



Quality 42CrMo4 (EN 10083-3)

PROPERTIES AND EMPLOYEMENTS

It is the most used quenched and tempered steel thanks to the great relationship characteristics/costs. It has an elevated hardenability, good heat resistance, excellent forging and good machinability with machine tools. It can be hardened on the surface or nitrited in order to elevate the wear resistance and the fatigue strength. Quenched and tempered and nitrited gears can substitute the case-hardened and hardened ones, if they are not submitted to too elevated pressure.

CORRESPONDENCE TO INTERNATIONAL DESIGNATIONS

Quality	Europe	Germany		France	Spain	G.B.	USA
	EN	DIN	W.n.	AFNOR	UNE	B.S.	AISI/SAE
42CrMo4	42CrMo4	42CrMo4	1,7225	42CD4	F1252	708M40	4140

CHEMICAL COMPOSITION % (EN 10083-3)

Steel designation		Chemical composition								
Symbolic	Numeric	C	Si max	Mn	P max	S	Cr	Mo	Ni	B
42CrMo4	1,7225	0,38 ÷ 0,45	0,40	0,60 ÷ 0,90	0,025	max 0,035	0,90 ÷ 1,20	0,15 ÷ 0,30	-	-
42CrMoS4	1,7227					0,020 ÷ 0,040				

Concentration limits of the elements that are not indicated in the table can be deduced in the en 10020 regulation.

MECHANICAL CHARACTERISTICS (EN 10083-3)



Steel		Mechanical characteristics for the reduced section														
		d ≤ 16mm					16mm < d ≤ 40mm					40mm < d ≤ 100mm				
Symbolic	Numeric	R _{e min}	R _m	A min	Z min	KV ^b min	R _{e min}	R _m	A min	Z min	KV ^b min	R _{e min}	R _m	A min	Z min	KV ^b min
		MPa		%	%	J	MPa		%	%	J	MPa		%	%	J
42CrMo4	1,7225	900	1100 to 1300	10	40	-	750	1000 to 1200	11	45	35	650	900 to 1100	12	50	35
42CrMoS4	1,7227															

Steel		(EN 10083-1:2006, attachment a) with a diameter (d) of										
		100mm < d ≤ 10mm					160mm < d ≤ 250mm					
Symbolic	Numeric	R _{e min}	R _m	A min	Z min	KV ^b min	R _{e min}	R _m	A min	Z min	KV ^b min	
		MPa		%	%	J	MPa		%	%	J	
42CrMo4	1,7225	550	800 to 950	13	50	35	500	750 to 900	14	55	35	
42CrMoS4	1,7227											

JOMINY HARDENABILITY (EN 10083-3)

Steel designation		Symbol	Range limits	HRC hardness measured from the quenched end of the test tube (mm)															
Symbolic	Numeric			1,5	3	5	7	9	11	13	15	20	25	30	35	40	45	50	
42CrMo4	1,7225	+H	max	61	61	61	60	60	59	59	58	56	53	51	48	47	46	45	
42CrMoS4	1,7227	+H	min	53	53	52	51	49	43	40	37	34	32	31	30	30	29	29	

USUALLY AVAILABLE EX STOCK

M.T. Coloration	Quality	Heat treatment	Surface
	42CrMo4	Quenched and tempered	rolled reeled forged turned peeled h11 / drawn
	42CrMo4 high resistance	Quenched and tempered	rolled reeled rolled, rough