



CREATING THE BEST WELDING EXPERIENCE



Welding Electrodes



Edition: ADOR INDIA 2023



SUMMARY

Index

Section I	Page No.
------------------	-----------------

Welding Electrodes	
---------------------------	--

- | | |
|------------------------------|-----------|
| • C-Mn Steel | 10 - 29 |
| • Cellulosic | 30 - 35 |
| • Low Alloy Steel | 36 - 85 |
| • Stainless Steel Electrodes | 86 - 137 |
| • Cast Iron Electrodes | 138 - 141 |
| • Hardfacing | 142 - 170 |
| • Nickel and Nickel Alloys | 171 - 190 |
| • Cutting and Gouging | 191 - 193 |

Section II	
-------------------	--

Item Code	
------------------	--

- | | |
|----------------------|-----------|
| • Welding Electrodes | 195 - 215 |
|----------------------|-----------|

Section III	
--------------------	--

Storage & Handling Instructions for Welding Consumables	
--	--

- | | |
|---|-----------|
| • Storage and Handling Instructions for Welding Consumables | 217 - 221 |
|---|-----------|

Section VI	
-------------------	--

Safety Features	
------------------------	--

- | | |
|-------------------|-----------|
| • Safety Features | 223 - 225 |
|-------------------|-----------|



INDEX

Welding Electrodes

Sr. No.	Product Name	BIS Classification	AWS Classification	Page No.
C-Mn Steel				
1	Maxbond		E6012	10
2	Superbond	ER 4212X	E6013	11
3	Superbond S	ER 4222X	E6013	12
4	Superbond SS	ERR 4222X	E6013	13
5	Kingbond	ER 4211X	E6013	14
6	Kingbond S	ER 4211X	E6013	15
7	Metalbond	ER 4112X	E6013	16
9	Supabase	EB5426H ₃ JX	E7018	17
10	Supabase X Plus	EB5426H ₃ JX	E7018	18
11	Tenalloy Z Plus	EB5629H ₃ JX	E7018-1	19
12	Tenalloy S Plus	EB5629H ₃ JX	E7018-1	20
13	Tenalloy R	EB5629H ₃ JX	E7018-G	21
14	Tenalloy 38R Spl	EB5629H ₃ JX	E7018-G	22
15	Tenalloy 16	EB5426H ₃ X	E7016	23
16	Tenalloy 16W	EB5426H ₃ X	E7016	24
17	Tenalloy 16 Spl	EB5426H ₃ X	E7016-1	25
18	Topstar	EA4222X	E6020	26
19	Topstar 140	ERR 5242 KX	E7024	27
20	Silox Fe			28
21	Silox Fe LH			29
Cellulosic				
22	Celwel 60	E C 4210 X	E6010	30
23	Celwel 60S	E C 4216 X	E6011	31
24	Celwel 70G	E 49 C-A1	E7010-G	32
25	Celwel 70P		E7010-P1	33
26	Celwel 80G		E8010-G	34
27	Celwel 80P		E8010-P1	35
Low Alloy Steel				
28	Molyten	E49 B-A1	E7018-A1	36
29	Cromoten 1	E55 B-B1	E 8018-B1	37
30	Cromoten	E55 B-B2	E 8018-B2	38
31	Cromoten STC	E55 B-B2	E 8018-B2	39
32	Cromoten C	E63 B-B3	E9018-B3	40
33	Cromoten 2 STC	E63 B-B3	E9018-B3	41
34	Cromoten S Plus	E55 B-B2L	E7018-B2L	42
35	Cromoten C S Plus	E63 B -B3L	E8018-B3L	43
36	Cromoten D	E41 R-B6	E8018-B6	44
37	Cromoten D S Plus		E8018-B6L	45
38	Cromoten 9	E41 B-B8	E8018-B8	46
39	Cromoten 9L		E8018-B8L	47
40	Cromoten 9M		E9018-B91	48
41	Cromoten 9M-15		E9015-B91	49
42	Cromoten V		E8013-G	50
43	Cromoten Ti		E8013-G	51
44	Cromoten C Ti		E9013-G	52
45	Tenalloy 70A	E55 B- C1	E8018-C1	53
46	Tenalloy 70B	E55B-C2	E8018-C2	54
47	Tenalloy 70BL		E7018-C2L	55



INDEX

Welding Electrodes

Sr. No.	Product Name	BIS Classification	AWS Classification	Page No.
Low Alloy Steel				
48	Tenalloy 70C	E55B-C3	E8018-C3	56
49	Tenalloy 70CL		E7018-C3L	57
50	Tenalloy 70D		E8018-C4	58
51	Tenalloy 55		E8018-G	59
52	Tenalloy 60		E8018-G	60
53	Tenalloy 60N		E8018-G	61
54	Tenalloy 16E Spl		E8016-G	62
55	Tenalloy 60D3		E8018-D3	63
56	Tenalloy 70D1	E63B-D1	E9018-D1	64
57	Tenalloy 90D3		E9018-D3	65
58	Tenalloy 65		E9018-G	66
59	Tenalloy 65 Spl		E9018-G	67
60	Tenalloy 70		E9018-G	68
61	Tenalloy 75D2	E68 B-D2	E10018-D2	69
62	Tenalloy 75		E10018-M	70
63	Tenalloy 75G	E68 B M2	E10018-G	71
64	Tenalloy 80		E11018-M	72
65	Tenalloy 80HH Spl		E11018-M	73
66	Tenalloy 110		E11018-G H4R	74
67	Tenalloy 120		E12018M	75
68	Tenalloy 120G		E12018G	76
69	Tenalloy 4130			77
70	Tenalloy 125			78
71	Nimoten		E9018-M	79
72	Nimoten Plus			80
73	Nimoten Plus 535			81
74	Ultracorten I		E7018-W1	82
75	Ultracorten III		E8018-W2	83
76	Tenalloy 80P2		E8045-P2 H4R	84
77	Tenalloy 90P2		E9045-P2 H4R	85
Stainless Steel Electrodes				
78	Superinox 16 8 2	E16 8 2-16		86
79	Superinox 1A	E19.9 R26	E308-16	87
80	Superinox 1AH	E19.9 R26	E308H-16	88
81	Kingsteel			89
82	Striker 308L		E308L-16	90
83	Superinox 1C	E19.9 L R26	E308L-16	91
84	Superinox 1C-15 LT	E19.9 L B20	E308L-15	92
85	Betanox 308L Plus	E19.9 L R36	E308L-17	93
86	Superinox 2A	E19.12.2 L R26	E316-16	94
87	Betanox 316 Plus	E19.12.2 R36	E316-17	95
88	Superinox 2C	E19.12.2 L R26	E316L-16	96
89	Superinox 2C Mo	E19.12.3 L R 12	E316L-16	97
90	Betanox ZF	E19.12.2 L R26	E316L-16	98
91	Betanox K	E19.12.2 L B20	E316L-15	99
92	Betanox 316L Plus	E19.12.2 L R36	E316L-17	100
93	Superinox 2D	E19.12.3 L R26	E317L-16	101
94	Superinox 2B		E318-16	102
95	Betanox 318 Plus		E318-17	103
96	Superinox 1B	E 19.9 Nb R26	E347-16	104
97	Betanox 347 Plus	E 19.9 Nb R36	E347-17	105



INDEX

Welding Electrodes

Sr. No.	Product Name	BIS Classification	AWS Classification	Page No.
Stainless Steel Electrodes				
98	Betinox D	E23.12 R26	E309-16	106
99	Betinox 309 Plus	E23.12 R36	E309-17	107
100	Betinox DL	E23.12 L R26	E309L-16	108
101	Betinox DCb	E23.12 Nb R26	E309Cb-16	109
102	Betinox 309Cb Plus	E23.12 R36	E309Cb-17	110
103	Betinox DMo	E23.12.2 R26	E309Mo-16	111
104	Betinox 309Mo Plus	E23.12.2 R236	E309Mo-17	112
105	Betinox DMoL	E23.12.2 L R36	E309LMo-16	113
106	Superinox 312	E29.9 R26	E312-16	114
107	Betinox C	E25.20 R26	E310-16	115
108	Betinox 310 Plus	E25.20 R36	E310-17	116
109	Betinox 20/30	E18.36 B20	E320-15	117
110	Betinox 20/25/5/Cu	E20.25.5 LCu B26	E385-15	118
111	Superinox 630		E630-16	119
112	Arminox			120
113	Betachrome ND	E18.8 Mn B20		121
114	Betachrome ND Spl	E18.8 Mn B20		122
115	Austomang 209		E209-16	123
116	Austomang 219		E219-16	124
117	Austomang 240		E240-16	125
118	Austomang 307		E307-16	126
119	Superinox 409Nb		E409Nb-16	127
120	Betachrome 13Cr	E13 B26	E410-15	128
121	Betachrome 13/4 LB	E13.4 B20	E410NiMo-15	129
122	Betachrome 13/4 LB-R	E13.4 R26	E410NiMo-16	130
123	Betachrome 17Cr	E17 B26	E430-15	131
124	Betinox 4462		E2209-16	132
125	Betinox 2553		E2553-16	133
126	Betinox 2594		E2594-15	134
127	Betinox 2594-16		E2594-16	135
128	Betinox 2595-16		E2595-16	136
129	Betinox 2595-15		E2595-15	137
Cast Iron Electrodes				
130	Casten	EFe B26	Est	138
131	Castmonel	ENi Cu 2 G33	ENiCu-B	139
132	Castnickel	ENi G23	ENi-CI	140
133	Ferricast	ENiFe G 23	ENiFe-CI	141
Hardfacing				
134	Zedalloy 250			142
135	Zedalloy 350			143
136	Zedalloy 350 LH			144
137	Zedalloy 550			145
138	Zedalloy 550 LH			146
139	Zedalloy 600			147
140	Zedalloy 650			148
141	Zedalloy 604			149
142	Zedalloy WD			150
142	Betachrome N			151
143	Zedalloy 12 Mn			152
144	Zedalloy 16 Mn			153
145	Zedalloy 16 Cr			154
146	Zedalloy 20 Cr			155



INDEX

Welding Electrodes

Sr. No.	Product Name	BIS Classification	AWS Classification	Page No.
Hardfacing				
147	Zedalloy CrMn			156
148	Zedalloy K			157
149	Zedalloy Bell			158
150	Zedalloy 17Cr NS Plus			159
151	Zedalloy VB			160
152	Super Zedalloy			161
153	Maganacane			162
154	Zedalloy 16			163
155	Zedalloy 680			164
156	Nimoten Plus 535 A			165
157	Nimoten Plus 535 B			166
158	NIMOTEN 9580			167
159	NIMOTEN 9650			168
160	Nimoten HFD			169
161	Zedalloy CoCr-A			170
Nickel and Nickel Alloys				
162	Supermonel	ENiCu-7		171
163	Nicalloy 1	ENi-1	ENi-1	172
164	Nicalloy Fe-2	ENiCrFe-2	ENiCrFe-2	173
165	Nicalloy Fe-3	ENiCrFe-3	ENiCrFe-3	174
166	Nicalloy Mo-3	ENiCrMo-3	ENiCrMo-3	175
167	Nicalloy Mo-4	ENiCrMo-4	ENiCrMo-4	176
168	Nicalloy Mo-5	ENiCrMo-5	ENiCrMo-5	177
169	Nicalloy Mo-6	ENiCrMo-6	ENiCrMo-6	178
170	Nicalloy Mo-10		ENiCrMo-10	179
171	Nicalloy Mo-12		ENiCrMo-12	180
172	Nicalloy Mo-14		ENiCrMo-14	181
173	Nicalloy Fe-7		ENiCrFe-7	182
174	Nicalloy NiMo-7		ENiMo-7	183
175	Nicalloy 617			184
176	Albond 5 Si		E4043	185
177	Albond 12 Si			186
178	Bronze	ECuSn-A	ECuSn-A	187
179	Bronze Al-A2	ECuAl-A2	ECuAl-A2	188
180	Bronze NiAl			189
181	Super CuNi		ECuNi	190
Cutting and Gouging				
182	CAG 9900			191
183	CAG 9901			192
184	CAG 9905			193
Item Code				195-215
Storage & Handling Instructions				217-221
Safety Features In Welding				223-225



Arc Welding - Process Overview

(Data based on standard Industrial practices)

S.N.	Key Features	MMAW (Manual Metal Arc Welding)	GMAW (Gas Metal Arc Welding)	FCAW (Flux-Cored Arc Welding)	GTAW (Gas Tungsten Arc Welding)	SAW (Submerged Arc Welding)
	Common dia/∅ of consumable, mm	2.5, 3.15, 4.0 , 5.0	1.2 , 1.6	1.2 , 1.6	2.4 , 3.2	1.6, 3.15, 4.0
1	Cost of welding equipment	Low	Medium	Medium	Medium	High
2	Cost of welding consumable	Medium	Medium	Medium to High	High	Medium
3	Availability of welding consumable	Easy	Medium	Medium	Medium	Medium
4	Requirement of skill for welder	Less	Medium	High	V. High	Medium
5	Ease of using the welding process	Easy	Medium	Medium	Difficult	Medium
6	Suitability in welding positions	All	F, H, VU	All	All	F, H
7	On-sight welding	Easy	Medium	Medium	Medium	Difficult
8	Continuity in welding	Less	High	High	Less	Higher
9	Welding speed, mm/minute (The speed at which welding is done.)	140	200	200	Slowest	500
10	Deposition efficiency, % (Weight ratio of weld metal & consumable)	65	90	85	100	100
11	Effective arcing time, % (% of time spent on actual welding.)	35	45	45	Not Applicable	50
12	Arcing time/ 8 hrs shift, hour (Actual welding time in 8 hrs shift.)	2.8	3.6	3.6	Not Applicable	4.0
13	Deposition rate, kg/ hr (Weight of weld metal deposited/hr.)	1.5	3.4	3.5	Not Applicable	7.0
14	Deposition/ 8 hrs shift, kg (Actual weld metal deposited in 8 hrs shift)	4.2	12.24	12.6	Not Applicable	28.0
15	Ease to increase deposition rate	Only increasing dia/∅	Using Ar-CO ₂ gas	Using Ar-CO ₂ gas	Not Applicable	Using multi-wire

Notes: (All position welding means suitable to weld F: Flat, H: Horizontal, OH: Overhead, VD: Vertical down, VU: Vertical up – in all these positions)



Welding Electrodes

Section I



MAXBOND

MILD STEEL GENERAL PURPOSE (MSGP)

AWS A/SFA 5.1 **E6012**

CLASSIFICATION:

ISO 2560-A
E38 Z R 1 1

KEY FEATURES:

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

APPROVALS: CE

TYPICAL APPLICATIONS:

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


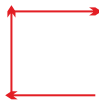
TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si
0.09	0.5	0.2

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%
Typical	As Welded	560	430	26
Specification		430 min	330 min	17 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	55-95	 AC (50 OCV min.) / DCEN	All Positions, Except Vertical Down 
3.15 x 350	95-125		
3.15 x 450	95-125		
4.0 x 450	125-175		
5.0 x 450	165-260		

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each.



SUPERBOND

MILD STEEL GENERAL PURPOSE (MSGP)

AWS A/SFA 5.1 **E6013**

CLASSIFICATION:

ISO 2560-A
E38 0 R 1 1

IS 814
ER 4212

KEY FEATURES:

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

APPROVALS: ABS/DNV/BV/IRS/LRA/BIS/IBR/CE

TYPICAL APPLICATIONS:

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


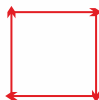
TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si
0.1	0.45	0.2

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS, MPa	EL%	CVN Impact at 0°C, J
Typical	As Welded	500	430	25	68
Specification		430 min	330 min	17 min	47 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		All Positions
2.5 x 350	60-90	 AC (50 OCV min.) / DCEN	
3.15 x 350	100-130		
3.15 x 450	100-130		
4.0 x 450	140-180		
5.0 x 450	180-240		

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each.



SUPERBOND S

MILD STEEL GENERAL PURPOSE (MSGP)

AWS A/SFA 5.1 **E6013**

CLASSIFICATION:

ISO 2560-A
E38 0 R 1 2

IS 814
ER 4222X

KEY FEATURES:

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

APPROVALS: ABS/IRS/LRA/IBR/CE

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, SA 285/285M Gr.A/B/C, SA 414/414M Gr.A/B


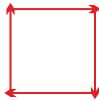
TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si
0.06	0.5	0.2

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	70
Specification		430 min	330 min	17 min	47 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
1.6 x 250	30-50	 AC (50 OCV min.) / DCEN	All Positions 
2.0 x 300	40-60		
2.5 x 350	60-90		
3.15 x 350	100-140		
3.15 x 450	100-140		
4.0 x 450	140-190		
5.0 x 450	180-250		

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each.



SUPERBOND SS

MILD STEEL GENERAL PURPOSE (MSGP)

AWS A/SFA 5.1 **E6013**

CLASSIFICATION:

ISO 2560-A
E38 0 RR 1 3

IS 814
ERR 4222X

KEY FEATURES:

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

APPROVALS: ABS/LRA/BIS/IRS/CE

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



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si
0.06	0.45	0.2

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		430 min	330 min	17 min	47 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	60-90	 AC (50 OCV min.) / DCEN	All Positions Except Vertical Down 
3.15 x 350	100-140		
3.15 x 450	100-140		
4.0 x 450	140-190		
5.0 x 450	190-250		

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each.



KINGBOND

MILD STEEL GENERAL PURPOSE (MSGP)

AWS A/SFA 5.1 **E6013**

CLASSIFICATION:

ISO 2560-A
E38 0 R 1 1

IS 814
ER 4211X

KEY FEATURES:

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

APPROVALS: BIS/RDSO/CE

TYPICAL APPLICATIONS:

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



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si
0.1	0.4	0.3

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		430 min	330 min	17 min	50 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	60-85	 AC (50OCV)/DCEN/DCEP	All Positions 
3.15 x 350	90-130		
3.15 x 450	90-130		
4.0 x 450	140-180		
5.0 x 450	180-240		

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each.



KINGBOND S

MILD STEEL GENERAL PURPOSE (MSGP)

AWS A/SFA 5.1 **E6013**

CLASSIFICATION:

ISO 2560-A
E38 0 RC 1 1

IS 814
ER 4211X

KEY FEATURES:

- Rutile type coating
- Superior welding characteristics
- All position welding capability
- Radiographic weld quality

APPROVALS: BIS

TYPICAL APPLICATIONS:

- General purpose fabrication
- Sheet metal work
- Light construction work
- Steel furniture



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si
0.1	0.35	0.35

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at 0°C, J
Specification	As Welded	430 min	330 min	17 min	55

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.50 x 300	60-85	 AC (50OCV)/DCEN/DCEP	All Positions 
3.15 x 350	90-130		
3.15 x 450	90-130		
4.0 x 450	140-180		
5.0 x 450	180-240		

Available in Standard carton packing of 16-20 kg box containing 6 cartons. Contact for size-wise packing details.



METALBOND

MILD STEEL GENERAL PURPOSE (MSGP)

AWS A/SFA 5.1 **E6013**

CLASSIFICATION:

ISO 2560-A
E38 0 R 1 2

IS 814
ER 4112X

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

APPROVALS: ABS/BV/DNV/IRS/LRA/BIS/IBR/NTPC/BHEL/CE

TYPICAL APPLICATIONS:

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



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si
0.09	0.4	0.25

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		430 min	330 min	17 min	50 min.

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	60-80	 AC (50OCV min.)/ DCEN	All Positions 
3.15 x 350	100-130		
3.15 x 450	100-130		
4.0 x 450	140-180		

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each.



SUPABASE

C-Mn STEEL (Low Hydrogen)

AWS A/SFA 5.1 **E7018**

CLASSIFICATION:

ISO 2560-A
E 42 3 B32 H5

IS 814
EB5426H₃JX

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

APPROVALS: ABS/BV/LRA/IBR/BIS/NTPC/BHEL/CE

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si
0.06	1.1	0.4


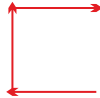
MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact
					-30°C, J
Typical	As Welded	540	470	26	60
Specification		490 min	400 min	22 min	47 min

Hardness, 3 Layer: 200BHN max

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
2.5 x 350	60-90	 AC (70 OCV)/ DCEP All Positions Except Vertical Down  REDRYING CONDITION: 250-300°C for minimum 1 hr.
3.15 x 350	100-130	
3.15 x 450	100-130	
4.0 x 450	140-180	
5.0 x 450	180-240	

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing

EQUIVALENT:

GMAW	GTAW	FCAW	SAW	
			Flux	Wire
Automig I	Tigfil 70S-2	Automig FC 71T-5	Automelt B71	Automelt EM12K
Automig 70S-3	Tigfil 70S-3	-	Automelt B31	Automelt EH14
-	Tigfil 70S-6	-	-	-



SUPABASE X PLUS

C-Mn STEEL (Low Hydrogen)

AWS A/SFA 5.1 E7018 H4R

CLASSIFICATION:

ISO 2560-A
E 42 3 B 32 H5

IS 814
EB5426H₃JX

KEY FEATURES:

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

APPROVALS: ABS/BV/DNV/IRS/LRA/NPCIL/BIS/CE

TYPICAL APPLICATIONS:

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si
0.05	1.1	0.5

MECHANICAL PROPERTIES OF ALL WELD METAL:


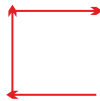
	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact
					-30°C, J
Typical	As Welded	555	480	26	60
Specification		490 min	400 min	22 min	47 min

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		
2.5 x 350	60-90	 AC (70 OCV)/ DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions Except Vertical Down 
3.15 x 350	100-130		
3.15 x 450	100-130		
4.0 x 450	140-180		
5.0 x 450	180-240		

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing

EQUIVALENT:

GMAW	GTAW	FCAW	SAW	
			Flux	Wire
Automig I	Tigfil 70S-2	Automig FC 71T-5	Automelt B71	Automelt EM12K
Automig 70S-3	Tigfil 70S-3	-	Automelt B31	Automelt EH14
-	Tigfil 70S-6	-	-	-



TENALLOY Z PLUS

C-Mn STEEL (Low Hydrogen)

AWS A/SFA 5.1 E7018-1 H4R

CLASSIFICATION:

EN ISO 2560-A

E 42 4 B 32 H5

IS 814

EB5629H₃JX

KEY FEATURES:

- Basic coated iron powder type
- Suitable for pipe welding in 5G, 6G & 6GR positions
- Excellent toughness down to -50°C
- Radiographic weld deposit
- All position capability

APPROVALS: ABS/BV/DNV/IRS/LRA/NPCIL/BHEL/NTPC/BIS/CE

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si
0.06	1.5	0.3

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	560	480	27	60
Specification		490 min	400 min	22 min	50 min

Hardness (3 Layer): 200 BHN max

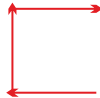
Diffusible H2 Content: <5 ml/100 gm

Special Test: HIC & SSCC (NACE)

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
2.5 x 350	60-90	 AC (70 OCV)/ DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.
3.15 x 350	90-140	
3.15 x 450	90-140	
4.0 x 450	140-180	
5.0 x 450	180-240	

All Positions, Except Vertical Down



Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing

EQUIVALENT:

GTAW	FCAW	SAW	
		Flux	Wire
Tigfil 70S-2 SPL	Automig FC 71T-5	Automelt B20 Plus	Automelt EH12K
Tigfil 70S-3	-	Automelt B41	Automelt EH10K
Tigfil 70S-6	-	Automelt B41	Automelt EH14



TENALLOY S PLUS

C-Mn STEEL (Low Hydrogen)

AWS A/SFA 5.1 E7018-1 H4R

CLASSIFICATION:

ISO 2560-A
E 42 5 B 32 H5
IS 814
EB5629H,JX

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

APPROVALS: ABS/DNV/LRA/IBR/CE

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si
0.06	1.5	0.3

MECHANICAL PROPERTIES OF ALL WELD METAL:


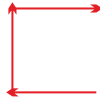
	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact
					-46°C, J
Typical	As Welded	550	470	28	100
Specification		490 min	400 min	22 min	80 min

Hardness (3 Layer): 200 BHN max

Diffusible H2 Content: <5 ml/100 gm

Special Test: HIC and SSCC (NACE), CTOD at -10°C
Hot tensile at 200°C

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
2.5 x 350	60-90	 AC (70 OCV)/ DCEP All Positions, Except Vertical Down  REDRYING CONDITION: 250-300°C for minimum 1 hr.
3.15 x 350	90-140	
3.15 x 450	90-140	
4.0 x 450	140-180	
5.0 x 450	180-240	

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing

EQUIVALENT:

GTAW	FCAW	SAW	
		Flux	Wire
Tigfil 70S-2 SPL	Automig FC 71T-5	Automelt B20 Plus	Automelt EH12K
Tigfil 70S-3	-	Automelt B41	Automelt EH10K
Tigfil 70S-6	-	Automelt B41	Automelt EH14



TENALLOY R

C-Mn STEEL (Low Hydrogen)

AWS A/SFA 5.1 **E7018-G**

CLASSIFICATION:

ISO 2560-A

E 42 5 B 32 H5

IS 814

EB5629H,JX

KEY FEATURES:

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

APPROVALS: CE

TYPICAL APPLICATIONS:

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



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si
0.06	1.2	0.3

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact -50°C, J
Typical	As Welded	550	480	27	55
Specification		490 min	400 min	22 min	47 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
2.5 x 350	60-90	 AC (70 OCV)/ DCEP All Positions, Except Vertical Down  REDRYING CONDITION: 250-300°C for minimum 1 hr.
3.15 x 450	90-140	
4.0 x 450	140-180	
5.0 x 450	180-240	

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing



TENALLOY 38R SPL

C-Mn STEEL (Low Hydrogen)

AWS A/SFA 5.1 E7018-G

CLASSIFICATION:

ISO 2560-A
E 42 5 B 32 H5

KEY FEATURES:

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

APPROVALS: CE

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Ni
0.07	1.2	0.28	0.90


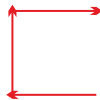
MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact, J	
					-40°C	-50°C
Typical	As Welded	550	460	28	95	65
Specification		490 Min	400 Min	22 Min	80 min	50 min

Hardness (3 Layer): -200BHN max

Diffusible H2 Content: < 5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
2.5 x 350	65-95	 DCEP All Positions, Except Vertical Down  REDRYING CONDITION: 250-300°C for minimum 1 hr.
3.15 x 450	90-140	
4.0 x 450	140-185	
5.0 x 450	180-250	

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing



TENALLOY 16

C-Mn STEEL (Low Hydrogen)

AWS A/SFA 5.1 **E7016**

CLASSIFICATION:

ISO 2560-A
E 42 3 B 12 H5

IS 814
EB5426H₃X

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

APPROVALS: ABS/DNV/IRS/LRA/IBR/CE/RDSO

TYPICAL APPLICATIONS:

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si
0.06	1.2	0.6


MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact, J
					-30°C
Typical	As Welded	560	475	27	60
Specification		490 min	400 min	22 min	50 min

Hardness (3 Layer): 200 BHN max.

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	 DCEP	All Positions, Except Vertical Down
2.5 x 350	60-80		
3.15 x 350	90-120		
3.15 x 450	90-120		
4.0 x 450	130-170		
5.0 x 450	180-230		

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing



TENALLOY 16W

C-Mn STEEL (Low Hydrogen)

AWS A/SFA 5.1 E7016

CLASSIFICATION:

ISO 2560-A
E 42 3 B 12 H5

KEY FEATURES:

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

APPROVALS: - CE

TYPICAL APPLICATIONS:

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si
0.05	0.9	0.4


MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact, J
					-30°C
Typical	As Welded	520	450	28	60
Specification		490 min	400 min	22 min	50 min

Hardness (3 Layer): 200 BHN max

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	 DCEP	All Positions, Except Vertical Down
2.5 x 350	60-85		
3.15 x 450	90-130		
4.0 x 450	130-180		
5.0 x 450	180-240		

REDRYING CONDITION:
250-300°C for minimum 1 hr.

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing



TENALLOY 16 SPL

C-Mn STEEL (Low Hydrogen)

AWS A/SFA 5.1 **E7016-1**

CLASSIFICATION:

ISO 2560-A
E 42 5 B 12 H5

KEY FEATURES:

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

APPROVALS: - LRA/CE

TYPICAL APPLICATIONS:

- Root welding of pipes in 6G position
- Horton spheres, Penstocks
- Carbon steel and low alloy steel pressure vessels fabrications and where severe service conditions exists
- 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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si
0.06	1.45	0.3


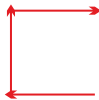
MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -46°C, J
Typical	As Welded	570	490	25	100
Specification		490 min	400 min	22 min	60 min

Hardness (3 Layer): 200BHN max

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	60-90	 AC (70 OCV)/ DCEP / DCEN REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, Except Vertical Down 
3.15 x 350	90-150		
3.15 x 450	90-140		
4.0 x 450	140-180		
5.0 x 450	180-250		

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing



TOPSTAR

C-Mn STEEL (High Efficiency)

AWS A/SFA 5.1 **E6020**

CLASSIFICATION:

ISO 2560-A
E 38 0 A 13

IS 814
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

APPROVALS: - CE

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



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si
0.08	0.5	0.2

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		430 min	330 min	22 min	50 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
3.15 x 450	90-140	 AC (70 OCV)/DCEN	Flat butt and fillet welds only 
4.0 x 450	140-200		
5.0 x 450	180-220		
		REDRYING CONDITION:	
		150-180°C for 1 hr..	

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing



TOPSTAR 140

C-Mn STEEL (High Efficiency)

AWS A/SFA 5.1 **E7024**

CLASSIFICATION:

ISO 2560-A
E 42 0 RR 53

IS 814
E RR 5242 KX

KEY FEATURES:

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

APPROVALS: - CE

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



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si
0.07	0.6	0.3

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		490 min	400 min	17 min	50 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
2.5 x 350	80-120	 AC (70 OCV)/DCEN <p>Flat butt and fillet welds only</p> 
3.15 x 450	150-170	
4.0 x 450	200-240	
5.0 x 450	250-290	
		REDRYING CONDITION: 150°C for 1 hr.

