GMAW

Solid Wire & Stainless MIG Wire

SM-70

Mild Steel & 490 MPa high tensile steels

CE

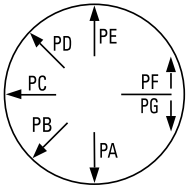
Conformances

AWS	A5.18 / ASME SFA5.18 ER70S-6
JIS	Z3312 YGW12
EN	ISO 14341-A G 42 2 C1 3Si1 / 14341-A G 42 4 M21 3Si1
KR	3SG, 3YSG(C), 3YSG(M2), 3YMG(M2)
ABS	3SA, 3YSA
LR	3YS, 3YM H15
TÜV	EN ISO 14341-A - G42 2 C1 3Si1 / G42 4 M21 3Si1
DB	DIN EN ISO 14341-A-G 42 2 C1 3Si1 DIN EN ISO 14341-A-G 42 4 M21 3Si1
BV	SA3, SA3YM
DNV·GL	IIIYMS
NK	KSW53G(C), KSW53G(M2), KSW53MG(M2)
CWB	CSA W48 B-G 49A 3 C1 S6
NAKS	
RINA	3YS
RS	3YSM
CE	

Applications

- Structural fabrication
- Automotive
- Machinery

Welding Position



Features

- All position welding by short-circuiting type transfer
- Stable arc and low spatter
- Good Bead Appearance

Current

DC +

Shielding Gas

100% CO_2

Ar + CO_2

Diameter / Packaging

Diameter	Spool			Ball Pac		
mm (in)	5kg (11lbs)	15kg (33lbs)	20kg (44lbs)	250kg (551lbs)	300kg (661lbs)	350kg (771lbs)
0.8 (0.033)	√	√	√	√	√	√
0.9 (0.035)	√	√	√	√	√	√
1.0 (0.040)	√	√	√	√	√	√
1.2 (0.045)	√	√	√	√	√	√
1.4 (0.052)	√	√	√	√	√	√
1.6 (1/16)	√	√	√	√	√	√

Typical Chemical Composition of the Wire(%)

C	Si	Mn	P	S
0.07	0.83	1.48	0.011	0.015

Typical Mechanical Properties of All-Weld Metal

	YS MPa(lbs/in²)	TS MPa(lbs/in²)	EL (%)	Temp °C(°F)	CVN-Impact Value J (ft·lbs)
As welded with 100% CO_2	460 (67,000)	555 (80,000)	29.3	-29 (-20)	85 (63)
As welded with 80% Ar + CO_2	495 (72,000)	585 (85,000)	27.5	-29 (-20)	113 (83)
As welded with 90% Ar + CO_2	495 (72,000)	590 (85,600)	26.4	-29 (-20)	101 (74)

Typical Welding Parameters

Diameter, Polarity Shielding Gas	CTWD mm(in)	Wire Feed Speed m/min (in/min)	Amp. (A)	Volt. (V)	Deposition Rate kg/hr (lb/hr)
1.0mm (0.040in), DC +					
100% CO_2 Gas	15 (3/4)	4.2 (165)	100	20.5	1.3 (2.9)
		7.8 (307)	150	23	2.4 (5.3)
		11.0 (433)	200	26	3.5 (7.7)
Mixed Gas (80%Ar + CO_2)	15 (3/4)	3.3 (130)	100	16	1.0 (2.2)
		5.3 (209)	150	17	1.7 (3.7)
		8.6 (339)	200	321	2.7 (6.0)
1.2mm (0.045in), DC +					
100% CO_2 Gas	20 (3/4)	5.8 (230)	100	18.5	2.9 (6.4)
		9.0 (350)	150	25	4.5 (9.9)
		14.5 (570)	200	31	7.3 (16.1)
Mixed Gas (80%Ar + CO_2)	20 (3/4)	3.7 (145)	100	17.5	1.9 (4.2)
		6.2 (244)	150	24	3.1 (6.8)
		11.2 (440)	200	30	5.6 (12.3)

SM-70EN

Mild Steel & 490 MPa high tensile steels

CE

Conformances

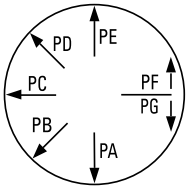
AWS A5.18/ ASME SFA5.18 ER70S-6
JIS Z3312 YGW12
EN ISO 14341-A G 42 2 C1 4Si1
EN ISO 14341-A G 46 4 M21 4Si1
TÜV EN ISO 14341-A - G42 2 C1 4Si1 / G46 4 M21 4Si1
DB DIN EN ISO 14341-A-G 42 2 C1 4Si1
DIN EN ISO 14341-A-G 46 4 M21 4Si1

CE
DNV·GL IIIY40MS, IVY40MS(M21)

Applications

- Structural fabrication
- Automotive
- Machinery

Welding Position



Features

- All position welding by short-circuiting type transfer
- Mixed gas
- Good bead appearance and low spatter

Current

DC +

Shielding Gas

Ar + CO_2

Diameter / Packaging

Diameter	Spool			Ball Pac		
mm (in)	5kg (11lbs)	15kg (33lbs)	20kg (44lbs)	250kg (551lbs)	300kg (661lbs)	350kg (771lbs)
0.8 (0.033)	√	√	√	√	√	√
0.9 (0.035)	√	√	√	√	√	√
1.0 (0.040)	√	√	√	√	√	√
1.2 (0.045)	√	√	√	√	√	√
1.4 (0.052)	√	√	√	√	√	√
1.6 (1/16)	√	√	√	√	√	√

Typical Chemical Composition of the Wire(%)

C	Si	Mn	P	S
0.08	0.95	1.7	0.012	0.015

Typical Mechanical Properties of All-Weld Metal

	YS MPa(lbs/in²)	TS MPa(lbs/in²)	EL (%)	Temp °C(°F)	CVN-Impact Value J (ft·lbs)
As welded with 80% Ar + CO_2	477 (69,000)	540 (86,000)	28.5	-29 (-20)	101 (75)
As welded with 90% Ar + CO_2	492 (71,300)	585 (85,000)	27.9	-29 (-20)	100 (74)

Typical Welding Parameters

Diameter, Polarity Shielding Gas	CTWD mm(in)	Wire Feed Speed m/min (in/min)	Amp. (A)	Volt. (V)	Deposition Rate kg/hr (lb/hr)
1.2mm (0.045in), DC +					
Mixed Gas (Ar + CO_2)	20 (3/4)	3.7 (145)	150	17.5	1.9 (4.2)
		6.2 (244)	200	24	3.1 (6.8)
		11.2 (440)	280	30	5.6 (12.3)

SM-70G

Mild Steel & 490 MPa high tensile steels

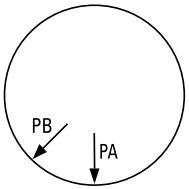
Conformances

AWS	A5.18/ ASME SFA5.18 ER70S-G
JIS	Z3312 YGW11
EN	ISO 14341-A G3Si1
KR	3SG, 3YSG, 3MG, 3YMG (C1)
ABS	3SA, 3YSA
LR	3YSH15
BV	SA3, 3YM
DNV·GL	IIIYMS
NK	KSW53G, KAW53MG(C) KSW3G, KSW53G(M2) KAW3MG, KAW53MG(M2)

Applications

- Structural fabrication
- Shipbuilding
- Automotive
- Machinery

Welding Position



Features

- Good performance with high current
- High deposition rate
- Deep penetration

Current

DC +

Shielding Gas

100% CO_2

Ar + 20~25% CO_2

Diameter / Packaging

Diameter	Spool			Ball Pac		
mm (in)	5kg (11lbs)	15kg (33lbs)	20kg (44lbs)	250kg (551lbs)	300kg (661lbs)	350kg (771lbs)
0.8 (0.033)	√	√	√	√	√	√
0.9 (0.035)	√	√	√	√	√	√
1.0 (0.040)	√	√	√	√	√	√
1.2 (0.045)	√	√	√	√	√	√
1.4 (0.052)	√	√	√	√	√	√
1.6 (1/16)	√	√	√	√	√	√

Typical Chemical Composition of the Wire(%)

C	Si	Mn	P	S	Ti
0.05	0.82	1.5	0.011	0.010	0.18

Typical Mechanical Properties of All-Weld Metal

	YS MPa(lbs/in²)	TS MPa(lbs/in²)	EL (%)	Temp °C(°F)	CVN-Impact Value J (ft·lbs)
As welded with 100% CO_2	518 (75,000)	591 (86,000)	30.4	-29 (-20)	92 (68)
As welded with 80% Ar + CO_2	534 (77,400)	600 (87,000)	28.6	-29 (-20)	102 (76)
As welded with 90% Ar + CO_2	554 (80,300)	630 (91,400)	27.4	-29 (-20)	95 (70)

Typical Welding Parameters

Diameter, Polarity Shielding Gas	CTWD mm(in)	Wire Feed Speed m/min (in/min)	Amp. (A)	Volt. (V)	Deposition Rate kg/hr (lb/hr)
1.2mm (0.045in), DC +					
100% CO_2 Gas	20 (3/4)	14.5 (570)	280	31	7.3 (16.1)
		17.0 (670)	320	34	8.6 (19.0)
		21.0 (830)	350	37	10.6 (23.3)
Mixed Gas (Ar + CO_2)	20 (3/4)	11.2 (440)	280	30	5.6 (12.3)
		12.8 (503)	320	33	6.5 (14.3)
		14.0 (551)	350	36	7.1 (15.7)

