Alleima® 3X1R63
Billets
Datasheet

Alleima® 3X1R63 is an austenitic stainless steel with a high molybdenum content. Significant properties, such as general and pitting corrosion resistance, are improved in comparison with ASTM 316L.

Standards

- ASTM: 317L
- UNS: S31703
- EN Number: 1.4438
- W.Nr.: 1.4438
- SS: 2367
- BS: 317S16

Product standards

- EN 10088-3
- ASTM A-314

Suitable for production of flanges etc. according 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
≤0.030	0.4	1.8	≤0.030	≤0.010	18.5	13.5	3.1	-

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

Unground round billets

Size	Tolerance	Length
mm	mm	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

At 20°C (68°F)

Metric units

Proof strength		Tensile strength	Elong.	Hardness
$R_{p0.2}$[a]	$R_{p1.0}$[a]	R_m	A[b]	Vickers
MPa	MPa	MPa	%	
				approx.
≥220	≥250	515-690	≥35	155

Imperial units

Proof strength		Tensile strength	Elong.	Hardness
$R_{p0.2}$[a]	$R_{p1.0}$[a]	R_m	A[b]	Vickers
ksi	ksi	ksi	%	
				approx.
≥32	≥36	75-100	≥35	155

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, Alleima® 3R64 has very good impact strength both at room temperature and at cryogenic temperatures.

Tests have demonstrated that the steel fulfils the requirements according to the European standards prEN 13445-2 (UFPV-2) ((min. 60 J (44 ft-lb) at -270 °C (-455 °F)) and prEN 10216-5 (min. 60 J (44 ft-lb) at -196 °C (-320°F).

At high temperatures

Metric units

Temperature	Proof strength	
°C	$R_{p0.2}$[a]	$R_{p1.0}$[a]
	MPa	MPa
	min.	min.
50	196	221
100	172	197
150	155	180
200	144	169
250	136	161
300	129	154

350	123	148
400	119	144
450	115	140
500	110	135

Imperial units

Temperature	**Proof strength**	
°F	**$R_{p0.2}$[a]**	**$R_{p1.0}$[a]**
	ksi	**ksi**
	min.	**min.**
200	25.4	29.0
400	20.8	24.4
600	18.4	22.1
800	17.0	20.6
1000	15.4	19.0

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