

Alleima® 8R61

Tube and pipe, seamless

Datasheet

Alleima® 8R61 is an austenitic chromium-nickel steel alloyed with molybdenum for high-temperature applications.

Standards

- EN Number: 1.4918
- EN Name: X6CrNiMo17-13-2
- W.Nr.: X 6 CrNiMo 17 13
- DIN: 1.4919

Product standards

Seamless tube and pipe:

- EN 10216-5
- DIN 17459

Chemical composition (nominal)

Chemical composition (nominal) %

C	Si	Mn	P	S	Cr	Ni	Mo
0.06	0.5	1.4	≤0.035	≤0.015	17.5	12	2.2

Mechanical properties

At 20°C (68°F)

Proof strength		Tensile strength		Elong.
$R_{p0.2}^{a)}$		R_m		$A^{b)}$
MPa	ksi	MPa	ksi	%
≥205	≥30	490-690	71-100	≥35

1 MPa = 1 N/mm²

a) $R_{p0.2}$ and $R_{p1.0}$ correspond to 0.2% offset and 1.0% offset yield strength, respectively.

b) longitudinal

At high temperatures

Metric units

Temperature
Proof strength
R
p0.2
°C
MPa
min.
50
184
100
177
150
162
200
147
250
137
300
127
350
122
400
118
450
113
500
108
550

Creep-rupture strength

Temperature		10000h		100000h	
°C	°F	MPa approx.	ksi approx.	MPa approx.	ksi approx.
550	1020	250	36.3	175	25.4
560	1040	235	34.1	164	23.8
570	1058	220	31.9	153	22.2
580	1076	205	19.7	142	20.6
590	1094	190	27.6	131	19.0
600	1112	175	25.4	120	17.4
610	1130	160	23.2	109	15.8
620	1148	147	21.3	98	14.2
630	1166	135	19.6	88	12.8
640	1184	123	17.8	78	11.3
650	1202	111	16.1	69	10.0
660	1220	100	14.5	60	8.7
670	1238	91	13.2	52	7.5
680	1256	82	11.9	46	6.7
690	1274	73	10.6	40	5.8
700	1292	65	9.4	34	4.9

Welding

The weldability of Alleima® 8R61 is good. Welding must be carried out without preheating and subsequent heat treatment is normally not required. Suitable methods of fusion welding are manual metal-arc welding (MMA/ SMAW) and gas-shielded arc welding, with the TIG/GTAW method as first choice.

For Alleima® 8R61, heat input of <2.0 kJ/mm and interpass temperature of <150°C (300°F) are recommended.

Recommended filler metals

TIG/GTAW or MIG/GMAW welding

ISO 14343 S 19 12 3 H / AWS A5.9 ER316H

MMA/SMAW welding

ISO 3581 E 19 12 2 R / AWS A5.4 E316H-17

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 Alleima materials.