

SR-133

Conformances

AWS A5.11/ ASME SFA5.11 ENiCrFe-2
 JIS Z3224 DNiCrFe-2
 EN ISO 14172 Ni 6092

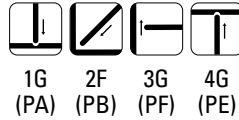
Applications

- Inconel 600, 601, Incoloy 800 and 800HT
- Dissimilar welding of stainless steels and low-alloy steels & Nickel-alloy steel(Inconel, Incoloy, Monel alloys)
- Overlay cladding on similar chemical composition steels

Features

- High impact toughness at low temperature
- Good Arc & slag stability and hot cracking resistance
- Good productivity

Welding Position



Current

DC +

Diameter / Packaging

Diameter mm (in)	Length mm(in)
2.6 (3/32)	350 (14)
3.2 (1/8)	✓
4.0 (5/32)	✓
5.0 (3/16)	✓

Typical Chemical Composition of All-Weld Metal (%)

C	Si	Mn	P	S	Cr	Ni	Mo	Cu	Nb+Ta	Fe
0.05	0.15	3.1	0.005	0.003	15.0	71.5	1.0	0.01	1.25	7.5

Typical Mechanical Properties of All-Weld Metal

YS MPa(lbs/in ²)	TS MPa(lbs/in ²)	EL (%)	Temp °C(°F)	CVN-Impact Value J (ft.lbs)
395 (57,000)	610 (88,000)	37.0	-196 (-321)	91 (67)

Typical Operating Procedures

Diameter	Approx. Current (amps)		
	3.2mm (1/8) DC +	4.0mm (5/32) DC +	5.0mm (3/16) DC +
F	70~90	110~140	120~150
V-up	70~90	100~130	110~140

SR-182

Conformances

AWS A5.11/ASME SFA5.11 ENiCrFe-3
 JIS Z3224 DNiCrFe-
 EN ISO 14172 Ni 6182

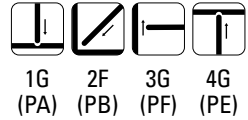
Applications

- Inconel 600, 601 and stainless steels & low-alloy steel & nickel-alloy steel.
- Ni-Cr-Fe alloy clad steels

Features

- Good crack resistance
- Good arc stability and good slag removal
- Good bead appearance

Welding Position



Current

DC +

Diameter / Packaging

Diameter mm (in)	Length mm(in)	
	300 (12)	350 (14)
2.6 (3/32)	√	
3.2 (1/8)		√
4.0 (5/32)		√
5.0 (3/16)		√

Typical Chemical Composition of All-Weld Metal (%)

C	Si	Mn	P	S	Cr	Ti	Nb+Ta	Fe	Ni
0.06	0.46	6.5	0.011	0.010	16.3	0.07	1.8	5.2	72.0

Typical Mechanical Properties of All-Weld Metal

YS MPa(lbs/in ²)	TS MPa(lbs/in ²)	EL (%)	Temp °C(°F)	CVN-Impact Value J (ft.lbs)
-	650 (94,000)	35.0	-196 (-321)	80 (59)

Typical Operating Procedures

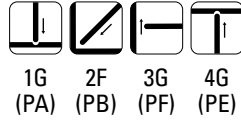
Diameter	Approx. Current (amps)			
	2.6mm (3/32) DC +	3.2mm (1/8) DC +	4.0mm (5/32) DC +	5.0mm (3/16) DC +
F&HF	60~90	70~115	100~140	120~160
V-up	60~90	65~110	100~130	110~140

SR-134

Conformances

AWS A5.11/ ASME SFA5.11 ENiCrFe-4
 JIS Z3225 D9Ni-1
 KOGAS

Welding Position



Applications

- 9%Ni steel for cryogenic storage tanks for LNG
- Liquefied nitrogen tanks

Features

- Good strength and toughness at cryogenic temperatures
- Meets specifications of API and NV for the welding of 9%Ni steel With AC

Current

AC

Diameter / Packaging

Diameter	Length mm(in)
mm (in)	350 (14)
2.6 (3/32)	
3.2 (1/8)	✓
4.0 (5/32)	✓
5.0 (3/16)	✓

Typical Chemical Composition of All-Weld Metal (%)

C	Si	Mn	P	S	Cr	Ni	Mo	Nb	Fe
0.07	0.4	2.8	0.01	0.02	15.5	70.7	2.2	2.2	5.3

Typical Mechanical Properties of All-Weld Metal

YS MPa(lbs/in ²)	TS MPa(lbs/in ²)	EL (%)	Temp °C(°F)	CVN-Impact Value J (ft.lbs)
-	705 (102,000)	40.5	-196 (-321)	60 (44)

Typical Operating Procedures

Diameter	Approx. Current (amps)		
	3.2mm (1/8) AC	4.0mm (5/32) AC	5.0mm (3/16) AC
F	70~90	110~140	120~150
V-up	70~90	100~130	110~140

SR-08

Conformances

AWS A5.11/ ASME SFA5.11 ENiMo-8

Applications

- Repair welding and tack welding of 9%Ni steel
- LNG Storage tanks

Features

- Good impact toughness at extra low temperature

Welding Position



1G (PA) 2F (PB) 3G (PF) 4G (PE)

