



WELDING ELECTRODES

manufactured and distributed by
FSH WELDING GROUP

1) UN-ALLOYED STEEL: RUTILE AND CELLULOSIC

48SP	ISO 2560-A	E 42 0 RC 1 1
51	ISO 2560-A	E 42 0 RC 1 1
54	ISO 2560-A	E 42 0 RR 1 2
55	ISO 2560-A	E 42 0 RR 1 2
D6	ISO 2560-A	E 42 0 RC 1 1
160	ISO 2560-A	E 38 0 RR 5 3
Galva 46	ISO 2560-A	E 35 0 RR 3 1
RR B7	ISO 2560-A	E 38 2 RB 1 2

2) UN-ALLOYED STEEL: BASIC

B56S	ISO 2560-A	E 42 4 B 4 2 H5
B58	ISO 2560-A	E 42 4 B 3 2 H5
B7016Sp	ISO 2560-A	E 38 3 B 1 2 H10
B7018S	ISO 2560-A	E 46 4 B 3 2 H5

3) BASIC HIGH STRENGTH

B70	ISO 18275-A	E 62 5 1,5NiMo B 4 2 H5
B72	ISO 18275-A	E 55 5 1NiMo B 4 2 H5
B73	ISO 18275-A	E 55 4 MnMo B 4 2 H5
B74	ISO 18275-A	E 50 2 Mo B 4 2 H5
B75Cu	ISO 2560-A	E 46 2 Z B 4 2 H5
B77	ISO 18275-A	E 69 4 Mn2NiCrMo B 4 2 H5

4) BASIC CREEP RESISTANT

B60	ISO 3580-A	E Mo B 4 2 H5
B63	ISO 3580-A	E CrMo1 B 4 2 H5
B68	ISO 3580-A	E CrMo2 B 4 2 H5
B69	ISO 3580-A	E CrMo5 B 4 2 H5
B609	ISO 3580-A	E CrMo9 B 4 2 H5
B691	ISO 3580-A	E CrMo91 B 4 2 H5
B691N	ISO 3580-A	E CrMo91 B 4 2 H5

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5) BASIC LOW TEMPERATURE

B81	ISO 2560-A	E 46 5 1Ni B 4 2 H5
B82	ISO 2560-A	E 46 6 2Ni B 4 2 H5
B84	ISO 2560-A	E 46 6 3Ni B 4 2 H5
B842	ISO 2560-A	E 42 6 1Ni B 4 2 H5

6) STAINLESS STEEL

20/10BC	ISO 3581-A	E 19 9 L R 3 2
Inox 308B	ISO 3581-A	E 19 9 L B 4 2
308HR	ISO 3581-A	E 19 9 L R 7 3
Inox 308HB	ISO 3581-A	E 19 9 H B 4 2
Inox 347	ISO 3581-A	E 19 9 Nb R 3 2
Inox 16-8-2B	ISO 3581-A	E 16 8 2 B 4 3
20/10MBC	ISO 3581-A	E 19 12 3 L R 3 2
Inox 316L	ISO 3581-A	E 19 12 3 L R 3 2
316VD	ISO 3581-A	E 19 12 3 L R 3 1
Inox 316NG	ISO 3581-A	E 19 12 3 L B 4 2
316HR	ISO 3581-A	E 19 12 3 L R 7 3
Inox 318	ISO 3581-A	E 19 12 3 Nb R 3 2
Inox 317L	ISO 3581-A	E Z 19 13 4 L R 3 2
24/12S	ISO 3581-A	E 23 12 L R 3 2
309HR	ISO 3581-A	E 23 12 L R 7 3
24/12Mo	ISO 3581-A	E 23 12 2 L R 3 2
307R	ISO 3581-A	E 18 8 Mn R 3 2
307B	ISO 3581-A	E 18 8 Mn B 3 2
18/8Mn	ISO 3581-A	E 18 8 Mn R 7 3 X
Inox 308Mo	ISO 3581-A	E 20 10 3 R 3 2
29/9	ISO 3581-A	E 29 9 R 3 2
Inox 312HR	ISO 3581-A	E Z 26 9 R 7 3
25/20R	ISO 3581-A	E 25 20 R 3 2
25/20B	ISO 3581-A	E 25 20 B 4 2
Inox 310H	ISO 3581-A	E 25 20 H B 4 2
Inox 253MA-AC	ISO 3581-A	E 22 12 R 3 2
Inox 21/33Mn	ISO 3581-A	E Z 21 33 Mn Nb B 4 2
Inox 25/35H	ISO 3581-A	E Z 25 35 Nb H B 4 2
Inox 2209	ISO 3581-A	E 22 9 3 N L R 3 2
Inox 2209B	ISO 3581-A	E 22 9 3 N L B 4 2
Inox 2509MoB	ISO 3581-A	E 25 9 4 N L B 4 2
Inox 2509MoWB	ISO 3581-A	E 25 9 4 N L B 4 2
Inox 385	ISO 3581-A	E 20 25 5 Cu N L R 1 2
Inox 383	ISO 3581-A	E 27 31 4 Cu L R 1 2
Inox 410B	ISO 3581-A	E 13 B 4 2
Inox 13/4	ISO 3581-A	E 13 4 B 4 2
Inox 17/4Mo	ISO 3581-A	E Z 16 5 1 B 4 2

7) CAST IRON

Fonte Ni	ISO 1071	E C Ni-CI 3
Fonte Ni2	ISO 1071	E C Ni-CI 3
Fonte Ni4	ISO 1071	E C Ni-CI 3
Ferro-Ni	ISO 1071	E C NiFe-CI 3
Bimetal-NiFe	ISO 1071	E C NiFe-CI 3
Fonte BMP	ISO 1071	E C NiFe-CI 1
FeNi/Cu	ISO 1071	E C NiFe-1 3
Fonte NiCu	ISO 1071	E C NiCu 3
Fonte NiFe2	ISO 1071	E C NiFe-CI 1
Fonte Fe	ISO 1071	E C Fe-1 3
Fonte Fe3	ISO 1071	E C FeC-GF 3

8) NICKEL BASE

B90	ISO 14172	E-Ni 6182 (NiCr15Fe6Mn)
B91	ISO 14172	E-Ni 6625 (NiCr22Mo9Nb)
B94	ISO 14172	E-Ni 6092 (NiCr16Fe12NbMo)
B96	ISO 14172	E-Ni 6620 (NiCr14Mo7Fe)
Ni59	ISO 14172	E-Ni 6059 (NiCr23Mo16)
Ni82	ISO 14172	E-Ni 6082 (NiCr20Mn3Nb)
Ni182	ISO 14172	E-Ni 6182 (NiCr15Fe6Mn)
Ni190	ISO 14172	E-Ni 4060 (NiCu30Mn3Ti)
Ni276	ISO 14172	E-Ni 6276 (NiCr15Mo15Fe6W4)
Ni617	ISO 14172	E-Ni 6617 (NiCr22Co12Mo)
Ni625	ISO 14172	E-Ni 6625 (NiCr22Mo9Nb)
Ni625BF	ISO 14172	E-Ni 6625 (NiCr22Mo9Nb)
Ni-A	ISO 14172	E-Ni 6092 (NiCr16Fe12NbMo)
NiTi3	ISO 14172	E-Ni 2061 (NiTi3)

9) ALUMINIUM ALLOYS

Al105	AWS A5.3	E4043
Al112	AWS A5.3	E4047

10) COPPER ALLOYS

Cu110	AWS A5.6	~E Cu
Cu114	AWS A5.6	E CuSn-A
Cu115	AWS A5.6	E CuSn-C
Cu116	AWS A5.6	~E CuAl-A2
Cu118	AWS A5.6	E CuMnNiAl
CuNi30	AWS A5.6	E CuNi

11) HARDFACING

HB25	EN 14700	E Fe1
HB300B	EN 14700	E Z Fe1
HB40	EN 14700	E Fe1
HB60	EN 14700	E Fe2
HB40HT	EN 14700	E Z Fe3
HB48HT	EN 14700	E Fe3
HB56HT	EN 14700	E Fe3
HB450HT	EN 14700	E Z Fe3
HB600HT	EN 14700	E Z Fe3
HB50Co	EN 14700	E Z Fe3
HBMar50	EN 14700	E Fe5
HBC62	EN 14700	E Fe4
HB61B	EN 14700	E Fe8
HB61R	EN 14700	E Fe8
HMn	EN 14700	E Fe9
HBMnCr	EN 14700	E Fe9
HB14Mn	EN 14700	E Fe9
HB Cavit	EN 14700	E Z Fe10
HB63	EN 14700	E Fe14
HB63S	EN 14700	E Fe14
HBA	EN 14700	E Fe15
HB64S	EN 14700	E Fe14
HB65	EN 14700	E Fe15
HB66	EN 14700	E Fe16
HB68	EN 14700	E Fe15
HB68Nb	EN 14700	E Fe15
HBC63	EN14700	E Fe4
Co1	EN 14700	E Co3
Co6	EN 14700	E Co2
Co12	EN 14700	E Co2
Co21S	EN 14700	E Co1
Co21HR	EN 14700	E Z Co1
Co25	EN 14700	E Co1
B92	EN 14700	E Z Ni2
B92Co	EN 14700	E Z Ni2
HB95CoB	EN 14700	E Ni2
HB96	EN 14700	E Z Ni20
HRT60	EN 14700	E Fe15
HRT63	EN 14700	E Fe15
HRT68	EN 14700	E Fe20

MAINTENANCE & REPAIR

G330		
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12) CUTTING & GOUGING + VARIOUS

DCS		
CUT 100		
Goug		
Therm200		
B-Fonte	ISO 1071	R C FeC-1

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Selectarc 48SP

Rutile Electrode

For all positions

Classification

AWS A5.1 : E6013

EN 499 : E 42 0 RC 1 1

ISO 2560-A : E 42 0 RC 1 1

Description & Applications

Special rutile cellulosic mild steel electrode to weld in all positions, including vertical down. Good operability, easy striking, strong arc with low spatters, good penetration and easy slag removal- suitable for current supplies with low open arc voltage. Less sensitive when used on poor prepared pieces (oil, grease, oxides).

Main applications: In metal constructions, for piping systems, tanks, blacksmithing, craft works.

Base materials

Construction steels for general use, Tube steels, Ship steels

EN- Designation	S185 – S355	L210 – L360
	P235 – P355	
Ship steels	Quality A and B	
ASTM	A285 grade C	A414 grade C, D, E, F
	A442 grade 55, 60	A515 grade 55, 60, 65

Typical Weld Metal Composition (%)

C	Si	Mn	P	S	Fe
<0.10	0.4	0.6	<0.025	<0.025	Rem.

All Weld Metal Mechanical Properties

R _e (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
450	520	26	+20°C 90
			0°C 80
			-10°C 50

Welding Current & Instructions

Electrode	ØxL (mm)	2,0x300	2,5x350	3,2x350	3,2x450	4,0x350	4,0x450
Current	(A)	50	70	110	110	140	140



= - ~ 40V

Ind.12



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Selectarc 51

Universal Rutile Electrode

Classification

AWS A5.1 : E6013 EN 499 : E 42 0 RC 1 1
ISO 2560-A : E 42 0 RC 1 1

Description & Applications

Universal all position mild steel electrode. Good operability and easy slag removal. Suitable for current supplies with low open arc voltage.

Main applications: In metal constructions, for piping systems, tanks, blacksmithing, craft works.

Base materials

Construction steels for general use , Tube steels, Ship steels

EN- Designation	S185 – S355	L210 – L360
	P235 – P355	
Ship steels	Quality A and B	
ASTM	A285 grade C	A414 grade C, D, E, F
	A442 grade 55, 60	A515 grade 55, 60, 65

Typical Weld Metal Composition (%)

C	Si	Mn	P	S	Fe
<0.10	0.4	0.45	<0.025	<0.025	Rem.

All Weld Metal Mechanical Properties

R _e (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>420	510-580	>22	+20°C >65 0°C >47 -20°C >28

Welding Current & Instructions

Electrode	ØxL (mm)	1,6x300	2,0x300	2,5x350	3,2x350	3,2x450	4,0x350	4,0x450	5,0x450
Current	(A)	30	50	70	110	110	140	140	170



= - ~ 40V

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Selectarc 54

*Rutile Electrode
Nice appearance*

Classification

AWS A5.1 : E6013

EN 499 : E 42 0 RR 1 2

ISO 2560-A : E 42 0 RR 1 2

Description & Applications

Heavy coated rutile electrode for general use. Especially recommended for downhand welding, for fillet welds and vertical up position. Soft arc, few spatters, self lifting slag, excellent bead appearance.

Main applications: Currently used for welding mechanical constructions, shipbuilding, blacksmithing, boiler making...

Base materials

Construction steels for general use , Tube steels, Ship steels

EN- Designation	S185 – S355 P235 – P355	L210 – L360
Ship steels	Quality A and B	
ASTM	A285 grade C A442 grade 55, 60	A414 grade C, D, E, F A515 grade 55, 60, 65

Typical Weld Metal Composition (%)

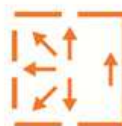
C	Si	Mn	P	S	Fe
<0.10	0.4	0.6	<0.025	<0.025	Rem.

All Weld Metal Mechanical Properties

R _e (MPa)	R _m (MPa)	A ₅ (%)	KV (J)	
>400	510-580	>22	+20°C	>64
			0°C	>47
			-20°C	>28

Welding Current & Instructions

Electrode	ØxL (mm)	2,0x300	2,5x350	3,2x350	3,2x450	4,0x350	4,0x450	5,0x450
Current	(A)	55	70	115	115	150	150	180



= - ~ 45V

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Selectarc 55

*Rutile Electrode
With a very thick coating*

Classification

AWS A5.1 : E6013

EN 499 : E 42 0 RR 1 2

ISO 2560-A : E 42 0 RR 1 2

Description & Applications

Thick coated rutile electrode destined for flat or for fillet welding when a nice aspect of the weld bead is searched. Concave bead on fillet welds, very soft fusion and a self releasing slag; supports high current. Frequently used for final passes.

Base materials

Construction steels for general use , Tube steels, Ship steels

EN- Designation	S185 – S355 P235 – P355	L210 – L360
Ship steels	Quality A and B	
ASTM	A285 grade C A442 grade 55, 60	A414 grade C, D, E, F A515 grade 55, 60, 65

Typical Weld Metal Composition (%)

C	Si	Mn	P	S	Fe
<0.10	0.45	0.6	<0.025	<0.025	Rem.

All Weld Metal Mechanical Properties

R _e (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>420	510-580	>22	+20°C >64 0°C >47 -20°C >28

Welding Current & Instructions

Electrode	ØxL (mm)	2,0x300	2,5x350	3,2x350	3,2x450	4,0x450	5,0x450
Current	(A)	70	90	135	135	180	250



= - ~ 45V

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Selectarc D6

Rutile Electrode

Vertical down

Classification

AWS A5.1 : E6013

EN 499 : E 42 0 RC 1 1

ISO 2560-A : E 42 0 RC 1 1

Description & Applications

Universal rutile cellulosic electrode especially elaborated for welding in vertical down position. Good penetration, regular weld beads and a little bit convex in flat position, self releasing slag in vertical down position. Destined for general construction works where the majority of welds are effected in vertical down position, but also used as universal electrode.

Main applications: For metal constructions, blacksmithing and maintenance works, frame, piping...

Base materials

Construction steels for general use , Tube steels, Ship steels

EN- Designation	S185 – S355 P235 – P355	L210 – L360
Ship steels	Quality A and B	
ASTM	A285 grade C A442 grade 55, 60	A414 grade C, D, E, F A515 grade 55, 60, 65

Typical Weld Metal Composition (%)

C	Si	Mn	P	S	Fe
<0.10	0.4	0.6	<0.025	<0.025	Rem.

All Weld Metal Mechanical Properties

R _e (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>400	510-580	>22	+20°C >70 0°C >50 -20°C >30

Welding Current & Instructions

Electrode	ØxL (mm)	2,0x300	2,5x350	3,2x350	4,0x350
Current	(A)	60	80	130	170

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Selectarc 160

High efficiency
Rutile Electrode

Classification

AWS A5.1 : E7024

EN 499 : E 38 0 RR 5 3

ISO 2560-A : E 38 0 RR 5 3

Description & Applications

High efficiency rutile electrode (160%) with a high deposition rate. Applied for long beads and when a nice aspect of the weld seams is searched. Soft fusion and self releasing slag. Frequently used for butt-welding plates with a heavy thickness and for fillet welds.

Base materials

Construction steels for general use, Tube steels, Ship steels

EN- Designation	S185 – S355	L210 – L360
	P235 – P355	
Ship steels	Quality A and B	
ASTM	A285 grade C	A414 grade C, D, E, F
	A442 grade 55, 60	A515 grade 55, 60, 65

Typical Weld Metal Composition (%)

C	Si	Mn	P	S	Fe
<0.10	0.45	0.6	<0.025	<0.025	Rem.

All Weld Metal Mechanical Properties

R _e (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>400	510-580	>22	+20°C >64 0°C >47

Welding Current & Instructions

Electrode	ØxL (mm)	3,2x450	4,0x450	5,0x450
Current	(A)	150	200	260

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Selectarc 180

High efficiency
Rutile Electrode

Classification

AWS A5.1 : E7024

EN 499 : E 42 0 RR 7 4

ISO 2560-A : E 42 0 RR 7 4

Description & Applications

High efficiency rutile electrode (180%) with a high deposition rate. Applied for long beads and when a nice aspect of the weld seams is searched. Soft fusion and self releasing slag. Frequently used for butt-welding plates with a heavy thickness and for fillet welds.

Base materials

Construction steels for general use, Tube steels, Ship steels

EN- Designation	S185 – S355 P235 – P355	L210 – L360
Ship steels	Quality A and B	
ASTM	A285 grade C A442 grade 55, 60	A414 grade C, D, E, F A515 grade 55, 60, 65

Typical Weld Metal Composition (%)

C	Si	Mn	P	S	Fe
<0.10	0.6	1.0	<0.025	<0.025	Rem.

All Weld Metal Mechanical Properties

R _e (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>420	510-580	>22	+20°C >64 0°C >47

Welding Current & Instructions

Electrode	ØxL (mm)	3,2x450	4,0x450	5,0x450
Current	(A)	150	200	260

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Selectarc Galva 46

*Rutile Electrode
To be galvanised*

Classification

AWS A5.1 : E6013
ISO 2560-A : E 35 0 RR 3 1

EN 499 : E 35 0 RR 3 1

Description & Applications

Heavy coated Rutile electrode to weld steel constructions which will be galvanised after welding. Easy to use in all positions, also possible to weld short beads in vertical down position. Easy slag removal, regular rippled weld beads.

Main applications: Used in metal constructions, locksmithing ...

Base materials

EN- Designation	S235JR , S235JO , S235J2
ASTM	A283 grade B , C , D
	A570 grade 30 , 33 , 40

Typical Weld Metal Composition (%)

C	Si	Mn	P	S	Fe
0.06	0.3	0.2	<0.025	<0.025	Rem.

All Weld Metal Mechanical Properties

R _e (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
400	460	25	+20°C 100 0°C >47

Welding Current & Instructions

Electrode	ØxL (mm)	2,0x300	2,5x350	3,2x350	4,0x450
Current	(A)	70	90	130	180



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Selectarc RR B7

*Rutile-Basic Electrode
For root passes*

Classification

AWS A5.1 : E6013
ISO 2560-A : E 38 2 RB 1 2

EN 499 : E 38 2 RB 1 2

Description & Applications

Special rutile-basic coated electrode to weld in all positions. Especially designed for welding root passes. Good operability, easy striking, strong arc with low spatters, good penetration and easy slag removal. Supports high current.

Main applications: Used in metal constructions, for piping systems, tanks, locksmithing, craft works.

Base materials

Construction steels for general use, Tube steels, Ship steels

EN- Designation	S185 – S355	L210 – L360
	P235 – P355	
Ship steels	Quality A and B	
ASTM	A285 grade C	A414 grade C, D, E, F
	A442 grade 55, 60	A515 grade 55, 60, 65

Typical Weld Metal Composition (%)

C	Si	Mn	P	S	Fe
<0.10	0.3	0.6	<0.025	<0.025	Rem.

All Weld Metal Mechanical Properties

R _e (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>430	470-600	>20	+20°C 95 -20°C 60

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x350	5,0x450
Current	(A)	70-90	100-140	140-180	200-260



= -	~ 40V
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Selectarc B56S

Universal Basic Electrode

Classification

AWS A5.1 : E7018-1
ISO 2560-A : E 42 4 B 4 2 H5

EN 499 : E 42 4 B 4 2 H5

Description & Applications

Universal basic coated electrode (115% recovery) for welding highly stressed connections with high security. Good low temperature properties down to -60°C. Resistant to cold cracks. Slag easy to remove. For frames, cases, supports, ship building, pressure vessels.

Base materials

Construction steels for general use, Tube steels, Ship steels, Steels for Boiler and Pressure Vessels, High strength steels, Heat resisting steels, Cold tough steels

EN-Designation	S185 – S355	P235 – P355
	GP240R	P235GH – P265GH
	L210 – L360	
Ship steels	Quality A, B, C and D	
ASTM	A285 grade C	A414 grade C, D, E, F
	A442 grade 55 , 60	A515 grade 55 , 60 , 65 , 70
	A516 grade 55 , 60 , 65 , 70	

Typical Weld Metal Composition (%)

C	Si	Mn	P	S	Fe
<0.10	0.4	1.1	<0.025	<0.025	Rem.

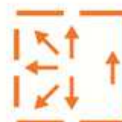
All Weld Metal Mechanical Properties

R _e (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
500	580	28	-40°C 160 -60°C 100

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	3,2x450	4,0x450	5,0x450
Current	(A)	65-100	95-140	95-140	135-180	160-250

Drying: 300°C/2h, if necessary. Interpass temperature: <250°C.



= + ~ 70V

FT En-812-160624

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Selectarc B58

Basic Low Hydrogen Electrode

Classification

AWS A5.1 : E7018 ISO 2560-A : E 42 4 B 3 2 H5
 AWS A5.1M : E49 18 – H8

Description & Applications

Universal basic coated, low hydrogen (with iron powder, recovery 118%) electrode for welding highly stressed connections with high security. Good low temperature properties down to -40°C and to cold cracks. Stable arc, regular weld beads, and slag easy to remove.

Main applications: For frames, cases, supports, ship building, pressure vessels.

Base materials

Construction steels for general use, Tube steels, Ship steels, Steels for Boiler and Pressure Vessels, High strength steels, Heat resisting steels, Cold tough steels

EN-Designation	S185 – S355 GP240R L210 – L360	P235 – P355 P235GH – P265GH
Ship steels	Quality A, B, C and D	
ASTM	A285 grade C A442 grade 55 , 60 A516 grade 55 , 60 , 65 ,70	A414 grade C, D, E, F A515 grade 55, 60, 65, 70

Typical Weld Metal Composition (%)

C	Si	Mn	P	S	Fe
0.07	0.5	1.4	<0.02	<0.02	Rem.

All Weld Metal Mechanical Properties

R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)	
480	580	28	-20°C	180
			-40°C	70

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x450	5,0x450
Intensité	(A)	70-90	90-120	130-180	170-220

Redrying 2h at 300°C, if necessary. Interpass temperature: <250°C.

ind.12.1



= + ~ 65V

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Selectarc B7016Sp

Basic Electrode

Double coated

Classification

AWS A5.1 : E7016

EN 499 : E 38 3 B 1 2 H10

ISO 2560-A : E 38 3 B 1 2 H10

Description & Applications

Basic coated electrode presenting exceptional welding characteristics due to its double coating. Arc very stable in all positions, almost spatter free, easy removal of the slag. Universal use for welding metal constructions and for repairing. Recommended for root passes and on badly prepared joints too.

Base materials

Construction steels for general use, Tube steels, Ship steels, Steels for Boiler and Pressure Vessels, High strength steels, Heat resisting steels, Cold tough steels

EN-Designation	S185 – S355 GP240R L210 – L360	P235 – P355 P235GH – P265GH
Ship steels	Quality A, B, C and D	
ASTM	A285 grade C A442 grade 55 , 60 A516 grade 55 , 60 , 65 ,70	A414 grade C, D, E, F A515 grade 55 , 60 , 65 , 70

Typical Weld Metal Composition (%)

C	Si	Mn	P	S	Fe
<0.10	0.7	0.9	<0.02	<0.02	Rem.

All Weld Metal Mechanical Properties

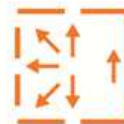
R _e (MPa)	R _m (MPa)	A ₅ (%)	KV (J)	
450	550	27	+20°C	150
			-20°C	80
			-50°C	70

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	3,2x450	4,0x450	5,0x450
Current	(A)	80	115	115	150	190

Redrying: 2h at 300°C, if necessary. Interpass temperature: < 250°C.

Ind.12



= + ~ 70V

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Selectarc B7018S

Universal Basic Electrode

Classification

AWS A5.1 : E7018-1 EN 499 : E 46 4 B 3 2 H5
AWS A5.1M : E 49 18 – H4 ISO 2560-A : E 46 4 B 3 2 H5

Description & Applications

Universal basic coated electrode (115% recovery) for welding highly stressed connections with high security. Good low temperature properties down to -40 °C. Resistant to cold cracks. Stable arc, slag easy to remove. For frames, cases, supports, ship building, pressure vessels.

Base materials

Construction steels for general use, Tube steels, Ship steels, Steels for Boiler and Pressure Vessels, High strength steels, Heat resisting steels, Cold tough steels

EN-Designation	S185 – S355 GP240R L210 – L360	P235 – P355 P235GH – P265GH
Ship steels	Quality A, B, C and D	
ASTM	A285 grade C A442 grade 55 , 60 A516 grade 55 , 60 , 65 ,70	A414 grade C, D, E, F A515 grade 55 , 60 , 65 , 70

Typical Weld Metal Composition (%)

C	Si	Mn	P	S	Fe
<0.10	0.5	1.3	<0.025	<0.025	Rem.

