

# **Supershield 71-T8**

SELF-SHIELDED FLUX CORED ARC WELDING CONSUMABLE  
FOR MILD & 490MPa CLASS HIGH TENSILE STEEL

2022.02

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**HYUNDAI WELDING CO., LTD.**



# Supershield 71-T8

## ❖ Specification

**AWS A5.20**

**E71T-8 H8**

**(AWS A5.20M**

**E491T-8 H8)**

**EN ISO 17632-A**

**T42 3 Y NO 2 H10**

**AWS D1.8**

Wire Dia. mm(in)		
1.6(1/16)	1.8(0.072)	2.0(5/64)

\* AWS D1.8 is available upon request

## ❖ Applications

All position welding of ship building, machinery, bridges, building, And vehicles using mild and higher strength steels.

## ❖ Characteristics on Usage

Supershield 71-T8 is self-shielded flux cored wire for high deposition rate all position welding where low temperature impact properties are required.

Supershield 71-T8 meets AWS D1.8 seismic requirements.

## ❖ Note on Usage

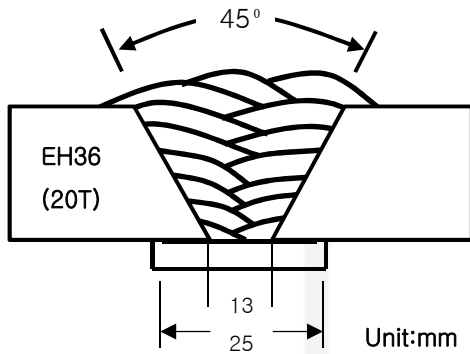
Do not use shielding gas



## 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(mm)</b>	: 1.6mm (1/16in)
<b>Shielding Gas</b>	: None
<b>Polarity</b>	: DC-
<b>Amp./ Volt.</b>	: 240A / 21V
<b>Stick-Out</b>	: 25mm (1in)
<b>Pre-Heat(°C)</b>	: R.T.
<b>Interpass Temp.(°C)</b>	: 150±15 °C (302±59°F)

### ❖ Mechanical Properties of all weld metal

Consumable	Tensile Test			CVN Impact Test (Joule)	
	Tensile specimen artificially aged at 105°C for 48hr, as permitted by AWS A5.36			-29°C (-20°F)	-40°C (-40°F)
Supershield 71-T8	YS MPa (lbs/in <sup>2</sup> )	TS MPa (lbs/in <sup>2</sup> )	EL(%)		
	447(65,000)	565(82,000)	32.2	65(48)	40(30)
<b>AWS A5.36 E71T8-A2-CS3</b>	<b>≥ 400 (58,000)</b>	<b>490~660 (70,000~95,000)</b>	<b>≥22</b>	<b>≥27J at -29°C (≥20ft · lbs at -20°F)</b>	

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

Consumable	C	Si	Mn	P	S	Ni	Cr	Mo	V	Cu	Al
<b>Supershield 71-T8</b>	0.161	0.15	0.63	0.003	0.001	0.016	0.023	0.005	0.004	0.014	0.48
<b>AWS A5.36 E71T8-A2-CS3</b>	≤ 0.30	≤ 0.60	≤ 1.75	≤ 0.03	≤ 0.03	-	-	-	-	-	≤ 1.8

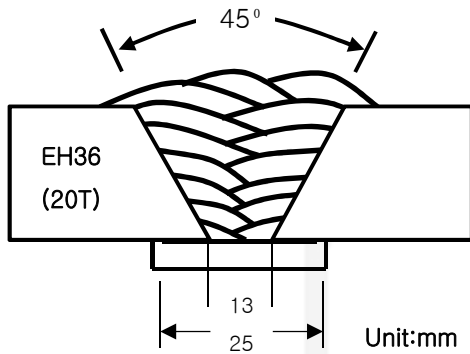
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## Mechanical Properties & Chemical Composition of All Weld Metal

### ❖ Welding Conditions

Method by AWS Spec.



[ Joint Preparation & Layer Details ]

<b>Welding Position</b>	: 1G(PA)
<b>Diameter(mm)</b>	: 1.8mm (0.072in)
<b>Shielding Gas</b>	: None
<b>Polarity</b>	: DC-
<b>Amp./ Volt.</b>	: 240A / 21V
<b>Stick-Out</b>	: 25mm (1in)
<b>Pre-Heat(°C)</b>	: R.T .
<b>Interpass Temp.(°C)</b>	: 150±15 °C (302±59°F)

