

Supercored 71H

FLUX CORED ARC WELDING CONSUMABLES
FOR WELDING OF Mild & 490Mpa CLASS
HIGH TENSILE STEEL

2022.02

HYUNDAI WELDING CO., LTD.



❖ Specification

AWS A5.20 E71T-1C,-9C-J

(AWS A5.20M) E491T-1C,-9C-J

EN ISO 17632-A T42 4 P C1 1

JIS Z3313 T49 4 T1-1 C A

AWS D1.8

Wire Dia. mm(in)		
1.2(0.045)	1.4(0.052)	1.6(1/16)

* AWS D1.8 is available upon request

❖ Applications

All position welding of shipbuilding, bridge, building and structural fabrications.

❖ Characteristics on Usage

Supercored 71H is a titania flux cored wire for all position welding with high amperage.

Its impact value is very good under high heat input, arc is smooth and slag detachability is excellent.

❖ Note on Usage

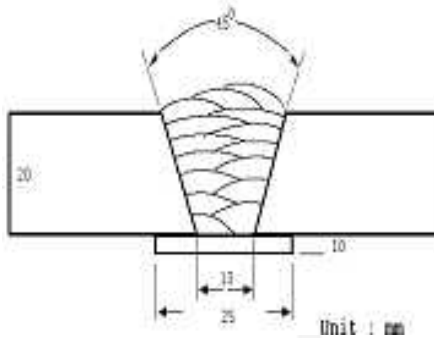
1. For preheating guidelines, please refer to your local standards and codes relative to your best practices.
2. One-side welding defect such as hot cracking may occur with welding parameter such as high welding speed.
3. Use 100% CO₂ gas.



Typical 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.	: 280A / 32V
Stick-Out	: 20~25mm (0.79~0.98in)
Pre-Heat	: R.T .
Interpass Temp.	: 150±15℃ (302±59°F)
Polarity	: DC(+)

❖ Mechanical Properties of all weld metal

Consumable	Tensile Test			CVN Impact Test J(ft · lbs)	
	YS MPa (lbs/in ²)	TS MPa (lbs/in ²)	EL (%)	-29℃ (-20°F)	-40℃ (-40°F)
Supercored 71H	550 (80,000)	570 (83,000)	28.0	90 (66)	60 (44)
AWS A5.20 E71T-1C,-9C-J	≥ 390 (56,000)	490~670 (70,000~ 97,000)	≥ 22	≥ 27J at -40℃ (≥ 20ft · lbs at -40°F)	

❖ Chemical Analysis of all weld metal(wt%)

Brand Name	C	Si	Mn	P	S
Supercored 71H	0.03	0.46	1.36	0.008	0.011
AWS A5.20 E71T-1C,-9C-J	≤ 0.12	≤ 0.9	≤ 1.75	≤ 0.03	≤ 0.03

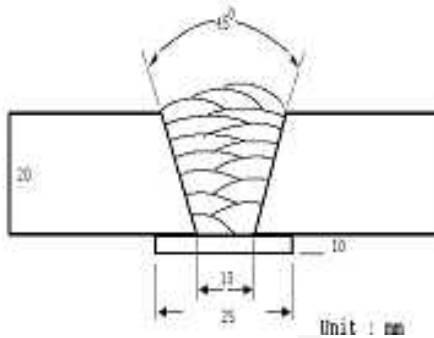
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Typical Mechanical Properties & Chemical Composition of All Weld Metal

❖ Welding Conditions

Method by AWS Spec.



[Joint Preparation & Layer Details]

Welding Position	: 1G(PA)
Diameter	: 1.4mm (0.052in)
Shielding Gas	: 100%CO ₂
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°C (302±59°F)
Polarity	: DC(+)

❖ Mechanical Properties of all weld metal

Consumable	Tensile Test			CVN Impact Test J(ft · lbs)	
	YS MPa (lbs/in ²)	TS MPa (lbs/in ²)	EL (%)	-29°C (-20°F)	-40°C (-40°F)
Supercored 71H	560 (81,000)	580 (84,000)	27.5	85 (63)	60 (44)
AWS A5.20 E71T-1C,-9C-J	≥ 390 (56,000)	490~670 (70,000~ 97,000)	≥ 22	≥ 27J at -40°C (≥ 20ft · lbs at -40°F)	

❖ Chemical Analysis of all weld metal(wt%)

Brand Name	C	Si	Mn	P	S
Supercored 71H	0.04	0.45	1.35	0.009	0.012
AWS A5.20 E71T-1C,-9C-J	≤ 0.12	≤ 0.9	≤ 1.75	≤ 0.03	≤ 0.03

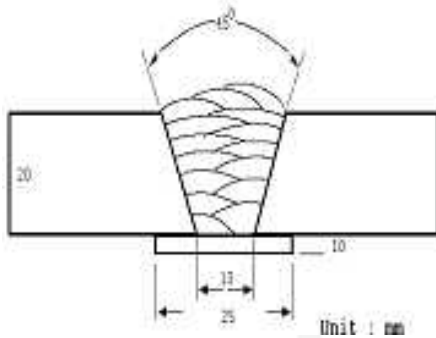
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Typical Mechanical Properties & Chemical Composition of All Weld Metal

❖ Welding Conditions

Method by AWS Spec.



