



## Unibraze 253MA

**DESCRIPTION:** Unibraze 253MA (micro alloyed) is an austenitic heat resistant stainless steel filler metal for GTAW, GMAW, and SAW welding of high temperature steels. The Cerium and Silicon combination produces excellent oxidation resistance up to 2000°F. Nitrogen, Carbon and Cerium combine to provide high creep strength. Unibraze 253MA also has excellent resistance to erosion and sulfidation. Any oxide layer on the component exposed to high temperature must be removed before welding. Base metal penetration may be less with high temperature steels compared to 304 or 316. The fluidity of the molten material is also less, requiring an increase to the root gap (2-3mm) and bevel angle (60-70°). Shielding gas recommendation for GTAW is 100% Ar while AR+3%NO or Ar+30% He+2.5%CO<sub>2</sub> is recommended for GMAW. GTAW/GMAW joints exhibit the best creep resistance compared to other processes.

### TYPICAL CHEMISTRY:

Fe	C	Mn	Si	P	S	Cu	Ni	Cr	Mo	Co	N	Al	Ce	FN (WRC)
Bal.	.065	.52	1.52	.022	.001	.098	10.11	21.07	.17	.089	.172	.004	.03	2.2

### TYPICAL MECHANICAL PROPERTIES:

<b>Tensile Strength</b>	90,000-114,000 psi
<b>Yield Strength</b>	45,000-69,000 psi
<b>Elongation</b>	40%
<b>Reduction of Area</b>	50%
<b>Charpy Impact (-20°C)</b>	120 J (89 ft/lbs)
<b>Hardness (RB)</b>	90

### TYPICAL WELDING PARAMETERS:

	Diameter	Wire feed (in/min)	Volts	Amps	Gas cfh
<b>GMAW Short-arc</b>	.035" (.9mm)	157-315	15-21	40-140	25
<b>GMAW Spray-Arc</b>	.035" (.9mm)	236-472	23-28	140-220	38
	.045" (1.14mm)	197-354	24-29	180-260	38
	1/16" (1.6mm)	118-197	25-30	230-550	38
<b>GMAW Pulse-Arc</b>	.045" (1.14mm)	118-394	23-31	150-250	38
<b>GTAW (DCEN)</b>	Parameters depend on base metal thickness and application. 100%Ar or He shielding gas should be used to prevent oxidation of the weld metal.				
<b>SAW (DCEN)</b>	3/32" (2.4mm)		28-32	250-400	
	1/8" (3.2mm)		29-34	300-450	

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.