ador
peace of mind™

CREATING THE BEST WELDING EXPERIENCE

Wires and Fluxes

PROUDLY MADE IN INDIA

Edition: ADOR INDIA 2023

SUMMARY

Index

Wires and Fluxes

Section I - Wires

	Page No.
• GMAW/GTAW C-Mn Steel	10 -15
• GMAW/GTAW Low Alloy Steel (High Temperature)	16 - 29
• GMAW/GTAW Low Alloy Steel (Low Temperature)	30 - 33
• GMAW/GTAW Low Alloy Steel (High Strength)	34 - 46
• GMAW/GTAW Stainless Steel	47 - 72
• GMAW/GTAW Duplex Stainless Steel	73-75
• GMAW/GTAW Nickel Alloys	76 - 86
• GMAW/GTAW Aluminium Alloys	87 - 96
• GMAW/GTAW Copper Alloys	97 - 104
• GTAW Cobalt Alloy	105
• FCAW C-Mn Steel	106 - 108
• MCAW C-Mn Steel	109 - 110
• FCAW Low Alloy Steel (High Temperature)	111 - 112
• FCAW Low Alloy Steel (Low Temperature)	113 - 117
• FCAW Low Alloy Steel (High Strength)	118 - 120
• FCAW Low Alloy Steel (Weathering Steel)	121
• FCAW Stainless Steel	122 - 127
• MCAW Stainless Steel	128
• FCAW Hardfacing (Abrasion-Impact)	129 - 130
• MCAW Hardfacing	131

Section II - Fluxes

• Note on SAW Fluxes	133
• SAW Wires	134 -140
• SAW Flux	141 - 166
• Strip Cladding Flux	167
• Bare Brazing Rods	168 - 172
• Coated Brazing Rods	173- 175
• Brazing Fluxes	176 - 177

Section III - Item Code

• Wires	179 - 191

Section IV - Item Code

• Fluxes	193 - 197

Section V - Storage and Handling Instructions

• Storage and Handling Instructions	199 - 203

Section VI - Safety Features

• Safety Features	205 - 207

INDEX

Sr. No.	Product Name	AWS Classification	Page No.
	GMAW/GTAW C-Mn Steel		
1	Automig I	ER70S-6	10
2	Tigfil 70S-6	ER 70S-6	11
3	Tigfil 70S-2	ER 70S-2	12
4	Tigfil 70S-2 Spl	ER 70S-2	13
5	Automig 70S-G	ER 70S-G	14
6	Automig 70S-6 N	ER 70S-6	15
	GMAW/GTAW Low Alloy Steel (High Temperature)		
7	Automig 70S-A1	ER 70S-A1	16
8	Tigfil 70S-A1	ER 70S-A1	17
9	Automig 80S-B2	ER80S-B2	18
10	Tigfil 80S-B2	ER80S-B2	19
11	Tigfil 80S-B2 Spl	ER80S-B2	20
12	Automig 90S-B3	ER90S-B3	21
13	Tigfil 90S-B3	ER90S-B3	22
11	Tigfil 90S-B3 Spl	ER90S-B3	23
14	Automig 80S-B6	ER80S-B6	24
15	Tigfil 80S-B6	ER80S-B6	25
16	Automig 80S-B8	ER80S-B8	26
17	Tigfil 80S-B8	ER80S-B8	27
18	Automig 90S-B9	ER90S-B91	28
19	Tigfil 90S-B9	ER90S-B91	29
	GMAW/GTAW Low Alloy Steel (Low Temperature)		
20	Automig 80S-Ni1	ER80S-Ni1	30
21	Tigfil 80S-Ni1	ER80S-Ni1	31
22	Automig 80S-Ni2	ER80S-Ni2	32
23	Tigfil 80S-Ni2	ER80S-Ni2	33
	GMAW/GTAW Low Alloy Steel (High Strength)		
24	Automig 80S-D2	ER80S-D2	34
25	Tigfil 80S-D2	ER80S-D2	35
26	Automig-80S-G	ER80S-G	36
27	Tigfil-80S-G	ER80S-G	37
28	Automig 90S-D2	ER90S-D2	38
29	Automig IV	ER90S-D2	39
30	Tigfil 90S-D2	ER90S-D2	40
31	Automig 90S-G	ER90S-G	41
32	Tigfil 90S-G	ER90S-G	42
33	Automig 100S-G	ER100S-G	43
34	Tigfil 100S-G	ER100S-G	44
35	Automig 110S-G	ER110S-G	45
36	Tigfil 110S-G	ER110S-G	46
	GMAW/GTAW Stainless Steel		
37	Miginox 307		47
38	Miginox 308L	ER308L	48
39	Tiginox 308L	ER308L	49
40	Miginox 308LSi	ER308LSi	50
41	Tiginox 308H	ER308H	51
42	Miginox 309L	ER309L	52
43	Tiginox 309L	ER309L	53
44	Miginox 309LSi	ER309LSi	54

INDEX

Sr. No.	Product Name	AWS Classification	Page No.
	GMAW/GTAW Stainless Steel		
45	Miginox 309 Mo	ER309Mo	55
46	Tiginox 309 Mo	ER309Mo	56
47	Miginox 310	ER310	57
48	Tiginox 310	ER310	58
49	Miginox 316L	ER316L	59
50	Tiginox 316L	ER316L	60
51	Miginox 316LSi	ER316Lsi	61
52	Miginox 347	ER347	62
53	Tiginox 347	ER347	63
54	Miginox 347Si	ER347Si	64
55	Tiginox 385	ER385	65
56	Miginox 410	ER410	66
57	Tiginox 410	ER410	67
58	Miginox 410NiMo	ER410NiMo	68
59	Tiginox 410NiMo	ER410NiMo	69
60	Miginox 430	ER430	70
61	Tiginox 430	ER430	71
62	Miginox 430 Lnb		72
	GMAW/GTAW Duplex Stainless Steel		
63	Miginox 2209	ER2209	73
64	Tiginox 2209	ER2209	74
65	Tiginox 2594	ER2594	75
	GMAW/GTAW Nickel Alloys		
66	Automig Ni-1	ERNi-1	76
67	Tigfil Ni-1	ERNi-1	77
68	Automig NiCr3	ERNiCr-3	78
69	Tigfil NiCr3	ERNiCr-3	79
70	Automig NiCrMo-3	ERNiCrMo-3	80
71	Tigfil NiCrMo-3	ERNiCrMo-3	81
72	Automig NiCrMo-4	ERNiCrMo-4	82
73	Tigfil NiCrMo-4	ERNiCrMo-4	83
74	Automig NiCu-7	ERNiCu-7	84
75	Tigfil NiCu-7	ERNiCu-7	85
76	Tigfil 617	ERNiCrCoMo-1	86
	GMAW/GTAW Aluminium Alloys		
77	Automig 1100	ER1100	87
78	Tigfil 1100	ER1100	88
79	Automig 4043	ER 4043	89
80	Tigfil 4043	ER 4043	90
81	Automig 5183	ER 5183	91
82	Tigfil 5183	ER 5183	92
83	Automig 5356	ER 5356	93
84	Tigfil 5356	ER 5356	94
85	Automig 5556	ER5556	95
86	Tigfil 5556	ER5556	96
	GMAW/GTAW Copper Alloys		
87	Automig CuSn-A	ERCuSn-A	97
88	Autobraze CuSi	ERCuSi-A	98
89	Automig CuNi	ERCuNi	99
90	Tigfil CuNi	ERCuNi	100

INDEX

Sr. No.	Product Name	AWS Classification	Page No.
	GMAW/GTAW Copper Alloys		
91	Automig CuAl-A1	ERCuAl-A1	101
92	Tigfil CuAl-A1	ERCuAl-A1	102
93	Automig CuAl-A2	ERCuAl-A2	103
94	Tigfil CuAl-A2	ERCuAl-A2	104
	GTAW Cobalt Alloy		
95	Tigfil ST6	ERCoCr-A	105
	FCAW C-Mn Steel		
96	Automig FC 71T-1	E71T-1C	106
97	Automig FC 71T-5	E71T-5C/M H4	107
98	Automig FC 71T-1C-J	E71T-1C-J	108
	MCAW C-Mn Steel		
99	Automig MC 70C-6C	E70C-6CH4	109
100	Automig MC 70C-6M	E70C-6MH4	110
	FCAW Low Alloy Steel (High Temperature)		
101	Automig FC 81T1-B2	E81T1-B2C	111
102	Automig FC 91T1-B3	E91T1-B3C	112
	FCAW Low Alloy Steel (Low Temperature)		
103	Automig FC 81T-1Ni1	E81T1-Ni1C	113
104	Automig FC 81T1-Ni2	E81T1-Ni2C	114
105	Automig FC 81T1-K2	E81T1-K2C	115
106	Automig FC 80T5-K2	E80T5-K2C/MH4	116
107	Automig FC 90T5-K2	E90T5-K2C H4	117
	FCAW Low Alloy Steel (High Strength)		
108	Automig FC 18M Spl	E91T1-D1C	118
109	Automig FC 101T1-K3	E101T1-K3C	119
110	Automig FC 110T5-K4	E110T5-K4C H4	120
	FCAW Low Alloy Steel (Weathering Steel)		
111	Automig FC 180R	E81T1-W2 C	121
	FCAW Stainless Steel		
112	Miginox FC 308L	E308LT1-1/4	122
113	Miginox FC 309L	E309LT1-1/4	123
	FCAW Stainless Steel		
114	Miginox FC 316L	E316LT1-1/4	124
115	Miginox FC 347	E347T1-1/4	125
116	Miginox FC 410NiMo	E410NiMoT1-1/4	126
117	Miginox FC 2209	E2209T1-1/4	127
	MCAW Stainless Steel		
118	Miginox MC 409	EC409	128
	FCAW Hardfacing (Abrasion-Impact)		
119	Automig FC 580		129
120	Automig FC 600		130
	MCAW Hardfacing		
121	Automig MC 42		131
	Note on SAW Fluxes		133

INDEX

Sr. No.	Product Name	AWS Classification	Page No.
	SAW Wires		
122	C-Mn Steel wires for SAW welding		134
123	Wires for Submerged Arc Welding of Creep Resistant Steels		135
124	Wires for Submerged Arc Welding for Cryogenic Applications		136
125	Wires for Submerged Arc Welding of High Strength Steels		137
126	Wires for Submerged Arc Welding of Stainless Steels		138-139
127	Wires for Submerged Arc Welding of Nickel and Nickel Alloys		140
	SAW Flux		
128	Automelt A55 (Automelt Gr II)		141-142
129	Automelt A57		143-144
130	Automelt A81		145-146
131	Automelt A82		147-148
132	Automelt B31 (Automelt Gr IV)		149-150
133	Automelt B71		151-153
134	Automelt B22 Plus		154-155
135	Automelt B20 Plus		156-158
136	Automelt B41		159-160
137	Automelt B43		161-162
138	Automelt S33		163-164
139	Automelt S76		165
140	Automelt S79		166
	Strip Cladding Flux		
141	Automelt ES1		167
	Bare Brazing Rods		
142	Bras 3302		168
143	Bras 3305		169
144	Bras 3314		170
145	Bras 3343		171
146	Bras 3356		172
	Coated Brazing Rods		
147	Bracc 2211		173
148	Bracs 3344		174
149	Bracc 7700		175
	Brazing Fluxes		
150	Albraze A	FB1-A	176
151	Silbraze F	FB3-F	177
	Item Code - Wires and Fluxes		179-197
	Storage and handling instructions		199-203
	Safety features in welding		205-207

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/Ø 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/Ø	Using Ar-CO2 gas	Using Ar-CO2 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)

Wires

Section I

AUTOMIG I

GMAW C-Mn Steel

AWS A/SFA 5.18 **ER70S-6**

CLASSIFICATION:

EN ISO 14341-A
G 42 3 C1 3Si1
G 46 4 M21 3Si1
G 46 4 M24 3Si1

CSA W48
B-G 49A 3C1 S6

IS 6419
S4-C/M 504

KEY FEATURES:

- C-Mn steel solid wire
- Uniform copper coating
- Smooth wire feeding
- Can be use with 100% CO_2, Ar+CO_2
- Higher level of de-oxidizers makes it suitable for applications where dirt, rust or mill-scale is present
- Radiographic quality weld

APPROVALS: ABS/BV/DNV/IRS/IBR/LRA/NPCIL/RDSO/CE/CWB/BIS

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 BARE SOLID WIRE, Wt %:

C	Mn	Si
0.075	1.45	0.85

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	Shielding Gas	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact, J	
						@-30°C	@-50°C
Typical	As Welded	100% CO_2	570	470	25	50	-
Typical	As Welded	80Ar + 20CO_2	580	480	26	80	50

Special Test: HIC and SSCC (NACE)

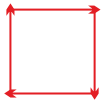
PARAMETERS - PACKING DATA:

Ø, mm	Wt / Spool, kg
0.8	15
1.0	15
1.2	15
1.6	15

DCEP

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions



Shielding Gas	Gas Flow Rate, LPM
CO_2	12-18
80Ar+20CO_2	17-22

Available in Plastic Spool & Wire Basket. Also Available in 100, 150 & 250Kg Drums

TIGFIL 70S-6

GTAW C-Mn Steel

AWS A/SFA 5.18 **ER70S-6**

CLASSIFICATION:

EN ISO 636-A
W 46 5 3Si1

KEY FEATURES:

- C-Mn steel filler rod
- Uniform copper coating
- Controllable weld pool
- Radiographic quality weld

APPROVALS: CE

TYPICAL APPLICATIONS:

- Root pass pipe welding
- Thin sheet metal, Auto body
- Farm implements, Steel casings
- Collision repair, Pressure vessels
- Application in high pressure piping for shipbuilding, petro chemical and nuclear power plant

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si
0.075	1.45	085

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	560	485	27	50

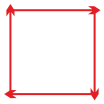
PARAMETERS - PACKING DATA:

Ø, mm	Net Wt Kg/Box
1.6 x 1000	20
2.0 x 1000	20
2.4 x 1000	20

DCEN

STORAGE / HANDLING :
Keep dry during storage and handling

All Positions



Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 20 kg box, containing 4 plastic tubes of 5 kg each.

TIGFIL 70S-2

GTAW C-Mn Steel

AWS A/SFA 5.18 **ER70S-2**

CLASSIFICATION:

EN ISO 636-A
W 42 3 2Ti

IS 6419
S4-I 504

KEY FEATURES:

- Triple deoxidized copper coated C-Mn steel filler rod
- High quality, high toughness welds
- Excellent choice for welding over rust and mill scale
- Radiographic quality weld

APPROVALS: ABS/DNV/LRA/NPCIL/IBR/CE

TYPICAL APPLICATIONS:

- Welding of Pressure vessel, Boilers involving unalloyed and micro-alloyed structural steels with specified UTS up to 520 MPa
- High quality pipe welding of mild and medium tensile steels
- Best suited for single side, melt through welding

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Ti	Zr	Al
0.055	1.1	0.45	0.08	0.04	0.08

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	470	26	65

Special Test: Hot Tensile Test at 196°C / HIC and SSCC (NACE)

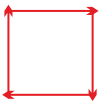
PARAMETERS - PACKING DATA:

Ø x L, mm	Net Wt Kg/Box
1.6 x 1000	20
2.0 x 1000	20
2.4 x 1000	20
3.15 x 1000	20

DCEN

STORAGE / HANDLING :
Keep dry during storage and handling

All Positions



Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 20 kg box, containing 4 plastic tubes of 5 kg each.

TIGFIL 70S-2 SPL

GTAW C-Mn Steel

AWS A/SFA 5.18 **ER70S-2**

CLASSIFICATION:

EN ISO 636-A
W 42 5 2Ti

KEY FEATURES:

- Triple deoxidized C-Mn steel filler rod with very low impurities
- Uniform copper coating
- Strong, tough and ductile weld metal
- Meets impact requirement at -46°C
- Radiographic weld quality

APPROVALS: ABS/BV/IBR/CE

TYPICAL APPLICATIONS:

- Welding NACE pipes-type A106 Gr.B or equivalent material
- Recommended for root runs of pipes and tubes for offshore application
- Pressure vessels, Boilers involving unalloyed and micro-alloyed structural steels with specified UTS up to 520 MPa

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Ti	Zr	Al
0.05	1.1	0.5	0.1	0.06	0.1

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	50

Hardness, 3 Layers: 210 BHN max

Special Test: HIC and SSCC (NACE)

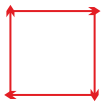
PARAMETERS - PACKING DATA:

Ø x L, mm	Net Wt Kg/Box
1.6 x 1000	20
2.0 x 1000	20
2.4 x 1000	20
3.15 x 1000	20

DCEN

STORAGE / HANDLING :
Keep dry during storage and handling

All Positions



Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 20 kg box, containing 4 plastic tubes of 5 kg each.

AUTOMIG 70S-G

GMAW C-Mn Steel

AWS A/SFA 5.18 **ER70S-G**

CLASSIFICATION:

EN ISO 14341-A
G 46 4 C1 4Si1
G 50 5 M21 4Si1

IS 6419
S4-C/M 504

KEY FEATURES:

- C-Mn steel GMAW solid wire
- Uniform copper coating
- Smooth wire feeding
- Can be use with 100% CO_2, Ar+CO_2
- All Position Welding capability
- Suitable for applications where dirt, rust or mill-scale is present
- Radiographic quality weld

APPROVALS: CE

TYPICAL APPLICATIONS:

- Pressure vessels, LPG Cylinders
- Construction and mining equipment
- Pipe and Structural steel welding
- Thin sheet metal, Auto body
- General fabrication
- Farm implements, Steel casings
- High-speed robotic, automatic and semi-automatic welding applications

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si
0.07	1.65	0.85

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	Shielding Gas	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -50°C, J
Typical	As Welded	100% CO_2	600	490	27	60
Typical	As Welded	80Ar + 20CO_2	615	500	28	70

Hardness, 3 Layer: 210 BHN max

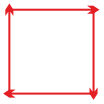
PARAMETERS - PACKING DATA:

Ø, mm	Wt / Spool, kg
0.8	15
1.0	15
1.2	15
1.6	15

DCEP

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions



Shielding Gas	Gas Flow Rate, LPM
CO_2	12-18
80Ar+20CO_2	17-22

AUTOMIG 70S-6N

GMAW C-Mn Steel

AWS A/SFA 5.18 **ER70S-6**

CLASSIFICATION:

EN ISO 14341-A
G 46 4 M21 3Si1
G 46 4 M24 3Si1

IS 6419
S4-C/M 504

KEY FEATURES:

- Copper free C-Mn steel solid wire
- Smooth and stable arc
- Lowest spatter, Smooth feedability
- Best anti-rust properties
- Low smoke levels
- Best suited for high speed welding
- Operates at high current density
- Suitable for applications where dirt, rust or mill-scale is present
- Radiographic quality weld

APPROVALS: CWB/CE

TYPICAL APPLICATIONS:

- Construction and mining equipment
- Structural steel components
- Frame fabrication, Tanks
- General fabrication
- Auto body
- Farm implements, Steel casings
- High-speed robotic, automatic and semiautomatic welding applications

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si
0.075	1.45	0.85

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -40°C, J
Typical	As Welded	590	480	26	50

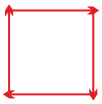
Hardness, 3 Layer: 200 BHN max

PARAMETERS - PACKING DATA:

Ø, mm	Wt / Spool, kg
0.8	15
1.0	15
1.2	15
1.6	15

DCEP

All Positions



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
80Ar+20CO_2	17-22

AUTOMIG 70S-A1

GMAW LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.28 **ER70S-A1**

CLASSIFICATION:

EN ISO 21952-B
G 52 M13 1M3

IS 6419
SLA-1-M-501

KEY FEATURES:

- Copper coated low alloy GMAW wire & rod
- Typical 0.5Mo content
- Smooth feeding and stable arc under optimum welding conditions
- Increase strength at elevated temperature
- Weld deposit highly resistant to cold cracking
- Shiny welds of radiographic quality

APPROVALS: IBR/CE

TYPICAL APPLICATIONS:

- Welding creep resistant 0.5% Mo steels and fine grained steels with service temperatures up to 500°C
- High temperature and high pressure boilers
- Suitable for 15Mo3, 16Mo3, 14Mo6
- Welding low alloy steels such as type ASTM A335 grade P1 and similar materials
- Pipe line and crane construction as well as in structural steel engineering

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Mo
0.08	1.1	0.55	0.45

MECHANICAL PROPERTIES OF ALL WELD METAL:

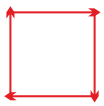
	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%
Typical	PWHT: 620°C for 1 hr	580	470	24

PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
1.2	15
1.6	15

DCEP

All Positions



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
Ar/1-5O_2	15-20

TIGFIL 70S-A1

GTAW LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.28 ER70S-A1

CLASSIFICATION:

EN ISO 21952-B
G 52 I1 1M3

IS 6419
SLA-1-I-501

KEY FEATURES:

- Copper coated low alloy GMAW wire
- Typical 0.5Mo content
- Smooth feeding and stable arc under optimum welding conditions
- Increase strength at elevated temperature
- Weld deposit highly resistant to cold cracking
- Shiny welds of radiographic quality

APPROVALS: IBR/CE

TYPICAL APPLICATIONS:

- Welding creep resistant 0.5% Mo steels and fine grained steels with service temperatures up to 500°C
- High temperature and high pressure boilers
- Suitable for 15Mo3, 16Mo3, 14Mo6
- Welding low alloy steels such as type ASTM A335 grade P1 and similar materials
- Pipe line and crane construction as well as in structural steel engineering

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Mo
0.08	1.1	0.55	0.45

MECHANICAL PROPERTIES OF ALL WELD METAL:

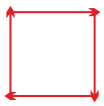
	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%
Typical	PWHT: 620°C for 1 hr	580	470	24

PARAMETERS - PACKING DATA:

Ø x L, mm	Net Wt Kg/Box
1.6 x 1000	20
2.0 x 1000	20
2.4 x 1000	20

DCEN

All Positions



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 20 kg box, containing 4 plastic tubes of 5 kg each.

AUTOMIG 80S-B2

GMAW LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.28 **ER80S-B2**

CLASSIFICATION:

EN ISO 21952-B
G 55 M13 1CM

IS 6419
SLA-3-M-531

KEY FEATURES:

- Copper coated low alloy steel solid filler wire & rod
- Uniform copper coating
- Deposit notch free welds with excellent mechanical properties
- Typical 1.25 Cr-0.5 Mo weld deposit
- Careful control of pre-heat, interpass temperature & PWHT is essential to avoid cracking
- Radiographic quality weld

APPROVALS: IBR/CE

TYPICAL APPLICATIONS:

- Welding of 0.5Cr-0.5Mo, 1Cr-0.5Mo and 1.25Cr-0.5Mo steel pipes, plates and castings
- Elevated temperature and corrosive service applications in Refineries, Petrochemicals & fertilizers plant
- Can be used for joining dissimilar combinations of Cr-Mo and Carbon steels
- Suitable for ASTM A 199-76, A 200-75, A 213-76D, A 335 Gr.P11, A 369-76, A 387 Gr.B, DIN 15CrMo3

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr	Mo
0.1	0.6	0.5	1.25	0.52

MECHANICAL PROPERTIES OF ALL WELD METAL:

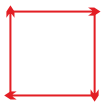
	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%
Typical	PWHT: 620°C for 1 hr	620	530	22

PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
1.2	15
1.6	15

DCEP

All Positions



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
Ar/1-5O_2	15-20

TIGFIL 80S-B2

GTAW LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.28 ER80S-B2

CLASSIFICATION:

EN ISO 21952-B
W 55 I13 1CM

IS 6419
SLA-3-I-531

APPROVALS: IBR/CE

KEY FEATURES:

- Copper coated low alloy steel solid filler wire
- Uniform copper coating
- Deposit notch free welds with excellent mechanical properties
- Typical 1.25 Cr-0.5 Mo weld deposit
- Careful control of pre-heat, interpass temperature & PWHT is essential to avoid cracking
- Radiographic quality weld

TYPICAL APPLICATIONS:

- Welding of 0.5Cr-0.5Mo, 1Cr-0.5Mo and 1.25Cr-0.5Mo steel pipes, plates and castings
- Elevated temperature and corrosive service applications in Refineries, Petrochemicals & fertilizers plant
- Can be used for joining dissimilar combinations of Cr-Mo and Carbon steels
- Suitable for ASTM A 199-76, A 200-75, A 213-76D, A 335 Gr.P11, A 369-76, A 387 Gr.B, DIN 15CrMo3

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr	Mo
0.1	0.6	0.5	1.25	0.52

MECHANICAL PROPERTIES OF ALL WELD METAL:

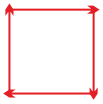
	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%
Typical	PWHT: 620°C for 1 hr	620	530	22

PARAMETERS - PACKING DATA:

Ø x L, mm	Net Wt., Kg
1.6 x 1000	20
2.0 x 1000	20
2.4 x 1000	20

DCEN

All Positions



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 20 kg box, containing 4 plastic tubes of 5 kg each.

TIGFIL 80S-B2 SPL

GTAW LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.28 ER80S-B2

CLASSIFICATION:

EN ISO 21952-B
W 55 I1 1CM

KEY FEATURES:

- Copper coated low alloy steel solid filler rod
- Typical 1.25 Cr-0.5 Mo weld deposit
- Notch free welds with excellent mechanical properties
- Meets X factor requirement
- Control on pre-heat, interpass temperature required
- PWHT is essential to avoid cracking
- Radiographic quality weld

TYPICAL APPLICATIONS:

- Welding of 0.5Cr-0.5Mo, 1Cr-0.5Mo and 1.25Cr0.5Mo steel pipes, plates and castings
- Elevated temperature and corrosive service applications in Refineries, Petrochemicals & fertilizers plant
- Can be used for joining dissimilar combinations of Cr-Mo and Carbon steels
- Suitable for ASTM A 199-76, A 200-75, A 213-76D, A 335 Gr.P11, A 369-76, A 387 Gr.B, DIN 15CrMo3

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr	Mo
0.1	0.6	0.5	1.25	0.5

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -30°C, J
Typical	PWHT: 620°C for 1 Hr	600	570	21	40

Special Test: X Factor = (10P + 5Sb + 4Sn + As)/100<15ppm

CREEP TEST DATA:

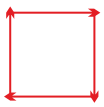
Condition	Temperature, °C	Stress, MPa	Duration, Hrs	Strain% after 1000 Hrs
PWHT: 695°C for 1 Hr	500	300	1000	1.54
	550	140	1000	0.99

PARAMETERS - PACKING DATA:

Ø x L, mm	Net Wt., Kg
1.6 x 1000	20
2.0 x 1000	20
2.4 x 1000	20
3.15 x 1000	20

DCEN

All Positions



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 20 kg box, containing 4 plastic tubes of 5 kg each.

AUTOMIG 90S-B3

GMAW LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.28 **ER90S-B3**

CLASSIFICATION:

EN ISO 21952-B
G 62 M13 2C1M

IS 6419
SLA-4-M-561

KEY FEATURES:

- Copper coated low alloy steel solid filler wire & rod
- Uniform copper coating
- Deposit notch free welds with excellent mechanical properties
- Typical 2.25 Cr-1 Mo weld deposit
- Superior strength and toughness after PWHT
- Radiographic quality weld

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of 2.25Cr-0.5Mo and 2.25Cr-1Mo type creep resistant steels
- Joining ASTM A 335 Gr.P22, A 387 Gr.22 materials
- Refineries, Petrochemicals and fertilizers plant
- Joining of P5A materials
- Cr-Mo and Cr-Mo-V bearing steels for hightemperature applications
- Suitable for 12CrMo9-10, 10CrSiMoV7 German steels

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr	Mo
0.09	0.6	0.5	2.45	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	680	600	20

CREEP TEST DATA:

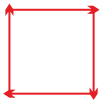
Condition	Temperature, °C	Stress, MPa	Duration, Hrs	Strain% after 1000 Hrs
PWHT: 690°C for 1 Hr	550	140	1000	0.92
	600	80	1000	1.28

PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
1.2	15
1.6	15

DCEP

All Positions



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
Ar/1-5O_2	15-20

TIGFIL 90S-B3

GTAW LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.28 **ER90S-B3**

CLASSIFICATION:

EN ISO 21952-B
W 62 I1 2C1M

IS 6419
SLA-4-I-561

KEY FEATURES:

- Copper coated low alloy steel solid filler wire & rod
- Uniform copper coating
- Deposit notch free welds with excellent mechanical properties
- Typical 2.25 Cr-1 Mo weld deposit
- Superior strength and toughness after PWHT
- Radiographic quality weld

APPROVALS: IBR/CE

TYPICAL APPLICATIONS:

- Welding of 2.25Cr-0.5Mo and 2.25Cr-1Mo type creep resistant steels
- Joining ASTM A 335 Gr.P22, A 387 Gr.22 materials
- Refineries, Petrochemicals and fertilizers plant
- Joining of P5A materials
- Cr-Mo and Cr-Mo-V bearing steels for hightemperature applications
- Suitable for 12CrMo9-10, 10CrSiMoV7 German steels

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr	Mo
0.09	0.6	0.5	2.45	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	680	600	20

CREEP TEST DATA:

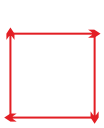
Condition	Temperature, °C	Stress, Mpa	Duration, Hrs	Strain% after 1000 Hrs
PWHT: 690°C for 1 Hr	550	140	1000	0.92
	600	80	1000	1.28

PARAMETERS - PACKING DATA:

Ø x L, mm	Net Wt., Kg
1.6 x 1000	20
2.0 x 1000	20
2.4 x 1000	20

DCEN

All Positions



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 20 kg box, containing 4 plastic tubes of 5 kg each.

TIGFIL 90S-B3 SPL

GTAW LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.28 ER90S-B3

CLASSIFICATION:

EN ISO 21952-B
W 62 I1 2C1M

IS 6419
SLA-4-I-564

KEY FEATURES:

- Copper coated low alloy steel solid filler rod
- Typical 2.25 Cr-1 Mo weld deposit
- Notch free welds with excellent mechanical properties
- Superior strength and toughness after PWHT
- Meets X factor requirement
- Radiographic quality weld

TYPICAL APPLICATIONS:

- Welding of 2.25Cr-0.5Mo and 2.25Cr-1Mo type creep resistant steels
- Joining ASTM A 335 Gr.P22, A 387 Gr.22 materials
- Refineries, Petrochemicals and fertilizers plant
- Joining of P5A materials
- Cr-Mo and Cr-Mo-V bearing steels for hightemperature applications
- Suitable for 12CrMo9-10, 10CrSiMoV7 German steels

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr	Mo
0.1	0.6	0.5	2.5	0.95

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	700	600	20	50

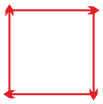
Special Test: X Factor = (10P + 5Sb + 4Sn + As)/100<15ppm

PARAMETERS - PACKING DATA:

Ø x L, mm	Net Wt., Kg
1.6 x 1000	20
2.0 x 1000	20
2.4 x 1000	20

DCEN

All Positions



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 20 kg box, containing 4 plastic tubes of 5 kg each.

AUTOMIG 80S-B6

GMAW LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.28 **ER80S-B6**

CLASSIFICATION:

EN ISO 21952-B
G 55 M13 5CM

IS 6419
SLA-5-M-531

KEY FEATURES:

- Copper coated low alloy steel solid filler wire & rod
- Uniform copper coating
- Recommended pre-heat and interpass temperature 350-450°C
- Typical 5 Cr-0.5 Mo weld deposit
- Air hardenable alloy resistant to creep at elevated temperature up to 650°C
- Radiographic quality weld

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of 5 Cr-0.5 Mo creep resistant steels and equivalent grades
- Application in power generation, ammonia synthesis plants and petrochemical industries
- Joining P5/T5 materials of similar composition
- Joining P5B materials e.g. SA 336/336M Gr.F5, SA 387/387M Gr.5

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr	Mo
0.08	0.5	0.35	5.5	0.5

MECHANICAL PROPERTIES OF ALL WELD METAL:

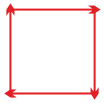
	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%
Typical	PWHT: 745°C for 1 hr	620	520	21

PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
1.2	15
1.6	15

DCEP

All Positions



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
Ar/1-5O_2	15-22

TIGFIL 80S-B6

GTAW LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.28 **ER80S-B6**

CLASSIFICATION:

EN ISO 21952-B
W 55 I1 5CM

IS 6419
SLA-5-I-531

KEY FEATURES:

- Copper coated low alloy steel solid filler wire & rod
- Uniform copper coating
- Recommended pre-heat and interpass temperature 350-450°C
- Typical 5 Cr-0.5 Mo weld deposit
- Air hardenable alloy resistant to creep at elevated temperature up to 650°C
- Radiographic quality weld

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of 5 Cr-0.5 Mo creep resistant steels and equivalent grades
- Application in power generation, ammonia synthesis plants and petrochemical industries
- Joining P5/T5 materials of similar composition
- Joining P5B materials e.g. SA 336/336M Gr.F5, SA 387/387M Gr.5

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr	Mo
0.08	0.5	0.35	5.5	0.5

MECHANICAL PROPERTIES OF ALL WELD METAL:

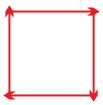
	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%
Typical	PWHT: 745°C for 1 hr	620	520	21

PARAMETERS - PACKING DATA:

Ø x L, mm	Net Wt., Kg
1.6 x 1000	20
2.0 x 1000	20
2.4 x 1000	20

DCEN

All Positions



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 20 kg box, containing 4 plastic tubes of 5 kg each.

AUTOMIG 80S-B8

GMAW LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.28 **ER80S-B8**

CLASSIFICATION:

EN ISO 21952-B
G 55 M13 9C1M

KEY FEATURES:

- Copper coated low alloy steel solid filler wire & rod
- Uniform copper coating
- Careful control over pre-heat, interpass temperature required
- Typical 9 Cr-1 Mo weld deposit
- Air hardenable alloy highly resistant to elevated temperature creep and heat
- Radiographic quality weld

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of 9Cr-1Mo type and equivalent materials in pipe and tube forms
- Welding of ferritic martensitic chrome steels
- For general corrosion and heat resistance application
- Joining P9/T9 materials of similar composition
- Application in Power plants, Oil refineries, Chemical and Petrochemical industries

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr	Mo
0.08	0.55	0.45	8.7	1.0

MECHANICAL PROPERTIES OF ALL WELD METAL:

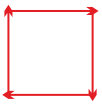
	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%
Specification	PWHT: 745°C for 1 hr	630	570	20

PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
1.2	15
1.6	15

DCEP

All Positions



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
Ar/1-5O_2	15-22

TIGFIL 80S-B8

GTAW LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.28 ER80S-B8

CLASSIFICATION:

EN ISO 21952-B
W 55 I1 9C1M

KEY FEATURES:

- Copper coated low alloy steel solid filler wire & rod
- Uniform copper coating
- Careful control over pre-heat, interpass temperature required
- Typical 9 Cr-1 Mo weld deposit
- Air hardenable alloy highly resistant to elevated temperature creep and heat
- Radiographic quality weld

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of 9Cr-1Mo type and equivalent materials in pipe and tube forms
- Welding of ferritic martensitic chrome steels
- For general corrosion and heat resistance application
- Joining P9/T9 materials of similar composition
- Application in Power plants, Oil refineries, Chemical and Petrochemical industries

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr	Mo
0.08	0.55	0.45	8.7	1.0

MECHANICAL PROPERTIES OF ALL WELD METAL:

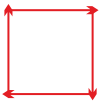
	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%
Typical	PWHT: 745°C for 1 hr	630	570	20

PARAMETERS - PACKING DATA:

Ø x L, mm	Net Wt., Kg
1.6 x 1000	20
2.0 x 1000	20
2.4 x 1000	20

DCEN

All Positions



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 20 kg box, containing 4 plastic tubes of 5 kg each.

AUTOMIG 90S-B9

GMAW LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.28 **ER90S-B91**

CLASSIFICATION:

EN ISO 21952-B
G 55 M13 9C1MV

KEY FEATURES:

- Copper coated low alloy steel solid filler wire & rod
- Typical 9Cr-1Mo-V-Nb type weld deposit
- Uniform copper coating
- Smooth wire feeding
- Offers improved long-term creep properties
- Radiographic quality weld

APPROVALS: CE

TYPICAL APPLICATIONS:

- Suitable for welding of Cr-Mo-V-Nb steels such as P91, T91 and F91
- Suitable for material 1.4903, SA 387 Gr.91, SA 213, T91, SA 335 P91
- For heavy wall components such as headers, main steam piping and turbine rotors in power generating plants

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr	Mo	Ni	V	Al	Nb
0.1	0.5	0.3	8.7	0.95	0.35	0.2	0.02	0.04

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%
Typical	PWHT: 760°C for 2 Hrs	680	570	18

CREEP TEST DATA:

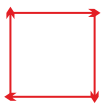
Temperature, °C	Stress, MPa	Duration, Hrs	Strain% after 1000 Hrs
550	240	1000	2.26
600	160	1000	3.04

PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
1.2	15
1.6	15

DCEP

All Positions



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
Ar+5O_2	15-22

TIGFIL 90S-B9

GTAW LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.28 **ER90S-B9**

CLASSIFICATION:

EN ISO 21952-B
W 62 I1 9C1MV

KEY FEATURES:

- Copper coated low alloy steel solid filler wire & rod
- Typical 9Cr-1Mo-V-Nb type weld deposit
- Uniform copper coating
- Smooth wire feeding
- Offers improved long-term creep properties
- Radiographic quality weld

APPROVALS: IBR/CE

TYPICAL APPLICATIONS:

- Suitable for welding of Cr-Mo-V-Nb steels such as P91, T91 and F91
- Suitable for material 1.4903, SA 387 Gr.91, SA 213, T91, SA 335 P91
- For heavy wall components such as headers, main steam piping and turbine rotors in power generating plants

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr	Mo	Ni	V	Al	Nb
0.1	0.5	0.3	8.7	0.95	0.35	0.2	0.02	0.04

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%
Typical	PWHT: 760°C for 2 Hrs	680	570	18

CREEP TEST DATA:

Temperature, °C	Stress, Mpa	Duration, Hrs	Strain% after 1000 Hrs
550	240	1000	2.26
600	160	1000	3.04

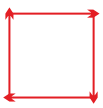
PARAMETERS - PACKING DATA:

Ø x L, mm	Net Wt., Kg
1.6 x 1000	20
2.0 x 1000	20
2.4 x 1000	20

DCEN

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions



Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 20 kg box, containing 4 plastic tubes of 5 kg each.

