HYUNDAI WELDING

Rev. 03

Supercored 71H

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

HYUNDAI WELDING CO., LTD.

Supercored 71H

❖ Specification

AWS A5.36	E71T1- C1A4- CS1
(AWS A5.36M	E491T1- C1A4- CS1)
(AWS A5.20	E71T- 1C/ - 9C/ - 9C J)
EN ISO 17632-A	T 42 4 P C 1H5

❖ 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. Proper preheating(50~150℃) 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

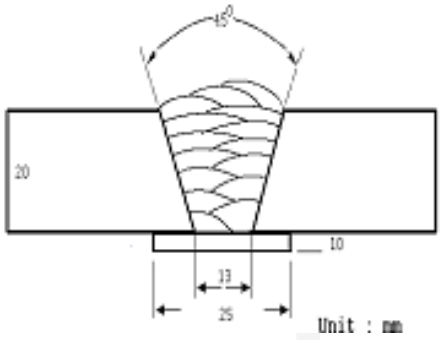
2. One- side welding defect such as hot cracking may occur with welding parameter such as high welding speed.

3. Use 100% CO_2 gas.

Mechanical Properties & Chemical Composition of All Weld Metal

❖ Welding Conditions

Method by AWS Rules



[Joint Preparation & Layer Details]

Welding Position	: 1G(PA)
Diameter(mm)	: 1.2mm
Shielding Gas	: 100%CO_2
Flow Rate(ℓ /min.)	: 20
Amp./ Volt.	: 280 / 32
Stick-Out(mm)	: 20~25
Pre-Heat(℃)	: R.T .
Interpass Temp.(℃)	: 150±15
Polarity	: DC(+)

❖ Mechanical Properties of the weld metal

Brand Name	Tensile Test Results			Charpy V-Notch Impact Value (Joules)	
Supercored 71H	YS(MPa)	TS(MPa)	EL(%)	-30℃	-40℃
	550	570	27	90	60
AWS A5.36 E71T1-C1A4-CS1	≥ 390	490~670	≥ 22	≥27J at -40℃	

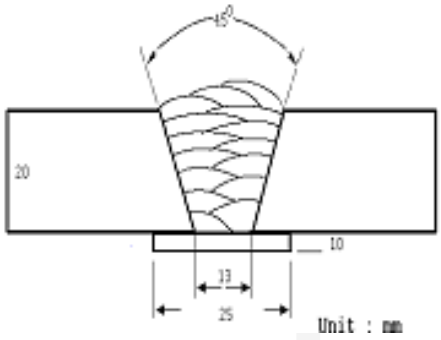
❖ Chemical Analysis of the weld metal(wt%)

Brand Name	C	Si	Mn	P	S
Supercored 71H	0.03	0.46	1.36	0.008	0.011
AWS A5.36 E71T1-C1A4-CS1	≤ 0.12	≤ 0.9	≤ 1.75	≤ 0.03	≤ 0.03

Mechanical Properties & Chemical Composition of All Weld Metal

❖ Welding Conditions

Method by AWS Rules



[Joint Preparation & Layer Details]

Welding Position	: 1G(PA)
Diameter(mm)	: 1.4mm
Shielding Gas	: 100%CO_2
Flow Rate(ℓ /min.)	: 20
Amp./ Volt.	: 300 / 32
Stick-Out(mm)	: 20~25
Pre-Heat(℃)	: R.T .
Interpass Temp.(℃)	: 150±15
Polarity	: DC(+)

❖ Mechanical Properties of the weld metal

Brand Name	Tensile Test Results			Charpy V-Notch Impact Value (Joules)	
Supercored 71H	YS(MPa)	TS(MPa)	EL(%)	-30℃	-40℃
	550	570	27.0	85	60
AWS A5.36 E71T1-C1A4-CS1	≥ 390	490~670	≥ 22	≥27J at -40℃	

❖ Chemical Analysis of the weld metal(wt%)

Brand Name	C	Si	Mn	P	S
Supercored 71H	0.04	0.45	1.35	0.009	0.012
AWS A5.36 E71T1-C1A4-CS1	≤ 0.12	≤ 0.9	≤ 1.75	≤ 0.03	≤ 0.03

Welding Efficiency

❖ Deposition Rate & Efficiency

Consumables	Welding Conditions		Deposition Efficiency(%)	Deposition Rate(kg/hr)
	Amp.(A)	Volt.(V)		
Supercored 71H 1.2mm	200	26	85~86	3.8
	280	32	86~87	5.5
	320	35	87~88	6.3
Supercored 71H 1.4mm	230	26	85~86	3.5
	300	32	87~88	4.9
	350	36	87~88	6.0
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(mm)	:	**1.4**	**Amps(A) / Volts(V)**	:	**300 / 32**
Shielding Gas	:	**100%CO_2**	**Stick-Out(mm)**	:	**20~25**
Flow Rate(ℓ /min.)	:	**20**	**Welding Speed**	:	**30 cpm**
Welding Position	:	**1G (PA)**	**Current Type & Polarity**	:	**DC(+)**

❖ Hydrogen Analysis Using Gas Chromatograph Method

Hydrogen Evolution Time	:	**72 hrs**
Evolution Temp.	:	**45 ℃**
Barometric Pressure	:	**780 mm-Hg**

❖ Result(㎖/100g Weld Metal)

X1	X2	X3	X4
3.5	**3.4**	**3.5**	**3.3**

Average Hydrogen Content 3.4 ㎖ / *100g Weld Metal*

Proper Welding Condition

❖ Proper Current Range

Consumables	Shielding Gas	Welding Position	Wire Dia. (mm)		
			1.2mm	1.4mm	1.6mm
Supercored 71H	100%CO2	F & HF	120~300Amp	150~350Amp	180~400Amp
		V-Up & OH	120~260Amp	140~270Amp	160~280mp
		V-Down	200~300Amp	220~320Amp	250~300Amp

Approvals

❖ Shipping Approvals

Welding Position	Register of shipping & Size(mm)						
	KR	ABS	LR	BV	DNV	GL	NK
All V-Down	4YSMG(C) H10 1.2~1.4 3YSMG(C) H10 1.6	4YSAH10 1.2~1.4 3SAH10 1.6	4YSH10 1.2~1.4	SA4YM HH 1.2~1.4 SA3YM HH 1.6	IVYSM H10 1.2~1.4 IIIYMS H10 1.6	4YS H10 1.2~1.4 3YS H10 1.6	KSW54G(C) H10 1.2~1.4 KSW53G(C) H10 1.6

❖ F No & A No

F No	A No
6	1