

WELDERS TO THE NATION SINCE 1951



(Formerly Advani-Oerlikon Ltd.)



Welding Electrodes



I N D E X

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Mild Steel Electrode for General Purpose Welding

CLASSIFICATION :	AWS A/ SFA 5.1	IS 814	APPROVALS :
	E 6013	ER 4212X	ABS/BV/DNV/IRS/LRA/IBR/BIS/NKK/MND

KEY FEATURES :

- Rutile coated
- Suitable for general purpose structural steels
- All position operating characteristics
- X-ray quality weld deposit

WELDING POSITION :



AC (50 OCVmin.)/ DCEN

TYPICAL APPLICATIONS :

- Steel structures
- Tanks
- Truck frames and bodies
- Ships, Pipelines
- Bridges
- Joining ASTM SA 283 Gr.A/B/C/D

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	S	P
Typical	0.07	0.5	0.2	0.02	0.02
Specification	0.10 max	0.60 max	0.30 max.	0.03 max.	0.03 max.

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS, MPa	EL%	CVN Impact at 0°C, J
Typical	As Welded	500	430	25	60
Specification		460-550	370-480	22-28	50 min.

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
2.5 x 350	60-90	296	4	17
3.15 x 350	100-130	171	4	29
3.15 x 450	100-130	139	4	36
4.0 x 450	140-180	90	4	55
5.0 x 450	180-240	58	4	85



Mild Steel Electrode for Radiographic Quality Welding

CLASSIFICATION :	AWS A/ SFA 5.1	IS 814	APPROVALS :
	E 6013	ER 4222X	ABS/IRS/LRA /IBR/BIS/DNV/BV

KEY FEATURES :

- Rutile type medium coated
- Outstanding welding characteristics
- X-ray quality weld deposit
- All position capability

WELDING POSITION : 



AC (50OCV min.)/ DCEN

TYPICAL APPLICATIONS :

- Boiler tubes
- Storage tanks
- Railway wagons
- Shipbuilding, Bridges
- Pressure vessels
- Joining steels like- ASTM SA 36/36M
SA 283/283M Gr.A/B/C/D
SA285/285M Gr.A/B/C
SA 414/414M Gr.A/B

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	S	P
Typical	0.06	0.5	0.2	0.02	0.02
Specification	0.10 max	0.60 max	0.25 max.	0.03 max.	0.03 max.

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at 0°C, J
Typical	As Welded	510	440	25	63
Specification		460-550	370-480	22-28	50 min.

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
1.6 x 250	30-50	942	4	5
2.0 x 300	40-60	505	4	10
2.5 x 350	60-90	277	4	18
3.15 x 450	100-140	129	4	39
4.0 x 450	140-190	84	4	59
5.0 x 450	180-250	55	4	89



Superbond SS

MILD STEEL GENERAL PURPOSE (MSGP)

Mild Steel Electrode for High Speed Structural Welding

CLASSIFICATION :	AWS A/ SFA 5.1	IS 814	APPROVALS :
	E 6013	ERR 4222X	ABS/DNV/BV/LRA/IBR/BIS/IRS

KEY FEATURES :

- Rutile based heavy coated
- Touch type electrode
- X-ray quality weld deposit
- Suitable for major structural work and bridging wide root gap

WELDING POSITION : 



AC (50OCV min.)/ DCEN

TYPICAL APPLICATIONS :

- Pressure vessels, Storage tanks
- Locomotive fireboxes, Boilers
- Railway coach panels
- Fine steel furniture
- Automobile bodies
- Joining steels like- ASTM SA 36/36M
SA 283/283M Gr.A/B/C/D
SA285/285M Gr.A/B/C
SA 414/414M Gr.A/B

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	S	P
Typical	0.06	0.45	0.2	0.02	0.02
Specification	0.10 max	0.60 max	0.30 max.	0.03 max.	0.03 max.

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at 0°C, J
Typical	As Welded	515	445	25	65
Specification		460-550	370-480	23-30	50-80

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
2.0 x 300	40-60	495	4	10
2.5 x 350	60-90	244	4	20
3.15 x 450	100-140	114	4	44
4.0 x 450	140-190	73	4	68
5.0 x 450	190-250	48	4	102



Mild Steel Electrode for All Position General Fabrication

CLASSIFICATION :	AWS A/ SFA 5.1	IS 814	APPROVALS :
	E 6013	ER 4211X	BIS

KEY FEATURES :

- Rutile type medium coated
- Operates at low OCV
- X-ray quality weld deposit
- Vertical down welding capability
- Suitable for major structural work

WELDING POSITION : 



AC (50 OCV)/DCEN/DCEP

TYPICAL APPLICATIONS :

- General fabrication in steel plants
- Light construction work
- Shipbuilding, Pipes
- Storage tanks, Furniture work
- Automobile bodies
- Joining steel grade IS 2062, 226

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	S	P
Typical	0.1	0.4	0.3	0.02	0.02
Specification	0.12 max	0.25-0.55	0.12-0.35	0.03 max.	0.03 max.

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at 0°C, J
Typical	As Welded	520	440	24	57
Specification		450-540	370-480	22-28	50 min

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
2.5 x 350	60-85	150	6	18
3.15 x 350	90-130	85	6	29
3.15 x 450	90-130	85	6	37
4.0 x 450	140-180	55	6	59
5.0 x 450	180-240	36	6	90



Metalbond

MILD STEEL GENERAL PURPOSE (MSGP)

Mild Steel Electrode for General Purpose Structural Application

CLASSIFICATION :	AWS A/ SFA 5.1	IS 814	APPROVALS :
	E 6013	ER 4112X	ABS/BV/DNV/IRS/LRA/BIS/IBR/ NTPC/BHEL

KEY FEATURES :

- Rutile type medium coated
- Operates at low OCV
- X-ray quality weld deposit
- All position welding capability
- Suitable for mild steel structural work

WELDING POSITION :



AC (50OCV min.)/ DCEN

TYPICAL APPLICATIONS :

- Storage tanks, Pipes
- Machine frames
- Construction equipment
- Welding steel grade IS 2062, 226

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	S	P
Typical	0.09	0.4	0.25	0.02	0.02
Specification	0.12 max	0.55 max	0.35 max.	0.03 max.	0.03 max.

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at 0°C, J
Typical	As Welded	510	430	25	55
Specification		460-550	370-470	2-28	50 min.

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
2.5 x 350	60-80	296	4	17
3.15 x 350	100-130	177	4	28
3.15 x 450	100-130	137	4	36
4.0 x 450	140-180	91	4	54



Mild Steel Electrode for Sheet Metal Work Application

CLASSIFICATION : AWS A/ SFA 5.1

E 6013

APPROVALS :

ABS/BV/DNV/IRS/LRA/BHEL

KEY FEATURES :

- Rutile type medium coated
- Quick freezing slag
- X-ray quality weld deposit
- Vertical down welding capability
- Best suited for thin plates and horizontal butt joint of storage tanks

WELDING POSITION : 



AC (50 OCV min.)/DCEP/DCEN

TYPICAL APPLICATIONS :

- Ship building, Bridges
- Pressure vessels, Pipes
- Storage tanks, Automobile bodies
- Sheet metal work
- Construction and Furniture work
- Joining steel grade ASTM SA 36/36M, SA 53/53M, SA 283/283M Gr.A/B/C/D

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	S	P
Typical	0.09	0.4	0.25	0.02	0.02
Specification	0.11 max	0.65 max	0.45 max.	0.03 max.	0.03 max.

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at 0°C, J
Typical	As Welded	500	415	26	54
Specification		460-550	360-480	22-30	47-70

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Carton/Box	Net wt./Box, Kg
2.5 x 350	60-100	5	4	20
3.15 x 450	85-130	5	4	20
4.0 x 450	130-190	5	4	20
5.0 x 450	150-240	5	4	20



General Purpose Electrode for Welding Mild Steel and Low Carbon Steels

CLASSIFICATION :	AWS A/ SFA 5.1	IS 814	APPROVALS :
	E 6013	ER 4121	BIS

KEY FEATURES :

- Superior welding characteristics
- All position electrode
- Operates at low OCV
- Ideal for mild steel and low carbon Mn steel with UTS of 430-540 MPa

WELDING POSITION : 



AC (50 OCV min.)/ DCEN

TYPICAL APPLICATIONS :

- Sheet metal work
- Storage tanks
- Vehicles, Railway wagons
- Shipbuilding, Pipes
- Steel furniture
- General structural application
- Welding IS 2062 and equivalent grades upto 20 mm thick

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	S	P
Typical	0.08	0.35	0.25	0.02	0.02
Specification	0.10 max	0.2-0.5	0.30 max.	0.03 max.	0.03 max.

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at 27°C, J
Typical	As Welded	490	435	24	58
Specification		430-540	370-480	22-26	40-70

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
2.5 x 350	60-90	150	6	17
3.15 x 350	100-130	85	6	29
3.15 x 450	100-130	85	6	36
4.0 x 450	140-180	55	6	56
5.0 x 450	180-240	36	6	87



Mild Steel Electrode for General Purpose Fabrication

CLASSIFICATION : AWS A/ SFA 5.1

E 6013

KEY FEATURES :

- Rutile type coating
- Specially designed for general purpose fabrication application
- Superior welding characteristics
- All position electrode

WELDING POSITION :



AC (50 OCV min.)/ DCEN

TYPICAL APPLICATIONS :

- Sheet metal work
- Storage tanks
- Steel furniture
- General fabrication

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	S	P
Typical	0.08	0.3	0.1	0.02	0.02
Specification	0.10 max	0.2 min	0.20 max.	0.03 max.	0.03 max.

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact	
					at 27°C, J	At 0°C, J
Typical	As Welded	460	405	26	60	41
Specification		430-540	370-480	22 min	40-70	30-50

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
2.5 x 350	60-85	150	6	17
3.15 x 350	90-120	87	6	28
3.15 x 450	90-120	87	6	36
4.0 x 450	130-170	55	6	57
5.0 x 450	170-200	36	6	88

General Purpose Mild Steel Electrode for Structural and Repair Work

CLASSIFICATION : AWS A/ SFA 5.1

APPROVALS :

E 6012

ABS/BV/DNV/IRS

KEY FEATURES :

- Rutile coated electrode
- Quick freezing slag
- All position type
- Additionally can be operated on DCEP
- Ideal for poor fit up
- Usable on rusty plates
- For general fabrication and repair work

WELDING POSITION :



AC (50 OCV min.)/ DCEN

TYPICAL APPLICATIONS :

- Truck bodies, Storage tanks
- Construction equipment
- Light gauge work
- Steel furniture, Machinery
- Foundry equipment, Barges
- Tacking work, Small parts repair

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	S	P
Typical	0.09	0.5	0.2	0.02	0.02
Specification	0.12 max	0.35-0.55	0.25 max.	0.03 max.	0.03 max.

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at 27°C, J
Typical	As Welded	500	430	26	68
Specification		430 min.	330 min.	22 min.	47 min.

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Carton/Box	Net wt./Box, Kg
2.5 x 350	55-95	5	4	20
3.15 x 450	95-125	5	4	20
4.0 x 450	125-175	5	4	20
5.0 x 450	165-260	5	4	20

Special Welding Electrode for Pressure Vessels and Bridges

CLASSIFICATION :	EN ISO 2560-A	AWS A/SFA 5.1	IS 814	APPROVALS :
	E 42 2 B 32 H5	E 7018	E B5426H ₃ JX	ABS/BV/DNV/IRS/LRA/ IBR/BIS/NTPC/BHEL

KEY FEATURES :

- Basic type iron powder electrode
- Metal recovery approx. 115%
- All position capability
- Radiographic weld deposit
- Suitable for pipe welding in 5G & 6G positions

WELDING POSITION : 



AC (70 OCV)/ DCEP

TYPICAL APPLICATIONS :

- Pressure vessels, Pipes
- Storage tanks
- Bridges, Heavy structures
- Joining steel of ASTM SA 414/414M Gr.C/D, SA 516/516M Gr.55/60, IS 2002, IS 2062

REDRYING CONDITION : 300°C for 1 hr (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	S	P
Typical	0.06	1.1	0.4	0.02	0.03
Specification	0.04-0.09	0.8-1.6	0.35-0.7	0.03 max.	0.03 max.

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact , J	
					-20°C	-30°C
Typical	As Welded	540	470	26	66	48
Specification		500-600	440-550	24-30	50-80	30-70

Diffusible H₂ Content: <5 ml/100 gm

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
2.5 x 350	60-90	225	4	22
3.15 x 450	100-130	110	4	45
4.0 x 450	140-180	75	4	66
5.0 x 450	180-240	50	4	98

EQUIVALENT: GMAW wire: Automig-70S-6 FCAW wire: Automig-FC-71T-1, Automig-FC-121



Covered Electrode for 500 MPa High Tensile Strength Steel

CLASSIFICATION :	EN ISO 2560-A	AWS A/SFA 5.1	IS 814	APPROVALS :
	E 42 2 B 32 H5	E 7018	E B5426H ₃ JX	ABS/BV/DNV/IRS/GL/LRA /IBR/BIS/NPCIL/MND

KEY FEATURES :

- Basic coated electrode
- Low hydrogen iron powder type
- Medium penetration
- High deposition rate
- Radiographic weld quality
- All position capability

WELDING POSITION : 



AC (70 OCV)/ DCEP

TYPICAL APPLICATIONS :

- Boilers, Pressure vessels
- Heavy structures subject to dynamic loading
- Ship building, Storage tanks
- Bridges, Pipe lines, Penstocks
- Joining IS 2002, 2062 steels

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	S	P
Typical	0.05	1.1	0.5	0.01	0.01
Specification	0.04-0.09	0.80-1.60	0.35-0.70	0.03 max.	0.03 max.

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at	
					-20°C	-30°C
Typical	As Welded	555	480	26	67	48
Specification		500-600	440-550	24-30	50-80	30-70

Hardness, 3 Layer: 160-200 BHN

Diffusible H₂ Content: <5 ml/100 gm

SPECIAL TESTS : HIC & SSCC (NACE)

CTOD at -10°C

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
2.5 x 350	60-90	225	4	22
3.15 x 450	100-130	110	4	45
4.0 x 450	140-180	75	4	66
5.0 x 450	180-240	50	4	98

EQUIVALENT: GMAW wire: Automig-70S-6

FCAW wire: Automig-FC-71T-1, Automig-FC-121



Welding Electrode for Structural Welding Application

CLASSIFICATION :	EN ISO 2560-A	AWS A/SFA 5.1	APPROVALS :
	E 38 2 B 32	E 7018	ABS/LRA/IBR/MND

KEY FEATURES :

- Basic coated electrode
- Low hydrogen iron powder type
- Tough and ductile weld
- Radiographic weld deposit
- Deposition efficiency upto 110-115%
- All position capability
- Pipe welding in 5G and 6G positions

WELDING POSITION : 



AC (70 OCV)/ DCEP

TYPICAL APPLICATIONS :

- Structural welding
- Storage tanks
- Boilers, Pressure vessels
- Bridges, Pipes
- Joining steel ASTM SA 414/414M Gr.C/D/E, SA 516/516M Gr.55/60

REDRYING CONDITION : 100 - 150°C for 1 hr.

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	S	P
Typical	0.07	1.0	0.5	0.02	0.02
Specification	0.10 max	1.60 max	0.75 max	0.03 max.	0.03 max.

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -30°C, J
Typical	As Welded	525	440	26	55
Specification		490 min	400 min	22 min	27 min

Diffusible H₂ Content: <5 ml/100 gm

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
2.5 x 350	60-90	231	4	22
3.15 x 450	100-130	111	4	45
4.0 x 450	140-180	75	4	66
5.0 x 450	180-240	50	4	98

EQUIVALENT: GMAW wire: Automig-70S-6 FCAW wire: Automig-FC-71T-1, Automig-FC-121

Welding Electrode with excellent toughness properties

CLASSIFICATION :	EN ISO 2560-A	AWS A/SFA 5.1	IS 814
	E 42 3 B 32	E 7018-1	E B5529H ₃ JX

KEY FEATURES :

- Basic type iron powder electrode
- All position capability including vertical down position
- Excellent toughness down to -46°C
- Suitable for pipe welding in 5G & 6G position
- Radiographic quality weld

WELDING POSITION : 



AC (70 OCV)/ DCEP

TYPICAL APPLICATIONS :

- Storage tanks, Pressure vessels
- Boilers, Bridges, Pipes
- Heavy structures subject to dynamic loading and mechanical restraint
- Suitable for ASTM SA 414/414M Gr.C/D, SA 516/516M Gr.55/60, IS 2002, IS 2062 steels

REDRYING CONDITION : 300°C for 1 hr.

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	S	P
Typical	0.06	1.1	0.35	0.02	0.02
Specification	0.04-0.09	0.80-1.60	0.20-0.45	0.03 max.	0.03 max.

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -46°C, J
Typical	As Welded	575	490	26	42
Specification		520-640	450-540	24 min.	30-50

Hardness, 3 Layers: 200 BHN max.

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Carton/Box	Net wt./Box, Kg
2.5 x 350	60-90	5	4	20
3.15 x 450	90-140	5	4	20
4.0 x 450	140-180	5	4	20
5.0 x 450	180-230	5	4	20



Tenalloy Z Plus

C-Mn STEEL (Low Hydrogen)

Welding Electrode with Excellent Mechanical and Impact Properties at Low Temperature

CLASSIFICATION :	AWS A/SFA 5.1	IS 814	EN ISO 2560-A	APPROVALS :
	E 7018-1	E B5629H3JX	E 42 4 B 32 H5	ABS/BV/DNV/IRS/ LRA/IBR/NPCIL/MND

KEY FEATURES :

- Basic coated iron powder type
- Suitable for pipe welding in 5G, 6G & 6GR positions
- Excellent toughness down to -45°C
- Radiographic weld deposit
- All position capability

WELDING POSITION : 



AC (90 OCV)/ DCEP

TYPICAL APPLICATIONS :

- Storage tanks, pipes, boilers
- Bridges & heavy structures subject to dynamic loading
- Joining ASTM SA 414/414M Gr.C/D, SA 516/516M Gr.55/60, IS 2002, IS 2062 steels

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	S	P
Typical	0.06	1.4	0.3	0.02	0.02
Specification	0.04-0.09	0.80-1.60	0.20-0.45	0.03 max	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -45°C, J
Typical	As Welded	560	480	27	58
Specification		520-640	450-540	24 min.	40-70

Hardness, 3 Layer: 200 BHN max

Diffusible H₂ Content: <5 ml/100 gm

SPECIAL TEST : HIC & SSCC (NACE)

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
2.5 x 350	60-90	239	4	21
3.15 x 450	90-140	113	4	44
4.0 x 450	140-180	75	4	66
5.0 x 450	180-240	51	4	96



Welding Electrode for fabrication works with Superior Low Temperature Impact Properties

CLASSIFICATION :	AWS A/SFA 5.1	IS 814	EN ISO 2560-A	APPROVALS :
	E 7018-1	E B5629H3JX	E 42 5 B 32 H5	ABS/BV/DNV/LRA/IBR

KEY FEATURES :

- Basic coated iron powder type
- Excellent toughness down to -60°C
- Radiographic weld deposit
- Suitable for pipe welding in 5G and 6G positions

WELDING POSITION : 



AC (70 OCV)/ DCEP

TYPICAL APPLICATIONS :

- Storage tanks, pipes, boilers
- Bridges & heavy structures subject to dynamic loading
- Joining ASTM SA 414/414M Gr.C/D, SA 516/516M Gr.55/60/65/70, IS 2002, IS 2062 steels

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	S	P
Typical	0.06	1.3	0.3	0.01	0.01
Specification	0.04-0.09	0.80-1.60	0.20-0.45	0.015 max	0.015 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact , J	
					-46°C	-60°C
Typical	As Welded	550	470	28	56	34
Specification		520-640	450-540	24 min.	45-65	25-45

Hardness, 3 Layers: 200 BHN max.

Diffusible H₂ Content: <5 ml/100 gm

SPECIAL TEST : HIC and SSCC (NACE), CTOD at -10°C

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
2.5 x 350	60-90	239	4	21
3.15 x 450	90-140	113	4	44
4.0 x 450	140-180	75	4	66
5.0 x 450	180-240	51	4	96



Tenalloy HH Spl

C-Mn STEEL (Low Hydrogen)

Welding Electrode for joining High Tensile Steels

CLASSIFICATION :	EN ISO 2560-A	AWS A/SFA 5.1	IS 814	APPROVALS :
	E 42 3 B 32 H5	E 7018-1	E B5629H ₃ JX	MEETS NACE Requirements, ONGC/EIL, Spec GS8 Annexure 1A

KEY FEATURES :

- Extra low hydrogen iron powder type
- Weld metal resistant to cold and hot cracking and tri-axial stressing
- Medium Penetration
- Excellent toughness down to -46°C
- All position capability

WELDING POSITION : 



AC (90 OCV)/ DCEP

TYPICAL APPLICATIONS :

- Carbon and low alloy steel fabrication where severe service condition exist
- Suitable for medium high tensile steels, heavy sections and restrained joints in high tensile steel
- Joining steels of ASTM 106 Gr.B (NACE quality), SA 414/414M Gr.D/E/F/G, SA 515/515M Gr.60/65, SA 516/516M Gr.60/65

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	S	P
Typical	0.06	1.1	0.3	0.01	0.01
Specification	0.04-0.09	0.90-1.40	0.15-0.50	0.012 max	0.015 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact, J	
					-30°C	-46°C
Typical	As Welded	550	465	26	70	52
Specification		510-580	420-520	24-30	50-100	30-60

Hardness, 3 Layer: 200 BHN max

Diffusible H₂ Content: <3 ml/100 gm

SPECIAL TESTS : HIC, SSCC, Hot Tensile Test at 200°C

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
2.5 x 350	60-90	281	4	18
3.15 x 450	90-140	132	4	38
4.0 x 450	140-180	85	4	58
5.0 x 450	180-240	55	4	89



Coated Welding Electrode with Excellent Sub Zero Temperature Properties

CLASSIFICATION : AWS A/SFA 5.1 IS 814
E 7018-G E B5629H3JX

KEY FEATURES :

- Basic type iron powder electrode
- Deposition efficiency approx 110%
- Exhibit excellent impact at sub zero temperatures
- All position capability

WELDING POSITION : 



AC (90 OCV) / DCEP

TYPICAL APPLICATIONS :

- Ammonia storage tanks
- Horton spheres, Pressure vessels
- Si-Mn steels
- Steels containing Ni up to 1%
- For mild steel and heavy joints at sub-zero temperatures
- Joining ASTM SA 515/515M Gr.60/65, SA 516/516M Gr.60/65 steels

REDRYING CONDITION : 300°C for 1 hr.

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	S	P
Typical	0.06	1.2	0.3	0.02	0.02
Specification	0.04-0.09	0.80-1.60	0.20-0.45	0.03 max	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact At -50°C, J
Typical	As Welded	550	480	27	50
Specification		510-600	425-540	24-30	40-70

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
2.5 x 350	60-90	235	4	21
3.15 x 450	90-140	120	4	41
4.0 x 450	140-180	75	4	67
5.0 x 450	180-250	49	4	102



Stick Welding Electrode with Excellent Mechanical and Impact Properties at Low Temperatures

CLASSIFICATION : DIN 8529 AWS A/SFA 5.5

E SY 42761 Ni B75 E 7018-G

KEY FEATURES :

- Heavy coated iron powder type
- Extremely high metallurgical purity
- C-1.2Mn-1Ni type weld deposit
- High impact at subzero temperatures

WELDING POSITION : 



DCEP

TYPICAL APPLICATIONS :

- A537 class 1 (modified)
- Si-Mn steel containing up to 1% Ni
- 15Mn Ni63 structural steel
- For heavy joints under restraint and subjected to dynamic loading
- Low temperature applications
- Structural steels, Boiler plates & Pipe steels
- Welding of fine grained structural steels with minimum yield strength of 420 MPA

REDRYING CONDITION : 300°C for 1 hr.

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni
Typical	0.07	1.2	0.28	0.08	0.8
Specification	0.05-0.10	1.0-1.50	0.15-0.45	0.1 max	0.70 - 1.0
	Mo	Cu	S	P	
Typical	0.04	0.08	0.01	0.01	
Specification	0.06 max	0.10 max	0.015 max	0.015 max	

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact, J		
					-20°C	-40°C	-50°C
Typical	As Welded	550	460	28	142	97	67
Specification		500 min	425 min	25 min	120 min	80 min	50 min

Diffusible H₂ Content: <5 ml/100 gm

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Carton/Box	Net wt./Box, Kg.
2.5 x 350	65-95	5	4	20
3.15 x 450	90-140	5	4	20
4.0 x 450	140-185	5	4	20
5.0 x 450	180-250	5	4	20



Special Welding Electrode for Buffer Layer and Repair Welding

CLASSIFICATION :	EN ISO 2560-A	AWS A/SFA 5.1	IS 814	APPROVALS :
	E 42 3 B 12 H5	E 7016	E B5426H ₃ X	ABS/BV/DNV/IRS/LRA/IBR

KEY FEATURES :

- Basic coated low hydrogen electrode
- Ductile weld metal provide superior crack resistance
- All position capability
- Excellent impact properties down to -30°C
- Radiographic weld deposit

WELDING POSITION : 



AC (70 OCV)/ DCEP

TYPICAL APPLICATIONS :

- Buffer layer before hardfacing
- Joining cast iron to mild steel
- Repair of cast iron
- Butt welding of rail ends
- Fixing of rails to mild steel girders

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	S	P
Typical	0.06	1.2	0.5	0.02	0.02
Specification	0.04-0.10	0.80-1.50	0.25-0.65	0.03 max.	0.03 max.

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact , J	
					27°C	-30°C
Typical	As Welded	560	475	27	160	63
Specification		510-620	440-550	24 min.	140-200	50-80

Hardness, 3 Layers: 200 BHN max.

Diffusible H₂ Content: <5 ml/100 gm

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
2.5 x 350	60-80	287	4	17
3.15 x 450	90-120	133	4	37
4.0 x 450	130-170	86	4	58
5.0 x 450	180-230	54	4	91



Tenalloy 16W

C-Mn STEEL (Low Hydrogen)

Stick Electrode for difficult to weld and unknown steels

CLASSIFICATION :	EN ISO 2560-A	AWS A/SFA 5.1	IS 814
	E 38 3 B 12 H5	E 7016	E B5426H ₃ X

KEY FEATURES :

- Low hydrogen lime coated
- Excellent impact properties at subzero temperatures
- Highly ductile welds provide resistance to cracks

WELDING POSITION : 



AC (90 OCV)/ DCEP

TYPICAL APPLICATIONS :

- Highly suitable for difficult to weld steels e.g. High carbon, Alloy, High sulphur, Free machining, Cast, Cold rolled steels and Armor plates
- As a buffer layer before hardfacing
- High carbon steel to mild steel
- Steels of unknown composition
- Suitable for ASTM SA 414/414M Gr.C/D/E

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	S	P
Typical	0.06	0.9	0.4	0.02	0.02
Specification	0.04-0.10	0.60-1.10	0.25-0.55	0.03 max.	0.03 max.

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact , J	
					27°C	-30°C
Typical	As Welded	520	450	28	164	68
Specification		500-550	400-470	24-32	150-200	50-80

Hardness, 3 Layer: 160 – 200 BHN

Diffusible H₂ Content: <5 ml/100 gm

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
2.5 x 350	60-85	285	4	18
3.15 x 450	90-130	132	4	38
4.0 x 450	130-180	86	4	58
5.0 x 450	180-240	49	4	100



Tenalloy 16 Spl

C-Mn STEEL (Low Hydrogen)

Welding Electrode specially for Nace Quality Carbon Steel Welding

CLASSIFICATION : EN ISO 2560-A AWS A/SFA 5.1

E 42 5 B 12 H5 E 7016-1H8R

KEY FEATURES :

- Medium coated basic electrode
- Moisture resistant coating
- Weld metal resistant to cold and hot cracking and tri-axial stressing
- Positional welding characteristics with medium coating ideal for full penetration root run in pipe welding
- DCEN preferred for root run welding of pipes

WELDING POSITION :



AC (60 OCV) / DCEP / DCEN

TYPICAL APPLICATIONS :

- One side welding of pipes
- Horton spheres, Penstocks
- Carbon steel and low alloy steel pressure vessels fabrications and where severe service conditions exist
- For NACE quality carbon steel pipes
- Off-shore process platform structures
- Medium, high tensile structural steels
- Heavy sections and restrained joints in high tensile structural steels

REDRYING CONDITION : 300°C for 2 hr.

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	S	P
Typical	0.07	1.2	0.3	0.01	0.01
Specification	0.05-0.10	1.0-1.40	0.15-0.48	0.012 max.	0.015 max.

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -50°C, J
Typical	As Welded	550	470	25	52
Specification		510-600	420-530	24-29	40-60

Diffusible H₂ Content: <5 ml/100 gm

SPECIAL TEST : HIC & SSCC (NACE)

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
2.5 x 350	60-90	281	4	17
3.15 x 450	90-140	132	4	37
4.0 x 450	140-180	85	4	58
5.0 x 450	180-250	55	4	90



Ten alloy 16G

C-Mn STEEL (Low Hydrogen)

Welding Electrode with Excellent Low Temperature Properties

CLASSIFICATION : EN ISO 2560-A AWS A/SFA 5.5

E 38 3 1Ni B 12 H5 E 7016-G

KEY FEATURES :

- Basic type coating
- All position capability
- Radiographic quality weld
- Excellent mechanical properties at sub zero temperatures

WELDING POSITION : 



AC (70 OCV)/ DCEP

TYPICAL APPLICATIONS :

- Joining ASTM SA 515 Gr.55, SA 516, Gr.55 pressure vessel steels subjected to intermediate & lower temperature applications
- Suitable for medium tensile and low alloy steels

REDRYING CONDITION : 300°C for 1 hr.

