

MATERIAL NUMBER 1.0045 · CLASS 1.0

50B

Material no. 1.0045

also listed as S355JR

Chemical composition, mechanical and physical property values, and 32 standard designations from 17 regions.

DENSITY	OTHER DESIGNATIONS	PROPERTY VALUES
7.85 g/cm ³	32 in 17 regions	8 on file

Chemical composition

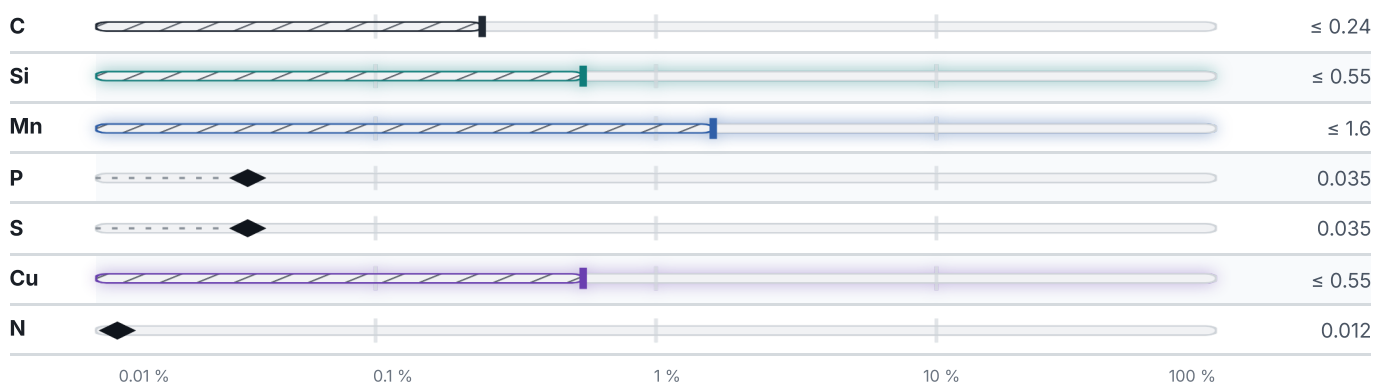
Mass fraction in %

What this alloy is



● Iron — the balance, never listed by a standard — 97 % ● Mn — 1.6 % ● Si — 0.6 % ● Cu — 0.6 % ● Traces & impurities · 0.3 %

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

46 values across 3 conditions

FLAT AND LONG PRODUCTS	REH N/mm ²	RM N/mm ²	
≤ 3	–	510–680	
3 – 100	–	470–630	
≤ 16	355	–	
16 – 40	345	–	
40 – 63	335	–	
63 – 80	325	–	
80 – 100	315	–	
100 – 150	295	450–600	
150 – 250	–	450–600	
150 – 200	285	–	
200 – 250	275	–	
CONDITION · DIMENSION	A80 % · Lo = 80 mm	A % · Lo = 5,65 √So	
≤ 1	14	–	
1 – 1.5	15	–	
1.5 – 2	16	–	
2 – 2.5	17	–	
2.5 – 3	18	–	
3 – 40	–	22	
40 – 63	–	21	
63 – 100	–	20	
100 – 150	–	18	
150 – 250	–	17	
CONDITION · DIMENSION	RM N/mm ²	RE N/mm ²	A %
≤ 16	470–630	≥ 345	≥ 20
16 – 40	470–630	≥ 335	≥ 20
40 – 63	470–630	≥ 325	≥ 19
63 – 80	470–630	≥ 315	≥ 19
80 – 100	470–630	≥ 305	≥ 19
100 – 150	450–600	≥ 285	≥ 18

CONDITION · DIMENSION	RM N/mm ²	RE N/mm ²	A %
150 – 200	450–600	≥ 275	≥ 17
200 – 250	450–600	≥ 265	≥ 17

Physical properties

1 values

PROPERTY	VALUE	UNIT
Density	7.85	g/cm ³

Designations across standards

32 designations · 4 documented as identical

United States	5	Japan	2
K02404 This grade's own name	uns	SM490A	jis
K02702 This grade's own name	uns	SS490	jis
A572	aisi-sae		
A678Gr.A	aisi-sae	Canada	2
SSGrade50	aisi-sae	350W	csa
		350WT	csa
Europe	4		
Fe510B	din-en	France	1
S355JR This grade's own name	din-en	E36-2	afnor
SSGrade50	din-en		
St52-3	din-en	Spain	1
		AE355B	une
China	3		
50B This grade's own name	gb	Portugal	1
Q345B	gb	FE510-B	np
Q345C	gb		
Brazil	3	Italy	1
NBR 5000 Grau 35	abnt	Fe510B	uni
NBR 5004 Grau Q35	abnt		
NBR 7007 AR350	abnt	Sweden	1
		2132-01	ss
United Kingdom	2	Poland	1
50B	bs	18G2A	pn
Gr 50B	bs		
International	2	Hungary	1
E355C	iso	Fe 355 B	msz
Fe510B	iso		
		South Africa	1
		350 WA	sans
		Belgium	1
		AE355B	nbn

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 50B
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ISSUED
Aug 20, 2026