

MATERIAL NUMBER 1.8902 · CLASS 1.8

SM490A

Material no. 1.8902

also listed as S420N

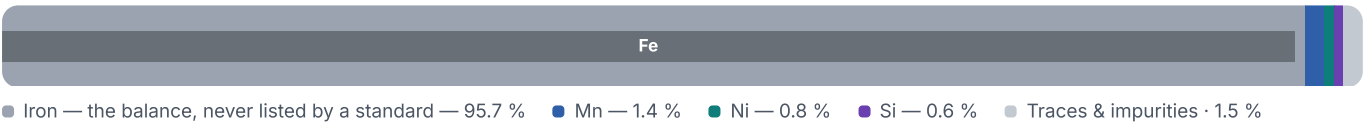
Chemical composition, mechanical and physical property values, and 58 standard designations from 18 regions.

DENSITY 7.85 g/cm ³	OTHER DESIGNATIONS 58 in 18 regions	PROPERTY VALUES 18 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

computed from composition · °C

PREDICTED AE3 807 °C	PREDICTED AE1 708 °C	PREDICTED ACM 438 °C	PREDICTED BS 540 °C
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Mechanical properties

26 values across 4 conditions

CONDITION · DIMENSION	REH N/mm ²	RM N/mm ²	A %
≤ 16	420	–	19
16 – 40	400	–	19
40 – 63	390	–	19
63 – 80	370	–	18
80 – 100	360	–	–
80 – 200	–	–	18
≤ 100	–	520–680	–
100 – 200	–	500–650	–
100 – 150	340	–	–
150 – 200	330	–	–
200 – 250	320	500–650	18

CONDITION · DIMENSION	RM N/mm ²	RE N/mm ²	A5 %
5 - 9	600	450	20

CONDITION · DIMENSION	RM N/mm ²	RE N/mm ²	A %
Hot-rolled	490–610	275–325	17–23

CONDITION · DIMENSION	RM N/mm ²	RE N/mm ²	A5 %
to 50	510	390	19

Physical properties

4 values

PROPERTY	VALUE	UNIT
Density	7.85	g/cm ³
Transformation point Ac1	723	°C
Transformation point Ac3	907	°C

Technological properties

PROPERTY	VALUE	UNIT
Weldability	without limitations.	

Designations across standards

58 designations · 4 documented as identical

United States	11	France	4
K02002	uns	E420R	afnor
K12202	uns	E420RIFP	afnor
K12437	uns	FeE420KGN	afnor
A255Gr.D	aisi-sae	S420N	afnor
A633E	aisi-sae		
A633Gr.E	aisi-sae	Italy	3
K02002	aisi-sae	FeE420KG	uni
K12202	aisi-sae	FeE420KGN	uni
K12437	aisi-sae	FeE420KW	uni
A 694 Grade F60	astm		
A 860 Grade WPHY60	astm	Hungary	3
		58C	msz
		E420D	msz
		S420N	msz
Europe	6	Spain	2
1.8902	din-en	AE420KG	une
A633E	din-en	S420N	une
FeE420KGN	din-en		
P420N	din-en		
S420N This grade's own name	din-en		
StE 420 This grade's own name	din-en	China	2
		Q420C	gb
Japan	6	Q420D	gb
SM490A	jis		
SM490B	jis	Bulgaria	2
SM490C	jis	09G2BFBFF	bds
SM490YA	jis	S420N	bds
SM490YB	jis		
STK540	jis	South Korea	2
		SM490A This grade's own name	ks
Russia / CIS	6	SM490C This grade's own name	ks
16G2AF	gost		
16G2SAF	gost	International	1
16G2SF	gost	E420	iso
16G2AF	gost		
16Kh2GSB	gost	Sweden	1
16Г2АФ	gost	2143	ss
United Kingdom	5	Czechia	1
4360-55E	bs	13220	csn
50E	bs		
50EE	bs	Poland	1
S355NL	bs	18G2AV	pn
S420N	bs		

Romania	1	Switzerland	1
K510	stas	StE43	snv

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 SM490A

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	1.8902	Aug 20, 2026