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing



SILOX Fe

C-Mn STEEL (Special Purpose)

KEY FEATURES:

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

TYPICAL APPLICATIONS:

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



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si
0.05	0.5	0.06

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 min	330 min	22 min	50 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
3.15 x 450	90-130	 AC (70 OCV)/ DCEN	All Positions, except vertical Down 
4.0 x 450	140-180		
5.0 x 450	180-220		

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing



SILOX Fe LH

C-Mn STEEL (Special Purpose)

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

TYPICAL APPLICATIONS:

- Welding and repairing of hot dip galvanizing baths


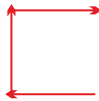
TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si
0.05	0.6	0.06

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		415 min	350 min	22 min	50 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
3.15 x 450	90-130	 DCEP 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
4.0 x 450	140-180		
5.0 x 450	180-220		

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing



CELWEL 60

CELLULOSIC

AWS A/SFA 5.1 **E6010**

CLASSIFICATION:

ISO 2560-A
E 38 3 C 21

IS 814
E C 4210 X

KEY FEATURES:

- Cellulose coated electrode
- Exhibits deep penetration and fast freezing
- All position operating characteristics
- Ideal for root pass and capping runs
- Radiographic quality welding

APPROVALS: ABS/LRA/IBR/CE

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:


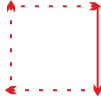
C	Mn	Si
0.15	0.5	0.2

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact, J
					at -30°C
Typical	As Welded	525	410	26	55
Specification		430 min	330 min	22 min	47 min

Hardness (3 Layer): 200 BHN max

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	50-90	 DCEP	All Positions, specifically in vertical down 
3.15 x 350	80-140		
4.0 x 350	120-180		
5.0 x 350	160-200		

Available in Standard carton packing of 18 kg box containing 3 tins of 6 kg each.



CELWEL 60S

CELLULOSIC

AWS A/SFA 5.1 **E6011**

CLASSIFICATION:

ISO 2560-A
E 38 3 C 11

IS 814
E C 4216 X

KEY FEATURES:

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

APPROVALS: CE

TYPICAL APPLICATIONS:

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


TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si
0.12	0.5	0.2

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact, J at -30°C, J
Typical	As Welded	520	420	27	55
Specification		430 min	330 min	22 min	47 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	60-90	 AC (70 OCV)/DCEP	All Positions, specifically in vertical down 
3.15 x 350	80-140		
4.0 x 350	120-180		
5.0 x 350	160-200		

Available in Standard carton packing of 18 kg box / tin containing 3 cartons of 6 kg each.



CELWEL 70P

CELLULOSIC

AWS A/SFA 5.5 **E7010-P1**

CLASSIFICATION:

EN ISO 2560-A
E 42 2 C 21

KEY FEATURES:

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

APPROVALS: - CE

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



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Mo
0.1	0.8	0.3	0.4

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	27 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	50-70	 DCEP	All Positions, specifically in vertical down 
3.15 x 350	80-120		
4.0 x 350	110-160		
5.0 x 350	160-210		

Available in Standard carton packing of 18 kg box / tin containing 3 cartons of 6 kg each.



CELWEL 70G

CELLULOSIC

AWS A/SFA 5.5 E7010-G

CLASSIFICATION:

EN ISO 2560-A
E 42 2 Mo C21

IS 814
E 49C-A1

KEY FEATURES:

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

APPROVALS: LRA/CE

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


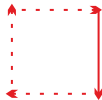
TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Mo
0.13	0.5	0.4	0.40

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact, J
					at -30°C
Typical	As Welded	555	470	24	55
Specification		490 min	415 min	22 min	47 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	60-90	 DCEP	All Positions, specifically in vertical down 
3.15 x 350	80-140		
4.0 x 350	120-180		
5.0 x 350	160-200		

Available in Standard carton packing of 18 kg box / tin containing 3 cartons of 6 kg each.



CELWEL 80P

CELLULOSIC

AWS A/SFA 5.5 **E8010-P1**

CLASSIFICATION:

EN ISO 2560-A
E 46 3 1Ni C 21

KEY FEATURES:

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

APPROVALS: CE

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



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Ni
0.1	1.0	0.2	0.6

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact, J
					at -30°C
Typical	As Welded	555	470	24	60
Specification		550 min	460 min	19 min	47 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	 DCEP	All Positions, specifically in Vertical Down 
2.5 x 350	60-90		
3.15 x 350	80-140		
4.0 x 350	120-180		
5.0 x 350	160-200		

Available in Standard carton packing of 18 kg box / tin containing 3 cartons of 6 kg each.



CELWEL 80G

CELLULOSIC

AWS A/SFA 5.5 E8010-G

CLASSIFICATION:

EN ISO 2560-A
E 46 3 1Ni C 21

KEY FEATURES:

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

APPROVALS: CE

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



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Ni
0.1	1.0	0.2	0.6

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact, J
					at -30°C
Typical	As Welded	610	520	22	60
Specification		550 min	460 min	19 min	47 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	60-90	 DCEP	All Positions, specifically in Vertical Down 
3.15 x 350	80-140		
4.0 x 350	120-180		
5.0 x 350	160-200		

Available in Standard carton packing of 18 kg box / tin containing 3 cartons of 6 kg each.



MOLYTEN

LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.5 **E7018-A1**

CLASSIFICATION:

EN ISO 3580-A
E Mo B 32 H5

IS 1395
E49B-A1

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

APPROVALS: ABS/IBR/NPCIL/BHEL/NTPC/CE

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Mo
0.06	0.7	0.4	0.5


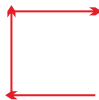
MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at 0°C, J
Typical	PWHT: 620°C for 1 hr.	550	460	27	80
Specification		490 min.	400 min	22 min	-

Hardness (3 Layer): 220 BHN max

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	50-80	 AC (70 OCV)/DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except Vertical Down 
3.15 x 450	90-130		
4.0 x 450	130-110		
5.0 x 450	180-240		

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing

EQUIVALENT:

GMAW	GTAW	SAW	
		Flux	Wire
Automig 70S-A1	Tigfil 70S-A1	Automelt B71	Automelt EA2



CROMOTEN 1

LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.5 **E8018-B1**

CLASSIFICATION:

EN ISO 3580-A

E CrMo0.5 B 32 H5

IS 1395

E55 B-B1

KEY FEATURES:

- Basic coated iron powder electrode
- Typical 0.5Cr-0.5Mo weld deposit
- Smooth and stable arc
- Resistance to stress cracking
- Maximum service temperature 550°C

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of 0.5Cr-0.5Mo and similar creep resistant steels
- For high temperature and high pressure boilers, chemical and oil refining industries
- Cr and Cr-Mo bearing steels at elevated temperature service for steam production plants, steam pipes
- Electric power plant, Super heaters

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Mo
0.06	0.7	0.5	0.5	0.5


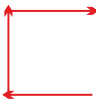
MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%
Specifications	PWHT: 620°C for 1 hr.	550 min	460 min	19 min

Hardness (3 Layer): 220 BHN Max

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	60-90	 AC (70 OCV)/DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 450	100-140		
4.0 x 450	140-180		
5.0 x 450	190-250		

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing



CROMOTEN

LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.5 **E8018-B2**

CLASSIFICATION:

EN ISO 3580-A

E CrMo1 B 32 H5

IS 1395

E 55B-B2

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

APPROVALS: ABS/IBR/NPCIL/BHEL/NTPC/BIS/CE

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:


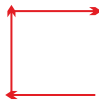
C	Mn	Si	Cr	Mo
0.06	0.7	0.6	1.3	0.5

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 for 1 hr.	615	525	24	70
Specification		550 min	460 min	19 min	-

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	60-90	 AC (70 OCV)/DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 450	100-140		
4.0 x 450	140-180		
5.0 x 450	190-250		

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing

EQUIVALENT:

GMAW	GTAW	FCAW	SAW	
			Flux	Wire
Automig 80S-B2	Tigfil 80S-B2	Automig FC81T1-B2	Automelt B20 Plus	Automelt EB2



CROMOTEN STC

LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.5 **E8018-B2**

CLASSIFICATION:

EN ISO 3580-A

E CrMo1 B 32 H5

IS 1395

E 55B-B2

KEY FEATURES:

- Non Synthetic, 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

APPROVALS: CE

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Mo
0.055	0.6	0.45	1.1	0.45

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -30°C, J
Typical	PWHT: 690°C for 1 hr.	615	525	24	100
Specification		550 min	460 min	19 min	-


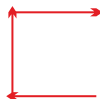
Hardness, 3 Layer: 220BHN max

X factor = $(10P + 5Sb + 4Sn + As)/100 < 15\text{ppm}$

Diffusible H2 Content: <5 ml/100 gm

Special Tests: Creep Rupture Test at 500°C - 120 MPa, stress for min. 1000 hrs

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	50-80	 AC (70 OCV)/DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 450	90-130		
4.0 x 450	130-170		
5.0 x 450	180-240		

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing

EQUIVALENT:

GTAW	SAW	
	Flux	Wire
Tigfil 80S-B2 SPL	Automelt B20 Plus	Automelt EB2R



CROMOTEN S PLUS

LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.5 E7018-B2L

CLASSIFICATION:

EN ISO 3580-A
E CrMo1L B 32 H5
IS 1395
E 55B-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

APPROVALS: CE

TYPICAL APPLICATIONS:

- 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
- Suitable for similar composition creep resistant steels used for boilers, oil refineries, chemical and power plants

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Mo
0.03	0.7	0.5	1.2	0.5



MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%
Typical	PWHT: 690°C for 1 hr.	570	475	22
Specification		520 min	390 min	19 min

Hardness, 3 Layer: 200 BHN max

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	60-90	 AC (70 OCV)/DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 450	100-120		
4.0 x 450	130-170		
5.0 x 450	180-220		

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing

EQUIVALENT:

GMAW	GTAW
Automig 70S-B2L	Tigfil 70S-B2L



CROMOTEN C

LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.5 E9018-B3

CLASSIFICATION:

EN ISO 3580-A

E CrMo2 B 32 H5

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

APPROVALS: ABS/IBR/NPCIL/NTPC/CE

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Mo
0.08	0.6	0.4	2.3	0.95



MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%
Typical	PWHT: 690°C for 1 hr.	660	580	22
Specification		620 min	530 min	17 min

Hardness, 3 Layer: 220 BHN max

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	60-90	 AC (70 OCV)/DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 450	100-140		
4.0 x 450	140-180		
5.0 x 450	190-250		

Available in Standard carton packing of 20 kg box containing 4 cartons each. Also available in vacuum packing

EQUIVALENT:

GMAW	GTAW	FCAW	SAW	
			Flux	Wire
Automig 90S-B3	Tigfil 90S-B3	Automig FC 91T1-B3	Automelt B20 Plus	Automelt EB3



CROMOTEN 2 STC

LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.5 E9018-B3

CLASSIFICATION:

EN ISO 3580-A
E CrMo2 B 32 H5

KEY FEATURES:

- Non synthetic, basic coated iron powder electrode
- 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

APPROVALS: CE

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Mo
0.08	0.6	0.4	2.25	1.0

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 for 1 hr.	660	580	22	70
Specification		620 min	530 min	17 min	-

Hardness, 3 Layer: 220 BHN max


X factor = $(10P + 5Sb + 4Sn + As)/100 < 15ppm$

Diffusible H2 Content: <5 ml/100 gm

Special Tests: Creep Rupture Test at

550°C - 160 MPa, stress for min. 1000 hrs

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	 AC (70 OCV)/DCEP	All Positions, except vertical Down
2.5 x 350	50-80		
3.15 x 450	90-130		
4.0 x 450	130-170		
5.0 x 450	180-240		

Available in Standard carton packing of 20 kg box containing 4 cartons each. Also available in vacuum packing

EQUIVALENT:

GTAW	SAW	
	Flux	Wire
Tigfil 90S-B3 SPL	Automelt B20 Plus	Automelt EB3R



CROMOTEN C S PLUS

LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.5 E8018-B3L

CLASSIFICATION:

EN ISO 3580-A
E CrMo2L B 12 H5
IS 1395
E63 B-B3L

KEY FEATURES:

- Basic coated electrode
- Low carbon Cr-Mo type deposit
- Weld metal is creep & heat resistant upto 600°C
- Weld deposit is highly resistant to cracking
- Heat treatable weld deposit
- Radiographic quality weld

APPROVALS: CE

TYPICAL APPLICATIONS:

- Best suited for joining 2.25 Cr-1 Mo creep resistant steels used in refineries, power plants, chemical plants, Pressure vessels and boilers
- Joining of P5A materials like SA 182/182M Gr.F22, German steels 12CrMo9-10, 10CrMo9-10, 10CrSiMoV7

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:



C	Mn	Si	Cr	Mo
0.04	0.75	0.45	2.3	1.1

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%
Typical	PWHT: 690°C for 1 hr.	600	525	20
Specification		550 min	460 min	17 min

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	60-90	 AC (70 OCV)/DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 450	100-140		
4.0 x 450	140-180		
5.0 x 450	190-250		

Available in Standard carton packing of 20 kg box containing 4 cartons each. Also available in vacuum packing

EQUIVALENT:

GMAW	GTAW
Automig 80S-B3L	Tigfil 80S-B3L



CROMOTEN D

LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.5 **E8018-B6**

CLASSIFICATION:

EN ISO 3580-A
E CrMo5 B 32 H5
IS 1395
E 41 R-B6

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

APPROVALS: CE

TYPICAL APPLICATIONS:

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:



C	Mn	Si	Cr	Mo
0.06	0.8	0.3	4.75	0.6

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -20°C, J
Typical	PWHT: 740°C for 1 hr.	610	490	22	70
Specification		550 min	460 min	19 min	47 min

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
2.5 x 350	60-90	 AC (70 OCV)/DCEP All Positions, except vertical Down  REDRYING CONDITION: 250-300°C for minimum 1 hr.
3.15 x 350	100-140	
4.0 x 450	140-180	
5.0 x 450	190-250	

Available in Standard carton packing of 20 kg box containing 4 cartons each. Also available in vacuum packing

EQUIVALENT:

GMAW	GTAW	SAW	
		Flux	Wire
Automig 80S-B6	Tigfil-80S-B6	Automelt B20 Plus	Automelt EB6



CROMOTEN D S PLUS

LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.5 E8018-B6L

CLASSIFICATION:

EN ISO 3580-A
E CrMo5L B 32 H5

KEY FEATURES:

- Basic coated electrode
- Low carbon 5 Cr-0.5 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

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of 5 Cr-0.5 Mo creep resistant steels and equivalent 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
- P5B materials and similar steels

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:



C	Mn	Si	Cr	Mo
0.04	0.8	0.5	4.5	0.6

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%
Typical	PWHT: 740°C for 1 hr.	650	580	24
Specification		550 min	460 min	19 min

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	60-90	 AC (70 OCV)/DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 350	100-140		
4.0 x 450	140-180		
5.0 x 450	190-250		

Available in Standard carton packing of 20 kg box containing 4 cartons each. Also available in vacuum packing



CROMOTEN 9

LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.5 **E8018-B8**

CLASSIFICATION:

EN ISO 3580-A
E CrMo9 B 32 H5
IS 1395
E41B-B8

KEY FEATURES:

- Basic type heavy coating
- 1 Mo 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

APPROVALS: CE

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:


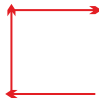
C	Mn	Si	Cr	Mo
0.06	0.6	0.2	8.7	0.9

MECHANICAL PROPERTIES OF ALL WELD METAL:

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

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	60-90	 AC (70 OCV)/DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 350	100-140		
4.0 x 350	140-180		
5.0 x 450	190-250		

Available in Standard carton packing of 20 kg box containing 4 cartons each. Also available in vacuum packing

EQUIVALENT:

GMAW	GTAW
Automig 80S-B8	Tigfil-80S-B8



CROMOTEN 9L

LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.5 E8018-B8L

CLASSIFICATION:

EN ISO 3580-A
E CrMo9L B 32 H5

KEY FEATURES:

- Basic type heavy coating
- Extra low carbon 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

APPROVALS: CE

TYPICAL APPLICATIONS:

- Suitable for welding of 9Cr 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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:


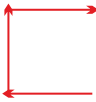
C	Mn	Si	Cr	Mo
0.045	0.8	0.5	8.5	1.1

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%
Typical	PWHT: 740°C for 1 hr.	610	500	22
Specification		550 min	460 min	19 min

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	60-90	 AC (70 OCV)/DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15x 350	100-140		
4.0 x 350	140-180		
5.0 x 450	190-250		

Available in Standard carton packing of 20 kg box containing 4 cartons each. Also available in vacuum packing

EQUIVALENT:

GMAW	GTAW
Automig 80S-B8L	Tigfil 80S-B8L



CROMOTEN 9M

LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.5 E9018-B91

CLASSIFICATION:

EN ISO 3580-A
E CrMo9L B 32 H5

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 & oxidation
- Radiographic quality weld deposit
- Positional welding capability

APPROVALS: CE

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:


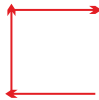
C	Mn	Si	Cr	Mo	V	Cu	Al	Nb	N	Ni
0.1	0.5	0.2	9.0	1.1	0.25	0.005	0.001	0.05	0.04	0.6

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at 27°C, J
Typical	PWHT: 760°C for 2 hr.	675	590	20	30
Specification		620 min	530 min	17 min	-

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	60-90	 AC (70 OCV)/DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 350	100-140		
4.0 x 350	140-180		
5.0 x 450	190-250		

Available in Standard carton packing of 20 kg box containing 4 cartons each. Also available in vacuum packing

EQUIVALENT:

GMAW	GTAW	FCAW	SAW	
			Flux	Wire
Automig 90S-B9	Tigfil 90S-B9	Automig FC 91T1-B91	Automelt B20 Plus	Automelt B91



CROMOTEN 9M-15

LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.5 E9015-B91

CLASSIFICATION:

EN ISO 3580-A
E CrMo91 B 42 H5

KEY FEATURES:

- Basic coated low hydrogen non synthetic 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

APPROVALS: IBR/CE

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:


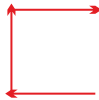
C	Mn	Si	Cr	Mo	V	Cu	Al	Nb	N	Ni
0.1	0.5	0.15	8.7	1.0	0.2	0.01	0.001	0.06	0.03	0.65

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact, J
					at 27°C
Typical	PWHT 760°C for 2hrs	670	580	22	40
Specification		620 min	530 min	17 min	-

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 2.5 x 350 3.15 x 350 4.0 x 350 5.0 x 450	Amperage, A 50-80 90-130 130-170 180-240	 DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
---	---	--	--

Available in Standard carton packing of 20 kg box containing 4 cartons 5 kg each. Also available in vacuum packing

EQUIVALENT:

GMAW	GTAW	FCAW	SAW	
			Flux	Wire
Automig 90S-B9	Tigfil-90S-B9	Automig FC 91T-1 B91	Automelt B20 Plus	Automelt B91



CROMOTEN V

LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.5 E8013-G

CLASSIFICATION:

EN ISO 3580-A
E Z R 12

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

APPROVALS: CE

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:


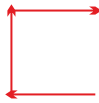
C	Mn	Si	Cr	Mo	V
0.1	0.6	0.3	1.3	0.5	0.25

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%
Typical	PWHT: 690°C for 1 hr.	610	530	26
Specification		550 min	460 min	16 min

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
2.5 x 350	60-90	 AC (70 OCV)/DCEP REDRYING CONDITION: 120°C for ½ hr.
3.15 x 450	100-140	
4.0 x 450	140-180	
5.0 x 450	190-250	
		All Positions, except vertical Down 

Available in Standard carton packing of 20 kg box containing 4 cartons 5 kg each. Also available in vacuum packing



CROMOTEN Ti

LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.5 E8013-G

CLASSIFICATION:

EN ISO 3580-A
E CrMo1 R 12

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

APPROVALS: CE

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 & chemical plants
- Suitable for P.No.3 Group No.1 & 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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:



C	Mn	Si	Cr	Mo
0.07	0.6	0.3	1.15	0.5

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%
Typical	PWHT: 690°C for 1 hr.	625	540	24
Specification		550 min	460 min	16 min

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	60-90	 AC (70 OCV)/DCEP REDRYING CONDITION: 100°C for ½ hr.	All Positions, except vertical Down 
3.15 x 450	100-130		
4.0 x 450	140-180		
5.0 x 450	190-240		

Available in Standard carton packing of 20 kg box containing 4 cartons 5 kg each. Also available in vacuum packing



CROMOTEN C Ti

LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.5 E9013-G

CLASSIFICATION:

EN ISO 3580-A
E CrMo2 R 12

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
- Radiographic quality weld
- Resistant to alkaline solutionsder long term stresses
- Resist strain, corrosion and oxidation
- Preheating and PWHT of basematerials is necessary
- Best suited for root run welding of pipes in all position

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of 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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:


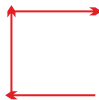
C	Mn	Si	Cr	Mo
0.1	0.6	0.4	2.2	1.1

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%
Typical	PWHT: 690°C for 1 hr.	675	590	19
Specification		620 min	530 min	14 min

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	60-90	 AC (70 OCV)/DCEP REDRYING CONDITION: 100°C for ½ hr.	All Positions, except vertical Down 
3.15 x 450	100-140		
4.0 x 450	140-180		
5.0 x 450	190-240		

Available in Standard carton packing of 20 kg box containing 4 cartons 5 kg each. Also available in vacuum packing



TENALLOY 70A

LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.5 **E8018-C1**

CLASSIFICATION:

EN ISO 2560-A
E 46 6 2Ni B 32 H5

IS 1395
E55 B-C1

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

APPROVALS: ABS/RDSO/CE

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:


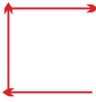
C	Mn	Si	Ni
0.04	0.8	0.3	2.3

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	70
Specification		550 min	460 min	19 min	47 min

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
2.5 x 350	60-90	 AC (70 OCV)/DCEP All Positions, except vertical Down  REDRYING CONDITION: 250-300°C for minimum 1 hr.
3.15 x 450	100-140	
4.0 x 450	140-180	
5.0 x 450	190-250	

Available in Standard carton packing of 20 kg box containing 4 cartons 5 kg each. Also available in vacuum packing

EQUIVALENT:

GMAW	GTAW
Automig 80S-Ni2	Tigfil 80S-Ni2



TENALLOY 70B

LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.5 E8018-C2

CLASSIFICATION:

EN ISO 2560-A
E 46 6 3Ni B 32 H5

IS 1395
E55B-C2

KEY FEATURES:

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

APPROVALS: CE

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:



C	Mn	Si	Ni
0.05	0.8	0.3	3.2

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 for 1 hr.	590	500	26	60
Specification		550 min	460 min	19 min	47 min

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	60-90	 AC (70 OCV)/DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 450	100-140		
4.0 x 450	140-180		
5.0 x 450	190-250		

Available in Standard carton packing of 20 kg box containing 4 cartons 5 kg each. Also available in vacuum packing



TENALLOY 70BL

LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.5 E7018-C2L

CLASSIFICATION:

EN ISO 2560-A
E 38 9 3Ni 32 H5

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

APPROVALS: CE

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:


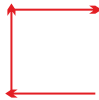
C	Mn	Si	Ni
0.04	1.25	0.25	3.2

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -100°C, J
Typical	PWHT: 600°C for 1 hr.	530	415	25	60
Specification		490 min	400 min	22 min	47 min

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
2.5 x 350	60-90	 AC (70 OCV)/DCEP All Positions, except vertical Down  REDRYING CONDITION: 250-300°C for minimum 1 hr.
3.15 x 450	100-140	
4.0 x 450	140-180	
5.0 x 450	190-250	

Available in Standard carton packing of 20 kg box containing 4 cartons 5 kg each. Also available in vacuum packing



TENALLOY 70C

LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.5 **E8018-C3**

CLASSIFICATION:

EN ISO 2560-A
E 4641 Ni B32 H5

IS 1395
E55B - C3

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

APPROVALS: ABS/CE

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Ni
0.06	0.6	0.3	0.9


MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact, J	
					at -40°C	at -50°C
Typical	As Welded	600	530	26	90	60
Specification		550 min	460 min	19 min	47 min	-

Diffusible H2 Content: <5 ml/100 gm

Special Tests: HIC & SSCC (NACE)

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	 AC (70 OCV)/DCEP	All Positions, except vertical Down
2.5 x 350	60-90		
3.15 x 450	100-140		
4.0 x 450	140-180		
5.0 x 450	190-250		

Available in Standard carton packing of 20 kg box containing 4 cartons 5 kg each. Also available in vacuum packing

EQUIVALENT:

GMAW	GTAW	FCAW	SAW	
			Flux	Wire
Automig 80S-Ni1	Tigfil 80S-Ni1	Automig FC 81T1-Ni1	Automelt B71	Automelt ENi 1



TENALLOY 70CL

LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.5 E7018-C3L

CLASSIFICATION:

EN ISO 2560-A
E 38 5 1Ni B 32 H5

KEY FEATURES:

- Basic coated low carbon electrode
- Typical Ni-Mo type welds
- Excellent fracture toughness at -50°C
- Superior crack resistance
- Radiographic quality welds
- All position capability

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of high tensile steels and fine grained steels like HY 80, HY 90, HY 100
- Storage tanks for low temperature
- Off shore platforms, bridge
- Application in refineries, power plants e.g. pressure vessels and heat exchangers, machinery

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:


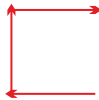
C	Mn	Si	Ni
0.04	1.0	0.3	1.0

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	530	440	26	70
Specification		490 min	400 min	22 min	47 min

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
2.5 x 350	60-90	 AC (70 OCV)/DCEP All Positions, except vertical Down  REDRYING CONDITION: 250-300°C for minimum 1 hr.
3.15 x 450	100-140	
4.0 x 450	140-180	
5.0 x 450	190-250	

Available in Standard carton packing of 20 kg box containing 4 cartons 5 kg each. Also available in vacuum packing



TENALLOY 70D

LOW ALLOY STEEL (High Strength)

AWS A/SFA 5.5 **E8018-C4**

CLASSIFICATION:

EN ISO 2560-A
E 46 5 2Ni B42 H5

KEY FEATURES:

- Basic coated electrode
- Smooth, stable arc, low spatter
- Easy slag removal
- Excellent fracture toughness at -50°C
- Tough and crack resistant weld
- Radiographic quality welds
- All position capability

TYPICAL APPLICATIONS:

- Welding of high tensile steel having 1 to 2% Ni and equivalent steels
- Application in refineries, power plants
- Off shore platforms, bridges
- Storage tanks, Pipes
- Pressure vessels, Boilers

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:



C	Mn	Si	Ni
0.07	0.65	0.3	1.6

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	600	500	21	60
Specification		550 min	460 min	19 min	47 min

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	60-90	 AC (70 OCV)/DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 450	100-140		
4.0 x 350	140-180		
5.0 x 450	190-250		

Available in Standard carton packing of 20 kg box containing 4 cartons 5 kg each. Also available in vacuum packing



TENALLOY 55

LOW ALLOY STEEL (Low Temperature)

AWS A/SFA 5.5 E8018-G

CLASSIFICATION:

EN ISO 2560-A
E 46 5 1Ni B 12 H5

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

APPROVALS: IBR/CE

TYPICAL APPLICATIONS:

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:



C	Mn	Si	Ni
0.07	1.35	0.3	0.9

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	55
Specification		550 min	460 min	19 min	47 min

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
2.5 x 350	60-90	 AC (70 OCV)/DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.
3.15 x 450	100-140	
4.0 x 450	140-180	
5.0 x 450	190-250	
		All Positions, except vertical Down 

Available in Standard carton packing of 20 kg box containing 4 cartons 5 kg each. Also available in vacuum packing



TENALLOY 60

LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.5 E8018-G

CLASSIFICATION:

EN ISO 2560-A
E 46 4 Z B 12 H5

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

APPROVALS: CE

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:



C	Mn	Si	Ni
0.08	1.5	0.3	0.75

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		550 min	460 min	19 min	47 min

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	60-90	 AC (70 OCV)/DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 450	100-140		
4.0 x 450	140-180		
5.0 x 450	190-250		

Available in Standard carton packing of 20 kg box containing 4 cartons 5 kg each. Also available in vacuum packing



TENALLOY 60N

LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.5 E8018-G

KEY FEATURES:

- Suitable for normalizing requirements
- Retains toughness down to -30°C after normalizing heat treatment
- Highly crack resistant welds
- Radiographic quality weld deposit
- All positional welding capability

TYPICAL APPLICATIONS:

- Pressure vessels, Boilers, Dish-ends
- 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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:



C	Mn	Si	Ni
0.07	1.8	0.45	0.6

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	645	580	24	80
	Normalizing + SR	535	405	26	45

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	65-100	 AC (70 OCV)/DCEP	All Positions, except vertical Down 
3.15 x 450	100-140		
4.0 x 450	140-180		
		REDRYING CONDITION: 250-300°C for minimum 1 hr.	

