

Rev. 06



FLUX CORED ARC WELDING CONSUMABLES FOR ATMOSPHERIC CORROSION RESISTING STEEL

2022.02

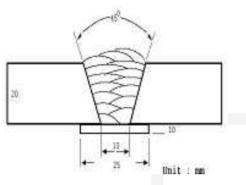
HYUNDAI WELDING CO., LTD.

	SF-70W
Specification	<i>EN ISO 17632-B</i> T49 2 T1-1 C1 A-NCC
	<i>JIS Z 3320</i> T49 2 T1-1 C A-NCC1 H10
Applications	All position welding of bridges, building using atmospheric corrosion resisting steels.
 Characteristics on Usage 	SF-70W is the most widely used titania type flux cored wire for all position welding with CO_2 shielding gas. Arc stability is excellent, so spatter loss is low and slag covering is uniform with good removability. SF-70W is effective for use in insufficient in insufficient ventilation and/or space areas.
Note on Usage	 For preheating guidelines, please refer to your local standards and codes relative to your best practices One-side welding defects such as hot cracking may occur with wrong welding parameter such as high welding speed.
	3. Use 100% CO ₂ gas.

SF-70W

Mechanical Properties & Chemical Composition of All Weld Metal

Welding Conditions



Amp./ Volt. Stick-Out Pre-Heat Interpass Tem

Diameter

Flow Rate

Polarity

Shielding Gas

Welding Position : 1G(PA) : 1.2mm (0.045in) : 100%CO₂

Method by AWS Spec.

: 20 ℓ /min

: 28	30A /	32V
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: 20~25mm (0.79~0.98in)

	:	R.T .	
np.	:	150±15℃	(302±59°F)

: DC(+)

[Joint Preparation & Layer Details]

Mechanical Properties of all weld metal

Consumable SF-70W	1	CVN Impact Test J(ft · Ibs)			
	YS MPa (Ibs/in²)	TS MPa (Ibs/in²)	EL (%)	−1 ℃ (30°F)	−18℃ (0°F)
	518 (75,000)	580 (84,000)	28.0	66 (49)	46 (34)
	1	N/S (Not Specified)		

Chemical Analysis of all weld metal(wt%)

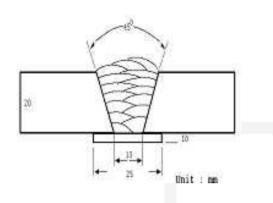
Consumable	С	Si	Mn	Р	S	Cu	Cr	Ni
SF-70W	0.04	0.45	1.09	0.014	0.009	0.40	0.52	0.35
N/S (Not Specified)								

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SF-70W

Mechanical Properties & Chemical Composition of All Weld Metal

Welding Conditions



Method by AWS Spec.							
Welding Position	: 1G(PA)						
Diameter	: 1.4mm (0.052in)						
Shielding Gas	: 100%CO2						
Flow Rate	: 20 l /min						
Amp./ Volt.	: 300A / 32V						
Stick-Out	: 20~25mm (0.79~0.98in)						
Pre-Heat	• R.T.						
Interpass Temp.	: 150±15℃ (302±59°F)						
Polarity	: DC(+)						

[Joint Preparation & Layer Details]

Mechanical Properties of all weld metal

Consumable	1	CVN Impact Test J(ft · Ibs)			
SF-70W	YS MPa (lbs/in²)	TS MPa (Ibs/in²)	EL (%)	−1 ℃ (30°F)	−18℃ (0°F)
3F-70W	522 (76,000)	585 (85,000)	27.5	62 (46)	44 (32)
	1	N/S (Not Specified)		

Chemical Analysis of all weld metal(wt%)

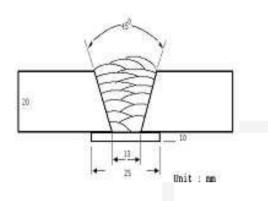
Consumable	С	Si	Mn	Р	S	Cu	Cr	Ni	
SF-70W	0.04	0.43	1.05	0.014	0.008	0.42	0.50	0.35	
N/S (Not Specified)									

