MIDALLOY ER209 (NITRONIC® 50W) Bare Wire

SPECIFICATION
- AWS 5.9 Class ER209 / ASME SFA 5.9 Class ER209

CLASSIFICATION
- ER209
- UNS S20980

DESCRIPTION / APPLICATION
- MIDALLOY ER209 is most often used to weld UNS S20400 (Nitronic 30), UNS S20910, and Armco Nitronic®50 base metals.
- This filler metal can also be used in welding dissimilar alloys like mild steel and the stainless steels, and also for direct overlay on mild steel for corrosion applications when used with the gas metal arc welding process.
- The gas tungsten arc, plasma arc, and electron beam processes are not suggested for direct application of this filler metal on mild steel.
- MIDALLOY ER209 is a nitrogen strengthened, austenitic stainless steel exhibiting high strength and good toughness over a wide range of temperatures.
- Weldments in the as-welded condition made by using this filler metal are not subject to carbide precipitation.
- Nitrogen alloying reduces the tendency for carbon diffusion and thereby increases resistance to intergranular corrosion.

TYPICAL CHEMISTRY

C	Cr	Ni	Mo	Mn	Si	P	S	N	Cu	V
0.05	20.5-24.0	9.5 – 12.0	1.5 – 3.0	4.0 - 7.0	0.90	0.03	0.03	0.10-0.30	0.75	0.10- 0.30

TYPICAL MECHANICAL PROPERTIES

TENSILE STRENGTH - 690 MPA	101,500 PSI
YIELD STRENGTH	62,900 PSI
ELONGATION MIN.	36%
TYPICAL CHARPY IMPACTS	54.2 ft. lbs. @ -20°C

STANDARD PACKAGING
- TIG 10 lb. tube / 60 lb. carton
- MIG 30 lb. spool

® Registered trade name of Armco Steel

2/25/15

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TYPICAL WELDING PARAMETERS FOR MIDALLOY ER209 (NITRONIC® 50W) WIRE

GMAW (SHORT CIRCUITING MODE)

WIRE DIA.	AMPERAGE	VOLTAGE	WIRE SPEED IN./MIN.	JOINT THICKNESS IN.	SHIELDING GAS
.030” .035”	70-90 70-90	18-24 17-20	150-200 150-200 150-200	.050-3/16 .050-3/16 .050-3/16	90He/7.5Ar/2.5Co2 90He/7.5Ar/2.5Co2 69Ar/30He/1Co2
.045”	75-160 75-160 75-160	19-22 19-22 18-22	175-225 175-225 175-225	1/8-3/4 1/8-3/4 1/8-3/4	75Ar/25He OR 90He/7.5Ar/2.5Co2 69Ar/30He/1Co2

GMAW (SPRAY TRANSFER MODE)

.035” .045” .062”	145-200 190-250 220-300	25-29 24-30 26-32	225-350 200-350 210-330	1/16 TO 1/4 1/4 and UP 3/8 and UP	**92%Ar 8%CO2or 02** **98%Ar -2%CO2or 02** 98%AR-2%O2

GMAW (PULSED CURRENT MODE)

.035" peak .045” peak	120-150 250-300 120-150 250-300	18-20 18-20 	175-225 175-225 	1/8-3/4 1/8-3/4 	75Ar/25He, Argon or 69Ar/30He/1Co2 75Ar/25He, Ar or 69Ar/30He/1Co2

ALL PARAMETERS DIRECT CURRENT REVERSED POLARITY

GTAW Parameters same as 300 series stainless steels

NOTES:
The weld deposit has no little or no ferrite. Care must be taken to avoid hot cracks. This is accomplished by low heat input and making “convex” bead profiles. Excessive weaving may also cause surface (hot short) cracks.

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