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Ni	S	P
Typical	0.07	1.0	0.5	0.8	0.02	0.02
Specification	0.10 max	0.8-1.20	0.75 max	0.5-1.0	0.03 max.	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact At -30°C, J
Typical	As Welded	540	450	28	58
Specification		500 min	400 min	26 min	35 min

Hardness, 3 Layers: 200 BHN max.

Diffusible H₂ Content: <5 ml/100 gm

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
2.5 x 350	60-90	192	4	26
3.15 x 450	90-140	128	4	39
4.0 x 450	130-180	81	4	62
5.0 x 450	180-230	52	4	96

Stick Electrode for Mild Steel Welding

CLASSIFICATION : AWS A/SFA 5.1 IS 814
E 6020 E A4222X

KEY FEATURES :

- Medium-heavy coated
- High currents & travel speed recommended for economical welding
- Resistant to high stress & fatigue
- Best suited for flat and horizontal position
- Specially designed for mild steel welding for high strength requirement

WELDING POSITION : 



AC/DCEN

TYPICAL APPLICATIONS :

- Heavy structural work, machine base
- Pressure vessels, shipbuilding, truck chassis frames
- Bridges, cranes, locomotive fire boxes
- Excellent for continuous downhand or fillet welds

REDRYING CONDITION : 150-180°C for 1 hr.

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	S	P
Typical	0.08	0.5	0.2	0.02	0.02
Specification	0.06-0.10	0.40-0.65	0.11-0.29	0.03 max.	0.03 max.

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at 0°C, J
Typical	As Welded	490	430	27	70
Specification		460-550	370-480	24-28	50-100

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
3.15 x 450	90-140	132	4	38
4.0 x 450	140-200	78	4	64
5.0 x 450	180-220	50	4	100



Welding Electrode known for it's High Welding Speed

CLASSIFICATION : AWS A/SFA 5.1 IS 814
E 7014 E RR5222 JX

KEY FEATURES :

- An iron powder type
- Radiographic quality weld
- Ideal for vertical down welding

WELDING POSITION :   AC/DCEN

TYPICAL APPLICATIONS :

- Steel structures, Storage tanks
- Pipelines, Bridges
- Pressure vessels, Ships
- Joining ASTM SA 283 Gr.B/C/D steels

REDRYING CONDITION : 150°C for 1 hr.

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	S	P
Typical	0.08	0.45	0.22	0.01	0.01
Specification	0.10 max	0.65 max	0.30 max	0.03 max.	0.03 max.

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at 27°C, J
Typical	As Welded	560	450	25	78
Specification		510-600	415-490	22-28	60-100

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
3.15 x 450	100-140	128	4	39
4.0 x 450	150-200	81	4	62
5.0 x 450	200-250	50	4	100



Stick Welding Electrode for Mild Steel Structural Fabrication

CLASSIFICATION : AWS A/SFA 5.1 IS 814
E 7024 E RR 5242 KX

KEY FEATURES :

- Iron powder type
- Outstanding deposition rates
- Radiographic quality weld

WELDING POSITION :   AC/DCEN

TYPICAL APPLICATIONS :

- Heavy steel structures, Storage tanks
- Pressure vessels, Ships
- Pipelines, Bridges
- Joining ASTM SA 283 Gr.A/B/C/D, SA 414/414M Gr.C/D/E steels

REDRYING CONDITION : 150°C for 1 hr.

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	S	P
Typical	0.07	0.6	0.2	0.02	0.02
Specification	0.06-0.10	0.40-0.75	0.14-0.35	0.03 max.	0.03 max.

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at 0°C, J
Typical	As Welded	550	460	27	65
Specification		500-600	420-500	24-28	50-100

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
2.5 x 350	80-120	192	4	26
3.15 x 450	150-170	86	4	58
4.0 x 450	200-240	56	4	89
5.0 x 450	250-290	31	4	161



Topstar 140 Spl

C-Mn STEEL (High Efficiency)

Mild Steel Welding Electrode for Heavy Structural Welding

CLASSIFICATION : AWS A/SFA 5.1

E 7024-1

KEY FEATURES :

- Heavy coated iron powder type
- Very high deposition efficiency of approx. 140%
- Best suited for down hand butt & horizontal fillet welds
- Higher output & productivity

WELDING POSITION :



AC/DCEP

TYPICAL APPLICATIONS :

- Heavy structures like Cranes, Bridge girders
- Earth moving equipments
- Ship building, Pressure vessels
- Thick plates in penstock pipe lines
- Heavy machinery parts, Boilers
- Joining ASTM SA 414/414M Gr.C/D/E SA 516/516M Gr.55/60

REDRYING CONDITION : 150°C for 1 hr.

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	S	P
Typical	0.06	0.8	0.4	0.02	0.02
Specification	0.09max	1.25 max	0.2-0.6	0.03 max.	0.03 max.

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -20°C, J
Typical	As Welded	565	460	26	40
Specification		500 min	400 min	17 min	27 min

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Carton/Box	Net wt./Box, Kg.
3.15 x 450	150-170	5	4	20
4.0 x 450	200-240	5	4	20
5.0 x 450	250-290	5	4	20

Silox Fe

C-Mn STEEL (Special Purpose)

Electrode for Welding Hot Dip Galvanizing Baths

CLASSIFICATION : DIN 1913 IS 814
E 4300 A 525 E S4122

KEY FEATURES :

- Deposit pure iron with low impurities
- Low Silicon content
- Resistant to corrosion by molten Zinc
- Easy slag removal

WELDING POSITION : 



AC (50 OCV)/ DCEN

TYPICAL APPLICATIONS :

- Welding and repairing of hot dip galvanizing baths
- Windows, door frames
- Filling holes, building up worn out parts not subjected to excessive wear

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	S	P
Typical	0.05	0.15	0.02	0.02	0.02
Specification	0.08 max.	0.10-0.30	0.03 max	0.03 max	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at 27°C, J
Typical	As Welded	460	400	25	66
Specification		415-520	330-425	22-27	50-80

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
3.15 x 450	90-130	122	4	41
4.0 x 450	140-180	80	4	63
5.0 x 450	180-220	52	4	96



Silox Fe LH

C-Mn STEEL (Special Purpose)

Hydrogen Controlled Electrode for Welding of Hot Dip Galvanizing Baths

KEY FEATURES :

- Basic type heavy coated
- Controlled Hydrogen content
- Deposit pure iron with low impurities
- Low Silicon content
- Strong & ductile weld
- Weld metal is resistant to corrosion by molten Zinc & Lead

WELDING POSITION :



AC (70 OCV)/ DCEP

TYPICAL APPLICATIONS :

- Welding and repairing of hot dip galvanizing baths

REDRYING CONDITION : 300 °C for 1 hr.

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	S	P
Typical	0.05	0.5	0.03	0.02	0.02
Specification	0.08 max	0.3-0.8	0.04 max	0.03 max	0.03 max.

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at 27°C, J
Typical	As Welded	475	400	25	64
Specification		440-520	350-445	22-27	50-80

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
3.15 x 450	90-130	128	4	39
4.0 x 450	140-180	82	4	61
5.0 x 450	180-220	51	4	98



Mild Steel Special Welding Electrode for Joining of Rails

KEY FEATURES :

- Basic type electrode
- Radiographic weld deposit
- Suitable for multi-pass welding

WELDING POSITION :



AC (50 OCV) /DCEP

TYPICAL APPLICATIONS :

- Butt welding of rails with tensile strength upto 1100 MPa

REDRYING CONDITION : 300°C for 1 hr.

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	S	P
Typical	0.04	1.1	0.4	0.02	0.02
Specification	0.02-0.06	0.6-1.5	0.15-0.65	0.025 max.	0.025 max.

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact, J	
					at 20°C	At -20°C
Typical	As Welded	590	450	26	140	95
Specification		530-630	420-500	24 min	120-180	60-120

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt. per carton, Kg	Carton/Box	Wt. per box, Kgs
4.0 x 450	160-200	5	4	20
5.0 x 450	180-240	5	4	20

Welding Electrode for Pipeline Welding

CLASSIFICATION : EN ISO 2560-A AWS A/SFA 5.1 APPROVALS :
E 38 3 C 21 E 6010 ABS/LRA/IBR

KEY FEATURES :

- High cellulose coated
- Exhibits deep penetration and fast freezing
- All position operating characteristics
- Ideal for root pass and capping runs
- Radiographic quality weld

WELDING POSITION :   DCEP

TYPICAL APPLICATIONS :

- Cross country pipelines subject to dynamic loading and mechanical restraint
- Suitable for sour gas pipes
- Suitable for steel grades ASTM A106 Gr.A/B, API 5L X42 and for root pass of X56

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	S	P
Typical	0.15	0.5	0.4	0.01	0.01
Specification	0.10-0.20	0.40-0.70	0.20-0.50	0.015 max.	0.02 max.

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact, J	
					-20°C	-30°C
Typical	As Welded	525	410	26	78	52
Specification		490-580	390-460	24-30	70-90	48-70

HARDNESS, 3 LAYER: 235 BHN max

SPECIAL TESTS : HIC & SSCC (NACE)

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Tin pack, Kg	Tin packs/Box	Net wt./Box, Kg.
2.5 x 350	50-90	6	3	18
3.15 x 350	80-140	6	3	18
4.0 x 350	120-180	6	3	18
5.0 x 350	160-200	6	3	18

Electrode for Welding Pipeline and Structural Fabrication

CLASSIFICATION : EN ISO 2560-A AWS A/SFA 5.1
E 35 3 C 11 E 6011

KEY FEATURES :

- Cellulose type medium coated
- High melting speed
- All position operating characteristics
- Radiographic quality weld

WELDING POSITION : 



AC (65 OCV)/DCEP

TYPICAL APPLICATIONS :

- Pipelines, Pressure vessels
- Shipbuilding, Storage tanks
- Structural fabrication, Truck frames
- Bridges, Maintenance welding
- Suitable for steel grades API 5L X42 and X46

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	S	P
Typical	0.12	0.5	0.2	0.01	0.01
Specification	0.08-0.16	0.30-0.60	0.12-0.30	0.03 max.	0.03 max.

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -30°C, J
Typical	As Welded	520	420	27	58
Specification		450-550	355-480	24-30	50-100

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Tin pack, Kg	Tin packs/Box	Net wt./Box, Kg.
2.5 x 350	60-90	6	3	18
3.15 x 350	80-140	6	3	18
4.0 x 350	120-180	6	3	18
5.0 x 350	160-200	6	3	18

Electrode for Welding of High Strength Pipelines

CLASSIFICATION : EN ISO 2560-A AWS A/SFA 5.5 APPROVALS :
E 42 2 Mo C 21 E 7010-G LRA

KEY FEATURES :

- High cellulose type coating
- Ideal for root pass and capping runs
- Best suited for vertical down stove-pipe technique
- Radiographic quality weld

WELDING POSITION :   DCEP

TYPICAL APPLICATIONS :

- Cross country pipelines subject to dynamic loading and mechanical restraint
- Best suited for site welding
- Suitable for pipe grades API 5L X42 to X60

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Mo	S	P
Typical	0.1	0.5	0.2	0.35	0.01	0.01
Specification	0.12 max	0.40-0.80	0.10-0.30	0.30-0.40	0.015 max.	0.015 max.

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact , J	
					-20°C	-30°C
Typical	As Welded	555	470	24	44	38
Specification		530-595	450-500	22-27	40-50	30-50
Specification	PWHT:620°C for 1Hr	520-590	450-500	24-30	35-45	30-40

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Tin pack, Kg	Tin packs/Box	Net wt./Box, Kg.
2.5 x 350	60-90	6	3	18
3.15 x 350	80-140	6	3	18
4.0 x 350	120-180	6	3	18
5.0 x 350	160-200	6	3	18

Electrode for Welding Cross Country Pipelines

CLASSIFICATION : EN ISO 2560-A AWS A/SFA 5.5
E 42 2 C 21 E 7010-P1

KEY FEATURES :

- Cellulose type coating
- Ideal for root pass and capping runs
- All position welding characteristics
- Welding with Stove-pipe technique
- Radiographic quality weld

WELDING POSITION :   DCEP

TYPICAL APPLICATIONS :

- Cross country pipelines subject to dynamic loading and mechanical restraint
- Joining ASTM SA-283 Gr.A/B/C/D, API 5L X42, X46, X52, X56, X60 and X65

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni
Typical	0.1	0.8	0.3	0.1	0.7
Specification	0.2 max.	1.2 max.	0.6 max.	0.3 max.	1.0 max.
	Mo	V	S	P	
Typical	0.1	0.05	0.02	0.02	
Specification	0.5 max.	0.1 max.	0.03 max.	0.03 max.	

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -30°C, J
Typical	As Welded	560	450	24	40
Specification		490 min.	415 min.	22 min.	27min.

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Tin pack, Kg	Tin packs/Box	Net wt./Box, Kg.
2.5 x 350	50-70	6	3	18
3.15 x 350	80-120	6	3	18
4.0 x 350	110-160	6	3	18
5.0 x 350	160-210	6	3	18

Electrode for Welding High Strength Pipelines

CLASSIFICATION : EN ISO 2560-A AWS A/SFA 5.5 APPROVALS :
E 46 3 1Ni C 21 E 8010-G LRA

KEY FEATURES :

- Cellulose type coating
- Ideal for root pass and capping runs
- Recommended for hot passes
- Radiographic quality weld

WELDING POSITION :   DCEP

TYPICAL APPLICATIONS :

- Vertical down welding of high strength, medium and large diameter pipelines
- Suitable for high tensile pipe steels like API 5L X60, X65 and X70
- Welding of thin API 5L X80 pipes

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni
Typical	0.1	1.0	0.2	0.2	0.9
Specification	0.2 max.	0.6-1.2	0.05-0.3	0.1-0.3	0.75-1.0
	Mo	V	S	P	
Typical	0.05	0.05	0.01	0.01	
Specification	0.1 max.	0.1 max.	0.015 max.	0.015 max.	

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact , J	
					-30°C	-45°C
Typical	As Welded	610	520	22	58	42
Specification		550-670	460-565	19-24	54 min.	30-50
Specification	PWHT:620°C for 1Hr	550-610	460-535	23-30	40 min.	40-50

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Tin pack, Kg	Tin packs/Box	Net wt./Box, Kg.
2.5 x 350	60-90	6	3	18
3.15 x 350	80-140	6	3	18
4.0 x 350	120-180	6	3	18
5.0 x 350	160-200	6	3	18

Welding Electrode for high temperature application.

CLASSIFICATION :	EN 1599	AWS A/SFA 5.5	APPROVALS :
	E Mo B 32 H5	E 7018-A1	ABS/ IBR/NPCIL

KEY FEATURES :

- Basic coated electrode
- Good creep rupture strength at elevated temperature up to 550°C
- High recovery electrode
- Preheat and PWHT at 620°C is required
- Radiographic quality welds
- All position capability

WELDING POSITION : 



AC (70 OCV)/DCEP

TYPICAL APPLICATIONS :

- Welding 0.5 Mo and 1 Cr - 0.5 Mo steels and similar composition steels
- High temperature and high pressure boilers
- Chemical industries, Oil refining industries, Turbine casting
- Suitable for 15Mo3, 16Mo3, 14Mo6
- Joining ASTM SA 182/182M Gr.F1, SA 204/204M Gr.A, SA 209/209M Gr.T1/T1A/T1B, SA 217/217M Gr.WCI

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Mo	S	P
Typical	0.06	0.6	0.4	0.5	0.01	0.02
Specification	0.05-0.09	0.50-0.90	0.25-0.55	0.40-0.65	0.03 max	0.03 max.

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at 20°C, J
Typical	PWHT: 620°C	550	460	27	165
Specification	for 1 hr.	510-610	425-520	25-30	140-200

Hardness, 3 Layer: 200 BHN max

Diffusible H₂ Content: <5 ml/100 gm

SPECIAL TESTS : Creep Rupture Test at 540°C - 50 MPa stress for min. 1000 hrs

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
2.5 x 350	60-90	250	4	20
3.15 x 450	100-140	115	4	43
4.0 x 450	140-180	78	4	63
5.0 x 450	190-250	53	4	93

EQUIVALENT : GTAW filler: Tigfil-70S-A1



Molyten S Plus

LOW ALLOY STEEL (High Temperature)

Special Welding Electrode for high temperature application.

CLASSIFICATION : EN 1599 AWS A/SFA 5.5
E Mo B 32 H5 E 7018-A1

KEY FEATURES :

- Basic type heavy coating
- Excellent high temperature creep resistance properties
- Deposition efficiency of 105%
- Preheat and PWHT at 620°C is required
- Radiographic quality welds

WELDING POSITION :



AC (70 OCV)/DCEP

TYPICAL APPLICATIONS :

- Welding 0.5 Mo and 1 Cr - 0.5 Mo steels and similar composition steels used in pressure vessels, boilers and pipelines
- Application in chemical, oil refining industries and turbine casting
- Suitable for 15Mo3, 16Mo3, 14Mo6
- Joining ASTM SA 182/182M Gr.F1

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Mo	S	P
Specification	0.05-0.09	0.90 max	0.25-0.55	0.40-0.65	0.015 max	0.015 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at 20°C, J
Specification	PWHT: 620°C for 1 hr.	600 min	470 min	22-28	27 min

Diffusible H₂ Content: <5 ml/100 gm

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
2.5 x 350	60-90	250	4	20
3.15x 450	100-140	139	4	36
4.0 x 450	140-180	85	4	59
5.0 x 450	190-250	50	4	100

EQUIVALENT : GTAW filler: Tigfil-70S-A1



Cr-Mo alloyed Welding Electrode for elevated temperature creep resistance.

CLASSIFICATION : EN 1599 AWS A/SFA 5.5 APPROVALS :

E CrMo1 B 32 H5 E 8018-B2 ABS/IBR/NPCIL

KEY FEATURES :

- Basic coated iron powder electrode
- 1.25Cr-0.5Mo type weld deposit
- Resistant to creep and heat upto 550°C
- Preheat and interpass temperature of 150-200°C followed by PWHT
- Radiographic quality weld deposit
- Positional welding capability

WELDING POSITION : 



AC (70 OCV)/DCEP

TYPICAL APPLICATIONS :

- Welding of 1.25Cr-0.5Mo, 1Cr-0.5Mo steels in refineries, power plants, chemical plants
- Pressure vessels and Boilers
- Cr and Cr-Mo bearing steels at elevated temperature service e.g. steam production plants, steam pipes
- Joining P4 materials e.g. ASTM SA 182/182M Gr.F2/F11/F12, SA 213/213M Gr.T11/T12, SA 335/335M Gr.P11/P12, SA 387/387M Gr.2/11/12
- Suitable for 13CrMo44, 15CrMo5, 15Cr3, 16MnCr5, 20MnCr5

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Mo	S	P
Typical	0.06	0.8	0.5	1.3	0.6	0.02	0.01
Specification	0.05-0.09	0.50-0.90	0.25-0.60	1.0-1.50	0.40-0.65	0.03 max	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at 27°C, J
Typical	PWHT: 690°C	615	525	24	68
Specification	for 1 hr.	560-680	470-600	22-28	50-100

Diffusible H₂ Content: <5 ml/100 gm

SPECIAL TESTS : Creep Rupture Test at 540°C - 150 MPa stress for min. 1848 hrs

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/ Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
2.5 x 350	60-90	219	4	23
3.15 x 450	100-140	106	4	47
4.0 x 450	140-180	75	4	66
5.0 x 450	190-250	50	4	98

EQUIVALENT : GMAW wire: Automig-80S-B2

GTAW filler: Tigfil-80S-B2



Cromoten PHT Spl

LOW ALLOY STEEL (High Temperature)

Basic coated Electrode for welding of 1.25 Cr-0.5 Mo creep resistant steel.

CLASSIFICATION : EN 1599 AWS A/SFA 5.5

E CrMo1 B 32 H5 E 8018-B2

KEY FEATURES :

- Basic type medium heavy coating
- Low alloy Cr-Mo weld deposit
- Necessary preheat and interpass required followed by PWHT at 690°C
- Excellent resistance to cracking and creep upto 600°C
- Radiographic quality weld deposit
- Positional welding capability

WELDING POSITION : 



AC (70 OCV)/DCEP

TYPICAL APPLICATIONS :

- Welding of 1Cr-0.5Mo and similar creep resistant steels
- Repairing of high tensile castings
- For ASTM A 182 F2/F11/F12, A 387 2/11/12, A 355 P11/P12
- ASTM SA 387 Gr.11 plate, SA 335 P11 pipes
- In chemical and petrochemical industries to resist hydrogen attack, corrosion from sulphur bearing crude oil, stress corrosion cracking in sour environment
- Suitable for 13CrMo44, 15CrMo5 German steel

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Mo	S	P	P+Sn
Typical	0.1	0.7	0.4	1.4	0.5	0.01	0.007	0.01
Specification	0.05-0.12	0.50-0.90	0.25-0.60	1.0-1.50	0.45-0.65	0.015 max	0.010 max	0.016 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -20°C, J
Typical	PWHT: 690°C	600	515	26	75
Specification	for 12 hrs	550 min	460 min	22-28	54 avg.

Hardness, 3 Layer: 200 BHN max

Diffusible H₂ Content: <5 ml/100 gm

SPECIAL TESTS : Creep Rupture Test at 540°C

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
2.5 x 350	60-90	250	4	20
3.15 x 450	100-130	113	4	44
4.0 x 450	140-180	77	4	64
5.0 x 450	190-230	11	4	98



Cromoten S Plus

LOW ALLOY STEEL (High Temperature)

Low carbon Cr-Mo Electrode for welding creep resistant steel.

CLASSIFICATION : EN 1599 AWS A/SFA 5.5
E CrMo1L B 32 H5 E 7018-B2L

KEY FEATURES :

- Basic coated electrode
- Typical 1.2Cr-0.5Mo type deposit
- Excellent impact toughness at subzero temperature
- Resist creep upto 500°C
- Crack free and porosity free welds
- Radiographic quality weld

WELDING POSITION : 



AC (70 OCV)/DCEP

TYPICAL APPLICATIONS :

- Suitable for similar composition creep resistant steels used for boilers, oil refineries, chemical and power plants
- Suitable for SA 199/199M Gr.T11
- SA 182/182M Gr.F2/F11/F12
- SA 213/213M Gr.T2/T11/T12
- SA 217/217M Gr.WC6
- SA 335/335M Gr.P2/P11/P12
- SA 387/387M Gr.2/11/12
- 13CrMo44, 15CrMo5

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Mo	S	P
Typical	0.03	0.6	0.5	1.4	0.5	0.01	0.01
Specification	0.05 max	0.90 max	0.80 max	1.0-1.5	0.40-0.65	0.015 max	0.02 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -18°C, J
Typical	PWHT: 690°C	570	475	22	54
Specification	for 1 hrs	520 min	390 min	19 min	40 min

Hardness, 3 Layer: 220 BHN max

Diffusible H₂ Content: <5 ml/100 gm

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Carton/Box	Net wt./Box, Kg
2.5 x 350	60-90	5	4	20
3.15 x 450	100-120	5	4	20
4.0 x 450	130-170	5	4	20
5.0 x 450	180-220	5	4	20



Cromoten C

LOW ALLOY STEEL (High Temperature)

Basic Coated Electrode for welding 2.25 Cr-1Mo type creep resistant steel.

CLASSIFICATION :	EN 1599	AWS A/SFA 5.5	APPROVALS :
	E CrMo2 B 32 H5	E 9018-B3	ABS/IBR/NPCIL

KEY FEATURES :

- Basic coated
- Low alloy steel Cr-Mo deposit
- Resistant to creep and heat upto 600°C
- Ductile and crack resistant and heat treatable weld
- Radiography quality weld metal

WELDING POSITION : 



AC (70 OCV)/DCEP

TYPICAL APPLICATIONS :

- Welding of 2.25Cr-0.5Mo and 2.25Cr-1Mo type creep resistant steels
- Cr-Mo and Cr-Mo-V bearing steels for high temperature applications
- Main steam pipes of boilers in electric power plant, Boiler super heaters
- Joining of P5A materials
- Suitable for 12CrMo9-10, 10CrSiMoV7 German steels
- Joining ASTM A 335 Gr.P22, A 387 Gr.22 materials
- Application in refineries, power plants, pressure vessels, boilers

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Mo	S	P
Typical	0.08	0.6	0.4	2.4	1.0	0.02	0.02
Specification	0.05-0.09	0.45-0.75	0.20-0.65	2.0-2.5	0.9-1.2	0.03 max	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%
Typical	PWHT: 690°C	660	580	22
Specification	for 1 Hr	625-740	540-640	20-24

Hardness, 3 Layer: 180-200 BHN

Diffusible H₂ Content: <5 ml/100 gm

SPECIAL TESTS : Creep Rupture Test at 600°C (100 MPa stress for min. 1000 hrs)

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/ Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
2.5 x 350	60-90	230	4	22
3.15 x 450	100-140	112	4	44
4.0 x 450	140-180	75	4	66
5.0 x 450	190-250	54	4	91



Cromoten C PHT Batch

LOW ALLOY STEEL (High Temperature)

Basic type Electrode for welding 2.25 Cr - 1 Mo cast steels.

CLASSIFICATION : EN 1599 AWS A/SFA 5.5

E CrMo2 B 32 H5 E 9018-B3

KEY FEATURES :

- Basic type medium heavy coating
- Typical 2.25Cr-1Mo type weld
- Resistant to creep and heat upto 600°C
- Deposition efficiency of 105%
- Necessary preheat and interpass temperature need to be maintained
- All position capability

WELDING POSITION : 



AC (70 OCV)/DCEP

TYPICAL APPLICATIONS :

- Welding of alloy cast steel grade GS-17CrMo55, GS-18CrMo9-10
- Low alloy steel steam boilers, super heaters, hydro-crackers and piping operating at service temperatures upto 600°C
- Repair of high tensile steel castings
- Welding of higher strength piping and forgings
- Equipment for oil refining industries

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Mo	S	P
Typical	0.08	0.8	0.4	2.2	1.0	0.02	0.02
Specification	0.05-0.12	0.60-0.90	0.25-0.45	2.0-2.50	0.90-1.20	0.025 max	0.025 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at 0°C, J
Typical	PWHT: 710°C	655	570	20	56
Specification	for 4 hr.	620 min	530 min	17-25	40 min

Diffusible H₂ Content: <5 ml/100 gm

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
2.5 x 350	60-90	225	4	22
3.15 x 450	100-140	118	4	42
4.0 x 450	140-180	78	4	64
5.0 x 450	190-250	53	4	94

EQUIVALENT : GMAW wire: Automig-90S-B3

GTAW filler: Tigfil-90S-B3



Cromoten C S Plus

LOW ALLOY STEEL (High Temperature)



Cromoten D

LOW ALLOY STEEL (High Temperature)

Low hydrogen basic type Electrode for welding 5Cr-0.5 Mo steels.

CLASSIFICATION :	EN 1599	AWS A/SFA 5.5	APPROVALS :
	E CrMo5 B 32 H5	E 8018-B6	DNV/IBR

KEY FEATURES :

- Basic type iron powder electrode
- Low carbon 5Cr-0.5Mo type weld
- Weld deposit highly resistant to creep and heat upto 650°C
- Air hardenable weld
- Preheat and interpass should be maintained during welding
- All position capability

WELDING POSITION : 



AC (70 OCV)/DCEP

TYPICAL APPLICATIONS :

- Welding of 5 Cr-0.5 Mo creep resistant steels and equivalent grades
- Application in refineries, chemical and power plants, pressure vessels, boilers
- Joining P5B materials e.g. SA 336/336M Gr.F5, SA 387/387MGr.5

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr
Typical	0.07	0.8	0.5	5.2
Specification	0.05-0.10	0.5-0.9	0.25-0.65	4.0-6.0
	Mo	Ni	S	P
Typical	0.5	0.1	0.02	0.02
Specification	0.45-0.65	0.40 max	0.03 max	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at 27°C, J
Typical	PWHT: 740°C for 1 hr.	610	490	22	104
Specification		550-650	460-520	20-25	80-140

Hardness, 3 Layer: 225 BHN max

Diffusible H₂ Content: <5 ml/100 gm

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
2.5 x 350	60-90	238	4	21
3.15 x 450	100-140	106	4	47
4.0 x 450	140-180	79	4	63
5.0 x 450	190-250	53	4	93

EQUIVALENT : GMAW wire: Automig 80S-B6

GTAW Filler : Tigfil-80S-B6



Cromoten D Spl

LOW ALLOY STEEL (High Temperature)

Basic coated low carbon 5Cr - 0.5 Mo type Welding Electrode.