Current

AC

Diameter / Packaging

Diameter	Length mm(in)
mm (in)	350 (14)
2.6 (3/32)	
3.2 (1/8)	✓
4.0 (5/32)	✓
5.0 (3/16)	

Typical Chemical Composition of All-Weld Metal (%)

C	Si	Mn	P	S	Cr	Ni	Mo	W	Fe
0.03	0.25	0.3	0.002	0.001	2.6	67.0	18.5	3.1	6.0

Typical Mechanical Properties of All-Weld Metal

YS MPa(lbs/in ²)	TS MPa(lbs/in ²)	EL (%)	Temp °C(°F)	CVN-Impact Value J (ft.lbs)
-	730 (106,000)	41.0	-196 (-321)	80 (59)

Typical Operating Procedures

Approx. Current (amps)		
Diameter	3.2mm (1/8) AC	4.0mm (5/32) AC
F	70-90	110-140
V-up	70-90	100-130

SR-625

Conformances

AWS A5.11/ASME SFA5.11 ENiCrMo-3
 JIS Z3224 DNiCrMo-3
 EN ISO 14172 Ni 6625(NiCr22Mo9Nb)
 ABS AWS A5.11 ERNiCrMo-3

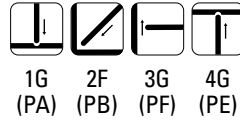
Applications

- Inconel 601 + 625, steel and Nickel alloys Hardfacing of steel
- 9% Nickel steel
- LNG storage tank manufactures and desulfurizations
- Heat exchanger Building of chemical carrier

Features

- Good corrosion resistance to Crevice and Pitting, SCC
- Good Tensile Strength at High Temperature
- Good Impact value at Cryogenic temperature

Welding Position



Current

DC +, AC

Diameter / Packaging

Diameter	Length mm(in)	
	300 (12)	350 (14)
2.6 (3/32)	✓	
3.2 (1/8)		✓
4.0 (5/32)		✓
5.0 (3/16)		✓

Typical Chemical Composition of All-Weld Metal (%)

C	Si	Mn	P	S	Cr	Ni	Mo	Nb+Ta
0.06	0.4	0.1	0.001	0.004	21.7	63.4	9.3	3.32

Typical Mechanical Properties of All-Weld Metal

YS MPa(lbs/in ²)	TS MPa(lbs/in ²)	EL (%)	Temp °C(°F)	CVN-Impact Value J (ft.-lbs)
-	780 (113,000)	36.0	-196 (-321)	45 (33)

Typical Operating Procedures

Diameter	Approx. Current (amps)			
	2.6mm (3/32) DC +	3.2mm (1/8) DC +	4.0mm (5/32) DC +	5.0mm (3/16) DC +
F	60~90	70~110	110~140	120~150
V-up/OH	60~90	70~110	100~130	110~140

Superflux300 X SA-625

Conformances

Applications

- Furnace equipments
- Petrochemical plants
- Power generation plants

Features

- Bonded type flux, High basicity flux
- Good arc stability and slag removal
- Good bead appearance and weldability

Welding Position

Current

DC +

Diameter / Packaging

Diameter	Spool
mm (in)	25kg (55lbs)
2.0 (5/64)	✓
2.4 (3/32)	✓
3.2 (1/8)	✓
4.0 (5/32)	✓

Typical Chemical Composition of All-Weld Metal (%)

C	Si	Mn	P	S	Cr	Ni	Mo	Nb+Ta
0.02	0.58	0.27	0.011	0.005	20.8	65.5	8.6	3.3

Typical Mechanical Properties of All-Weld Metal

YS MPa(lbs/in ²)	TS MPa(lbs/in ²)	EL (%)	Temp °C(°F)	CVN-Impact Value J (ft.lbs)
-	715 (104,000)	37.7	-196 (-321)	60 (44)

Typical Operating Procedures

Wire Feed Speed m/min (in/min)	Voltage (volts)	Approx. Current (amps)
2.4mm (3/32 in) DC+		
30-60	28-31	350-400

SMW

SAW

GMAW

GTAW

FCAW

Non-FERROUS

APPENDIX

SMT-625

Conformances

AWS A5.14/ ASME SFA5.14 ERNiCrMo-3
JIS Z3334 SNi6625(NiCr22Mo9Nb)
EN ISO 18274 Ni 6625 (NiCr22Mo9Nb)
ABS AWS A5.14 ERNiCrMo-3 (-196°C ≥34 J)
GL NiCr21Mo9Nb
LR 9Ni H15

DNV -MS
NV 1.5Ni, 9Ni
KR L92S
NK KSWL92
BV AWS A5.14 ERNiCrMo-3

Applications

- LNG Storage Tank, Equipments for gas desulfurization,
- Petrochemical plants
- Heat exchangers
- 9% nickel steel

Features

- Good impact toughness at extra low temperature
- Dissimilar steels(B24Inconel 601, Incoloy800/800H or combination of these with other alloys)

