

Repair electrode

Classification

AWS A5.15 : ENi-CI
ISO 1071 : E C Ni-CI 1

General description

Ni-electrode for repair welding of lamellar cast iron, malleable cast iron and cast iron to steel
Produces a soft malleable weld deposit
Hardness weld deposit ~ 175 HB
Preferable welding on DC-, gives pulsed arc welding, deep penetration, smooth surface, no lack of fusion
Welding on AC, lowest heat input, important at filling
Best choice for multilayer welding

Welding positions



Current type

AC / DC + / -

Chemical composition (w%), typical, all weld metal

C	Fe	Ni
0.7	2.0	97

Mechanical properties, typical, all weld metal

	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Hardness HB10
Required: AWS A5.15		262-414	276-448	03-6	135-218
ISO 1071		200	250	3	
Typical values	AW	270	445	8	175

Packaging and available sizes

	Diameter (mm)	2.5	3.2	4.0
	Length (mm)	300	350	400
Unit: PE tube	Pieces / unit	146	76	44
	Net weight/unit (kg)	2.5	2.5	2.5
Unit: Linc Pack	Pieces / unit	58	30	18
	Net weight/unit (kg)	1.0	1.0	1.0

Identification

Imprint: REPTec CAST 1

Tip Color: black

RepTec Cast 1: rev. EN 21

RepTec Cast 1

Materials to be welded

Steel grades	DIN1691	DIN 1692	DIN 1693
--------------	---------	----------	----------

For welding and repair

GG 10	GTS-35-10	G GG-40
GG 15	GTS-45-06	G GG-50
GG 20	GTS-55-4	G GG-60
GG 25	GTW-35-04	
GG 30	GTW-40-05	
GG 35	GTW-45-07	
	GTW-S-38-12	

Calculation data

Sizes Diam. x length (mm)	Current range (A)	Current type	Arc time - per electrode at max. current - (s)*	Energy E(kJ)	Dep.rate H(kg/h)	Weight/ 1000 pcs. (kg)	Electrodes/ kg weldmetal B	kg Electrodes/ kg weldmetal 1/N
2.5 x 300	50 - 100	DC-	176	268	0.24	19.1	84	1.61
3.2 x 350	70 - 130	DC-	145	303	0.48	32.6	52	1.52
4.0 x 400	90 - 150	DC-	262	647	0.55	56.7	25	1.41

* stub end 35 mm

Welding parameters, optimum fill passes

Welding positions Diameter (mm)	PA/1G	PB/2F	PC/2G	PF/3G up	PE/4G
2.5	70A	70A	70A	70A	70A
3.2	100A	100A	100A	80A	80A
4.0	120A	120A	120A	110A	110A

Remarks/ Application advice

Residual stresses are decreased by peening after each layer

Cold welding, interpass temperature ($T_i < 100^\circ\text{C}$)

Heavy parts preheat (to max. 300°C)

Repair electrode

Classification

AWS A5.5 : ENiFe-CI
ISO 1071 : E C NiFe-CI 1

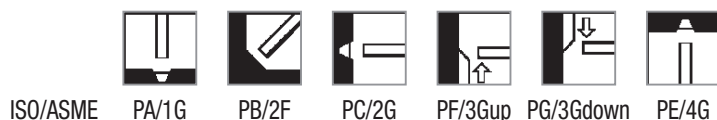
General description

Basic graphite coated stick electrode with nickel iron core for cold welding of cast iron, malleable cast iron and joint welding to steel

Specially developed for good peen- and machinable seams e.g. for thick joints

In order to introduce as little heat into the work piece as possible, it is advisable to weld with DC positive

Welding positions



ISO/ASME PA/1G PB/2F PC/2G PF/3Gup PG/3Gdown PE/4G

Current type

AC / DC +

Chemical composition (w%), typical, all weld metal

C	Fe	Ni
0.6	40	balance

Mechanical properties, typical, all weld metal

	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Hardness HB10
Required: AWS A5.15		296-434	400-579	6-18	165-218
ISO 1071		250	350	6	
Typical values	AW	300	460	10	175

Packaging and available sizes

	Diameter (mm)	2.5	3.2	4.0
	Length (mm)	300	300	350
Unit: PE tube	Pieces / unit	155	95	54
	Net weight/unit (kg)	2.5	2.5	2.5

