

MATERIAL NUMBER 1.4006 · CLASS 1.4

Z12Cr13

Material no. 1.4006

also listed as X10Cr13

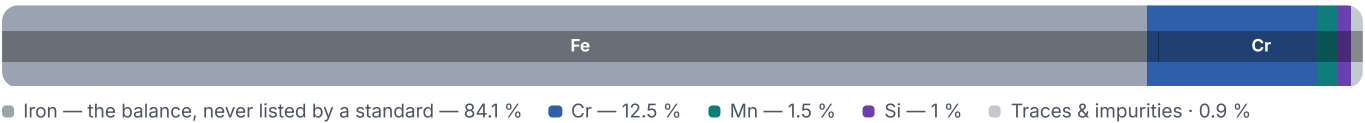
Chemical composition, mechanical and physical property values, and 145 standard designations from 25 regions.

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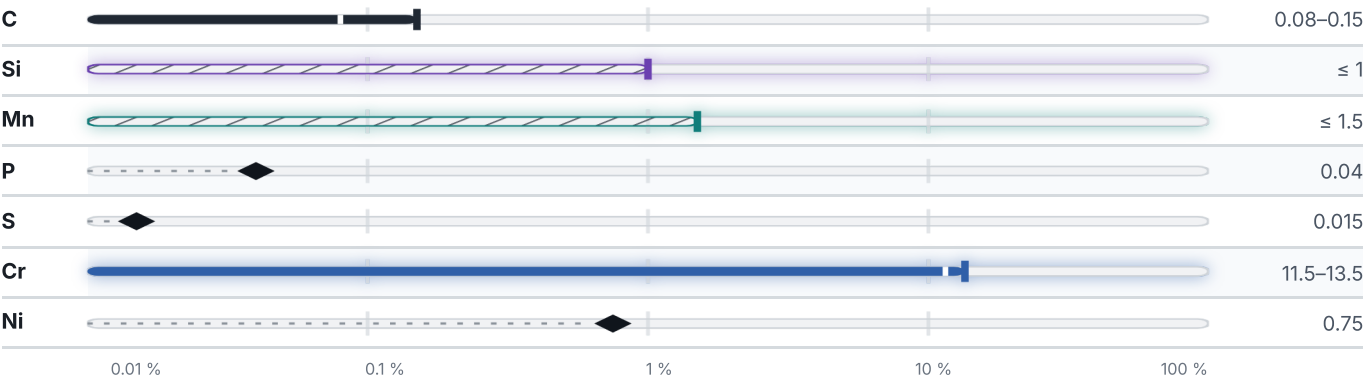
Chemical composition

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
12Ch13	gost
12H13	gost
12KH13	gost
12X13	gost
15Ch13L	gost
15KH13L	gost
15X13Л	gost
1X13	gost
Sv-12Kh13	gost
France	7
410F20	afnor
Z10C13	afnor
Z10C14	afnor
Z12C13	afnor
Z12C13-M	afnor
Z12Cr13	afnor
Z13C13	afnor
South Korea	6
STS410	ks
STS410TKA	ks
STSF410-A	ks
STSF410-B	ks
STSF410-C	ks
STSF410-D	ks
China	5
1Cr12	gb
1Cr13	gb
2Cr13	gb
ZG15Cr13	gb
ZG1Cr13	gb
Italy	5
GX12Cr13	uni
X10Cr13	uni
X12Cr13	uni
X12Cr9KG	uni
X20Cr13	uni
Europe	3
1.4006	din-en
X10Cr13 This grade's own name	din-en
X12Cr13 This grade's own name	din-en

Spain	3
F.3401	une
F.3401-X12Cr 13	une
X10Cr13	une
Czechia	3
17021	csn
17022	csn
422905	csn
Poland	3
1H13	pn
2H13	pn
LOH13	pn
Hungary	3
AoX12Cr13	msz
KO2	msz
X12Cr13	msz
Romania	3
10Cr130	stas
12C130	stas
T15Cr130	stas
Bulgaria	3
1Ch13	bds
1Ch13L	bds
X12Cr13	bds
International	1
X12Cr13E	iso
Sweden	1
2302	ss
Slovakia	1
17 021	stn
Brazil	1
410	abnt
Serbia	1
Č.4170.1	srps
former Yugoslavia	1
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 Z12Cr13

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