

MATERIAL NUMBER 1.0535 · CLASS 1.0

SM50

Material no. 1.0535

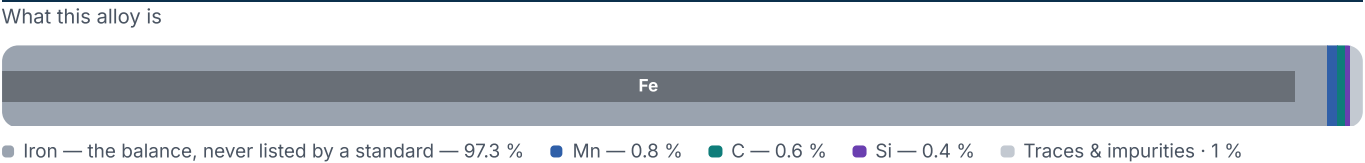
also listed as C55

Chemical composition, mechanical and physical property values, and 101 standard designations from 21 regions.

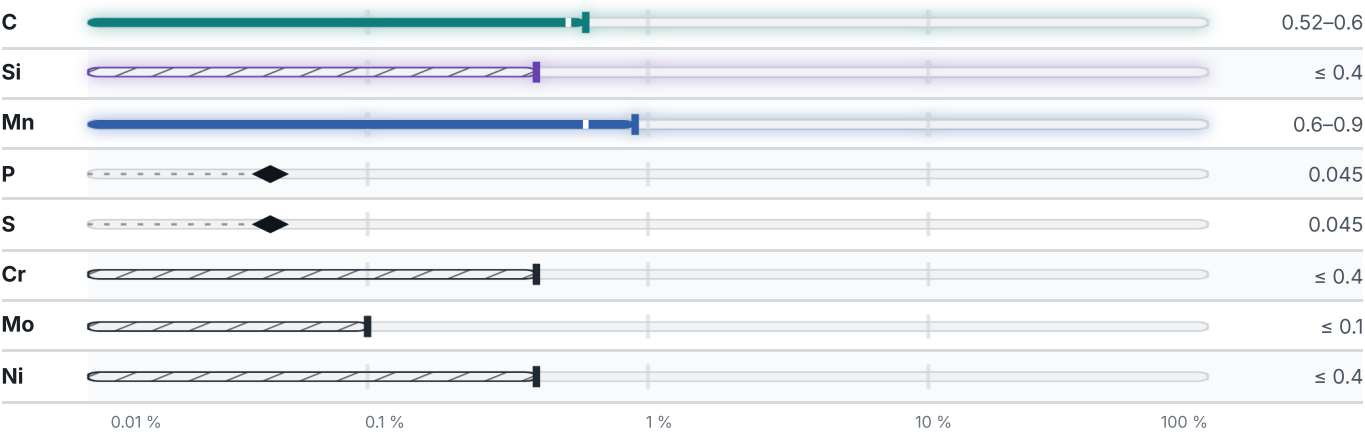
DENSITY 7.85 g/cm ³	OTHER DESIGNATIONS 101 in 21 regions	PROPERTY VALUES 16 on file
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Chemical composition

Mass fraction in %



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 744 °C	PREDICTED AE1 723 °C	PREDICTED ACM 687 °C	PREDICTED BS 547 °C
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Mechanical properties

33 values across 8 conditions

NORMALIZED		RM N/mm ²	A %	
≤ 16		680	11	
16 – 100		640	12	
100 – 250		620	12	
250 – 500		600	–	
500 – 1000		590	–	
COLD DRAWN / HARD		RM N/mm ²	A %	
5 – 10		770–1100	5	
10 – 16		730–1080	6	
16 – 40		690–1050	7	
40 – 63		650–1030	8	
CONDITION · DIMENSION	RM N/mm ²	A5 %	Z %	HB
Rolled stock cold-worked , GOST 1050-88	660	6	30	–
Rolled stock annealed , GOST 1050-88	560	12	40	–
Bar GOST 10702-78	–	–	–	217
Rolled stock GOST 1050-88	–	–	–	241
NORMALIZING	RM N/mm ²	RE N/mm ²	A5 %	Z %
to 80	630	375	14	40
TREATED TO IMPROVE SHEARABILITY				HB
Treated to improve shearability				255
ANNEALING		RM N/mm ²	A5 %	
6 - 60		580	17	
SOFT ANNEALED			HB	
Soft annealed			229	
AS ROLLED AND TURNED			HB	
As rolled and turned			181–269	

Physical properties

8 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	7.81	216	–	48	–	272
100	–	213	11.2	48	487	–
200	–	207	12	47	500	–
300	–	200	12.8	44	517	–
400	–	180	13.4	41	533	–
500	–	171	13.9	38	559	–
600	–	154	14.2	35	584	–
700	–	136	14.5	31	–	–
800	–	123	13.4	27	–	–

PROPERTY	VALUE	UNIT
Density	7.85	g/cm ³
Transformation point Ac1	725	°C
Transformation point Ac3	760	°C
Transformation point Ar3	750	°C
Transformation point Ar1	690	°C

Technological properties

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

Heat treatment

1 regimes

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

Designations across standards

101 designations · 3 documented as identical

France	18	Italy	8
1C55	afnor	1C55	uni
2C50	afnor	C50	uni
2C55	afnor	C50E	uni
AF70	afnor	C50R	uni
AF70C55	afnor	C53	uni
C45E	afnor	C55	uni
C50E	afnor	C55E	uni
C50RR	afnor	C55R	uni
C54	afnor		
C55	afnor	Russia / CIS	6
C55E	afnor	50	gost
XC48H1	afnor	55	gost
XC48H1TS	afnor	55KH	gost
XC48TS	afnor	55SL	gost
XC50	afnor	55nn	gost
XC54	afnor	58	gost
XC55	afnor		
XC55H1	afnor	Spain	5
		C50E	une
		C55	une
		C55E	une
		C55k	une
		F.1150	une
		Japan	5
		S40C	jis
		S50C	jis
		S53C	jis
		S55C	jis
		S55C-CSP	jis
		China	5
		50	gb
		55	gb
		SM50	gb
		SM55	gb
		ZG340-640	gb
		Poland	5
		55	pn
		55A	pn
		55rs	pn
		60	pn
		D50	pn
United States	9		
G10550 This grade's own name	uns		
G10600	uns		
1049	aisi-sae		
1050	aisi-sae		
1055 This grade's own name	aisi-sae		
1060	aisi-sae		
G10490	aisi-sae		
G10500	aisi-sae		
G10550	aisi-sae		
United Kingdom	9		
060A52	bs		
060A57	bs		
070M55	bs		
080A52	bs		
080M50	bs		
C50E	bs		
C55	bs		
C55E	bs		
En9	bs		

Romania		5	Sweden		2
OLC50AT	stas		1655	ss	
OLC50X	stas		1674	ss	
OLC55	stas		Czechia		2
OLC55A	stas		12051	csn	
OLC55X	stas		12060	csn	
Bulgaria		5	Hungary		2
50	bds		C50E	msz	
55	bds		C55E	msz	
C50E	bds		Australia / New Zealand		2
C55	bds		1050	as-nzs	
C55E	bds		1055	as-nzs	
Europe		3	South Korea		2
1.0535	din-en		SM50C	ks	
C55	din-en	This grade's own name	SM55C	ks	
CF53	din-en		Slovakia		1
International		3	12 060	stn	
C50	iso		Serbia		1
C55	iso		Č.1630	srps	
C55E4	iso				
Belgium		3			
C53	nbn				
C55-1	nbn				
C55-2	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 SM50

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	1.0535	Aug 20, 2026