Identification

Imprint: REPTec CAST 3

Tip Color: black

RepTec Cast 3: rev. EN 21

RepTec Cast 3

Materials to be welded

Steel grades	DIN 1691	DIN 1692	DIN 1693
For welding and repair			
	GG-10	GTS-35	G GG-40
	GG-15	GTS-45	G GG-50
	GG-20	GTS-55	G GG-60
	GG-25	GTW-35	G GG-70
	GG-30	GTW-40	G GG-80
	GG-35	GTW-45	
	GG-40	GTW-S-38	

Calculation data

Sizes Diam. x length (mm)	Current range (A)	Current type	Arc time - per electrode at max. current - (s)*	Energy E(kJ)	Dep.rate H(kg/h)	Weight/ 1000 pcs. (kg)	Electrodes/ kg weldmetal B	kg Electrodes/ kg weldmetal 1/N
2.5 x 300	50 - 70	AC	58	106	0.76	15.9	82	1.3
3.2 x 300	70 - 90	AC	69	161	1.24	30.8	42	1.3
3.2 x 350	70 - 90							
4.0 x 350	100 - 120	AC	75	234	1.78	46.2	27	1.2
4.0 x 400	100 - 120							

* stub end 35 mm

Welding parameters, optimum fill passes

Welding positions Diameter (mm)	PA/1G	PB/2F	PC/2G	PF/3G up	PE/4G
2.5	60A	60A	60A	60A	70A
3.2	80A	80A	80A	75A	80A
4.0	110A	110A	110A	105A	110A

Remarks/ Application advice

Welding of short beads is recommendable.
Peening (with a ball hammer) immediately after welding eliminates shrinkage stresses.
Perlitic cast iron often needs 200°C preheating.

Repair electrode

Classification

AWS A5.15 : ENiFe-CI
ISO 1071 : E C NiFe-CI 1

General description

Electrode for repair welding of cast iron, malleable cast iron and cast iron to steel
The nickel-iron weld deposit is easily machineable
Particularly applicable for nodular cast iron
Hardness weld deposit ~ 180 HB
Excellent current carrying capacity due to bi-metal core wire
Welding on AC and DC- polarity
Best choice welding DC -

Welding positions



ISO/ASME PA/1G PB/2F PC/2G PF/3Gup PG/3Gdown PE/4G PF/5Gup PG/5Gdown

Current type

AC / DC -

Chemical composition (w%), typical, all weld metal

C	Fe	Ni
0.7	45	balance

Mechanical properties, typical, all weld metal

	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Hardness HB10
Required: AWS A5.15		296-434	400-579	6-18	165-218
ISO 1071		250	350	6	
Typical values	AW	300	460	12	180

Packaging and available sizes

	Diameter (mm)	2.5	3.2	4.0
	Length (mm)	300	350	400
Unit: PE tube	Pieces / unit	154	82	47
	Net weight/unit (kg)	2.5	2.5	2.5
Unit: Linc Pack	Pieces / unit	62	33	19
	Net weight/unit (kg)	1.0	1.0	1.0

Identification

Imprint: REPTec CAST 31

Tip Color: black

RepTec Cast 31: rev. EN 21

RepTec Cast 31

Materials to be welded

Steel grades	DIN 1691	DIN 1692	DIN 1693
--------------	----------	----------	----------

For welding and repair

GG10	GTS-35-10	G GG-40
GG15	GTS-45-06	G GG-50
GG20	GTS-55-4	G GG-60
GG25	GTW-35-04	
GG30	GTW-40-05	
GG35	GTW-45-07	
	GTW-S-38-12	

Calculation data

Sizes Diam. x length (mm)	Current range (A)	Current type	Arc time - per electrode at max. current - (s)*	Energy E(kJ)	Dep.rate H(kg/h)	Weight/ 1000 pcs. (kg)	Electrodes/ kg weldmetal B	kg Electrodes/ kg weldmetal 1/N
2.5 x 300	70 - 100	DC-	124	211	0.32	19.1	91	1.72
3.2 x 350	90 - 150	DC-	123	328	0.62	29.4	47	1.37
4.0 x 400	100 - 180	DC-	168	714	0.74	55.7	30	1.45

* stub end 35 mm

Welding parameters, optimum fill passes

Welding positions Diameter (mm)	PA/1G	PB/2F	PC/2G	PF/3G up	PE/4G
2.5	80A	80A	80A	80A	80A
3.2	110A	110A	110A	110A	110A
4.0	150A	160A	160A	150A	150A

Remarks/ Application advice

Residual stresses are decreased by peening after each layer

Cold welding, interpass temperature ($T_i < 100^\circ\text{C}$)

Heavy parts preheat (to max. 300°C)