SM-70S

Mild Steel & 490 MPa high tensile steels

Conformances

AWS A5.18/ ASME SFA5.18 ER70S-3
JIS Z3312 YGW16
EN ISO 14341-A G2Si

ABS 3SA, 3YSA
LR 3YSH15

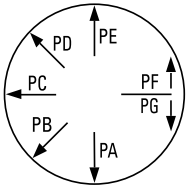
Applications

- Automotive
- Shipbuilding
- Machinery

Features

- All position welding by short-circuiting type transfer
- Mixed gas
- Galvanized steel applicable
- Stable arc and low spatter
- Good bead appearance

Welding Position



Current

DC +

Shielding Gas

Ar + CO_2

Diameter / Packaging

Diameter	Spool			Ball Pac		
mm (in)	5kg (11lbs)	15kg (33lbs)	20kg (44lbs)	250kg (551lbs)	300kg (661lbs)	350kg (771lbs)
0.8 (0.033)	√	√	√	√	√	√
0.9 (0.035)	√	√	√	√	√	√
1.0 (0.040)	√	√	√	√	√	√
1.2 (0.045)	√	√	√	√	√	√
1.4 (0.052)	√	√	√	√	√	√
1.6 (1/16)	√	√	√	√	√	√

Typical Chemical Composition of the Wire(%)

C	Si	Mn	P	S
0.07	0.65	1.14	0.011	0.008

Typical Mechanical Properties of All-Weld Metal

	YS MPa(lbs/in²)	TS MPa(lbs/in²)	EL (%)	Temp °C(°F)	CVN-Impact Value J (ft·lbs)
As welded with 80% Ar + CO_2	455 (66,000)	533 (77,300)	31.2	-20 (-4)	168 (124)
As welded with 90% Ar + CO_2	467 (67,700)	551 (79,800)	30.6	-20 (-4)	166 (123)

Typical Welding Parameters

Diameter, Polarity Shielding Gas	CTWD mm(in)	Wire Feed Speed m/min (in/min)	Amp. (A)	Volt. (V)	Deposition Rate kg/hr (lb/hr)
1.0mm (0.040in), DC +					
Mixed Gas (80%Ar + CO_2)	15 (3/4)	3.3 (130)	100	17	1.0 (2.2)
		5.3 (209)	150	18	1.7 (3.7)
		8.6 (339)	200	22	2.7 (6.0)
1.2mm (0.045in), DC +					
Mixed Gas (Ar + CO_2)	20 (3/4)	3.7 (145)	150	17.5	1.9 (4.2)
		6.2 (244)	200	24	3.1 (6.8)
		11.2 (440)	280	30	5.6 (12.3)

SM-70GS

Mild Steel & 490 MPa high tensile steels

Conformances

AWS A5.18/ ASME SFA5.18 ER70S-G

JIS Z3312 YGW15

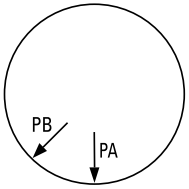
EN ISO 14341-A G2Si

LR 3YSH15

Applications

- Shipbuilding
- Structural fabrication
- Machinery

Welding Position



Features

- Mixed gas
- Good performance high-current

Current

DC +

Shielding Gas

Ar + CO_2

Diameter / Packaging

Diameter	Spool			Ball Pac		
mm (in)	5kg (11lbs)	15kg (33lbs)	20kg (44lbs)	250kg (551lbs)	300kg (661lbs)	350kg (771lbs)
0.8 (0.033)	√	√	√	√	√	√
0.9 (0.035)	√	√	√	√	√	√
1.0 (0.040)	√	√	√	√	√	√
1.2 (0.045)	√	√	√	√	√	√
1.4 (0.052)	√	√	√	√	√	√
1.6 (1/16)	√	√	√	√	√	√

Typical Chemical Composition of the Wire(%)

C	Si	Mn	P	S	Ti
0.06	0.62	1.21	0.013	0.007	0.10

Typical Mechanical Properties of All-Weld Metal

	YS MPa(lbs/in²)	TS MPa(lbs/in²)	EL (%)	Temp °C(°F)	CVN-Impact Value J (ft·lbs)
As welded with 80% Ar + CO_2	480 (69,600)	550 (79,700)	28.0	-20 (-4)	186 (128)
As welded with 90% Ar + CO_2	515 (74,600)	556 (80,600)	27.4	-20 (-4)	173 (119)

Typical Welding Parameters

Diameter, Polarity Shielding Gas	CTWD mm(in)	Wire Feed Speed m/min (in/min)	Amp. (A)	Volt. (V)	Deposition Rate kg/hr (lb/hr)
1.2mm (0.045in), DC +					
Mixed Gas (Ar + CO_2)	20 (3/4)	10.1 (397)	250	28	5.1 (11.2)
		11.2 (440)	280	30	5.6 (12.3)
		12.8 (503)	320	33	6.5 (14.3)

SM-55H

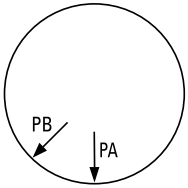
High tensile steels

Conformances

JIS Z3312 YGW18

EN ISO 14341-B G S18

Welding Position



Applications

- Shipbuilding
- Automotive
- Structural fabrication

Current

DC +

Features

- Good performance with high-current
- CO_2 gas
- High Efficiency
- Deep penetration

Shielding Gas

100% CO_2

Diameter / Packaging

Diameter	Spool			Ball Pac		
mm (in)	5kg (11lbs)	15kg (33lbs)	20kg (44lbs)	250kg (551lbs)	300kg (661lbs)	350kg (771lbs)
0.8 (0.033)	√	√	√	√	√	√
0.9 (0.035)	√	√	√	√	√	√
1.0 (0.040)	√	√	√	√	√	√
1.2 (0.045)	√	√	√	√	√	√
1.4 (0.052)	√	√	√	√	√	√
1.6 (1/16)	√	√	√	√	√	√

Typical Chemical Composition of the Wire(%)

C	Si	Mn	P	S	Ti
0.07	0.89	1.95	0.013	0.007	0.18

Typical Mechanical Properties of All-Weld Metal

	YS MPa(lbs/in²)	TS MPa(lbs/in²)	EL (%)	Temp °C(°F)	CVN-Impact Value J (ft·lbs)
As welded with 100% CO_2	550 (79,800)	630 (91,500)	28	0 (32)	110 (81)

Typical Welding Parameters

Diameter, Polarity Shielding Gas	CTWD mm(in)	Wire Feed Speed m/min (in/min)	Amp. (A)	Volt. (V)	Deposition Rate kg/hr (lb/hr)
1.2mm (0.045in), DC +					
100% CO_2 Gas	20 (3/4)	14.5 (570)	280	31	7.3 (16.1)
		17.0 (670)	320	34	8.6 (19.0)
		21.0 (830)	350	37	10.6 (23.3)

SM-80G

High tensile steels

Conformances

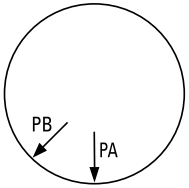
AWS A5.28/ ASME SFA5.28 ER80S-G

JIS Z3312 G 59J A 1 U C 3M1T

EN ISO 14341-B G S3M1T

ABS AWS A5.28 ER80S-G (-20°C ≥47J)

Welding Position



Applications

- General fabrication
- Pressure vessels
- Machinery

Current

DC +

Features

- High deposition rate
- Special alloying elements added

Shielding Gas

100% CO_2

Ar + CO_2

Diameter / Packaging

Diameter	Spool			Ball Pac		
mm (in)	5kg (11lbs)	15kg (33lbs)	20kg (44lbs)	250kg (551lbs)	300kg (661lbs)	350kg (771lbs)
0.8 (0.033)	√	√	√	√	√	√
0.9 (0.035)	√	√	√	√	√	√
1.0 (0.040)	√	√	√	√	√	√
1.2 (0.045)	√	√	√	√	√	√
1.4 (0.052)	√	√	√	√	√	√
1.6 (1/16)	√	√	√	√	√	√

Typical Chemical Composition of the Wire(%)

C	Si	Mn	P	S	Mo	Ti
0.06	0.81	1.85	0.013	0.007	0.27	0.15

Typical Mechanical Properties of All-Weld Metal

	YS MPa(lbs/in²)	TS MPa(lbs/in²)	EL (%)	Temp °C(°F)	CVN-Impact Value J (ft·lbs)
As welded with 100% CO_2	571 (77,100)	645 (93,500)	26.6	-20 (-4)	117 (86)
As welded with 80% Ar + CO_2	651 (94,400)	715 (103,600)	25.6	-20 (-4)	72 (53)
As welded with 90% Ar + CO_2	668 (96,800)	732 (106,140)	22.8	-20 (-4)	65 (48)

