

GMAW SOLID WIRE & STAINLESS MIG WIRE



Applications

Butt and fillet welding of steel structures such as vehicles, machinery and bridges.

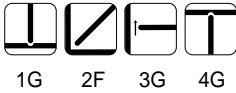
Characteristics on Usage

SM-70 is a solid wire designed for all position welding by short-circuiting type transfer. As the deposition efficiency is high and penetration is deep, highly efficient welding can be performed.

Notes on Usage

- ① Use with CO₂ /Argon+15~25% CO₂ gas.
- ② The Flow of quantity of shielding gas should be approximately 25ℓ /min.
- ③ Use wind screen against wind.
- ④ Keep distance between tip and base metal 6~15mm for less than 250A, and 15~25mm for more than 250A of welding current.

Welding Position



Current

DC +

Shielding Gas

CO₂/Ar+ CO₂

Typical Chemical Composition of Wire (%)

C	Si	Mn	P	S
0.07	0.83	1.48	0.017	0.020

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)
430 (62,400)	540 (78,400)	28	-29 (-20)	70 (52)

Approval

KR, ABS, LR, BV, DNV, GL,
 NK, CWB, TÜV

I Packing (Including Ball Pac)

Dia. (mm)	0.9	1.2	1.4	1.6
(in)	.035	.045	.052	1/16

Spool(kg)	5	15	20
(lbs)	11	33	44

Sizes Available and Recommended Currents (Amp.)

Size mm(in)	0.9 (.035)	1.2 (.045)	1.6 (1/16)
F & HF	50~220	100~320	170~390
V-up,OH	50~140	50~140	-

Applications

Butt and fillet welding of steel structures such as vehicles, machinery and bridges.

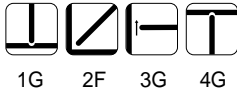
Characteristics on Usage

SM-70 is a solid wire designed for all position welding by short-circuiting type transfer. As the deposition efficiency is high and penetration is deep, highly efficient welding can be performed.

Notes on Usage

- ① Use with CO₂ /Argon+15~25% CO₂ gas.
- ② The Flow of quantity of shielding gas should be approximately 25ℓ /min.
- ③ Use wind screen against wind.
- ④ Keep distance between tip and base metal 6~15mm for less than 250A, and 15~25mm for more than 250A of welding current.

Welding Position



Current

DC +

Shielding Gas

CO₂/Ar+ CO₂

Typical Chemical Composition of Wire (%)

C	Si	Mn	P	S
0.08	0.95	1.70	0.019	0.015

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)
461 (66,900)	560 (81,200)	29	-29 (-20)	95 (55)

Approval

I Packing (Including Ball Pac)

Dia. (mm) (in)	0.9 .035	1.2 .045	1.4 .052	1.6 1/16	Spool(kg) (lbs)	5 11	15 33	20 44
Ball Pac								

Sizes Available and Recommended Currents (Amp.)

Size mm(in)	0.9 (.035)	1.2 (.045)	1.6 (1/16)
F & HF	50~220	100~320	170~390
V-up,OH	50~140	50~140	-

Applications


Flat and horizontal fillet welding of construction machinery, structural steels, bridges, ships, vehicles, etc.

Characteristics on Usage

SM-70G is a solid MIG wire for flat and horizontal fillet welding and is to be used in a high current welding with CO₂ shielding gas. It benefits from a high deposition rate and excellent penetration. As this wire contains special elements, its weldability and impact values are excellent.

Notes on Usage

- ① Use with CO₂ gas.
- ② Flow quantity of shielding gas should be 25ℓ /min. approximately.
- ③ Use wind screen against wind.
- ④ Keep distance between tip and base metal of 6~15mm for less than 250A, and 15~25mm for more than 250A of welding current.

Welding Position	Current	Shielding Gas
 1G 2F	DC +	CO ₂

Typical Chemical Composition of Wire (%)

C	Si	Mn	P	S	Ti
0.05	0.82	1.53	0.013	0.010	0.18

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)
450 (65,300)	560 (81,200)	28	-29 (-20)	80 (59)

Approval

I Packing (Including Ball Pac)

KR, ABS, LR, BV, DNV, GL, NK,	Dia. (mm)	0.9	1.2	1.4	1.6	Spool(kg)	15 20
	(in)	.035	.045	.052	1/16		
	Ball Pac						

Sizes Available and Recommended Currents (Amp.)

