FNi

Pure Nickel Electrode

TECO

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Classification

AWS A 5.15 : ENi-CI
ISO 1071 : E C Ni-CI 3
DIN 8573 : E Ni BG 11

Description & Applications

Electrode with a graphite-basic coating. Weld deposit consists of pure nickel. Recommended for cold welding and repairing of grey cast iron, repairing of cracks. Homogeneous and easy to machine deposit. Good bonding and flow of the weld metal. Repairing of engine blocks, frames of tool machines, gearboxes, reducing pieces, valve and pump bodies.

Base materials

Grey cast iron to different steels :

ASTM	DIN	NFA
A48 Class 25B – A48 Class 60B	GG-15 to GG-40	FGL 150 to FGL 400

Typical Weld Metal Composition (%)

C	Si	Mn	Fe	Ni
1.2	<2.0	<1.0	<2.0	> 95

All Weld Metal Mechanical Properties

R_m (MPa)	Hardness
>300	approx. 180 HB

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x350	5,0x450
Current	(A)	70	100	145	180

Weld on clean and exempt from grease surfaces (previous grinding of the joint). Apply a heat input as low as possible and keep the temperature low (< 70°C). Weld with lowest practical current and depose short and narrow beads to reduce the risk of producing cracks in the base metal.
To reduce stresses, produced during welding, hammering of the beads is recommended after the deposition of short runs (essential on rigid pieces).

1G/PA 2F/PB 2G/PC 3G/PF 3G/PG 4G/PE

= +, -	~ 40 V

FNi4

Pure Nickel Electrode
DC+ for cast iron

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Classification

AWS A 5.15 : ENi-CI
ISO 1071 : E C Ni-CI 3
DIN 8573 : E Ni BG 13

Description & Applications

Electrode with graphite-basic Barium free non conductive coating. Weld deposit consists of pure nickel. Recommended for cold welding and repairing of grey cast iron, repairing of cracks. Especially designed to weld in deep holes or on parts where the coating may touch the casting. Homogeneous and easy to machine deposit. Good bonding and flow of the weld metal. Repairing of engine blocks, frames of tool machines, gearboxes, reducing pieces, valve and pumps bodies.

Base materials

Grey cast iron to different steels :

ASTM	DIN	NFA
A48 Class 25B – A48 Class 60B	GG-15 to GG-40	FGL 150 to FGL 400

Typical Weld Metal Composition (%)

C	Si	Mn	Fe	Cu	Ni
0.6	0.5	0.2	6	0.6	base

All Weld Metal Mechanical Properties

R_m (MPa)	Hardness
>300	approx. 170 HB

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x350
Current	(A)	80	110	140

Weld on clean and exempt from grease surfaces (previous grinding of the joint). Apply a heat input as low as possible and keep the temperature low (< 70°C). Weld with lowest practical current and depose short and narrow beads to reduce the risk of producing cracks in the base metal.
To reduce stresses, produced during welding, hammering of the beads is recommended after the deposition of short runs (essential on rigid pieces).

1G/PA 2F/PB 2G/PC 3G/PF 3G/PG 4G/PE

= +	~ 50 V

Fe-Ni

Ferro Nickel Electrode

TECO

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Classification

AWS A 5.15 : ENiFe-CI
ISO 1071 : E C NiFe-CI 3

DIN 8573 : E NiFe-1 BG 13

Description & Applications

Graphite basic coated electrode with a Ferro-Nickel alloy deposit for joining and repairing nodular cast iron. Deposit homogeneous and highly resistant against cracks. Particularly recommended for dissimilar welding of cast iron to steels and cast iron constructions. Good bonding and flow of the weld metal.
Main applications : Welding of defects in foundries, repairing of engine blocks, houses of tool machines, gearboxes, reducing parts, pump bodies, cast pieces, valve bodies.