Typical Welding Parameters

Diameter, Polarity Shielding Gas	CTWD mm(in)	Wire Feed Speed m/min (in/min)	Amp. (A)	Volt. (V)	Deposition Rate kg/hr (lb/hr)
1.2mm (0.045in), DC +					
100% CO_2 Gas	20 (3/4)	17.0 (670)	320	34	8.6 (19.0)
		21.0 (830)	350	37	10.6 (23.3)
		31.0 (1220)	400	40	15.6 (34.3)
Mixed Gas (80%Ar + CO_2)	20 (3/4)	12.8 (503)	320	33	6.5 (14.3)
		14.0 (551)	350	36	7.1 (15.7)
		16.0 (630)	400	39	8.1 (17.8)

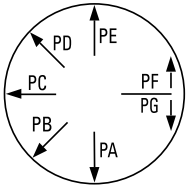
SM-80D2

High tensile steels

Conformances

AWS A5.28/ ASME SFA5.28 ER80S-D2

Welding Position



Applications

- High tensile welded structure
- Building and Pressure vessels
- Construction Machinery

Current

DC +

Features

- High deposition rate
- Contains 0.50% Molybdenum
- Stable arc with high current

Shielding Gas

100% CO_2

Ar + 15~25% CO_2

Diameter / Packaging

Diameter	Spool			Ball Pac		
mm (in)	5kg (11lbs)	15kg (33lbs)	20kg (44lbs)	250kg (551lbs)	300kg (661lbs)	350kg (771lbs)
0.8 (0.033)	√	√	√	√	√	√
0.9 (0.035)	√	√	√	√	√	√
1.0 (0.040)	√	√	√	√	√	√
1.2 (0.045)	√	√	√	√	√	√
1.4 (0.052)	√	√	√	√	√	√
1.6 (1/16)	√	√	√	√	√	√

Typical Chemical Composition of the Wire(%)

C	Si	Mn	P	S	Mo
0.09	0.62	1.85	0.015	0.008	0.50

Typical Mechanical Properties of All-Weld Metal

	YS Mpa(lbs/in²)	TS Mpa(lbs/in²)	EL (%)	Temp °C(°F)	CVN-Impact Value J (ft·lbs)
As welded with 100% CO_2	620 (89,923)	697 (101,091)	23.6	-30 (-22)	50 (37)
As welded with 80% Ar + CO_2	650 (94,275)	710 (102,977)	26.0	-30 (-22)	100 (74)

Typical Welding Parameters

Diameter, Polarity Shielding Gas	CTWD mm(in)	Wire Feed Speed m/min (in/min)	Amp. (A)	Volt. (V)	Deposition Rate kg/hr (lb/hr)
1.2mm (0.045in), DC +					
100% CO_2 Gas	20 (3/4)	14.5 (570)	280	31	7.3 (16.1)
		17.0 (670)	320	34	8.6 (19.0)
		21.0 (830)	350	37	10.6 (23.3)
Mixed Gas (Ar + CO_2)	20 (3/4)	11.2 (440)	280	30	5.6 (12.3)
		12.8 (503)	320	33	6.5 (14.3)
		14.0 (551)	350	36	7.1 (15.7)
1.4mm (0.052in), DC +					
100% CO_2 Gas	20 (3/4)	12.0 (472)	300	34	8.3 (18.3)
		14.6 (575)	340	36	10.1 (22.2)
		15.8 (622)	360	39	11.0 (24.2)
Mixed Gas (Ar + CO_2)	20 (3/4)	8.7 (343)	300	32	6.0 (13.2)
		9.5 (374)	340	34	6.6 (14.5)
		10.0 (394)	360	35	6.9 (15.3)
1.6mm (1/16in), DC +					
100% CO_2 Gas	20 (3/4)	9.4 (370)	340	37	8.5 (18.7)
		11.7 (460)	390	43	10.6 (23.3)
		12.2 (480)	400	44	11.1 (24.4)
Mixed Gas (Ar + CO_2)	20 (3/4)	6.6 (260)	340	34	6.0 (13.2)
		8.2 (322)	390	38	7.4 (16.3)
		8.6 (339)	400	38	7.8 (17.2)

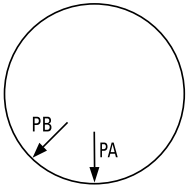
SM-100

High tensile steels

Conformances

AWS A5.28/ ASME SFA5.28 ER100S-G

Welding Position



Applications

- 0.3Cr-1.7Ni-0.25Mo-alloyed, High strength steel

Current

DC +

Features

- Excellent TS and impact value at low temperature
- Stable arc with High-Current
- Low spatter

Shielding Gas

Ar + CO_2

Diameter / Packaging

Diameter	Spool			Ball Pac		
mm (in)	5kg (11lbs)	15kg (33lbs)	20kg (44lbs)	250kg (551lbs)	300kg (661lbs)	350kg (771lbs)
0.8 (0.033)	√	√	√	√	√	√
0.9 (0.035)	√	√	√	√	√	√
1.0 (0.040)	√	√	√	√	√	√
1.2 (0.045)	√	√	√	√	√	√
1.4 (0.052)	√	√	√	√	√	√
1.6 (1/16)	√	√	√	√	√	√

Typical Chemical Composition of the Wire(%)

C	Si	Mn	P	S	Cr	Ni	Mo	V
0.081	0.48	1.76	0.013	0.012	0.28	1.76	0.23	0.09

Typical Mechanical Properties of All-Weld Metal

	YS MPa(lbs/in²)	TS MPa(lbs/in²)	EL (%)	Temp °C(°F)	CVN-Impact Value J (ft·lbs)
As welded with 80% Ar + CO_2	711 (103,100)	756 (109,600)	20.4	-20 (-4) -40 (-40)	114 (84) 83 (61)
As welded with 90% Ar + CO_2	724 (105,000)	766 (111,100)	18.9	-20 (-4) -40 (-40)	106 (79) 78 (57)

Typical Welding Parameters

Diameter, Polarity Shielding Gas	CTWD mm(in)	Wire Feed Speed m/min (in/min)	Amp. (A)	Volt. (V)	Deposition Rate kg/hr (lb/hr)
1.2mm (0.045in), DC +					
Mixed Gas (80%Ar + CO_2)	20 (3/4)	3.7 (145)	150	17.5	1.9 (4.2)
		6.2 (244)	200	24	3.1 (6.8)
		11.2 (440)	280	30	5.6 (12.3)

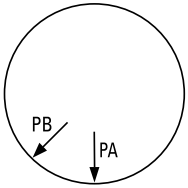
SM-110

High tensile steels

Conformances

AWS A5.28/ ASME SFA5.28 ER110S-G

Welding Position



Applications

- 0.3Cr-1.9Ni-0.5Mo-alloyed, High strength steel

Current

DC +

Features

- Excellent TS and impact value at low temperature
- Stable arc with High-Current
- Low spatter

Shielding Gas

Ar + CO_2

Diameter / Packaging

Diameter	Spool			Ball Pac		
mm (in)	5kg (11lbs)	15kg (33lbs)	20kg (44lbs)	250kg (551lbs)	300kg (661lbs)	350kg (771lbs)
0.8 (0.033)	√	√	√	√	√	√
0.9 (0.035)	√	√	√	√	√	√
1.0 (0.040)	√	√	√	√	√	√
1.2 (0.045)	√	√	√	√	√	√
1.4 (0.052)	√	√	√	√	√	√
1.6 (1/16)	√	√	√	√	√	√

Typical Chemical Composition of the Wire(%)

C	Si	Mn	P	S	Cr	Ni	Mo
0.089	0.75	1.83	0.011	0.012	0.30	1.9	0.52

Typical Mechanical Properties of All-Weld Metal

	YS MPa(lbs/in²)	TS MPa(lbs/in²)	EL (%)	Temp °C(°F)	CVN-Impact Value J (ft·lbs)
As welded with 80% Ar + CO_2	700 (103,000)	858 (124,400)	19.4	-40 (-40) 60 (-76)	82 (60) 69 (51)
As welded with 90% Ar + CO_2	725 (105,100)	871 (126,300)	17.2	-40 (-40) 60 (-76)	71 (53) 60 (45)

Typical Welding Parameters

Diameter, Polarity Shielding Gas	CTWD mm(in)	Wire Feed Speed m/min (in/min)	Amp. (A)	Volt. (V)	Deposition Rate kg/hr (lb/hr)
1.2mm (0.045in), DC +					
Mixed Gas (80%Ar + CO_2)	20 (3/4)	3.7 (145)	150	17.5	1.9 (4.2)
		6.2 (244)	200	24	3.1 (6.8)
		11.2 (440)	280	30	5.6 (12.3)

SM-80CM

Heat resistance – low alloy steel

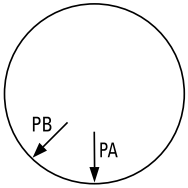
Conformances

AWS A5.28/ ASME SFA5.28 ER80S-G

JIS Z3317 YG1CM-A

EN ISO 14341-B G S2M3

Welding Position



Applications

- Structural fabrication
- Offshore
- Pressure vessels
- Machinery
- Chemical industry

Current

DC +

Features

- MIG welding for boiler steam pipe of Steam power generation and 1.0~1.25%Cr-0.5%Mo heat resisting steel using for refining oil & chemical industrial machine tool.
- Good TS and Impact value in a high temperature after heat treatment.