Size mm(in)	1.2 (.045)	1.4 (.052)	1.6 (1/16)
F & HF	200~350	250~450	300~550

Applications

Butt and fillet welding of vehicles, buildings, ships, machinery, etc.

Characteristics on Usage

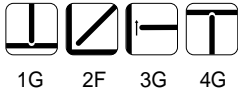
SM-70S is a solid wire designed for all position welding and high speed welding of steel sheets can be performed easily by short-circuiting welding.

Arc is stable and spatter loss is low.

Notes on Usage

- ① Use with CO₂/Argon+15~25% CO₂ gas.
- ② Flow quantity of shielding gas should be 25ℓ /min. approximately.
- ③ Use wind screen against wind.
- ④ Keep the distance between tip and base metal of 6~15mm for less than 250A, and 15~25mm for more than 250A of welding current.

Welding Position



Current

DC +

Shielding Gas

CO₂/Ar+CO₂

Typical Chemical Composition of Wire (%)

C	Si	Mn	P	S
0.07	0.65	1.14	0.015	0.010

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)
440 (63,900)	560 (81,300)	28	-20 (-4)	80 (59)

Approval

ABS, LR, CWB

I Packing (Including Ball Pac)

Dia. (mm)	0.9	1.2	1.4	1.6	Spool(kg)	15	20
(in)	.035	.045	.052	1/16	(lbs)	33	44
Ball Pac							

Sizes Available and Recommended Currents (Amp.)

Size mm(in)	0.9 (.035)	1.2 (.045)	1.6 (1/16)
F & HF	50~200	80~350	170~390
V-up,OH	50~140	50~160	-

Applications

Butt and fillet welding of ships, steel structures and machinery.

Characteristics on Usage

SM-70GS is a solid wire for flat and fillet welding and is to be used with a high current welding with Ar+CO₂ mixed gas.

As this wire contains special elements, its weldability and impact values are excellent.

Notes on Usage

- ① Use with Ar+15~20% CO₂ gas.
- ② Flow quantity of shielding gas should be 25ℓ /min. approximately.
- ③ Use wind screen against wind.

Welding Position



1G 2F

Current

DC +

Shielding Gas

Ar+CO₂

Typical Chemical Composition of Wire (%)

C	Si	Mn	P	S	Ti
0.06	0.62	1.21	0.015	0.006	0.10

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 (69,700)	550 (79,800)	28	-20 (-4)	90 (66)

Approval

I Packing (Including Ball Pac)

LR	Dia. (mm)	1.2	1.4	1.6	Spool(kg)	15 20
	(in)	.045	.052	1/16		
	Ball Pac					

Sizes Available and Recommended Currents (Amp.)

Size mm(in)	1.2 (.045)	1.4 (.052)	1.6 (1/16)
F & HF	80~300	150~350	200~390

Applications

Flat and horizontal fillet welding of construction machinery, structural steels, bridges, ships and vehicles.

Characteristics on Usage

SM-55H is a solid wire for flat and horizontal fillet welding and is to be used in high current welding with CO₂ shielding gas.

It benefits from a high deposition rate and excellent penetration.

As this wire contains special elements, its weldability and impact values are excellent.

Notes on Usage

- ① Use with CO₂ gas.
- ② Shielding gas flow rate should be 25ℓ /min.
- ③ Use wind screen against wind.
- ④ Keep distance between tip and base metal of 6~15mm for less than 250A, and 15~25mm for more than 250A of welding current.

Welding Position



1G 2F

Current

DC +

Shielding Gas

CO₂

Typical Chemical Composition of Wire (%)

C	Si	Mn	P	S	Ti
0.07	0.89	1.95	0.016	0.007	0.18

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)
550 (79,800)	630 (91,500)	28	0 (32)	110 (81)

Approval

I Packing (Including Ball Pac)

Dia. (mm)	1.2	1.4	1.6	Spool(kg)	15	20
(in)	.045	.052	1/16	(lbs)	33	44
Ball Pac						

Sizes Available and Recommended Currents (Amp.)

