

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%O₂ gas.

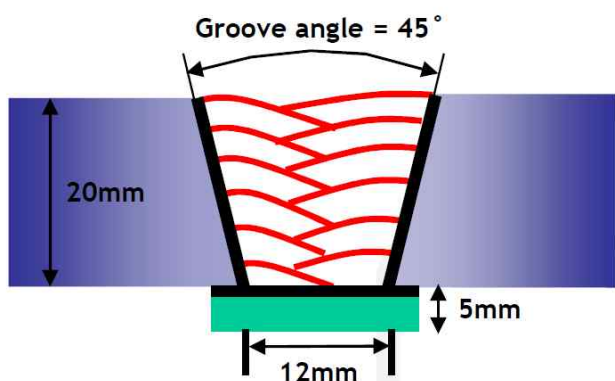
❖ Packing

Dia.	0.9mm (0.035in)	1.2mm (0.045in)
Spool	12.5kg (28lbs)	

**SM-309L**

Mechanical Properties & Chemical Composition of All Weld Metal

❖ Welding Conditions



[Joint Preparation & Layer Details]

Diameter(mm)	: 1.2mm
Shielding Gas	: Ar + 2%O ₂
Flow Rate(ℓ /min.)	: 15~20
Amp./ Volt.	: 230/27
Stick-Out(mm)	: 20
Pre-Heat(℃)	: R.T.
Interpass Temp.(℃)	: 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℃ (-76°F)	-196℃ (-320.8°F)
SM-309L	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
SM-309L	Ar+ 2%O ₂	0.016	0.46	1.61	0.016	0.005	13.70	23.2	0.12	0.07
AWS A5.9 ER309L		≤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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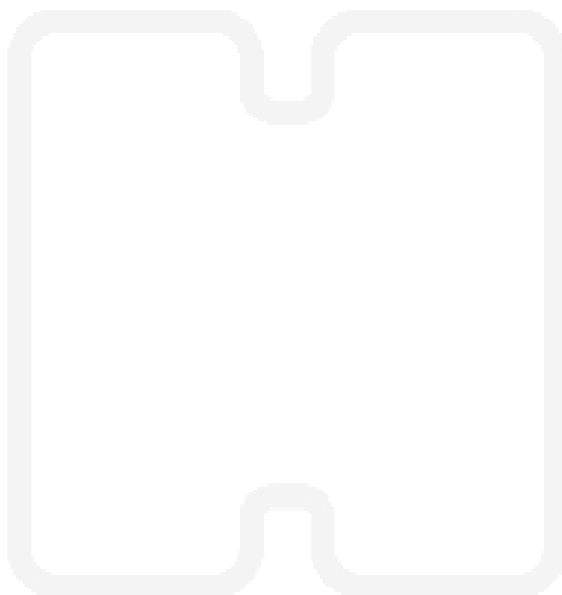


SM-309L

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 ₂	7.0	13.0	10.4	8.5



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SM-316L



❖ Specification

AWS A5.9

ER316L

JIS Z3321

YS316L

❖ Applications

MIG welding of low carbon 18% Cr– 12% Ni – 2% Mo steel for Chemical industries and nuclear reactors.

❖ Characteristics on Usage

SM-316L is an austenitic type stainless steel wire , the weld metal contains ferrite and crack sensitivity is extremely good. The Usability, such as arc stability and assimilability of welds to base metal is extremely excellent. Resistance to corrosion and mechanical properties of weld metal are great.

❖ Note on Usage

Use 100% Ar or Ar + 2~5% O₂ gas.

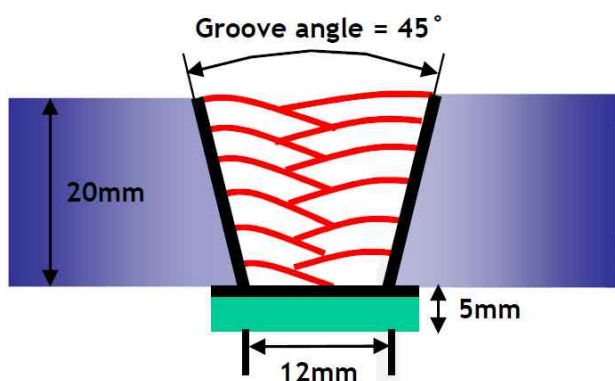
❖ Packing

Dia.	0.8mm (0.033in)	0.9mm (0.035in)	1.0mm (0.040in)	1.2mm (0.045in)
Spool	12.5kg, 15kg (28lbs, 33lbs)			

**SM-316L**

Mechanical Properties & Chemical Composition of All Weld Metal

❖ Welding Conditions



[Joint Preparation & Layer Details]

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

❖ Mechanical Properties of All weld metal

Consumable	Tensile Test		CVN Impact test Joule (ft·lbs)	
	T.S. MPA (lbs/in ²)	EL. (%)	0℃ (32°F)	-196℃ (-320.8°F)
SM-316L	546~567 (79,191~82,237)	38.2~48.0	84.6~125.0 (62.4~92.2)	33.6~65.0 (24.8~47.9)

❖ Chemical Analysis of the wire(wt%)

Consumable	Shielding Gas	Chemical Composition (%)								
		C	Si	Mn	P	S	Ni	Cr	Mo	Cu
SM-316L	Ar+ 2% O ₂	0.017	0.46	1.75	0.021	0.010	11.5	18.5	2.17	0.12
AWS A5.9 ER316L		≤0.03	0.30~ 0.65	1.0~ 2.5	≤0.03	≤0.03	11.0~ 14.0	28.0~ 20.0	2.0~ 3.0	≤0.75

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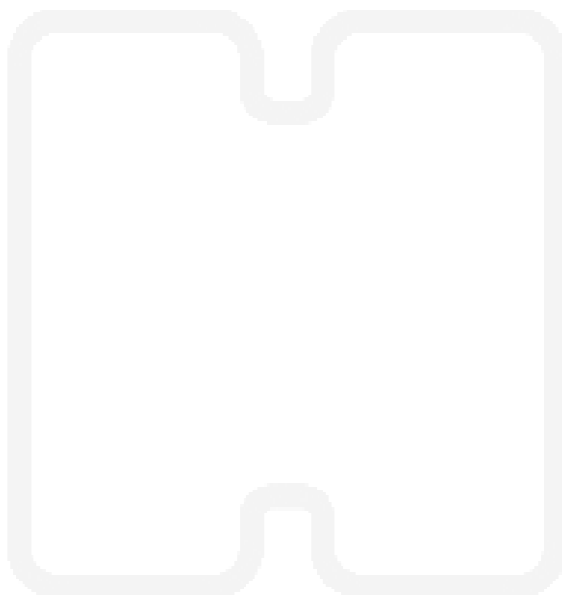


SM-316L

Mechanical Properties & Chemical Composition of All Weld Metal

❖ δ – Ferrite No.

Consumable	Shielding Gas	Diagram			FERITSCOPE MP-30 * (FISCHER)
		Schaeffler	Delong	WRC(1992)	
SM-316L	Ar+ 2% O ₂	8.5	12.7	10.9	14.0



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