CLASSIFICATION : EN 1599 AWS A/SFA 5.5

E CrMo5L B 32 H5 E 8018-B6L

KEY FEATURES :

- Basic coated electrode
- Low carbon Cr-Mo type weld
- An air-hardening material and require preheat and interpass temperatures of 175°C minimum during welding
- Excellent creep resistance upto 650°C
- Resistant to oxidation, heat, corrosion and wear
- All position capability

WELDING POSITION : 



AC (70 OCV)/DCEP

TYPICAL APPLICATIONS :

- Welding of 5 Cr-0.5 Mo creep resistant steels and equivalent steels
- P5B materials and similar steels
- Application in petrochemical, refineries and power plants
- Welding tube, pipe and plate subjected to high temperature service, such as ASTM A213-T5 and A335-P5

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr
Typical	0.04	0.7	0.4	4.8
Specification	0.05 max	0.50-0.90	0.25-0.65	4.0-6.0
	Mo	Ni	S	P
Typical	0.6	0.1	0.01	0.01
Specification	0.45-0.65	0.40 max	0.03 max	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at 27°C, J
Typical	PWHT: 740°C	650	580	24	108
Specification	for 1 hr.	620 min	530 min	20 min	80-140

Hardness, 3 Layer: 225 BHN max

Diffusible H₂ Content: <5 ml/100 gm

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
2.5 x 350	60-90	238	4	21
3.15 x 450	100-140	106	4	47
4.0 x 450	140-180	79	4	63
5.0 x 450	190-250	53	4	93



Basic coated 9Cr type low alloy Welding Electrode.

CLASSIFICATION :	EN 1599	AWS A/SFA 5.5	APPROVALS :
	E CrMo9 B 32 H5	E 8018-B8	DNV

KEY FEATURES :

- Basic type heavy coating
- 9Cr type low alloy weld deposit
- Resistant to corrosion and hydrogen attack at high temperatures
- Air hardenable alloy
- Optimum combination of strength, toughness with heat resistance
- Radiographic quality weld deposit
- Positional welding capability

WELDING POSITION : 



AC (70 OCV)/DCEP

TYPICAL APPLICATIONS :

- Suitable for welding of 9% Cr type P5B materials in forging, pipes, tubes and casting form
- Welding of ferritic martensitic chrome steels
- For general corrosion and heat resistance application
- Application in Power plants, Oil refineries, Chemical and Petrochemical industries

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Mo	S	P
Typical	0.08	0.6	0.4	9.2	1.1	0.01	0.02
Specification	0.05-0.10	0.50-1.0	0.20-0.70	8.0-10.0	0.85-1.20	0.025 max	0.025 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%
Typical	PWHT: 740°C	605	495	22
Specification	for 1 hr	550-650	460-540	19-26

Diffusible H₂ Content: <5 ml/100 gm

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
3.15 x 350	100-140	208	4	24
4.0 x 350	140-180	135	4	37
5.0 x 450	190-250	89	4	56

EQUIVALENT : GMAW wire: Automig 80S-B8

GTAW filler: Tigfil-80S-B8



Cromoten 9M

LOW ALLOY STEEL (High Temperature)

Basic coated 9Cr-1Mo-V-Nb type Welding Electrode.

CLASSIFICATION : EN 1599 AWS A/SFA 5.5 APPROVALS :
 E CrMo91 B 32 H5 E 9018-B9 IBR

KEY FEATURES :

- Basic coated electrode
- 9Cr-1Mo-V-Nb type weld deposit
- Excellent strength and creep resistance at high temperature upto 600°C
- Addition of V and Nb increases the resistance to strain, corrosion and oxidation
- Radiographic quality weld deposit
- Positional welding capability

WELDING POSITION : 



AC (70 OCV)/DCEP

TYPICAL APPLICATIONS :

- Suitable for welding of Cr-Mo-V-Nb steels such as P91, T91 and F91
- Suitable for material 1.4903 and similar steel Grades
- For Turbine rotors, Thermoelectric power plants, Petrochemical plants

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Mo	Ni	V
Typical	0.1	0.7	0.2	9.4	1.0	0.5	0.2
Specification	0.08-0.12	0.60-1.0	0.30 max	8.0-10.5	0.90-1.20	0.80 max	0.15-0.30
	Cu	Al	Nb	N	S	P	
Typical	0.1	0.04	0.06	0.04	0.006	0.005	
Specification	0.35 max	0.02-0.10	0.02-0.07	0.02-0.07	0.01 max	0.01 max	

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at 20°C, J
Typical	PWHT: 760°C	675	590	20	55
Specification	for 2 hr.	620-720	530-625	17-22	47 min

Hardness, 3 Layer: 240 BHN max

Diffusible H₂ Content: <5 ml/100 gm

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
2.5 x 350	60-90	211	4	24
3.15 x 350	100-140	110	4	45
4.0 x 350	140-180	70	4	71
5.0 x 450	190-250	40	4	115

EQUIVALENT : GMAW wire: Automig 90S-B9

GTAW filler: Tigfil-90S-B9



Cromoten 9M-15

LOW ALLOY STEEL (High Temperature)

Hydrogen controlled basic coated electrode for welding P91 type creep resistant steel.

CLASSIFICATION : EN 1599 AWS A/SFA 5.5
E CrMo91 B 42 H5 E 9015-B9

KEY FEATURES :

- Basic coated low hydrogen electrode
- Nb and V modified 9Cr-1Mo weld deposit
- Good impact toughness at subzero temperatures
- Excellent strength and creep resistance at high temperature under prolong holding
- All positional capability
- Radiographic quality weld deposit

WELDING POSITION : 



TYPICAL APPLICATIONS :

- Suitable for welding similar composition creep resistant steels such as P91, T91 and F91
- Welding of material 1.4903 and similar steel Grades
- Application in Petrochemical plants, Power plants, Boilers, Oil refineries

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Mo	Ni
Typical	0.1	0.9	0.15	9.1	0.9	0.7
Specification	0.08-0.12	1.20 max	0.25 max	8.50-9.50	0.85-1.10	0.40-1.0
	V	Al	Nb	N	S	P
Typical	0.2	0.01	0.07	0.04	0.005	0.005
Specification	0.20-0.30	0.04 max	0.02-0.10	0.02-0.07	0.01 max	0.01 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact , J	
					0°C	-18°C
Typical	PWHT: 760°C for 4 hrs	670	580	22	58	44
Specification		620 min	530 min	19 min	45 min	27 min

Hardness, 3 Layer: 220 BHN max

Diffusible H₂ Content: <5 ml/100 gm

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Carton/Box	Net wt./Box, Kg
2.5 x 350	50-80	5	4	20
3.15 x 350	90-120	5	4	20
4.0 x 350	110-160	5	4	20
5.0 x 450	140-190	5	4	20

EQUIVALENT : GMAW wire: Automig 90S-B9

GTAW filler: Tigfil-90S-B9



Cromoten 9M Spl

LOW ALLOY STEEL (High Temperature)

Low hydrogen Welding Electrode for elevated temperature heat and creep resistance

CLASSIFICATION : EN 1599 AWS A/SFA 5.5 APPROVALS :
E CrMo91 B 32 H5 E 9016-B9 IBR

KEY FEATURES :

- Basic coated electrode
- 9Cr-1Mo-V-Nb type weld deposit
- Excellent strength and creep resistance at high temperature under long term stresses
- Resist strain, corrosion and oxidation
- Exhibit excellent low temperature fracture toughness
- Preheat and interpass temperatures between 200-300°C
- Positional welding capability

WELDING POSITION : 



AC (70 OCV)/DCEP

TYPICAL APPLICATIONS :

- Welding of high temperature 9% Chromium P91, T91 and F91 steels to provide improved long term creep properties
- Application in Power plants, Petrochemical plants, Oil refineries, Coal liquefaction and Gasification plants
- Fabrication of turbine and boilers e.g. turbine casings
- Welding of X10CrMoVNb9-1

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Mo	Ni	V
Typical	0.1	0.6	0.15	8.9	1.0	0.7	0.2
Specification	0.08-0.12	1.2 max	0.25 max	8.5-9.5	0.85-1.1	0.4-1.0	0.2-0.3
	Cu	Al	Nb	N	S	P	
Typical	0.1	0.02	0.07	0.05	0.005	0.005	
Specification	0.25 max	0.04 max	0.02-0.1	0.02-0.07	0.01 max	0.01 max	

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at 18°C, J
Typical	PWHT: 760°C	675	590	20	56
Specification	for 2 hr.	620 min	530 min	19 min	45 min

Diffusible H₂ Content: <5 ml/100 gm

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Carton/Box	Net wt./Box, Kg
2.5 x 350	50-80	4	4	16
3.15 x 350	90-120	4	4	16
4.0 x 350	110-160	4	4	16
5.0 x 450	140-190	4	4	16

EQUIVALENT : GMAW wire: Automig 90S-B9

GTAW filler: Tigfil-90S-B9



Cromoten V

LOW ALLOY STEEL (High Temperature)

Rutile type Electrode best suited for creep resistance application upto 550°C.

CLASSIFICATION : EN 1599 AWS A/SFA 5.5

E Z R 12 E 8013-G

KEY FEATURES :

- Rutile coated electrode
- Typical 1.2Cr-0.5Mo-V type low alloy steel deposit
- Especially suited for pipe welding due to its easy striking characteristics
- Excellent resistance to creep upto 550°C
- All position capability
- Radiographic quality weld deposit

WELDING POSITION : 



AC (70 OCV)/DCEN

TYPICAL APPLICATIONS :

- Welding low alloy steel boilers and piping of Cr-Mo type operating at service temperatures upto 550°C
- Application in oil refineries, thermal and chemical plants
- For welding IS steel 07Cr90Mo55
- For boiler heads and spares of similar composition
- Suitable for ASTM SA-213 Gr.T2/T11/T12, SA-335 Gr.P2/P11/P12 and similar steels

REDRYING CONDITION : 120°C for ½ hr.

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr
Typical	0.07	0.6	0.3	1.3
Specification	0.05-0.09	0.40-0.65	0.15-0.35	1.0-1.50
	Mo	V	S	P
Typical	0.5	0.25	0.02	0.01
Specification	0.40-0.65	0.20-0.40	0.03 max	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%
Typical	PWHT: 690°C	610	530	26
Specification	for 1 hr.	570-680	490-600	20-28

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
2.5 x 350	60-90	227	4	22
3.15 x 450	100-130	117	4	42
4.0 x 450	140-180	76	4	65
5.0 x 450	190-240	45	4	111



Cromoten Ti

LOW ALLOY STEEL (High Temperature)

Rutile coated Electrode for welding of low alloy steel piping.

CLASSIFICATION : EN 1599 AWS A/SFA 5.5
E CrMo1 R 12 E 8013-G

KEY FEATURES :

- Rutile coated electrode
- Typical 1.2Cr-0.5Mo type low alloy steel deposit
- Resistance to creep upto 500°C
- Especially suited for pipe welding
- All position capability
- Radiographic quality weld deposit

WELDING POSITION : 



AC (70 OCV)/DCEN

TYPICAL APPLICATIONS :

- Welding low alloy steel boilers and piping of Cr-Mo type operating at service temperatures upto 500°C
- Application in oil refineries, thermal and chemical plants
- Suitable for P.No.3 Group No.1 and P.No.4 Group No.1 e.g. SA-182 Gr.F2/F11/F12, SA-199 Gr.T11 and similar steels
- For welding DIN 13CrMo44 steel

REDRYING CONDITION : 100°C for ½ hr.

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Mo	S	P
Typical	0.07	0.6	0.3	1.3	0.5	0.02	0.01
Specification	0.09 max	0.40-0.75	0.20-0.40	1.0-1.50	0.40-0.65	0.03 max	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%
Typical	PWHT: 690°C	625	540	24
Specification	for 1 hr.	580-680	500-600	20-26

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
2.5 x 350	60-90	246	4	20
3.15 x 450	100-130	116	4	43
4.0 x 450	140-180	76	4	65
5.0 x 450	190-240	50	4	98



Cromoten C Ti

LOW ALLOY STEEL (High Temperature)

Rutile coated electrode for 2.25 Cr-1 Mo type creep resistant steel welding.

CLASSIFICATION : EN 1599 AWS A/SFA 5.5

E CrMo2 R 12 E 9013-G

KEY FEATURES :

- Rutile type coating
- Typical 2.25Cr-1Mo weld deposit
- High strength weld with resistance to creep upto 500°C
- Deposit is heat treatable and case hardenable
- Resistant to alkaline solutions
- Preheating and PWHT of base materials is necessary
- Best suited for root run welding of pipes in all position
- Radiographic quality weld

WELDING POSITION :



AC (70 OCV)/DCEN

TYPICAL APPLICATIONS :

- Welding of 2.25Cr-0.5Mo and 2.25Cr-1Mo for boilers and piping operating at service temperatures upto 500°C
- Joining P5A materials e.g. SA-182 Gr.F22, SA-213 Gr.T22, SA-335 Gr.P22 and similar steels
- For welding DIN 10CrMo9-10, 12CrMo9-10, 10CrSiMoV7 steel
- Thermal and chemical plants, Oil refineries
- Welding high-strength joints on tempered steels

REDRYING CONDITION : 100°C for ½ hr.

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Mo	S	P
Typical	0.07	0.5	0.4	2.2	1.1	0.02	0.02
Specification	0.05-0.09	0.45-0.75	0.20-0.45	2.0-2.50	0.90-1.25	0.03 max	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%
Typical	PWHT: 690°C	675	590	23
Specification	for 1 hr.	625-740	540-640	20-24

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
2.5 x 350	60-90	240	4	21
3.15 x 450	100-140	115	4	43
4.0 x 450	140-180	74	4	68
5.0 x 450	190-240	45	4	111



Tenalloy 70A

LOW ALLOY STEEL (Low Temperature)

Basic coated Electrode for welding 2.5% Ni steel.

CLASSIFICATION : EN ISO 2560-A AWS A/SFA 5.5 APPROVALS :
E 46 6 2Ni B 32 H5 E 8018-C1 IBR/RDSO

KEY FEATURES :

- Basic coated electrode
- Ni-Mn type low alloy steel deposit
- Tough and crack free weld
- Excellent fracture toughness at subzero temperatures
- Radiographic quality weld
- All position capability

WELDING POSITION : 



AC (90 OCV)/DCEP

TYPICAL APPLICATIONS :

- Welding of 2.5% Ni steel and similar low alloyed steel for impact at -60°C
- Suitable for ASTM SA 203/203M Gr.A/B
- Shipbuilding, Bridge structure
- In refineries, power plants e.g. Pressure vessels, Heat exchanger
- Cast steels, Low temperature steel pipes, Aluminium killed steels, Low Mn alloy steels

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Ni	S	P
Typical	0.04	0.8	0.3	2.3	0.02	0.02
Specification	0.10 max	1.25 max	0.18-0.40	2.0-2.75	0.03 max	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -60°C, J
Typical	As Welded	610	515	26	57
Specification		560-650	460-550	24-30	30-80

Hardness, 3 Layer: 210 BHN max

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
2.5 x 350	60-90	240	4	21
3.15 x 450	100-140	114	4	44
4.0 x 450	140-180	75	4	66
5.0 x 450	190-250	49	4	102

EQUIVALENT : GMAW wire: Automig 80S-Ni2

GTAW filler: Tigfil-80S-Ni2



Low alloy Welding Electrode for Cryogenic application

CLASSIFICATION : EN ISO 2560-A AWS A/SFA 5.5 APPROVALS :
E 46 6 3Ni B 32 H5 E 8018-C2 IBR

KEY FEATURES :

- Basic coated electrode
- Good impact toughness at subzero temperatures
- Ni-Mn type low alloy steel weld
- Radiographic weld deposit
- Positional welding capability

WELDING POSITION : 

 AC (90 OCV)/DCEP

TYPICAL APPLICATIONS :

- Welding of 3.5% Ni steel and equivalent alloy demanding toughness down to -75°C
- Application in refineries, power plants e.g. Pressure vessels & heat exchangers
- Recommended for fine grained steel used at low temperature
- Petrochemical and Cryogenic industries
- Suitable for ASTM SA 203/203M Gr.B/D/E

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Ni	S	P
Typical	0.05	0.8	0.3	3.4	0.015	0.02
Specification	0.12 max	1.25 max	0.18-0.40	3.0-3.75	0.03 max	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -75°C, J
Typical	PWHT: 600°C	590	500	26	52
Specification	for 1 hr.	560-650	460-550	24-30	40 avg.

Diffusible H₂ Content: <5 ml/100 gm

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
3.15 x 450	100-140	122	4	41
4.0 x 450	140-180	80	4	63
5.0 x 450	190-250	50	4	100



Tenalloy 70BL

LOW ALLOY STEEL (Low Temperature)

Low alloy Welding Electrode for Cryogenic application.

CLASSIFICATION : EN ISO 2560-A AWS A/SFA 5.5 APPROVALS :
E 38 9 3Ni 32 H5 E 7018-C2L IBR

KEY FEATURES :

- Basic type heavy coated electrode
- Low carbon low alloyed Ni-Mn weld deposit
- Weld deposit is highly ductile, tough
- Resist embrittlement at sub zero temperature
- Medium penetration with base metal
- Radiographic quality welds

WELDING POSITION : 



AC (90 OCV)/DCEP

TYPICAL APPLICATIONS :

- Welding of 3.0-3.75% Ni steel
- Fabrication of parts subjected to low temperature service
- Suitable for ASTM SA 203 Gr. E steel
- Application in Refinery, Pressure vessels & valves, Petrochemical
- Locomotive main frames, truck & side frames

REDRYING CONDITION : 300°C for 1 hr.

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Ni	S	P
Specification	0.05 max	0.60-0.95	0.18-0.40	3.0-3.75	0.025 max	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -100°C, J
Specification	PWHT: 600°C for 1 Hr	490-580	410-510	25-32	40 avg.

Diffusible H₂ Content: <5 ml/100 gm

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
3.15 x 450	100-140	122	4	41
4.0 x 450	140-180	80	4	63
5.0 x 450	190-250	50	4	100



Basic coated low alloy Welding Electrode for 1% Ni steel.

CLASSIFICATION : EN ISO 2560-A AWS A/SFA 5.5 APPROVALS :
E 46 4 1Ni B 32 H5 E 8018-C3 ABS/IBR

KEY FEATURES :

- Basic coated electrode
- Typical Ni-Mo type welds
- Excellent fracture toughness at -40°C
- Superior crack resistance
- Radiographic quality welds
- All position capability

WELDING POSITION :



AC (70 OCV)/DCEP

TYPICAL APPLICATIONS :

- Welding of high tensile steel, 1% Ni steel and equivalent steels
- Storage tanks for low temperature
- Off shore platforms, bridge
- Application in refineries, power plants e.g. pressure vessels and
- heat exchangers, machinery

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Ni	Mo	S	P
Typical	0.08	1.0	0.3	1.0	0.3	0.01	0.02
Specification	0.05-0.09	0.80-1.25	0.20-0.45	0.80-1.10	0.20-0.35	0.03 max	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at - 40°C, J
Typical	As Welded	600	530	26	78
Specification		560-650	470-550	24-30	50-100

Hardness, 3 Layer: 200 BHN max

Diffusible H2 Content: <5 ml/100 gm

SPECIAL TEST : HIC & SSCC (NACE)

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
2.5 x 350	60-90	227	4	22
3.15 x 450	100-140	116	4	43
4.0 x 450	140-180	77	4	64
5.0 x 450	190-250	49	4	102



Basic coated low alloy Electrode for welding 1% Ni steel.

CLASSIFICATION : EN ISO 2560-A AWS A/SFA 5.5 APPROVALS :
E 46 5 1Ni B 12 H5 E 8018-G IBR

KEY FEATURES :

- Basic coated electrode
- Excellent fracture toughness down to -50°C
- Resist atmospheric corrosion
- Weld metal is tough & highly crack resistant
- Radiographic quality weld
- Suitable for positional welding

WELDING POSITION : 



AC (70 OCV)/DCEP

TYPICAL APPLICATIONS :

- Suitable for joining steels containing 1% Ni and 0.5% Cu
- Storage tanks, Pipes
- Pressure vessels, Boilers
- Bridges, Heavy structures

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Ni	S	P
Typical	0.07	1.35	0.4	1.1	0.01	0.02
Specification	0.095 max	1.0-1.65	0.25-0.65	0.7-1.25	0.03 max	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -50°C, J
Typical	As Welded	610	570	25	62
Specification		560-680	470-590	24 min	50 avg.

Diffusible H₂ Content: <5 ml/100 gm

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
2.5 x 350	60-90	227	4	22
3.15 x 450	100-140	113	4	44
4.0 x 450	140-180	76	4	65
5.0 x 450	190-250	49	4	100

EQUIVALENT : GMAW wire: Automig 80S-Ni1
FCAW wire: Automig FC 81T1-Ni1

GTAW filler: Tigfil 80S-Ni1



Welding Electrode for high tensile steel containing 1% Ni.

CLASSIFICATION : EN ISO 2560-A AWS A/SFA 5.5 APPROVALS :
E 46 4 Z B 12 H5 E 8018-G LRA/ABS

KEY FEATURES :

- Basic coated electrode
- Ni-Mn type low alloy steel weld
- Excellent impact toughness down to -50°C
- Highly crack resistant welds
- Radiographic quality weld deposit
- All positional welding capability

WELDING POSITION : 



AC (70 OCV)/DCEP

TYPICAL APPLICATIONS :

- Pressure vessels, boilers
- Bridges, Heavy structures subject to
- dynamic loading and mechanical restraint
- Storage tanks, Pipes
- Joining steels containing 1% Ni
- Welding of ALDUR 45/60, ASTM SA-841/841M

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Ni	S	P
Typical	0.08	1.5	0.3	0.6	0.02	0.02
Specification	0.05-0.10	1.40-1.85	0.20-0.48	0.45-0.80	0.03 max	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -50°C, J
Typical	As Welded	605	520	26	54
Specification		560-650	460-570	24 min	40 avg.

Diffusible H₂ Content: <5 ml/100 gm

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
2.5 x 350	60-90	240	4	21
3.15 x 450	100-140	115	4	44
4.0 x 450	140-180	86	4	58
5.0 x 450	190-250	49	4	100



Tenalloy 16E Spl

LOW ALLOY STEEL (Low Temperature)

Welding Electrode with Excellent Sub Zero Temperature Properties

CLASSIFICATION : EN ISO 2560-A AWS A/SFA 5.5
E 46 5 Mn1Ni B 12 H5 E 8016-G

KEY FEATURES :

- Basic type low hydrogen electrode
- Excellent impact properties at sub zero temperature
- Exhibits excellent mechanical properties in the as welded and post weld condition

WELDING POSITION :   AC (70 OCV)/ DCEP

TYPICAL APPLICATIONS :

- Welding of steels with high yield strength upto 450 MPa
- Welding and repairing high strength steels such as BS 4360-55 E/F

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Ni	S	P
Typical	0.05	1.6	0.3	0.8	0.01	0.01
Specification	0.03-0.08	1.50-1.90	0.20-0.50	0.60-1.0	0.020 max.	0.025 max.

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact At -51°C , J
Typical	As Welded	580	500	25	64
Specification		550 min	460 min	20 min.	47 avg.

Diffusible H₂ Content: <5 ml/100 gm

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Carton/Box	Net wt./Box, Kg
2.5 x 350	60-90	5	4	20
3.15 x 450	90-140	5	4	20
4.0 x 450	130-180	5	4	20
5.0 x 450	180-230	5	4	20



Tenalloy 60D3

LOW ALLOY STEEL (High Strength)

Electrode for welding high strength steel.

CLASSIFICATION : EN ISO 2560-A AWS A/SFA 5.5 APPROVALS :
E 46 4 Z B 32 H5 E 8018-D3 IBR

KEY FEATURES :

- Medium-heavy coated electrode
- Mn-Mo type low alloy steel welds
- Exhibit good toughness at subzero temperatures
- All position capability
- Weld metal meets X-ray quality, ultrasonic and other code requirements
- Suitable for fully killed fine grained steels

WELDING POSITION :



AC (90 OCV)/DCEP

TYPICAL APPLICATIONS :

- Welding of Mn-Mo type steels and equivalent grades
- Penstocks, Pressure vessels
- Welding low alloy high strength steels in 540 MPa UTS range
- Earth moving equipments

REDRYING CONDITION : 300°C for 1 hr.

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Ni	Mo	S	P
Typical	0.09	1.3	0.4	0.5	0.5	0.02	0.02
Specification	0.12 max	1.0-1.75	0.20-0.65	0.90 max	0.40-0.65	0.03 max	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -51°C, J
Typical	As Welded	605	510	24	45
Specification		560-660	460-560	22-28	30-80

Diffusible H₂ Content: <5 ml/100 gm

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
2.5 x 350	60-90	208	4	24
3.15 x 450	90-140	108	4	46
4.0 x 450	140-180	73	4	68
5.0 x 450	180-250	47	4	106



Tenalloy 70D1

LOW ALLOY STEEL (High Strength)

Welding electrode depositing Mn-Mo type low alloy steel weld.

CLASSIFICATION :	EN ISO 2560-A	AWS A/SFA 5.5	APPROVALS :
	E 50 3 Z B 32 H5	E 9018-D1	IBR

KEY FEATURES :

- Basic coated electrode
- Typical Mn-Mo type weld deposit
- Excellent fracture toughness down to -50°C
- Suitable for welding fully killed fine grained steels
- Suitable preheat, interpass and PWHT is required depending on base metal composition
- All position capability
- Radiographic quality weld

WELDING POSITION : 



AC (70 OCV)/DCEP

TYPICAL APPLICATIONS :

- Welding of low alloy high tensile steels of typical UTS 650 MPa
- Penstocks, Earth moving equipments and other similar fabrications

REDRYING CONDITION : 300°C for 1 hr.

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Ni	Mo	S	P
Specification	0.10 max	1.0-1.75	0.20-0.50	0.90 max	0.25-0.45	0.03 max	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at - 40°C, J
Specification	PWHT: 620°C for 1 hr.	600 min	530 min	17 min	40 avg.

Diffusible H₂ Content: <5 ml/100 gm

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
3.15 x 450	100-140	109	4	46
4.0 x 450	140-180	78	4	64
5.0 x 450	190-250	49	4	102



Tenalloy 75D2

LOW ALLOY STEEL (High Strength)

Low alloyed Mn-Ni-Mo type Electrode for high tensile steel Welding.

CLASSIFICATION : EN 757

AWS A/SFA 5.5

APPROVALS :

E 55 4 Z B 32 H5

E 10018-D2

ABS

KEY FEATURES :

- Basic type electrode
- Mn-Ni-Mo type weld deposit
- High resistance to cracking and cold toughness at temperatures as low as -50 °C
- Suitable preheat, interpass and PWHT is necessary to achieve desired properties
- Radiographic weld deposit
- Positional welding capability

WELDING POSITION :



AC (70 OCV)/DCEP

TYPICAL APPLICATIONS :

- Welding of fully killed fine grained high tensile steels used for fabrication of penstock, earthmoving equipments
- Heavy structures under restraint
- Used for materials with minimum tensile strength of 690 MPa

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Ni	Mo	S	P
Typical	0.08	1.8	0.5	0.6	0.4	0.02	0.02
Specification	0.15 max	1.65-2.0	0.20-0.60	0.90 max	0.25-0.45	0.03 max	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at - 50°C, J
Typical	As Welded	725	640	19	56
Specification		690-790	600-700	16-24	40 avg.

Diffusible H₂ Content: <5 ml/100 gm

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
2.5 x 350	60-90	242	4	21
3.15 x 450	100-140	112	4	44
4.0 x 450	140-180	74	4	67
5.0 x 450	190-250	49	4	100



Ni-Mn alloyed welding Electrode for high tensile steel.

CLASSIFICATION : EN 757 AWS A/SFA 5.5 APPROVALS :
E 55 4 Z B 32 H5 E 10018-M ABS/IBR

KEY FEATURES :

- Basic coated electrode
- Ni-Mn type weld deposit
- Moisture resistant coating
- Radiographic quality welds
- Suitable for positional welding

WELDING POSITION : 



AC (70 OCV)/DCEP

TYPICAL APPLICATIONS :

- Welding of high tensile steels, heavy sections
- Earthmoving equipments and heavy structures
- Welding of USS T-1, NAXTRA 70, BH65 steels used for fabrication of penstocks

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Ni	Mo	S	P
Typical	0.08	1.6	0.5	2.1	0.4	0.02	0.02
Specification	0.05-0.10	1.30-1.80	0.25-0.60	1.25-2.50	0.50 max	0.03 max	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at - 50°C, J
Typical	As Welded	765	705	23	57
Specification		710 min	610 min	20 min	30-70

Diffusible H₂ Content: <5 ml/100 gm

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
2.5 x 350	60-90	230	4	22
3.15 x 450	100-140	116	4	43
4.0 x 450	140-180	77	4	64
5.0 x 450	190-250	48	4	104



Welding Electrode for high strength steel with subzero impact.

CLASSIFICATION : EN 757 AWS A/SFA 5.5 APPROVALS :
E 69 4 Z B 32 H5 E 11018-M ABS

KEY FEATURES :

- Basic type coating
- Ni-Mn-Mo-Cr-V type electrode
- Excellent crack resistant
- Excellent toughness at subzero temperature
- Radiographic quality weld metal

WELDING POSITION : 



AC (70 OCV)/DCEP

TYPICAL APPLICATIONS :

- Welding of high tensile steels like USS T-1, Fine grained steels like HY 80, HY 90, HY 100, NAXTRA 70
- Heavy structures under restraint
- Suitable for ASTM SA 225/225M Gr.C/D, SA 533/533M Gr.B/C/D, SA 543/543M Gr.B/C
- Penstocks, Earthmoving equipments

REDRYING CONDITION : 300°C for 2 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Ni	Mo
Typical	0.08	1.6	0.5	1.9	0.4
Specification	0.05-0.09	1.30-1.80	0.30-0.60	1.25-2.40	0.30-0.50
	Cr	V	S	P	
Typical	0.3	0.02	0.02	0.02	
Specification	0.20-0.40	0.05 max	0.03 max	0.03 max	

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at - 50°C, J
Typical	As Welded	820	730	22	55
Specification		770-870	690-760	20-24	40 avg.