AUTOMIG 80S-Ni1

GMAW LOW ALLOY STEEL (Low Temperature)

AWS A/SFA 5.28 **ER80S-Ni1**

CLASSIFICATION:

EN ISO 14341-B
G 55A 5U M13 N2

KEY FEATURES:

- Copper coated low alloy steel solid filler wire & rod
- Typical 1%Ni-Mn alloy
- Uniform copper coating
- Medium strength weld deposit gives high impact at -45°C
- Radiographic quality weld

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of 1% Ni steels
- Welding fine grained and low alloyed Ni steels
- Welding of steels for application at sub-zero temperature

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Ni
0.065	1.0	0.5	0.9

MECHANICAL PROPERTIES OF ALL WELD METAL:

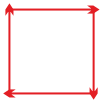
	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -45°C, J
Typical	As Welded	565	490	27	55

PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
1.2	15
1.6	15

DCEP

All Positions



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
Ar/1-5O_2	15-22

TIGIL 80S-Ni1

GTAW LOW ALLOY STEEL (Low Temperature)

AWS A/SFA 5.28 **ER80S-Ni1**

CLASSIFICATION:

EN ISO 636-A
W 55A 5U N2

KEY FEATURES:

- Copper coated low alloy steel solid filler wire & rod
- Typical 1%Ni-Mn alloy
- Uniform copper coating
- Medium strength weld deposit gives high impact at -45°C
- Radiographic quality weld

APPROVALS: ABS/BV/CE

TYPICAL APPLICATIONS:

- Welding of 1% Ni steels
- Welding fine grained and low alloyed Ni steels
- Welding of steels for application at sub-zero temperature

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Ni
0.065	1.0	0.5	0.9

MECHANICAL PROPERTIES OF ALL WELD METAL:

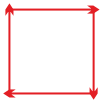
	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -45°C, J
Typical	As Welded	565	490	27	55

PARAMETERS - PACKING DATA:

Ø x L, mm	Net Wt., Kg
1.6 x 1000	20
2.0 x 1000	20
2.4 x 1000	20

DCEN

All Positions



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 20 kg box, containing 4 plastic tubes of 5 kg each.

AUTOMIG 80S-Ni2

GMAW LOW ALLOY STEEL (Low Temperature)

AWS A/SFA 5.28 **ER80S-Ni2**

CLASSIFICATION:

EN ISO 636-A
G 55P 6U M13 N5

KEY FEATURES:

- Copper coated low alloy steel solid filler wire & rod
- Typical 2.5% Ni-Mn alloy
- Uniform copper coating
- Tough, crack resistant weld deposit gives high impact at -60°C
- Radiographic quality weld

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of 2.5% Ni steels
- Welding fine grained and low alloyed Ni steels
- Welding of storage tanks for low temperature application
- Offshore applications

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Ni
0.06	1.0	0.5	2.3

MECHANICAL PROPERTIES OF ALL WELD METAL:

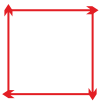
	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -60°C, J
Typical	As Welded	590	510	28	50

PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
1.2	15
1.6	15

DCEN

All Positions



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
Ar/1-5O_2	15-22

TIGFIL 80S-Ni2

GTAW LOW ALLOY STEEL (Low Temperature)

AWS A/SFA 5.28 **ER80S-Ni2**

CLASSIFICATION:

EN ISO 636-A
W 55P 5U N5

KEY FEATURES:

- Copper coated low alloy steel solid filler wire & rod
- Typical 2.5% Ni-Mn alloy
- Uniform copper coating
- Tough, crack resistant weld deposit gives high impact at -60°C
- Radiographic quality weld

APPROVALS: CE/ABS/BV

TYPICAL APPLICATIONS:

- Welding of 2.5% Ni steels
- Welding fine grained and low alloyed Ni steels
- Welding of storage tanks for low temperature application
- Offshore applications

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Ni
0.06	1.0	0.5	0.9

MECHANICAL PROPERTIES OF ALL WELD METAL:

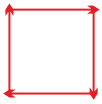
	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -60°C, J
Typical	As Welded	590	510	28	50

PARAMETERS - PACKING DATA:

Ø x L, mm	Net Wt., Kg
1.6 x 1000	20
2.0 x 1000	20
2.4 x 1000	20

DCEN

All Positions



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 20 kg box, containing 4 plastic tubes of 5 kg each.

AUTOMIG 80S-D2

GMAW LOW ALLOY STEEL (High Strength)

AWS A/SFA 5.28 **ER80S-D2**

CLASSIFICATION:

EN ISO 16834-B
G 4M31

KEY FEATURES:

- Copper coated solid filler wire and rod
- Mn-0.5 Mo type welds deposit
- Uniform copper coating
- Mo Provide increased strength
- High levels of Mn and Si provide good wetting, rust and scale tolerance
- Excellent sub-zero toughness
- Porosity free radiographic quality weld

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of Mn-0.5 Mo steel
- Application in oil process pipe work and fittings where resistance to sulphide-induced stress corrosion cracking is important
- Suitable for single and multiple pass welding
- Variety of ordinary and difficult to weld carbon and low alloy, higher strength steels in both as welded and PWHT condition

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Mo
0.09	1.7	0.5	0.45

MECHANICAL PROPERTIES OF ALL WELD METAL:

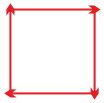
	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -30°C, J
Typical	As Welded	590	500	21	55

PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
1.2	15
1.6	15

DCEP

All Positions



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
CO_2	15-22

TIGFIL 80S-D2

GTAW LOW ALLOY STEEL (High Strength)

AWS A/SFA 5.28 **ER80S-D2**

CLASSIFICATION:

EN 1668
W 4M31

KEY FEATURES:

- Copper coated solid filler wire and rod
- Mn-0.5 Mo type welds deposit
- Uniform copper coating
- Mo Provide increased strength
- High levels of Mn and Si provide good wetting, rust and scale tolerance
- Excellent sub-zero toughness
- Porosity free radiographic quality weld

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of Mn-0.5 Mo steel
- Application in oil process pipe work and fittings where resistance to sulphide-induced stress corrosion cracking is important
- Suitable for single and multiple pass welding
- Variety of ordinary and difficult to weld carbon and low alloy, higher strength steels in both as welded and PWHT condition

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Mo
0.09	1.7	0.5	0.45

MECHANICAL PROPERTIES OF ALL WELD METAL:

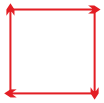
	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -30°C, J
Typical	As Welded	590	500	21	55

PARAMETERS - PACKING DATA:

Ø x L, mm	Net Wt., Kg
1.6 x 1000	20
2.0 x 1000	20
2.4 x 1000	20

DCEN

All Positions



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 20 kg box, containing 4 plastic tubes of 5 kg each.

AUTOMIG 80S-G

GMAW LOW ALLOY STEEL (High Strength)

AWS A/SFA 5.28 **ER80S-G**

KEY FEATURES:

- Copper coated low alloy steel solid filler wire & rod
- Characterized by smooth and shiny welds
- Uniform copper coating
- Provide good wetting, rust and scale tolerance
- Weld deposit is resistant to cold cracking
- Radiographic quality even over poor cleaned base metals

APPROVALS: IBR

TYPICAL APPLICATIONS:

- Welding of Mn-0.5 Mo steel
- Pipelines and pressure vessels with operating temperatures of about 500°C
- Repair of medium strength steel castings
- Suitable for a wide range of base metals such as problem steels containing high sulfur to the basic carbon and low alloy Cr-Mo base metals

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Mo
0.09	1.7	0.6	0.4

MECHANICAL PROPERTIES OF ALL WELD METAL:

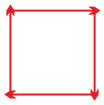
	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -30°C, J
Typical	As Welded	600	540	24	50

PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
1.2	15
1.6	15

DCEP

All Positions



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
CO_2	15-20

TIGFIL 80S-G

GTAW LOW ALLOY STEEL (High Strength)

AWS A/SFA 5.28 **ER80S-G**

KEY FEATURES:

- Copper coated low alloy steel solid filler wire & rod
- Characterized by smooth and shiny welds
- Uniform copper coating
- Provide good wetting, rust and scale tolerance
- Weld deposit is resistant to cold cracking
- Radiographic quality even over poor cleaned base metals

APPROVALS: IBR

TYPICAL APPLICATIONS:

- Welding of Mn-0.5 Mo steel
- Pipelines and pressure vessels with operating temperatures of about 500°C
- Repair of medium strength steel castings
- Suitable for a wide range of base metals such as problem steels containing high sulfur to the basic carbon and low alloy Cr-Mo base metals

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Mo
0.09	1.7	0.6	0.4

MECHANICAL PROPERTIES OF ALL WELD METAL:

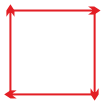
	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -30°C, J
Typical	As Welded	600	540	24	50

PARAMETERS - PACKING DATA:

Ø x L, mm	Net Wt., Kg
1.6 x 1000	20
2.0 x 1000	20
2.4 x 1000	20

DCEN

All Positions



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 20 kg box, containing 4 plastic tubes of 5 kg each.

AUTOMIG 90S-D2

GMAW LOW ALLOY STEEL (High Strength)

AWS A/SFA 5.28 **ER90S-D2**

KEY FEATURES:

- Copper coated solid filler wire and rod
- Mn-0.5 Mo type welds deposit
- Uniform copper coating
- Mo addition for high strength
- High level of deoxidizers for defect free welds
- Excellent low temperature toughness
- Porosity free radiographic quality weld

APPROVALS: IBR

TYPICAL APPLICATIONS:

- Welding of high tensile steels like IS 8500 Gr.540B,570B & 590B, IS 2002 Gr.3, IS 1875 Class 3A
- Welding of Sailma 450/450HI steel used in CONCOR wagon
- Suitable for singal and multiple pass welding
- High temperature service pipe, fittings, flanges and valves

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Mo
0.09	1.7	0.5	0.45

MECHANICAL PROPERTIES OF ALL WELD METAL:

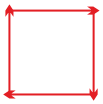
	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -30°C, J
Typical	As Welded	640	580	20	50 min

PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
1.2	15
1.6	15

DCEP

All Positions



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
Ar/1-5O_2	15-22

AUTOMIG IV

GMAW LOW ALLOY STEEL (High Strength)

AWS A/SFA 5.28 ER90S-D2

KEY FEATURES:

- Copper coated solid filler wire and rod
- Mn-0.5 Mo type welds deposit
- Uniform copper coating
- Mo addition for high strength
- High level of deoxidizers for defect free welds
- Excellent low temperature toughness
- Porosity free radiographic quality weld

APPROVALS: IBR/RDSO

TYPICAL APPLICATIONS:

- Welding of high tensile steels like IS 8500 Gr.540B,570B & 590B, IS 2002 Gr.3, IS 1875 Class 3A
- Welding of Sailma 450/450Hi steel used in CONCOR wagon
- Suitable for singal and multiple pass welding
- High temperature service pipe, fittings, flanges and valves

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Mo
0.09	1.7	0.5	0.45

MECHANICAL PROPERTIES OF ALL WELD METAL:

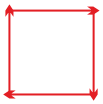
	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -30°C, J
Typical	As Welded	640	580	20	50 min

PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
1.2	15
1.6	15

DCEP

All Positions



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
Ar/1-5O_2	15-22

TIGFIL 90S-D2

GTAW LOW ALLOY STEEL (High Strength)

AWS A/SFA 5.28 ER90S-D2

KEY FEATURES:

- Copper coated solid filler wire and rod
- Mn-0.5 Mo type welds deposit
- Uniform copper coating
- Mo addition for high strength
- High level of deoxidizers for defect free welds
- Excellent low temperature toughness
- Porosity free radiographic quality weld

APPROVALS: IBR

TYPICAL APPLICATIONS:

- Welding of high tensile steels like IS 8500 Gr.540B,570B & 590B, IS 2002 Gr.3, IS 1875 Class 3A
- Welding of Sailma 450/450Hi steel used in CONCOR wagon
- Suitable for singal and multiple pass welding
- High temperature service pipe, fittings, flanges and valves

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Mo
0.09	1.7	0.5	0.45

MECHANICAL PROPERTIES OF ALL WELD METAL:

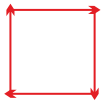
	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -30°C, J
Typical	As Welded	640	580	20	50

PARAMETERS - PACKING DATA:

Ø x L, mm	Net Wt., Kg
1.6 x 1000	20
2.0 x 1000	20
2.4 x 1000	20

DCEN

All Positions



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 20 kg box, containing 4 plastic tubes of 5 kg each.

AUTOMIG 90S-G

GMAW LOW ALLOY STEEL (High Strength)

AWS A/SFA 5.28 **ER90S-G**

KEY FEATURES:

- Copper coated high strength low alloy steel GMAW wire & rod
- Welds even over poor cleaned base metals
- Moderately high strength with adequate low temperature toughness
- Exhibits excellent out of position characteristics
- Radiographic weld quality

TYPICAL APPLICATIONS:

- Welding high sulfur bearing free machining steels, medium carbon steels, 0.5 Mo steels and high temperature resistant steels
- Pipelines and pressure vessels with operating temperatures of about 500°C
- Repair of medium strength steel castings

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Mo
0.09	1.7	0.55	0.5

MECHANICAL PROPERTIES OF ALL WELD METAL:

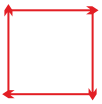
	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -30°C, J
Typical	As Welded	650	570	25	45

PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
1.2	15
1.6	15

DCEP

All Positions



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
Ar/1-5O_2	15-20

TIGFIL 90S-G

GTAW LOW ALLOY STEEL (High Strength)

AWS A/SFA 5.28 ER90S-G

KEY FEATURES:

- Copper coated high strength low alloy steel GMAW wire & rod
- Welds even over poor cleaned base metals
- Moderately high strength with adequate low temperature toughness
- Exhibits excellent out of position characteristics
- Radiographic weld quality

TYPICAL APPLICATIONS:

- Welding high sulfur bearing free machining steels, medium carbon steels, 0.5 Mo steels and high temperature resistant steels
- Pipelines and pressure vessels with operating temperatures of about 500°C
- Repair of medium strength steel castings

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Mo
0.09	1.7	0.55	0.5

MECHANICAL PROPERTIES OF ALL WELD METAL:

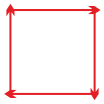
	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -30°C, J
Typical	As Welded	650	570	25	45

PARAMETERS - PACKING DATA:

Ø x L, mm	Net Wt., Kg
1.6 x 1000	20
2.0 x 1000	20
2.4 x 1000	20

DCEN

All Positions



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 20 kg box, containing 4 plastic tubes of 5 kg each.

AUTOMIG 100S-G

GMAW LOW ALLOY STEEL (High Strength)

AWS A/SFA 5.28 **ER100S-G**

KEY FEATURES:

- Copper coated alloy steel wire
- Ni-Cr-Mo alloyed
- Smooth feedability, low spatter
- Exhibit high strength as well as low temperature toughness
- Radiographic quality

TYPICAL APPLICATIONS:

- Welding of HY 80 and other similar grade materials
- Welding of high strength and low alloy steels
- Joining large vehicles and crane manufacturing
- Suitable for single and multi-pass welding of low alloy steels

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr	Ni	Mo
0.07	1.4	0.6	0.45	1.4	0.2

MECHANICAL PROPERTIES OF ALL WELD METAL:

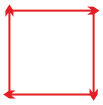
	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -40°C, J
Typical	As Welded	800	710	24	60

PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
1.2	15
1.6	15

DCEP

All Positions



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
Ar/1-5O_2	15-20

TIGFIL 100S-G

GTAW LOW ALLOY STEEL (High Strength)

AWS A/SFA 5.28 ER100S-G

KEY FEATURES:

- Copper coated alloy steel wire
- Ni-Cr-Mo alloyed
- Smooth feedability, low spatter
- Exhibit high strength as well as low temperature toughness
- Radiographic quality

TYPICAL APPLICATIONS:

- Welding of HY 80 and other similar grade materials
- Welding of high strength and low alloy steels
- Joining large vehicles and crane manufacturing
- Suitable for single and multi-pass welding of low alloy steels

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr	Ni	Mo
0.07	1.4	0.6	0.45	1.4	0.2

MECHANICAL PROPERTIES OF ALL WELD METAL:

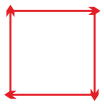
	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -40°C, J
Typical	As Welded	800	710	24	60

PARAMETERS - PACKING DATA:

Ø x L, mm	Net Wt., Kg
1.6 x 1000	20
2.0 x 1000	20
2.4 x 1000	20

DCEN

All Positions



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 20 kg box, containing 4 plastic tubes of 5 kg each.

AUTOMIG 110S-G

GMAW LOW ALLOY STEEL (High Strength)

AWS A/SFA 5.28 **ER110S-G**

KEY FEATURES:

- Copper coated medium alloy steel wire
- Exhibit high strength as well as low temperature toughness
- Excellent welding characteristics
- Exhibit excellent out of position characteristics
- Radiographic quality

TYPICAL APPLICATIONS:

- Welding of high strength low alloy steels
- Welding of HY 80 and other similar grade materials
- Joining large vehicles and crane manufacturing
- Pipelines, tankers, containers

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr	Ni	Mo
0.08	1.6	0.6	0.3	1.4	0.3

MECHANICAL PROPERTIES OF ALL WELD METAL:

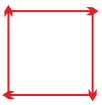
	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -40°C, J
Typical	As Welded	830	735	23	70

PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
1.2	15
1.6	15

DCEP

All Positions



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
Ar/1-5O_2	15-20

TIGFIL 110S-G

GTAW LOW ALLOY STEEL (High Strength)

AWS A/SFA 5.28 ER110S-G

KEY FEATURES:

- Copper coated medium alloy steel wire
- Exhibit high strength as well as low temperature toughness
- Excellent welding characteristics
- Exhibit excellent out of position characteristics
- Radiographic quality

TYPICAL APPLICATIONS:

- Welding of high strength low alloy steels
- Welding of HY 80 and other similar grade materials
- Joining large vehicles and crane manufacturing
- Pipelines, tankers, containers

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr	Ni	Mo
0.08	1.6	0.6	0.3	1.4	0.3

MECHANICAL PROPERTIES OF ALL WELD METAL:

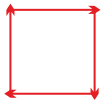
	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -40°C, J
Typical	As Welded	830	735	23	70

PARAMETERS - PACKING DATA:

Ø x L, mm	Net Wt., Kg
1.6 x 1000	20
2.0 x 1000	20
2.4 x 1000	20

DCEN

All Positions



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 20 kg box, containing 4 plastic tubes of 5 kg each.

MIGINOX 307

GMAW STAINLESS STEEL

CLASSIFICATION:

EN ISO 14343-A
G 18 8 Mn

KEY FEATURES:

- 18-8-Mn type stainless steel solid wire
- Smooth operating characteristics
- Good crack resistance
- High work hardening characteristics
- Non magnetic weld deposit

APPROVALS: CE

TYPICAL APPLICATIONS:

- Suitable for austenitic manganese steels and dissimilar metal welding
- Welding of manganese steels to carbon steels castings or forgings

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr	Ni
0.05	5.3	0.7	18.5	8.0

MECHANICAL PROPERTIES OF ALL WELD METAL:

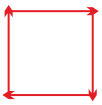
	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%
Typical	As Welded	600	500	28

PARAMETERS - PACKING DATA:

Ø x L, mm	Kg/Spool
1.0	12.5
1.2	12.5
1.6	12.5

DCEP

All Positions



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
98Ar/2O_2 or Ar/1-5CO_2	15-22

MIGINOX 308L

GMAW STAINLESS STEEL

AWS A/SFA 5.9 **ER308L**

CLASSIFICATION:

EN ISO 14343-A
G 19 9 L

IS 5856
ES 20.10 L

KEY FEATURES:

- An extra low carbon 308L type stainless steel solid wire
- Excellent corrosion & scaling resistance up to 800°C
- Excellent crack resistance
- Resistance to intergranular corrosion
- Radiographic quality welds

APPROVALS: RDSO (Class VI)/NPCIL/CE

TYPICAL APPLICATIONS:

- Welding Cr-Ni steels represented by AISI 301, 302, 304, 304L, 308, 308L
- Fabrication of boilers, reactors, turbines, pipes, tubes
- SS piping in refineries, oil and gas industries, chemical plants, food processing industries

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr	Ni
0.027	1.7	0.4	19.7	9.2

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Typical	As Welded	570	39

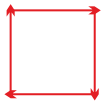
Mechanical properties will vary with the type of shielding gas used.

PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
0.8	12.5
1.2	12.5
1.6	12.5

DCEP

All Positions



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
98Ar + $2O_2$ or Ar/1-5CO_2	15-22

TIGINOX 308L

GTAW STAINLESS STEEL

AWS A/SFA 5.9 **ER308L**

CLASSIFICATION:

EN ISO 14343-A
W 19 9 L

IS 5856
ES 20.10 L

KEY FEATURES:

- An extra low carbon 308L type stainless steel solid wire
- Excellent corrosion & scaling resistance up to 800°C
- Excellent crack resistance
- Resistance to intergranular corrosion
- Radiographic quality welds

APPROVALS: RDSO (Class VI)/NPCIL/CE

TYPICAL APPLICATIONS:

- Welding Cr-Ni steels represented by AISI 301, 302, 304, 304L, 308, 308L
- Fabrication of boilers, reactors, turbines, pipes, tubes
- SS piping in refineries, oil and gas industries, chemical plants, food processing industries

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr	Ni
0.027	1.7	0.4	19.7	9.2

MECHANICAL PROPERTIES OF ALL WELD METAL:

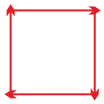
	Condition	UTS, MPa	EL%
Typical	As Welded	570	39

PARAMETERS - PACKING DATA:

Ø x L, mm	Net Wt., Kg
1.6 x 1000	20
2.0 x 1000	20
2.4 x 1000	20

DCEN

All Positions



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 20 kg box, containing 4 plastic tubes of 5 kg each.

MIGINOX 308LSi

GMAW STAINLESS STEEL

AWS A/SFA 5.9 **ER308LSi**

CLASSIFICATION:

EN ISO 14343-A
G 19 9 LSi

KEY FEATURES:

- An extra low carbon 20Cr/10Ni type stainless steel solid wire
- High Si content improves wetting characteristics
- Resists intergranular corrosion
- Controlled ferrite content ensures excellent crack resistance
- Excellent corrosion & scaling resistance up to 800°C
- Radiographic quality welds

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding Cr-Ni steels represented by AISI 301, 302, 304, 304L, 308, 308L
- Fabrication of boilers, reactors, turbines, pipes, tubes
- SS piping in refineries, oil and gas industries, chemical plants, food processing industries

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr	Ni
0.03	1.8	0.7	19.6	9.2

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Typical	As Welded	590	39

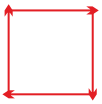
PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
0.8	12.5
1.2	12.5
1.6	12.5

DCEP

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions



Shielding Gas	Gas Flow Rate, LPM
98Ar/2O_2 or Ar/1-5CO_2	15-22

TIGINOX 308H

GTAW STAINLESS STEEL

AWS A/SFA 5.9 **ER308H**

CLASSIFICATION:

EN ISO 14343-A
W (19 9H)

IS 5856
ES 20.10 H

KEY FEATURES:

- 308H type SS TIG rod
- High carbon than conventional 308 grade wire
- Higher strength at elevated temperature
- Radiographic quality welds

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of 304H type materials
- Chemical, petrochemical industries
- Distillery, dairy, restaurant equipment
- For high temperature applications

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr	Ni
0.05	1.6	0.39	19.7	9.1

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Typical	As Welded	600	40

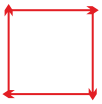
PARAMETERS - PACKING DATA:

Ø, mm	Net Wt, Kg
1.6 x 1000	20
2.0 x 1000	20
2.4 x 1000	20
3.15 x 1000	20

DCEN

STORAGE / HANDLING :
Keep dry during storage and handling

All Positions



Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 20 kg box, containing 4 plastic tubes of 5 kg each.

MIGINOX 309L

GMAW STAINLESS STEEL

AWS A/SFA 5.9 **ER309L**

CLASSIFICATION:

EN ISO 14343-A
G 23 12 L

IS 5856
ES 24.13 L

KEY FEATURES:

- An extra low carbon 23Cr/12Ni type stainless steel wire
- Excellent corrosion and oxidation resistance up to 1100°C
- High ferrite content ensures highest cracking resistance
- Radiographic quality weld

APPROVALS: Class VI/CE

TYPICAL APPLICATIONS:

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

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr	Ni
0.027	1.9	0.4	23.5	12.3

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Typical	As Welded	590	40

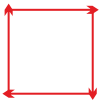
PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
0.8	12.5
1.2	12.5
1.6	12.5

DCEP

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions



Shielding Gas	Gas Flow Rate, LPM
98Ar/2O_2 or Ar/1-5CO_2	15-22

TIGINOX 309L

GTAW STAINLESS STEEL

AWS A/SFA 5.9 **ER309L**

CLASSIFICATION:

EN ISO 14343-A
W 23 12 L

IS 5856
ES 24.13 L

KEY FEATURES:

- An extra low carbon 23Cr/12Ni type stainless steel wire
- Excellent corrosion and oxidation resistance up to 1100°C
- High ferrite content ensures highest cracking resistance
- Radiographic quality weld

APPROVALS: Class VI/CE

TYPICAL APPLICATIONS:

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

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr	Ni
0.027	1.9	0.4	23.5	12.3

MECHANICAL PROPERTIES OF ALL WELD METAL:

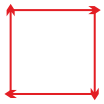
	Condition	UTS, MPa	EL%
Typical	As Welded	590	40

PARAMETERS - PACKING DATA:

Ø, mm	Net Wt, Kg
1.6 x 1000	20
2.0 x 1000	20
2.4 x 1000	20

DCEN

All Positions



STORAGE / HANDLING :
Keep dry during storage and handling

Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 20 kg box, containing 4 plastic tubes of 5 kg each.

MIGINOX 309LSi

GMAW STAINLESS STEEL

AWS A/SFA 5.9 **ER309LSi**

CLASSIFICATION:

EN ISO 14343-A
G 23 12 LSi

KEY FEATURES:

- An extra low carbon 24Cr/13Ni type stainless steel solid wire
- High Si content improves wetting characteristics
- Excellent corrosion and oxidation resistance up to 1100°C
- Highest cracking resistance
- Radiographic quality welds

APPROVALS: CE

TYPICAL APPLICATIONS:

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

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr	Ni
0.026	1.9	0.7	23.4	12.6

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Typical	As Welded	600	38

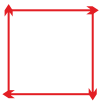
PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
0.8	12.5
1.2	12.5
1.6	12.5

DCEP

STORAGE / HANDLING :
Keep dry during storage and handling

All Positions



Shielding Gas	Gas Flow Rate, LPM
98Ar/2O_2 or Ar/1-5CO_2	15-22

MIGINOX 309Mo

GMAW STAINLESS STEEL

AWS A/SFA 5.9 **ER309Mo**

CLASSIFICATION:

EN ISO 14343-B
SS 309Mo

KEY FEATURES:

- A 23 Cr/12Ni/Mo SS solid wire
- High ferrite content ensures maximum cracking resistance
- Excellent corrosion & oxidation resistance up to 1100°C
- Mo addition provides high strength and pitting corrosion resistance
- Radiographic quality welds

APPROVALS: CE

TYPICAL APPLICATIONS:

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

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr	Ni	Mo
0.04	1.75	0.4	23.2	13.5	2.3

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Typical	As Welded	620	37

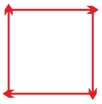
PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
0.8	12.5
1.2	12.5
1.6	12.5

DCEP

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions



Shielding Gas	Gas Flow Rate, LPM
98Ar/2O_2 or Ar/1-5CO_2	15-22

TIGINOX 309Mo

GTAW STAINLESS STEEL

AWS A/SFA 5.9 **ER309Mo**

CLASSIFICATION:

EN ISO 14343-B
SS 309Mo

KEY FEATURES:

- A 23 Cr/12Ni/Mo SS solid wire
- High ferrite content ensures maximum cracking resistance
- Excellent corrosion & oxidation resistance up to 1100°C
- Mo addition provides high strength and pitting corrosion resistance
- Radiographic quality welds

APPROVALS: CE

TYPICAL APPLICATIONS:

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

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr	Ni	Mo
0.04	1.75	0.4	23.2	13.5	2.3

MECHANICAL PROPERTIES OF ALL WELD METAL:

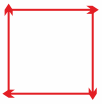
	Condition	UTS, MPa	EL%
Typical	As Welded	620	37

PARAMETERS - PACKING DATA:

Ø, mm	Net Wt, Kg
1.6 x 1000	20
2.0 x 1000	20
2.4 x 1000	20

DCEN

All Positions



STORAGE / HANDLING :
Keep dry during storage and handling

Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 20 kg box, containing 4 plastic tubes of 5 kg each.

MIGINOX 310

GMAW STAINLESS STEEL

AWS A/SFA 5.9 **ER310**

CLASSIFICATION:

EN ISO 14343-A
G 25 20

KEY FEATURES:

- A 25Cr/20Ni type austenitic stainless steel wire
- Resistance to cracking and fissuring
- Excellent oxidation resistance upto 1150°C
- Radiographic quality welds

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of AISI 310 type steels, Austenitic Mn steels
- Joining of dissimilar steels, straight chrome steels, cladding side of stainless clad steels
- Furnace parts, Annealing boxes, Carburizing pots, Gas turbine combustion chamber parts, hydrogenation and polymerization plant

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr	Ni
0.1	1.6	0.35	26.5	20.5

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Typical	As Welded	650	35

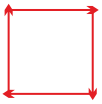
PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
0.8	12.5
1.2	12.5
1.6	12.5

DCEP

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions



Shielding Gas	Gas Flow Rate, LPM
98Ar/2O_2 or Ar/1-5CO_2	15-25

TIGINOX 310

GTAW STAINLESS STEEL

AWS A/SFA 5.9 **ER310**

CLASSIFICATION:

EN ISO 14343-A
W 25 20

KEY FEATURES:

- A 25Cr/20Ni type austenitic stainless steel wire
- Resistance to cracking and fissuring
- Excellent oxidation resistance upto 1150°C
- Radiographic quality welds

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of AISI 310 type steels, Austenitic Mn steels
- Joining of dissimilar steels, straight chrome steels, cladding side of stainless clad steels
- Furnace parts, Annealing boxes, Carburizing pots, Gas turbine combustion chamber parts, hydrogenation and polymerization plant

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr	Ni
0.1	1.6	0.35	26.5	20.5

MECHANICAL PROPERTIES OF ALL WELD METAL:

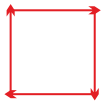
	Condition	UTS, MPa	EL%
Specification	As Welded	650	35

PARAMETERS - PACKING DATA:

Ø, mm	Net Wt, Kg
1.6 x 1000	20
2.0 x 1000	20
2.4 x 1000	20

DCEN

All Positions



STORAGE / HANDLING :
Keep dry during storage and handling

Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 20 kg box, containing 4 plastic tubes of 5 kg each.

MIGINOX 316L

GMAW STAINLESS STEEL

AWS A/SFA 5.9 **ER316L**

CLASSIFICATION:

EN ISO 14343-A
G (19 12 3 L)

IS 5856
ES 19.12.2 L

KEY FEATURES:

- An extra low carbon 19Cr/12Ni/Mo type stainless steel wire
- Offers improved corrosion and pitting resistance in marine and industrial environment
- High resistance against intergranular corrosion
- Resistant to SCC, hot cracking and chemical attack upto 850°C
- Radiographic quality welds

APPROVALS: IRS/CE

TYPICAL APPLICATIONS:

- Welding austenitic alloys represented by AISI 316, 316L, 317, 317L, 318 types
- Joining similar grade wrought and cast material
- Application in textile processing, Naval and Chemical environments, Paper and pulp, Paint and dye industries
- Cladding stainless steels

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr	Ni	Mo
0.03	1.7	0.4	18.3	11.5	2.2

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Typical	As Welded	550	36

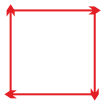
PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
0.8	12.5
1.2	12.5
1.6	12.5

DCEP

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions



Shielding Gas	Gas Flow Rate, LPM
98Ar/2O_2 or Ar/1-5CO_2	15-25

TIGINOX 316L

GTAW STAINLESS STEEL

AWS A/SFA 5.9 **ER316L**

CLASSIFICATION:

EN ISO 14343-A
W (19 12 3 L)

IS 5856
ES 19.12.2 L

KEY FEATURES:

- An extra low carbon 19Cr/12Ni/Mo type stainless steel wire
- Offers improved corrosion and pitting resistance in marine and industrial environment
- High resistance against intergranular corrosion
- Resistant to SCC, hot cracking and chemical attack upto 850°C
- Radiographic quality welds

APPROVALS: IRS/CE

TYPICAL APPLICATIONS:

- Welding austenitic alloys represented by AISI 316, 316L, 317, 317L, 318 types
- Joining similar grade wrought and cast material
- Application in textile processing, Naval and Chemical environments, Paper and pulp, Paint and dye industries
- Cladding stainless steels

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr	Ni	Mo
0.03	1.7	0.4	18.3	11.5	2.2

MECHANICAL PROPERTIES OF ALL WELD METAL:

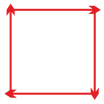
	Condition	UTS, MPa	EL%
Typical	As Welded	550	36

PARAMETERS - PACKING DATA:

Ø, mm	Net Wt, Kg
1.6 x 1000	20
2.0 x 1000	20
2.4 x 1000	20

DCEN

All Positions



STORAGE / HANDLING :
Keep dry during storage and handling

Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 20 kg box, containing 4 plastic tubes of 5 kg each.

MIGINOX 316LSi

GMAW STAINLESS STEEL

AWS A/SFA 5.9 **ER316LSi**

CLASSIFICATION:

EN ISO 14343-A
G (19 12 3 LSi)

KEY FEATURES:

- An extra low carbon 19Cr/12Ni/Mo type stainless steel solid wire
- High Si content improves wetting characteristics
- High resistance against intergranular corrosion
- Resistant to SCC, hot cracking and chemical attack up to 850°C
- Offers improved corrosion & pitting resistance in marine and industrial environment
- Radiographic quality welds

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding austenitic alloys represented by AISI 316, 316L, 317, 317L, 318 types
- Joining similar grade wrought and cast material
- Application in textile processing, Naval and Chemical environments, Paper and pulp, Paint and dye industries
- Cladding stainless steels

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr	Ni	Mo
0.025	1.7	0.75	18.3	11.3	2.4

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Typical	As Welded	560	36

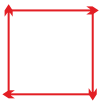
PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
0.8	12.5
1.2	12.5
1.6	12.5

DCEP

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions



Shielding Gas	Gas Flow Rate, LPM
98Ar/2O_2 or Ar/1-5CO_2	15-22

MIGINOX 347

GMAW STAINLESS STEEL

AWS A/SFA 5.9 **ER347**

CLASSIFICATION:

EN ISO 14343-A
G 19 9 Nb

IS 5856
ES 20.10 Nb

KEY FEATURES:

- 19Cr/9Ni/Nb type stabilized stainless steel wire
- Resistance to intergranular corrosion and scaling up to 850°C
- Resistance to cracking and embrittlement
- Smooth operating characteristics
- Radiographic quality welds

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding stabilized Cr-Ni steels such as AISI 321, 321H, 347, 347H
- Refineries, power plants, centrifugal pump impellers and shafts, valve faces, seats
- Recommended for use at high temperatures
- Fabrication of boiler and gas turbine
- Welding of stainless steel tanks, valves, pipes in food, chemical and petrochemical industries

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr	Ni	Nb
0.04	1.9	0.4	19.7	9.5	0.5

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Typical	As Welded	580	36

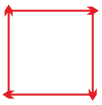
PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
0.8	12.5
1.2	12.5
1.6	12.5

DCEP

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions



Shielding Gas	Gas Flow Rate, LPM
98Ar/2O_2 or Ar/1-5CO_2	15-25

TIGINOX 347

GTAW STAINLESS STEEL

AWS A/SFA 5.9 **ER347**

CLASSIFICATION:

EN ISO 14343-A
W 19 9 Nb

IS 5856
ES 20.10 Nb

KEY FEATURES:

- 19Cr/9Ni/Nb type stabilized stainless steel wire
- Resistance to intergranular corrosion and scaling up to 850°C
- Resistance to cracking and embrittlement
- Smooth operating characteristics
- Radiographic quality welds

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding stabilized Cr-Ni steels such as AISI 321, 321H, 347, 347H
- Refineries, power plants, centrifugal pump impellers and shafts, valve faces, seats
- Recommended for use at high temperatures
- Fabrication of boiler and gas turbine
- Welding of stainless steel tanks, valves, pipes in food, chemical and petrochemical industries

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr	Ni	Nb
0.04	1.9	0.4	19.7	9.5	0.5

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Typical	As Welded	580	36

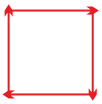
PARAMETERS - PACKING DATA:

Ø, mm	Net Wt, Kg
1.6 x 1000	20
2.0 x 1000	20
2.4 x 1000	20

DCEN

STORAGE / HANDLING :
Keep dry during storage and handling

All Positions



Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 20 kg box, containing 4 plastic tubes of 5 kg each.