Welding Position

Current

GMAW: DC+(Pulse)
GTAW: DC-

Shielding Gas

Ar
Ar + He

Diameter / Packaging

Diameter	MIG	TIG
mm (in)	12.5kg (27.6lbs)	5kg (11lbs)
0.9 (0.035)	✓	
1.0 (0.040)	✓	
1.2 (0.045)	✓	
1.4 (0.052)	✓	
1.6 (1/16)	✓	
2.0 (5/64)		✓
2.4 (3/32)		✓
3.2 (1/8)		✓

Typical Chemical Composition of All-Weld Metal (%)

C	Si	Mn	P	S	Cr	Ni	Mo	Nb+Ta
0.02	0.05	0.03	0.012	0.001	22.0	64.6	8.7	3.6

Typical Mechanical Properties of All-Weld Metal

YS MPa(lbs/in ²)	TS MPa(lbs/in ²)	EL (%)	Temp °C(°F)	CVN-Impact Value J (ft.-lbs)
-	770 (117,000)	40.0	-196 (-321)	100 (74)

Typical Operating Procedures

Diameter, Polarity Shielding Gas	Voltage (volts)	Approx. Current (amps)
	1.2mm (0.045 in) DC+	
Ar, Ar + He	28	140
	2.4mm (3/32 in) DC-	
Ar	12	110

SW-625

Conformances

AWS A5.34/ ASME SFA5.34 ENiCrMo3T1-4
EN ISO 12153 T Ni 6625 P M 2

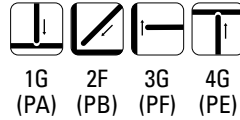
Applications

- Joining nickel-chromium-molybdenum alloys cladding steel with nickel- chromium-molybdenum weld metal LNG storage
- LNG storage tank manufactures
- Desulfurizations
- Heat exchangers

Features

- Good corrosion resistance to crevice and pitting, SCC
- Good Tensile strength at high temperature
- Good impact value at cryogenic temperature

Welding Position



Current

DC +

Shielding Gas

Ar + 20% CO₂

Diameter / Packaging

Diameter	Spool
mm (in)	12.5kg (27.6lbs)
1.2 (0.045)	√

Typical Chemical Composition of All-Weld Metal (%)

	C	Si	Mn	P	S	Cr	Ni	Mo	Fe	Nb+Ta
Ar + 20% CO ₂	0.07	0.35	0.29	0.003	0.002	20.7	61.8	9.1	3.5	3.4

Typical Mechanical Properties of All-Weld Metal

	YS MPa(lbs/in ²)	TS MPa(lbs/in ²)	EL (%)	Temp °C(°F)	CVN-Impact Value J (ft.lbs)
As-weld	-	810 (117,000)	36.0	-196 (-321)	60 (44)
PWHT(620°C*8Hr)	-	825 (120,000)	36.4	-196 (-321)	55 (41)

Typical Operating Procedures

Approx. Current (amps)	
Diameter	1.2mm (0.045) DC +
F&HF	180-220
V-up/OH	120-170

SW-82 Cored

Conformances

AWS A5.34/ ASME SFA5.34 ENiCr3T1-1/-4
EN ISO 12153 T Ni 6082 P M/C 2

Applications

- Dissimilar welding(stainless steel, heat resisting steel)

Features

- Designed for welding with 100% CO₂ or Ar+15~25% CO₂ shielding gas
- Excellent all position weldability
- Smooth and stable arc with a fast freezing slag

Welding Position



1G 2F 3G 4G
(PA) (PB) (PF) (PE)

Current

DC +

Shielding Gas

100% CO₂ / Ar+20~25% CO₂

Diameter / Packaging

Diameter mm (in)	Length mm(in)	
	12.5kg (28lbs)	15kg (33lbs)
1.2 (0.045)	✓	✓
1.4 (0.052)		
1.6 (1/16)		

Typical Chemical Composition of All-Weld Metal(%)

C	Si	Mn	P	S	Cr	Ni	Nb	Fe
0.044	0.21	3.1	0.001	0.004	20.6	71.3	2.42	2.26

Typical Mechanical Properties of All-Weld Metal

YS MPa(lbs/in ²)	TS MPa(lbs/in ²)	EL (%)	Temp °C(°F)	CVN-Impact Value J (ft-lbs)
-	665	42.8	-196 (-321)	100 (74)

Typical Operating Procedures

Diameter, Polarity Shielding Gas	CTWD mm (in)	Wire Feed Speed m/min (in/min)	Voltage (volts)	Approx. Current (amps)	Deposition Rate kg/hr (lb/hr)
1.2mm (0.045 in) DC+					
100% CO ₂	20 (4/5)	6.0 (236)	23~26	140	2.5 (5.5)
		9.2 (362)	27~30	180	3.4 (7.5)
		12.0 (472)	28~31	210	4.5 (9.9)
80% Ar+20% CO ₂	20 (4/5)	6.1 (240)	23~26	140	2.6 (5.7)
		9.0 (354)	27~30	180	3.6 (7.9)
		11.5 (453)	27~30	210	4.6 (10.1)