All Weld Metal Mechanical Properties

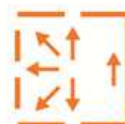
R _e (MPa)	R _m (MPa)	A ₅ (%)	KV (J)	
>460	530-660	>24	+20°C	>160
			-20°C	>100
			-40°C	>47

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	3,2x450	4,0x450	5,0x450
Current	(A)	80	115	115	150	190

Redrying: 2h at 300°C, if necessary. Interpass temperature: ~ 250°C.

ind.12



= + ~ 70V

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Selectarc B70

High Strength
Basic Electrode

Classification

AWS A 5.5 : E10018-G

ISO 18275-A : E 62 5 1,5NiMo B 4 2 H5

Description & Applications

Basic coated electrode highly resistant to cracks and elaborated for welding fine grain steels and steels with high mechanical strength (R_m up to 800 MPa). Welds of high security, buffer layers before hardfacing. Regular fusion, stable arc, low spatters, good removal of the slag and nice aspect of the weld seam.

Base materials

Construction steels for general use:

NF A 35-501	:	A50-2*. A60-2*,3. E36-2*,3*,4*.
DIN 17100	:	St50-2*. St60-2*. St70-2*.
ASTM	:	A 678grC*. A709gr50*,100*. A710gr A.

High strength steels :

NF A 36-204	:	E500T*. E550T*. E620T*. E690T*.
DIN 17102	:	StE460, 500*, 590*,690*.

Also suitable for welding heat- treatable steels like: 15CD4*. 25CD4*. 35CD4*. XC38. XC48*. 32C4 , also for construction steels self-patining (consult us)

* Eventual preheating and post-weld heat treatment in the case of heavy thickness.

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	Mo	Fe
<0.10	0.5	1.4	0.2	1.5	0.4	Rem.

All Weld Metal Mechanical Properties

R_e (MPa)	R_m (MPa)	A_5 (%)	KV (J)	
>620	720-820	>22	+20°C	>130
			-20°C	>90
			-50°C	>50

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x450	5,0x450
Current	(A)	80	115	150	190

Redrying at 350°C during 2 hours. Eventual preheating depends on the thickness and the nature of the steel (100°C). Interpasses temperature <200°C. A stress relieving heat treatment is advised in most cases, at 600°C during 2 hours.

ind.12



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Selectarc B72

*High Strength
Basic Electrode*

Classification

AWS A5.5 : E9018-G

ISO 18275-A : E 55 5 1NiMo B 4 2 H5

Description & Applications

Low hydrogen basic coated electrode with a deposit which has a high yield strength and is very tough. Particularly recommended for root passes on fine grain steels resistant to a tensile strength between 550 and 700 MPa (ex : rails of travelling crane...).

Base materials

Construction steels for general use:

DIN 17100 : St50 - St52 - St60-2.

High strength steels :

NF A 36-207 : A550AP, FP – A590AP, FP

NF A 36-210 : 16MND5

ASTM A202 Gr A & B – A236 F & B – A238GrB – A486Gr90

A607Gr70 – A615Gr60 – A706 Gr60.

DIN : StE355 to WStE500

17MnMoV6.4 – 15NiCrMo10.6

N-AXTRA55, N-AXTRA60 (Thyssen)

API : X65 - X70

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	Mo	Fe
<0.10	0.5	1.2	0.1	0.8	0.3	Rem.

All Weld Metal Mechanical Properties

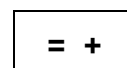
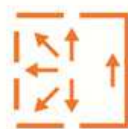
R _e (MPa)	R _m (MPa)	A ₅ (%)	KV (J)	
>530	>620	>20	+20°C	>150
			-50°C	>50
			-60°C	>28

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x450	5,0x450
Current	(A)	80	115	150	190

Redrying at 350°C during 2 hours. Eventual preheating depends on the nature and the thickness of the steel (100°C). Interpass temperature <200°C. A thermal stress relieving is advised in most cases at 600°C during 2 hours

ind.12



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Selectarc B73

High Strength
Basic Electrode

Classification

AWS A5.5 : E9018-D1

ISO 18275-A : E 55 4 MnMo B 4 2 H5

Description & Applications

Low hydrogen basic coated electrode with high yield strength for welding fine grain steels applied at temperatures between -50 to +500°C. Thermal treated low alloyed steels with C-Mn. Resistant to fatigue - corrosion in the presence of phosphorus and sulphur. Soft fusion, easy slag removal, nice aspect of weld seam.

Base materials

Construction steels for general use:

NF A 35-501	:	A50.2 A60.2.
DIN 17100	:	St60-2. St 70-2.

Steels for boiler and pressure vessels:

NF A36-207	:	A550AP, FP. A590AP, PP
NF A36-205	:	A37 CP, AP, FP.
DIN 17155	:	HI to HIV, 19 Mn6, 19Mn5, 17Mn4

High strength steels

DIN 17102	:	StE255 to 380.
Heat resisting steels	:	WstE255 to 380
Cold tough steels	:	TstE255 to 380.

Typical Weld Metal Composition (%)

C	Si	Mn	Mo	Fe
<0.10	0.5	1.5	0.4	Rem.

All Weld Metal Mechanical Properties

R _e (MPa)	R _m (MPa)	A ₅ (%)	KV (J)	
540-600	630-710	>18	+20°C	>150
			-40°C	>50
			-50°C	>30

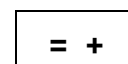
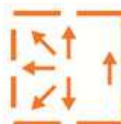
After stress relieving at 620°C/1h

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x450	5,0x450
Current	(A)	80	115	150	190

Preheating of the base metal is recommended (150°C). Interpass temperature: < 250°C. Thermal stress relieving depending on the thickness of welded pieces (620°C).

ind.12



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Selectarc B74

*High Strength
Basic Electrode*

Classification

AWS A5.5 : E8018-G

ISO 18275-A : E 50 2 Mo B 4 2 H5

Description & Applications

Low hydrogen basic coated electrode with increased yield strength for welding fine grain steels applied at temperatures between -40 to +500°C. Thermal treated low alloyed steels with C-Mn. Soft fusion, easy slag removal, nice aspect of weld seam.

Base materials:

Construction steels for general use. Tube steels, Steels for Boiler and Pressure Vessels. High strength steels, Heat resisting steels, Cold tough steels.

EN-Designation	S355 – S500 20 MnMoNi5-5; 17MnMoV6-4	P355 – P460 15NiCuMoNb5 ; 22NiMoCr4-7
ASTM	A225 grade C A514 grade A – C	A302 grade A - D A517 grade A – C

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	Mo	Cu	Nb	P	S	V	Fe
0.06	0.3	1.2	<0.10	0.2	0.4	<0.10	<0.01	<0.02	<0.02	<0.02	Base

All Weld Metal Mechanical Properties

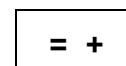
R _e (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
560	640	22	+20°C 160 -20°C >70

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x450	5,0x450
Current	(A)	80	115	150	190

Redrying 2 h at 300 °C. Preheating of the base metal is recommended at 150°C. Interpass temperature: < 250°C. Thermal stress relieving depending on the thickness of welded pieces (620°C/1h).

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Selectarc B75Cu

Basic Electrode

For steels resistant to Atmospheric corrosion

Classification

AWS A 5.5 : E8018-W2
ISO 2560-A : E 46 2 Z B 4 2 H5

EN 499 : E 46 2 Z B 4 2 H5

Description & Applications

Low hydrogen basic coated electrode with a steel deposit containing Cu- Ni- Cr, for welding all steels resistant to atmospheric corrosion (industrial, sea, rural). Regular fusion, good removal of the slag. Nice aspect of the weld seams.

Main applications: Public buildings, department of civil engineering, navy, tanks, water tower, bridges, crash barrier, electrical pylons.

Base materials

Steels with improved resistance to atmospheric corrosion:

NF A 35-502	:	E24W Quality 2 to 4 , E36W A2-A4
DIN	:	WT St37-2 , WT St37-3 , WT St52
Trade marks	:	COR-TEN A,B,C – PATINAX – INDATEN – ACOR...

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	Cu	P	S	Fe
<0.10	0.4	1.0	0.5	0.5	0.4	<0.025	<0.025	Rem.

All Weld Metal Mechanical Properties

R _e (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>460	>550	>19	-20°C >60

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x450	5,0x450
Current	(A)	80	115	150	190

Rebaking of the electrodes at 350°C during 1 hour.

Ind.12



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Selectarc B77

High Strength
Basic Electrode

Classification

AWS A5.5 : E11018-M ISO 18275-A : E 69 4 Mn 2NiCrMo B 4 2 H5

Description & Applications

Basic electrode with a deposit which is very resistant to cracks and has a high strength. The deposit contains Ni, Cr, Mo, Mn for welding similar fine grain steels (service temperatures : -40 to +450°C) Very good radiographic quality and very low diffusible hydrogen (3 ml H₂/100g metal deposit). Soft fusion, stable arc, low spatters and good removal of the slag.

Main applications: For low alloyed, tempered coated steels, pressure vessels, with a yield strength R_e>650 MPa.

Base materials

Fine grain and cold tough steels:

NF A 36-204	:	E 500T* . E 620T* . E 690T* .
DIN 17102	:	StE 590* . StE690* . TStE 500* . WStE 500* . 17MnCrMo 33, 11 NiMnCrMo 55, 16 NiCrMo 12, 12MnNiMo 55.
Werkstoff Nr.	:	1.8928* - 1.7279* - 1.6780* - 1.6782* - 1.6343* etc.
ASTM	:	A517 - A533GrA - A537 - A678 - A633Gr C bis E N-A XTRA; N-A TRA70* (Thyssen).
Tube steels	:	API 5 LX: X70* . X75* . X80*

(*) with eventual pre- and post weld heat treatment (consult us)

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	Mo	Fe
<0.10	0.4	1.5	0.4	2.1	0.5	Rem.

All Weld Metal Mechanical Properties

R _e (MPa)	R _m (MPa)	A ₅ (%)	KV (J)	
>690	>760	>20	+20°C	>120
			-40°C	>60
			-50°C	>27

Welding Current & Instructions

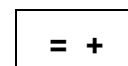
Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x450	5,0x450
Current	(A)	80	115	150	190

Redrying at 350 °C during 2 hours. Eventual preheating of the base metal depends on the thickness and the nature of the steel (50 to 130°C). Maintain an interpass temperature <150°C.

ind.12



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Selectarc B60

High temperature
Basic coated Electrode

Classification

AWS A5.5 : E7018-A1
ISO 3580-A : E Mo B 4 2 H5

EN 1599 : E Mo B 4 2 H5

Description & Applications

Low hydrogen basic coated electrode with Mo for welding creep resisting steels used at temperatures up to 500°C. Good resistance to Hydrogen attacks (chemical installations). Used for piping systems, boilers. Soft fusion, easy slag removal and nice aspect of the metal deposit.

Base materials :

Steels and tube for pressure vessel and boiler :

NF A 36-206	:	15D3 - 18MD4 -05
DIN 17155-17245	:	HI - HIII - GS C 25 17 Mn4
DIN 17175-17102	:	19Mn5 - 15Mo3 - GS22Mo4 St35,8 - St 45,8 - 17Mn4 - 19Mn5 - 15Mo3 - StE255 - StE420
BS	:	BS 1504 Gr 245 BS 3100 Gr B1 BS 3606 Gr 243,245
ASTM	:	A335 Gr P1 - A352 GrLC1 - A204 GrA and B-A 155 Gr CM 65/70

Typical Weld Metal Composition (%)

C	Si	Mn	Mo	P	S	Fe
<0.10	0.4	0.8	0.5	<0.025	<0.025	Rem.

All Weld Metal Mechanical Properties *

R _e (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>450	>550	>22	+20°C >100

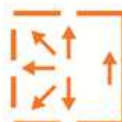
* After heat treatment at 650°C/1h

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x450	5,0x450
Current	(A)	80	115	150	190

Redrying: 2h at 350°C, if necessary. Interpass temperature: 100-250°C. Annealing after welding is advised at 650°C/1h.

ind.12



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Selectarc B63

*Basic coated Electrode
For creep resisting steels*

Classification

AWS A5.5 : E8018-B2
ISO 3580-A : E CrMo1 B 4 2 H5

EN 1599 : E CrMo1 B 4 2 H5

Description & Applications

Low hydrogen basic coated electrode alloyed with Cr and Mo for welding creep resisting steels with 1% Cr - 0.5% Mo. Resistant to high temperature up to 500-550°C. For piping systems, boilers, overheaters. Soft fusion, good slag removal. Nice aspect of the weld bead.

Main applications: Petrochemistry, chemical industry.

Base materials :

Tube & steels for boiler and pressure vessels :

EN	: 15Cr3 – 16 MnCr 5 – 20 MnCr 5 – 24 CrMo 5 – 15 CrMo 5 13 CrMo 4 4 – 22 CrMo 4 4 – GS 17 CrMo 5 5
Material N°	: 1.7015 – 1.7131 – 1.7147 – 1.7223 – 1.7225 – 1.7258 1.7262 – 1.7335 – 1.7337 – 1.7350 – 1.7357
ASTM	: A335 Gr.P12 – A387 Gr.12Cl2 – A193 Gr B7 – A182 Gr F11 A336 Gr F12 – A217 Gr WC6

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Mo	P	S	Fe
<0.12	0.4	0.8	1.1	0.5	<0.025	<0.025	Rem.

All Weld Metal Mechanical Properties *

R _e (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>460	>550	>19	+20°C >120

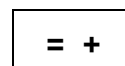
* After heat treatment at 700°C/1h

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x450	5,0x450
Current	(A)	80	115	150	190

Redrying: 1h at 350°C, if necessary. Preheating of joints to weld: 200-250°C. Interpass temperature: 150-250°C. Annealing after welding is advised at 700°C/1-2h.

Ind.12



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Selectarc B68

*Basic coated Electrode
For creep resisting steels*

Classification

AWS A5.5 : E9018-B3
ISO 3580-A : E CrMo2 B 4 2 H5

EN 1599 : E CrMo2 B 4 2 H5

Description & Applications

Low hydrogen basic coated electrode alloyed with Cr and Mo for welding creep resisting steels used in service up to 600°C (including 2%Cr -1%Mo castings). High resistance to H₂S, ...

Main applications: For overheaters, valve bodies, pipes, boilers, hydrocrackers.

Base materials :

Tubes & steels for boiler and pressure vessels:

NF A 36-206	: 15CD4-05 – 10CD9-10
DIN 17155 and 17245	: 10 Cr Mo 9.10 – 10 Cr Si Mo V7
	: 24 CrMo V55 – 12 Cr Mo 9.10 GS 12 Cr MO 9.10...
BS	: 1501 Gr 622 to 1504 Gr 622, BS 359 Gr 622/640 1503 Gr 660, 1504Gr 660
ASTM	: A 387 GrD – A 335 GrP 22 – A 213 GrT 22, T36

Grade Vallourec: Chromesco 3

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Mo	P	S	Fe
0.07	0.4	0.8	2.25	1.0	<0.025	<0.025	Rem.

All Weld Metal Mechanical Properties *

R _e (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>450	>570	>17	+20°C >100

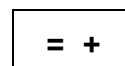
* After heat treatment at 700°C/1h

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x450	5,0x450
Current	(A)	80	115	150	190

Redrying: 1h at 300°C, if necessary. Preheating of joints to weld at 250°C. Interpass temperature: 150-300°C. Annealing after welding is advised at 700-750°C/1h.

ind.12



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Selectarc B69

*Basic coated Electrode
For creep resisting steels*

Classification

AWS A5.5 : E8018-B6
ISO 3580-A : E CrMo5 B 4 2 H5

EN 1599 : E CrMo5 B 4 2 H5

Description & Applications

Low hydrogen basic coated electrode with Cr and Mo for welding steels of similar chemical composition. Deposit resisting to temperature and creep up to 600°C. Highly resistant to hot gas and overheated steam.

Main applications: For heat exchangers, tubes, steam boilers, overheaters...

Base materials :

Tubes & steels for boiler and pressure vessels:

EN	:	17 CrMo 3 5 – 12 CrMo 19 5 – G X12 CrMo5
Material N°	:	1.7332 – 1.7362 – 1.7363
ASTM	:	A387 Gr 5Cl1 et 2 – A199 Gr T5 – A182 Gr F5 – A213 G T5
	:	A335 Gr P5 – A336 Gr F5 – A369 GrF5 – A217 Gr C5
EN	:	17 CrMo 3 5 – 12 CrMo 19 5 – G X12 CrMo5

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Mo	P	S	Fe
<0.10	0.4	0.8	5.0	0.5	<0.025	<0.025	Rem.

All Weld Metal Mechanical Properties *

R _e (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>420	>590	>20	+20°C >70

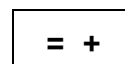
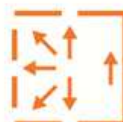
* After heat treatment at 730°C/1h

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x450	5,0x450
Current	(A)	80	115	150	190

Redrying: 1h at 300°C, if necessary. Preheating of joints to weld at 300°C. Interpass temperature: 250-350°C. Annealing after welding is advised at 730°C/1h, then slow cooling (maxi 55°C/h, until 580°C, followed by cooling at calm air).

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Selectarc B609

*Basic coated Electrode
For creep resisting steels*

Classification

AWS A5.5 : E8016-B8 EN 1599 : E CrMo9 B 4 2 H5
ISO 3580-A : E CrMo9 B 4 2 H5 AWS A5.4 : E505-15

Description & Applications

Low hydrogen basic coated electrode with Cr and Mo for welding steels of similar chemical composition used at service temperatures up to 600°C. Deposit resisting to temperature and creep up to 600°C. Highly resistant to hot gas and overheated steam.

Main applications: For power plants, heat exchangers, tubes, steam boilers,...

Base materials :

Tubes & steels for boiler and pressure vessels:

ASTM	DIN	N° de Mat.
A 217 grade C12	X12 CrMo 9-1	1.7386
A 335 grade P9	G-X 12 CrMo 10 1	1.7389
A 199 , 200, 213 grade T9		

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Mo	P	S	Fe
<0.10	0.4	0.8	9.0	1.0	<0.025	<0.025	Rem.

All Weld Metal Mechanical Properties *

R _e (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>500	>650	>19	+20°C >60

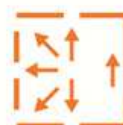
* After heat treatment at 750°C/1h

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x300	3,2x350	4,0x450
Current	(A)	80	115	150

Redrying: 1h at 300°C, if necessary. Preheating of joints to weld at 300°C. Interpass temperature: 250-350°C. Annealing after welding is advised at 750°C/1h, then slow cooling (maxi 55°C/h, until 580°C, followed by cooling at calm air).

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Selectarc B691

*Basic coated Electrode
For creep resisting steels*

Classification

AWS A5.5 : E9015-B9
AWS A5.5M : E6215-B9

EN 1599 : E CrMo91 B 4 2 H5
ISO 3580-A : E CrMo91 B 4 2 H5

Description & Applications

Low hydrogen basic coated electrode for welding creep resistant steels of similar chemical composition (known as P91) used at service temperatures up to 650°C. Deposit resisting to temperature and creep up to 650°C. Highly resistant to hot gas and overheated steam.

Main applications: For power plants, heat exchangers, tubes, steam boilers,...

Base materials

Plates and pipes for boiler and pressure vessels

Mat. N°	EN	ASTM
1.7386	X12CrMo9-1	A187 Gr F9 ; A336 Gr F9; A335 Gr P9
1.7389	GX12CrMo10-1	A217 C12
1.4903	X10CrMoVNb9-1	A199 gr. T91 ; A335 gr. P91 ; A213 gr T91

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	Mo	Cu	V	Nb	N	P	S
0.1	0.25	0.7	9.0	0.7	1.0	0.04	0.2	0.05	0.05	0.01	0.008

All Weld Metal Mechanical Properties *

R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
630	750	18	+20°C 60

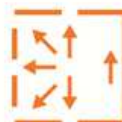
* After heat treatment at 760°C/2h

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x300	3,2x350	4,0x450
Current	(A)	80	115	150

Redrying: 1h at 300°C, if necessary. Preheating of joints to weld at 200°C. Interpass temperature: 200-300°C. Slow air cooling to a temperature below 80°C followed by an annealing at 760°C / 2-6h, then slow cooling. To achieve improved impact resistance, thin layers with about 2mm thickness should be welded.

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Selectarc B691N

*Basic coated Electrode
For creep resisting steels*

Classification

AWS A5.5 : E9018-B9 EN 1599 : E CrMo91 B 4 2 H5
AWS A5.5M : E6218-B9 ISO 3580-A : E CrMo91 B 4 2 H5

Description & Applications

Low hydrogen basic coated electrode for welding creep resistant steels of similar chemical composition (known as P91) used at service temperatures up to 620°C. Deposit resisting to temperature and creep up to 620°C. Highly resistant to hot gas and overheated steam.

Main applications: For power plants, heat exchangers, tubes, steam boilers...

Base materials

Plates and pipes for boiler and pressure vessels

Mat. N°	EN	ASTM
1.7386	X12CrMo9-1	A187 Gr F9 ; A336 Gr F9; A335 Gr P9
1.7389	GX12CrMo10-1	A217 C12
1.4903	X10CrMoVNb9-1	A199 gr. T91 ; A335 gr. P91 ; A213 gr T91

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	Mo	Cu	V	Nb	N	P	S
0.09	0.25	0.6	9.0	0.6	0.9	0.05	0.2	0.04	0.03	0.01	0.008

All Weld Metal Mechanical Properties *

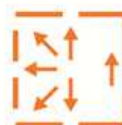
$R_{p0.2}$ (MPa)	R_m (MPa)	A_5 (%)	KV (J)
600	720	19	+20°C 80 0°C 50

* After heat treatment at 760°C/2h

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x300	3,2x350	4,0x450
Current	(A)	80	115	150

Redrying 1h at 300°C, if necessary. Preheating of joints to weld at 200°C. Interpass temperature: 200-300°C. Slow air-cooling to a temperature below 80°C followed by an annealing at 760°C/2-4h with slow cooling. To achieve improved impact resistance, thin layers with about 2mm thickness should be welded.



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Selectarc B81

*Basic Electrode
For cold tough steels*

Classification

AWS A5.5 : E8018-C3 H4R
ISO 2560-A : E 46 5 1Ni B 4 2 H5

EN 499 : E 46 5 1Ni B 4 2 H5

Description & Applications

Low hydrogen basic coated electrode alloyed with Nickel for welding steels with high strength and high toughness, resistant to low temperature down to -60°C. For weld joints exposed to low temperature. Regular fusion, nice aspect of the deposit.

Base materials

Fine grain construction steels, cold tough:

EN :	S185 – S355 – P235GH – P355 – L210 – L415 – S/P275 – S/P460 – E295 – E335 – E360 – P295GH – P355GH – P235 – P265 – A St35 – A St52 – GP240R.
ASTM :	A302 Gr A, B, C, D – A333 Gr 126 – A414 Gr G – A487 Gr BQ CQ A521 Gr AA, AB, CE, CF, LF1 – A537 C12 – A572 Gr 60&65 A350 Gr 126 – A350 Gr LF1, LF2 – A607 Gr 60&65 – A633 Gr A&B LF5 A668 Gr E&F – A714 Gr I à VI

Typical Weld Metal Composition (%)

C	Si	Mn	Ni	P	S	Fe
<0.12	0.5	1.1	1.0	<0.025	<0.025	Rem.

All Weld Metal Mechanical Properties

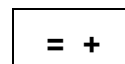
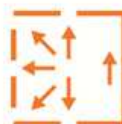
R _e (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>470	>550	>24	-40°C >70 -50°C >47

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x450	5,0x450
Current	(A)	80	115	150	190

Redrying at 350°C during 2 hours, if necessary. Eventual preheating of the weld joint at 100°C. Interpass temperature : < 250°C. A thermal stress relieving heat treatment is advised at 550°C during 1 - 2 hours.

Ind.12



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Selectarc B82

*Basic Electrode
For cold tough steels*

Classification

AWS A5.5 : E8018-C1 EN 499 : E 46 6 2Ni B 4 2 H5
ISO 2560-A : E 46 6 2Ni B 4 2 H5

Description & Applications

Low hydrogen basic coated electrode alloyed with Nickel for welding cold tough fine grain steels (steels with Nickel, heat treated steels) applied at low temperature -60°C. Good characteristics of cold toughness.

Main applications : For liquid gas distribution pipes, tanks, off shore, and petrochemistry.

Base materials

Fine grain construction steels, cold tough:

NF A 36-204	:	E420T – E460T
NF A 36-205	:	A37FP – A42FP – 48FP – A52FP
NF A 36-207	:	A510FP1 – A550FP2
NF A 36-208	:	0.5 Ni 285 and 355 (10N2) – 1.5 Ni 285 and 355 (15N6)
DIN 17102	:	TStE 255 to TStE 420
DIN 17780	:	14Ni6 – 10Ni14 – 11MnNi5.3 – 12MnNi6.3 – 13MnNi6.3.
ASTM	:	A203Cr A and B – A352CrLC2 – A334Cr7 – A714Cr 1 à 6 A707Cr L4 à L6 – A662Cr A and B

Typical Weld Metal Composition (%)

C	Si	Mn	Ni	P	S	Fe
<0.12	0.4	1.0	2.5	<0.025	<0.025	Rem.

All Weld Metal Mechanical Properties

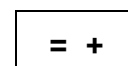
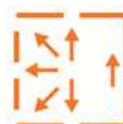
R _e (MPa)	R _m (MPa)	A ₅ (%)	KV (J)	
>460	>550	>19	-40°C	>70
			-60°C	>30
			-73°C	>27

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x450	5,0x450
Current	(A)	80	115	150	190

Redrying at 350 °C during 1 hour if necessary. Eventual preheating of the welding joints (above 100 °C), in the case of heavy thickness.

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Selectarc B84

*Basic Electrode
With high toughness*

Classification

AWS A5.5 : E8018-C2 EN 499 : E 46 6 3Ni B 4 2 H5
ISO 2560-A : E 46 6 3Ni B 4 2 H5

Description & Applications

Low hydrogen basic coated electrode alloyed with Nickel (above 3%) for welding fine grain steels used at low temperature (-60 to -80°C).

Main applications: Cryogenic and petrochemical industries. Storage and distribution of liquid gas or products volatile.

Base materials

Plates and tubes of fine grain steels, cold tough:

NF A 35-207	:	A510FP1 – A550FP2
NF A 36-208	:	3.5 Ni 285 and 355 (12N14)
DIN	:	10Ni14 – 14Ni6 – 16Ni14
ASTM	:	A203G D&E – A352GrLC3 – A334Gr3 – A350Gr LF3

Typical Weld Metal Composition (%)

C	Si	Mn	Ni	P	S	Fe
<0.10	0.3	0.9	3.5	<0.025	<0.025	Rem.

