

ER5356

DIN 3.3536, EN ISO 18273 S Al 5356 (AlMg5Cr(A))



Wire

Key Features

- Medium strength
- High ductility
- Excellent corrosion resistance
- Good feedability

Applications

- Structural materials in marine
- Automotive
- Aircraft
- Cryogenic application

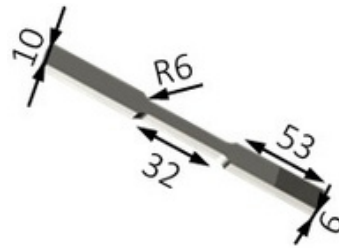


Chemical Composition

Element	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Al
Weight Percent (Wt.%)	0.05	0.1	0.001	0.1	4.75	0.1	0.003	0.1	Bal



Mechanical Properties [1]



*Test Standard used ASTM E8

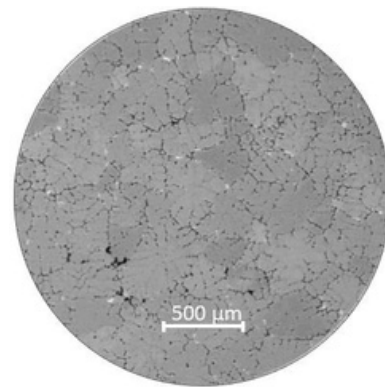
Material	Tensile Strength (MPa)	Yield Strength (MPa)	Elongation (%)	Hardness (HV)	Hardness (HB)
MetalWorm WAAM ER5356	299 @ LD [2]	195 @ LD	30 @ LD	86	82
	295 @ ND [3]	200 @ ND	18 @ ND		
As-fabricated 5019 aluminum [4]	280	130	16	N/A	N/A



Microstructure



WAAM ER5356 @ MetalWorm



Reference 5019 Aluminum alloy [5]

The microstructure of WAAM fabricated ER5356 is similar to the microstructure of 5019 aluminum alloy. The microstructure consists of columnar, planar, dendritic, and equiaxed grains. Different grain morphologies are effected by various cooling rates in different region of WAAM fabricated ER5356 aluminum alloy.

[1] Tensile tests were carried out at room temperature, according to ASTM E8 standard with thickness of 6 mm and loading speed of 0.25 mm/s.

[2] LD corresponds to longitudinal or deposition direction.

[3] ND corresponds to normal or building direction.

[4] The data correspond to 5019 aluminum and are taken from: <https://www.makeitfrom.com/material-properties/5019-F-Aluminum>

[5] The image is taken from: [doi:10.4028/www.scientific.net/KEM.682.10](https://doi.org/10.4028/www.scientific.net/KEM.682.10)