### ❖ Mechanical Properties of all weld metal

Consumable	Tensile Test			CVN Impact Test (Joule)	
	Tensile specimen artificially aged at 105°C for 48hr, as permitted by AWS A5.36			-29°C (-20°F)	-40°C (-40°F)
Supershield 71-T8	YS MPa (lbs/in <sup>2</sup> )	TS MPa (lbs/in <sup>2</sup> )	EL(%)		
	486(71,000)	549(80,000)	26.6	60(44)	39(29)
<b>AWS A5.36 E71T8-A2-CS3</b>	<b>≥ 400 (58,000)</b>	<b>490~660 (70,000~95,000)</b>	<b>≥22</b>	<b>≥27J at -29°C (≥20ft · lbs at -20°F)</b>	

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

Consumable	C	Si	Mn	P	S	Ni	Cr	Mo	V	Cu	Al
<b>Supershield 71-T8</b>	0.174	0.17	0.59	0.002	0.001	0.014	0.023	0.003	0.0001	0.011	0.49
<b>AWS A5.36 E71T8-A2-CS3</b>	≤ 0.30	≤ 0.60	≤ 1.75	≤ 0.03	≤ 0.03	-	-	-	-	-	≤ 1.8

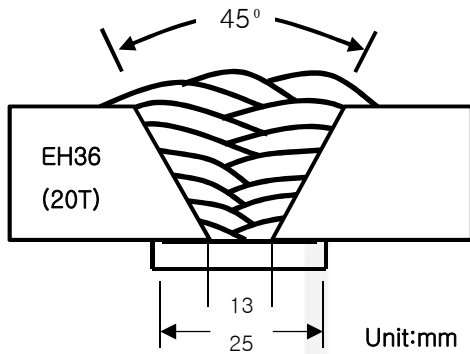
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## Mechanical Properties & Chemical Composition of All Weld Metal

### ❖ Welding Conditions

Method by AWS Spec.



[ Joint Preparation & Layer Details ]

<b>Welding Position</b>	: 1G(PA)
<b>Diameter(mm)</b>	: 2.0mm (5/64in)
<b>Shielding Gas</b>	: None
<b>Polarity</b>	: DC-
<b>Amp./ Volt.</b>	: 250A / 22V
<b>Stick-Out</b>	: 25mm (1in)
<b>Pre-Heat(°C)</b>	: R.T .
<b>Interpass Temp.(°C)</b>	: 150±15 °C (302±59°F)

### ❖ Mechanical Properties of all weld metal

Consumable	Tensile Test			CVN Impact Test (Joule)	
	Tensile specimen artificially aged at 105°C for 48hr, as permitted by AWS A5.36			-29°C (-20°F)	-40°C (-40°F)
Supershield 71-T8	YS MPa (lbs/in <sup>2</sup> )	TS MPa (lbs/in <sup>2</sup> )	EL(%)		
	491(71,000)	564(82,000)	29.4	68(50)	46(34)
<b>AWS A5.36 E71T8-A2-CS3</b>	<b>≥ 400 (58,000)</b>	<b>490~660 (70,000~95,000)</b>	<b>≥22</b>	<b>≥27J at -29°C (≥20ft · lbs at -20°F)</b>	

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

Consumable	C	Si	Mn	P	S	Ni	Cr	Mo	V	Cu	Al
<b>Supershield 71-T8</b>	0.185	0.15	0.64	0.001	0.001	0.012	0.023	0.007	0.003	0.015	0.59
<b>AWS A5.36 E71T8-A2-CS3</b>	≤ 0.30	≤ 0.60	≤ 1.75	≤ 0.03	≤ 0.03	-	-	-	-	-	≤ 1.8

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## Diffusible Hydrogen Content

### ❖ Welding Conditions

<b>Diameter</b>	: 1.8mm (0.072in)	<b>Amp.(A) / Volt.(V)</b>	: 240 / 21
<b>Shielding Gas</b>	: None	<b>Stick-Out</b>	: 25mm (1in)
<b>Current Type &amp; Polarity</b>	: DC(-)	<b>Welding Speed</b>	: 30 cm/min (12 in/min)
<b>Welding Position</b>	: 1G (PA)		

### ❖ Hydrogen Analysis Using Gas Chromatography 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
6.1	5.8	6.3	6.4

**Average Hydrogen Content** **6.15 *ml* / 100g Weld Metal**



## Proper Welding Condition

### ❖ Proper Voltage and Current Range

Wire Diameter	Contact Tip to Work Distance	Current(A)	Voltage(V)
1.6mm (1/16in)	25mm (1 in)	200	18~21
		220	19~21
		240	20~22
		260	21~23
1.8mm (0.072in)	25mm (1 in)	230	20~21
		260	21~23
		290	22~24
2.0mm (5/64in)	25mm (1 in)	240	20~22
		270	21~23
		300	22~24

### ❖ F No & A No

F No	A No
6	1

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