Size mm(in)	1.2 (.045)	1.4 (.052)	1.6 (1/16)
F & HF	200~350	250~450	300~550

Applications

Butt and fillet welding of steel structures and using 550MPa or 600MPa tensile steels such as construction machinery, buildings and pressure vessels.


Characteristics on Usage

SM-80G is a solid wire for flat and horizontal fillet welding position. As the deposition rate is very high, highly efficient welding can be performed.

As the wire contains special elements, its bead appearance is excellent.

Notes on Usage

- ① Use with CO₂ gas.
- ② Flow quantity of shielding gas should be 25ℓ /min. approximately.
- ③ Use wind screen against wind.
- ④ Keep distance between tip and base metal of 6~15mm for less than 250A, and 15~25mm for more than 250A of welding current.

Welding Position	Current	Shielding Gas
 1G 2F	DC +	CO ₂

Typical Chemical Composition of Wire (%)

C	Si	Mn	P	S	Mo	Ti
0.06	0.81	1.85	0.018	0.007	0.27	0.15

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)
580 (84,200)	660 (95,800)	24	-20 (-4)	120 (88)

Approval

I Packing (Including Ball Pac)

ABS	Dia. (mm)	1.2	1.4	1.6	Spool(kg)	15 20
	(in)	.045	.052	1/16		
	Ball Pac					

Sizes Available and Recommended Currents (Amp.)

Size mm(in)	1.2 (.045)	1.4 (.052)	1.6 (1/16)
F & HF	200~350	280~500	300~550

Applications

All position welding of Industrial machine tools, pressure vessels, boiler structures and ocean structures.

Characteristics on Usage

- ① 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.
- ② Excellent TS and Impact value in a high temperature after heat treatment.

Typical Chemical Composition of Wire (%)

C	Si	Mn	Cr	Mo
0.09	0.67	1.02	1.19	0.45

Typical Mechanical Properties of All-Weld Metal

Type	TS MPa(lbs/in ²)	EL (%)	CVN-Impact Value J (ft · lbs)		PWHT
			-0°C (32°F)	-20°C (-4°F)	
SM-80CM	630 (91,500)	27	140 (103)	120 (88)	690°C - 1Hr
ST-80CM	630 (91,500)	28	290 (215)	280 (207)	

Typical Welding Conditions (GMAW: DC+(Pulse), GTAW: DC -)

Type	Dia (mm)	Amp (A)	Vol (V)	Cpm (cm/min)	Gas Flow (ℓ /min)	Shielding Gas
SM-80CM	1.2	250	26	30	25	100% Ar or Ar +2% O ₂
	1.6	300	29	35		

Type	Dia (mm)	Tungsten (mm)	Amp (A)	Gas Flow (ℓ /min)	Shielding Gas
ST-80CM	1.0~2.0	1.4	50~100	25	Ar
	1.6~3.2	2.4	100~200		
	2.4~3.2	3.2	200~300		
	3.2	4.0	300~400		

Applications

SM-100 is a 0.3Cr-1.7Ni-0.25Mo-alloyed, bare, solid wire for the GMAW of high strength steels with low-temperature impact toughness requirements.

Characteristics on Usage

Characteristic features include excellent start properties, trouble-free feeding at high wire speeds and lengthy feed distances, a very stable arc at high welding currents, extremely low levels of spatter, low fume emission, reduced contact tip wear and improved protection against corrosion of the wire.

Notes on Usage

- ① Use with 100%Ar or Ar+2~20%CO₂ gas.
- ② Flow quantity of shielding gas should be 25ℓ/min. approximately.
- ③ Use the wind-screen against wind.

Shielding Gas

Ar + CO₂ (M21)

Current

Pulse

Typical Chemical Composition of Wire (%)

C	Si	Mn	P	S	Cr	Ni	Mo	V	Fe
0.081	0.48	1.76	0.014	0.012	0.28	1.76	0.23	0.09	Rem.

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)
670 (97,300)	800 (116,000)	17.2	-20 (-4) -40 (-40)	42 (31) 40 (30)

Approval

I Packing (Including Ball Pac)

Dia. (mm)	1.2	1.6	Spool(kg)	5	12.5	15
(in)	.045	1/16	(lbs)	11	28	33

Sizes Available and Recommended Currents (Amp.)

