



XTR Nickel 99

AWS A5.15 ERNi-CI

Description:

Nickel 99 is a machinable cast iron rod and is preferred when the weld needs to be drilled, tapped, milled or machined in any way. AWS Requires a minimum of 85% Nickel in this alloy, typically XTRweld product is typically at least 99%.

Typical Applications:

XTR Nickel alloy 99 is used for TIG and MIG welding of gray iron castings, cast iron and joining cast iron to mild steels, stainless-steel alloys and some copper alloys. It can also be used for overlay and build-up applications. Dilution from the casting influences the mechanical properties of the metal. Due to the high nickel content, the welds are readily machinable. A preheat and inter-pass temperature of at least 350°F (175°C) is required before welding on cast iron to minimize the potential for cracks during and after the weld cools.

Chemistry:

	Typical	AWS Spec.	Single values are max. unless noted
Carbon (C)	0.003	2.000	
Manganese (Mn)	0.070	2.500	
Silicon (Si)	0.090	4.000	
Sulfur (S)	0.001	0.030	
Iron (Fe)	0.150	8.000	
Nickel (Ni)	99.000	85.000 min	
Copper (Cu)	0.020	2.500	
Aluminum (Al)	0.100	1.000	



Mechanical Properties:

	Typical	AWS Spec.	Single values are min.
Tensile Strength	66,000	45k-65,000 psi	
Yield Strength	38,500	38k-60,000 psi	
Elongation in 2" (%)	4	3-6	
Hardness BHN	195	135-218 Brinell	

Welding Positions:

All

Operating Parameters: MIG (GMAW), DCEP DC+

Short ARC Mix 75 Ar, 25% Helium Shielding Gas					
Diameter	Amperage	Voltage	Speed (IPM)	Stickout (In.)	Flow Rate (CFH)
0.035 (.9mm)	95-140	20	300-575	1/4-1/2	35-45
0.045 (1.14mm)	90-145	23	300-575	1/4-1/2	40-50

For Spray ARC parameters, increase amperage, volts, stickout by 20% and increase gas flow by 5 CFH (100% Argon)

Operating Parameters: TIG (GTAW), DCEN DC-

Shielding gas use 100% Argon Shielding Gas					
Diameter	Amperage	Voltage	Tungsten Size	Flow Rate (CFH)	2% Thoriated 2% Ceriated 2% Lanthanum or Rare Earth Tungsten Electrodes are preferred
0.045 (1.14mm)	80-115	13-16	0.045 (1.14mm)	15-20	
1/16 (1.6mm)	90-135	14-17	1/16 (1.6mm)	20-25	
3/32 (2.4mm)	120-175	15-19	3/32 (2.4mm)	20-25	
1/8 (3.2mm)	145-215	15-20	1/8 (3.2mm)	20-25	



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