MIGINOX 347Si

GMAW STAINLESS STEEL

AWS A/SFA 5.9 **ER347Si**

CLASSIFICATION:

EN ISO 14343-A
G 19 9 NbSi

KEY FEATURES:

- 19Cr/9Ni type Nb stabilized stainless steel solid wire
- High Si content improves wetting characteristics
- Resistance to cracking and embrittlement
- Resistance to intergranular corrosion and scaling up to 850°C
- Smooth operating characteristics
- Radiographic quality welds

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding stabilized Cr-Ni steels such as AISI 321, 321H, 347, 347H
- 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

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr	Ni	Nb
0.025	1.8	0.7	19.5	9.3	0.45

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Typical	As Welded	570	35

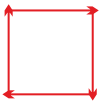
PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
0.8	12.5
1.2	12.5
1.6	12.5

DCEP

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions



Shielding Gas	Gas Flow Rate, LPM
98Ar/2O_2 or Ar/1-5CO_2	15-22

TIGINOX 385

GTAW STAINLESS STEEL

AWS A/SFA 5.9 **ER385**

CLASSIFICATION:

EN ISO 14343-A
W 20 25 5 Cu L

APPROVALS: CE

KEY FEATURES:

- Low carbon 20/25/5/Cu type TIG rod
- Resist intergranular corrosion and sulfide stress corrosion cracking
- Resistant to pitting and crevice corrosion in chloride bearing media
- Recommended for highly corrosive conditions in the chemical industries, sea water desalinization plants
- Radiographic quality welds

TYPICAL APPLICATIONS:

- Welding of 904L, HV-9A, HV-9 stainless steel and similar alloys for high temperature and 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

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr	Ni	Mo	Cu
0.023	1.9	0.4	19.9	24.3	4.4	1.4

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Typical	As Welded	590	36

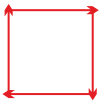
PARAMETERS - PACKING DATA:

Ø, mm	Net Wt, Kg
1.6 x 1000	20
2.0 x 1000	20
2.4 x 1000	20

DCEN

STORAGE / HANDLING :
Keep dry during storage and handling

All Positions



Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 20 kg box, containing 4 plastic tubes of 5 kg each.

MIGINOX 410

GMAW STAINLESS STEEL

AWS A/SFA 5.9 **ER410**

CLASSIFICATION:

EN ISO 14343-A
G 13

IS 5856
ES 13

KEY FEATURES:

- Typical 12Cr type stainless steel wire
- Air hardenable weld deposit
- Preheat and PWHT recommended
- Resist corrosion, erosion & abrasion
- Smooth operating characteristics
- Radiographic quality welds

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of similar composition 410 type steels and 13% Cr stainless steels
- Overlay application on carbon steel
- Surfacing of turbine blades, high pressure valves

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr
0.04	0.5	0.4	12.5

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Typical	PWHT:740°C for 1 hr	750	22

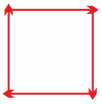
PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
1.2	12.5
1.6	12.5

DCEP

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions



Shielding Gas	Gas Flow Rate, LPM
98Ar/2O_2 or Ar/1-5CO_2	15-25

TIGINOX 410

GTAW STAINLESS STEEL

AWS A/SFA 5.9 **ER410**

CLASSIFICATION:

EN ISO 14343-A
W 13

IS 5856
ES 13

KEY FEATURES:

- Typical 12Cr type stainless steel wire
- Air hardenable weld deposit
- Preheat and PWHT recommended
- Resist corrosion, erosion & abrasion
- Smooth operating characteristics
- Radiographic quality welds

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of similar composition 410 type steels and 13% Cr stainless steels
- Overlay application on carbon steel
- Surfacing of turbine blades, high pressure valves

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr
0.04	0.5	0.4	12.5

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Typical	PWHT:740°C for 1 hr	750	22

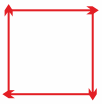
PARAMETERS - PACKING DATA:

Ø, mm	Net Wt, Kg
1.6 x 1000	20
2.0 x 1000	20
2.4 x 1000	20

DCEN

STORAGE / HANDLING :
Keep dry during storage and handling

All Positions



Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 20 kg box, containing 4 plastic tubes of 5 kg each.

MIGINOX 410NiMo

GMAW STAINLESS STEEL

AWS A/SFA 5.9 **ER410NiMo**

CLASSIFICATION:

EN ISO 14343-A
G 13 4

IS 5856
ES 13.4

KEY FEATURES:

- 13Cr/4Ni type stainless steel wire
- High strength combined with excellent toughness and cracking resistance
- Preheat and PWHT recommended
- Martensitic type alloy resistant to corrosion, erosion, pitting and impact
- Smooth operating characteristics
- Radiographic quality welds

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of ASTM CA 6NM casting or similarn grades as well as light gauge 410, 410S and 405 base metals
- Surfacing of turbine blades, high pressure valves
- Welding of extra low carbon castings and forgings of similar composition and surfacing applications
- Repair of runners, valve seats, pulp and paper plant equipment

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr	Ni	Mo
0.02	0.35	0.5	12.1	4.4	0.45

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Typical	PWHT: 600°C for 1 hr	800	17

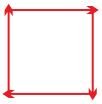
PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
1.2	12.5
1.6	12.5

DCEP

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions



Shielding Gas	Gas Flow Rate, LPM
98Ar/2O_2 or Ar/1-5CO_2	15-25

TIGINOX 410NiMo

GTAW STAINLESS STEEL

AWS A/SFA 5.9 **ER410NiMo**

CLASSIFICATION:

EN ISO 14343-A
W 13 4

IS 5856
ES 13.4

KEY FEATURES:

- 13Cr/4Ni type stainless steel wire
- High strength combined with excellent toughness and cracking resistance
- Preheat and PWHT recommended
- Martensitic type alloy resistant to corrosion, erosion, pitting and impact
- Smooth operating characteristics
- Radiographic quality welds

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of ASTM CA 6NM casting or similarn grades as well as light gauge 410, 410S and 405 base metals
- Surfacing of turbine blades, high pressure valves
- Welding of extra low carbon castings and forgings of similar composition and surfacing applications
- Repair of runners, valve seats, pulp and paper plant equipment

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr	Ni	Mo
0.02	0.35	0.5	12.1	4.4	0.45

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Typical	PWHT: 600°C for 1 hr	800	19

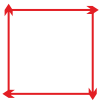
PARAMETERS - PACKING DATA:

Ø, mm	Net Wt, Kg
1.6 x 1000	20
2.0 x 1000	20
2.4 x 1000	20
3.15 x 1000	20

DCEN

STORAGE / HANDLING :
Keep dry during storage and handling

All Positions



Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 20 kg box, containing 4 plastic tubes of 5 kg each.

MIGINOX 430

GMAW STAINLESS STEEL

AWS A/SFA 5.9 **ER430**

CLASSIFICATION:

EN ISO 14343-A
G 17

IS 5856
ES 17

KEY FEATURES:

- Typical 16Cr stainless steel wire
- High corrosion resistance
- Smooth operating characteristics
- Proper preheat and PWHT require to achieve desired mechanical properties
- Radiographic quality welds

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of ferritic martensitic chrome steels and steel castings of similar composition
- Joining and cladding of 17Cr alloy
- Welding and cladding of automotive exhaust system components
- For general corrosion and heat resisting applications

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr
0.05	0.5	0.4	16.3

MECHANICAL PROPERTIES OF ALL WELD METAL:

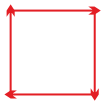
	Condition	UTS, MPa	EL%
Typical	PWHT: 770°C for 2 hrs	550	23

PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
1.2	12.5
1.6	12.5

DCEP

All Positions



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
98Ar/2O_2 or Ar/1-5CO_2	15-25

TIGINOX 430

GTAW STAINLESS STEEL

AWS A/SFA 5.9 **ER430**

CLASSIFICATION:

EN ISO 14343-A
W 17

IS 5856
ES 17

KEY FEATURES:

- Typical 16Cr stainless steel wire
- High corrosion resistance
- Smooth operating characteristics
- Proper preheat and PWHT require to achieve desired mechanical properties
- Radiographic quality welds

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of ferritic martensitic chrome steels and steel castings of similar composition
- Joining and cladding of 17Cr alloy
- Welding and cladding of automotive exhaust system components
- For general corrosion and heat resisting applications

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr
0.05	0.5	0.4	16.3

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Typical	PWHT: 770°C for 2 hrs	550	23

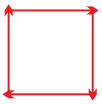
PARAMETERS - PACKING DATA:

Ø, mm	Net Wt, Kg
1.6 x 1000	20
2.0 x 1000	20
2.4 x 1000	20

DCEN

STORAGE / HANDLING :
Keep dry during storage and handling

All Positions



Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 20 kg box, containing 4 plastic tubes of 5 kg each.

MIGINOX 430 LNb

GMAW STAINLESS STEEL

CLASSIFICATION:

EN ISO 14343-A
G 18 LNb

KEY FEATURES:

- Stabilized 430LNb type ferritic stainless steel solid wire
- Smooth operating characteristics
- Resistance to corrosion and thermal fatigue
- Radiographic quality welds

APPROVALS: CE

TYPICAL APPLICATIONS:

- Application in Automotive industries
- Used for production of exhaust systems

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr	Ni	Nb
0.02	0.3	0.4	17.5	0.1	0.4

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%
Specification	As Welded	410 min	220 min	15 min

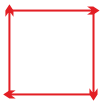
PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
0.8	12.5
1.0	12.5
1.2	12.5

DCEP

STORAGE / HANDLING :
Keep dry during storage and handling

All Positions



Shielding Gas	Gas Flow Rate, LPM
98Ar/2O_2 or Ar/1-5CO_2	15-22

MIGINOX 2209

GMAW DUPLEX STAINLESS STEEL

AWS A/SFA 5.9 **ER2209**

CLASSIFICATION:

EN ISO 14343-A
G 22 9 3 N L

KEY FEATURES:

- An extra low carbon 22Cr/9Ni/3Mo/N type duplex stainless steel wire
- Austenitic-ferritic type weld deposit
- Can be applied for operating temperature upto 200°C
- Excellent combination of high strength and resistance to chloride induced SCC and pitting
- Radiographic quality welds

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of 2205, 2209 type duplex stainless steels and similar grades
- 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

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr	Ni	Mo	N
0.015	1.5	0.4	22.5	8.7	3.3	0.15

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Specification	As Welded	690 min	20 min

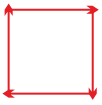
PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
1.2	12.5
1.6	12.5

DCEP

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions



Shielding Gas	Gas Flow Rate, LPM
98Ar/2O_2 or Ar/1-5CO_2	15-22

TIGINOX 2209

GTAW DUPLEX STAINLESS STEEL

AWS A/SFA 5.9 **ER2209**

CLASSIFICATION:

EN ISO 14343-A
W 22 9 3 N L

KEY FEATURES:

- An extra low carbon 22Cr/9Ni/3Mo/N type duplex stainless steel wire
- Austenitic-ferritic type weld deposit
- Can be applied for operating temperature upto 200°C
- Excellent combination of high strength and resistance to chloride induced SCC and pitting
- Radiographic quality welds

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of 2205, 2209 type duplex stainless steels and similar grades
- 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

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr	Ni	Mo	N
0.015	1.5	0.4	22.5	8.7	3.3	0.15

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Specification	As Welded	690 min	20 min

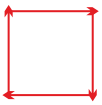
PARAMETERS - PACKING DATA:

Ø, mm	Net Wt, Kg
1.6 x 1000	20
2.0 x 1000	20
2.4 x 1000	20

DCEN

STORAGE / HANDLING :
Keep dry during storage and handling

All Positions



Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 20 kg box, containing 4 plastic tubes of 5 kg each.

TIGINOX 2594

GTAW SUPER DUPLEX STAINLESS STEEL

AWS A/SFA 5.9 **ER2594**

CLASSIFICATION:

EN ISO 14343-A
W 25 9 4 N L

KEY FEATURES:

- 25/9/4 type super duplex SS TIG rod
- Austenitic-ferritic duplex microstructure
- Improved resistance to pitting and SSC in chloride environment
- High Pitting Resistance Equivalent Number (PREN)
- Radiographic quality weld
- High tensile and yield strength

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
- Pipe work systems, flow lines, risers, manifolds, pumps & valves
- Process equipment in offshore oil and gas industries, petrochemical plant
- Also to be used on duplex 2205 grade

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr	Ni	Mo	Cu	N
0.02	0.9	0.45	24.3	8.5	3.2	0.17	0.30

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%	PREN
Specification	As Welded	760 min	15 min	40 min

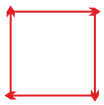
PARAMETERS - PACKING DATA:

Ø, mm	Net Wt., Kg
1.6 x 1000	20
2.0 x 1000	20
2.4 x 1000	20

DCEN

STORAGE / HANDLING :
Keep dry during storage and handling

All Positions



Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 20 kg box, containing 4 plastic tubes of 5 kg each.

AUTOMIG Ni-1

GMAW NICKEL ALLOYS

AWS A/SFA 5.14 **ERNi-1**

CLASSIFICATION:

EN ISO 18274
SNi 2061 (NiTi3)

KEY FEATURES:

- A low carbon 96Ni/3Ti Nickel wire
- Almost pure Ni deposit
- Extremely strong and ductile weld metal
- Resistant to cracking and oxidation
- Low iron level ensure maximum corrosion resistance
- Radiographic weld quality

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
- Applications in Pumps and valves, Cryogenics, Chemical plants, Caustic handling equipments, Food processing equipments
- Overlay on carbon and low alloy steel
- Used for handling corrosive alkalis and halides

CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Fe	Si	Cu	Al	Ti	Ni
0.15 max	1.0 max	1.0 max	0.75 max	0.25 max	1.5 max	2.0-3.5	93.0 min

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Typical	As Welded	380	30

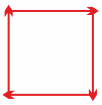
PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
1.2	12.5
1.6	12.5

DCEP

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions



Shielding Gas	Gas Flow Rate, LPM
75Ar/25He	15-22

TIGFIL Ni-1

GTAW NICKEL ALLOYS

AWS A/SFA 5.14 **ERNi-1**

CLASSIFICATION:

EN ISO 18274
SNi 2061 (NiTi3)

KEY FEATURES:

- A low carbon 96Ni/3Ti Nickel wire
- Almost pure Ni deposit
- Extremely strong and ductile weld metal
- Resistant to cracking and oxidation
- Low iron level ensure maximum corrosion resistance
- Radiographic weld quality

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
- Applications in Pumps and valves, Cryogenics, Chemical plants, Caustic handling equipments, Food processing equipments
- Overlay on carbon and low alloy steel
- Used for handling corrosive alkalis and halides

CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Fe	Si	Cu	Al	Ti	Ni
0.15 max	1.0 max	1.0 max	0.75 max	0.25 max	1.5 max	2.0-3.5	93.0 min

MECHANICAL PROPERTIES OF ALL WELD METAL:

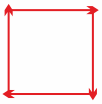
	Condition	UTS, MPa	EL%
Typical	As Welded	380	30

PARAMETERS - PACKING DATA:

Ø, mm	Net Wt., Kg
2.0 x 1000	20
2.4 x 1000	20
3.15 x 1000	20

DCEN

All Positions



STORAGE / HANDLING :
Keep dry during storage and handling

Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 20 kg box, containing 4 plastic tubes of 5 kg each.

AUTOMIG NiCr-3

GMAW NICKEL ALLOYS

AWS A/SFA 5.14 **ERNiCr-3**

CLASSIFICATION:

EN ISO 18274
SNi 6082 (NiCr 20Mn 3Nb)

KEY FEATURES:

- A low carbon Ni-Cr solid wire
- Typical 72Ni / 20Cr / 3Mn/ 2.5Nb+Ta alloy
- Suitable for cryogenic to high temperature application
- High corrosion and oxidation resistance
- Excellent toughness at low temperatures
- Radiographic weld quality

APPROVALS: IBR

TYPICAL APPLICATIONS:

- Welding of Ni-Cr-Fe alloys
- Dissimilar welding of Ni based alloys and cladding
- For joints sensitive to thermal loading above 300°C to prevent carbon diffusion
- Joining steels to stainless steels or Ni based alloys
- Applications in pressure vessels, boilers, fittings, machines and apparatus constructions

CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Fe	Si	Cu	Co	Ti	Cr	Nb + Ta	Ni
0.10 max	2.5-3.5	3.0 max	0.50 max	0.50 max	0.12 max	0.75 max	18.0-22.0	2.0-3.0	67.0 min

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Typical	As Welded	550	33

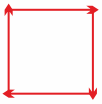
PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
1.2	12.5
1.6	12.5

DCEP

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions



Shielding Gas	Gas Flow Rate, LPM
75Ar/25He	15-22

TIGFIL NiCr-3

GMAW/GTAW NICKEL ALLOYS

AWS A/SFA 5.14 **ERNiCr-3**

CLASSIFICATION:

EN ISO 18274
SNi 6082 (NiCr 20Mn 3Nb)

KEY FEATURES:

- A low carbon Ni-Cr solid wire
- Typical 72Ni / 20Cr / 3Mn/ 2.5Nb+Ta alloy
- Suitable for cryogenic to high temperature application
- High corrosion and oxidation resistance
- Excellent toughness at low temperatures
- Radiographic weld quality

APPROVALS: IBR

TYPICAL APPLICATIONS:

- Welding of Ni-Cr-Fe alloys
- Dissimilar welding of Ni based alloys and cladding
- For joints sensitive to thermal loading above 300°C to prevent carbon diffusion
- Joining steels to stainless steels or Ni based alloys
- Applications in pressure vessels, boilers, fittings, machines and apparatus constructions

CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Fe	Si	Cu	Co	Ti	Cr	Nb + Ta	Ni
0.10 max	2.5-3.5	3.0 max	0.50 max	0.50 max	0.12 max	0.75 max	18.0-22.0	2.0-3.0	67.0 min

MECHANICAL PROPERTIES OF ALL WELD METAL:

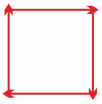
	Condition	UTS, MPa	EL%
Typical	As Welded	550	33

PARAMETERS - PACKING DATA:

Ø, mm	Net Wt., Kg
2.0 x 1000	20
2.4 x 1000	20
3.15 x 1000	20

DCEP

All Positions



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 20 kg box, containing 4 plastic tubes of 5 kg each.

AUTOMIG NiCrMo-3

GMAW NICKEL ALLOYS

AWS A/SFA 5.14 **ERNiCrMo-3**

CLASSIFICATION:

EN ISO 18274
SNi 6625 (Ni Cr22 Mo9Nb)

KEY FEATURES:

- A low carbon Ni-Cr-Mo solid wire
- Typical 61Ni / 22Cr/ 9Mo / 3.5Nb+Ta alloy
- Suitable for cryogenic to high temperature application up to 540°C
- Exceptional resistance to pitting, crevice and stress corrosion cracking in severe chloride media
- Radiographic weld quality

APPROVALS: IBR

TYPICAL APPLICATIONS:

- Joining Ni-Cr-Mo alloys
- Welding of Inconel 625, Incoloy 825, Alloy 20
- Cladding steel with Ni-Cr-Mo weld metal
- Suitable for joining ASTM B443, B444, B446 to itself, to steel, to other Ni-based alloys

CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Fe	Si	Cu	Al	Ti	Cr	Nb + Ta	Mo	Ni
0.10 max	0.50 max	5.0 max	0.50 max	0.50 max	0.40 max	0.40 max	20.0-23.0	3.15-4.15	8.0-10.0	58.0 min

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Typical	As Welded	760	32

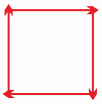
PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
0.8	12.5
1.2	12.5
1.6	12.5

DCEP

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions



Shielding Gas	Gas Flow Rate, LPM
75Ar/25He	15-22

TIGFIL NiCrMo-3

GTAW NICKEL ALLOYS

AWS A/SFA 5.14 **ERNiCrMo-3**

CLASSIFICATION:

EN ISO 18274
SNi 6625 (Ni Cr22 Mo9Nb)

KEY FEATURES:

- A low carbon Ni-Cr-Mo solid wire
- Typical 61Ni / 22Cr/ 9Mo / 3.5Nb+Ta alloy
- Suitable for cryogenic to high temperature application up to 540°C
- Exceptional resistance to pitting, crevice and stress corrosion cracking in severe chloride media
- Radiographic weld quality

APPROVALS: IBR

TYPICAL APPLICATIONS:

- Joining Ni-Cr-Mo alloys
- Welding of Inconel 625, Incoloy 825, Alloy 20
- Cladding steel with Ni-Cr-Mo weld metal
- Suitable for joining ASTM B443, B444, B446 to itself, to steel, to other Ni-based alloys

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Fe	Si	Cu	Al	Ti	Cr	Nb + Ta	Mo	Ni
0.10 max	0.50 max	5.0 max	0.50 max	0.50 max	0.40 max	0.40 max	20.0-23.0	3.15-4.15	8.0-10.0	58.0 min

MECHANICAL PROPERTIES OF ALL WELD METAL:

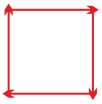
	Condition	UTS, MPa	EL%
Typical	As Welded	760	32

PARAMETERS - PACKING DATA:

Ø, mm	Net Wt., Kg
2.4 x 1000	20
3.15 x 1000	20

DCEN

All Positions



STORAGE / HANDLING :
Keep dry during storage and handling

Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 20 kg box, containing 4 plastic tubes of 5 kg each.

AUTOMIG NiCrMo-4

GMAW NICKEL ALLOYS

AWS A/SFA 5.14 **ERNiCrMo-4**

CLASSIFICATION:

EN ISO 18274
SNi 6276 (Ni Mo 16Cr 15Fe 6W4)

KEY FEATURES:

- Ni-Cr-Mo-W solid wire
- Typical 57Ni /16Cr/15.5Mo / 5.5Fe/ 4W alloy
- Resistant to abrasion, impact, corrosion and high temperatures
- Excellent resistance to stress corrosion in reducing and oxidizing atmosphere
- Radiographic weld quality

TYPICAL APPLICATIONS:

- Welding of alloy C-276 and similar composition steels
- Dissimilar joints between nickel alloys, stainless and low alloy steels
- Die plates, forge dies, hot shear blades, mandrel punches for hot working
- Suitable for joining ASTM B574, B575, B619, B622, B628 to itself, to steel, to other Ni-based alloys
- Application in chemical plants with highly corrosive conditions

CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Fe	Si	Cu	Co	Cr	Mo	V	W	Ni
0.02 max	1.0 max	4.0-7.0	0.08 max	0.50 max	2.50 max	14.5-16.5	15.0-17.0	0.35 max	3.0-4.5	Bal

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	Hardness, HRc	
			As Welded	Work Hardened
Typical	As Welded	690	20-25	30-35

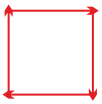
PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
0.8	12.5
1.2	12.5
1.6	12.5

DCEP

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions



Shielding Gas	Gas Flow Rate, LPM
75Ar/25He	15-22

TIGFIL NiCrMo-4

GTAW NICKEL ALLOYS

AWS A/SFA 5.14 **ERNiCrMo-4**

CLASSIFICATION:

EN ISO 18274
SNi 6276 (Ni Mo 16Cr 15Fe 6W4)

KEY FEATURES:

- Ni-Cr-Mo-W solid wire
- Typical 57Ni /16Cr/15.5Mo / 5.5Fe/ 4W alloy
- Resistant to abrasion, impact, corrosion and high temperatures
- Excellent resistance to stress corrosion in reducing and oxidizing atmosphere
- Radiographic weld quality

TYPICAL APPLICATIONS:

- Welding of alloy C-276 and similar composition steels
- Dissimilar joints between nickel alloys, stainless and low alloy steels
- Die plates, forge dies, hot shear blades, mandrel punches for hot working
- Suitable for joining ASTM B574, B575, B619, B622, B628 to itself, to steel, to other Ni-based alloys
- Application in chemical plants with highly corrosive conditions

TYPICAL CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Fe	Si	Cu	Co	Cr	Mo	V	W	Ni
0.02 max	1.0 max	4.0-7.0	0.08 max	0.50 max	2.50 max	14.5-16.5	15.0-17.0	0.35 max	3.0-4.5	Bal

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	Hardness, HRc	
			As Welded	Work Hardened
Specification	As Welded	690	20-25	30-35

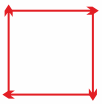
PARAMETERS - PACKING DATA:

Ø, mm	Net Wt., Kg
1.6 x 1000	20
2.0 x 2000	20
2.4 x 1000	20

DCEN

STORAGE / HANDLING :
Keep dry during storage and handling

All Positions



Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 20 kg box, containing 4 plastic tubes of 5 kg each.

AUTOMIG NiCu-7

GMAW NICKEL ALLOYS

AWS A/SFA 5.14 **ERNiCu-7**

CLASSIFICATION:

EN ISO 18274
S Ni 4060 (Ni Cu 30Mn 3Ti)

KEY FEATURES:

- Monel solid wire
- Typical 65Ni/30Cu/3Mn/2Ti alloy
- Easily machinable deposit in as welded and stress relieved condition
- Low iron in the deposit exhibit maximum corrosion resistance
- Radiographic weld quality

TYPICAL APPLICATIONS:

- Welding Monel and NiCu alloys to itself, to mild and low alloyed steels
- Overlaying on steel to obtain a corrosion resistant surface
- Welding of ASTM B127/163/164/165
- Heat exchanger, Piping, Vessels, Salt purification
- Food, Pumps and Valves manufacturing units

CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Fe	Si	Cu	Al	Ti	Ni
0.15 max	4.0 max	2.5 max	1.25 max	Bal.	1.25 max	1.5-3.0	62.0-69.0

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Typical	As Welded	490	32

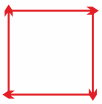
PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
0.8	12.5
1.2	12.5
1.6	12.5

DCEP

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions



Shielding Gas	Gas Flow Rate, LPM
75Ar/25He	15-22

TIGFIL NiCu-7

GTAW NICKEL ALLOYS

AWS A/SFA 5.14 **ERNiCu-7**

CLASSIFICATION:

EN ISO 18274
S Ni 4060 (Ni Cu 30Mn 3Ti)

KEY FEATURES:

- Monel solid wire
- Typical 65Ni/30Cu/3Mn/2Ti alloy
- Easily machinable deposit in as welded and stress relieved condition
- Low iron in the deposit exhibit maximum corrosion resistance
- Radiographic weld quality

TYPICAL APPLICATIONS:

- Welding Monel and NiCu alloys to itself, to mild and low alloyed steels
- Overlaying on steel to obtain a corrosion resistant surface
- Welding of ASTM B127/163/164/165
- Heat exchanger, Piping, Vessels, Salt purification
- Food, Pumps and Valves manufacturing units

CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Fe	Si	Cu	Al	Ti	Ni
0.15 max	4.0 max	2.5 max	1.25 max	Bal.	1.25 max	1.5-3.0	62.0-69.0

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Typical	As Welded	490	32

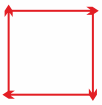
PARAMETERS - PACKING DATA:

Ø, mm	Net Wt., Kg
2.0 x 1000	20
2.4 x 1000	20
3.15 x 1000	20

DCEN

STORAGE / HANDLING :
Keep dry during storage and handling

All Positions



Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 20 kg box, containing 4 plastic tubes of 5 kg each.

TIGFIL 617

GTAW NICKEL ALLOYS

AWS A/SFA 5.14 ERNiCrCoMo-1

CLASSIFICATION:

EN ISO 18274
SNi 6617 (Ni Cr22 Co12 Mo9)

KEY FEATURES:

- Nickel alloy bare solid wire
- 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

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

CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Fe	Si	Cu	Ni	Co	Al	Ti	Cr	Mo
0.05-0.15	1.0 max	3.0 max	1.0 max	0.50 max	Bal.	10.0-15.0	0.8-1.5	0.60 max	20.0-24.0	8.0-10.0

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Specification	As Welded	620 min	25 min

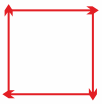
PARAMETERS - PACKING DATA:

Ø, mm	Net Wt, Kg
1.6 x 1000	20
2.0 x 1000	20
2.4 x 1000	20

DCEN

STORAGE / HANDLING :
Keep dry during storage and handling

All Positions



Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 20 kg box, containing 4 plastic tubes of 5 kg each.

AUTOMIG 1100

GMAW ALUMINIUM ALLOYS

AWS A/SFA 5.10 **ER1100**

CLASSIFICATION:

EN ISO 18273
S Al 1100 (Al99.0Cu)

KEY FEATURES:

- 99% aluminium solid wire
- Excellent feedability with consistent welding performance
- High corrosion resistance
- High electrical conductivity
- Excellent colour match with pure aluminium
- Radiographic weld quality

TYPICAL APPLICATIONS:

- Welding of 1XXX series and commercially pure aluminium
- For Al 99.8, Al 99.7, Al 99.5, E-Al
- Tanks, brackets, bus bodies

CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

Si + Fe	Cu	Mn	Zn	Ti	Be	Al
0.95 max	0.05-0.20	0.05 max	0.10 max	0.20 max	0.0003 max	99.0 min

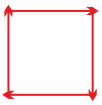
PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
1.2	7
1.6	7

DCEP

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions



Shielding Gas	Gas Flow Rate, LPM
Ar or Ar/He	10-20

TIGFIL 1100

GTAW ALUMINIUM ALLOYS

AWS A/SFA 5.10 **ER1100**

CLASSIFICATION:

EN ISO 18273
S Al 1100 (Al99.0Cu)

KEY FEATURES:

- 99% aluminium solid wire
- Excellent feedability with consistent welding performance
- High corrosion resistance
- High electrical conductivity
- Excellent colour match with pure aluminium
- Radiographic weld quality

TYPICAL APPLICATIONS:

- Welding of 1XXX series and commercially pure aluminium
- For Al 99.8, Al 99.7, Al 99.5, E-Al
- Tanks, brackets, bus bodies

CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

Si + Fe	Cu	Mn	Zn	Ti	Be	Al
0.95 max	0.05-0.20	0.05 max	0.10 max	0.20 max	0.0003 max	99.0 min

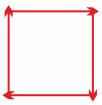
PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
1.6 x 1000	8
2.0 x 1000	8
2.4 x 1000	8

AC

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions



Shielding Gas	Gas Flow Rate, LPM
Ar	10-20

Available in Standard carton packing of 8 kg box, containing 4 plastic tubes of 2 kg each.

AUTOMIG 4043

GMAW ALUMINIUM ALLOYS

AWS A/SFA 5.10 **ER4043**

CLASSIFICATION:

EN ISO 18273
S Al 4043 (AlSi5)

KEY FEATURES:

- Al/5Si solid wire
- Excellent feedability with consistent welding performance
- Excellent resistance to hot cracking
- Most widely used general purpose filler alloy
- Si addition improves fluidity
- Radiographic weld quality

TYPICAL APPLICATIONS:

- Welding of wrought and cast Al alloys with Si up to 7%
- Suitable for Al-Si and Al-Mg-Si alloys
- Ship Building, Mobile Machinery
- Automotive, General Fabrication
- Welding of similar grade Al alloys in the form of pipe, plate, forging and casting

CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

Si	Fe	Cu	Mn	Mg	Zn	Ti	Al
4.5-6.0	0.8 max	0.3 max	0.05 max	0.05max	0.10 max	0.20 max	Bal.

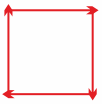
PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
1.0	7
1.2	7
1.6	7

DCEP

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions



Shielding Gas	Gas Flow Rate, LPM
Ar or Ar/He	15-22

TIGFIL 4043

GTAW ALUMINIUM ALLOYS

AWS A/SFA 5.10 ER4043

CLASSIFICATION:

EN ISO 18273
S Al 4043 (AlSi5)

KEY FEATURES:

- Al/5Si solid wire
- Excellent feedability with consistent welding performance
- Excellent resistance to hot cracking
- Most widely used general purpose filler alloy
- Si addition improves fluidity
- Radiographic weld quality

TYPICAL APPLICATIONS:

- Welding of wrought and cast Al alloys with Si up to 7%
- Suitable for Al-Si and Al-Mg-Si alloys
- Ship Building, Mobile Machinery
- Automotive, General Fabrication
- Welding of similar grade Al alloys in the form of pipe, plate, forging and casting

CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

Si	Fe	Cu	Mn	Mg	Zn	Ti	Al
4.5-6.0	0.8 max	0.3 max	0.05 max	0.05max	0.10 max	0.20 max	Bal.

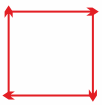
PARAMETERS - PACKING DATA:

Ø x L, mm	Net Wt., Kg7
1.6 x 1000	8
2.0 x 1000	8
2.4 x 1000	8

AC

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions



Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 8 kg box, containing 4 plastic tubes of 2 kg each.

AUTOMIG 5183

GMAW ALUMINIUM ALLOYS

AWS A/SFA 5.10 **ER5183**

CLASSIFICATION:

EN ISO 18273
S Al 5183 (Al Mg4.5 Mn 0.7 (A))

KEY FEATURES:

- Al-Mg-Mn solid wire
- Excellent feedability with consistent welding performance
- resistance to corrosion and sea water
- Higher strength than the conventional 5% Mg alloy
- Radiographic weld quality

TYPICAL APPLICATIONS:

- Welding of high strength Al alloys
- Automotive, Marine application
- Structural fabrication
- Application where high strength, high impact fracture toughness and exposure to corrosive environment are important

CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Al
0.40 max	0.40 max	0.10 max	0.5-1.0	4.3-5.2	0.05-0.25	0.25 max	0.15 max	Bal.

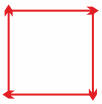
PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
1.0	7
1.2	7
1.6	7

DCEP

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions



Shielding Gas	Gas Flow Rate, LPM
Ar or Ar/He	15-22

TIGFIL 5183

GTAW ALUMINIUM ALLOYS

AWS A/SFA 5.10 **ER5183**

CLASSIFICATION:

EN ISO 18273
S Al 5183 (Al Mg4.5 Mn 0.7 (A))

KEY FEATURES:

- Al-Mg-Mn solid wire
- Excellent feedability with consistent welding performance
- resistance to corrosion and sea water
- Higher strength than the conventional 5% Mg alloy
- Radiographic weld quality

TYPICAL APPLICATIONS:

- Welding of high strength Al alloys
- Automotive, Marine application
- Structural fabrication
- Application where high strength, high impact fracture toughness and exposure to corrosive environment are important

CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

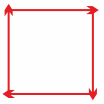
Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Al
0.40 max	0.40 max	0.10 max	0.5-1.0	4.3-5.2	0.05-0.25	0.25 max	0.15 max	Bal.

PARAMETERS - PACKING DATA:

Ø x L, mm	Net Wt., Kg
1.6 x 1000	8
2.0 x 1000	8
2.4 x 1000	8

AC

All Positions



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 8 kg box, containing 4 plastic tubes of 2 kg each.

AUTOMIG 5356

GMAW ALUMINIUM ALLOYS

AWS A/SFA 5.10 **ER5356**

CLASSIFICATION:

EN ISO 18273
S Al 5356 (Al Mg5 Cr (A))

KEY FEATURES:

- Al-5Mg solid wire
- Excellent feedability with consistent welding performance
- Most versatile and universally used filler material
- High strength weld with very good corrosion resistance in marine environment
- Radiographic weld quality

TYPICAL APPLICATIONS:

- Welding of similar composition Al-Mg, Al-Mg-Zn and Al-Mg-Si alloys
- Automotive, Marine application
- Structural fabrication
- Welding Al alloys containing more than 3% Mg

CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Al
0.25 max	0.40 max	0.10 max	0.05-0.20	4.5-5.5	0.05-0.20	0.10 max	0.06-0.20	Bal.

