

**MIDALLOY ERNiFe-CI (FM55) BARE WIRE**

**CLASSIFICATION**

- Currently there is no AWS classification for this product.

**DESCRIPTION**

- MIDALLOY ERNiFe-CI nickel alloy bare wire is used for GMAW and GTAW welding.

**APPLICATIONS**

- MIDALLOY ERNiFe-CI nickel alloy bare wire is used for GMAW and GTAW joining of various cast irons.
- This alloy can also be used for overlay, build-up, and repair, where welds do not have to be machined.
- This alloy can also be used for dissimilar-welding for applications such as cast irons to low-alloy or carbon steels.
- A preheat and inter-pass temperature of 350°F minimum is normally recommended during welding.

**TYPICAL CHEMISTRY**

C	Mn	Si	Fe	Ni + Co	P	S	Mo	Cu	Mg
.05	.25	.15	44.0	55.0	.001	.002	.02	.13	.01

**TYPICAL MECHANICAL PROPERTIES**

TENSILE STRENGTH	89,500 PSI
YIELD STRENGTH	62,000 PSI
ELONGATION	35%

**RECOMMEDED WELDING PARAMETERS**

(See attached)

**STANDARD PACKAGING**

- GTAW (TIG) 10 lb. Tube / 60 lb. Carton 1/16",3/32",1/8" Diameters
- GMAW (MIG) 30 lb. Spool - .035" and .O45" Diameters

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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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