**WELDWIRE COMPANY, INC.** **Technical Information**

Nickel Alloy Wire

Alloy: WWNA718 Conforms to Certification: AWS A5.14
Class: ERNiFeCr-2 ASME SFA A5.14

Alloy: ERNiFeCr-2 (Alloy 718)
Weld Process: GMAW, GTAW and ASAW Welding Processes

AWS Chemical Composition Requirements

| | |
|---|---|
| C = 0.08 max | Cu = 0.30 max |
| Mn = 0.35 max | Ni = 50.0 – 55.0 |
| Fe = Remainder | Al = 0.20 – 0.80 |
| P = 0.015 max | Ti = 0.65 – 1.15 |
| S = 0.015 max | Cr = 17.0 – 21.0 |
| Si = 0.35 max | Nb + Ta = 4.75 – 5.50 |
| Mo = 2.80 – 3.30 | Other = 0.50 max |

Deposited Chemical Composition % (Typical)

| | | |
|---|---|---|
| C = 0.04 | Si = 0.12 | Ni = 52.5 |
| Mn = 0.25 | Cr = 19.0 | Nb/Ta = 5.0 |
| Fe = Balance | Mo = 3.0 | S = 0.009 |

Deposited Charpy-V-Notch Impact Properties %

Not applicable

Application

ERNiFeCr-2 (NA718) filler metal is used by gas tungsten arc welding process for Cr-Ni-Nb-Mo alloys. Use of high heat impart process such as mig often results in micro-fissuring.

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

| Process | Diameter of Wire | Voltage (V) | Amperage (A) | Gas |
|---|---|---|---|---|
| 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.

If additional information is needed Contact Weldwire Company, Inc. 800-523-1266