

ER70S-6

A low medium strength steel, ER70S-6 features a higher manganese and silicon content that assists with the deoxidising of base materials. ER70S-6 is best used for manufacturing and fabrication of industrial parts that are subject to that are subject to static loads.

ER70S-6 features good tensile strength and ductility, making it a good all round choice across a large variety of components. It is suitable for general fabrication in Defence, Heavy Industry, as well as Oil & Gas sectors.

Wire Classification

AWS A5.18, ER70S-6, AS/NZS ISO 14341-A G 42 2 C1 3Si 1

Wire Diameter

1.2 mm

Shielding Gas

Argon Mix

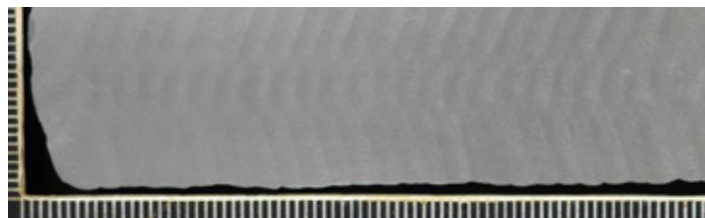
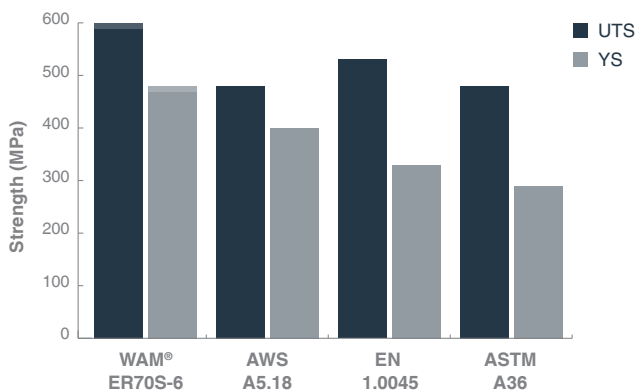
Process

WAM® – DED-Arc

Equivalent Designations

ASTM A36, ASTM A217, ASTM LC1 (J12522), ASTM A302 A, ASTM A302 B, EN 1.0045, EN 1.5450, EN 1.5419, MIL-E-23765/1: MIL-70S-6, CWB W48-01

WAM® ER70S-6 Tensile Strength Comparison

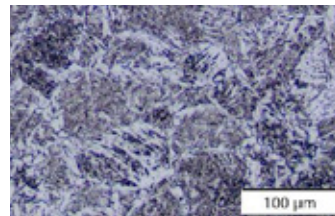


ER70S-6 macro examination photo.

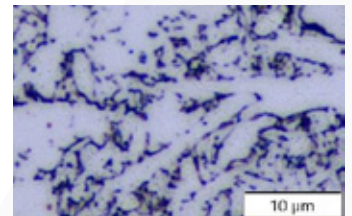
Properties

Composition	Amount %
Carbon	0.06 - 0.15
Silicon	0.80 - 1.15
Manganese	1.40 - 1.85
Phosphorus	≤ 0.025
Sulfur	≤ 0.035
Copper	≤ 0.50
Nickel	≤ 0.15
Chromium	≤ 0.15
Molybdenum	≤ 0.15
Vanadium	≤ 0.03

Mechanical	WAM® X & Z Typical	AWS Typical
Ultimate Tensile Strength (MPa)	590 - 600	≥ 480
0.2% Proof stress (MPa)	470 - 480	≥ 400
Reduction in area (%)	70	-
Elongation (%)	30 - 35	≥ 22
Condition	as built	
Classification	AWS A5.18	
Density (kg/m³)	7850	
Peak Vickers Hardness (HV)	182	
Charpy Impact Test (J)	144-173 @ -40°C	
Stress Analysis (mm) (Neutron Detection)	Comp. > 25	



ER70S-6 weld microstructure at magnification.



WAM® Test Report Number(s) 200023AM-34, 220016AM-25e, 210014AM-25b, 180151AM-14. 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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