Shielding Gas

100% Ar

Ar + 2% O_2

Diameter / Packaging

Diameter	Spool			Ball Pac		
mm (in)	5kg (11lbs)	15kg (33lbs)	20kg (44lbs)	250kg (551lbs)	300kg (661lbs)	350kg (771lbs)
0.8 (0.033)	√	√	√	√	√	√
0.9 (0.035)	√	√	√	√	√	√
1.0 (0.040)	√	√	√	√	√	√
1.2 (0.045)	√	√	√	√	√	√
1.4 (0.052)	√	√	√	√	√	√
1.6 (1/16)	√	√	√	√	√	√

Typical Chemical Composition of the Wire(%)

C	Si	Mn	Cr	Mo
0.09	0.67	1.02	1.19	0.45

Typical Mechanical Properties of All-Weld Metal

	YS MPa(lbs/in²)	EL (%)	Temp °C(°F)	CVN-Impact Value J (ft·lbs)	PWHT
As welded with 100% Ar	630 (91,500)	27	0 (32) -20 (-4)	140 (103) 120 (88)	690°C × 1Hr

Typical Welding Parameters

Diameter, Polarity Shielding Gas	CTWD mm(in)	Wire Feed Speed m/min (in/min)	Amp. (A)	Volt. (V)	Deposition Rate kg/hr (lb/hr)
1.2mm (0.045in), DC +					
100%Ar	20 (3/4)	4.2 (165)	150	16	1.9 (4.2)
		7.4 (291)	200	22	3.1 (6.8)
		12.1 (480)	280	29	5.6 (12.3)

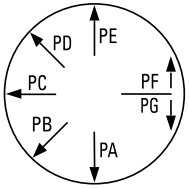
SM-307Si

STS 304 & high Mn steels

Conformances

EN ISO 14343-A G 18 8 Mn

Welding Position



Applications

- Steel Structures - Vehicles, Machinery and Bridges

Current

DC +

Features

- Resistance to crack
- High Efficiency
- Resistance to corrosion

Shielding Gas

Ar / Ar + O_2

Diameter / Packaging

Diameter	Spool			Ball Pac		
mm (in)	12.5kg (28lbs)	15kg (33 lbs)	20kg (44lbs)	150kg (330lbs)	200kg (440lbs)	250kg (551lbs)
0.8 (0.033)	√					
0.9 (0.035)	√					
1.0 (0.040)	√					
1.2 (0.045)	√					√
1.4 (0.052)						
1.6 (1/16)	√					

Typical Chemical Composition of the Wire(%)

C	Si	Mn	Cr	Ni	Mo
0.08	0.87	7.17	19.6	9.3	0.12

Typical Mechanical Properties of All-Weld Metal

TS MPa(lbs/in²)	EL (%)	Temp °C(°F)	CVN-Impact Value J (ft·lbs)	PWHT
610 (88,600)	42	0 (32) -20 (-4)	83 (63) 59 (43)	690°C × 1Hr

Typical Welding Parameters

Diameter, Polarity Shielding Gas	CTWD mm(in)	Wire Feed Speed m/min (in/min)	Amp. (A)	Volt. (V)	Deposition Rate kg/hr (lb/hr)
1.0mm (0.040 in), DC +					
100% Ar Gas	15~20 (0.59~0.78)	6.0 (236)	140	24	2.1 (4.6)
		7.1 (280)	160	24	2.5 (5.5)
		9.2 (362)	190	24	3.2 (7.1)
Mixed Gas (Ar + 2% O_2)	15~20 (0.59~0.78)	5.2 (204)	160	26	1.8 (4.0)
		7.0 (276)	190	26	2.4 (5.3)
		8.3 (327)	220	26	2.9 (6.4)
1.2mm (0.045 in), DC +					
100% Ar Gas	15~20 (0.59~0.78)	9.2 (362)	190	27	4.6 (10.1)
		11.9 (469)	220	27	6.0 (13.2)
		15.5 (610)	260	27	7.8 (17.2)
Mixed Gas (Ar + 2% O_2)	15~20 (0.59~0.78)	7.7 (303)	200	28	3.9 (8.6)
		8.6 (339)	230	28	4.3 (9.5)
		10.1 (398)	260	28	5.1 (11.2)

SM-308

Stainless steel

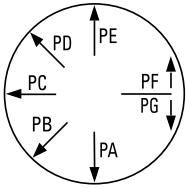
Conformances

AWS A5.9/ ASME SFA5.9 ER308

JIS Z3321 YS308

EN ISO 14343-A G 19 9

Welding Position



Applications

- Steel Structures - Oil, Textile industries, Nuclear reactor

Current

DC +

Features

- Resistance to crack
- High Efficiency
- Resistance to corrosion

Shielding Gas

Ar / Ar + O_2

Diameter / Packaging

Diameter	Spool			Ball Pac		
mm (in)	12.5kg (28lbs)	15kg (33 lbs)	20kg (44lbs)	150kg (330lbs)	200kg (440lbs)	250kg (551lbs)
0.8 (0.033)	√					
0.9 (0.035)	√					
1.0 (0.040)	√					
1.2 (0.045)	√				√	
1.4 (0.052)						
1.6 (1/16)	√					

Typical Chemical Composition of the Wire(%)

C	Si	Mn	Cr	Ni
0.04	0.41	1.65	19.9	9.8

Typical Mechanical Properties of All-Weld Metal

TS MPa(lbs/in²)	EL (%)	Temp °C(°F)	CVN-Impact Value J (ft·lbs)
590 (85,600)	40	0 (32)	100 (74)
		-20 (-4)	50 (37)

Typical Welding Parameters

Diameter, Polarity Shielding Gas	CTWD mm(in)	Wire Feed Speed m/min (in/min)	Amp. (A)	Volt. (V)	Deposition Rate kg/hr (lb/hr)
1.0mm (0.040 in), DC +					
100% Ar Gas	15~20 (0.59~0.78)	6.0 (236)	140	24	2.1 (4.6)
		7.1 (280)	160	24	2.5 (5.5)
		9.2 (362)	190	24	3.2 (7.1)
Mixed Gas (Ar + 2% O_2)	15~20 (0.59~0.78)	5.2 (204)	160	26	1.8 (4.0)
		7.0 (276)	190	26	2.4 (5.3)
		8.3 (327)	220	26	2.9 (6.4)
1.2mm (0.045 in), DC +					
100% Ar Gas	15~20 (0.59~0.78)	9.2 (362)	190	27	4.6 (10.1)
		11.9 (469)	220	27	6.0 (13.2)
		15.5 (610)	260	27	7.8 (17.2)
Mixed Gas (Ar + 2% O_2)	15~20 (0.59~0.78)	7.7 (303)	200	28	3.9 (8.6)
		8.6 (339)	230	28	4.3 (9.5)
		10.1 (398)	260	28	5.1 (11.2)

SM-308L

Low carbon 18%Cr-8%Ni steel

CE

Conformances

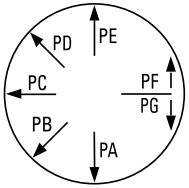
AWS A5.9/ ASME SFA5.9 ER308L

JIS Z3321 YS308L

EN ISO 14343-A G 19 9L

CE

Welding Position



Applications

- Steel Structures - Oil, Textile industries, Nuclear reactor

Current

DC +

Features

- Resistance to crack
- High Efficiency
- Resistance to corrosion

Shielding Gas

Ar / Ar + O_2

Diameter / Packaging

Diameter	Spool			Ball Pac		
mm (in)	12.5kg (28lbs)	15kg (33 lbs)	20kg (44lbs)	150kg (330lbs)	200kg (440lbs)	250kg (551lbs)
0.8 (0.033)	√					
0.9 (0.035)	√					
1.0 (0.040)	√	√				
1.2 (0.045)	√	√				
1.4 (0.052)						√
1.6 (1/16)	√					√

Typical Chemical Composition of the Wire(%)

C	Si	Mn	Cr	Ni
0.02	0.35	1.60	19.9	10.1

Typical Mechanical Properties of All-Weld Metal

TS MPa(lbs/in²)	EL (%)	Temp °C(°F)	CVN-Impact Value J (ft·lbs)
560 (81,300)	42	0 (32)	90 (66)
		-20 (-4)	50 (37)

Typical Welding Parameters

Diameter, Polarity Shielding Gas	CTWD mm(in)	Wire Feed Speed m/min (in/min)	Amp. (A)	Volt. (V)	Deposition Rate kg/hr (lb/hr)
1.0mm (0.040 in), DC +					
100% Ar Gas	15~20 (0.59~0.78)	6.0 (236)	140	24	2.1 (4.6)
		7.1 (280)	160	24	2.5 (5.5)
		9.2 (362)	190	24	3.2 (7.1)
Mixed Gas (Ar + 2% O_2)	15~20 (0.59~0.78)	5.2 (204)	160	26	1.8 (4.0)
		7.0 (276)	190	26	2.4 (5.3)
		8.3 (327)	220	26	2.9 (6.4)
1.2mm (0.045 in), DC +					
100% Ar Gas	15~20 (0.59~0.78)	9.2 (362)	190	27	4.6 (10.1)
		11.9 (469)	220	27	6.0 (13.2)
		15.5 (610)	260	27	7.8 (17.2)
Mixed Gas (Ar + 2% O_2)	15~20 (0.59~0.78)	7.7 (303)	200	28	3.9 (8.6)
		8.6 (339)	230	28	4.3 (9.5)
		10.1 (398)	260	28	5.1 (11.2)