Base materials

Grey cast iron, malleable and nodular cast iron :

ASTM	DIN	NFA
A48 class 25B to 60B	GG-15 to GG-40	FGL 150 to FGL 400
A536 Grade 60-80	GGG-40 to GGG-60	FGS 400-12 to FGS 600-3
	GTS-35 to GTS-65	MN350-10 to MN650-3

Typical Weld Metal Composition (%)

C	Si	Mn	Ni	Fe
1.0	<2.0	<1.0	56	base

All Weld Metal Mechanical Properties

R_m (MPa)	Hardness
>400	approx. 200 HB

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x350	5,0x350
Current	(A)	70	100	145	170

Weld on clean and exempt from grease surfaces (previous grinding of the joint). Reduce the heat input to a minimum, weld with the lowest practical amperage, keep the temperature low (< 100°C) in order to reduce the risk of cracks in the base metal. Depose short beads of about 6 cm and peen immediately. Reignite on the weld metal.

1G/PA 2F/PB 2G/PC 3G/PF 3G/PG 4G/PE

= +	~ 40 V

FNiCu

Nickel Copper
Cast Iron Electrode

TECO

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Classification

AWS A 5.15 : ENiCu-B
ISO 1071 : E C NiCu 3
DIN 8573 : E NiCu BG 12

Description & Applications

Graphite-basic coating electrode for cold welding and repairing of grey and malleable cast iron. Due to a nearly colour matching deposit and its good welding properties this electrode is suited especially for repairing casting defects.

Base materials

Grey cast iron, malleable and nodular cast iron :

ASTM	DIN	NFA
A48 class 25B to 60B	GG-15 to GG-40	FGL 150 to FGL 400
A536 Grade 60	GGG-40 to GGG-50	FGS 400-12

Typical Weld Metal Composition (%)

C	Si	Mn	Fe	Cu	Ni
0.8	0.9	2	4	30	base

All Weld Metal Mechanical Properties

R_m (MPa)	Hardness
>450	approx. 160 HB

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x350
Current	(A)	80	110	140

Weld on clean and exempt from grease surfaces (previous grinding of the joint).Reduce the heat input to a minimum, weld with the lowest practical amperage, keep temperature low (< 100℃) in order to reduce the risk of cracks in the base metal, depose short beads of about 6 cm and peen immediately. Reignite on the weld metal –not on the casting.

1G/PA 2F/PB 2G/PC 3G/PF 3G/PG 4G/PE

= -	~ 50 V

F Fe2

Special Ni-free
Cast Iron Electrode

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Classification

AWS A 5.15 : "ESt"
ISO 1071 : E C Fe-2 3
DIN 8573 : E Fe-2 B 24

Description & Applications

Special basic coated " Nickel-Free "electrode for cold welding of cast iron with a colour matching deposit. Stable arc, good bonding and flow of the weld metal.
General applications: To weld defects in foundries, for repair welding of cast iron, as first layer before surfacing of cast iron.

Base materials

Grey cast iron, malleable and nodular cast iron :

ASTM	DIN	NFA
A48 Class 25B-60B	GG-15 to GG-40	FGL 150 to FGL 400
A536 Grade 60-100	GGG-40 to GGG-70	FGS 400-12 to FGS 700-3
	GTS-35 to GTS-65	MN 350-10 to MN 650-3

Typical Weld Metal Composition (%)

C	Si	Mn	V	Fe
0.05	0.5	0.4	10.0	base

All Weld Metal Mechanical Properties

Hardness
250 HB

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x450
Current	(A)	75	110	140

Weld on clean and exempt from grease surfaces (previous grinding of the joint).Apply a heat input as low as possible and keep the temperature low in order to reduce the risk of producing cracks in the base metal, Weld with lowest practical current and depose short and narrow beads. To reduce internal stresses, hammering of the beads is recommended after each pass (essential on rigid pieces).

1G/PA 2F/PB 2G/PC 3G/PF 4G/PE

= +,-	~ 40 V