



# CERTIFICATE of Compliance

U.S. ALLOY CO.  
dba Washington Alloy  
7010-G Reames Rd.  
Charlotte, NC 28216  
[www.weldingwire.com](http://www.weldingwire.com)

Quality Management System  
in accordance with  
ISO 9001:2000  
Cert # 05-R0925

TRADE NAME: USA 110S-1  
Specification: AWS A 5.28 : ASME SFA 5.28  
Classification: ER110S-1

## Chemical Composition % for Weld Wire

	AWS Requirements	Typical <sup>1</sup>
Carbon (C)	0.09 max.	0.07
Manganese (Mn)	1.40-1.80	1.60
Silicon (Si)	0.20-0.55	0.45
Phosphorus (P)	0.010 max.	0.007
Sulfur (S)	0.010 max.	0.009
Aluminum (Al)	0.10 max.	
Zirconium (Zr)	0.10 max.	
Titanium (Ti)	0.10 max.	
Nickel (Ni)	1.90-2.60	2.30
Molybdenum (Mo)	0.25-0.55	0.50
Copper (Cu)	0.25 max.	
Chromium (Cr)	0.50 max.	0.30
Vanadium (V)	0.04 max.	

## Mechanical Properties

	Minimum AWS Requirements	Typical <sup>1</sup>
Tensile Strength	110,000 psi	115,000 psi
Yield Strength	95,000 psi	98,000 psi
Elongation in 2"	15 %	16%
Charpy V-notch Impact Average	50 ft · lbs at -60°F	65 ft · lbs at -60°F

*This certification is provided by Washington Alloy Co. with the expressed understanding that if the product supplied fails to conform the stated specifications, there shall be no personal liability of any kind on the undersigned and the obligation and liability of Washington Alloy Co., with respect to such non-conformance or specification failure, shall be limited to a) an obligation to furnish the purchaser, at no additional charge, material that meets the specifications and conformances or b) to refund to the purchaser the full amount of money paid to Washington Alloy Co. for the return of the product in full. In no event shall Washington Alloy Co. be liable for consequential damage.*

This certifies that the product supplied will meet the requirements of the noted classification and data above. Products supplied in accordance to the Quality Management System of Washington Alloy Company.

<sup>1</sup>Typical Results based on 98% Ar & 2% CO<sub>2</sub>

  
Certification Administrator

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