

ЭП428

also listed as 20KH12VNMF

Chemical composition, mechanical and physical property values, and 4 standard designations from 1 regions.

OTHER DESIGNATIONS	PROPERTY VALUES
4 in 1 regions	13 on file

Chemical composition

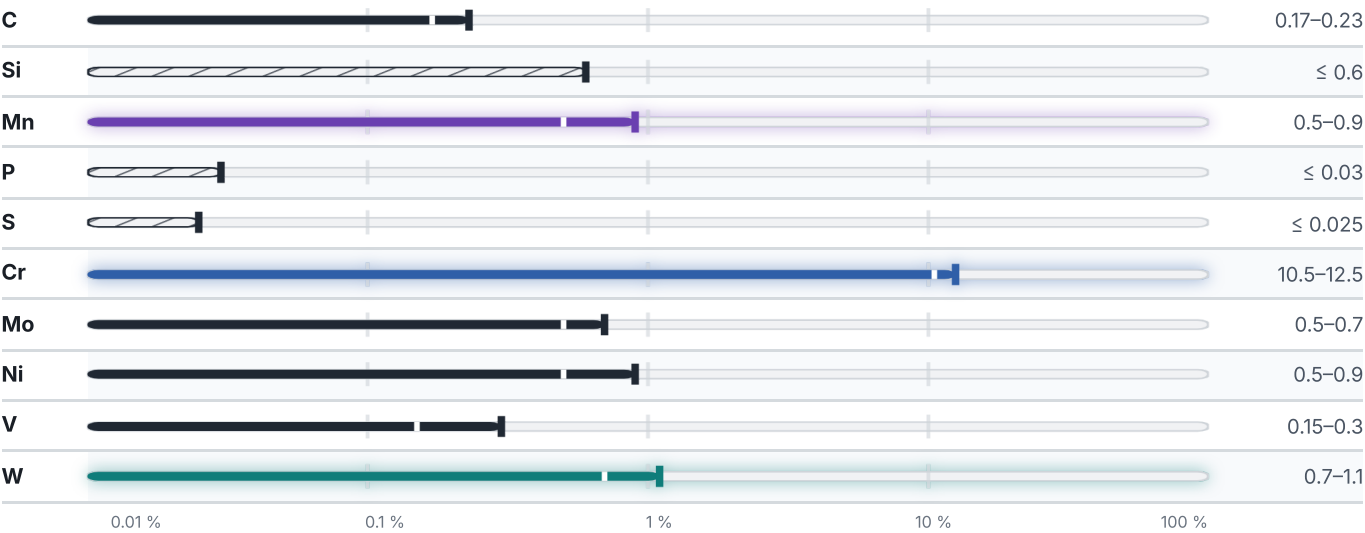
Mass fraction in %

What this alloy is



Iron — the balance, never listed by a standard — 84.5 % Cr — 11.5 % W — 0.9 % Mn — 0.7 % Traces & impurities · 2.4 %

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

This grade's composition falls outside the published model's validated range (a low-alloy composition window), so no transformation temperature is predicted here.

Mechanical properties

12 values across 3 conditions

CONDITION · DIMENSION					HB
20KH12VNMF (20X12BHMΦ) (annealing) , Bar GOST 5949-75					229
20KH12VNMF (20X12BHMΦ) (normalize, tempering) , Bar GOST 18968-73					229-269
CONDITION · DIMENSION	RM N/mm ²	RE N/mm ²	A5 %	Z %	KCU kJ/m ²
Bar, GOST 5949-75	740	590	15	50	590
CONDITION · DIMENSION	RM N/mm ²	RE N/mm ²	A5 %	Z %	KCU kJ/m ²
Bar, GOST 18968-73	740	590-755	15	50	590

Physical properties

3 values

CONDITION · DIMENSION	RHO g/cm ³	E GPa	ALPHA 10 ⁻⁶ /K	LAMBDA W/(m·K)
20	7.85	212	—	—
100	7.83	207	10.6	25
200	7.8	202	10.9	25
300	7.78	196	11.2	26
400	7.76	190	11.4	26
500	7.73	181	11.7	27
600	7.7	167	11.9	27
700	7.67	—	12	—
800	—	—	12.1	—
PROPERTY			VALUE	UNIT
Transformation point Ac1			800	°C
Transformation point Ac3			860	°C

Technological properties

PROPERTY	VALUE	UNIT
Weldability	hard weldability.	

Designations across standards

4 designations · 1 documented as identical

Russia / CIS	4
20KH12VNMF This grade's own name	gost
20X12BHMΦ	gost
2X12BHMΦ	gost
ЭП428	gost

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 ЭП428

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.

—

ISSUED

Aug 15, 2026