SM-308LSi

Low carbon 18%Cr-8%Ni steel

CE

Conformances

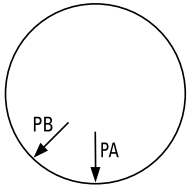
AWS A5.9/ ASME SFA5.9 ER308LSi

JIS Z3321 YS308LSi

EN ISO 14343-A G 19 9L Si

CE

Welding Position



Applications

- Steel Structures - Oil, Textile industries, Nuclear reactor

Current

DC +

Features

- Resistance to crack
- High Efficiency
- Resistance to corrosion
- Excellent Arc stabillity and bead wetting

Shielding Gas

Ar / Ar + O_2

Diameter / Packaging

Diameter	Spool			Ball Pac		
mm (in)	12.5kg (28lbs)	15kg (33 lbs)	20kg (44lbs)	150kg (330lbs)	200kg (440lbs)	250kg (551lbs)
0.8 (0.033)	√					
0.9 (0.035)	√					
1.0 (0.040)	√					
1.2 (0.045)	√				√	
1.4 (0.052)						
1.6 (1/16)	√					

Typical Chemical Composition of the Wire(%)

C	Si	Mn	Cr	Ni	Mo
0.027	0.79	1.96	20.78	10.02	0.1

Typical Mechanical Properties of All-Weld Metal

TS MPa(lbs/in²)	EL (%)
610 (88,500)	40.4

Typical Welding Parameters

Diameter, Polarity Shielding Gas	CTWD mm(in)	Wire Feed Speed m/min (in/min)	Amp. (A)	Volt. (V)	Deposition Rate kg/hr (lb/hr)
1.0mm (0.040 in), DC +					
100% Ar Gas	15~20 (0.59~0.78)	6.0 (236)	140	24	2.1 (4.6)
		7.1 (280)	160	24	2.5 (5.5)
		9.2 (362)	190	24	3.2 (7.1)
Mixed Gas (Ar + 2% O_2)	15~20 (0.59~0.78)	5.2 (204)	160	26	1.8 (4.0)
		7.0 (276)	190	26	2.4 (5.3)
		8.3 (327)	220	26	2.9 (6.4)
1.2mm (0.045 in), DC +					
100% Ar Gas	15~20 (0.59~0.78)	9.2 (362)	190	27	4.6 (10.1)
		11.9 (469)	220	27	6.0 (13.2)
		15.5 (610)	260	27	7.8 (17.2)
Mixed Gas (Ar + 2% O_2)	15~20 (0.59~0.78)	7.7 (303)	200	28	3.9 (8.6)
		8.6 (339)	230	28	4.3 (9.5)
		10.1 (398)	260	28	5.1 (11.2)

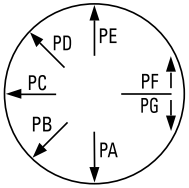
SM-309

22%Cr-12%Ni steel, 18%Cr-8%Ni clad steel, STS-CrMo, STS-Carbon steel

Conformances

AWS A5.9/ ASME SFA5.9 ER309
JIS Z3321 YS309
EN ISO 14343-A G 23 12
ABS AWS A5.9 ER309

Welding Position



Applications

- Steel Structures - Oil, Textile industries, Nuclear reactor

Current

DC +

Features

- Resistance to crack
- High Efficiency
- Excellent resistance to heat

Shielding Gas

Ar / Ar + O_2

Diameter / Packaging

Diameter	Spool			Ball Pac		
mm (in)	12.5kg (28lbs)	15kg (33 lbs)	20kg (44lbs)	150kg (330lbs)	200kg (440lbs)	250kg (551lbs)
0.8 (0.033)	√					
0.9 (0.035)	√					
1.0 (0.040)	√		√		√	√
1.2 (0.045)	√				√	
1.4 (0.052)						
1.6 (1/16)	√					

Typical Chemical Composition of the Wire(%)

C	Si	Mn	Cr	Ni
0.09	0.39	1.60	23.5	12.8

Typical Mechanical Properties of All-Weld Metal

TS MPa(lbs/in²)	EL (%)
660 (95,700)	36

Typical Welding Parameters

Diameter, Polarity Shielding Gas	CTWD mm(in)	Wire Feed Speed m/min (in/min)	Amp. (A)	Volt. (V)	Deposition Rate kg/hr (lb/hr)
1.0mm (0.040 in), DC +					
100% Ar Gas	15~20 (0.59~0.78)	6.0 (236)	140	24	2.1 (4.6)
		7.1 (280)	160	24	2.5 (5.5)
		9.2 (362)	190	24	3.2 (7.1)
Mixed Gas (Ar + 2% O_2)	15~20 (0.59~0.78)	5.2 (204)	160	26	1.8 (4.0)
		7.0 (276)	190	26	2.4 (5.3)
		8.3 (327)	220	26	2.9 (6.4)
1.2mm (0.045 in), DC +					
100% Ar Gas	15~20 (0.59~0.78)	9.2 (362)	190	27	4.6 (10.1)
		11.9 (469)	220	27	6.0 (13.2)
		15.5 (610)	260	27	7.8 (17.2)
Mixed Gas (Ar + 2% O_2)	15~20 (0.59~0.78)	7.7 (303)	200	28	3.9 (8.6)
		8.6 (339)	230	28	4.3 (9.5)
		10.1 (398)	260	28	5.1 (11.2)

SM-309L

22%Cr-12%Ni steel, 18%Cr-8%Ni clad steel, STS-CrMo, STS-Carbon steel

CE

Conformances

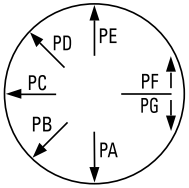
AWS A5.9/ ASME SFA5.9 ER309L

JIS Z3321 YS309L

EN ISO 14343-A G 23 12L

CE

Welding Position



Applications

- Steel Structures - Oil, Textile industries, Nuclear reactor

Current

DC +

Features

- Resistance to crack
- High Efficiency
- Excellent resistance to heat

Shielding Gas

Ar / Ar + O_2

Diameter / Packaging

Diameter	Spool			Ball Pac		
mm (in)	5kg (11lbs)	12.5kg (28lbs)	15kg (33 lbs)	150kg (330lbs)	200kg (440lbs)	250kg (551lbs)
0.8 (0.033)		√				
0.9 (0.035)		√				
1.0 (0.040)		√				
1.2 (0.045)	√	√		√		
1.4 (0.052)						
1.6 (1/16)		√				

Typical Chemical Composition of the Wire(%)

C	Si	Mn	Cr	Ni
0.03	0.41	1.58	23.5	12.8

Typical Mechanical Properties of All-Weld Metal

TS MPa(lbs/in²)	EL (%)
640 (92,900)	38

Typical Welding Parameters

Diameter, Polarity Shielding Gas	CTWD mm(in)	Wire Feed Speed m/min (in/min)	Amp. (A)	Volt. (V)	Deposition Rate kg/hr (lb/hr)
1.0mm (0.040 in), DC +					
100% Ar Gas	15~20 (0.59~0.78)	6.0 (236)	140	24	2.1 (4.6)
		7.1 (280)	160	24	2.5 (5.5)
		9.2 (362)	190	24	3.2 (7.1)
Mixed Gas (Ar + 2% O_2)	15~20 (0.59~0.78)	5.2 (204)	160	26	1.8 (4.0)
		7.0 (276)	190	26	2.4 (5.3)
		8.3 (327)	220	26	2.9 (6.4)
1.2mm (0.045 in), DC +					
100% Ar Gas	15~20 (0.59~0.78)	9.2 (362)	190	27	4.6 (10.1)
		11.9 (469)	220	27	6.0 (13.2)
		15.5 (610)	260	27	7.8 (17.2)
Mixed Gas (Ar + 2% O_2)	15~20 (0.59~0.78)	7.7 (303)	200	28	3.9 (8.6)
		8.6 (339)	230	28	4.3 (9.5)
		10.1 (398)	260	28	5.1 (11.2)

SM-309LSi

22%Cr-12%Ni steel, 18%Cr-8%Ni clad steel, STS-CrMo, STS-Carbon steel

CE

Conformances

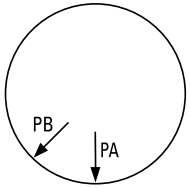
AWS A5.9/ ASME SFA5.9 ER309LSi

JIS Z3321 YS309LSi

EN ISO 14343-A G 23 12L Si

CE

Welding Position



Applications

- Steel Structures - Oil, Textile industries, Nuclear reactor

Current

DC +

Features

- Resistance to crack
- High Efficiency
- Excellent resistance to heat
- Excellent Arc stabillity and bead wetting

Shielding Gas

Ar / Ar + O_2

Diameter / Packaging

Diameter	Spool			Ball Pac		
mm (in)	12.5kg (28lbs)	15kg (33 lbs)	20kg (44lbs)	150kg (330lbs)	200kg (440lbs)	250kg (551lbs)
0.8 (0.033)	√					
0.9 (0.035)	√					
1.0 (0.040)	√					
1.2 (0.045)	√			√		
1.4 (0.052)						
1.6 (1/16)	√					

