



Unibraze 2594T-1

Description: Unibraze 2594T-1 is a premium flux cored, gas shielded stainless steel electrode designed for welding 25%Cr Super duplex alloys. Applications include both wrought and cast material like UNS S32750, SAF 2507, UNS J93404 and ASTM A890 Gr 5A & Gr 6A. In addition, Unibraze 2594T-1 can be used to weld combinations of 25%Cr super duplex alloys to 22%Cr standard duplex alloys. This electrode provides excellent corrosion resistance and low temperature notch toughness, making it suitable for marine environments and offshore applications. **Unibraze 2594T-1** is an all-position electrode designed to use Argon/ 20-25% CO₂ shielding gas with a flow rates of 40-50 CFH.

Classifications: E2594T1-4 per AWS A5.22, ASME SFA 5.22

Advantages: Significantly higher deposition rates and better weldability than solid wire or covered electrodes.
 Produces robust notch toughness properties at -40°F
 Exhibits excellent corrosion resistance, evaluated by the ASTM G48 Method A corrosion test
 Possesses exceptional all-position weldability, arc stability and slag release

Typical Mechanical Properties:

	<u>75Ar/25CO₂</u>
Ultimate Tensile Strength (psi)	131,000
Yield Strength (psi)	101,000
Percentage Elongation	24
CVN (ft • lb) @ -40° F	30
@ -50° F	27
Vicker's Hardness (HV10)	280-310
ASTM G48 Method A (g/m ²)*	≤ 4.0

*ASTM G48 Method A testing conducted at 40°C for 24 hours. Corrosion test performance is highly dependent on following an acceptable welding procedure and appropriate corrosion sample preparation. The maximum heat input should be limited to 38 KJ/in.

Typical Weld Deposit Composition (wt%):

<u>Shielding Gas</u>	<u>C</u>	<u>Mn</u>	<u>Si</u>	<u>Cr</u>	<u>Ni</u>	<u>Mo</u>	<u>N</u>	<u>S</u>	<u>P</u>	<u>PRE_N**</u>	<u>FN***</u>
75Ar/25CO ₂	.03	1.1	0.48	25.0	8.82	3.66	0.25	0.005	0.02	41	45

**PRE_N= Cr + 3.3Mo + 16N

***FN according to WRC-1992 diagram

Recommended Welding Parameters****:

<u>Diameter</u>	<u>Position</u>	<u>Optimum</u>			<u>Range</u>	
		<u>Amperage</u>	<u>WFS</u>	<u>Voltage</u>	<u>Amperage</u>	<u>Voltage</u>
1/16"	Flat	220	240	27.5	160-250	24-30
	Overhead	175	185	25	140-200	23-27
	Vertical up	175	185	25	140-200	23-27
.045"	Flat	200	380	29	160-240	26-31
	Overhead	160	300	26	125-180	23-28
	Vertical up	160	300	26	125-180	23-28

****Use 5/8" - 7/8" contact tip to work distance (CWTD)

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.