Size mm (in)	1.2 (.045)
F & HF	170 ~ 270

Applications

SM-110 is a 0.3Cr-1.9Ni-0.5Mo-alloyed, bare, solid wire for the GMAW of high strength steels with low-temperature impact toughness requirements.

Characteristics on Usage

Characteristic features include excellent start properties, trouble-free feeding at high wire speeds and lengthy feed distances, a very stable arc at high welding currents; extremely low levels of spatter, low fume emission, reduced contact tip wear and improved protection against corrosion of the wire.

Notes on Usage

- ① Use with 100%Ar or Ar+2~20%CO₂ gas.
- ② Flow quantity of shielding gas should be 25ℓ /min. approximately.
- ③ Use the wind-screen against wind.

Shielding Gas

Ar + CO₂ (M21)

Current

Pulse

Typical Chemical Composition of Wire (%)

C	Si	Mn	P	S	Cr	Ni	Mo
0.089	0.75	1.83	0.015	0.012	0.3	1.90	0.52

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 (103,000)	887 (128,700)	19.4	-40 (-40) -60 (-76)	82 (60) 69 (51)

Approval

I Packing (Including Ball Pac)

Dia. (mm)	1.2	1.6	Spool(kg)	5	12.5	15
(in)	.045	1/16	(lbs)	11	28	33

Sizes Available and Recommended Currents (Amp.)

Size mm (in)	1.2 (.045)
F & HF	170 ~ 270

Applications

- ① Used for welding of austenite type STS 304 and high Mn steels.
- ② Used for joining dissimilar combinations of STS steels and carbon steels.

Characteristics on Usage

- ① Though SM-307Si is a austenite type stainless wire, the weld metal contains ferrite and resistance to crack is extremely good. The usability, such as arc stability and assimilability of welds to base metal is extremely good.
- ② Resistance to corrosion and the mechanical properties of the weld metal are good.

Typical Chemical Composition of 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/in ²)	EL (%)	CVN-Impact Value J (ft · lbs)		PWHT
		-0°C (32°F)	-20°C (-4°F)	
610 (88,600)	42	83 (63)	59 (43)	690°C - 1Hr

Typical Welding Conditions (Pulse)

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

Applications

MIG welding of 18%Cr-8%Ni steel for chemical industries such as oil, medical, fertilizer and textile industries and for nuclear reactors.

Characteristics on Usage

Though SM-308 is austenitic type stainless steel wire, the weld metal contains ferrite and resistance to crack is extremely good. The usability, such as arc stability and assimilability of welds to base metal is extremely good.

Resistance to corrosion and the mechanical properties of the weld metal are good.

Typical Chemical Composition of Wire (%)

C	Si	Mn	Ni	Cr
0.04	0.41	1.65	9.8	19.9

Typical Mechanical Properties of All-Weld Metal

TS MPa(lbs/in ²)	EL (%)	CVN-Impact Value J (ft · lbs)	
		0°C (32°F)	-20°C (-4°F)
590 (85,600)	40	100 (74)	50 (37)

Typical Welding Conditions (DC+)

Size mm(in)	A	V	Speed (cm/min.)	Gas Flow (ℓ /min.)	Remarks
1.2 (.045)	260	27	30	25	Shielding gas
1.6 (1/16)	300	29	34	25	100%Ar or Ar+2%O ₂

Applications

MIG welding of low carbon 18%Cr-8%Ni steel for chemical industries such as oil, medical, fertilizer and textile industries and for nuclear reactors.

Characteristics on Usage

Though SM-308L is austenitic type stainless steel wire, the weld metal contains ferrite and resistance to crack is extremely good. The usability, such as arc stability and assimilability of welds to base metal is extremely good.

Resistance to corrosion and the mechanical properties of the weld metal are good.

Typical Chemical Composition of Wire (%)

C	Si	Mn	Ni	Cr
0.02	0.35	1.60	10.1	19.9

Typical Mechanical Properties of All-Weld Metal

TS MPa(lbs/in ²)	EL (%)	CVN-Impact Value J (ft · lbs)	
		0°C(32°F)	-20°C (-4°F)
560 (81,300)	42	90 (66)	50 (37)

Typical Welding Conditions (DC+)

Size mm(in)	A	V	Speed (cm/min.)	Gas Flow (ℓ /min.)	Remarks
1.2 (.045)	260	27	30	25	Shielding gas
1.6 (1/16)	300	29	34	25	100%Ar or Ar+2%O ₂

Applications

MIG welding of low carbon 18%Cr-8%Ni steel for chemical industries such as oil, medical, fertilizer and textile industries and for nuclear reactors.