Typical Chemical Composition of the Wire(%)

C	Si	Mn	Cr	Ni	Mo
0.022	0.79	1.61	24.11	13.97	0.1

Typical Mechanical Properties of All-Weld Metal

TS MPa(lbs/in²)	EL (%)
571 (82,800)	40.2

Typical Welding Parameters

Diameter, Polarity Shielding Gas	CTWD mm(in)	Wire Feed Speed m/min (in/min)	Amp. (A)	Volt. (V)	Deposition Rate kg/hr (lb/hr)
1.0mm (0.040 in), DC +					
100% Ar Gas	15~20 (0.59~0.78)	6.0 (236)	140	24	2.1 (4.6)
		7.1 (280)	160	24	2.5 (5.5)
		9.2 (362)	190	24	3.2 (7.1)
Mixed Gas (Ar + 2% O_2)	15~20 (0.59~0.78)	5.2 (204)	160	26	1.8 (4.0)
		7.0 (276)	190	26	2.4 (5.3)
		8.3 (327)	220	26	2.9 (6.4)
1.2mm (0.045 in), DC +					
100% Ar Gas	15~20 (0.59~0.78)	9.2 (362)	190	27	4.6 (10.1)
		11.9 (469)	220	27	6.0 (13.2)
		15.5 (610)	260	27	7.8 (17.2)
Mixed Gas (Ar + 2% O_2)	15~20 (0.59~0.78)	7.7 (303)	200	28	3.9 (8.6)
		8.6 (339)	230	28	4.3 (9.5)
		10.1 (398)	260	28	5.1 (11.2)

SM-309MoL

Dissimillar metals such as stainless steels and carbon steels

Conformances

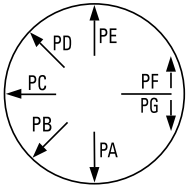
AWS A5.9/ ASME SFA5.9 ER309LMo

JIS Z3321 YS309LMo

EN ISO 14343-A G 23 12 2L

ABS AWS A5.9 ER309LMo

Welding Position



Applications

- Clad steel side welding of 316, 316L STS clad steel

Current

DC +

Features

- Excellent corrosion resistance
- Excellent resistance to heat
- Excellent Arc stabillity and bead wetting

Shielding Gas

Ar / Ar + O_2

Diameter / Packaging

Diameter	Spool			Ball Pac		
mm (in)	12.5kg (28lbs)	15kg (33 lbs)	20kg (44lbs)	150kg (330lbs)	200kg (440lbs)	250kg (551lbs)
0.8 (0.033)	√					
0.9 (0.035)	√					
1.0 (0.040)	√					
1.2 (0.045)	√					
1.4 (0.052)						
1.6 (1/16)	√					

Typical Chemical Composition of the Wire(%)

C	Si	Mn	Cr	Ni	Mo
0.01	0.35	1.8	23.2	13.7	2.5

Typical Mechanical Properties of All-Weld Metal

TS MPa(lbs/in²)	EL (%)
660 (95,700)	34

Typical Welding Parameters

Diameter, Polarity Shielding Gas	CTWD mm(in)	Wire Feed Speed m/min (in/min)	Amp. (A)	Volt. (V)	Deposition Rate kg/hr (lb/hr)
1.0mm (0.040 in), DC +					
100% Ar Gas	15~20 (0.59~0.78)	6.0 (236)	140	24	2.1 (4.6)
		7.1 (280)	160	24	2.5 (5.5)
		9.2 (362)	190	24	3.2 (7.1)
Mixed Gas (Ar + 2% O_2)	15~20 (0.59~0.78)	5.2 (204)	160	26	1.8 (4.0)
		7.0 (276)	190	26	2.4 (5.3)
		8.3 (327)	220	26	2.9 (6.4)
1.2mm (0.045 in), DC +					
100% Ar Gas	15~20 (0.59~0.78)	9.2 (362)	190	27	4.6 (10.1)
		11.9 (469)	220	27	6.0 (13.2)
		15.5 (610)	260	27	7.8 (17.2)
Mixed Gas (Ar + 2% O_2)	15~20 (0.59~0.78)	7.7 (303)	200	28	3.9 (8.6)
		8.6 (339)	230	28	4.3 (9.5)
		10.1 (398)	260	28	5.1 (11.2)

SM-310

25%Cr-20%Ni STS

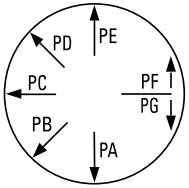
Conformances

AWS AWS A5.9/ ASME SFA5.9 ER310

JIS Z3321 YS310

EN ISO 14343-A G 25 20

Welding Position



Applications

- Clad steel side welding of 316, 316L STS clad steel

Current

DC +

Features

- Excellent corrosion resistance
- Excellent resistance to heat
- Excellent Arc stabillity and bead wetting

Shielding Gas

Ar / Ar + O_2

Diameter / Packaging

Diameter	Spool			Ball Pac		
mm (in)	12.5kg (28lbs)	15kg (33 lbs)	20kg (44lbs)	150kg (330lbs)	200kg (440lbs)	250kg (551lbs)
0.8 (0.033)	√					
0.9 (0.035)	√					
1.0 (0.040)	√					
1.2 (0.045)	√					
1.4 (0.052)						
1.6 (1/16)	√					

Typical Chemical Composition of the Wire(%)

C	Si	Mn	Cr	Ni
0.09	0.35	1.90	26.8	20.9

Typical Mechanical Properties of All-Weld Metal

TS MPa(lbs/in²)	EL (%)
610 (88,500)	40

Typical Welding Parameters

Diameter, Polarity Shielding Gas	CTWD mm(in)	Wire Feed Speed m/min (in/min)	Amp. (A)	Volt. (V)	Deposition Rate kg/hr (lb/hr)
1.0mm (0.040 in), DC +					
100% Ar Gas	15~20 (0.59~0.78)	6.0 (236)	140	24	2.1 (4.6)
		7.1 (280)	160	24	2.5 (5.5)
		9.2 (362)	190	24	3.2 (7.1)
Mixed Gas (Ar + 2% O_2)	15~20 (0.59~0.78)	5.2 (204)	160	26	1.8 (4.0)
		7.0 (276)	190	26	2.4 (5.3)
		8.3 (327)	220	26	2.9 (6.4)
1.2mm (0.045 in), DC +					
100% Ar Gas	15~20 (0.59~0.78)	9.2 (362)	190	27	4.6 (10.1)
		11.9 (469)	220	27	6.0 (13.2)
		15.5 (610)	260	27	7.8 (17.2)
Mixed Gas (Ar + 2% O_2)	15~20 (0.59~0.78)	7.7 (303)	200	28	3.9 (8.6)
		8.6 (339)	230	28	4.3 (9.5)
		10.1 (398)	260	28	5.1 (11.2)

SM-312

29%Cr-9%Ni STS, joining of dissimilar-metal

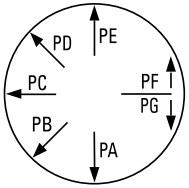
Conformances

AWS A5.9 / ASME SFA5.9 ER312

JIS Z3321 YS312

EN ISO 14343-A G 25 20

Welding Position



Applications

- Welding of Dissimilar-metal STS to ferritic steel or special steel

Current

DC +

Features

- Excellent corrosion resistance
- Excellent resistance to heat
- Excellent Arc stabillity and bead wetting

Shielding Gas

Ar / Ar + O_2

Diameter / Packaging

Diameter	Spool			Ball Pac		
mm (in)	12.5kg (28lbs)	15kg (33 lbs)	20kg (44lbs)	150kg (330lbs)	200kg (440lbs)	250kg (551lbs)
0.8 (0.033)	√					
0.9 (0.035)	√					
1.0 (0.040)	√					
1.2 (0.045)	√					
1.4 (0.052)						
1.6 (1/16)	√					

Typical Chemical Composition of the Wire(%)

C	Si	Mn	Cr	Ni
0.10	0.38	1.68	30.0	8.8

Typical Mechanical Properties of All-Weld Metal

TS MPa(lbs/in²)	EL (%)
720 (104,400)	32

Typical Welding Parameters

Diameter, Polarity Shielding Gas	CTWD mm(in)	Wire Feed Speed m/min (in/min)	Amp. (A)	Volt. (V)	Deposition Rate kg/hr (lb/hr)
1.0mm (0.040 in), DC +					
100% Ar Gas	15~20 (0.59~0.78)	6.0 (236)	140	24	2.1 (4.6)
		7.1 (280)	160	24	2.5 (5.5)
		9.2 (362)	190	24	3.2 (7.1)
Mixed Gas (Ar + 2% O_2)	15~20 (0.59~0.78)	5.2 (204)	160	26	1.8 (4.0)
		7.0 (276)	190	26	2.4 (5.3)
		8.3 (327)	220	26	2.9 (6.4)
1.2mm (0.045 in), DC +					
100% Ar Gas	15~20 (0.59~0.78)	9.2 (362)	190	27	4.6 (10.1)
		11.9 (469)	220	27	6.0 (13.2)
		15.5 (610)	260	27	7.8 (17.2)
Mixed Gas (Ar + 2% O_2)	15~20 (0.59~0.78)	7.7 (303)	200	28	3.9 (8.6)
		8.6 (339)	230	28	4.3 (9.5)
		10.1 (398)	260	28	5.1 (11.2)

