

MATERIAL NUMBER 1.7035 · CLASS 1.7

45Ch

Material no. 1.7035

also listed as 41Cr4

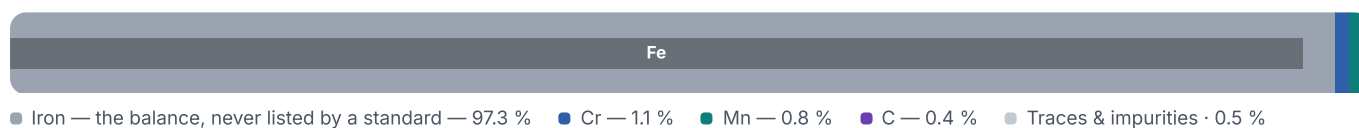
Chemical composition, mechanical and physical property values, and 67 standard designations from 18 regions.

DENSITY	OTHER DESIGNATIONS	PROPERTY VALUES
7.72 g/cm ³	67 in 18 regions	14 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, Mo.

Mechanical properties

19 values across 6 conditions

CONDITION · DIMENSION	RM N/mm ²	A5 %	HB		
Band annealed , GOST 2283-79	640–740	10–15	–		
Band cold-worked , GOST 2283-79	740–1180	–	–		
(annealing) , GOST 4543-71	–	–	229		
(normalize) , Sheet trick GOST 1577-93	–	–	255		
(annealing) , Sheet trick GOST 1577-93	–	–	217		
QUENCHED AND TEMPERED			RM N/mm ²		
≤ 8			1000		
8 – 20			900		
20 – 50			800		
QUENCHED AND TEMPERED · ROUND PRODUCTS			A % · Lo = 5,65 √So		
≤ 16			11		
16 – 40			12		
40 – 100			14		
TREATED TO IMPROVE SHEARABILITY			HB		
Treated to improve shearability			255		
SOFT ANNEALED			HB		
Soft annealed			241		
QUENCHING AND DRAWING	RM N/mm ²	RE N/mm ²	A5 %	Z %	KCU kJ/m ²
Ø 25	650	390	13	40	390

Physical properties

8 values

CONDITION · DIMENSION	RHO g/cm ³	E GPa	ALPHA 10 ⁻⁶ /K	LAMBDA W/(m·K)	CP J/(kg·K)
20	7.81	216	–	43	–
100	–	213	11.8	42	487
200	–	208	12.5	41	500
300	–	199	13.2	38	517

CONDITION · DIMENSION	RHO g/cm³	E GPa	ALPHA 10^-6/K	LAMBDA W/(m·K)	CP J/(kg·K)
400	–	185	13.8	36	533
500	–	174	14.3	34	559
600	–	160	14.8	31	584
700	–	142	15.1	29	609
800	–	130	12.3	28	676

PROPERTY	VALUE	UNIT
Density	7.72	g/cm³
Transformation point Ac1	723	°C
Transformation point Ac3	760	°C
Transformation point Ar3	740	°C
Transformation point Ar1	680	°C

Technological properties

PROPERTY	VALUE	UNIT
Weldability	hard weldability.	
Flake sensitivity	predisposed	
Temper brittleness	predisposed	

Designations across standards

67 designations · 7 documented as identical

Russia / CIS		17	United States		9
38ChA		gost	G51400		uns
38KhA		gost	H51400	This grade's own name	uns
40CH	This grade's own name	gost	5140		aisi-sae
40KH		gost	5140H	This grade's own name	aisi-sae
40X		gost	5140RH	This grade's own name	aisi-sae
45KH		gost	5145		aisi-sae
45X		gost	5145H		aisi-sae
50		gost	G51450		aisi-sae
50A		gost	H51450		aisi-sae
50G		gost			
50KH		gost	Japan		5
50KhGL		gost	S Gr 440		jis
50KHN		gost	SCr 4 H		jis
50KhNM		gost	SCr440		jis
50KHSA		gost	SCr440H		jis
N50		gost	SCr445		jis
ct.40X		gost			

Czechia	5	Spain	3
14 151	csn	42Cr4	une
14 151 PH	csn	F.1202-4204	une
14140	csn	F1202	une
14141	csn		
14148VN	csn	Europe	2
United Kingdom	4	1.7035	din-en
520M40	bs	41Cr4 This grade's own name	din-en
530A40	bs	China	2
530M40	bs	40Cr	gb
EN18 This grade's own name	bs	40CrH	gb
France	4	Sweden	2
41Cr4	afnor	2245	ss
42C4	afnor	SIS 2245 This grade's own name	ss
42C4FF	afnor		
45C4	afnor	Italy	1
International	4	41Cr4	uni
37Cr4	iso	Latin America	1
37CrS4	iso	5140	copant
41Cr4	iso		
41CrS4	iso	Serbia	1
Poland	4	Č.4131	srps
38HA	pn	Türkiye	1
40H	pn	Ç 5140	mke
40HA	pn	Hungary	1
45H	pn	Cr 3	msz
		Bulgaria	1
		45Ch	bds

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 45Ch

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

[Start an enquiry](#)

DATASHEET ONLINE	GRADE SEARCH	MATERIAL NO.	ISSUED
View the material page	Search all grades	1.7035	Aug 20, 2026