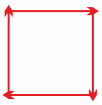
PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
1.0	7
1.2	7
1.6	7

DCEP

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions



Shielding Gas	Gas Flow Rate, LPM
Ar or Ar/He	15-22

TIGFIL 5356

GTAW ALUMINIUM ALLOYS

AWS A/SFA 5.10 **ER5356**

CLASSIFICATION:

EN ISO 18273
S Al 5356 (Al Mg5 Cr (A))

KEY FEATURES:

- Al-5Mg solid wire
- Excellent feedability with consistent welding performance
- Most versatile and universal ly used filler material
- High strength weld with very good corrosion resistance in marine environment
- Radiographic weld quality

TYPICAL APPLICATIONS:

- Welding of similar composition Al-Mg, Al-Mg-Zn and Al-Mg-Si alloys
- Automotive, Marine application
- Structural fabrication
- Welding Al alloys containing more than 3% Mg

CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Al
0.25 max	0.40 max	0.10 max	0.05-0.20	4.5-5.5	0.05-0.20	0.10 max	0.06-0.20	Bal.

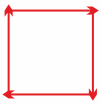
PARAMETERS - PACKING DATA:

Ø x L, mm	Net Wt., Kg
1.6 x 1000	8
2.0 x 1000	8
2.4 x 1000	8

AC

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions



Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 8 kg box, containing 4 plastic tubes of 2 kg each.

AUTOMIG 5556

GMAW ALUMINIUM ALLOYS

AWS A/SFA 5.10 **ER5556**

CLASSIFICATION:

EN ISO 18273
S Al 5556 (Al Mg5 Mn 1 Ti (A))

KEY FEATURES:

- Al-5Mg-Mn solid wire
- Excellent feedability with consistent welding performance
- Good ductility and crack resistance
- Increased amounts of manganese and magnesium
- High corrosion resistance in marine environment
- Radiographic weld quality

TYPICAL APPLICATIONS:

- Welding of similar composition 5XXX alloys like 5083 and 5456
- Automotive, Storage tanks
- Marine application
- Structural fabrication

CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Al
0.25 max	0.40 max	0.10 max	0.05-1.0	4.7-5.5	0.05-0.20	0.25 max	0.05-0.20	Bal.

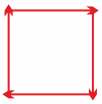
PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
1.0	7
1.2	7
1.6	7

DCEP

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions



Shielding Gas	Gas Flow Rate, LPM
Ar or Ar/He	15-22

TIGFIL 5556

GTAW ALUMINIUM ALLOYS

AWS A/SFA 5.10 **ER5556**

CLASSIFICATION:

EN ISO 18273
S Al 5556 (Al Mg5 Mn 1 Ti (A))

KEY FEATURES:

- Al-5Mg-Mn solid wire
- Excellent feedability with consistent welding performance
- Good ductility and crack resistance
- Increased amounts of manganese and magnesium
- High corrosion resistance in marine environment
- Radiographic weld quality

TYPICAL APPLICATIONS:

- Welding of similar composition 5XXX alloys like 5083 and 5456
- Automotive, Storage tanks
- Marine application
- Structural fabrication

CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Al
0.25 max	0.40 max	0.10 max	0.05-1.0	4.7-5.5	0.05-0.20	0.25 max	0.05-0.20	Bal.

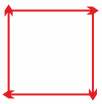
PARAMETERS - PACKING DATA:

Ø x L, mm	Net Wt., Kg7
1.6 x 1000	8
2.0 x 1000	8
2.4 x 1000	8

AC

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions



Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 8 kg box, containing 4 plastic tubes of 2 kg each.

AUTOMIG CuSn-A

GMAW COPPER ALLOYS

AWS A/SFA 5.7 **ERCuSn-A**

CLASSIFICATION:

EN ISO 24373
S Cu 5180 (CuSn5P)

KEY FEATURES:

- Copper-Tin solid wire
- Good resistance against corrosion and overheating
- Weld pool should be kept small to reduce hot short cracks
- For thick section, preheating is recommended
- Tin increases the wear resistance of the weld and slows the rate of solidification
- Rapid cooling at room temperature recommended
- Weld deposit easily machinable
- Radiographic quality welds

TYPICAL APPLICATIONS:

- Welding of similar base metals such as 509 to 519 series tin bronze alloys
- Bronze, brass and copper welding
- Overlay welding on steel, casting repair

CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

Sn	P	Al	Pb	Cu+Ag
4.0-6.0	0.10-0.35	0.01 max	0.02 max	Bal.

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	Average Brinell Hardness, HBW
Specification	As Welded	240 min	70-85

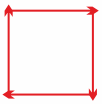
PARAMETERS - PACKING DATA:

Ø x L, mm	Kg/Spool
1.2	12.5
1.6	12.5

DCEP

STORAGE / HANDLING :
Keep dry during storage and handling

All Positions



Shielding Gas	Gas Flow Rate, LPM
75Ar/25He	15-20

AUTOBRAZE CuSi

GMAW COPPER ALLOYS

AWS A/SFA 5.7 **ERCuSi-A**

CLASSIFICATION:

EN ISO 24373
SCu 6560 (Cu Si3 Mn1)

DIN 1733
SG-CuSi3

KEY FEATURES:

- Copper-Silicon solid wire
- Weld pool should be kept small in order to promote fast solidification and minimize cracking
- Preheating is not recommended
- Interpass temperature to be kept below 65°C
- Excellent for plain or galvanized steel sheet metal and other coated steels
- Radiographic quality welds

TYPICAL APPLICATIONS:

- Welding of copper-silicon and copper-zinc base metals to themselves and to steels
- Used for surfacing areas that are subjected to corrosion

CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

Zn	Sn	Mn	Fe	Si	Al	Pb	Cu+Ag
1.0 max	1.0 max	1.5 max	0.5 max	2.8-4.0	0.01 max	0.02 max	Bal.

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	Average Brinell Hardness, HBW
Specification	As Welded	345 min	80-100

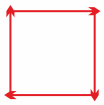
PARAMETERS - PACKING DATA:

Ø x L, mm	Kg/Spool
0.8	12.5
1.0	12.5
1.2	12.5
1.6	12.5

DCEP

STORAGE / HANDLING :
Keep dry during storage and handling

All Positions



Shielding Gas	Gas Flow Rate, LPM
75Ar/25He	15-20

AUTOMIG CuNi

GMAW COPPER ALLOYS

AWS A/SFA 5.7 ERCuNi

CLASSIFICATION:

EN ISO 24373
SCu 7158 (Cu Ni30 Mn1 FeTi)

KEY FEATURES:

- Copper-Nickel solid wire
- Typical 70Cu-30Ni type alloy
- No preheating is required
- Radiographic quality welds

TYPICAL APPLICATIONS:

- Welding of wrought and cast 70/30, 80/20, 90/10 copper-nickel alloys to themselves or to each other
- Clad side of copper-nickel clad steels
- Surfacing applications where high resistance to corrosion, erosion or cavitation is required

CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

Mn	Fe	Si	Ni+Co	Pb	Ti	Cu	P
1.0 max	0.40-0.75	0.25 max	29.0-32.0	0.02 max	0.20-0.50	Bal.	0.02 max

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	Average Brinell Hardness, HBW
Specification	As Welded	345 min	60-80

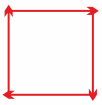
PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
0.8	12.5
1.2	12.5
1.6	12.5

DCEP

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions



Shielding Gas	Gas Flow Rate, LPM
75Ar/25He	15-25

TIGFIL CuNi

GTAW COPPER ALLOYS

AWS A/SFA 5.7 ERCuNi

CLASSIFICATION:

EN ISO 24373
SCu 7158 (Cu Ni30 Mn1 FeTi)

KEY FEATURES:

- Copper-Nickel solid wire
- Typical 70Cu-30Ni type alloy
- No preheating is required
- Radiographic quality welds

TYPICAL APPLICATIONS:

- Welding of wrought and cast 70/30, 80/20, 90/10 copper-nickel alloys to themselves or to each other
- Clad side of copper-nickel clad steels
- Surfacing applications where high resistance to corrosion, erosion or cavitation is required

CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

Mn	Fe	Si	Ni+Co	Pb	Ti	Cu	P
1.0 max	0.40-0.75	0.25 max	29.0-32.0	0.02 max	0.20-0.50	Bal.	0.02 max

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	Average Brinell Hardness, HBW
Specification	As Welded	345 min	60-80

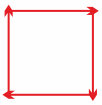
PARAMETERS - PACKING DATA:

Ø x L, mm	Net Wt., Kg
2.0 x 1000	20
2.4 x 1000	20
3.15 x 1000	20

DCEN

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions



Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 20 kg box, containing 4 plastic tubes of 5 kg each.

AUTOMIG CuAl-A1

GMAW COPPER ALLOYS

AWS A/SFA 5.7 ERCuAl-A1

CLASSIFICATION:

EN ISO 24373
SCu 6100 (Cu Al7)

KEY FEATURES:

- Iron free Aluminium-Bronze solid wire
- Resistance to many commonly used acids in varying concentrations and temperatures
- Resistance to corrosive media such as salt or brackish water
- Not Recommended for joining

TYPICAL APPLICATIONS:

- Overlay application as a wear resistant surfaces having relatively light loads
- Tube sheets, pickling hooks, valve seats
- Repair and build-up of bearing and corrosion resistant surfaces
- Impellers, chemical plants and pulp mills

CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

Zn	Mn	Si	Al	Pb	Cu+Ag
0.20 max	0.50 max	0.10 max	6.0-8.5	0.02 max	Bal.

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	Hardness, HBW
Specification	As Welded	380 min	80-110

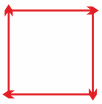
PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
0.8	12.5
1.2	12.5
1.6	12.5

DCEP

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions



Shielding Gas	Gas Flow Rate, LPM
75Ar/25He	15-25

TIGFIL CuAl-A1

GTAW COPPER ALLOYS

AWS A/SFA 5.7 ERCuAl-A1

CLASSIFICATION:

EN ISO 24373
SCu 6100 (Cu Al7)

KEY FEATURES:

- Iron free Aluminium-Bronze solid wire
- Resistance to many commonly used acids in varying concentrations and temperatures
- Resistance to corrosive media such as salt or brackish water
- Not Recommended for joining

TYPICAL APPLICATIONS:

- Overlay application as a wear resistant surfaces having relatively light loads
- Tube sheets, pickling hooks, valve seats
- Repair and build-up of bearing and corrosion resistant surfaces
- Impellers, chemical plants and pulp mills

CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

Zn	Mn	Si	Al	Pb	Cu+Ag
0.20 max	0.50 max	0.10 max	6.0-8.5	0.02 max	Bal.

MECHANICAL PROPERTIES OF ALL WELD METAL:

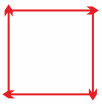
	Condition	UTS, MPa	Hardness, HBW
Specification	As Welded	380 min	80-110

PARAMETERS - PACKING DATA:

Ø x L, mm	Net Wt., Kg
2.0 x 1000	20
2.4 x 1000	20
3.15 x 1000	20

DCEN

All Positions



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 20 kg box, containing 4 plastic tubes of 5 kg each.

AUTOMIG CuAl-A2

GMAW COPPER ALLOYS

AWS A/SFA 5.7 ERCuAl-A2

CLASSIFICATION:

EN ISO 24373
S Cu 6180 (Cu Al10 Fe)

KEY FEATURES:

- Iron bearing Aluminium-Bronze solid wire
- Resistance to salt water and many commonly used acids

TYPICAL APPLICATIONS:

- Joining aluminium bronzes of similar composition, manganese bronze, silicon bronze, and some copper-nickel alloys, ferrous metals and dissimilar metals
- Dissimilar metal combinations of aluminium bronze to steel, copper to steel
- Overlay application for wear and corrosion resistant surfaces

CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

Zn	Fe	Si	Al	Pb	Cu+Ag
0.02 max	1.50 max	0.10 max	8.50-11.0	0.02 max	Bal.

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	Brinell Hardness, HBW
Specification	As Welded	415 min	130-150

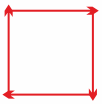
PARAMETERS - PACKING DATA:

Ø, mm	Kg/Spool
0.8	12.5
1.2	12.5
1.6	12.5

DCEP

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions



Shielding Gas	Gas Flow Rate, LPM
75Ar/25He	15-25

TIGFIL CuAl-A2

GTAW COPPER ALLOYS

AWS A/SFA 5.7 **ERCuAl-A2**

CLASSIFICATION:

EN ISO 24373
S Cu 6180 (Cu Al10 Fe)

KEY FEATURES:

- Iron bearing Aluminium-Bronze solid wire
- Resistance to salt water and many commonly used acids

TYPICAL APPLICATIONS:

- Joining aluminium bronzes of similar composition, manganese bronze, silicon bronze, and some copper-nickel alloys, ferrous metals and dissimilar metals
- Dissimilar metal combinations of aluminium bronze to steel, copper to steel
- Overlay application for wear and corrosion resistant surfaces

CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

Zn	Fe	Si	Al	Pb	Cu+Ag
0.02 max	1.50 max	0.10 max	8.50-11.0	0.02 max	Bal.

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	Brinell Hardness, HBW
Specification	As Welded	415 min	130-150

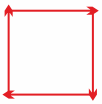
PARAMETERS - PACKING DATA:

Ø x L, mm	Net Wt., Kg
2.0 x 1000	20
2.4 x 1000	20
3.15 x 1000	20

DCEN

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions



Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 20 kg box, containing 4 plastic tubes of 5 kg each.

TIGFIL ST6

GTAW Cobalt Alloy

AWS A/SFA 5.21 **ERCoCr-A**

KEY FEATURES:

- Cobalt based solid filler rod
- Co-Cr-W type Stellite 6 grade alloy
- Hypoeutectic microstructure
- Resistance to low stress abrasive wear with toughness properties
- Resistance to metal to metal wear and galling
- Excellent resistance to corrosion, oxidation
- Retains hot hardness at elevated temperature upto 650°C

TYPICAL APPLICATIONS:

- Automotive and fluid flow valves
- Chain saw guides, hot punches, Valve bearing surface, roll bushings, Shear blades and extruder screws
- Applications where wear is accompanied by elevated temperatures and corrosion

CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt %:

C	Mn	Si	Cr	Ni	Mo	Fe	W	Co
0.9-1.4	1.0 max	2.0 max	26.0-32.0	3.0 max	1.0 max	3.0 max	3.0-6.0	Bal

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	Hardness, HRc
Specification	As Welded	40-46

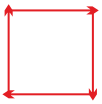
PARAMETERS - PACKING DATA:

Ø x L, mm	Net Wt, Kg
2.4 x 1000	20
3.15 x 1000	20

DCEN

STORAGE / HANDLING :
Keep dry during storage and handling

All Positions



Shielding Gas	Gas Flow Rate, LPM
Ar	10-15

Available in Standard carton packing of 20 kg box, containing 4 plastic tubes of 5 kg each.

AUTOMIG FC 71T-1

FCAW C-Mn STEEL

AWS A/SFA 5.20 **E71T-1C**

CLASSIFICATION:

EN ISO 17632-A
T 42 2 P C1 2

KEY FEATURES:

- Rutile type gas shielded FCW wire
- Low fumes, Minimal spatters
- Easy slag removal, smooth weld bead
- High deposition rate
- Suitable for high quality single and multi pass welds
- All position capability
- Radiographic quality weld

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

TYPICAL APPLICATIONS:

- Welding of C-Mn steel with tensile strength up to 500 MPa
- Bridges, Shipbuilding, Towers, Cranes
- Chemical plant machinery, Hulls
- Storage tanks, Structural steel
- Construction equipment, Farm machinery, Rolling stocks
- General carbon steel fabrication

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si
0.06	1.4	0.4

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	600	490	25	35

Hardness, 3 Layer: 200 BHN max

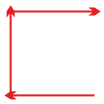
PARAMETERS - PACKING DATA:

Ø , mm	Net Wt, Kg
1.2	15
1.6	15

DCEP

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions, Except Vertical Down:



Shielding Gas	Gas Flow Rate, LPM
CO_2	15-20

AUTOMIG FC 71T-5

AWS A/SFA 5.20 E71T-5C/M H4

FCAW C-Mn STEEL

CLASSIFICATION:

EN ISO 17632-A
T 42 3 B C/M 2 H5

KEY FEATURES:

- Basic type gas shielded FCW wire
- Stable arc, Easy slag removal
- Smooth and porosity free weld
- Crack resistant and tough welds especially when welding steels with high carbon content
- Very low level of diffusible H2 content
- Suitable for high quality single and multi pass welding of thicker sections
- Superb mechanical properties
- Sound radiographic weld quality

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

TYPICAL APPLICATIONS:

- Welding of structural and boiler quality steels with minimum UTS up to 510 MPa
- Welding of heavy sections in Pressure vessels, Construction equipment, Off-shore structures, Bridges
- Suitable for IS 226, IS 2002, IS 2062, DIN 17115 HIV
- SA 285 Gr.C, SA 414 Gr.C/D/E
- SA 515 Gr.60/65, SA 516 Gr.60/65

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si
0.06	1.3	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	575	500	26	70

Diffusible H2 Content: <4 ml/100 gm

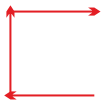
PARAMETERS - PACKING DATA:

Ø , mm	Net Wt, Kg
1.2	15
1.6	15

DCEP

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions, Except Vertical Down:



Use 1-2 volts lower when using mix shielding gas.

Shielding Gas	Gas Flow Rate, LPM
CO_2	15-20
80Ar+20CO_2	18-25

AUTOMIG FC 71T-1C-J

AWS A/SFA 5.20 E71T-1C-J

FCAW C-Mn STEEL

CLASSIFICATION:

EN ISO 17632-A
T 42 4 P C1 2

KEY FEATURES:

- Rutile type gas shielded FCW wire
- Stable arc, Easy slag removal
- Smooth and porosity free weld
- Sound radiographic weld quality
- Excellent combination of T1 performance with very good sub-zero toughness down to -40°C
- All position capability

APPROVALS: ABS/CE

TYPICAL APPLICATIONS:

- Welding of typical structural and carbon steel SA 36/36M, SA 285/285M Gr.A/B/C, SA 414/414M Gr.A/B/C
- Application in Ship building, Off-shore platform, Pressure vessels, Piping, Low temperature serving storage tanks, Harbor equipment

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si
0.06	1.4	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	As Welded	590	480	26	50

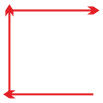
PARAMETERS - PACKING DATA:

Ø , mm	Net Wt, Kg
1.2	15
1.6	15

DCEP

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions, Except Vertical Down:



Shielding Gas	Gas Flow Rate, LPM
CO_2	15-20

AUTOMIG MC 70C-6C

AWS A/SFA 5.18 E70C-6C-H4

MCAW C-Mn STEEL

CLASSIFICATION:

EN ISO 17632-A
T 42 3 M C1 3 H5

KEY FEATURES:

- Metal cored wire suitable with CO2 shielding gas
- Good weldability, minimal or no slag
- Excellent bead appearance
- Exceptional mechanical properties at low temperatures
- High deposition rate
- Suitable for single and multi pass welding
- Best suited for automated and robotized applications

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of Carbon, C-Mn and similar types including fine grained steels
- Ship building, Boilers
- Suitable for joining SA 36/36M (P.No.1), SA 285/285M Gr.A/B/C (P.No.1)
- Pressure Vessels, Pipe steels

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si
0.06	1.4	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	As Welded	580	480	26	60

Diffusible H2 Content: <4 ml/100 gm

PARAMETERS - PACKING DATA:

Ø , mm	Net Wt, Kg
1.2	15
1.6	15

DCEP

Flat butt and fillet welds only

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
100% CO_2	15-20

AUTOMIG MC 70C-6M

AWS A/SFA 5.18 E70C-6MH4

MCAW C-Mn STEEL

CLASSIFICATION:

EN ISO 17632-A
T 46 4 M M21 3 H5

KEY FEATURES:

- Metal cored wire suitable with Ar-CO2 shielding gas
- Good weldability, minimal or no slag
- Excellent bead appearance
- Exceptional mechanical properties at low temperatures
- High deposition rate
- Suitable for single and multi pass welding
- Best suited for automated and robotized applications

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of Carbon, C-Mn and similar types including fine grained steels
- Ship building, Boiler
- Suitable for joining SA 36/36M (P.No.1), SA 285/285M Gr.A/B/C (P.No.1)
- Pressure Vessels, Pipe steels

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si
0.06	1.45	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	As Welded	585	490	28	60

Diffusible H2 Content: <4 ml/100 gm

PARAMETERS - PACKING DATA:

Ø , mm	Net Wt, Kg
1.2	15
1.6	15

DCEP

Flat butt and fillet welds only

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
80Ar+20CO_2	15-20

AUTOMIG FC 81T1-B2

FCAW LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.29 **E81T1-B2C**

CLASSIFICATION:

EN ISO 17634-A
T CrMo1 P C1 2

KEY FEATURES:

- Rutile type gas shielded FCW wire
- Stable and smooth arc
- Low fumes, Minimal spatters
- Easy slag removal, smooth weld bead
- 1.25Cr-0.5Mo type weld deposit
- Resistant to creep and heat up to 550°C
- Radiographic quality weld

APPROVALS: IBR/CE

TYPICAL APPLICATIONS:

- Welding of 1.25Cr-0.5Mo, 1Cr-0.5Mo steels
- For Cr and Cr-Mo bearing steels at elevated temperature service
- Suitable for 13CrMo44, 15CrMo5, 15Cr3, 16MnCr5, 20MnCr5
- Joining P4 materials 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
- Steam production plants, steam pipes

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Mo
0.06	1.0	0.6	1.2	0.45

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%
Typical	PWHT: 690°C for 1 Hr	620	550	22

CREEP TEST DATA:

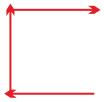
Condition	Temperature, °C	Stress, MPa	Duration, Hrs	Strain% after 1000 Hrs
PWHT: 690°C for 1 Hr	500	300	1000	1.42
	550	140	1000	1.06

PARAMETERS - PACKING DATA:

Ø , mm	Net Wt, Kg
1.2	15
1.6	15

DCEP

All Positions, Except Vertical Down



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
CO_2	15-20

AUTOMIG FC 91T1-B3

FCAW LOW ALLOY STEEL (High Temperature)

AWS A/SFA 5.29 E91T1-B3C

CLASSIFICATION:

EN ISO 17634-A
T CrMo2 P C1 2

KEY FEATURES:

- Rutile type gas shielded FCW wire
- Stable and smooth arc
- Low fumes, Minimal spatters
- Easy slag removal, smooth weld bead
- Low alloy steel Cr-Mo deposit
- Resistant to creep and heat upto 600°C
- Radiographic quality weld

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of 2.25Cr-0.5Mo, 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
- 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
0.06	1.0	0.5	2.3	1.0

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%
Typical	PWHT: 690°C for 1 Hr	710	600	19

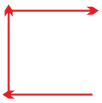
PARAMETERS - PACKING DATA:

Ø , mm	Net Wt, Kg
1.2	15
1.6	15

DCEP

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions, Except Vertical Down



Shielding Gas	Gas Flow Rate, LPM
CO_2	15-20

AUTOMIG FC 81T1-Ni1

FCAW LOW ALLOY STEEL (Low Temperature)

AWS A/SFA 5.29 E81T1-Ni1C

CLASSIFICATION:

EN ISO 17632-A
T 46 3 1Ni P C1 2

KEY FEATURES:

- Rutile type gas shielded FCW wire
- Typical 1%Ni weld deposit
- Stable and smooth arc
- Low fumes, Minimal spatters
- Easy slag removal, smooth weld bead
- Excellent fracture toughness at -30°C
- Radiographic quality weld

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of high tensile steel 1% Ni steel and equivalent materials
- Storage tanks for low temperature
- Offshore application, Bridges
- 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	1.2	0.5	1.0

MECHANICAL PROPERTIES OF ALL WELD METAL:

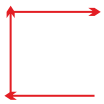
	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -30°C, J
Typical	As Welded	600	520	22	50

PARAMETERS - PACKING DATA:

Ø , mm	Net Wt, Kg
1.2	15
1.6	15

DCEP

All Positions, Except Vertical Down



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
CO_2	15-20

AUTOMIG FC 81T1-Ni2

FCAW LOW ALLOY STEEL (Low Temperature)

AWS A/SFA 5.29 **E81T1-Ni2C**

CLASSIFICATION:

EN ISO 17632-A
T 46 4 2Ni P C1 2

KEY FEATURES:

- Rutile type gas shielded FCW wire
- Typical 2%Ni weld deposit
- Stable and smooth arc
- Low fumes, Minimal spatters
- Easy slag removal, smooth weld bead
- Excellent combination of strength and toughness at -40°C
- Radiographic quality weld

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of high tensile steel 2% Ni steel and equivalent materials
- Offshore platform construction, Ship building
- Earthmoving and mining machinery
- Suitable for ASTM A572, A575, A734 steels

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Ni
0.07	1.1	0.5	2.1

MECHANICAL PROPERTIES OF ALL WELD METAL:

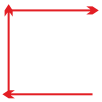
	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -40°C, J
Typical	As Welded	610	525	22	60

PARAMETERS - PACKING DATA:

Ø , mm	Net Wt, Kg
1.2	15
1.6	15

DCEP

All Positions, Except Vertical Down



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
CO_2	15-20

AUTOMIG FC 81T1-K2

FCAW LOW ALLOY STEEL (Low Temperature)

AWS A/SFA 5.29 **E81T1-K2C**

CLASSIFICATION:

EN ISO 17632-A
T 46 3 1.5Ni P C1 2

KEY FEATURES:

- Rutile type gas shielded FCW wire
- Stable and smooth arc
- Low fumes, Minimal spatters
- Easy slag removal, smooth weld bead
- Improved impact properties
- Suitable for medium to high strength applications
- Radiographic quality weld

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding high strength, fine grained structural steels like N-A-XTRA 55, N-A-XTRA 60, LA60, Sailma 450/450HI
- Structural applications where low temperature toughness is required
- Suitable for joining HY 80, HY 100, ASTM A710, A514 steels and similar high strength materials
- Offshore structures and structural applications

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Ni
0.07	1.4	0.5	1.3

MECHANICAL PROPERTIES OF ALL WELD METAL:

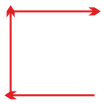
	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -30°C, J
Typical	As Welded	605	510	22	50

PARAMETERS - PACKING DATA:

Ø , mm	Net Wt, Kg
1.2	15
1.6	15

DCEP

All Positions, Except Vertical Down



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
CO_2	15-20

AUTOMIG FC 80T5-K2

AWS A/SFA 5.29 E80T5-K2C/M-H4

FCAW LOW ALLOY STEEL (Low Temperature)

CLASSIFICATION:

EN ISO 17632-A
T 46 5 1.5Ni B C1/M21 3 H5

KEY FEATURES:

- Basic type gas shielded FCW wire
- Suitable for medium to high strength applications
- Stable arc, low fumes
- Easy slag removal
- Excellent low temperature toughness down to -30°C
- Radiographic quality weld

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding high strength, fine grained structural steels like N-A-XTRA 55, N-A-XTRA 60, LA60, Sailma 450/450HI
- High strength application of 550-760 MPa minimum yield strength steels
- Suitable for joining HY 80, HY 100, ASTM A710, A514 steels and similar high strength materials
- Offshore structures and structural applications

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Ni
0.07	1.3	0.45	1.3

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact, J	
					at -30°C	at -50°C
Typical	As Welded	600	510	23	80	50

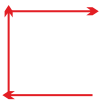
Diffusible H2 Content: <4 ml/100 gm

PARAMETERS - PACKING DATA:

Ø , mm	Net Wt, Kg
1.2	15
1.6	15

DCEP

All Positions, Except Vertical Down



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
CO_2	15-20
80Ar+20CO_2	15-25

AUTOMIG FC 90T5-K2

AWS A/SFA 5.29 **E90T5-K2C/M-H4**

FCAW LOW ALLOY STEEL (Low Temperature)

CLASSIFICATION:

EN ISO 17632-A
T 50 5 1.5Ni B C1/M21 3 H5

KEY FEATURES:

- Basic type gas shielded FCW wire
- Stable and smooth arc
- Low fumes, Minimal spatters
- Easy slag removal
- Excellent low temperature toughness down to -50°C
- Suitable for high strength application
- Radiographic quality weld

APPROVALS:CE

TYPICAL APPLICATIONS:

- Welding high strength, fine grained structural steels like N-A-XTRA 55, N-A-XTRA 60, LA60, Sailma 450/450HI
- High strength application of 550-760 MPa minimum yield strength steels
- Suitable for joining HY 80, HY 100, ASTM A710, A514 steels and similar high strength materials
- Offshore structures and structural applications

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Ni
0.08	1.3	0.45	1.4

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	660	590	22	50

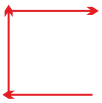
Diffusible H2 Content: <4 ml/100 gm

PARAMETERS - PACKING DATA:

Ø , mm	Net Wt, Kg
1.2	15
1.6	15

DCEP

All Positions, Except Vertical Down



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
CO_2	15-20

AUTOMIG FC 18M SPL

FCAW LOW ALLOY STEEL (High Strength)

AWS A/SFA 5.29 E91T1-D1C

CLASSIFICATION:

EN ISO 18276-B
T 624T1-1CA-3M2

KEY FEATURES:

- Rutile type gas shielded FCW wire
- Stable and smooth arc
- Low fumes, Minimal spatters
- Easy slag removal, smooth weld bead
- Specially designed to produce weld with high tensile strength and moderate impact toughness
- All position capability
- Radiographic quality weld

APPROVALS: RDSO Class III/CE

TYPICAL APPLICATIONS:

- Welding of High Tensile Steels like IS 8500 Gr.540B, 570B and 590B, IS 2002 Gr.III, IS 1875 CL IIIA
- Welding of SAILMA 450/450HI steel used in CONCOR wagons is a typical application for this wire

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Mo
0.08	1.40	0.5	0.3

MECHANICAL PROPERTIES OF ALL WELD METAL:

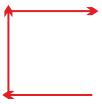
	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -40°C, J
Specification	As Welded	620-760	540 min	17 min	27 min

PARAMETERS - PACKING DATA:

Ø , mm	Net Wt, Kg
1.2	15
1.6	15

DCEP

All Positions, Except Vertical Down



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
CO_2	15-20

AUTOMIG FC 101T1-K3

AWS A/SFA 5.29 E101T1-K3C

FCAW LOW ALLOY STEEL (High Strength)

CLASSIFICATION:

EN ISO 18276-B
T 693T1-1CA-N3M2

KEY FEATURES:

- Rutile type gas shielded FCW wire
- Stable arc, Easy slag removal
- Low fumes, Minimal spatters
- Smooth and porosity free weld
- Optimal alloy control
- High strength and low temperature toughness combination
- Suitable for all position
- Radiographic quality weld

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of higher strength steel pipes and plates
- Welding of SAILMA 450/450HI steel used in CONCOR wagons is a typical application for this wire

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Ni	Mo
0.08	1.8	0.5	2.3	0.4

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -20°C, J
Specification	As Welded	690-830	610 min	16 min	27 min

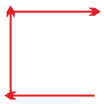
PARAMETERS - PACKING DATA:

Ø , mm	Net Wt, Kg
1.2	15
1.6	15

DCEP

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions, Except Vertical Down



Shielding Gas	Gas Flow Rate, LPM
CO_2	15-20

AUTOMIG FC 110T5-K4

AWS A/SFA 5.29 **E110T5-K4C-H4**

FCAW LOW ALLOY STEEL (High Strength)

CLASSIFICATION:

EN ISO 18276-A
T 69 5 Mn2NiCrMo B C1 3-H5

KEY FEATURES:

- Basic type gas shielded FCW wire
- Stable arc, Easy slag removal
- Low fumes, Minimal spatters
- Smooth and porosity free weld
- Excellent low temperature toughness down to -50°C
- Suitable for high strength fine grained steels
- Radiographic quality weld

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of high strength, quenched and tempered fine grained steels like N-A-XTRA 65 & 70, USST1, T1B, WELTEN 70C
- Welding of SA533/533M Gr. B/C/D Class 2 & 3, SA543/543M Gr.B/C Class 1 & 2, SA225/225M Gr.C/D, SA738/738M Gr.A/B/C

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Ni	Cr	Mo
0.08	1.6	0.4	2.1	0.3	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	810	730	18	50

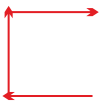
PARAMETERS - PACKING DATA:

Ø , mm	Net Wt, Kg
1.2	15
1.6	15

DCEP

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions, Except Vertical Down:



Diffusible H2 Content: <4 ml/100 gm

Shielding Gas	Gas Flow Rate, LPM
CO_2	15-20

AUTOMIG FC 180R

FCAW LOW ALLOY STEEL (Weathering Steel)

AWS A/SFA 5.29 **E81T1-W2C**

CLASSIFICATION:

EN ISO 17632-B
T 553T1-1C1A-NCC1

APPROVALS: CE

KEY FEATURES:

- Rutile type gas shielded FCW wire
- Stable and smooth arc
- Low fumes, Minimal spatters
- Easy slag removal, smooth weld bead
- Excellent corrosion resistance
- Matches coloring of ASTM weathering type structural steels
- Optimum combination of strength, ductility and notch toughness
- Radiographic quality weld

TYPICAL APPLICATIONS:

- Welding of typical weathering steel such as ASTM A242, A588, CORTEN A and B grade
- Joining medium high tensile steel type D40S used for ship-building

TYPICAL CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Ni	Cr	Cu
0.7	1.1	0.4	0.5	0.5	0.5

MECHANICAL PROPERTIES OF ALL WELD METAL:

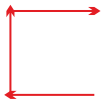
	Condition	UTS, MPa	YS at 0.2% offset, MPa	EL%	CVN Impact at -30°C, J
Typical	As Welded	590	520	21	35

PARAMETERS - PACKING DATA:

Ø , mm	Net Wt, Kg
1.2	15
1.6	15

DCEP

All Positions, Except Vertical Down:



STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
CO_2	15-20

MIGINOX FC 308L

FCAW STAINLESS STEEL

AWS A/SFA 5.22 **E308LT1-1/4**

CLASSIFICATION:

EN ISO 17633-A
T 19 9 L P C1 2
T 19 9 LP M21 2

KEY FEATURES:

- Rutile based extra low carbon gas shielded stainless steel FCW wire
- Typical 19Cr-10Ni weld deposit
- Stable arc, low spatter and easy slag removal
- Excellent bead appearance
- Excellent crack resistance and corrosion resistance
- Radiographic weld quality

APPROVALS: RDSO Class VI/CE

TYPICAL APPLICATIONS:

- Welding of 18Cr-8Ni stainless steels of AISI 301, 302, 304, 304L type
- Application in Chemical, Food processing industries, Pipes & tubes

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni	Mo
0.04 max	0.50-2.50	1.0 max	18.0-21.0	9.0-11.0	0.5 max

MECHANICAL PROPERTIES OF ALL WELD METAL:

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

With mixed gas chemical composition and mechanical properties will be higher.

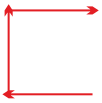
PARAMETERS - PACKING DATA:

Ø , mm	Kg/Spool
1.2	12.5
1.6	12.5

DCEP

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions, Except Vertical Down:



Shielding Gas	Gas Flow Rate, LPM
CO_2	15-20
80Ar+20CO_2	18-25

MIGINOX FC 309L

FCAW STAINLESS STEEL

AWS A/SFA 5.22 E309LT1-1/4

CLASSIFICATION:

EN ISO 17633-A
T 23 12 LP C1 2
T 23 12 LP M21 2

KEY FEATURES:

- An extra low carbon gas shielded stainless steel FCW wire
- Typical 23Cr-13Ni type weld deposit
- Stable arc, low spatter and easy slag removal
- Excellent bead appearance
- Excellent crack and corrosion resistance
- High oxidation resistance up to 1100°C
- Radiographic weld quality

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of AISI 309L type steels and similar grade materials, castings, pipes and tubes
- Joining stainless steel to carbon steel
- For overlays, buttering on carbon and low alloy steels

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni	Mo
0.04 max	0.50-2.50	1.0 max	22.0-25.0	12.0-14.0	0.5 max

MECHANICAL PROPERTIES OF ALL WELD METAL:

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

With mixed gas chemical composition and mechanical properties will be higher.

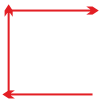
PARAMETERS - PACKING DATA:

Ø , mm	Kg/Spool
1.2	12.5
1.6	12.5

DCEP

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions, Except Vertical Down:



Shielding Gas	Gas Flow Rate, LPM
CO_2	15-20
80Ar+20CO_2	18-25

MIGINOX FC 316L

AWS A/SFA 5.22 E316LT1-1/4

FCAW STAINLESS STEEL

CLASSIFICATION:

EN ISO 17633-B
TS 316L PC1 1
TS 316L PM21 1

KEY FEATURES:

- Rutile based extra low carbon gas shielded stainless steel FCW wire
- Typical 18Cr/12Ni/2.5Mo weld deposit
- Controlled ferrite content ensures resistance against cracking
- Improved corrosion, pitting and intergranular corrosion resistance
- Stable arc and low spatter
- Excellent bead appearance
- Easy slag removal
- Radiographic weld quality

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of AISI 316, 316L, 317, 317L, 318 type stainless steel and similar grade
- Welding pipes, tubes and vessels
- Cladding stainless steels
- Application in textile processing, Naval and Chemical environments, Paper and pulp, Paint and dye industries, Food processing industries

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni	Mo
0.04 max	0.50-2.50	1.0 max	17.0-20.0	11.0-14.0	2.0-3.0

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Specification	As Welded	485 min	30 min

With mixed gas chemical composition and mechanical properties will be higher.

