

# **SW-307 Cored**

FLUX CORED ARC WELDING CONSUMABLE  
FOR WELDING OF 13% Mn STEELS, CLADDING CARBON STEELS

2023.12



## ❖ Specification

**EN ISO 17633-A** T18 8 Mn P M21/C1 2

## ❖ Applications

SW-307 Cored is designed for welding of 13% Mn steels, Cladding Carbon steels, dissimilar steels

## ❖ Characteristics on Usage

These wires are suitable for all position welding and has easier re-arc-ing, beautiful bead appearance and better slag removability. The operators benefit from a fast freezing slag system which assists them with good performance not only in flat and horizontal but also in all welding position.

SW-307 cored is all position Flux Cored wire with a hot cracking resistant austenite weld metal. The tough weld metal has an excellent crack resistance, This wire is designed for welding dissimilar steels, 13Mn steels with Reduced weldability and for cladding carbon steels, can also be used As a buffer layer prior to hard surfacing.

## ❖ Note on Usage

Use 100% CO2 gas or Ar+ 15~25% CO2 gas

## ❖ Packing

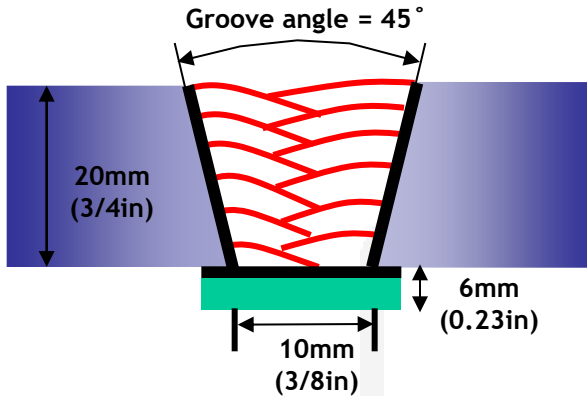
Diameter	1.2mm (0.045in)			
Spool *including ball pac	5kg (11lbs)	12.5kg (28lbs)	15kg (33lbs)	20kg (44lbs)



## Mechanical Properties & Chemical Composition of All Weld Metal

### ❖ Welding Conditions

Method by EN 1597-1(1997)



[ 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>	: 210/30
<b>Stick-Out(mm)</b>	: 20(0.8in)
<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)
	YS (Mpa/lbs/in <sup>2</sup> )	TS (MPa/lbs/in <sup>2</sup> )	EL (%)	-60°C (-76°F)
SW-307 Cored	444(64,000)	595(86,275)	47.2	67(49.4)
EN ISO 17633-A T 18 8 Mn	≥ 350	≥ 500	≥ 25	Not Specified

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

Consumable	Shielding Gas	Chemical Composition (%)								
		C	Si	Mn	P	S	Ni	Cr	Mo	Cu
SW-307 Cored	Ar +20% CO <sub>2</sub>	0.047	0.88	5.74	0.012	0.008	8.93	17.9	0.1	0.02
EN ISO 17633-A T 18 8 Mn		≤0.20	≤1.2	4.5 ~7.5	≤0.03 5	≤0.02 5	7.0 ~10.0	17.0 ~20.0	≤0.3	≤0.3

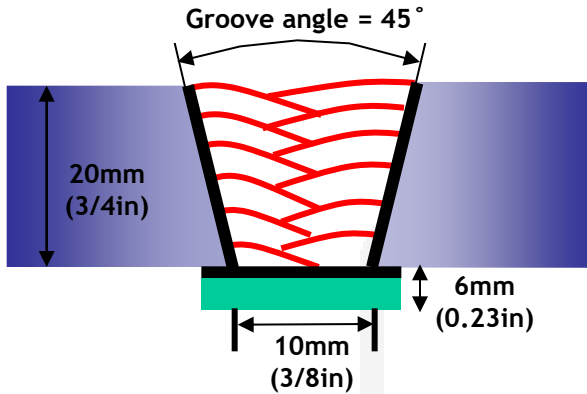
This information is provided solely for the purpose of confirming product conformance with applicable standards. The serviceability of a product or structure utilizing this type of information is and must be the sole responsibility of the builder/user. Many variables beyond the control of HYUNDAI WELDING 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 EN 1597-1(1997)



[ Joint Preparation & Layer Details ]

<b>Diameter(mm)</b>	: 1.2mm(0.045in)
<b>Shielding Gas</b>	: Ar + 20% CO <sub>2</sub>
<b>Flow Rate(ℓ /min.)</b>	: 20~22
<b>Amp./ Volt.</b>	: 210/29
<b>Stick-Out(mm)</b>	: 20(0.8in)
<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)
	YS (MPa/lbs/in <sup>2</sup> )	TS (Mpa/lbs/in <sup>2</sup> )	EL (%)	-60°C (-76°F)
<b>SW-307 Cored</b>	459(67,000)	602(87,290)	46.6	62(45.7)
<b>EN ISO 17633-A T 18 8 Mn</b>	≥ 350	≥ 500	≥ 25	<b>Not Specified</b>

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



Consumable	Shielding Gas	Chemical Composition (%)								
		C	Si	Mn	P	S	Ni	Cr	Mo	Cu
<b>SW-307 Cored</b>	<b>100% CO<sub>2</sub></b>	0.037	0.79	5.15	0.012	0.007	9.17	17.9	0.1	0.02
<b>EN ISO 17633-A T 18 8 Mn</b>		≤0.20	≤ 1.2	4.5 ~7.5	≤0.0 35	≤0.0 25	7.0 ~10.0	17.0 ~20.0	≤0.3	≤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 : 304L(6mm,0.23in))	
		
100% CO2(220A/30V)	100% CO2(160A/25V)	Ar+20% CO2(160A/24V)
		
Ar+20% CO2(220A/28V)		

### ❖ δ – Ferrite No.

Consumable	Shielding Gas	Diagram		
		Schaeffler	DeLong	WRC(1992)
SW-307 Cored	100% CO2	-	2.2	4.5
	Ar+20% CO2	0.8	2.9	5.2

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## 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 <sub>2</sub>	210	30	12(472)	86~88	4.6(10.1)
	Ar-20%CO <sub>2</sub>	210	29	12(472)	87~89	4.8(10.6)
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)
SW-307 Cored	100%CO <sub>2</sub> or Ar-20~25%CO <sub>2</sub>	F	160~220Amp
		HF	160~220Amp
		V-Up & OH	140~180Amp