

MIDALLOY ER410 Bare Wire

CLASSIFICATION

- Midalloy ER410 conforms to AWS A5.9 / ASME SFA 5.9
- UNS S41080 A#6 F#6

DESCRIPTION

- Midalloy ER410 is a martensitic stainless steel that is heat-treatable. It has a nominal weld metal composition of 12% Chromium. These weld deposits are air-hardenable that can normally be heat-treated after welding.

APPLICATIONS

- For welding or repairing 12% Cr air-hardenable stainless steels like types 410, 416, 420, 431 and cast C-15.
- Overlay of carbon and low-alloy steels for resistance to corrosion, erosion, or abrasion.
- ER410 has higher hardness and is used in valve seats to obtain better galling resistance.
- Normally to obtain adequate ductility, preheat and post-weld heat-treatment are required.

TYPICAL CHEMISTRY

C	Mn	Si	Cr	Ni	Mo	Cu	S	P
0.11	0.52	0.35	12.3	0.10	0.02	.03	.015	.015

TYPICAL MECHANICAL PROPERTIES

TENSILE STRENGTH	89,700 PSI
YIELD STRENGTH	78,500 PSI
ELONGATION IN 2"	24%
HARDNESS (AS DEPOSITED)	34 Rc* (38-45 Rc)

*PWHT 1,375°F for 1hr., slow cool (max rate 200°F / hr to 600°F, air cool to room temperature)

WELDING PARAMETERS

See page 2

STANDARD PACKAGING

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

8/3/11

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TYPICAL WELDING PARAMETERS FOR MIDALLOY ER410 STAINLESS (PAGE 2)

GMAW (SHORT CIRCUITING MODE)

WIRE DIA.	AMPERAGE DCRP	VOLTAGE	WIRE SPEED, IN./MIN.	JOINT THICKNESS IN.	GAS
.030" or .035"	70-90	18-20	150-200	.050-3/16	90He/7.5Ar/2.5CO2
	70-90	17-20	150-200	.050-3/16	90He/7.5Ar/2.5CO2
	70-120	17-22	150-200	.050-3/16	98%Ar-2%CO2 or 95%Ar5%CO2*
.045"	75-160	19-22	175-225	1/8-3/4	98Ar/2CO2
	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"	140-190	26-30	200-275	1/8 and Up	92%Ar - 8%CO2 or
.045"	190-250	30-32	300-350	3/8 and UP	98%Ar - 2%CO2 or
.062"	220-300	30-34	275-345	3/8 and UP	98%AR - 2%O2

GMAW (PULSED CURRENT MODE)

.045" avg. peak	120-150 250-300	18-20	175-225	1/8-3/4	75Ar/25He or 100%Ar overlay
.045 avg. peak	120-150 250-300	18-20	175-225	1/8-3/4	69Ar/30He/1CO2* 65Ar/33He/2CO2*

GTAW (TIG)

JOINT THICKNESS IN.	TUNGSTEN ELECTRODE DIA. IN.	FILLER WIRE DIA. IN.	AMPERAGE DCSP	VOLTAGE	GAS
.030 to 1/16	1/16	1/16	35-60	9-12	100Ar
1/16 to 1/8	1/16 to 3/32	1/16 or 3/32	50-95	9-12	100Ar
1/8 to 1/4	3/32 or 1/8	3/32 or 1/8	75-150	10-13	100Ar
1/4 and up	3/32 or 1/8	3/32 or 1/8	95-200	10-13	100Ar

SAW (SUBMERGED ARC)

WIRE DIA.	AMPERAGE DCRP OR DCSP	VOLTAGE	FLUX
3/32"	275-350	28-30	RECORD IN
1/8"	350-450	29-32	RECORD IN
1/16"	250-325	28-32	RECORD IN

SMAW (COATED ELECTRODES)

DIA. & LENGTH	AMPERAGE DCRP FLAT POSITION	AMPERAGE DCRP VERT. & OVERHEAD
3/32" x 12"	70-85	50-75
1/8" x 14"	85-120	80-90
5/32" x 14"	120-200	100-140
3/16" x 14"	210-310	140-200

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