SM-316

18%Cr-12%Ni-2%Mo STS

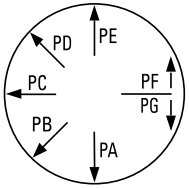
Conformances

AWS A5.9/ ASME SFA5.9 ER316

JIS Z3321 YS316

EN ISO 14343-A G 19 12 3

Welding Position



Applications

- Steel Structures - Chemical industries and nuclear reactors

Current

DC +

Features

- Excellent corrosion resistance
- Excellent resistance to heat
- Excellent Arc stabillity and bead wetting

Shielding Gas

Ar / Ar + O_2

Diameter / Packaging

Diameter	Spool			Ball Pac		
mm (in)	12.5kg (28lbs)	15kg (33 lbs)	20kg (44lbs)	150kg (330lbs)	200kg (440lbs)	250kg (551lbs)
0.8 (0.033)	√					
0.9 (0.035)	√					
1.0 (0.040)	√					
1.2 (0.045)	√					
1.4 (0.052)						
1.6 (1/16)	√					

Typical Chemical Composition of the Wire(%)

C	Si	Mn	Cr	Ni	Mo
0.06	0.40	1.71	19.4	12.6	2.5

Typical Mechanical Properties of All-Weld Metal

TS MPa(lbs/in²)	EL (%)
580 (84,200)	39

Typical Welding Parameters

Diameter, Polarity Shielding Gas	CTWD mm(in)	Wire Feed Speed m/min (in/min)	Amp. (A)	Volt. (V)	Deposition Rate kg/hr (lb/hr)
1.0mm (0.040 in), DC +					
100% Ar Gas	15~20 (0.59~0.78)	6.0 (236)	140	24	2.1 (4.6)
		7.1 (280)	160	24	2.5 (5.5)
		9.2 (362)	190	24	3.2 (7.1)
Mixed Gas (Ar + 2% O_2)	15~20 (0.59~0.78)	5.2 (204)	160	26	1.8 (4.0)
		7.0 (276)	190	26	2.4 (5.3)
		8.3 (327)	220	26	2.9 (6.4)
1.2mm (0.045 in), DC +					
100% Ar Gas	15~20 (0.59~0.78)	9.2 (362)	190	27	4.6 (10.1)
		11.9 (469)	220	27	6.0 (13.2)
		15.5 (610)	260	27	7.8 (17.2)
Mixed Gas (Ar + 2% O_2)	15~20 (0.59~0.78)	7.7 (303)	200	28	3.9 (8.6)
		8.6 (339)	230	28	4.3 (9.5)
		10.1 (398)	260	28	5.1 (11.2)

SM-316L

Low carbon 18%Cr-12%Ni-2%Mo STS

CE

Conformances

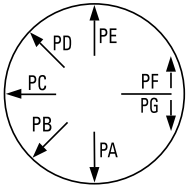
AWS A5.9/ ASME SFA5.9 ER316L

JIS Z3321 YS316L

EN ISO 14343-A G 19 12 3L

CE

Welding Position



Applications

- Steel Structures - Chemical industries and nuclear reactors

Current

DC +

Features

- Excellent corrosion resistance
- Excellent resistance to heat
- Excellent Arc stabillity and bead wetting

Shielding Gas

Ar / Ar + O_2

Diameter / Packaging

Diameter	Spool			Ball Pac		
mm (in)	12.5kg (28lbs)	15kg (33 lbs)	20kg (44lbs)	150kg (330lbs)	200kg (440lbs)	250kg (551lbs)
0.8 (0.033)	√					
0.9 (0.035)	√					
1.0 (0.040)	√	√				
1.2 (0.045)	√	√				
1.4 (0.052)						
1.6 (1/16)	√					

Typical Chemical Composition of the Wire(%)

C	Si	Mn	Cr	Ni	Mo
0.02	0.39	1.69	19.5	12.8	2.5

Typical Mechanical Properties of All-Weld Metal

TS MPa(lbs/in²)	EL (%)
570 (82,700)	39

Typical Welding Parameters

Diameter, Polarity Shielding Gas	CTWD mm(in)	Wire Feed Speed m/min (in/min)	Amp. (A)	Volt. (V)	Deposition Rate kg/hr (lb/hr)
1.0mm (0.040 in), DC +					
100% Ar Gas	15~20 (0.59~0.78)	6.0 (236)	140	24	2.1 (4.6)
		7.1 (280)	160	24	2.5 (5.5)
		9.2 (362)	190	24	3.2 (7.1)
Mixed Gas (Ar + 2% O_2)	15~20 (0.59~0.78)	5.2 (204)	160	26	1.8 (4.0)
		7.0 (276)	190	26	2.4 (5.3)
		8.3 (327)	220	26	2.9 (6.4)
1.2mm (0.045 in), DC +					
100% Ar Gas	15~20 (0.59~0.78)	9.2 (362)	190	27	4.6 (10.1)
		11.9 (469)	220	27	6.0 (13.2)
		15.5 (610)	260	27	7.8 (17.2)
Mixed Gas (Ar + 2% O_2)	15~20 (0.59~0.78)	7.7 (303)	200	28	3.9 (8.6)
		8.6 (339)	230	28	4.3 (9.5)
		10.1 (398)	260	28	5.1 (11.2)

SM-316LSi

Low carbon 18%Cr-12%Ni-2%Mo STS

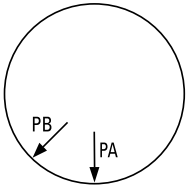
Conformances

AWS A5.9/ ASME SFA5.9 ER316LSi

JIS Z3321 YS316LSi

EN ISO 14343-A G 19 12 3L Si

Welding Position



Applications

- Steel Structures - Chemical industries and nuclear reactors

Current

DC +

Features

- Crack sensitivity is extremely good
- High Si content of wire improves the welding properties
- Excellent Arc stabillity and bead wetting

Shielding Gas

Ar / Ar + O_2

Diameter / Packaging

Diameter	Spool			Ball Pac		
mm (in)	5kg (11lbs)	12.5kg (28lbs)	15kg (33 lbs)	150kg (330lbs)	200kg (440lbs)	250kg (551lbs)
0.8 (0.033)		√	√			
0.9 (0.035)		√				
1.0 (0.040)	√	√	√			
1.2 (0.045)		√				
1.4 (0.052)						
1.6 (1/16)		√				
2.0 (0.079)		√				

Typical Chemical Composition of the Wire(%)

C	Si	Mn	Cr	Ni	Mo
0.030	0.65	2.36	19.76	11.62	2.50

Typical Mechanical Properties of All-Weld Metal

TS MPa(lbs/in²)	EL (%)
597 (86,600)	37

Typical Welding Parameters

Diameter, Polarity Shielding Gas	CTWD mm(in)	Wire Feed Speed m/min (in/min)	Amp. (A)	Volt. (V)	Deposition Rate kg/hr (lb/hr)
1.0mm (0.040 in), DC +					
100% Ar Gas	15~20 (0.59~0.78)	6.0 (236)	140	24	2.1 (4.6)
		7.1 (280)	160	24	2.5 (5.5)
		9.2 (362)	190	24	3.2 (7.1)
Mixed Gas (Ar + 2% O_2)	15~20 (0.59~0.78)	5.2 (204)	160	26	1.8 (4.0)
		7.0 (276)	190	26	2.4 (5.3)
		8.3 (327)	220	26	2.9 (6.4)
1.2mm (0.045 in), DC +					
100% Ar Gas	15~20 (0.59~0.78)	9.2 (362)	190	27	4.6 (10.1)
		11.9 (469)	220	27	6.0 (13.2)
		15.5 (610)	260	27	7.8 (17.2)
Mixed Gas (Ar + 2% O_2)	15~20 (0.59~0.78)	7.7 (303)	200	28	3.9 (8.6)
		8.6 (339)	230	28	4.3 (9.5)
		10.1 (398)	260	28	5.1 (11.2)

SM-347

18%Cr-8%Ni-Nb(STS 347) & 18%Cr-8%Ni-Ti(STS 321)

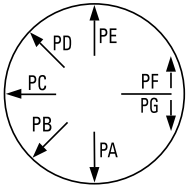
Conformances

AWS A5.9/ ASME SFA5.9 ER347

JIS Z3321 YS347

EN ISO 14343-A G 19 9 Nb

Welding Position



Applications

- Welidng of boiler and gas turbine

Current

DC +

Features

- Resistanc to crack is good
- Nb contents improves corrosion resistance and heat resistance

Shielding Gas

Ar / Ar + O_2

Diameter / Packaging

Diameter	Spool			Ball Pac		
mm (in)	12.5kg (28lbs)	15kg (33 lbs)	20kg (44lbs)	150kg (330lbs)	200kg (440lbs)	250kg (551lbs)
0.8 (0.033)	√					
0.9 (0.035)	√					
1.0 (0.040)	√					
1.2 (0.045)	√					
1.4 (0.052)						
1.6 (1/16)	√					

Typical Chemical Composition of the Wire(%)

