

SW-316L Cored

FLUX CORED ARC WELDING CONSUMABLE
FOR WELDING OF 18% Cr-12% Ni 2% Mo STAINLESS STEEL

2021.02

HYUNDAI WELDING CO., LTD.



SW-316L Cored

❖ Specification

AWS A5.22	E316LT1-1/-4
JIS Z 3323	TS316L-FB1
EN ISO 17633-A	T19 12 3 L P M21/C1 2

❖ Applications

SW-316L Cored is designed for welding of 18%Cr-12%Ni 2%Mo stainless steels.

❖ Characteristics on Usage

1. SW-316L Cored is suitable for all position welding makes easier re-arc-ing, beautiful bead appearance and better slag removability. Due to ferrite contents in the weld metals austenite structure, it has excellent crack resistance

❖ Note on Usage

Use 100% CO₂ gas or Ar+20~25% CO₂ gas

❖ Packing

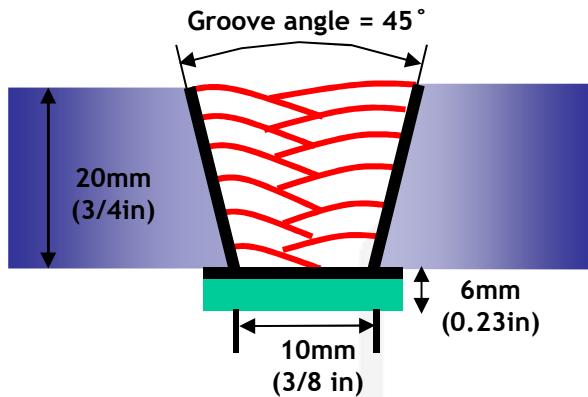
Diameter	1.2mm (0.045in)	1.4 (0.052in)	1.6 (1/16in)	
Spool *including ball pac	5kg (11lbs)	12.5kg (28lbs)	15kg (33lbs)	20kg (44lbs)



Mechanical Properties & Chemical Composition of All Weld Metal

❖ Welding Conditions

Method by AWS Spec.



[Joint Preparation & Layer Details]

Diameter(mm)	: 1.2mm(0.045in)
Shielding Gas	: 100% CO ₂
Flow Rate(ℓ /min.)	: 20~22
Amp./ Volt.	: 210/30
Stick-Out(mm)	: 20(3/4 in)
Pre-Heat(°C)	: R.T . °C(°F)
Interpass Temp.(°C)	: ≤150°C(302°F)
Polarity	: DC(+)

❖ Mechanical Properties of All weld metal

Consumable	Tensile Test		CVN Impact Test J(ft · lbs)	
	TS (MPa/lbs/in ²)	EL (%)	-20°C (-4°F)	-60°C (-76°F)
SW-316L Cored	550(79,750)	45.6	55(40.5)	45(33.2)
AWS A5.22 E316LTX-X	≥ 485	≥ 30	Not Specified	

❖ Chemical Analysis of All weld metal(wt%)

Consumable	Shielding Gas	Chemical Composition (%)								
		C	Si	Mn	P	S	Ni	Cr	Mo	Cu
SW-316L Cored	100%CO ₂	0.025	0.90	1.25	0.013	0.008	11.80	17.54	2.63	0.032
AWS A5.22 E316LTX-X		≤0.04	≤1.0	0.5~ 2.5	≤0.03	≤0.025	10.0~ 13.0	17.0~ 20.0	2.0~3.0	≤0.3

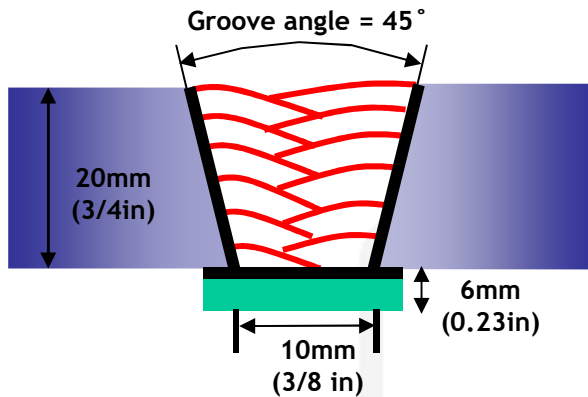
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Mechanical Properties & Chemical Composition of All Weld Metal

❖ Welding Conditions

Method by AWS Spec.