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing



TENALLOY 16E SPL

LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.5 E8016-G

CLASSIFICATION:

EN ISO 2560-A
E 46 5 Mn1Ni B 12 H5

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

APPROVALS: CE

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:



C	Mn	Si	Ni
0.06	1.6	0.3	0.8

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	580	500	23	65
Specification		550 min	460 min	19 min	47 min

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
2.5 x 350	60-90	 AC (70 OCV)/DCEP All Positions, except vertical Down  REDRYING CONDITION: 250-300°C for minimum 1 hr.
3.15 x 450	100-140	
4.0 x 450	140-180	
5.0 x 450	190-250	

Available in Standard carton packing of 20 kg box containing 4 cartons 5 kg each. Also available in vacuum packing



TENALLOY 60D-3

LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.5 **E8018-D3**

CLASSIFICATION:

EN ISO 2560-A
E 46 5 Mn1Ni B 12 H5

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

APPROVALS: CE

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:



C	Mn	Si	Mo
0.09	1.5	0.4	0.6

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -50°C, J
Typical	PWHT: 620°C for 1 Hr	605	510	24	55
Specification		550 min	460-560	19 min	47 min

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
2.5 x 350	60-90	 AC (70 OCV)/DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.
3.15 x 450	90-140	
4.0 x 450	140-180	
5.0 x 450	190-250	
		All Positions, except vertical Down 

Available in Standard carton packing of 20 kg box containing 4 cartons 5 kg each. Also available in vacuum packing



TENALLOY 70D1

LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.5 **E9018-D1**

CLASSIFICATION:

EN ISO 2560-A
E 50 3 Z B 32 H5

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 steel
- Suitable preheat, interpass and PWHT is required depending on base metal composition
- All position capability
- Radiographic quality welds

APPROVALS: CE

TYPICAL APPLICATIONS:

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:


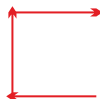
C	Mn	Si	Mo
0.07	1.6	0.6	0.35

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -50°C, J
Typical	PWHT: 620°C for 1 hr.	690	600	20	55
Specification		620 min	530 min	17 min	47 min

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
3.15 x 350	100-140	 AC (70 OCV)/DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
4.0 x 450	140-180		
5.0 x 450	190-250		

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing



TENALLOY 90D3

LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.5 **E9018-D3**

CLASSIFICATION:

EN ISO 2560-A
E 50 3 Z B 32 H5

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 steel
- Suitable preheat, interpass and PWHT is required depending on base metal composition
- All position capability
- Radiographic quality welds

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of low alloy high tensile steels of typical UTS 650 Mpa
- Welding of Q&T fine grained steels
- Penstocks, Earth moving equipments
- Suitable for low alloy structural steels

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:



C	Mn	Si	Mo
0.09	1.65	0.80	0.45

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -50°C, J
Typical	PWHT: 620°C for 1 hr.	700	510	19	60
Specification		620 min	530 min	17 min	47 min

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
3.15 x 450	100-140	 AC (70 OCV)/DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
4.0 x 450	140-180		
5.0 x 450	190-250		

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing



TENALLOY 65

LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.5 E9018-G

CLASSIFICATION:

EN ISO 18275-A
E 55 5 Z B 32 H5

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

APPROVALS: CE

TYPICAL APPLICATIONS:

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:


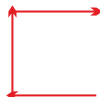
C	Mn	Si	Ni	Mo
0.06	1.7	0.3	1.5	0.4

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	60
Specification		620 min	530 min	17 min	47 min

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
2.5 x 350	60-90	 AC (70 OCV)/DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.
3.15 x 450	100-140	
4.0 x 450	140-180	
5.0 x 450	190-250	
		All Positions, except vertical Down 

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing



TENALLOY 65 SPL

LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.5 E9018-G

CLASSIFICATION:

EN ISO 18275-A
E 55 4 Z B 32 H5

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

APPROVALS: CE

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Ni	Mo
0.05	1.3	0.3	1.3	0.4



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 for 2 hrs.	655	600	23	60
Specification		620 min	530 min	17 min	47 min

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		
2.5 x 350	60-90	 AC (70 OCV)/DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 450	100-140		
4.0 x 450	140-180		
5.0 x 450	190-250		

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing



TENALLOY 70

LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.5 **E9018-G**

CLASSIFICATION:

EN ISO 18275-A
E 55 2 Z B 32 H5

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

APPROVALS: CE

TYPICAL APPLICATIONS:

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:



C	Mn	Si	Ni
0.05	1.4	0.6	0.6

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	47 min

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
2.5 x 350	60-90	 AC (70 OCV)/DCEP All Positions, except vertical Down  REDRYING CONDITION: 250-300°C for minimum 1 hr.
3.15 x 450	100-140	
4.0 x 450	140-180	
5.0 x 450	180-250	

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing



TENALLOY 75D-2

AWS A/SFA 5.5 **E10018-D2**

LOW ALLOY STEEL (High Temperature)

CLASSIFICATION:

EN ISO 18275-A
E 55 4 Z B 32 H5

IS 1395
E68B-D2

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

APPROVALS: ABS/CE

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:



C	Mn	Si	Mo	Ni
0.09	1.8	0.5	0.3	0.6

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -50°C, J
Typical	PWHT: 620°C for 1 Hr	725	640	19	55
Specification		690 min	600 min	16 min	47 min

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
2.5 x 350	60-90	 AC (70 OCV)/DCEP All Positions, except vertical Down  REDRYING CONDITION: 250-300°C for minimum 1 hr.
3.15 x 450	100-140	
4.0 x 450	140-180	
5.0 x 450	180-250	

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing



TENALLOY 75

LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.5 **E10018-M**

CLASSIFICATION:

EN ISO 18275-A
E 55 4 Z B 32 H5

KEY FEATURES:

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

APPROVALS: CE

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:



C	Mn	Si	Ni	Mo
0.06	1.5	0.5	1.9	0.27

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	655	23	60
Specification		690 min	610 - 690	20 min	47 min

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
2.5 x 350	60-90	 AC (70 OCV)/DCEP All Positions, except vertical Down  REDRYING CONDITION: 250-300°C for minimum 1 hr.
3.15 x 450	100-140	
4.0 x 450	140-180	
5.0 x 450	190-250	

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing



TENALLOY 75G

LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.5 **E10018-G**

CLASSIFICATION:

EN ISO 18275-A
E 55 5 Z B 32 H5

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

APPROVALS: CE

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:


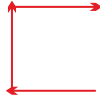
C	Mn	Si	Cr	Ni	Mo
0.07	1.2	0.4	0.1	2.1	0.2

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	60
Specification		690 min	600 min	16 min	47 min

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
2.5 x 350	70-110	 AC (70 OCV)/DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.
3.15 x 450	90-140	
4.0 x 450	120-200	
5.0 x 450	180-250	
		All Positions, except vertical Down 

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing



TENALLOY 80

LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.5 **E11018-M**

CLASSIFICATION:

EN ISO 18275-A
E 69 4 Z B 32 H5

KEY FEATURES:

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

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of high tensile steels like USS T-1, Fine grained steels like HY 80, HY 90, HY 100, NAXTRA 70
- Penstocks, Earthmoving equipments
- 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/ SA 517 Gr.F

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:


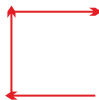
C	Mn	Si	Ni	Cr	Mo
0.06	1.6	0.35	1.75	0.2	0.4

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	60
Specification		760 min	680 - 760	20 min	47 min

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	60-90	 AC (70 OCV)/DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 450	100-140		
4.0 x 450	140-180		
5.0 x 450	190-250		

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing



TENALLOY 80HH SPL

LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.5 **E11018-M**

CLASSIFICATION:

EN ISO 18275-A
E 69 4 Z B 32 H5

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

APPROVALS: CE

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:



C	Mn	Si	Ni	Cr	Mo
0.08	1.6	0.5	1.8	03	0.4

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	50
Specification		760 min	680 - 760	20 min	47 min

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	60-90	 AC (70 OCV)/DCEP	All Positions, except vertical Down 
3.15 x 450	90-140		
4.0 x 450	140-180		
5.0 x 450	180-250		
		REDRYING CONDITION: 250-300°C for minimum 1 hr.	

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing



TENALLOY 110

LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.5 **E11018-G H4R**

CLASSIFICATION:

EN ISO 18275-A
E69 4 Z B 32 H5

KEY FEATURES:

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

APPROVALS: ABS/CE

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:



C	Mn	Si	Cr	Ni	Mo
0.07	1.5	0.4	1.5	2.1	0.2

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	790	700	22	50
Specification		760 min	670 min	15 min	47 min

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
2.5 x 350	60-90	 AC (70 OCV)/DCEP All Positions, except vertical Down  REDRYING CONDITION: 250-300°C for minimum 1 hr.
3.15 x 450	90-140	
4.0 x 450	140-180	
5.0 x 450	180-250	

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing



TENALLOY 120

LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.5 **E12018-M**

CLASSIFICATION:

EN ISO 18275-A
E 69 4 Z B 32 H5

KEY FEATURES:

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

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of high tensile steels and fine grained steels like HY 80, HY 90, HY 100
- Joining high strength, low alloy or microalloyed steels to themselves or to lower strength steels, including carbon steels

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:


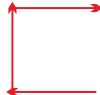
C	Mn	Si	Cr	Ni	Mo
0.065	1.9	0.3	0.4	2.2	0.35

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	900	800	19	60
Specification		830 min	735 - 830	18 min	47 min

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	60-90	 AC (70 OCV)/DCEP	All Positions, except vertical Down 
3.15 x 450	100-140		
4.0 x 450	140-180		
5.0 x 450	180-250		
		REDRYING CONDITION: 250-300°C for minimum 1 hr.	

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing



TENALLOY 120G

LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.5 **E12018-G**

CLASSIFICATION:

EN ISO 18275-A
E 69 4 Z B 32 H5

KEY FEATURES:

- Basic type coating
- Ni-Mn-Mo-Cr alloyed electrode
- Excellent crack resistance
- High strength and toughness at -50°C
- Radiographic weld quality

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of high tensile steels and fine grained steels like HY 80, HY 90, HY 100
- Joining high strength, low alloy or microalloyed steels to themselves or to lower strength steels, including carbon steels

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:



C	Mn	Si	Cr	Ni	Mo
0.06	1.75	0.4	0.35	2.1	0.3

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	900	800	19	60
Specification		830 min	735 - 830	18 min	47 min

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	60-90	 AC (70 OCV)/DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 450	100-140		
4.0 x 450	140-180		
5.0 x 450	190-250		

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing



TENALLOY 4130

LOW ALLOY STEEL (High Temperature)

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.

TYPICAL APPLICATIONS:

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



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni	Mo
0.16	1.2	0.4	0.55	1.2	0.4

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%
Specification	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 3.15 x 450 4.0 x 450 5.0 x 450	Amperage, A 90-120 130-170 180-250	 DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
--	--	--	--

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing



TENALLOY 125

LOW ALLOY STEEL (High Temperature)

CLASSIFICATION:

E3580-A

E CrMoV1 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

APPROVALS: CE

TYPICAL APPLICATIONS:

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Mo	V
0.12	0.8	0.4	1.3	1.15	0.25


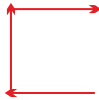
MECHANICAL PROPERTIES OF ALL WELD METAL:

	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	47 min

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

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
2.5 x 350	60-90	 DCEP All Positions, except vertical Down  REDRYING CONDITION: 250-300°C for minimum 1 hr.
3.15 x 450	100-130	
4.0 x 450	140-180	
5.0 x 450	190-230	

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing



NIMOTEN

LOW ALLOY STEEL (Nimoten Series)

AWS A/SFA 5.5 **E9018-M**

CLASSIFICATION:

EN ISO 18275-A
E 55 4 Z B 32 H5

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

APPROVALS: CE

TYPICAL APPLICATIONS:

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:


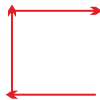
C	Mn	Si	Ni	Cr	Mo
0.06	1.0	0.4	1.5	0.03	0.3

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	650	590	26	54
Specification		620 min	540 - 620	24 min	47 min

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
2.5 x 350	60-90	 AC (70 OCV) / DCEP All Positions, except vertical Down  REDRYING CONDITION: 250-300°C for minimum 1 hr.
3.15 x 450	100-130	
4.0 x 450	140-180	
5.0 x 450	190-250	

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing



NIMOTEN PLUS

LOW ALLOY STEEL (Nimoten Series)

AWS A/SFA 5.5 **E10016-G**

CLASSIFICATION:

EN ISO 18275-A
E62ZZ BT32 H5

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

APPROVALS: CE

TYPICAL APPLICATIONS:

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:


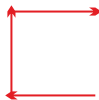
C	Mn	Si	Cr	Ni	Mo
0.06	0.7	0.3	1.0	2.5	0.8

MECHANICAL PROPERTIES OF ALL WELD METAL:

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

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	60-90	 AC (70 OCV) / DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 450	100-130		
4.0 x 450	140-180		
5.0 x 450	190-250		
6.3 x 450	260-310		

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing



NIMOTEN PLUS 535

LOW ALLOY STEEL (Nimoten Series)

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

TYPICAL APPLICATIONS:

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:



C	Mn	Si	Ni	V
0.08	1.4	0.2	2.1	1.2

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%
Typical	As Welded	735	625	19
Specification		690 min	600 min	16 min

Hardness, 3 Layer: 260-330 BHN

PARAMETERS - PACKING DATA:

Ø x L, mm 3.15 x 450 4.0 x 450 5.0 x 450	Amperage, A 100-130 140-180 190-230	 AC (70 OCV) / DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
--	---	--	--

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing



ULTRACORTEN I

LOW ALLOY WEATHERING STEEL

AWS A/SFA 5.5 E7018-W1

KEY FEATURES:

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

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 A242 and A588

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:



C	Mn	Si	Cr	Ni	Cu
0.035	0.65	0.6	0.25	0.3	0.5

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	540	450	25	80
Specification		490 min	415 min	22 min	47 min

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
3.15 x 450	100-140	 DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
4.0 x 450	140-180		
5.0 x 450	190-250		

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing



ULTRACORTEN III

LOW ALLOY WEATHERING STEEL ELECTRODE

AWS A/SFA 5.5 **E8018-W2**

CLASSIFICATION:

EN ISO 2560-A
E 46 2 Z B 32 H5

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

APPROVALS: CE

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:


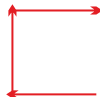
C	Mn	Si	Ni	Cr	Cu
0.04	1.0	0.6	0.5	0.5	0.5

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	460	22	66
Specification		550 min	520 min	19 min	47 min

Diffusible H2 Content: <5 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	60-90	 AC (70 OCV) / DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 450	100-140		
4.0 x 450	140-180		
5.0 x 450	190-250		

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing



TENALLOY 80P2

LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.5 **E8045-P2 H4R**

CLASSIFICATION:

EN ISO 2560-A

E 46 5 1Ni B 4 5

KEY FEATURES:

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

APPROVALS: CE

TYPICAL APPLICATIONS:

- Basic type coating
- Easy to use with controllable slag system
- Deposit is extremely crack resistant
- High toughness and a very low hydrogen content
- Suitable for filler and cover pass welding in pipeline construction

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:



C	Mn	Si	Mo
0.06	1.3	0.6	0.3

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	600	500	23	60
Specification		550 min	460 min	19 min	27 min

Diffusible H2 Content: <4 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
2.5 x 350	60-90	 AC (70 OCV)/DCEP All Positions, specifically in vertical down REDRYING CONDITION: 250-300°C for minimum 1 hr. 
3.15 x 350	90-140	
4.0 x 350	140-180	

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing



TENALLOY 90P2

LOW ALLOY STEEL (High Strength)

AWS A/SFA 5.5 E9045-P2 H4R

CLASSIFICATION:

EN ISO 2560-A
E 50 5 1Ni B 4 5

KEY FEATURES:

- Basic coated electrode
- Easy to use with controllable slag system
- Deposit is extremely crack resistant
- Deposition rate is higher than for vertical up welding
- High toughness and a very low hydrogen content
- Exceptional striking characteristics
- Suitable for filler and cover pass welding in pipeline construction

TYPICAL APPLICATIONS:

- Vertical-down welds of large diameter pipelines and for structural work
- It can be used in sour gas application
- Fill and cap application
- Circumferential joints in pipelines API 5LX70, X80

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:


C	Mn	Si	Mo
0.09	1.5	0.6	0.35

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	690	590	23	60
Specification		620 min	530 min	17 min	47 min

Diffusible H2 Content: <4 ml/100 gm

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	60-90	 AC (70 OCV)/DCEP	All Positions, specifically in vertical down 
3.15 x 350	90-140		
4.0 x 350	140-180		
		REDRYING CONDITION: 250-300°C for minimum 1 hr.	

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each.



SUPERINOX 16/8/2

STAINLESS STEEL (Stainless Steel Welding)

AWS A/SFA 5.4 **E16-8-2-16**

CLASSIFICATION:

ISO 3581-A
E (16 8 2) R 12

KEY FEATURES:

- Rutile type coating
- A low carbon 16/8/2 grade SS weld
- High resistance to cracking, corrosion and high temperature upto 800°C
- Exhibit good corrosion resistance in acids and seawater
- Excellent creep strength
- Suitable for all position
- Radiographic quality weld

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of Type 16-8-2, 316, 347 stainless steels
- For high pressure, high temperature piping systems



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni	Mo
0.07	1.9	0.5	15.9	8.7	1.5

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%	Ferrite No.
Specification	As Welded	550 min	35 min	5 max

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	50-75	 AC (70 OCV) /DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 350	80-100		
4.0 x 350	110-140		

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.



SUPERINOX 1A

STAINLESS STEEL (Austenitic Steel)

AWS A/SFA 5.4 **E308-16**

CLASSIFICATION:

ISO 3581-A
E 19 9 R 12

IS 5206
E 19.9 R26

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

APPROVALS: LRA/RDSO/IBR/CE

TYPICAL APPLICATIONS:

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


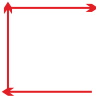
TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni
0.04	1.0	0.5	20.1	9.7

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%	Ferrite No.
Typical	As Welded	600	40	5
Specification		550 min	30 min	3-8

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
2.0 x 300	35-45	 AC (70 OCV) / DCEP All Positions, except vertical Down  REDRYING CONDITION: 250-300°C for minimum 1 hr.
2.5 x 350	50-75	
3.15 x 350	80-100	
4.0 x 350	110-140	
5.0 x 350	150-180	

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.



SUPERINOX 1AH

STAINLESS STEEL (Austenitic Steel)

AWS A/SFA 5.4 **E308H-16**

CLASSIFICATION:

ISO 3581-A
E 19 9 R 12

IS 5206
E19.9R36

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

APPROVALS: CE

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


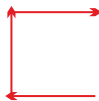
TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni
0.07	1.0	0.7	20.6	9.7

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%	Ferrite No.
Typical	As Welded	605	37	4
Specification		550 min	30 min	3-8

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	50-75	 AC (70 OCV) / DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 350	80-100		
4.0 x 350	110-140		

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.



KINGSTEEL

STAINLESS STEEL (Austenitic Steel)

KEY FEATURES:

- Rutile type coating
- Excellent corrosion and scaling resistance
- Smooth and stable arc
- Minimal spatter
- Self peeling slag
- Excellent welder appeal
- Deposits 308L type of weld metal
- All position capability
- Radiographic quality welds

TYPICAL APPLICATIONS:

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



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni
0.03	1.5	0.8	18	9

MECHANICAL PROPERTIES OF ALL WELD METAL:

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

PARAMETERS - PACKING DATA:

Ø x L, mm 2.5 x 350 3.15 x 350 4.0 x 350	Amperage, A 50-75 80-100 110-140	 AC (50 OCV) / DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
--	--	--	--

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.



STRIKER 308L

STAINLESS STEEL (Austenitic Steel)

AWS A/SFA 5.4 **E308L-16**

KEY FEATURES:

- Rutile type coating
- Excellent corrosion and scaling resistance
- Smooth and stable arc
- Minimal spatter
- Self peeling slag
- Excellent welder appeal
- All position capability
- Radiographic quality welds

TYPICAL APPLICATIONS:

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


TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni
0.03	1.5	0.7	18.5	9.0


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	
2.5 x 350	55-75	 AC (50 OCV) / DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.
3.15 x 350	85-100	
4.0 x 350	110-140	

All Positions, except vertical Down



Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.



SUPERINOX 1C

STAINLESS STEEL (Austenitic Steel)

AWS A/SFA 5.4 E308L-16

CLASSIFICATION:

ISO 3581-A
E 19 9 L R 12

IS 5206
E19.9 LR26

KEY FEATURES:

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

APPROVALS: ABS/BV/IRS/NPCIL/IBR/CE

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:


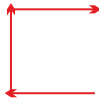
C	Mn	Si	Cr	Ni
0.03	0.9	0.4	19.6	9.1

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%	Ferrite No.
Typical	As Welded	590	37	5
Specification		520 min	30 min	3-8

Special Tests: IGC Practice E/C of ASTM A262

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.0 x 300	35-45	 AC (70 OCV) /DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
2.5 x 350	50-75		
3.15 x 350	80-100		
4.0 x 350	110-140		

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.

EQUIVALENT:

GMAW	GTAW	FCAW	SAW	
			Flux	Wire
Miginox 308L	Tiginox 308L	Miginox FC 308L	Automelt S33	Subinox 308L



SUPERINOX 1C-15 LT

STAINLESS STEEL (Austenitic Steel)

AWS A/SFA 5.4 E308L-15

CLASSIFICATION:

ISO 3581-A
E 19 9L B 22

IS 5206
E19.9 LB20

APPROVALS: ABS/CE

KEY FEATURES:

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

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni
0.025	0.9	0.4	19.5	10.4


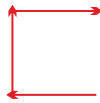
MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%	CVN Impact at -196°C, J	Ferrite No.
Typical	As Welded	580	37	52	2
Specification		520 min	30 min	30 min	5 max

Special Tests: IGC Practice E of ASTM A262

Typical lateral expansion: 0.50 mm at -196°C

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
2.5 x 350	50-75	 DCEP All Positions, except vertical Down  REDRYING CONDITION: 250-300°C for minimum 1 hr.
3.15 x 350	80-100	
4.0 x 350	110-140	

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.

EQUIVALENT:

GTAW	SAW	
	Flux	Wire
Tiginox 308L SPL	Automelt S33	Subinox 308L SPL



BETANOX 308L PLUS

STAINLESS STEEL (Austenitic Steel)

AWS A/SFA 5.4 E308L-17

CLASSIFICATION:

ISO 3581-A
E 19 9L R 13

IS 5206
E19.9 LR36

KEY FEATURES:

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

APPROVALS: CE

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


TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:


C	Mn	Si	Cr	Ni
0.02	0.7	0.6	20.5	8.7

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%	Ferrite No.
Typical	As Welded	580	37	6
Specification		520 min	30 min	3-8

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
2.5 x 350	80-100	 AC (70 OCV) /DCEP
3.15 x 350	100-140	
4.0 x 350	150-180	
		REDRYING CONDITION: 250-300°C for minimum 1 hr.

Flat butt and fillet welds only 

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.



SUPERINOX 2A

STAINLESS STEEL (Austenitic Steel)

AWS A/SFA 5.4 **E316-16**

CLASSIFICATION:

ISO 3581-A
E 19 12 2 R 12

IS 5206
E19.12.2 R26

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

APPROVALS: RDSO/IBR/CE

TYPICAL APPLICATIONS:

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



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni	Mo
0.03	1.0	0.4	18.5	11.2	2.3

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%	Ferrite No.
Typical	As Welded	595	36	4
Specification		520 min	30 min	3-8

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	50-75	 AC (70 OCV) /DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 350	80-100		
4.0 x 350	110-140		
5.0 x 350	150-180		

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.



BETANOX 316 PLUS

STAINLESS STEEL (Austenitic Steel)

AWS A/SFA 5.4 **E316-17**

CLASSIFICATION:

ISO 3581-A
E 19 12 3 L R 13

IS 5206
E19.12.2 LR36

APPROVALS: CE

KEY FEATURES:

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

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



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni	Mo
0.02	1.0	19.3	11.35	13.1	2.3

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%	Ferrite No.
Typical	As Welded	580	36	6
Specification		520 min	30 min	3-8

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	50-75	 AC (70 OCV) /DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	Flat butt and fillet welds only 
3.15 x 350	80-100		
4.0 x 350	110-140		

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.



SUPERINOX 2C

STAINLESS STEEL (Austenitic Steel)

AWS A/SFA 5.4 **E316L-16**

CLASSIFICATION:

ISO 3581-A
E (19 12 3 L) R 12

IS 5206
E19.12.2 LR26

KEY FEATURES:

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

APPROVALS: BV/IRS/NPCIL/IBR/CE

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:


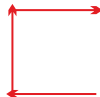
C	Mn	Si	Cr	Ni	Mo
0.03	0.85	0.4	18.5	11.2	2.3

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%	Ferrite No.
Typical	As Welded	565	35	4
Specification		490 min	30 min	3-8

Special Tests: IGC Practice E/C of ASTM A262

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	 AC (70 OCV) /DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
2.0 x 300	35-45		
2.5 x 350	50-75		
3.15 x 350	80-100		
4.0 x 350	110-140		

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.

EQUIVALENT:

GMAW	GTAW	FCAW	SAW	
			Flux	Wire
Miginox 316L	Tiginox 316L	Miginox FC 316L	Automelt S33	Subinox 316L



SUPERINOX 2C Mo

STAINLESS STEEL (Austenitic Manganese Steel)

AWS A/SFA 5.4 **E316L-16**

CLASSIFICATION:

ISO 3581-A
E19 12 3 L R 12

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

APPROVALS: CE

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



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni	Mo
0.03	1.1	0.5	19	13	2.8

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%	Ferrite No.
Typical	As Welded	570	35	6
Specification		490 min	30 min	3-8

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
2.5 x 350	50-75	 AC (70 OCV) /DCEP All Positions, except vertical Down  REDRYING CONDITION: 250-300°C for minimum 1 hr.
3.15 x 350	80-100	
4.0 x 350	110-140	

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each



BETANOX ZF

STAINLESS STEEL (Austenitic Steel)

AWS A/SFA 5.4 **E316L-16**

CLASSIFICATION:

ISO 3581-A
E (19 12 3 L) R 12

IS 5206
E19.12.2 LR26

KEY FEATURES:

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

APPROVALS: CE

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



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni	Mo
0.03	2.2	0.5	17.7	13	2.3

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%	Ferrite No.
Typical	As Welded	605	37	0
Specification		490 min	30 min	0.5 max

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	50-75	 AC (70 OCV) /DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 350	80-100		
4.0 x 350	110-140		

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.



BETANOX K

STAINLESS STEEL (Austenitic Steel)

AWS A/SFA 5.4 **E316L-15**

CLASSIFICATION:

ISO 3581-A
E (19 12 3 L) B 22
IS 5206
E19.12.2 LB20

KEY FEATURES:

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

APPROVALS: CE

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni	Mo
0.025	2.1	0.4	18	13.1	2.2



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		490 min	30 min	27 min	2 max

Special Tests: IGC Practice E of ASTM A262

Typical lateral expansion: 0.50 mm at -196°C

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	50-75	 AC (70 OCV) /DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 350	80-100		
4.0 x 350	110-140		

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.



BETANOX 316L PLUS

STAINLESS STEEL (Austenitic Steel)

AWS A/SFA 5.4 **E316L-17**

CLASSIFICATION:

ISO 3581-A
E (19 12 3 L) R 13
IS 5206
E19.12.2 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
- Easy slag removal
- Resist Stress Corrosion Cracking, Hot cracking, Chemical corrosion at high temperature
- Smooth arc characteristics
- Radiographic quality weld deposit

APPROVALS: CE

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



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni	Mo
0.02	0.7	1.0	19.3	11.35	2.3

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%	Ferrite No.
Typical	As Welded	580	36	6
Specification		490 min	30 min	3-8

PARAMETERS - PACKING DATA:

Ø x L, mm 2.5 x 350 3.15 x 350 4.0 x 350	Amperage, A 50-75 80-100 110-140	 AC (70 OCV) /DCEP	Flat butt and fillet welds only 		
				REDRYING CONDITION: 250-300°C for minimum 1 hr.	

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.

EQUIVALENT:

GMAW	GTAW	FCAW	SAW	
			Flux	Wire
Miginox 316L	Tiginox 316L	Miginox FC 316L	Automelt S33	Subinox 316L



SUPERINOX 2D

STAINLESS STEEL (Austenitic Steel)

AWS A/SFA 5.4 **E317L-16**

CLASSIFICATION:

ISO 3581-B
ES 317L- 16

IS 5206
E19.12.3 LR26

APPROVALS: IBR/CE

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
- 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
- Radiographic quality weld

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


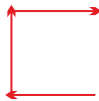
TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni	Mo
0.03	0.85	0.7	19.0	12.1	3.35

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%	Ferrite No.
Typical	As Welded	590	36	6
Specification		520 min	30 min	3-9

PARAMETERS - PACKING DATA:

Ø x L, mm 2.5 x 350 3.15 x 350 4.0 x 350	Amperage, A 50-75 80-100 110-140	 AC (70 OCV) /DCEP	All Positions, except vertical Down 
		REDRYING CONDITION: 250-300°C for minimum 1 hr.	

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.



SUPERINOX 2B

STAINLESS STEEL (Austenitic Steel)

AWS A/SFA 5.4 **E318-16**

CLASSIFICATION:

ISO 3581-A
E (19 12 3 Nb) R 12

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
- Radiographic quality weld
- Shows good cracking resistance
- Smooth arc and least spatter
- Easily controlled slag
- Excellent bead appearance

APPROVALS: CE

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



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni	Nb	Mo
0.035	1.0	0.8	18.7	11.9	0.4	2.0

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%	Ferrite No.
Typical	As Welded	590	35	6
Specification		550 min	25 min	3-8

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	50-75	 AC (70 OCV) /DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 350	80-100		
4.0 x 350	110-140		

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.



BETANOX 318 PLUS

STAINLESS STEEL (Austenitic Steel)

AWS A/SFA 5.4 **E318-17**

CLASSIFICATION:

ISO 3581-A

E 19 12 3 Nb R 13

IS 5206

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 & inter-crystalline corrosion cracking
- Radiographic quality welds
- Good corrosion resistance to Sulphuric and organic acids
- Working temperatures upto 400°C
- Easy strike and re-striking
- Easy slag removal

APPROVALS: CE

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



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Cr	Ni	Mo	Mn	Si	Nb + Ta
0.04	18.3	12.8	2.2	1.9	0.5	0.4

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%	Ferrite No.
Typical	As Welded	615	36	5
Specification		550 min	25 min	4-8

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	50-75	 AC (70 OCV) /DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	Flat butt and fillet welds only 
3.15 x 350	80-100		
4.0 x 350	110-140		

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.



SUPERINOX 1B

STAINLESS STEEL (Austenitic Steel)

AWS A/SFA 5.4 **E347-16**

CLASSIFICATION:

ISO 3581-A
E 19 9 Nb R 12

IS 5206
E19.9 Nb R26

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

APPROVALS: BV/IRS/IBR/CE

TYPICAL APPLICATIONS:

- Fabrication of equipments in refineries, power plants, centrifugal pump impellers and shafts, valve faces, seats
- 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
- Fabrication of boiler and gas turbine paper and pulp, paint and dye industries
- Welding of stainless steel tanks, valves, pipes in food, chemical and petrochemical industries
- Welding stabilized Cr-Ni steels such as AISI 321, 321H, 347, 347H

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:



C	Mn	Si	Cr	Ni	Nb
0.035	1.1	0.75	20.7	9.9	0.6

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%	Ferrite No.
Typical	As Welded	600	35	7
Specification		520 min	30 min	3-9

Special Tests: IGC Practice E of ASTM A262

PARAMETERS - PACKING DATA:

Ø x L, mm 2.0 x 300 2.5 x 350 3.15 x 350 4.0 x 350 5.0 x 300	Amperage, A 35-45 50-75 80-100 110-140 150-180	 AC (70 OCV) /DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
--	--	---	--

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.

