

Supercored 71MAG

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



Supercored 71MAG

❖ Specification

AWS A5.20

E71T- 1M- 9M

EN ISO 17632-A

T 42 2 P M 1 H10

❖ Applications

Supercored 71MAG can be used on mild and high tensile steel in single and multi- pass applications. Shipbuilding, machinery, bridge, structural fabrication and building.

❖ Characteristics on Usage

Supercored71MAG is a rutile- type flux cored wire to be used with Ar+CO₂ gas. Provide an exceptionally smooth and stable arc with a fast freezing slag system, this wire is ideal for welding flat, vertical up, vertical down. Bead shape and appearance are excellent in all position welding.

❖ Note on Usage

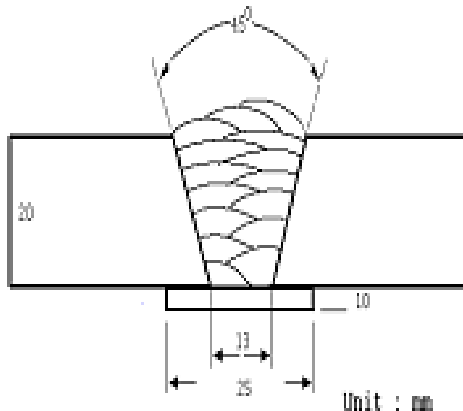
1. Proper preheating(50~ 150℃) and interpass temperature must be used in order to release hydrogen which may cause cracking in weld metal when electrodes are used for medium and heavy plates.
2. Use Ar+20~ 25% CO₂ gas.



Mechanical Properties & Chemical Composition of All Weld Metal

❖ Welding Conditions

Method by AWS Spec.



[Joint Preparation & Layer Details]

Diameter(mm)	: 1.2mm
Shielding Gas	: Ar+20% CO ₂
Welding Position	: 1G
Amp./ Volt.	: 270~280 / 29~30
Stick-Out(mm)	: 20~25
Pre-Heat(°C)	: R.T.
Interpass Temp.(°C)	: 150±15

❖ Mechanical Properties of all weld metal

Consumable	Tensile Test			CVN Impact Test (Joule)
	YS(MPa)	TS(MPa)	EL(%)	-30°C
Supercored 71MAG	580	600	28	60
AWS A5.20 E71T-9M	≥ 390	490~670	≥ 22	≥ 27J at -30°C

❖ Chemical Analysis of all weld metal(wt%)

Consumable	C	Si	Mn	P	S
Supercored 71MAG	0.04	0.54	1.25	0.011	0.012
AWS A5.20 E71T-9M	≤ 0.12	≤ 0.9	≤ 1.75	≤ 0.03	≤ 0.03

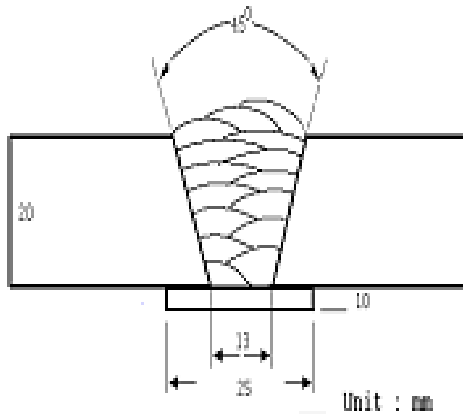
This information is provided solely for the purpose of confirming product conformance with applicable standards. The serviceability of a product or structure utilizing this type of information is and must be the sole responsibility of the builder/user. Many variables beyond the control of HYUNDAI WELDING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

Diameter(mm)	: 1.4mm
Shielding Gas	: Ar+20% CO ₂
Welding Position	: 1G
Amp./ Volt.	: 290~300 / 29~30
Stick-Out(mm)	: 20~25
Pre-Heat(°C)	: R.T.
Interpass Temp.(°C)	: 150±15

❖ Mechanical Properties of all weld metal

Consumable	Tensile Test			CVN Impact Test (Joule)
	YS(MPa)	TS(MPa)	EL(%)	-30°C
Supercored 71MAG	585	605	27	65
AWS A5.20 E71T-9M	≥ 390	490~670	≥ 22	≥ 27J at -30°C

❖ Chemical Analysis of all weld metal(wt%)

