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Sandvik 3R12

(Billets)

Sandvik 3R12 is an austenitic chromium-nickel steel with a low carbon content.

STANDARDS

- ASTM 304L, 304
- UNS S30403, S30400
- EN number 1.4306, 1.4301
- W.Nr. 1.4306, 1.4301
- SS 2352
- BS Z2Cn18-10

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	S	Cr	Ni	Mo	Others
max			max	max				
0.020	0.4	1.3	0.030	0.015	18.5	10.5	-	-

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 m m	Tolerance m m	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 m m	Tolerance m m	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

For billets testing is performed on separately solution annealed and quenched test piece. The following figures apply on 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	approx.
205	230	515-680	45	50	170

IMPERIAL UNITS

Proof strength		Tensile strength	Elong.	Contr.	HB
$R_{p0.2}$ [a]	$R_{p1.0}$ [a]	R_m	A [b]	Z	
ksi	ksi	ksi	%	%	
min	min		min	min	approx.
29.5	33.5	74.5-98.5	45	50	170

1 MPa = 1 N/mm^2
a) $R_{p0.2}$ and $R_{p1.0}$ corresponds 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.

The **impact energy** (Charpy V) at 20°C (68°F) is min 100 J (74 ft-lb).

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	155	190	450
200	127	155	400
300	110	135	380
400	98	125	380
500	92	120	360

IMPERIAL UNITS

Temperature	Proof strength		Tensile strength
	$R_{p.02}$	$R_{p1.0}$	R_m
°F	ksi	ksi	ksi
	min.	min.	min.
200	23.1	28.1	66.1
400	18.3	22.4	57.9
600	15.7	19.3	55.1
800	14.0	17.9	54.3
1000	13.1	17.4	48.9

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.