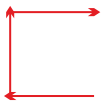
PARAMETERS - PACKING DATA:

Ø , mm	Kg/Spool
1.2	12.5
1.6	12.5

DCEP

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions, Except Vertical Down:



Shielding Gas	Gas Flow Rate, LPM
CO_2	15-20
80Ar+20CO_2	18-25

MIGINOX FC 347

FCAW STAINLESS STEEL

AWS A/SFA 5.22 **E347T1-1/4**

CLASSIFICATION:

EN ISO 17633-A
T 19 9 Nb P C1 2
T 19 9 Nb P M21 2

APPROVALS: CE

KEY FEATURES:

- Rutile based gas shielded stainless steel FCW wire
- Typical 19/9/Nb stabilized stainless steel deposit
- Stable arc, low spatter and easy slag removal
- Excellent bead appearance
- Resistance to cracking and embrittlement
- Resistance to intergranular corrosion and scaling up to 850°C
- Radiographic weld quality

TYPICAL APPLICATIONS:

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

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni	Mo	Nb+Ta	Cu
0.08 max	0.50-2.50	1.0 max	18.0-21.0	9.0-11.0	0.75 max	8xC-1.0	0.75 max

MECHANICAL PROPERTIES OF ALL WELD METAL:

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

With mixed gas chemical composition and mechanical properties will be higher.

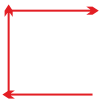
PARAMETERS - PACKING DATA:

Ø , mm	Kg/Spool
1.2	12.5
1.6	12.5

DCEP

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions, Except Vertical Down:



Shielding Gas	Gas Flow Rate, LPM
CO_2	15-20
$80Ar+20CO_2$	18-25

MIGINOX FC 410NiMo

AWS A/SFA 5.22 **E410NiMoT1-1/4**

FCAW STAINLESS STEEL

CLASSIFICATION:

EN ISO 17633-A
T 13 4 P C1 2
T 13 4 P M21 2

KEY FEATURES:

- Rutile based gas shielded stainless steel FCW wire
- Typical 11.5Cr-4.5Ni-0.5Mo stainless steel deposit
- High strength combined with excellent toughness and cracking resistance
- Preheat and PWHT recommended
- Stable arc, low spatter and easy slag removal
- Radiographic weld quality
- Martensitic type alloy resistant to corrosion, erosion, pitting and impact

APPROVALS: CE

TYPICAL APPLICATIONS:

- Welding of ASTM CA 6NM casting or similar materials
- 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

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni	Mo
0.06 max	1.0 max	1.0 max	11.0-12.5	4.0-5.0	0.40-0.70

MECHANICAL PROPERTIES OF ALL WELD METAL:

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

With mixed gas chemical composition and mechanical properties will be higher.

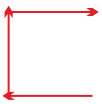
PARAMETERS - PACKING DATA:

Ø , mm	Kg/Spool
1.2	12.5
1.6	12.5

DCEP

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions, Except Vertical Down:



Shielding Gas	Gas Flow Rate, LPM
CO_2	15-20
80Ar+20CO_2	18-25

MIGINOX FC 2209

FCAW STAINLESS STEEL

AWS A/SFA 5.22 **E2209T1-1/4**

CLASSIFICATION:

EN ISO 17633-A
T 22 9 3 N L P C1 2
T 22 9 3 N L P M21 2

APPROVALS: CE

KEY FEATURES:

- Rutile based gas shielded duplex stainless steel FCW wire
- Typical 22Cr/8.5Ni/3Mo/N alloy
- Austenitic-ferritic type weld deposit
- Stable arc, low spatter and easy slag removal
- Uniform and fine ripples
- Excellent combination of high strength and resistance to chloride induced SCC and pitting
- Radiographic weld quality

TYPICAL APPLICATIONS:

- Welding of 2205, 2209 type duplex stainless steels and similar composition
- Pipelines transporting chloride bearing products and sour gases
- Cast pumps, Valve bodies and seawater handling equipment
- For chemical equipments, heat exchangers, off-shore platforms
- Cladding on carbon and low alloy steels

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni	Mo	N	Cu
0.04 max	0.50-2.0	1.0 max	21.0-24.0	7.5-10.0	2.5-4.0	0.08-0.20	0.50 max

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Specification	As Welded	690 min	20 min

With mixed gas chemical composition and mechanical properties will be higher.

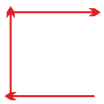
PARAMETERS - PACKING DATA:

Ø , mm	Kg/Spool
1.2	12.5
1.6	12.5

DCEP

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions, Except Vertical Down:



Shielding Gas	Gas Flow Rate, LPM
CO_2	15-20
80Ar+20CO_2	18-25

MIGINOX MC 409

FCAW STAINLESS STEEL

AWS A/SFA 5.22 **EC409**

CLASSIFICATION:

EN ISO 17633-A
T 13 Ti M M13/M21 2

KEY FEATURES:

- Gas shielded metal cored wire
- Typical 12Cr, Ti stabilized SS alloy
- Smooth operating characteristics
- Radiographic weld quality
- Uniform and fine ripples
- Excellent combination of high
- Ti addition form carbides to improve corrosion resistance, increase strength at high temperature and promote the ferritic microstructure

TYPICAL APPLICATIONS:

- For joining of matching base materials of 409 type
- Automotive industries for automotive exhaust system components

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL, Wt %:

C	Mn	Si	Cr	Ni	Mo	Ti
0.08 max	0.8 max	0.8 max	10.5-13.5	0.6 max	0.50 max	10xC-1.5

MECHANICAL PROPERTIES OF ALL WELD METAL:

	Condition	UTS, MPa	EL%
Specification	As Welded	450 min	15 min

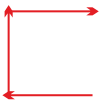
PARAMETERS - PACKING DATA:

Ø , mm	Kg/Spool
1.2	12.5
1.6	12.5

DCEP

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

All Positions, Except Vertical Down:



Shielding Gas	Gas Flow Rate, LPM
98Ar/2O_2 or 80Ar/20CO_2	15-25

AUTOMIG FC 580

FCAW HARD FACING Abrasion-Impact

ALLOY BASIS :
C, Cr

KEY FEATURES:

- Basic type flux cored wire
- Smooth arc characteristics
- Low spatter, low fumes
- Non-machinable air hardenable deposit
- Resist high stress abrasion and friction
- Can withstand impact load of medium severity
- Resistant to spalling and cracking

TYPICAL APPLICATIONS:

- Hard facing applications on carbon steel and manganese components
- Machine parts subjected to high frictional wear
- Repair on damaged cold cutting tools
- Surfacing on austenitic manganese steels
- Screw conveyers, concrete mixer blades, crusher jaws and cones
- Pug mill screws, coal chutes dipper teeth, bucket teeth, crusher plates
- Brick machinery, pellet plant and tamping tools

MECHANICAL PROPERTIES OF ALL WELD METAL:

Condition	Hardness, 3 Layer HRc (BHN) , Typical
As Welded	55 (570)

PARAMETERS - PACKING DATA:

Ø , mm	Kg/Spool
1.2	15
1.6	15

DCEP

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
CO_2	15-20

Machinability	Metal to Metal WearResistance	Impact Resistance	Corrosion Resistance
			

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

AUTOMIG FC 600

FCAW HARD FACING Abrasion-Impact

ALLOY BASIS :
C, Cr, Mo

KEY FEATURES:

- C, Cr, Mo alloyed flux cored wire
- Smooth arc characteristics
- Low spatter, Minimal slag
- Air hardenable deposit
- Non machinable weld can be finished by grinding
- High hardness in single layer
- 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	Hardness, 1 Layer HRc (BHN) , Typical
As Welded	58 (600)

PARAMETERS - PACKING DATA:

Ø , mm	Kg/Spool
1.2	15
1.6	15

DCEP

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
80Ar+20CO_2 or 100% CO_2	15-25

Machinability	Metal to Metal WearResistance	Impact Resistance	Corrosion Resistance

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

AUTOMIG MC 42

MCAW (Hard facing)

ALLOY BASIS :
Cr, Mo, Ni, V

KEY FEATURES:

- Gas shielded metal cored wire
- Low alloy steel weld deposit
- Stable and smooth arc, no spatter
- No slag, smooth weld bead
- Weld deposit free from porosity
- Excellent resistance to metal to metal wear at high temperatures and thermal shocks
- Suitable for multi-pass crack free welding

TYPICAL APPLICATIONS:

- For surfacing and reclamation of large hot working dies specially drop and press forging dies, hot working tools
- Suitable for H11, H13, DIN 1.2714 and DB-6 die block material

MECHANICAL PROPERTIES OF ALL WELD METAL:

Condition	3 Layer Hardness, HRc, Typical
As Welded	43-47
Stress Relieved	44-48

PARAMETERS - PACKING DATA:

Ø , mm	Kg/Spool
1.60	12.5
2.40	12.5

DCEP

STORAGE / HANDLING :
Keep dry and follow handling instructions mentioned on the box

Shielding Gas	Gas Flow Rate, LPM
80Ar+20CO_2	18-25

Machinability	Metal to Metal WearResistance	Impact Resistance	Corrosion Resistance

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

Fluxes

Section II

NOTE ON SAW FLUXES

1. BASICITY OF THE FLUX:

Basicity is ratio of Basic oxides to Acidic oxides present in the flux. For the basicities mentioned in AWL literature, formula devised by Boniszewski is used, which is as below:

$$\text{Basicity} = \frac{CaO + MgO + CaF2 + NaO + K2O + \frac{1}{2}(MnO + FeO)}{SiO2 + \frac{1}{2}(Al2O3 + TiO2 + ZrO2)}$$

Based on Basicity No. Fluxes are divided in following Types:
a. Acidic – Basicity ≤ 0.80
b. Neutral – 0.80 > Basicity ≤1.20
c. Basic – 1.20 > Basicity < 2.00
d. High Basic – Basicity > 2.00

2. ACTIVITY OF FLUXES:

Activity of the flux is devised by Wall Neutrality Number. Wall Neutrality Number is measured as below:

a. Make two chemistry pads with same wire flux combination, same welding parameters, except voltage used for 2nd pad is increased by 8V.
b. They are analyzed for Si and Mn.
c. The wall neutrality Number is calculated by following formula:
   Wall Neutrality Number = 100 (|Δ % Si| + |Δ % Mn|)
   Δ % Si – Difference in Si in two pads
   Δ % Mn – Difference in Mn in two pads
   Wall Neutrality Number is absolute value, ignoring positive and negative sign.

Based on Activity, Fluxes are divided into following types:
   A. Active Flux – Wall Neutrality Number > 35
   B. Neutral Flux – Wall Neutrality Number ≤ 35

3. RE-DRYING OF SAW FLUXES:

Recommended cycle for flux re-drying: 300-350^{o}C for minimum 2 hrs.

C-Mn STEEL WIRES FOR SAW WELDING

COPPER COATED C-Mn STEEL SOLID WIRES

CLASSIFICATION :

Product	EN 14171	AWS A/SFA 5.17
AUTOMELT EL8	S1	EL8
AUTOMELT EL12	S1	EL12
AUTOMELT EM12K	S2Si	EM12K
AUTOMELT EH10K	S3	EH10K
AUTOMELT EH12K	S3Si	EH12K
AUTOMELT EH11K		EH11K
AUTOMELT EH14	S4	EH14

KEY FEATURES :

- Uniform copper coating
- Smooth feeding
- Close dimensional tolerances
- Controlled Chemistry

CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt% (Typical, Including Cu in coating)

Product	C	Mn	Si	Cu
AUTOMELT EL8	0.06	0.50	0.03	0.1
AUTOMELT EL12	0.09	0.50	0.03	0.1
AUTOMELT EM12K	0.09	1.00	0.20	0.1
AUTOMELT EH10K	0.08	1.40	0.15	0.1
AUTOMELT EH12K	0.10	1.55	0.25	0.1
AUTOMELT EH11K	0.09	1.50	0.90	0.1
AUTOMELT EH14	0.12	1.70	0.04	0.1

DIAMETERS - PACKING DATA :

Product	Ø, mm	Kg / Spool	SAWPAC DRUM, Kg
AUTOMELT EL8	1.6, 2.0, 2.5, 3.15, 4.0, 5.0	25	1.6 - 100 / 250 Others – 350 / 500
AUTOMELT EL12	1.6, 2.0, 2.5, 3.15, 4.0, 5.0, 5.50	25	1.6 - 100 / 250 Others – 350 / 500
AUTOMELT EM12K	1.6, 2.0, 2.5, 3.15, 4.0, 5.0	25	1.6 - 100 / 250 Others – 350 / 500
AUTOMELT EH10K	2.5, 3.15, 4.0, 5.0	25	350 / 500
AUTOMELT EH12K	2.5, 3.15, 4.0, 5.0	25	350 / 500
AUTOMELT EH11K	1.6, 2.0, 2.5, 3.15, 4.0, 5.0	25	1.6 - 100 / 250 Others – 350 / 500
AUTOMELT EH14	2.5, 3.15, 4.0, 5.0	25	350 / 500

WIRES FOR SUBMERGED ARC WELDING OF CREEP RESISTANT STEELS

COPPER COATED LOW ALLOY STEEL SOLID WIRES

CLASSIFICATION :

Product	EN 14171	EN 12070	AWS A/SFA 5.23
AUTOMELT EA2	S2Mo		EA2
AUTOMELT EA3	S4Mo		EA3
AUTOMELT EA4	S3Mo	S MnMo	EA4
AUTOMELT EB2		S CrMo1	EB2
AUTOMELT EB2R		S CrMo1	EB2R
AUTOMELT EB3		S CrMo2	EB3
AUTOMELT EB3R		S CrMo2	EB3R
AUTOMELT EB6		S CrMo5	EB6
AUTOMELT EB91		S CrMo91	EB91

KEY FEATURES :

- Uniform copper coating
- Smooth feeding
- Close dimensional tolerances
- Controlled Chemistry

CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt% (Typical, Including Cu in coating)

Product	C	Mn	Si	Cr	Mo	Cu	Other
AUTOMELT EA2	0.09	1.10	0.15		0.50	0.10	
AUTOMELT EA3	0.09	1.80	0.15		0.50	0.10	
AUTOMELT EA4	0.09	1.40	0.15		0.50	0.10	
AUTOMELT EB2	0.10	0.60	0.15	1.25	0.50	0.10	
AUTOMELT EB2R	0.10	0.60	0.15	1.25	0.50	0.10	S-0.007; P-0.008; As-0.004; Sn-0.004; Sb-0.004; Bruscato factor X <15
AUTOMELT EB3	0.10	0.60	0.15	2.40	1.00	0.10	
AUTOMELT EB3R	0.10	0.60	0.15	2.40	1.00	0.10	S-0.007; P-0.008; As-0.004; Sn-0.004; Sb-0.004; Bruscato factor X <15
AUTOMELT EB6	0.08	0.60	0.30	6.00	0.6	0.10	
AUTOMELT EB91	0.10	0.40	0.25	9.00	1.00	0.07	Ni-0.5; V-0.2; Nb-0.05; N-0.05; Al-0.005

DIAMETERS - PACKING DATA :

Product	Ø, mm	Kg / Spool	SAWPAC DRUM, Kg
AUTOMELT EA2	2.0, 2.5, 3.15, 4.0, 5.0	25	350 / 500
AUTOMELT EA3	2.5, 3.15, 4.0, 5.0	25	350 / 500
AUTOMELT EA4	2.0, 2.5, 3.15, 4.0, 5.0	25	350 / 500
AUTOMELT EB2	2.0, 2.5, 3.15, 4.0, 5.0	25	350 / 500
AUTOMELT EB2R	2.5, 3.15, 4.0, 5.0	25	350 / 500
AUTOMELT EB3	2.0, 2.5, 3.15, 4.0, 5.0	25	350 / 500
AUTOMELT EB3R	2.5, 3.15, 4.0, 5.0	25	350 / 500
AUTOMELT EB6	2.5, 3.15, 4.0, 5.0	25	350 / 500
AUTOMELT EB91	2.5, 3.15, 4.0, 5.0	25	350 / 500

WIRES FOR SUBMERGED ARC WELDING FOR CRYOGENIC APPLICATIONS

COPPER COATED LOW ALLOY STEEL SOLID WIRES

CLASSIFICATION :		
Product	**EN 14171**	**AWS A/SFA 5.23**
Automelt ENi1	S2Ni1	ENi1
Automelt ENi2	S2Ni2	ENi2
Automelt ENi3	S2Ni3	ENi3
Automelt ENi5	--	ENi5

KEY FEATURES :

- Uniform copper coating
- Smooth feeding
- Close dimensional tolerances
- Controlled Chemistry

CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt% (Typical, Including Cu in coating):						
Product	**C**	**Mn**	**Si**	**Ni**	**Cu**	**Mo**
AUTOMELT ENi1	0.10	1.00	0.20	1.00	0.10	-
AUTOMELT ENi2	0.10	1.00	0.20	2.20	0.10	-
AUTOMELT ENi3	0.10	1.00	0.20	3.25	0.10	-
AUTOMELT ENi5	0.10	1.30	0.20	1.00	0.10	0.20

DIAMETERS - PACKING DATA :				
Product	**Ø, mm**	**Kg / Spool**	**Kg / Bobbin**	**SAWPAC DRUM, Kg**
AUTOMELT ENi1	2.5, 3.15, 4.0, 5.0	25	250	350 / 500
AUTOMELT ENi2	2.5, 3.15, 4.0, 5.0	25	250	350 / 500
AUTOMELT ENi3	2.5, 3.15, 4.0, 5.0	25	250	350 / 500
AUTOMELT ENi5	2.5, 3.15, 4.0, 5.0	25	250	350 / 500

WIRES FOR SUBMERGED ARC WELDING OF HIGH STRENGTH STEELS

COPPER COATED LOW ALLOY STEEL SOLID WIRES

CLASSIFICATION :			
Product	**EN 14171**	**EN 26304-A**	**AWS A/SFA 5.23**
AUTOMELT EF2			EF2
AUTOMELT EF3	S3Ni1Mo		EF3
AUTOMELT S3NiCrMo2.5		S3Ni2.5CrMo	EG

KEY FEATURES :

- Uniform copper coating
- Smooth feeding
- Close dimensional tolerances
- Controlled Chemistry

CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt% (Typical, Including Cu in coating)							
Product	**C**	**Mn**	**Si**	**Mo**	**Ni**	**Cr**	**Cu**
AUTOMELT EF2	0.12	1.80	0.15	0.50	0.60		0.10
AUTOMELT EF3	0.12	1.75	0.20	0.55	0.90		0.10
AUTOMELT S3NiCrMo2.5	0.12	1.50	0.20	0.50	2.50	0.60	0.10

DIAMETERS - PACKING DATA :			
Product	**Ø, mm**	**Kg / Spool**	**SAWPAC DRUM, Kg**
AUTOMELT EF2	2.5, 3.15, 4.0, 5.0	25	350 / 500
AUTOMELT EF3	2.5, 3.15, 4.0, 5.0	25	350 / 500
AUTOMELT S3NiCrMo2.5	2.5, 3.15, 4.0, 5.0	25	350 / 500

WIRES FOR SUBMERGED ARC WELDING OF STAINLESS STEELS

STAINLESS STEEL SOLID WIRES

CLASSIFICATION :		
Product	**EN ISO 14343-A**	**AWS A/SFA 5.9**
SUBINOX 308L	S 19 9 L	ER308L
SUBINOX 308L SPL	S 19 9 L	ER308L
SUBINOX 308H		ER308H
SUBINOX 316L	S 19 12 3 L	ER316L
SUBINOX 309L	S 23 12 L	ER309L
SUBINOX 309LMo		ER309LMo
SUBINOX 347	S 19 9 Nb	ER347
SUBINOX 410	S 13	ER410
SUBINOX 410NiMo	S 13 4	ER410NiMo
SUBINOX 430	S 17	ER430
SUBINOX 2209	S 22 9 3 NL	ER2209
SUBINOX 2594		ER2594

KEY FEATURES :

- Smooth feeding
- Close dimensional tolerances
- Controlled Chemistry

CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt% :							
Product	**C**	**Mn**	**Si**	**Cr**	**Ni**	**Mo**	**Other Elements**
SUBINOX 308L	0.025	1.50	0.40	19.5	9.3	--	--
SUBINOX 308L SPL	0.025	1.50	0.40	19.5	9.7	--	--
SUBINOX 308H	0.05	1.50	0.40	19.5	9.2	--	--
SUBINOX 316L	0.025	1.50	0.40	18.5	11.5	2.2	--
SUBINOX 309L	0.025	1.50	0.40	23.5	12.2	--	--
SUBINOX 309LMo	0.025	1.50	0.40	23.5	12.2	2.2	--
SUBINOX 347	0.03	1.50	0.30	19.8	9.7	--	Nb + Ta – 0.60
SUBINOX 410	0.05	0.40	0.30	12.0	--	--	--
SUBINOX 410NiMo	0.03	0.40	0.30	12.0	4.5	0.45	--
SUBINOX 430	0.04	0.40	0.30	16.0	--	--	--
SUBINOX 2209	0.02	1.20	0.45	22.5	8.0	2.7	N – 0.12
SUBINOX 2594	0.015	0.55	0.40	25.2	9.1	4.0	N – 0.25, W – 0.10

WIRES FOR SUBMERGED ARC WELDING OF STAINLESS STEELS

STAINLESS STEEL SOLID WIRES

DIAMETERS - PACKING DATA :		
Product	**Ø, mm**	**Kg / Spool**
SUBINOX 308L	1.2, 1.6, 2.0, 2.5, 3.2, 4.0, 5.0	1.2 to 1.6 mm – 12.5 kg spool
SUBINOX 308L SPL		
SUBINOX 308H		
SUBINOX 316L		
SUBINOX 309LMo		
SUBINOX 309L		
SUBINOX 347		2.0 to 5.0 – 25 kg Spool
SUBINOX 410		
SUBINOX 410NiMo		
SUBINOX 430		
SUBINOX 2209		
SUBINOX 2594		

WIRES FOR SUBMERGED ARC WELDING OF NICKEL & NICKEL ALLOYS

NICKEL & NICKEL ALLOY SOLID WIRES

CLASSIFICATION :	
Product	**AWS A/SFA 5.14**
AUTOMELT NiCr3	ERNiCr-3
AUTOMELT NiCrMo3	ERNiCrMo-3
AUTOMELT NiCrMo4	ERNiCrMo-4

KEY FEATURES :

- Smooth feeding
- Close dimensional tolerances
- Controlled Chemistry

CHEMICAL COMPOSITION OF BARE SOLID WIRE, Wt% :							
Product	**C**	**Mn**	**Fe**	**Si**	**Cr**	**Mo**	**Other Elements**
AUTOMELT NiCr3	0.01	2.80	0.4	0.15	20.0	-	Nb-2.4; Ti-0.3; Ni > 67.0
AUTOMELT NiCrMo3	0.03	0.20	4.0	0.15	22.0	9.1	Nb+Ta-3.5; Al-0.1; Ti-0.1; Ni > 62.0
AUTOMELT NiCrMo4	0.01	0.60	5.0	0.03	15.0	16.0	W-4.0; Co-0.2; Cu- 0.01

DIAMETERS - PACKING DATA :		
Product	**Ø, mm**	**Kg / Spool**
Automelt NiCr3	2.5, 3.15, 4.0, 5.0	25
Automelt NiCrMo3	2.5, 3.15, 4.0, 5.0	25
Automelt NiCrMo4	2.5, 3.15, 4.0, 5.0	25

AUTOMELT A55 (AUTOMELT Gr II)

SAW Flux

GENERAL DESCRIPTION:

- Agglomerated Flux
- Aluminate- Rutile Type Flux
- Acidic Flux having Basicity Index of 0.6
- Active Flux with moderate Si and Mn pick-up
- For Single and Multi-pass Butt and fillet welding (With EM12K Wire restrict to 15 mm thickness for multi-pass)
- For Carbon Steels
- Suitable for Single Wire & Tandem System
- Suitable for Welding Speeds of 0.35-0.60 m/min
- Grain Size – 0.25-2.00 mm
- Type of Current – DCEP / AC 800A
- Wall Neutrality Number with EL8 Wire is 56

APPROVALS: RDSO, ABS, BV, DNV, IRS, LRA, MND, IBR

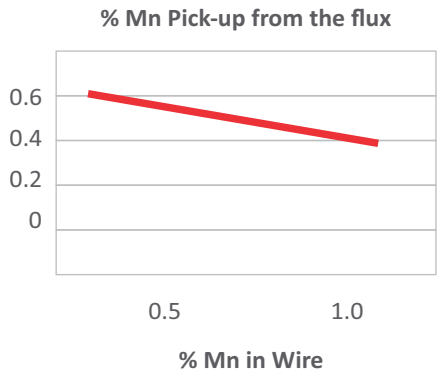
CLASSIFICATION :

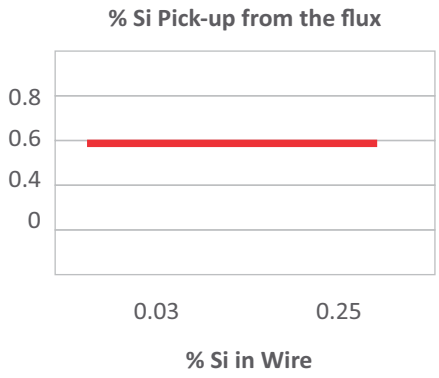
With Wire	AWS 5.17/5.23	Single / Multi-pass
AUTOMELT EL8 (AUTOMELT Gr.A)	F7AZ/PZ-EL8	Multi-pass
AUTOMELT EL12	F7AZ/PZ-EL12	Multi-pass
AUTOMELT EM12K	F7A0/P0-EM12K	Limited Multi-pass
AUTOMELT EH11K	F7AZ-EH11K	Single Pass

TYPICAL APPLICATIONS :

- General Structural Welding
- Long Seam and Cir Seam Welding of Pipes
- Fabrication of Cylinders and vessels

ACTIVITY OF THE FLUX:





(continue...)

AUTOMELT A55 (AUTOMELT Gr II)

SAW Flux

CHEMICAL COMPOSITION OF FLUX:			
$SiO_2 + TiO_2$	CaO + MgO	$Al_2O_3 + MnO$	CaF_2
30	10	45	15

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL (Wt%), TYPICAL:			
With wire	**C**	**Mn**	**Si**
Automelt EL8 (Automelt GrA)	0.06	1.10	0.65
Automelt EL12	0.08	1.20	0.65
Automelt EM12K	0.07	1.40	0.80
Automelt EH11K	0.07	1.80	1.10

MECHANICAL PROPERTIES OF ALL WELD METAL, TYPICAL:						
With wire	**Condition**	**UTS, MPa**	**YS, MPa**	**% E**	**CVN Impact**	
					0°C	**-20°C**
Automelt EL8 (Automelt Gr.A)	AW	530	440	25	50	--
Automelt EL8	PW	500	420	27	60	--
Automelt EL12	AW	540	450	26	50	--
Automelt EL12	PW	510	430	28	60	--
Automelt EM12K	AW	540	450	28	--	40
Automelt EM12K	PW	510	430	30	--	50

AW – As Welded; PW – After Post weld heat treatment of 620°C for 1 hour

The chemistry and mechanical properties will depend on actual wire chemistry and arc voltage

Available in Standard packing of 30 Kg Bag

AUTOMELT A57

SAW Flux

GENERAL DESCRIPTION:

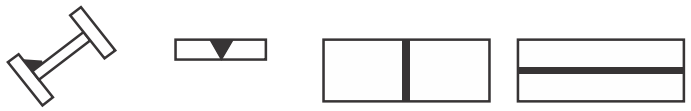
- Agglomerated Flux
- Aluminate-Rutile Type Flux
- Acidic Flux having Basicity Index of 0.5
- Active Flux with moderate Si and Mn pick-up
- For Single and Multi-pass Butt and fillet welding (With EM12K Wire restrict to 15 mm thickness for multi-pass)
- For Carbon Steels
- Suitable for Single Wire System & thin wire SAW
- Suitable for Welding Speeds of 0.20-0.75 m/min
- Grain Size – 0.25-1.60 mm
- Type of Current – DCEP 800A
- Wall Neutrality Number with EL8 Wire is 60

CLASSIFICATION :

With Wire	AWS 5.17/5.23	Single / Multi-pass
AUTOMELT EL8	F7AZ/PZ-EL8	Multi-pass
AUTOMELT EL12	F7AZ/PZ-EL12	Multi-pass
AUTOMELT EM12K	F7AZ-EM12K	Limited Multi-pass

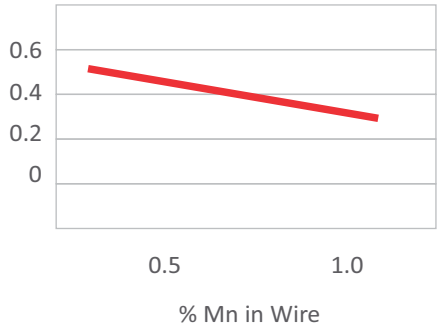
TYPICAL APPLICATIONS :

- General Structural Welding
- Long Seam and Cir Seam Welding of Pipes
- Fabrication of Cylinders and vessels

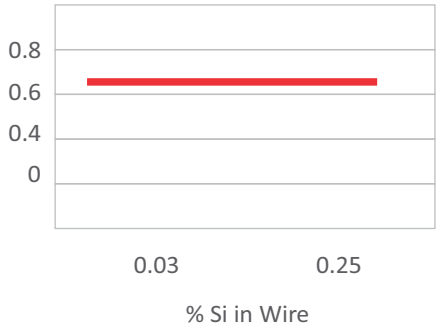


ACTIVITY OF THE FLUX:

% Mn Pick-up from the flux



% Si Pick-up from the flux



(continue...)

AUTOMELT A57

SAW Flux

CHEMICAL COMPOSITION OF FLUX:			
SiO_2 + TiO_2	CaO + MgO	Al_2O_3 + MnO	CaF_2
25	10	55	5

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL (Wt%), TYPICAL:			
With wire	**C**	**Mn**	**Si**
Automelt EL8	0.07	1.00	0.70
Automelt EL12	0.08	1.10	0.70
Automelt EM12K	0.07	1.30	0.80

MECHANICAL PROPERTIES OF ALL WELD METAL, TYPICAL:					
With wire	**Condition**	**UTS, MPa**	**YS, MPa**	**% E**	**CVN Impact (J) 0°C**
Automelt EL8	AW	530	440	25	40
Automelt EL8	PW	500	420	27	50
Automelt EL12	AW	540	450	26	40
Automelt EL12	PW	510	430	28	50
Automelt EM12K	AW	540	450	28	40

AW – As Welded; PW – After Post weld heat treatment of 620°C for 1 hour

The chemistry and mechanical properties will depend on actual wire chemistry and arc voltage

Available in Standard packing of 30 Kg Bag

AUTOMELT A81

SAW Flux

GENERAL DESCRIPTION:

- Agglomerated Flux
- Aluminate- Rutile Type Flux
- Acidic Flux having Basicity Index of 0.6
- Active Flux with moderate Si and Mn pick-up
- For Single and Multi-pass Butt and fillet welding at high speeds
- For C-Mn & Low Alloy Steels
- Suitable for Single and Multi-Wire, twin wire system
- Suitable for Welding Speeds of 0.40-1.20 m/min
- Grain Size – 0.25-1.60 mm
- Type of Current – DCEP / AC 1000A
- Wall Neutrality Number with EM12K Wire is 56

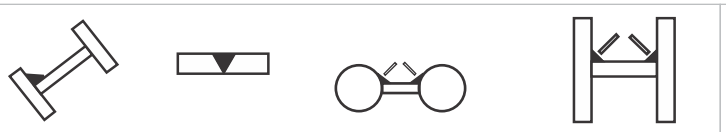
APPROVALS: IBR

CLASSIFICATION :

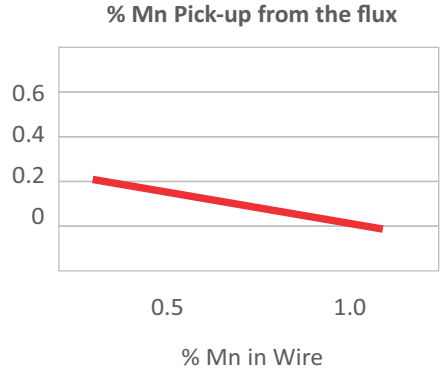
With Wire	AWS 5.17/5.23	Single / Multi-pass
AUTOMELT EM12K	F7AZ-EM12K	Limited Multi-pass
AUTOMELT EA2	F8AZ-EA2-A2	Limited Multi-pass
AUTOMELT EA4	F8AZ-EA4-A4	Limited Multi-pass
AUTOMELT EB2	F9PZ-EB2-B2	Limited Multi-pass
AUTOMELT EB3	F9PZ-EB3-B3	Limited Multi-pass

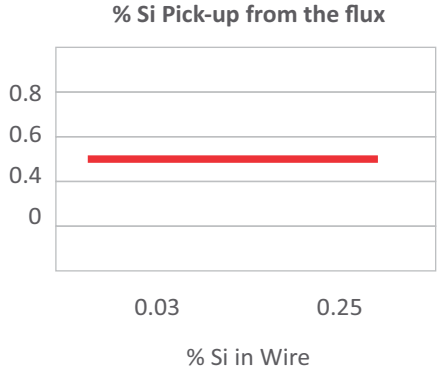
TYPICAL APPLICATIONS :

- High Speed Butt & Fillet Welding
- Tube to Plate Joint
- Fabrication of H & I Beams
- Fabrication of Boilers



ACTIVITY OF THE FLUX:





(continue...)

AUTOMELT A81

SAW Flux

CHEMICAL COMPOSITION OF FLUX:			
SiO_2+ TiO_2	CaO + MgO	Al_2O_3 + MnO	CaF_2
25	10	50	10

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL (Wt%), TYPICAL:					
With wire	**C**	**Mn**	**Si**	**Cr**	**Mo**
Automelt EM12K	0.07	1.20	0.70	--	--
Automelt EA2	0.06	1.20	0.70	--	0.50
Automelt EA4	0.06	1.50	0.70	--	0.50
Automelt EB2	0.06	1.15	0.70	1.10	0.50
Automelt EB3	0.06	1.15	0.70	2.10	1.00

MECHANICAL PROPERTIES OF ALL WELD METAL, TYPICAL:				
With wire	**Condition**	**UTS, MPa**	**YS, MPa**	**% E**
Automelt EM12K	AW	540	430	26
Automelt EA2	AW	570	500	23
Automelt EA4	AW	600	520	23
Automelt EB2	PW	640	570	20
Automelt EB3	PW	700	600	19

AW – As Welded; PW – After Post weld heat treatment of 690°C for 1 hour

The chemistry and mechanical properties will depend on actual wire chemistry and arc voltage

Available in Standard packing of 30 Kg Bag

AUTOMELT A82

SAW Flux

GENERAL DESCRIPTION:

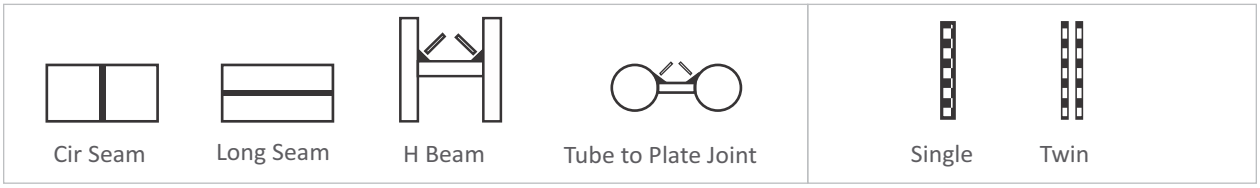
- Agglomerated Flux
- Aluminate- Rutile Type Flux
- Acidic Flux having Basicity Index of 0.6
- Active Flux with moderate Si and Mn pick-up
- For Single and Multi-pass Butt and fillet welding at very high speeds
- For C-Mn Steels
- Suitable for Single and twin Wire system
- Suitable for Welding Speeds of 0.40-1.80 m/min
- Grain Size – 0.25-1.60 mm
- Type of Current – DC / AC 1000A
- Wall Neutrality Number with EM12K Wire is 85

CLASSIFICATION :

With Wire	AWS 5.17/5.23	Single / Multi-pass
AUTOMELT EL8	F7AZ-EL8	Limited Multi-pass
AUTOMELT EL12	F7AZ-EL12	Limited Multi-pass
AUTOMELT EM12K	F7AZ-EM12K	Limited Multi-pass

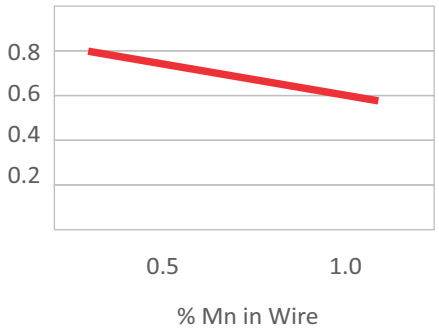
TYPICAL APPLICATIONS :

- Structural Welding
- High Speed Fillet Welding
- Fabrication of H & I Beams
- Fabrication of Boilers, Cylinders

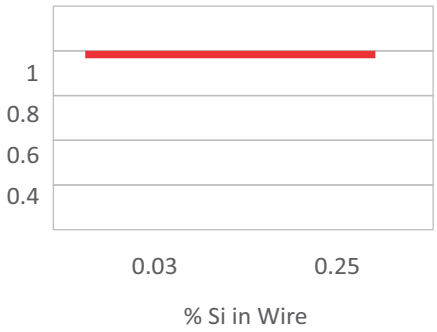


ACTIVITY OF THE FLUX:

% Mn Pick-up from the flux



% Si Pick-up from the flux



(continue...)