C	Si	Mn	Cr	Ni	Nb
0.05	0.43	1.66	20.0	9.6	0.7

Typical Mechanical Properties of All-Weld Metal

TS MPa(lbs/in²)	EL (%)
680 (98,600)	30

Typical Welding Parameters

Diameter, Polarity Shielding Gas	CTWD mm(in)	Wire Feed Speed m/min (in/min)	Amp. (A)	Volt. (V)	Deposition Rate kg/hr (lb/hr)
1.0mm (0.040 in), DC +					
100% Ar Gas	15~20 (0.59~0.78)	6.0 (236)	140	24	2.1 (4.6)
		7.1 (280)	160	24	2.5 (5.5)
		9.2 (362)	190	24	3.2 (7.1)
Mixed Gas (Ar + 2% O_2)	15~20 (0.59~0.78)	5.2 (204)	160	26	1.8 (4.0)
		7.0 (276)	190	26	2.4 (5.3)
		8.3 (327)	220	26	2.9 (6.4)
1.2mm (0.045 in), DC +					
100% Ar Gas	15~20 (0.59~0.78)	9.2 (362)	190	27	4.6 (10.1)
		11.9 (469)	220	27	6.0 (13.2)
		15.5 (610)	260	27	7.8 (17.2)
Mixed Gas (Ar + 2% O_2)	15~20 (0.59~0.78)	7.7 (303)	200	28	3.9 (8.6)
		8.6 (339)	230	28	4.3 (9.5)
		10.1 (398)	260	28	5.1 (11.2)

SM-2209

22%Cr-5%Ni-2%Mo-0.15%N STS

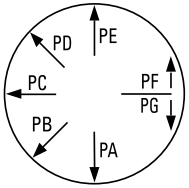
Conformances

AWS A5.9/ ASME SFA5.9 ER2209

JIS Z3321 YS2209

EN ISO 14343-A G 22 9 3N L

Welding Position



Applications

- Welidng of offshore oil/gas, chemical and petrochemical industries

Current

DC +

Features

- Good general corrosion restance
- High resistance to chloride induced stress corrosion cracking(CSCC)

Shielding Gas

Ar / Ar + O_2

Diameter / Packaging

Diameter	Spool			Ball Pac		
mm (in)	12.5kg (28lbs)	15kg (33 lbs)	20kg (44lbs)	150kg (330lbs)	200kg (440lbs)	250kg (551lbs)
0.8 (0.033)	√					
0.9 (0.035)	√					
1.0 (0.040)	√					
1.2 (0.045)	√					
1.4 (0.052)						
1.6 (1/16)	√					

Typical Chemical Composition of the Wire(%)

C	Si	Mn	Cr	Ni	Mo
0.01	0.41	1.70	23.4	8.9	3.2

Typical Mechanical Properties of All-Weld Metal

TS MPa(lbs/in²)	EL (%)	Temp °C(°F)	CVN-Impact Value J (ft·lbs)	PREN
784 (113,700)	30	-20 (-4)	83 (61)	35

Typical Welding Parameters

Diameter, Polarity Shielding Gas	CTWD mm(in)	Wire Feed Speed m/min (in/min)	Amp. (A)	Volt. (V)	Deposition Rate kg/hr (lb/hr)
1.0mm (0.040 in), DC +					
100% Ar Gas	15~20 (0.59~0.78)	6.0 (236)	140	24	2.1 (4.6)
		7.1 (280)	160	24	2.5 (5.5)
		9.2 (362)	190	24	3.2 (7.1)
Mixed Gas (Ar + 2% O_2)	15~20 (0.59~0.78)	5.2 (204)	160	26	1.8 (4.0)
		7.0 (276)	190	26	2.4 (5.3)
		8.3 (327)	220	26	2.9 (6.4)
1.2mm (0.045 in), DC +					
100% Ar Gas	15~20 (0.59~0.78)	9.2 (362)	190	27	4.6 (10.1)
		11.9 (469)	220	27	6.0 (13.2)
		15.5 (610)	260	27	7.8 (17.2)
Mixed Gas (Ar + 2% O_2)	15~20 (0.59~0.78)	7.7 (303)	200	28	3.9 (8.6)
		8.6 (339)	230	28	4.3 (9.5)
		10.1 (398)	260	28	5.1 (11.2)

SM-410

13%Cr STS(STS 403, STS 410)

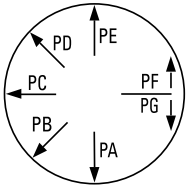
Conformances

AWS A5.9/ ASME SFA5.9 ER410

JIS Z3321 YS410

EN ISO 14343-A G 13

Welding Position



Applications

- Hardfacing application

Current

DC +

Features

- Excellent resistance to corrosion restance and abrasion
- Good anti-abrasive property

Shielding Gas

Ar / Ar + O_2

Diameter / Packaging

Diameter	Spool			Ball Pac		
mm (in)	5kg (11lbs)	12.5kg (28lbs)	15kg (33 lbs)	150kg (330lbs)	200kg (440lbs)	250kg (551lbs)
0.8 (0.033)		√				
0.9 (0.035)		√				
1.0 (0.040)		√				
1.2 (0.045)	√	√		√		
1.4 (0.052)						
1.6 (1/16)		√				

Typical Chemical Composition of the Wire(%)

C	Si	Mn	Cr	Ni
0.10	0.38	0.34	12.0	0.17

Typical Mechanical Properties of All-Weld Metal

TS MPa(lbs/in²)	EL (%)
540 (78,300)	35

Typical Welding Parameters

Diameter, Polarity Shielding Gas	CTWD mm(in)	Wire Feed Speed m/min (in/min)	Amp. (A)	Volt. (V)	Deposition Rate kg/hr (lb/hr)
1.0mm (0.040 in), DC +					
100% Ar Gas	15~20 (0.59~0.78)	6.0 (236)	140	24	2.1 (4.6)
		7.1 (280)	160	24	2.5 (5.5)
		9.2 (362)	190	24	3.2 (7.1)
Mixed Gas (Ar + 2% O_2)	15~20 (0.59~0.78)	5.2 (204)	160	26	1.8 (4.0)
		7.0 (276)	190	26	2.4 (5.3)
		8.3 (327)	220	26	2.9 (6.4)
1.2mm (0.045 in), DC +					
100% Ar Gas	15~20 (0.59~0.78)	9.2 (362)	190	27	4.6 (10.1)
		11.9 (469)	220	27	6.0 (13.2)
		15.5 (610)	260	27	7.8 (17.2)
Mixed Gas (Ar + 2% O_2)	15~20 (0.59~0.78)	7.7 (303)	200	28	3.9 (8.6)
		8.6 (339)	230	28	4.3 (9.5)
		10.1 (398)	260	28	5.1 (11.2)

SM-430LNb

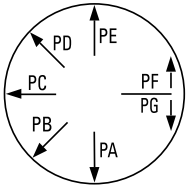
13%Cr STS(STS 403, STS 410)

Conformances

JIS Z3321 YS430LNb

EN ISO 14343-A G 18LNb

Welding Position



Applications

- Automotive exhaust applications

Current

DC +

Features

- Excellent bead appearance
- Soft stable arc & Low spatter

Shielding Gas

Ar / Ar + O_2

Diameter / Packaging

Diameter	Spool			Ball Pac		
mm (in)	12.5kg (28lbs)	15kg (33 lbs)	20kg (44lbs)	150kg (330lbs)	200kg (440lbs)	250kg (551lbs)
0.8 (0.033)	√					
0.9 (0.035)	√					
1.0 (0.040)	√					
1.2 (0.045)	√					√
1.4 (0.052)						
1.6 (1/16)	√					

Typical Chemical Composition of the Wire(%)

C	Si	Mn	Cr	Ni	Nb
0.01	0.41	0.33	18.4	0.27	0.45

Typical Mechanical Properties of All-Weld Metal

Dia (mm)	Amp (A)	Vol (V)	Cpm (cm/min)	Gas Flow (l/min)	Shielding Gas
1.2	250	26	30	25	100% Ar or Ar + 2% O_2
1.6	300	29	35		

Typical Welding Parameters

Diameter, Polarity Shielding Gas	CTWD mm(in)	Wire Feed Speed m/min (in/min)	Amp. (A)	Volt. (V)	Deposition Rate kg/hr (lb/hr)
1.0mm (0.040 in), DC +					
100% Ar Gas	15~20 (0.59~0.78)	6.0 (236)	140	24	2.1 (4.6)
		7.1 (280)	160	24	2.5 (5.5)
		9.2 (362)	190	24	3.2 (7.1)
Mixed Gas (Ar + 2% O_2)	15~20 (0.59~0.78)	5.2 (204)	160	26	1.8 (4.0)
		7.0 (276)	190	26	2.4 (5.3)
		8.3 (327)	220	26	2.9 (6.4)
1.2mm (0.045 in), DC +					
100% Ar Gas	15~20 (0.59~0.78)	9.2 (362)	190	27	4.6 (10.1)
		11.9 (469)	220	27	6.0 (13.2)
		15.5 (610)	260	27	7.8 (17.2)
Mixed Gas (Ar + 2% O_2)	15~20 (0.59~0.78)	7.7 (303)	200	28	3.9 (8.6)
		8.6 (339)	230	28	4.3 (9.5)
		10.1 (398)	260	28	5.1 (11.2)