

SMT-08

2021.04



❖ Specification

AWS A5.14/ ASME SFA5.14 ERNiMo-8
JIS Z3334 S Ni1008
EN ISO 18274 - S Ni 1008

❖ Applications

Wedling of LNG storage tank(9% Nickel steel), FPSO

❖ Characteristics on Usage

1. Good toughness at cryogenic temperatures.
2. Excellent strength in various temperature range.
3. Stable arc and smooth bead appearance.

❖ Note on Usage

Use 100%Ar or Ar+2%O₂ gas

❖ Packing

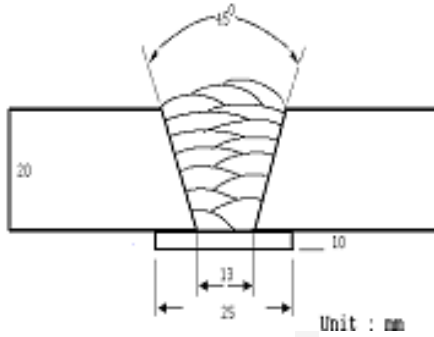
Dia.	1.2mm (0.045in)
Weight	12.5kg (27.6lbs)

Dia.	1.6mm (1/16in)	2.0mm (5/64in)	2.4mm (3/32in)	2.6mm (0.10in)	3.2mm (1/8in)
Weight	5kg (11lbs)				



Chemical Composition of Wire / All Weld Metal & Mechanical Properties of All Weld Metal (GMAW)

❖ Welding Conditions



[Joint Preparation & Layer Details]

- Diameter(mm) : 1.2mm
- Shielding Gas : 100%Ar
- Flow Rate(ℓ /min.) : 20~25
- Amp./ Volt. : 280/32
- Pre-Heat(°C) : R.T.
- Interpass Temp.(°C) : 150 ± 15
- Polarity : DC(+)

❖ Chemical Analysis of Wire(wt%)

Consumable	C	Si	Mn	P	S	Ni	Cr	Mo	Cu	W	Fe	Other*
SMT-08	0.021	0.18	0.07	0.007	0.001	69.01	2.25	19.23	0.007	3.17	5.68	0.01
AWS A5.14 ERNiMo-8	≤0.10	≤0.50	≤1.0	≤0.015	≤0.015	≥60.0	0.5 ~3.5	18.0 ~21.0	≤0.50	2.0 ~4.0	≤10.0	≤0.50

* Other Elements Total shall include Pb, Sn, Zn

❖ Chemical Analysis of All weld metal(wt%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu	W	Fe	Other
0.017	0.27	0.03	0.007	0.001	71.4	1.6	18.1	0.041	2.67	6.04	0.01

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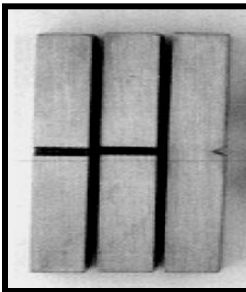


Chemical Composition of Wire / All Weld Metal & Mechanical Properties of All Weld Metal (GMAW)

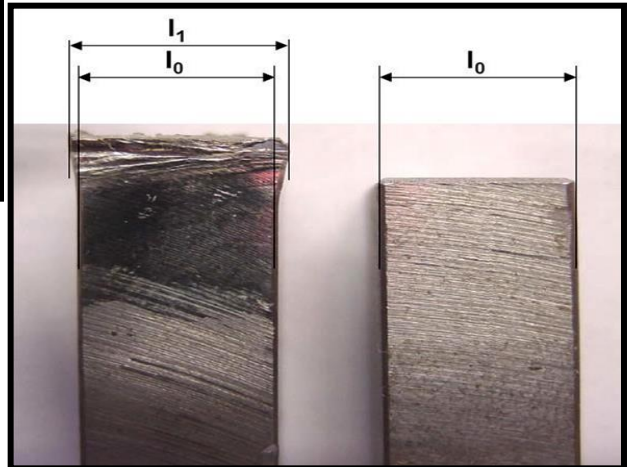
❖ Mechanical Properties of All weld metal

