

MATERIAL NUMBER 1.4006 · CLASS 1.4

Gr.CA40

Material no. 1.4006

also listed as X10Cr13

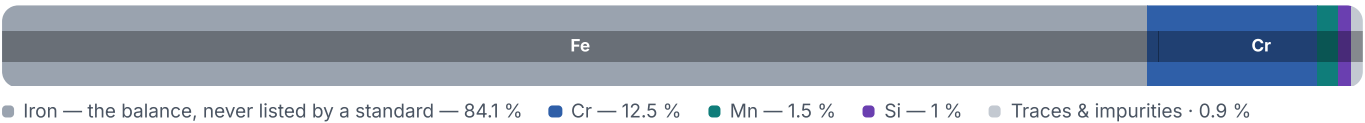
Chemical composition, mechanical and physical property values, and 145 standard designations from 25 regions.

DENSITY 7.7 g/cm³	OTHER DESIGNATIONS 145 in 25 regions	PROPERTY VALUES 14 on file
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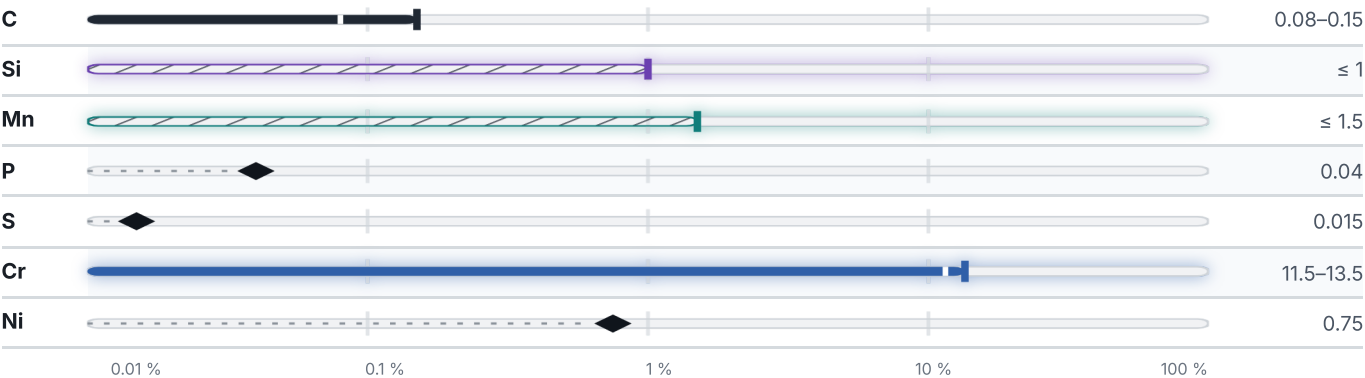
Chemical composition

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: Mo.

Mechanical properties

47 values across 8 conditions

CONDITION · DIMENSION	RM N/mm ²	A5 %	HB
Pipe hot strain, GOST 9940-81	392	21	–
Pipe cooling strain, GOST 9941-81	392	22	–
Bar, GOST 18907-73	490–780	16	–
Wire, GOST 18143-72	490–740	16–20	–
Sheet thin, GOST 5582-75	440	21	–
12KH13 (12X13) (quenching, tempering) , GOST 25054-81	–	–	187–229
12KH13 (12X13) (annealing) , Bar GOST 5949-75	–	–	121–197
12KH13 (12X13) (annealing) , Bar GOST 18907-73	–	–	121–187
12KH13 (12X13) (normalize, tempering) , Bar GOST 18968-73	–	–	192–229

CONDITION · DIMENSION	RM N/mm ²	RE N/mm ²	A %	Z %	AK J/cm ²	HB	HRB	HV
Plate/Sheet Hot-rolled	440	205	20	–	–	–	–	–
Bars/Rods	540	345	25	55	98	–	–	–
Hot-rolled	–	–	–	–	–	201	93	210

SOFT ANNEALED	HB
Soft annealed	220

CONDITION · DIMENSION	RM N/mm ²	RE N/mm ²	A5 %	Z %	KCU kJ/m ²
Bar, GOST 5949-75	590	410	20	60	880

CONDITION · DIMENSION	RM N/mm ²	RE N/mm ²	A5 %	Z %	KCU kJ/m ²
Bar, GOST 18968-73	620	440–610	20	60	780

QUENCHING AND DRAWING	RM N/mm ²	RE N/mm ²	A5 %	Z %	KCU kJ/m ²
to 600	617	392	15–18	40–50	490–740

CONDITION · DIMENSION	RM N/mm ²	RE N/mm ²	A5 %
Sheet trick, GOST 7350-77	650	250	15

CONDITION · DIMENSION	RM N/mm ²	RE N/mm ²	A5 %
Sheet trick, GOST 7350-77	490	345	21