AUTOMELT A82

SAW Flux

CHEMICAL COMPOSITION OF FLUX:			
$SiO_2 + TiO_2$	CaO + MgO	Al_2O_3+ MnO	CaF_2
25	10	50	10

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL (Wt%), TYPICAL:			
With wire	**C**	**Mn**	**Si**
Automelt EL8	0.06	1.20	1.00
Automelt EL12	0.07	1.20	1.00
Automelt EM12K	0.06	1.60	1.30

MECHANICAL PROPERTIES OF ALL WELD METAL, TYPICAL:				
With wire	**Condition**	**UTS, MPa**	**YS, MPa**	**% E**
Automelt EL8	AW	550	460	22
Automelt EL12	AW	560	460	23
Automelt EM12K	AW	560	470	23

AW - As Welded

The chemistry and mechanical properties will depend on actual wire chemistry and arc voltage

Available in Standard packing of 30 Kg Bag

AUTOMELT B31 (AUTOMELT Gr IV)

SAW Flux

GENERAL DESCRIPTION:

- Agglomerated Flux
- Fluoride-Basic Type Flux
- Basic Flux having Basicity Index of 1.6
- Neutral behaviour to activity
- Multi-pass Butt and Fillet Welding
- For Carbon Manganese Steels
- Suitable for Single Wire System
- Suitable for Welding Speeds of 0.40 – 0.60 m/min
- Grain Size – 0.25-2.00 mm
- Type of Current – DCEP
- Wall Neutrality Number with EH14 Wire is 7

APPROVALS: RDSO, ABS, BV, DNV, IRS, LRA, MND, IBR

CLASSIFICATION :

With Wire	AWS 5.17/5.23	Single / Multi-pass
AUTOMELT EL8 (AUTOMELT Gr.A)	F6A2-EL8	Multi-pass
AUTOMELT EH14	F7A4/P4-EH14	Multi-pass

TYPICAL APPLICATIONS :

- General Structural Welding
- Boiler and Pressure Vessel Fabrication

Fillet

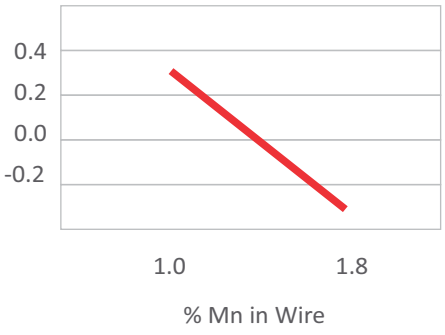
Single V

Double V

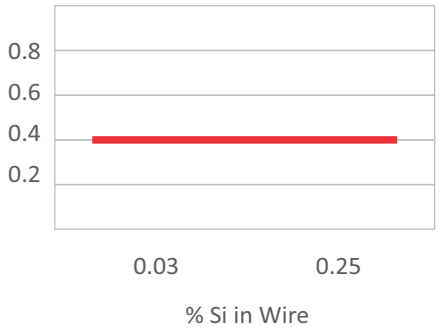
Single Wire

ACTIVITY OF THE FLUX:

% Mn Pick-up from the flux



% Si Pick-up from the flux



(continue...)

AUTOMELT B31 (AUTOMELT Gr IV)

SAW Flux

CHEMICAL COMPOSITION OF FLUX:			
$SiO_2 + TiO_2$	CaO + MgO	$Al_2O3 + MnO$	CaF_2
15	20	30	35

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL (Wt%), TYPICAL:			
With wire	**C**	**Mn**	**Si**
Automelt EL8 (Automelt Gr.A)	0.06	0.85	0.40
Automelt EH14	0.07	1.50	0.40

MECHANICAL PROPERTIES OF ALL WELD METAL, TYPICAL:							
With wire	**Condition**	**UTS, MPa**	**YS, MPa**	**% E**	**CVN Impact**		
					-20°C	**-30°C**	**-40°C**
AUTOMELT EL8 (Automelt Gr.A)	AW	470	390	28	50	-	-
Automelt EH14	AW	540	460	30	-	-	40
Automelt EH14	PW	510	430	33	-	-	50

AW – As Welded; PW – After Post weld heat treatment of 620°C for 1 hour

The chemistry and mechanical properties will depend on actual wire chemistry and arc voltage

Available in Standard packing of 30 Kg Bag

AUTOMELT B71

SAW Flux

GENERAL DESCRIPTION:

- Agglomerated Flux
- Fluoride-Basic Type Flux
- Basic Flux having Basicity Index of 1.6
- Neutral behaviour to activity
- Multi-pass Butt and Fillet Welding including "two-run" technique
- For Carbon & Low Alloy Steels
- Suitable for Narrow Gap Welding
- Suitable for Single & Multi Wire twin and Tandem System
- Suitable for Welding Speeds of 0.35-0.70 m/min
- Grain Size – 0.25-1.60 mm
- Type of Current – DCEP / AC
- Wall Neutrality Number with EM12K Wire is 12

APPROVALS: RDSO, ABS, IBR

CLASSIFICATION :

With Wire	AWS 5.17/5.23	Single / Multi-pass
AUTOMELT EL8	F7A2-EL8	Multi-pass
AUTOMELT EL12	F7A2-EL12	Multi-pass
AUTOMELT EM12K	F7A4/P4-EM12K	Multi-pass
AUTOMELT EH10K	F7A4/P4-EH10K	Multi-pass
AUTOMELT EH12K	F7A4/P4-EH12K	Multi-pass
AUTOMELT EH14	F7A4/P4-EH14	Multi-pass
AUTOMELT EA2	F8A2/P2-EA2-A2	Multi-pass
AUTOMELT EA4	F8A2/P2-EA4-A4	Multi-pass
AUTOMELT EA3	F8A2/P2-EA3-A3	Multi-pass
AUTOMELT EB2	F8PZ-EB2-B2	Multi-pass
AUTOMELT EB3	F8PZ-EB3-B3	Multi-pass
AUTOMELT ENi1	F8A5-ENi1-Ni1	Multi-pass
AUTOMELT ENi2	F8A6-ENi2-Ni2	Multi-pass
AUTOMELT ENi3	F8A8/P10-ENi3-Ni3	Multi-pass

TYPICAL APPLICATIONS :

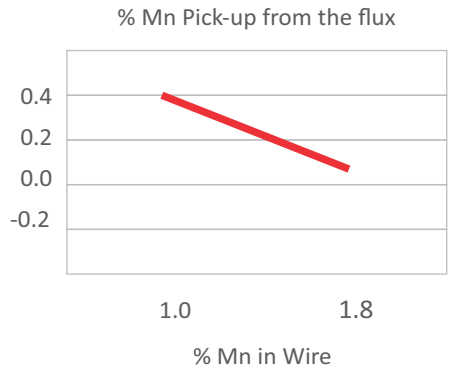
- General Structural Welding
- Long Seam and Cir Seam Welding of Pipes
- Fabrication of Pressure Vessel and Boiler
- Heavy Equipment Fabrication

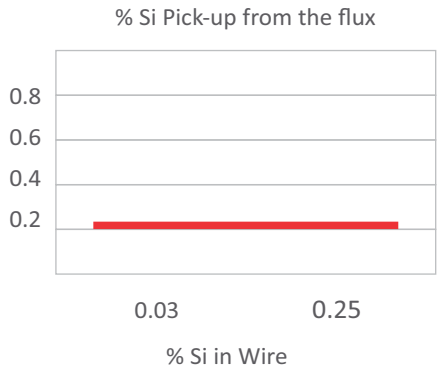
(continue...)

AUTOMELT B71

SAW Flux

ACTIVITY OF THE FLUX:





CHEMICAL COMPOSITION OF FLUX:

$SiO_2 + TiO_2$	CaO + MgO	Al_2O_3 + MnO	CaF_2
15	30	30	25

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL (Wt%), TYPICAL:

With wire	C	Mn	Si	Ni	Cr	Mo	Other Elements
AUTOMELT EL8	0.06	0.80	0.30	-	-	-	-
AUTOMELT EL12	0.08	0.80	0.30	-	-	-	-
AUTOMELT EM12K	0.08	1.45	0.45	-	-	-	-
AUTOMELT EH10K	0.07	1.60	0.45	-	-	-	-
AUTOMELT EH12K	0.08	1.75	0.50	-	-	-	-
AUTOMELT EH14	0.08	1.90	0.40	-	-	-	-
AUTOMELT EA2	0.08	1.35	0.30	-	-	0.50	-
AUTOMELT EA4	0.08	1.50	0.30	-	-	0.50	-
AUTOMELT EA3	0.08	1.80	0.30	-	-	0.50	-
AUTOMELT EB2	0.07	1.10	0.40	-	1.10	0.50	-
AUTOMELT EB3	0.07	1.10	0.40	-	2.10	1.00	-
AUTOMELT ENi1	0.08	1.40	0.45	0.90	-	-	-
AUTOMELT ENi2	0.09	1.40	0.45	2.20	-	-	-
AUTOMELT ENi3	0.09	1.40	0.45	3.00	-	-	-

(continue...)

AUTOMELT B71

SAW Flux

MECHANICAL PROPERTIES OF ALL WELD METAL, TYPICAL:									
With wire	Condition	UTS, MPa	YS, MPa	% E	CVN Impact (J)				
					-30°C	-40°C	-50°C	-60°C	-70°C
Automelt EL8	AW	500	420	26	50		-	-	-
Automelt EL12	AW	520	430	26	50		-	-	-
Automelt EM12K	AW	530	430	26	-	50	-	-	-
Automelt EM12K	PW1	500	420	28	-	60	-	-	-
Automelt EH10K	AW	590	500	26	-	60	-	-	-
Automelt EH10K	PW1	530	460	28	-	70	-	-	-
Automelt EH12K	AW	560	450	25	-	70	-	-	-
Automelt EH12K	PW1	540	430	27	-	60	-	-	-
Automelt EH14	AW	550	440	26	-	70	-	-	-
Automelt EH14	PW1	530	430	28	-	-	-	-	-
Automelt EA2	AW	600	520	24	40	-	-	-	-
Automelt EA2	PW1	580	510	25	40	-	-	-	-
Automelt EA4	AW	660	570	24	50	-	-	-	-
Automelt EA4	PW1	650	560	26	60	-	-	-	-
Automelt EA3	AW	690	590	24	40	-	-	-	-
Automelt EA3	PW1	680	580	25	40	-	-	-	-
Automelt EB2	PW2	600	490	24	-	-	-	-	-
Automelt EB3	PW2	630	510	24	-	-	-	-	-
Automelt ENi1	AW	580	470	25	-	-	40	-	-
Automelt ENi2	AW	600	490	25	-	-	50	-	-
Automelt ENi3	AW	620	510	26	-	-	-	50	-
Automelt ENi3	PW1	600	490	27	-	-	-	-	50

AW – As Welded; PW1 – After Post weld heat treatment of 620°C for 1 hour

PW2 – After Post Weld Heat treatment of 690°C for 1 hour

The chemistry and mechanical properties will depend on actual wire chemistry and arc voltage

Available in Standard packing of 30 Kg Bag

AUTOMELT B22 PLUS

SAW Flux

GENERAL DESCRIPTION:

- Agglomerated Flux
- Fluoride-Basic Type Flux
- Basic Flux having Basicity Index of 1.8
- Neutral behaviour to activity
- Multi-pass Butt and Fillet Welding
- For Carbon & Low Alloy Steels
- Suitable for Single Wire and Multiple wire tandem System
- Suitable for Welding Speeds of 0.40-0.60 m/min
- Grain Size - 0.25-1.60 mm
- Type of Current – DCEP / AC
- Wall Neutrality Number with EH12K Wire is 23

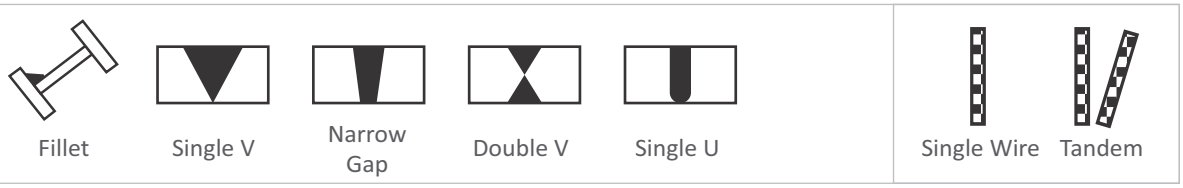
APPROVALS: CE

CLASSIFICATION :

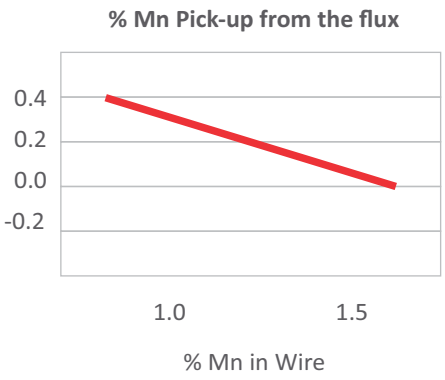
With Wire	AWS 5.17/5.23	Single / Multi-pass
AUTOMELT EM12K	F7A5/F6P5-EM12K	Multi-pass
AUTOMELT EH10K	F7A4/P4-EH10K	Multi-pass
AUTOMELT EH12K	F7A4/P4-EH12K	Multi-pass

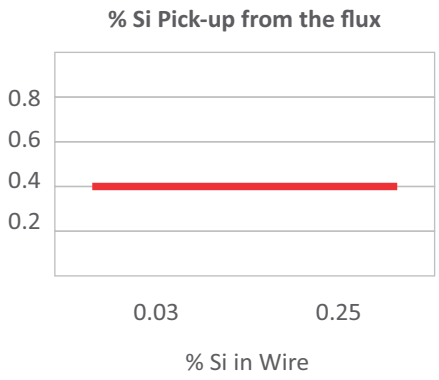
TYPICAL APPLICATIONS :

- Wind Mill Fabrication
- Boiler and Pressure Vessel Fabrication



ACTIVITY OF THE FLUX:





(continue...)

AUTOMELT B22 PLUS

SAW Flux

CHEMICAL COMPOSITION OF FLUX:			
$SiO_2 + TiO_2$	CaO + MgO	$Al_2O_3 + MnO$	CaF_2
30	20	25	20

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL (Wt%), TYPICAL:			
With wire	**C**	**Mn**	**Si**
Automelt EM12K	0.06	1.40	0.30
Automelt EH10K	0.06	1.50	0.30
Automelt EH12K	0.07	1.50	0.30

MECHANICAL PROPERTIES OF ALL WELD METAL, TYPICAL:						
With wire	**Condition**	**UTS, MPa**	**YS, MPa**	**% E**	**CVN Impact**	
					-40°C	**-46°C**
Automelt EM12K	AW	510	430	27	60	40
Automelt EM12K	PW	480	400	27	70	50
Automelt EH10K	AW	520	440	28	40	-
Automelt EH10K	PW	510	430	28	50	-
Automelt EH12K	AW	540	450	28	40	-
Automelt EH12K	PW	520	440	28	50	-

AW – As Welded; PW - After Post weld heat treatment of 620°C for 1 hour

The chemistry and mechanical properties will depend on actual wire chemistry and arc voltage

Available in Standard packing of 30 Kg Bag

AUTOMELT B20 PLUS

SAW Flux

GENERAL DESCRIPTION:

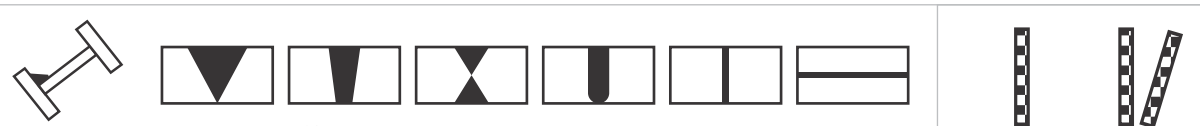
- Agglomerated Flux
- Fluoride-Basic Type Flux
- High Basic Flux having Basicity Index of 3.1
- Neutral behaviour to activity
- Multi-pass Butt and Fillet Welding
- For Carbon & Low Alloy Steels
- Suitable for Narrow Gap Welding
- Suitable for Single & Multi Wire Tandem System
- Suitable for Welding Speeds of 0.40 – 0.60 m/min
- Grain Size – 0.25-1.60 mm
- Type of Current – DCEP / AC
- Wall Neutrality Number with EM12K is 23

CLASSIFICATION :

With Wire	AWS 5.17/5.23	Single / Multi-pass
AUTOMELT EM12K	F7A8/F6P8-EM12K	Multi-pass
AUTOMELT EH10K	F7A8/P8-EH10K	Multi-pass
AUTOMELT EH12K	F7A8/P10-EH12K	Multi-pass
AUTOMELT EH14	F7A6/P6-EH14	Multi-pass
AUTOMELT EB2R	F8P2-EB2R-B2R	Multi-pass
AUTOMELT EB3R	F8P0-EB3R-B3R	Multi-pass
AUTOMELT EB91	F9PZ-EB91-B91	Multi-pass
AUTOMELT ENi1	F7A6-ENi1-Ni1	Multi-pass
AUTOMELT ENi2	F7A8-ENi2-Ni2	Multi-pass
AUTOMELT ENi3	F7A10-ENi3-Ni3	Multi-pass
AUTOMELT EF2	F8A6-EF2-F2	Multi-pass
AUTOMELT EF3	F9A8-EF3-F3	Multi-pass
AUTOMELT S3NiCrMo2.5	F11A8-EG-G	Multi-pass

TYPICAL APPLICATIONS :

- Fabrication of Reactors, steam generators
- Long Seam and Cir Seam Welding of Pipes
- Fabrication of Pressure Vessel and Boiler
- Heavy Equipment Fabrication

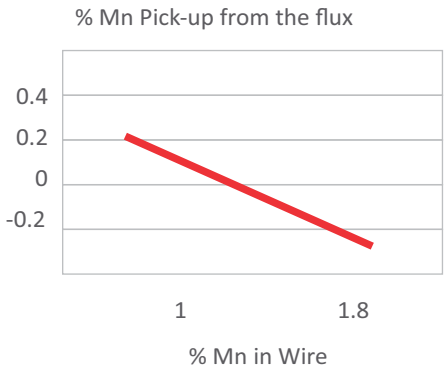


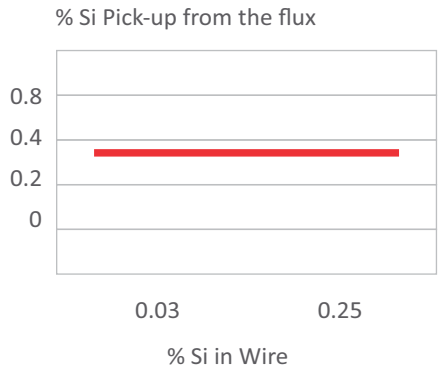
(continue...)

AUTOMELT B20 PLUS

SAW Flux

ACTIVITY OF THE FLUX:





CHEMICAL COMPOSITION OF FLUX:

$SiO_2 + TiO_2$	CaO + MgO	$Al_2O_3 + MnO$	CaF_2
20	15	30	30

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL (Wt%), TYPICAL:

With wire	C	Mn	Si	Ni	Cr	Mo	Other Elements
AUTOMELT EM12K	0.06	1.25	0.40	-	-	-	-
AUTOMELT EH10K	0.07	1.45	0.40	-	-	-	-
AUTOMELT EH12K	0.08	1.50	0.40	-	-	-	-
AUTOMELT EH14	0.08	1.60	0.30	-	-	-	-
AUTOMELT EB2R	0.06	0.90	0.30	-	1.10	0.50	S-0.007; P-0.009; Cu-0.05; As-0.003; Sn-0.003; Sb-0.003
AUTOMELT EB3R	0.07	0.90	0.30	-	2.10	1.00	S-0.007; P-0.009; Cu-0.05; As-0.003; Sn-0.003; Sb-0.003
AUTOMELT EB91	0.07	0.50	0.30	0.55	8.70	0.95	V-0.20; Nb-0.04; N-0.04; Mn+Ni<1.20
AUTOMELT ENi1	0.07	1.40	0.30	0.90	-	-	-
AUTOMELT ENi2	0.08	1.40	0.30	2.20	-	-	-
AUTOMELT ENi3	0.08	1.40	0.30	3.00	-	-	-
AUTOMELT EF2	0.08	1.50	0.40	0.60	-	0.50	-
AUTOMELT EF3	0.08	1.50	0.40	0.90	-	0.50	-
AUTOMELT S3NiCrMo2.5	0.08	1.50	0.40	2.40	0.40	0.50	-

(continue...)

AUTOMELT B20 PLUS

SAW Flux

MECHANICAL PROPERTIES OF ALL WELD METAL, TYPICAL:									
With wire	Condition	UTS, MPa	YS, MPa	% E	CVN Impact (J)				
					-30°C	-40°C	-50°C	-60°C	-70°C
Automelt EM12K	AW	510	430	28	-	80	50	30	-
Automelt EM12K	PW1	490	400	29	-	80	60	40	-
Automelt EH10K	AW	540	440	27	-	-	60	40	-
Automelt EH10K	PW1	520	420	27	-	-	80	50	-
Automelt EH12K	AW	540	450	27	-	-	70	50	50
Automelt EH12K	PW1	530	430	28	-	-	90	70	-
Automelt EH14	AW	530	440	27	-	-	50	-	-
Automelt EH14	PW1	520	430	28	40	-	60	-	-
Automelt EB2R	PW2	600	490	24	30	-	-	-	-
Automelt EB3R	PW2	630	500	24	-	-	-	-	-
Automelt EB91	PW3	660	570	19	-	-	-	-	-
Automelt ENi1	AW	520	430	29	-	-	50	-	-
Automelt ENi2	AW	530	430	28	-	-	70	40	40
Automelt ENi3	AW	540	440	27	-	-	90	60	-
Automelt EF2	AW	600	480	25	-	-	40	-	-
Automelt EF3	AW	650	570	22	-	-	60	40	-
AUTOMELT S3NiCrMo2.5	AW	850	770	15	-	-	60	40	-

AW – As Welded; PW1 – After Post weld heat treatment of 620°C for 1 hour
PW2 – After Post Weld Heat treatment of 690°C for 1 hour
Pw3 – After Post Weld Heat treatment of 760°C for 2 hour
The chemistry and mechanical properties will depend on actual wire chemistry and arc voltage
Available in Standard packing of 30 Kg Bag

CREEP TEST DATA (Automelt B20 Plus+Automelt EB2R):				
Condition	Temperature,°C	Stress, MPa	Duration, Hrs	Strain% after 1000 Hrs
PWHT: 690°C for 2 Hrs	500	254	1000	2.40
	550	160	1000	4.09

AUTOMELT B41

SAW Flux

GENERAL DESCRIPTION:

- Agglomerated Flux
- Fluoride-Basic Type Flux
- High Basic Flux having Basicity Index of 3.1
- Neutral behaviour to activity
- Multi-pass Butt and Fillet Welding including two run technique
- For Carbon & Low Alloy Steels
- Suitable for Single & Multi Wire Tandem System
- Suitable for Welding Speeds of 0.40 – 0.60 m/min
- Grain Size – 0.25-1.60 mm
- Type of Current – DCEP / AC
- Wall Neutrality Number with EH10K is 5

APPROVALS: IBR

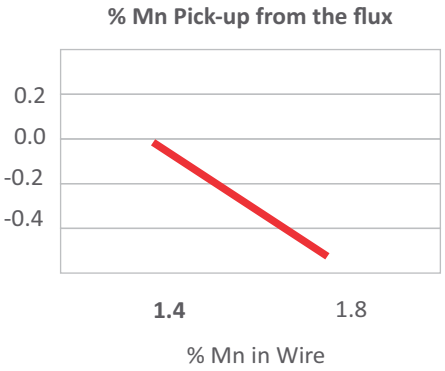
CLASSIFICATION :

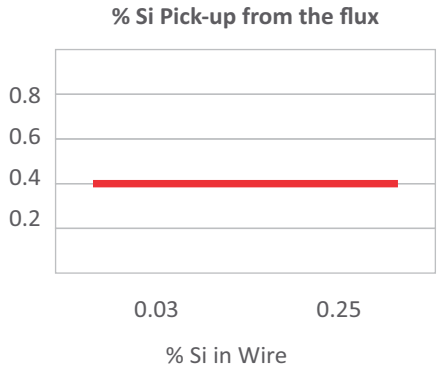
With Wire	AWS 5.17/5.23	Single / Multi-pass
AUTOMELT EH10K	F7A8/P8-EH10K	Multi-pass
AUTOMELT EH12K	F7A8/P8-EH12K	Multi-pass
AUTOMELT EH14	F7A6/P6-EH14	Multi-pass
AUTOMELT EA2	F8A4-EA2-A2	Multi-pass
AUTOMELT EA4	F8A4/P4-EA4-A4	Multi-pass
AUTOMELT EA3	F8A4/P4-EA3-A3	Multi-pass
AUTOMELT EF3	F11A4-EF3-F3	Multi-pass

TYPICAL APPLICATIONS :

- Fabrication of Reactors, steam generators
- Long Seam and Cir Seam Welding of Pipes
- Fabrication of Pressure Vessel and Boiler
- Heavy Equipment Fabrication

ACTIVITY OF THE FLUX:





(continue...)

AUTOMELT B41

SAW Flux

CHEMICAL COMPOSITION OF FLUX:			
$SiO_2 + TiO_2$	CaO + MgO	Al_2O_3 + MnO	CaF_2
10	35	20	30

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL (Wt%), TYPICAL:						
With wire	C	Mn	Si	Ni	Cr	Mo
AUTOMELT EH10K	0.07	1.50	0.45	-	-	-
AUTOMELT EH12K	0.08	1.60	0.45	-	-	-
AUTOMELT EH14	0.08	1.80	0.40	-	-	-
AUTOMELT EA2	0.08	1.35	0.30	-	-	0.50
AUTOMELT EA4	0.08	1.50	0.30	-	-	0.50
AUTOMELT EA3	0.08	1.80	0.30	-	-	0.50
AUTOMELT EF3	0.08	1.80	0.40	0.90	-	0.50

MECHANICAL PROPERTIES OF ALL WELD METAL, TYPICAL:							
With wire	Condition	UTS, MPa	YS, MPa	% E	CVN Impact		
					-40°C	-50°C	-60°C
Automelt EH10K	AW	550	440	26	-	60	-
Automelt EH10K	PW	530	430	28	-	80	-
Automelt EH12K	AW	560	450	26	-	80	50
Automelt EH12K	PW	540	430	27	-	90	60
Automelt EH14	AW	550	440	26	60	50	-
Automelt EH14	PW	530	430	28	80	60	-
Automelt EA2	AW	580	470	24	40	-	-
Automelt EA2	PW	560	460	25	50	-	-
Automelt EA4	AW	600	490	24	40	-	-
Automelt EA4	PW	580	470	26	50	-	-
Automelt EA3	AW	630	500	24	40	-	-
Automelt EA3	PW	610	480	25	50	-	-
Automelt EF3	AW	770	680	19	40	-	-

AW – As Welded; PW – After Post weld heat treatment of 620°C for 1 hour

The chemistry and mechanical properties will depend on actual wire chemistry and arc voltage

Available in Standard packing of 30 Kg Bag

AUTOMELT B43

SAW Flux

GENERAL DESCRIPTION:

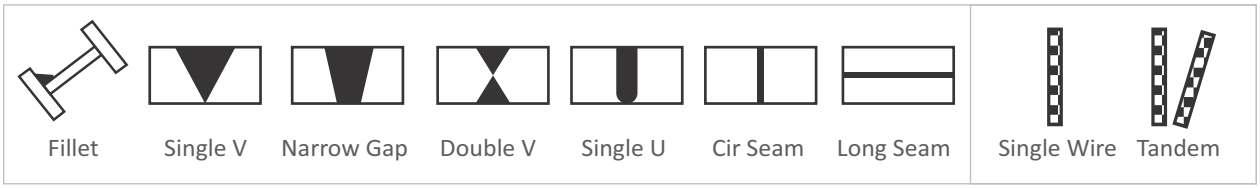
- Agglomerated Flux
- Fluoride-Basic Type Flux
- High Basic Flux having Basicity index of 3.1
- Neutral behaviour to activity
- Multi-pass Butt and Fillet Welding
- For Low Alloy Steels
- Suitable for Narrow Gap Welding
- Suitable for Single & Multi Wire Tandem System
- Suitable for Welding Speeds of 0.40 – 0.60 m/min
- Grain Size – 0.25-1.60 mm
- Type of Current – DCEP / AC
- Produces weld metal with low P

CLASSIFICATION :

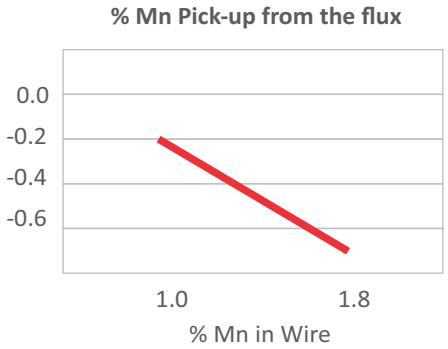
With Wire	AWS 5.17/5.23	Single/Multi-pass
AUTOMELT ENi1	F7A6-ENi1-Ni1	Multi-pass
AUTOMELT ENi2	F7A8-ENi2-Ni2	Multi-pass
AUTOMELT ENi3	F7A10/P10-ENi3-Ni3	Multi-pass
AUTOMELT ENi5	F9A4-ENi5-Ni5	Multi-pass

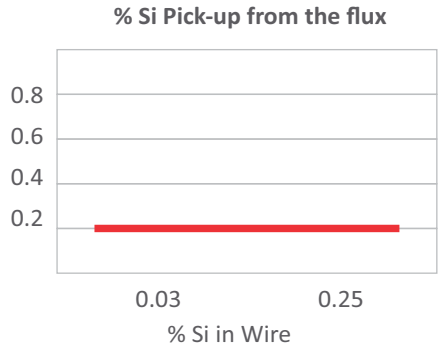
TYPICAL APPLICATIONS :

- Fabrication of Reactors, steam generators
- Long Seam and Cir Seam Welding of Pipes
- Fabrication of Pressure Vessel and Boiler
- Heavy Equipment Fabrication



ACTIVITY OF THE FLUX:





CHEMICAL COMPOSITION OF FLUX:

$SiO_2 + TiO_2$	$Al_2O_3 + MnO$	CaF_2
10	35	50

(continue...)

AUTOMELT B43

SAW Flux

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL (Wt%), TYPICAL:					
With wire	**C**	**Mn**	**Si**	**Ni**	**Mo**
AUTOMELT ENi1	0.05	0.80	0.30	0.90	-
AUTOMELT ENi2	0.05	0.80	0.30	2.20	-
AUTOMELT ENi3	0.05	0.80	0.30	3.20	-
AUTOMELT ENi5	0.05	1.10	0.30	1.00	0.20

MECHANICAL PROPERTIES OF ALL WELD METAL, TYPICAL:							
With wire	**Condition**	**UTS, MPa**	**YS, MPa**	**% E**	**CVN Impact (J)**		
					-50°C	**-60°C**	**-70°C**
Automelt ENi1	AW	520	430	29	50	-	-
Automelt ENi2	AW	530	430	28	70	40	-
Automelt ENi3	AW	590	500	28	90	60	30
Automelt ENi3	PW	560	480	30	100	70	40
Automelt ENi5	AW	650	570	20	40 (at -40°C)		

AW – As Welded; PW – After Post weld heat treatment of 620°C for 1 hour

The chemistry and mechanical properties will depend on actual wire chemistry and arc voltage

Available in Standard packing of 30 Kg Bag

AUTOMELT S33

SAW Flux

GENERAL DESCRIPTION:

- Agglomerated Flux
- Fluoride-Basic Type Flux
- High Basic Flux having Basicity Index of 3.1
- Neutral Behaviour to Carbon, so Low C weld metal is produced with Low C Wire
- Non-Chromium Compensating
- Chromium Burnout is very less
- Multi-pass Butt and Fillet Welding
- For Stainless Steels
- Suitable for Welding Speeds of 0.40 – 0.60 m/min
- Grain Size – 0.25-1.60 mm
- Type of Current – DCEP

APPROVALS: ABS

CLASSIFICATION :

With Wire	AWS 5.39	Single/Multi-pass
Subinox 308L	F75A6-ER308L/308L	Multi-pass
Subinox 308L Spl	F75A32-ER308L/308L	Multi-pass
Subinox 308H	F80AZ-ER308H/308	Multi-pass
Subinox 316L	F75A32-ER316L/316L	Multi-pass
Subinox 347	F75A6-ER347/347	Multi-pass
Subinox 309L	F75A6-ER309L/309L	Multi-pass
Subinox 309LMo	F75A6-ER309LMo/309LMo	Multi-pass
Subinox 410NiMo	F110AZ-ER410NiMo/410NiMo	Multi-pass
Subinox 2209	F100A4-ER2209/2209	Multi-pass
Subinox 2594	F110A2-ER2594/2594	Multi-pass

TYPICAL APPLICATIONS :

- Welding of High Alloy Stainless steels including Duplex and Superduplex Stainless Steels
- Most suitable for welding Cryogenic Vessels

Fillet

Single V

Double V

Single Wire

CHEMICAL COMPOSITION OF FLUX:

$SiO_2 + TiO_2$	$Al_2O_3 + MnO$	CaF_2
10	35	50

AUTOMELT S33

SAW Flux

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL (Wt%), TYPICAL:							
With wire	**C**	**Mn**	**Si**	**Cr**	**Ni**	**Mo**	**Other Elements**
Subinox 308L	0.025	1.40	0.50	19.5	9.3	-	-
Subinox 308L Spl	0.025	1.40	0.50	19.5	9.7	-	-
Subinox 308H	0.05	1.40	0.50	19.5	9.2	-	-
Subinox 316L	0.025	1.40	0.50	18.5	11.5	2.3	-
Subinox 347	0.050	1.40	0.50	19.5	9.5	-	Nb + Ta – 0.50
Subinox 309L	0.025	1.40	0.50	23.5	12.5	-	-
Subinox 309LMo	0.025	1.40	0.50	23.5	12.2	2.2	-
Subinox 410NiMo	0.03	0.50	0.30	12.5	4.5	0.50	-
Subinox 2209	0.025	1.30	0.50	22.0	9.0	3.5	N – 0.12
Subinox 2594	0.025	0.60	0.50	24.5	8.5	-	N-0.25, W-0.1

MECHANICAL PROPERTIES OF ALL WELD METAL, TYPICAL:					
With wire	**Condition**	**UTS, MPa**	**% El.**	**CVN Impact**	
				-50°C	**-196°C**
Subinox 308L	AW	580	37	90	-
Subinox 308L Spl	AW	580	37	-	50
SUBINOX 308H	AW	600	37	-	-
Subinox 316L	AW	580	37	90	40
Subinox 347	AW	600	35	90	-
Subinox 309L	AW	600	35	90	-
SUBINOX 309LMo	AW	620	35	-	-
Subinox 410NiMo	AW	770	23	50	-
Subinox 2209	AW	780	27	70	-
Subinox 2594	AW	650	27	70	-

AW – As Welded

The chemistry and mechanical properties will depend on actual wire chemistry and arc voltage

Available in Standard packing of 30 Kg Bag

AUTOMELT S76

SAW Flux

GENERAL DESCRIPTION:

- Agglomerated Flux
- Fluoride-Basic Type Flux
- Neutral Flux having Basicity Index of 1.2
- It compensates Chromium to counteract arc loss
- For Cladding of Stainless Steels
- Suitable for Welding Speeds of 0.40-0.60 m/min
- Grain Size – 0.25-1.60 mm
- Type of Current – DCEP / DCEN

APPROVALS: BHEL

CLASSIFICATION :

With Wire	AWS 5.39	Single/Multi-pass
Subinox 410	SACLAD2-ER410/410	Multi-pass
Subinox 430	SACLAD2-ER430/430	Multi-pass

TYPICAL APPLICATIONS :

- Cladding of Stainless Steels

CHEMICAL COMPOSITION OF FLUX:

$SiO_2 + TiO_2$	CaO + MgO	$AlO_2 + MnO$	CaF_2
30%	20	20	50

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL (Wt%), TYPICAL:

With wire	C	Mn	Si	Cr	Ni	Mo	Other Elements
Subinox 410	0.03	0.50	0.30	12.5	-	-	-
Subinox 430	0.03	0.40	0.50	16.2	-	-	-

MECHANICAL PROPERTIES OF ALL WELD METAL, TYPICAL:

With wire	Condition	UTS, MPa	% E
Subinox 410	AW	700	25
Subinox 430	AW	700	25

AW – As Welded

The chemistry and mechanical properties will depend on actual wire chemistry and arc voltage

Available in Standard packing of 30 Kg Bag

AUTOMELT S79

SAW Flux

GENERAL DESCRIPTION :

- Agglomerated Flux
- Fluoride-Basic Type Flux
- High Basic Flux having Basicity index of 3.1
- Neutral Behaviour to Manganese and Silicon
- Non-Chromium Compensating
- Chromium Burnout is very less
- Multi-pass Butt and Fillet Welding
- For welding of 9% Ni Steels
- Suitable for Welding Speeds of 0.40 – 0.60 m/min
- Grain Size – 0.25-1.60 mm
- Type of Current – DCEP / AC

CLASSIFICATION :

With Wire	AWS 5.39	Single / Multi-pass
AUTOMELT NiCr3	F80AZ-ERNiCr-3/NiCr-3	Multi-pass
AUTOMELT NiCrMo3	F110A32-ERNiCrMo-3/NiCrMo-3	Multi-pass
AUTOMELT NiCrMo4	F100A32-ERNiCrMo-4/NiCrMo-4	Multi-pass

TYPICAL APPLICATIONS :

- ASTM class 1, SA-353 class1. For welding of 9% Nickel steels for cryogenic applications, especially LNG storage systems
- Welding on stainless / heat resistant cryogenic steels and alloys for welding nickel base alloys.