Diffusible H₂ Content: <5 ml/100 gm

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
2.5 x 350	60-90	215	4	23
3.15 x 450	100-140	114	4	44
4.0 x 450	140-180	78	4	63
5.0 x 450	190-250	51	4	96
6.3 x 450	250-310	30	4	167



Tenalloy 80HH Spl

LOW ALLOY STEEL (High Strength)

Extra low hydrogen low alloy Welding Electrode for high strength with subzero application.

CLASSIFICATION : EN 757 AWS A/SFA 5.5 APPROVALS :
E 69 4 Z B 32 H5 E 11018-M IBR

KEY FEATURES :

- Extra low hydrogen electrode
- Low alloy high tensile steel electrode
- Good impact toughness at -50°C
- All position capability
- Radiographic quality weld
- Suitable for welding fully killed fine grained steels

WELDING POSITION : 

 AC (90 OCV)/DCEP

TYPICAL APPLICATIONS :

- Penstocks, Earth moving equipments & other heavy steel fabrications made from high tensile steels
- Welding USS T-1 steel, Heat treated fine grained steels, NAXTRA 70, Hy80
- Suitable for ASTM SA 225/225M Gr.C/D, SA 533/533M Gr.B/C/D Class 2 and 3, SA 543/543M Gr.B/C Class 1 and 2, SA 612/612M, SA 738/738M Gr.A/B/C

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Ni	Cr
Typical	0.08	1.6	0.5	1.8	0.3
Specification	0.06-0.10	1.30-1.70	0.30-0.70	1.25-2.50	0.20-0.40
	Mo	V	S	P	
Typical	0.4	0.02	0.05	0.05	
Specification	0.30-0.50	0.05 max	0.012 max	0.012 max	

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at - 50°C, J
Typical	As Welded	820	715	22	44
Specification		770-870	690-760	20-24	30-70

Diffusible H₂ Content: <3 ml/100 gm

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
2.5 x 350	60-90	215	4	23
3.15 x 450	90-140	113	4	44
4.0 x 450	140-180	78	4	63
5.0 x 450	180-250	51	4	96



Tenalloy 75G

LOW ALLOY STEEL (High Strength)

Welding Electrode depositing high strength Ni-Cr-Mo type weld metal.

CLASSIFICATION : EN 757 AWS A/SFA 5.5

E 55 5 Z B 32 H5 E 10018-G

KEY FEATURES :

- Basic type coating
- Optimum combination of strength and impact toughness at low temperature
- Ni-Cr-Mo type weld deposit
- Radiographic quality weld deposit
- All position capability

WELDING POSITION : 



AC (70 OCV)/DCEP

TYPICAL APPLICATIONS :

- Welding of grain refined steel and Ni steels
- Welding of DMR 249 Grade steels
- Storage tanks for liquefied gases like ammonia
- For heavy and highly restrained joints
- Distillers in coke oven batteries
- Petrochemical industries

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni
Typical	0.07	1.2	0.4	0.1	2.1
Specification	0.10 max	0.90-1.50	0.30-0.60	0.25 max	1.80-2.20
	Mo	V	S	P	
Typical	0.2	0.01	0.005	0.01	
Specification	0.30 max	0.02 max	0.010 max	0.015 max	

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at - 50°C, J
Typical	As Welded	710	630	22	56
Specification		690 min	600 min	20 min	50-60

Diffusible H₂ Content: <5 ml/100 gm

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Carton/Box	Net wt./Box, Kg
2.5 x 350	70-110	2	8	16
3.15 x 450	90-140	2	8	16
4.0 x 450	150-200	2	8	16
5.0 x 450	180-250	2	8	16



Ni-Mn-Mo type low alloy steel Welding Electrode.

CLASSIFICATION : EN 757 AWS A/SFA 5.5

E 55 5 Z B 32 H5 E 9018-G

KEY FEATURES :

- Basic coated iron powder electrode
- Ni-Mn-Mo type weld deposit
- Good impact toughness at -60°C
- All position capability
- Radiographic quality weld
- Suitable for medium-high tensile structural steels, heavy sections

WELDING POSITION :



AC (70 OCV)/DCEP

TYPICAL APPLICATIONS :

- Welding of high tensile steels, Pressure vessels, Boilers and heavy structures subject to dynamic loading and mechanical restraint
- Suitable for joining SA 662/662M Gr.A/B/C

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Ni	Mo	S	P
Typical	0.06	1.4	0.3	1.4	0.3	0.02	0.02
Specification	0.09 max	1.20-1.70	0.20-0.45	1.10-1.60	0.25-0.40	0.03 max	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -60°C, J
Typical	As Welded	655	580	23	54
Specification		630-700	550-620	20-24	35-70

Diffusible H₂ Content: <5 ml/100 gm

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
3.15 x 450	100-140	112	4	44
4.0 x 450	140-180	77	4	64
5.0 x 450	190-250	49	4	100



Tenalloy 65 Spl

LOW ALLOY STEEL (High Strength)

Ni-Mn-Mo type Electrode for welding high tensile steels.

CLASSIFICATION : EN 757 AWS A/SFA 5.5 APPROVALS :
E 55 4 Z B 32 H5 E 9018-G IBR

KEY FEATURES :

- Basic type electrode
- Low hydrogen Ni-Mn-Mo type weld
- Good impact toughness at -40°C
- Medium penetration with base metal
- All position capability
- Radiographic quality weld
- Suitable for high strength steels with
- UTS of 620-730 MPa

WELDING POSITION : 



AC (90 OCV)/DCEP

TYPICAL APPLICATIONS :

- Welding of high tensile steels
- Oil refineries, Penstocks, Submarines
- Boilers, Power house construction
- Earth moving equipments and other similar heavy fabrications
- Root pass in HY-100 steel

REDRYING CONDITION : 300°C for 1 hr.

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Ni	Mo	S	P
Typical	0.05	1.3	0.3	1.3	0.4	0.01	0.01
Specification	0.06 max	1.20-1.40	0.40 max	1.0-1.40	0.30-0.50	0.015 max	0.015 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -40°C, J
Typical	PWHT: 620°C	665	600	23	58
Specification	for 2 hrs.	620 min	530 min	17 min	27 min

Hardness, 3 Layer: 200 BHN max

Diffusible H₂ Content: <5 ml/100 gm

SPECIAL TESTS : Hot Tensile Test at 370°C – 610 MPa

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
3.15 x 450	90-140	114	4	44
4.0 x 450	140-180	74	4	68
5.0 x 450	180-250	48	4	104



Basic coated Electrode for welding high tensile structural steel.

CLASSIFICATION : EN 757 AWS A/SFA 5.5

E 55 2 Z B 32 H5 E 9018-G

KEY FEATURES :

- Basic coated electrode
- Ni-Mn type low alloy steel weld
- Optimum combination of strength and impact toughness
- Radiographic weld deposit
- Suitable for welding medium high tensile structural steels, heavy sections

WELDING POSITION : 



AC (90 OCV)/DCEP

TYPICAL APPLICATIONS :

- Welding of High tensile steels
- Pressure vessels, Boilers and heavy structures
- Joining ASTM SA 662/662M Gr.A/B/C

REDRYING CONDITION : 300°C for 1 hr.

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Ni	S	P
Typical	0.08	1.4	0.5	0.6	0.02	0.02
Specification	0.05-0.09	1.20-1.60	0.40-0.70	0.50-0.75	0.03 max	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -30°C, J
Typical	As Welded	660	590	26	60
Specification		630-700	550-620	22-26	40-70

Diffusible H₂ Content: <5 ml/100 gm

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
2.5 x 350	60-90	232	4	22
3.15 x 450	100-140	111	4	45
4.0 x 450	140-180	76	4	65
5.0 x 450	190-250	49	4	100



Tenalloy 4130

LOW ALLOY STEEL (High Strength)

Low alloy Steel Electrode for welding AISI 4130 steel.

KEY FEATURES :

- Basic coated electrode
- Ni-Cr-Mo low alloy weld deposit
- Hardening and tempering is required to achieve desired properties
- Recommended preheat and interpass temperature is 200-315°C
- All position capability
- Radiographic quality weld

WELDING POSITION :



DCEP

TYPICAL APPLICATIONS :

- Welding heat treatable alloy type AISI/SAE 4130 and 8630
- Suitable for steel casting with comparable hardening characteristics

REDRYING CONDITION : 300°C for 1 hr.

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Ni
Range	0.12-0.25	1.0-1.80	0.25-0.75	1.0-1.80
	Cr	Mo	S	P
Range	0.5-1.0	0.20-0.50	0.020 max	0.025 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%
Range	PWHT: 871°C-Oil quenching Tempering at 621°C	800-1000	700-900	16 min
	PWHT: 871°C-Oil quenching Tempering at 510°C	1000-1200	900-1100	16 min

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
3.15 x 450	90-120	114	4	44
4.0 x 450	130-170	78	4	64
5.0 x 450	180-250	50	4	100



Low alloy steel Welding Electrode for joining Cr-Mo-V type cast steel.

CLASSIFICATION : DIN 8575

EN ISO 3580-A

E CrMoV 1 B

E 1Cr Mo V B 22 H5

KEY FEATURES :

- Basic coated electrode
- Cr-Mo-V type low alloy weld deposit
- Suitable for welding similar composition cast steels
- The deposit is heat treatable
- All position capability
- Radiographic quality weld

WELDING POSITION :



DCEP

TYPICAL APPLICATIONS :

- Welding similar composition low alloy cast steels e.g. (GS-17CrMoV5-10)
- Suitable for material 1.7706
- Suitable for steel casting with comparable hardening characteristics

REDRYING CONDITION :300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Mo
Typical	0.14	0.6	0.4	1.3	1.2
Specification	0.12-0.15	1.0 max	0.40-0.50	1.20-1.50	1.0-1.30
	V	Ni	S	P	
Typical	0.2	0.2	0.01	0.01	
Specification	0.20-0.30	0.40 max	0.02 max	0.02 max	

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at 20°C, J
Typical	PWHT	715	620	20	82
Specification		630 min	500 min	16 min	27 min

PWHT : SR at 690°C for 2 hrs followed by water quenching after soaking at 940°C for 1hr and tempering at 720°C

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Carton/Box	Net wt./Box, Kg
2.5 x 350	60-90	5	4	20
3.15 x 450	90-130	5	4	20
4.0 x 450	140-180	5	4	20
5.0 x 450	190-230	5	4	20



Ultracorten III

LOW ALLOY STEEL (Weathering Steel)

Low alloy steel Electrode for welding weathering steels.

CLASSIFICATION : EN ISO 2560-A AWS A/SFA 5.5 APPROVALS :

E 46 2 Z B 32 E 8018-W2 ABS

KEY FEATURES :

- Basic type iron powder electrode
- Cr-Ni-Cu type low alloy steel welds
- High crack resistance under restraint
- Radiographic quality weld deposit
- Exhibits excellent atmospheric corrosion resistance compared to normal steels
- All position capability

WELDING POSITION : 



AC (70 OCV) / DCEP

TYPICAL APPLICATIONS :

- Welding of weathering steels e.g. CORTEN-A and CORTEN-B and their equivalents
- Bridges, Architectural structures, Exhaust gas flues, Chimneys
- Suitable for ASTM A36, A283 Gr.B/C

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr
Typical	0.06	1.0	0.6	0.5
Specification	0.10 max.	0.60-1.30	0.35-0.80	0.45-0.70
	Ni	Cu	S	P
Typical	0.7	0.6	0.02	0.02
Specification	0.40-0.80	0.30-0.75	0.03 max.	0.04 max.

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -20°C, J
Typical	As Welded	605	520	22	66
Specification		560-660	480-570	19-26	50-100

Diffusible H₂ Content: <5 ml/100 gm)

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
3.15 x 450	100-140	113	4	44
4.0 x 450	140-180	79	4	63
5.0 x 450	190-250	49	4	102



Ni-Cr-Mo Welding Electrode for high tensile low alloy steel welding.

CLASSIFICATION :	EN 757	AWS A/SFA 5.5	APPROVALS :
	E 55 4 Z B 32 H5	E 9018-M	ABS

KEY FEATURES :

- Basic coated iron powder electrode
- Ni-Cr-Mo type weld metal
- Resistant to cracking
- Exhibit good toughness at subzero temperatures
- Weld metal is of X-ray quality
- All position capability
- Suitable for high tensile, low alloy steels

WELDING POSITION :



AC (70 OCV)/DCEP

TYPICAL APPLICATIONS :

- Pressure vessels, Boilers
- Machinery parts, Rolling stocks
- High tensile weather proof steels
- Penstocks, Pipelines
- Suitable for joining NAXTRA 60 steels

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni
Typical	0.06	1.1	0.4	0.1	1.5
Specification	0.09 max	0.80-1.25	0.25-0.60	0.15 max	1.40-1.80
	Mo	V	S	P	
Typical	0.2	0.02	0.02	0.02	
Specification	0.35 max	0.05 max	0.03 max	0.03 max	

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -51°C, J
Typical	As Welded	650	590	26	54
Specification		625-700	550-620	24-30	35-75

Diffusible H₂ Content: <5 ml/100 gm

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
2.5 x 350	60-90	254	4	20
3.15 x 450	100-130	117	4	43
4.0 x 450	140-180	76	4	65
5.0 x 450	190-250	47	4	106



Nimoten Plus

LOW ALLOY STEEL (Nimoten Series)

Ni-Cr-Mo Welding Electrode For High Strength Joining Application

CLASSIFICATION : AWS A/SFA 5.5

E 10016-G

KEY FEATURES :

- Basic coated electrode
- Ni-Cr-Mo type weld metal
- High tensile strength upto 780 MPa
- Weld metal is of X-ray quality
- All position capability
- Suitable for high tensile, low alloy steels

WELDING POSITION : 



AC (70 OCV) / DCEP

TYPICAL APPLICATIONS :

- Welding of high tensile steels
- Pressure vessels, Boilers
- Machinery parts
- Penstocks, Pipelines
- Suitable for joining NAXTRA 60 steels

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr
Typical	0.07	1.0	0.5	0.12
Specification	0.09 max.	0.80-1.25	0.25-0.60	0.15 max
	Ni	Mo	S	P
Typical	1.7	0.25	0.02	0.02
Specification	1.40-1.80	0.35 max.	0.03 max.	0.03 max.

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%
Typical	PWHT:620°C	735	625	19
Specification	for 1hr.	690-780	600-650	16-24

Diffusible H₂ Content: <5 ml/100 gm)

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
2.5 x 350	60-90	278	4	18
3.15 x 450	100-140	125	4	40
4.0 x 450	140-180	86	4	58
5.0 x 450	190-250	53	4	94
6.3 x 450	260-310	34	4	147



Nimoten Plus 535

LOW ALLOY STEEL (Nimoten Series)

Low alloy steel Welding Electrode for application in steel mills and forging industries.

KEY FEATURES :

- Basic type medium-heavy coating
- Low alloy type weld metal
- Tensile strength over 950 Mpa
- Radiographic weld deposit
- All position capability
- Special application for joining and overlay work in steel mills and forging industry

WELDING POSITION :



AC (90 OCV)/DCEP

TYPICAL APPLICATIONS :

- Filling die impressions in forging dies
- Automotive parts
- Certain grades of armour steel
- Ni-Cr-Mo steels in chemical plants
- Crack repair in Ni-Cr hot working dies
- High tensile steel machinery parts
- Parts of earth moving equipment
- Steam turbine rotors at 538°C
- Case hardening steel parts repair after removing hard zone

REDRYING CONDITION : 300°C for 1 hr.

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni
Typical	0.08	1.4	0.2	2.8	2.1
Range	0.07-0.09	1.20-1.70	0.15-0.25	2.5-3.0	1.8-2.2
	Mo	V	S	P	
Typical	1.2	0.1	0.02	0.02	
Range	1.0-1.5	0.1-0.2	0.03 max	0.03 max	

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%
Typical	As Welded	735	625	19
Range		690-780	600-650	16-24

Hardness, 3 Layer: 260-330 BHN

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
3.15 x 450	100-130	127	4	39
4.0 x 450	140-180	86	4	58
5.0 x 450	190-230	53	4	94
6.3 x 450	260-320	34	4	147



Nimoten Plus 535 A

LOW ALLOY STEEL (Nimoten Series)

Low alloy steel Welding Electrode for large hot working die repair.

KEY FEATURES :

- Medium-heavy coated electrode
- Low alloy steel weld deposit
- Tensile strength over 1100 MPa achievable
- Three layered hardness of over 320 BHN
- Radiographic weld deposit
- All position capability

WELDING POSITION :



AC (90 OCV)/DCEP

TYPICAL APPLICATIONS :

- For repair of large hot working dies
- All types of forging dies
- Crack repair in Ni-Cr hot working dies
- High tensile steel machinery parts
- Repair of case hardening steel part after removing the hard zones
- Suitable for repair of H11, H13 and DB-6 type die block material
- Parts of earth moving equipment
- Steam turbine rotors in service upto 538°C

REDRYING CONDITION : 300°C for 1 hr.

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni
Typical	0.1	1.5	0.2	2.7	2.2
Range	0.07-0.12	1.20-1.70	0.15-0.25	2.4-2.8	1.8-2.4
	Mo	V	S	P	
Typical	1.3	0.15	0.02	0.02	
Range	1.0-1.5	0.1-0.2	0.03 max	0.03 max	

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%
Typical	As Welded	1080	935	20
Range		1000-1190	870-1040	16 min

Hardness, 3 Layer: 300-360 BHN

Diffusible H₂ Content: <5 ml/100 gm

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
4.0 x 450	140-180	83	4	60
5.0 x 450	190-230	53	4	94
6.3 x 450	260-320	34	4	147



Nimoten Plus 535 B

LOW ALLOY STEEL (Nimoten Series)

Low alloy steel Welding Electrode for repair of drop forging dies.

KEY FEATURES :

- Medium-heavy coated electrode
- Low alloy steel weld deposit
- Tensile strength over 1100 MPa achievable
- Three layered hardness upto 410 BHN
- Suitable preheat and PWHT required depending on base material type
- Radiographic weld deposit
- All position capability

WELDING POSITION :



AC (90 OCV)/DCEP

TYPICAL APPLICATIONS :

- For repair of large hot working dies specially drop forging dies
- Crack repair in Ni-Cr hot working dies
- High tensile steel machinery parts
- Parts of earth moving equipment
- Suitable for repair of H11, H13 and DB-6 type die block material
- Steam turbine rotors in service upto 538°C
- Repair of case hardening steel part after removing the hard zones

REDRYING CONDITION : 300°C for 1 hr.

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni
Typical	0.1	1.4	0.2	2.8	2.1
Range	0.07-0.12	1.20-1.75	0.15-0.35	2.5-3.0	1.9-2.3
	Mo	V	S	P	
Typical	1.4	0.15	0.02	0.02	
Range	1.0-1.5	0.1-0.2	0.03 max	0.03 max	

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%
Typical	As Welded	1100	940	19
Range		1000-1190	870-1040	15 min

Hardness, 3 Layer: 300-410 BHN

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Approx. Pcs/ Carton	Carton/Box	Approx. wt. of 1000 pcs, Kg.
4.0 x 450	140-180	79	4	63
5.0 x 450	190-230	32	4	156
6.3 x 450	260-320	28	4	179



Superinox 1A

STAINLESS STEEL (Austenitic Steel)

Stainless steel electrode for joining 18/8 type stainless steels

CLASSIFICATION :	EN 1600	AWS A/SFA 5.4	IS 5206	APPROVALS:
	E 19 9 R 12	E 308-16	E 19.9 R26	RDSO/NTPC

KEY FEATURES :

- Rutile based coating
- 19/10 type austenitic SS weld
- Resistant to cracking, corrosion and scaling upto 800°C
- Controlled ferrite content
- Smooth operating characteristics
- All position capability
- Radiographic weld quality

WELDING POSITION :



AC (70 OCV)/DCEP

TYPICAL APPLICATIONS :

- Welding Cr-Ni steels represented by AISI 301, 302, 304 and 308
- Fabrication of boilers, reactors and turbines
- SS piping in refineries, oil and gas industries, chemical plants
- Build up application on SS surfaces of centrifugal pump impellers and shafts valve faces, seats etc.
- Suitable for material no. 1.4300, 1.4301, 1.4310, 1.4312, 1.4550, 1.4001, 1.4016, 1.4057

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	S	P
Typical	0.05	1.2	0.6	19.0	10.2	0.02	0.02
Specification	0.08 max	0.70-2.0	0.30-0.85	18.0-21.0	9.0-11.0	0.03 max	0.04 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%	Ferrite No.
Typical	As Welded	600	40	5
Specification		560-660	35-50	3-7

PARAMETERS - PACKING DATA :

Ø x L , mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.0 x 300	35-45	2	5	10
2.5 x 300	50-75	2	5	10
3.15 x 300	80-100	2	5	10
4.0 x 300	110-140	2	5	10
5.0 x 300	150-180	2	5	10



Superinox 1AH

STAINLESS STEEL (Austenitic Steel)

18/8 type stainless steel Electrode with improved strength and creep resistance

CLASSIFICATION : EN 1600

AWS A/SFA 5.4

APPROVALS :

E 19 9 R 12

E 308H-16

IRS

KEY FEATURES :

- Rutile coated electrode
- 19/10 type austenitic SS weld
- Enhanced carbon content provide improved tensile strength and creep resistance at elevated temperatures
- Controlled ferrite content for maximum cracking resistance
- Radiographic quality weld
- Suitable for all position except vertical down

WELDING POSITION :



AC (70 OCV)/DCEP

TYPICAL APPLICATIONS :

- Welding of AISI 304, 304H, 321H, 347H stainless steels
- Suitable for material no. 1.4301, 1.4948, 1.4878
- For petrochemical and nuclear industries for elevated temperature creep resistance application

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	S	P
Typical	0.07	1.5	0.6	19.5	10.2	0.02	0.02
Specification	0.04-0.08	0.70-2.50	0.30-0.80	18.0-21.0	9.0-11.0	0.03 max	0.04 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%	Ferrite No.
Typical	As Welded	605	37	4
Specification		550 min.	35 min.	3-7

Hardness, 3 layer: 220 BHN max

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 300	50-75	2	5	10
3.15 x 300	80-100	2	5	10
4.0 x 300	110-140	2	5	10



Superinox 1A-15

STAINLESS STEEL (Austenitic Steel)

Basic type Electrode for 18/8 type stainless steels

CLASSIFICATION :	EN 1600	AWS A/SFA 5.4	IS 5206
	E 19 9 B 22	E 308-15	E 19.9 B20

KEY FEATURES :

- Basic type coating
- 19/10 type austenitic SS weld
- Resistant to cracking, corrosion and scaling upto 800°C
- Controlled ferrite content
- Radiographic weld quality
- All position capability
- Excellent welder appeal

WELDING POSITION :



DCEP

TYPICAL APPLICATIONS :

- Welding Cr-Ni steels of AISI 301, 302, 304 and 308 types
- Build up application on SS surfaces of centrifugal pump impellers and shafts valve faces, seats etc
- For steels of difficult weldability such as certain armour steel grades.
- Suitable for material no. 1.4300, 1.4301, 1.4310, 1.4312, 1.4550, 1.4001, 1.4016, 1.4057

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	S	P
Typical	0.04	1.4	0.5	19.4	9.8	0.02	0.02
Specification	0.08 max	1.0-2.0	0.20-0.70	18.0-21.0	9.0-11.0	0.03 max	0.04 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%	Ferrite No.
Typical	As Welded	610	37	6
Specification		570-690	35-45	3-7

PARAMETERS - PACKING DATA :

Ø x L , mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 300	50-70	2	5	10
3.15 x 300	80-100	2	5	10
4.0 x 300	110-140	2	5	10
5.0 x 300	150-180	2	5	10



King Stainless 308L

STAINLESS STEEL (Austenitic Steel)

Stainless steel Electrode for welding of all 18/8 type stainless steel.

CLASSIFICATION : AWS A/SFA 5.4

E 308-16

KEY FEATURES :

- Rutile type coating
- Smooth and stable arc
- Minimal Spatter
- Self peeling slag
- Excellent welder appeal
- All position capability
- Radiographic quality weld
- Results in welds of excellent corrosion and scaling resistance

WELDING POSITION :



AC (50 OCV) / DCEP

TYPICAL APPLICATIONS :

- Welding Cr-Ni steels represented by AISI 301, 302, 304, 304L, 308 and 308L
- For cladding applications

REDRYING CONDITION : 300°C for 1 hr.

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

C	Mn	Si	Cr	Ni	S	P
0.04 max	0.5-0.25	1.0 max	18.0-21.0	9.0-11.0	0.03 max	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

Condition	UTS, MPa	EL%
As Welded	520 min	35 min

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.0 x 300	35-45	2	5	10
2.5 x 350	55-75	2	5	10
3.15 x 350	85-100	2	5	10
4.0 x 350	110-140	2	5	10



Betanox 308 Plus

STAINLESS STEEL (Austenitic Steel)

Stainless steel Electrode for joining 304 type steels

CLASSIFICATION :	EN 1600	AWS A/SFA 5.4	IS 5206
	E 19 9 R 13	E 308-17	E 19.9 R36

KEY FEATURES :

- Acid-Rutile based coating
- 19/10 type austenitic SS weld
- Controlled ferrite content
- Resistant to cracking, atmospheric corrosion and scaling upto 800°C
- Exhibits excellent creep strength

WELDING POSITION : 



AC (70 OCV) / DCEP

TYPICAL APPLICATIONS :

- Welding Cr-Ni steels represented by AISI 301, 302, 304 and 308
- Fabrication of boilers, reactors and turbines
- SS piping in refineries, oil and gas industries, chemical plants
- Build up application on SS surfaces of centrifugal pump impellers and shafts valve faces, seats etc
- Suitable for material no. 1.4300, 1.4301, 1.4310, 1.4312, 1.4550, 1.4001, 1.4016, 1.4057

REDRYING CONDITION : 300°C for 2 hrs. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	S	P
Typical	0.04	1.4	0.6	19.6	10.1	0.02	0.02
Specification	0.07 max	0.50-2.0	1.0 max	18.0-21.0	9.0-11.0	0.03 max	0.04 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%	Ferrite No.
Typical	As Welded	605	38	4
Specification		550-650	35-50	3-7

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 350	50-75	2	5	10
3.15 x 350	60-100	2	5	10
4.0 x 350	100-140	2	5	10
5.0 x 350	150-180	2	5	10



Superinox 1C

STAINLESS STEEL (Austenitic Steel)

19/10 type extra low carbon stainless steel Electrode

CLASSIFICATION :	EN 1600	AWS A/SFA 5.4	IS 5206	APPROVALS:
	E 19 9 L R 12	E 308L-16	E 19.9 LR26	NPCIL/IRS/MND

KEY FEATURES :

- Rutile based coating
- Extra low carbon 19/10 type austenitic weld
- Excellent corrosion and scaling resistance upto 800°C
- Controlled ferrite content for maximum cracking resistance
- Suitable for all position welding
- Radiographic quality weld deposit

WELDING POSITION : 



AC (70 OCV)/DCEP

TYPICAL APPLICATIONS :

- Welding Cr-Ni steels represented by AISI 301, 302, 304, 304L, 308, 308L
- Fabrication of boilers, reactors and turbines
- Build up application on SS
- SS piping in refineries, oil and gas Industries, chemical plants
- Suitable for material no. 1.4300, 1.4301, 1.4310, 1.4312, 1.4550, 1.4001, 1.4016, 1.4057

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	S	P
Typical	0.03	1.2	0.5	19.5	10.0	0.02	0.02
Specification	0.04 max.	0.60-2.0	0.30-0.85	18.0-21.0	9.0-11.0	0.03 max	0.04 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%	Ferrite No.
Typical	As Welded	590	37	5
Specification		530-650	35-40	3-7

Hardness, 3 Layer: 150-200 BHN

SPECIAL TEST : IGC Test as per ASTM A262 Practice E, CVN Impact Test at subzero temperature

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.0 x 300	35-45	2	5	10
2.5 x 300	50-75	2	5	10
3.15 x 300	80-100	2	5	10
4.0 x 300	110-140	2	5	10

EQUIVALENT : GMAW wire:Miginox 308L GTAW filler:Tiginox 308L FCAW wire:Miginox FC 308L



Superinox 1C-15

STAINLESS STEEL (Austenitic Steel)

Basic coated 19/10 type stainless steel Electrode

CLASSIFICATION :	EN 1600	AWS A/SFA 5.4	IS 5206	APPROVALS:
	E 19 9 L B 22	E 308L-15	E 19.9 LB20	BV

KEY FEATURES :

- Basic type coating
- Extra low carbon 19/10 type weld
- Resist inter-crystalline corrosion
- Exhibits good toughness properties
- Controlled ferrite content for maximum cracking resistance
- Excellent corrosion and scaling resistance upto 800°C
- Radiographic weld deposit

WELDING POSITION :



DCEP

TYPICAL APPLICATIONS :

- Welding Cr-Ni steels represented by AISI 301, 302, 304, 304L, 308, 308L
- Dairy industry, chemical and fibre industry
- Suitable for material no. 1.4300, 1.4301, 1.4310, 1.4312, 1.4550, 1.4001, 1.4016, 1.4057

