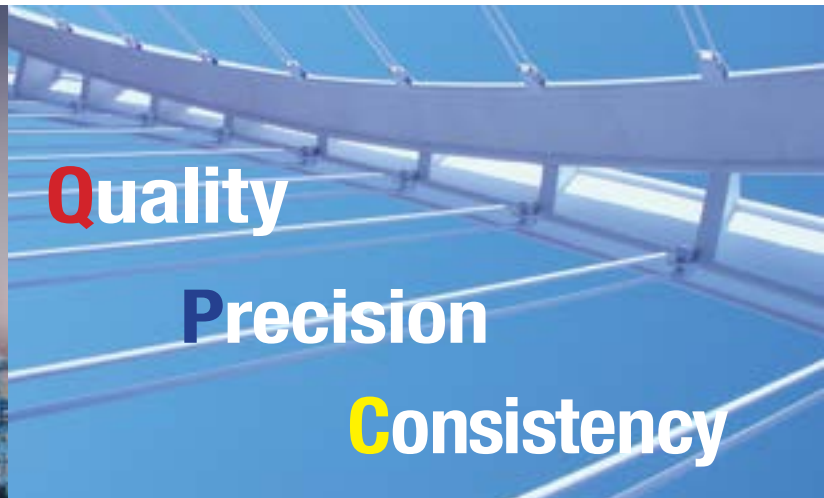




# AMERICAN FILLER METALS

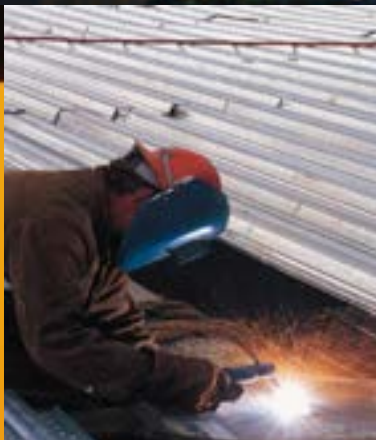
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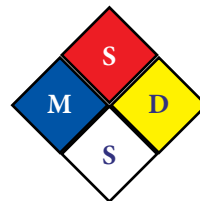
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# AMERICAN FILLER METALS

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## *Coated Electrodes*

AFM Product	AWS Classification		Page
AFM NI-55	<a href="#">AWS/SFA A5.15</a>	ENiFe-CI	68
AFM NI-99	<a href="#">AWS/SFA A5.15</a>	ENi-CI	69

