20HG/1.7147/20MNCR5

+48 801 00 31 31
akrostal@akrostal.pl

NAZWA GATUNKU: 20HG/1.7147/20MNCR5

NAZWA: CARBURISING STEEL

NORM: PN/EN 10084

ANMELDUNG

Alloyed case hardening steel for the parts which require high core tensile strength and high hardness. Susceptible to average seized parts with high wearing resistance and variable loading such as: gears, screws, bolts, bushing, camshafts.

TECHNOLOGISCHE INFORMATIONEN:

Steel adjusted for cutting with a cutting machine. The carburising temperature range can be higher than provided in the file (depending on the carburising process)

ZWISCHENPRODUKTE

Steel adjusted for cutting with a cutting machine. The carburising temperature range can be higher than provided in the file (depending on the carburising process)

CHEMISCHE ZUSAMMENSETZUNG:

C	Si	Mn	P	S	Cr	Mo	Ni	B
0,17 – 0,22	Max 0,40	1,10 – 1,40	Max 0,025	Max 0,035	1,00 – 1,30	–	–	–

MECHANISCHE EIGENSCHAFTEN:

Hardness after		Symbol	Value
Soft annealing (+A)		HB	≤ 217
Heat treatment (carburising, quenching and tempering) (+QT)		HRC	≥ 60
Ultimate tensile strength R_m, after quenching and tempering at 200 °C:			
Diameter, d, mm	d ≤ 16	16 < d ≤ 40	40 < d ≤ 100
R_m, MPa	1200	950	750

PHYSIKALISCHE EIGENSCHAFTEN:

Property	Unit	Value
Density, ρ	$g \cdot cm^{-3}$	7.85

HARDENABILITY:

EN10084:2008	Jominity test HRC mm (mm distance from quenched end)												
	1.5	3	5	7	9	11	13	15	20	25	30	35	40
max.	49	49	48	46	43	42	41	39	37	35	34	33	32
min.	41	39	36	33	30	28	26	25	23	21	–	–	–

TECHNOLOGISCHE VERARBEITUNG:

Technological treatment processes			Possible application	Temperature, °C
Hot forming	Forging		+	1150 – 850
	Rolling		+	1150 – 850
Thermochemical treatment	Carburising		+	880 – 980
	Carbonitriding		+	860 – 950
Heat treatment	Annealing	Normalising	+	870 – 910
		Soft annealing	+	650 – 700
	Heat treatment after carburising[1)]	Core hardening	+	860 – 900
		Intermediate annealing	+	670 – 720
		Case hardening	+	780 – 820
		Tempering	+	150 – 200

[1)] If possible, hardening has to be performed with the temperature equal or close to the heat treatment temperature

INTERNATIONALE STAHLSORTEN:

ISO		EN		Russia	
20MnCr5	ISO 683-11:1987	20MnCr5	EN 10084:1998	–	–
US		Japan		China	
~5120	ASTM A 322-91	–	–	~20CrMn	GB 3077-88