



SANDVIK 3R12 KNÜPPEL

DATENBLATT

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

STANDARDS

- 304L, 304
- S30403, S30400
- 1.4306, 1.4301
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- 2352
- 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
≤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	Tolerance	Length
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mm	mm	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

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	%	%	
					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	%	%	
					approx.

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		%	%	
≥29.5	≥33.5	74.5-98.5		≥45	≥50	approx. 170

1 MPa = 1 N/mm²

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 _{p0.2}	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 _{p0.2}	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	

Haftungsausschluss: Unsere Empfehlungen dienen lediglich als Richtschnur und die Eignung eines Materials für eine bestimmte Anwendung kann nur bestätigt werden, wenn wir die tatsächlichen Servicebedingungen kennen. Unsere kontinuierliche Entwicklung erfordert möglicherweise Änderungen in den technischen Daten, die wir ohne Ankündigung vornehmen. Dieses Datenblatt ist nur für Sandvik-Werkstoffe gültig.