SWAW

SAW

GMAW

GTAW

FCAW

Non-FERROUS

APPENDIX

SW-182 Cored

Conformances

AWS A5.34/ ASME SFA5.34 ENiCrFe3T1-1/-4
EN ISO 12153 T Ni 6182 P M/C 2

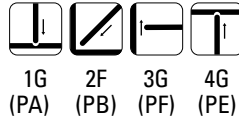
Applications

- Dissimilar welding(stainless steel, heat resisting steel)

Features

- Designed for welding with 100% CO₂ or Ar+15~25% CO₂ shielding gas
- Excellent all position weldability
- Smooth and stable arc with a fast freezing slag

Welding Position



Current

DC +

Shielding Gas

100% CO₂ / Ar+20~25% CO₂

Diameter / Packaging

Diameter mm (in)	Length mm(in)	
	12.5kg (28lbs)	15kg (33lbs)
1.2 (0.045)	√	√
1.4 (0.052)		
1.6 (1/16)		

Typical Chemical Composition of All-Weld Metal(%)

C	Si	Mn	P	S	Cr	Ni	Nb	Fe
0.05	0.31	6.22	0.001	0.007	16.0	66.0	1.9	8.6

Typical Mechanical Properties of All-Weld Metal

YS MPa(lbs/in ²)	TS MPa(lbs/in ²)	EL (%)	Temp °C(°F)	CVN-Impact Value J (ft-lbs)
-	640	37	-196 (-321)	100 (74)

Typical Operating Procedures

Diameter, Polarity Shielding Gas	CTWD mm (in)	Wire Feed Speed m/min (in/min)	Voltage (volts)	Approx. Current (amps)	Deposition Rate kg/hr (lb/hr)
1.2mm (0.045 in) DC+					
100% CO ₂	20 (4/5)	6.0 (236)	23~26	140	2.5 (5.5)
		9.2 (362)	27~30	180	3.4 (7.5)
		12.0 (472)	28~31	210	4.5 (9.9)
80% Ar+20% CO ₂	20 (4/5)	6.1 (240)	23~26	140	2.6 (5.7)
		9.0 (354)	27~30	180	3.6 (7.9)
		11.5 (453)	27~30	210	4.6 (10.1)

SMT-08

Conformances

AWS A5.14/ ASME SFA5.14 ERNiMo-8
 JIS Z3334 SNi1008(NiMo19WCr)
 KOGAS

Applications

- LNG storage tanks
- Oxygen, nitrogen and LNG carriers

Features

- For the automatic welding processes for a LNG storage tank with a methode of GTAW for vertical joints of side plates(ASTM A333,A334,A353,A553)
- Impact toughness at extra low temperature

Welding Position

Current

GTAW: DC-(Auto TIG)

Shielding Gas

Ar

Diameter / Packaging

Diameter	MIG	TIG
mm (in)	12.5kg (27.6lbs)	5kg (11lbs)
1.2 (0.045)	✓	
2.0 (5/64)		✓
2.4 (3/32)		✓
3.2 (1/8)		✓

Typical Chemical Composition of All-Weld Metal (%)

C	Si	Mn	P	S	Cr	Ni	Mo	Fe	W
0.015	0.012	0.01	0.002	0.001	2.1	69.8	19.2	5.6	2.6

Typical Mechanical Properties of All-Weld Metal

YS MPa(lbs/in ²)	TS MPa(lbs/in ²)	EL (%)	Temp °C(°F)	CVN-Impact Value J (ft.-lbs)
-	725 (105,000)	38.0	-196 (-321)	150 (111)

Typical Operating Procedures

Diameter, Polarity Shielding Gas	Voltage (volts)	Approx. Current (amps)
1.2mm (0.045 in) DC-(Auto-TIG)		
Ar	28	160
2.4mm (3/32 in) DC-		
Ar	12	110

SMAW

SAW

GMWAW

GTAW

FCAW

Non-FERROUS

APPENDIX

SMT-825

Conformances

AWS A5.14/ ASME SFA5.14 ERNiFeCr-1
 JIS Z3334 S Ni8065(NiFe30Cr21Mo3)
 EN ISO 18274 S Ni 8065

Applications

- Ni-Cr-Mo-Co alloys
- Overlay cladding on similar chemical composition steels

Features

- Good resistance of corrosion in sulfuric acid and phosphoric acid environment

Welding Position

Current

GMAW: DC+(Pulse), GTAW: DC-

Shielding Gas

Ar, Ar + He

Diameter / Packaging

Diameter	MIG	TIG
mm (in)	12.5kg (27.6lbs)	5kg (11lbs)
1.0 (0.040)	✓	
1.2 (0.045)	✓	
1.6 (1/16)	✓	
2.0 (5/64)		✓
2.4 (3/32)		✓
3.2 (1/8)		✓

Typical Chemical Composition of All-Weld Metal (%)

C	Si	Mn	P	S	Cr	Ni	Mo	Fe	Cu	Ti
0.01	0.25	0.45	0.02	0.001	21.5	42.6	3.1	29.0	2.0	1.0

Typical Mechanical Properties of All-Weld Metal

YS MPa(lbs/in ²)	TS MPa(lbs/in ²)	EL (%)	Temp °C(°F)	CVN-Impact Value J (ft.-lbs)
420 (61,000)	610 (88,000)	34.0		