Characteristics on Usage

SM-308LSi is an austenitic type stainless steel wire, the weld metal contains ferrite and crack sensitivity is extremely good. The Usability, such as arc stability and assimilability of welds to base metal is extremely excellent.

Resistance to corrosion and mechanical properties of weld metal are great.

Typical Chemical Composition of Wire (%)

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

Typical Mechanical properties of All-Weld Metal

TS MPa(lbs/in ²)	EL (%)
610 (88,500)	40.4

Typical Welding Conditions (DC+)

Size mm(in)	A	V	Speed (cm/min.)	Gas Flow (ℓ /min.)	Remarks
1.2	250	26	30	25	100%Ar or
1.6	300	29	35		Ar+2~5%O ₂

Applications

MIG welding of 22%Cr-12%Ni steel, heat resistant cast steel clad side of 18%Cr-8%Ni clad steel and stainless steel to Cr-Mo steel or carbon steel.

Characteristics on Usage

As the weld metal contains ferrite, its crack resistibility is good.
Due to its high level of alloy, it has excellent resistance to heat.

Typical Chemical Composition of Wire (%)

C	Si	Mn	Ni	Cr
0.09	0.39	1.60	12.8	23.5

Typical Mechanical Properties of All-Weld Metal

TS MPa(lbs/in ²)	EL (%)
660 (95,700)	36

Typical Welding Conditions (DC+)

Size mm(in)	A	V	Speed (cm/min.)	Gas Flow (ℓ /min.)	Remarks
1.2 (.045)	250	26	30	25	Shielding gas
1.6 (1/16)	290	28	34	25	100%Ar or Ar+2%O ₂

Approval

ABS

Applications

MIG welding of 22%Cr-12%Ni steel, heat resistant cast steel clad side of 18%Cr-8%Ni clad steel and stainless steel to Cr-Mo steel or carbon steel.

Characteristics on Usage

As the weld metal contains ferrite, its resistance to crack is good.
Due to its high level of alloy, it has excellent heat resistance.

Typical Chemical Composition of Wire (%)

C	Si	Mn	Ni	Cr
0.03	0.41	1.58	12.8	23.5

Typical Mechanical Properties of All-Weld Metal

TS MPa(lbs/in ²)	EL (%)
640 (92,900)	38

Typical Welding Conditions (DC+)

Size mm(in)	A	V	Speed (cm/min.)	Gas Flow (ℓ /min.)	Remarks
1.2 (.045)	250	26	30	25	Shielding gas
1.6 (1/16)	290	28	34	25	100%Ar or Ar+2%O ₂

Applications

MIG welding of 22%Cr-12%Ni steel, heat resistant cast steel clad side of 18%Cr-8%Ni clad steel and stainless steel to Cr-Mo steel or carbon steel.

Characteristics on Usage

SM-309LSi is an austenitic type stainless steel wire, the weld metal contains ferrite and crack sensitivity is extremely good. The Usability, such as arc stability and assimilability of welds to base metal is extremely excellent. The high silicon content of wire improves the welding properties, such as arc stability and bead wetting. Resistance to corrosion and mechanical properties of weld metal are great.

Typical Chemical Composition of Wire (%)

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

Typical Mechanical Properties of All-Weld Metal

TS MPa(lbs/in ²)	EL (%)
571 (82,800)	40.2

Typical Welding Conditions (DC+)

Size mm(in)	A	V	Speed (cm/min.)	Gas Flow (ℓ /min.)	Remarks
1.2 (.045)	250	26	30	25	Shielding gas 100%Ar or Ar+2%O ₂
1.6 (1/16)	300	29	35		

Applications

Mig Welding of dissimilar metals such as stainless steels and carbon steels

Characteristics on Usage

This wire contains a high ferrite level in its austenitic structure thus providing superior heat and corrosion resistance. SM-309MoL is suitable for the build up on low alloy or mild steel and welding of STS 316, 316L clad steel

Typical Chemical Composition of Wire (%)

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

Typical Mechanical Properties of All-Weld Metal

TS MPa(lbs/in ²)	EL (%)
660 (95,700)	34

Typical Welding Conditions (DC+)

Size mm(in)	A	V	Speed (cm/min.)	Gas Flow (ℓ /min.)	Remarks
1.2 (.045)	250	26	30	25	Shielding gas
1.6 (1/16)	300	29	35	25	100%Ar or Ar+2%O ₂

Applications

MIG welding of 25%Cr-20%Ni stainless steel, welding on the clad side of stainless clad steel.
 Welding of dissimilar metals.

