

# **Supercored 70MXH**

METAL CORED WIRE FOR HIGH SPEED  
TWIN SINGLE & TWIN TANDEM WELDING.

2022.02

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**HYUNDAI WELDING CO., LTD.**



## Supercored 70MXH

### ❖ Specification

<i>AWS A5.36</i>	E70T1-C1A2-CS1
<i>(AWS A5.36M)</i>	E490T1-C1A3-CS1)
<i>(AWS A5.20)</i>	E70T-1C/-9C)
<i>EN ISO 17632-A</i>	T 42 2 R C1 3 H5
<i>JIS Z 3313</i>	T49 J 2 T1-0 C A -U H5

### ❖ Applications

Supercored 70MXH is a metal type flux cored wire for high speed welding application in the flat and horizontal fillet position.

This wire benefits from high deposition rate and is widely used for shipbuilding, construction of bridge and structure fabrication for 490N/mm<sup>2</sup> class high tensile steel welding

### ❖ Characteristics on Usage

Supercored 70MXH has very low spatter loss rate and minimum amount of slag. It gives excellent penetration and good arc stability.

Especially it has good anti-porosity to zinc-primer plate and rusty plate in high speed twin single and twin tandem welding.

### ❖ Note on Usage

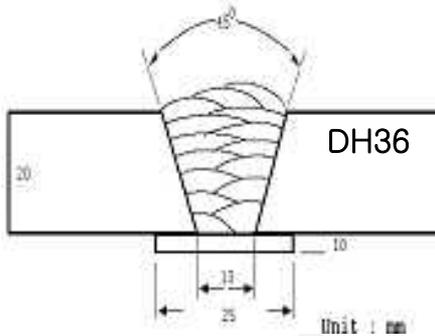
1. For preheating guidelines, please refer to your local standards and codes relative to your best practices
2. Use 100% CO<sub>2</sub> gas.



## Mechanical Properties & Chemical Composition of All Weld Metal

### ❖ Welding Conditions

Method by AWS Spec.



[ Joint Preparation & Layer Details ]

<b>Welding Position</b>	: 1G(PA)
<b>Diameter</b>	: 1.4mm (0.052in)
<b>Shielding Gas</b>	: 100%CO <sub>2</sub>
<b>Flow Rate</b>	: 20 ℓ /min
<b>Amp./ Volt.</b>	: 300A / 32V
<b>Stick-Out</b>	: 20~25mm (0.79~0.98in)
<b>Pre-Heat</b>	: R.T .
<b>Interpass Temp.</b>	: 150±15℃ (302±59°F)
<b>Polarity</b>	: DC(+)

### ❖ Mechanical Properties of all weld metal

Consumable	Tensile Test			CVN Impact Test J(ft · lbs)	
	YS MPa (lbs/in <sup>2</sup> )	TS MPa (lbs/in <sup>2</sup> )	EL (%)	-18℃ (0°F)	-29℃ (-20°F)
Supercored 70MXH	565 (82,000)	620 (90,000)	26.5	72 (53)	54 (40)
AWS A5.36 E70T1-C1A2-CS1	≥ 400 (58,000)	490~660 (70,000~ 95,000)	≥ 22	≥ 27J at -29℃ (≥ 20ft · lbs at -20°F)	

### ❖ Chemical Analysis of all weld metal(wt%)

Consumable	C	Si	Mn	P	S
Supercored 70MXH	0.067	0.55	1.65	0.014	0.008
AWS A5.36 E70T1-C1A2-CS1	≤ 0.12	≤ 0.9	≤ 1.75	≤ 0.03	≤ 0.03

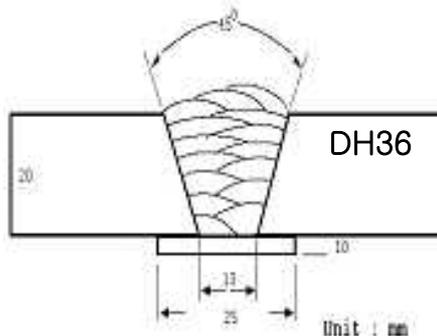
This information is provided solely for the purpose of confirming product conformance with applicable standards. The serviceability of a product or structure utilizing this type of information is and must be the sole responsibility of the builder/user. Many variables beyond the control of HYUNDAI WELDING 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 ]

<b>Welding Position</b>	: 1G(PA)
<b>Diameter</b>	: 1.6mm (1/16in)
<b>Shielding Gas</b>	: 100%CO <sub>2</sub>
<b>Flow Rate</b>	: 20 ℓ /min
<b>Amp./ Volt.</b>	: 330A / 32V
<b>Stick-Out</b>	: 20~25mm (0.79~0.98in)
<b>Pre-Heat</b>	: R.T .
<b>Interpass Temp.</b>	: 150±15℃ (302±59°F)
<b>Polarity</b>	: DC(+)