All Weld Metal Mechanical Properties

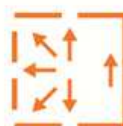
R _e (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>460	>550	>19	-73°C >80 -100°C >30

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x450	5,0x450
Current	(A)	80	115	150	190

Redrying at 350°C during 2 hours, if necessary. An eventual preheating depends on the thickness of the parent metal. A stress relieving heat treatment is recommended in most of cases (620°C/1h).

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Selectarc B842

*Basic Electrode
For cold tough steels*

Classification

AWS A5.5 : E7018-G EN 499 : E 42 6 1Ni B 4 2 H5
ISO 2560-A : E 42 6 1Ni B 4 2 H5

Description & Applications

Low hydrogen basic coated electrode alloyed with Nickel for welding steels with high strength and high toughness, resistant to low temperature down to -60°C. Used for weld joints exposed to low temperature. Regular fusion, nice aspect of the deposit.

Base materials

Fine grain construction steels, cold tough:

EN :	S185 – S355 – P235GH – P355 – L210 – L415 – S/P275 – S/P460 – E295 – E335 – E360 – P295GH – P355GH – P235 – P265 – A St35 – A St52 – GP240R.
ASTM :	A302 Gr A, B, C, D – A333 Gr 126 – A414 Gr G – A487 Gr BQ CQ A521 Gr AA, AB, CE, CF, LF1 – A537 C12 – A572 Gr 60&65 A350 Gr 126 – A350 Gr LF1, LF2 – A607 Gr 60&65 – A633 Gr A&B LF5 A668 Gr E&F – A714 Gr I à VI

Typical Weld Metal Composition (%)

C	Si	Mn	Ni	P	S	Fe
0.06	0.4	1.2	0.9	<0.025	<0.020	Rem.

All Weld Metal Mechanical Properties

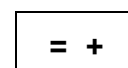
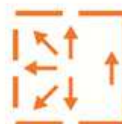
R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>470	550-680	>22	-60°C 50

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x450	5,0x450
Current	(A)	80	115	150	190

Redrying at 300°C during 2h, if necessary. Eventual preheating of the weld joint at 100°C. Interpass temperature: <250°C. A thermal stress relieving heat treatment is advised at 550°C during 1-2 hours.

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Selectarc 20/10BC

*Stainless Steel
Rutile Electrode*

Classification

AWS A5.4 : E308L-16
ISO 3581-A : E 19 9 L R 3 2

EN 1600 : E 19 9 L R 3 2

Description & Applications

Low carbon Rutile-basic-coated austenitic stainless steel electrode with approx. 8% ferrite. Coating with very low moisture pick up. Soft fusion without spatters, very easy slag removal, exceptional weld bead appearance, easy restriking. Applied for all 18/8 type stainless steels at service temperatures from - 120°C up to +350°C.

Main applications: Tubes, tanks, heat exchangers, piping systems.

Base materials

Stainless steels for general use:

UNS	Alloy	EN 10088	Material N°	UGINE
S30400	304	X5CrNi18-10	1.4301	UGINOX 18-9 B, D, E
S30403	304L	X2CrNi19-11	1.4306	UGINOX 18-10 L
S32100	321	X6CrNiTi18-10	1.4541	UGINOX 18-10 T
S34700	347	X6CrNiNb18-10	1.4550	

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	Fe
<0.03	0.8	0.7	19.0	9.5	Rem.

All Weld Metal Mechanical Properties

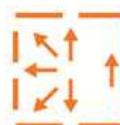
R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>360	>540	>35	+20°C >70

Welding Current & Instructions

Electrode	ØxL (mm)	2,0x300	2,5x300	3,2x350	4,0x350	5.0x450
Current	(A)	45	70	100	135	180

Redrying at 250°C during 1h, if necessary. Interpass temperature: < 150°C.

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Selectarc Inox 308B

*Basic coated
Stainless Steel Electrode*

Classification

AWS A5.4 : E308L-15
ISO 3581-A : E 19 9 L B 4 2

EN 1600 : E 19 9 L B 4 2

Description & Applications

Low carbon austenitic stainless steel electrode, basic type coating with ~ 8% ferrite. Stable arc, good slag removal, regular weld beads. Good behaviour in positional welding and on bad prepared joints. Excellent mechanical properties. Used on 18/8 stainless steels for service temperatures from -196 °C up to +350 °C.

Main applications: For tubes, tanks, heat exchangers, piping systems.

Base materials

Stainless steels for general use:

UNS	Alloy	EN 10088	Material N°	UGINE
S30400	304	X5CrNi18-10	1.4301	UGINOX 18-9 B, D, E
S30403	304L	X2CrNi19-11	1.4306	UGINOX 18-10 L
S32100	321	X6CrNiTi18-10	1.4541	UGINOX 18-10 T
S34700	347	X6CrNiNb18-10	1.4550	

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	Fe
<0.04	0.4	1.6	19.0	9.5	Rem.

All Weld Metal Mechanical Properties

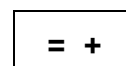
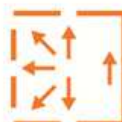
R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>380	>560	>35	+20°C >90 -196°C >30

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x300	3,2x350	4,0x350
Current	(A)	70	90	120

Redrying at 250°C during 1 hour, if necessary. Interpass temperature : < 150°C.

ind.12



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Selectarc 308HR

High Efficiency
Stainless Electrode

Classification

AWS A5.4 : E308L-26 EN 1600 : E 19 9 L R 7 3
ISO 3581-A : E 19 9 L R 7 3

Description & Applications

Synthetic electrode with high recovery (160%)-Rutile-basic coating with a deposit of 19%Cr - 9%Ni stainless steel type. Easy striking, soft arc, clean spatter-free welds, slag lifts by itself, concave finely rippled fillet welds. Fast deposition, long beads. To use on similar (304 type) stainless steels.

Main applications: For tubes, tanks, stainless steel constructions

Base materials

Stainless steels for general use:

UNS	Alloy	EN 10088	Material N°	UGINE
S30400	304	X5CrNi18-10	1.4301	UGINOX 18-9 B, D, E
S30403	304L	X2CrNi19-11	1.4306	UGINOX 18-10 L
S32100	321	X6CrNiTi18-10	1.4541	UGINOX 18-10 T
S34700	347	X6CrNiNb18-10	1.4550	

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	Fe
<0.04	0.9	0.7	19	9.5	Rem.

All Weld Metal Mechanical Properties

R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>360	>550	>35	+20°C >60

Welding Current & Instructions

Electrode	ØxL (mm)	1,6x250	2,0x350	2,5x350	3,2x350	4,0x450
Current	(A)	50	60	90	120	150

Redrying at 300°C during 1h, if necessary. Interpass temperature : < 150°C.

ind.12



= +	~ 55V
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Selectarc Inox 308HB

*Basic type Stainless Steel
Electrode with increased carbon*

Classification

AWS A5.4 : E308H-15
ISO 3581-A : E 19 9 H B 4 2

EN 1600 : E 19 9 H B 4 2

Description & Applications

Austenitic stainless steel electrode, basic type coating with approx. 5% ferrite and increased carbon content. Stable arc, good slag removal, regular weld beads. Good behaviour in positional welding and on bad prepared joints. Excellent mechanical properties. Used on 18/8 stainless steels (304H- type) for elevated service temperatures up to + 750°C.

Main applications: Petrochemical industry: tubes, heat exchangers, piping systems.

Base materials

Stainless steels for high temperature applications:

UNS	Alloy	EN 10088	Material N°	UGINE
S30409	304H	X6CrNi18-11	1.4948	
S30400	304	X5CrNi18-10	1.4301	UGINOX 18-9 B, D, E
S32100	321	X6CrNiTi18-10	1.4541	UGINOX 18-10 T
		X10CrNiTi18-10	1.6903	
		X10CrNi18-8	1.4310	

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	Fe
0.05	0.4	1.8	19.5	9.5	Rem.

All Weld Metal Mechanical Properties

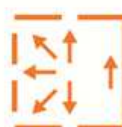
R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>380	>560	>35	+20°C >80

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x300	3,2x350	4,0x350
Current	(A)	70	90	120

Redrying at 250°C during 1h if necessary. Interpass temperature : < 150°C.

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Selectarc Inox 347

*Stainless Steel Electrode
Niobium - stabilised*

Classification

AWS A5.4 : E347-17

EN 1600 : E 19 9 Nb R 3 2

ISO 3581-A : E 19 9 Nb R 3 2

Description & Applications

Rutile-basic coated electrode 18%Cr-8%Ni type stainless steel Niobium / columbium stabilised, suited to weld Ti or Nb stabilised stainless steels. The weld metal contains about 8% delta ferrite. Soft fusion without spatters, easy striking and restriking- very easy slag removal. The weld deposit is resistant to intercrystalline corrosion for service temperatures up to 400°C.

Base materials

Stainless steels for general use:

UNS	Alloy	EN 10088	Material N°	UGINE
S30400	304	X5CrNi18-10	1.4301	UGINOX 18-9 B , D, E
S30403	304L	X2CrNi19-11	1.4306	UGINOX 18-10 L
S32100	321	X6CrNiTi18-10	1.4541	UGINOX 18-10 T
S34700	347	X6CrNiNb18-10	1.4550	

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	Nb	Fe
0.03	0.8	0.7	19.0	9.5	0.3	Rem.

All Weld Metal Mechanical Properties

R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>350	>550	>30	+20°C >60

Welding Current & Instructions

Electrode	ØxL (mm)	2,0x300	2,5x300	3,2x350	4,0x350	5,0x450
Current	(A)	45	70	100	135	180

Redrying: 1h at 250°C. Interpass temperature : < 200°C.

ind.12



= + ~ 70V

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Selectarc Inox 16-8-2B

*Basic type Stainless steel
Electrode with increased carbon*

Classification

AWS A5.4 : E16-8-2-15
ISO 3581-A : E 16 8 2 B 4 2

EN 1600 : E 16 8 2 B 4 2

Description & Applications

Austenitic stainless steel electrode, basic type coating with approx. 5% ferrite and increased carbon content. Stable arc, good slag removal, regular weld bead. Good behavior in positional welding and on bad prepared joints. Excellent mechanical properties. Used on 18/8 stainless steels (304H type) and 17-12-2 stainless steels (316H type) as well as for stabilized grades, applied for elevated service temperatures up to +750°C.

Main applications: For petrochemical industry: tubes, heat exchangers, piping systems.

Base materials

Stainless steels for general use:

UNS	Alloy	EN 10088 / 10269	Material N°
S30400	304	X5CrNi 18-10	1.4301
S30409	304H	X6CrNi 18-11	1.4948
S31600	316	X5CrNi17-12-2	1.4401
	316H	X6CrNiMo17-13	1.4919
		G-X6CrNi18-10	1.6902

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	Mo	Fe
0.05	0.4	1.8	16.0	9.0	1.7	Rem.

All Weld Metal Mechanical Properties

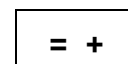
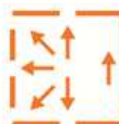
R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>380	>560	>35	+20°C >60

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x300	3,2x350	4,0x350
Current	(A)	70	90	120

Redrying 1h at 250°C, if necessary. Interpass temperature: <200°C.

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Selectarc 20/10MBC

*Stainless Steel
Rutile Electrode*

Classification

AWS A5.4 : E316L-16
ISO 3581-A : E 19 12 3 L R 3 2

EN 1600 : E 19 12 3 L R 3 2

Description & Applications

Low carbon Rutile-basic-coated Mo containing austenitic stainless steel electrode with approx. 8% ferrite. Coating with very low moisture pick-up. Soft fusion without spatters, very easy slag removal, exceptional bead appearance, easy restriking. For welding and cladding on austenitic Cr-Ni-Mo stainless steels and clad plates. Applied for service temperatures from -120°C up to +400°C in the chemical and petrochemical industries, in refineries, in the food industries and for ship building to weld pipes, tanks, heat exchangers.

Base materials

Stainless steels for general use:

UNS	Alloy	EN 10088	Material N°	UGINE
S31600	316	X5CrNiMo17-12-2	1.4401	UGINOX 17-10 M
S31603	316L	X2CrNiMo17-12-2	1.4404	UGINOX 18-11 ML
J92900		G-X5CrNiMo 19 11 2	1.4408	
S31635	316Ti	X6CrNiMoTi17-12-2	1.4571	UGINOX 17-11 MT
S31635	316Ti	X10CrNiMoTi18-12	1.4573	
S31640	316Cb	X6NiCrMoNb17-12-2	1.4580	
		G-X5CrNiMoNb19-11-2	1.4581	

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	Mo	Fe
<0.03	0.8	0.7	18.5	12.0	2.7	Rem.

All Weld Metal Mechanical Properties

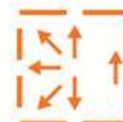
R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>400	>560	>35	+20°C 70 -120°C 40

Welding Current & Instructions

Electrode	ØxL (mm)	1,6x250	2,0x300	2,5x300	3,2x350	4,0x350	5,0x450
Current	(A)	30	45	70	100	135	180

Redrying at 250°C during 1h, if necessary. Interpass temperature : < 200°C.

ind.12



= + ~ 70V

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Selectarc Inox 316L

*Stainless Steel
Rutile Electrode*

Classification

AWS A5.4 : E316L-17
ISO 3581-A : E 19 12 3 L R 3 2

EN 1600 : E 19 12 3 L R 3 2

Description & Applications

Low carbon Rutile-basic-coated Mo containing austenitic stainless steel electrode with approx. 8% ferrite. Coating with very low moisture pick-up. Soft fusion without spatters, very easy slag removal, exceptional bead appearance, easy restriking. Exceptional welding in position. For welding and cladding on austenitic Cr-Ni-Mo stainless steels and clad plates. Applied for service temperatures from -120°C up to +400°C in the chemical and petrochemical industries, in refineries, in the food industries and for ship building to weld pipes, tanks, heat exchangers.....

Base materials

Stainless steels for general use:

UNS	Alloy	EN 10088	Material N°	UGINE
S31600	316	X5CrNiMo17-22-2	1.4401	UGINOX 17-10 M
S31603	316L	X2CrNiMo17-12-2	1.4404	UGINOX 18-11 ML
J92900		G-X5CrNiMo 19 11 2	1.4408	
S31635	316Ti	X6CrNiMoTi17-12-2	1.4571	UGINOX 17-11 MT
S31635	316Ti	X10CrNiMoTi18-12	1.4573	
S31640	316Cb	X6NiCrMoNb17-12-2	1.4580	
		G-X5CrNiMoNb19-11-2	1.4581	

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	Mo	Fe
<0.03	0.8	0.7	18.5	12.2	2.8	Rem.

All Weld Metal Mechanical Properties

R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
450	580	40	+20°C 70 -120°C 40

Welding Current & Instructions

Electrode	ØxL (mm)	2,0x300	2,5x350	3,2x350	4,0x450
Current	(A)	45	75	110	140

Redrying at 250°C during 1h, if necessary. Interpass temperature : < 150°C.

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Selectarc 316VD

Stainless Steel Electrode

For vertical down

Classification

AWS A5.4 : E316L-16

EN 1600 : E 19 12 3 L R 3 1

ISO 3581-A : E 19 12 3 L R 3 1

Description & Applications

Low carbon Rutile-basic coated electrode, giving a Mo-containing austenitic stainless steel deposit. This electrode is designed for vertical down welding on Cr-Ni-Mo stainless steels and clad steels which are applied at service temperatures from -120°C up to +400°C in the chemical and petrochemical industries, in refineries...

Base materials

Stainless steels for general use:

UNS	Alloy	EN 10088	Mat. N°	UGINE
S31600	316	X5CrNiMo17-12-2	1.4401	UGINOX 17-10 M
S31603	316L	X2CrNiMo17-12-2	1.4404	UGINOX 18-11 ML
J92900		G-X5CrNiMo 19-11-2	1.4408	
S31635	316Ti	X6CrNiMoTi17-12-2	1.4571	UGINOX 17-11 MT
S31635	316Ti	X10CrNiMoTi18-12	1.4573	
S31640	316Cb	X6NiCrMoNb17-12-2	1.4580	
		G-X5CrNiMoNb19-11-2	1.4581	

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	Mo	Fe
<0.03	0.8	0.7	18.0	11.5	2.5	Rem.

All Weld Metal Mechanical Properties

R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>400	>560	>30	+20°C >60

Welding Current & Instructions

Electrode	ØxL (mm)	2,0x300	2,5x300	3,2x350
Current	(A)	50	70	100

Redrying at 250°C during 1h. Interpass temperature : < 150°C.

ind.12



= +	~ 80V
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Selectarc Inox 316NG

Basic type Stainless
Steel Electrode

Classification

AWS A5.4 : E316L-15
ISO 3581-A : E 19 12 3 L B 4 2

EN 1600 : E 19 12 3 L B 4 2

Description & Applications

Low carbon basic coated Mo- containing austenitic stainless steel electrode with approx. 8% ferrite. Stable arc, easy to watch weld pool, good slag removal, regular weld beads. Good behaviour in positional welding and on bad prepared joints. Excellent mechanical properties. For welding and cladding on austenitic Cr-Ni-Mo stainless steels and clad plates. Applied for service temperatures from -196°C up to +400°C in the chemical and petrochemical industries, in refineries and for ship building to weld pipes, tanks, heat exchangers...

Base materials

Stainless steels for general use:

UNS	Alloy	EN 10088	Mat. N°	UGINE
S31600	316	X5CrNiMo17 12 2	1.4401	UGINOX 17-10 M
S31603	316L	X2CrNiMo17 12 2	1.4404	UGINOX 18-11 ML
S31651	316LN	X2CrNiMoN17 12 2	1.4406	
J92900		G-X5CrNiMo19 11 2	1.4408	
S31635	316Ti	X6CrNiMoTi17 12 2	1.4571	UGINOX 17-11 MT
S31635	316Ti	X10CrNiMoTi18 12	1.4573	
S31640	316Cb	X6NiCrMoNb17 12 2	1.4580	
		G-X5CrNiMoNb19 11 2	1.4581	

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	Mo	Fe
<0.04	0.4	1.6	18.0	12.0	2.7	Rem.

All Weld Metal Mechanical Properties

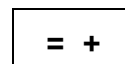
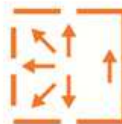
R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>380	>560	>35	+20°C >80 -120°C >50

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x300	3,2x350	4,0x350
Current	(A)	70	90	120

Redrying at 250°C during 1 hour, if necessary. Interpass temperature : < 150°C.

ind.12



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Selectarc 316HR

*High efficiency
Stainless Electrode*

Classification

AWS A5.4 : E316L-26
ISO 3581-A : E 19 12 3 L R 7 3

EN 1600 : E 19 12 3 L R 7 3

Description & Applications

Synthetic electrode with high recovery (160%) and a Rutile-basic coating giving a 316 L deposit with approx. 8% delta ferrite. Easy striking, soft arc, slag lifts by itself, clean spatter-free welds, finely rippled beads. Used for high efficiency welds, fast deposition, long beads. To weld stainless steels of similar composition in : pulp and paper industry, foodstuff industry...

Base materials

Stainless steels for general use:

UNS	Alloy	EN 10088	Mat. N°	UGINE
S31600	316	X5CRNiMo17-12-2	1.4401	UGINOX 17-10 M
S31603	316L	X2CrNiMo17-12-2	1.4404	UGINOX 18-11 ML
J92900		G-X5CrNiMo19-11-2	1.4408	
S31635	316Ti	X6CrNiMoTi17-12-2	1.4571	UGINOX 17-11 MT
S31635	316Ti	X10CrNiMoTi18-12	1.4573	
S31640	316Cb	X6NiCrMoNb17-12-2	1.4580	
		G-X5CrNiMoNb19-11-2	1.4581	

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	Mo	Fe
<0.04	0.9	0.7	18.0	11.5	2.5	Rem.

All Weld Metal Mechanical Properties

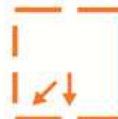
R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>380	>560	>30	+20°C >60

Welding Current & Instructions

Electrode	ØxL (mm)	1,6x250	2,0x350	2,5x350	3,2x350	4,0x450
Current	(A)	50	60	90	120	150

Redrying at 300°C during 1h, if necessary. Interpass temperature : < 150°C.

ind.12



= + ~ 55V

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Selectarc Inox 318

*Stainless Steel Electrode
Niobium stabilised*

Classification

AWS A5.4 : E318-17

EN 1600 : E 19 12 3 Nb R 3 2

ISO 3581-A : E 19 12 3 Nb R 3 2

Description & Applications

Rutile-basic coated electrode Niobium (Columbium) - stabilised 18Cr 12Ni 3Mo austenitic stainless steel deposit with approx. 8% delta ferrite. The electrode is suited to weld Ti or Nb (Cb) stabilised CrNiMo austenitic stainless steels. Soft fusion without spatters, easy strike and restrike, in most cases self peeling slag, moisture resistant coating. Deposit resistant against intercrystalline corrosion, and highly corrosion resistant against different attacks. Used for service temperatures from -120°C up to +400°C in petrochemical industries and for sea water applications, refineries, tanks, heat exchangers...

Base materials

Stainless steels for general use:

UNS	Alloy	EN 10088	Mat. N°	UGINE
S31600	316	X5CrNiMo17-12-2	1.4401	UGINOX 17-10 M
S31603	316L	X2CrNiMo17-12-2	1.4404	UGINOX 18-11 ML
J92900		G-X5CrNiMo19-11-2	1.4408	
S31635	316Ti	X6CrNiMoTi17-12-2	1.4571	UGINOX 17-11 MT
S31635	316Ti	X10CrNiMoTi18-12	1.4573	
S31640	316Cb	X6NiCrMoNb17-12-2	1.4580	
		G-X5CrNiMoNb19-11-2	1.4581	

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	Mo	Nb	Fe
<0.03	0.8	0.7	18.0	12.0	2.7	0.3	Rem.

All Weld Metal Mechanical Properties

R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>350	>550	>30	+20°C >60

Welding Current & Instructions

Electrode	ØxL (mm)	2,0x300	2,5x300	3,2x350	4,0x350	5,0x450
Current	(A)	45	70	100	135	180

Redrying at 250°C during 1h, if necessary. Interpass temperature : < 150°C.



= + ~ 70V

ind.12



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Selectarc Inox 317L

Stainless steel Electrode

With 3.5% Mo

Classification

AWS A5.4 : E 317L-17

EN 1600 : E Z 19 13 4 L R 3 2

ISO 3581-A : E Z 19 13 4 L R 3 2

Description & Applications

Low carbon Rutile-coated austenitic stainless steel electrode with ~3,5% of Molybdenum and approx. 8% ferrite. The electrode has a coating with very low moisture pick up. Soft fusion, without spatters, very easy slag removal, exceptional weld bead appearance, easy re-striking. Designed for welding and hardfacing stainless steels like 316L and 317L as well as stabilised grades. Pitting corrosion increased with regard Inox 316L.

Base materials:

Stainless steels for general use :

UNS S31603	Steels 316L	EN 10088 X2CrNiMo17-12-2	Alloy N° 1.4404	UGINE UGINOX 18-11ML
S31653	316LN	X2CrNiMoN17-13-3	1.4429	UGINOX 17-10 M
S31700	317	X5CrNiMo17-13-3	1.4449	
S31703	316LMo	X2CrNiMo18-14-3	1.4435	UGINOX 18-13MS
S31703	317L	X2CrNiMo18-15-4	1.4438	

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	Mo	Fe
0.02	0.8	0.7	19.0	13.0	3.5	Rem.

All Weld Metal Mechanical Properties

R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
470	600	35	+20°C 60

Welding Current & Instructions

Electrode	ØxL (mm)	2,0x300	2,5x300	3,2x350	4,0x350
Current	(A)	45	75	110	140

Redrying 1h at 250°C, if necessary. Interpass temperature: <200°C.

Ind.12



= +

~ 70V



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Selectarc 24/12S

*Rutile type Stainless
Steel Electrode*

Classification

AWS A5.4 : E309L-16
ISO 3581-A : E 23 12 L R 3 2

EN 1600 : E 23 12 L R 3 2

Description & Applications

Low carbon Rutile-basic electrode with an austenitic stainless steel deposit containing 15% ferrite for welding dissimilar steels as stainless steels to low alloyed steels. Also suitable for welding high temperature steels and as buffer layer before hardfacing. For repairing of machine parts for civil engineering. First layer on construction steels for 18/8 cladding. Soft fusion, nice aspect of the bead, self releasing slag.

Base materials

Stainless steels for general use and for high temperature applications:

UNS	Alloy	EN	Material N°	UGINE
S30900	309	X15CrNiSi 20-12	1.4828	UGINOX R20-12
S30453	304 LN	X2CrNiN 18-10	1.4311	
S30908	309S	X12CrNi23-13	1.4833	UGINOX R24-13S
		X10CrSi6	1.4712	
		X10CrAl 18	1.4742	

All construction steels, low alloyed in combinations with stainless steels.

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	Fe
<0.03	0.8	0.7	22.5	12.5	Rem.

All Weld Metal Mechanical Properties

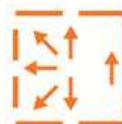
R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>400	>560	>35	+20°C >60

Welding Current & Instructions

Electrode	ØxL (mm)	2,0x300	2,5x300	3,2x350	4,0x350	5,0x450
Current	(A)	45	70	100	135	180

Redrying at 250°C during 1 hour, if necessary. Interpass temperature : < 150°C.

ind.12



= + ~ 70V

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Selectarc 309HR

*Stainless Electrode
With high efficiency*

Classification

AWS A5.4 : E309L-26
ISO 3581-A : E 23 12 L R 7 3

EN 1600 : E 23 12 L R 7 3

Description & Applications

Synthetic electrode with high recovery (160%). Rutile-basic coating with a 24%Cr-13%Ni stainless steel type deposit. Used when a high efficiency is desired. For buffer layers before hardfacing and for dissimilar joints - stainless steels to ordinary steel....

Base materials

Stainless steels for general use and for high temperature applications:

UNS	Alloy	EN	Material N°	UGINE
S30900	309	X15CrNiSi20-12	1.4828	UGINOX R20-12
S30453	304 LN	X2CrNiN18-10	1.4311	
S30908	309S	X12CrNi23-13	1.4833	UGINOX R24-13S
		X10CrSi6	1.4712	
		X10CrAl18	1.4742	

+ all mild steels and low alloyed steels in combination with stainless steels.

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	Fe
<0.04	0.9	0.7	22.5	12.5	Rem.

