

MATERIAL NUMBER 1.0334 · CLASS 1.0

FR10

Material no. 1.0334

also listed as DD 12 G 1

Chemical composition, mechanical and physical property values, and 29 standard designations from 11 regions.

DENSITY 7.85 g/cm ³	OTHER DESIGNATIONS 29 in 11 regions	PROPERTY VALUES 14 on file
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Chemical composition

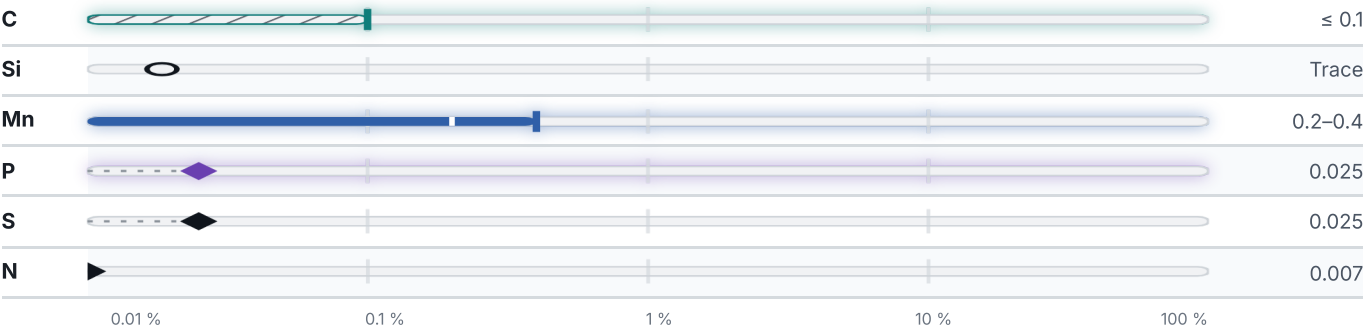
Mass fraction in %

What this alloy is



● Iron — the balance, never listed by a standard — 99.5 % ● Mn — 0.3 % ● C — 0.1 % ● P — 0 % ● Traces & impurities · 0 %

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: Si, Ni, Cr, Mo.

Mechanical properties

15 values across 3 conditions

CONDITION · DIMENSION	RM N/mm ²	RE N/mm ²	A5 %	Z %	HB
Pipe, GOST 10705-80	314	196	25	–	–
Steel cold-drawn , GOST 10702-78	372	–	8	55	–
(cold-drawn, cold-worked) , GOST 10702-78	–	–	–	–	179
Sheet GOST 4041-71	–	–	–	–	114
(annealing) , Sheet trick GOST 1577-93	–	–	–	–	137
CONDITION · DIMENSION	RM N/mm ²			A5 %	
4 - 14	270–410				32
NORMALIZING	RM N/mm ²	RE N/mm ²	A5 %	Z %	
6 - 60	310	185	33		55

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	7.856	186	–	–	–	–
100	7.832	–	12.4	58	466	190
200	7.8	–	13.2	54	479	263
300	7.765	–	13.9	49	–	352
400	7.73	–	14.5	45	512	458
500	7.692	–	14.9	40	–	584
600	7.653	–	15.1	36	567	734
700	7.613	–	15.3	32	–	905
800	7.582	–	12.1	29	–	1081
900	7.594	–	14.8	27	–	1130
1000	–	–	12.6	–	–	–
PROPERTY	VALUE		UNIT			
Density	7.85		g/cm ³			
Transformation point Ac1	732		°C			
Transformation point Ac3	870		°C			

PROPERTY	VALUE	UNIT
Transformation point Ar3	854	°C
Transformation point Ar1	680	°C

Technological properties

PROPERTY	VALUE	UNIT
Weldability	without limitations.	
Flake sensitivity	not predisposed	
Temper brittleness	not predisposed	

Heat treatment

1 regimes

STEP	TEMPERATURE	MEDIUM
Normalizing	Temperature not stated	—

Designations across standards

29 designations · 2 documented as identical

Japan6		Europe2	
SPH2A	jis	DD 12 G 1	This grade's own name din-en
SPHD	jis	UStW 23	This grade's own name din-en
SPHE	jis	China2	
SWRCH10K	jis	10F	gb
SWRCH10R	jis	ML10	gb
SWRCH12R	jis	Russia / CIS2	
United States5		10kp	gost
1008	aisi-sae	10kn	gost
1010	aisi-sae	Spain1	
1012	aisi-sae	AP12	une
A621	aisi-sae	International1	
1010	astm	C10GC	iso
France5		Italy1	
1C	afnor	FeP12	uni
2C	afnor	Czechia1	
FB10	afnor	12010	csn
FR10	afnor	United Kingdom3	
XC10	afnor	040A10	bs
United Kingdom3		14HR	bs
040A10	bs	3HR	bs
14HR	bs		
3HR	bs		

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.

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ISSUED
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