EQUIVALENT:

GMAW	GTAW	FCAW	SAW	
			Flux	Wire
Miginox 347	Tiginox 347	Miginox FC 347	Automelt S33	Subinox 347



BETANOX 347 PLUS

STAINLESS STEEL (Austenitic Steel)

AWS A/SFA 5.4 **E347-17**

CLASSIFICATION:

ISO 3581-A
E 19 9 Nb R 13

IS 5206
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

APPROVALS: CE

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



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni	Nb
0.05	1.2	0.7	18.9	9.3	0.5

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%	Ferrite No.
Typical	As Welded	615	34	8
Specification		520 min	30 min	3-9

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
2.5 x 350	50-75	 AC (70 OCV) /DCEP Flat butt and fillet welds only  REDRYING CONDITION: 250-300°C for minimum 1 hr.
3.15 x 350	80-100	
4.0 x 350	110-140	

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.

EQUIVALENT:

GMAW	GTAW	FCAW	SAW	
			Flux	Wire
Miginox 347	Tiginox 347	Miginox FC 347	Automelt S33	Subinox 347



BETANOX D

STAINLESS STEEL (Dissimilar Steel Welding)

AWS A/SFA 5.4 **E309-16**

CLASSIFICATION:

ISO 3581-A
E (23 12) R 12
IS 5206
E 23.12 R26

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

APPROVALS: LRA/IBR/CE

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


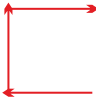
TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni
0.03	0.9	0.7	23.5	12.5

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Typical	As Welded	610	38
Specification		550 min	30 min

PARAMETERS - PACKING DATA:

Ø x L, mm 2.5 x 350 3.15 x 350 4.0 x 350	Amperage, A 50-75 80-100 110-140	 AC (70 OCV) /DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
--	--	---	--

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.



BETANOX 309 PLUS

STAINLESS STEEL (Dissimilar Steel Welding)

AWS A/SFA 5.4 **E309-17**

CLASSIFICATION:

ISO 3581-A
E (23 12) R 13
IS 5206
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

APPROVALS: CE

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



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni
0.025	0.75	0.7	23.7	12.1

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Typical	As Welded	640	37
Specification		550 min	30 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	50-75	 AC (70 OCV) /DCEP	Flat butt and fillet welds only 
3.15 x 350	80-100		
4.0 x 350	110-140		
		REDRYING CONDITION: 250-300°C for minimum 1 hr.	

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.



BETANOX DL

STAINLESS STEEL (Dissimilar Steel Welding)

AWS A/SFA 5.4 **E309L-16**

CLASSIFICATION:

ISO 3581-A
E 23 12L R 12

IS 5206
E 23.12 LR26

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

APPROVALS: ABS/BV IRS/NPCIL/IBR/CE

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



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni
0.03	1.7	0.5	23.5	12.05

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Typical	As Welded	560	36
Specification		520 min	30 min

PARAMETERS - PACKING DATA:

Ø x L, mm 2.5 x 350 3.15 x 350 4.0 x 350	Amperage, A 50-75 80-100 110-140	 AC (70 OCV) /DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.

EQUIVALENT:

GMAW	GTAW	FCAW	SAW	
			Flux	Wire
Miginox 309L	Tiginox 309L	Miginox FC 309L	Automelt S33	Subinox 309L



BETANOX DCb

STAINLESS STEEL (Dissimilar Steel Welding)

AWS A/SFA 5.4 **E309Nb-16**

CLASSIFICATION:

ISO 3581-A

E 23 12 Nb R 12

IS 5206

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

APPROVALS: IBR/CE

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



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni	Nb
0.04	0.9	0.5	23	12.1	0.8

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Typical	As Welded	600	36
Specification		550 min	30 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	50-75	 AC (70 OCV) /DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 350	80-100		
4.0 x 350	110-140		

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.



BETANOX 309Cb PLUS

STAINLESS STEEL (Dissimilar Steel Welding)

AWS A/SFA 5.4 E309Nb-17

CLASSIFICATION:

ISO 3581-A

E 23 12 Nb R 13

IS 5206

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

APPROVALS: CE

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



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni	Nb
0.05	1.0	0.9	23.1	12.2	0.75

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Typical	As Welded	620	35
Specification		550 min	30 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	50-75	 AC (70 OCV) /DCEP	Flat butt and fillet welds only 
3.15 x 350	80-100		
4.0 x 350	110-140		
		REDRYING CONDITION: 250-300°C for minimum 1 hr.	

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.



BETANOX DMO

STAINLESS STEEL (Dissimilar Steel Welding)

AWS A/SFA 5.4 **E309Mo-16**

CLASSIFICATION:

ISO 3581-B
ES 309Mo-16

IS 5206
E 23.12.2 R36

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

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of AISI 309Mo 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



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Mo	Ni
0.05	1.2	0.5	23.5	2.2	12.7

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Typical	As Welded	650	36
Specification		550 min	30 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	50-75	 AC (70 OCV) /DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 350	80-100		
4.0 x 350	110-140		

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.



BETANOX 309Mo PLUS

STAINLESS STEEL (Dissimilar Steel Welding)

AWS A/SFA 5.4 E309Mo-17

CLASSIFICATION:

ISO 3581-B
ES 309Mo-17

IS 5206
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

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of AISI 309Mo 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



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Mo	Ni
0.04	0.6	0.8	22.9	2.2	13.5

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Typical	As Welded	630	37
Specification		550 min	30 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	50-75	 AC (70 OCV) /DCEP	Flat butt and fillet welds only 
3.15 x 350	80-100		
4.0 x 350	110-140		
		REDRYING CONDITION: 250-300°C for minimum 1 hr.	

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.



BETANOX DMoL

STAINLESS STEEL (Dissimilar Steel Welding)

AWS A/SFA 5.4 **E309LMo-16**

CLASSIFICATION:

ISO 3581-A
E (23 12 2L) R 12

IS 5206
E 23.12.2 LR26

KEY FEATURES:

- Rutile coated electrode
- Extra low carbon 23/12/2.5Mo type weld deposit
- Low carbon ensures resistance to intergranular corrosion and cracking
- Mo addition provides high strength
- Excellent corrosion and oxidation resistance at elevated temperatures
- All position capability
- Radiographic quality welds

APPROVALS: IBR/CE

TYPICAL APPLICATIONS:

- Welding of AISI 316, 316L type steels
- Buffer layer on low alloy and carbon steels to improve corrosion and wear resistance
- Joining difficult to weld steels
- Dissimilar joints between austenitic stainless steels containing Mo and low alloy or carbon steels



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Mo	Ni
0.025	0.7	0.9	23.6	2.1	13

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	
2.5 x 350	50-75	 AC (70 OCV) /DCEP All Positions, except vertical Down  REDRYING CONDITION: 250-300°C for minimum 1 hr.
3.15 x 350	80-100	
4.0 x 350	110-140	

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.

EQUIVALENT:

GMAW	GTAW	SAW	
		Flux	Wire
Miginox 309LMo	Tiginox 309LMo	Automelt S33	Subinox 309LMo



SUPERINOX 312

STAINLESS STEEL (Dissimilar Steel Welding)

AWS A/SFA 5.4 **E312-16**

CLASSIFICATION:

ISO 3581-A
E 29 9 R 12

IS 5206
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

APPROVALS: CE

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


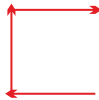
TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni
0.07	0.9	0.95	29.5	8.7

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Typical	As Welded	760	29
Specification		660 min	22 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
1.6 X 250	30-45	 AC (70 OCV) /DCEP All Positions, except vertical Down  REDRYING CONDITION: 250-300°C for minimum 1 hr.
2.0 x 300	50-80	
2.5 x 350	80-100	
3.2 x 350	110-140	
4.0 x 350	150-180	

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.

EQUIVALENT:

GMAW	GTAW
Miginox 312	Tiginox 312



BETANOX C

STAINLESS STEEL (Heat Resisting)

AWS A/SFA 5.4 **E310-16**

CLASSIFICATION:

ISO 3581-A
E 25 20 R 12

IS 5206
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

APPROVALS: CE

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



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni
0.11	1.5	0.5	27	20.5

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Typical	As Welded	600	37
Specification		550 min	30 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
2.5 x 350	50-75	 AC (70 OCV) /DCEP All Positions, except vertical Down  REDRYING CONDITION: 250-300°C for minimum 1 hr.
3.15 x 350	80-100	
4.0 x 350	110-140	

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.

EQUIVALENT:

GMAW	GTAW
Miginox 310	Tiginox 310



BETANOX 310 PLUS

STAINLESS STEEL (Heat Resisting)

AWS A/SFA 5.4 **E310-17**

CLASSIFICATION:

ISO 3581-A

E 25 20 R 13

IS 5206

E 25.20 R36

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 & fissuring
- Stable arc and low spatter loss
- Easy slag removal
- Radiographic quality weld

APPROVALS: CE

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



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni
0.13	1.6	0.6	27.1	21

MECHANICAL PROPERTIES OF ALL WELD METAL:

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

PARAMETERS - PACKING DATA:

Ø x L, mm 2.5 x 350 3.15 x 350 4.0 x 350	Amperage, A 50-75 80-100 110-140	 AC (70 OCV) /DCEP	Flat butt and fillet welds only 
REDRYING CONDITION: 250-300°C for minimum 1 hr.			

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.

EQUIVALENT:

GMAW	GTAW
Miginox 310	Tiginox 310



BETANOX 20/30

STAINLESS STEEL (Heat Resisting)

AWS A/SFA 5.4 **E320-15**

CLASSIFICATION:

ISO 3581-B
ES320-15

KEY FEATURES:

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

APPROVALS: CE

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



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni	Mo	Nb	Cu
0.04	1.2	0.55	19.3	32.5	2.3	0.45	3.6

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Typical	As Welded	620	36
Specification		550 min	30 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	50-75	 DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 350	80-100		
4.0 x 350	110-140		

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.



BETANOX 20/25/5/Cu

STAINLESS STEEL (Heat Resisting)

AWS A/SFA 5.4 E385-16

CLASSIFICATION:

ISO 3581-B

E 20 25 5 Cu N L R 12

IS 5206

E 20.25.5 LCu B26

APPROVALS: CE

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 desalination 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

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



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni	Mo	Cu
0.02	1.5	0.55	20.9	24.1	4.4	1.45

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Typical	As Welded	575	37
Specification		520 min	30 min

PARAMETERS - PACKING DATA:

Ø x L, mm 2.5 x 350 3.15 x 350 4.0 x 350	Amperage, A 50-70 70-100 90-130	 AC (70 OCV) /DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
--	---	---	--

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.

EQUIVALENT:

GMAW	GTAW
Miginox 385	Tiginox 385



SUPERINOX 630

STAINLESS STEEL (Dissimilar Steel Welding)

AWS A/SFA 5.4 **E630-16**

CLASSIFICATION:

ISO 3581-B
ES630-16

APPROVALS: CE

KEY FEATURES:

- Rutile type coating
- Typical 16/5/4Cu type weld deposit
- Offers combined characteristics of a strong, corrosion resistant, easily machinable weld metal
- This alloy prevent the formation of ferrite networks in the martensitic microstructure that would inhibit the mechanical properties
- Depending on application and weld size, may be used in the as welded, welded and precipitation hardened, or welded and solution treated and precipitation hardened condition
- Excellent welding characteristics
- Suitable for all position
- Radiographic quality weld

TYPICAL APPLICATIONS:

- Welding of ASTM A-564, Type 630 and some other precipitation hardenable steels
- For welding of 17-4PH and 17-7PH steel



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni	Nb+Ta	Cu
0.04	0.6	0.7	16.6	4.7	0.2	3.7

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Specification	PWHT:1025-1050°C for 1 hr and air cooled 2 ambient Followed by precipitation hardening: 610-630°C for 4 hrs+15 min. Air cooled to ambient temp	930 min	7 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	50-75	 AC (70 OCV) /DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 350	80-100		
4.0 x 350	110-140		

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.



ARMINOX

STAINLESS STEEL (Heat Resisting)

KEY FEATURES:

- A medium-Heavy coated electrode
- Austenitic stainless steel weld deposit
- Smooth and stable arc
- All position welding
- Radiographic quality weld

TYPICAL APPLICATIONS:

- Welding different grades of armour steels, stainless steels with carbon steel
- For depositing austenitic weld metal on high carbon steels



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni	Mo
0.07	1.2	0.7	19.5	9.3	2.5

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Specification	As Welded	690 min	25 min

PARAMETERS - PACKING DATA:

Ø x L, mm 2.5 x 350 3.15 x 350 4.0 x 350	Amperage, A 50-75 80-100 110-140	 AC (70 OCV) /DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
--	--	---	--

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.



BETACHROME ND

STAINLESS STEEL (Plain Chrome Series)

CLASSIFICATION:

ISO 3581-A
E 18 8 Mn B 22

IS 5206
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

APPROVALS: CE

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



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni
0.035	5.5	0.75	19	9.3

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Typical	As Welded	600	36
Specification		550 min	30 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	50-75	 DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 350	80-110		
4.0 x 350	110-150		

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.



BETACHROME ND SPL

STAINLESS STEEL (Dissimilar Steel Welding)

CLASSIFICATION:

ISO 3581-A

E 18 8 Mn B 12

IS 5206

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

APPROVALS: CE

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



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni	Mo	Cu
0.04	5.6	0.75	18.7	8.9	0.6	0.5

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%	CVN Impact at 27°C, J
Typical	As Welded	650	37	110
Specification		560 min	30 min	47 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	50-75	 AC (70 OCV)/DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 350	80-110		
4.0 x 350	110-150		

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.



AUSTOMANG 209

STAINLESS STEEL (Austenitic Manganese Steel)

AWS A/SFA 5.4 **E209-16**

CLASSIFICATION:

ISO 3581-B
ES209-16

KEY FEATURES:

- Rutile type electrode
- High strength, toughness and cracking resistance
- Smooth arc characteristics
- Easy slag removal
- Nitrogen strengthened austenitic stainless steel alloy
- All position welding capability
- Radiographic quality weld

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of high tensile steels and fine grained steels
- Joining high strength, low alloy or microalloyed steels to themselves or to lower strength steels, including carbon steels



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni	Mo	N	V
0.05	5.9	0.7	23	11.1	2.6	0.2	0.2

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Specification	As Welded	690 min	15 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	60-90	 AC (70 OCV) /DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	Flat butt and fillet welds only 
3.15 x 350	100-140		
4.0 x 350	140-180		
4.0 x 350	140-180		
5.0 x 450	190-250		

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.



AUSTOMANG 219

STAINLESS STEEL (Austenitic Manganese Steel)

AWS A/SFA 5.4 **E219-16**

CLASSIFICATION:

ISO 3581-B
ES219-16

KEY FEATURES:

- Rutile type electrode
- High strength, toughness and cracking resistance
- Smooth arc characteristics
- Easy slag removal
- Nitrogen strengthened austenitic stainless steel alloy
- All position welding capability
- Radiographic quality weld

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of AISI Type 219 (UNS S21900) base metals
- Joining dissimilar alloys like mild steel and the stainless steels
- Direct overlay on mild steel for corrosion applications
- Equipments used at high temperature applications


TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni	N
0.05	9.0	0.7	20.1	6.3	0.2

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Specification	As Welded	620 min	15 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
2.5 x 350	60-80	 AC (70 OCV) /DCEP Flat butt and fillet welds only → REDRYING CONDITION: 250-300°C for minimum 1 hr.
3.15 x 350	80-120	
4.0 x 350	110-160	
5.0 x 450	150-200	

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.



AUSTOMANG 240

STAINLESS STEEL (Austenitic Manganese Steel)

AWS A/SFA 5.4 **E240-16**

CLASSIFICATION:

ISO 3581-B
ES240-16

KEY FEATURES:

- Rutile type electrode
- High strength, toughness and cracking resistance
- Resistance to wear in particle-to-metal and metal-to-metal (galling) applications
- Nitrogen-strengthened austenitic stainless steel alloy
- Smooth arc characteristics
- Easy slag removal
- All position welding capability
- Radiographic quality weld

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of AISI Type 240 and 241 base metals
- Joining dissimilar alloys like mild steel and the stainless steels
- Direct overlay on mild steel for corrosion applications
- Equipments used at high temperature applications



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni	N
0.05	12.3	0.9	18.3	5.2	0.2

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Specification	As Welded	690 min	15 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
2.5 x 350	60-80	 AC (70 OCV) /DCEP Flat butt and fillet welds only  REDRYING CONDITION: 250-300°C for minimum 1 hr.
3.15 x 350	80-120	
4.0 x 350	110-160	
5.0 x 450	150-200	

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.



AUSTOMANG 307

STAINLESS STEEL (Austenitic Manganese Steel)

AWS A/SFA 5.4 **E307-16**

CLASSIFICATION:

ISO 3581-B
ES307-16

KEY FEATURES:

- 307 is a lime-titania stainless steel electrode
- Deposited metal of 19%-9%Ni-4%Mn stainless steel with the perfect structure of austenite
- The deposited metal has excellent crack resistibility
- Easy work hardening characteristic
- Often used as a buffer layer in hardfacing applications
- Excellent slag detachability
- Easy arc striking-Restriking during welding

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of 14% Mn steel, steel armour, hardenable steel
- Welding of difficult to weld steel
- Joining of wear plates to each other and to their supports
- Joining of stainless steels to carbon steels
- Extensively used in steelmaking public works, mining carrying and dredging.
- Building up of rails and buttering layers before hardfacing on 14%Mn steel or on steels of unknown composition or on carbon steels


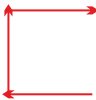
TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni
0.09	4.3	0.9	20.5	9.5

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Specification	As Welded	590 min	30 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	60-80	 AC (70 OCV) /DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 350	80-120		
4.0 x 350	110-160		
5.0 x 450	150-200		

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.



SUPERINOX 409Nb

STAINLESS STEEL (Dissimilar Steel Welding)

AWS A/SFA 5.4 **E409Nb-16**

CLASSIFICATION:

ISO 3581-AB
ES409 Nb-26

KEY FEATURES:

- Rutile based coating
- Typical 12Cr-1Nb weld deposit
- Excellent arc stability
- Easy slag removal
- Fine uniform ripples
- Fine grained ferritic microstructure
- Resist corrosion, wear and scaling up to 900°C
- Radiographic quality weld

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of ferritic stainless steels of type 405, 409, 409Ti, 410, 420 and 409M
- Overlay of carbon, low alloy steels
- Used in catalytic convertors, exhaust silencers, mufflers, manifolds, manifold elbows
- Manufacture of coach and BOXNCR wagon buildings for transporting iron ore in Indian railways
- Repair welding in sugar factory and mining field equipments
- Surfacing of sealing faces of gas, water and steam turbines with service temperatures of up to 450°C


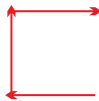
TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Nb+Ta
0.07	0.7	0.8	12.9	0.9

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Specification	PWHT: 770°C for 2 hrs	450 min	30 min

PARAMETERS - PACKING DATA:

Ø x L, mm 2.5 x 350 3.15 x 350 4.0 x 350	Amperage, A 50-75 80-100 110-140	 AC (70 OCV)/DCEP REDRYING CONDITION: 300°C for minimum 1 hr.	All Positions, except vertical Down 
--	--	--	--

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.



BETACHROME 13Cr

STAINLESS STEEL (Plain Chrome Series)

AWS A/SFA 5.4 E410-15

CLASSIFICATION:

ISO 3581-A
E 13 B 22

IS 5206
E 13 B26

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

APPROVALS: CE

TYPICAL APPLICATIONS:

- For welding ferritic martensitic chrome steels and steel castings
- For general corrosion and heat resisting applications
- Cladding of exhaust valves/mufflers, manifolds, manifold elbows
- 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



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr
0.07	0.5	0.25	12.2

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Typical	PWHT: 745°C for 1 hr	570	27
Specification		520 min	20 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	50-70	 AC (70 OCV)/DCEP REDRYING CONDITION: 300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 350	80-120		
4.0 x 350	130-160		

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.

EQUIVALENT:

GMAW	GTAW	FCAW	SAW	
			Flux	Wire
Miginox 410	Tiginox 410	Miginox FC 410	Automelt S33	Subinox 410



BETACHROME 13/4 LB

AWS A/SFA 5.4 E410NiMo-15

STAINLESS STEEL (Plain Chrome Series)

CLASSIFICATION:

ISO 3581-A

E 13 B 22

IS 5206

E 13.4 B20

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

APPROVALS: CE

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



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni	Mo
0.04	0.8	0.5	11.9	4.6	0.5

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%	CVN Impact at 27°C, J
Typical	PWHT: 600°C for 1 hr	880	18	60
Specification		760 min	15 min	47 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	60-80	 DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 350	80-120		
4.0 x 350	110-160		

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.



BETACHROME 13/4 LB-R

STAINLESS STEEL (Plain Chrome Series)

AWS A/SFA 5.4 E410NiMo-16

CLASSIFICATION:

ISO 3581-A
E 13 4 R 12

IS 5206
E 13.4 R26

KEY FEATURES:

- Rutile type electrode
- High strength, toughness and cracking resistance
- Smooth ARC characteristics
- Easy slag removal
- Martensitic type alloy resistant to corrosion, erosion, pitting and impact
- Preheat and PWHT recommended
- All position welding capability
- Radiographic quality weld

APPROVALS: CE

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 GX5CrNi13.4 and G-5CrNi13.6, VIRGO 104 casting/forging



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni	Mo
0.05	0.7	0.5	12.3	4.5	0.6

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Specification	PWHT: 600°C for 1 hr	760 min	15 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	 DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
2.5 x 350	60-80		
3.15 x 350	80-120		
4.0 x 350	110-160		

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.

EQUIVALENT:

GMAW	GTAW	FCAW	SAW	
			Flux	Wire
Miginox 410NiMo	Tiginox 410NiMo	Miginox FC 410NiMo	Automelt S33	Subinox 410NiMo



BETACHROME 17Cr

STAINLESS STEEL (Plain Chrome Series)

AWS A/SFA 5.4 E430-15

CLASSIFICATION:

EN ISO 3581-A

E 17 B 22

IS 5206

E 17 B26

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

APPROVALS: CE

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



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr
0.07	0.5	0.45	16

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Specification	PWHT: 775°C for 2 hrs	560	27
Specification		450 min	20 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	60-100	 DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	Flat butt and fillet welds only 
3.15 x 350	80-120		
4.0 x 350	130-160		

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.

EQUIVALENT:

GMAW	GTAW	SAW	
		Flux	Wire
Miginox 430	Tiginox 430	Automelt S33	Subinox 430



BETANOX 4462

STAINLESS STEEL (Duplex SS)

AWS A/SFA 5.4 E2209-16

CLASSIFICATION:

ISO 3581-A

E 22 9 3 N L R 22

IS 5206

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

APPROVALS: IBR/CE

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:


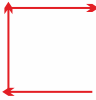
C	Mn	Si	Cr	Ni	Mo	N
0.03	0.9	0.5	22.5	8.9	3.2	0.15

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%	CVN Impact, at -40°C, J	Ferrite No.
Typical	As Welded	735	25	50	32
Specification		690 min	20 min	47 min	30-55

PREN: 35 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	50-75	 DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 350	80-100		
4.0 x 350	110-140		

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.

EQUIVALENT:

GMAW	GTAW	FCAW	SAW	
			Flux	Wire
Miginox 2209	Tiginox 2209	Miginox FC 2209	Automelt S33	Subinox 2209



BETANOX 2553

STAINLESS STEEL (Duplex SS)

AWS A/SFA 5.4 E2553-16

CLASSIFICATION:

ISO 3581-B
ES2553-16

KEY FEATURES:

- Rutile coated non-synthetic electrode
- Super duplex stainless steel deposit
- Exhibit excellent high strength
- Duplex microstructure consists of austenitic-ferritic matrix
- Easy slag removal
- All position capability
- Radiographic quality weld
- Improved resistance to pitting, corrosive attack and to stress corrosion cracking

APPROVALS: CE

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:



C	Mn	Si	Cr	Ni	Mo	N	Cu
0.02	0.6	0.7	24.5	6.9	3.5	0.15	1.9

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%	Ferrite No.
Typical	As Welded	790	21	47
Specification		760 min	15 min	30-55

PREN: 35 min

PARAMETERS - PACKING DATA:

Ø x L, mm 2.5 x 350 3.15 x 350 4.0 x 350	Amperage, A 50-75 80-100 110-140	 AC (70 OCV) /DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
--	--	---	--

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.



BETANOX 2594

STAINLESS STEEL (Duplex SS)

AWS A/SFA 5.4 E2594-15

CLASSIFICATION:

ISO 3581-A
E 25 9 4 N L B 22

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

APPROVALS: IBR/CE

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:



C	Mn	Si	Cr	Ni	Mo	N
0.03	1.1	0.9	26	8.9	3.6	0.25

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%	CVN Impact, J -20°C
Typical	As Welded	880	27	50
Specification		760 min	15 min	47 min

PREN: 40 min

PARAMETERS - PACKING DATA:

Ø x L, mm 2.5 x 350 3.15 x 350 4.0 x 350	Amperage, A 50-80 70-110 90-140	 AC (70 OCV) /DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.

EQUIVALENT:

GMAW	GTAW	FCAW	SAW	
			Flux	Wire
Miginox 2594	Tiginox 2594	Miginox FC 2594	Automelt S33	Subinox 2594



BETANOX 2594-16

STAINLESS STEEL (Duplex SS)

AWS A/SFA 5.4 E2594-16

CLASSIFICATION:

ISO 3581-A
E 25 9 4 N L R 12

KEY FEATURES:

- Rutile coated non-synthetic electrode
- Austenitic-ferritic duplex microstructure
- 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

APPROVALS: CE

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:



C	Mn	Si	Cr	Ni	Mo	N
0.2	0.9	0.7	25.9	10	3.9	0.23

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%	CVN Impact, J -20°C
Typical	As Welded	880	27	48
Specification		760 min	15 min	47 min

PREN: 40 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	50-80	 AC (70 OCV) /DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 350	70-110		
4.0 x 350	90-140		

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.

EQUIVALENT:

GMAW	GTAW	FCAW	SAW	
			Flux	Wire
Miginox 2594	Tiginox 2594	Miginox FC 2594	Automelt S33	Subinox 2594



BETANOX 2595-16

AWS A/SFA 5.4 E2595-16

STAINLESS STEEL (Duplex SS)

CLASSIFICATION:

ISO 3581-A
E 25 9 4 N L R 12

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

APPROVALS: CE

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni	Mo	N	W
0.02	0.6	0.7	26	9.5	3.9	0.23	1.0



MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%	Ferrite No.
Typical	As Welded	835	27	50
Specification		760 min	15 min	40-60

Special Tests: Meets Pitting Corrosion Resistance at 25°C and 30°C as per ASTM G-48

PREN: 40 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	50-80	 AC (70 OCV) /DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 350	70-110		
4.0 x 350	90-140		

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.



BETANOX 2595-15

STAINLESS STEEL (Duplex SS)

AWS A/SFA 5.4 E2595-15

CLASSIFICATION:

ISO 3581-A
E 25 9 4 N L B 22

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

APPROVALS: CE

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni	Mo	N	W
0.03	1.0	0.9	25.5	9.9	4.0	0.25	1.1



MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%	Ferrite No.
Typical	As Welded	840	28	54
Specification		760 min	15 min	40-60

Special Tests: Meets Pitting Corrosion Resistance at 25°C and 30°C as per ASTM G-48

PREN: 40 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	50-80	 DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 350	70-110		
4.0 x 350	90-140		

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.



CASTEN

CAST IRON

AWS A/SFA 5.15 **ES**t

CLASSIFICATION:

ISO 1071
E C St 1

IS 5511
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

APPROVALS: CE

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



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si
0.06	0.6	0.15

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	Hardness, BHN
Specification	As Welded	250-400

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	60-90	 AC (70 OCV)/ DCEP REDRYING CONDITION: 250°C for 1 hr.	All Positions, except vertical Down 
3.15 x 350	100-140		
4.0 x 350	140-190		

Available in Standard carton packing of 20 kg box containing 5 cartons of 2 kg each.



CASTMONEL

CAST IRON

AWS A/SFA 5.15 ENiCu-B

CLASSIFICATION:

ISO 1071
E C NiCu-B1

IS 5511
E NiCu2 G33

KEY FEATURES:

- Graphite based coating
- Monel type weld deposit
- Machinable weld
- Minimum dilution ensures shallow but sufficient depth of fusion
- No need of preheating

APPROVALS: CE

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



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Fe	Ni	Cu
0.43	1.1	0.7	3.1	63	31.5

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa
Typical	As Welded	350

PARAMETERS - PACKING DATA:

Ø x L, mm 2.5 x 350 3.15 x 350 4.0 x 350	Amperage, A 45-60 90-110 120-150	 AC (70 OCV)/ DCEP	All Positions, except vertical Down 

Available in Standard carton packing of 10 kg box containing 1 cartons of 10 kg each.



CASTNICKEL

CAST IRON

AWS A/SFA 5.15 ENi-CI

CLASSIFICATION:

ISO 1071
E C Ni-CI 1

IS 5511
E Ni G23

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

APPROVALS: CE

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


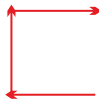
TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Fe	Ni
0.6	0.2	0.4	2.3	96

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS, MPa	EL, %	Hardness, BHN
Specification	As Welded	276-448	262-414	3-6	135-218

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	45-65	 AC (70 OCV)/ DCEP REDRYING CONDITION: 150°C for 1 hr.	All Positions, except vertical Down 
3.15 x 350	70-90		
4.0 x 350	100-120		

Available in Standard carton packing of 10 kg box containing 1 cartons of 10 kg each.



FERRICAST

CAST IRON

AWS A/SFA 5.15 ENiFe-CI

CLASSIFICATION:

ISO 1071
E C NiFe-11
IS 5511
E Ni Fe CC23

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

APPROVALS: CE

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



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Fe	Ni
1.1	1.2	1.5	47	51

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS, MPa	EL, %	Hardness, BHN
Specification	As Welded	400-579	296-434	6-18	165-218

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	40-70	 AC (70 OCV)/ DCEP REDRYING CONDITION: 150°C for 1 hr.	All Positions, except vertical Down 
3.15 x 350	70-110		
4.0 x 350	90-120		

Available in Standard carton packing of 10 kg box containing 1 cartons of 10 kg each.



ZEDALLOY 250

HARD FACING (Moderate - Abrasion Impact)

ALLOY BASIS

C, Mn, Si, Cr

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


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





MECHANICAL PROPERTIES OF ALL WELD METAL:

Condition	3 Layer, Hardness, HRc (BHN), Typical
As Welded	25 (255)

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	 AC (70 OCV) / DCEN REDRYING CONDITION: 110°C for ½ hr.
3.15 x 450	100-140	
4.0 x 450	140-180	
5.0 x 450	180-220	

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each.

