

# **S - 309.16N**

SHIELDED METAL ARC WELDING CONSUMABLE  
FOR WELDING OF DISSIMILAR METALS  
STAINLESS STEELS AND CARBON STEELS  
OR STAINLESS STEELS AND LOW ALLOY METALS

2020.12



## ❖ Specification

<b>AWS A5.4</b>	E309-16
<b>JIS Z 3221</b>	ES309-16
<b>EN ISO 3851-A</b>	E 23 12 R

## ❖ Applications

S-309.16N is designed for welding of dissimilar metals such as Stainless steels and carbon steels or stainless steels and low alloy steels

## ❖ Characteristics on Usage

1. S-309.16N is a lime- titania type electrode.
2. S-309.16N is a lime- titania type electrode for dissimilar welding such as stainless steel to carbon steel or low-alloy steels, and for under-layer welding on clad side groove of clad stainless steel.

## ❖ Note on Usage

1. it is mostly effective to proceed with welding. Keeping the arc as short as possible in flat position.
2. Remove dirt such as oil and dust from the groove.
3. Dry the electrode at 350°C (662°F) for 60 minutes before use.

## ❖ Type of Current

AC or DC+

## ❖ Packing

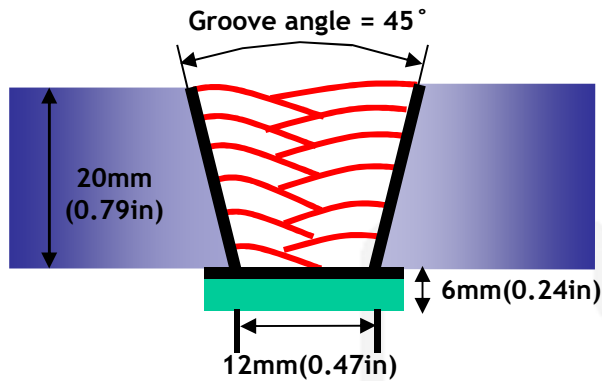
<b>Packet</b>	2.5kg(5.5lbs)
<b>Carton</b>	2.5kg(5.5lbs) X 4 : 10kg(22lbs)



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

❖ **Welding Conditions**

Method by AWS Spec.



- Diameter : 4.0mm(5/32in)
- Amp./ Volt. : 140/25
- Travel speed : 13~18(Cm/min)
- Pre-Heat : R.T .
- Interpass Temp. : 150±15℃(302±59°F)
- Position : Flat
- Polarity : AC or DC+

[ Joint Preparation & Layer Details ]

❖ **Mechanical Properties of All weld metal**

Consumable	Tensile Test		CVN Impact Test Joule(ft·lbs)	
	TS MPa (lbs/in <sup>2</sup> )	El(%)	-20℃(-4°F)	-60℃(-76°F)
S-309.16N	579(84,000)	40.4	50(37)	42(32)
AWS A5.4 E309-XX	≥550(80,000)	≥30	Not Specified	

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

Consumable	Chemical Composition (%)								
	C	Si	Mn	P	S	Ni	Cr	Mo	Cu
S-309.16N	0.03	0.729	1.10	0.025	0.016	12.5	23.4	0.10	0.09
AWS A5.4 E309-XX	≤0.15	≤1.0	0.5 ~2.5	≤0.04	≤0.03	12.0 ~14.0	22.0 ~25.0	≤ 0.75	≤ 0.75

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.

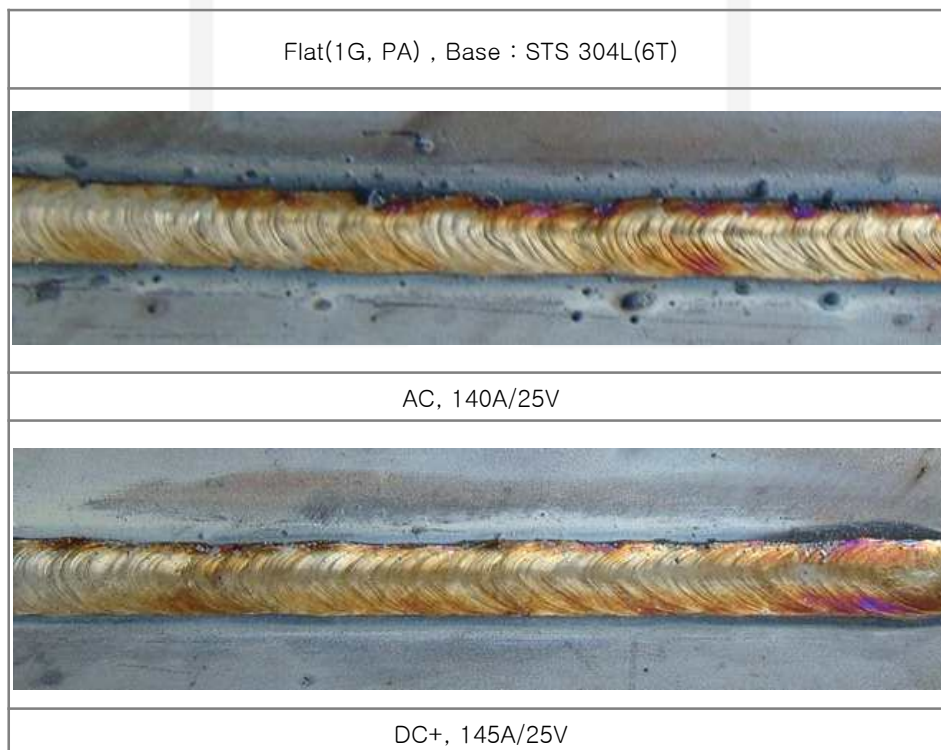


**Mechanical Properties  
& Chemical Composition of All Weld Metal**

❖ **δ – Ferrite No.**

Consumable	Diagram			FERITSCOPE MP-30 * (FISCHER)
	Schaeffler	Delong	WRC(1992)	
S-309.16N	12.0	19.0	12.9	15~16

❖ **Bead Appearance**



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.



## Approvals/Welding Conditions

### ❖ AUTHORIZED APPROVAL DETAILS

Consumable	KR	ABS	LR			
S-309.16N	RD309	AWS A5.4 E309-16	SS/CMn			
	2.4~5.0	2.4~5.0	2.4~5.0			
	DNV					
	309					
	2.4~5.0					
Size mm(in)	2.0(5/64)	2.6(3/32)	3.2(1/8)	4.0(5/32)	5.0(3/16)	
Length mm(in)	300(12)	300(12)	350(14)	350(14)	350(14)	
Amp/ (A)	Flat	60	80	120	140	160
	V-up	50	70	110	130	-

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.