All Weld Metal Mechanical Properties

R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>400	>560	>35	+20°C >50

Welding Current & Instructions

Electrode	ØxL (mm)	2,0x350	2,5x350	3,2x350	4,0x450
Current	(A)	65	90	130	170

Redrying 1 hour at 250°C, if necessary. Interpass temperature : < 150°C.

ind.12



= + ~ 50V



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Selectarc 24/12Mo

*Stainless Electrode
For Repairing*

Classification

AWS A5.4 : E309MoL-17
ISO 3581-A: E 23 12 2 L R 3 2

EN 1600 : E 23 12 2 L R 3 2

Description & Applications

Low carbon Rutile-basic coated 23Cr 12Ni 2Mo stainless steel type electrode, used to weld on 316L stainless steels and for dissimilar joints between construction / mild steels and stainless steels. Intermediate layer for a 316L type cladding. Due to its high level of delta ferrite also used as an universal repairing electrode in maintenance welding. Highly crack resistant. Soft fusion, nice aspect of the bead, slag lifts by itself.

Base materials

Stainless steels:

UNS	Alloy	EN 10088	Material N°	UGINE
S31600	316	X5CrNiMo17-12-2	1.4401	UGINOX 17-10 M
S31603	316L	X2CrNiMo17-12-2	1.4404	UGINOX 18-11 ML
S31635	316Ti	X6CrNiMoTi17-12-2	1.4571	UGINOX 17-11 MT

+ for dissimilar joints, low alloy to stainless steels.

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	Mo	Fe
<0.03	0.8	0.7	22.5	12.5	2.3	Rem.

All Weld Metal Mechanical Properties

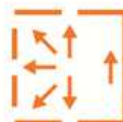
R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>450	>650	>25	+20°C >55 -40°C >45

Welding Current & Instructions

Electrode	ØxL (mm)	2,0x300	2,5x300	3,2x350	4,0x350	5,0x450
Current	(A)	45	70	100	135	180

Redrying 1 hour at 250°C if necessary. Interpass temperature : < 150°C.

ind.12



= + ~ 70V

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Selectarc 307R

High manganese stainless
Rutile Electrode

Classification

AWS A5.4 : ~E307-16

EN 1600 : E 18 8 Mn R 3 2

ISO 3581-A : E 18 8 Mn R 3 2

Description & Applications

Austenitic (non-magnetic) rutile coated electrode for joining and overlaying on manganese steels (up to 14% Mn) and high sulphur and phosphorus containing steels, also for joining dissimilar steels, construction steels to stainless steels, for cushion layers prior hardfacing. Repairing of pieces submitted to shocks or wear by friction. Excellent maniability, easy slag removal, nice aspect of the bead.

Main applications: For civil engineering, railways, cement works (screening steels, digger buckets, crusher jaws...).

Base materials

Screening steels

Tools steels*

Austenitic steels with Mn: type Z 120 M 12, X 120 Mn 12, 1.3401

Spring steels: 45 Cr 4, 1.7035, 46 Si 7, 1.5024, 51 Si 7, 1.5025, 56 Si 7, 1.5026

(*) with eventual pre- and post weld heat treatment.

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	Fe
0.1	1.2	4.5	18.0	8.0	Rem.

All Weld Metal Mechanical Properties

R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>400	>600	>30	+20°C >70

Hardness: as welded ~ 200 HB, work hardened ~ 500 HB.

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x300	3,2x350	4,0x350	5,0x350
Current	(A)	70	100	125	160

Redrying 1 hour at 300°C, if necessary. Never preheat Mn-steels because of its sensitivity to hot cracks.

ind.12



= + ~ 70V

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Selectarc 307B

*High manganese stainless
Basic coated Electrode*

Classification

AWS A5.4 : ~E307-15
ISO 3581-A : E 18 8 Mn B 3 2

EN 1600 : E 18 8 Mn B 3 2

Description & Applications

Austenitic (non-magnetic) basic coated stainless steel electrode for joining and overlaying on manganese steels (up to 14% Mn) and high sulphur and phosphorus containing steels, also for joining dissimilar steels, construction steels to stainless steels, for cushion layers prior hardfacing. Repairing of pieces submitted to shocks or wear by friction. Stable arc ease of use, good slag removal, nice aspect of the beads.

Main applications: For civil engineering, railways, cement works (screening steels, digger buckets, crusher jaws...)

Base materials

Screening steels

Tools steels*

Low alloyed steels*

Austenitic steels with Mn: type Z 120 M 12, X 120 Mn 12, 1.3401

Spring steels: 45 Cr 4, 1.7035, 46 Si 7, 1.5024, 51 Si 7, 1.5025, 56 Si 7, 1.5026

Stainless steels to low alloyed steels

(*) with eventual pre- and post weld heat treatment.

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	Fe
0.1	0.4	6.0	18.0	8.0	Rem.

All Weld Metal Mechanical Properties

R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>400	600-750	>35	+20°C >90

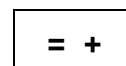
Hardness: as welded ~ 200 HB, work hardened ~ 500 HB.

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x300	3,2x350	4,0x350	5,0x450
Current	(A)	65	90	120	150

Redrying at 300°C during 1 hour. Never preheat Mn-steels because of its sensitivity to hot cracks.

ind.12



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Selectarc 18/8Mn

*High Mn Stainless Electrode
For repairing and surfacing*

Classification

AWS A5.4 : ~E307-26 EN 1600 : E 18 8 Mn R 7 3 X
ISO 3581-A : E 18 8 Mn R 7 3 X

Description & Applications

Rutile-basic electrode with high recovery (160%). Fully austenitic stainless steel deposit with a high Mn-content. For welding and cladding on Mn-steels (14% Mn), for dissimilar joints and difficult to weld materials, cushion layers prior hardfacing, repairing of pieces submitted to shocks. Easy to use, soft fusion, low spatters, slag easy to remove, regular weld beads, deposit highly resistant to cracks.

Main applications: For shops doing repairs on railways, earth moving, in quarries or on construction machinery, in cement works, on different types of crushers.

Base materials

Screening steels

Tools steels*

Austenitic steels with Mn: type Z 120 M 12, X 120 Mn 12, 1.3401

Spring steels: 45 Cr 4, 1.7035, 46 Si 7, 1.5024, 51 Si 7, 1.5025, 56 Si 7, 1.5026

(*) with eventual pre- and post weld heat treatment.

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	Fe
0.1	0.8	5.0	18.0	8.5	Rem.

All Weld Metal Mechanical Properties

R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>400	600-750	>30	+20°C >70

Hardness: as welded ~ 200 HB, work hardened ~ 350 HB.

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x450
Current	(A)	90	130	160

Redrying 2 hours at 250°C if necessary.

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Selectarc Inox 308Mo

*Stainless Electrode
For repairing*

Classification

AWS A5.4 : ~ E308Mo-17
ISO 3581-A : E 20 10 3 R 3 2

EN 1600 : E 20 10 3 R 3 2

Description & Applications

Rutile-basic coated stainless steel type electrode with an austenitic-ferritic structure used to weld dissimilar joints between construction / mild steels and stainless steels. Due to its high level of delta ferrite (~25%) also used as an universal repairing electrode in maintenance welding. Highly crack resistant. Soft fusion, nice aspect of the beads, slag lifts by itself.

Base materials

UNS	Alloy	EN 10088	Mat. N°	UGINE
S31600	316	X5CrNiMo17-12-2	1.4401	UGINOX 17-10 M
S31603	316L	X2CrNiMo17-12-2	1.4404	UGINOX 18-11 ML
J92900		G-X5CrNiMo19-11-2	1.4408	
S31635	316Ti	X6CrNiMoTi17-12-2	1.4571	UGINOX 17-11 MT
S31635	316Ti	X10CrNiMoTi18-12	1.4573	
S31640	316Cb	X6NiCrMoNb17-12-2	1.4580	
		G-X5CrNiMoNb19-11-2	1.4581	
+ for dissimilar joints between low alloy/mild steels and stainless steels.				

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	Mo	Fe
0.04	0.8	1.0	20.5	10.5	3.0	Rem.

All Weld Metal Mechanical Properties

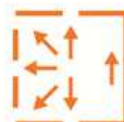
R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>450	>620	>30	+20°C >50

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x300	3,2x350	4,0x350
Current	(A)	50-80	80-115	90-140

Redrying 1 hour at 250°C if necessary. Interpass temperature : < 150°C.

ind.13



= + ~ 70V

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Selectarc 29/9

*Stainless Electrode
For repairing*

Classification

AWS A5.4 : ~ E312-16
ISO 3581-A : E 29 9 R 3 2

EN 1600 : E 29.9 R 3 2

Description & Applications

Rutile-basic electrode with an austenitic-ferritic stainless steel deposit, adapted for welding dissimilar steels (stainless steels with low alloyed steels) and steels difficult to weld as tool steels, Mn steels, spring steels.... Metal deposit highly resistant to cracks, suitable for buffer layers before hardfacing and for building up cutting tools. Soft fusion, nice aspect of the beads, self releasing slag.

Base materials

Stainless steels

Tool steels

Low alloyed steels

Austenitic steels with Mn : Z 120 M 12 type, X 120 Mn 12, 1.3401

Screening steels

Spring steels : 45 Cr 4, 1.7035, 46 Si 7, 1.5024, 51 Si 7, 1.5025, 56 Si 7, 1.5026

Armatures and wire lattice for reinforced concrete

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	Mo	Fe
0.1	1.0	0.6	29.0	9.5	0.5	Rem.

All Weld Metal Mechanical Properties

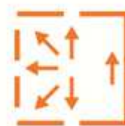
R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	Hardness
>500	700-850	>20	Approx. 240 HB

Welding Current & Instructions

Electrode	ØxL (mm)	1,6x250	2,0x300	2,5x300	3,2x350	4,0x350	5,0x450
Current	(A)	35	45	70	110	135	180

Redrying 2 hours at 250°C, if necessary. Interpass temperature : < 250°C.

ind.12



= + ~ 50V

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Selectarc Inox 312HR

*Synthetic Electrode
For difficult to weld steels*

Classification

AWS A5.4 : ~ E312-26
ISO 3581-A : E Z 26 9 R 7 3

DIN 8555 : E9-UM-250-KRZ

Description & Applications

Synthetic electrode with high recovery (160%). With a rutile coating, for overlaying and welding high strength steels with each other and with stainless steels. Also recommended for buffer layers before hardfacing and to weld galvanised steels. Highly resistant against cracks. Offers soft fusion, very little spatters, self releasing slag.

Base materials

Low alloyed steels, carbon steels, galvanised steels, high strength steels.
Stainless steels
Tools steels
Austenitic steels with Mn
Screening steels
Spring steels
Armatures and wire lattice for reinforced concrete

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	Mo	Fe
0.06	1.1	1.0	26.5	9.5	0.2	Rem.

All Weld Metal Mechanical Properties

R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	Hardness
>550	>700	>25	Approx. 240 HB

Welding Current & Instructions

Electrode	ØxL (mm)	2,0x300	2,5x350	3,2x350	4,0x450
Current	(A)	50-80	70-100	100-140	150-200

Redrying 1 hour at 300°C. Preheating of base materials with a high carbon equivalent to 100-250°C.

ind.12



= + ~ 50V

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Selectarc 25/20R

High Temperature
Stainless Steel Electrode

Classification

AWS A5.4 : E310-16
ISO 3581-A : E 25 20 R 3 2

EN 1600 : E 25 20 R 3 2

Description & Applications

Rutile-basic electrode with a high temperature resistant austenitic stainless steel deposit. Resistant to corrosion and oxidation up to 1200°C, good resistance against hot cracks, easy slag removal and nice aspect of the weld beads.

Main applications: Construction of steam boilers, chemical installations, gas industry, ovens, thermal equipments.

Base materials

Stainless and high temperature steels:

UNS	Alloy	EN	Material N°	UGINE
S31000	310	X15CrNiSi25-20	1.4841	
S31008	310S	X12CrNi25-21	1.4845	UGINOX R 25-20
S31400	314	X15CrNiSi25-20	1.4841	
S30900	309	X15CrNiSi20-12	1.4828	UGINOX R 20-12
		G-X15CrNi25-20	1.4840	
J93503		G-X40CrNiSi25-12	1.4837	
J94204	HK40	G-X40CrNiSi25-20	1.4848	

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	Fe
0.1	0.9	2.0	25.5	20.5	Rem.

All Weld Metal Mechanical Properties

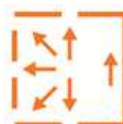
R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>400	>550	>30	+20°C >60

Welding Current & Instructions

Electrode	ØxL (mm)	2,0x300	2,5x300	3,2x350	4,0x350	5,0x450
Current	(A)	45	70	100	135	180

Redrying 2 hours at 250°C, if necessary. Avoid prolonged stay at 600-850°C (sigma phase formation).
Interpass temperature : < 150°C

ind.13



= +	~ 70V
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Selectarc 25/20B

High Temperature
Stainless Steel Electrode

Classification

AWS A5.4 : E310-15
ISO 3581-A : E 25 20 B 4 2

EN 1600 : E 25 20 B 4 2

Description & Applications

Basic coated electrode with an austenitic stainless steel deposit resisting to corrosion and oxidation up to 1200°C. Regular and stable fusion, good slag removal, nice aspect of the bead, resistant against hot cracks.

Main applications: Ovens, boilers, thermal equipments for heat treatment, chemical and petrochemical installations.

Base materials

Stainless and high temperature steels:

UNS	Alloy	EN	Material N°	UGINE
S31000	310	X15CrNiSi25-20	1.4841	
S31008	310S	X12CrNi25-21	1.4845	UGINOX R 25-20
S31400	314	X15CrNiSi25-20	1.4841	
S30900	309	X15CrNiSi20-12	1.4828	UGINOX R 20-12
		G-X15CrNi25-20	1.4840	
J93503		G-X40CrNiSi25-12	1.4837	
J94204	HK40	G-X40CrNiSi25-20	1.4848	

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	Mo	P	S	Cu	Fe
<0.12	0.5	2.2	25.5	20.5	0.2	0.03	0.02	0.2	Rem.

All Weld Metal Mechanical Properties

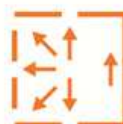
R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>380	>550	>30	+20°C >70

Welding Current & Instructions

Electrode	ØxL (mm)	2,0x300	2,5x300	3,2x350	4,0x350	5,0x450
Current	(A)	45	70	100	135	180

Redrying 2 hours at 250°C, if necessary. Avoid long stay at 600-850°C (sigma phase formation).
Interpass temperature : < 150°C.

ind.13



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Selectarc Inox 310H

High Temperature
Stainless Steel Electrode

Classification

AWS A5.4 : E310H-15
ISO 3581-A : E 25 20 H B 4 2

EN 1600 : E 25 20 H B 4 2

Description & Applications

Basic coated austenitic stainless steel electrode with 26%Cr, 21%Ni and an increased carbon content. Used to weld austenitic heat resistant alloys, centrifugally cast tubes etc. resisting to scaling and oxidation up to 1100°C. Regular and stable fusion, good slag removal, nice aspect of the bead.

Main applications: Petrochemical industry, for furnaces, reformer and steam cracker tubes, piping systems.

Base materials

UNS	Alloy	EN	Material N°
J93503		G-X40CrNiSi25-12	1.4837
J94204	HK 40	G-X40CrNiSi25-20	1.4848

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	Mo	Fe
0.4	0.7	2.0	26.0	21.0	0.2	Rem.

All Weld Metal Mechanical Properties

$R_{p0.2}$ (MPa)	R_m (MPa)	A_5 (%)
>450	>650	>15

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x300	3,2x350	4,0x350
Current	(A)	70	100	135

Redrying 2 hours at 250°C, if necessary. Interpass temperature : < 150°C.



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ind.12



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Selectarc Inox 253MA-AC

High Temperature
Stainless Steel Electrode

Classification

ISO 3581-A : E 22 12 R 3 2

EN 1600 E 22 12 R 3 2

Description & Applications

Rutile coated electrode with an austenitic stainless steel deposit resisting to scaling and oxidation up to 1100°C. Regular and stable fusion, good slag removal, nice aspect of the bead.

Main applications: Ovens, thermal equipments for heat treatment, chemical installations.

Base materials

UNS	Alloy	EN 10095	Material N°	UGINE
		X15CrNiSi20-12	1.4828	UGINOX R20-12
		X12CrNi22-12	1.4829	
S30815	253MA	X8CrNiSiN21-11	1.4893	
		X9CrNiSiN21-11-2	1.4835	

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	N	Mo	Fe
0.1	1.0	0.8	22.0	11.0	0.1	0.1	Rem.

All Weld Metal Mechanical Properties

$R_{p0.2}$ (MPa)	R_m (MPa)	A_5 (%)
>350	>550	>25

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x300	3,2x350	4,0x350
Current	(A)	70	100	130

Redrying 2 hours at 250°C, if necessary. Interpass temperature: < 150°C.

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Selectarc Inox 21/33Mn

High Temperature
Stainless Steels Electrode

Classification

ISO 3581-A : E Z 21 33 Mn Nb B 42

Description & Applications

Basic coated austenitic stainless steel electrode with 21%Cr ,33%Ni, 1.2%Nb and an increased manganese content , used to weld austenitic heat resistant alloys, castings and plates resisting to scaling and oxidation up to 1050°C. Regular and stable fusion, good slag removal, nice aspect of the bead.

Main applications: Chemical and Petrochemical industries.

Base materials

UNS	Alloy	EN	Material N°
N08800	800	X10NiCrAlTi32-20	1.4876
		G-X10NiCrNb32-20	1.4859
N08810		X5NiCrAlTi31-20	1.4958
N08811		X8NiCrAlTi32-21	1.4959

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	Nb	Fe
0.12	0.5	4.5	21.0	33.0	1.0	Rem.

All Weld Metal Mechanical Properties

R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)
420	610	29

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x300	3,2x350	4,0x350
Current	(A)	70	100	130

Redrying 2 hours at 250°C, if necessary. Interpass temperature : <150°C.

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Selectarc Inox 25/35H

High Temperature
Stainless Steel Electrode

Classification

ISO 3581-A : E Z 25 35 Nb H B 4 2

Description & Applications

Basic coated austenitic stainless steel electrode with 26%Cr, 35%Ni, 1.2%Nb and an increased carbon content. Used to weld austenitic heat resistant alloys, centrifugally cast tubes etc. resisting to scaling and oxidation up to 1200°C. Regular and stable fusion, good slag removal, nice aspect of the bead.

Main applications: Petrochemical industry, for welding centrifugally cast pyrolysis coils, reformer tubes, piping systems.

Base materials

UNS	Alloy	EN	Material N°
J93503		G-X40CrNiSi25-12	1.4837
J94204	HK40	G-X40CrNiSi25-20	1.4848
N08705	HP45	G-X40NiCrSi35-25	1.4857
		G-X40NiCr38-18	1.4849
		G-X40NiCrNb35-25	1.4852

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	Nb	Fe
0.4	1.0	1.8	26.0	35.0	1.2	Rem.

All Weld Metal Mechanical Properties

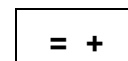
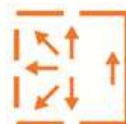
R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)
>440	>660	>12

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x300	3,2x350	4,0x350
Current	(A)	70	100	135

Redrying 2 hours at 250°C, if necessary. Interpass temperature : <150°C.

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Selectarc Inox 2209

*Stainless Electrode
For Duplex Steels*

Classification

AWS A 5.4 : E2209-17 EN 1600 : E 22 9 3 N L R 3 2
ISO 3581-A : E 22 9 3 N L R 3 2

Description & Applications

Rutile-basic electrode with an austenitic- ferritic microstructure (duplex). The weld metal can be applied for operation temperatures up to 250°C and is resistant in chloride containing media, like sea water, against pitting corrosion as well as crevice and stress corrosion. Easy to weld in all positions, except vertical down. Stable arc, regular drop transfer, easy slag removal, finely rippled weld beads.

Main applications : For butt welding and cladding of steels and castings with an austenitic - ferritic structure, which are used for pumps, vessels, piping systems etc. attacked by chloride containing solutions. But also for impellers and other components which require high strength combined with corrosion attack.

Base materials

UNS	Alloy	EN 10088	Material N°	CLI
S31803		X2CrNiMoN22-5-3	1.4462	URANUS 45N
S32304	35N	X2CrNi23-4	1.4362	
S32900	329	X3CrNiMoN27-5-2	1.4460	
		G-X8CrNiN26-7	1.4347	
		G-X6CrNiMo24-8-2	1.4463	

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	Mo	N	Fe
<0.030	0.9	0.9	22.5	9.0	3.0	0.18	Rem.

All Weld Metal Mechanical Properties

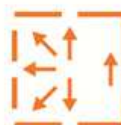
R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)	
>550	>700	>22	+20°C	>50
			-40°C	>37

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x300	3,2x350	4,0x350
Current	(A)	50-75	70-100	90-150

Redrying 2-3 hours at 250-300 °C. Guide electrodes with a slight declination and weld with a short arc. Interpass temperature : <150°C.

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Selectarc Inox 2209B

*Basic Coated Electrode
For Duplex Stainless Steels*

Classification

AWS A 5.4 : E2209-15
ISO 3581-A : E 22 9 3 N L B 4 2

EN 1600 : E 22 9 3 N L B 4 2

Description & Applications

Basic coated electrode with an austenitic - ferritic microstructure (duplex). The weld deposit is characterised by a high resistance against pitting, crevice and stress corrosion in chloride containing media, like sea water, combined with a very high tensile strength. The weld metal can be applied for operation temperatures up to 250°C. For butt welding and cladding of steels and castings with an austenitic- ferritic structure of a similar composition. Easy to weld with, stable arc, easy to remove slag, regular weld beads.

Main applications: For pumps, vessels , piping systems etc. attacked by chloride containing solutions. But also for impellers and other components which require high strength combined with corrosion attack.

Base materials

UNS	Alloy	EN 10088	Material N°	CLI
S31803		X2CrNiMoN22-5-3	1.4462	URANUS 45N
S32304	35N	X2CrNi23-4	1.4362	URANUS 35N
S32900	329	X3CrNiMoN27-5-2	1.4460	
		G-X8CrNiN26-7	1.4347	
		G-X6CrNiMo24-8-2	1.4463	

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	Mo	N	Fe
<0.030	0.5	1.0	22.5	9.0	3.0	0.18	Rem.

All Weld Metal Mechanical Properties

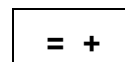
R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
620	810	25	+20°C >70 -40°C >40

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x300	3,2x350	4,0x350
Current	(A)	50-75	70-100	90-150

Redrying 2-3h at 250-300°C. Guide electrodes with a slight declination and weld with a short arc. Interpass temperature: <150°C.

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Selectarc Inox 2509MoB

*Basic Coated Electrode
For Super-Duplex Stainless Steels*

Classification

AWS A5.4 : E2594-15
ISO 3581-A : E 25 9 4 N L B 4 2

EN1600 : E 25 9 4 N L B 4 2

Description & Applications

Basic coated electrode with an austenitic - ferritic microstructure (duplex ~ 40% ferrite). The weld metal can be applied for operation temperatures up to 250°C and is resistant in chloride containing medias against pitting as well as crevice and stress corrosion.

Main applications: For but welding and cladding of steels and castings with an austenitic - ferritic structure, of the same or similar composition, which are used for pumps, vessels , piping systems etc. attacked by chloride containing solutions. But also for impellers and other components which require high strength combined with corrosion attack. Pitting index: > 40.

Base materials

UNS	Alloy	EN 10088	Material N°	CLI
S31803		X2CrNiMoN22-5-3	1.4462	URANUS 45
S32304	35N	X2CrNi23-4	1.4362	URANUS 35N
S32550	52N	G-X2CrNiMoCuN26 6 3	1.4517	URANUS 52N
	52N+	X2CrNiMoCuN25-6-3	1.4507	URANUS 52N+
S32750	2507	X2CrNiMoN25-7-4	1.4410	
S32760	100	X2CrNiMoCuWN25-7-4	1.4501	URANUS 70N
S32900	329	X3CrNiMoN27-5-2	1.4460	

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	Mo	Cu	N	Fe
<0.04	0.5	1.5	25.0	9.5	4.0	0.7	0.23	base

All Weld Metal Mechanical Properties

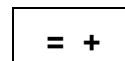
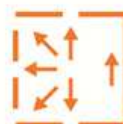
R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
720	850	25	+20°C 70 -40°C 45

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x300	3,2x350	4,0x350	5,0x450
Current	(A)	50-75	70-100	90-150	150-190

Redrying 2-3 hours at 250-300°C. Guide electrodes with a slight declination and weld with a short arc. Interpass temperature: <150°C.

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Inox 2509MoWB

Basic coated Electrode
For Super-duplex Stainless steels

Classification

AWS A 5.4 : E 2595-15
ISO 3581-A : E 25 9 4 N L B 4 2

EN 1600 : E 25 9 4 N L B 4 2

Description & Applications

Basic coated electrode with an austenitic-ferritic microstructure (duplex ~40% ferrite). The weld metal can be applied for operation temperatures up to 250°C and is resistant in chloride containing medias against pitting as well as crevice and stress corrosion. For but welding and cladding of steels and castings with an austenitic - ferritic structure, of the same or similar composition, which are used for pumps, vessels, piping systems etc, attacked by chloride solution. But also for impellers and other components which require high strength combined with corrosion attack. Pitting index: >40.

Main applications: Tanks, pumps, piping systems...

Base materials

UNS	Aciers	EN 10088	N° Mat	CLI
S31803		X2CrNiMoN22-5-3	1.4462	URANUS 45
S32304	35N	X2CrNi23-4	1.4362	URANUS 35N
S32550	52N	G-X2CrNiMoCuN26 6 3	1.4517	URANUS 52N
	52N+	X2CrNiMoCuN25-6-3	1.4507	URANUS 52N+
S32760	100	X2CrNiMoCuW25 7 4	1.4501	URANUS 70N
S32900	329	X3CrNiMoN27-5-2	1.4460	

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	Mo	W	Cu	N	Fe
<0.04	0.5	1.5	25.0	9.3	3.6	0.5	0.7	0.23	Base

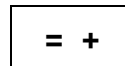
All Weld Metal Mechanical Properties

R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
700	900	24	+20°C 75 -50°C 50

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x300	3,2x350	4,0x350	5,0x450
Current	(A)	50-75	70-100	90-150	150-190

Redrying 2-3h at 250-300°C, if necessary. Interpass temperature: <170°C. Guide electrodes with a slight declination and weld with a short arc.