[Joint Preparation & Layer Details]

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(+)

❖ Mechanical Properties of all weld metal

Consumable	Tensile Test			CVN Impact Test J(ft · lbs)	
	YS MPa (lbs/in ²)	TS MPa (lbs/in ²)	EL (%)	-29℃ (-20°F)	-40℃ (-40°F)
Supercored 71H	550 (80,000)	570 (83,000)	27.5	85 (63)	55 (41)
AWS A5.20 E71T-1C,-9C-J	≥ 390 (56,000)	490~670 (70,000~ 97,000)	≥ 22	≥ 27J at -40℃ (≥ 20ft · lbs at -40°F)	

❖ Chemical Analysis of all weld metal(wt%)

Brand Name	C	Si	Mn	P	S
Supercored 71H	0.04	0.45	1.34	0.009	0.011
AWS A5.20 E71T-1C,-9C-J	≤ 0.12	≤ 0.9	≤ 1.75	≤ 0.03	≤ 0.03

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Welding Efficiency

❖ Deposition Rate & Efficiency

Consumable (size)	Welding Conditions		Wire Feed Speed m/min (in/min)	Deposition Efficiency %	Deposition Rate kg/hr(lb/hr)
	Amp.(A)	Volt.(V)			
Supercored 71H 1.2mm (0.045in)	200	26	10.2 (400)	84~87	3.4 (7.5)
	250	28	11.5 (450)	85~88	4.5 (9.9)
	300	33	15.3 (600)	86~88	5.2 (11.4)
Supercored 71H 1.4mm (0.052in)	250	28	7.6 (300)	85~87	3.9 (8.6)
	300	32	10.2 (400)	85~88	4.8 (10.6)
	330	36	12.8 (500)	86~89	5.8 (12.8)
Supercored 71H 1.6mm (1/16in)	280	31	6.4 (250)	85~88	4.2 (9.2)
	330	33	7.6 (300)	86~88	4.8 (10.6)
	350	34	8.1 (320)	87~89	5.3 (11.7)
	400	38	9.2 (360)	87~90	5.7 (12.5)
Remark				Deposition efficiency =(Deposited metal weight/ Wire weight used)×100	Deposition rate =(Deposited metal weight/ Welding time,min.)×60

* Shielding Gas : 100%CO₂



Diffusible Hydrogen Content

❖ Welding Conditions

Diameter	: 1.4mm(0.052in)	Amps(A) / Volts(V)	: 240A / 27V
Shielding Gas	: 100%CO ₂	Stick-Out(mm)	: 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 Chromatograph 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
3.5	3.4	3.5	3.3

Average Hydrogen Content 3.4 ml / 100g Weld Metal



Proper Welding Condition

❖ Proper Current Range

Consumables	Shielding Gas	Welding Position	Wire Dia.		
			1.2mm (0.045in)	1.4mm (0.052in)	1.6mm (1/16in)
Supercored 71H	100%CO ₂	F & HF	120~300Amp	150~340Amp	180~360Amp
		V-Up & OH	120~260Amp	140~270Amp	160~280mp
		V-Down	200~300Amp	220~320Amp	250~300Amp

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Approvals

❖ Shipping Approvals

Welding Position	Register of shipping & Size					
	KR	ABS	LR	BV	DNV	NK
All V-Down	4YSMG(C) H10 1.2~1.4mm (0.045~ 0.052in)	4YSAH10 1.2~1.4mm (0.045~ 0.052in)	4YSH10 1.2~1.4mm (0.045~ 0.052in)	SA4YM HH 1.2~1.4mm (0.045~ 0.052in)	IVYSM(H5) 1.2~1.4mm (0.045~ 0.052in)	KSW54G(C) H10 1.2~1.4mm (0.045~ 0.052in)
	3YSMG(C) H10 1.6mm (1/16in)	3SAH10 1.6mm (1/16in)		SA3YM HH 1.6mm (1/16in)	IIYMS(H5) 1.6mm (1/16in)	KSW53G(C) H10 1.6mm (1/16in)

❖ F No & A No

F No	A No
6	1