

ER2319

Aluminium wire feedstock ER2319 is an aluminium alloy used in the Wire-arc Additive Manufacturing (WAM®) processes.

ER2319 is an aluminium alloy that was originally developed for use with 2219, an alloy that is commonly used in high-strength Structural and Aerospace applications. ER2319 features an increased copper content with manganese providing added resistance to stress corrosion cracking and is capable of withstanding elevated temperatures.

There is potential for ER2319 to be used within hybrid WAM produced aluminium parts, with the material suitable for use with cast alloys such as C355.0.

Wire Classification

AWS A5.10 ER2319, ISO Al Cu6MnZrTi, 18273

Wire Diameter

1.2 mm

Shielding Gas

Argon

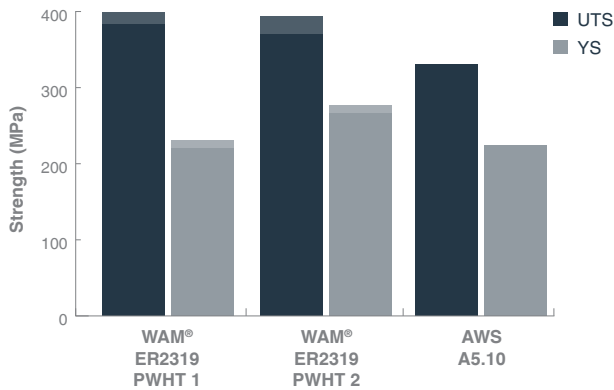
Process

WAM® – DED-Arc

Equivalent Designations

AMS 4191D, AWS A5.10.92, R 2319, UNS A92319

WAM® ER2319 Tensile Strength Comparison



Properties

Composition	Amount %
Silicon	≤ 0.20
Iron	≤ 0.30
Copper	5.8 - 6.8
Manganese	0.2 - 0.4
Magnesium	≤ 0.02
Zinc	≤ 0.10
Titanium	0.10-0.20
Other	≤ 0.15
Aluminium	Rest

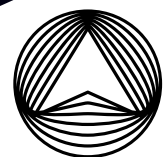
Mechanical	WAM® X, Z Typical	WAM® X, Z Typical	AWS Typical
Ultimate Tensile Strength (MPa)	387 - 399	373 - 393	270 - 310
0.2% Proof stress (MPa)	229 - 231	266 - 276	124 - 224
Reduction in area (%)	NA	NA	NA
Elongation (%)	13 - 14	8 - 9	1.0 - 2.5
Condition	PWHT ¹	PWHT ²	
Classification	AWS A5.90		
Density (kg/m ³)	2840		

Note:

- **PWHT¹:**
Solutionised, quenched and aged for 3 hours.
- **PWHT²:**
Solutionised, quenched and aged for 26 hours.

Discuss specifics on PWHT with AML3D.

WAM® Test Number 210014AM-12, 210014AM-13, 210014AM-18, ER2319 WAAM properties (AML3D)_06.06.2022. Mechanical property values for the 'as-deposited WAAM' values are based on the median value and repeatability testing. Deposited density can be lower than wire density. AWS data source: D20.1/D20.1M:2019 Specification for Fabrication of Metal Components Using Additive Manufacturing.



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