

MIDALLOY ER218 (NITRONIC® 60W) Bare Wire

SPECIFICATION

- AWS 5.9 Class ER218 / ASME SFA 5.9 Class ER218

CLASSIFICATION

- ER218
- UNS S21880

DESCRIPTION / APPLICATION

- MIDALLOY ER218 is most often used to weld UNS S21800, Nitronic® 60 base metals. REF ASTM A276, ASTM A240, AMS 5848, ASTM 479, and ASTM 193/194.
- 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.
- MIDALLOY ER218 is a nitrogen strengthened, high manganese-silicon 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 provide one of the best combinations of strength and ductility when subjected to carbide precipitation.
- Applications include fasteners, engine valves, shear pins, shafts and other areas where galling resistance is required

TYPICAL CHEMISTRY

C	Cr	Ni	Mo	Mn	Si	P	S	N	Fe	Cu
0.07	17.2	8.6	0.75 max	8.2	3.9	0.03	0.02	0.12	BAL	0.75 max

TYPICAL MECHANICAL PROPERTIES

TENSILE STRENGTH	123,000 PSI
YIELD STRENGTH	85,000 PSI
ELONGATION MIN.	15%
IMPACT STRENGTH	50 FT-LBS 73°F, 10 FT-LBS @ -320°F
AS DEPOSITED HARDNESS	25 RC

STANDARD PACKAGING

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

® Registered trade name of Armco Steel

5/28/2010

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TYPICAL WELDING PARAMETERS FOR MIDALLOY ER218 (NITRONIC® 60W) WIRE

GMAW (SHORT CIRCUITING MODE)

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

GMAW (SPRAY TRANSFER MODE)

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

GMAW (PULSED CURRENT MODE)

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

ALL PARAMETERS DIRECT CURRENT REVERSED POLARITY

GTAW Parameters same as 300 series stainless steels

The gas tungsten arc, plasma arc, and electron beam processes are not suggested for direct application of this filler metal on mild steel

NOTES:

The weld deposit has no ferrite or no little 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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