Fillet

Single V

Double V

Single Wire

CHEMICAL COMPOSITION OF FLUX:

SiO_2 + TiO_2	Al_2O_3 + MnO	CaF_2
15	35	50

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL (Wt%), TYPICAL:

With wire	C	Mn	Si	Cr	Ni	Mo	Other Elements
Automelt NiCr3	0.01	2.80	0.30	20.0	Rem	8.6	Fe-0.4; Nb-2.4
Automelt NiCrMo3	0.03	0.30	0.30	22.0	Rem	8.6	Fe-4.0; Nb-3.5
Automelt NiCrMo4	0.01	0.55	0.15	14.6	Rem	16.0	Fe-5.0; W-3.6; Co-0.2; Cu-0.01

MECHANICAL PROPERTIES OF ALL WELD METAL, TYPICAL:

With wire	Condition	UTS, MPa	% E	CVN Impact (J) -196°C
Automelt NiCr3	AW	620	35	-
Automelt NiCrMo3	AW	780	35	50
Automelt NiCrMo4	AW	750	35	50

AW – As Welded

The chemistry and mechanical properties will depend on actual wire chemistry and arc voltage

Available in Standard packing of 30 Kg Bag

AUTOMELT ES1

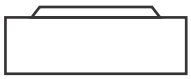
SAW Flux

GENERAL DESCRIPTION :

- Agglomerated Flux
- Fluoride-Basic Type Flux
- High Basic Flux having Basicity index of 4
- Excellent slag removal
- Good Wetting
- Very high deposition rates
- Cladding and Overlaying
- For Electroslag Strip Cladding
- Grain Size – 0.25-1.00 mm
- Type of Current – DCEP
- Low dilution

TYPICAL APPLICATIONS :

- For cladding and overlaying of Stainless Steel using Electroslag Strip Cladding process



Cladding

Cladding

CHEMICAL COMPOSITION OF FLUX:

Al_2O_3+ MnO	CaF_2	CaO + MgO
20	75	05

CHEMICAL COMPOSITION OF UNDILUTED WELD METAL (Wt%), TYPICAL:

Base Metal – ASTM 516 Gr 70
Strip Dimensions – 60 mm (width) x 0.5mm (thickness)

With wire	Layer	C	Mn	Si	Cr	Ni	Mo	Nb
Subinox EQ309L	Strip	0.020	1.60	0.40	23.30	12.90	-	-
	1	0.020	1.40	0.45	21.30	12.30	-	-
Subinox EQ316L	Strip	0.020	1.60	0.40	19.00	12.50	2.50	-
	1	0.020	1.40	0.45	18.00	12.00	2.50	-
Subinox EQ347	Strip	0.020	1.65	0.40	19.50	10.70	-	0.50
	1	0.020	1.50	0.50	18.00	10.30	-	0.35
	2 (1st layer with EQ309L)	0.020	1.50	0.50	19.50	11.00	-	0.35
								-

The chemistry will depend on actual strip chemistry and welding parameters

BRAS 3302

Bare Brazing Rods

ALLOY BASIS :
Cu, Ag, P

KEY FEATURES:

- Cu-P brazing filler rod with Silver
- Very good gap filling properties
- Suitable for bridging broad gaps
- No flux is required for copper to copper brazing

TYPICAL APPLICATIONS:

- Construction of pipes and apparatus
- Refrigeration industries
- Brazing of Cu-Zn, Cu-Sn alloys in then construction of apparatus, nelectric motors
- In breweries, dairies and shop fittings

HEAT SOURCE: Oxy-acetylene torch, Air-gas torch, Blow lamp

PROCEDURE :

Ensure parts to be welded are thoroughly cleaned. Adjust flame to neutral. For copper, heat parts to be joined to dull red and for copper alloy, heat until flux liquefies. Melt small amount of filler allow to flow along joint while removing flame. To avoid overheating use intermediate position in the flame, to give general heat. Do not use intense heat at top of the inner cone. Immersion in dilute sulphuric acid solution followed by water rinse will restore copper colour of the brazed area.

CLEANING:

Remove Flux residues by rising in hot water.

TECHNICAL DATA :

Solidus Temperature	Liquidus Temperature	Brazing Temperature Range
643°C	788°C	730-815°C

PACKING DATA:

Ø x L, mm	Kg/Plastic Tube
1.60 X 500	2
2.50 X 500	2
3.15 X 500	2

BRAS 3305

Bare Brazing Rods

AWS A/SFA 5.8 BCuP-7

ALLOY BASIS :

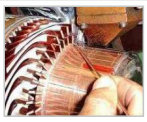
-

KEY FEATURES:

- Cu-P brazing filler rod with Silver
- Excellent flowing characteristics and high ductility
- No flux is required for copper to copper brazing

TYPICAL APPLICATIONS:

- Brazing of copper tubes, apparatus
- Refrigeration pipes
- Air conditioning pipes
- Motor windingss



HEAT SOURCE: Oxy-acetylene torch, Air-Gas Torch, Blow lamp, Furnace, High frequency induction furnace, TIG Process

PROCEDURE :

Remove all scale and oxide from the areas to be joined. Adjust flame to neutral and dip heated rod into the flux. Bring the base metal to melting point and then lower the filler rod into the puddle and allow to melt. When joint is completed, reheat to a dull red and allow to cool slowly.

CLEANING:

Remove Flux residues by rising in hot water.

TECHNICAL DATA :

	Ag	P	Cu
Specification	4.8 - 5.2	6.5 - 7.0	Balance

TECHNICAL DATA :

Solidus Temperature	Liquidus Temperature	Brazing Temperature Range
643°C	771°C	705-815°C

PACKING DATA:

Ø x L, mm	Kg/Plastic Tube
1.60 X 500	2
2.50 X 500	2
3.15 X 500	2

BRAS 3314

Bare Brazing Rods

ALLOY BASIS :
Cu, Ag, P

KEY FEATURES:

- Cu-P brazing filler rod with 14% Silver
- Excellent flowing characteristics and high ductility
- No flux is required for copper to copper brazing
- For copper alloys use of flux is necessary

TYPICAL APPLICATIONS:

- Brazing of copper to copper for construction of apparatus
- Copper pipes, Heat exchangers
- Electric motors, Refrigeration pipes
- Joints subjected to very low temperatures

HEAT SOURCE: Oxy-acetylene torch, Air-gas torch, Blow lamp, Furnace, High frequency induction furnace, TIG process

PROCEDURE :

Remove all scale and oxide from the areas to be joined. Adjust flame to neutral and dip heated rod into the flux. Bring the base metal to melting point and then lower the filler rod into the puddle and allow to melt. When joint is completed, reheat to a dull red and allow to cool slowly.

CLEANING:

Remove Flux residues by rising in hot water.

TECHNICAL DATA :

Solidus Temperature	Liquidus Temperature	Brazing Temperature Range
607°C	618°C	620-760°C

PACKING DATA:

Ø x L, mm	Kg/Plastic Tube
1.60 X 500	2
2.50 X 500	2
3.15 X 500	2

BRAS 3343

Bare Brazing Rods

ALLOY BASIS :
Ag, Cu, Zn, Cd

KEY FEATURES:

- Very low melting silver alloy
- High Silver content of 43%
- Excellent flowing characteristics and capillary action

TYPICAL APPLICATIONS:

- Carbon steel, low alloy steels, tool steels, stainless steels
- Carbide tips, Cu and its alloys, Ni and its alloys and their dissimilar combinations
- Construction of apparatus, precision jobs, novelty articles, kitchen ware, surgical instruments, repairs of delicate components
- Production of precision tools, pharmaceuticals industry

HEAT SOURCE: Oxy-Acetylene torch, Air-Gas torch, Blow lamp, Furnace

PROCEDURE :

Clean the joint thoroughly. Use neutral flame. Spread the flux in paste form on the joint. Dip heated rod into flux. Joint clearance should be approximately 0.1 mm. Preheat a broad area and then heat locally until flux melts. Continue heating joint area until the flux melts. Melt filler metal and draw with flame along the joint. Do not over heat.

CLEANING:

Remove Flux residues by rising in hot water.

TECHNICAL DATA :

Solidus Temperature	Liquidus Temperature	Brazing Temperature Range
643°C	802°C	705-815°C

PACKING DATA:

Ø x L, mm	Kg/Plastic Tube
1.60 X 500	2
2.50 X 500	2
3.15 X 500	2

BRAS 3356

Bare Brazing Rods

ALLOY BASIS :
Ag, Cu, Zn, Sn

KEY FEATURES:

- Cadmium free brazing filler rod
- High Silver content of 56%
- Excellent flowing characteristics and capillary action

TYPICAL APPLICATIONS:

- Joining of steels, Stainless steels
- Malleable iron, Dissimilar steels
- Copper, Brass, Bronze, Nickel
- Recommended for joints in contact with food e.g. Dairies, Breweries, Canned food industries

HEAT SOURCE: Oxy-Acetylene torch, Air-Gas torch, Blow lamp, Furnace

PROCEDURE :

Clean the joint thoroughly. Use neutral flame. Spread the flux in paste form on the joint. Dip heated rod into flux. Joint clearance should be approximately 0.1 mm. Preheat a broad area and then heat locally until flux melts. Continue heating joint area until the flux melts. Melt filler metal and draw with flame along the joint. Do not over heat.

CLEANING:

Remove Flux residues by rising in hot water.

TECHNICAL DATA :

Solidus Temperature	Liquidus Temperature	Brazing Temperature Range
618°C	652°C	650-760°C

PACKING DATA:

Ø x L, mm	Kg/Plastic Tube
1.60 X 500	2
2.50 X 500	2
3.15 X 500	2

BRACC 2211

Coated Brazing Rods

ALLOY BASIS :
Cu, Zn, Additives

KEY FEATURES:

- Flux coated brazing rod
- Provide excellent wetting action
- No objectionable fuming
- Good machinability
- Very fast and economical operation
- Applied with a high quality coating to speed up brazing
- Flexible and thin flux coating does not peel off even after bending
- Flux coating has extended life span

TYPICAL APPLICATIONS:

- Brazing of steel, cast iron, copper, brass
- Galvanized iron
- Joins dissimilar metals like steel to cast iron, steel to copper and copper alloys, cast iron to copper and copper alloys
- Excellent for sheet metal assembly and repair
- Repair of car bodies and car silencer assembly in overhead position without dismantling

HEAT SOURCE: Oxy-acetylene torch, Furnace, High frequency induction

PROCEDURE :

Clean the joint thoroughly. Use neutral flame. Preheat a broad area and then heat locally until flux melts. Then apply filler rod and melt it into the joint. For braze-welding, melt the rod drop by drop along the joint. For capillary joints melt the rod and draw with the flame along the joint. In case of cast iron, preheat the entire casting to 450°C and maintain this preheat until the operation is completed. In using Bracc 2211 melt the flux from the end of rod on the start of the weld area. Continue heating the weld area until the flux melts. Next melt a drop of filler metal by playing the flame on the rod end until it flows and bonds easily. Continue adding more of the filler metal drop by drop into the joint

CLEANING:

Remove flux residues mechanically or chemically (using 10% hydrochloric acid for ferrous metals and10% sulphuric acid for copper and its alloys) followed by rinsing in running water.

TECHNICAL DATA :

Solidus Temperature	Liquidus Temperature	Brazing Temperature Range
888°C	899°C	910-954°C

PACKING DATA:

Ø x L, mm	Kg/Plastic Tube
2.50 x 500	2
3.15 x 500	2

BRACS 3344

Coated Brazing Rods

ALLOY BASIS :
Ag, Cu, Zn, Cd, Additives

KEY FEATURES:

- Flux coated brazing rod
- High silver content
- Lowest melting point
- Excellent flowing characteristics
- Excellent capillary action
- Strong, clean and smooth joints

TYPICAL APPLICATIONS:

- Brazing of CuZn20Al, CuNi10Fe, CuNi30Fe
- Capillary brazing on steels and stainless steels, malleable cast iron, copper and copper alloys, nickel, nickel alloys and hard metals and their dissimilar combinations
- Construction of apparatus, shipbuilding, precision tools, copper conductor joints
- Refrigeration plants, electrical industry, fittings manufacture, installation works, furniture, carbide tip brazing, drill bits brazing

HEAT SOURCE: Oxy-acetylene torch, Air-gas torch, Blow-lamp, Furnace, High frequency induction

PROCEDURE :

Clean the joint thoroughly. Use neutral flame. Joint clearance approx. 0.1 mm. Preheat a broad area and then heat locally until flux melts. Melt filler metal and draw with flame along the joint. Do not overheat.

CLEANING:

Remove Flux residues by rising in hot water.

TECHNICAL DATA :

Solidus Temperature	Liquidus Temperature
615°C	620°C

PACKING DATA:

Ø x L, mm	Kg/Plastic Tube
2.50 x 500	2
3.15 x 500	2

BRACC 7700

Coated Brazing Rods

ALLOY BASIS :
Cu, Zn, Ni, Additives

KEY FEATURES:

- Flux coated rod
- Can be used directly on the job
- No external flux required
- Very fast and economical operation
- Tough and easily machinable alloy
- Deposit is free from porosity with resistance to corrosion and wear
- Flexible and thin flux coating does not peel off even after bending
- Flux coating has extended life span

TYPICAL APPLICATIONS:

- Surfacing of steel, grey cast iron, bronze
- Especially suitable for wear resistant surfacing
- Gear teeth, Bevel gear tracks, Shafts, Cams, Slide bars
- Bearings, Metal seals, Valve seats, Pistons

HEAT SOURCE: Oxy-acetylene torch

PROCEDURE :

Clean the joint area. Prepare the edges especially for heavy section and cracked area. Preheat the job and melt off a drop of flux from the end of the rod onto the beginning of the joint area. Continue heating until flux liquefies and add the filler metal drop by drop making sure of a good bond.

CLEANING:

Remove Flux residues by rising in hot water.

TECHNICAL DATA :

Solidus Temperature	Hardness of pure deposit, HRC
900°C	10-15

PACKING DATA:

Ø x L, mm	Kg/Plastic Tube
2.50 x 500	2
3.15 x 500	2

ALBRAZE A

Brazing Fluxes

AWS A/SFA 5.31 FB1-A

DIN 8511
F-LH 1

KEY FEATURES:

- Aluminium brazing flux
- Contains fluorides and chlorides
- Excellent cleaning action
- Flux residue is hygroscopic, hence easily soluble in water

TYPICAL APPLICATIONS:

- Brazing of Al and its alloys

DIRECTION :

Before Use : Remove oil, grease or other contaminants from the surface to be brazed. Check pH in case of over shelf life. Shake well to homogenize.

After Use : Clean flux residue from brazed joint using hot water 60°C for best results. If hot water unavailable, room temperature water may also be used. Remaining flux to be kept in closed container. Although fluxes are milder to human hygienic care is recommended.

TECHNICAL DATA :

Form	Filler Metal Type	Activity Temperature Range, °C
Powder	BAlSi	580-615

PACKING DATA:

Packing Form	Wt/Bottle
Bottle	500 gms

SILBRAZE F

Brazing Fluxes

AWS A/SFA 5.31 FB3-F

DIN 8511
F-SH 1

KEY FEATURES:

- Silver brazing flux
- Contains complex fluorides and boron components
- Excellent cleaning action and capillary flow
- Can be mixed with water and used in the paste form

TYPICAL APPLICATIONS:

- Brazing of steel, copper and silver

DIRECTION :

Before Use : Remove oil, grease or other contaminants from the surface to be brazed. Check pH in case of over shelf life. Shake well to homogenize.

After Use : Clean flux residue from brazed joint using hot water 60°C for best results. If hot water unavailable, room temperature water may also be used. Remaining flux to be kept in closed container. Although fluxes are milder to human hygienic care is recommended.

CLEANING:

Remove Flux residues by rising in hot water.

PHYSICAL PROPERTIES :

Form	Filler Metal Type	Activity Temperature Range, °C
Powder	Bag and BCu	650-870

PARAMETERS - PACKING DATA:

Packing Form	Wt/Bottle
Bottle	500 gms

Item Code - Wires

Section III

ITEM CODE

Wires

Product Name	Classification	Diameter (mm)	Length (mm)	Net Wt.	Item Code
Automig 1	ER70S-6	0.8	-	15 Kg Spool	WCW.ML.018.0802
Automig 1	ER70S-6	0.9	-	15 Kg Spool	WCW.ML.018.0902
Automig 1	ER70S-6	1	-	15 Kg Spool	WCW.ML.018.1002
Automig 1	ER70S-6	1.2	-	15 Kg Spool	WCW.ML.018.1202
Automig 1	ER70S-6	1.4	-	15 Kg Spool	WCW.ML.018.1402
Automig 1	ER70S-6	1.6	-	15 Kg Spool	WCW.ML.018.1602
Automig 1	ER70S-6	2	-	15 Kg Spool	WCW.ML.018.2002
Automig 70S-G	ER70S-G	0.8	-	15 Kg Spool	WCW.ML.015.0802
Automig 70S-G	ER70S-G	1	-	15 Kg Spool	WCW.ML.015.1002
Automig 70S-G	ER70S-G	1.2	-	15 Kg Spool	WCW.ML.015.1202
Automig 70S-G	ER70S-G	1.6	-	15 Kg Spool	WCW.ML.015.1602
Automig 70S-6 N	ER70S-6	1.2	-	15 Kg Spool	WCW.ML.021.1202
Automig 70S-6 N	ER70S-6	1.6	-	15 Kg Spool	WCW.ML.021.1602
Tigfil 70S-2	ER70S-2	1.6	1000	20	WCW.TC.002.1606
Tigfil 70S-2	ER70S-2	2	1000	20	WCW.TC.002.2006
Tigfil 70S-2	ER70S-2	2.4	1000	20	WCW.TC.002.2406
Tigfil 70S-2	ER70S-2	3.15	1000	20	WCW.TC.002.3156
Tigfil 70S-2	ER70S-2	4	1000	20	WCW.TC.002.4006
Tigfil 70S-2 Spl	ER70S-2	1.6	1000	20	WCW.TC.003.1606
Tigfil 70S-2 Spl	ER70S-2	2	1000	20	WCW.TC.003.2006
Tigfil 70S-2 Spl	ER70S-2	2.4	1000	20	WCW.TC.003.2406
Tigfil 70S-2 Spl	ER70S-2	3.15	1000	20	WCW.TC.003.3156
Tigfil 70S-6	ER70S-6	1.6	1000	20	WCW.TC.020.1606
Tigfil 70S-6	ER70S-6	2	1000	20	WCW.TC.020.2006
Tigfil 70S-6	ER70S-6	2.4	1000	20	WCW.TC.020.2406
Tigfil 70S-6	ER70S-6	3.15	1000	20	WCW.TC.020.3156
Tigfil 70S-G	ER70S-G	1.6	1000	20	WCW.TC.001.1606
Tigfil 70S-G	ER70S-G	2	1000	20	WCW.TC.001.2006
Tigfil 70S-G	ER70S-G	2.4	1000	20	WCW.TC.001.2406
Tigfil 70S-G	ER70S-G	3.15	1000	20	WCW.TC.001.3156
Automig 70S-A1	ER70S-A1	1.2	-	15 Kg Spool	WCW.ML.016.1202
Automig 70S-A1	ER70S-A1	1.6	-	15 Kg Spool	WCW.ML.016.1602
Automig 70S-B2L	ER70S-B2L	1.2	-	15 Kg Spool	WCW.ML.027.1202
Automig 70S-B2L	ER70S-B2L	1.6	-	15 Kg Spool	WCW.ML.027.1602

ITEM CODE

Wires

Product Name	Classification	Diameter (mm)	Length (mm)	Net Wt.	Item Code
Automig 80S-B2	ER80S-B2	1.2	-	15 Kg Spool	WCW.ML.009.1202
Automig 80S-B2	ER80S-B2	1.6	-	15 Kg Spool	WCW.ML.009.1602
Automig 80S-B3L	ER80S-B3L	1.2	-	-	-
Automig 80S-B3L	ER80S-B3L	1.6	-	-	-
Automig 90S-B3	ER90S-B3	1.2	-	15 Kg Spool	WCW.ML.010.1202
Automig 90S-B3	ER90S-B3	1.6	-	15 Kg Spool	WCW.ML.010.1602
Automig 80S-B6	ER80S-B6	1.2	-	15 Kg Spool	WCW.ML.012.1202
Automig 80S-B6	ER80S-B6	1.6	-	15 Kg Spool	WCW.ML.012.1602
Automig 80S-B8	ER80S-B8	1.2	-	15 Kg Spool	WCW.ML.032.1202
Automig 80S-B8	ER80S-B8	1.6	-	15 Kg Spool	WCW.ML.032.1602
			-		
Automig 90S-B9	ER90S-B91	1.2	-	15 Kg Spool	WCW.ML.013.1202
Automig 90S-B9	ER90S-B91	1.6	-	15 Kg Spool	WCW.ML.013.1602
Tigfil70S-A1	ER70S-A1	1.6	1000	20	WCW.TC.004.1606
Tigfil70S-A1	ER70S-A1	2	1000	20	WCW.TC.004.2006
Tigfil70S-A1	ER70S-A1	2.4	1000	20	WCW.TC.004.2406
Tigfil70S-A1	ER70S-A1	3.15	1000	20	WCW.TC.004.3156
Tigfil 70S-B2L	ER70S-B2L	1.6	1000	20	WCW.TC.014.1606
Tigfil 70S-B2L	ER70S-B2L	2	1000	20	WCW.TC.014.2006
Tigfil 70S-B2L	ER70S-B2L	2.4	1000	20	WCW.TC.014.2406
Tigfil 70S-B2L	ER70S-B2L	3.15	1000	20	WCW.TC.014.3156
Tigfil 80S-B2	ER80S-B2	1.6	1000	20	WCW.TC.007.1606
Tigfil 80S-B2	ER80S-B2	2	1000	20	WCW.TC.007.2006
Tigfil 80S-B2	ER80S-B2	2.4	1000	20	WCW.TC.007.2406
Tigfil 80S-B2	ER80S-B2	3.15	1000	20	WCW.TC.007.3156
Tigfil 80S-B2 Spl	ER80S-B2	1.6	1000	20	WCW.TC.023.1606
Tigfil 80S-B2 Spl	ER80S-B2	2	1000	20	WCW.TC.023.2006
Tigfil 80S-B2 Spl	ER80S-B2	2.4	1000	20	WCW.TC.023.2406
Tigfil 80S-B2 Spl	ER80S-B2	3.15	1000	20	WCW.TC.023.3156
Tigfil 80S-B3L	ER80S-B3L	1.6	1000	20	WCW.TC.015.1606
Tigfil 80S-B3L	ER80S-B3L	2	1000	20	WCW.TC.015.2006
Tigfil 80S-B3L	ER80S-B3L	2.4	1000	20	WCW.TC.015.2406
Tigfil 80S-B3L	ER80S-B3L	3.15	1000	20	WCW.TC.015.3156

ITEM CODE

Wires

Product Name	Classification	Diameter (mm)	Length (mm)	Net Wt.	Item Code
Tigfil 90S-B3	ER90S-B3	1.6	1000	20	WCW.TC.008.1606
Tigfil 90S-B3	ER90S-B3	2	1000	20	WCW.TC.008.2006
Tigfil 90S-B3	ER90S-B3	2.4	1000	20	WCW.TC.008.2406
Tigfil 90S-B3	ER90S-B3	3.15	1000	20	WCW.TC.008.3156
Tigfil 90S-B3 Spl	ER90S-B3	1.6	1000	20	WCW.TC.021.1606
Tigfil 90S-B3 Spl	ER90S-B3	2	1000	20	WCW.TC.021.2006
Tigfil 90S-B3 Spl	ER90S-B3	2.4	1000	20	WCW.TC.021.2406
Tigfil 90S-B3 Spl	ER90S-B3	3.15	1000	20	WCW.TC.021.3156
Tigfil 80S-B6	ER80S-B6	1.6	1000	20	WCW.TC.009.1606
Tigfil 80S-B6	ER80S-B6	2	1000	20	WCW.TC.009.2006
Tigfil 80S-B6	ER80S-B6	2.4	1000	20	WCW.TC.009.2406
Tigfil 80S-B6	ER80S-B6	3.15	1000	20	WCW.TC.009.3156
Tigfil 80S-B8	ER80S-B8	1.6	1000	20	WCW.TC.010.1606
Tigfil 80S-B8	ER80S-B8	2	1000	20	WCW.TC.010.2006
Tigfil 80S-B8	ER80S-B8	2.4	1000	20	WCW.TC.010.2406
Tigfil 80S-B8	ER80S-B8	3.15	1000	20	WCW.TC.010.3156
Tigfil 90S-B9	ER90S-B91	1.6	1000	20	WCW.TC.012.1606
Tigfil 90S-B9	ER90S-B91	2	1000	20	WCW.TC.012.2006
Tigfil 90S-B9	ER90S-B91	2.4	1000	20	WCW.TC.012.2406
Tigfil 90S-B9	ER90S-B91	3.15	1000	20	WCW.TC.012.3156
Automig 80S-Ni1	ER80S-Ni1	1.2	-	15 Kg Spool	WCW.ML.017.1202
Automig 80S-Ni1	ER80S-Ni1	1.6	-	15 Kg Spool	WCW.ML.017.1602
Automig 80S-Ni2	ER80S-Ni2	1.2	-	15 Kg Spool	WCW.ML.023.1202
Automig 80S-Ni2	ER80S-Ni2	1.6	-	15 Kg Spool	WCW.ML.023.1602
Tigfil 80S-Ni1	ER80S-Ni1	1.6	1000	20	WCW.TC.011.1606
Tigfil 80S-Ni1	ER80S-Ni1	2	1000	20	WCW.TC.011.2006
Tigfil 80S-Ni1	ER80S-Ni1	2.4	1000	20	WCW.TC.011.2406
Tigfil 80S-Ni1	ER80S-Ni1	3.15	1000	20	WCW.TC.011.3156
Tigfil 80S-Ni2	ER80S-Ni2	1.6	1000	20	WCW.TC.013.1606
Tigfil 80S-Ni2	ER80S-Ni2	2	1000	20	WCW.TC.013.2006
Tigfil 80S-Ni2	ER80S-Ni2	2.4	1000	20	WCW.TC.013.2406
Tigfil 80S-Ni2	ER80S-Ni2	3.15	1000	20	WCW.TC.013.3156
Automig 80S-D2	ER80S-D2	1.2	-	15 Kg Spool	WCW.ML.011.1202
Automig 80S-D2	ER80S-D2	1.6	-	15 Kg Spool	WCW.ML.011.1602

ITEM CODE

Wires

Product Name	Classification	Diameter (mm)	Length (mm)	Net Wt.	Item Code
Automig-80S-G	ER80S-G	1.2	-	15 Kg Spool	WCW.ML.003.1202
Automig-80S-G	ER80S-G	1.6	-	15 Kg Spool	WCW.ML.003.1602
Automig 90S-D2	ER90S-D2	1.2	-	15 Kg Spool	WCW.ML.002.1202
Automig 90S-D2	ER90S-D2	1.6	-	15 Kg Spool	WCW.ML.002.1602
Automig IV	-	1.2	-	11.5Kg Spool	WCW.ML.019.1211
Automig IV	-	1.6	-	11.5Kg Spool	WCW.ML.019.1611
Automig 90S-G	ER90S-G	1.2	-	15 Kg Spool	WCW.ML.007.1202
Automig 90S-G	ER90S-G	1.6	-	15 Kg Spool	WCW.ML.007.1602
Automig 100S-G	ER100S-G	1.2	-	15 Kg Spool	WCW.ML.022.1202
Automig 100S-G	ER100S-G	1.6	-	15 Kg Spool	WCW.ML.022.1602
Automig 110S-G	ER110S-G	1.2	-	15 Kg Spool	WCW.ML.020.1202
Automig 110S-G	ER110S-G	1.6	-	15 Kg Spool	WCW.ML.020.1602
Tigfil 80S-D2	ER80S-D2	1.6	1000	20	WCW.TC.016.1606
Tigfil 80S-D2	ER80S-D2	2	1000	20	WCW.TC.016.2006
Tigfil 80S-D2	ER80S-D2	2.4	1000	20	WCW.TC.016.2406
Tigfil 80S-D2	ER80S-D2	3.15	1000	20	WCW.TC.016.3156
Tigfil-80S-G	ER80S-G	1.6	1000	20	WCW.TC.005.1606
Tigfil-80S-G	ER80S-G	2	1000	20	WCW.TC.005.2006
Tigfil-80S-G	ER80S-G	2.4	1000	20	WCW.TC.005.2406
Tigfil-80S-G	ER80S-G	3.15	1000	20	WCW.TC.005.3156
Tigfil 90S-D2	ER90S-D2	1.6	1000	20	WCW.TC.029.1606
Tigfil 90S-D2	ER90S-D2	2	1000	20	WCW.TC.029.2006
Tigfil 90S-D2	ER90S-D2	2.4	1000	20	WCW.TC.029.2406
Tigfil 90S-D2	ER90S-D2	3.15	1000	20	WCW.TC.029.3156
Tigfil 90S-G	ER90S-G	1.6	1000	20	WCW.TC.006.1606
Tigfil 90S-G	ER90S-G	2	1000	20	WCW.TC.006.2006
Tigfil 90S-G	ER90S-G	2.4	1000	20	WCW.TC.006.2406
Tigfil 90S-G	ER90S-G	3.15	1000	20	WCW.TC.006.3156
Tigfil 100S-G	ER100S-G	1.6	1000	20	WCW.TC.036.1606
Tigfil 100S-G	ER100S-G	2	1000	20	WCW.TC.036.2006
Tigfil 100S-G	ER100S-G	2.4	1000	20	WCW.TC.036.2406
Tigfil 110S-G	ER110S-G	1.6	1000	20	WCW.TC.025.1606
Tigfil 110S-G	ER110S-G	2	1000	20	WCW.TC.025.2006
Tigfil 110S-G	ER110S-G	2.4	1000	20	WCW.TC.025.2406

ITEM CODE

Wires

Product Name	Classification	Diameter (mm)	Length (mm)	Net Wt.	Item Code
Miginox 307	-	1.2	-	12.5 Kg Spool	WCW.MX.031.1204
Miginox 307	-	1.6	-	12.5 Kg Spool	WCW.MX.031.1604
Miginox 308L	ER308L	0.8	-	12.5 Kg Spool	WCW.MX.002.0804
Miginox 308L	ER308L	1	-	12.5 Kg Spool	WCW.MX.002.1004
Miginox 308L	ER308L	1.2	-	12.5 Kg Spool	WCW.MX.002.1204
Miginox 308L	ER308L	1.6	-	12.5 Kg Spool	WCW.MX.002.1604
Miginox 308L	ER308L	2	-	12.5 Kg Spool	WCW.MX.002.2004
Miginox 308H	ER308H	1.2	-	12.5 Kg Spool	WCW.MX.039.1204
Miginox 308H	ER308H	1.6	-	12.5 Kg Spool	WCW.MX.039.1604
Miginox 308LSi	ER308LSi	1.2	-	12.5 Kg Spool	WCW.MX.024.1204
Miginox 308LSi	ER308LSi	1.6	-	12.5 Kg Spool	WCW.MX.024.1604
Miginox 309L	ER309L	0.8	-	12.5 Kg Spool	WCW.MX.004.0804
Miginox 309L	ER309L	1	-	12.5 Kg Spool	WCW.MX.004.1004
Miginox 309L	ER309L	1.2	-	12.5 Kg Spool	WCW.MX.004.1204
Miginox 309L	ER309L	1.6	-	12.5 Kg Spool	WCW.MX.004.1604
Miginox 309LSi	ER309LSi	1.2	-	12.5 Kg Spool	WCW.MX.025.1204
Miginox 309LSi	ER309LSi	1.6	-	12.5 Kg Spool	WCW.MX.025.1604
Miginox 309Mo	ER309Mo	1.2	-	12.5 Kg Spool	WCW.MX.005.1204
Miginox 309Mo	ER309Mo	1.6	-	12.5 Kg Spool	WCW.MX.005.1604
Miginox 310	ER310	1.2	-	12.5 Kg Spool	WCW.MX.006.1204
Miginox 310	ER310	1.6	-	12.5 Kg Spool	WCW.MX.006.1604
Miginox 312	ER312	1.2	-	12.5 Kg Spool	WCW.MX.007.1204
Miginox 312	ER312	1.6	-	12.5 Kg Spool	WCW.MX.007.1604
Miginox 316L	ER316L	0.8	-	12.5 Kg Spool	WCW.MX.009.0804
Miginox 316L	ER316L	1	-	12.5 Kg Spool	WCW.MX.009.1004
Miginox 316L	ER316L	1.2	-	12.5 Kg Spool	WCW.MX.009.1204
Miginox 316L	ER316L	1.6	-	12.5 Kg Spool	WCW.MX.009.1604
Miginox 316LSi	ER316LSi	1.2	-	12.5 Kg Spool	WCW.MX.041.1204
Miginox 316LSi	ER316LSi	1.6	-	12.5 Kg Spool	WCW.MX.041.1604
Miginox 347	ER347	1.2	-	12.5 Kg Spool	WCW.MX.010.1204
Miginox 347	ER347	1.6	-	12.5 Kg Spool	WCW.MX.010.1604
Miginox 347Si	ER347Si	1.2	-	12.5 Kg Spool	WCW.MX.028.1204
Miginox 347Si	ER347Si	1.6	-	12.5 Kg Spool	WCW.MX.028.1604

ITEM CODE

Wires

Product Name	Classification	Diameter (mm)	Length (mm)	Net Wt.	Item Code
Miginox 410	ER410	1.2	-	12.5 Kg Spool	WCW.MX.011.1204
Miginox 410	ER410	1.6	-	12.5 Kg Spool	WCW.MX.011.1604
Miginox 410NiMo	ER410NiMo	1.2	-	12.5 Kg Spool	WCW.MX.023.1204
Miginox 410NiMo	ER410NiMo	1.6	-	12.5 Kg Spool	WCW.MX.023.1604
Miginox 430	ER430	1.2	-	12.5 Kg Spool	WCW.MX.012.1204
Miginox 430	ER430	1.6	-	12.5 Kg Spool	WCW.MX.012.1604
Miginox 430LNb	-	0.8	-	12.5 Kg Spool	WCW.MX.034.1204
Miginox 430LNb	-	1.2	-	12.5 Kg Spool	WCW.MX.034.1604
Miginox 2209	ER2209	1.2	-	12.5 Kg Spool	WCW.MX.020.1204
Miginox 2209	ER2209	1.6	-	12.5 Kg Spool	WCW.MX.020.1604
Tiginox 308L	ER308L	1.6	1000	20	WCW.TU.002.1606
Tiginox 308L	ER308L	2	1000	20	WCW.TU.002.2006
Tiginox 308L	ER308L	2.4	1000	20	WCW.TU.002.2406
Tiginox 308L	ER308L	3.15	1000	20	WCW.TU.002.3156
Tiginox 308L	ER308L	4	1000	20	WCW.TU.002.4006
Tiginox 308H	ER308H	1.6	1000	20	WCW.TU.024.1606
Tiginox 308H	ER308H	2	1000	20	WCW.TU.024.2006
Tiginox 308H	ER308H	2.4	1000	20	WCW.TU.024.2406
Tiginox 308H	ER308H	3.15	1000	20	WCW.TU.024.3156
Tiginox 308LSi	ER308LSi	1.6	1000	20	WCW.TU.034.1606
Tiginox 308LSi	ER308LSi	2	1000	20	WCW.TU.034.2006
Tiginox 308LSi	ER308LSi	2.4	1000	20	WCW.TU.034.2406
Tiginox 308LSi	ER308LSi	3.15	1000	20	WCW.TU.034.3156
Tiginox 308L Spl	ER308L	1.6	1000	20	WCW.TU.047.1606
Tiginox 308L Spl	ER308L	2	1000	20	WCW.TU.047.2006
Tiginox 308L Spl	ER308L	2.4	1000	20	WCW.TU.047.2406
Tiginox 308L Spl	ER308L	3.15	1000	20	WCW.TU.047.3156
Tiginox 309L	ER309L	1.6	1000	20	WCW.TU.004.1606
Tiginox 309L	ER309L	2	1000	20	WCW.TU.004.2006
Tiginox 309L	ER309L	2.4	1000	20	WCW.TU.004.2406
Tiginox 309L	ER309L	3.15	1000	20	WCW.TU.004.3156