## *Bare Wires*

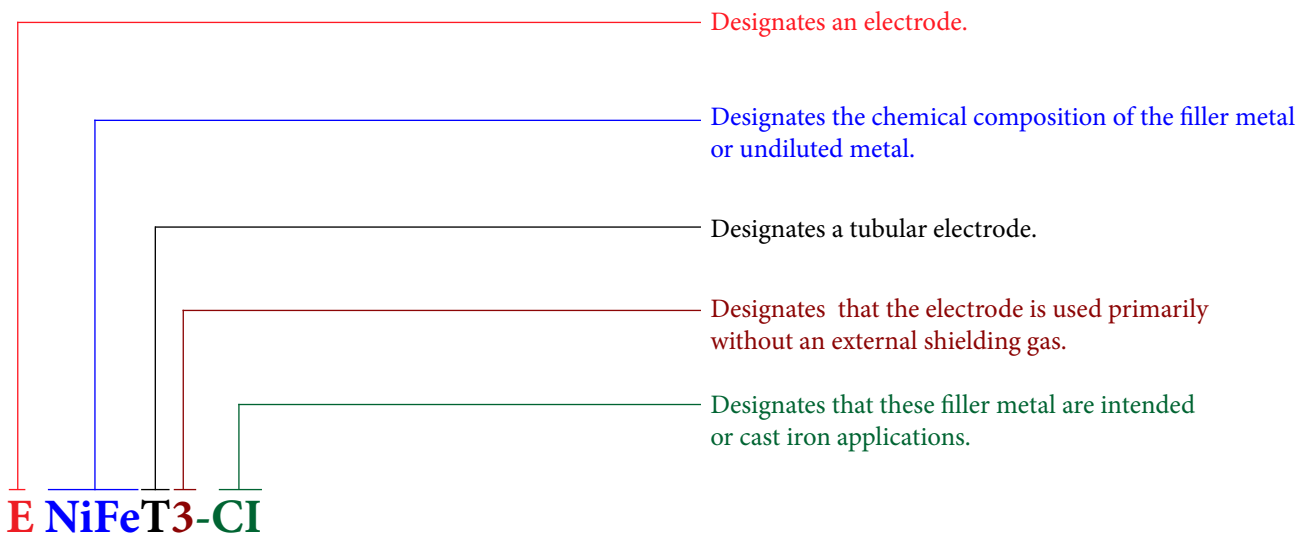
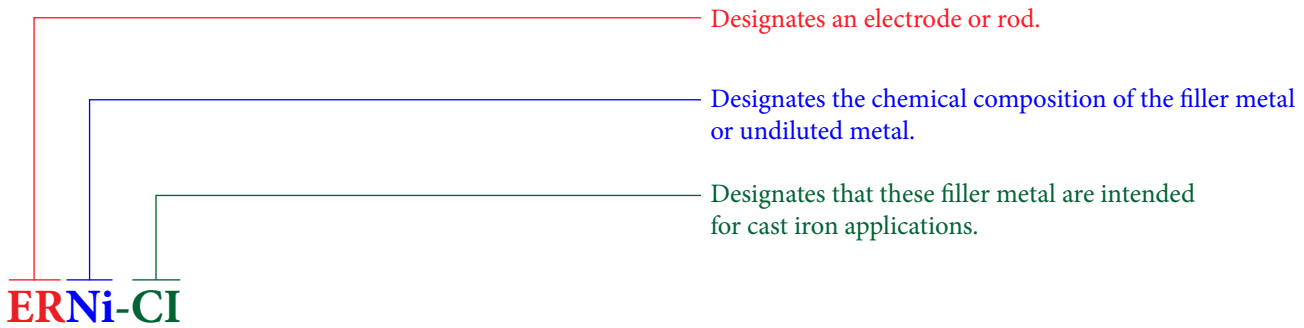
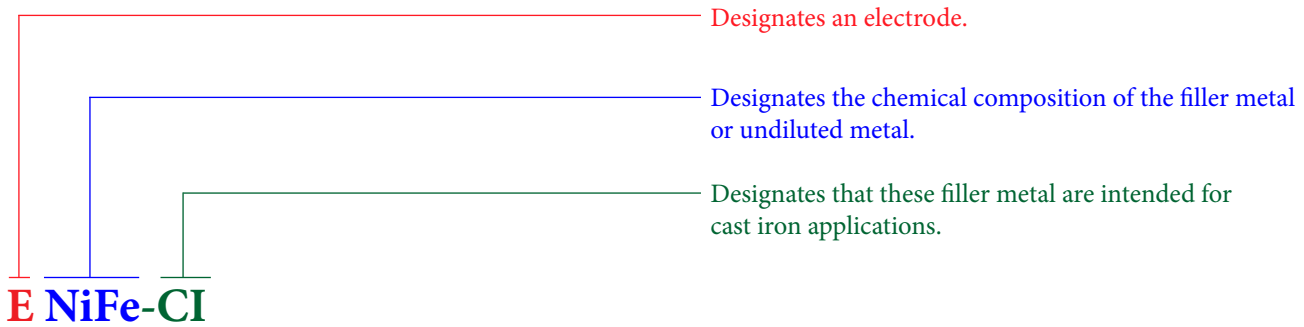
AFM Product	AWS Classification		Page
AFM NI-55	<b>NO AWS/SFA Classification</b>	-	70
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*Please contact us  
for MSDS*

## Order of Mandatory Classification Designators

AWS/SEA A5.15



## AFM NI-55

AWS/SFA A5.11 ENiFe-CI

AC or DC+ (Reverse Polarity)

### Description:

AFM NI-55 is designed for welding cast iron, malleable iron and ductile iron to themselves and other wrought alloys, including nickel alloys.

A core wire chemistry of approximately 55% nickel and 45% iron produces weld deposits with much lower weld shrinkage stress which in turn reduces the possibility of weld or heat-affected zone cracking.

### Applications:

AFM NI-55 is especially suited for welding heavy sections such as motor blocks, housings, machine parts, frames, defective castings and building up worn sections.

Stringer deposits are generally harder to machine due to the dilution of the weld metal, however heavier beads and multiple layer welds will exhibit good machinability.