Characteristics on Usage

SM-310 has full austenitic structure.

Typical Chemical Composition of Wire (%)

C	Si	Mn	Ni	Cr
0.09	0.35	1.90	20.9	26.8

Typical Mechanical Properties of All-Weld Metal

TS MPa(lbs/in ²)	EL (%)
610 (88,500)	40

Typical Welding Conditions (DC+)

Size mm(in)	A	V	Speed (cm/min.)	Gas Flow (ℓ /min.)	Remarks
1.2 (.045)	250	26	30	25	Shielding gas
1.6 (1/16)	300	29	35	25	100%Ar or Ar+2%O ₂

Applications

Mig Welding of 29%Cr-9%Ni stainless steel and dissimilar metals

Characteristics on Usage

Due to high Cr content, it has excellent resistance to corrosion.

This wire contains a high ferrite level in its austenitic structure thus providing better crack resistance.

SM-312 is suitable for the welding of dissimilar metal such as stainless steels, mild steels and low alloy and used build up of hardfacing.

Typical Chemical Composition of Wire (%)

C	Si	Mn	Ni	Cr
0.10	0.38	1.68	8.8	30.0

Typical Mechanical Properties of All-Weld Metal

TS MPa(lbs/in ²)	EL (%)
720 (104,400)	32

Typical Welding Conditions (DC+)

Size mm(in)	A	V	Speed (cm/min.)	Gas Flow (ℓ /min.)	Remarks
1.2 (.045)	250	26	30	25	Shielding gas
1.6 (1/16)	300	29	35	25	100%Ar or Ar+2%O ₂

Applications

MIG welding of 18%Cr-12%Ni-2%Mo stainless steel for chemical industries and nuclear reactors.

Characteristics on Usage

Though SM-316 is austenitic type stainless steel wire, the weld metal contains ferrite and resistance to crack is quite good.

The usability, such as arc stability and assimilability of welds to base metal is good.

Resistance to corrosion and heat is quite good.

Typical Chemical Composition of Wire (%)

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

Typical Mechanical Properties of All-Weld Metal

TS MPa(lbs/in ²)	EL (%)
580 (84,100)	39

Typical Welding Conditions (DC+)

Size mm(in)	A	V	Speed (cm/min.)	Gas Flow (ℓ /min.)	Remarks
1.2 (.045)	250	26	30	25	Shielding gas
1.6 (1/16)	300	29	35	25	100%Ar or Ar+2%O ₂

Applications

MIG welding of low carbon 18%Cr-12%Ni-2%Mo stainless steel for chemical industries and nuclear reactors.

Characteristics on Usage

Though SM-316L is austenitic type stainless steel wire, the weld metal contains ferrite and resistance to crack is quite good.

The usability, such as, arc stability and assimilability of welds to base metal is good.

Resistance to corrosion and heat is quite good.

Typical Chemical Composition of Wire (%)

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

Typical Mechanical Properties of All-Weld Metal

TS MPa(lbs/in ²)	EL (%)
570 (82,700)	39

Typical Welding Conditions (DC+)

Size mm(in)	A	V	Speed (cm/min.)	Gas Flow (ℓ /min.)	Remarks
1.2 (.045)	250	26	30	25	Shielding gas
1.6 (1/16)	300	29	35	25	100%Ar or Ar+2%O ₂

Approval

ABS

Applications

MIG welding of low carbon 18%Cr-12%Ni-2% Mo steel for chemical industries and nuclear reactors.

Characteristics on Usage

SM-316LSi is an austenitic type stainless steel wire , the weld metal contains ferrite and crack sensitivity is extremely good. The Usability, such as arc stability and assimilability of welds to base metal is extremely excellent. The high silicon content of wire improves the welding properties, such as arc stability and bead wetting. Resistance to corrosion and mechanical properties of weld metal are great.

