

# **SM-309L**



## ❖ Specification

**AWS A5.9** ER309L  
**JIS Z3321** YS309L

## ❖ Applications

MIG welding of low carbon 22% Cr- 12% Ni steel, heat resistance cast Steel clad of 18% Cr- 8% Ni clad steel and stainless steel to Cr-Mo steel or carbon steel.

## ❖ Characteristics on Usage

As the weld metal contains ferrite, its resistance to crack is good  
Due to its high level of alloy, it has excellent heat resistance

## ❖ Note on Usage

Use 100% Ar or Ar + 2%O<sub>2</sub> gas.

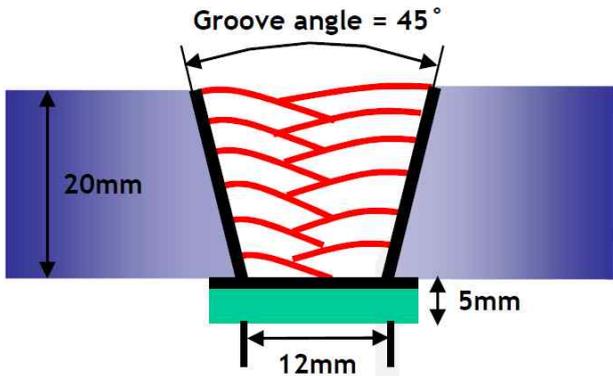
## ❖ Packing

<b>Dia.</b>	0.9mm (0.035in)	1.2mm (0.045in)
<b>Spool</b>	12.5kg (28lbs)	



**Mechanical Properties & Chemical Composition of All Weld Metal**

❖ **Welding Conditions**



[ Joint Preparation & Layer Details ]

- Diameter(mm)** : 1.2mm
- Shielding Gas** : Ar + 2%O<sub>2</sub>
- Flow Rate(ℓ /min.)** : 15~20
- Amp./ Volt.** : 230/27
- Stick-Out(mm)** : 20
- Pre-Heat(°C)** : R.T.
- Interpass Temp.(°C)** : 150 ± 15
- Polarity** : DC(+)

❖ **Mechanical Properties of All weld metal**

Consumable	Tensile Test		CVN Impact test Joule (ft·lbs)	
	T.S. MPA (ksi)	EL. (%)	-60°C (-76°F)	-196°C (-320.8°F)
<b>SM-309L</b>	551~575 (80~83)	41.0~46.4	96.3~103.0 (71.0~76.0)	30.6~40.3 (22.6~29.7)

❖ **Chemical Analysis of the wire(wt%)**

Consumable	Shielding Gas	Chemical Composition (%)								
		C	Si	Mn	P	S	Ni	Cr	Mo	Cu
<b>SM-309L</b>	Ar+ 2%O <sub>2</sub>	0.016	0.46	1.61	0.016	0.005	13.70	23.2	0.12	0.07
<b>AWS A5.9 ER309L</b>		≤0.03	0.30~ 0.65	1.0~ 2.5	≤0.03	≤0.03	12.0~ 14.0	23.0~ 25.0	≤0.75	≤0.75

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**SM-309L**

**Mechanical Properties  
& Chemical Composition of All Weld Metal**

**❖ δ – Ferrite No.**

Consumable	Shielding Gas	Diagram			FERITSCOPE MP-30 * (FISCHER)
		Schaeffler	Delong	WRC(1992)	
SM-309L	Ar+ 2% O <sub>2</sub>	7.0	13.0	10.4	8.5



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