

# ER420

Often used for surfacing, ER420 features superior abrasion resistance making it suitable in applications with higher-hardness and extended wear requirements.

As martensitic stainless steel, with a higher carbon and chromium content when compared to ER410, ER420 provides reasonably good corrosion resistance. It is suitable for use across a wide range of sectors including Aviation, Maritime, Defence, Oil & Gas, Heavy Industry.

## Wire Classification

AWS A5.9 ER420

## Wire Diameter

1.6 mm

## Shielding Gas

Argon Mix

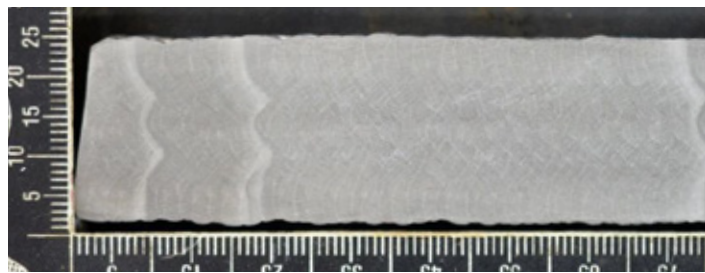
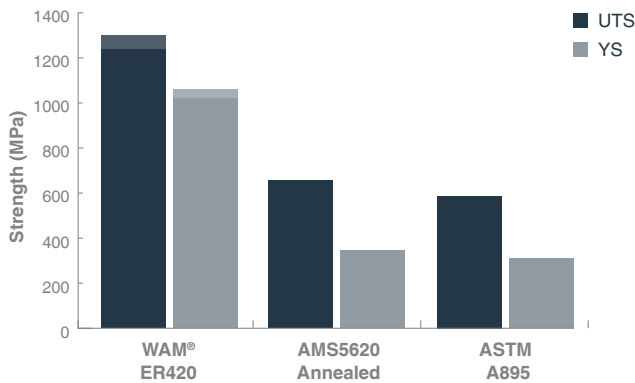
## Process

WAM® – DED-Arc

## Equivalent Designations

AISI 420F, AMS 5620, ASTM A895, SAE 51420F, SAE J405 (51420F).

## WAM® ER420 Tensile Strength Comparison

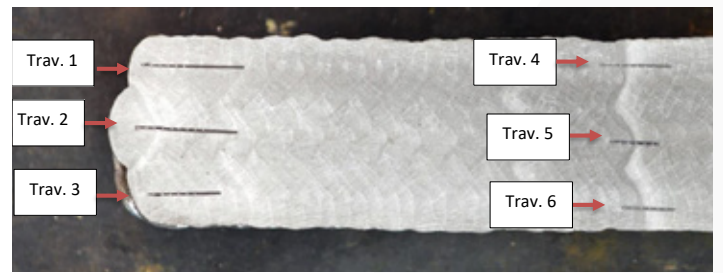


ER420 macro examination photo.

## Properties

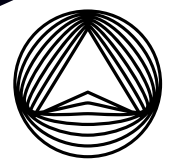
Composition	Amount %
Carbon	0.25 - 0.40
Manganese	≤ 0.6
Nickel	≤ 0.6
Chromium	≤ 12.0
Molybdenum	≤ 0.75
Silicon	≤ 0.5
Copper	≤ 0.75
Phosphorus	≤ 0.03
Sulfur	≤ 0.03

Mechanical	WAM® X & Z Typical	AWS Typical
Ultimate Tensile Strength (MPa)	1270 - 1300	-
0.2% Proof stress (MPa)	1030 - 1060	-
Reduction in area (%)	4 - 6	-
Elongation (%)	3 - 4	-
Condition	as built	-
Classification	AWS A5.90	-
Density (kg/m <sup>3</sup> )	7800	-
Charpy Impact Test (J)	5-8 @ 21°C	-
Peak Vickers Hardness (HV)	412	-



ER420 hardness survey locations.

WAM® Test Number 190029AM-05. 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.



35 Woomera Avenue  
Edinburgh SA 5111 Australia  
info@aml3d.com | +61 8 8258 1658

www.aml3d.com