Consumable	Tensile Test Results		
SMT-08	YS MPA (ksi)	TS MPA (ksi)	EL (%)
	444 (63.9)	737 (106.1)	54
AWS A5.14 ERNiMo-8	-	≥ 660	-

CVN Impact test Joule (ft·lbs)				
°C (°F)	X1	X2	X3	Avg.
-196 (-320.8)	107 (124)	116 (130)	110 (126)	111 (127)
Lateral expansion mm (mil)				
°C (°F)	X1	X2	X3	Avg.
-196 (-320.8)	1.89 (74.46)	2.01 (79.19)	1.92 (75.64)	1.94 (76.43)



Lateral expansion = $I_1 - I_0$

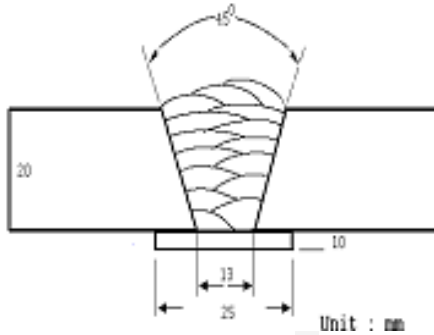


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Chemical Composition of Wire / All Weld Metal & Mechanical Properties of All Weld Metal (GMAW)

❖ Welding Conditions



[Joint Preparation & Layer Details]

Diameter(mm)	: 1.2mm
Shielding Gas	: Ar+2%O ₂
Flow Rate(ℓ /min.)	: 20~25
Amp./ Volt.	: 280/32
Pre-Heat(°C)	: R.T.
Interpass Temp.(°C)	: 150 ± 15
Polarity	: DC(+)

❖ Chemical Analysis of Wire(wt%)

Consumable	C	Si	Mn	P	S	Ni	Cr	Mo	Cu	W	Fe	Other*
SMT-08	0.021	0.18	0.07	0.007	0.001	69.01	2.25	19.23	0.007	3.17	5.68	0.01
AWS A5.14 ERNiMo-8	≤0.10	≤0.50	≤1.0	≤0.015	≤0.015	≥60.0	0.5 ~3.5	18.0 ~21.0	≤0.50	2.0 ~4.0	≤10.0	≤0.50

* Other Elements Total shall include Pb, Sn, Zn

❖ Chemical Analysis of All weld metal(wt%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu	W	Fe	Other
0.011	0.27	0.03	0.007	0.001	71.0	1.6	17.7	0.042	2.66	6.78	0.01

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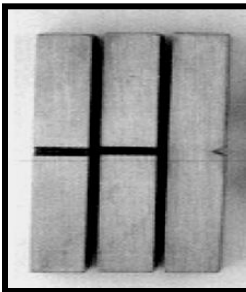


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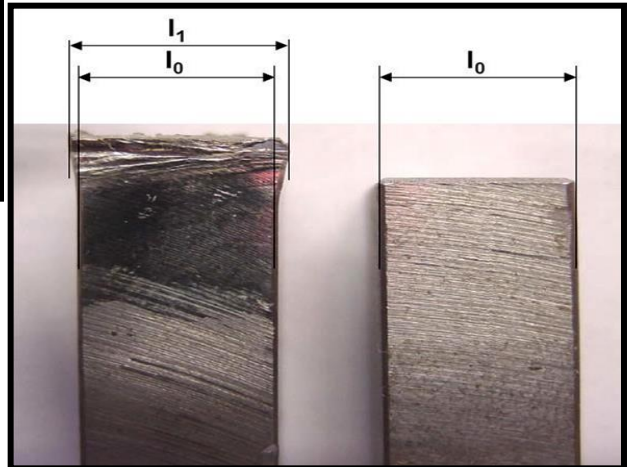
❖ Mechanical Properties of All weld metal

Consumable	Tensile Test Results		
SMT-08	YS MPA (ksi)	TS MPA (ksi)	EL (%)
	423 (60.9)	718 (103.4)	46
AWS A5.14 ERNiMo-8	-	≥ 660	-

CVN Impact test Joule (ft·lbs)				
°C (°F)	X1	X2	X3	Avg.
-196 (-320.8)	109 (125)	124 (136)	102 (120)	112 (127)
Lateral expansion mm (mil)				
°C (°F)	X1	X2	X3	Avg.
-196 (-320.8)	2.28 (89.83)	1.99 (78.40)	1.79 (70.52)	2.02 (79.58)



