

MATERIAL NUMBER 1.7225 · CLASS 1.7

4140RH

Material no. 1.7225

also listed as 42CrMo4

Chemical composition, mechanical and physical property values, and 95 standard designations from 24 regions.

DENSITY	OTHER DESIGNATIONS	PROPERTY VALUES
7.72 g/cm ³	95 in 24 regions	8 on file

Chemical composition

Mass fraction in %

What this alloy is



Logarithmic scale, 0.01 % to 100 % — every value here compares directly, decade by decade.



The scale is logarithmic, not the element's raw share of the alloy — the only honest way to fit 0.01 % and 100 % in one picture, and it means every value here can be compared with every other.

Predicted transformation temperatures

Not enough recorded composition to predict a transformation temperature for this grade — missing: Ni.

Mechanical properties

15 values across 6 conditions

QUENCHED AND TEMPERED · ROUND PRODUCTS			A % · Lo = 5,65 √So
≤ 16			10
16 – 40			11
40 – 100			12
100 – 160			13
160 – 250			14
QUENCHED AND TEMPERED			RM N/mm²
≤ 8			1100
8 – 20			1000
20 – 50			900
50 – 80			800
SOFT ANNEALED		RM N/mm²	A80 %
0.3 – 3		620	15
TREATED TO IMPROVE SHEARABILITY			HB
Treated to improve shearability			255
SOFT ANNEALED		HB	HV
Soft annealed		241	195
QUENCHED AND TEMPERED			HV
Quenched and tempered			340–490

Physical properties

1 values

PROPERTY	VALUE	UNIT
Density	7.72	g/cm³

Heat treatment

5 regimes

STEP	TEMPERATURE	MEDIUM
source joins the operations with + / procedural order		
Quenching	Temperature not stated	—

STEP	TEMPERATURE	MEDIUM
Normalizing	Temperature not stated	—
Tempering	510–610 °C	Oil
source joins the operations with + / procedural order		
Quenching	Temperature not stated	—
Tempering	Temperature not stated	—
source joins the operations with + / procedural order		
Annealing	Temperature not stated	—
Annealing	Temperature not stated	—
Tempering	Temperature not stated	—
Normalizing	Temperature not stated	—
Tempering	Temperature not stated	—
Spheroidize annealing	Temperature not stated	—
Quenching and tempering	Temperature not stated	—

Designations across standards

95 designations · 27 documented as identical

United States		28	Russia / CIS		8
G41400	This grade's own name	uns	35ChM		gost
G41420	This grade's own name	uns	35KHM		gost
G4145		uns	38ChM		gost
G41450	This grade's own name	uns	38ChMA		gost
G46200		uns	38KHM		gost
H41400	This grade's own name	uns	38KhMA / 40KhM		gost
H41420	This grade's own name	uns	38XM		gost
H41450	This grade's own name	uns	38XMA		gost
K14248	This grade's own name	uns			
4140	This grade's own name	aisi-sae	Spain		6
4140 4142		aisi-sae	40CrMo4		une
4140H	This grade's own name	aisi-sae	42CrMo4		une
4140RH	This grade's own name	aisi-sae	42CrMoS4		une
4142	This grade's own name	aisi-sae	F.8232		une
4142H	This grade's own name	aisi-sae	F.8232 - 42 CrMo4		une
4145	This grade's own name	aisi-sae	F1252		une
4620		aisi-sae			
G41400		aisi-sae	France		5
G41420		aisi-sae	40CD4	This grade's own name	afnor
G41500		aisi-sae	42CD4	This grade's own name	afnor
Gr.4140		aisi-sae	42CD4FF		afnor
H41400		aisi-sae	42CrMo4		afnor
J14047		aisi-sae	A35-590		afnor
A 505	This grade's own name	astm			
A 519	This grade's own name	astm	United States / Aerospace		5
A193 B7		astm	6294		ams
A331	This grade's own name	astm	6349		ams
A829		astm	6381		ams
			6382		ams
			6395		ams
United Kingdom		14			
19A		bs	Japan		4
42CrMO4		bs	SCM4	This grade's own name	jis
50CrMo4		bs	SCM440		jis
708A42		bs	SCM440H		jis
708H37	This grade's own name	bs	SCM4H	This grade's own name	jis
708M40	This grade's own name	bs			
708M40 / 42CrMo4		bs	Europe		2
708M40 EN 19A		bs	1.7225		din-en
709M40		bs	42CrMo4	This grade's own name	din-en
CFS11		bs			
EN19	This grade's own name	bs	International		2
EN19A	This grade's own name	bs	42CrMo4		iso
EN19B	This grade's own name	bs	42CrMoS4		iso
EN19C	This grade's own name	bs			
			China		2
			42CrMnMo		gb
			42CrMo		gb

Italy	2	Slovakia	1
38CrMo4KB	uni	15 142	stn
42CrMo4	uni		
Czechia	2	Poland	1
15142	csn	40HM	pn
15341	csn		
Romania	2	Latin America	1
41MoCr11	stas	4140	copant
42MoCr11	stas		
Bulgaria	2	Serbia	1
38ChM	bds	Č.4732	srps
40ChML	bds		
Austria	2	Türkiye	1
42CrMo4SP	onorm	Ç 4140	mke
BOHLERV320	onorm		
Sweden	1	Hungary	1
2244	ss	CMo 4	msz
		Australia / New Zealand	1
		4140	as-nzs
		Finland	1
		42CrMo4	sfs

Note on use. The data is compiled to the best of our knowledge from publicly available standards and manufacturer documentation. It replaces neither material testing nor an inspection document to EN 10204. Please request a mill certificate to EN 10204 2.1, 3.1 or 3.2 together with your enquiry. The standard in its current valid edition always prevails.

Enquiry about 4140RH

Quotation, availability, mill certificate or a technical question — directly on the material page.

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ISSUED

Aug 20, 2026