40HM/1.7225/42CRMO4

+48 801 00 31 31
akrostal@akrostal.pl

NAZWA GATUNKU: 40HM/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 ($R_{p0,2}$)	MPa	≥ 900	
Elongation	A	%	≥ 10	
Reduction of area	Z	%	≥ 40	
Impact energy	KV	J	≥ 30	
Effect of the cross-section on mechanical properties				
Diameter d, mm Thickness of the flat bar t, mm	16 – 40 8 – 20	40 – 100 20 – 60	100 – 160 60 – 100	160 – 250 100 – 160
R_m, MPa	1000 – 1200	900 – 1100	800 – 950	750 – 900
R_e ($R_{p0,2}$), 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