



# Unibraze 309/309H

**CLASSIFICATIONS:** AWS A5.9/ASME SFA 5.9 Class ER309H    UNS S30980

**DESCRIPTION:** Unibraze 309/309H is a high carbon stainless steel alloy and low ferrite content. These controls are designed to increase the high temperature strength and microstructural stability for service applications above 400°C. The widely used 309L dissimilar weld metal has lower hot strength and is more prone to embrittlement during long term high temperature service for which it is not intended. The main application for this electrode is for welding steels of similar composition.

**TYPICAL CHEMISTRY:**

| C          | Cr            | Ni            | Mo         | Mn          | Si          | P          | S          | Cu         | FN (WRC) |
|------------|---------------|---------------|------------|-------------|-------------|------------|------------|------------|----------|
| .12<br>max | 23.0-<br>25.0 | 12.0-<br>14.0 | .30<br>max | 1.0-<br>2.5 | .30-<br>.65 | .03<br>max | .02<br>max | .75<br>max | 6-17     |

**TYPICAL MECHANICAL PROPERTIES:**

|                    |                      |
|--------------------|----------------------|
| Tensile Strength   | 92,000 psi (635MPa)  |
| Yield Strength     | 60,000 psi (414 MPa) |
| Elongation         | 38%                  |
| Charpy Impacts@ RT | 85 ft lbs. (115 J)   |

**TYPICAL WELDING PARAMETERS:**

|        | Shielding Gas                                   | Gas Flow     | Diameter       | Voltage | Amperage |
|--------|---|--------------|----------------|---------|----------|
| MIG    | 98/99% Ar +2/1% O<br>97%Ar + 3% CO <sub>2</sub> | 30 to 50 CFH | .035" (.9mm)   | 26-29   | 160 /210 |
|        |   |              | .045" (1.14mm) | 28-32   | 180/250  |
|        |   |              | .062" (1.6mm)  | 29-33   | 200/280  |
| TIG    | 100% Ar   |              | 1/16" (1.6mm)  | 14-18   | 90/130   |
|        |   |              | 3/32" (2.4mm)  | 15-20   | 120/175  |
|        |   |              | 1/8" (3.2mm)   | 15-20   | 150/220  |
| SUBARC | Suitable Flux                                   |              | 3/32" (2.4mm)  | 28-33   | 275/350  |
|        |   |              | 1/8" (3.2mm)   | 29-32   | 350/450  |

Notice: The results reported are based upon testing of the product under controlled laboratory conditions in accordance with American Welding Society Standards. Actual use of the product may produce different results due to varying conditions. An example of such conditions would be electrode size, plate chemistry, environment, weldment design, fabrication methods, welding procedure and service requirements. Thus the results are not guarantees for use in the field. The manufacturer disclaims any warranty of merchantability or fitness for any particular purpose with respect to its products.