

SC-70T Cored

METAL CORED ARC WELDING CONSUMABLE
FOR MILD & 490MPa CLASS HIGH TENSILE STEEL



❖ Specification

AWS A5.36	E70T15-C1A0-CS1 E70T15-M21A2-CS1
(AWS A5.36M)	E490T15-C1A2-CS1) E490T15-M21A3-CS1)
(AWS A5.18)	E70C-3C/-6M)
EN ISO 17632-A	T 42 2 M C1 1 H10 T 46 3 M M21 1 H5

❖ Applications

SC-70T Cored is ideally suited for thin plate welding and root pass welding of structure . And it is designed for high production and automatic applications where large amount of filler metal can be deposited with a minimum amount slag & spatter typical industrial applications including shipbuilding, machinery, bridge, structural fabrication and building

❖ Characteristics on Usage

SC-70T Cored is a metal-cored wire which combines the high deposition rates of a flux cored wire with the high efficiencies of a solid wire. It has excellent arc stability and negligible spatter level at not only high current but also low current (down to 50Amp) And it provides minimized slag coverage so it can be performed multi-pass welding without slag removal

❖ Note on Usage

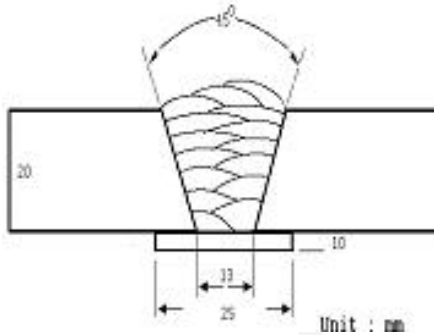
1. Proper preheating(50~150°C) and interpass temperature must be used in order to release hydrogen which may cause cracking in weld metal when electrodes are used for medium and heavy plates
2. Use 100% CO₂ or Ar + 20-25% CO₂ gas.



Mechanical Properties & Chemical Composition of All Weld Metal

❖ Welding Conditions

Method by AWS Spec.



[Joint Preparation & Layer Details]

Welding Position	: 1G(PA)
Diameter	: 1.2mm (0.045in)
Shielding Gas	: 100%CO ₂
Flow Rate	: 20 ℓ /min
Amp./ Volt.	: 280 / 32
Stick-Out	: 20~25mm (0.79~0.98in)
Pre-Heat	: R.T .
Interpass Temp.	: 150±15℃ (302±59°F)
Polarity	: DC(+)

❖ Mechanical Properties of the weld metal

Consumable	Tensile Test			CVN Impact Test J(ft · lbs)	
	YS Mpa(ksi)	TS Mpa(ksi)	EL (%)	0℃ (32°F)	-20℃ (-4°F)
SC-70T Cored	473(69)	551(80)	29.0	99(73)	69(51)
AWS A5.36 E70T15-C1A0-CS1	≥ 400 (58)	490~660 (70~95)	≥ 22	≥ 27J at -20℃ (≥ 20ft · lbs at -4°F)	

❖ Chemical Analysis of the weld metal(wt%)

Consumable	C	Si	Mn	P	S
SC-70T Cored	0.068	0.60	1.20	0.011	0.014
AWS A5.36 E70T15-C1A0-CS1	≤ 0.12	≤ 0.9	≤ 1.75	≤ 0.03	≤ 0.03

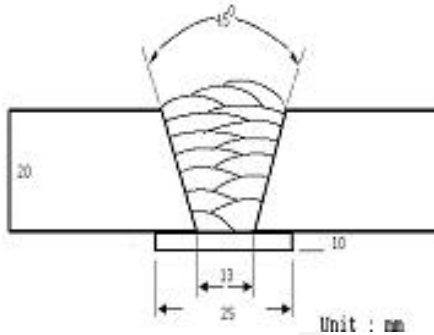
This information is provided solely for the purpose of confirming product conformance with applicable standards. The serviceability of a product or structure utilizing this type of information is and must be the sole responsibility of the builder/user. Many variables beyond the control of HYUNDAI WELDING CO., LTD. affect the results obtained in applying this type of information. These variables include, but are not limited to, welding procedure, shielding gas, plate chemistry and temperature, weldment design, fabrication methods and service requirements.



Mechanical Properties & Chemical Composition of All Weld Metal

❖ Welding Conditions

Method by AWS Spec.