Typical Chemical Composition of Wire (%)

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

Typical Mechanical Properties of All-Weld Metal

TS MPa(lbs/in ²)	EL (%)
597 (86,600)	37

Typical Welding Conditions (DC+)

Size mm(in)	A	V	Speed (cm/min.)	Gas Flow (ℓ /min.)	Remarks
1.2 (.045)	250	26	30	25	Shielding gas 100%Ar or Ar+2%O ₂
1.6 (1/16)	300	29	35		

Applications

Mig Welding of 18%Cr-8%Ni-Nb(STS 347) and 18%Cr-8%Ni-Ti(STS 321) stainless steel

Characteristics on Usage

As the weld metal contains ferrite, its resistance to crack is good.

SM-347 has stabilizing element (Nb) thus providing good intergranular corrosion resistance and better heat resistance.

Due to high creep strength at high temperature, suitable for the welding of boiler and gas turbine.

Typical Chemical Composition of Wire (%)

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

Typical Mechanical Properties of All-Weld Metal

TS MPa(lbs/in ²)	EL (%)
680 (98,600)	30

Typical Welding Conditions (DC+)

Size mm(in)	A	V	Speed (cm/min.)	Gas Flow (ℓ /min.)	Remarks
1.2 (.045)	250	26	30	25	Shielding gas
1.6 (1/16)	300	29	35	25	100%Ar or Ar+2%O ₂

Applications

- ① Used for welding of 22%Cr-5%Ni-2%Mo-0.15%N STS steel.
- ② Used for welding of offshore oil/gas, chemical and petrochemical process industries, e.g. pipework systems, flowlines, risers, manifolds etc.

Characteristics on Usage

- ① Duplex stainless steel pipes, plates, fittings and forgings have an approximate 50:50 microstructure of austenite with a ferrite matrix.
- ② Preheat not generally required. Interpass temperature 100 ~ 150°C max, heat input in the range 1.0 ~ 1.5KJ/min - depending on material thickness.
- ③ Good general corrosion resistance in a range of environments.
- ④ High resistance to chloride induced stress corrosion cracking (CSCC).

Typical Chemical Composition of Wire (%)

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

Typical Mechanical Properties of All-Weld Metal

TS MPa(lbs/in ²)	EL (%)	Temp. °C (°F)	CVN-Impact Value J (ft · lbs) 0°C (32°F)	PREN
784 (113,700)	30	-20 (-4)	83	35

Ferrite Contents of All-Weld Metal (Shielding gas : 100%Ar)

	WRC-1992	Shaeffler Diagram(%)
As welded	40.8	46.4

Typical Welding Conditions (DC+)

Size mm(in)	A	V	Speed (cm/min.)	Gas Flow (ℓ /min.)	Remarks
1.2 (.045)	250	26	30	25	Shielding gas
1.6 (1/16)	300	29	35	25	100%Ar or Ar+2%O ₂

Applications

Mig Welding of 13%Cr stainless steel (STS 403, STS 410)

Characteristics on Usage

Structure of all-weld metal is martensite having magnetic properties thus providing high hardness, good anti-abrasive property.

Due to excellent resistance to corrosion and abrasion, It can be used to hardfacing application.

Typical Chemical Composition of Wire (%)

C	Si	Mn	Ni	Cr
0.10	0.38	0.34	0.17	12.0

Typical Mechanical Properties of All-Weld Metal

TS MPa(lbs/in ²)	EL (%)
540 (78,300)	35

Typical Welding Conditions (DC+)

Size mm(in)	A	V	Speed (cm/min.)	Gas Flow (ℓ /min.)	Remarks
1.2 (.045)	250	26	30	25	Shielding gas
1.6 (1/16)	300	29	35	25	100%Ar or Ar+2%O ₂

Applications

- ① SM-430LNb is a Mig wire for horizontal, fillet and flat position welding of 429 and 444 type stainless steels.
- ② Mainly used for automotive exhaust applications, especially for manifolds and catalytic converter canning.

Characteristics on Usage

- ① This wire gives excellent bead appearance and provides the operator with a soft stable arc and low spatter levels thus giving enhanced appearance.

Typical Chemical Composition of Wire (%)

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

Typical Welding Conditions (Pulse)

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

NOTE



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