

Nickel Alloy Wire

Alloy: WWNA625
Class: ERNiCrMo-3

Conforms to Certification: AWS A5.14
ASME SFA A5.14

Alloy: ERNiCrMo-3 (Alloy 625)
Weld Process: GMAW, GTAW and ASAW Welding Processes

AWS Chemical Composition Requirements

C = 0.10 max	Cu = 0.50 max
Mn = 0.50 max	Ni = 58.0 min
Fe = 5.0 max	Al = 0.40 max
P = 0.02 max	Ti = 0.40 max
S = 0.015 max	Cr = 20.0 – 23.0
Si = 0.50 max	Nb + Ta = 3.15 – 4.15
Mo = 8.0 – 10.0	Other = 0.50 max

Deposited All Weld Metal Properties % (AW)

Tensile Strength	114,000psi
Yield Strength	66,000psi
Elongation	35%

Deposited Chemical Composition % (Typical)

C = 0.09	Si = 0.12	Ni = Balance
Mn = 0.05	Cr = 21.9	Nb/Ta = 3.65
Fe = 0.62	Mo = 8.70	

Deposited Charpy-V-Notch Impact Properties %

Not applicable

Application

ERNiCrMo-3 (NA625) is used primarily for gas tungsten and gas metal arc and matching composition base metals. It is also used for welding Inconel 601 and Incoloy 800. It can be used to weld dissimilar metal combinations such as steel, stainless steel, Inconel and Incoloy alloys.

Recommended Welding Parameters for TIG, MIG, and SAW Welding of Nickel Alloys

<u>Process</u>	<u>Diameter of Wire</u>	<u>Voltage (V)</u>	<u>Amperage (A)</u>	<u>Gas</u>
Tig	.035 inches x 36	12 -15	60 -90	100% Argon
	.045 inches x 36	13 -16	80 - 110	100% Argon
	1/16 inches x 36	14 - 18	90 - 130	100% Argon
	3/32 inches x 36	15 – 20	120 -175	100% Argon
	1/8 inches x 36	15 – 20	150 - 220	100% Argon
MIG	.035 inches	26 – 29	150 – 190	75% Argon + 25% Helium
	.045 inches	28 – 32	180 – 220	75% Argon + 25% Helium
	1/16 inches	29 – 33	200 - 250	75% Argon + 25% Helium
SAW	3/32 inches	28 – 30	275 – 350	Suitable Flux may be used
	1/8 inches	29 – 32	350 – 450	Suitable Flux may be used
	5/32 inches	30 – 33	400 – 550	Suitable Flux may be used

Note: Other shielding Gases may be used for Mig and Tig welding. Shielding gases are chosen taking Quality, cost, and Operability into consideration.

Note: Both agglomerated and fused fluxes can be used for submerged arc welding.

Note: The chemical composition of the flux mainly affects the chemistry of the weld metal and consequently its corrosion resistance and mechanical properties.