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Selectarc Inox 385

*Stainless Electrode
Highly corrosion resistant*

Classification

AWS A5.4 : E385-16 EN 1600 : E 20 25 5 Cu N L R 1 2
ISO 3581-A : E 20 25 5 Cu N L R 1 2

Description & Applications

Rutile-basic coated electrode for welding fully austenitic highly corrosion resistant stainless steels as 904L, B6 . Good weldability in all positions, except vertical down, stable arc, good slag removal, regular finely rippled weld beads. Due to its alloy composition, high Mo-content and Cu, the weld metal is suited against attacks by phosphoric- and sulphuric acids, it shows a high resistance against pitting and stress corrosion in chloride containing media. It is used at operation temperatures up to 400°C.

Main applications: Pulp and paper industry, transport containers, installations of the chemical industry.

Base materials

UNS	Alloy	EN	Material N°	CLI
S31703	317 L	X2CrNiMo18-15-4	1.4438	
	317 LNM	X2CrNiMoN17-13-5	1.4439	
		G-X7NiCrMoCuNb 25-20	1.4500	
		X5CrNiMoCuTi 20-18	1.4506	
N08904	904L	X1NiCrMoCu25-20-5	1.4539	URB6(N)

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	Mo	Cu	Fe
<0.03	0.8	1.4	20.5	25.0	4.5	1.5	Rem.

All Weld Metal Mechanical Properties

R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>370	>570	>35	+20°C >70

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x300	3,2x350	4,0x350
Current	(A)	50-70	70-100	90-130

Redrying 2-3h at 250-300°C. Guide electrodes with a slight declination, weld with a short arc and prevent a high heat input by applying the stringer bead technique (weaving max. 2 times core wire diameter). Interpass temperature : < 150°C.

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= + ~ 70V

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Selectarc Inox 383

Stainless Electrode
Highly corrosion resistant

Classification

AWS A5.4 : E383-16 EN 1600 : E 27 31 4 Cu L R 1 2
ISO 3581-A : E 27 31 4 Cu L R 1 2

Description & Applications

Rutile-basic coated electrode for welding fully austenitic highly corrosion resistant stainless steels (Sanicro 28 , Uranus B28) of the same composition or lower alloyed. Good weldability in all positions, except vertical down, stable arc, good slag removal, regular finely rippled weld beads. Due to its alloy composition, high Mo-content and Cu, the weld metal is suited against attacks by phosphoric- and sulphuric acids, it shows a high resistance against pitting and stress corrosion in chloride containing media. It is used at operation temperatures up to 400°C.

Main applications: Pulp and paper industry, transport containers, installations of the chemical industry.
(Sanicro is a trade name of Sandvik, Uranus is a trade name of Creusot Loire Industries)

Base materials

UNS	Alloy	EN 10088	Material N°	UGINE / CLI
N08028	28	X1NiCrMoCu31-27-4	1.4563	URANUS B28
N08904	904L	X1NiCrMoCu25-20-5	1.4539	URANUS B6

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	Mo	Cu	Fe
<0.03	0.8	1.4	27.0	31.0	3.8	1.0	Rem.

All Weld Metal Mechanical Properties

R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>380	>580	>35	+20°C >70

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x300	3,2x350	4,0x350
Current	(A)	50-70	70-100	90-130

Redrying 2-3h at 250-300°C. Guide electrodes with a slight declination, weld with a short arc and prevent a high heat input by applying the stringer bead technique (weaving max. 2 times core wire diameter). Interpass temperature : <150°C.

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= + ~ 70V

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Selectarc Inox 410B

*Stainless Electrode
With 13% Cr*

Classification

AWS A5.4 : E410-15

EN 1600 : E 13 B 4 2

ISO 3581-A : E 13 B 4 2

Description & Applications

Basic coated electrode for repair and construction welding on heat resistant ferritic 14% Cr steels of similar composition. For surfacing on fittings and valves for gas, water and steam systems. Corrosion and scale resistant up to 900°C. Stable arc, easy slag removal, regular weld beads.

Main application: Hardfacing of valve body used for gas, water and steam transport system..

Base materials

Ferritic stainless steels for general use:

UNS	Alloy	EN	Material N°	UGINE
S41000	410	X12Cr13	1.4006	
S41008	410S	X6Cr13	1.4000	UGINOX F 13 S
S42000	420	X20Cr13	1.4021	
		X7Cr14	1.4001	
		X15Cr13	1.4024	

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Fe
0.1	0.5	0.6	13.0	Rem.

All Weld Metal Mechanical Properties

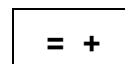
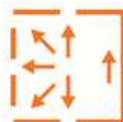
R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	Hardness
>450	>650	>18	Approx. 250 HB

After PWHT 855°C/2h

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x450	5,0x450
Current	(A)	80-100	110-130	120-150	150-180

Redrying 2h at 300°C. Guide electrodes with a slight declination, weld with a short arc. Preheat base material to 200-300°C and keep this temperature during welding. Cool down to room temperature and perform the PWHT.



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Selectarc Inox 13/4

*Stainless Electrode
With 13% Cr & 4% Ni*

Classification

AWS A 5.4 : E410NiMo-15
ISO 3581-A : E 13 4 B 4 2

EN 1600 : E 13 4 B 4 2

Description & Applications

Basic coated electrode for repair and construction welding of martensitic CrNi steels of similar composition. These steels / castings are used for hydraulic turbines, pumps, valve bodies, compressor parts...Stable arc, easy slag removal, regular weld beads.

Base materials

Martensitic stainless steels and castings:

UNS	Alloy	EN/ Symbol	Material N°
J91540	CA6-NM	G-X5CrNi13-4	1.4313
S41500		X3CrNiMo13-4	1.4313
		G-X4CrNi13-4	1.4317
		G-X5CrNiMo13-4	1.4407
		X3CrNiMo13-4	1.4413
		G-X4CrNiMo13-4	1.4414

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	Mo	Fe
0.04	0.3	0.6	12.0	4.2	0.5	Rem.

All Weld Metal Mechanical Properties

$R_{p0.2}$ (MPa)	R_m (MPa)	A_5 (%)	KV (J)
>630	>830	>15	+20°C >50

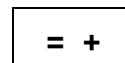
After PWHT 580°C/8h

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x450
Current	(A)	90	130	150

Redrying 2h at 300°C. Guide electrodes with a slight declination, weld with a short arc. Preheat base material to 100-150°C and keep this temperature during welding. Cool down to room temperature and perform the PWHT.

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Selectarc Inox 17/4Mo

Basic Coated Electrode
16% Cr - 5% Ni – 1% Mo

Classification

ISO 3581-A : E Z 16 5 1 B 4 2

EN 1600 : E Z 16 5 1 B 4 2

Description & Applications

Basic coated electrode for repair and construction welding of martensitic CrNi and CrNiMo-stainless steels. These steels / castings are used for hydraulic turbines, pumps, valve bodies, compressor parts etc. Stable arc, easy slag removal, regular weld beads.

Base materials

Martensitic stainless steels and castings:

EN	Material N°
G-X4CrNiMo 16-5-1	1.4405
X4CrNiMo 16-5-1	1.4418

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Ni	Mo	Fe
<0.04	0.3	0.6	16.0	5.0	1.0	Rem.

All Weld Metal Mechanical Properties

R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>650	>850	>13	+20°C >40

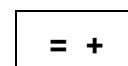
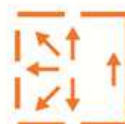
After annealing 8h/ 580°C.

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x300	3,2x350	4,0x450
Current	(A)	90	120	150

Redrying 2h at 300°C. Guide electrodes with a slight declination, weld with a short arc. Preheat base material to 100-150°C and keep this temperature during welding. Cool down to room temperature and perform the PWHT.

ind.12



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Selectarc Fonte Ni

Pure Nickel Electrode

Classification

AWS A 5.15 : ENi-CI

DIN 8573 : E Ni BG 11

ISO 1071 : E C Ni-CI 3

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.

Main applications: 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).



= +, - ~ 40 V

ind.12



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Selectarc Fonte Ni2

Pure Nickel Electrode

Classification

AWS A 5.15 : ENi-CI

DIN 8573 : E Ni BG 12

ISO 1071 : E C Ni-CI 3

Description & Applications

Electrode with graphite-basic coating to weld on DC - and AC. 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.

Main applications: 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	Fe	Ni
1.0	<1.2	<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
Current	(A)	80	120	150

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).

ind.12



= - ~ 40 V

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Selectarc Fonte Ni4

*Pure Nickel Electrode
DC+ for cast iron*

Classification

AWS A 5.15 : ENi-CI

DIN 8573 : E Ni BG 13

ISO 1071 : E C Ni-CI 3

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.

Main applications: 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	0.6	Rem.

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).

Ind.12



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Selectarc Ferro-Ni

Ferro Nickel Electrode

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 application : 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	56.0	Rem.

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.

ind.12



= + ~ 40 V

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Selectarc Bimetal-NiFe

*"Bimetal" Electrode
For Cast Iron Welding*

Classification

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

DIN 8573 : E NiFe-1 BG 21

Description & Applications

Graphite-basic coating and «Bimetal» core wire with high electrical conductivity. The «Bimetal» core wire authorises very important fusion speeds with direct current as well as with alternative current without any risk of overheating the electrode (phenomenon often noticed with conventional Ferro-Nickel electrodes)

Main applications: For repair and construction welding on all cast iron types and dissimilar joints between cast iron and steels.

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
A439 Type D-2	GGG-NiCr20-2	S-NC20-2

Typical Weld Metal Composition (%)

C	Si	Mn	Ni	Fe
1.3	0.8	0.3	55.0	Rem.

All Weld Metal Mechanical Properties

R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	Hardness
>300	500-600	>15	Approx. 190 HB

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x350
Current	(A)	80	120	145

Alternative current favours the welding in all positions. The polarity + is essentially reserved when an important deposit speed on large chamfers is searched, or on areas with difficult access (reduced visibility of the joint). For some applications, it's recommended to depose short beads followed by immediate hammering to release stresses.

ind.12



= -	~ 50 V
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Fonte BMP

"Bimetal" Electrode DC+
For Cast Iron Welding

Classification

AWS A 5.15 : E NiFe-CI
ISO 1071 : E C NiFe-CI 1

DIN 8573 : E NiFe-1 BG 23

Description & Applications

Graphite-basic Barium free coating and «Bimetal» core wire with high electrical conductivity for cold welding of various cast iron types on DC+ or AC. The «Bimetal» core wire authorizes very important fusion speeds with direct current as well as with alternative current without any risk of overheating the electrode (phenomenon often noticed with conventional Ferro-Nickel electrodes).

Main applications: For repair and construction welding on all cast iron types and dissimilar joints between cast iron and steels.

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
A439 Type D-2	GGG-NiCr20-2	S-NC20-2

Typical Weld Metal Composition (%)

C	Si	Mn	Ni	Fe
0.8	0.8	0.3	55.0	Rem.

All Weld Metal Mechanical Properties

R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	Hardness
370	540	22	Approx. 180 HB

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x350
Current	(A)	85	110	135

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).

ind.10



= + ~ 50V



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Selectarc FeNi/Cu

*Ferro Nickel Electrode
Core Wire Copper Coated*

Classification

AWS A 5.15 : ~ENiFe-CI
ISO 1071 : E C NiFe-1 3

DIN 8573 : E NiFe-1 BG 13

Description & Applications

Graphite-basic coating with a copper coated core wire and a Ferro-Nickel alloy deposit (55%Ni - 45%Fe) for welding and repairing of nodular cast iron. Particularly recommended for steels/cast iron or pipe to flange welding in cast iron. Good wash-in and flow of the weld metal. Principal advantage of this electrode : exceptional resistance against overheating during welding due to the copper plated core wire. Exceptional welding characteristics.

Main application: For foundry defects, repairing of engine blocks, frame of tool machines, gearboxes, reducing pieces, pump bodies, 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	Cu	P	S	Al	Fe	Other
1.1	1.2	0.8	53.0	4.0	0.012	0.010	1.0	Rem.	<1.0

All Weld Metal Mechanical Properties

$R_{p0.2}$ (MPa)	R_m (MPa)	A_5 (%)	Hardness
>300	>400	10	~ 200 HB

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x350
Current	(A)	70	100	150

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°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 –not on the casting.

ind.13



= + ~ 40 V

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Selectarc Fonte NiCu

*Nickel Copper
Cast Iron Electrode*

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	2.0	4.0	30.0	Rem.

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°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 –not on the casting.

ind.12



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Selectarc Fonte NiFe2

Ferro Nickel Electrode

Graphite-basic Coated

Classification

AWS A 5.15 : ENiFe-CI
ISO 1071 : E C NiFe-CI 1

DIN 8573 : E NiFe-1 BG 12

Description & Applications

Graphite basic coated electrode with a Ferro-Nickel alloy deposit for joining and repairing nodular cast iron. Sound deposit, highly resistant against cracks. Particularly recommended for dissimilar welding of cast iron to steels and constructions of cast iron. Good bonding and flow of the weld metal.

Main applications: Repairing 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
1.7	1.4	0.7	55.0	Rem.

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
Current	(A)	70	100	145

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°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 –not on the casting.

ind.12



= - ~ 40 V

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Selectarc Fonte Fe

*Basic Coated Special
Electrode for Cast Iron*

Classification

AWS A 5.15 : ESt
ISO 1071 : E C Fe-1 3

DIN 8573 : E Fe-1

Description & Applications

Special iron base electrode for repair welding of poor quality, slag or oil containing old cast iron (furnace parts, boxes, heaters, pumps, ...). Smooth arc, deep penetration. Weld deposit can only be machined by grinding. For butt welding it is important to use Fonte-Fe only as initial bonding pass, then take Selectarc Fonte-Ni and Ferro-Ni to fill.

Typical Weld Metal Composition (%)

C	Si	Mn	Fe
0.13	0.9	0.5	Rem.

All Weld Metal Mechanical Properties

Hardness
Approx. 350 HB

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x450
Current	(A)	70-90	80-110	100-140

Use only dry electrodes. Redrying : 2h/250°C. Use a low amperage, maintain the arc short, deposit thin layers.

ind.12



= +,- ~ 70 V

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Selectarc Fonte Fe3

Cast Iron Electrode
For hot welding

Classification

AWS A 5.15 : "ECI-B"

DIN 8573 : E FeC-G-BG 42

ISO 1071 : E C FeC-GF 3

Description & Applications

Graphite basic coated electrode for hot welding nodular cast iron with a colour and structure matching deposit. Stable arc, can weld over hot slag, good bonding and flow of the weld metal.

Main applications: Used to weld defects in foundries.

Base materials

Nodular cast iron:

ASTM	DIN	NFA
A536 Grade 60-40-28	GGG-40	FGS 400-12
	GGG-40.3	FGS 370-17
	GGG-50	FGS 500-7
A536 Grade 80-55-06	GGG-60	FGS 600-3
A536 Grade 100-70-03	GGG-70	FGS 700-2

Typical Weld Metal Composition (%)

C	Si	Mn	Fe
3.0	3.2	0.3	Rem.

All Weld Metal Mechanical Properties

R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	Hardness
320	450	15	220 HB

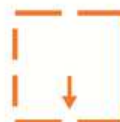
After PWHT 900°C/2h + 700°C/4h

Welding Current & Instructions

Electrode	ØxL (mm)	3,2x350	4,0x450	5,0x450	6,0x450
Current	(A)	110	150	180	250

Prepare the casting defect to be repaired, preheat the piece to 550-650°C, keep this temperature during welding, use a current as high as possible, without overheating the electrode. Assure that sufficient base metal is melted to get a good bonding. When welding over the hot slag don't move too fast with the arc to avoid trapped slag. After welding a PWHT, 2h at 900°C followed by 4h at 700°C and slow cooling in the furnace, insures a colour matching deposit and a regular hardness, even in the heat affected zone.

ind.12



= - ~ 40 V

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Selectarc B90

*Inconel type Electrode
For fabrication and repair*

Classification

AWS A5.11 : ENiCrFe-3
UNS : W 86182

ISO 14172 : E-Ni 6182 (NiCr15Fe6Mn)

Description & Applications

Semi-synthetic basic coated electrode with 140% recovery and an Inconel 600 type nickel base deposit. Used for repairing and joining of Nickel alloys, 5 % Nickel steels, cryogenic stainless steels (down to – 196°C), Incoloy 800 and other high temperature steels. High performance for joining dissimilar materials as stainless steels to low alloyed steels, stainless steels to Nickel alloys, buttering of difficult to weld steels. Deposit insensitive to cracks, very good resistance to acids, salt and alkaline solutions, molten salt. Resistant in oxidizing and carburizing atmospheres (avoid sulphurous atmosphere).

Main applications: Oven parts, burners, heat treatment equipment, cement works, moulds, tanks, transport and storage of liquid gas. Chemical industries, petrochemical industries, glassworks, civil engineering, repair and maintenance workshops.

Note: "Inconel" and "Incoloy" are registered trade names of Inco Alloys

Base materials

UNS	Alloy	DIN	Material N°
	5%Ni	12Ni19	1.5680
N06600	600	NiCr15Fe	2.4816
N08800	800	X10NiCrAlTi3220	1.4876
N08810	800H	X5NiCrAlTi3120	1.4958
	DS	X8NiCrSi3818	1.4862

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Nb	Fe	Mo	Ni
<0.05	0.5	5.5	16.0	2.0	<10.0	0.2	Rem.

All Weld Metal Mechanical Properties

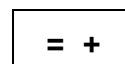
R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
380	640	46	+20°C >80 -196°C >60

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x350	5,0x450
Current	(A)	75	110	135	160

Redrying 1h at 250-300°C. Joints to weld must be clean, exempt from grease, cracks. Weld with a minimum heat input in order to eliminate the phenomena of hot cracks. For welding carbon steels a preheating of 200-500°C, depending on the carbon equivalent, is recommended.

ind.15/00



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Selectarc B91

*Highly corrosion resistant
high recovery NiCrMo-Electrode*

Classification

AWS A5.11 : ENiCrMo-3
UNS : W86112

ISO 14172 : E-Ni 6625 (NiCr22Mo9Nb)

Description & Applications

Rutile-basic coated electrode with a high recovery (170%) for welding of Nickel-Chromium-Molybdenum alloys to themselves and to lower alloyed steels as well as for welding of special austenitic stainless steels. Often used for butt-welding and surfacing on low alloyed and high strength steels as well as for dissimilar joints, buffer layers and for difficult to weld steels. Crack resistant buffer layers on machine parts in earth movement and steel-industries subject to impact and pressure.

Base materials

UNS	Alloy	DIN	Material N°
K81340	9%Ni	X8Ni9	1.5662
N06625	625	NiCr22Mo9Nb	2.4856
N08825	825	NiCr21Mo	2.4858
N08904	904L	X1NiCrMoCuN25 20 5	1.4539

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Nb	Fe	Mo	Ni
0.04	0.6	0.8	21.0	3.3	4.0	8.5	Rem.

All Weld Metal Mechanical Properties

R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	Hardness
>450	>760	>30	Approx. 240HB

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x350
Current	(A)	70-90	90-120	120-140

Redrying 1 h at 250-300°C. Joints to weld must be clean, exempt from grease, cracks. Guide electrodes with a slight declination, weld with a short arc and prevent a high heat input by applying the stringer bead technique (weaving max. 2 times core wire diameter). For repair welding a preheating, depending on the carbon equivalent of the base material, in the range of 100-250°C is recommended.

ind.12



= + ~ 70V

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Selectarc B94

Basic coated NiCrFe- Electrode
For alternative current

Classification

AWS A5.11 : ENiCrFe-2
UNS : W86133

ISO 14172 : E-Ni 6092 (NiCr16Fe12NbMo)

Description & Applications

Basic coated electrode with 150% recovery, for welding Nickel-Chromium-Iron alloys to themselves and to lower alloyed steels as well as for welding cryogenic 5 and 9% Ni-steels and high temperature steels, for CrMo-creep resistant steels to stainless steels, for repair on HK and HP reformer grades. The electrode is especially designed to weld with alternating current.

Base materials

UNS	Alloy	DIN	Material N°
	5%Ni	12Ni19	1.5680
K81340	9%Ni	X8Ni9	1.5662
N06600	600	NiCr15Fe	2.4816
N08800	800	X10NiCrAlTi3220	1.4876
N08810	800H	X5NiCrAlTi3120	1.4958
J94204	HK40	GX40CrNiSi25 20	1.4848
J95705	HP30	GX40NiCrNb35 25	1.4852

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Nb	Fe	Mo	Ni
0.06	0.5	2.8	16.0	1.7	7.0	1.8	base

All Weld Metal Mechanical Properties

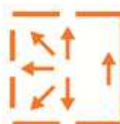
R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>380	>620	>30	+20°C >80 -196°C >60

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x350
Current	(A)	70-90	90-120	120-140

Redrying 1 h at 300°C. Joints to weld must be clean, exempt from grease, cracks. Guide electrodes with a slight declination, weld with a short arc and prevent a high heat input by applying the stringer bead technique (weaving max. 2-3 times core wire diameter). For repair welding a preheating, depending on the carbon equivalent of the base material, in the range of 100-250°C, is recommended.

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Selectarc B96

Basic coated high strength
Ni-base Electrode for AC

Classification

AWS A5.11 : ENiCrMo-6
UNS : W86620

ISO 14172 : E-Ni 6620 (NiCr14Mo7Fe)

Description & Applications

Basic coated electrode with approx. 160% recovery. The electrode is especially designed to weld with alternating current to avoid magnetic arc blow. Mainly used for construction and repair welding of high strength cold-tough 3; 5 and 9% Ni-steels used for transportation and storage tanks of liquid natural gas.

Base materials

UNS	Alloy	DIN	Material N°
K34718	3,5%Ni	10Ni14	1.5638
	5%Ni	12Ni19	1.5680
K81340	9%Ni	X8Ni9	1.5662

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Nb	Fe	Mo	W	Ni
<0.08	0.6	3.6	13.5	1.2	7.5	7.0	1.2	Rem.

All Weld Metal Mechanical Properties

R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>420	>690	>35	+20°C >90 -196°C >70

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x350
Current	(A)	70-100	100-130	120-160

Redrying 1 h at 250-300°C. Joints to weld must be clean, exempt from grease, cracks . Guide electrodes with a slight declination, weld with a short arc and prevent a high heat input by applying the stringer bead technique (weaving max. 2 times core wire diameter).

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Selectarc Ni59

*Nickel base Electrode
Highly corrosion resistant*

Classification

AWS A5.11 : ENiCrMo-13
UNS : W86059

ISO 14172 : E-Ni 6059 (NiCr23Mo16)

Description & Applications

Basic coated electrode with an alloyed core wire for welding of Nickel-Base alloys (alloy 59) and other highly corrosion resistant Ni-Cr-Mo, Ni-Cr-Mo-W alloys as well as special stainless steel types. Stable arc, regular drop transfer, easy to watch weld pool, nice aspect of the weld beads. Very resistant in sulfurous acid environment, highly concentrated with chlorides and also in the presence of oxidizing solutions (FeCl, CuCl).

Main applications: Welding of Off-shore components, boilers, containers, piping systems in the chemical and petrochemical industries as well as components of flue gas de-sulphuring plants.

Base materials

UNS	Alloy	DIN	Material N°
N06022	C-22	NiCr21Mo14W	2.4602
N06059	59	NiCr23Mo16Al	2.4605
N10276	C-276	NiMo16Cr15W	2.4819
N06455	C-4	NiMo16Cr16Ti	2.4610
N06625	625	NiCr22Mo9Nb	2.4856
N08825	825	NiCr21Mo	2.4858
N08926	254SMo	X1NiCrMoCuN25 20 6	1.4529

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Mo	Fe	Cu	Ni
<0.02	<0.2	0.2	23.0	15.8	<1.5	0.1	Rem.

All Weld Metal Mechanical Properties

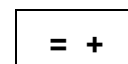
R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>470	>720	>30	+20°C >70

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x350
Current	(A)	50-70	70-100	90-120

Redrying 1h at 250-300°C. Joints to weld must be clean, exempt from grease, cracks. Guide electrodes with a slight declination, weld with a short arc and prevent a high heat input by applying the stringer bead technique (weaving max. 2 times core wire diameter). Nickel base alloys are welded without preheating and an interpass temperature <150°C.

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Selectarc Ni82

*Basic coated
Nickel base type Electrode*

Classification

AWS A5.11 : ~ENiCrFe-3
Material N° : 2.4648

ISO 14172 : E-Ni 6082 (NiCr20Mn3Nb)

Description & Applications

Basic coated nickel base electrode, with an alloyed core wire, for cladding of low alloyed and alloyed steels, for welding iron- and nickel base alloys and for dissimilar joints. Used for low temperature alloys as well as for high temperature alloys, for service temperatures from -196°C up to 900°C.

Main applications: Construction and repair welding of high strength steels, tool steels, corrosion resistant steels, high temperature and nickel alloys in component manufacturing, furnace construction, cement industry.

Base materials

UNS	Alloy	DIN	Material N°
K81340	9%Ni	X8Ni9	1.5662
N06600	600	NiCr15Fe	2.4816
N06601	601	NiCr23Fe	2.4851
N08800	800	X10NiCrAlTi3220	1.4876
N08810	800H	X5NiCrAlTi3120	1.4958
	DS	X8NiCrSi3818	1.4862

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Nb	Fe	Mo	Ni
0.03	0.4	5.0	19.0	2.2	3.0	1.5	Rem.

All Weld Metal Mechanical Properties

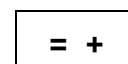
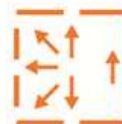
R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
400	650	46	+20°C >80 -196°C >65

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x300	3,2x350	4,0x350	5,0x450
Current	(A)	50-70	70-95	90-120	120-160

Redrying 1 h at 250-300°C. Joints to weld must be clean, exempt from grease, cracks. Guide electrodes with a slight declination, weld with a short arc and prevent a high heat input by applying the stringer bead technique (weaving max. 2-3 times core wire diameter). **Do not preheat Nickel alloy in case of homogeneous assemblies. On high carbon steel assemblies, preheat base material at 200 to 500°C following steel grade to avoid cracks in heat affected zone.**

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Selectarc Ni182

*Basic coated
Inconel type Electrode*

Classification

AWS A5.11 : ENiCrFe-3
UNS : W86182

ISO 14172 : E-Ni 6182 (NiCr15Fe6Mn)
Material N° : 2.4620

Description & Applications

Basic coated electrode with an NiCrFe type nickel base deposit. Used for repairing and joining of Nickel alloys, 5 % Nickel steels, cryogenic stainless steels (down to -196°C), Incoloy 800 and other high temperature steels. For joining dissimilar materials as stainless steels to low alloyed steels, stainless steels to Nickel alloys, for buttering of difficult to weld steels. Deposit insensitive to cracks, very good resistance against acids, salt and alkaline solutions, molten salt. Resistant in oxidizing and carburizing atmospheres (avoid a sulphurous atmosphere).

