Unibraze 307Si

CLASSIFICATION: AWS A5.9 2017 (ISO 14343: 2009 MOD) G 18 8 Mn

DESCRIPTION: Unibraze 307Si has a nominal composition (wt %) of 18 Cr, 8 Ni, 6 Mn, and the all-weld metal microstructure is normally austenite with a small amount of ferrite. Its applications are essentially the same as ER307. The high silicon content provides for a smooth spatter free weld deposit. Applications include; base material plates such as armor plate, manganese steel and wear plates are welded to themselves and to other carbon and alloy steels. Unibraze 307Si is an excellent choice to weld dissimilar metals like carbon steel to stainless that requires a PWHT. The resultant weld deposit has corrosion resistance up to 1560°F. Welding high temperature furnace components, Unibraze 307Si is not subject to 885F embitterment like ER309 or ER312. Unibraze 307Si may be a better choice as a buffer layer or "buttering alloy" under hard facing alloys. Typical WRC 8 FN.

TYPICAL CHEMISTRY

C	Si	Cr	Ni	Mn	P	Cu	S	Mo
.06	.85	18.70	8.20	6.70	.03	.20	.006	.04

TYPICAL MECHANICAL PROPERTIES

TENSILE STRENGTH	86,700 PSI
YIELD STRENGTH	61,800 PSI
ELONGATION IN 2"	39%
IMPACTS @20C	85 ft-lbs

RECOMMENDED WELDING PARAMETERS (DCRP)

PROCESS	DIAMETER	VOLTAGE	AMPERAGE	GAS/FLUX*
TIG (GTAW)	1/16"	14-18	90-130	100% Ar
	3/32"	15-20	120-175	100% Ar
	1/8"	15-20	150-220	100% Ar
MIG (GMAW)	.035" SHORT ARC	16-26	70-160	69%Ar-30%He-1%O_2
	.035" SPRAY ARC	26-31	150-230	92%Ar-2%CO_2 or
	.045" SPRAY ARC	28-32	180-280	98%Ar-2%O_2

Note: The weld deposit has little or no ferrite. Care must be taken to avoid hot cracks. This is accomplished by low heat input and making "convex" bead profiles.

Unibraze Corporation 1050 Penner Crest Houston, TX 77055 1-800-364-6900 www.unibraze.com