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	S	P
Typical	0.03	1.0	0.5	19.2	10.2	0.02	0.02
Specification	0.04 max.	0.60-2.0	0.20-0.70	18.0-21.0	9.0-11.0	0.03 max	0.04 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%	Ferrite No.
Typical	As Welded	625	38	5
Specification		570-690	35-45	3-7

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 300	50-70	2	5	10
3.15 x 300	80-100	2	5	10
4.0 x 300	110-140	2	5	10



Superinox 1C-15 LT

STAINLESS STEEL (Austenitic Steel)

19/10 type stainless steel Electrode for cryogenic application

CLASSIFICATION :	EN 1600	AWS A/SFA 5.4	IS 5206
	E 19 9 L B 22	E 308L-15	E 19.9 LB20

KEY FEATURES :

- Basic coated electrode
- Extra low carbon 19/10 type weld
- Resist inter-crystalline corrosion
- Exhibit excellent toughness properties at sub zero temperatures
- Controlled ferrite content of 0 to 2 for cryogenic applications
- Excellent corrosion and scaling resistance at high temperatures
- Radiographic quality weld deposit

WELDING POSITION :



DCEP

TYPICAL APPLICATIONS :

- For cryogenic applications of AISI 302, 304, 304L steels
- Dairy industry, chemical and fibre industry
- Welding of 18/8 type steels represented by AISI 301, 302, 304, 304L, 308, 308L

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	S	P
Typical	0.03	1.0	0.5	19.2	10.2	0.02	0.02
Specification	0.04 max.	0.60-2.0	0.20-0.70	18.0-21.0	9.0-11.0	0.03 max	0.04 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%	CVN Impact at -196°C, J	Ferrite No.
Typical	As Welded	580	37	52	1
Specification		520-660	35-40	30 min	0-2

Typical Lateral Expansion : 0.50 mm

SPECIAL TEST : IGC Practice E of ASTM A262

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 300	50-75	2	5	10
3.15 x 300	80-100	2	5	10
4.0 x 300	110-140	2	5	10



Betanox 308L Plus

STAINLESS STEEL (Austenitic Steel)

Extra low carbon 19/10 type stainless steel Electrode with maximum cracking resistance

CLASSIFICATION :	EN 1600	AWS A/SFA 5.4	IS 5206
	E 19 9 L R 13	E 308L-17	E 19.9 LR36

KEY FEATURES :

- Acid-Rutile based coating
- Extra low carbon 19/10 type austenitic weld deposit
- Resistant to cracking
- Excellent corrosion and scaling resistance upto 800°C
- Easy slag removal
- Radiographic quality weld

WELDING POSITION : 



AC (70 OCV) / DCEP

TYPICAL APPLICATIONS :

- Welding Cr-Ni steels such as AISI 301,302, 304, 304L, 308, 308L
- Fabrication of boilers, reactors and turbines
- Build up application on SS
- SS piping in refineries, oil and gas industries, chemical plants
- Suitable for material no. 1.4300, 1.4301, 1.4310, 1.4312, 1.4550, 1.4001, 1.4016, 1.4057

REDRYING CONDITION : 300°C for 2 hrs. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	Cu	S	P
Typical	0.02	1.5	0.5	19.7	10.3	0.2	0.02	0.02
Specification	0.04 max	0.50-2.0	1.0 max	18.0-21.0	9.0-11.0	0.5 max	0.03 max	0.04 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%	Ferrite No.
Typical	As Welded	580	37	6
Specification		530-650	35-40	3-7

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 350	50-75	2	5	10
3.15 x 350	80-100	2	5	10
4.0 x 350	100-140	2	5	10
5.0 x 350	150-180	2	5	10

EQUIVALENT : GMAW wire:Miginox 308L GTAW filler:Tiginox 308L FCAW wire:Miginox FC 308L



Superinox 2A

STAINLESS STEEL (Austenitic Steel)

Stainless steel Electrode for chemical-pitting resistance

CLASSIFICATION :	EN 1600	AWS A/SFA 5.4	IS 5206	APPROVALS:
	E 19 12 2 R 12	E 316-16	E 19.12.2 R26	RDSO

KEY FEATURES :

- Rutile type coating
- 19/12/Mo SS electrode
- Offers improved corrosion and pitting resistance in marine and industrial environment
- Controlled ferrite content for maximum cracking resistance
- Excellent welder appeal
- All position capability
- Radiographic quality weld

WELDING POSITION :



AC (70 OCV)/DCEP

TYPICAL APPLICATIONS :

- Welding Mo bearing austenitic alloys represented by AISI 316, 317
- Suitable for material no. 1.4401 and similar grades
- Welding of equipments in Chemical, Paper and pulp, Paint and dye industries

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	Mo	S	P
Typical	0.04	1.5	0.5	19.0	12.0	2.4	0.02	0.02
Specification	0.08 max.	1.0-2.5	0.3-0.9	17.0-20.0	11.0-14.0	2.0-3.0	0.03 max	0.04 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%	Ferrite No.
Typical	As Welded	595	36	6
Specification		530-650	30-40	4-8

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.0 x 300	35-45	2	5	10
2.5 x 300	50-75	2	5	10
3.15 x 300	80-100	2	5	10
4.0 x 300	110-140	2	5	10



Betanox 316 Plus

STAINLESS STEEL (Austenitic Steel)

19/10/2 Mo type stainless steel Electrode for pitting resistance

CLASSIFICATION :	EN 1600	AWS A/SFA 5.4	IS 5206
	E 19 12 2 R 13	E 316-17	E 19.12.2 R36

KEY FEATURES :

- Acid-Rutile based coating
- 19/10/2 Mo type SS electrode
- Offers improved corrosion and pitting resistance in marine and industrial environment
- Excellent slag removal
- Controlled ferrite content of 4-8 for maximum cracking resistance
- Resistant to variety of acids e.g. Sulphuric, Hydrochloric, Acetic, Phosphoric, Citric, Tartaric etc
- Radiographic quality weld deposit

WELDING POSITION : 



AC (70 OCV) /DCEP

TYPICAL APPLICATIONS :

- Welding Mo bearing austenitic alloys represented by AISI 316, 317
- Suitable for material no. 1.4401 and similar grades
- Welding of equipments in Chemical, Paper and pulp, Paint and dye industries

REDRYING CONDITION : 300°C for 2 hrs. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	Mo	S	P
Typical	0.04	1.2	0.5	18.7	12.3	2.4	0.02	0.02
Specification	0.08 max	1.0-2.5	1.0 max	17.0-20.0	11.0-14.0	2.0-3.0	0.03 max	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%	Ferrite No.
Typical	As Welded	590	36	5
Specification		530-650	30-40	4-8

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 350	50-75	2	5	10
3.15 x 350	80-100	2	5	10
4.0 x 350	110-140	2	5	10
5.0 x 350	150-180	2	5	10



Stainless steel Electrode for high pitting resistance

CLASSIFICATION :	EN 1600	AWS A/SFA 5.4	IS 5206	APPROVALS:
	E 19 12 3 L R 12	E 316L-16	E 19.12.2 LR26	NPCIL/IRS

KEY FEATURES :

- Rutile type coating
- Extra low carbon 19/13/Mo type weld
- High resistance against intergranular corrosion
- Resistant to SCC, hot cracking and chemical attack upto 850°C
- Offers improved corrosion and pitting resistance in marine and industrial environment
- Suitable for all position
- Radiographic quality weld

WELDING POSITION :			AC (70 OCV)/DCEP
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TYPICAL APPLICATIONS :

- Welding Mo bearing austenitic alloys represented by AISI 316, 316L, 317, 317L, 318 types
- Welding of equipments in textile processing, Naval and Chemical environments, Paper and pulp, Paint and dye industries
- Joining similar grade wrought and cast material
- Cladding stainless steels
Suitable for material no. 1.4401, 1.4404, 1.4406, 1.4408, 1.4429, 1.4435, 1.4436, 1.4437, 1.4571, 1.4580, 1.4583

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	Mo	S	P
Typical	0.03	1.1	0.5	18.7	12.8	2.5	0.02	0.02
Specification	0.04 max.	0.7-2.0	0.3-0.75	17.0-20.0	11.0-14.0	2.0-3.0	0.03 max	0.04 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%	Ferrite No.
Typical	As Welded	565	35	6
Specification		510-610	30-40	3-8

SPECIAL TEST : IGC practice E as per ASTM A262

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.0 x 300	35-45	2	5	10
2.5 x 300	50-75	2	5	10
3.15 x 300	80-100	2	5	10
4.0 x 300	110-140	2	5	10

EQUIVALENT : GMAW wire:Miginox 316L GTAW filler:Tiginox 316L FCAW wire:Miginox FC 316L



Rutile type stainless steel Electrode for urea reactors

CLASSIFICATION :	EN 1600	AWS A/SFA 5.4	IS 5206
	E 19 12 3 L R 12	E 316L-16	E 19.12.2 LR26

KEY FEATURES :

- Rutile type coating
- Extra low carbon 18/14/Mo type deposit provide resistance to intergranular corrosion
- Nearly zero ferrite content
- Excellent corrosion resistance at high temperature service
- Smooth operating characteristics
- All position capability
- Radiographic quality weld

WELDING POSITION :



AC (70 OCV)/DCEP

TYPICAL APPLICATIONS :

- Specially designed for Urea reactors and Chemical industries
- Welding of Mo bearing austenitic alloys such as AISI 316, 316L, 317, 317L, 318 types
- Suitable for material no. 1.4401, 1.4404, 1.4406, 1.4408, 1.4429, 1.4435, 1.4436, 1.4437, 1.4571, 1.4580, 1.4583

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	Mo	S	P
Typical	0.03	2.1	0.3	18.2	13.1	2.4	0.01	0.01
Specification	0.04 max	1.5-2.5	0.20-0.45	17.0-19.0	11.0-14.0	2.0-3.0	0.02 max	0.02 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%	Ferrite No.
Typical	As Welded	605	37	0.2
Specification		530-630	30-45	0.5 max

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 300	50-75	2	5	10
3.15 x 300	80-100	2	5	10
4.0 x 300	110-140	2	5	10
5.0 x 300	150-180	2	5	10



Basic type stainless steel Electrode for urea reactors

CLASSIFICATION :	EN 1600	AWS A/SFA 5.4	IS 5206
	E 19 12 3 L B 22	E 316L-15	E 19.12.2 LB20

KEY FEATURES :

- Basic type coating
- Extra low carbon 17/13/Mo type deposit provide resistance to intergranular corrosion
- Low ferrite content
- Excellent corrosion resistance at high temperature service
- Smooth arc characteristics
- Suitable for all position
- Radiographic quality weld

WELDING POSITION : 



DCEP

TYPICAL APPLICATIONS :

- Specially designed for Urea reactors and Chemical industries
- Welding of Mo bearing austenitic alloys such as AISI 316, 316L, 317, 317L, 318 types
- Suitable for material no. 1.4401, 1.4404, 1.4406, 1.4408, 1.4429, 1.4435, 1.4436, 1.4437, 1.4571, 1.4580, 1.4583

REDRYING CONDITION 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	Mo	S	P
Typical	0.03	2.0	0.3	17.9	13.4	2.5	0.01	0.01
Specification	0.04 max	1.0-2.5	0.20-0.45	17.0-20.0	12.0-14.0	2.0-3.0	0.03 max	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%	CVN Impact at -196°C, J	Ferrite No.
Typical	As Welded	580	36	45	1
Specification		530-630	32-42	27 min.	2 max

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 300	50-75	2	5	10
3.15 x 300	80-100	2	5	10
4.0 x 300	110-140	2	5	10
5.0 x 300	150-180	2	5	10



Betanox K Spl

STAINLESS STEEL (Austenitic Steel)

Special Electrode for urea reactors and chemical industries

KEY FEATURES :

- Rutile coated electrode
- Extra low carbon 17/13/5Mn/Mo type fully austenitic weld deposit
- Nearly zero ferrite content
- Excellent corrosion resistance at high temperature service
- Smooth operating characteristics
- Radiographic quality weld

WELDING POSITION :



AC (70 OCV)/DCEP

TYPICAL APPLICATIONS :

- Specially designed for Urea reactors and Chemical industries
- Welding of Mo bearing austenitic alloys such as AISI 316, 316L, 317, 317L, 318 types
- Suitable for material no. 1.4401, 1.4404, 1.4406, 1.4408, 1.4429, 1.4435, 1.4436, 1.4437, 1.4571, 1.4580, 1.4583

REDRYING CONDITION 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	Mo	S	P
Specification	0.04 max	5.0-7.0	0.30-0.80	17.0-18.5	11.0-14.0	2.0-3.0	0.03 max	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%	Ferrite No.
Specification	As Welded	550-650	35-45	0.5 max

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 300	50-75	2	5	10
3.15 x 300	80-100	2	5	10
4.0 x 300	110-140	2	5	10
5.0 x 300	150-180	2	5	10

Special batches with modified chemistry to suit customer specifications are available.



Betanox 316L Plus

STAINLESS STEEL (Austenitic Steel)

Low carbon stainless steel Electrode for high pitting resistance

CLASSIFICATION :	EN 1600	AWS A/SFA 5.4	IS 5206
	E 19 12 3 L R 13	E 316L-17	E 19.12.2 LR36

KEY FEATURES :

- Acid-Rutile based coating
- Extra low carbon 18/13/2.5Mo type weld deposit
- Offers improved corrosion and pitting resistance in marine and industrial environment
- Resist Stress Corrosion Cracking, Hot cracking, Chemical corrosion at high temperature
- Smooth arc characteristics
- Easy slag removal
- Radiographic quality weld deposit

WELDING POSITION : 



AC (70 OCV) /DCEP

TYPICAL APPLICATIONS :

- Welding Mo bearing austenitic alloys such as AISI 316, 316L, 317
- Suitable for material no. 1.4401 and similar grades
- Welding of equipments in Chemical, Paper and pulp, Paint and dye industries

REDRYING CONDITION 300°C for 2 hrs. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	Mo	S	P
Typical	0.02	1.3	0.7	18.2	12.5	2.5	0.02	0.02
Specification	0.04 max	0.7-2.0	1.0 max	17.0-20.0	11.0-14.0	2.0-3.0	0.03 max	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%	Ferrite No.
Typical	As Welded	580	36	6
Specification		530-620	30-40	3-8

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 350	50-75	2	5	10
3.15 x 350	80-100	2	5	10
4.0 x 350	110-140	2	5	10
5.0 x 350	150-180	2	5	10

EQUIVALENT : GMAW wire:Miginox 316L GTAW filler:Tiginox 316L FCAW wire:Miginox FC 316L



Superinox 2D

STAINLESS STEEL (Austenitic Steel)

Stainless steel Electrode for SCC and chemical resistance

CLASSIFICATION :	EN 1600	AWS A/SFA 5.4	IS 5206
	E 19 12 3 L R 12	E 317L-16	E 19.12.3 LR26

KEY FEATURES :

- Rutile based coating
- Extra low carbon 19/13/Mo SS deposit
- Resist intergranular corrosion and cracking
- Resistant to SCC, hot cracking and chemical attack upto 850°C
- Radiographic quality weld
- Offers improved resistance to pitting and crevice corrosion
- Improved high temperature creep strength than 316 type
- Excellent welding characteristics
- Easy slag detachability
- Suitable for all position welding

WELDING POSITION :



AC (70 OCV)/DCEP

TYPICAL APPLICATIONS :

- Welding Mo bearing austenitic alloys represented by AISI 316, 316L, 317
- Welding of chemical vessels, steel tube, steel strip and casting
- Cladding stainless steels
- Suitable for material no. 1.4401, 1.4404, 1.4406, 1.4408, 1.4429, 1.4435, 1.4436, 1.4437, 1.4571, 1.4580, 1.4583

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	Mo	S	P
Typical	0.03	1.5	0.5	19.0	12.7	3.4	0.02	0.02
Specification	0.04 max	1.0-2.5	0.3-0.75	18.0-21.0	12.0-14.0	3.0-4.0	0.03 max	0.04 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%	Ferrite No.
Typical	As Welded	590	36	6
Specification		550-620	30-40	4-9

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 300	50-75	2	5	10
3.15 x 300	80-100	2	5	10
4.0 x 300	110-140	2	5	10



Superinox 2B

STAINLESS STEEL (Austenitic Steel)

A stabilized 19/12/2Mo type stainless steel electrode for resistance to variety of conventional and organic acids

CLASSIFICATION : EN 1600 AWS A/SFA 5.4
E 19 12 3 Nb R 12 E 318-16

KEY FEATURES :

- Rutile type coating
- 19/12/2Mo/Nb type weld deposit
- Resistant to sulphuric acid and organic acids at operating temperature upto 400°C
- Shows good cracking resistance
- Smooth arc and least spatter
- Easily controlled slag
- Excellent bead appearance
- Radiographic quality weld

WELDING POSITION :



AC (70 OCV)/DCEP

TYPICAL APPLICATIONS :

- Welding unstabilized and stabilized austenitic SS of AISI 318, 316, 316Ti
- Suitable for material no. 1.4401, 1.4404, 1.4406, 1.4408, 1.4429, 1.4435, 1.4436, 1.4550, 1.4552, 1.4571, 1.4580
- Welding of chemical vessels and pipelines
- Suitable as buffer layer on unalloyed steels before joining to austenitic grades

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	Mo	Nb	S	P
Typical	0.04	1.4	0.5	18.7	12.4	2.5	0.4	0.02	0.02
Specification	0.08 max	1.0-2.5	0.3-0.9	17.0-20.0	11.0-14.0	2.0-3.0	6xC-1.0	0.03 max	0.04 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%	Ferrite No.
Typical	As Welded	590	35	6
Specification		550-650	30-40	3-8

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.0 x 300	35-45	2	5	10
2.5 x 300	50-75	2	5	10
3.15 x 300	80-100	2	5	10
4.0 x 300	110-140	2	5	10



Betanox 318 Plus

STAINLESS STEEL (Austenitic Steel)

Stabilized 18/13/2 Mo type stainless steel Electrode

CLASSIFICATION : EN 1600 AWS A/SFA 5.4 IS 5206

E 19 12 3 Nb R 13 E 318-17 E 19.12.2 Nb R36

KEY FEATURES :

- Acid-Rutile based electrode
- Low carbon 18/13/Mo/Nb stabilized weld deposit
- Controlled ferrite prevent fissuring
- Resistant to stress corrosion and inter-crystalline corrosion cracking
- Good corrosion resistance to Sulphuric and organic acids
- Working temperatures upto 400°C
- Easy strike and re-striking
- Easy slag removal
- Radiographic quality welds

WELDING POSITION : 



AC (70 OCV) /DCEP

TYPICAL APPLICATIONS :

- Welding of Nb and Ti stabilized SS such as AISI 316, 318 and equivalent grades
- Welding of equipments in chemical, paper and pulp, paint and dye industries
- Suitable for materials AISI 316L, 316Ti, 316Cb, 1.4301, 1.4401, 1.4404, 1.4435, 1.4436, 1.4437, 1.4541, 1.4550, 1.4571, 1.4580, 1.4581, 1.4583

REDRYING CONDITION : 300°C for 2 hrs. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	Mo	Nb	S	P
Typical	0.04	1.9	0.5	18.3	12.8	2.2	0.4	0.02	0.02
Specification	0.08 max	1.0-2.5	1.0 max	17.0-20.0	11.0-14.0	2.0-2.5	6xC-1.0	0.03 max	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%	Ferrite No.
Typical	As Welded	615	36	5
Specification		560-660	30-40	4-8

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 350	50-75	2	5	10
3.15 x 350	80-100	2	5	10
4.0 x 350	110-140	2	5	10
5.0 x 350	150-180	2	5	10



Superinox 1B

STAINLESS STEEL (Austenitic Steel)

Nb stabilized stainless steel Electrode for highest resistance against intergranular corrosion

CLASSIFICATION :	EN 1600	AWS A/SFA 5.4	IS 5206	APPROVALS:
	E 19 9 Nb R 12	E 347-16	E 19.9 Nb R26	IRS/NTPC

KEY FEATURES :

- Rutile based coating
- Resistance to cracking and embrittlement
- Resistance to intergranular corrosion and scaling upto 850°C
- 19/10/Nb stabilized weld deposit
- Smooth operating characteristics
- All position capability
- Radiographic quality weld

WELDING POSITION : 



AC (70 OCV)/DCEP

TYPICAL APPLICATIONS :

- Welding stabilized Cr-Ni steels such as AISI 321, 321H, 347, 347H
- Fabrication of equipments in refineries, power plants, centrifugal pump impellers and shafts, valve faces, seats
- Fabrication of boiler and gas turbine
- Welding of stainless steel tanks, valves, pipes in food, chemical and petrochemical industries
- Suitable for material no. 1.4300, 1.4301, 1.4306, 1.4308, 1.4310, 1.4541, 1.4543, 1.4550, 1.4552, 1.4878, 1.6905

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	Mo	Nb	S	P
Typical	0.04	1.4	0.5	19.5	10.0	0.2	0.5	0.01	0.02
Specification	0.08 max	1.0-2.0	0.90 max	18.0-21.0	9.0-11.0	0.75 max	8xC-1.0	0.03 max	0.04 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%	Ferrite No.
Typical	As Welded	600	35	8
Specification		550-690	30-40	6-9

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.0 x 300	35-45	2	5	10
2.5 x 300	50-75	2	5	10
3.15 x 300	80-100	2	5	10
4.0 x 300	110-140	2	5	10
5.0 x 300	150-180	2	5	10

EQUIVALENT : GMAW wire:Miginox 347 GTAW filler: Tiginox 347 FCAW wire:Miginox FC 347



Betanox 347 Plus

STAINLESS STEEL (Austenitic Steel)

19/10/Nb stabilized type stainless steel Electrode

CLASSIFICATION : EN 1600

AWS A/SFA 5.4

IS 5206

E 19 9 Nb R 13

E 347-17

E 19.9 Nb R36

KEY FEATURES :

- Acid-Rutile based coating
- 19/10/Nb stabilized weld deposit
- Resistance to cracking
- Less susceptible to embrittlement
- Resistant to scaling upto 850°C
- Excellent resistance to intergranular corrosion due to Nb addition
- Easy slag removal
- Radiographic quality weld

WELDING POSITION :



AC (70 OCV) /DCEP

TYPICAL APPLICATIONS :

- Welding stabilized Cr-Ni steels such as
- AISI 321, 321H, 347, 347H
- Fabrication of equipments in refineries,
- power plants, centrifugal pump impellers and shafts, valve faces, seats
- Fabrication of boiler and gas turbine
- Welding of stainless steel tanks, valves, pipes in food, chemical and petrochemical industries
- Suitable for material no. 1.4300, 1.4301, 1.4306, 1.4308, 1.4310, 1.4541, 1.4543, 1.4550, 1.4552, 1.4878, 1.6905

REDRYING CONDITION : 300°C for 2 hrs. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	Mo	Nb	S	P
Typical	0.05	1.6	0.4	19.3	9.8	0.2	0.5	0.02	0.02
Specification	0.08 max	1.0-2.0	1.0 max	18.0-21.0	9.0-11.0	0.75 max	8xC-1.0	0.03 max	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%	Ferrite No.
Typical	As Welded	615	34	8
Specification		550-690	30-40	6-9

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 350	50-75	2	5	10
3.15 x 350	80-100	2	5	10
4.0 x 350	110-140	2	5	10
5.0 x 350	150-180	2	5	10

EQUIVALENT :GMAW wire: Miginox 347

GTAW filler: Tiginox 347



A Stainless steel Electrode for dissimilar steel joining

CLASSIFICATION :	EN 1600	AWS A/SFA 5.4	IS 5206	APPROVALS:
	E 23 12 R 12	E 309-16	E 23.12 R26	IBR

KEY FEATURES :

- Rutile type medium coating
- 23/12 type SS deposit
- Exhibit excellent corrosion and oxidation resistance upto 1100°C
- Highest resistance to cracking
- Low dilution on mild and low alloy steels due to higher alloy content
- All position capability
- Radiographic quality weld

WELDING POSITION :



AC (70 OCV)/DCEP

TYPICAL APPLICATIONS :

- Dissimilar joints between stainless steels and low alloy or carbon steels
- Welding of AISI 309 type steels
- Buffer layer on low alloy and carbon steels
- Joining corrosion resistant clad steels

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	S	P
Typical	0.05	1.6	0.5	23.6	12.9	0.02	0.02
Specification	0.10 max.	1.0-2.5	0.90 max	22.0-25.0	12.0-14.0	0.03 max	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%	Ferrite No.
Typical	As Welded	610	38	13
Specification		560-660	30 min.	12-15

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 300	50-75	2	5	10
3.15 x 300	80-100	2	5	10
4.0 x 300	110-140	2	5	10
5.0 x 300	150-180	2	5	10



Betanox 309 Plus

STAINLESS STEEL (Dissimilar Steel Welding)

A Stainless steel Electrode for dissimilar steel joining

CLASSIFICATION :	EN 1600	AWS A/SFA 5.4	IS 5206
	E 23 12 R 13	E 309-17	E 23.12 R36

KEY FEATURES :

- Acid-Rutile based coating
- 23/12 type SS deposit
- Exhibit excellent corrosion and oxidation resistance upto 1100°C
- Resistant to cracking
- Low dilution on mild and low alloy steels due to higher alloy content

WELDING POSITION : 



AC (70 OCV) / DCEP

TYPICAL APPLICATIONS :

- Dissimilar joints between stainless steels and low alloy or carbon steels
- Welding of AISI 309 type steels
- Buffer layer on low alloy and carbon steels
- Joining corrosion resistant clad steels

REDRYING CONDITION : 300°C for 2 hrs. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	S	P
Typical	0.05	1.5	0.6	24.2	12.8	0.02	0.02
Specification	0.10 max	1.0-2.5	0.90 max	22.0-25.0	12.0-14.0	0.03 max	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%
Typical	As Welded	640	37
Specification		590-710	30-40

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 350	50-75	2	5	10
3.15 x 350	80-100	2	5	10
4.0 x 350	110-140	2	5	10



A low carbon stainless steel Electrode for buffer layer and dissimilar steel joining

CLASSIFICATION :	EN 1600	AWS A/SFA 5.4	IS 5206	APPROVALS:
	E 23 12 L R 12	E 309L-16	E 23.12 LR26	IRS/NPCIL

KEY FEATURES :

- Rutile type coating
- High ferrite content for highest resistance to cracking
- Low dilution on mild and low alloy steels due to higher alloy content
- Extra low carbon 23/12 type deposit
- Exhibit excellent corrosion and oxidation resistance upto 1100°C
- Suitable for all position
- Radiographic quality welds

WELDING POSITION : 



AC (70 OCV)/DCEP

TYPICAL APPLICATIONS :

- Dissimilar joints between stainless steels and low alloy or carbon steels
- Welding of AISI 309, 309L type steels
- For buffer layer on low alloy and carbon steels
- Joining corrosion resistant clad steels

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	S	P
Typical	0.03	1.7	0.5	23.9	13.2	0.02	0.02
Specification	0.04 max	1.0-2.5	0.90 max	22.0-25.0	12.0-14.0	0.03 max	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%	Ferrite No.
Typical	As Welded	560	36	12
Specification		520-600	30-40	10-15

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 300	50-75	2	5	10
3.15 x 300	80-100	2	5	10
4.0 x 300	110-140	2	5	10
5.0 x 300	150-180	2	5	10

EQUIVALENT : GMAW wire:Miginox 309L GTAW filler:Tiginox 309L FCAW wire:Miginox FC 309L



Betanox DCb

STAINLESS STEEL (Dissimilar Steel Welding)

A Stainless steel Electrode depositing 23/12/Nb alloy

CLASSIFICATION :	EN 1600	AWS A/SFA 5.4	IS 5206
	E 23 12 Nb R 12	E 309 Nb-16	E 23.12 Nb R26

KEY FEATURES :

- Rutile coated electrode
- Deposit is 23/12/Nb stabilized
- Low dilution on mild and low alloy steels due to higher alloy content
- Intergranular corrosion and oxidation resistance upto 1100°C
- Suitable for all position
- Radiographic weld quality

WELDING POSITION :



AC (70 OCV)/DCEP

TYPICAL APPLICATIONS :

- Welding of AISI 309, 309 Nb stabilized steels
- Dissimilar joints between 347 type and low alloy or carbon steels
- Buffer layer on low alloy and carbon steels
- Joining corrosion resistant clad steels

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	Nb	Cu	S	P
Typical	0.05	1.4	0.5	23.3	13.0	0.8	0.2	0.02	0.02
Specification	0.10 max	1.0-2.5	0.90 max	22.0-25.0	12.0-14.0	0.7-1.0	0.5 max	0.03 max	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%
Typical	As Welded	600	36
Specification		560-660	30-40

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 300	50-75	2	5	10
3.15 x 300	80-100	2	5	10
4.0 x 300	110-140	2	5	10
5.0 x 300	150-180	2	5	10



Betanox 309Cb Plus

STAINLESS STEEL (Dissimilar Steel Welding)

A Nb stabilized 23/12 type stainless steel Electrode for dissimilar steel joining

CLASSIFICATION :	EN 1600	AWS A/SFA 5.4	IS 5206
	E 23 12 Nb R 13	E 309Nb-17	E 23.12 Nb R36

KEY FEATURES :

- Acid-Rutile based coating
- 23/12/Nb stabilized SS deposit
- Resistant to cracking
- Low dilution on mild and low alloy steels due to higher alloy content
- Resist intergranular corrosion
- Superior strength and oxidation resistance upto 1100°C
- Easy slag removal
- Radiographic quality weld deposit