Typical Operating Procedures

Diameter, Polarity Shielding Gas	Voltage (volts)	Approx. Current (amps)
	1.2mm (0.045 in) DC+	
Ar, Ar + He	28	160
	2.4mm (3/32 in) DC-	
Ar	12	110

SM-455 / ST-455

Conformances

AWS A5.14/ ASME SFA5.14 ERNiCrMo-7
 JIS Z3334 SNI6455(NiCr16Mo16Ti)

Applications

- Vessel engines
- Heat exchangers
- Offshore oil equipments
- Petrochemical plants
- Suitable for Hastelloy C4,C276

Features

- Ni based solid filler wire.
- Highly corrosive resistance in reductive, especially in oxidation cinditions

Welding Position

Current

GMAW: DC+(Pulse), GTAW: DC-

Shielding Gas

Ar, Ar + He

Diameter / Packaging

Diameter	MIG	TIG
mm (in)	12.5kg (27.6lbs)	5kg (11lbs)
1.0 (0.040)	✓	
1.2 (0.045)	✓	
1.4 (0.052)	✓	
1.6 (1/16)	✓	
2.0 (5/64)		✓
2.4 (3/32)		✓
3.2 (1/8)		✓

Typical Chemical Composition of All-Weld Metal (%)

C	Si	Mn	P	S	Cr	Ni	Mo	Fe
0.013	0.05	0.01	0.004	0.003	17.5	65.0	15.0	2.5

Typical Mechanical Properties of All-Weld Metal

YS MPa(lbs/in ²)	TS MPa(lbs/in ²)	EL (%)	Temp °C(°F)	CVN-Impact Value J (ft.-lbs)
-	700 (102,000)	40.0		

Typical Operating Procedures

Diameter, Polarity Shielding Gas	Voltage (volts)	Approx. Current (amps)
	1.2mm (0.045 in) DC+	
Ar, Ar + He	29	150
	2.4mm (3/32 in) DC-	
Ar	12	110

SMW

SAW

GMAW

GTAW

FCAW

Non-FERROUS

APPENDIX

SMT-22

Conformances

AWS A5.14/ ASME SFA5.14 ERNiCrMo-10
 JIS Z 3324 S Ni6022(NiCr21Mo13Fe4W3)
 EN ISO 18274 S Ni 6022

Applications

- FGD, Petrochemical plants Offshore applications
- Inconel 625+601, Hastalloy C-22, Ni alloy steel

Features

- Good resistance to pitting and crevice corrosion

Welding Position

Current

GMAW: DC+(Pulse), GTAW: DC-

Shielding Gas

Ar, Ar + He

Diameter / Packaging

Diameter	MIG	TIG
mm (in)	12.5kg (27.6lbs)	5kg (11lbs)
1.0 (0.040)	✓	
1.2 (0.045)	✓	
2.0 (5/64)		✓
2.4 (3/32)		✓
3.2 (1/8)		✓

Typical Chemical Composition of All-Weld Metal (%)

C	Si	Mn	P	S	Cr	Ni	Mo	W	Fe
0.01	0.06	0.38	0.001	0.001	22.4	55.5	14.2	2.8	4.1

Typical Mechanical Properties of All-Weld Metal

YS MPa(lbs/in ²)	TS MPa(lbs/in ²)	EL (%)	Temp °C(°F)	CVN-Impact Value J (ft.-lbs)
-	720 (104,000)	41.0	-196 (-321)	110 (81)

Typical Operating Procedures

Diameter, Polarity Shielding Gas	Voltage (volts)	Approx. Current (amps)
	1.2mm (0.045 in) DC+	
Ar, Ar + He	28	160
	2.4mm (3/32 in) DC-	
Ar	12	110

SM-82 / ST-82

Conformances

AWS A5.14/ ASME SFA5.14 ERNiCr-3
 JIS Z3334 SNi6082(NiCr20Mn3Nb)
 EN ISO 18274 S Ni 6082

Applications

- LNG and LPG storage plant, Boilers of the thermal power stations
- Ni-based alloys and high temperature alloys

Features

- Good corrosion-resistant and heat-resistant
- Excellent strength and toughness
- No preheat is required

Welding Position

Current

GMAW: DC+(Pulse), GTAW: DC-

Shielding Gas

Ar, Ar + He

Diameter / Packaging

Diameter	MIG	TIG
mm (in)	12.5kg (27.6lbs)	5kg (11lbs)
1.0 (0.040)	✓	
1.2 (0.045)	✓	
1.4 (0.052)	✓	
1.6 (1/16)	✓	
2.0 (5/64)		✓
2.4 (3/32)		✓
3.2 (1/8)		✓

Typical Chemical Composition of All-Weld Metal (%)

C	Si	Mn	P	S	Cr	Ni	Nb+Ta
0.04	0.1	3.2	0.006	0.001	20.0	73.0	2.5

Typical Mechanical Properties of All-Weld Metal

YS MPa(lbs/in ²)	TS MPa(lbs/in ²)	EL (%)	Temp °C(°F)	CVN-Impact Value J (ft.-lbs)
-	660 (96,000)	35.0	-196 (-321)	80 (59)