Lateral expansion = $I_1 - I_0$

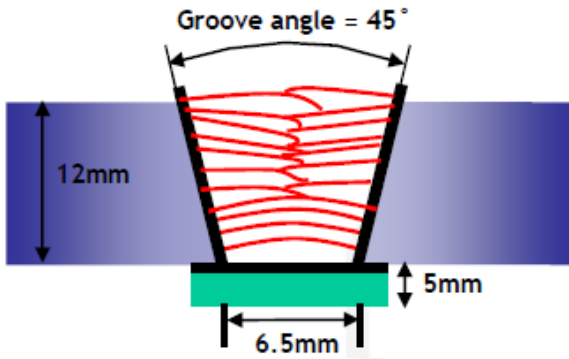


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Chemical Composition of Wire / All Weld Metal & Mechanical Properties of All Weld Metal (GTAW)

❖ Welding Conditions



[Joint Preparation & Layer Details]

Diameter(mm)	: 2.4mm
Shielding Gas	: 100%Ar
Flow Rate(ℓ /min.)	: 20~25
Amp./ Volt.	: 160~240
Pre-Heat(℃)	: R.T.
Interpass Temp.(℃)	: 150 ± 15
Polarity	: DC(-)

❖ Chemical Analysis of Wire(wt%)

Consumable	C	Si	Mn	P	S	Ni	Cr	Mo	Cu	W	Fe	Other*
SMT-08	0.021	0.18	0.07	0.007	0.001	69.01	2.25	19.23	0.007	3.17	5.68	0.01
AWS A5.14 ERNiMo-8	≤0.10	≤0.50	≤1.0	≤0.015	≤0.015	≥60.0	0.5 ~3.5	18.0 ~21.0	≤0.50	2.0 ~4.0	≤10.0	≤0.50

* Other Elements Total shall include Pb, Sn, Zn

❖ Chemical Analysis of All weld metal(wt%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu	W	Fe	Other
0.010	0.38	0.05	0.006	0.001	69.0	1.5	16.2	0.034	2.71	10.41	0.01

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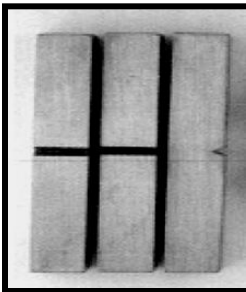


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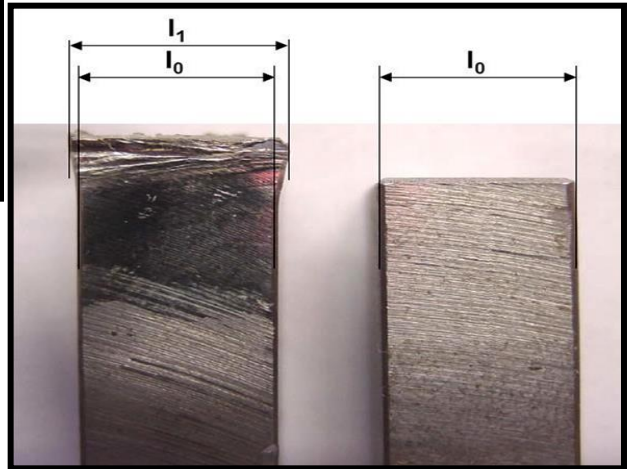
❖ Mechanical Properties of All weld metal

Consumable	Tensile Test Results		
SMT-08	YS MPA (ksi)	TS MPA (ksi)	EL (%)
	546 (78.6)	748 (107.7)	45
AWS A5.14 ERNiMo-8	-	≥ 660	-

CVN Impact test Joule (ft·lbs)				
°C (°F)	X1	X2	X3	Avg.
-196 (-320.8)	137 (101)	119 (88)	157 (116)	137 (101)
Lateral expansion mm (mil)				
°C (°F)	X1	X2	X3	Avg.
-196 (-320.8)	1.87 (73.67)	2.16 (85.10)	2.11 (83.13)	2.05 (80.77)



Lateral expansion = $I_1 - I_0$



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