

MIDALLOY ERNiCr-3 (FM82) BARE WIRE

CLASSIFICATION

- AWS 5.14 Class ERNiCr-3 / ASME SFA 5.14 Class ERNiCr-3

DESCRIPTION

- MIDALLOY ERNiCr-3 nickel alloy bare wire is used for GMAW, GTAW, and SAW welding.

APPLICATIONS

- MIDALLOY ERNiCr-3 nickel alloy bare wire is used for joining base materials such as UNS number N06600. This includes ASTM grades B163, B166, B167, and B168.
- This alloy can also be used for dissimilar welding using various nickel alloys to stainless steels or carbon steels, as well as for overlaying carbon steels.
- Also used for welding 9% nickel steels to one another having high impact strength at low temperatures.
- This versatile alloy has high strength and good corrosion resistance, with oxidation resistance and creep-rupture strength at elevated temperatures.

TYPICAL CHEMISTRY

C	Mn	Fe	P	S	Si	Cu
.02	3.0	0.40	.007	.003	.041	.009
Ni	Al	Ti	Cr	Cb + Ta	Co	Others
70.5	.05	.30	20.5	2.3	.012	<.5

TYPICAL MECHANICAL PROPERTIES

TENSILE STRENGTH	85,000 PSI
YIELD STRENGTH	52,000 PSI
ELONGATION	38%

RECOMMENDED WELDING PARAMETERS

(See attached)

STANDARD PACKAGING

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

10-15-2010

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TYPICAL WELDING PARAMETERS FOR NICKEL ALLOYS

GMAW (SHORT CIRCUITING MODE)

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

.045"	190-250	30-32	300-350	3/8 and UP	100Ar
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GMAW (PULSED CURRENT MODE)

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

GTAW (TIG)

JOINT THICKNESS IN.	TUNGSTEN ELECTRODE DIA. IN.	FILLER WIRE DIA. IN.	AMPERAGE	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	VOLTAGE	
3/32"	275-350	28-30	Suitable flux
1/8"	350-450	29-32	Suitable flux

SMAW (COATED ELECTRODES)

DIA. & LENGTH	AMPERAGE/FLAT	AMPERAGE/ VERT. & OVERHEAD	VOLTAGE
3/32" x 12"	70-85	65-75	24-28
1/8" x 14"	85-110	80-90	26-30
5/32" x 14"	110-140	100-120	28-32
3/16" x 14"	120-160	110-130	28-32

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