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SF-70W

Mechanical Properties & Chemical Composition of All Weld Metal

Welding Conditions



[Joint Preparation & Layer Details]

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Welding Position	: 1G(PA)
Diameter	: 1.6mm (1/16in)
Shielding Gas	: 100%CO ₂
Flow Rate	: 20 l /min
Amp./ Volt.	: 320~330A / 29~30V
Stick-Out	: 20~25mm (0.79~0.98in)
Pre-Heat	• R.T .
Interpass Temp.	: 150±15℃ (302±59°F)
Polarity	: DC(+)

Method by AWS Spec.

Mechanical Properties of all weld metal

Consumable SF-70W	1	CVN Impact Test J(ft · Ibs)				
	YS MPa (Ibs/in²)	TS MPa (Ibs/in²)	EL (%)	−1 ℃ (30°F)	−18 ℃ (0°F)	
	520 (75,000)	578 (84,000)	28.0	76 (56)	48 (35)	
	٦	N/S (Not Specified)			

Chemical Analysis of all weld metal(wt%)

Consumable	С	Si	Mn	Р	S	Cu	Cr	Ni
SF-70W	0.04	0.42	1.05	0.014	0.008	0.38	0.50	0.34
N/S (Not Specified)								

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Welding Efficiency

***** Deposition Rate & Efficiency

Consumable	Welding Conditions		Wire Feed Speed	Deposition Efficiency	Deposition Rate
(size)	Amp.(A)	Volt.(V)	m/min (in/min)	%	kg/hr(lb/hr)
SF- 70W	200	26	10.2 (400)	84~87	3.4 (7.5)
1.2mm	250	28	11.5 (450)	85~88	4.5 (9.9)
(0.045in)	300	33	15.3 (600)	86~88	5.2 (11.4)
SF- 70W	250	28	7.6 (300)	85~87	3.9 (8.6)
1.4mm	300	32	10.2 (400)	85~88	4.8 (10.6)
(0.052in)	330	36	12.8 (500)	86~89	5.8 (12.8)
	280	31	6.4 (250)	85~88	4.2 (9.2)
SF- 70W	330	33	7.6 (300)	86~88	4.8 (10.6)
1.6mm (1/16in)	350	34	8.1 (320)	87~89	5.3 (11.7)
	400	38	9.2 (360)	87~90	5.7 (12.5)
F	lemark			Deposition efficiency =(Deposited metal weight/ Wire weight used)×100	Deposition rate =(Deposited metal weight/ Welding time,min.)×60

* Shielding Gas : 100%CO₂

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Diffusible Hydrogen Content

Welding Conditions

Diameter	: 1.4mm (0.052in)	Amps(A) / Volts(V)	:	240A / 27V
Shielding Gas	: 100%CO2	Stick-Out	:	20~25mm (0.79~0.98in)
Flow Rate	: 20 ℓ /min			(0.79~0.9011)
Welding Position	: 1G (PA)	Welding Speed	:	30 cm/min (12 in/min)
		Current Type & Polarity	:	DC(+)

Hydrogen Analysis Using Gas Chromatography Method

Hydrogen Evolution Time	:	72 hrs
Evolution Temp.	:	45 ℃ (113°F)
Barometric Pressure	:	780 mm-Hg

Result(ml/100g Weld Metal)

X1	X2	X3	X4
6.4	7.0	6.5	6.2

Average Hydrogen Content 6.5 ml / 100g Weld Metal

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Proper Welding Condition

Proper Current Range

Consumable Shielding Gas	Wolding	Wire Dia.			
	-	Welding Position	1.2mm (0.045in)	1.4mm (0.052in)	1.6mm (1/16in)
SF-70W		F & HF	120~300Amp	200~350Amp	200~400Amp
	100%CO ₂	V-Up & OH	120~260Amp	180~280Amp	(1/16in)
		V-Down	200~300Amp	220~320Amp	

F No & A No

F No	A No
6	1

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