

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/mm ²									
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				103					
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.