

ER310

Commonly used for the Wire-arc Additive Manufacture (WAM®) of heat-resistant and corrosion-resistant components, ER310 is designed for use in elevated temperature environments, typically up to 1,200° Celsius. The material's heat-resistant and corrosion-resistant properties are commonly required for Petrochemical, Chemical Processing, and Power Generation applications.

Exhibiting good mechanical properties, including high tensile strength and toughness, ER310 is suitable for demanding applications.

Wire Classification

AWS 5.9 ER-310

Wire Diameter

1.2 mm

Shielding Gas

Argon Mix

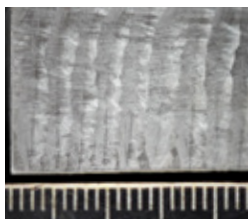
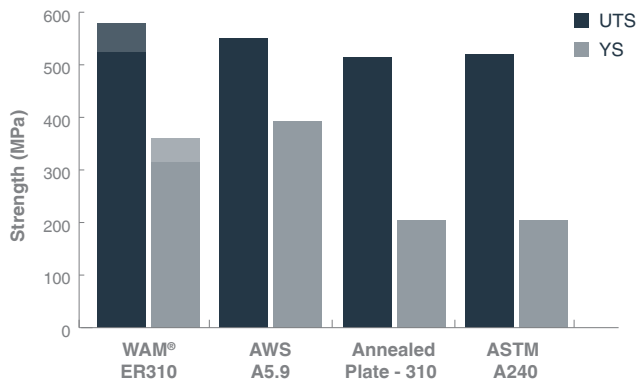
Process

WAM® – DED-Arc

Equivalent Designations

AMS 5521, ASTM A240, ASTM A479, DIN 1.4845, AMS 5572, ASTM A249, ASTM A511, QQ S763, AMS 5577, ASTM A276, ASTM A554, ASME SA240, AMS 5651, ASTM A312, ASTM A580, ASME SA479, ASTM A167, ASTM A314, ASTM A813, SAE 30310, ASTM A213, ASTM A473, ASTM A814, SAE J405 (30310S).

WAM® ER310 Tensile Strength Comparison



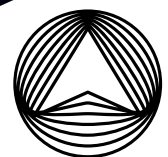
ER310 macro examination photos.

WAM® Test Number 200023AM-02. 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.

Properties

Composition	Amount %
Carbon	0.08 - 0.15
Manganese	1.0 - 2.5
Nickel	20.0 - 22.5
Chromium	25.0 - 28.0
Molybdenum	≤ 0.75
Silicon	0.30 - 0.65
Copper	≤ 0.75
Phosphorus	≤ 0.03
Sulfur	≤ 0.03

Mechanical	WAM® X & Z Typical	AWS Typical
Ultimate Tensile Strength (MPa)	520 - 580	≥ 550
0.2% Proof stress (MPa)	320 - 360	393
Reduction in area (%)	24 - 55	-
Elongation (%)	> 33 - 41	≥ 30
Condition	as built	
Classification	AWS A5.90	
Density (kg/m³)	7890	



35 Woomera Avenue
Edinburgh SA 5111 Australia

info@aml3d.com | +61 8 8258 1658

www.aml3d.com