Typical Operating Procedures

Diameter, Polarity Shielding Gas	Voltage (volts)	Approx. Current (amps)
	1.2mm (0.045 in) DC+	
Ar, Ar + He	28	180
	2.4mm (3/32 in) DC-	
Ar	12	110

SMW

SAW

GMAW

GTAW

FCAW

Non-FERROUS

APPENDIX

SM-276 / ST-276

Conformances

AWS A5.14/ ASME SFA5.14 ERNiCrMo-4
 JIS Z3334 SNi6276(NiCr15Mo16Fe6W4)
 EN ISO 18274 S Ni 6276

Applications

- LNG and LPG storage plant, Boilers of the thermal power station
- Aggressive environments in chemical process plants

Features

- Good corrosion-resistant
- No preheat is required
- Interpass temperature should preferably be kept below 100°C and input restricted to 1.5KJ/Min

Welding Position

Current

GMAW: DC+(Pulse), GTAW: DC-

Shielding Gas

Ar, Ar + He

Diameter / Packaging

Diameter	MIG	TIG
mm (in)	12.5kg (27.6lbs)	5kg (11lbs)
1.0 (0.040)	✓	
1.2 (0.045)	✓	
1.4 (0.052)	✓	
1.6 (1/16)	✓	
2.0 (5/64)		✓
2.4 (3/32)		✓
3.2 (1/8)		✓

Typical Chemical Composition of All-Weld Metal (%)

C	Si	Mn	P	S	Cr	Ni	Mo	W
0.01	0.05	0.5	0.003	0.01	15.0	57.0	16.0	4.0

Typical Mechanical Properties of All-Weld Metal

YS MPa(lbs/in ²)	TS MPa(lbs/in ²)	EL (%)	Temp °C(°F)	CVN-Impact Value J (ft.-lbs)
-	750 (109,000)	33.0		

Typical Operating Procedures

Diameter, Polarity Shielding Gas	Voltage (volts)	Approx. Current (amps)
	1.2mm (0.045 in) DC+	
Ar, Ar + He	28	160
	2.4mm (3/32 in) DC-	
Ar	12	110

SM-400 / ST-400

Conformances

AWS A5.14/ ASME SFA5.14 ERNiCu-7
 JIS Z3334 S Ni4060(NiCu30Mn3Ti)
 EN ISO 18274 S Ni 4060

Applications

- Heat exchanger
- Piping and Vessels
- Salt purification

Features

- No Preheat required, maximum interpass temperature 150°C and no PWHT required

Welding Position

Current

GMAW: DC+(Pulse), GTAW: DC-

Shielding Gas

Ar, Ar + He

Diameter / Packaging

Diameter	MIG	TIG
mm (in)	12.5kg (27.6lbs)	5kg (11lbs)
1.0 (0.040)	✓	
1.2 (0.045)	✓	
1.4 (0.052)	✓	
1.6 (1/16)	✓	
2.0 (5/64)		✓
2.4 (3/32)		✓
3.2 (1/8)		✓

Typical Chemical Composition of All-Weld Metal (%)

C	Si	Mn	P	S	Ni	Cu	Ti	Fe
0.04	0.20	3.5	0.005	0.001	64.0	28.5	2.2	0.9

Typical Mechanical Properties of All-Weld Metal

YS MPa(lbs/in ²)	TS MPa(lbs/in ²)	EL (%)	Temp °C(°F)	CVN-Impact Value J (ft.-lbs)
-	530 (77,000)	45.0	-	-

Typical Operating Procedures

Diameter, Polarity Shielding Gas	Voltage (volts)	Approx. Current (amps)
	1.2mm (0.045 in) DC+	
Ar, Ar + He	29	150
	2.4mm (3/32 in) DC-	
Ar	12	110

SMW

SAW

GMAW

GTAW

FCAW

Non-FERROUS

APPENDIX

SM-718 / ST-718

Conformances

AWS A5.14/ ASME SFA5.14 ERNiFeCr-2
 JIS Z3334 SNi7718(NiCr19Fe19Nb5Mo3)
 EN ISO 18274 S Ni 7718

Applications

- High-strength aircraft components
- Spindles of ship-building, engines
- Jet engine parts
- Nuclear power plants involving cryogenic temperatures

Features

- Precautions should be taken with high input processes to avoid microfissuring

Welding Position

Current

GMAW: DC+(Pulse), GTAW: DC-

Shielding Gas

Ar, Ar + He

Diameter / Packaging

Diameter	MIG	TIG
mm (in)	12.5kg (27.6lbs)	5kg (11lbs)
1.0 (0.040)	✓	
1.2 (0.045)	✓	
1.4 (0.052)	✓	
1.6 (1/16)	✓	
2.0 (5/64)		✓
2.4 (3/32)		✓
3.2 (1/8)		✓

Typical Chemical Composition of All-Weld Metal (%)

C	Si	Mn	P	S	Cr	Ni	Mo	Fe	Nb	Ti
0.06	0.10	0.15	0.004	0.001	19.0	53.0	3.10	17.5	5.05	1.0

Typical Mechanical Properties of All-Weld Metal

YS MPa(lbs/in ²)	TS MPa(lbs/in ²)	EL (%)	Temp °C(°F)	CVN-Impact Value J (ft-lbs)
630 (91,000)	860 (125,000)	27.0	-	-