Machinability	Abrasion Resistance	Impact Resistance	Corrosion Resistance
			

Physical Properties: With increase in number of squares, property improves



ZEDALLOY 350

HARD FACING (Moderate - Abrasion Impact)

ALLOY BASIS

C, Mn, Si, Cr

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

APPROVALS: RDSO

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

MECHANICAL PROPERTIES OF ALL WELD METAL:

Condition	3 Layer, Hardness, HRC (BHN), Typical
As Welded	35 (330)

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
3.15 x 450	100-140	 AC (70 V) / DCEN REDRYING CONDITION: 110°C for ½ hr.
4.0 x 450	140-180	
5.0 x 450	180-220	

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each.

Machinability	Abrasion Resistance	Impact Resistance	Corrosion Resistance
---------------	---------------------	-------------------	----------------------



Physical Properties: With increase in number of squares, property improves



ZEDALLOY 350 LH

HARD FACING (Moderate - Abrasion Impact)

ALLOY BASIS

C, Mn, Si, Cr

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


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





MECHANICAL PROPERTIES OF ALL WELD METAL:

Condition	3 Layer, Hardness, HRc (BHN), Typical
As Welded	35 (330)

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
3.15 x 450	100-140	 AC (70 OCV) / DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.
4.0 x 450	140-180	
5.0 x 450	180-220	

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each.

Machinability	Abrasion Resistance	Impact Resistance	Corrosion Resistance
			

Physical Properties: With increase in number of squares, property improves



ZEDALLOY 550

HARD FACING (Moderate - Abrasion Impact)

ALLOY BASIS

C, Mn, Si, Cr

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


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




MECHANICAL PROPERTIES OF ALL WELD METAL:

Condition	3 Layer, Hardness, HRc (BHN), Typical
As Welded	56 (580)

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
3.15 x 450	100-130	 AC (70 V) / DCEN REDRYING CONDITION: 110°C for minimum ½ hr.
4.0 x 450	140-180	
5.0 x 450	180-220	

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each.

Machinability	Abrasion Resistance	Impact Resistance	Corrosion Resistance
			

Physical Properties: With increase in number of squares, property improves



ZEDALLOY 550 LH

HARD FACING (Moderate - Abrasion Impact)

ALLOY BASIS

C, Mn, Si, Cr

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


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




MECHANICAL PROPERTIES OF ALL WELD METAL:

Condition	3 Layer, Hardness, HRc (BHN), Typical
As Welded	56 (580)

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
3.15 x 450	100-130	 AC (70 V) / DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.
4.0 x 450	140-180	
5.0 x 450	180-220	

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each.

Machinability	Abrasion Resistance	Impact Resistance	Corrosion Resistance
			

Physical Properties: With increase in number of squares, property improves



ZEDALLOY 600

HARD FACING (Moderate - Abrasion Impact)

ALLOY BASIS

C, Mn, Si, Cr, Mo

KEY FEATURES:

- Rutile 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


TYPICAL APPLICATIONS:

- Drilling bits, Punches, Dies
- Crane wheels, Shear blades
- Crushers, Hammers
- Paper cutting knives, Mine rails
- Oil expeller worms
- Conveyor parts




MECHANICAL PROPERTIES OF ALL WELD METAL:

Condition	1 Layer, Hardness, HRc (BHN), Typical
As Welded	58 (600)

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
3.15 x 450	100-140	 AC (70 OCV) / DCEP REDRYING CONDITION: 110°C for minimum ½ hr.
4.0 x 450	140-180	
5.0 x 450	180-220	

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each.

Machinability	Abrasion Resistance	Impact Resistance	Corrosion Resistance
			

Physical Properties: With increase in number of squares, property improves



ZEDALLOY 650

HARD FACING (Moderate - Abrasion Impact)

ALLOY BASIS

C, Cr, Mn, Si, V

KEY FEATURES:

- All position welding electrode
- Smooth arc with low spatter
- Multi-layer deposit without fissures / cracks
- Weld metal is air hardening type
- High hardness even in single layer
- Weld deposit resistant to severe abrasion & moderate impact


TYPICAL APPLICATIONS:

- Hot & cold punching dies
- Bulldozer blades, Bucket lips, Chutes
- Applications involving metal to mineral wear, Conveyors
- Metal cutting & forming tools
- Road graders, Crusher hammers, Caterpillar treads, Plough shares
- Cane & bamboo cutting knives
- Shears & Croppers, Oil expellers, etc.

PHYSICAL PROPERTIES :

Condition	Hardness, HRc
As Welded	57-62

PARAMETERS - PACKING DATA:

<p>Ø x L, mm</p> <p>3.15 x 450</p> <p>4.0 x 450</p> <p>5.0 x 450</p>	<p>Amperage, A</p> <p>90-120</p> <p>120-170</p> <p>160-260</p>	 AC (70 V) / DCEP / DCEN REDRYING CONDITION: 100°C for 1 hour (If electrodes are moist).
--	--	--

Machinability	Abrasion Resistance	Impact Resistance	Corrosion Resistance
---------------	---------------------	-------------------	----------------------



Physical Properties: With increase in number of squares, property improves



ZEDALLOY 604

HARD FACING (Moderate - Abrasion Impact)

ALLOY BASIS

C, Cr, Mn, Si

KEY FEATURES:

- Slag free weld deposit
- Resistant to abrasion in combination with friction and moderate impact
- Smooth weld bead with nil spatter
- Suited for application involving high stress grinding abrasion


TYPICAL APPLICATIONS:




- Excavator teeth, Ploughshares
- Overlays on machine parts
- Exhaust blades, scraper bars
- Excavator buckets, Bucket teeth
- Cultivators, Impellers, Cams, dredger buckets, oil expeller worms
- Coal crushing applications of mill hammers, pulverizers, cement grinder rings

PHYSICAL PROPERTIES :

Condition	1 Layer Hardness, HRc
As Welded	56-62

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
3.15 x 450	90-120	 AC (70 V) / DCEP REDRYING CONDITION: 200-300°C for minimum 1 hour
4.0 x 450	120-160	
5.0 x 450	160-190	

Machinability	Abrasion Resistance	Impact Resistance	Corrosion Resistance
			

Physical Properties: With increase in number of squares, property improves



ZEDALLOY WD

HARD FACING (Moderate - Abrasion Impact)

ALLOY BASIS:

C, Cr, Mo, V

KEY FEATURES:

- All position electrode for multi-layer deposits free from any cracks
- Smooth arc with nil spatter
- Air hardening type weld metal
- Resistant to high abrasion & impact

TYPICAL APPLICATIONS:

- Weld surfacing of wire drawing drums
- Excavating equipments
- Buckets, Shovels
- Cold stamping tools
- Dies, Punches, Hammers
- Scrapers, Tampers

PHYSICAL PROPERTIES:

Condition	2 Layer Hardness, HRC
As welded	57-62

Machinability	Abrasion Resistance	Impact Resistance	Corrosion Resistance

PARAMETERS - PACKING DATA:

Ø x L, mm 3.15 x 450 4.0 x 450	Amperage, A 90-130 130-170	AC (70 V)/DCEP/DCEN REDRYING CONDITION: 100°C for 1 hour (If electrodes are moist)	All Positions
---	---	--	-------------------

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing

Physical Properties: With increase in number of squares, property improves



BETACHROME N

HARD FACING (High Impact - Work Hardenable)

ALLOY BASIS

C, Mn, Si, Cr

KEY FEATURES:

- Basic coated synthetic electrode
- C-Cr-Ni-Mn type austenitic weld deposit
- Smooth arc characteristics
- High plasticity weld deposit
- Excellent heat resistance upto 900°C
- Work hardenable alloy with excellent crack resistance
- Suitable for all position


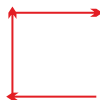
TYPICAL APPLICATIONS:

- For joining austenitic 12% Mn steels to mild steels
- Surfacing Mn steel, Crane wheels
- Welding of unalloyed or low alloyed steels to high alloyed steels or cast steels
- Buffer layer on difficult steels before hardfacing
- Suitable for steels of difficult weldability
- Armour plates, steel castings, crusher cones, crusher hammers




MECHANICAL PROPERTIES OF ALL WELD METAL:

Condition	UTS, MPa	EL%
As Welded	600	35

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	50-75	 AC (70 OCV) / DCEP	All Positions, except vertical Down 
3.15 x 350	80-110		
4.0 x 350	110-150		
5.0 x 350	150-200		
		REDRYING CONDITION: 250-300°C for minimum 1 hr.	

Available in Standard carton packing of 10 kg box containing 5 cartons of 2 kg each.

Machinability	Abrasion Resistance	Impact Resistance	Corrosion Resistance
			

Physical Properties: With increase in number of squares, property improves



ZEDALLOY 12 Mn

HARD FACING (High Impact - Work Hardenable)

ALLOY BASIS

C, Mn, Si

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


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





MECHANICAL PROPERTIES OF ALL WELD METAL:

Condition	3 Layer, Hardness, HRc (BHN) Typical
As Welded	16 (200)
Work Hardened	52 (500)

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
3.15 x 450	100-140	 AC (70 V) / DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.
4.0 x 450	140-180	
5.0 x 450	180-230	
6.3 x 450	230-290	

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each.

Machinability	Abrasion Resistance	Impact Resistance	Corrosion Resistance
			

Physical Properties: With increase in number of squares, property improves



ZEDALLOY 16 Mn

HARD FACING (High Impact - Work Hardenable)

ALLOY BASIS

C, Mn, Si, Ni

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


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





MECHANICAL PROPERTIES OF ALL WELD METAL:

Condition	3 Layer, Hardness, HRc (BHN) Typical
As Welded	16 (200)
Work Hardened	52 (515)

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
3.15 x 450	100-140	 AC (70 OCV) / DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.
4.0 x 450	140-180	
5.0 x 450	180-230	
6.3 x 450	230-290	

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each.

Machinability	Abrasion Resistance	Impact Resistance	Corrosion Resistance
			

Physical Properties: With increase in number of squares, property improves



ZEDALLOY 16 Cr

HARD FACING (High Impact - Corrosion Resistance)

ALLOY BASIS

C, Mn, Cr

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


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

MECHANICAL PROPERTIES OF ALL WELD METAL:

Condition	3 Layer, Hardness, HRc (BHN) Typical
As Welded	16 (200)
Work Hardened	52 (515)

PARAMETERS - PACKING DATA:

Ø x L, mm 3.15 x 450 4.0 x 450 5.0 x 450	Amperage, A 90-120 130-160 170-220	 AC (70 OCV) /DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.
--	--	---

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each.

Machinability	Abrasion Resistance	Impact Resistance	Corrosion Resistance
---------------	---------------------	-------------------	----------------------



Physical Properties: With increase in number of squares, property improves



ZEDALLOY 20 Cr

HARD FACING (High Impact - Corrosion Resistance)

ALLOY BASIS

C, Mn, Cu, Ni

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


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

MECHANICAL PROPERTIES OF ALL WELD METAL:

Condition	3 Layer, Hardness, HRc (BHN) Typical
As Welded	16 (200)
Work Hardened	55 (560)

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	 AC (70 OCV) /DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.
3.15 x 450	100-140	
4.0 x 450	140-180	
5.0 x 450	180-220	

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each.

Machinability	Abrasion Resistance	Impact Resistance	Corrosion Resistance
---------------	---------------------	-------------------	----------------------



Physical Properties: With increase in number of squares, property improves



ZEDALLOY CrMn

HARD FACING (High Impact - Corrosion Resistance)

ALLOY BASIS

C, Mn, Cr

KEY FEATURES:

- Welding electrode for Austenitic Manganese steels
- Work hardening characteristics Typical 13% Cr deposit
- Specially formulated for resistance against impact, abrasion and corrosion
- Machinable and crack free deposit


TYPICAL APPLICATIONS:

- Dipper teeth and lips
- Coal mining cutters, Rock crusher
- Pulveriser plows, Pump housing
- Conveyor rolls
- Manganese steel components
- 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

MECHANICAL PROPERTIES OF ALL WELD METAL:

Condition	On Carbon Steel HRc (BHN)	On Manganese Steel HRc (BHN) Typical
As Welded	16 (200)	16 (200)
Work Hardened	58 (600)	55 (550)

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
3.15 x 450	100-130	 AC (70 OCV) /DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.
4.0 x 450	140-180	
5.0 x 450	180-220	

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each.

Machinability	Abrasion Resistance	Impact Resistance	Corrosion Resistance
---------------	---------------------	-------------------	----------------------



Physical Properties: With increase in number of squares, property improves



ZEDALLOY K

HARD FACING (Abrasion - Corrosion)

ALLOY BASIS

C, Mn, Cr, Mo, V, W

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


TYPICAL APPLICATIONS:

- Blanking and Forming dies
- Cutting tools
- Mining tools
- Shear blades
- Hog & Chipper knives
- Wood working tools
- Rolling mill guides
- Ingot fitting tongs




MECHANICAL PROPERTIES OF ALL WELD METAL:

Condition	3 Layer, Hardness, HRc (BHN) Typical
As Welded	58 (600)

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
3.15 x 450	100-130	 AC (70 OCV) /DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.
4.0 x 450	140-180	
5.0 x 450	180-200	

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each.

Machinability	Abrasion Resistance	Impact Resistance	Corrosion Resistance
			

Physical Properties: With increase in number of squares, property improves



ZEDALLOY BELL

HARD FACING (Abrasion - Corrosion)

ALLOY BASIS

C, Mo, Cr, Ni, Mo

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


TYPICAL APPLICATIONS:

- Blast furnace Bells & Hoppers
- Steel mill equipments
- Tong pins, Hot shears
- Metallurgical plants




MECHANICAL PROPERTIES OF ALL WELD METAL:

Condition	3 Layer, Hardness, HRc (BHN), Typical	
As Welded	At Room Temp	55 (550)
As Welded	At 500°C	52 (515)

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
3.15 x 450	90-110	 AC (70 OCV) /DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.
4.0 x 450	110-180	
5.0 x 450	160-220	
6.3 x 350	210-280	

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each.

Machinability	Abrasion Resistance	Impact Resistance	Corrosion Resistance
			

Physical Properties: With increase in number of squares, property improves



ZEDALLOY 17Cr NS PLUS

HARD FACING (Abrasion - Corrosion)

ALLOY BASIS

C, Cr, Mn

KEY FEATURES:

- Basic coated non synthetic electrode
- Ferritic martensitic machinable deposit
- Air hardenable weld deposit
- Hardness retention upto 500°C
- Best results in 2 layer overlay
- Resistance against abrasion and corrosion


TYPICAL APPLICATIONS:

- Surfacing of unalloyed and low alloyed steels
- Surfacing on sealing faces of steam/water/gas valve
- Overlay on stainless steel





MECHANICAL PROPERTIES OF ALL WELD METAL:

Condition	2 Layer, Hardness, HRc, Typical
As Welded	45

PARAMETERS - PACKING DATA:

Ø x L, mm 3.15 x 350 4.0 x 350 5.0 x 350	Amperage, A 90-120 130-160 160-200	 DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.
--	--	--

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each.

Machinability	Abrasion Resistance	Impact Resistance	Corrosion Resistance
			

Physical Properties: With increase in number of squares, property improves



ZEDALLOY VB

HARD FACING (High Abrasion)

ALLOY BASIS

C, Mn, Si, Cr

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

TYPICAL APPLICATIONS:

- Concrete Mixer Blades
- Muller Tyres, Dippers
- Screw Conveyors
- Plough Shares
- Cement Die Rings
- Oil Expeller Worms
- Scraper Blades
- Excavator Teeth




MECHANICAL PROPERTIES OF ALL WELD METAL:

Condition	3 Layer, Hardness, HRc (BHN) Typical
As Welded	58 (600)

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
3.15 x 450	90-110	 AC (70 V) / DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.
4.0 x 450	110-140	
5.0 x 450	140-180	

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each.

Machinability	Abrasion Resistance	Impact Resistance	Corrosion Resistance
			

Physical Properties: With increase in number of squares, property improves



SUPER ZEDALLOY

HARD FACING (High Abrasion)

ALLOY BASIS

C, Cr

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 to avoid cracking


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

MECHANICAL PROPERTIES OF ALL WELD METAL:

Condition	3 Layer, Hardness, HRc (BHN) Typical
As Welded	58 (600)

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
3.15 x 350	90-120	 AC (70 OCV) / DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.
4.0 x 350	120-160	
5.0 x 350	160-200	

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each.

Machinability	Abrasion Resistance	Impact Resistance	Corrosion Resistance
			

Physical Properties: With increase in number of squares, property improves



MAGANACANE

HARD FACING (High Abrasion)

ALLOY BASIS

C, Cr, Si

KEY FEATURES:

- Super heavy coated electrode
- Special design to resist heavy loads produced during cane crushing in sugar mills
- Electrode strikes easily even on wet mill rollers
- Deposits hemispherical dots on the rolls which imparts better grip during cane crushing
- Faster build up due to high deposition rate
- Non machinable deposit

TYPICAL APPLICATIONS:

- For Spot-Arc building/roughening Sugar mill rolls, chilled cast iron rolls
- Reclamation of Sand mixing blades, Scrapers, Screw flights, Mixing paddles




MECHANICAL PROPERTIES OF ALL WELD METAL:

Condition	Hardness HRc (BHN), Typical
As Welded	56 (580)

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
3.15 x 450	110-130	 AC (70 OCV) / DCEP
4.0 x 450	160-210	
5.0 x 450	220-280	

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each.

Machinability	Abrasion Resistance	Impact Resistance	Corrosion Resistance
			

Physical Properties: With increase in number of squares, property improves



ZEDALLOY 16

HARD FACING (High Abrasion)

ALLOY BASIS

C, Cr, Mo

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


TYPICAL APPLICATIONS:

- Rolling mill guides
- Coal crushing hammers
- Conveyor screws
- Mixer blades & scrapers
- Coal pulverisers



MECHANICAL PROPERTIES OF ALL WELD METAL:

Condition	Hardness HRc (BHN), Typical
As Welded	56 (580)

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
3.15 x 450	120-150	 AC (70 OCV) / DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.
4.0 x 450	160-200	
5.0 x 450	200-250	

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each.

Machinability	Abrasion Resistance	Impact Resistance	Corrosion Resistance
			

Physical Properties: With increase in number of squares, property improves



ZEDALLOY 680

HARD FACING (High Abrasion)

ALLOY BASIS

C, Cr, Nb, V, Mo

KEY FEATURES:

- Excellent arc stike/re-strike
- Complex refractory carbides in eutectic matrix
- Minimal slag, smooth weld bead
- Non machinable deposit
- High volume fraction carbides offer excellent wear resistance up to 650oC
- Recommended for single pass deposit


TYPICAL APPLICATIONS:

- Clinker grinders, Conveyor chains, Sinter handling equipment, Auger flights, Sinter star breakers, Slurry pumps
- Coke pusher shoes, Billet conveyor guides, Hot slag conveyors, Pug mill knives, Coal burner nozzles, Conveyor screw



MECHANICAL PROPERTIES OF ALL WELD METAL:

Condition	Hardness,1 Layer HRC, Typical
As Welded	64

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
3.15 x 450	90-160	 AC (70 OCV) / DCEP REDRYING CONDITION: 110°C for 1 hr
4.0 x 450	120-180	
5.0 x 450	180-220	

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each.

Machinability	Abrasion Resistance	Impact Resistance	Corrosion Resistance
			

Physical Properties: With increase in number of squares, property improves



NIMOTEN PLUS 535 A

LOW ALLOY STEEL (Nimoten Series)

ALLOY BASIS

Ni, Cr, Mo

KEY FEATURES:

- Basic coated electrode
- Low alloy type weld metal
- Machinable with carbide tools
- High weld metal recovery
- Special application for joining and overlay work in steel mills and forging industry
- Radiographic weld deposit
- Three layer hardness over 320 BHN


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


MECHANICAL PROPERTIES OF ALL WELD METAL:

Condition	Hardness, 3 Layer HRC, Typical
After Tempering	35

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
3.15 x 450	100-130	 AC (70 OCV) / DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.
4.0 x 450	140-180	
5.0 x 450	190-230	
6.3 x 450	260-320	

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each.

Machinability	Abrasion Resistance	Impact Resistance	Corrosion Resistance
			



NIMOTEN PLUS 535 B

HARD FACING (High Temperature Oxidation - Impact - Abrasion)

ALLOY BASIS

C, Cr, Ni, Mo, Mn

KEY FEATURES:

- Basic coated electrode
- Low alloy type weld metal
- Machinable with carbide tools
- High weld metal recovery
- All position capability
- Special application for joining & overlay work in steel mills and forging industry


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 538OC
- Case hardening steel parts repair after removing hard zone





MECHANICAL PROPERTIES OF ALL WELD METAL:

Condition	Hardness, 3 Layer HRc, Typical
As Welded	42

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
3.15 x 450	100-140	 AC (70 OCV)/DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.
4.0 x 450	140-180	
5.0 x 450	190-230	
6.3 x 450	260-320	

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each.

Machinability	Abrasion Resistance	Impact Resistance	Corrosion Resistance
			

Physical Properties: With increase in number of squares, property improves



NIMOTEN 9580

LOW ALLOY STEEL (Nimoten Series)

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

TYPICAL APPLICATIONS:

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:



C	Mn	Si	Ni	V
0.08	1.4	0.2	2.1	1.2

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%
Typical	As Welded	735	625	19
Specification		690 min	600 min	16 min

Hardness, 3 Layer: 260-330 BHN

PARAMETERS - PACKING DATA:

Ø x L, mm 3.15 x 450 4.0 x 450 5.0 x 450	Amperage, A 100-130 140-180 190-230	 AC (70 OCV) / DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
--	---	--	--

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing



NIMOTEN 9650

LOW ALLOY STEEL (Nimoten Series)

ALLOY BASIS:

C, Cr, Mo, W, V

KEY FEATURES:

- Martensitic stainless steel weld free from cracks
- Resistant to galling
- High metal to metal wear resistance
- Easy slag removal & radiographic quality welds
- Excellent welder appeal
- Machinable with carbide tools

TYPICAL APPLICATIONS:

- Hammer, Impactor & Screw press dies
- Hot working tools & guides
- Weld surfacing of new dies and reclamation of wear out hot forging dies

PHYSICAL PROPERTIES:

Condition	3 Layer Hardness, HRC
As welded	43-47
SR at 550°C for 2 hours	40-45

Machinability

Abrasion Resistance

Impact Resistance

Corrosion Resistance



PARAMETERS - PACKING DATA:

Ø x L, mm

3.15 x 450
4.0 x 450
5.0 x 450

Amperage, A

100-140
150-180
190-250



AC (70 V)/DCEP

REDRYING CONDITION:

200-300°C for minimum 1 hour

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each. Also available in vacuum packing

Physical Properties: With increase in number of squares, property improves



NIMOTEN HFD

HARD FACING (High Temperature Oxidation - Impact - Abrasion)

ALLOY BASIS

C, Cr, Mo, W

KEY FEATURES:

- Heavy coated electrode
- Weld deposit with excellent toughness and hardness properties
- Superior metal to metal wear resistance at high temperatures
- Multipass crack free weld deposit maximum up to 15 mm


TYPICAL APPLICATIONS:

- For repair of large hot working dies, press forging dies
- Hot piercing punches, Impactor dies, Screw press dies
- Forming dies, Trimming dies, Blanking dies
- For H series tool steels such as H11, H12, H13
- Parts of earth moving equipment





MECHANICAL PROPERTIES OF ALL WELD METAL:

Condition	Hardness, 3 Layer HRc, Typical
As Welded	50

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	 AC (70 OCV) / DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.
3.15 x 450	100-140	
4.0 x 450	140-180	
5.0 x 450	190-230	
6.3 x 450	260-320	

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each.

Machinability	Abrasion Resistance	Impact Resistance	Corrosion Resistance
			

Physical Properties: With increase in number of squares, property improves



ZEDALLOY CoCr-A

AWS A/SFA 5.13 ECoCr-A

HARD FACING (High Temperature Oxidation - Impact - Abrasion)

ALLOY BASIS

C, Co, Cr

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

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


CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni	Mo	Fe	W	Co
0.72 - 1.4	2.0 max	2.0 max	25 - 32	3.0 max	1.0 max	5.0 max	3.0 - 6.0	Rem





MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	Hardness, HRc (BHN)	
Specification	As Welded	At Room Temp	23-47 (245-440)
Typical	As Welded	At 600°C	33 (310)

PARAMETERS - PACKING DATA:

Ø x L, mm 3.15 x 350 4.0 x 350 5.0 x 350	Amperage, A	 AC (70 OCV) / DCEN REDRYING CONDITION: 200°C for 1 hr.
	100-140	
	140-180	
180-220		

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each.

Machinability	Abrasion Resistance	Impact Resistance	Corrosion Resistance
			

Physical Properties: With increase in number of squares, property improves



SUPERMONEL

NON FERROUS (Ni Alloys)

AWS A/SFA 5.11 ENiCu-7

CLASSIFICATION:

ISO 14172

E Ni 4060 (NiCu30Mn3Ti)

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

APPROVALS: CE

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 & Valves manufacturing units


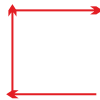
TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Fe	Ni	Al	Ti
0.02	3.1	1.0	1.0	65	0.04	0.4

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Typical	As Welded	535	34
Specification		480 min	30 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	45 - 70	 DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 350	80 - 100		
4.0 x 350	90 - 130		

Available in packing of 10 kg box containing 10 plastic cartons of 1 kg each.



NICALLOY 1

NON FERROUS (Ni Alloys)

AWS A/SFA 5.11 ENi-1

CLASSIFICATION:

ISO 14172

E Ni 2061 (NiTi3)

IS 8736

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

APPROVALS: CE

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 & halides


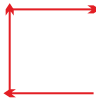
TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Fe	Ni	Al	Ti
0.03	0.4	0.75	0.35	96.65	0.025	1.5

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	
2.5 x 350	45 - 70	 DCEP All Positions, except vertical Down  REDRYING CONDITION: 250-300°C for minimum 1 hr.
3.15 x 350	80 - 100	
4.0 x 350	90 - 130	

Available in packing of 10 kg box containing 10 plastic cartons of 1 kg each.



NICALLOY Fe-2

NON FERROUS (Ni Alloys)

AWS A/SFA 5.11 ENiCrFe-2

CLASSIFICATION:

ISO 14172

E Ni 6133 (NiCr16Fe12NbMo)

IS 8736

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

APPROVALS: IBR/CE

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


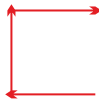
TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Fe	Ni	Cr	Nb+Ta	Mo
0.025	3.25	0.5	2.9	72.5	16.5	1.9	1.35

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		
2.5 x 350	45 - 70	 DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 350	80 - 100		
4.0 x 350	90 - 130		

Available in packing of 10 kg box containing 10 plastic cartons of 1 kg each.



NICALLOY Fe-3

NON FERROUS (Ni Alloys)

AWS A/SFA 5.11 ENiCrFe-3

CLASSIFICATION:

ISO 14172

E Ni 6182 (NiCr15Fe6Mn)

IS 8736

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

APPROVALS: IBR/CE

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
- Fabrication of Corrosion resistant tanks, Furnace components
- Applications in Refineries, Foundries, Heat exchanger, Pressure vessel manufacturing, Chemical plants


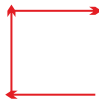
TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Fe	Ni	Ti	Cr	Nb+Ta
0.02	5.5	0.6	5.8	70	0.05	14.5	2.1

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		
2.5 x 350	45 - 70	 DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 350	80 - 100		
4.0 x 350	90 - 130		

Available in packing of 10 kg box containing 10 plastic cartons of 1 kg each.



NICALLOY Mo-3

NON FERROUS (Ni Alloys)

AWS A/SFA 5.11 ENiCrMo-3

CLASSIFICATION:

ISO 14172

E Ni 6625 (NiCr22Mo9Nb)

IS 8736

E NiCrMo-3

KEY FEATURES:

- Basic coated electrode
- Ni based high Cr-Mo-Nb deposit
- Scale resistant in low sulphur atmosphere upto 1100°C
- Positional welding capability
- For overlay applications minimum three layers must be deposited
- Application from cryogenic to 480°C

APPROVALS: IBR/CE/ABS/LRA

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

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:



C	Mn	Si	Fe	Ni	Cr	Nb+Ta	Mo
0.025	0.30	0.5	1.0	63.5	21.5	3.5	8.75

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Specification	As Welded	760 min	30 min

Impact @-196°C-50J

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	55-75	 DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 350	90-110		
4.0 x 350	100-140		
5.0 x 350	150-210		

Available in packing of 10 kg box containing 10 plastic cartons of 1 kg each.

EQUIVALENT:

GMAW	GTAW	SAW	
		Flux	Wire
Automig NiCrMo-3	Tigfil NiCrMo-3	Automelt S76	Automelt NiCrMo-3



NICALLOY Mo-4

NON FERROUS (Ni Alloys)

AWS A/SFA 5.11 ENiCrMo-4

CLASSIFICATION:

ISO 14172

E Ni 6276 (NiCr15Mo15Fe6W4)

IS 8736

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

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of alloy C-276 & similar composition steels
- Suitable for material 2.4819 (NiMo16Cr15W)
- Dissimilar joints between nickel alloys, stainless and low alloy steels
- Surfacing on low alloy steels
- Application in chemical plants with highly corrosive conditions
- For surfacing press tools, punches, forge dies, hot-stripping tools, pump rotors, valves



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Fe	Ni	Cr	Mo	W
0.019	0.6	0.17	6.0	58	15.7	16	3.5

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		
2.5 x 350	45 - 70	 DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 350	80 - 100		
4.0 x 350	90 - 130		

Available in packing of 10 kg box containing 10 plastic cartons of 1 kg each.

EQUIVALENT:

GMAW	GTAW	SAW	
		Flux	Wire
Automig NiCrMo-4	Tigfil NiCrMo-4	Automelt S76	Automelt NiCrMo-4



NICALLOY Mo-5

NON FERROUS (Ni Alloys)

AWS A/SFA 5.11 ENiCrMo-5

CLASSIFICATION:

ISO 14172

E Ni 6275 (NiCr15Mo16Fe5W3)

IS 8736

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

APPROVALS: CE

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



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Fe	Ni	Cr	Mo	W
0.03	0.6	0.2	6.0	59	15.5	15.7	3.5

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		
2.5 x 350	45 - 70	 AC (70 OCV)/DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 350	80 - 100		
4.0 x 350	90 - 130		

Available in packing of 10 kg box containing 10 plastic cartons of 1 kg each.