WELDING POSITION :



AC (70 OCV) / DCEP

TYPICAL APPLICATIONS :

- Welding of AISI 309, 309 Nb type steels
- Dissimilar joints between 347 type and low alloy or carbon steels
- Buffer layer on low alloy and carbon steels before deposition of 18/8 type stabilized weld metal
- Joining corrosion resistant clad steels

REDRYING CONDITION : 300°C for 2 hrs. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	Nb	Cu	S	P
Typical	0.04	1.0	0.5	23.4	12.7	0.8	0.2	0.02	0.02
Specification	0.10 max	0.5-2.5	0.90 max	22.0-25.0	12.0-14.0	0.7-1.0	0.5 max	0.03 max	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%
Typical	As Welded	620	35
Specification		570-690	30-40

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 350	50-75	2	5	10
3.15 x 350	80-100	2	5	10
4.0 x 350	110-140	2	5	10



Betanox DMo

STAINLESS STEEL (Dissimilar Steel Welding)

A Stainless steel Electrode depositing 23/12/2.5Mo alloy

CLASSIFICATION :	EN 1600	AWS A/SFA 5.4	IS 5206
	E 23 12 2 R 12	E 309Mo-16	E 23.12.2 R26

KEY FEATURES :

- Rutile coated electrode
- High ferrite content ensures maximum cracking resistance
- Mo addition provides high strength and corrosion resistance
- Deposit is 23/12/2.5Mo type
- Excellent corrosion and oxidation resistance upto 1100°C
- Suitable for all position
- Radiographic quality welds

WELDING POSITION : 



AC (70 OCV)/DCEP

TYPICAL APPLICATIONS :

- Welding of AISI 309 Mo type steels
- Dissimilar joints between 316 type and low alloy or carbon steels
- Buffer layer on low alloy and carbon steels before deposition of 316 type weld metal

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	Mo	S	P
Typical	0.06	1.7	0.6	23.5	12.8	2.4	0.02	0.02
Specification	0.10 max	1.0-2.5	0.90 max	22.0-25.0	12.0-14.0	2.0-3.0	0.03 max	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%	Ferrite No.
Typical	As Welded	650	36	14
Specification		590-710	30-40	12-15

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 300	50-75	2	5	10
3.15 x 300	80-100	2	5	10
4.0 x 300	110-140	2	5	10
5.0 x 300	150-180	2	5	10

EQUIVALENT : GMAW wire: Miginox 309Mo

GTAW filler: Tiginox 309Mo



Betanox 309Mo Plus

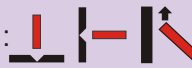
STAINLESS STEEL (Dissimilar Steel Welding)

A Stainless steel Electrode depositing 23/12/2.5 Mo alloy

CLASSIFICATION :	EN 1600	AWS A/SFA 5.4	IS 5206
	E 23 12 2 R 13	E 309Mo-17	E 23.12.2 R36

KEY FEATURES :

- Acid-Rutile based coating
- Deposit is 23/12/2.5Mo type
- High ferrite content ensures maximum cracking resistance
- Easy slag removal
- Mo addition provides high strength and corrosion resistance
- Excellent corrosion and oxidation resistance upto 1100°C
- Radiographic quality weld deposit

WELDING POSITION : 



AC (70 OCV) / DCEP

TYPICAL APPLICATIONS :

- Welding of AISI 309 Mo type steels
- Dissimilar joints between 316 type and low alloy or carbon steels
- Buffer layer on low alloy and carbon steels before deposition of 316 type weld metal

REDRYING CONDITION : 300°C for 2 hrs. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	Mo	Cu	S	P
Typical	0.06	1.7	0.6	23.5	12.8	2.4	0.2	0.02	0.02
Specification	0.12 max	0.5-2.5	0.90 max	22.0-25.0	12.0-14.0	2.0-3.0	0.5 max	0.03 max	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%	Ferrite No.
Typical	As Welded	630	37	14
Specification		590-710	30-40	12-15

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 350	50-75	2	5	10
3.15 x 350	80-100	2	5	10
4.0 x 350	110-140	2	5	10

EQUIVALENT : GMAW wire: Miginox 309Mo

GTAW filler: : Tiginox 309Mo



Betanox DMoL

STAINLESS STEEL (Dissimilar Steel Welding)

Extra low carbon stainless steel Electrode depositing 23/12/2.5Mo alloy

CLASSIFICATION : EN 1600	AWS A/SFA 5.4	IS 5206
E 23 12 2 L R 12	E 309LMo-16	E 23.12.2 LR26

KEY FEATURES :

- | | |
|--|--|
| <ul style="list-style-type: none"> • Rutile coated electrode • Extra low carbon 23/12/2.5Mo type weld deposit • Low carbon ensures resistance to intergranular corrosion and cracking | <ul style="list-style-type: none"> • Mo addition provides high strength • Excellent corrosion and oxidation resistance at elevated temperatures • All position capability • Radiographic quality welds |
|--|--|

WELDING POSITION : 



AC (70 OCV)/DCEP

TYPICAL APPLICATIONS :

- | | |
|---|--|
| <ul style="list-style-type: none"> • Welding of AISI 316, 316L type steels • Buffer layer on low alloy and carbon steels to improve corrosion and wear resistance | <ul style="list-style-type: none"> • Joining difficult to weld steels • Dissimilar joints between austenitic stainless steels containing Mo and low alloy or carbon steels |
|---|--|

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	Mo	S	P
Typical	0.03	1.6	0.6	23.2	12.7	2.5	0.02	0.02
Specification	0.04 max	1.0-2.5	0.3-0.7	22.0-25.0	12.0-14.0	2.0-3.0	0.03 max	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%
Typical	As Welded	600	37
Specification		520 min.	30 min

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 300	50-75	2	5	10
3.15 x 300	80-100	2	5	10
4.0 x 300	110-140	2	5	10
5.0 x 300	150-180	2	5	10



Superinox 312

STAINLESS STEEL (Dissimilar Steel Welding)

A versatile super high strength stainless steel Electrode for dissimilar joining and repair Welding

CLASSIFICATION :	EN 1600	AWS A/SFA 5.4	IS 5206
	E 29 9 R 12	E 312-16	E 29.9 R26

KEY FEATURES :

- Rutile type medium heavy coating
- 30/10 type SS deposit
- High strength weld with excellent resistance to cracking, fissuring and oxidation
- Two phase structure with high ferrite
- Quiet and stable arc
- Low spatter, Smooth weld bead
- Easy slag detachability
- All position welding capability
- Radiographic quality weld

WELDING POSITION :



AC (70 OCV)/DCEP

TYPICAL APPLICATIONS :

- Welding difficult to weld steels ex. high C hardenable tool, die and spring steels, 13% Mn steels, free cutting steels, high temperature steels, cast steels
- Repair of worn out parts and underlay before hardfacing
- Dissimilar joints between stainless and high carbon steels and unknown steels
- Suitable for problematic steels with higher strength such as pressing dies, trimming tools, armor plates

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	S	P
Typical	0.06	1.5	0.5	29.4	9.8	0.02	0.02
Specification	0.15 max	0.7-2.0	0.3-0.9	28.0-32.0	8.0-10.5	0.03 max	0.04 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%
Typical	As Welded	760	29
Specification		700-860	22 min.

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 300	50-80	2	5	10
3.15 x 300	80-100	2	5	10
4.0 x 300	110-140	2	5	10
5.0 x 300	150-180	2	5	10



Stainless steel Electrode for high temperature oxidation resistance

CLASSIFICATION :	EN 1600	AWS A/SFA 5.4	IS 5206
	E 25 20 R 12	E 310-16	E 25.20 R26X

KEY FEATURES :

- Rutile coated electrode
- 25/20 type SS deposit
- Excellent resistance to cracking and fissuring
- Provides excellent stability and oxidation resistance upto 1150°C
- Excellent arc stability
- Low spatter loss
- Easy slag removal
- Suitable for all position
- Radiographic quality weld deposit

WELDING POSITION :



AC (70 OCV) / DCEP

TYPICAL APPLICATIONS :

- Joining difficult to weld steels such as armor plates and ferritic stainless steels as well as dissimilar steels
- Furnace parts, Annealing boxes, Carburizing pots, Gas turbine combustion chamber parts, hydrogenation and polymerization plant
- Welding of AISI 310 and similar steel
- Cladding side of stainless steels and dissimilar steels
- Suitable for materials 1.4710, 1.4713, 1.4745, 1.4762, 1.4823, 1.4832, 1.4837, 1.4840, 1.4841, 1.4845, 1.4846, 1.4848, 1.4849

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	S	P
Typical	0.1	1.5	0.5	27.0	21.0	0.02	0.02
Specification	0.08-0.12	1.0-2.5	0.3-0.7	25.0-28.0	20.0-22.5	0.03 max	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%
Typical	As Welded	600	37
Specification		560-660	30 min.

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 300	50-75	2	5	10
3.15 x 300	80-100	2	5	10
4.0 x 300	110-140	2	5	10
5.0 x 300	150-180	2	5	10



Betanox 310 Plus

STAINLESS STEEL (Heat Resisting)

Stainless steel Electrode resistant to high temperature oxidation

CLASSIFICATION :	EN 1600	AWS A/SFA 5.4	IS 5206
	E 25 20 R 13	E 310-17	E 25.20 R36X

KEY FEATURES :

- Acid-Rutile based coating
- 25/20 SS type deposit
- Provides excellent stability and high temperature oxidation resistance upto 1150°C
- Excellent resistance to cracking and fissuring
- Stable arc and low spatter loss
- Easy slag removal
- Radiographic quality weld

WELDING POSITION : 



AC (70 OCV) / DCEP

TYPICAL APPLICATIONS :

- Joining difficult to weld steels such as armor plates and ferritic stainless steels as well as dissimilar steels
- Furnace parts, Annealing boxes and carburizing pots, Gas turbine combustion chamber parts, hydrogenation and polymerization plant
- Welding of AISI 310 and similar grades
- Cladding side of stainless steels and dissimilar steels
- Suitable for materials 1.4710, 1.4713, 1.4745, 1.4762, 1.4823, 1.4832, 1.4837, 1.4840, 1.4841, 1.4845, 1.4846, 1.4848, 1.4849

REDRYING CONDITION : 300°C for 2 hrs. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	S	P
Typical	0.1	1.7	0.6	26.7	21.4	0.02	0.02
Specification	0.08-0.15	1.0-2.5	0.75 max	25.0-28.0	20.0-22.5	0.03 max	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%
Typical	As Welded	610	37
Specification		550-650	30 min

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 350	50-75	2	5	10
3.15 x 350	80-100	2	5	10
4.0 x 350	110-140	2	5	10



Betanox 20/30

STAINLESS STEEL (Heat Resisting)

High alloyed stainless steel Electrode for elevated temperature application

CLASSIFICATION : AWS A/SFA 5.4

E 320-15

KEY FEATURES :

- Basic coated electrode
- 20/33/2/CuNb stabilized fully austenitic weld
- High strength and excellent oxidation resistance upto 1200°C
- Resistance to corrosion in sulphuric acid, mineral and organic acids
- Smooth and uniform weld beads
- Low spatter loss
- Radiographic quality weld

WELDING POSITION :



DCEP

TYPICAL APPLICATIONS :

- Welding AISI 310 type, HV-9A stainless steel, Carpenter 20Cb-3, Alloy 20
- Repairing of castings of similar composition
- For chemical industries handling sulphuric acids and their salts

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni
Typical	0.05	1.7	0.5	20.2	33.7
Specification	0.07 max	1.0-2.5	0.9 max	19.0-21.0	32.0-36.0
	Mo	Cu	Nb	S	P
Typical	2.4	3.4	0.6	0.02	0.02
Specification	2.0-3.0	3.0-4.0	8xC-1.0	0.03 max	0.04 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%
Typical	As Welded.	620	36
Specification		560-670	30-40

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 300	50-75	2	5	10
3.15 x 300	80-100	2	5	10
4.0 x 300	110-140	2	5	10
5.0 x 300	150-180	2	5	10



Betanox 20/25/5/Cu

STAINLESS STEEL (Heat Resisting)

High alloyed stainless steel Electrode with superior corrosion resistance properties

CLASSIFICATION : EN 1600

AWS A/SFA 5.4

IS 5206

E 20 25 5 Cu N L R 12

E 385-16

E 20.25.5 LCu R 26

KEY FEATURES :

- Rutile based semi basic coating
- Low carbon 20/25/5/Cu type fully austenitic deposit
- Recommended for highly corrosive conditions in the chemical industries, sea water desalinization plants
- Resistant to pitting and crevice corrosion in chloride bearing media
- Radiographic quality weld deposit
- Resist intergranular corrosion and sulfide stress corrosion cracking
- Scaling resistance upto 1200°C and operating temperatures upto 400°C
- Smooth arc and medium penetration
- Least spatter and easy slag removal
- Finely rippled smooth bead

WELDING POSITION :



AC (70 OCV) / DCEP

TYPICAL APPLICATIONS :

- Welding of 904L, HV-9A, HV-9 stainless steel and similar alloys for high temperature and/or high corrosion service
- Welding of 904L steel to other grades of stainless steel
- Welding of austenitic stainless steels with enhanced corrosion resistance to reducing media
- Suitable for materials 1.4539, 1.4439, 1.4537, 1.4505, 1.4506, 1.4531, 1.4536, 1.4573, 1.4585, 1.4586

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni
Typical	0.02	1.5	0.4	20.4	25.2
Specification	0.03 max	1.0-2.5	0.9 max	19.5-21.5	24.0-26.0
	Mo	Cu	S	P	
Typical	4.7	1.6	0.01	0.01	
Specification	4.2-5.2	1.2-2.0	0.02 max	0.02 max	

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%
Typical	As Welded	575	37
Specification		540-600	30-50

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 300	50-70	2	5	10
3.15 x 300	70-100	2	5	10
4.0 x 300	90-130	2	5	10
5.0 x 300	140-180	2	5	10



Betachrome N

STAINLESS STEEL (Plain Chrome Series)

Stainless steel Electrode for maintenance and repair Welding of difficult to weld steel

CLASSIFICATION : EN 1600 IS 5206
E 18 8 Mn B 12 E 18.8 Mn B45

KEY FEATURES :

- Basic coated synthetic electrode
- 18/8/5Mn type austenitic weld deposit
- Excellent heat resistant properties upto 900°C
- Work hardenable alloy with excellent crack resistance
- Deposit has high plasticity
- Smooth arc characteristics
- Suitable for all position

WELDING POSITION : 



AC (70 OCV) / DCEP

TYPICAL APPLICATIONS :

- For joining austenitic Mn (12%) steel to mild steel
- Surfacing Mn steel, Crane wheels
- Joint welding between unalloyed or low alloyed steels with high alloyed steels or cast steels
- For buffer layer on difficult steels before hardfacing
- Welding steel with difficult weldability
- Armour plates, Steel castings, Crusher cones, Crusher hammers

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	S	P
Typical	0.1	5.5	0.6	18.6	9.7	0.02	0.02
Specification	0.12 max	5.0-7.0	0.40-0.80	18.0-21.0	9.0-10.5	0.03 max	0.04 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%
Typical	As Welded	610	37
Specification		560-670	30-40

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 350	110-120	2	5	10
3.15 x 350	160-170	2	5	10
4.0 x 350	210-230	2	5	10
5.0 x 350	250-300	2	5	10



Betachrome ND

STAINLESS STEEL (Plain Chrome Series)

Basic type stainless steel Electrode for joining and surfacing of austenitic Mn steel

CLASSIFICATION : EN 1600 IS 5206
E 18 8 Mn B 22 E 18.8 Mn B20

KEY FEATURES :

- Basic coated electrode
- 18/8/5Mn type austenitic weld deposit
- Excellent heat resistant properties upto 900°C
- Radiographic quality weld
- Work hardenable alloy with excellent crack resistance
- Excellent arc characteristics
- Suitable for all position

WELDING POSITION : 



TYPICAL APPLICATIONS :

- For joining austenitic Mn (12%) steel to mild steel
- Surfacing Mn steel, Crane wheels
- Joint welding between unalloyed or low alloyed steels with high alloyed steels or cast steels
- For buffer layer on difficult steels before hardfacing
- Welding steel with difficult weldability
- Armour plates, Crusher cones, Crusher hammers, Rail crossings, Shovel bucket teeth

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	S	P
Typical	0.08	5.7	0.7	19.5	9.4	0.01	0.01
Specification	0.12 max	5.0-7.0	0.30-0.80	18.0-21.0	8.5-11.0	0.03 max	0.04 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%
Typical	As Welded	600	36
Specification		560-670	30-40

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 350	50-75	2	5	10
3.15 x 350	80-110	2	5	10
4.0 x 350	110-150	2	5	10
5.0 x 350	150-200	2	5	10



Betachrome ND Spl

STAINLESS STEEL (Plain Chrome Series)

18/8/5Mn type Electrode for joining high tensile Armour steel and hardox steel

CLASSIFICATION : EN 1600 IS 5206
E 18 8 Mn B 12 E 18.8 Mn B20

KEY FEATURES :

- Basic type semi-synthetic electrode
- Medium-heavy coated
- 18/8/5Mn type austenitic weld deposit
- Work hardenable alloy
- Excellent crack resistance combined with superior toughness properties
- Minimum spatter losses
- Easy slag detachability
- Suitable for all position

WELDING POSITION : 



AC (90 OCV)/DCEP

TYPICAL APPLICATIONS :

- Specially designed for joining high tensile Armour steel, Bullet proof steel, Hardox 400, Hardox 500
- Fabrication of ICVBMP-11/T-72 tanks
- Joining and laying buffer layers on difficult to weld steel before hard facing
- Austenitic Mn steel (Hadfield steel) to mild steel joining
- Repairing cracks in austenitic Mn steel parts e.g. Shovel bucket teeth, Stone crushers, Hammers, Points and Crossings

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	Mo	Cu	S	P
Typical	0.06	6.5	0.6	20.2	10.2	0.7	0.4	0.01	0.02
Specification	0.12 max	5.0-7.0	0.30-0.80	18.0-22.0	8.5-11.2	0.50-0.80	0.75 max	0.025 max	0.04 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%	CVN Impact at 27°C, J
Typical	As Welded	650	37	105
Specification		560-770	30-40	95 min

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 350	50-75	2	5	10
3.15 x 350	80-110	2	5	10
4.0 x 350	110-150	2	5	10
5.0 x 350	150-200	2	5	10



Betachrome 13Cr

STAINLESS STEEL (Plain Chrome Series)

Martensitic stainless steel Electrode for general corrosion and heat resistance application

CLASSIFICATION : EN 1600 AWS A/SFA 5.4
E 13 B 22 E 410-15

KEY FEATURES :

- Basic coated electrode
- Typical 13Cr martensitic alloy
- Proper preheating and stress relieving required to avoid hardening
- Air hardenable weld deposit
- Stable arc and low spatter loss
- All position capability
- Radiographic quality weld

WELDING POSITION :



DCEP

TYPICAL APPLICATIONS :

- For welding ferritic martensitic chrome steels and steel castings
- For general corrosion and heat resisting applications
- Cladding of exhaust valves
- For cutlery, pump parts, castings, oil refinery equipments
- Suitable for 1.4000, 1.4002, 1.4006, 1.4021, 1.4024 and AISI 410/420 steel

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	Mo	Cu	S	P
Typical	0.07	0.6	0.4	12.8	0.3	0.1	0.1	0.02	0.02
Specification	0.10 max	1.0 max	0.20-0.65	11.0-13.5	0.7 max	0.5 max	0.5 max	0.03 max	0.04 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%
Typical	PWHT:740°C	570	27
Specification	for 1 hr	520 min	20 min

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 350	50-70	2	5	10
3.15 x 350	80-120	2	5	10
4.0 x 350	130-160	2	5	10
5.0 x 350	170-220	2	5	10



Betachrome 13/4

STAINLESS STEEL (Plain Chrome Series)

Stainless steel Electrode for surfacing and Welding corrosion resisting Cr steels

KEY FEATURES :

- Basic coated synthetic electrode
- Typical 13Cr/4Ni deposit
- Suitable for martensitic-ferritic Cr steels
- Excellent arc characteristics
- Easy slag removal
- Smooth and uniform weld beads
- All position welding capability
- Radiographic quality weld

WELDING POSITION : 



DCEP

TYPICAL APPLICATIONS :

- Suitable for surfacing of steel casting
- Welding of similar composition steels
- Guide vanes and runners
- Similar corrosion resisting Cr steels and steel castings

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	Mo	S	P
Typical	0.05	0.6	0.4	13.3	3.9	0.5	0.02	0.02
Specification	0.07 max	0.3-0.9	0.15-0.60	12.0-14.0	3.5-4.5	0.40-0.65	0.03 max	0.04 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS, MPa	EL%
Range	PWHT:580°C for 8 hrs	850-950	720 min.	16 min
Range	PWHT:1050°C for 4 hrs Tempering:610°C For 10 hrs	800-900	600 min.	16 min

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 350	60-80	2	5	10
3.15 x 350	80-120	2	5	10
4.0 x 350	110-160	2	5	10
5.0 x 350	150-190	2	5	10



Betachrome 13/4 LB

STAINLESS STEEL (Plain Chrome Series)

Stainless steel Electrode depositing high strength martensitic alloy.

CLASSIFICATION : EN 1600

AWS A/SFA 5.4

E 13 4 B 22

E 410 Ni Mo-15

KEY FEATURES :

- Basic type non-synthetic electrode
- Medium-heavy coated
- High strength combined with excellent toughness and cracking resistance
- Preheat and PWHT recommended
- Martensitic type alloy resistant to corrosion, erosion, pitting and impact
- Smooth arc characteristics
- Easy slag removal
- All position welding capability
- Radiographic quality weld

WELDING POSITION :



DCEP

TYPICAL APPLICATIONS :

- Welding of ASTM CA 6NM casting or similar materials as well as light gauge 410, 410S and 405 base metals
- Welding of extra low carbon castings and forgings of similar composition and surfacing applications
- Surfacing of turbine blades, high pressure valves
- Repair of runners, valve seats, pulp and paper plant equipment
- German castings/forgings type G-X5CrNi13.4 and G-5CrNi13.6, VIRGO 104 casting/forging

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	Mo	S	P
Typical	0.04	0.8	0.5	11.7	4.8	0.5	0.01	0.02
Specification	0.05 max	0.6-0.9	0.30-0.60	11.0-12.5	4.5-5.0	0.40-0.60	0.025 max	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at 0°C, J
Typical	PWHT:600°C	880	725	18	55
Specification	for 2 hrs	790-990	600 min.	14-21	40 min.

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 350	60-80	2	5	10
3.15 x 350	80-120	2	5	10
4.0 x 350	110-160	2	5	10
5.0 x 350	150-200	2	5	10

EQUIVALENT : GMAW wire: Miginox 410NiMo

GTAW filler: Tiginox 410NiMo



Betachrome 17Cr

STAINLESS STEEL (Plain Chrome Series)

Ferritic stainless steel Electrode for joining and surfacing application

CLASSIFICATION :	EN 1600	AWS A/SFA 5.4
	E 17 B 22	E 430-15

KEY FEATURES :

- Basic coated electrode
- Typical 17Cr ferritic alloy
- Proper preheating and PWHT will achieve desired properties
- Air hardenable weld deposit
- Excellent arc stability and low spatter
- All position welding capability
- Radiographic quality weld

WELDING POSITION :



DCEP

TYPICAL APPLICATIONS :

- For welding ferritic martensitic chrome steels and steel castings of similar composition
- For general corrosion and heat resisting applications
- Cladding of exhaust valves
- Joining and cladding of 17Cr alloy
- For cladding where temperature and corrosion resistance is necessary
- For cutlery, pump parts, castings, oil refinery equipments
- Suitable for material 1.4057, 1.4740, 1.4742, 1.4059 and AISI 430 steel

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	Mo	S	P
Typical	0.06	0.6	0.4	17.3	0.2	0.2	0.02	0.02
Specification	0.10 max	1.0 max	0.15-0.60	15.0-18.0	0.6 max	0.75 max	0.03 max	0.04 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%
Typical	PWHT:780°C	560	27
Specification	for 2 hrs	490 min	20 min

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 350	60-100	2	5	10
3.15 x 350	80-120	2	5	10
4.0 x 350	130-160	2	5	10
5.0 x 350	170-220	2	5	10



Betachrome 17/4

STAINLESS STEEL (Plain Chrome Series)

Special Electrode for surfacing and Welding of stainless steel casting

KEY FEATURES :

- Basic coated electrode
- Proper preheating and PWHT is required
- to achieve desired mechanical properties
- Typical 17Cr/4Ni/1Mo weld deposit
- Stable arc and low spatter
- All position welding capability
- Radiographic quality weld deposit

WELDING POSITION :



DCEP

TYPICAL APPLICATIONS :

- Suitable for welding of stainless steel
- castings of similar composition
- Automotive body moulding, Oil burner
- parts, Surfacing valve seats

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	Mo	S	P
Typical	0.08	0.5	0.6	17.4	4.5	1.1	0.02	0.02
Specification	0.05-0.10	0.20-0.60	0.30-0.80	16.0-18.5	3.5-5.0	0.90-1.20	0.03 max	0.04 max

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Carton/Box	Net wt./Box, Kg.
2.5 x 350	50-70	2	5	10
3.15 x 350	80-120	2	5	10
4.0 x 350	130-180	2	5	10
5.0 x 350	170-220	2	5	10



Betanox 4462

STAINLESS STEEL (Duplex SS)

Duplex stainless steel Electrode for high strength and pitting resistance

CLASSIFICATION :	EN 1600	AWS A/SFA 5.4	IS 5206
	E 22 9 3 N L R 22	E 2209-16	E 22.9.3 LR23

KEY FEATURES :

- Rutile type non-synthetic coating
- Austenitic-ferritic type weld deposit
- Excellent combination of high strength and resistance to chloride induced SCC and pitting
- Can be applied for operating temperature upto 200°C
- Suitable for all position
- Uniform and fine ripples
- Radiographic quality weld

WELDING POSITION : 



TYPICAL APPLICATIONS :

- Welding of 2205, 2209 type duplex stainless steels and similar composition
- Pipelines transporting chloride bearing products and sour gases
- Cladding on carbon and low alloy steels
- Cast pumps, Valve bodies and sea water handling equipment
- For chemical equipments, heat exchangers, off-shore platforms
- Suitable for materials 1.4417, 1.4460, 1.4462, 1.4362, 1.4162

REDRYING CONDITION : 300°C for 1 hr.

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	Mo	N	S	P
Typical	0.03	1.3	0.5	22.0	9.2	2.9	0.15	0.02	0.02
Specification	0.04 max	1.0-2.0	0.90 max	21.5-23.5	8.5-10.5	2.5-3.5	0.1-0.2	0.03 max	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%	CVN Impact, at -40°C, J	Ferrite No.	PREN
Typical	As Welded	735	25	50	32	42
Specification		700-780	20 min.	40 min.	30-35	35 min.

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 300	50-70	2	5	10
3.15 x 300	70-90	2	5	10
4.0 x 300	90-140	2	5	10
5.0 x 300	140-180	2	5	10

EQUIVALENT : GMAW wire:Miginox 2209 GTAW filler:Tiginox 2209 FCAW wire:Miginox FC 2209



Betanox 2553

STAINLESS STEEL (Duplex SS)

A high strength super duplex stainless steel Electrode for pitting resistance

CLASSIFICATION : EN 1600 AWS A/SFA 5.4

E 25 9 3Cu N L R12 E 2553-16

KEY FEATURES :

- Rutile coated non-synthetic electrode
- Super duplex stainless steel deposit
- Exhibit excellent high strength
- Improved resistance to pitting, corrosive attack and to stress corrosion cracking
- Duplex microstructure consists of austenitic-ferritic matrix
- Easy slag removal
- All position capability
- Radiographic quality weld

WELDING POSITION :



AC (70 OCV) /DCEP

TYPICAL APPLICATIONS :

- Welding of duplex and super duplex stainless steels and similar grades
- Pumps and valves, corrosion resisting parts, process equipment for use in offshore oil and gas industries
- Pulp, paper and textile industries, chemical and petrochemical plant
- Suitable for materials 1.4515, 1.4517, ASTM A 240, A 351, A 890 Gr. 1A/1B

REDRYING CONDITION : 300°C for 1 hr.

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	Mo	Cu	N	S	P
Typical	0.04	1.1	0.5	25.7	7.7	3.5	1.9	0.15	0.02	0.02
Specification	0.05 max	0.5-1.5	1.0 max	24-27	6.5-8.5	2.9-3.9	1.5-2.5	0.1-0.2	0.03 max	0.03 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%	Ferrite No.	PREN
Typical	As Welded	790	21	47	52
Specification		760 min.	15 min.	30-55	40 min.

