

40HMT/1.7225/42CRMO4



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NAZWA GATUNKU: 40HMT/1.7225/42CRMO4

NAZWA: TOUGHENING STEEL

NORM: PN/EN 10083-3

APPLICATION

Steel susceptible to very loaded axles, shafts, crankshafts. Also subject to variable bending and torsional loads, gears, , etc.

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	-	0,15 - 0,30	-	-	-	-	-

MECHANICAL PROPERTIES:

Mechanical properties of a product with diameter d ≤ 16 mm				
Property	Designation	Unit	After heat treatment	
Ultimate tensile strength	R _m	MPa	1100-1300	
Yield stress	R _e (R _{0,2})	MPa	≥ 900	
Elongation	A	%	≥ 15	
Reduction of area	Z	%	≥ 40	
Impact energy	KV	J	≥ 30	
Effect of the cross-section on mechanical properties				
Diameter d, mm	16 - 40	40 - 100	100 - 160	160 - 250
Thickness of the flat bar L, mm	8 - 20	20 - 60	60 - 100	100 - 160
R _m , MPa	1000 - 1200	900 - 1100	800 - 950	750 - 900
R _e (R _{0,2}), MPa	≥ 750	≥ 650	≥ 550	≥ 500
A, %	≥ 11	≥ 12	≥ 13	≥ 14
Z, %	≥ 45	≥ 50	≥ 50	≥ 55
KV, J	≥ 35	≥ 35	≥ 35	≥ 35

TECHNOLOGICAL TREATMENT PROCESSES:

Technological treatment processes		Possible application	Temperature, °C
Hot forming	Forging	+	(1050 - 850)
	Rolling	+	(1180 - 850)
Treatment	Heat treatment	Quenching	82-860/w.o
		Tempering	540 - 680
	Precipitation strengthening	Supersaturation	-
		Ageing	-
	Annealing	Normalising	(840 - 880)
		Soft annealing	(680 - 720)
Thermochemical treatment	Carburising	-	-
	Other	-	-

INTERNATIONAL STEEL GRADES:

ISO		EN		Russia	
42CrMo4	ISO 683-1 1987	42CrMo4	EN 10083-1 1996	~ 38ChM	GOST 4543 1971
US		Japan		China	
~ 4140 H	ASTM A 193-96	~SCM4	JIS G 4105 1979	~ 42CrMo	GB 3077-88