

MATERIAL NUMBER 1.4031 · CLASS 1.4

X39Cr13

Material no. 1.4031

also listed as X38Cr13

Chemical composition, mechanical and physical property values, and 56 standard designations from 17 regions.

DENSITY**7.7** g/cm³**OTHER DESIGNATIONS****56** in 17 regions**PROPERTY VALUES****10** on file

Chemical composition

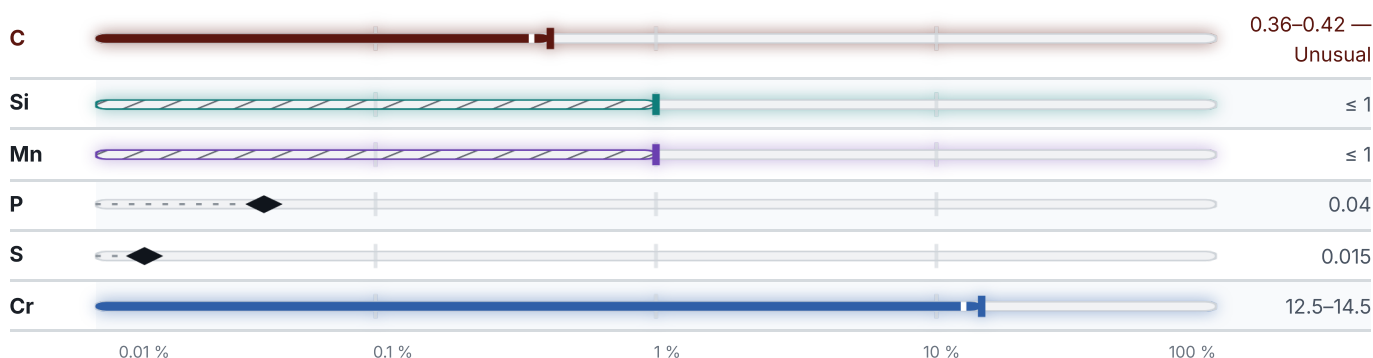
Mass fraction in %

What this alloy is



■ Iron — the balance, never listed by a standard — 84.1 % ■ Cr — 13.5 % ■ Si — 1 % ■ Mn — 1 % ■ Traces & impurities · 0.4 %

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

10 values across 4 conditions

CONDITION · DIMENSION	RM N/mm ²	A5 %	HB
Bar, GOST 18907-73	590–810	10	–
Wire, GOST 18143-72	640–880	10–14	–
40KH13 (40X13) (quenching, tempering)	–	–	460–550
40KH13 (40X13) (annealing) , Bar GOST 5949-75	–	–	143–229
SOFT ANNEALED			HV
Soft annealed			200–250
QUENCHED AND TEMPERED			HV
Quenched and tempered			520–560
CONDITION · DIMENSION	RM N/mm ²	A5 %	
Sheet, GOST 5582-75	550		15

Physical properties

4 values

CONDITION · DIMENSION	RHO g/cm ³	E GPa	ALPHA 10 ^{^-6} /K	LAMBDA W/(m·K)	CP J/(kg·K)	RHO_EL nΩ·m
20	7.65	218	–	25	461	590
100	7.63	214	10.8	26	482	650
200	7.6	206	11.9	27.2	523	710
300	7.57	198	12.3	28.3	565	790
400	7.54	188	13	29.1	607	860
500	7.51	176	13.6	29.1	674	940
600	7.48	163	13.5	29.1	775	1000
700	7.45	148	13.8	28.3	988	1120
800	7.42	140	14.6	27.9	825	1180
900	–	–	–	28.5	691	1160
PROPERTY	VALUE		UNIT			
Density	7.7		g/cm ³			
Transformation point Ac1	800		°C			
Transformation point Ar1	780		°C			

Technological properties

PROPERTY	VALUE	UNIT
Weldability	is not used.	

Designations across standards

56 designations · 3 documented as identical

United States		16	Italy		3
S42000		uns	X40Cr14		uni
S42080	This grade's own name	uns	X41Cr13KU		uni
420		aisi-sae	X46Cr13		uni
51420		aisi-sae			
S42000		aisi-sae	Sweden		3
S42080		aisi-sae	2304		ss
Type420		aisi-sae	2314		ss
A1049		astm	SIS 2304		ss
A176		astm			
A182		astm	Europe		2
A276		astm	X38Cr13	This grade's own name	din-en
A314		astm	X39Cr13	This grade's own name	din-en
A473		astm			
A580		astm	United Kingdom		2
F1079		astm	420S45		bs
F2215		astm	X39Cr13		bs
France		8	United States / Aerospace		2
X40Cr14		afnor	5506		ams
Z33C13		afnor	5621		ams
Z38C13M		afnor			
Z40C13		afnor	Czechia		2
Z40C14		afnor	17024		csn
Z40Cr14		afnor	19435		csn
Z44C14		afnor			
Z50C14		afnor	Poland		2
			4H13		pn
			4H14		pn
Spain		5	International		1
F.3404		une	X40Cr14		iso
F.3404-X40Cr 13		une			
F.3405		une			
X40Cr13		une	Japan		1
X45Cr13		une	SUS 420J2		jis
Russia / CIS		5	China		1
40Ch13		gost	4C13		gb
40KH13		gost			
40X13		gost	Slovakia		1
4X13		gost			
cr.40X13		gost	17 024		stn

Brazil	1	former Yugoslavia	1
420	abnt	Č.41731	jus

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 X39Cr13

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	1.4031	Aug 20, 2026