

MATERIAL NUMBER 1.0912 · CLASS 1.0

45XHMΦA

Material no. 1.0912

also listed as 46Mn7

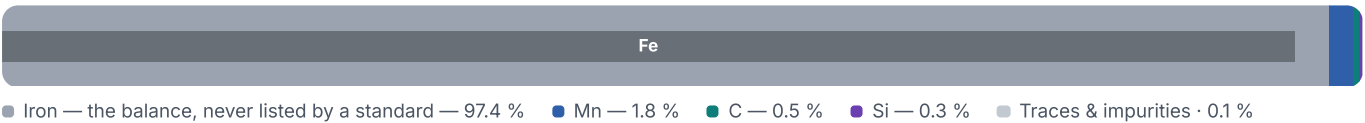
Chemical composition, mechanical and physical property values, and 31 standard designations from 11 regions.

DENSITY 7.85 g/cm ³	OTHER DESIGNATIONS 31 in 11 regions	PROPERTY VALUES 14 on file
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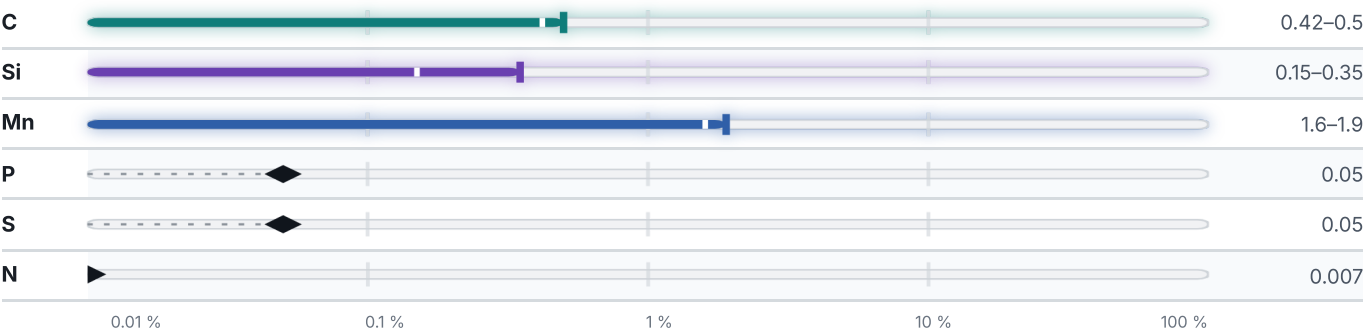
Chemical composition

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: Ni, Cr, Mo.

Mechanical properties

6 values across 2 conditions

CONDITION · DIMENSION	RM N/mm ²	RE N/mm ²	A5 %	Z %	KCU kJ/m ²
Bar, GOST 4543-71	1420	1275	7	35	390
CONDITION · DIMENSION					HB
45KHН2МФА (45XH2MΦА) (annealing) , GOST 4543-71					269

Physical properties

8 values

CONDITION · DIMENSION	E GPa	ALPHA 10 ^{^-6} /K	LAMBDA W/(m·K)	CP J/(kg·K)	RHO_EL nΩ·m
20	216	–	34	–	300
100	207	11	34	480	363
200	197	11.6	33	500	460
300	188	12.1	32	520	557
400	176	12.7	31	540	677
500	168	13.3	30	555	822
600	152	13.7	29	–	993
700	136	13.9	27	–	1160
800	128	11.9	26	–	–
PROPERTY			VALUE	UNIT	
Density			7.85	g/cm ³	
Transformation point Ac1			735	°C	
Transformation point Ac3			825	°C	
Transformation point Ar3			470	°C	
Transformation point Ar1			370	°C	

Technological properties

PROPERTY		VALUE	UNIT
Weldability		hard weldability.	
Flake sensitivity		predisposed	
Temper brittleness		not predisposed	

Heat treatment

5 regimes

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

Designations across standards

31 designations · 5 documented as identical

United States	8	United Kingdom	3
G13450 This grade's own name	uns	080M46	bs
H13450 This grade's own name	uns	C45	bs
1040	aisi-sae	C45E	bs
1045	aisi-sae		
1046	aisi-sae	Japan	3
1345 This grade's own name	aisi-sae	S45C	jis
1345H This grade's own name	aisi-sae	S48C	jis
G10460	aisi-sae	SMn443	jis
Russia / CIS	7	China	3
45G	gost	45	gb
45KHN2MFA	gost	45Mn2	gb
45Г2	gost	ML45Mn	gb
45XHMΦA	gost		
4KH5V2FS	gost	Czechia	2
AS45G2	gost	13 250 PH	csn
ЭИ958	gost	13250	csn
		Europe	1
		46Mn7 This grade's own name	din-en

France	1	Poland	1
C45E	afnor	45G	pn
Italy	1	Bulgaria	1
C45E	uni	45G	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 45XHMΦA
Quotation, availability, mill certificate or a technical question — directly on the material page.

[Start an enquiry](#)

DATASHEET ONLINE View the material page	GRADE SEARCH Search all grades	MATERIAL NO. 1.0912	ISSUED Aug 20, 2026
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