NICALLOY Mo-6

NON FERROUS (Ni Alloys)

AWS A/SFA 5.11 ENiCrMo-6

CLASSIFICATION:

ISO 14172

E Ni 6620 (NiCr14Mo7Fe)

IS 8736

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

APPROVALS: CE

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



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Ni	Cr	Nb+Ta	W
0.025	3.0	0.6	60	15.7	1.3	1.5

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Specification	As Welded	620 min	35 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	45 - 70	 AC (70 OCV)/DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 350	80 - 100		
4.0 x 350	90 - 130		

Available in packing of 10 kg box containing 10 plastic cartons of 1 kg each.



NICALLOY Mo-10

NON FERROUS (Ni Alloys)

AWS A/SFA 5.11 ENiCrMo-10

CLASSIFICATION:

ISO 14172

E Ni 6022 (NiCr21Mo13W3)

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

APPROVALS: CE

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


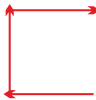
TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Fe	Ni	Cr	Mo	W
0.015	0.6	0.15	5	59	21.5	13.5	3.0

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		
2.5 x 350	45 - 70	 AC (70 OCV)/DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 350	80 - 100		
4.0 x 350	90 - 130		

Available in packing of 10 kg box containing 10 plastic cartons of 1 kg each.



NICALLOY Mo-12

NON FERROUS (Ni Alloys)

AWS A/SFA 5.11 ENiCrMo-12

CLASSIFICATION:

ISO 14172

E Ni 6627 (NiCr21MoFeNb)

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

APPROVALS: CE

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


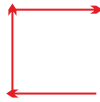
TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Fe	Ni	Nb+Ta	Mo
0.017	2.0	0.5	66.5	20.9	1.6	9.3

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Specification	As Welded	650 min	35 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	45 - 70	 AC (70 OCV)/DCEP	All Positions, except vertical Down 
3.15 x 350	80 - 100		
4.0 x 350	90 - 130		
		REDRYING CONDITION: 250-300°C for minimum 1 hr.	

Available in packing of 10 kg box containing 10 plastic cartons of 1 kg each.



NICALLOY Mo-14

NON FERROUS (Ni Alloys)

AWS A/SFA 5.11 ENiCrMo-14

CLASSIFICATION:

ISO 14172

E Ni 6686 (NiCr21Mo16W4)

KEY FEATURES:

- Basic coated non synthetic electrode
- Weld metal is of C-276 type
- Excellent corrosion resistance in reducing, oxidizing, crevice and pitting conditions
- Electrode gives smooth arc, medium penetration, uniform bead and easy slag removal
- All position welding capability

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of Nickel alloys like N06686, N06625, N10276, and N06022
- Used to join duplex, super-duplex and superaustenitic stainless steels, as well as nickel alloys
- Welding operations in chemical and petrochemical process, oil and gas, marine industries
- Used for overlay cladding of iron-base metals under corrosive environments



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Fe	Ni	Cr	Mo	W
0.015	0.6	0.21	3.1	59	21	16	3.7

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Specification	As Welded	690 min	30 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	50-70	 DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 350	70-95		
4.0 x 350	90-120		

Available in packing of 10 kg box containing 10 plastic cartons of 1 kg each.



NICALLOY Fe-7

NON FERROUS (Ni Alloys)

AWS A/SFA 5.11 ENiCrFe-7

CLASSIFICATION:

ISO 14172

E Ni 6152 (NiCr30Fe9Nb)

KEY FEATURES:

- Basic type coating
- Ni-Cr-Fe type deposit
- Higher Cr content improves resistance to Stress corrosion Cracking
- Resistance to high temperature oxidation
- All Positional welding capability
- For overlay applications minimum three layers must be deposited

TYPICAL APPLICATIONS:

- Welding of alloys of Alloy 690 type
- Overlay welding in the nuclear industry
- Welding of steam generators in nuclear power plants
- Dissimilar Joining
- Joining and surfacing high alloyed 35/45CrNi
- High temperature cast materials


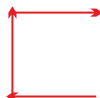
TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Fe	Ni	Cr	Nb+Ta
0.025	2.3	0.7	8.0	63.5	29.6	1.35

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		
2.5 x 350	40-60	 DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 350	60-80		
4.0 x 350	100-140		

Available in packing of 10 kg box containing 10 plastic cartons of 1 kg each.



NICALLOY NiMo-7

NON FERROUS (Ni Alloys)

AWS A/SFA 5.11 ENiMo-7

CLASSIFICATION:

ISO 14172

E Ni 1066 (NiMo28)

KEY FEATURES:

- Basic coated electrode
- High Mo content offers protection against pitting & crevice corrosion
- Normally are used only in the flat position
- Can combat corrosion especially in the chemical industry.

APPROVALS: CE

TYPICAL APPLICATIONS:

- Joining of nickel-molybdenum base metals are ASTM B 333, B 335, B 619, B 622, and B 626
- Welding the clad side of joints in steel clad with a nickel-molybdenum alloy
- Suitable for equipment handling reducing chemical environments
- Applications in the chemical process industry involving sulfuric, phosphoric and acetic acid



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Fe	Ni	Mo
0.01	0.5	0.06	1.4	70.6	27

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		
2.5 x 350	50-95	 DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
3.15 x 350	80-120		
4.0 x 350	120-160		

Available in packing of 10 kg box containing 10 plastic cartons of 1 kg each.



NICALLOY 617

NON FERROUS (Ni Alloys)

AWS A/SFA 5.11 ENiCrCoMo-1

CLASSIFICATION:

ISO 14172

E Ni 6117 (NiCr22Co12Mo)

KEY FEATURES:

- Basic coated non synthetic electrode
- Ni-Cr-Co-Mo-Fe type weld
- Resistant to hot cracking
- Optimum strength, creep and oxidation resistance above 820°C upto 1150°C in wide variety of corrosive media

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of Ni-Cr-Co-Mo type and similar grade alloys to themselves and to steel
- Incoloy 800HT, 803 and cast alloys such as HK-40, HP and HP-45 modified
- Welding of Inconel 617 alloy
- For surfacing steel with Ni-Cr-Co-Mo weld metal
- Suitable for application in ethylene production plants, gas turbines etc.
- Suitable for material 1.4958, 1.4959, 2.4663
- Aerospace industry for engine components, after burners, turbine seals, heat treating equipment and high temperature service applications



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Ni	Co	Cr	Mo	Fe
0.09	1.9	0.6	57	11.5	23.5	9.5	3.0

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Specification	As Welded	620 min	25 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
2.5 x 350	50-70	 AC (70 OCV)/DCEP All Positions, except vertical Down  REDRYING CONDITION: 250-300°C for minimum 1 hr.
3.15 x 350	70-95	
4.0 x 350	90-120	

Available in packing of 10 kg box containing 10 plastic cartons of 1 kg each.



ALBOND 5 Si

NON FERROUS (Al Alloys)

AWS A/SFA 5.3 **E4043**

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

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 & casting


TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

Si	Fe	Al
5.0	0.35	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	
2.5 x 350	60-90	 DCEP REDRYING CONDITION: Keep electrodes dry.
3.15 x 350	80-110	
4.0 x 350	110-150	

Available in packing of 10 kg box containing 10 plastic cartons of 1 kg each.



ALBOND 12 Si

NON FERROUS (Al Alloys)

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
- Deposit of 4047 type alloys

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)


TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

Si	Fe	Al
11.2	0.2	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	
2.5 x 350	60-90	 DCEP REDRYING CONDITION: Keep electrodes dry.
3.15 x 350	80-110	
4.0 x 350	110-150	

Available in packing of 10 kg box containing 10 plastic cartons of 1 kg each.



BRONZE

NON FERROUS (Cu Alloys)

AWS A/SFA 5.6 **ECuSn-A**

CLASSIFICATION:

ISO 17777

E Cu S180 (CuSn 5P)

IS 8736

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

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of Copper or Bronze to steel
- Impeller blades, Valve seats
- Brass, Galvanized iron, Malleable Iron
- Ship propellers, Bearings, Bushing
- Cast iron welding where colour match is not necessary
- Joining dissimilar metals such as mild steel to phosphorus bronze and brass



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

Cu	Sn	P
94.8	5.0	0.2

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 2.5 x 350 3.15 x 350 4.0 x 350	Amperage, A 40-70 80-110 110-160	 DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr.	All Positions, except vertical Down 
--	--	--	--

Available in packing of 10 kg box containing 10 plastic cartons of 1 kg each.



BRONZE AI-A2

NON FERROUS (Cu Alloys)

AWS A/SFA 5.6 **ECuAl-A2**

CLASSIFICATION:

ISO 17777

E Cu 6100 (CuAl 8 Fe 3)

IS 8736

E CuSn-A

KEY FEATURES:

- Copper-Aluminum electrode
- Excellent Marine Corrosion resistance
- Typical 91% Cu-9% Al deposit
- Weld Metal exhibits high strength and good ductility

APPROVALS: CE

TYPICAL APPLICATIONS:

- Joining of Aluminium Bronze
- Surfacing of Aluminium Bronze
- Joining of copper alloys to Steel and surfacing of steel
- For use in ship building, chemical and paper industries



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

Cu	Al	Fe
Bal	9.3	1.2

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Typical	As Welded	440	24
Specification		410 min	20 min

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A		
2.5 x 350	40-60	 DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr	All Positions, except vertical Down 
3.15 x 350	100-120		
4.0 x 350	120-140		

Available in packing of 10 kg box containing 10 plastic cartons of 1 kg each.



BRONZE NiAl

NON FERROUS (Cu Alloys)

SFA 5.6 **ECuNiAl**

CLASSIFICATION:

ISO 17777

E Cu 6328 (CuAl 9 Ni 5 Fe 4 Mn2)

KEY FEATURES:

- Copper-Nickel-Aluminium electrode
- Excellent resistance to corrosion, erosion, and cavitation in salt or brackish water
- Good suitability for simultaneous stress strain caused by seawater, cavitation and erosion

APPROVALS: CE

TYPICAL APPLICATIONS:

- Joining and rebuilding of cast and wrought nickelaluminium bronze materials
- Weld cladding on cast iron materials and steel
- Application include ship fittings, ship propellers, power plant valves, piping systems, intake screens, oil recovery pumps and propeller gear housings
- For use in ship building, chemical and paper industries


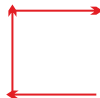
TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

Mn	Fe	Si	Ni+Co	Al	Cu+Ag
2.5	4.0	1.2	5	9.1	Bal

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%	Hardness, HV
Specification	As Welded	500 min	10 min	163-205

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	
2.5 x 350	40-60	 DCEP All Positions, except vertical Down  REDRYING CONDITION: 250-300°C for minimum 1 hr
3.15 x 350	100-120	
4.0 x 350	110-140	

Available in packing of 10 kg box containing 10 plastic cartons of 1 kg each.



SUPER CuNi

NON FERROUS (Ni Alloys)

AWS A/SFA 5.6 **ECuNi**

CLASSIFICATION:

ISO 17777

E Cu 7158 (CuNi30Mn2FeTi)

KEY FEATURES:

- Typical 70Cu-30Ni type weld deposit
- Easy slag removal
- Shiny and uniform bead
- Crack resistant weld
- No preheating required
- Weld deposit resistant to sea water

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of wrought and cast 70/30, 80/20, 90/10 Copper-Nickel alloys to themselves or to each other
- Welding of Copper-Nickel alloys of up to 30% Ni
- Clad side of copper-nickel clad steels
- Surfacing applications where high resistance to corrosion, erosion or cavitation is required
- Ship building, food industries, desalinization plants, refrigerators, heat exchangers



TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

Mn	Si	Fe	Ni	Cu
1.7	0.3	0.65	31.5	68.5

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%	Hardness, HBS
Specification	As Welded	350 min	20 min	60-80

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	 DCEP REDRYING CONDITION: 250-300°C for minimum 1 hr	All Positions, except vertical Down 
2.5 x 350	60-80		
3.15 x 350	90-100		
4.0 x 350	110-130		

Available in packing of 10 kg box containing 10 plastic cartons of 1 kg each.



CAG 9900

GOUGING and CUTTING


KEY FEATURES:

- Special electrode with high blowing effect
- Produce hot exothermic penetrating arc
- Molten metal is blown away quickly
- Provides good visibility
- The cut is smooth, molten and blown away material can be removed easily
- Does not damage the metal structure

TYPICAL APPLICATIONS:

- For chamfering, gouging and making grooves in all conductive metals
- For removing defective welds and rivets without using oxyacetylene and compressed air
- Removing flashers and risers in foundry castings
- For bevelling cracks in machine frames without dismantling
- Cutting of metal parts on building sites

PARAMETERS - PACKING DATA:

\varnothing x L, mm	Amperage, A	 AC/DCEP
3.15 x 450	250-350	
4.0 x 450	300-400	
5.0 x 450	350-500	

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each.



CAG 9901

GOUGING and CUTTING


KEY FEATURES:

- Cutting electrode with special coating
- Special coating gives a stable arc during the cutting or piercing process
- The kerfs are clean and narrow
- Suitable for all positions
- Produce negligible slag

TYPICAL APPLICATIONS:

- Cutting and piercing of steel, cast iron, copper materials, aluminium
- Excellent for burning rivets
- Dismantling work at sites
- Cutting out unwanted metal in foundry castings
- Oxyacetylene or compressed air need not be used

PARAMETERS - PACKING DATA:

Ø x L, mm	Amperage, A	 AC/DCEP
3.15 x 450	150-250	
4.0 x 450	200-300	
5.0 x 450	250-400	

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each.



CAG 9905

HIGH EFFICIENCY CUTTING AND GOUGING ELECTRODE

KEY FEATURES:

- Forceful penetrating arc with low smoke
- Retains arc force till the end of electrode
- Narrow kerfs, smooth & clean cuts
- Molten and blown away material can be removed easily
- Being SMAW electrode, compressed air is not relevant

TYPICAL APPLICATIONS:

- Cutting and piercing of mild & low alloyed steels, cast iron
- Excellent for burning rivets
- Dismantling work at sites, Removal of defective welds and rivets
- For cutting out flashers, risers and unwanted metal in foundry castings
- Back gouging of root runs
- For chamfering, gouging and making grooves in all conductive metals
- For bevelling cracks in machine frames without dismantling
- Cutting of metal parts on building sites

PROCEDURE:


For Cutting:

After striking the arc, swing the arc back and forth as in sawing. Maintain the motion and at the same time dig the arc deeper and deeper into the metal. For piercing holes, push the arc in and out until the metal is pierced.

For Gouging:

The electrode is inclined to the surface at a 35° angle. The arc is pushed deeper and forward to drive the molten metal onwards. For deeper groove, repeat procedure in stages until the required depth is reached.

PARAMETERS - PACKING DATA:

Ø x L, mm	Cutting	Gouging	 AC/DCEP/DCEN
	Amperage, A	Amperage, A	
4.0 x 450	160-250	140-220	
5.0 x 450	170-300	150-280	

Available in Standard carton packing of 20 kg box containing 4 cartons of 5 kg each.



Item Code Welding Consumables

Section II



ITEM CODE

WELDING ELECTRODES

Product Name	Classification	Diameter (mm)	Length (mm)	Net Wt/Box	Item Code
Maxbond	E6012	2.5	350	20	WCE.GN.005.2503
Maxbond	E6012	3.15	350	20	WCE.GN.005.3153
Maxbond	E6012	3.15	450	20	WCE.GN.005.3154
Maxbond	E6012	4	450	20	WCE.GN.005.4004
Maxbond	E6012	5	450	20	WCE.GN.005.5004
Superbond	E6013	2.5	350	20	WCE.GN.001.2503
Superbond	E6013	3.15	350	20	WCE.GN.001.3153
Superbond	E6013	3.15	450	20	WCE.GN.001.3154
Superbond	E6013	4	450	20	WCE.GN.001.4004
Superbond	E6013	5	450	20	WCE.GN.001.5004
Superbond S	E6013	1.6	250	16	WCE.GN.002.1601
Superbond S	E6013	2	300	20	WCE.GN.002.2002
Superbond S	E6013	2.5	350	20	WCE.GN.002.2503
Superbond S	E6013	3.15	350	20	WCE.GN.002.3153
Superbond S	E6013	3.15	450	20	WCE.GN.002.3154
Superbond S	E6013	4	450	20	WCE.GN.002.4004
Superbond S	E6013	5	450	20	WCE.GN.002.5004
Superbond SS	E6013	2.5	350	20	WCE.GN.004.2503
Superbond SS	E6013	3.15	450	20	WCE.GN.004.3154
Superbond SS	E6013	4	450	20	WCE.GN.004.4004
Superbond SS	E6013	5	450	20	WCE.GN.004.5004
Kingbond	E6013	2.5	350	15	WCE.GN.012.2503
Kingbond	E6013	3.15	450	19	WCE.GN.012.3154
Kingbond	E6013	4	450	19.35	WCE.GN.012.4004
Kingbond	E6013	5	450	20	WCE.GN.012.5004
Kingbond S	E6013	2.5	350	16.5	WCE.GN.016.2503
Kingbond S	E6013	3.15	350	15.5	WCE.GN.016.3153
Kingbond S	E6013	3.15	450	20	WCE.GN.016.3154
Kingbond S	E6013	4	450	20.25	WCE.GN.016.4004
Kingbond S	E6013	5	450	20.25	WCE.GN.016.5004
Metalbond	E6013	2.5	350	20	WCE.GN.006.2503
Metalbond	E6013	3.15	350	20	WCE.GN.006.3153
Metalbond	E6013	3.15	450	20	WCE.GN.006.3154
Metalbond	E6013	4	450	20	WCE.GN.006.4004
Metalbond	E6013	5	450	20	WCE.GN.006.5004



ITEM CODE

WELDING ELECTRODES

Product Name	Classification	Diameter (mm)	Length (mm)	Net Wt/Box	Item Code
X Bond	E7018	2.5	350	20	WCE.MN.025.2503
X Bond	E7018	3.15	450	20	WCE.MN.025.3154
X Bond	E7018	4	450	20	WCE.MN.025.4004
X Bond	E7018	5	450	20	WCE.MN.025.5004
Supabase	E7018	2.5	350	20	WCE.MN.001.2503
Supabase	E7018	3.15	450	20	WCE.MN.001.3154
Supabase	E7018	4	450	20	WCE.MN.001.4004
Supabase	E7018	5	450	20	WCE.MN.001.5004
Supabase X Plus	E7018	2.5	350	20	WCE.MN.003.2503
Supabase X Plus	E7018	3.15	450	20	WCE.MN.003.3154
Supabase X Plus	E7018	4	450	20	WCE.MN.003.4004
Supabase X Plus	E7018	5	450	20	WCE.MN.003.5004
Supabase X Plus	E7018	6.3	450	20	WCE.MN.003.6304
Tenalloy Z Plus	E7018-1	2.5	350	20	WCE.MN.016.2503
Tenalloy Z Plus	E7018-1	3.15	450	20	WCE.MN.016.3154
Tenalloy Z Plus	E7018-1	4	450	20	WCE.MN.016.4004
Tenalloy Z Plus	E7018-1	5	450	20	WCE.MN.016.5004
Tenalloy S Plus	E7018-1	2.5	350	20	WCE.MN.019.2503
Tenalloy S Plus	E7018-1	3.15	450	20	WCE.MN.019.3154
Tenalloy S Plus	E7018-1	4	450	20	WCE.MN.019.4004
Tenalloy S Plus	E7018-1	5	450	20	WCE.MN.019.5004
Tenalloy HH Spl	E7018-1	2.5	350	20	WCE.LN.023.2503
Tenalloy HH Spl	E7018-1	3.15	450	20	WCE.LN.023.3154
Tenalloy HH Spl	E7018-1	4	450	20	WCE.LN.023.4004
Tenalloy HH Spl	E7018-1	5	450	20	WCE.LN.023.5004
Tenalloy R	E7018-G	2.5	350	20	WCE.MN.021.2503
Tenalloy R	E7018-G	3.15	450	20	WCE.MN.021.3154
Tenalloy R	E7018-G	4	450	20	WCE.MN.021.4004
Tenalloy R	E7018-G	5	450	20	WCE.MN.021.5004
Tenalloy 38R Spl	E7018-G	2.5	350	20	WCE.LN.053.2503
Tenalloy 38R Spl	E7018-G	3.15	450	20	WCE.LN.053.3154
Tenalloy 38R Spl	E7018-G	4	450	20	WCE.LN.053.4004
Tenalloy 38R Spl	E7018-G	5	450	20	WCE.LN.053.5004



ITEM CODE

WELDING ELECTRODES

Product Name	Classification	Diameter (mm)	Length (mm)	Net Wt/Box	Item Code
Tenalloy 16	E7016	2.5	350	20	WCE.LN.001.2503
Tenalloy 16	E7016	3.15	450	20	WCE.LN.001.3154
Tenalloy 16	E7016	4	450	20	WCE.LN.001.4004
Tenalloy 16	E7016	5	450	20	WCE.LN.001.5004
Tenalloy 16W	E7016	2.5	350	20	WCE.LN.003.2503
Tenalloy 16W	E7016	3.15	450	20	WCE.LN.003.3154
Tenalloy 16W	E7016	4	450	20	WCE.LN.003.4004
Tenalloy 16W	E7016	5	450	20	WCE.LN.003.5004
Tenalloy 16G	E7016-G	2.5	350	20	WCE.LN.004.2503
Tenalloy 16G	E7016-G	3.15	450	20	WCE.LN.004.3154
Tenalloy 16G	E7016-G	4	450	20	WCE.LN.004.4004
Tenalloy 16G	E7016-G	5	450	20	WCE.LN.004.5004
Tenalloy 16 Spl	E7016-1	2.5	350	20	WCE.MN.023.2503
Tenalloy 16 Spl	E7016-1	3.15	450	20	WCE.MN.023.3154
Tenalloy 16 Spl	E7016-1	4	450	20	WCE.MN.023.4004
Tenalloy 16 Spl	E7016-1	5	450	20	WCE.MN.023.5004
Topstar	E6020	2.5	350	20	WCE.MN.009.2503
Topstar	E6020	3.15	450	20	WCE.MN.009.3154
Topstar	E6020	4	450	20	WCE.MN.009.4004
Topstar	E6020	5	450	20	WCE.MN.009.5004
Silox Fe	-	3.15	450	20	WCE.MN.007.3154
Silox Fe	-	4	450	20	WCE.MN.007.4004
Silox Fe	-	5	450	20	WCE.MN.007.5004
Silox Fe LH	-	3.15	450	20	WCE.MN.008.3154
Silox Fe LH	-	4	450	20	WCE.MN.008.4004
Silox Fe LH	-	5	450	20	WCE.MN.008.5004
Celwel 60	E6010	2.5	350	18	WCE.CN.001.2503
Celwel 60	E6010	3.15	350	18	WCE.CN.001.3153
Celwel 60	E6010	4	350	18	WCE.CN.001.4003
Celwel 60	E6010	5	350	18	WCE.CN.001.5003
Celwel 60S	E6011	2.5	350	18	WCE.CN.004.2503
Celwel 60S	E6011	3.15	350	18	WCE.CN.004.3153
Celwel 60S	E6011	4	350	18	WCE.CN.004.4003
Celwel 60S	E6011	5	350	18	WCE.CN.004.5003



ITEM CODE

WELDING ELECTRODES

Product Name	Classification	Diameter (mm)	Length (mm)	Net Wt/Box	Item Code
Celwel 70G	E7010-G	2.5	350	18	WCE.CN.002.2503
Celwel 70G	E7010-G	3.15	350	18	WCE.CN.002.3153
Celwel 70G	E7010-G	4	350	18	WCE.CN.002.4003
Celwel 70G	E7010-G	5	350	18	WCE.CN.002.5003
Celwel 70P	E7010-P1	2.5	350	18	WCE.CN.005.2503
Celwel 70P	E7010-P1	3.15	350	18	WCE.CN.005.3153
Celwel 70P	E7010-P1	4	350	18	WCE.CN.005.4003
Celwel 70P	E7010-P1	5	350	18	WCE.CN.005.5003
Celwel 80G	E8010-G	2.5	350	18	WCE.CN.003.2503
Celwel 80G	E8010-G	3.15	350	18	WCE.CN.003.3153
Celwel 80G	E8010-G	4	350	18	WCE.CN.003.4003
Celwel 80G	E8010-G	5	350	18	WCE.CN.003.5003
Celwel 80P	E8010-P1	2.5	350	18	WCE.CN.006.2503
Celwel 80P	E8010-P1	3.15	350	18	WCE.CN.006.3153
Celwel 80P	E8010-P1	4	350	18	WCE.CN.006.4003
Celwel 80P	E8010-P1	5	350	18	WCE.CN.006.5003
Molyten	E7018-A1	2.5	350	20	WCE.LN.024.2503
Molyten	E7018-A1	3.15	450	20	WCE.LN.024.3154
Molyten	E7018-A1	4	450	20	WCE.LN.024.4004
Molyten	E7018-A1	5	450	20	WCE.LN.024.5004
Cromoten 1	E 8018-B1	2.5	350	20	WCE.LN.076.2503
Cromoten 1	E 8018-B1	3.15	450	20	WCE.LN.076.3154
Cromoten 1	E 8018-B1	4	450	20	WCE.LN.076.4004
Cromoten 1	E 8018-B1	5	450	20	WCE.LN.076.5004
Cromoten	E 8018-B2	2.5	350	20	WCE.LN.027.2503
Cromoten	E 8018-B2	3.15	350	20	WCE.LN.027.3153
Cromoten	E 8018-B2	3.15	450	20	WCE.LN.027.3154
Cromoten	E 8018-B2	4	350	20	WCE.LN.027.4003
Cromoten	E 8018-B2	4	450	20	WCE.LN.027.4004
Cromoten	E 8018-B2	5	450	20	WCE.LN.027.5004
Cromoten STC	E 8018-B2	2.5	350	20	WCE.LN.071.2503
Cromoten STC	E 8018-B2	3.15	450	20	WCE.LN.071.3154
Cromoten STC	E 8018-B2	4	450	20	WCE.LN.071.4004
Cromoten STC	E 8018-B2	5	450	20	WCE.LN.071.5004



ITEM CODE

WELDING ELECTRODES

Product Name	Classification	Diameter (mm)	Length (mm)	Net Wt/Box	Item Code
Cromoten S Plus	E7018-B2L	2.5	350	20	WCE.LN.031.2503
Cromoten S Plus	E7018-B2L	3.15	450	20	WCE.LN.031.3154
Cromoten S Plus	E7018-B2L	4	450	20	WCE.LN.031.4004
Cromoten S Plus	E7018-B2L	5	450	20	WCE.LN.031.5004
Cromoten C	E9018-B3	2.5	350	20	WCE.LN.034.2503
Cromoten C	E9018-B3	3.15	350	20	WCE.LN.034.3153
Cromoten C	E9018-B3	3.15	450	20	WCE.LN.034.3154
Cromoten C	E9018-B3	4	350	20	WCE.LN.034.4003
Cromoten C	E9018-B3	4	450	20	WCE.LN.034.4004
Cromoten C	E9018-B3	5	450	20	WCE.LN.034.5004
Cromoten 2 STC	E9018-B3	2.5	350	20	WCE.LN.072.2503
Cromoten 2 STC	E9018-B3	3.15	450	20	WCE.LN.072.3154
Cromoten 2 STC	E9018-B3	4	450	20	WCE.LN.072.4004
Cromoten 2 STC	E9018-B3	5	450	20	WCE.LN.072.5004
Cromoten C S Plus	E8018-B3L	2.5	350	20	WCE.LN.037.2503
Cromoten C S Plus	E8018-B3L	3.15	450	20	WCE.LN.037.3154
Cromoten C S Plus	E8018-B3L	4	450	20	WCE.LN.037.4004
Cromoten C S Plus	E8018-B3L	5	450	20	WCE.LN.037.5004
Cromoten D	E8018-B6	2.5	350	20	WCE.LN.038.2503
Cromoten D	E8018-B6	3.15	450	20	WCE.LN.038.3154
Cromoten D	E8018-B6	4	450	20	WCE.LN.038.4004
Cromoten D	E8018-B6	5	450	20	WCE.LN.038.5004
Cromoten D S Plus	E8018-B6L	2.5	350	20	WCE.LN.040.2503
Cromoten D S Plus	E8018-B6L	3.15	450	20	WCE.LN.040.3154
Cromoten D S Plus	E8018-B6L	4	450	20	WCE.LN.040.4004
Cromoten D S Plus	E8018-B6L	5	450	20	WCE.LN.040.5004
Cromoten 9	E8018-B8	2.5	350	20	WCE.LN.052.2503
Cromoten 9	E8018-B8	3.15	350	20	WCE.LN.052.3153
Cromoten 9	E8018-B8	4	350	20	WCE.LN.052.4003
Cromoten 9	E8018-B8	5	450	20	WCE.LN.052.5004
Cromoten 9L	E8018-B8L	2.5	350	20	WCE.LN.073.2503
Cromoten 9L	E8018-B8L	3.15	350	20	WCE.LN.073.3153
Cromoten 9L	E8018-B8L	4	350	20	WCE.LN.073.4003
Cromoten 9L	E8018-B8L	5	450	20	WCE.LN.073.5004