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Supercored 71MAG	0.05	0.55	1.20	0.010	0.011
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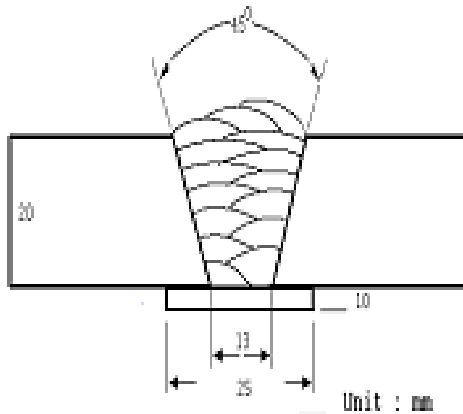
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Mechanical Properties & Chemical Composition of All Weld Metal

❖ Welding Conditions

Method by AWS Spec.



[Joint Preparation & Layer Details]

Diameter(mm)	: 1.6mm
Shielding Gas	: Ar+20% CO ₂
Welding Position	: 1G
Amp./ Volt.	: 310~320 / 30~31
Stick-Out(mm)	: 20~25
Pre-Heat(°C)	: R.T.
Interpass Temp.(°C)	: 150±15

❖ Mechanical Properties of all weld metal

Consumable	Tensile Test			CVN Impact Test (Joule)
	YS(MPa)	TS(MPa)	EL(%)	-30°C
Supercored 71MAG	575	595	27.5	65
AWS A5.20 E71T-9M	≥ 390	490~670	≥ 22	≥ 27J at -30°C

❖ Chemical Analysis of all weld metal(wt%)

Consumable	C	Si	Mn	P	S
Supercored 71MAG	0.04	0.50	1.20	0.011	0.012
AWS A5.20 E71T-9M	≤ 0.12	≤ 0.9	≤ 1.75	≤ 0.03	≤ 0.03

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Welding Efficiency

❖ Deposition Rate & Efficiency

Consumable (size)	Welding Conditions		Deposition Efficiency(%)	Deposition Rate(kg/hr)
	Amp.(A)	Volt.(V)		
Supercored 71MAG 1.2 mm	200	26	87~89	3.1
	250	28	88~89	4.3
	300	31	88~90	5.8
Supercored 71MAG 1.4 mm	250	28	85~87	3.6
	300	32	86~88	4.7
	350	36	87~89	6.3
Supercored 71MAG 1.6 mm	280	31	86~88	4.0
	330	33	86~89	4.6
	350	34	87~89	5.6
	400	38	88~90	6.5
Remark			Deposition efficiency =(Deposited metal weight/ Wire weight used)×100	Deposition rate =(Deposited metal weight/ Welding time,min.)×60

* Shielding Gas : Ar+20% CO₂



Diffusible Hydrogen Content

❖ Welding Conditions

Diameter(mm)	: 1.2	Amps(A) / Volts(V)	: 270 / 29
Shielding Gas	: Ar+20% CO ₂	Stick-Out(mm)	: 20~ 25
Flow Rate(ℓ /min.)	: 20	Welding Speed	: 30 cpm
Welding Position	: 1G	Current Type & Polarity	: DC(+)

❖ Hydrogen Analysis Using Gas Chromatography Method

Hydrogen Evolution Time	: 72 hrs	Analysis Temp.	: 25 °C
Evolution Temp.	: 25 °C	Exposure Condition	: 80%RH- 25 °C
Barometric Pressure	: 780 mm- Hg		

❖ Result(ml/100g Weld Metal)

X1	X2	X3	X4
5.8	6.0	5.7	5.9

Average Hydrogen Content 5.9 ml / 100g Weld Metal



Supercored 71MAG

❖ Proper Current Range

Consumable	Shielding Gas	Welding Position	Wire Dia. (mm)		
			1.2mm	1.4mm	1.6mm
Supercored 71MAG	Ar + 20%CO ₂	Flat	210~ 300 Amp	230~ 320 Amp	250~ 350 Amp
		V- up Over head	170~ 240 Amp	190~ 250 Amp	220~ 290 Amp
		V- down	200~ 300 Amp	230~ 320 Amp	260~ 340 Amp

❖ AUTHORIZED APPROVAL DETAILS

Welding position	Register of shipping & Size(mm)				
	ABS	LR	BV	DNV	GL
All V- down	3SAH10, 3YSA 1.2~ 1.6	3S,3YSH10 1.2~ 1.6	SA3M,SA3YMH H 1.2~ 1.6	IIIYMSH10 1.2~ 1.6	3YH10S 1.2~ 1.6

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