ITEM CODE

Wires

Product Name	Classification	Diameter (mm)	Length (mm)	Net Wt.	Item Code
Tiginox 309LSi	ER309LSi	1.6	1000	20	WCW.TU.048.1606
Tiginox 309LSi	ER309LSi	2	1000	20	WCW.TU.048.2006
Tiginox 309LSi	ER309LSi	2.4	1000	20	WCW.TU.048.2406
Tiginox 309LSi	ER309LSi	3.15	1000	20	WCW.TU.048.3156
Tiginox 309Mo	ER309Mo	1.6	1000	20	WCW.TU.005.1606
Tiginox 309Mo	ER309Mo	2	1000	20	WCW.TU.005.2006
Tiginox 309Mo	ER309Mo	2.4	1000	20	WCW.TU.005.2406
Tiginox 309Mo	ER309Mo	3.15	1000	20	WCW.TU.005.3156
Tiginox 310	ER310	1.6	1000	20	WCW.TU.006.1606
Tiginox 310	ER310	2	1000	20	WCW.TU.006.2006
Tiginox 310	ER310	2.4	1000	20	WCW.TU.006.2406
Tiginox 310	ER310	3.15	1000	20	WCW.TU.006.3156
Tiginox 312	ER312	1.6	1000	20	WCW.TU.007.1606
Tiginox 312	ER312	2	1000	20	WCW.TU.007.2006
Tiginox 312	ER312	2.4	1000	20	WCW.TU.007.2406
Tiginox 312	ER312	3.15	1000	20	WCW.TU.007.3156
Tiginox 316L	ER316L	1.6	1000	20	WCW.TU.009.1606
Tiginox 316L	ER316L	2	1000	20	WCW.TU.009.2006
Tiginox 316L	ER316L	2.4	1000	20	WCW.TU.009.2406
Tiginox 316L	ER316L	3.15	1000	20	WCW.TU.009.3156
Tiginox 316LSi	ER316LSi	1.6	1000	20	WCW.TU.040.1606
Tiginox 316LSi	ER316LSi	2	1000	20	WCW.TU.040.2006
Tiginox 316LSi	ER316LSi	2.4	1000	20	WCW.TU.040.2406
Tiginox 316LSi	ER316LSi	3.15	1000	20	WCW.TU.040.3156
Tiginox 347	ER347	1.6	1000	20	WCW.TU.010.1606
Tiginox 347	ER347	2	1000	20	WCW.TU.010.2006
Tiginox 347	ER347	2.4	1000	20	WCW.TU.010.2406
Tiginox 347	ER347	3.15	1000	20	WCW.TU.010.3156
Tiginox 385	ER385	1.6	1000	20	WCW.TU.021.1606
Tiginox 385	ER385	2	1000	20	WCW.TU.021.2006
Tiginox 385	ER385	2.4	1000	20	WCW.TU.021.2406
Tiginox 385	ER385	3.15	1000	20	WCW.TU.021.3156
Tiginox 410	ER410	1.6	1000	20	WCW.TU.011.1606
Tiginox 410	ER410	2	1000	20	WCW.TU.011.2006
Tiginox 410	ER410	2.4	1000	20	WCW.TU.011.2406
Tiginox 410	ER410	3.15	1000	20	WCW.TU.011.3156

ITEM CODE

Wires

Product Name	Classification	Diameter (mm)	Length (mm)	Net Wt.	Item Code
Tiginox 410NiMo	ER410NiMo	1.6	1000	20	WCW.TU.038.1606
Tiginox 410NiMo	ER410NiMo	2	1000	20	WCW.TU.038.2006
Tiginox 410NiMo	ER410NiMo	2.4	1000	20	WCW.TU.038.2406
Tiginox 410NiMo	ER410NiMo	3.15	1000	20	WCW.TU.038.3156
Tiginox 430	ER430	1.6	1000	20	WCW.TU.012.1606
Tiginox 430	ER430	2	1000	20	WCW.TU.012.2006
Tiginox 430	ER430	2.4	1000	20	WCW.TU.012.2406
Tiginox 430	ER430	3.15	1000	20	WCW.TU.012.3156
Tiginox 2209	ER2209	1.6	1000	20	WCW.TU.022.1606
Tiginox 2209	ER2209	2	1000	20	WCW.TU.022.2006
Tiginox 2209	ER2209	2.4	1000	20	WCW.TU.022.2406
Tiginox 2209	ER2209	3.15	1000	20	WCW.TU.022.3156
Tiginox 2594	ER2594	1.6	1000	20	WCW.TU.020.1606
Tiginox 2594	ER2594	2	1000	20	WCW.TU.020.2006
Tiginox 2594	ER2594	2.4	1000	20	WCW.TU.020.2406
Tiginox 2594	ER2594	3.15	1000	20	WCW.TU.020.3156
Automig Ni-1	ERNi1	1.2	-	12.5 Kg Spool	WCW.MF.026.1204
Automig Ni-1	ERNi1	1.6	-	12.5 Kg Spool	WCW.MF.026.1604
Automig NiCr3	ERNiCr-3	1.2	-	12.5 Kg Spool	WCW.MF.011.1204
Automig NiCr3	ERNiCr-3	1.6	-	12.5 Kg Spool	WCW.MF.011.1604
Automig NiCrMo-3	ERNiCrMo-3	1.2	-	12.5 Kg Spool	WCW.MF.012.1204
Automig NiCrMo-3	ERNiCrMo-3	1.6	-	12.5 Kg Spool	WCW.MF.012.1604
Automig NiCrMo-4	ERNiCrMo-4	1.2	-	12.5 Kg Spool	WCW.MF.013.1204
Automig NiCrMo-4	ERNiCrMo-4	1.6	-	12.5 Kg Spool	WCW.MF.013.1604
Automig NiCu-7	ERNiCu-7	1.2	-	15 Kg Spool	WCW.MF.003.1202
Tigfil Ni-1	ERNi1	1.6	1000	20	WCW.TT.004.1606
Tigfil Ni-1	ERNi1	2	1000	20	WCW.TT.004.2006
Tigfil Ni-1	ERNi1	2.4	1000	20	WCW.TT.004.2406
Tigfil Ni-1	ERNi1	3.15	1000	20	WCW.TT.004.3156
Tigfil NiCr3	ERNiCr-3	1.6	1000	20	WCW.TT.001.1606
Tigfil NiCr3	ERNiCr-3	2	1000	20	WCW.TT.001.2006
Tigfil NiCr3	ERNiCr-3	2.4	1000	20	WCW.TT.001.2406
Tigfil NiCr3	ERNiCr-3	3.15	1000	20	WCW.TT.001.3156

ITEM CODE

Wires

Product Name	Classification	Diameter (mm)	Length (mm)	Net Wt.	Item Code
Tigfil NiCrMo-3	ERNiCrMo-3	1.6	1000	20	WCW.TT.003.1606
Tigfil NiCrMo-3	ERNiCrMo-3	2	1000	20	WCW.TT.003.2006
Tigfil NiCrMo-3	ERNiCrMo-3	2.4	1000	20	WCW.TT.003.2406
Tigfil NiCrMo-3	ERNiCrMo-3	3.15	1000	20	WCW.TT.003.3156
Tigfil NiCrMo-4	ERNiCrMo-4	1.6	1000	20	WCW.TT.005.1606
Tigfil NiCrMo-4	ERNiCrMo-4	2	1000	20	WCW.TT.005.2006
Tigfil NiCrMo-4	ERNiCrMo-4	2.4	1000	20	WCW.TT.005.2406
Tigfil NiCrMo-4	ERNiCrMo-4	3.15	1000	20	WCW.TT.005.3156
Tigfil NiCu-7	ERNiCu-7	1.6	1000	20	WCW.TT.002.1606
Tigfil NiCu-7	ERNiCu-7	2	1000	20	WCW.TT.002.2006
Tigfil NiCu-7	ERNiCu-7	2.4	1000	20	WCW.TT.002.2406
Tigfil NiCu-7	ERNiCu-7	3.15	1000	20	WCW.TT.002.3156
Tigfil 617	ERNiCrCoMo-1	1.6	1000	20	WCW.TT.026.1606
Tigfil 617	ERNiCrCoMo-1	2	1000	20	WCW.TT.026.2006
Tigfil 617	ERNiCrCoMo-1	2.4	1000	20	WCW.TT.026.2406
Tigfil 617	ERNiCrCoMo-1	3.15	1000	20	WCW.TT.026.3156
Tigfil ST6	ERCoCr-A	2.4	1000	20	WCW.TT.027.1606
Tigfil ST6	ERCoCr-A	3.15	1000	20	WCW.TT.027.2006
Automig 1100	ER1100	1.2	-	7Kg Spool	WCW.MF.041.1207
Automig 1100	ER1100	1.6	-	7Kg Spool	WCW.MF.041.1607
Automig 4043	ER4043	0.8	-	7Kg Spool	WCW.MF.001.0807
Automig 4043	ER4043	1	-	7Kg Spool	WCW.MF.001.1007
Automig 4043	ER4043	1.2	-	7Kg Spool	WCW.MF.001.1207
Automig 4043	ER4043	1.6	-	7Kg Spool	WCW.MF.001.1607
Automig 5183	ER5183	1.2	-	7Kg Spool	WCW.MF.005.1207
Automig 5183	ER5183	1.6	-	7Kg Spool	WCW.MF.005.1607
Automig 5356	ER5356	1.2	-	7Kg Spool	WCW.MF.004.1207
Automig 5356	ER5356	1.6	-	7Kg Spool	WCW.MF.004.1607
Automig 5556	ER5556	1.2	-	7Kg Spool	WCW.MF.006.1207
Automig 5556	ER5556	1.6	-	7Kg Spool	WCW.MF.006.1607
Tigfil 1100	ER1100	1.6	1000	20	WCW.TT.033.1606
Tigfil 1100	ER1100	2	1000	20	WCW.TT.033.2006
Tigfil 1100	ER1100	2.4	1000	20	WCW.TT.033.2406
Tigfil 1100	ER1100	3.15	1000	20	WCW.TT.033.3156

ITEM CODE

Wires

Product Name	Classification	Diameter (mm)	Length (mm)	Net Wt.	Item Code
Tigfil 4043	ER4043	1.6	1000	20	WCW.TT.011.1606
Tigfil 4043	ER4043	2	1000	20	WCW.TT.011.2006
Tigfil 4043	ER4043	2.4	1000	20	WCW.TT.011.2406
Tigfil 4043	ER4043	3.15	1000	20	WCW.TT.011.3156
Tigfil 5183	ER5183	1.6	1000	20	WCW.TT.013.1606
Tigfil 5183	ER5183	2	1000	20	WCW.TT.013.2006
Tigfil 5183	ER5183	2.4	1000	20	WCW.TT.013.2406
Tigfil 5183	ER5183	3.15	1000	20	WCW.TT.013.3156
Tigfil 5356	ER5356	1.6	1000	20	WCW.TT.011.1606
Tigfil 5356	ER5356	2	1000	20	WCW.TT.011.2006
Tigfil 5356	ER5356	2.4	1000	20	WCW.TT.011.2406
Tigfil 5356	ER5356	3.15	1000	20	WCW.TT.011.3156
Tigfil 5556	ER5556	1.6	1000	20	WCW.TT.028.1606
Tigfil 5556	ER5556	2	1000	20	WCW.TT.028.2006
Tigfil 5556	ER5556	2.4	1000	20	WCW.TT.028.2406
Tigfil 5556	ER5556	3.15	1000	20	WCW.TT.028.3156
Automig CuSn-A	ERCuSn-A	1.2	-	12.5 kg Spool	WCW.MF.023.1204
Automig CuSn-A	ERCuSn-A	1.6	-	12.5 kg Spool	WCW.MF.023.1604
Tigfil CuSn-A	ERCuSn-A	1.6	1000	20	WCW.TT.030.1606
Tigfil CuSn-A	ERCuSn-A	2	1000	20	WCW.TT.030.2006
Tigfil CuSn-A	ERCuSn-A	2.4	1000	20	WCW.TT.030.2406
Tigfil CuSn-A	ERCuSn-A	3.15	1000	20	WCW.TT.030.3156
Autobraze CuSi	ERCuSi-A	1	-	12.5 kg Spool	WCW.MF.027.1004
Autobraze CuSi	ERCuSi-A	1.2	-	12.5 kg Spool	WCW.MF.027.1204
Automig CuNi	ERCuNi	1.2	-	12.5 kg Spool	WCW.MF.021.1204
Automig CuNi	ERCuNi	1.6	-	12.5 kg Spool	WCW.MF.021.1604
Tigfil CuNi	ERCuNi	1.6	1000	20	WCW.TT.021.1606
Tigfil CuNi	ERCuNi	2	1000	20	WCW.TT.021.2006
Tigfil CuNi	ERCuNi	2.4	1000	20	WCW.TT.021.2406
Tigfil CuNi	ERCuNi	3.15	1000	20	WCW.TT.021.3156
Automig CuAl-A1	ERCuAl-A1	1.2	-	12.5Kg Spool	WCW.MF.043.1204
Automig CuAl-A1	ERCuAl-A1	1.6	-	12.5Kg Spool	WCW.MF.043.1604

ITEM CODE

Wires

Product Name	Classification	Diameter (mm)	Length (mm)	Net Wt.	Item Code
Tigfil CuAl-A1	ERCuAl-A1	1.6	1000	20	-
Tigfil CuAl-A1	ERCuAl-A1	2	1000	20	-
Tigfil CuAl-A1	ERCuAl-A1	2.4	1000	20	-
Tigfil CuAl-A1	ERCuAl-A1	3.15	1000	20	-
Automig CuAl-A2	ERCuAl-A2	1.2	-	12.5Kg Spool	WCW.MF.025.1204
Automig CuAl-A2	ERCuAl-A2	1.6	-	12.5Kg Spool	WCW.MF.025.1604
Tigfil CuAl-A2	ERCuAl-A2	1.6	1000	20	WCW.TT.025.1606
Tigfil CuAl-A2	ERCuAl-A2	2	1000	20	WCW.TT.025.2006
Tigfil CuAl-A2	ERCuAl-A2	2.4	1000	20	WCW.TT.025.2406
Tigfil CuAl-A2	ERCuAl-A2	3.15	1000	20	WCW.TT.025.3156
Automig FC 71T-1	E71T-1C	1.2	-	15Kg Spool	WFC.ML.001.1202
Automig FC 71T-1	E71T-1C	1.6	-	15Kg Spool	WFC.ML.001.1602
Automig FC 71T-5	E71T-5C/M	1.2	-	15Kg Spool	WFC.ML.002.1202
Automig FC 71T-5	E71T-5C/M	1.6	-	15Kg Spool	WFC.ML.002.1602
Automig FC 71T-1C-J	E71T-1C-J	1.2	-	15Kg Spool	WFC.ML.015.1202
Automig FC 71T-1C-J	E71T-1C-J	1.6	-	15Kg Spool	WFC.ML.015.1602
Automig FC 71T-1M	E71T-1M	1.2	-	15Kg Spool	WFC.ML.021.1202
Automig FC 71T-1M	E71T-1M	1.6	-	15Kg Spool	WFC.ML.021.1202
Automig MC 70C-6C	E70C-6C	1.2	-	15Kg Spool	WMC.ML.003.1202
Automig MC 70C-6C	E70C-6C	1.6	-	15Kg Spool	WMC.ML.003.1602
Automig MC 70C-6M	E70C-6M	1.2	-	15Kg Spool	WMC.ML.004.1202
Automig MC 70C-6M	E70C-6M	1.6	-	15Kg Spool	WMC.ML.004.1602
Automig FC 81T1-Ni1	E81T-1Ni1C	1.2	-	15Kg Spool	WFC.ML.022.1202
Automig FC 81T1-Ni1	E81T-1Ni1C	1.6	-	15Kg Spool	WFC.ML.022.1602
Automig FC 81T1-Ni2	E81T-1Ni2C	1.2	-	15Kg Spool	WFC.ML.043.1202
Automig FC 81T1-Ni2	E81T-1Ni2C	1.6	-	15Kg Spool	WFC.ML.043.1602
Automig FC 81T1-K2	E81T-1K2C	1.2	-	15Kg Spool	WFC.ML.025.1202
Automig FC 81T1-K2	E81T-1K2C	1.6	-	15Kg Spool	WFC.ML.025.1602
Automig FC 80T5-K2	E80T-5K2C/M	1.2	-	15Kg Spool	WFC.ML.037.1202
Automig FC 80T5-K2	E80T-5K2C/M	1.6	-	15Kg Spool	WFC.ML.037.1602

ITEM CODE

Wires

Product Name	Classification	Diameter (mm)	Length (mm)	Net Wt.	Item Code
Automig FC 90T5-K2	E90T-5K2C/M	1.2	-	15Kg Spool	WFC.ML.006.1202
Automig FC 90T5-K2	E90T-5K2C/M	1.6	-	15Kg Spool	WFC.ML.006.1602
Automig FC 180R	E81T-1W2C/M	1.2	-	15Kg Spool	WFC.ML.009.1202
Automig FC 180R	E81T-1W2C/M	1.6	-	15Kg Spool	WFC.ML.009.1602
Automig FC 81T1-B2	E81T-1-B2C	1.2	-	15Kg Spool	WFC.ML.004.1202
Automig FC 81T1-B2	E81T-1-B2C	1.6	-	15Kg Spool	WFC.ML.004.1602
Automig FC 91T1-B3	E91T-1B3C	1.2	-	15Kg Spool	WFC.ML.005.1202
Automig FC 91T1-B3	E91T-1B3C	1.6	-	15Kg Spool	WFC.ML.005.1602
Automig FC 18M Spl	E91T-1D1C/M	1.2	-	15Kg Spool	WFC.ML.012.1202
Automig FC 18M Spl	E91T-1D1C/M	1.6	-	15Kg Spool	WFC.ML.012.1602
Automig FC 101T1-K3	E101T-1K3C	1.2	-	15Kg Spool	WFC.ML.048.1202
Automig FC 101T1-K3	E101T-1K3C	1.6	-	15Kg Spool	WFC.ML.048.1602
Automig FC 110T5-K4	E110T-5K4C/M	1.2	-	15Kg Spool	WFC.ML.007.1202
Automig FC 110T5-K4	E110T-5K4C/M	1.6	-	15Kg Spool	WFC.ML.007.1602
Miginox FC 308L	E308LT1-1/4	1.2	-	12.5 Kg Spool	WFC.MX.002.1204
Miginox FC 308L	E308LT1-1/4	1.6	-	12.5 Kg Spool	WFC.MX.002.1604
Miginox FC 309L	E309LT1-1/4	1.2	-	12.5 Kg Spool	WFC.MX.004.1204
Miginox FC 309L	E309LT1-1/4	1.6	-	12.5 Kg Spool	WFC.MX.004.1604
Miginox FC 316L	E316LT1-1/4	1.2	-	12.5 Kg Spool	WFC.MX.020.1204
Miginox FC 316L	E316LT1-1/4	1.6	-	12.5 Kg Spool	WFC.MX.020.1604
Miginox FC 347	E347T1-1/4	1.2	-	12.5 Kg Spool	WFC.MX.010.1204
Miginox FC 347	E347T1-1/4	1.6	-	12.5 Kg Spool	WFC.MX.010.1604
Miginox FC 410NiMo	E410NiMoT1-1/4	1.2	-	12.5 Kg Spool	WFC.MX.016.1204
Miginox FC 410NiMo	E410NiMoT1-1/4	1.6	-	12.5 Kg Spool	WFC.MX.016.1604
Miginox FC 2209	E2209T1-1/4	1.2	-	12.5 Kg Spool	WFC.MX.011.1204
Miginox FC 2209	E2209T1-1/4	1.6	-	12.5 Kg Spool	WFC.MX.011.1204
Miginox MC 409	EC409	1.2	-	12.5 Kg Spool	WMC.MX.001.1204
Miginox MC 409	EC409	1.6	-	12.5 Kg Spool	WMC.MX.001.1604

ITEM CODE

Wires

Product Name	Classification	Diameter (mm)	Length (mm)	Net Wt.	Item Code
Automig FC 580	-	1.2	-	15Kg Spool	WFC.ML.013.1202
Automig FC 580	-	1.6	-	15Kg Spool	WFC.ML.013.1602
Automig FC 600	-	1.2	-	15Kg Spool	WFC.ML.032.1202
Automig FC 600	-	1.6	-	15Kg Spool	WFC.ML.032.1602
Automig MC 42	-	1.6	-	12.5 Kg Spool	WMC.ML.008.1604
Automig MC 42	-	2.4	-	12.5 Kg Spool	WMC.ML.008.2404

Item Code - Fluxes

Section IV

ITEM CODE

Fluxes

Product Name	Classification	Diameter (mm)	Length (mm)	Net Wt.	Item Code
Automelt EL8	EL8	1.6	-	25 Kg Spool	WCW.SL.001.1603
Automelt EL8	EL8	2	-	25 Kg Spool	WCW.SL.001.2003
Automelt EL8	EL8	2.5	-	25 Kg Spool	WCW.SL.001.2503
Automelt EL8	EL8	3.15	-	25 Kg Spool	WCW.SL.001.3153
Automelt EL8	EL8	4	-	25 Kg Spool	WCW.SL.001.4003
Automelt EL8	EL8	5	-	25 Kg Spool	WCW.SL.001.5003
Automelt EL8 (15Kg Spool)	EL8	1.6	-	15 Kg Spool	WCW.SL.001.1602
Automelt Gr A	EL8	2.5	-	25 Kg Spool	WCW.SL.009.2503
Automelt Gr A	EL8	3.15	-	25 Kg Spool	WCW.SL.009.3153
Automelt Gr A	EL8	4	-	25 Kg Spool	WCW.SL.009.4003
Automelt Gr A	EL8	5	-	25 Kg Spool	WCW.SL.009.5003
Automelt EM12K	EM12K	1.6	-	25 Kg Spool	WCW.SL.002.1603
Automelt EM12K	EM12K	2	-	25 Kg Spool	WCW.SL.002.2003
Automelt EM12K	EM12K	2.5	-	25 Kg Spool	WCW.SL.002.2503
Automelt EM12K	EM12K	3.15	-	25 Kg Spool	WCW.SL.002.3153
Automelt EM12K	EM12K	4	-	25 Kg Spool	WCW.SL.002.4003
Automelt EM12K	EM12K	5	-	25 Kg Spool	WCW.SL.002.5003
Automelt EH10K	EH10K	1.6	-	25 Kg Spool	WCW.SL.003.1603
Automelt EH10K	EH10K	2	-	25 Kg Spool	WCW.SL.003.2003
Automelt EH10K	EH10K	2.5	-	25 Kg Spool	WCW.SL.003.2503
Automelt EH10K	EH10K	3.15	-	25 Kg Spool	WCW.SL.003.3153
Automelt EH10K	EH10K	4	-	25 Kg Spool	WCW.SL.003.4003
Automelt EH10K	EH10K	5	-	25 Kg Spool	WCW.SL.003.5003
Automelt EH12K	EH12K	2	-	25 Kg Spool	WCW.SL.004.2003
Automelt EH12K	EH12K	2.5	-	25 Kg Spool	WCW.SL.004.2503
Automelt EH12K	EH12K	3.15	-	25 Kg Spool	WCW.SL.004.3153
Automelt EH12K	EH12K	4	-	25 Kg Spool	WCW.SL.004.4003
Automelt EH12K	EH12K	5	-	25 Kg Spool	WCW.SL.004.5003
Automelt EH14	EH14	2	-	25 Kg Spool	WCW.SL.005.2003
Automelt EH14	EH14	2.5	-	25 Kg Spool	WCW.SL.005.2503
Automelt EH14	EH14	3.15	-	25 Kg Spool	WCW.SL.005.3153
Automelt EH14	EH14	4	-	25 Kg Spool	WCW.SL.005.4003
Automelt EH14	EH14	5	-	25 Kg Spool	WCW.SL.005.5003
Automelt EH11K	EH11K	1.6	-	25 Kg Spool	WCW.SL.016.1603
Automelt EH11K	EH11K	2	-	25 Kg Spool	WCW.SL.016.2003
Automelt EH11K	EH11K	2.5	-	25 Kg Spool	WCW.SL.016.2503
Automelt EH11K	EH11K	3.15	-	25 Kg Spool	WCW.SL.016.3153
Automelt EH11K	EH11K	4	-	25 Kg Spool	WCW.SL.016.4003
Automelt EH11K	EH11K	5	-	25 Kg Spool	WCW.SL.016.5003
Automelt EH11K (15Kg Spool)	EH11K	1.6	-	15 Kg Spool	WCW.SL.016.1602

ITEM CODE

Fluxes

Product Name	Classification	Diameter (mm)	Length (mm)	Net Wt.	Item Code
Automelt EA2	EA2	1.6	-	25 Kg Spool	WCW.SL.007.1603
Automelt EA2	EA2	2	-	25 Kg Spool	WCW.SL.007.2003
Automelt EA2	EA2	2.5	-	25 Kg Spool	WCW.SL.007.2503
Automelt EA2	EA2	3.15	-	25 Kg Spool	WCW.SL.007.3153
Automelt EA2	EA2	4	-	25 Kg Spool	WCW.SL.007.4003
Automelt EA2	EA2	5	-	25 Kg Spool	WCW.SL.007.5003
Automelt EA2 (15Kg Spool)	EA2	1.6	-	15 Kg Spool	WCW.SL.007.1602
Automelt EA3	EA3	2	-	25 Kg Spool	WCW.SL.008.2003
Automelt EA3	EA3	2.5	-	25 Kg Spool	WCW.SL.008.2503
Automelt EA3	EA3	3.15	-	25 Kg Spool	WCW.SL.008.3153
Automelt EA3	EA3	4	-	25 Kg Spool	WCW.SL.008.4003
Automelt EA3	EA3	5	-	25 Kg Spool	WCW.SL.008.5003
Automelt EA4	EA4	2	-	25 Kg Spool	WCW.SL.022.2003
Automelt EA4	EA4	2.5	-	25 Kg Spool	WCW.SL.022.2503
Automelt EA4	EA4	3.15	-	25 Kg Spool	WCW.SL.022.3153
Automelt EA4	EA4	4	-	25 Kg Spool	WCW.SL.022.4003
Automelt EA4	EA4	5	-	25 Kg Spool	WCW.SL.022.5003
Automelt EB2	EB2	2	-	25 Kg Spool	WCW.SL.010.2003
Automelt EB2	EB2	2.5	-	25 Kg Spool	WCW.SL.010.2503
Automelt EB2	EB2	3.15	-	25 Kg Spool	WCW.SL.010.3153
Automelt EB2	EB2	4	-	25 Kg Spool	WCW.SL.010.4003
Automelt EB2	EB2	5	-	25 Kg Spool	WCW.SL.010.5003
Automelt EB2R	EB2R	2	-	25 Kg Spool	WCW.SL.018.2003
Automelt EB2R	EB2R	2.5	-	25 Kg Spool	WCW.SL.018.2503
Automelt EB2R	EB2R	3.15	-	25 Kg Spool	WCW.SL.018.3153
Automelt EB2R	EB2R	4	-	25 Kg Spool	WCW.SL.018.4003
Automelt EB2R	EB2R	5	-	25 Kg Spool	WCW.SL.018.5003
Automelt EB3R	EB3R	2	-	25 Kg Spool	WCW.SL.019.2003
Automelt EB3R	EB3R	2.5	-	25 Kg Spool	WCW.SL.019.2503
Automelt EB3R	EB3R	3.15	-	25 Kg Spool	WCW.SL.019.3153
Automelt EB3R	EB3R	4	-	25 Kg Spool	WCW.SL.019.4003
Automelt EB3R	EB3R	5	-	25 Kg Spool	WCW.SL.019.5003
Automelt EB91	EB91	2.5	-	25 Kg Spool	WCW.SL.027.2503
Automelt EB91	EB91	3.15	-	25 Kg Spool	WCW.SL.027.3153
Automelt EB91	EB91	4	-	25 Kg Spool	WCW.SL.027.4003
Automelt EB91	EB91	5	-	25 Kg Spool	WCW.SL.027.5003

ITEM CODE

Fluxes

Product Name	Classification	Diameter (mm)	Length (mm)	Net Wt.	Item Code
Automelt ENi1	ENi1	2.5	-	25 Kg Spool	WCW.SL.028.2503
Automelt ENi1	ENi1	3.15	-	25 Kg Spool	WCW.SL.028.3153
Automelt ENi1	ENi1	4	-	25 Kg Spool	WCW.SL.028.4003
Automelt ENi1	ENi1	5	-	25 Kg Spool	WCW.SL.028.5003
Automelt ENi2	ENi2	2.5	-	25 Kg Spool	WCW.SL.020.2503
Automelt ENi2	ENi2	3.15	-	25 Kg Spool	WCW.SL.020.3153
Automelt ENi2	ENi2	4	-	25 Kg Spool	WCW.SL.020.4003
Automelt ENi2	ENi2	5	-	25 Kg Spool	WCW.SL.020.5003
Automelt ENi3	ENi3	2.5	-	25 Kg Spool	WCW.SL.011.2503
Automelt ENi3	ENi3	3.15	-	25 Kg Spool	WCW.SL.011.3153
Automelt ENi3	ENi3	4	-	25 Kg Spool	WCW.SL.011.4003
Automelt ENi3	ENi3	5	-	25 Kg Spool	WCW.SL.011.5003
Automelt EF2	EF2	2.5	-	25 Kg Spool	WCW.SL.030.2503
Automelt EF2	EF2	3.15	-	25 Kg Spool	WCW.SL.030.3153
Automelt EF2	EF2	4	-	25 Kg Spool	WCW.SL.030.4003
Automelt EF2	EF2	5	-	25 Kg Spool	WCW.SL.030.5003
Automelt EF3	EF3	2.5	-	25 Kg Spool	WCW.SL.025.2503
Automelt EF3	EF3	3.15	-	25 Kg Spool	WCW.SL.025.3153
Automelt EF3	EF3	4	-	25 Kg Spool	WCW.SL.025.4003
Automelt EF3	EF3	5	-	25 Kg Spool	WCW.SL.025.5003
Subinox 308L	ER308L	2.5	-	25 Kg Spool	WCW.SX.002.2503
Subinox 308L	ER308L	3.15	-	25 Kg Spool	WCW.SX.002.3153
Subinox 308L	ER308L	4	-	25 Kg Spool	WCW.SX.002.4003
Subinox 308L Spl	ER308L	2.5	-	25 Kg Spool	WCW.SX.027.2503
Subinox 308L Spl	ER308L	3.15	-	25 Kg Spool	WCW.SX.027.3153
Subinox 308L Spl	ER308L	4	-	25 Kg Spool	WCW.SX.027.4003
Subinox 308H	ER308H	2.5	-	25 Kg Spool	WCW.SX.020.2503
Subinox 308H	ER308H	3.15	-	25 Kg Spool	WCW.SX.020.3153
Subinox 308H	ER308H	4	-	25 Kg Spool	WCW.SX.020.4003
Subinox 316L	ER316L	2.5	-	25 Kg Spool	WCW.SX.009.2503
Subinox 316L	ER316L	3.15	-	25 Kg Spool	WCW.SX.009.3153
Subinox 316L	ER316L	4	-	25 Kg Spool	WCW.SX.009.4003
Subinox 309L	ER309L	2.5	-	25 Kg Spool	WCW.SX.004.2503
Subinox 309L	ER309L	3.15	-	25 Kg Spool	WCW.SX.004.3153
Subinox 309L	ER309L	4	-	25 Kg Spool	WCW.SX.004.4003

ITEM CODE

Fluxes

Product Name	Classification	Diameter (mm)	Length (mm)	Net Wt.	Item Code
Subinox 309LMo	ER309LMo	2.5	-	25 Kg Spool	WCW.SX.019.2503
Subinox 309LMo	ER309LMo	3.15	-	25 Kg Spool	WCW.SX.019.3153
Subinox 309LMo	ER309LMo	4	-	25 Kg Spool	WCW.SX.019.4003
Subinox 347	ER347	2.5	-	25 Kg Spool	WCW.SX.010.2503
Subinox 347	ER347	3.15	-	25 Kg Spool	WCW.SX.010.3153
Subinox 347	ER347	4	-	25 Kg Spool	WCW.SX.010.4003
Subinox 410	ER410	2.5	-	25 Kg Spool	WCW.SX.011.2503
Subinox 410	ER410	3.15	-	25 Kg Spool	WCW.SX.011.3153
Subinox 410	ER410	4	-	25 Kg Spool	WCW.SX.011.4003
Subinox 410NiMo	ER410NiMo	2.5	-	25 Kg Spool	WCW.SX.022.2503
Subinox 410NiMo	ER410NiMo	3.15	-	25 Kg Spool	WCW.SX.022.3153
Subinox 410NiMo	ER410NiMo	4	-	25 Kg Spool	WCW.SX.022.4003
Subinox 430	ER430	2.5	-	25 Kg Spool	WCW.SX.012.2503
Subinox 430	ER430	3.15	-	25 Kg Spool	WCW.SX.012.3153
Subinox 430	ER430	4	-	25 Kg Spool	WCW.SX.012.4003
Subinox 2209	ER2209	2.5	-	25 Kg Spool	WCW.SX.020.2503
Subinox 2209	ER2209	3.15	-	25 Kg Spool	WCW.SX.020.3153
Subinox 2209	ER2209	4	-	25 Kg Spool	WCW.SX.020.4003
Subinox 2594	ER2594	2.5	-	25 Kg Spool	WCW.SX.021.2503
Subinox 2594	ER2594	3.15	-	25 Kg Spool	WCW.SX.021.3153
Subinox 2594	ER2594	4	-	25 Kg Spool	WCW.SX.021.4003
Automelt NiCr3	ERNiCr-3	2.5	-	25 Kg Spool	WCW.SK.001.2503
Automelt NiCr3	ERNiCr-3	3.15	-	25 Kg Spool	WCW.SK.001.3153
Automelt NiCr3	ERNiCr-3	4	-	25 Kg Spool	WCW.SK.001.4003
Automelt NiCrMo-3	ERNiCrMo3	2.5	-	-	WCW.SK.006.2503
Automelt NiCrMo-3	ERNiCrMo3	3.15	-	-	WCW.SK.006.3153
Automelt NiCrMo-3	ERNiCrMo3	4	-	-	WCW.SK.006.4003
Automelt NiCrMo-4	ERNiCrMo-4	2.5	-	-	WCW.SK.005.2503
Automelt NiCrMo-4	ERNiCrMo-4	3.15	-	-	WCW.SK.005.3153
Automelt NiCrMo-4	ERNiCrMo-4	4	-	-	WCW.SK.005.4003

ITEM CODE

Fluxes

Product Name	Classification	Diameter (mm)	Length (mm)	Net Wt.	Item Code
Automelt A55	-	-	-	30 kg Bag	WCF.AC.550.BA02
Automelt Gr II	-	-	-	30 kg Bag	WCF.AC.552.BA02
Automelt A57	-	-	-	30 kg Bag	WCF.AC.570.BA02
Automelt A81	-	-	-	30 kg Bag	WCF.AC.810.BA02
Automelt A82	-	-	-	30 kg Bag	WCF.AC.820.BA02
Automelt B31	-	-	-	30 kg Bag	WCF.BS.310.BA02
Automelt Gr IV	-	-	-	30 kg Bag	WCF.BS.040.BA02
Automelt B71	-	-	-	30 kg Bag	WCF.BS.710.BA02
Automelt B22 Plus	-	-	-	30 kg Bag	WCF.BS.22P.BA02
Automelt B20 Plus	-	-	-	30 kg Bag	WCF.BS.20P.BA02
Automelt B41	-	-	-	30 kg Bag	WCF.BS.410.BA02
Automelt S33	-	-	-	30 kg Bag	WCF.SS.330.BA02
Automelt S76	-	-	-	30 kg Bag	WCF.SS.760.BA02
Automelt S79	-	-	-	30 kg Bag	WCF.SS.790.BA02
Automelt ES1	-	-	-	30 kg Bag	WCF.BS.010.BA02

Storage & Handling Instructions

Section V

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 due 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	√	-	-	-	-

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 maximus 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.

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
Mils 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.

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 maximus 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 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.

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 VI

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.

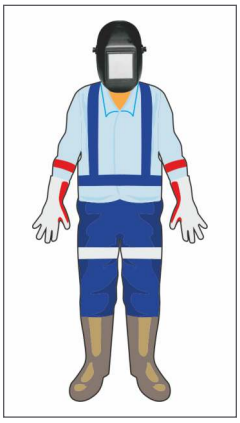
What is Personal Protective Equipment?

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

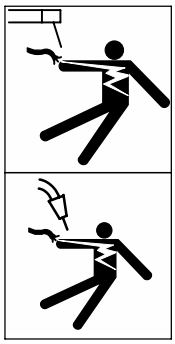
1. Electric Shock
2. Electromagnetic Radiation
3. Fire & Explosion
4. Fumes & Gases
5. Heat

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 insulting 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 known the classification of fire.

When material burns, it behaves in different manners, depending upon it's 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 pained, 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
peace of mind™

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