Main applications: Oven parts, burners, heat treatment equipment, cement works, moulds, tanks, transport and storage of liquid gas. Chemical industries, petrochemical industries, glassworks, civil engineering, repairing and maintenance workshops.

Note: "Inconel" and "Incoloy" are registered trade names of Inco Alloys.

Base materials

UNS	Alloy	DIN	Material N°
N06600	600	NiCr15Fe	2.4816
N08800	800	X10NiCrAlTi3220	1.4876
N08810	800H	X5NiCrAlTi3120	1.4958
	DS	X8NiCrSi3818	1.4862

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Nb	Fe	Mo	Ni
<0.04	0.4	6.0	16.5	2.0	6.0	0.2	Rem.

All Weld Metal Mechanical Properties

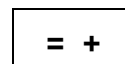
$R_{p0.2}$ (MPa)	R_m (MPa)	A_5 (%)	KV (J)
>380	>620	>35	+20°C >80 -196°C >65

Welding Current & Instructions

Electrode	$\varnothing \times L$ (mm)	2,5x300	3,2x350	4,0x350	5,0x450
Current	(A)	50-70	70-95	90-120	120-160

Redrying 1 h at $250-300^{\circ}\text{C}$. Joints to weld must be clean, exempt from grease, cracks. Guide electrodes with a slight declination, weld with a short arc and prevent a high heat input by applying the stringer bead technique (weaving max. 2-3 times core wire diameter).

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Selectarc Ni190

Basic coated NiCu type Electrode

Classification

AWS A5.11 : ENiCu-7
UNS : W84190

ISO 14172 : E-Ni 4060 (NiCu30Mn3Ti)
Material N° : 2.4366

Description & Applications

Basic coated electrode with a Monel* type Nickel-Copper deposit designated for butt welding and surfacing of Nickel-copper, Copper-Nickel and Copper-Nickel plated steels. Also recommended for dissimilar joining like steels to Nickel-Copper or steel to Copper / Copper-Nickel. Excellent resistance to stress corrosion in Cl- containing environments.

Main applications: Construction of equipment for the chemical industry and petrochemical industry, naval constructions and installations for sea water desalination.

Note: "Monel" is a registered trade name of Inco Alloys.

Base materials

UNS	Alloy	DIN	Material N°
C70600	CuNi90/10	CuNi10Fe1Mn	2.0872
C71500	CuNi70/30	CuNi30Mn1Fe	2.0882
N04400	400	NiCu30Fe	2.4360
N05500	K-500	NiCu30Al	2.4375

Typical Weld Metal Composition (%)

C	Si	Mn	Fe	Ti	Cu	Ni
<0.05	0.7	3.2	1.2	0.5	29	Rem. (≥ 65)

All Weld Metal Mechanical Properties

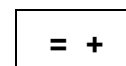
R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>300	>480	>30	+20°C >80

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x300	3,2x350	4,0x350
Current	(A)	50-75	80-110	90-130

Redrying 2 h at 250°C. Joints to weld must be clean, exempt from grease, cracks. Guide electrodes with a slight declination (10-20° inclined in direction of travel), weld with a short arc and prevent a high heat input by applying the stringer bead technique (weaving max. 2 times core wire diameter).

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Selectarc Ni276

Nickel base Electrode
NiCrMo (C-276) type

Classification

AWS A5.11 : ENiCrMo-4
UNS : W80276

ISO 14172 : E-Ni 6276 (NiCr15Mo15Fe6W4)
Material N° : 2.4887

Description & Applications

Basic coated electrode with an alloyed core wire for welding of Nickel-Base alloys (alloy C-276) and other highly corrosion resistant Ni Cr Mo-alloys as well as special stainless steel types. Stable arc, regular drop transfer, easy to watch weld pool, nice aspect of the weld beads. Very resistant in sulphurous acid environment, highly concentrated with chlorides and also in the presence of oxidising solutions (Fe Cl, Cu Cl).

Main applications: Welding of Off-shore components, boilers, containers, piping systems in the chemical and petrochemical industries as well as components of flue gas desulfurizing plants

Base materials

UNS	Alloy	DIN	Material N°
N10276	C-276	NiMo16Cr15W	2.4819
N06455	C-4	NiMo16Cr16Ti	2.4610
N06625	625	NiCr22Mo9Nb	2.4856
N08825	825	NiCr21Mo	2.4858
N08926	254SMo	X1NiCrMoCuN25 20 6	1.4529

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Mo	W	Fe	V	Ni
<0.02	0.2	0.6	16.2	16.0	4.0	5.0	0.15	Rem.

All Weld Metal Mechanical Properties

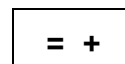
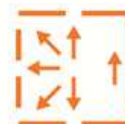
R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>450	>720	>30	+20°C >70

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x300	3,2x350	4,0x350
Current	(A)	50-70	70-100	90-120

Redrying 2 h at 250-300°C. Joints to weld must be clean, exempt from grease, cracks. Guide electrodes with a slight declination, weld with a short arc and prevent a high heat input by applying the stringer bead technique (weaving max. 2 times core wire diameter).

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Selectarc Ni617

High temperature
Nickel base Electrode

Classification

AWS A5.11 : ENiCrCoMo-1
UNS : W86117

ISO 14172 : E-Ni 6617 (NiCr22Co12Mo)

Description & Applications

Basic coated nickel base electrode, with an alloyed core wire, for joining and repairing of high temperature alloys used at operation temperatures up to 1100°C. The electrode distinguishes itself by a soft arc, easy slag removal and regular weld beads.

Main applications: Construction of gas turbines, combustion chambers, ovens, thermal equipment for heat treatment, petrochemical installation.

Base materials

UNS	Alloy	DIN	Material N°
N08810	800H	X5NiCrAlTi3120	1.4958
	DS	X8NiCrSi3818	1.4862
N06601	601	NiCr23Fe	2.4851
N06617	617	NiCr23Co12Mo	2.4663

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Co	Mo	Fe	Al	Ti	Ni
0.06	0.8	0.3	21.0	11.0	9.0	1.0	0.7	0.3	Rem.

All Weld Metal Mechanical Properties

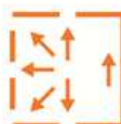
R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
460	730	40	+20°C 100

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x300	3,2x350	4,0x350
Current	(A)	45-60	75-95	90-120

Redrying 1 h at 250-300°C. Joints to weld must be clean, exempt from grease, cracks. Guide electrodes with a slight declination, weld with a short arc and prevent a high heat input by applying the stringer bead technique (weaving max. 2 times core wire diameter). Nickel base alloys are welded without preheating and an interpass temperature <150°C. For repair welding of steels with high carbon content a preheating between 200- 500°C has to be applied. A post weld heat treatment can be performed without influence on the weld deposit.

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Selectarc Ni625

*Nickel base Electrode
highly corrosion resistant*

Classification

AWS A5.11 : ENiCrMo-3
UNS : W86112

ISO 14172 : E-Ni 6625 (NiCr22Mo9Nb)

Description & Applications

Basic coated electrode with an alloyed core wire for welding of Nickel-Chromium-Molybdenum alloys to themselves and to lower alloyed steels as well as for welding of special austenitic stainless steels. Good weldability in all positions, except vertical down; stable arc, medium slag removal, regular weld beads. Due to its composition the weld metal is highly resistant to corrosion and presents a high yield and a high tensile strength.

Main applications: Welding of Off-shore components, boilers, vessels, piping systems in the chemical and petrochemical industries as well as components of flue gas desulfurizing plants.

Note: "Inconel625" is a registered trade name of Inco Alloys.

Base materials

UNS	Alloy	DIN	Material N°
K81340	9%Ni	X8Ni9	1.5662
N06625	625	NiCr22Mo9Nb	2.4856
N08825	825	NiCr21Mo	2.4858
N08904	904L	X1NiCrMoCuN25 20 5	1.4539
N08926	254SMo	X1NiCrMoCuN25 20 6	1.4529

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Nb	Fe	Mo	Ni
<0.04	0.4	0.4	22.0	3.4	3.0	9.0	Rem.

All Weld Metal Mechanical Properties

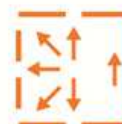
R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>450	>760	>30	+20°C >70

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x300	3,2x350	4,0x350	5,0x450
Current	(A)	50-70	70-100	90-120	140-160

Redrying 1h at 250-300°C. Joints to weld must be clean, exempt from grease, cracks. Guide electrodes with a slight declination, weld with a short arc and prevent a high heat input by applying the stringer bead technique (weaving max. 2 times core wire diameter). Nickel base alloys are welded without preheating and an interpass temperature <150°C.

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Selectarc Ni625BF

Nickel base Electrode
highly corrosion resistant

Classification

AWS A5.11 : ENiCrMo-3
UNS : W86112

ISO 14172 : E-Ni 6625 (NiCr22Mo9Nb)

Description & Applications

Basic coated electrode with an alloyed core wire for welding of Nickel-Chromium-Molybdenum alloys to themselves and to lower alloyed steels as well as for welding of special austenitic stainless steels. Good weldability in all positions, except vertical down; stable arc, medium slag removal, regular weld beads. Due to its composition the weld metal is highly resistant to corrosion and presents a high yield and a high tensile strength.

Main applications: Welding of Off-shore components, boilers, vessels, piping systems in the chemical and petrochemical industries as well as components of flue gas desulfurizing plants.

Base materials:

UNS	Alloy	DIN	Material N°
K81340	9%Ni	X8Ni9	1.5662
N06625	625	NiCr22Mo9Nb	2.4856
N08825	825	NiCr21Mo	2.4858
N08904	904L	X1NiCrMoCuN25 20 5	1.4539
N08926	254SMo	X1NiCrMoCuN25 20 6	1.4529

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Mo	Nb	Fe	Ni
<0.04	0.4	0.6	22.0	8.8	3.3	0.7	base

All Weld Metal Mechanical Properties

R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>450	>760	>30	+20°C >70

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x300	3,2x350	4,0x350	5,0x450
Current	(A)	50-70	70-100	90-120	140-160

Redrying 1h at 250-300°C. Joints to weld must be clean, exempt from grease, cracks. Guide electrodes with a slight declination, weld with a short arc and prevent a high heat input by applying the stringer bead technique (weaving max. 2 times core wire diameter). Nickel base alloys are welded without preheating and an interpass temperature <150°C.

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Selectarc Ni-A

*Nickel base Electrode
For fabrication and repair*

Classification

AWS A5.11 : ENiCrFe-2 ISO 14172 : E-Ni 6092 (NiCr16Fe12NbMo)
UNS : W86133

Description & Applications

Basic coated nickel base electrode, with an alloyed core wire, for joining and repairing of high temperature alloys, dissimilar joining of stainless steel to creep resistant steels, for joining alloy 800, 800H, HK40, HP45 etc. The electrode distinguishes itself by a soft arc, easy slag removal and regular weld beads.

Main applications: Thermal power stations, ovens, thermal equipment for heat treatment, petrochemical installations.

Base materials

UNS	Alloy	DIN	Material N°
N08705	HP45	G-X40NiCrSi3525	1.4857
		G-X40NiCrNb3525	1.4852
J94204	HK40	G-X40CrNiSi2520	1.4848
N08800	800	X10NiCrAlTi3220	1.4876
N08810	800H	X5NiCrAlTi3120	1.4958
	DS	X8NiCrSi3818	1.4862

Typical Weld Metal Composition (%)

C	Si	Mn	Cr	Nb	Fe	Mo	Ni
0.04	0.4	3.0	16.0	2.2	6.0	1.5	Rem.

All Weld Metal Mechanical Properties

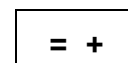
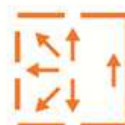
R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
390	650	40	+20°C >80

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x300	3,2x350	4,0x350	5,0x450
Current	(A)	50-70	70-95	90-120	120-160

Redrying 1 h at 250-300°C. Joints to weld must be clean, exempt from grease, cracks. Guide electrodes with a slight declination, weld with a short arc and prevent a high heat input by applying the stringer bead technique (weaving max. 2 times core wire diameter). Nickel base alloys are welded without preheating and an interpass temperature <150°C. For repair welding of steels with high carbon content a preheating between 200- 500°C has to be applied. A post weld heat treatment can be performed without influence on the weld deposit.

ind.12



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Selectarc NiTi3

Pure Nickel Electrode

Classification

AWS A5.11 : ENi-1
Material N° : 2.4156

ISO 14172 : E-Ni 2061 (NiTi3)

Description & Applications

Basic coated electrode with a Nickel deposit containing 1-2%Ti designated for butt welding of pure Nickel (alloy 200) and surfacing of Nickel-copper, Copper-Nickel and Copper-Nickel plated steels. Also recommended for dissimilar joining like steels to Nickel-Copper or steel / Copper to Copper-Nickel. Excellent resistance to NaOH up to 400°C.

Main applications: Construction of equipment for the chemical industry and petrochemical industry, food stuff industry. For caustic soda production as well as for soap and detergents.

Base materials

UNS	Alloy	DIN	Material N°
N02200	200	Ni99.2	2.4066
N02201	201	LC-Ni99	2.4068
N02205	205	LC-Ni99.6	2.4061
		Ni99.6	2.4060

Typical Weld Metal Composition (%)

C	Si	Mn	Fe	Ti	Al	Ni
<0.03	0.7	0.3	0.3	1.6	0.3	Rem.

All Weld Metal Mechanical Properties

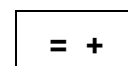
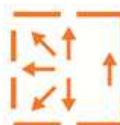
R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	KV (J)
>280	>420	>28	+20°C >160 -196°C >160

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x350
Current	(A)	70-90	90-120	120-160

Redrying 1 h at 250-300°C. Joints to weld must be clean, exempt from grease, cracks. Guide electrodes with a slight declination (10-20°) inclined in direction of travel), weld with a short arc and apply the stringer bead technique (weaving max. 2 times core wire diameter). To improve degassing of the deposit, adopt a low welding speed.

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Selectarc Al105

Aluminium Electrode with 5% Si

Classification

AWS A5.3 : E4043
UNS : A94043

DIN 1732 : EL-AlSi5
Material N : 3.2245

Description & Applications

Aluminium electrode with 5%Si for welding and repairing aluminium or aluminium alloy pieces (AlSi, AlCuSiMn, AlSiMg, AlZnMg...). For joints between aluminium and aluminium-alloys, as well as for aluminium castings.

Main applications: Engine blocks, cylinder heads, tanks, containers, frames, lorry tipper.

Base materials

DIN	Material N°
G-AlSi6Cu4	3.2151
AlMgSi1	3.2315
G-AlSi5Mg	3.2341
G-AlSi7Mg	3.2371
AlMgSi0,5	3.3206
AlMgSi0,7	3.3210
AlMg1SiCu	3.3211

Typical Weld Metal Composition (%)

Si	Mn	Fe	Al
5.0	<0.5	<0.5	Rem.

All Weld Metal Mechanical Properties

R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	Hardness
70-100	110-160	>15	~50 HB

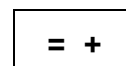
Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x350
Current	(A)	60	90	120

Clean the weld zone; preheat massive pieces (more than 6mm of thickness) to 150-250°C. In order to avoid all risks of porosity, weld with a short arc and guide the electrode at 90° to the piece to be welded. Use a fast travel speed, remove slag between passes and when finished.

Warning! Aluminium electrodes are very sensitive to humidity pick-up; therefore keep the opened tins in a dry place. In case of humidity pick-up dry the electrodes 3h/100°C.

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Selectarc Al112

Aluminium Electrode with 12% Si

Classification

AWS A5.3 : E4047
UNS : A94047

DIN 1732 : EL-AlSi12
Material N° : 3.2585

Description & Applications

Aluminium electrode with 12%Si for welding and repairing aluminium or aluminium alloy pieces (AlSi, AlCuSiMn, AlSiMg). Specially designed for welding cast or extruded aluminium alloys with Si-levels higher than 7%. Dissimilar joints between aluminium and aluminium alloys.

Main applications: Engine blocks, cylinder heads, tanks, containers, frames, lorry tipper.

Base materials

DIN	Material N°
G-AlSi9Mg	3.2373
G-AlSi10Mg	3.2381
G-AlSi10MgCu	3.2383
G-AlSi12	3.2581
G-AlSi12Cu	3.2583

Typical Weld Metal Composition (%)

Si	Mn	Fe	Al
12	<0.5	<0.5	Rem.

All Weld Metal Mechanical Properties

R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	Hardness
80	180	>5	~50 HB

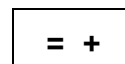
Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x350
Current	(A)	60	90	120

Clean the weld zone; preheat massive pieces (more than 6mm of thickness) to 150-250°C. In order to avoid all risks of porosity, weld with a short arc and guide the electrode at 90° to the piece to be welded. Use a fast travel speed, remove slag between passes and when finished.

Warning! Aluminium electrodes are very sensitive to humidity pick-up; therefore keep the opened tins in a dry place. In case of humidity pick-up dry the electrodes 3h/100°C.

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Selectarc Cu110

Copper Electrode

Classification

AWS A5.6 : ~E Cu
UNS : ~W60189

DIN 1733 : EL-CuMn2
Material N° : 2.1363

Description & Applications

Basic coated electrode for welding different pure copper grades and copper-nickel alloys in some cases too. Also used for dissimilar joints and surfacing. The deposit is free of porosity and gives a tensile strength similar to that of most commercial copper types.

Main applications: Joining of electrical copper electrodes used in furnaces, for joining copper to steel bars in electrically heated drive ways.

Base materials

UNS	DIN	Material N°
C10100	OF-Cu	2.0040
C11000	E-Cu	2.0060
C10300	SE-Cu	2.0070
	SW-Cu	2.0076
C11020	F-Cu	2.0080
C12200	SF-Cu	2.0090

Typical Weld Metal Composition (%)

Mn	Sn	Fe	Cu
1.5	0.8	0.1	Rem.

All Weld Metal Mechanical Properties

R _m (MPa)	A ₅ (%)	Hardness	Electrical conductivity
~200	35	~60 HB	15-20 S*m/mm ²

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x350
Current	(A)	70-90	90-120	110-140

Redrying 2 h at 150 °C. Joints to weld must be clean. Guide electrodes with a slight declination (10-20° inclined in direction of travel). Weld with a short arc. To improve degassing of the deposit, adopt a low welding speed. Material up to 5 mm can be welded without preheating, when using the adopted electrode diameter. Heavier sections have to be preheated up to about 500°C.

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Selectarc Cu114

*Copper Tin Electrode
For AC*

Classification

AWS A5.6 : E CuSn-A
UNS : W60518

DIN 1733 : EL-CuSn7
Material N° : 2.1025

Description & Applications

Basic coated electrode for welding copper tin bronzes (Cu-Sn 6-8%) and bronzes (Cu-Zn) in some cases too. Also used for dissimilar joints. Selectarc Cu114 is recommended for repairing wrought bronzes (Cu-Sn), for surfacing on bronzes, steels and cast iron. The deposit is resistant to salt water corrosion. This electrode is especially designed to weld with alternating current, but it can also be used either on DC + or -.

Main applications: Construction of equipment for the chemical industry and petrochemical industry, naval constructions and installations for sea water desalination, repair works.

Base materials

UNS	DIN	Material N°
C50700	CuSn2	2.1010
C51100	CuSn4	2.1016
C51900	CuSn6	2.1020
C52100	CuSn8	2.1030
	CuSn6Zn	2.1080
C52400	G-CuSn10	2.1050

Typical Weld Metal Composition (%)

Sn	Mn	Fe	P	Cu
6.0	0.8	0.1	0.1	Rem.

All Weld Metal Mechanical Properties

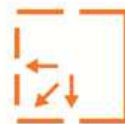
R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	Hardness
120	300	>20	100 HB

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x350
Current	(A)	70-90	90-110	110-130

Redrying 2 h at 150°C. Joints to weld must be clean, exempt from grease, cracks. Guide electrodes with a slight declination (10-20°) inclined in direction of travel). Weld with a short arc. To improve degassing of the deposit, adopt a low welding speed. Heavy pieces (sections above 6 mm) have to be preheated to 150-300°C.

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Selectarc Cu115

*Copper Tin Electrode
For DC*

Classification

AWS A5.6 : E CuSn-C
UNS : W60521

DIN 1733 : EL-CuSn7
Material N° : 2.1025

Description & Applications

Basic coated electrode for welding copper tin bronzes (Cu-Sn 6-8%) and bronzes (Cu-Zn) in some cases too. Also used for dissimilar joints. Selectarc Cu115 is recommended for repairing wrought bronzes (Cu-Sn), for surfacing on bronzes, steels and cast iron. The deposit is resistant to salt water corrosion.

Main applications: Construction of equipment for the chemical industry and petrochemical industry, naval constructions and installations for sea water desalination, repair works.

Base materials

UNS	DIN	Material N°
C50700	CuSn2	2.1010
C51100	CuSn4	2.1016
C51900	CuSn6	2.1020
C52100	CuSn8	2.1030
	CuSn6Zn	2.1080
C52400	G-CuSn10	2.1050

Typical Weld Metal Composition (%)

Sn	Mn	Fe	P	Cu
7.0	0.9	0.15	0.1	Rem.

All Weld Metal Mechanical Properties

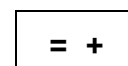
R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	Hardness
120	300	>20	110 HB

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x350
Current	(A)	70-90	90-110	110-130

Redrying 2 h at 150°C. Joints to weld must be clean, exempt from grease, cracks. Guide electrodes with a slight declination (10-20°) inclined in direction of travel). Weld with a short arc. To improve degassing of the deposit, adopt a low welding speed. Heavy pieces (sections above 6 mm) have to be preheated to 150-300°C.

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Selectarc Cu116

*Basic coated Cu-Al
Bronze Electrode*

Classification

AWS A5.6 : ~E CuAl-A2
UNS : W60614

DIN 1733 : EL-CuAl9

Description & Applications

Basic coated electrode for joining and surfacing on aluminium bronzes with up to 10%Al and for dissimilar joints between steels and CuAl-bronzes. Also recommended for overlays on cast iron, steels and copper alloys. Excellent weldability, stable arc, less spatters, easy to remove slag.

Main applications: Ship building, sea water applications, desalination plants, chemical industry, pump parts which are attacked by salt water (propellers, bearings...).

Base materials

UNS	Alloy	DIN	Material N°
C60600		CuAl5	2.0916
C61000		CuAl8	2.0920
C68700	Yorcalbro	CuZn20Al2	2.0460

Typical Weld Metal Composition (%)

Al	Mn	Fe	Cu
8.0	1.0	0.7	Rem.

All Weld Metal Mechanical Properties

R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	Hardness
180	420	>20	180 HB

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x350
Current	(A)	80-100	90-120	120-140

Redrying 2 h at 250°C. Joints to weld must be clean, exempt from grease, cracks. Guide electrodes with a slight declination (10-20°) inclined in direction of travel). Weld with a short arc. To improve degassing of the deposit, adopt a low welding speed. Heavy pieces (sections above 6 mm) have to be preheated to 150-250°C.

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Selectarc Cu118

Complex Aluminium-Bronze Electrode

Classification

AWS A5.6 : E CuMnNiAl
UNS : W60633

DIN 1733 : EL-CuMn14Al
Material N° : 2.1368

Description & Applications

Basic coated manganese bronze electrode (Cu Mn Al Ni Fe) for welding and surfacing on aluminium bronzes and for dissimilar joints between steels and copper alloys. Also recommended for overlays on cast iron, steels and copper alloys. Excellent welding characteristics, stable arc, low spatters, very easy slag removal.

Main applications: Naval constructions, sea water applications and chemical industry (pumps, propellers, ...). Its favourable coefficient of friction makes this electrode ideal to overlay sliding guides.

Base materials

UNS	DIN	Material N°
C62300	CuAl10Fe3Mn2	2.0936
C63000	CuAl10Ni5Fe4	2.0966
	G-CuAl10Fe	2.0940
	CuAl9Mn2	2.0960
	G-CuAl8Mn	2.0962

Typical Weld Metal Composition (%)

Mn	Al	Fe	Ni	Pb	Cu
12.0	6.0	2.2	2.2	0.02	Rem.

All Weld Metal Mechanical Properties

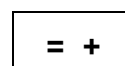
R _{p0.2} (MPa)	R _m (MPa)	A ₅ (%)	Hardness
400	640	>20	200 HB

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x350
Current	(A)	60-80	80-100	90-120

Redrying 2 h at 250°C. Joints to weld must be clean, exempt from grease, cracks. Guide electrodes with a slight declination (10-20°) inclined in direction of travel. Weld with a short arc. To improve degassing of the deposit, adopt a low welding speed. Heavy pieces (sections above 8 mm) have to be preheated to 150-250°C. Hardfacing possible up to 3 layers.

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Selectarc CuNi30

*Copper Nickel
Basic coated Electrode*

Classification

AWS A5.6 : E CuNi
UNS : W60715

DIN 1733 : EL-CuNi30Mn

Description & Applications

Basic coated copper nickel electrode for joining CuNi-alloys with up to 30%Ni and for surfacing the final layer on CuNi70/30 clad steel. The weld metal is resistant against seawater. The electrode can be welded in all positions except vertical down, the slag is easy to remove and the weld beads are regular.

Main applications: In ship building, oil refineries, and desalination plants.

Base materials

UNS	Alloy	DIN	Material N°
C70600	CuNi90/10	CuNi10Fe1Mn	2.0872
C71500	CuNi70/30	CuNi30Mn1Fe	2.0882

Typical Weld Metal Composition (%)

C	Si	Mn	Ni	Fe	Ti	Pb	Cu
<0.03	0.2	1.2	30.0	0.5	0.2	<0.02	Rem.