Typical Operating Procedures

Diameter, Polarity Shielding Gas	Voltage (volts)	Approx. Current (amps)
	1.2mm (0.045 in) DC+	
Ar, Ar + He	28	180
	2.4mm (3/32 in) DC-	
Ar	12	110

SM-60 / ST-60

Conformances

AWS A5.14/ ASME SFA5.14 ERNi-1
 JIS Z3334 SNi2061(NiTi3)
 EN ISO 18274 S Ni 2061

Applications

- Salt Production line
- Cast irons to give soft low strength deposit
- Dissimilar welding and buffer layers

Features

- Heavy multipass deposits or highly restrained joints may require preheatup to 150°C

Welding Position

Current

GMAW: DC+(Pulse), GTAW: DC-

Shielding Gas

Ar, Ar + He

Diameter / Packaging

Diameter	MIG	TIG
mm (in)	12.5kg (27.6lbs)	5kg (11lbs)
1.0 (0.040)	✓	
1.2 (0.045)	✓	
1.4 (0.052)	✓	
1.6 (1/16)	✓	
2.0 (5/64)		✓
2.4 (3/32)		✓
3.2 (1/8)		✓

Typical Chemical Composition of All-Weld Metal (%)

C	Si	Mn	P	S	Ni	Ti
0.02	0.40	0.4	0.005	0.001	96.0	3.0

Typical Mechanical Properties of All-Weld Metal

YS MPa(lbs/in ²)	TS MPa(lbs/in ²)	EL (%)	Temp °C(°F)	CVN-Impact Value J (ft.-lbs)
	480 (70,000)	30.0	-	-

Typical Operating Procedures

Diameter, Polarity Shielding Gas	Voltage (volts)	Approx. Current (amps)
	1.2mm (0.045 in) DC+	
Ar, Ar + He	29	150
	2.4mm (3/32 in) DC-	
Ar	12	110

SMW

SAW

GMAW

GTAW

FCAW

Non-FERROUS

APPENDIX

SMT-7030

Conformances

AWS A5.7/ ASME SFA5.7 ERCuNi
 JIS Z3341 YCuNi-3
 ABS AWS A5.7 ERCuNi

Applications

- Desalination plant
- Evaporators and etc in salt and sea water processing system

Features

- No preheat & PWHT required, maximum interpass temperature 150°C
- Contamination of the weld zone with foreign material, particularly any source of lead, tin or zinc must be scrupulously avoided to prevent weld metal cracking

Welding Position

Current

GMAW: DC+(Pulse), GTAW: DC-

Shielding Gas

Ar, Ar + He

Diameter / Packaging

Diameter	MIG	TIG
mm (in)	12.5kg (27.6lbs)	5kg (11lbs)
1.0 (0.040)	✓	
1.2 (0.045)	✓	
1.4 (0.052)	✓	
1.6 (1/16)	✓	
2.0 (5/64)		✓
2.4 (3/32)		✓
3.2 (1/8)		✓

Typical Chemical Composition of All-Weld Metal (%)

C	Si	Mn	P	S	Ni	Ti	Cu	Fe
0.02	0.10	0.8	0.001	0.001	31.0	0.4	67.0	0.6

Typical Mechanical Properties of All-Weld Metal

YS MPa(lbs/in ²)	TS MPa(lbs/in ²)	EL (%)	Temp °C(°F)	CVN-Impact Value J (ft·lbs)
-	500 (73,000)	30.0		

Typical Operating Procedures

Diameter, Polarity Shielding Gas	Voltage (volts)	Approx. Current (amps)
	1.2mm (0.045 in) DC+	
Ar, Ar + He	28	160
	2.4mm (3/32 in) DC-	
Ar	12	110

SM-9010 / ST-9010

Conformances

JIS Z3341 YCuNi-1
KR KS D7044 YCuNi-1

Applications

- Desalination plant
- Offshore applications for ship building in the chemical industry

Features

- No preheat & PWHT required, maximum interpass temperature 150°C
- Contamination of the weld zone with foreign material, particularly any source of lead, tin or zinc must be scrupulously avoided to prevent weld metal cracking

Welding Position

Current

GMAW: DC+(Pulse), GTAW: DC-

Shielding Gas

Ar, Ar + He

Diameter / Packaging

Diameter	MIG	TIG
mm (in)	12.5kg (27.6lbs)	5kg (11lbs)
1.0 (0.040)	✓	
1.2 (0.045)	✓	
1.4 (0.052)	✓	
1.6 (1/16)	✓	
2.0 (5/64)		✓
2.4 (3/32)		✓
3.2 (1/8)		✓

Typical Chemical Composition of All-Weld Metal (%)

C	Si	Mn	P	S	Ni	Ti	Cu	Fe
0.01	0.01	0.85	0.006	0.001	10.6	0.27	Rem	1.0

Typical Mechanical Properties of All-Weld Metal

YS MPa(lbs/in ²)	TS MPa(lbs/in ²)	EL (%)	Temp °C(°F)	CVN-Impact Value J (ft.-lbs)
-	380 (55,000)	36.0		