ITEM CODE

WELDING ELECTRODES

Product Name	Classification	Diameter (mm)	Length (mm)	Net Wt/Box	Item Code
Cromoten 9M	E9018-B91	2.5	350	20	WCE.LN.051.2503
Cromoten 9M	E9018-B91	3.15	350	20	WCE.LN.051.3153
Cromoten 9M	E9018-B91	4	350	20	WCE.LN.051.4003
Cromoten 9M	E9018-B91	5	450	20	WCE.LN.051.5004
Cromoten 9M-15	E9015-B91	2.5	350	20	WCE.LN.066.2503
Cromoten 9M-15	E9015-B91	3.15	350	20	WCE.LN.066.3153
Cromoten 9M-15	E9015-B91	4	350	20	WCE.LN.066.4003
Cromoten 9M-15	E9015-B91	5	450	20	WCE.LN.066.5004
Cromoten V	E8013-G	2.5	350	20	WCE.LN.032.2503
Cromoten V	E8013-G	3.15	450	20	WCE.LN.032.3154
Cromoten V	E8013-G	4	450	20	WCE.LN.032.4004
Cromoten V	E8013-G	5	450	20	WCE.LN.032.5004
Cromoten Ti	E8013-G	2.5	350	20	WCE.LN.028.2503
Cromoten Ti	E8013-G	3.15	450	20	WCE.LN.028.3154
Cromoten Ti	E8013-G	4	450	20	WCE.LN.028.4004
Cromoten Ti	E8013-G	5	450	20	WCE.LN.028.5004
Cromoten C Ti	E9013-G	2.5	350	20	WCE.LN.035.2503
Cromoten C Ti	E9013-G	3.15	450	20	WCE.LN.035.3154
Cromoten C Ti	E9013-G	4	450	20	WCE.LN.035.4004
Cromoten C Ti	E9013-G	5	450	20	WCE.LN.035.5004
Cromoten 92	E9018-B92	2.5	350	20	-
Cromoten 92	E9018-B92	3.15	350	20	-
Cromoten 92	E9018-B92	4	350	20	-
Cromoten 92	E9018-B92	5	450	20	-
Tenalloy 70A	E8018-C1	2.5	350	20	WCE.LN.012.2503
Tenalloy 70A	E8018-C1	3.15	450	20	WCE.LN.012.3154
Tenalloy 70A	E8018-C1	4	450	20	WCE.LN.012.4004
Tenalloy 70A	E8018-C1	5	450	20	WCE.LN.012.5004
Tenalloy 70B	E8018-C2	2.5	350	20	WCE.LN.013.2503
Tenalloy 70B	E8018-C2	3.15	450	20	WCE.LN.013.3154
Tenalloy 70B	E8018-C2	4	450	20	WCE.LN.013.4004
Tenalloy 70B	E8018-C2	5	450	20	WCE.LN.013.5004



ITEM CODE

WELDING ELECTRODES

Product Name	Classification	Diameter (mm)	Length (mm)	Net Wt/Box	Item Code
Tenalloy 70BL	E7018-C2L	2.5	350	20	WCE.LN.014.2503
Tenalloy 70BL	E7018-C2L	3.15	450	20	WCE.LN.014.3154
Tenalloy 70BL	E7018-C2L	4	450	20	WCE.LN.014.4004
Tenalloy 70BL	E7018-C2L	5	450	20	WCE.LN.014.5004
Tenalloy 70C	E8018-C3	2.5	350	20	WCE.LN.015.2503
Tenalloy 70C	E8018-C3	3.15	450	20	WCE.LN.015.3154
Tenalloy 70C	E8018-C3	4	450	20	WCE.LN.015.4004
Tenalloy 70C	E8018-C3	5	450	20	WCE.LN.015.5004
Tenalloy 70CL	E7018-C3L	2.5	350	20	WCE.LN.068.2503
Tenalloy 70CL	E7018-C3L	3.15	450	20	WCE.LN.068.3154
Tenalloy 70CL	E7018-C3L	4	450	20	WCE.LN.068.4004
Tenalloy 70CL	E7018-C3L	5	450	20	WCE.LN.068.5004
Tenalloy 55	E8018-G	2.5	350	20	WCE.LN.005.2503
Tenalloy 55	E8018-G	3.15	450	20	WCE.LN.005.3154
Tenalloy 55	E8018-G	4	450	20	WCE.LN.005.4004
Tenalloy 55	E8018-G	5	450	20	WCE.LN.005.5004
Tenalloy 60	E8018-G	2.5	350	20	WCE.LN.007.2503
Tenalloy 60	E8018-G	3.15	450	20	WCE.LN.007.3154
Tenalloy 60	E8018-G	4	450	20	WCE.LN.007.4004
Tenalloy 60	E8018-G	5	450	20	WCE.LN.007.5004
Tenalloy 16E Spl	E8016-G	2.5	350	20	WCE.LR.067.2503
Tenalloy 16E Spl	E8016-G	3.15	450	20	WCE.LR.067.3154
Tenalloy 16E Spl	E8016-G	4	450	20	WCE.LR.067.4004
Tenalloy 16E Spl	E8016-G	5	450	20	WCE.LR.067.5004
Tenalloy 60D3	E8018-D3	2.5	350	20	WCE.LN.046.2503
Tenalloy 60D3	E8018-D3	3.15	450	20	WCE.LN.046.3154
Tenalloy 60D3	E8018-D3	4	450	20	WCE.LN.046.4004
Tenalloy 60D3	E8018-D3	5	450	20	WCE.LN.046.5004
Tenalloy 80P2	E8045-P2 H4R	2.5	350	20	WCE.LN.077.2503
Tenalloy 80P2	E8045-P2 H4R	3.15	450	20	WCE.LN.077.3154
Tenalloy 80P2	E8045-P2 H4R	4	450	20	WCE.LN.077.4004
Tenalloy 80P2	E8045-P2 H4R	5	450	20	WCE.LN.077.5004



ITEM CODE

WELDING ELECTRODES

Product Name	Classification	Diameter (mm)	Length (mm)	Net Wt/Box	Item Code
Tenalloy 90P2	E9045-P2 H4R	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
Tenalloy 70D1	E9018-D1	2.5	350	20	WCE.LN.016.2503
Tenalloy 70D1	E9018-D1	3.15	450	20	WCE.LN.016.3154
Tenalloy 70D1	E9018-D1	4	450	20	WCE.LN.016.4004
Tenalloy 70D1	E9018-D1	5	450	20	WCE.LN.016.5004
Tenalloy 90D3	E9018-D3	-	-	20	
-	-	-	-	-	
-	-	-	-	-	
-	-	-	-	-	
Tenalloy 65	E9018-G	2.5	350	20	WCE.LN.008.2503
Tenalloy 65	E9018-G	3.15	450	20	WCE.LN.008.3154
Tenalloy 65	E9018-G	4	450	20	WCE.LN.008.4004
Tenalloy 65	E9018-G	5	450	20	WCE.LN.008.5004
Tenalloy 65 Spl	E9018-G	2.5	350	20	WCE.LN.010.2503
Tenalloy 65 Spl	E9018-G	3.15	450	20	WCE.LN.010.3154
Tenalloy 65 Spl	E9018-G	4	450	20	WCE.LN.010.4004
Tenalloy 65 Spl	E9018-G	5	450	20	WCE.LN.010.5004
Tenalloy 70	E9018-G	2.5	350	20	WCE.LN.011.2503
Tenalloy 70	E9018-G	3.15	450	20	WCE.LN.011.3154
Tenalloy 70	E9018-G	4	450	20	WCE.LN.011.4004
Tenalloy 70	E9018-G	5	450	20	WCE.LN.011.5004
Tenalloy 75D2	E10018-D2	2.5	350	20	WCE.LN.018.2503
Tenalloy 75D2	E10018-D2	3.15	450	20	WCE.LN.018.3154
Tenalloy 75D2	E10018-D2	4	450	20	WCE.LN.018.4004
Tenalloy 75D2	E10018-D2	5	450	20	WCE.LN.018.5004
Tenalloy 75	E10018-M	2.5	350	20	WCE.LN.017.2503
Tenalloy 75	E10018-M	3.15	450	20	WCE.LN.017.3154
Tenalloy 75	E10018-M	4	450	20	WCE.LN.017.4004
Tenalloy 75	E10018-M	5	450	20	WCE.LN.017.5004



ITEM CODE

WELDING ELECTRODES

Product Name	Classification	Diameter (mm)	Length (mm)	Net Wt/Box	Item Code
Tenalloy 75G	E10018-G	2.5	350	20	WCE.LN.070.2503
Tenalloy 75G	E10018-G	3.15	450	20	WCE.LN.070.3154
Tenalloy 75G	E10018-G	4	450	20	WCE.LN.070.4004
Tenalloy 75G	E10018-G	5	450	20	WCE.LN.070.5004
Tenalloy 80	E11018-M	2.5	350	20	WCE.LN.019.2503
Tenalloy 80	E11018-M	3.15	450	20	WCE.LN.019.3154
Tenalloy 80	E11018-M	4	450	20	WCE.LN.019.4004
Tenalloy 80	E11018-M	5	450	20	WCE.LN.019.5004
Tenalloy 80HH Spl	E11018-M	2.5	350	20	WCE.LN.020.2503
Tenalloy 80HH Spl	E11018-M	3.15	450	20	WCE.LN.020.3154
Tenalloy 80HH Spl	E11018-M	4	450	20	WCE.LN.020.4004
Tenalloy 80HH Spl	E11018-M	5	450	20	WCE.LN.020.5004
Tenalloy 110	E11018-G H4R	2.5	350	20	WCE.LN.074.2503
Tenalloy 110	E11018-G H4R	3.15	450	20	WCE.LN.074.3154
Tenalloy 110	E11018-G H4R	4	450	20	WCE.LN.074.4004
Tenalloy 110	E11018-G H4R	5	450	20	WCE.LN.074.5004
Tenalloy 120	E12018-M	2.5	350	20	WCE.LN.081.2503
Tenalloy 120	E12018-M	3.15	450	20	WCE.LN.081.3154
Tenalloy 120	E12018-M	4	450	20	WCE.LN.081.4004
Tenalloy 120	E12018-M	5	450	20	WCE.LN.081.5004
Tenalloy 120G	E12018-G	2.5	350	20	WCE.LN.079.2503
Tenalloy 120G	E12018-G	3.15	450	20	WCE.LN.079.3154
Tenalloy 120G	E12018-G	4	450	20	WCE.LN.079.4004
Tenalloy 120G	E12018-G	5	450	20	WCE.LN.079.5004
Tenalloy 4130	-	2.5	350	20	WCE.LN.047.2503
Tenalloy 4130	-	3.15	450	20	WCE.LN.047.3154
Tenalloy 4130	-	4	450	20	WCE.LN.047.4004
Tenalloy 4130	-	5	450	20	WCE.LN.047.5004
Tenalloy 125	-	2.5	350	20	WCE.LN.059.2503
Tenalloy 125	-	3.15	450	20	WCE.LN.059.3154
Tenalloy 125	-	4	450	20	WCE.LN.059.4004
Tenalloy 125	-	5	450	20	WCE.LN.059.5004
Nimoten	E9018-M	2.5	350	20	WCE.LN.041.2503
Nimoten	E9018-M	3.15	450	20	WCE.LN.041.3154
Nimoten	E9018-M	4	450	20	WCE.LN.041.4004
Nimoten	E9018-M	5	450	20	WCE.LN.041.5004



ITEM CODE

WELDING ELECTRODES

Product Name	Classification	Diameter (mm)	Length (mm)	Net Wt/Box	Item Code
Nimoten Plus	-	2.5	350	20	WCE.LN.042.2503
Nimoten Plus	-	3.15	450	20	WCE.LN.042.3154
Nimoten Plus	-	4	450	20	WCE.LN.042.4004
Nimoten Plus	-	5	450	20	WCE.LN.042.5004
Nimoten Plus 535	-	2.5	350	20	WCE.LN.048.2503
Nimoten Plus 535	-	3.15	450	20	WCE.LN.048.3154
Nimoten Plus 535	-	4	450	20	WCE.LN.048.4004
Nimoten Plus 535	-	5	450	20	WCE.LN.048.5004
Nimoten Plus 535 A	-	2.5	350	20	WCE.LN.049.2503
Nimoten Plus 535 A	-	3.15	450	20	WCE.LN.049.3154
Nimoten Plus 535 A	-	4	450	20	WCE.LN.049.4004
Nimoten Plus 535 A	-	5	450	20	WCE.LN.049.5004
Ultracorten I	E7018-W1	2.5	350	20	WCE.LN.043.2503
Ultracorten I	E7018-W1	3.15	450	20	WCE.LN.043.3154
Ultracorten I	E7018-W1	4	450	20	WCE.LN.043.4004
Ultracorten I	E7018-W1	5	450	20	WCE.LN.043.5004
Ultracorten III	E8018-W2	2.5	350	20	WCE.LN.045.2503
Ultracorten III	E8018-W2	3.15	450	20	WCE.LN.045.3154
Ultracorten III	E8018-W2	4	450	20	WCE.LN.045.4004
Ultracorten III	E8018-W2	5	450	20	WCE.LN.045.5004
Austomang 209	E209-16	2.5	350	10	WCE.SN.098.2503
Austomang 209	E209-16	3.15	350	10	WCE.SN.098.3153
Austomang 209	E209-16	4	350	10	WCE.SN.098.4003
Austomang 209	E209-16	5	350	10	WCE.SN.098.5003
Austomang 219	E219-16	-	-	-	-
Austomang 219	E219-16	-	-	-	-
Austomang 219	E219-16	-	-	-	-
Austomang 219	E219-16	-	-	-	-
Austomang 240	E240-16	2.5	350	10	WCE.SN.095.2503
Austomang 240	E240-16	3.15	350	10	WCE.SN.095.3153
Austomang 240	E240-16	4	350	10	WCE.SN.095.4003
Austomang 240	E240-16	5	350	10	WCE.SN.095.5003



ITEM CODE

WELDING ELECTRODES

Product Name	Classification	Diameter (mm)	Length (mm)	Net Wt/Box	Item Code
Austomang 307	E307-16	2.5	350	10	WCE.SN.102.2503
Austomang 307	E307-16	3.15	350	10	WCE.SN.102.3153
Austomang 307	E307-16	4	350	10	WCE.SN.102.4003
Austomang 307	E307-16	5	350	10	WCE.SN.102.5003
Superinox 1A	E308-16	2	300	10	WCE.SN.029.2002
Superinox 1A	E308-16	2.5	350	10	WCE.SN.029.2503
Superinox 1A	E308-16	3.15	350	10	WCE.SN.029.3153
Superinox 1A	E308-16	4	350	10	WCE.SN.029.4003
Superinox 1A	E308-16	5	350	10	WCE.SN.029.5003
Superinox 1AH	E308H-16	2.5	350	10	WCE.SN.041.2503
Superinox 1AH	E308H-16	3.15	350	10	WCE.SN.041.3153
Superinox 1AH	E308H-16	4	350	10	WCE.SN.041.4003
Superinox 1AH	E308H-16	5	350	10	WCE.SN.041.5003
King Stainless 308L	-	2.5	350	10	WCE.SN.088.2503
King Stainless 308L	-	3.15	350	10	WCE.SN.088.3153
King Stainless 308L	-	4	350	10	WCE.SN.088.4003
King Stainless 308L	-	5	350	10	WCE.SN.088.5003
Striker 308L	E308L-16	2.5	350	10	WCE.SN.110.2503
Striker 308L	E308L-16	3.15	350	10	WCE.SN.110.3153
Striker 308L	E308L-16	4	350	10	WCE.SN.110.4003
King Steel	-	2.5	350	10	WCE.SN.109.2503
King Steel	-	3.15	350	10	WCE.SN.109.3153
King Steel	-	4	350	10	WCE.SN.109.4003
Superinox 1C	E308L-16	1.6	250	5	WCE.SN.031.1601
Superinox 1C	E308L-16	2	300	10	WCE.SN.031.2002
Superinox 1C	E308L-16	2.5	350	10	WCE.SN.031.2503
Superinox 1C	E308L-16	3.15	350	10	WCE.SN.031.3153
Superinox 1C	E308L-16	4	350	10	WCE.SN.031.4003
Superinox 1C	E308L-16	5	350	10	WCE.SN.031.5003
Superinox 1C-15 LT	E308L-15	2.5	350	10	WCE.SN.040.2503
Superinox 1C-15 LT	E308L-15	3.15	350	10	WCE.SN.040.3153
Superinox 1C-15 LT	E308L-15	4	350	10	WCE.SN.040.4003
Superinox 1C-15 LT	E308L-15	5	350	10	WCE.SN.040.5003



ITEM CODE

WELDING ELECTRODES

Product Name	Classification	Diameter (mm)	Length (mm)	Net Wt/Box	Item Code
Betanox 308L Plus	E308L-17	2.5	350	10	WCE.SN.019.2503
Betanox 308L Plus	E308L-17	3.15	350	10	WCE.SN.019.3153
Betanox 308L Plus	E308L-17	4	350	10	WCE.SN.019.4003
Betanox 308L Plus	E308L-17	5	350	10	WCE.SN.019.5003
Superinox 2A	E316-16	2	300	10	WCE.SN.032.2002
Superinox 2A	E316-16	2.5	350	10	WCE.SN.032.2503
Superinox 2A	E316-16	3.15	350	10	WCE.SN.032.3153
Superinox 2A	E316-16	4	350	10	WCE.SN.032.4003
Superinox 2A	E316-16	5	350	10	WCE.SN.032.5003
Betanox 316 Plus	E316-17	2.5	350	10	WCE.SN.020.2503
Betanox 316 Plus	E316-17	3.15	350	10	WCE.SN.020.3153
Betanox 316 Plus	E316-17	4	350	10	WCE.SN.020.4003
Betanox 316 Plus	E316-17	5	350	10	WCE.SN.020.5003
Superinox 2C	E316L-16	1.6	250	5	WCE.SN.034.1601
Superinox 2C	E316L-16	2	300	10	WCE.SN.034.2002
Superinox 2C	E316L-16	2.5	350	10	WCE.SN.034.2503
Superinox 2C	E316L-16	3.15	350	10	WCE.SN.034.3153
Superinox 2C	E316L-16	4	350	10	WCE.SN.034.4003
Superinox 2C	E316L-16	5	350	10	WCE.SN.034.5003
Betanox ZF	E316L-16	2.5	350	10	WCE.SN.052.2503
Betanox ZF	E316L-16	3.15	350	10	WCE.SN.052.3153
Betanox ZF	E316L-16	4	350	10	WCE.SN.052.4003
Betanox ZF	E316L-16	5	350	10	WCE.SN.052.5003
Betanox K	E316L-15	2.5	350	10	WCE.SN.014.2503
Betanox K	E316L-15	3.15	350	10	WCE.SN.014.3153
Betanox K	E316L-15	4	350	10	WCE.SN.014.4003
Betanox K	E316L-15	5	350	10	WCE.SN.014.5003
Betanox 316L Plus	E316L-17	2.5	350	10	WCE.SN.021.2503
Betanox 316L Plus	E316L-17	3.15	350	10	WCE.SN.021.3153
Betanox 316L Plus	E316L-17	4	350	10	WCE.SN.021.4003
Betanox 316L Plus	E316L-17	5	350	10	WCE.SN.021.5003
Superinox 2D	E317L-16	2.5	350	10	WCE.SN.035.2503
Superinox 2D	E317L-16	3.15	350	10	WCE.SN.035.3153
Superinox 2D	E317L-16	4	350	10	WCE.SN.035.4003
Superinox 2D	E317L-16	5	350	10	WCE.SN.035.5003



ITEM CODE

WELDING ELECTRODES

Product Name	Classification	Diameter (mm)	Length (mm)	Net Wt/Box	Item Code
Superinox 2B	E318-16	2.5	350	10	WCE.SN.033.2503
Superinox 2B	E318-16	3.15	350	10	WCE.SN.033.3153
Superinox 2B	E318-16	4	350	10	WCE.SN.033.4003
Superinox 2B	E318-16	5	350	10	WCE.SN.033.5003
Betnox 318 Plus	E318-17	2.5	350	10	WCE.SN.027.2503
Betnox 318 Plus	E318-17	3.15	350	10	WCE.SN.027.3153
Betnox 318 Plus	E318-17	4	350	10	WCE.SN.027.4003
Betnox 318 Plus	E318-17	5	350	10	WCE.SN.027.5003
Superinox 1B	E347-16	2.5	350	10	WCE.SN.030.2503
Superinox 1B	E347-16	3.15	350	10	WCE.SN.030.3153
Superinox 1B	E347-16	4	350	10	WCE.SN.030.4003
Superinox 1B	E347-16	5	350	10	WCE.SN.030.5003
Betnox 347 Plus	E347-17	2.5	350	10	WCE.SN.028.2503
Betnox 347 Plus	E347-17	3.15	350	10	WCE.SN.028.3153
Betnox 347 Plus	E347-17	4	350	10	WCE.SN.028.4003
Betnox 347 Plus	E347-17	5	350	10	WCE.SN.028.5003
Betnox D	E309-16	2.5	350	10	WCE.SN.008.2503
Betnox D	E309-16	3.15	350	10	WCE.SN.008.3153
Betnox D	E309-16	4	350	10	WCE.SN.008.4003
Betnox D	E309-16	5	350	10	WCE.SN.008.5003
Betnox 309 Plus	E309-17	2.5	350	10	WCE.SN.022.2503
Betnox 309 Plus	E309-17	3.15	350	10	WCE.SN.022.3153
Betnox 309 Plus	E309-17	4	350	10	WCE.SN.022.4003
Betnox 309 Plus	E309-17	5	350	10	WCE.SN.022.5003
Betnox DL	E309L-16	2.5	350	10	WCE.SN.009.2503
Betnox DL	E309L-16	3.15	350	10	WCE.SN.009.3153
Betnox DL	E309L-16	4	350	10	WCE.SN.009.4003
Betnox DL	E309L-16	5	350	10	WCE.SN.009.5003
Betnox DCb	E309Cb-16	2.5	350	10	WCE.SN.011.2503
Betnox DCb	E309Cb-16	3.15	350	10	WCE.SN.011.3153
Betnox DCb	E309Cb-16	4	350	10	WCE.SN.011.4003
Betnox DCb	E309Cb-16	5	350	10	WCE.SN.011.5003



ITEM CODE

WELDING ELECTRODES

Product Name	Classification	Diameter (mm)	Length (mm)	Net Wt/Box	Item Code
Betnox 309Cb Plus	E309Cb-17	2.5	350	10	WCE.SN.024.2503
Betnox 309Cb Plus	E309Cb-17	3.15	350	10	WCE.SN.024.3153
Betnox 309Cb Plus	E309Cb-17	4	350	10	WCE.SN.024.4003
Betnox 309Cb Plus	E309Cb-17	5	350	10	WCE.SN.024.5003
Betnox DMo	E309Mo-16	2.5	350	10	WCE.SN.012.2503
Betnox DMo	E309Mo-16	3.15	350	10	WCE.SN.012.3153
Betnox DMo	E309Mo-16	4	350	10	WCE.SN.012.4003
Betnox DMo	E309Mo-16	5	350	10	WCE.SN.012.5003
Betnox 309Mo Plus	E309Mo-17	2.5	350	10	WCE.SN.025.2503
Betnox 309Mo Plus	E309Mo-17	3.15	350	10	WCE.SN.025.3153
Betnox 309Mo Plus	E309Mo-17	4	350	10	WCE.SN.025.4003
Betnox 309Mo Plus	E309Mo-17	5	350	10	WCE.SN.025.5003
Betnox DMoL	E309LMo-16	2.5	350	10	WCE.SN.013.2503
Betnox DMoL	E309LMo-16	3.15	350	10	WCE.SN.013.3153
Betnox DMoL	E309LMo-16	4	350	10	WCE.SN.013.4003
Betnox DMoL	E309LMo-16	5	350	10	WCE.SN.013.5003
Superinox 312	E312-16	1.6	250	10	WCE.SN.044.1601
Superinox 312	E312-16	2	300	10	WCE.SN.044.2002
Superinox 312	E312-16	2.5	350	10	WCE.SN.044.2503
Superinox 312	E312-16	3.15	350	10	WCE.SN.044.3153
Superinox 312	E312-16	4	350	10	WCE.SN.044.4003
Superinox 312	E312-16	5	350	10	WCE.SN.044.5003
Betnox C	E310-16	2.5	350	10	WCE.SN.006.2503
Betnox C	E310-16	3.15	350	10	WCE.SN.006.3153
Betnox C	E310-16	4	350	10	WCE.SN.006.4003
Betnox C	E310-16	5	350	10	WCE.SN.006.5003
Betnox 310 Plus	E310-17	2.5	350	10	WCE.SN.026.2503
Betnox 310 Plus	E310-17	3.15	350	10	WCE.SN.026.3153
Betnox 310 Plus	E310-17	4	350	10	WCE.SN.026.4003
Betnox 310 Plus	E310-17	5	350	10	WCE.SN.026.5003
Betnox 20/30	E320-15	2.5	350	10	WCE.SN.016.2503
Betnox 20/30	E320-15	3.15	350	10	WCE.SN.016.3153
Betnox 20/30	E320-15	4	350	10	WCE.SN.016.4003
Betnox 20/30	E320-15	5	350	10	WCE.SN.016.5003



ITEM CODE

WELDING ELECTRODES

Product Name	Classification	Diameter (mm)	Length (mm)	Net Wt/Box	Item Code
Betanox 20/25/5/Cu	E385-15	2.5	350	10	WCE.SN.017.2503
Betanox 20/25/5/Cu	E385-15	3.15	350	10	WCE.SN.017.3153
Betanox 20/25/5/Cu	E385-15	4	350	10	WCE.SN.017.4003
Betanox 20/25/5/Cu	E385-15	5	350	10	WCE.SN.017.5003
Superinox 630	E630-16	2.5	350	10	WCE.SN.085.2503
Superinox 630	E630-16	3.15	350	10	WCE.SN.085.3153
Superinox 630	E630-16	4	350	10	WCE.SN.085.4003
Superinox 630	E630-16	5	350	10	WCE.SN.085.5003
Arminox	-	2.5	350	10	WCE.SN.090.2503
Arminox	-	3.15	350	10	WCE.SN.090.3153
Arminox	-	4	350	10	WCE.SN.090.4003
Arminox	-	5	350	10	WCE.SN.090.5003
Betachrome ND	-	2.5	350	10	WCE.SN.005.2503
Betachrome ND	-	3.15	350	10	WCE.SN.005.3153
Betachrome ND	-	4	350	10	WCE.SN.005.4003
Betachrome ND	-	5	350	10	WCE.SN.005.5003
Betachrome ND Spl	-	2.5	350	10	WCE.SN.062.2503
Betachrome ND Spl	-	3.15	350	10	WCE.SN.062.3153
Betachrome ND Spl	-	4	350	10	WCE.SN.062.4003
Betachrome ND Spl	-	5	350	10	WCE.SN.062.5003
Superinox 409Nb	E409Nb-16	2.5	350	10	WCE.SN.103.2503
Superinox 409Nb	E409Nb-16	3.15	350	10	WCE.SN.103.3153
Superinox 409Nb	E409Nb-16	4	350	10	WCE.SN.103.4003
Superinox 409Nb	E409Nb-16	5	350	10	WCE.SN.103.5003
Betachrome 13Cr	E410-15	2.5	350	10	WCE.SN.001.2503
Betachrome 13Cr	E410-15	3.15	350	10	WCE.SN.001.3153
Betachrome 13Cr	E410-15	4	350	10	WCE.SN.001.4003
Betachrome 13Cr	E410-15	5	350	10	WCE.SN.001.5003
Betachrome 13/4 LB	E410NiMo-15	2.5	350	10	WCE.SN.047.2503
Betachrome 13/4 LB	E410NiMo-15	3.15	350	10	WCE.SN.047.3153
Betachrome 13/4 LB	E410NiMo-15	4	350	10	WCE.SN.047.4003
Betachrome 13/4 LB	E410NiMo-15	5	350	10	WCE.SN.047.5003
Betachrome 13/4 LB	E410NiMo-15	5	450	10	WCE.SN.047.5004



ITEM CODE

WELDING ELECTRODES

Product Name	Classification	Diameter (mm)	Length (mm)	Net Wt/Box	Item Code
Betachrome 13/4 LB-R	E410NiMo-16	2.5	350	10	WCE.SN.091.2503
Betachrome 13/4 LB-R	E410NiMo-16	3.15	350	10	WCE.SN.091.3153
Betachrome 13/4 LB-R	E410NiMo-16	4	350	10	WCE.SN.091.4003
Betachrome 13/4 LB-R	E410NiMo-16	5	350	10	WCE.SN.091.5003
Betachrome 17Cr	E430-15	2.5	350	10	WCE.SN.002.2503
Betachrome 17Cr	E430-15	3.15	350	10	WCE.SN.002.3153
Betachrome 17Cr	E430-15	4	350	10	WCE.SN.002.4003
Betachrome 17Cr	E430-15	5	350	10	WCE.SN.002.5003
Betanox 4462	E2209-16	2.5	350	10	WCE.SN.049.2503
Betanox 4462	E2209-16	3.15	350	10	WCE.SN.049.3153
Betanox 4462	E2209-16	4	350	10	WCE.SN.049.4003
Betanox 4462	E2209-16	5	350	10	WCE.SN.049.5003
Betanox 2553	E2553-16	2.5	350	10	WCE.SN.039.2503
Betanox 2553	E2553-16	3.15	350	10	WCE.SN.039.3153
Betanox 2553	E2553-16	4	350	10	WCE.SN.039.4003
Betanox 2553	E2553-16	5	350	10	WCE.SN.039.5003
Betanox 2594	E2594-15	2.5	350	10	WCE.SN.068.2503
Betanox 2594	E2594-15	3.15	350	10	WCE.SN.068.3153
Betanox 2594	E2594-15	4	350	10	WCE.SN.068.4003
Betanox 2594	E2594-15	5	350	10	WCE.SN.068.5003
Betanox 2594-16	E2594-16	2.5	350	10	WCE.SN.096.2503
Betanox 2594-16	E2594-16	3.15	350	10	WCE.SN.096.3153
Betanox 2594-16	E2594-16	4	350	10	WCE.SN.096.4003
Betanox 2594-16	E2594-16	5	350	10	WCE.SN.096.5003
Betanox 2595	E2595-15	2.5	350	10	WCE.SN.107.2503
Betanox 2595	E2595-15	3.15	350	10	WCE.SN.107.3153
Betanox 2595	E2595-15	4	350	10	WCE.SN.107.4003
Betanox 2595	E2595-15	5	350	10	WCE.SN.107.5003
Betanox 2595-16	E2595-16	2.5	350	10	WCE.SN.071.2503
Betanox 2595-16	E2595-16	3.15	350	10	WCE.SN.071.3153
Betanox 2595-16	E2595-16	4	350	10	WCE.SN.071.4003
Betanox 2595-16	E2595-16	5	350	10	WCE.SN.071.5003
Casten	Est	2.5	350	20	WCE.IN.001.2503
Casten	Est	3.15	450	20	WCE.IN.001.3154
Casten	Est	4	450	20	WCE.IN.001.4004



