.7035/41Cr4

Nazwa: TOUGHENING STEEL

NORM: PN/EN 10083-3

APPLICATION

Steel susceptible to crankshafts, axles, gears, levers, connecting rods, connecting elements and grinding wheels

TECHNOLOGICAL INFORMATION

After soft annealing steel becomes machinable (by improved shearability) and adjusted for the mechanical cutting.

SEMI-FINISHED PRODUCTS

After soft annealing steel becomes machinable (by improved shearability) and adjusted for the mechanical cutting.

CHEMICAL COMPOSITION:

C	Mn	Si	P	S	Cr	Ni	Mo	V	W	Ti	Cu	Inne
0,38 - 0,45	0,60 - 0,90	Max 0,40	Max 0,025	Max 0,035	0,90 - 1,20	-	-	-	-	-	-	-

MECHANICAL PROPERTIES:

Effect of the cross-section on mechanical properties after heat treatment			
Diameter d, mm	≤ 16	16 - 40	40 - 100
Thickness of the flat bar t, mm	≤ 8	8 - 20	20 - 60
Ultimate tensile strength R_m , MPa	1000 - 1200	900 - 1100	800 - 950
Yield stress R_e ($R_{p0.2}$), MPa	≥ 800	≥ 660	≥ 560
Elongation, A, %	≥ 11	≥ 12	≥ 14
Reduction of area Z (%)	≥ 30	≥ 35	≥ 40
Impact energy, KV, J	≥ 30	≥ 35	≥ 35
Physical properties			
Property	Unit		Value
Density, ρ	g·cm ⁻³		~7.85
Thermal expansion $\alpha_{0-50^\circ\text{C}}$	K ⁻¹		~11.3·10 ⁻⁶
Thermal conductivity coefficient $\lambda_{0^\circ\text{C}}$	W·m ⁻¹ K ⁻¹		~48.5

Technological treatment processes:

Technological treatment processes		Possible application	Temperature, °C	
Hot forming	Forging	+	(1050 - 850)	
	Rolling	+	(1180 - 850)	
Treatment	Heat treatment	Quenching	820-860/ w_o	
		Tempering	540 - 680	
	Precipitation strengthening	Supersaturation	-	
		Ageing	-	
	Annealing	Normalising	+	(840 - 870)
		Soft annealing	+	(680 - 720)
Thermochemical treatment	Carburising	-	-	
	Other	-	-	

INTERNATIONAL STEEL GRADES:

ISO		European Union		Russia	
41Cr4	ISO 683-1 1987	41Cr4	EN 10083-1 1996	~ 40Ch	GOST 4543 1971
US		Japan		China	
~ 5140	ASTM A 322-91	~SCr 4	JIS G 4104 1979	~ 40Cr	GB 3077-88