ER120S-G

ER120S-G wire is typically composed of alloying elements to provide specific mechanical properties, its composition enhances the strength, toughness, and resistance to high-temperature environments.

Like ER110S-G, ER120S-G is best suited to applications requiring high strength, cracking and impact resistance, such as pressure vessel fabrication and heavy equipment manufacturing; however, ER120S-G is more widely known for its high tensile strength and toughness, allowing for strong and reliable WAM® parts that can withstand heavy loads and dynamic forces.

Wire Classification

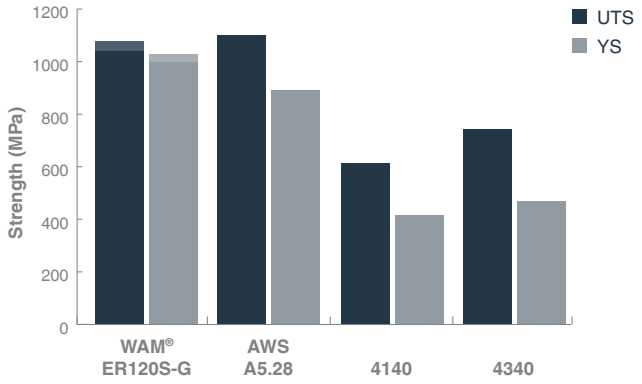
AWS A5.28 ER120S-G, EN ISO 16834-A G 89 5 M Mn4Ni2,5CrMo

Wire Diameter	Shielding Gas	Process
1.2 mm	Argon Mix	WAM® – DED-Arc

Equivalent Designations

4140, 4340, A514, A517, HY80, HY90, HY100, API 5LX X65, API 5LX X70, API 5LX X80, API 5LX L80.

WAM® ER120S-G Tensile Strength Comparison



Properties

Composition	Amount %
Carbon	0.07 - 0.11
Manganese	1.6 - 2.0
Nickel	2.0 - 2.3
Chromium	0.25 - 0.45
Molybdenum	0.45 - 0.65
Silicon	0.6 - 0.9
Copper	≤ 0.25
Iron	Rem
Phosphorus	≤ 0.015
Sulfur	≤ 0.015
Nitrogen	≤ 0.10
Titanium	0.05 - 0.15
Aluminium	≤ 0.10
Vanadium	≤ 0.03

Mechanical	WAM® X & Y Typical	AWS Typical
Ultimate Tensile Strength (MPa)	1060 - 1080	940 - 1100
0.2% Proof stress (MPa)	1000 - 1030	> 890
Reduction in area (%)	24 - 55	-
Elongation (%)	13 - 17	> 15
Condition	as built	
Classification	AWS A5.28	
Density (kg/m^3)	7800	
Charpy Impact Test (J)	100 ambient	
Stress Analysis (mm) (Neutron Detection)	Comp. > 25	

WAM® Test Number 200023AM-08. 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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