[Joint Preparation & Layer Details]

Diameter(mm)	: 1.2mm(0.045in)
Shielding Gas	: Ar+200% CO ₂
Flow Rate(ℓ /min.)	: 20~22
Amp./ Volt.	: 210/29
Stick-Out(mm)	: 20(3/4 in)
Pre-Heat(°C)	: R.T. . °C(°F)
Interpass Temp.(°C)	: ≤150°C(302°F)
Polarity	: DC(+)

❖ Mechanical Properties of All weld metal

Consumable	Tensile Test		CVN Impact Test J(ft · lbs)	
	TS (MPa/lbs/in ²)	EL (%)	-20°C (-4°F)	-60°C (-76°F)
SW-316L Cored	555(80,475)	42.4	55(40.6)	45(33.2)
AWS A5.22 E316LTX-X	≥ 485	≥ 30	Not Specified	

❖ Chemical Analysis of All weld metal(wt%)





Consumable	Shielding Gas	Chemical Composition (%)								
		C	Si	Mn	P	S	Ni	Cr	Mo	Cu
SW-316L Cored	Ar+ 20% CO ₂	0.025	0.92	1.38	0.013	0.008	11.73	17.54	2.63	0.032
AWS A5.22 E316LTX-X		≤0.04	≤1.0	0.5~ 2.5	≤0.03	≤0.025	10.0~ 13.0	17.0~ 20.0	2.0~3.0	≤0.3

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

❖ **Bead Appearance**

Horizontal Fillet(2F, PB) , Base : STS 304L(6mm,0.23in)	Fillet Vertical up(3F, PF) , Base : STS 304L(6mm,0.23in)	
		
<p>100% CO2(220A/30V)</p>		
	<p>100% CO2(160A/25V)</p>	<p>Ar+20% CO2(160A/24V)</p>
<p>Ar+ 20% CO2(220A/28V)</p>		

❖ **δ – Ferrite No.**

Consumable	Shielding Gas	Diagram			FERITSCOPE MP-30 * (FISCHER)
		Schaeffler	Delong	WRC(1992)	
SW-316L Cored	100% CO2	7.2	11.1	6.1	3~8
	Ar+20% CO2	7.5	10.5	6.2	3~8

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SW-316L Cored

Welding Efficiency & Proper Welding Condition

❖ Deposition Rate & Efficiency

Consumable (size)	Shielding Gas	Welding Conditions		Wire Feed Speed m/min (in/min)	Deposition Efficiency(%)	Deposition Rate kg/hr(lb/hr)
		Amp. (A)	Volt. (V)			
1.2mm (0.045 in)	100%CO ₂	210	30	12(472)	86~88	4.6(10.1)
	Ar-20%CO ₂	210	29	12(472)	87~89	4.8(10.6)
1.6mm (1/16 in)	100%CO ₂	290	33	8.9(350)	86~88	5.5(12.1)
	Ar-20%CO ₂	290	32	8.9(350)	87~89	5.(12.6)
Remark					Deposition efficiency =(Deposited metal weight/Wire weight used)×100	Deposition rate =(Deposited metal weight/Welding time,min.)×60

❖ Proper Current Range

Consumable	Shielding Gas	Welding Position	Wire Dia.	
			1.2mm (0.045 in)	1.6mm (1/16 in)
SW-316L Cored	100%CO ₂ or Ar-20~25%CO ₂	F	160~220Amp	250~290Amp
		HF	160~220Amp	250~290Amp
		V-Up & OH	140~180Amp	-

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Approvals

Consumable	Shielding Gas	KR	ABS	LR
SW-316L Cored	C1	RW316LG(C) (-60 °C ≥ 34J) 1.2~1.6	AWS A5.22 E316LT1-1 0.9~1.6	316L 1.2~1.6
		BV	DNV	NK
		316L (-60 °C) 1.2~1.6	316L 1.2~1.6	KW316LG(C) 1.2~1.6
		CWB	TUV	CE
		AWS A5.22-95 E316LT1-1 0.9~1.6	EN 12073 T 19 12 3 L P C2 0.9~1.6	EN 12073 T 19 12 3 L P C2 0.9~1.6
		DB	CCS	
T 19 12 3 L P C 2(1.4430) DIN EN ISO 17633-A 0.9~1.6	316L 0.9~1.6			
Consumable	Shielding Gas	ABS	CWB	TUV
SW-316L Cored	M21	AWS A5.22 E316LT1-4 (75~80% Ar+ Bal. CO ₂) 0.9~1.6	AWS A5.22-95 E316LT1-4 0.9~1.6	EN 12073 T 19 12 3 L P M2 0.9~1.6
		CE	DB	-
		EN 12073 T 19 12 3 L P M2 0.9~1.6	T 19 12 3 L P M 2(1.4430) DIN EN ISO 17633-A 0.9~1.6	-

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