

Alleima® 21-6-9 Aerospace

Tube and pipe, seamless

Datasheet

Alleima® 21-6-9 is an austenitic grade with a high level of Mn, a low level of Ni, and the addition of N. The grade is characterized by:

- High mechanical strength in the hard condition
- Very good impact toughness in temperatures down to -230°C (-382°F)
- Very good high temperature oxidation resistance

Standards

- UNS: S21900

Product standards

- AMS 5561

Customer specifications on request.

Chemical composition (nominal)

Chemical composition (nominal) %

C	Si	Mn	P	S	Cr	Ni	Mo	Cu	N
≤0.040	≤1.00	8.00 - 10.00	≤0.030	≤0.030	19.00 - 21.50	5.50 - 7.50	≤0.75	≤0.75	0.15 - 0.40

Applications

Alleima® 21-6-9 seamless tube is used for components in the aircraft industry.

Forms of supply

Alleima® 21-6-9 seamless stainless steel tubes are supplied in the bright annealed condition or cold-worked.

Dimensions

Outside diameter, mm (in.)	Wall thickness, mm (in.)
2 - 65 (0.079 - 2.56)	0.3 - 25 (0.012 - 1.0)

Tolerances

Outside diameter, mm (in.)	Wall thickness, %
+/- 0.05, or 0.1 (+/- 0.002, or 0.004)	+/- 10

For special tolerance requirements, please contact Alleima.

Mechanical properties

At 20°C (68°F), annealed condition

Proof strength, R _{p0.2}	Tensile strength, R _m	Elongation, A ₂ "
MPa (ksi)	MPa (ksi)	%
≥330 (48)	≥655 (95)	≥35

At 20°C (68°F), hard condition

Proof strength, R _{p0.2}	Tensile strength, R _m	Elongation, A ₂ "
MPa (ksi)	MPa (ksi)	%
≥827 (120)	≥979 (142)	≥20

Physical properties

Density

7.81 g/cm³ (0.282 lb/in³)

Specific heat capacity

Temperature, °C	J/(kg °C)	Temperature, °F	Btu/(lb °F)
0	480	32	0.12
100	480	212	0.12

Modulus of elasticity (x10³)

Temperature, °C	MPa	Temperature, °F	ksi
20	200	68	28.9

Poisson's ratio

0.285

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.