Datasheet updated 2012-08-02 18:10:01 (supersedes all previous editions)

Sandvik 6R35

(Billets)

Sandvik 6R35 is an austenitic, titanium-stabilized stainless chromium-nickel steel. It is suitable for wet-corrosive service but also has good mechanical strength at high temperatures.

STANDARDS

- ASTM 321/321H
- UNS s32100
- EN number 1.4541
- W.Nr. 1.4541
- DIN X 6 CrNiTi 18 10
- SS 2337
- AFNOR Z6CNT18-10
- BS 321S31

Product standards

- EN 10088-3
- ASTM A-314

Suitable for production of flanges etc. acc. to ASTM A-182

Certificates

Status according to EN 10 204 3.1

CHEMICAL COMPOSITION (NOMINAL) %

C	Si	Mn	P max	S max	Cr	Ni	Mo	Others
0.05	0.4	1.3	0.030	0.015	17.5	10.5	-	Ti>5x(C+N)

FORMS OF SUPPLY

Sizes and tolerances

Round-cornered square, as well as round billets, are produced in a wide range of sizes according to the following tables. Larger sizes offered on request.

Surface conditions

Square billets

Unground, spot ground or fully ground condition.

Round billets

Peel turned or black condition.

SQUARE BILLETS

Size mm	Tolerance mm	Length m
80	+/-2	4 - 6.3
100, 114, 126, 140, 150	+/-3	4 - 6.3
160, 180, 195, 200	+/-4	4 - 6.3
>200 - 350	+/-5	3 - 5.3

Sizes and tolerances apply to the rolled/forged condition.

PEEL TURNED ROUND BILLETS

Size mm	Tolerance mm	Length m
75 - 200 (5 mm interval)	+/-1	max 10
>200 - 450	+/-3	3 - 8

UNGROUND ROUND BILLETS

Size mm	Tolerance mm	Length m
77 - 112 (5 mm interval)	+/-2	max 10
124, 134	+/-2	max 10
127, 147, 157	+/-2	max 10
142, 152, 163	+/-2	max 10
168, 178, 188	+/-2	max 10
183, 193	+/-2	max 10

Other products
- Hollow bar
- Welding wire
- Covered electrodes

MECHANICAL PROPERTIES

Testing is performed on separately solution annealed and quenched test piece. The following figures apply to material in the solution annealed and quenched condition.

At 20°C (68°F)

METRIC UNITS

Proof strength		Tensile strength	Elong.	Contr.	HB
$R_{p0.2}$ a)	$R_{p1.0}$ a)	R_m	A b)	Z	
MPa	MPa	MPa	%	%	
min	min		min	min	max
210	245	515-700	40	50	215

IMPERIAL UNITS

Proof strength		Tensile strength	Elong.	Contr.	HB
$R_{p0.2}$ a)	$R_{p1.0}$ a)	R_m	A b)	Z	
MPa	MPa	MPa	%	%	
min	min		min	min	max
30.5	35.5	75-101.5	40	50	215

1 MPa = 1 N/mm^2
a) $R_{p0.2}$ and $R_{p1.0}$ correspond to 0.2% offset and 1.0% offset yield strength respectively.
b) Based on $L_0 = 5.65 \sqrt{S_0}$ where L_0 is the original gauge length and S_0 the original cross-section area.

Impact strength
Due to its austenitic microstructure, Sandvik 6R35 has very good impact strength both at room temperature and at cryogenic temperatures.

Tests on bar have demonstrated that the steel fulfils the requirements (60 J (44 ft-lb) at -196°C (-320°F)) according to the European standards prEN13445-2(UFPV-2) and EN 10272.

At high temperatures

METRIC UNITS

Temperature	Proof strength		Tensile strength
	$R_{p.02}$	$R_{p1.0}$	R_m
°C	MPa	MPa	MPa
	min.	min.	min.
100	175	205	440
200	155	185	390
300	135	167	375
400	125	156	375
500	119	149	360

IMPERIAL UNITS

Temperature	Proof strength		Tensile strength
	$R_{p.02}$	$R_{p1.0}$	R_m
°F	ksi	ksi	ksi
	min.	min.	min.
200	25.4	29.7	63.8
400	22.5	26.8	56.6
600	19.6	24.2	54.4
800	18.1	22.5	54.4
1000	17.2	21.6	52.2

DISCLAIMER:
Recommendations are for guidance only, and the suitability of a material for a specific application can be confirmed only when we know the actual service conditions. Continuous development may necessitate changes in technical data without notice. This datasheet is only valid for Sandvik materials.