# Alloy: COREWELD 82 | Class: ERNiCr-3

ERNiCr-3 (Alloy 82) • Weld Processes: GMAW, GTAW & SAW

CERTIFIED TO
**AWS A5.14**
**ASME SFA A5.14**

## AWS CHEMICAL COMPOSITION REQUIREMENTS | DEPOSITED CHEMICAL COMPOSITION % (TYPICAL)

| AWS REQUIREMENT (%) | | TYPICAL DEPOSIT (%) | |
|---|---|---|---|
| **C** | 0.10 max | **C** | 0.03 |
| **Cu** | 0.50 max | **P** | 0.003 |
| **Mn** | 2.5 – 3.5 | **Ni** | 72.9 |
| **Ni** | 67.0 min | **Mn** | 2.85 |
| **Fe** | 3.0 max | **S** | 0.001 |
| **Co** | 0.12 max | **Cr** | 20.4 |
| **P** | 0.03 max | **Fe** | 1.1 |
| **Ti** | 0.75 max | **Si** | 0.22 |
| **S** | 0.015 max | **Cb/Ta** | 2.5 |
| **Cr** | 18.0 – 22.0 | | |
| **Si** | 0.50 max | | |
| **Cb/Ta** | 2.0 – 3.0 | | |
| **Other** | 0.50 max | | |

## DEPOSITED ALL WELD METAL PROPERTIES % (AW) | CHARPY-V-NOTCH IMPACT PROPERTIES %

| MECHANICAL PROPERTY | | CHARPY-V-NOTCH IMPACT |
|---|---|---|
| **Tensile Strength** | 85,500 psi | *Not applicable* |
| **Yield Strength** | 52,500 psi | |
| **Elongation** | 38% | |

## APPLICATION

COREWELD 82 ERNiCr-3 (82) is used for welding Inconel alloy 600 and Incoloy 800, overlaying on steel and various dissimilar metal welding applications. Weld processes which can be used include GTAW, GMAW and SAW.

## RECOMMENDED WELDING PARAMETERS FOR TIG, MIG & SAW WELDING OF NICKEL ALLOYS

| PROCESS | DIAMETER OF WIRE | DIAMETER OF WIRE (MM) | VOLTAGE (V) | AMPERAGE (A) | GAS |
|---|---|---|---|---|---|
| **TIG** | | | | | |
| | .035 in | 0.90 | 12–15 | 60–90 | 100% Argon |
| | .045 in | 1.20 | 13–16 | 80–110 | 100% Argon |
| | 1/16 in | 1.60 | 14–18 | 90–130 | 100% Argon |
| | 3/32 in | 2.40 | 15–20 | 120–175 | 100% Argon |
| | 1/8 in | 3.20 | 15–20 | 150–220 | 100% Argon |
| **MIG** | | | | | |
| | .035 in | 0.90 | 26–29 | 150–190 | 75% Argon + 25% Helium |
| | .045 in | 1.20 | 28–32 | 180–220 | 75% Argon + 25% Helium |
| | 1/16 in | 1.60 | 29–33 | 200–250 | 75% Argon + 25% Helium |
| **SAW** | | | | | |
| | 3/32 in | 2.40 | 28–30 | 275–350 | Suitable flux may be used |
| | 1/8 in | 3.20 | 29–32 | 350–450 | Suitable flux may be used |
| | 5/32 in | 4.00 | 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.

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