Typical Operating Procedures

Diameter, Polarity Shielding Gas	Voltage (volts)	Approx. Current (amps)
	1.2mm (0.045 in) DC+	
Ar, Ar + He	28	160
	2.4mm (3/32 in) DC-	
Ar	12	110

SMW

SAW

GMAW

GTAW

FCAW

Non-FERROUS

APPENDIX

Superflux300 X SA-82

Conformances

Applications

- Structures in extremely low temperature environment
- Boilers of steam power plants

Features

- Dry the flux at 250~300°C for 60 minutes before use.
- Keep the welding current and heat input as low as possible to prevent HAZ from falling corrosion resistance.
- No preheat required and maximum interpass of 250°C.
- When welding superaustenitic alloys, the interpass temperature should be controlled to a maximum of 100°C

Welding Position

Current

DC +

Diameter / Packaging

Diameter	Spool
mm (in)	25kg (55lbs)
2.0 (5/64)	✓
2.4 (3/32)	✓
3.2 (1/8)	✓

Typical Chemical Composition of All-Weld Metal (%)

C	Si	Mn	P	S	Cr	Ni
0.067	0.22	3.33	0.001	0.014	19.6	69.8

Typical Mechanical Properties of All-Weld Metal

YS MPa(lbs/in ²)	TS MPa(lbs/in ²)	EL (%)	Temp °C(°F)	CVN-Impact Value J (ft.lbs)
-	619 (90,000)	46.4	-196 (-321)	117 (86)

Typical Operating Procedures

Wire Feed Speed m/min (in/min)	Voltage (volts)	Approx. Current (amps)
3.2mm (1/8 in) DC+		
36	30	380

S-Ni2 X SA-08

Conformances

Applications

- LNG storage tanks
- Liquid nitrogen storage tanks

Features

- Dry the flux at 300~350°C for 60 minutes before use

Welding Position

Current

DC +

Diameter / Packaging

Diameter	Spool
mm (in)	25kg (55lbs)
2.0 (5/64)	
2.4 (3/32)	✓
3.2 (1/8)	

Typical Chemical Composition of All-Weld Metal (%)

C	Si	Mn	P	S	Cr	Ni	Mo	W	Al
0.04	0.2	0.5	0.001	0.001	2.0	66.0	19.0	2.5	0.2

Typical Mechanical Properties of All-Weld Metal

YS MPa(lbs/in ²)	TS MPa(lbs/in ²)	EL (%)	Temp °C(°F)	CVN-Impact Value J (ft-lbs)
420 (61,000)	680 (99,000)	43.0	-196 (-321)	100 (74)

- Base Metal: 9% Ni

Typical Operating Procedures

Wire Feed Speed m/min (in/min)	Voltage (volts)	Approx. Current (amps)	
2.4mm (3/32 in) DC+			
30~70	24~28	300~380	Horizontal Butt

SMW

SAW

GMAW

GTAW

FCAW

Non-FERROUS

APPENDIX

SW-625 Cored

Conformances

AWS A5.34/ ASME SFA5.34 ENiCrMo3T1-1/-4
EN ISO 12153 T Ni 6625 P M/C 2

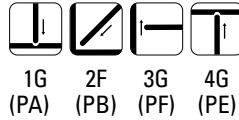
Applications

- Joining nickel-chromium-molybdenum alloys
- Cladding steel with nickel-chromium-molybdenum weld metal
- LNG storage tank manufacture, desulfurization

Features

- Designed for welding with 100% CO₂ or Ar+15~25% CO₂ shielding gas
- Excellent all position weldability
- Smooth and stable arc with a fast freezing slag

Welding Position



Current

DC +

Shielding Gas

100% CO₂ / Ar+20~25% CO₂

Diameter / Packaging

Diameter mm (in)	Length mm(in)	
	12.5kg (28lbs)	15kg (33lbs)
1.2 (0.045)	√	√
1.4 (0.052)		
1.6 (1/16)		

Typical Chemical Composition of All-Weld Metal(%)

C	Si	Mn	P	S	Cr	Ni	Mo	Nb	Fe
0.024	0.42	0.34	0.004	0.002	20.9	65.0	8.9	3.4	0.5

Typical Mechanical Properties of All-Weld Metal

YS MPa(lbs/in ²)	TS MPa(lbs/in ²)	EL (%)	Temp °C(°F)	CVN-Impact Value J (ft-lbs)
-	759	40.4	-196 (-321)	65 (48)

Typical Operating Procedures

Diameter, Polarity Shielding Gas	CTWD mm (in)	Wire Feed Speed m/min (in/min)	Voltage (volts)	Approx. Current (amps)	Deposition Rate kg/hr (lb/hr)
1.2mm (0.045 in) DC+					
100% CO ₂	20 (4/5)	6.0 (236)	23~26	140	2.5 (5.5)
		9.2 (362)	27~30	180	3.4 (7.5)
		12.0 (472)	28~31	210	4.5 (9.9)
80% Ar+20% CO ₂	20 (4/5)	6.1 (240)	23~26	140	2.6 (5.7)
		9.0 (354)	27~30	180	3.6 (7.9)
		11.5 (453)	27~30	210	4.6 (10.1)