All Weld Metal Mechanical Properties

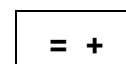
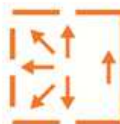
$R_{p0.2}$ (MPa)	R_m (MPa)	A_5 (%)
>240	>380	>30

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x300	3,2x350	4,0x350
Current	(A)	55-75	80-100	110-130

Redrying 2 h at 200-250°C. Joints to weld must be clean, exempt from grease, cracks. Guide electrodes with a slight declination, weld with a short arc and prevent a high heat input by applying the stringer bead technique (weaving max. 2 times core wire diameter). Interpass temperature <150°C. When applied on steel, use Selectarc Ni190 as intermediate layer.

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Selectarc HB25

Surfacing Electrode

Description & Applications

Rutile coated electrode for surfacing of equipment parts, constructions and tools, resistant to medium friction and compression. Good resistance to cavitation, highly resistant to shocks. Sound, crack free deposit, machinable with standard tools.

General applications: Surfacing of rails and switches, roller guides, slideways, build up before hardfacing.

All Weld Metal Mechanical Properties

Hardness

~ 250 HB

Obtained in pour weld metal

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x450	4,0x450	5,0x450
Current	(A)	90	115	160	230

Preheating is not required on mild and medium carbon steels. Low alloyed, high carbon tool steels etc. have to be preheated to 200-400°C, depending on their composition and thickness. Slow cooling in still air after surfacing.

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Selectarc HB300B

*Semi-hard machinable
Surfacing Electrode*

Description & Applications

Basic coated electrode semi-hard, machinable and tough with approx. 120% recovery for surfacing on equipment parts and tools. Resisting to medium friction and compression - highly resistant to shocks - dense deposit and free of cracks. Soft fusion - low spatters - self releasing slag - nice aspect of the beads.

General applications: For heavy build up and as cushion layer on forging die cavities, mandrels, gear teeth, chains, sprockets, punches, blades, drawing dies.

All Weld Metal Mechanical Properties

Hardness

~ 300 HB

Obtained in pour weld metal

Welding Current & Instructions

Electrode	ØxL (mm)	3,2x350	4,0x450	5,0x450
Current	(A)	80-110	110-140	140-180

Redrying 2h at 250°C, if necessary. Preheating is not required on mild and medium carbon steels. Low alloyed, high carbon tool steels etc. have to be preheated to 200-400°C, depending on their composition and thickness. Slow cooling in still air after surfacing.

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Selectarc HB40

Surfacing Electrode

Description & Applications

Rutile coated electrode for surfacing of machine and construction parts, as well as of tools made of low-alloyed and cast steels which are mainly stressed by pressure and shock. Electrodes are easy to weld even on small welding equipment with low open arc voltage. Soft flow, almost no spatters, self releasing slag, nice aspect of the weld beads. Sound, crack free deposit, machinable with carbide cutting tools.

General applications: Surfacing of rollers, gear teeth, stamps, hammers, guide rails etc.

All Weld Metal Mechanical Properties

Hardness

~ 400 HB ; 39-42 HRC

Obtained in pour weld metal

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x450	4,0x450
Current	(A)	90	115	160

Redrying 1h at 150°C, if necessary. Preheating is not required on mild and medium carbon steels. Low alloyed, high carbon tool steels etc. have to be preheated to 250-400°C, depending on their composition and thickness. Slow cooling in still air after surfacing.

ind.13



= - ~ 45V

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Selectarc HB60

Rutile Electrode for hardfacing

Description & Applications

Rutile-basic coated electrode for surfacing of machine and construction parts, as well as of tools made of low-alloyed and cast steels, resistant to medium abrasion, shock and pressure. Air hardening deposit, good compromise between resistance to abrasion and resistance to shock. Electrodes are easy to weld even on small welding equipment with low open arc voltage. Soft flow, almost no spatters, self releasing slag, nice aspect of the weld beads. Sound, crack free deposit, machinable by grinding.

General applications: Hardfacing of moulds, scrapers, buckets and bucket teeth, excavator parts, chisels, conveyer screws, track links, cutting tools, crusher cones.

All Weld Metal Mechanical Properties

Hardness

~ 600 HB ; 55-60 HRC

Obtained in pour weld metal, 2-3 layers

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x450	4,0x450	5,0x450
Current	(A)	90	115	160	230

Redrying 1h at 150°C, if necessary. For substantial build up on highly alloyed steels, like tool steels, a cushion layer with selectarc 29/9 or 18/8Mn is recommended. Low alloyed, high carbon tool steels etc. have to be preheated to 250-400°C, depending on their composition and thickness. Slow cooling in still air after surfacing.

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Selectarc HB40HT

Basic Coated Electrode

For hot working tools

Description & Applications

Basic electrode for hardfacing. The weld deposit distinguishes itself by its toughness and heat resistance. Used for overlay and builds up of machinery parts and tools subject to impact, compression and wear used at operating temperatures up to 550°C.

General applications: For building up dies, rollers, hot shear blades,...

Base materials

High strength carbon steels and hot working steels

Material N°	DIN classification	Material N°	DIN classification
1.2311	40CrMnMo 7	1.2367	X38CrMoV 5 3
1.2343	X38CrMoV 5 1	1.2606	X37CrMoW 5 1
1.2344	X40CrMoV 5 1	1.2713	55NiCrMoV 6
1.2365	X32CrMoV 3 3	1.2714	56NiCrMoV 7

All Weld Metal Mechanical Properties

Hardness (as welded)

38-42 HRC

Obtained in pour weld metal

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x300	3,2x350	4,0x450
Current	(A)	60-90	80-110	100-140

Preheat the workpiece to 250-400°C depending on thickness and alloy. Hold the electrode vertically with a short arc. Keep temperature during welding and let the workpiece cool slowly. Subsequent machining is possible by grinding or with tungsten carbide tools.

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Selectarc HB48HT

Basic Coated Electrode

For hot working tools

Description & Applications

The weld deposit distinguishes itself by its toughness and heat resistance. Therefore the electrode is used for overlay and builds up of machinery parts and tools subject to impact, compression and wear used at operating temperatures up to 550° C. It is widely used for building up hammers, dies, swages, hot shear blades, rollers, ...

Base materials

High strength carbon steels and hot working steels

Material N°	DIN classification	Material N°	DIN classification
1.2311	40CrMnMo 7	1.2367	X38CrMoV 5 3
1.2343	X38CrMoV 5 1	1.2606	X37CrMoW 5 1
1.2344	X40CrMoV 5 1	1.2713	55NiCrMoV 6
1.2365	X32CrMoV 3 3	1.2714	56NiCrMoV 7

All Weld Metal Mechanical Properties

Hardness (as welded)

45-50 HRC

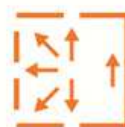
Obtained in pour weld metal

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x300	3,2x350	4,0x450
Current	(A)	60-90	80-110	100-140

Preheat the workpiece to 250-400°C depending on thickness and alloy. Hold the electrode vertically with a short arc. Keep temperature during welding and let the workpiece cool slowly. Subsequent machining is possible by grinding or with tungsten carbide tools.

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Selectarc HB56HT

Basic coated Electrode

For hot working tools

Description & Applications

The weld deposit distinguishes itself by its high hardness, toughness and heat resistance. Therefore the electrode is used for overlay and builds up of machinery parts and tools subject to impact, compression and wear used at operating temperatures up to 550°C.

General applications: For building up hammers, dies, swages, hot shear blades, rollers, extrusion press pistons, valves, etc...

Base materials High strength carbon steels and hot working steels

Material N°	DIN classification	Material N°	DIN classification
1.2311	40CrMnMo 7	1.2367	X38CrMoV 5 3
1.2343	X38CrMoV 5 1	1.2606	X37CrMoW 5 1
1.2344	X40CrMoV 5 1	1.2713	55NiCrMoV 6
1.2365	X32CrMoV 3 3	1.2714	56NiCrMoV 7

All Weld Metal Mechanical Properties

Hardness (as welded)

53-58 HRC

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x300	3,2x350	4,0x450
Current	(A)	60-90	80-110	100-140

Preheat the workpiece to 250-400°C depending on thickness and alloy. Hold the electrode vertically with a short arc. Keep temperature during welding and let the workpiece cool slowly. Subsequent machining is possible by grinding or with tungsten carbide tools.

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Selectarc HB450HT

*Hardfacing Electrode
For metal wear*

Description & Applications

Rutile coated electrode with a martensitic steel deposit containing fine carbides of W, Cr and V. The principal property of the deposit is its resistance to metal/ metal wear up to 550°C. The deposit is only machinable after soft annealing at 750 – 800°C / 4 hours, followed by slow cooling in an oven. In order to obtain a hardness of 50HRC the deposit can be tempered after machining (1100°C/ oil or compressed air). Can be used for reclaiming, a final pass using HB600HT is often recommended. Soft fusion, no spatters, self releasing slag.

General applications: Hardfacing of trimming and blanking dies, of shear blades, of cold and hot working dies of punches, hot shearing knives, forging dies...

All Weld Metal Mechanical Properties

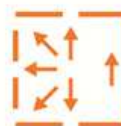
Hardness (as welded)	Soft annealed, 750-800°C	Hardened 1100°C/oil
40-45 HRC	20-25 HRC	50 HRC

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x450
Current	(A)	90	115	160

Redrying, if necessary, 1h/250°C. Low alloyed, high carbon tool steels etc. have to be preheated to 250-450°C, depending on their composition and thickness. Slow cooling in still air after surfacing.

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Selectarc HB600HT

*Hardfacing Electrode
For metal/metal wear*

Description & Applications

Rutile coated electrode with a Cr-Mo-C martensitic steel deposit, resistant to metal / metal wear up to 550°C. For all pieces subject to hot or cold metal abrasion, even in the presence of shocks and pressure. As welded only machinable by grinding. Soft fusion, no spatters, self releasing slag.

General applications: Hardfacing of shear blades, moulds, pressing and forging dies.

All Weld Metal Mechanical Properties

Hardness

58–61 HRC

Obtained in pour weld metal

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x450
Current	(A)	80	110	150

Redrying 1h at 250°C, if necessary. Low alloyed, high carbon tool steels etc. have to be preheated to 250-450°C, depending on their composition and thickness. Slow cooling in still air after surfacing.

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Selectarc HB50Co

Hardfacing Electrode - High Temperatures

Description & Applications

The weld deposit resists against metal to metal wear , corrosion and high temperatures. Therefore the electrode is used for overlay and build up of machinery parts and tools subject to impact, compression and wear, used at operating temperatures up to 650° C. The deposit is resistant to thermal shock and can be machined with tungsten carbide tipped tools. Rutile-basic coated electrode with a stable arc, regular drop transfer and a smooth deposit.

General applications: For building up dies, for hot working tools , for moulds, continuous driving rolls, mandrels, forming tools, ...

Base materials

High strength carbon steels, tool steels and hot working steels

Material N°	DIN classification	Material N°	DIN classification
1.2311	40CrMnMo 7	1.2367	X38CrMoV 5 3
1.2343	X38CrMoV 5 1	1.2606	X37CrMoW 5 1
1.2344	X40CrMoV 5 1	1.2713	55NiCrMoV 6
1.2365	X32CrMoV 3 3	1.2714	56NiCrMoV 7

All Weld Metal Mechanical Properties

Hardness (as welded)

45-50 HRC

After work hardening

Up to 55 HRC

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x300	3,2x350	4,0x450
Current	(A)	60-90	90-120	110-150

Redrying 2h at 300°C, if necessary. Clean weld zone properly. Preheat massive work pieces to 150-400°C, depending on the composition. Hold the electrode vertically with a short arc. Keep temperature during welding and let the work piece cool slowly.

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Selectarc HBMar50

*Basic Coated Electrode
Age-hardenable*

Description & Applications

Basic coated electrode with a stable arc, regular drop transfer and a smooth deposit. The weld deposit resists to metal/metal wear at higher temperatures and can be age-hardened. Therefore the electrode is used for overlay and build up of machinery parts and tools subject to impact, compression and wear used at operating temperatures up to 500°C. The deposit can be machined with standard tools after welding and then age hardened by a subsequent heat treatment.

General applications: For building up dies for extrusion of Al-castings and plastic, for hot working tools, for moulds, ...

Base materials

High strength carbon steels, tool steels and hot working steels

Material N°	DIN classification	Material N°	DIN classification
1.2311	40CrMnMo 7	1.2367	X38CrMoV 5 3
1.2343	X38CrMoV 5 1	1.2606	X37CrMoW 5 1
1.2344	X40CrMoV 5 1	1.2713	55NiCrMoV 6
1.2365	X32CrMoV 3 3	1.2714	56NiCrMoV 7

All Weld Metal Mechanical Properties

Hardness(as welded)
Approx. 33-37 HRC

After age hardening: 3-4h at 480°C
50-54 HRC

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x450
Current	(A)	60-90	90-120	110-140

Clean weld zone properly. Preheat massive work pieces to 100-150°C. Hold the electrode vertically with a short arc. Keep temperature during welding and let the workpiece cool slowly. Subsequent machining is possible with standard tools before applying the age hardening heat treatment.

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Selectarc HBC62

*Hardfacing Electrode
For cutting tools*

Description & Applications

Rutile-basic coated electrode destined to surface all kinds of cutting tools such as lathe and plane tools. The sharpness obtained has an exceptional quality. C-Cr-Mo-W martensitic deposit, resistant up to 500°C. This electrode is also used for surfacing of pieces subject to metal/metal wear. Withstands moderate shock. In the as welded condition only machinable by grinding. For machining by tools, carry out a soft annealing heat treatment at 850°C during 2 hours followed by slow cooling (approx. 3°C/min.) in an oven. In order to re-obtain the hardness, temper the deposit: 1200°C/1h, cooling in oil or with compressed air and annealing 2x500°C.

General applications: Hardfacing of machining tools, cutting tools made of steel, punches, drills, shear blades.

All Weld Metal Mechanical Properties

Hardness

60-63 HRC

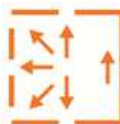
Obtained in pour weld metal, untreated

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x450
Current	(A)	80	110	150

Redrying 1h at 250°C, if necessary. Low alloyed, high carbon tool steels etc. have to be preheated to 250-450°C, depending on their composition and thickness. Slow cooling in still air after surfacing.

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Selectarc HB61B

*Hardfacing Electrode resistant
To impact, compression and abrasion*

Description & Applications

Basic coated general purpose hardfacing electrode for applications subject to impact, compression and abrasive wear. For hardfacing on components made of C-steel, cast steel and Manganese steel. The deposit is tough-hard and crack resistant. Recovery of the electrode approx. 120%.

General applications: Hardfacing of block presses, crusher jaws, wheel rims, rollers, caterpillar tracks, ploughshares, running surfaces, cutting edges, ...

All Weld Metal Mechanical Properties

Hardness

~58 HRC

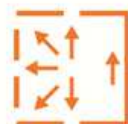
Obtained in pour weld metal

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x450	5,0x450
Current	(A)	60-90	90-120	110-160	170-210

Redrying 2h at 300°C, if necessary. Guide electrode almost vertically with a short arc. On materials sensitive to cracks a buffer-layer with selectarc 18/8Mn is recommended. Low alloyed, high carbon tool steels etc. have to be preheated to 200-400°C, depending on their composition and thickness. Slow cooling in still air after surfacing.

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Selectarc HB61R

*Hardfacing Electrode resistant to
Impact, compression and abrasion*

Description & Applications

Rutile-basic coated general purpose hardfacing electrode for applications subject to impact, compression and abrasive wear. For hardfacing on components made of C-steel, cast steel and Manganese steel. The deposit is tough-hard and crack resistant. Recovery of the electrode approx. 120%.

General applications: Hardfacing of block presses, crusher jaws, wheel rims, rollers, caterpillar tracks, ploughshares, running surfaces, cutting edges etc...

All Weld Metal Mechanical Properties

Hardness

56-60 HRC

Obtained in pour weld metal

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x450
Current	(A)	60-90	90-120	110-160

Redrying, if necessary, 2h/300°C. Guide electrode almost vertically with a short arc. On materials sensitive to cracks a buffer-layer with selectarc 18/8Mn is recommended. Low alloyed, high carbon tool steels etc. have to be preheated to 200-400°C, depending on their composition and thickness. Slow cooling in still air after surfacing.

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Selectarc HMn

Electrode highly Resistant to Impact

Description & Applications

Rutile-basic heavy coated electrode (efficiency ~ 120%), destined to surface all pieces subject to high impact. Sometimes used, instead of selectarc 18/8Mn, for 13% Mn-steel assembling (Hadfield steels). Frequently used as cushion layer before hardfacing in case of heavy reclaiming. Allows to build up and then to apply abrasion resistant final layers, 1 or 2, using HBA or HB63. The deposit is austenitic and is exceptionally resistant to impact and wear combined with impact. The addition of Ni and Cr increases the resistance against cracks and abrasion.

General applications: Repairing of used pieces or preventive protection of new pieces used in railway applications (rails, switches, crossings, tongues) in quarries and mines (crusher jaws, excavator and grab teeth, mill hammers, rock crusher).

Base materials

Austenitic steels with high Mn:

DIN 17145 and 17155 : X110Mn14
AFNOR : Z120M12

All Weld Metal Mechanical Properties

Hardness as welded

200-250 HB

Obtained in pour weld metal

Hardness after work hardening

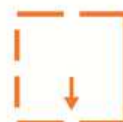
400-500 HB

Welding Current & Instructions

Electrode	ØxL (mm)	3,2x450	4,0x450	5,0x450
Current	(A)	120	150	200

Redrying 1h at 300°C, if necessary. Weld with a minimum heat input (low current, short beads) in order to respect an interpass temperature of 250°C maximum. Do not preheat the piece to weld! When surfacing other steels than 13%Mn types, apply a cushion layer with selectarc 18/8Mn.

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Selectarc HBMnCr

Electrode highly Resistant to Cavitation

Description & Applications

Synthetic basic coated electrode with high efficiency (140%), intended to surface all pieces subject to high impact and cavitation combined with corrosion. Also used for dissimilar joints between Mn- and construction steels and as cushion layer before hardfacing in case of heavy reclaiming. The deposit is austenitic and is exceptionally resistant to impact and wear combined with impact. The high amount of Cr increases the resistance against corrosion, abrasion and cavitation.

General applications: Repairing of used pieces or preventive protection of new pieces used in railway applications (rails, switches, crossings, tongues) in quarries and mines (crusher jaws, excavator and grab teeth, mill hammers, rock crusher) for hydro power stations and other industries (pistons of hydraulic presses, turbines).

Base materials

Austenitic steels with high Mn:

DIN 17145 and 17155 : X110Mn14

AFNOR : Z120M12

All Weld Metal Mechanical Properties

Hardness as welded

~ 260 HB

Obtained in pour weld metal

Hardness after work hardening

400-500 HB

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x450	5,0x450
Current	(A)	90	130	160	220

Redrying 1h at 300°C, if necessary. Weld with a minimum heat input (low current, short beads) in order to respect an interpass temperature of 250°C maximum. Do not preheat the piece to weld!

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Selectarc HB13MnB

Electrode highly resistant to Impact

Description & Applications

Basic coated electrode, suitable to surface all pieces subject to high impact. Mainly used to repair defects in foundries and as cushion layer before hardfacing in case of heavy reclaiming. The deposit is austenitic and is exceptionally resistant to impact and wear combined with impact. Due to the special basic coating the weld pool is open and therefore this electrode is well adapted to weld in deep groves or holes.

General applications: Repairing of used pieces or preventive protection of new pieces used in railway applications (rails, switches, crossings, tongues) in quarries and mines (crusher jaws, excavator and grab teeth, mill hammers, rock crusher).

Base materials

Austenitic steels with high Mn:

X120Mn12	1.3401
X110Mn14	1.3402
GX120Mn12	1.3403
AFNOR	Z120M12

All Weld Metal Mechanical Properties

Hardness as welded

~ 230 HB

Obtained in pour weld metal

Hardness after work hardening

400-500 HB

Welding Current & Instructions

Electrode	ØxL (mm)	3,2x350	4,0x450	5,0x450
Current	(A)	130	160	200

Redrying 1h at 300°C, if necessary. Weld with a minimum heat input (low current, short beads) in order to respect an interpass temperature of 200°C maximum. Do not preheat the piece to weld! When surfacing other steels than 13%Mn types, apply a cushion layer with Selectarc 18/8Mn.

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Selectarc HB14Mn

Electrode highly Resistant to Impact

Description & Applications

Rutile-basic coated electrode, suitable to surface all pieces subject to high impact. Sometimes used, instead of selectarc 18/8Mn, for 13% Mn-steel assembling (Hadfield steels). Frequently used as cushion layer before hardfacing in case of heavy reclaiming. Allows to build up and then to apply abrasion resistant final layers, 1 or 2, using HBA or HB63. The deposit is austenitic and is exceptionally resistant to impact and wear combined with impact. The addition of Ni and Cr increases the resistance against cracks and abrasion.

General applications: Repairing of used pieces or preventive protection of new pieces used in railway applications (rails, switches, crossings, tongues) in quarries and mines (crusher jaws, excavator and grab teeth, mill hammers, rock crusher).

Base materials

Austenitic steels with high Mn:

DIN 17145 and 17155 : X110Mn14
AFNOR : Z120M12

All Weld Metal Mechanical Properties

Hardness as welded	Hardness after work hardening
200-250 HB	400-500 HB
Obtained in pour weld metal	

Welding Current & Instructions

Electrode	ØxL (mm)	3,2x450	4,0x450	5,0x450
Current	(A)	120	160	200

Redrying 1h at 300°C, if necessary. Weld with a minimum heat input (low current, short beads) in order to respect an interpass temperature of 250°C maximum. Do not preheat the piece to weld! When surfacing other steels than 13%Mn types, apply a cushion layer with selectarc 18/8Mn.

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Selectarc HB Cavit

Electrode highly Resistant to Cavitation

Description & Applications

Synthetic basic coated electrode with high efficiency (160%), destined to surface all pieces subject to high impact, erosion and cavitation. Also used as cushion layer before hardfacing in case of heavy reclaiming. The deposit is austenitic and is exceptionally resistant to impact and wear. The high amount of Cr highly increases the resistance to corrosion.

General applications: Repairing of used pieces or protection of new pieces in hydro power stations, pistons of hydraulic presses, different types of turbines, valves, ...)

Base materials **Austenitic steels with high Mn , martensitic stainless steels:**

DIN 17145 and 17155 : X110Mn14
X4CrNi 13 4 1.4313 ; G-X5CrNiMo 13 4 1.4407

All Weld Metal Mechanical Properties

Hardness as welded	Hardness after work hardening
200-250 HB	400-500 HB
Obtained in pour weld metal	

Welding Current & Instructions

Electrode	ØxL (mm)	3,2x350	4,0x450
Current	(A)	110-130	130-160

Redrying 1h at 300°C, if necessary. Guide electrodes with a slight declination, weld with a short arc and prevent a high heat input in order to respect an interpass temperature of 250°C maximum. Do not preheat the piece to weld up to more than 100°C. Heat treatment depends on the base metal.

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Selectarc HB63

High efficiency Electrode for hardfacing

Description & Applications

Synthetic rutile coated hardfacing electrode with high recovery (160%). For applications subject to abrasive wear by minerals, combined with medium impact and compression. Austenitic matrix containing Cr carbides. The deposit resists to corrosion due to the high chromium content as well as heat up to 200°C. Easy flow, smooth bead surface, self releasing slag. Surfacing in 1 - 2 or eventual 3 layers for all pieces subject to high abrasion combined with a good resistance to shocks. Only machinable by grinding.

General applications: For excavating and crashing equipment, surfacing of endless screws, mixer blades, pump bodies for abrasive materials, excavator teeth, crashing installations for minerals, concrete pumps, ores crushing, ploughshares, lumps break, screw presses for bricks

All Weld Metal Mechanical Properties

Hardness 1st layer
~ 58 HRC

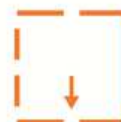
Hardness all weld metal
~ 60 HRC

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x450	5,0x450
Current	(A)	90	130	160	210

Redrying 1h at 250°C, if necessary. Guide electrode almost vertically with a short arc. In case of hardfacing high alloyed steels like stainless steels, it is recommended to apply a cushion layer with selectarc 29/9 or 18/8Mn.

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Selectarc HB63S

*Coated Electrode for
Surfacing in sugar mills*

Description & Applications

Basic coated, globular spray transfer hardfacing electrode, with a high alloy content of elements which form carbides. Therefore especially used for hard facing of parts subject to high abrasion, friction and corrosion. The electrode is easy to weld, has a smooth drop transfer and only a negligible slag content, easy re-striking even on wet pieces. Recovery approx. 210%.

General applications: Especially designed for claddings in sugar mills, roughing or arcing of mill rollers for better gripping etc.

All Weld Metal Mechanical Properties

Hardness
~61 HRC

Welding Current & Instructions

Electrode	ØxL (mm)	3,2x350	4,0x450	5,0x450
Current	(A)	120-150	170-210	220-260

Hold a short arc and the electrode almost vertical. Select lowest amperage possible to keep dilution low and weave only slightly.

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Selectarc HBA

Hardfacing Electrode High Cr-carbides

Description & Applications

Basic coated, slag free, hardfacing electrode with high recovery (190%). Highly resistant to abrasion due to its high content of Cr and C. The service life of surfaced pieces is up to 50 times longer than for conventional electrodes of similar hardness. Austenitic matrix containing Cr carbides. Deposit 1 or 2 layers maximum. Resists to heavy mineral abrasion and moderate impact. Only machinable by grinding. Regular drop transfer, no slag, smooth beads. The formation of cracks in the weld deposit is normal for this type of composition. For all pieces subject to low or moderate impact where an important resistance to abrasion is searched.

General applications: For endless screws, mixer paddles, pump bodies for abrasive materials, excavator teeth, crashing of mineral materials, concrete pumps, screws for brick presses, wear plates.

All Weld Metal Mechanical Properties

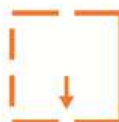
Hardness (in the 2nd layer)
60-63 HRC

Welding Current & Instructions

Electrode	ØxL (mm)	3,2x350	4,0x350	5,0x450
Current	(A)	140	200	250

Redrying 1h at 250°C, if necessary. Guide electrode almost vertically with a short arc. In case of hardfacing high alloyed steels like tool steels, it is recommended to apply a cushion layer with selectarc 29/9 or 18/8Mn and to preheat the pieces to surface at 200-400°C-depending on the material and thickness, followed by slow cooling.