### ❖ Mechanical Properties of all weld metal

Consumable	Tensile Test			CVN Impact Test J(ft · lbs)	
	YS MPa (lbs/in <sup>2</sup> )	TS MPa (lbs/in <sup>2</sup> )	EL (%)	-18℃ (0°F)	-29℃ (-20°F)
Supercored 70MXH	550 (80,000)	605 (88,000)	27.0	65(48)	51(38)
AWS A5.36 E70T1-C1A2-CS1	≥ 400 (58,000)	490~660 (70,000~ 95,000)	≥ 22	≥ 27J at -29℃ (≥ 20ft · lbs at -20°F)	

### ❖ Chemical Analysis of all weld metal(wt%)

Consumable	C	Si	Mn	P	S
Supercored 70MXH	0.065	0.52	1.60	0.014	0.008
AWS A5.36 E70T1-C1A2-CS1	≤ 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 70MXH  1.4 mm (0.052in)	300	31	7.6 (300)	90~92	5.1(11.2)
	350	36	10.2 (400)	91~93	5.8(12.8)
	380	36	12.8 (500)	91~93	6.5(14.3)
Supercored 70MXH  1.6 mm (1/16in)	300	33	6.4 (250)	87~89	4.8(10.6)
	350	36	8.7 (300)	90~91	5.4(11.9)
	400	38	8.1 (320)	90~91	6.2(13.6)
	450	42	9.2 (360)	91~92	7.8(17.2)
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

<b>Diameter</b>	: 1.6mm (1/16in)	<b>Amps / Volts</b>	: 330A / 32V
<b>Shielding Gas</b>	: 100%CO <sub>2</sub>	<b>Stick-Out</b>	: 20~25mm (0.79~0.98in)
<b>Flow Rate</b>	: 20 l /min	<b>Welding Speed</b>	: 30 cm/min (12 in/min)
<b>Welding Position</b>	: 1G (PA)	<b>Current Type &amp; Polarity</b>	: DC(+)

### ❖ Hydrogen Analysis Using Gas Chromatograph Method

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

### ❖ Result(ml/100g Weld Metal)

X1	X2	X3	X4
4.3	4.4	4.2	4.3

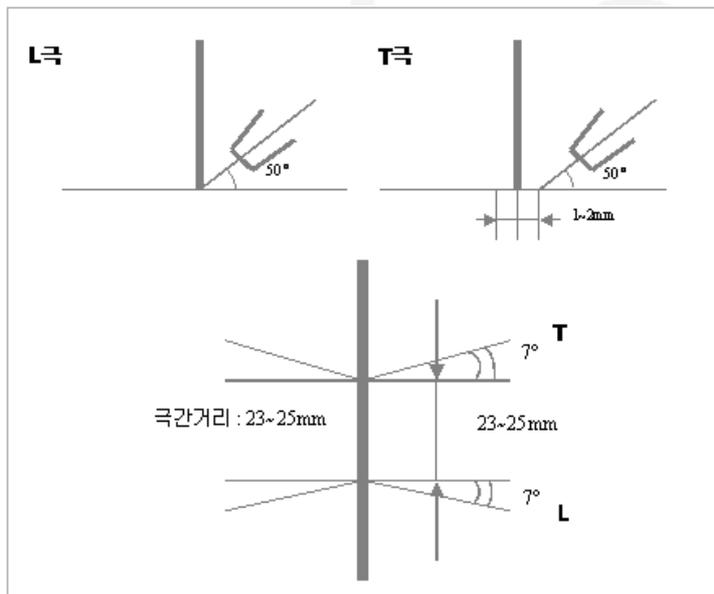
**Average Hydrogen Content** **4.3 ml / 100g Weld Metal**



## Proper Welding Condition

### ❖ Proper Current Range

Welding Position (H-Fillet)	Wire Dia.					
	1.4mm (0.052in)			1.6mm (1/16in)		
	<b>Twin Single Welding</b>					
Welding Speed cm/min(in/min)	40 (16)	50 (20)	60 (24)	50 (20)	60 (24)	70 (28)
Welding Current(Amp)	300~350	300~350	350~380	300~350	350~380	350~400
	<b>Twin Tandem Welding</b>					
Welding Speed cm/min(in/min)	80 (31)	100 (39)	120 (47)	100 (39)	120 (47)	150 (59)
Welding Current(Amp)	L : 320~400A (360A 28V) T : 280~350A (300A 32V)			L : 350~450A (380A 29V) T : 280~350A (330A 32V)		



\* L : Leading pole  
T : Tracing pole

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## Approvals

### ❖ Shipping Approvals

Welding Position	Resister of shipping & Size mm(in)						
	KR	ABS	LR	BV	DNV	GL	NK
F & HF	RSW53G HH RAW53G HHH  1.4~1.6 (0.052~ 1/16)	3SAH5 3YSA  1.4~1.6 (0.052~ 1/16)	3YSH5  1.4~1.6 (0.052~ 1/16)	A3YM, SA3YMHHH  1.4~1.6 (0.052~ 1/16)	3YMSH5  1.4~1.6 (0.052~ 1/16)	3YH5S  1.4~1.6 (0.052~ 1/16)	KSW53G H5 KAW53G H5  1.4~1.6 (0.052~ 1/16)

### ❖ F No & A No

F No	A No
6	1