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 300	50-70	2	5	10
3.15 x 300	70-90	2	5	10
4.0 x 300	90-140	2	5	10
5.0 x 300	140-180	2	5	10



Betanox 2594

STAINLESS STEEL (Duplex SS)

Basic coated 25/9/4 type super duplex stainless steel Electrode

CLASSIFICATION : EN 1600 AWS A/SFA 5.4
E 25 9 4 N L B 22 E 2594-15

KEY FEATURES :

- Basic coated non-synthetic electrode
- Austenitic-ferritic duplex micro structure
- Excellent high strength combined with improved resistance to pitting and SSC in chloride environment
- Super duplex SS weld with N addition
- Weld metal characteristics similar to super duplex wrought and cast alloys
- Easy slag removal
- Uniform and fine ripples
- Radiographic quality weld

WELDING POSITION : 



TYPICAL APPLICATIONS :

- Welding of super duplex stainless steels UNS S 32750, S 32760, SFA 2507, Zeron 100 and Casting alloys e.g. ASTM A890 Gr.5A
- Suitable for materials 1.4410, 1.4460, 1.4462, 1.4463
- Pipe work systems, flow lines, risers, manifolds, process equipment for use in offshore oil and gas industries, chemical and petrochemical plant
- Also to be used on duplex 2205 grade

REDRYING CONDITION : 300°C for 1 hr.

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	Mo	Cu	N	S	P
Typical	0.03	1.2	0.6	25.9	9.2	4.0	0.3	0.23	0.02	0.02
Specification	0.04 max	0.5-2.0	1.0 max	24-27	8.0-10.5	3.5-4.5	0.75 max	0.2-0.3	0.03 max	0.04 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%	CVN Impact, J		PREN
				+20°C	-20°C	
Typical	As Welded	880	27	52	35	50
Specification		760 min.	15 min.	40 min.	27 min.	40 min.

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 300	50-80	2	5	10
3.15 x 300	70-110	2	5	10
4.0 x 300	90-140	2	5	10
5.0 x 300	130-180	2	5	10



Betanox 2595-16

STAINLESS STEEL (Duplex SS)

Rutile type Electrode for Welding super duplex stainless steels

CLASSIFICATION : EN 1600

AWS A/SFA 5.4

E 25 9 4 N L R 12

E 2595-16

KEY FEATURES :

- Rutile type non-synthetic coating
- Super duplex SS weld deposit
- Resistant to pitting, chemical attack and chloride containing media
- Tungsten provides resistance against hot cracking
- Ni and N ensures good toughness properties and freedom from weld cracking in highly restrained joints
- Easy slag detachability
- Suitable for all position
- Radiographic quality weld

WELDING POSITION :



AC (70 OCV)/DCEP

TYPICAL APPLICATIONS :

- Welding of super duplex stainless steels such as UNS S32550, S32750, S32760 (wrought) and UNS J93370, J93380, J93404, CD4MCuN (cast)
- Can be used to weld standard duplex stainless steel such as UNS S31803 and UNS S32205, carbon and low alloy steels to duplex steels as well

REDRYING CONDITION 300°C for 1 hr.

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	Mo
Typical	0.03	1.2	0.7	25.4	9.5	3.4
Specification	0.04 max	2.5 max	1.2 max	24.0-27.0	8.0-10.5	2.5-4.5
	W	Cu	N	S	P	
Typical	0.7	1.0	0.23	0.02	0.02	
Specification	0.40-1.0	0.4-1.5	0.2-0.3	0.025 max	0.03 max	

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%	Ferrite No.	PREN
Typical	As Welded	835	27	51	54
Specification		760 min.	15 min.	40-60	40 min.

SPECIAL TESTS : Meets Pitting Corrosion Resistance at 25°C and 30°C as per ASTM G-48

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 300	50-80	2	5	10
3.15 x 300	70-110	2	5	10
4.0 x 300	90-140	2	5	10
5.0 x 300	130-180	2	5	10



Betanox 2595-15

STAINLESS STEEL (Duplex SS)

Basic type Electrode for Welding super duplex stainless steels

CLASSIFICATION : EN 1600

AWS A/SFA 5.4

E 25 9 4 N L B 22

E 2595-15

KEY FEATURES :

- Basic type non-synthetic coating
- Super duplex SS deposit
- High strength and freedom from weld cracking in highly restrained joints
- Presence of Tungsten ensures highest resistance to hot cracking
- Improved resistance against pitting, chemical attack and chloride environment e.g. sea water
- Low spatter losses
- Easy slag detachability
- Radiographic quality weld

WELDING POSITION :



DCEP

TYPICAL APPLICATIONS :

- Welding of super duplex stainless steels such as UNS S32550, S32750, S32760 (wrought) and UNS J93370, J93380, J93404, CD4MCuN (cast)
- Can be used to weld standard duplex stainless steel such as UNS S31803 and UNS S32205, carbon and low alloy steels to duplex steels as well

REDRYING CONDITION 300°C for 1 hr.

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Cr	Ni	Mo
Typical	0.03	1.4	0.7	25.6	9.4	3.6
Specification	0.04 max	2.5 max	1.2 max	24-27	8.0-10.5	2.5-4.5
	W	Cu	N	S	P	
Typical	0.6	0.9	0.24	0.02	0.02	
Specification	0.40-1.0	0.40-1.5	0.2-0.3	0.025 max	0.03 max	

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%	Ferrite No.	PREN
Typical	As Welded	840	28	53	55
Specification		760 min.	15 min.	40-60	40 min.

SPECIAL TESTS : Meets Pitting Corrosion Resistance at 25°C and 30°C as per ASTM G-48

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 300	50-80	2	5	10
3.15 x 300	70-110	2	5	10
4.0 x 300	90-140	2	5	10
5.0 x 300	130-180	2	5	10

Non Machinable Electrode for General Reclamation and Repair of Cast Iron

CLASSIFICATION : AWS A/SFA 5.15 IS 5511
E St E Fe B26

KEY FEATURES :

- Low hydrogen type electrode
- Ni free non machinable deposit
- Improved crack resistivity
- Strong and rigid joint between cast iron parts
- Excellent colour match to cast iron
- Preheating is recommended for heavy and complicated sections
- Ideal as a base layer to seal contaminations

WELDING POSITION : 



AC (45 OCV)/ DCEP

TYPICAL APPLICATIONS :

- Welding of cast iron parts for all types of general reclamation or repair work
- Repairing foundry defects
- Guards on machine tools
- Cast iron furnace equipment
- Sealing oil-soaked cast iron parts
- Motor and generator housings
- Joining cast iron to mild steel
- Suitable for thin and thick sections

REDRYING CONDITION : 250°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	S	P	Fe
Typical	0.1	0.5	0.1	0.03	0.03	Bal.
Specification	0.15 max.	0.30-0.60	0.15 max	0.04 max	0.04 max	Bal.

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	3 Layer, Hardness, BHN
Specification	As Welded	240-290

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Carton/Box	Net wt./Box, Kg
2.5 x 350	60-90	5	4	20
3.15 x 450	100-140	5	4	20
4.0 x 450	140-190	5	4	20
5.0 x 450	190-250	5	4	20

Monel Alloy Electrode for Cast Iron Repair and Welding

CLASSIFICATION : AWS A/SFA 5.15

E NiCu-B

KEY FEATURES :

- Graphite based coating
- Monel type weld deposit
- Machinable weld
- Minimum dilution ensures shallow but sufficient depth of fusion
- No need of preheating

WELDING POSITION : 



AC (45 OCV)/ DCEP

TYPICAL APPLICATIONS :

- Repair of cast iron castings
- Well suited for Gears, machinery parts, Pump bodies
- Rebuilding worn surfaces
- Joining cast iron to steel
- Correcting machining errors on castings

REDRYING CONDITION : 150°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Ni	Fe	Mn	Si	S	Cu
Typical	0.4	65.0	4.2	1.6	0.4	0.01	Bal.
Specification	0.35-0.55	60.0-70.0	3.0-6.0	2.30 max	0.75 max	0.025 max	Bal.

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	Hardness(3 Layer), BHN
Specification	As Welded	200 max

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Carton/Box	Net wt./Box, Kg
2.5 x 300	45-60	1	10	10
3.15 x 300	90-110	1	10	10
4.0 x 300	120-150	1	10	10

High Nickel Electrode for Repair and Welding of Cast Iron The Cold Way

CLASSIFICATION : AWS A/SFA 5.15

E Ni-CI

KEY FEATURES :

- Graphite based coating
- High Ni alloyed electrode
- Minimum base metal dilution and penetration
- Electrode welds cast iron the cold way
- Soft, ductile and machinable weld with adequate strength
- No need of preheating even for large complicated castings
- Easy and intimated fusion with all grades of cast iron

WELDING POSITION :



AC (45 OCV)/ DCEP

TYPICAL APPLICATIONS :

- Repair of broken heavy castings, machine bases, motor blocks, sprockets, valve bodies, impellers, pump casting and gears
- Joining and build up of grey cast iron and malleable iron
- Joining cast iron to steel
- Correcting machining errors on castings
- Suitable for thin walled grey cast iron
- Sliding tables for machine tools
- Building up on cast iron parts exposed to corrosive liquids

REDRYING CONDITION : 150°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Ni	Fe	Mn	Si	S	Cu	Al
Typical	1.2	91.5	3.0	1.0	2.0	0.02	0.7	0.5
Specification	2.0 max	85.0 min	8.0 max	2.5 max	4.0 max	0.03 max	2.5 max	1.0 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	3 Layer, Hardness, BHN
Specification	As Welded	140-180

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Carton/Box	Net wt./Box, Kg
2.5 x 300	45-65	1	10	10
3.15 x 300	70-90	1	10	10
4.0 x 300	100-120	1	10	10

Ni-Fe Type Electrode for Repair and Welding of Cast Iron

CLASSIFICATION : AWS A/SFA 5.15 IS 5511
E NiFe-CI E Ni Fe G16

KEY FEATURES :

- Ni-Fe type machinable electrode
- Dense, soft and ductile weld with adequate strength
- Porosity free welding
- Controlled dilution and penetration
- No need of preheating for large heavy castings

WELDING POSITION : 



AC (45 OCV)/ DCEP

TYPICAL APPLICATIONS :

- Repair of broken heavy castings
- Welding and repairing of all cast iron components
- Pump casting and gears, Cast iron dies, Gear boxes, Gear teeth
- Transmission housings, Couplings
- Foundry defects, Machine build up
- Best suited for welding of Nodular graphite iron, Malleable iron subject to heavy wear
- Joining cast iron to steel
- Correcting machining errors on castings

REDRYING CONDITION : 150°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Ni	Fe	Mn	Si	S	Cu	Al
Typical	1.1	52.0	Bal.	1.2	1.5	0.02	0.5	0.3
Specification	2.0 max	45.0-60.0	Bal.	2.5 max	4.0 max	0.03 max	2.5 max	1.0 max

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	Hardness (3 Layer), BHN
Specification	As Welded	150-190

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Carton/Box	Net wt./Box, Kg
2.5 x 300	40-70	1	10	10
3.15 x 300	70-110	1	10	10
4.0 x 300	90-120	1	10	10

Special Welding Electrode For Nodular And Malleable Cast Iron

KEY FEATURES :

- Low heat input electrode
- Ni-Fe type weld deposit
- Tough and machinable deposit with adequate strength and hardness
- Sound and porosity free welding
- Controlled penetration ensure good bonding
- No preheating required even for large complicated castings
- Perfect color match with base metal

WELDING POSITION :



AC (45 OCV)/ DCEP

TYPICAL APPLICATIONS :

- Special electrode for repair welding of Nodular and Malleable cast iron
- Building up worn out cast iron parts
- Rectification of machining errors on castings
- Repair of broken heavy castings
- Excellent for joining cast iron to steel
- Foundry defects such as shrinkage, cavities, blow holes, missing sections
- Gear boxes, Gear teeth, Valve body
- Couplings, Sprockets
- Cast iron dies, Machine bases
- Pumps and Differential housings
- General welding of very heavy sections

REDRYING CONDITION : 150°C for 1 hr. (Also available in vacuum packed condition)

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	Hardness (3 Layer), BHN
Range	As Welded	150-200

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Carton/Box	Net wt./Box, Kg
2.5 x 300	40-70	1	10	10
3.15 x 300	70-110	1	10	10
4.0 x 300	90-120	1	10	10



Hardfacing Electrode for moderate Abrasion - Impact Condition

ALLOY BASIS :

Low Carbon Low Chromium

KEY FEATURES :

- Rutile coated electrode
- Weld deposit resistant to moderate and impact
- Air hardenable machinable deposit
- Good resistance against rolling and sliding friction
- Recommended buffer layer of Tenalloy-16 on hard base materials

WELDING POSITION :



AC (80 V) / DCEN

TYPICAL APPLICATIONS :

- Gears, Pinion teeth
- Track links, Tram tyres
- Sugarcane crushers
- Gear wheels, Hammers
- Wobblers, Chassis
- Rollers, Sprockets
- Pulleys, Shafts
- Couplings, Spindles
- Excavators, Axles
- Rail points and crossings

REDRYING CONDITION : 110°C for ½ hr.

PHYSICAL PROPERTIES :

Condition	Hardness, 3 Layer HRc (BHN)
As Welded	23-27 (240-260)

Machinability



Abrasion Resistance



Impact Resistance



Corrosion Resistance



PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Carton/Box	Net wt./Box, Kg.
3.15 x 450	100-140	5	4	20
4.0 x 450	140-180	5	4	20
5.0 x 450	180-220	5	4	20

Physical Properties: With increase in number of squares, property improves



Hardfacing Electrode for Moderate Abrasion - High Impact Application

ALLOY BASIS :

Low Carbon Medium Chromium

APPROVALS :

RDSO

KEY FEATURES :

- Rutile coated electrode
- Air hardenable deposit
- Machinable with carbide tools
- High weld metal recovery
- Good combination of abrasion and impact properties
- Resistant to friction
- Recommended buffer layer of Tenalloy-16 on hard base materials

WELDING POSITION :



AC (80 V) / DCEN

TYPICAL APPLICATIONS :

- Excavators, Conveyor parts
- Supporting rollers of Kiln tyres
- Wobbler ends, Cams
- Gear shafts
- Plough shares
- Shear blades
- Girth gears in cement and power plants

REDRYING CONDITION : 110°C for ½ hr.

PHYSICAL PROPERTIES :

Condition	Hardness, 3 Layer HRc (BHN)
As Welded	35-40 (330-380)

Machinability



Abrasion Resistance



Impact Resistance



Corrosion Resistance



PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Carton/Box	Net wt./Box, Kg.
3.15 x 450	100-140	5	4	20
4.0 x 450	140-180	5	4	20
5.0 x 450	180-220	5	4	20

Physical Properties: With increase in number of squares, property improves



Zedalloy 350 LH

HARD FACING (Moderate - Abrasion Impact)

Basic type hardfacing Electrode for Moderate Abrasion - High Impact

ALLOY BASIS :

Low Carbon Medium Chromium

KEY FEATURES :

- Basic coated electrode
- Air hardenable deposit
- Machinable with carbide tools
- Resistant to friction
- Good combination of abrasion and toughness
- Recommended buffer layer of Tenalloy-16 on hard base materials

WELDING POSITION :



AC (100 V) / DCEP

TYPICAL APPLICATIONS :

- Conveyor parts
- Supporting rollers of Kiln tyres
- Brake shoes, Gear shafts
- Wobbler ends
- Excavators, Plough shares
- Cold punching dies
- Shear blades
- Cog wheels

REDRYING CONDITION : 300°C for 1 hr.

PHYSICAL PROPERTIES :

Condition	Hardness, 3 Layer HRc (BHN)
As Welded	36-39 (340-360)

Machinability



Abrasion Resistance



Impact Resistance



Corrosion Resistance



PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Carton/Box	Net wt./Box, Kg.
3.15 x 450	100-140	5	4	20
4.0 x 450	140-180	5	4	20
5.0 x 450	180-220	5	4	20

Physical Properties: With increase in number of squares, property improves



Hardfacing Electrode for High Abrasion-Medium Impact and Metal to Metal Wear Resistance

ALLOY BASIS :

Medium Carbon Medium Chromium

KEY FEATURES :

- Rutile type heavy coating
- Air hardenable crack free deposit
- Non machinable
- Resistant to metal to metal wear
- Resistance against high stress abrasion and impact
- Impact resistance increases after tempering

WELDING POSITION : 



AC (70 V) / DCEP

TYPICAL APPLICATIONS :

- Shear blades
- Tamping tools
- Crane wheel
- Ingot tongs
- Forming dies
- Cutting tools
- Pug mill screws
- Pulverizer hammers

REDRYING CONDITION : 110°C for ½ hr.

PHYSICAL PROPERTIES :

Condition	Hardness, 3 layer HRc (BHN)
As Welded	47-55 (450-550)

Machinability Abrasion Resistance Impact Resistance Corrosion Resistance



PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Carton/Box	Net wt./Box, Kg.
3.15 x 450	100-120	5	4	20
4.0 x 450	130-170	5	4	20
5.0 x 450	180-240	5	4	20

Physical Properties: With increase in number of squares, property improves



Hardfacing Electrode for Resistance against High Abrasion and Moderate Impact

ALLOY BASIS :

Medium Carbon High Chromium

KEY FEATURES :

- Rutile coated electrode
- Air hardenable deposit
- Non machinable
- Resistant to spalling and cracking
- Resistance against high stress abrasion and friction
- Can withstand moderate impact
- Recommended buffer layer of Tenalloy-16 on hard base materials

WELDING POSITION :



AC (80 V) / DCEN

TYPICAL APPLICATIONS :

- Dis-integrator hammers
- Excavator teeth, Shear blades
- Bulldozer blades, Bucket lip
- Metal cutting and forming tools
- Crane wheels, Caterpillar treads
- Cane cutting knives

REDRYING CONDITION :110°C for 1 hr.

PHYSICAL PROPERTIES :

Condition	Hardness, 3 layer HRC (BHN)
As Welded	54-56 (540-580)

Machinability

Abrasion Resistance

Impact Resistance

Corrosion Resistance



PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Carton/Box	Net wt./Box, Kg.
3.15 x 450	100-130	5	4	20
4.0 x 450	140-180	5	4	20
5.0 x 450	180-220	5	4	20

Physical Properties: With increase in number of squares, property improves



Zedalloy 550 LH

HARD FACING (Moderate - Abrasion Impact)

Basic Type Hardfacing Electrode For Resistance Against High Abrasion And Moderate Impact

ALLOY BASIS :

Medium Carbon High Chromium

KEY FEATURES :

- Basic type coating
- Air hardenable non machinable weld
- Recommended buffer layer of Tenalloy-16 on hard base materials
- Resistance against high stress abrasion and friction
- Can withstand moderate impact
- Resistant to spalling and cracking

WELDING POSITION : 



AC (100 V) / DCEP

TYPICAL APPLICATIONS :

- Crushers and hammers
- Excavator teeth
- Shear blades
- Metal to mineral wear application
- Crane wheels, Caterpillar treads
- Bulldozer blades, Bucket lip
- Bamboo chipper knives
- Dis-integrator hammers

REDRYING CONDITION : 300°C for 1 hr.

PHYSICAL PROPERTIES :

Condition	Hardness, 3 layer HRC (BHN)
As Welded	54-57 (540-590)

Machinability	Abrasion Resistance	Impact Resistance	Corrosion Resistance
			

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Carton/Box	Net wt./Box, Kg.
3.15 x 450	100-130	5	4	20
4.0 x 450	140-180	5	4	20
5.0 x 450	180-220	5	4	20

Physical Properties: With increase in number of squares, property improves



Basic type hardfacing Electrode for Extreme Abrasion

ALLOY BASIS :

Medium Carbon High Chromium with Molybdenum

KEY FEATURES :

- Basic type heavy coating
- Extremely hard non machinable deposit
- Deposit can be finished by grinding
- High hardness in single layer
- Suitable for high carbon and high sulphur steels
- Can withstand mild impact

WELDING POSITION :



AC (70 V) / DCEP

TYPICAL APPLICATIONS :

- Drilling bits, Punches, Dies
- Crane wheels, Shear blades
- Crushers, Hammers
- Paper cutting knives, Mine rails
- Oil expeller worms
- Conveyor parts

REDRYING CONDITION : 300°C for 1 hr.

PHYSICAL PROPERTIES :

Condition	Hardness, 1 layer HRc (BHN)
As Welded	58 (600)

Machinability

Abrasion Resistance

Impact Resistance

Corrosion Resistance



PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Carton/Box	Net wt./Box, Kg.
3.15 x 450	100-140	5	4	20
4.0 x 450	140-180	5	4	20
5.0 x 450	180-220	5	4	20

Physical Properties: With increase in number of squares, property improves



Zedalloy 600B

HARD FACING (Moderate - Abrasion Impact)

Hardfacing Electrode for Extreme Abrasion and Friction

ALLOY BASIS :

Medium Carbon High Chromium with Mo and V

KEY FEATURES :

- Basic type electrode
- Extra hard and sound weld
- Non machinable deposit
- Deposit can be finished by grinding
- Can be operated in horizontal position
- High hardness in single layer
- Can withstand mild impact
- Recommended buffer layer of Betachrome-N on austenitic Mn steels

WELDING POSITION :



AC (70 V) / DCEP

TYPICAL APPLICATIONS :

- Excavator parts, Bucket teeth
- Cane cutting knives
- Metal cutting and forming tools
- Caterpillar treads
- Crusher hammers and jaws
- Disintegrator hammers
- Shear blades
- Conveyor buckets and screws

REDRYING CONDITION : 300°C for 1 hr.

PHYSICAL PROPERTIES :

Condition	Hardness, 1 layer HRc (BHN)
As Welded	55-58 (560-600)

Machinability

Abrasion Resistance

Impact Resistance

Corrosion Resistance



PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Carton/Box	Net wt./Box, Kg.
3.15 x 450	100-140	5	4	20
4.0 x 450	140-180	5	4	20
5.0 x 450	180-230	5	4	20
6.3 x 450	230-280	5	4	20

Physical Properties: With increase in number of squares, property improves



Zedalloy 12Mn

HARD FACING (High Impact - Work Hardenable)

Work Hardenable Alloy for High Impact Applications

ALLOY BASIS :

High Carbon High Manganese

KEY FEATURES :

- Basic type coating
- Easily machinable
- Crack free and sound weld
- Recommended buffer layer of Betachrome-N on mild and low alloy steels
- Typical 12% Mn deposit
- Exhibit excellent work hardening characteristics under severe impact conditions
- Ideal for gouging type abrasion wear

WELDING POSITION :



AC (70V)/DCEP

TYPICAL APPLICATIONS :

- Rock crushing jaws
- Cement grinding rings
- Mn steel rails
- Suitable for build-up and cushioning
- Dredger bucket teeth
- Austenitic Mn steel castings
- Hammers
- Crusher mantles

REDRYING CONDITION : 300°C for 1 hr.

PHYSICAL PROPERTIES :

Condition	Hardness, 3 Layer HRc (BHN)
As Welded	16 (200)
Work Hardened	52 (500)

Machinability



Abrasion Resistance



Impact Resistance



Corrosion Resistance



PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Carton/Box	Net wt./Box, Kg.
3.15 x 450	100-140	5	4	20
4.0 x 450	140-180	5	4	20
5.0 x 450	180-230	5	4	20
6.3 x 450	230-290	5	4	20

Physical Properties: With increase in number of squares, property improves



Zedalloy 16Mn

HARD FACING (High Impact - Work Hardenable)

Work hardenable alloy for severe Impact and Moderate Abrasion

ALLOY BASIS :

High Carbon High Manganese with Nickel

KEY FEATURES :

- Basic type heavy coated electrode
- Modified austenitic Mn steel deposit
- Good machinability
- Crack free and sound weld
- Work hardening characteristics
- Very high resistance to deformation
- Typical 16% Mn deposit
- For superior impact and moderate abrasion resistant overlays
- Recommended buffer layer of Betachrome-N/ND on mild and low alloy steels

WELDING POSITION : 



AC (70V)/DCEP

TYPICAL APPLICATIONS :

- Bucket teeth, wobblers
- Crusher rollers and jaws
- Pulveriser hammers and beaters
- Austenitic Mn steel rails and casting
- Chain links, Sprockets
- Crusher hammers and mantles
- Suitable for buildup and cushioning
- on Mn steels and alloy steels

REDRYING CONDITION : 300°C for 1 hr.

PHYSICAL PROPERTIES :

Condition	Hardness, 3 Layer HRc (BHN)
As Welded	16 (200)
Work Hardened	52 (500)

Machinability	Abrasion Resistance	Impact Resistance	Corrosion Resistance
			

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Carton/Box	Net wt./Box, Kg.
3.15 x 450	100-140	5	4	20
4.0 x 450	140-180	5	4	20
5.0 x 450	180-230	5	4	20
6.3 x 450	230-290	5	4	20

Physical Properties: With increase in number of squares, property improves



Zedalloy 16Cr

HARD FACING (High Impact - Corrosion Resistance)

Work Hardenable Alloy for Impact – Abrasion – Corrosion Resistance

ALLOY BASIS :

Medium Carbon High Chromium with Manganese

KEY FEATURES :

- Basic coated electrode
- Machinable and crack free deposit
- Work hardening characteristics
- Typical 16% Cr deposit
- Specially formulated for resistance against impact, abrasion and corrosion

WELDING POSITION :



AC (100V) / DCEP

TYPICAL APPLICATIONS :

- Dipper teeth and lips
- Coal mining cutters, Rock crusher
- Pulveriser plows, Pump housing
- Conveyor rolls
- Austenitic Mn steel rails and castings
- Dredger cutter teeth, Buckets
- Ideal for buffer layer before hardfacing on mild, carbon, low alloy and austenitic Mn steels

REDRYING CONDITION : 300°C for 1 hr.

PHYSICAL PROPERTIES :

Condition	Hardness, 3 Layer HRc (BHN)
As Welded	16 (200)
Work Hardened	52 (500)

Machinability



Abrasion Resistance



Impact Resistance



Corrosion Resistance



PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Carton/Box	Net wt./Box, Kg.
3.15 x 350	90-120	5	4	20
4.0 x 350	130-160	5	4	20
5.0 x 350	170-220	5	4	20

Physical Properties: With increase in number of squares, property improves



Zedalloy 20Cr

HARD FACING (High Impact - Corrosion Resistance)

Work Hardenable Alloy for Impact – Abrasion – Corrosion Resistance

ALLOY BASIS :

Low Carbon High Chromium with Nickel

KEY FEATURES :

- Basic type work hardenable electrode
- High hardness under severe impact conditions
- Machinable and crack free deposit
- Typical 20% Cr deposit
- Semi austenitic alloy
- Exhibit good combination of impact, abrasion and corrosion resistance

WELDING POSITION :



AC (100 V) / DCEP

TYPICAL APPLICATIONS :

- Screw flight
- Sand pump impellers
- Conveyor rolls, Truck chains
- Pulveriser plows, Pump housing
- Coal mining cutters
- Scarifier teeth, Rock crusher
- Ideal for buffer layer before hardfacing

REDRYING CONDITION : 300°C for 1 hr.

PHYSICAL PROPERTIES:

Condition	Hardness, 3 Layer HRc (BHN)
As Welded	25 (250)
Work Hardened	55 (550)

Machinability



Abrasion Resistance



Impact Resistance



Corrosion Resistance



PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Carton/Box	Net wt./Box, Kg.
3.15 x 350	100-140	5	4	20
4.0 x 350	140-180	5	4	20
5.0 x 350	180-220	5	4	20

Physical Properties: With increase in number of squares, property improves



Hardfacing Alloy for metal to Metal wear, Abrasion and Impact Resistance

ALLOY BASIS :

High Carbon High Molybdenum

KEY FEATURES :

- Basic type electrode
- Optimum resistance against metal to metal wear, abrasion and impact
- Air hardenable
- Non machinable weld
- Preheating is required when used on hardenable steels

WELDING POSITION :



AC (100 V) / DCEP

TYPICAL APPLICATIONS :

- Blanking and Forming dies
- Cutting tools
- Mining tools
- Shear blades
- Hog & Chipper knives
- Wood working tools
- Rolling mill guides
- Ingot fitting tongs

REDRYING CONDITION : 300°C for 1 hr.

PHYSICAL PROPERTIES :

Condition	Hardness, 3 layer HRC (BHN)
As Welded	58 (600)

Machinability

Abrasion Resistance

Impact Resistance

Corrosion Resistance



PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Carton/Box	Net wt./Box, Kg.
3.15 x 350	100-130	5	4	20
4.0 x 350	140-180	5	4	20
5.0 x 350	180-200	5	4	20

Physical Properties: With increase in number of squares, property improves



Hardfacing Alloy for Elevated Temperature Abrasion - Corrosion Resistance

ALLOY BASIS :

Medium Carbon High Molybdenum-Nickel

KEY FEATURES :

- Basic type electrode
- Special alloying to improve impact resistance and red hardness
- Crack free weld in heavy build up
- Resistant to severe abrasion and corrosion at elevated temperature
- No drop in hardness even at 500°C due to secondary hardening

WELDING POSITION : 



AC (100 V) / DCEP

TYPICAL APPLICATIONS :

- Blast furnace Bells & Hoppers
- Steel mill equipments
- Tong pins, Hot shears
- Metallurgical plants

REDRYING CONDITION : 300°C for 1 hr.

PHYSICAL PROPERTIES :

Condition	Hardness, 3 layer HRc (BHN)	
As Welded	At Room Temp	52-55 (500-550)
	At 500°C	>55 (>550)

Machinability	Abrasion Resistance	Impact Resistance	Corrosion Resistance
			

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Carton/Box	Net wt./Box, Kg.
3.15 x 350	90-110	5	4	20
4.0 x 350	110-180	5	4	20
5.0 x 350	160-220	5	4	20
6.3 x 350	210-280	5	4	20

Physical Properties: With increase in number of squares, property improves

Zedalloy VB

HARD FACING (High Abrasion)

Alloyed Cast Iron Electrode for Hardfacing

ALLOY BASIS :

High Carbon Medium Chromium

KEY FEATURES :

- Basic type coating
- Non machinable alloyed cast iron deposit
- Deposit surface does not deteriorate through furrowing, local plastic flow and micro cracking
- Weld deposit can withstand severe abrasion, moderate impact and metal to metal wear
- Resistant to scratching and grinding abrasion

WELDING POSITION : 



AC (100 V) / DCEP

TYPICAL APPLICATIONS :

- Concrete Mixer Blades
- Muller Tyres, Dippers
- Screw Conveyors
- Plough Shares
- Cement Die Rings
- Oil Expeller Worms
- Scraper Blades
- Excavator Teeth

REDRYING CONDITION : 300°C for 1 hr.