Physical properties

7 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	7.72	217	—	—	—	506
100	7.7	212	10.2	28	473	584
200	7.67	206	11.2	28	487	679
300	7.64	198	11.4	28	506	769
400	7.62	189	11.8	28	527	854
500	7.58	180	12.2	27	554	938
600	7.55	—	12.4	26	586	1021
700	7.52	—	12.7	26	636	1103
800	7.49	—	13	25	657	—
900	—	—	10.8	—	666	—
1000	—	—	11.7	—	—	—

PROPERTY	VALUE	UNIT
Density	7.7	g/cm ³
Transformation point Ac1	730	°C
Transformation point Ac3	850	°C
Transformation point Ar3	820	°C
Transformation point Ar1	700	°C

Technological properties

PROPERTY	VALUE	UNIT
Weldability	limited weldability.	
Temper brittleness	predisposed	

Heat treatment

2 regimes

STEP	TEMPERATURE	MEDIUM
source joins the operations with (or)		
Annealing	Temperature not stated	—

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

Designations across standards

145 designations · 7 documented as identical

United States	44	United Kingdom	14
Grade 410	uns	3S61	bs
S41000 This grade's own name	uns	403S17	bs
S41001 This grade's own name	uns	410C21	bs
403	aisi-sae	410S2	bs
410 This grade's own name	aisi-sae	410S21	bs
410 CA 15	aisi-sae	420S37	bs
51410	aisi-sae	56A	bs
614 This grade's own name	aisi-sae	AMI 4006	bs
CA-15	aisi-sae	ANC 1 grade A	bs
Gr.CA40	aisi-sae	ANC1A	bs
J91150	aisi-sae	BS410S21 This grade's own name	bs
J91171	aisi-sae	En 56 A	bs
J91201	aisi-sae	ENEN56A	bs
S41000	aisi-sae	X12Cr13	bs
S41001	aisi-sae		
A1012	astm	Japan	13
A1021	astm	SCS1	jis
A1028	astm	SUS 410FB	jis
A1049	astm	SUS 410TKA	jis
A176	astm	SUS 410TKC	jis
A182	astm	SUS F 410-A	jis
A193	astm	SUS F 410-B	jis
A194	astm	SUS F 410-C	jis
A240	astm	SUS F 410-D	jis
A268	astm	SUS410	jis
A276	astm	SUS410S	jis
A314	astm	SUS410TB	jis
A336	astm	SUS410TK	jis
A473	astm	SUS420J1	jis
A479	astm		
A493	astm	United States / Aerospace	12
A511	astm	5350	ams
A580	astm	5504	ams
A815	astm	5505	ams
A837	astm	5591	ams
A988	astm	5609	ams
F1613	astm	5611	ams
F2215	astm	5612	ams
F2281	astm	5613	ams
F593	astm	5614	ams
F594	astm	5776	ams
F738	astm	5777	ams
F899	astm	5876	ams
Grade 410	astm		

Russia / CIS	9	Spain	3
12Ch13	gost	F.3401	une
12H13	gost	F.3401-X12Cr 13	une
12KH13	gost	X10Cr13	une
12X13	gost		
15Ch13L	gost	Czechia	3
15KH13L	gost	17021	csn
15X13Л	gost	17022	csn
1X13	gost	422905	csn
Sv-12Kh13	gost		
France	7	Poland	3
410F20	afnor	1H13	pn
Z10C13	afnor	2H13	pn
Z10C14	afnor	LOH13	pn
Z12C13	afnor		
Z12C13-M	afnor	Hungary	3
Z12Cr13	afnor	AoX12Cr13	msz
Z13C13	afnor	KO2	msz
		X12Cr13	msz
South Korea	6	Romania	3
STS410	ks	10Cr130	stas
STS410TKA	ks	12C130	stas
STSF410-A	ks	T15Cr130	stas
STSF410-B	ks		
STSF410-C	ks	Bulgaria	3
STSF410-D	ks	1Ch13	bds
		1Ch13L	bds
China	5	X12Cr13	bds
1Cr12	gb		
1Cr13	gb	International	1
2Cr13	gb	X12Cr13E	iso
ZG15Cr13	gb		
ZG1Cr13	gb	Sweden	1
		2302	ss
Italy	5	Slovakia	1
GX12Cr13	uni	17 021	stn
X10Cr13	uni		
X12Cr13	uni	Brazil	1
X12Cr9KG	uni	410	abnt
X20Cr13	uni		
Europe	3	Serbia	1
1.4006	din-en	Č.4170.1	srps
X10Cr13 This grade's own name	din-en	former Yugoslavia	1
X12Cr13 This grade's own name	din-en	Č.41701	jus
		Australia / New Zealand	1
		410	as-nzs

Austria	1	Finland	1
BOHLERN100	onorm	G-X12Cr13	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 Gr.CA40

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	1.4006	Aug 20, 2026