ITEM CODE

WELDING ELECTRODES

Product Name	Classification	Diameter (mm)	Length (mm)	Net Wt/Box	Item Code
Castmonel	ENiCu-B	2.5	350	10	WCE.IN.003.2503
Castmonel	ENiCu-B	3.15	350	10	WCE.IN.003.3153
Castmonel	ENiCu-B	4	350	10	WCE.IN.003.4003
Casnickel	ENiCl	2.5	350	10	WCE.IN.002.2503
Casnickel	ENiCl	3.15	350	10	WCE.IN.002.3153
Casnickel	ENiCl	4	350	10	WCE.IN.002.4003
Ferricast	ENiFeCl	2.5	350	10	WCE.IN.004.2503
Ferricast	ENiFeCl	3.15	350	10	WCE.IN.004.3153
Ferricast	ENiFeCl	4	350	10	WCE.IN.004.4003
Zedalloy 250	-	3.15	450	20	WCE.HN.001.3154
Zedalloy 250	-	4	450	20	WCE.HN.001.4004
Zedalloy 250	-	5	450	20	WCE.HN.001.5004
Zedalloy 350	-	3.15	450	20	WCE.HN.002.3154
Zedalloy 350	-	4	450	20	WCE.HN.002.4004
Zedalloy 350	-	5	450	20	WCE.HN.002.5004
Zedalloy 350 LH	-	3.15	450	20	WCE.HN.003.3154
Zedalloy 350 LH	-	4	450	20	WCE.HN.003.4004
Zedalloy 350 LH	-	5	450	20	WCE.HN.003.5004
Zedalloy 550	-	3.15	450	20	WCE.HN.004.3154
Zedalloy 550	-	4	450	20	WCE.HN.004.4004
Zedalloy 550	-	5	450	20	WCE.HN.004.5004
Zedalloy 550 LH	-	3.15	450	20	WCE.HN.006.3154
Zedalloy 550 LH	-	4	450	20	WCE.HN.006.4004
Zedalloy 550 LH	-	5	450	20	WCE.HN.006.5004
Zedalloy 600	-	3.15	450	20	WCE.HN.009.3154
Zedalloy 600	-	4	450	20	WCE.HN.009.4004
Zedalloy 600	-	5	450	20	WCE.HN.009.5004
Betachrome N	-	2.5	350	10	WCE.SN.003.2503
Betachrome N	-	3.15	350	10	WCE.SN.003.3153
Betachrome N	-	4	350	10	WCE.SN.003.4003
Betachrome N	-	5	350	10	WCE.SN.003.5003



ITEM CODE

WELDING ELECTRODES

Product Name	Classification	Diameter (mm)	Length (mm)	Net Wt/Box	Item Code
Zedalloy 12Mn	-	3.15	450	20	WCE.HN.010.3154
Zedalloy 12Mn	-	4	450	20	WCE.HN.010.4004
Zedalloy 12Mn	-	5	450	20	WCE.HN.010.5004
Zedalloy 12Mn	-	6.3	450	20	WCE.HN.010.6304
Zedalloy 16Mn	-	3.15	450	20	WCE.HN.011.3154
Zedalloy 16Mn	-	4	450	20	WCE.HN.011.4004
Zedalloy 16Mn	-	5	450	20	WCE.HN.011.5004
Zedalloy 16Cr	-	3.15	350	20	WCE.HN.012.3153
Zedalloy 16Cr	-	4	350	20	WCE.HN.012.4003
Zedalloy 16Cr	-	5	350	20	WCE.HN.012.5003
Zedalloy 20Cr	-	3.15	350	20	WCE.HN.013.3153
Zedalloy 20Cr	-	4	350	20	WCE.HN.013.4003
Zedalloy 20Cr	-	5	350	20	WCE.HN.013.5003
Zedalloy CrMn	-	3.15	350		WCE.HN.029.3153
Zedalloy CrMn	-	4	350		WCE.HN.029.4003
Zedalloy CrMn	-	5	350		WCE.HN.029.5003
Zedalloy K	-	3.15	350	20	WCE.HN.008.3153
Zedalloy K	-	4	350	20	WCE.HN.008.4003
Zedalloy K	-	5	350	20	WCE.HN.008.5003
Zedalloy Bell	-	3.15	350		WCE.HN.023.3153
Zedalloy Bell	-	4	350		WCE.HN.023.4003
Zedalloy Bell	-	5	350		WCE.HN.023.5003
Zedalloy 17Cr NS Plus	-	3.15	350	20	WCE.HN.025.3153
Zedalloy 17Cr NS Plus	-	4	350	20	WCE.HN.025.4003
Zedalloy 17Cr NS Plus	-	5	350	20	WCE.HN.025.5003
Zedalloy VB	-	3.15	450	20	WCE.HN.007.3154
Zedalloy VB	-	4	450	20	WCE.HN.007.4004
Zedalloy VB	-	5	450	20	WCE.HN.007.5004
Super Zedalloy	-	3.15	350	20	WCE.HN.014.3153
Super Zedalloy	-	4	350	20	WCE.HN.014.4003
Super Zedalloy	-	5	350	20	WCE.HN.014.5003



ITEM CODE

WELDING ELECTRODES

Product Name	Classification	Diameter (mm)	Length (mm)	Net Wt/Box	Item Code
Maganacane	-	3.15	450	20	WCE.HN.016.3154
Maganacane	-	4	450	20	WCE.HN.016.4004
Maganacane	-	5	450	20	WCE.HN.016.5004
Zedalloy 16	-	3.15	350	20	WCE.HN.021.3153
Zedalloy 16	-	4	350	20	WCE.HN.021.4003
Zedalloy 16	-	5	350	20	WCE.HN.021.5003
Zedalloy 680	-	3.15	450	20	WCE.HN.030.3154
Zedalloy 680	-	4	450	20	WCE.HN.030.4004
Zedalloy 680	-	5	450	20	WCE.HN.030.5004
Nimoten Plus 535 B	-	3.15	450	20	WCE.LN.050.3154
Nimoten Plus 535 B	-	4	450	20	WCE.LN.050.4004
Nimoten Plus 535 B	-	5	450	20	WCE.LN.050.5004
Nimoten HFD	-	3.15	450	20	WCE.LN.084.3154
Nimoten HFD	-	4	450	20	WCE.LN.084.4004
Nimoten HFD	-	5	450	20	WCE.LN.084.5004
Zedalloy CoCr-A	-	3.15	350	10	WCE.HN.024.3153
Zedalloy CoCr-A	-	4	350	10	WCE.HN.024.4003
Zedalloy CoCr-A	-	5	350	10	WCE.HN.024.5003
Supermonel	ENiCu-7	2.5	350	10	WCE.NN.001.2503
Supermonel	ENiCu-7	3.15	350	10	WCE.NN.001.3153
Supermonel	ENiCu-7	4	350	10	WCE.NN.001.4003
Nicalloy 1	ENi1	2.5	350	10	WCE.NN.009.2503
Nicalloy 1	ENi1	3.15	350	10	WCE.NN.009.3153
Nicalloy 1	ENi1	4	350	10	WCE.NN.009.4003
Nicalloy Fe-2	ENiCrFe-2	2.5	350	10	WCE.NN.008.2503
Nicalloy Fe-2	ENiCrFe-2	3.15	350	10	WCE.NN.008.3153
Nicalloy Fe-2	ENiCrFe-2	4	350	10	WCE.NN.008.4003
Nicalloy Fe-3	ENiCrFe-3	2.5	350	10	WCE.NN.006.2503
Nicalloy Fe-3	ENiCrFe-3	3.15	350	10	WCE.NN.006.3153
Nicalloy Fe-3	ENiCrFe-3	4	350	10	WCE.NN.006.4003
Nicalloy Mo-3	ENiCrMo-3	2.5	350	10	WCE.NN.007.2503
Nicalloy Mo-3	ENiCrMo-3	3.15	350	10	WCE.NN.007.3153
Nicalloy Mo-3	ENiCrMo-3	4	350	10	WCE.NN.007.4003



ITEM CODE

WELDING ELECTRODES

Product Name	Classification	Diameter (mm)	Length (mm)	Net Wt/Box	Item Code
Nicalloy Mo-4	ENiCrMo-4	2.5	350	10	WCE.NN.014.2503
Nicalloy Mo-4	ENiCrMo-4	3.15	350	10	WCE.NN.014.3153
Nicalloy Mo-4	ENiCrMo-4	4	350	10	WCE.NN.014.4003
Nicalloy Mo-5	ENiCrMo-5	2.5	350	10	WCE.NN.012.2503
Nicalloy Mo-5	ENiCrMo-5	3.15	350	10	WCE.NN.012.3153
Nicalloy Mo-5	ENiCrMo-5	4	350	10	WCE.NN.012.4003
Nicalloy Mo-6	ENiCrMo-6	2.5	350	10	WCE.NN.003.2503
Nicalloy Mo-6	ENiCrMo-6	3.15	350	10	WCE.NN.003.3153
Nicalloy Mo-6	ENiCrMo-6	4	350	10	WCE.NN.003.4003
Nicalloy Mo-10	ENiCrMo-10	2.5	350	10	WCE.NN.013.2503
Nicalloy Mo-10	ENiCrMo-10	3.15	350	10	WCE.NN.013.3153
Nicalloy Mo-10	ENiCrMo-10	4	350	10	WCE.NN.013.4003
Nicalloy Mo-12	ENiCrMo-12	2.5	350	10	WCE.NN.016.2503
Nicalloy Mo-12	ENiCrMo-12	3.15	350	10	WCE.NN.016.3153
Nicalloy Mo-12	ENiCrMo-12	4	350	10	WCE.NN.016.4003
Nicalloy Mo-14	ENiCrMo-14	-	-	10	WCE.NN.015.2503
Nicalloy Mo-14	ENiCrMo-14	-	-	10	WCE.NN.015.3153
Nicalloy Mo-14	ENiCrMo-14	-	-	10	WCE.NN.015.4003
Nicalloy Fe-7	ENiCrFe-7	2.5	350	10	WCE.NN.011.2503
Nicalloy Fe-7	ENiCrFe-7	3.15	350	10	WCE.NN.011.3153
Nicalloy Fe-7	ENiCrFe-7	4	350	10	WCE.NN.011.4003
Nicalloy NiMo-7	ENiMo-7	2.5	350	10	WCE.NN.021.2503
Nicalloy NiMo-7	ENiMo-7	3.15	350	10	WCE.NN.021.3153
Nicalloy NiMo-7	ENiMo-7	4	350	10	WCE.NN.021.4003
Nicalloy 617	ENiCrCoMo-1	2.5	350	-	WCE.NN.017.2503
Nicalloy 617	ENiCrCoMo-1	3.15	350	-	WCE.NN.017.3153
Nicalloy 617	ENiCrCoMo-1	4	350	-	WCE.NN.017.4003
Albond 5 Si	E4043	2.5	350	5	WCE.NN.004.2503
Albond 5 Si	E4043	3.15	350	5	WCE.NN.004.3153
Albond 5 Si	E4043	4	350	5	WCE.NN.004.4003
Albond 12 Si	-	2.5	350	5	WCE.NN.005.2503
Albond 12 Si	-	3.15	350	5	WCE.NN.005.3153
Albond 12 Si	-	4	350	5	WCE.NN.005.4003



ITEM CODE

WELDING ELECTRODES

Product Name	Classification	Diameter (mm)	Length (mm)	Net Wt/Box	Item Code
Bronze	ECuSn-A	2.5	350	10	WCE.NN.002.2503
Bronze	ECuSn-A	3.15	350	10	WCE.NN.002.3153
Bronze	ECuSn-A	4	350	10	WCE.NN.002.4003
Bronze Al-A2	ECuAl-A2	2.5	350	10	WCE.NN.010.2503
Bronze Al-A2	ECuAl-A2	3.15	350	10	WCE.NN.010.3153
Bronze Al-A2	ECuAl-A2	4	350	10	WCE.NN.010.4003
Bronze NiAl	ECuNiAl	2.5	350	-	WCE.NN.018.2503
Bronze NiAl	ECuNiAl	3.15	350	-	WCE.NN.018.3153
Bronze NiAl	ECuNiAl	4	350	-	WCE.NN.018.4003
Super CuNi	ECuNi	-	-	-	-
CAG 9900	-	3.15	450	20	WFN.CG.006.3154
CAG 9900	-	4	450	20	WFN.CG.006.4004
CAG 9900	-	5	450	20	WFN.CG.006.5004



Storage & Handling Instructions

Section III



STORAGE & HANDLING INSTRUCTIONS

FOR WELDING CONSUMABLES

1. General Instructions:

Welding consumables will meet their required & specified properties, only when they are stored and handled as recommended by manufacturer.

Ador Welding Limited recommend to follow, the individual and validated technical rules, regulations, recommendations and standards, during transport, storage and handling.

Below are some general recommendations for storage and handling of welding consumables. They are applicable for all type of welding consumables.

- Mechanical damage and moisture pickup should be avoided at any cost
- Welding consumables should be stored in unopened and undamaged original packaging.
- The environment must be clean, dust-free and dry.
- Direct exposure to sunlight should be avoided.
- Open pallets should not be stacked.
- Direct contact of packaging with floor and walls should be avoided.
- Welding consumables should be stored frost free.
- Suitable measures must be taken to avoid temperature below dew point.
- It is preferable to store the consumables in a chamber / room with relative humidity below 40%. This relative humidity can be achieved using dehumidifiers, electrical heaters, bulbs etc. The wall of room can suitably painted to maintain the humidity. The suitable dial –gauge meter can be used to measure the relative humidity continuously inside room.

These are all recommendations, they do not discharge user from his responsibility to ensure fault free condition of the welding consumable before use

2. Storage and Handling Instructions for SMAW Electrodes:

2.1 Scope:

SMAW Electrodes manufactured by Ador Welding Limited. Electrodes which are packed in:

- a. Cardboard Boxes – Primary and Secondary
- b. Pouches with Secondary cardboard box.
- c. Vacuum Pouches – R2U electrodes
- d. Hermetically sealed metal Tins
- e. Plastic Primary Cartons with Secondary cardboard box

Product Group	a	b	c	d	e
MSGP	√	-	-	-	-
C-Mn Steels	√	-	√	-	-
Cellulosic	√	-	-	√	-
Low Alloy Steel	√	-	√	-	-
Stainless Steel	-	√	-	-	-
Cast Iron	-	-	-	-	√
Hard Facing	√	-	-	-	-
Nickel Alloys	-	-	-	-	√
Copper Alloys	-	-	-	-	√
Aluminium Alloys	√	-	-	-	√
Cutting & Gouging Electrodes	√	-	-	-	-



STORAGE & HANDLING INSTRUCTIONS

FOR WELDING CONSUMABLES

2.2 Need:

Electrodes, when stored have tendency to pick up moisture. This tendency is more in case of low hydrogen electrodes as compared to rutile type electrodes. The flux coating on the electrodes absorbs moisture from atmosphere and if they are used subsequently, this moisture can result in porosity, hydrogen induced cracking etc. depending on amount of moisture absorbed. If electrodes are stored in a highly humid atmosphere, rusting of core wire of the electrodes can take place. All these can result in deterioration of mechanical properties of the weld metal.

2.3 Storage:

- a. The conditions to store electrodes in primary and/or secondary cardboard box are:
 - temperature 17-27°C, relative humidity max. 60%
 - temperature 27-37°C, relative humidity max. 50%.
 - Electrode boxes may be stored in layers to a maximum of 5.
- b. Above given Temperature & humidity requirements are not applicable for Vacuum Packs (R2U) and hermetically sealed packs, provided packs are not damaged and vacuum seal is unbroken.
- c. The storage period of the electrodes in cardboard boxes thus, should not exceed 3 years. Provision should be made to follow, first in first out principle to avoid aging.
- d. Electrodes in opened or damaged packs (of any type of packing) should be stored in a separate, heated chamber at higher temperature.

2.4 Handling:

Re-drying:

Re-drying is required for products in below given conditions:

- a. Rutile coated electrodes, being humidified for any reason
- b. Low hydrogen electrodes in cardboard boxes
- c. Low hydrogen electrodes, from damaged vacuum packs or which have remain unused after specified time
- d. Stainless steel electrodes
- e. Nickel based electrodes after long and unknown storage conditions
- f. For all above mentioned products if the storage conditions deviate.

Re-drying of electrodes:

- Proper re-drying temperature depends upon electrode type and its condition.
- Cellulosic electrode must not be re-dried.
- Rutile coated mild steel electrodes does not need re-drying unless they are humidified.
- Aluminium electrodes does not need re-drying.
- Follow re-drying cycle given in table 1 or on label or on product data sheets.
- Do not re-dry the electrodes at higher temperatures than recommended.
- Re-drying of electrode can be repeated maximum 3 times at max temperature & time specified.
- Do not stack more than 4 layers of electrodes in the re-drying oven.
- The re-drying temperature is the temperature in the bulk of the electrodes. The re-drying time is measured from the point at which the re-drying temperature has been reached.
- Vacuum packed electrodes, can be used upto 8 hrs after opening the pack subject to Temperature 35°C max and relative humidity of 90% max. This period can be extended to 12 Hrs under condition of temperature 27°C max and relative humidity of 70% max.



STORAGE & HANDLING INSTRUCTIONS

FOR WELDING CONSUMABLES

Table 1: Recommended Re-drying Cycle for various electrodes:

Electrode product group	Re-drying time (Hr)	Re-drying Temperature (°C)	Holding
Mild Steel – Rutile coated	0.5-2	80-120	10-20°C above ambient
Mild steel – Basic coated, low hydrogen	1-6	250-300	Holding oven at 100-150°C for max 1 year. Portable oven at 70-100°C for max 10 Hrs
Low Alloy Steel – Rutile coated	1-2	80-120	10-20°C above ambient
Low alloy Steel – Basic coated	1-6	250-300	Holding oven at 100-150°C for max 1 year. Portable oven at 70-100°C for max 10 Hrs
Stainless Steel	1-6	250-300	Holding oven at 100-150°C for max 1 year. Portable oven at 70-100°C for max 10 Hrs
Cast Iron	1-6	120-150	Holding oven at 80-120°C for max 1 year.
Hard Facing – Rutile Coated	1-6	80-120	10-20°C above ambient
Hard Facing – Basic coated	1-6	250-300	Holding oven at 100-150°C for max 1 year. Portable oven at 70-100°C for max 10 Hrs
Ni alloys	1-6	250-300	
Cu Alloys	1-4	200-250	

2.5 Deteriorated products:

SMAW electrodes, that have suffered from serious water and moisture contamination, or have been exposed over long periods of time cannot be restored in their original conditions and should be discarded.

3. Storage and Handling of Solid wires and strips:

3.1 Scope:

Solid wires of GTAW, GMAW & SAW supplied in Tubes, Spools, bobbins & Drums. SAW & ESSC Strips supplied in Spools.

3.2 Storage:

Over and above general conditions, recommended storage conditions are:

- temperature 17-27°C, relative humidity max. 60%
- temperature 27-37°C, relative humidity max. 50%.

3.3 Handling:

In all conditions, while in use, opened and packed, wire & strip needs protection against contamination with moisture, dust, oil, etc.

During interruption of more than 8 hrs, the wire spool shall be stored in plastic bags in the above mentioned storage condition.

While welding with Aluminium wires, uniformity of air and metal temperature is important. Electrode and base metal should be allowed to stabilize before start of welding.

3.4 Deteriorated Products:

Wires and Strips that are oxidized (rusted), have suffered from serious water and moisture contamination, or have been exposed over long periods of time cannot be restored in their original conditions and should be discarded.



STORAGE & HANDLING INSTRUCTIONS

FOR WELDING CONSUMABLES

4. Storage and Handling Instructions for Cored Wires

4.1 Scope:

All the Flux Cored and Metal Cored wires of GMAW, GTAW and SAW processed packed in Tubes, Spools and Drums.

4.2 Storage:

Over and above general conditions, recommended storage conditions for cardboard box packed flux cored wire are:

- temperature 17-27°C, relative humidity max. 60%
- temperature 27-37°C, relative humidity max. 50%.

Above given Temperature & humidity requirements are not applicable for material supplied in Vacuum Packs, provided packs are not damaged and vacuum seal is unbroken.

4.3 Handling:

In all conditions, while in use, opened and packed, wire & strip needs protection against contamination with moisture, dust, oil, etc.

During interruption of more than 8 hrs, the wire spool shall be stored in plastic bags in the above mentioned storage condition.

Re-drying:

Flux cored wires exhibit porosity or worm tracks, when contaminated with moisture. Wire supplied on metal spools can may be re-dried at 120-150°C for 6-8 hrs. However, wire on plastic spools cannot be reconditioned.

4.4 Deteriorated Products:

Wires that are oxidized (rusted), have suffered from serious water and moisture contamination, or have been exposed over long periods of time cannot be restored in their original conditions and should be discarded.

5. Storage and Handling of Welding Flux:

5.1 Scope:

All types of SAW and ESSC Flux packed in Plastic Bags, Metal Drum and Vacuum Pouch.

5.2 Storage:

Over and above general conditions, recommended storage conditions for Welding flux packed in plastic bags are:

- temperature 17-27°C, relative humidity max. 60%
- temperature 27-37°C, relative humidity max. 50%.

Above given Temperature & humidity requirements are not applicable for material supplied in Vacuum Packs, provided packs are not damaged and vacuum seal is unbroken.

They are also not applicable to Flux packed in metal drums. Rusting and damage to the metal drums should be prevented.

5.3 Handling:

In all conditions, while in use, opened and packed, wire & strip needs protection against contamination with moisture, dust, oil, etc.

Re-drying:

Re-drying is required for products in below given conditions:

- a. All the agglomerated fluxes, supplied in plastic bags and metal drums
- b. Welding fluxes from damaged vacuum packs and which have remain unused after specified time



STORAGE & HANDLING INSTRUCTIONS

FOR WELDING CONSUMABLES

Re-drying Instructions:

- a. Re-drying for welding fluxes is to be carried out at 300-350°C for minimum of 2 Hrs.
- b. Do not re-dry the fluxes at higher temperatures than recommended.
- c. Re-drying of fluxes can be repeated maximum 3 times at max temperature & time specified.
- d. Holding temperature in SAW Fluxes depends on the thickness of flux layer kept for baking. 2 Hrs if holding time is applicable to 40mm thick flux layer. If the flux thickness in oven is higher than this, the holding time may be increased.
- e. The re-drying temperature is the temperature in the bulk of the flux. The re-drying time is measured from the point at which the re-drying temperature has been reached.
- f. After Re-drying, welding flux should be maintained in the oven at 120-150 Deg C continuously or transfer to Holding Oven as the case may be.
- g. Vacuum packed fluxes, can be used up to 8 hrs after opening the pack subject to Temperature 35°C max and relative humidity of 90% max. This period can be extended to 12 Hrs under condition of temperature 27°C max and relative humidity of 70% max.

5.4 Deteriorated products:

Welding Fluxes, that have suffered from serious water and moisture contamination, or have been exposed over long periods of time, or reduced to dust after reuse, cannot be restored in their original conditions and should be discarded.

5.5 Recycling of Fluxes:

- a. Unconsumed flux can be reused with addition of minimum 25% new flux.
- b. Unconsumed flux collected from the weld must be cleaned from slag, metal, and / or other contaminants.
- c. Damage to the flux by heavy impingement in the transportation system should be prevented.
- d. The agglomerated flux grains should not be segregated based on its size during usage of welding flux.

6. Shelf life for all welding consumables:

Shelf life for all consumables is **3 Years**, with one exception of all Aluminium consumables. They have shelf life of 1 Year. All the Vacuum Packed (R2U) Mild Steel and Low Alloy Steel electrodes have shelf life of 5 Years, if the Vacuum remains intact and the packs are handled carefully.

Individual products may have higher shelf life, but as formulas and / or standards might change, one should not extend shelf life. Take manufacturing date of product to calculate shelf life.





Safety Features

Section IV



SAFETY FEATURES

IN WELDING

Welding is a safe operation when sufficient measures are taken to protect the welder from potential hazards. When these measures are overlooked or ignored, welders can encounter dangers such as electric shock, over exposure to fumes and gases, arc radiation, fire and explosion which may result in serious or even fatal injuries.

What is Personal Protective Equipment?

Personal Protective Equipment, commonly referred to as "PPE", is equipment worn to minimize exposure to serious workplace injuries and illnesses. These injuries and illnesses may result from contact with chemical, radiological, physical, electrical, mechanical or other workplace hazards. PPE may include items such as gloves, safety glasses and shoes, earplugs or muffs, hard hats, respirators or coveralls, vests and full body suits.

What can be done to ensure proper use of PPE ?

All PPE should be of safe design and construction and should be maintained in a clean and reliable fashion. It should fit well and be comfortable to wear, encouraging welder to use them.

Protective Clothing

Welder, must wear clothing to protect them from being burned. Injuries like burns are the most common due to sparks landing on bare skin. Welding arcs are very intense and can cause burns to skin and eyes with just a few minutes of exposure. Many types of clothing will protect you from ultra-violet radiation exposure, which appears as a skin burn (much like sunburn).

Under the worst conditions, severe burns and skin cancer may result from excessive radiation. Because of its durability and resistance to fire, wool clothing is suggested over synthetics (which should never be worn because it melts when exposed to extreme heat) or cotton, unless it is specially treated for fire protection.

If possible keep your clothes clean of grease and oil, as these substances may ignite and burn uncontrollably in the presence of oxygen. Other protective wear for heavy work or especially hazardous situations includes flame-resistant suits, aprons, leggings, leather sleeves/shoulder capes and caps worn under your helmet. Heavy flame-resistant gloves such as leather should always be worn to protect your hands from burns, cuts and scratches.

In addition, as long as they are dry and in good condition, they will offer some insulation against electric shock. In order to prevent electric shock, the key word is dry! When working in wet conditions or when perspiring heavily, you must be even more careful to insulate your body from electrically live parts and work on grounded metal.



Carrying out welding operations exposes the welder to Safety Hazards in following areas

1. Electric Shock
2. Electromagnetic Radiation
3. Fire & Explosion
4. Fumes & Gases
5. Heat

1. ELECTRIC SHOCK

Arc welding equipments operate at a voltage which is safe under normal working conditions but the shock hazard should not be ignored. It increases in warm & damp conditions because welder has to work with electric current which may pass through his body. The human body resistance to current passage is not constant. The highest resistance is offered by the skin. Wet skin conducts electric current better than dry skin under normal conditions.

Safety Precautions

- Check that equipment is correctly earthed when installed & when in use
- Make sure welding cables and machines are capable of handling maximum voltage & current as rated for the equipment & for the desired applications
- Check for damage to insulation on cables, holders, guns and connectors, please do not operate the equipment without properly insulating the same
- Ensure Arc welding machines are designed as per applicable standards
- Please operate equipments strictly as per printed Instructions and rules specified by respective original equipment manufacturers
- Make sure all earthing connections are mechanically strong
- Ensure all welding equipments are inspected regularly
- Do not immerse hot electrode holder into water for cooling because retained moisture may give electric shock in later operations
- Do not carry holder and earthing together when welding machine is ON
- Always wear rubber soled safety shoes



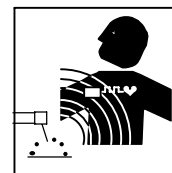


SAFETY FEATURES

IN WELDING

2. ELECTROMAGNETIC RADIATION

The welding arc provides intense visible and invisible light (or radiation) and heat. Eyes must be protected from ultraviolet and infrared radiation to avoid Arc Eyes and Arc Burns. Light intensity of welding arc is 10,000 times that of the safe unit for human body. A welding arc should not be looked at with unprotected eyes. Failure to observe this rule may result in various degrees of eye burn or flashed eyes (Arc eyes). The affected person has pronounced irritations in the eyes and feels as if there is sand in the eyes. The symptoms remain for one to two days. Radiation effects are up to a distance of 15 meters.



Safety Precaution

- Do not look at welding arc with naked eyes
- Use heat - resisting quality of welding screen
- Use helmet or face shield fitted with the correct shade of filter glass
- Do not use cracked or defective helmets or shield
- If possible, coat individual welding booths with a mat & light absorbent type of paint with a very low reflecting quality
- Use safety clothing (safety shoes, leather hand gloves, leather apron, leather leggings and leather cap) when welding

3. FIRE & EXPLOSION

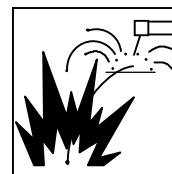
What is Fire?

When any material starts burning, we call it Fire.

Material (fuel) starts burning on application of heat in presence of air and oxygen.

Any fire requires three supports - fuel, oxygen and ignition, when these three meet proportionately with each other, then a fire breaks out.

When an outbreak of fire is discovered, immediate corrective action is essential to provide life and damage to property.



What is Explosion?

It is very rapid process of combustion, accompanied by rapid liberation of heat and formation of a very large volume of gases products.

Fire can be controlled by reducing Fuel or Heat of air.

Before extinguishing any fire, it is essential to know the classification of fire.

When material burns, it behaves in different manners, depending upon its physical properties. Extinguishing depend on these physical properties. Portable extinguishers are used in accordance with the extinguishing method.

Safety Precautions

- While repairing tanks, vessels, drums or pipes by welding or gas cutting, remove all traces of earlier stored material to avoid possibility of explosion
- Remove all flammable materials from working areas
- Avoid excessive release of fuel gas into the atmosphere
- Ensure that appropriate fire fighting equipment is available at hand and that all concerned know how to use it
- Have a bucket of water at the work station for cooling overheated blow pipes
- Where a 'Permitted to work' system is in operation, ensure that all instruction are fully complied with
- Check emergency escape route



SAFETY FEATURES

IN WELDING

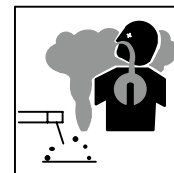
4. FUMES & GASES

Proper ventilation is a must to maintain good health. It is true that when a welder gets clean air to breathe, he can see better, work better, work longer, quality of his work improves & productivity of people working nearby increases in an improved environment.

Most common toxic fumes are from materials such as Zinc Oxide, Carbon Monoxide, Mercury, Lead and Cadmium

Safety Precautions

- Carry out all welding operations in safe, clean and at location where sufficient natural air circulation is available.
- Under normal workshop conditions, use a local fume extractor wherever possible and maintain it's position close to the weld as work progresses
- Check for possible toxic hazards from parent metal (especially if surface is painted, plated or chemically treated) or from welding consumables
- Check for adequate ventilation and/ or breathing apparatus when welding in an enclosed space
- Use a face respirator when toxic fumes are present



5. HEAT

Heat & Spatter are expelled during cutting and welding. The work piece will remain hot for some time after welding.

Safety Precautions

- Wear correct protective clothing in good condition, free from grease and oil
- Treat all metal connected with welding and cutting as HOT
- Mark work piece as HOT when it is hot (remove notice when cool)





ADOR WELDING LIMITED

Corporate Marketing Office: Survey No. 147/2B+3, Akurdi, Near Khandoba Mandir, Chinchwad, Pune - 411 019, Maharashtra, India.

☎ 1800 233 1071 ✉ care@adorians.com 📞 +91 20 40706000



www.adorwelding.com