PHYSICAL PROPERTIES :

Condition	Hardness, 3 layer HRc (BHN)
As Welded	58 (600)

Machinability Abrasion Resistance Impact Resistance Corrosion Resistance



PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Carton/Box	Net wt./Box, Kg.
3.15 x 450	90-110	5	4	20
4.0 x 450	110-140	5	4	20
5.0 x 450	140-180	5	4	20

Physical Properties: With increase in number of squares, property improves



Super Zedalloy

HARD FACING (High Abrasion)

Hardfacing Electrode for Extreme Wear Resistance

ALLOY BASIS :

Very High Carbon-Chromium

KEY FEATURES :

- Basic type coating
- High Carbon and Cr content in the weld metal
- Non machinable deposit
- Exhibit good corrosion resistance
- High volume fraction of primary carbides offer excellent wear resistance up to 1000°C
- Apply one or two layer to avoid cracking

WELDING POSITION :



AC (100 V) / DCEP

TYPICAL APPLICATIONS :

- Coke chutes, Screws
- Cultivator shovels, Plough shares,
- Mining, Agriculture, Earth moving and Sand blasting equipments
- Edge runner scrapers
- Conveyors, Grinding rings
- Cement clinker crushing rollers
- In Ceramic industries

REDRYING CONDITION : 300°C for 1 hr.

PHYSICAL PROPERTIES:

Condition	Hardness, 3 Layer HRc (BHN)
As Welded	58 (600)

Machinability

Abrasion Resistance

Impact Resistance

Corrosion Resistance



PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Carton/Box	Net wt./Box, Kg.
3.15 x 350	90-120	5	4	20
4.0 x 350	120-160	5	4	20
5.0 x 350	160-200	5	4	20

Physical Properties: With increase in number of squares, property improves



Super Zedalloy Ni

HARD FACING (High Abrasion)

Hardfacing Electrode for Abrasion and Corrosion Resistance at Elevated Temperature

ALLOY BASIS :

Very High Carbon-Chromium with Nickel

KEY FEATURES :

- Basic type super heavy coated electrode
- Non machinable deposit
- Retains hardness at high temperature
- Resist severe abrasion and corrosion at elevated temperature
- Apply one or two layer to avoid cracking

WELDING POSITION :



DCEP

TYPICAL APPLICATIONS :

- Blast furnace parts e.g. bells and hoppers
- Sinter plant disintegrators
- Steel mill equipment
- Cement clinker crushing rollers
- Coke chutes
- Coke pusher shoes
- Hardfacing applications on mild, carbon and low alloy steels in metallurgical and chemical industries

REDRYING CONDITION : 300°C for 1 hr.

PHYSICAL PROPERTIES :

Condition	Hardness, 3 Layer HRc (BHN)	
As Welded	At Room Temp	55-57 (550-580)
	At 500°C	40 (370)

Machinability

Abrasion Resistance

Impact Resistance

Corrosion Resistance



PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Carton/Box	Net wt./Box, Kg.
3.15 x 350	100-140	5	4	20
4.0 x 350	140-180	5	4	20
5.0 x 350	180-220	5	4	20

Physical Properties: With increase in number of squares, property improves



Maganacane

HARD FACING (High Abrasion)

Special Hardfacing Electrode for Spot Arcing of Sugar Mill Rollers

ALLOY BASIS :

Very High Carbon-Chromium

KEY FEATURES :

- Basic type super heavy coating
- Special design to resist heavy loads produced during cane crushing in sugar mills
- Electrode strikes easily even on wet mill rollers
- Non machinable deposit
- Deposits hemispherical dots on the rolls which imparts better grip during cane crushing
- Faster build up due to high deposition rate

WELDING POSITION :



AC (100 V) / DCEP

TYPICAL APPLICATIONS :

- For Spot-Arc building/roughening Sugar mill rolls, chilled cast iron rolls
- Reclamation of Sand mixing blades, Scrapers, Screw flights, Mixing paddles

PHYSICAL PROPERTIES:

Condition	Hardness HRc (BHN)
As Welded	55-57 (550-580)

Machinability

Abrasion Resistance

Impact Resistance

Corrosion Resistance



PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Carton/Box	Net wt./Box, Kg.
3.15 x 450	110-130	5	4	20
4.0 x 450	160-210	5	4	20
5.0 x 450	220-280	5	4	20

Physical Properties: With increase in number of squares, property improves



Hardfacing Electrode for High Temperature Abrasion Resistance

ALLOY BASIS :

High Carbon High Chromium with Molybdenum

KEY FEATURES :

- Basic type heavy coating
- Non machinable deposit
- Retains hardness at high temperature
- Excellent Resistance to Severe Abrasion up to 500°C and Moderate Impact

WELDING POSITION :



AC (70 V) / DCEP

TYPICAL APPLICATIONS :

- Rolling mill guides
- Coal crushing hammers
- Conveyor screws
- Mixer blades & scrapers
- Coal pulverisers

REDRYING CONDITION : 300°C for 1 hr.

PHYSICAL PROPERTIES :

Condition	Hardness, HRc (BHN)
As Welded	58(600)

Machinability

Abrasion Resistance

Impact Resistance

Corrosion Resistance



PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Carton/Box	Net wt./Box, Kg.
3.15 x 350	120-150	5	4	20
4.0 x 350	160-200	5	4	20
5.0 x 350	200-250	5	4	20

Physical Properties: With increase in number of squares, property improves



Zedalloy CoCr-A

HARD FACING (High Temperature Oxidation - Impact - Abrasion)

Cobalt Based Alloy resistant to High Temperature Oxidation and Thermal Shock

ALLOY BASIS :

Cobalt Base High Carbon-Chromium

KEY FEATURES :

- Rutile coated electrode
- Machinable weld deposit
- Retains hardness up to 600°C
- Resistant to Metal to Metal Wear, High temperature Oxidation and Mechanical and Thermal Shocks

WELDING POSITION :



AC (80 V) / DCEN

TYPICAL APPLICATIONS :

- Valves, Valve seats
- Sealing surfaces
- Hot pressing tools
- Conveyer screws
- Hot shear blades, Knives
- Dies and cutting edges in chemical, rubber, oil, sugar industries and Steel mills

REDRYING CONDITION : 200°C for 1 hr.

PHYSICAL PROPERTIES :

Condition	Hardness, HRc (BHN)	
As Welded	At Room Temp	35-40 (320-370)
	At 600°C	33 (310)

Machinability



Abrasion Resistance



Impact Resistance



Corrosion Resistance



PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Carton/Box	Net wt./Box, Kg.
3.15 x 350	100-140	5	4	20
4.0 x 350	140-180	5	4	20
5.0 x 350	180-220	5	4	20

Physical Properties: With increase in number of squares, property improves

Hardfacing Electrode for Resistance against Sliding Abrasion

ALLOY BASIS :

Low Carbon Manganese Alloy

KEY FEATURES :

- Basic coated electrode
- Good machinability
- Tough weld metal can withstand hard blows
- Suitable for medium hardness hard-facing with high resistance to abrasion by sliding and rolling action

WELDING POSITION :



DCEP

TYPICAL APPLICATIONS :

- Hardfacing on rails, joints & rail crossing with a tensile strength upto 900 MPa
- Crane tracks, Gear components
- Wheels, Track surfaces, Pulleys
- Suitable for build up applications

REDRYING CONDITION : 300°C for 1 hr.

PHYSICAL PROPERTIES :

Condition	Hardness, 3 Layer HRc (BHN)
As Welded	30-35 (275-325)

Machinability



Abrasion Resistance



Impact Resistance



Corrosion Resistance



PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Carton/Box	Net wt./Box, Kg.
3.15 x 350	100-140	5	4	20
4.0 x 350	150-200	5	4	20
5.0 x 350	200-260	5	4	20

Physical Properties: With increase in number of squares, property improves



Zedalloy 400B

HARD FACING (High Facing - Build Up)

Hardfacing Electrode for High Wear and Impact Application

ALLOY BASIS :

Low Carbon Low Chromium

KEY FEATURES :

- Basic type heavy coating
- Possible to deposit heavy build up without the need of buffer layers
- Machining only with sintered hard metal tipped tools
- Highly wear resistant overlays can withstand impact & shock
- Recommended buffer layer of Betachrome-N/ND on crack sensitive steels

WELDING POSITION :



AC (70 V) / DCEP

TYPICAL APPLICATIONS :

- Rebuilding rail crossing and switch points, Wheel flanges
- Wear parts of Dredgers
- Striking tools, Dies, Tyres
- Slide surfaces subjected to heavy wear
- Polygon edges, Bearing surfaces
- Lower dies & punches

REDRYING CONDITION :

300°C for 1 hr.

REBAKING CONDITION :

300-350°C for 2 hrs.

PHYSICAL PROPERTIES :

Condition	Hardness, 3 Layer HRc (BHN)
As Welded	40-45 (370-420)

Machinability



Abrasion Resistance



Impact Resistance



Corrosion Resistance



PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Carton/Box	Net wt./Box, Kg.
3.15 x 350	100-135	5	4	20
4.0 x 350	120-180	5	4	20
5.0 x 350	170-240	5	4	20

Physical Properties: With increase in number of squares, property improves

Monel Electrode for joining and surfacing of nickel copper alloys

CLASSIFICATION : EN ISO 14172 AWS A/SFA 5.11
E Ni 4060 E NiCu-7

KEY FEATURES :

- Monel electrode
- Low iron in the deposit exhibit maximum corrosion resistance
- Medium penetration weld
- Easily machinable deposit in as welded and stress relieved condition
- Passes 180° bend test on monel alloy 400 plate

WELDING POSITION : 

 DCEP

TYPICAL APPLICATIONS :

- Welding monel to itself, to stainless steels or carbon steels
- Overlaying on steel to obtain a corrosion resistant surface
- Welding of ASTM B127/163/164/165
- Refineries, Off shore, Foundries, Chemical and Fertilizer plants
- Heat exchanger, Pressure vessel and Column manufacturing units
- Food, Pumps and Valves manufacturing units

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Si	Ni	Fe	Ti	S	P	Cu
Typical	0.05	2.0	0.4	65.0	1.5	0.7	0.01	0.01	Bal.
Specification	0.08 max	1.0-3.0	0.20-0.80	62.0-68.0	1.0-2.5	0.30-1.0	0.015 max	0.02 max	Bal.

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%
Typical	As Welded	535	34
Specification		490-590	30-40

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 300	40-80	1	10	10
3.15 x 300	80-110	1	10	10
4.0 x 300	110-140	1	10	10

EQUIVALENT : GMAW wire : Automig NiCu-7

GTAW filler: Tigfil NiCu-7



Coated stick Electrode depositing almost pure nickel

CLASSIFICATION : EN ISO 14172 AWS A/SFA 5.11
E Ni 2061 E Ni-1

KEY FEATURES :

- Basic type coating
- Low carbon pure Ni deposit
- Medium penetration weld
- Extremely strong and ductile weld metal
- Resistant to cracking and oxidation
- Low iron level ensure maximum corrosion resistance
- Positional welding capability

WELDING POSITION :



DCEP

TYPICAL APPLICATIONS :

- Welding of wrought and cast form of commercially pure Ni (99.5%)
- Welding of Nickel 200 and 201
- Suitable for ASTM B160/161/162/163
- For dissimilar welding between Nickel 200/201 and various iron-base and nickel-base alloys
- Overlay on carbon and low alloy steel
- Applications in Refineries, Heat exchanger, Pressure vessel, Pumps and valves, Cryogenics, Chemical plants, Caustic handling equipments, Food processing equipments
- Used for handling corrosive alkalis and halides

REDRYING CONDITION : 300°C for 1 hr.

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Fe	S	P
Specification	0.10 max	0.75 max	0.75 max	0.02 max	0.03 max
	Si	Cu	Al	Ti	Ni
Specification	1.25 max	0.25 max	1.0 max	1.0-4.0	92.0 min

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%
Specification	As Welded	410 min	20 min

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 300	50-75	1	10	10
3.15 x 300	90-110	1	10	10
4.0 x 300	100-140	1	10	10

EQUIVALENT : GMAW wire: Automig Ni-1

GTAW filler: Tigfil Ni-1

Nickel based Electrode for high oxidation resistance

CLASSIFICATION : EN ISO 14172 AWS A/SFA 5.11
E Ni 6092 E NiCrFe-2

KEY FEATURES :

- Basic type coating
- Ni-Cr-Fe type deposit
- Ductile weld resistant to cracking
- Outstanding strength and resistance to oxidation at high temperature
- Application from cryogenic to 820°C
- Resistant to embrittlement and creep at high temperatures upto 820°C
- Versatile product for dissimilar joining
- Positional welding capability
- For overlay applications minimum three layers must be deposited

WELDING POSITION :   DCEP

TYPICAL APPLICATIONS :

- Welding of wrought and cast form of Ni-Cr-Fe alloys
- Joining carbon, SS or low alloy steel or combinations of any of them
- Welding of ASTM E163/166/167/168, Alloy 600/601
- Joining Ni based alloys to steel
- Fabrication of Corrosion resistant tanks, Furnace components
- Applications in Refineries, Foundries, Heat exchanger, Pressure vessel manufacturing, Chemical plants

REDRYING CONDITION : 300°C for 1 hr.

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Fe	S	P	Si
Specification	0.10 max	1.0-3.5	12.0 max	0.02 max	0.03 max	0.75 max
	Cu	Cr	Nb+Ta	Mo	Ni	
Specification	0.50 max	13.0-17.0	0.5-3.0	0.5-2.5	62.0 min.	

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%
Specification	As Welded	550 min.	30 min.

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 300	40-60	1	10	10
3.15 x 300	60-80	1	10	10
4.0 x 300	100-140	1	10	10



Basic coated Nickel based Electrode for inconel alloy Welding

CLASSIFICATION : EN ISO 14172 AWS A/SFA 5.11
E Ni 6182 E NiCrFe-3

KEY FEATURES :

- Basic type coating
- Ni-Cr-Fe type deposit
- Ductile weld resistant to thermal shocks and hot cracking
- Outstanding strength and resistance to corrosion from normal to high temperatures
- Application from cryogenic to 480°C
- Positional welding capability
- For overlay applications minimum three layers must be deposited

WELDING POSITION : 



TYPICAL APPLICATIONS :

- Welding of wrought and cast form of Ni-Cr-Fe alloys to themselves and to carbon steels
- Joining carbon, SS or low alloy steel or combinations of any of them
- Welding of ASTM E163/166/167/168, Inconel 600 and similar nickel alloys
- Joining Ni based alloys to steel
- Welding in harsh, corrosive condition e.g. desalination, petrochemical and power generation plants
- Application in temperature critical conditions such as furnace equipment and pipe work

REDRYING CONDITION 300°C for 1 hr.

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Fe	S	P	Si
Specification	0.10 max	5.0-9.5	10.0 max	0.015 max	0.03 max	1.0 max
	Cu	Cr	Nb+Ta	Ti	Ni	
Specification	0.50 max	13.0-17.0	1.0-2.5	1.0 max	59.0 min.	

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%
Specification	As Welded	550 min.	30 min.

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 300	40-60	1	10	10
3.15 x 300	60-80	1	10	10
4.0 x 300	100-140	1	10	10



Nicalloy Mo-3

NON FERROUS (Ni Alloys)

Ni-Cr-Mo alloyed Electrode for nickel alloy Welding

CLASSIFICATION : EN ISO 14172 AWS A/SFA 5.11

E Ni 6625

E NiCrMo-3

KEY FEATURES :

- Basic coated electrode
- Ni based high Cr-Mo-Nb deposit
- Scale resistant in low sulphur atmosphere upto 1100°C
- Resistance to general corrosion, pitting, crevice and stress corrosion cracking in severe chloride media
- High creep strength

WELDING POSITION :



DCEP

TYPICAL APPLICATIONS :

- Joining and surfacing Ni alloys, austenitic steel, austenitic ferritic joints
- Welding of ASTM E163/166/167/168, Inconel 625, Incoloy 825, Alloy 20
- Overlay cladding where similar chemical composition is required on the clad side
- Suitable for material 2.4856, 1.4876

REDRYING CONDITION : 300°C for 1 hr.

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Fe	S	P
Specification	0.10 max	1.0 max	7.0 max	0.02 max	0.03 max
	Si	Cr	Nb+Ta	Mo	Ni
Specification	0.75 max	20.0-23.0	3.15-4.15	8.0-10.0	55.0 min.

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%
Specification	As Welded	760 min.	30 min.

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 300	50-70	1	10	10
3.15 x 300	70-95	1	10	10
4.0 x 300	90-120	1	10	10

EQUIVALENT : GMAW wire: Automig NiCrMo-3

GTAW filler: Tigfil NiCrMo-3



Nicalloy Mo-4

NON FERROUS (Ni Alloys)

Nickel based Welding Electrode for harsh environment application

CLASSIFICATION : EN ISO 14172 AWS A/SFA 5.11

E Ni 6276 E NiCrMo-4

KEY FEATURES :

- Basic type coating
- Resistant to abrasion, impact, corrosion and high temperatures
- Resistant to contaminated mineral acids, chloride containing media and chlorine-contaminated media
- Ni based Cr-Mo-W alloyed deposit
- Excellent resistance against Pitting and Crevice corrosion
- Can resist wet chlorine gas and strong oxidizers such as ferric and cupric chlorides

WELDING POSITION :



DCEP

TYPICAL APPLICATIONS :

- Welding of alloy C-276 and similar composition steels
- Suitable for material 2.4819 (NiMo16Cr15W)
- Dissimilar joints between nickel alloys, stainless and low alloy steels
- Application in chemical plants with highly corrosive conditions
- For surfacing press tools, punches, forge dies, hot-stripping tools, pump rotors, valves
- Surfacing on low alloy steels

REDRYING CONDITION : 250-300°C for 2-3 hrs.

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Fe	S	P	Si
Specification	0.02 max	1.0 max	4.0-7.0	0.03 max	0.04 max	0.20 max
	Cu	Co	Cr	Mo	W	Ni
Specification	0.50 max	2.5 max	14.5-16.5	15.0-17.0	3.0-4.0	Bal.

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%
Specification	As Welded	690 min.	25 min.

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 300	50-70	1	10	10
3.15 x 300	70-95	1	10	10
4.0 x 300	90-120	1	10	10

EQUIVALENT : GMAW wire: Automig NiCrMo-4

GTAW filler: Tigfil NiCrMo-4



Nicalloy Mo-5

NON FERROUS (Ni Alloys)

Coated Welding Electrode depositing Ni-Cr-Mo-W alloy

CLASSIFICATION : EN ISO 14172 AWS A/SFA 5.11
E Ni 6275 E NiCrMo-5

KEY FEATURES :

- Basic coated
- Ni based Cr-Mo-W alloyed deposit
- Works smoothly with negligible spatter
- Low dilution with base metal
- Gives 150% weld metal recovery
- Reduces carbon diffusion at high temperature

WELDING POSITION : 



AC (70 OCV)/DCEP

TYPICAL APPLICATIONS :

- High grade welding of high Mo nickel base alloys e.g. Inconel 625/800
- Hardfacing on machine components and tools subjected to corrosion and heat
- Suitable for welding/surfacing of tong jaws of the slab handling cranes
- Joining Cr-Ni steels high in Mo
Surfacing steel clad with a Ni-Cr-Mo alloy

REDRYING CONDITION : 300°C for 1 hr.

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Fe	S	P	Si
Specification	0.03-0.08	0.4-1.0	4.0-7.0	0.03 max	0.03 max	0.20-0.90
	Cu	Co	Cr	Mo	W	Ni
Specification	0.30 max	2.5-3.5	14.5-16.5	15.0-18.0	3.0-4.5	60.0-78.0

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%
Specification	As Welded	690-790	30-40

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
3.15 x 300	90-120	1	10	10
4.0 x 300	140-180	1	10	10
5.0 x 300	180-240	1	10	10



Nicalloy Mo-6

NON FERROUS (Ni Alloys)

Nickel based Electrode for LNG storage systems

CLASSIFICATION : EN ISO 14172 AWS A/SFA 5.11
E Ni 6620 E NiCrMo-6

KEY FEATURES :

- Basic coated electrode
- Weld metal is highly resistant to hot cracking, stress corrosion cracking and thermal shock
- Recommended for low temperature and cryogenic steels like 9% Ni steels
- Carbon diffusion at high temperature during heat treatment of dissimilar joints is largely reduced
- Weld metal meets highest quality requirements
- Good performance on AC and DC

WELDING POSITION : 



AC (70 OCV)/DCEP

TYPICAL APPLICATIONS :

- Joining 9% Nickel steel for cryogenic applications, especially LNG storage systems
- Welding of ASTM SA 553 Class 1 and SA 353 Class 1 steels
- High grade welding of high Mo nickel base alloys as well as Cr-Ni-Mo steels with high Mo content
- Joining Ni base alloys to steel, stainless/heat resistant cryogenic steels and alloys

REDRYING CONDITION : 300°C for 1 hr.

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Fe	S	P	Si
Specification	0.10 max	2.0-4.0	4.0-8.0	0.015max	0.015 max	1.0 max
	Cu	Nb+Ta	Cr	Mo	W	Ni
Specification	0.50 max	0.5-2.0	12.0-17.0	5.0-9.0	1.0-2.0	55.0 min

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%	CVN Impact at -196°C, J	Lateral Expansion, mm
Specification	As Welded	620 min	35 min	50 min	0.50 min

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 300	50-95	1	10	10
3.15 x 300	80-120	1	10	10
4.0 x 300	120-160	1	10	10



Nicalloy Mo-10

NON FERROUS (Ni Alloys)

Nickel base Electrode for C-22 material joining

CLASSIFICATION : EN ISO 14172 AWS A/SFA 5.11
E Ni 6022 E NiCrMo-10

KEY FEATURES :

- Basic coated non synthetic electrode
- Weld metal is of C-22 type
- Offers excellent corrosion resistance in oxidizing and reducing media
- Spectacular resistance to stress corrosion cracking, pitting and crevice corrosion
- Resistant to corrosion against acetic hydride, acetic and phosphoric acids, hot contaminated sulphuric and other contaminated oxidizing mineral acids
- Versatile product for the chemical, power, petroleum and marine industries

WELDING POSITION : 



DCEP

TYPICAL APPLICATIONS :

- Joining materials of the same nature, e.g. material 2.4602 (NiCr21Mo14W) and these materials with low alloyed steels such as for surfacing on low alloy steels
- Welding components in chemical processes handling highly corrosive media
- Dissimilar joints between Ni-Cr-Mo alloys and stainless, carbon or low alloy steels
- Overlay cladding on carbon, low alloy and stainless steels
- Digesters and paper making equipment, Scrubbers for flue gas desulphurization

REDRYING CONDITION : 250-300°C for 2-3 hrs.

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Fe	S	P	Si
Specification	0.02 max	1.0 max	2.0-6.0	0.015max	0.030 max	0.20 max
	Cu	Co	Cr	Mo	W	Ni
Specification	0.50 max	2.5 max	20.0-22.5	12.5-14.5	2.5-3.5	Bal.

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%
Specification	As Welded	690 min	25 min

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 300	50-70	1	10	10
3.15 x 300	70-95	1	10	10
4.0 x 300	90-120	1	10	10



Nicalloy Mo-12

NON FERROUS (Ni Alloys)

Nickel base Electrode for application from cryogenic to elevated temperature

CLASSIFICATION : EN ISO 14172 AWS A/SFA 5.11
E Ni 6627 E NiCrMo-12

KEY FEATURES :

- Basic coated electrode
- Weld metal is highly resistant to hot cracking, stress corrosion cracking and thermal shock
- Works smoothly with negligible spatter
- Reduces carbon diffusion at high temperature
- Recommended for high temperature and creep resisting steels

WELDING POSITION : 



TYPICAL APPLICATIONS :

- Joining Cr-Ni-Mo austenitic steel to duplex stainless steels and 9% Ni steel for cryogenic applications, forging dies for service applications from -200°C to 1000°C
- High grade welding of high Mo Nickel base alloys e.g. Inconel 625/800 as well as Cr-Ni-Mo steels with high Mo content
- Joining of A 240, A 107, A 182, A 249, A 276, A 312, A 358, A 473

REDRYING CONDITION : 250-300°C for 2-3 hrs.

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	C	Mn	Fe	S	P	Si
Specification	0.03 max	1.0-2.20	5.0 max	0.02max	0.025 max	0.25-0.65
	Cu	Cr	Nb+Ta	Mo	Ni	
Specification	0.5 max	20.5-22.5	1.0-2.8	8.8-10.0	Bal.	

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%	CVN Impact at -196°C, J	Lateral Expansion, mils
Specification	As Welded	650-750	35 min	35-60	30-50

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 300	70-100	1	10	10
3.15 x 300	110-140	1	10	10
4.0 x 300	130-170	1	10	10

Aluminum Welding Electrode for joining wrought and cast 4043 type alloy.

CLASSIFICATION : AWS A/SFA 5.3 DIN 1732
E 4043 EL Al Si 5

KEY FEATURES :

- Special coated electrode
- Keep short arc to avoid burn through and excessive spattering
- Electrode dia. should roughly be equivalent to plate thickness
- Provide high melting rate
- Slag residues should be thoroughly removed to obtain non corrosive weld
- Section thickness above 8 mm should be preheated to min. 200°C

WELDING POSITION :



DCEP

TYPICAL APPLICATIONS :

- Fabrication and repair of wrought and cast Al alloys with Si upto 7%
- Welding of similar grade Al alloys in the form of pipe, plate, forging and casting

REDRYING CONDITION : Keep electrodes dry.

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	Si	Fe	Zn	Cu	Ti	Al
Typical	5.0	0.2	0.05	0.2	0.1	Bal.
Specification	4.5-6.0	0.80 max	0.10 max	0.30 max	0.20 max	Bal.

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%
Typical	As Welded.	145	6
Specification		100-175	4-8

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Carton/Box	Net wt./Box, Kg.
2.5 x 350	60-90	1	5	5
3.15 x 350	80-110	1	5	5
4.0 x 350	110-150	1	5	5

EQUIVALENT : GMAW wire: Automig-4043

GTAW filler: Tigfil-4043



Aluminium Welding Electrode for joining and repair of 4047 type alloy

CLASSIFICATION : DIN 1732

EL Al Si 12

KEY FEATURES :

- Aluminium alloy with typical 12% Si
- Special coating to reduce moisture pickup
- Electrode dia. should roughly be equivalent to plate thickness
- Provide high melting rate
- Slag residues should be thoroughly removed to obtain non corrosive weld
- Section thickness above 8 mm should be preheated to min. 200°C

WELDING POSITION :



DCEP

TYPICAL APPLICATIONS :

- Welding and repair of cast Al alloys containing more than 7% Si
- Engine blocks, Gear box units, Automotive parts
- Window frames, Tubes, Furniture
- Al alloys such as G-AlSi 12, G-AlSi 12 (Cu), G-AlSi 10Mg, G-AlSi 10Mg (Cu)

REDRYING CONDITION : Keep electrodes dry.

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	Si	Fe	Al
Typical	11.2	0.2	Bal.
Specification	9.0-12.0	0.50 max	Bal.

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%
Typical	As Welded.	195	5.5
Specification		180 min.	4-8

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Carton/Box	Net wt./Box, Kg.
2.5 x 350	60-90	1	5	5
3.15 x 350	80-110	1	5	5
4.0 x 350	110-150	1	5	5

Stick Electrode specially for the Welding of copper and bronze

CLASSIFICATION : AWS A/SFA 5.6 IS 8666
E CuSn-A E CuSn-A

KEY FEATURES :

- Copper-Tin electrode
- Due to high heat conductivity of Cu alloys, preheat of 260-370°C is recommended for heavy sections
- Typical 93% Cu-6% Sn deposit
- No preheat is required on thin sections and ferrous base material

WELDING POSITION :



DCEP

TYPICAL APPLICATIONS :

- Welding of Copper or Bronze to steel
- Impeller blades, Valve seats
- Brass, Galvanized iron, Malleable Iron
- Ship propellers, Bearings, Bushings
- Cast iron welding where colour match is not necessary
- Joining dissimilar metals such as mild steel to phosphorus bronze and brass

REDRYING CONDITION : 300°C for 1 hr. (Also available in vacuum packed condition)

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt % :

	Cu	Sn	P
Typical	94.8	5.0	0.2
Specification	92.0-96.0	4.0-6.0	0.10-0.35

MECHANICAL PROPERTIES OF ALL WELD METAL :

	Condition	UTS, MPa	EL%
Typical	As Welded	275	24
Specification		240 min.	20 min.

PARAMETERS - PACKING DATA :

Ø x L, mm	Amperage, A	Wt./Carton, Kg	Cartons/Box	Net wt./Box, Kg
2.5 x 300	40-70	1	10	10
3.15 x 300	80-110	1	10	10
4.0 x 300	110-160	1	10	10

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