Unibraze® 312-T1

Classification: AWS A5.22/ASME SFA 5.22 E312T1-1, E312T1-4 UNS W31331

Description: Unibraze® 312-T1 is a gas-shielded, flux cored, stainless steel designed to weld in all positions. The nominal composition of this weld metal is 30% Cr and 9% Ni. It is most often used in dissimilar applications where one of the metals is high in nickel. **Unibraze 312-T1** gives a two-phase weld deposit with substantial amounts of ferrite in an austenitic matrix. Even with considerable dilution by the austenite-forming elements, such as nickel, the microstructure remains two-phase and is highly resistant to weld metal cracks and fissures.

Chemical Composition: (100% CO_2)

	C	Cr	Ni	Mo	Mn	Si	P	S	Cu
Requirement	.15 max	28.0-32.0	8.0-10.5	.75 max	.50-2.5	1.0 max	.04 max	.03 max	.75 max
Typical Results	.03	28.41	9.32	.12	.82	.05	.02	.005	.21

Mechanical Properties: (100% CO_2)

	Requirement	***Typical Results***
Tensile Strength	95,000 psi min. (660 MPa)	114,000 psi (786 MPa)
Elongation	22% min.	25%

***NOTE*:** Strength will be slightly higher with Ar + 20~25% CO_2

Optimum Welding Parameters: DC+ (100% CO_2)

Diameter	Amps	Volts	WFS (IPM)	ESO	Deposition Rate (lbs/hr)
.035”	150	26	500	5/8” –3/4”	5.4
.035”	165	27	600	5/8” –3/4”	6.3
.045”	160	26	300	5/8” –3/4”	6.3
.045”	200	28	425	5/8” –3/4”	9.2
1/16”	215	27	195	¾” – 1”	7.0
1/16”	250	28	240	¾” – 1”	8.6

NOTE: Lower by ~2 volts when using Ar + 20~25% CO_2