

# **Supercored 309MoL**

FLUX CORED ARC WELDING CONSUMABLE  
FOR WELDING OF DISSIMILAR WELDING  
STAINLESS STEEL TO MILD OR LOW ALLOY STEELS

2021.02

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**HYUNDAI WELDING CO., LTD.**



## Supercored 309MoL

### ❖ Specification

<b>AWS A5.22</b>	E309LMoT0-1/-4
<b>JIS Z 3323</b>	TS309LMo-FB0
<b>EN ISO 17633-A</b>	T23 12 2 L R M21/C1 3

### ❖ Applications

Supercored 309MoL is designed for applications of resistance to corrosion and for the joining of stainless steels to mild or low alloy steels

### ❖ Characteristics on Usage

Supercored 309MoL which contains a high ferrite level in austenite Has excellent heat, corrosion and crack resistibility. It has a good stable arc and excellent slag removal properties.

### ❖ Note on Usage

Use 100% CO<sub>2</sub> gas or Ar+20~25% CO<sub>2</sub> gas

### ❖ Packing

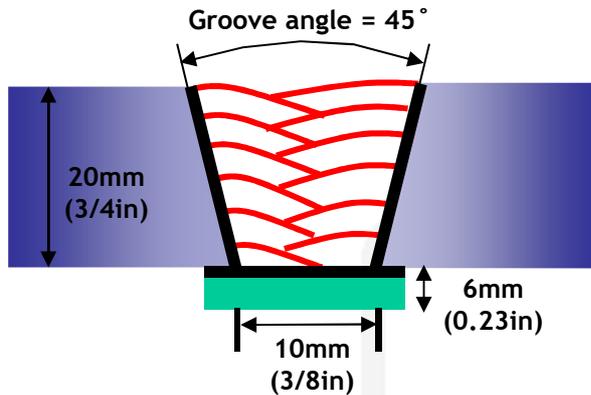
<b>Dia.(mm)</b>	0.9mm (0.035in)	1.2mm (0.045in)	1.4mm (0.052in)	1.6mm (1/16in)
<b>Spool (kg) *including ball pac</b>	5Kg (11lbs)	12.5Kg (28lbs)	15Kg (33lbs)	20Kg (44lbs)



## Mechanical Properties & Chemical Composition of All Weld Metal

### ❖ Welding Conditions

Method by AWS Spec.



[ Joint Preparation & Layer Details ]

<b>Diameter(mm)</b>	: 1.2mm(0.045in)
<b>Shielding Gas</b>	: 100% CO <sub>2</sub>
<b>Flow Rate(ℓ /min.)</b>	: 20~22
<b>Amp./ Volt.</b>	: 210 / 29
<b>Stick-Out(mm)</b>	: 20(3/4 in)
<b>Pre-Heat(°C)</b>	: R.T . °C(°F)
<b>Interpass Temp.(°C)</b>	: ≤150°C(302°F)
<b>Polarity</b>	: DC(+)

### ❖ Mechanical Properties of All weld metal

Consumable	Tensile Test		CVN Impact Test J(ft · lbs)	
	TS (MPa/lbs/in <sup>2</sup> )	EI(%)	-20°C (-4°F)	-60°C (-76°F)
Supercored 309MoL	710(102,950)	28.4	34(25.1)	30(22.1)
AWS A5.22 E309LMoTX-X	≥ 520(75,400)	≥ 25	Not Specified	

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

Consumable	Shielding Gas	Chemical Composition (%)								
		C	Si	Mn	P	S	Ni	Cr	Mo	Cu
Supercored 309MoL	100%CO <sub>2</sub>	0.028	0.55	1.39	0.020	0.007	12.59	22.60	2.50	0.11
AWS A5.22 E309LMoTX-X		≤0.04	≤1.0	0.5 ~2.5	≤0.04	≤0.03	12.0 ~16.0	21.0 ~25.0	2.0 ~3.0	≤0.5

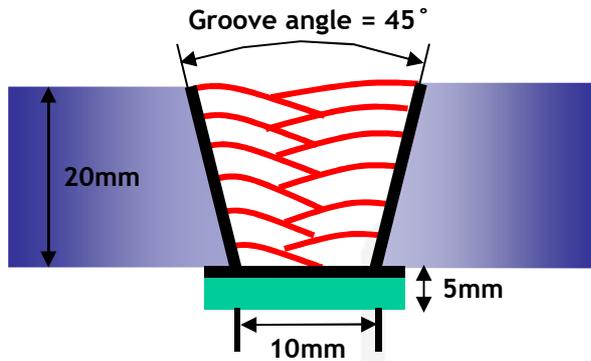
This information is provided solely for the purpose of confirming product conformance with applicable standards. The serviceability of a product or structure utilizing this type of information is and must be the sole responsibility of the builder/user. Many variables beyond the control of HYUNDAI WELDING 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>Diameter(mm)</b>	: 1.2mm
<b>Shielding Gas</b>	: Ar+ 20% CO2
<b>Flow Rate(ℓ /min.)</b>	: 20~22
<b>Amp./ Volt.</b>	: 220 / 28
<b>Stick-Out(mm)</b>	: 20
<b>Pre-Heat(℃)</b>	: R.T .
<b>Interpass Temp.(℃)</b>	: 150±15
<b>Polarity</b>	: DC(+)

### ❖ Mechanical Properties of All weld metal

Consumable	Tensile Test		CVN Impact Test J(ft · lbs)	
	TS (MPa/lbs/in <sup>2</sup> )	EI(%)	-20℃ (-4°F)	-60℃ (-76°F)
Supercored 309MoL	711(103,095)	31.4	34(25.1)	33(24.4)
AWS A5.22 E309LMoTX-X	≥ 520(75,400)	≥ 25	Not Specified	

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

Consumable	Shielding Gas	Chemical Composition (%)								
		C	Si	Mn	P	S	Ni	Cr	Mo	Cu
Supercored 309MoL	Ar+20%CO2	0.034	0.59	1.46	0.021	0.008	12.65	22.99	2.50	0.12
AWS A5.22 E309LMoTX-X		≤0.04	≤1.0	0.5 ~2.5	≤0.04	≤0.03	12.0 ~16.0	21.0 ~25.0	2.0 ~3.0	≤0.5

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## Mechanical Properties & Chemical Composition of All Weld Metal

### ❖ Bead Appearance



### ❖ δ – Ferrite No.

Consumable	Shielding Gas	Diagram			FERITSCOPE MP-30 * (FISCHER)
		Schaeffler	Delong	WRC(1992)	
Supercored 309MoL	100% CO <sub>2</sub>	14.6	25.3	24.2	20.0~21.0
	Ar+20% CO <sub>2</sub>	15.0	26.5	25.2	21.0~22.0

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## Approvals

### ❖ AUTHORIZED APPROVAL DETAILS

Consumable	Shielding Gas	LR	BV	DNV
Supercored 309MoL	M 21	SS/CMn	309LMo	309MoL (-20°C)
		0.9~1.6	0.9~1.6	0.9~1.6



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