### Recommended Amperage (AC or DC+):

Dia. (inch)	3/32"	1/8"	5/32"	3/16"
Dia. (mm)	2.4 mm	3.2 mm	4.0 mm	4.8 mm
Length	12"	14"	14"	14"
AC	55 ~ 65	70 ~ 85	110 ~ 125	135 ~ 150
DC +	50 ~ 70	70 ~ 95	100 ~ 130	135 ~ 170

### Chemical Composition Requirements for Undiluted Weld Metal (%):

C	Mn	Si	S	Fe	Ni*	Cu**	Al	Total Other
2.00	2.50	4.00	0.03	Bal.	45 ~ 60	1.00	1.00	1.00

All values are considered maximum, unless otherwise noted.

\* Nickel plus incidental Cobalt.

\*\* Copper plus incidental Silver.

### Typical Mechanical Properties of Undiluted Weld Metal:

Tensile Strength	psi	58,000 ~ 84,000
	MPa	400 ~ 579
Elongation	(%)	6 ~ 18

**AFM NI-55** is also available in a bare **MIG** and **TIG** wire.

See page 71.



## AFM NI-99

AWS/SFA A5.11 ENi-CI

AC or DC+ (Reverse Polarity)

### Description:

AFM NI-99 is designed for welding thin sections of cast iron to itself or to low alloy and carbon steels. This all-position electrode is used where maximum machinability is required. The weld deposits are “soft” and can be drilled, tapped, milled or shaped.

### Applications:

AFM NI-99 is especially suited for repairing porous or cracked castings and can be used to weld cast iron to itself or dissimilar metals.

### Recommended Amperage (AC or DC+):

Dia. (inch)	3/32”	1/8”	5/32”	3/16”
Dia. (mm)	2.4 mm	3.2 mm	4.0 mm	4.8 mm
Length	12”	14”	14”	14”
AC	60 ~ 90	90 ~ 140	140 ~ 190	150 ~ 200
DC +	50 ~ 80	80 ~ 130	100 ~ 170	120 ~ 190

### Chemical Composition Requirements for Undiluted Weld Metal (%):

C	Mn	Si	S	Fe	Ni*	Cu**	Al	Total Other
2.00	2.50	4.00	0.03	8.00	85 Min.	2.50	1.00	1.00

All values are considered maximum, unless otherwise noted.

\* Nickel plus incidental Cobalt.

\*\* Copper plus incidental Silver.

### Typical Mechanical Properties of Undiluted Weld Metal:

Tensile Strength	psi	40,000 ~ 65,000
	MPa	276 ~ 488
Elongation	(%)	3 ~ 6

**AFM NI-99** is also available in a bare **MIG** and **TIG** wire. See page 72.

### Standard Packaging:

All sizes are packaged in 10 Lb containers. 6 containers per 60 Lb Master Carton.



## AFM NI-55

### Description:

AFM NI-55 is a bare MIG and TIG alloy for the welding of cast iron. It has a harder weld than AFM NI-99, but machining can be accomplished by using carbide tipped tools. A 350°F minimum preheat and interpass temperature is recommended during welding.

### Typical Chemical Analysis (%):

C	Mn	Si	Fe	Ni
0.05	0.25	0.15	43.60	55.90

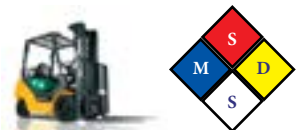
For AFM NI-55 stick electrodes see page 69.

### Typical Mechanical Properties:

Tensile Strength	psi	105,000
	MPa	720
Elongation	(%)	35

### Standard Sizes:

36" TIG Wire		30 Lb ~ 33 Lb Spool	
1/16"	1.6 mm	0.035"	0.9 mm
3/32"	2.4 mm	0.045"	1.2 mm
1/8"	3.2 mm	1/16"	1.6 mm
5/32"	4.0 mm		





## AFM NI-99

AWS/SFA A5.15 ERNi-CI

### Description:

AFM NI-99 is a bare MIG and TIG alloy for the welding of cast iron. It is a machinable alloy that can also be used for buildup and overlay. A 350°F minimum preheat and interpass temperature is recommended during welding.

### Typical Chemical Analysis (%):

C	Mn	Si	Ni
0.05	0.22	0.05	99.60

For AFM NI-99 stick electrodes see page 70.

### Typical Mechanical Properties:

Tensile Strength	psi	66,500
	MPa	450
Elongation	(%)	40

### Standard Sizes:

36" TIG Wire		30 Lb ~ 33 Lb Spool	
1/16"	1.6 mm	0.035"	0.9 mm
3/32"	2.4 mm	0.045"	1.2 mm
1/8"	3.2 mm	1/16"	1.6 mm
5/32"	4.0 mm		