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Selectarc HB64S

*Coated Electrode for Surfacing
In sugar mills*

Description & Applications

Electrodes with a high alloy content of elements which form carbides. Therefore especially used for hard facing of parts subject to high abrasion, friction and corrosion. The electrode is easy to weld, has a smooth drop transfer and only a negligible slag content, easy re-striking even on wet pieces. Recovery approx. 200%.

General applications: Especially designed for claddings in sugar mills, roughing or arcing of mill rollers for better gripping etc.

All Weld Metal Mechanical Properties

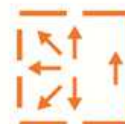
Hardness
~ 61 HRC

Welding Current & Instructions

Electrode	ØxL (mm)	3,2x350	4,0x450	5,0x450
Current	(A)	120-150	170-210	220-260

Hold a short arc and the electrode almost vertical. Select lowest amperage possible to keep dilution low and weave only slightly.

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Selectarc HB65

*Coated Electrode for
Protection against high abrasion*

Description & Applications

Electrodes with a high alloy content of elements which form carbides. Therefore especially used for hardfacing of parts subject to high abrasion, friction, heat at operation temperatures up to 450°C and corrosion. The electrode is easy to weld, has a smooth drop transfer and only a negligible slag content. Recovery approx. 190%.

General applications: Ash plows, coke crusher segments, screw conveyers, valves, exhaust fans, agitator fingers, mill guides, mixer paddles, rake teeth in furnaces, tong bits, slag ladles, elevator bucket-tips etc.

All Weld Metal Mechanical Properties

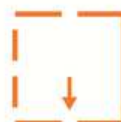
Hardness
~ 64HRC

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x450	5,0x450
Current	(A)	90 - 110	130-150	140-190	190-250

Hold a short arc and the electrode almost vertical. Select lowest amperage possible to keep dilution low and weave only slightly.

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Selectarc HB66

*Coated Electrode for
Protection against high abrasion*

Description & Applications

Electrodes with a high alloy content of elements which form carbides. Therefore especially used for hardfacing of parts subject to high abrasion, friction, heat at operation temperatures up to 550°C and corrosion. The electrode is easy to weld, has a smooth drop transfer and only a negligible slag content. Recovery approx. 200%.

General applications: Ash plows, coke crusher segments, screw conveyers, valves, exhaust fans, agitator fingers, mill guides, mixer paddles, rake teeth in furnaces, tong bits, slag ladles, elevator bucket-tips.

All Weld Metal Mechanical Properties

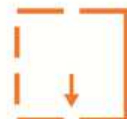
Hardness
~65 HRC

Welding Current & Instructions

Electrode	ØxL (mm)	3,2x350	4,0x450	5,0x450
Current	(A)	110-140	140-190	190-250

Hold a short arc and the electrode almost vertical. Select lowest amperage possible to keep dilution low and weave only slightly.

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Selectarc HB68

*Coated Electrode for
Hardfacing against high abrasion*

Description & Applications

Heavy coated electrode with a high alloy content of elements which form carbides. Therefore especially used for hardfacing of parts subject to high abrasion, moderate impact and temperature. The electrode is easy to weld, has a smooth drop transfer, only a negligible slag content and easy re-striking. Recovery approx. 240%.

General applications: For use in steel mills, on crushers, conveyor screws, dredger parts, sieves.

All Weld Metal Mechanical Properties

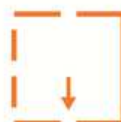
Hardness	Hot Hardness
~ 64 HRC on the 1 st layer	400°C: ~57 HRC 600°C: ~ 55HRC

Welding Current & Instructions

Electrode	ØxL (mm)	3,2x350	4,0x350
Current	(A)	130-150	160-190

Hold a short arc and the electrode almost vertical. Select lowest amperage possible to keep dilution low and weave only slightly.

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Selectarc HB68Nb

*Hardfacing Electrode
Against high mineral abrasion*

Description & Applications

Basic coated, almost slag free, hardfacing electrode with high recovery (230%). Highly resistant to abrasion due to its high content of Cr and other Carbide forming elements. The service life of surfaced pieces is up to 5 times longer than for conventional Chrome-Carbide electrodes. For hard-facing apply one or maximum two layers. Resists to heavy mineral abrasion and moderate impact. Only machining by grinding. Regular top transfer, no slag, smooth beads. The formation of cracks in the weld deposit is normal for this type of composition. For all pieces subject to low or moderate shock where an important resistance to abrasion is searched.

General applications: For endless screws, mixer paddles, pump bodies for abrasive materials, excavator teeth, concrete pumps, screws for brick presses, brick moulds, pressing dies.

All Weld Metal Mechanical Properties

Hardness

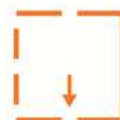
~64 HRC obtained in 1st layer

Welding Current & Instructions

Electrode	ØxL (mm)	3,2x350	4,0x450	5,0x450
Current	(A)	140	180	220

Redrying 1h at 250°C, if necessary. Hold a short arc and guide the electrode steep, only with a slight inclination against the vertical. Select low amperage giving still a stable arc and weave only slightly to keep the dilution with the base material low and to get a high hardness already in the first layer.

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= + ~ 70V

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HBC63

*Hardfacing Electrode
For cutting tools*

Description & Applications

High recovery- 140% Rutile-basic coated electrode destined to surface all kinds of cutting tools such as lathe and plane tools. The sharpness obtained has an exceptional quality. Martensitic deposit, alloyed with C-Cr-W-Mo-Co, resistant up to 550°C. This electrode is also used for surfacing of pieces subject to metal/metal wear. Withstands moderate shock. In the as welded condition only machinable by grinding.

Special applications: Hardfacing of cutting tools for tire recycling, shear blades made of steel, punches, drills.

All Weld Metal Mechanical Properties

Hardness

61-65 HRC

Obtained in pour weld metal, untreated

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x450
Current	(A)	90	120	150

Redrying 1h at 250°C, if necessary. Low alloyed, high carbon tool steels etc. have to be preheated to 250-450°C, depending on their composition and thickness. Slow cooling in still air after surfacing.

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~ 50V

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Selectarc Co1

*"Grade 1" type cobalt base
Hardfacing Electrode*

Description & Applications

Hardfacing electrode with a rutile-basic coating. Cobalt based deposit of « stellite grade 1 » type (Co-Cr-W). Hardest Selectarc Co-type (superior to all other types of stellite). Very good resistance to metal-metal wear and to corrosion up to 800°C. Coefficient of friction very low. Highly resistant to erosion and cavitation.

General applications: Hardfacing of rollers, rails, bearing and shafts of pumps, extrusion nozzles, hot cutting tools, conveyor screws.

* Note : "Stellite" is a trade mark of Deloro Stellite (Haynes International)

All Weld Metal Mechanical Properties

Hardness (as welded) +20°C
53-57 HRC

Hardness (as welded) +600°C
42-45 HRC

Welding Current & Instructions

Electrode	ØxL (mm)	3.2x350	4,0x350	5,0x450
Current	(A)	100	140	180

Redrying 1h at 250°C, if necessary. Preheat massive pieces 250-400°C. Use a low welding current in order to limit the dilution with the base metal and to achieve the hardness of this alloy. Cool down slowly in order to limit the risks of cracks in the deposit. Weld eventual cushion layers with Selectarc 307R or 29/9.

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Selectarc Co6

*"Grade 6" type cobalt base
Hardfacing Electrode*

Description & Applications

Hardfacing electrode with a rutile-basic coating. Cobalt base deposit of « stellite grade 6 » type (Co-Cr-W). The deposit is highly resistant to metal-metal wear and to corrosion up to 800°C. High resistance to thermal and mechanical shocks. Good aptitude to polishing and to machining. Soft arc, easy to remove slag, regular and smooth weld profile.

General applications: Hardfacing of valves, valve seats and sealing surfaces, hot shear blades, hot pressing tools, beaters for coke pulverises.

* Note : "Stellite" is a trade mark of Deloro Stellite (Haynes International).

All Weld Metal Mechanical Properties

Hardness (as welded) +20°C

40-45 HRC

Hardness (as welded) +600°C

~30 HRC

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x300	3,2x350	4,0x350	5,0x450
Current	(A)	75	100	140	180

Redrying 1h at 250°C, if necessary. Preheat massive pieces 250-400°C. Keep the dilution with the parent metal low and cool down slowly to reduce the risk of cracking while cooling. Weld eventual cushion layer with Selectarc 18/8 Mn.

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Selectarc Co12

*"Grade 12" type cobalt base
Hardfacing Electrode*

Description & Applications

Hardfacing electrode with a rutile-basic coating. Cobalt base deposit of « stellite grade 12 » type (Co-Cr-W). The deposit with a high hardness is characterised by a very good resistance to metal and mineral abrasion combined with corrosion and high temperature up to 800°C, in the presence of moderate shocks. Highly resistant to erosion and cavitation. Highly recommended when an important hardness is searched and for a deposit stressed by temperature, corrosion, abrasion and impact. Excellent welding characteristics.

General application: Hardfacing of tools for processing plastics, for wood and paper (carton and paper cutting) characteristics, pressing tools, hot cut tools, hot shear blades, extrusion screws, ...

* Note : "Stellite" is a trade mark of Deloro Stellite (Haynes International).

All Weld Metal Mechanical Properties

Hardness (as welded) +20°C
~ 50 HRC

Hardness (as welded) +600°C
38-40 HRC

Welding Current & Instructions

Electrode	ØxL (mm)	3,2x350	4,0x350	5,0x450
Current	(A)	100	140	180

Redrying 1h at 250°C, if necessary. Preheat massive pieces 250-400°C. Use a low current in order to limit the dilution with the base metal and to conserve the hardness of this alloy. Cool down slowly in order to limit the risk of cracks in the deposit. Weld eventual cushion layers with Selectarc 307R.

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Selectarc Co21S

*Cobalt base Hardfacing
Electrode "Grade 21" type*

Description & Applications

Hardfacing electrode with a rutile-basic coating. Cobalt base deposit of « stellite grade 21 » type (Co-Cr-Mo-Ni). Deposit characterised by a good metal-metal wear and oxidation resistance up to 1000°C, even in presence of sulphurous atmosphere. Good behaviour to important thermal and mechanical shocks, excellent resistance to cracks, highly resistant to cavitation and erosion, deposit non-magnetic.

General applications: Surfacing of motor valves, gas turbine blades, extrusion nozzles, forging dies, forging tools, mixers, valves for gas/water/vapour/acids.

* Note : "Stellite" is a trade mark of Deloro Stellite (Haynes International).

All Weld Metal Mechanical Properties

Hardness (as welded) +20°C
32-38 HRC

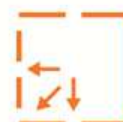
Hardness (as welded) +600°C
250-300 HB

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x350
Current	(A)	75	100	140

Redrying 1h at 250°C, if necessary. Preheat massive pieces 250-400°C. Keep this temperature during welding, cool down slowly to reduce the risk of cracks while cooling. Weld eventual cushion layers with Selectarc B90.

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Selectarc Co21HR

*Cobalt base Hardfacing
High recovery Electrode*

Description & Applications

Hardfacing electrode with a rutile-basic high recovery coating (150%). Cobalt base deposit of «grade 21» type (Co-Cr-Mo-Ni). The deposit is characterised by a good metal-metal wear up to 1000°C, even in presence of sulphurous atmosphere. Good behaviour to important thermal and mechanical shocks, excellent resistance to cracks, highly resistant to cavitation and erosion, non magnetic deposit.

General applications: Surfacing of motor valves, gas turbine blades, extrusion nozzles, forging dies, forging tools, mixers, and valves for gas/water/vapour/acids.

All Weld Metal Mechanical Properties

Hardness (as welded) at +20°C
30-35 HRC

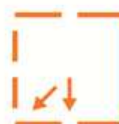
Hardness (as welded) at +600°C
~ 250 HB

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x450	4,0x450
Current	(A)	90	130	160

Redrying 1h at 250°C, if necessary. Preheating of massive pieces at 300°C. Limit heat input and cool slowly. Eventual cushion layers with Selectarc B92Co.

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~70V

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Selectarc Co25

*Cobalt base Hardfacing
Electrode "Grade25" type*

Description & Applications

Surfacing electrode with a rutile-basic coating. Cobalt base deposit of « grade 25 » type (Co-Cr-W-Ni). Deposit characterised by a good resistance to metal-metal wear and oxidation resistant up to 1000°C. Good behaviour to important thermal and mechanical shocks. Excellent resistance to cracks, highly resistant to cavitation and erosion, deposit non-magnetic.

General applications : Surfacing of motor valves, gas turbine blades, extrusion nozzles, forging dies, forging tools.

All Weld Metal Mechanical Properties

Hardness (as welded) +20°C
~ 230 HB

Hardness at +600°C
~300 HB

Welding Current & Instructions

Electrode	ØxL (mm)	3,2x350	4,0x350
Current	(A)	100	140

Redrying 1h at 250°C, if necessary. Preheat massive pieces 250-400°C. Keep this temperature during welding, cool down slowly after welding to reduce the risk of cracking while cooling.

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= + ~ 70V

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Selectarc B92

*Alloy C type Electrode
For surfacing*

Description & Applications

Special surfacing electrode with 170% recovery and a deposit composition of alloy C (Ni-Cr-Mo) Rutile-basic coating with outstanding welding characteristics. Deposit resists to corrosion in presence of chloride acid (up to 160°C) and in general to all type of oxidation. Deposit work-hardens under impact and is machinable. B92 is destined in general to surface all pieces subject to mechanical stress combined with corrosion and/or high temperatures (from 400-750°C). Also used for pieces subject to high thermal shocks.

General applications: Surfacing of hot working tools as hot shear blades, deburring tools, swages, dies, press tools as well as pump parts, installations for chlorisation, valves and reservoirs.

All Weld Metal Mechanical Properties

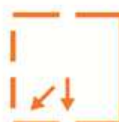
Hardness (as welded)	Hardness (work-hardened)
~250 HB	350-400 HB

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x350
Current	(A)	75	110	135

Pieces to surface must be clean. When there is a build up of important thickness, carry out a cushion layer with Selectarc B90 electrodes. Preheat massive parts at 300 to 500°C following their composition and keep the temperature during welding. Then, slow cooling.

ind.13



= + ~ 70V

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Selectarc B92Co

*Hardfacing Electrode
Thermal shock resistant*

Description & Applications

Special hardfacing electrode with 170% recovery and a deposit composition of alloy C (Ni-Cr-Mo) + Co. Rutile-basic coating with outstanding welding characteristics. Deposit resists against corrosion, scaling, oxidation and thermal shocks. It is machinable. Selectarc B92Co is used to surface parts subject to compression, corrosion, high temperatures (400-800°C) as well as thermal shocks. This electrode has a higher hot strength and is more resistant against thermal shocks and metallic abrasion compared to Selectarc B92.

General applications: Surfacing of hot working tools, as hot shear blades, deburring tools, swages, forging saddles, forging and hot trimming dies, press tools as well as pump parts.

All Weld Metal Mechanical Properties

Hardness (as welded)	Hardness (work-hardened)
~250 HB	350-400 HB

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x350
Current	(A)	75	110	135

For heavier overlays use only for the last two cover passes. For intermediate layers use Selectarc B90 electrodes. Keep amperage low, preheat heavy workpieces to 300-500° C. Guide electrodes steep, keep arc short, and prevent acceseive weaving. Workpiece should be kept at temperature during surfacing and then cooled down slowly.

ind.13



= +	~ 70V
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Selectarc HB95CoB

*Hardfacing Electrode
For hot forging*

Description & Applications

Special basic coated hardfacing electrode with 150% recovery and a deposit composition of alloy UD520. Deposit resists corrosion, scaling, oxidation and thermal shocks. It offers a high temperature strength and is machinable. Selectarc HB95CoB is used to surface parts subject to metal-metal wear at high temperatures, combined with heavy impacts, compression, as well as thermal shocks.

General applications: Surfacing of dies, hot working dies, swages, press tools as well as hot rolls.

All Weld Metal Mechanical Properties

Hardness (as welded)
~220 HB

Hardness (work-hardened)
~350 HB

Welding Current & Instructions

Electrode	ØxL (mm)	2,5x350	3,2x350	4,0x350
Current	(A)	90	120	150

For heavier overlays use HB95CoB only for the last three cover passes. For intermediate and build up layers use Selectarc Ni82 and B92Co. Keep amperage low, preheat heavy work-pieces to 300-500°C. Guide electrodes steep, keep arc short, prevent excessive weaving. Work-piece should be kept at temperature during surfacing and then cooled down slowly. Do not overheat the electrode weld with the lowest practical amperage.

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Selectarc HB96

*Hardfacing Electrode
Ni-base against abrasion*

Description & Applications

Special hardfacing electrode with 250% recovery and a Ni-base matrix containing complex carbides of Cr, Mo, Nb, W. Basic coating for AC and DC welding, which produces only a small amount of slag. Deposit resists abrasion, scaling and oxidation and can only be machined by grinding. Selectarc HB96 is used to surface parts, subject to abrasion and temperatures up to 1000°C.

General applications: Crushers of agglomerates, sieves, pellet presses.

All Weld Metal Mechanical Properties

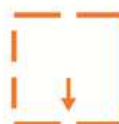
Hardness
~59 HRC

Welding Current & Instructions

Electrode	ØxL (mm)	3,2x350	4,0x350
Current	(A)	140-170	190-220

For heavier overlays use only for the last two cover passes. For intermediate layers use Selectarc B90. Use sufficient amperage; preheat bigger work pieces to 200-400°C. Guide electrodes steep, keep arc short, and prevent excessive weaving. Work piece should be kept at temperature during surfacing and cooled down slowly.

ind.13



= + ~ 70V

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Selectarc HRT60

*Tubular Electrode
For hardfacing
(mineral abrasion)*

Description & Applications

Tubular electrode filled with chromium carbide powder. Deposit highly resistant to abrasion and mineral erosion. High amount of Cr carbides in an austenitic matrix, very compact. To consume with very low current. Agreeable melting. No slag. Deposit not machinable. Possibility to increase deposition by introducing a second electrode in the arc (double the recommended current). Surfacing of all austenitic and Mn steels types, grey cast iron (without any preheating), tool steels or high alloyed steels (in this case, carry out a cushion layer with Selectarc 29/9 or 18/8Mn electrodes).

General applications: For agriculture, cement industries, quarries, brickyards, civil engineering, for screws of brick press, for excavating jars,...

All Weld Metal Mechanical Properties

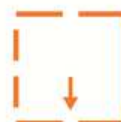
Hardness (1 st layer)	Hardness (2 nd layer)
55-60 HRC	58-62 HRC

Welding Current & Instructions

Electrode	ØxL (mm)	6x450	8x450	12x450
Current	(A)	80-120	120-180	210-250

Maintain an arc length of 2 to 5mm, weave with the electrodes. Hold the electrode perpendicularly to the surface. Do not apply more than 2 or 3 layers.

ind.13



= + ~ 45V

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Selectarc HRT63

*Tubular Electrode
For Hardfacing
(abrasion + impact)*

Description & Applications

Tubular electrode filled with metal powders (carbides of Cr and Nb). This electrode produces a deposit characterised by an exceptional hardness and resistance to abrasion, combined with moderate impact. Higher resistant than conventional electrodes (because of the low dilution with the base metal). Deposit essentially composed of complex carbides of Cr and Nb, in an austenitic matrix. Good resistance to mineral abrasion and impact due to the very fine presence of Nb carbides. Rust proof deposit resists to temperature up to 300°C. Use with low current. No slag, only machinable by grinding, possibility to increase the deposition rate by introducing a second electrode in the arc (in this case, double the recommended current). Surfacing of C steels, of grey cast iron without buffer layer, alloyed steels and tool steels (in this case, carry out a cushion layer with Selectarc 29/9 or 18/8Mn electrodes).

General applications: For civil engineering, cement industries, agriculture for press screws, mixing blades, jars teeth and blades, jars teeth and blades, scrapers, crushing hammers, sieving gates, excavator teeth...

All Weld Metal Mechanical Properties

Hardness (1st layer)
57-60 HRC

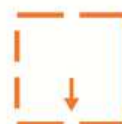
Hardness (2nd layer)
60-64 HRC

Welding Current & Instructions

Electrode	ØxL (mm)	6x450	8x450	12x450
Current	(A)	80-120	120-180	210-250

Maintain an arc length of 2 to 5 mm, weave with the electrodes. Hold the electrode perpendicularly to the surface. Do not apply more than 2 or 3 layers.

ind.13



= + ~ 45V

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Selectarc HRT68

*Tubular Electrode
Against extreme abrasion*

Description & Applications

Tubular electrode filled with W and Cr carbides. Deposit highly resistant to abrasion without impact (or moderate shocks). Essentially composed of W carbides (exceptional resistance to abrasion). Stainless matrix, excellent friction coefficient, agreeable melting, no slag, deposit not machinable. Possibility to increase the deposition rate by introducing a second electrode in the arc (double the recommended intensity). Surfacing of all austenitic steels, cast iron, tool steels or highly alloyed steels (in this case, carry out a cushion layer with Selectarc 29/9 or 18/8Mn electrodes). Mainly destined to pieces subject to a high mineral abrasion and to temperature up to 300°C.

General applications: Material of civil engineering, agriculture, quarries, mines, (mixer, blade, conveyer screws, ...)

All Weld Metal Mechanical Properties

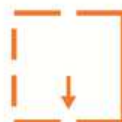
Hardness
64-68 HRC

Welding Current & Instructions

Electrode	ØxL (mm)	6x450	8x450	12x450
Current	(A)	80-120	120-180	210-250

Maintain an arc length of 2 to 5mm, weave with the electrodes. Hold the electrode perpendicularly to the surface. Do not apply more than 2 or 3 layers.

ind.13



= + ~ 45V

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Selectarc G330

Universal maintenance

Description & Applications

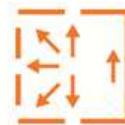
Multipurpose high strength ferrite-austenitic electrode for repair welding on alloy and high alloy-steels, tool steels, stainless steels and dissimilar assemblies. Used for dies, mould, press tools, crane booms, shafts, gears, rails armour plates buckets ect.

All Weld Metal Mechanical Properties

R_m (MPa)	R_e (MPa)	A_5 (%)
800	550	250

Welding Current & Instructions

Electrode	ØxL (mm)	2,0x300	2,5x300	3,2x350	4,0x350
Current	(A)	50	80	110	140



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ind.12



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Selectarc DCS

Chamfering Electrode

Classification

Without

Description & Applications

Electrode for chamfering, grooving and gouging all metals, including stainless steels, cast iron and Cu alloys. Strong blowing characteristic to remove metal with high efficiency, smooth and uniform cut. Surface carbonised, therefore remove 0,1 mm by grinding if necessary.

Elimination of screws, rivets, welding beads, ...

Chamfering of foundry defects or cracks before repair welding.

Chamfering of hardfacing deposits or tempered steels.

Welding Current & Instructions

Electrode	ØxL (mm)	2,5X350	3,2X350	4,0X450	5,0X450
Current	(A)	130	200	250	300

Select the amperage depending on the diameter of the electrode. Hold the electrode at an angle of approx. 20°, push in direction of travel using a saw like (forward and back) motion. Incline the workpiece, if possible, to favour the molten metal to flow away.

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= +

~ 45V

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Selectarc CUT 100

Cutting Electrode

Classification

Without

Description & Applications

Electrode for cutting, bevelling and piercing of all industrial metals and alloys including stainless steels, cast iron and Cu alloys. Strong blowing characteristic to remove metal with high efficiency. Smooth and uniform cut. The surface will carbonise, remove 0,1mm by grinding if necessary.

Piercing of holes, elimination of screws, ...

Welding Current & Instructions

Electrode	ØxL (mm)	3,2x450	4,0x450
Current	(A)	130-180	170-230

Position work piece that the molten metal can run off. Select the electrode diameter according to the metal thickness, e.g. 3,2mm for base metal 5mm. Put electrode into the holder, set sufficient amperage and press slightly against parent metal. To proceed use an up and down moving motion. For piercing holes, strike the arc and push in and out until the arc burns through and the hole is finished.

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Selectarc Goug

Chamfering Electrode

Classification

Without

Description & Applications

Electrode for chamfering, grooving and gouging all metals, including stainless steels, cast iron and Cu alloys. Strong blowing characteristic to remove metal with high efficiency, smooth and uniform cut. Non-conductive coating. Surface becomes carbonised, therefore remove 0,1 mm by grinding if necessary.

Elimination of screws, rivets, welding beads, ...
Chamfering of foundry defects or cracks before repair welding.
Chamfering of hardfacing deposits or tempered steels.

Welding Current & Instructions

Electrode	ØxL (mm)	3,2x350	4,0x450
Current	(A)	200	250

Select the amperage depending on the diameter of the electrode. Hold the electrode at an angle of approx. 20°, push in direction of travel using a saw like (forward and back) motion. Incline the workpiece, if possible, to favour the molten metal to flow away.

ind.13



= + ~ 55V

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Selectarc Therm 200

Preheating Electrode

Classification

Without

Description & Applications

Special coated electrode for heating up pieces of small and medium sizes. The electrode will heat up the pieces and the deposit is easy to remove by using a steel brush.

Welding Current & Instructions

Electrode	ØxL (mm)	3,2x450
Current	(A)	100-150

Set a relatively high amperage, ignite the electrode, start the arc and draw him long ~20-25mm. The electrode will melt and the arc energy will heat up the piece. Remove the deposit with a steel brush.

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Selectarc B-Fonte

Cast Iron Rod
For hot Welding

Classification

DIN 8573 : G FeC-1

ISO 1071 : R C FeC-1

Description & Applications

Welding rod for oxy- acetylene hot welding of grey cast iron. The deposit shows the same colour and structure as grey cast iron.

Mainly used to weld defects in foundries.

Base materials

Cast iron:

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

Typical Composition (%)

C	Si	Mn	Ni	Cu	Fe
3.3	3.2	0.5	0.5	0.1	Rem.

All Weld Metal Mechanical Properties

Hardness
~185 HB
After PWHT

Welding Instructions

Electrode	ØxL (mm)	4,0x450	5,0x450	6,0x450	8,0x450	10,0x450
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Prepare the casting defect to be repaired, preheat the piece to 550-650°C, keep this temperature during welding, cool slowly down preferable in a furnace. Use a neutral flame and a corresponding flux.

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