[Joint Preparation & Layer Details]

Welding Position	: 1G(PA)
Diameter	: 1.2mm (0.045in)
Shielding Gas	: 80%Ar + 20%CO ₂
Flow Rate	: 20 ℓ /min
Amp./ Volt.	: 280A / 30V
Stick-Out	: 20~25mm (0.79~0.98in)
Pre-Heat	: R.T .
Interpass Temp.	: 150±15℃ (302±59°F)
Polarity	: DC(+)

❖ Mechanical Properties of the weld metal

Consumable	Tensile Test			CVN Impact Test J(ft · lbs)	
	YS Mpa(ksi)	TS Mpa(ksi)	EL (%)	0℃ (32°F)	-30℃ (-22°F)
SC-70T Cored	552(80)	598(87)	27.0	97(72)	65(48)
AWS A5.36 E70T15-M21A2-CS1	≥ 400 (58)	490~660 (70~95)	≥ 22	≥ 27J at -30℃ (≥ 20ft · lbs at -22°F)	

❖ Chemical Analysis of the weld metal(wt%)

Consumable	C	Si	Mn	P	S
SC-70T Cored	0.072	0.65	1.45	0.010	0.011
AWS A5.36 E70T15-M21A2-CS1	≤ 0.12	≤ 0.9	≤ 1.75	≤ 0.03	≤ 0.03

This information is provided solely for the purpose of confirming product conformance with applicable standards. The serviceability of a product or structure utilizing this type of information is and must be the sole responsibility of the builder/user. Many variables beyond the control of HYUNDAI WELDING CO., LTD. affect the results obtained in applying this type of information. These variables include, but are not limited to, welding procedure, shielding gas, plate chemistry and temperature, weldment design, fabrication methods and service requirements.



Diffusible Hydrogen Content

❖ Welding Conditions

Diameter	: 1.2mm (0.045in)	Amps / Volts	: 280A / 30V
Shielding Gas	: 80%Ar +20%CO ₂	Stick-Out	: 20~25mm (0.79~0.98in)
Flow Rate	: 20 ℓ /min	Welding Speed	: 30 cm/min (12 in/min)
Welding Position	: 1G (PA)	Current Type & Polarity	: DC(+)

❖ Hydrogen Analysis Using Gas Chromatography Method

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

❖ Result(ml/100g Weld Metal)

X1	X2	X3	X4
4.0	3.6	4.1	3.8

Average Hydrogen Content 3.9 ml / 100g Weld Metal



Welding Efficiency

❖ Deposition Rate & Efficiency

Shielding Gas	Welding Conditions		Wire Feed Speed m/min (in/min)	Deposition Efficiency(%)	Deposition Rate kg/hr(lb/hr)
	Amp.(A)	Volt.(V)			
1.2mm (0.045in) 100% CO ₂	80	17	2.4(90)	90~92	0.8(1.8)
	160	23	4.8(190)	91~93	2.8(6.2)
	250	28	9.8(390)	92~94	4.0(8.8)
	350	34	15.7(620)	94~96	6.8(15.0)
1.2mm (0.045in) 80%Ar+20% CO ₂	200	24	7.4(290)	92~94	2.7(5.9)
	250	28	9.8(390)	93~95	4.2(9.2)
	300	32	12.7(500)	95~97	5.7(12.5)
	350	34	15.7(620)	95~98	7.2(15.8)
Remark				Deposition efficiency =(Deposited metal weight/ Wire weight used)× 100	Deposition rate =(Deposited metal weight/ Welding time,min.)× 60

This information is provided solely for the purpose of confirming product conformance with applicable standards. The serviceability of a product or structure utilizing this type of information is and must be the sole responsibility of the builder/user. Many variables beyond the control of HYUNDAI WELDING CO., LTD. affect the results obtained in applying this type of information. These variables include, but are not limited to, welding procedure, shielding gas, plate chemistry and temperature, weldment design, fabrication methods and service requirements.



Proper Welding Condition

❖ Welding Conditions

Wire Size Shielding Gas	Thick.of Base metal(mm)	Welding Position	Proper Range of Amp.	Optimum
1.2mm (0.045in) 100%CO ₂ or 80%Ar+20%CO ₂	3~9	F & HF	50~160Amp	120A 16 ~17V
		V-Up	50~120Amp	80A 15~16V
		O.H.	50~120Amp	80A 15~16V
	> 9	F & HF	150~350Amp	260A 29~30V
		V-Up	80~160Amp	130A 17~18V
		O.H.	150~180Amp	160A 19~20V

This information is provided solely for the purpose of confirming product conformance with applicable standards. The serviceability of a product or structure utilizing this type of information is and must be the sole responsibility of the builder/user. Many variables beyond the control of HYUNDAI WELDING CO., LTD. affect the results obtained in applying this type of information. These variables include, but are not limited to, welding procedure, shielding gas, plate chemistry and temperature, weldment design, fabrication methods and service requirements.



Approvals

❖ Shipping Approvals

Shielding Gas	Resister of shipping & Size mm(in)						
	KR	ABS	LR	BV	DNV	GL	NK
100%CO ₂	-	3YSA, 3YSAH10 1.2 (0.045in)	3YSH10 1.2 (0.045in)	SA3YMHH 1.2 (0.045in)	IIIYMSH10 1.2 (0.045in)	3YH10S 1.2 (0.045in)	-
80%Ar +20%CO ₂	-	-	3YSH5 1.2~1.6 (0.045~1/16)	SA3YHHH 1.2~1.6 (0.045~1/16)	IIIYMH5 1.2~1.6 (0.045~1/16)	3YH5S 1.2~1.6 (0.045~1/16)	

❖ F No & A No

F No	A No
6	1