

SW-2594 Cored

FLUX CORED ARC WELDING CONSUMABLE
FOR WELDING OF SUPER DUPLEX STAINLESS STEEL



SW-2594 Cored

❖ Specification

AWS A5.22
EN 17633-A

E2594T1-1/4
T 25 9 4 N L P M21/C1 2

❖ Applications

SW-2594 cored is designed for welding of Super Duplex stainless Steels like UNS S32750,S32760

❖ Characteristics on Usage

SW-2594 Cored is a titania type flux cored wire for all position Welding. This wire is designed for Super Duplex stainless steels. Arc stability is excellent, so spatter loss is low and slag covering is Uniform with good removability

❖ Note on Usage

Use 100% CO₂ gas or Ar+20~25% CO₂ gas

❖ Packing

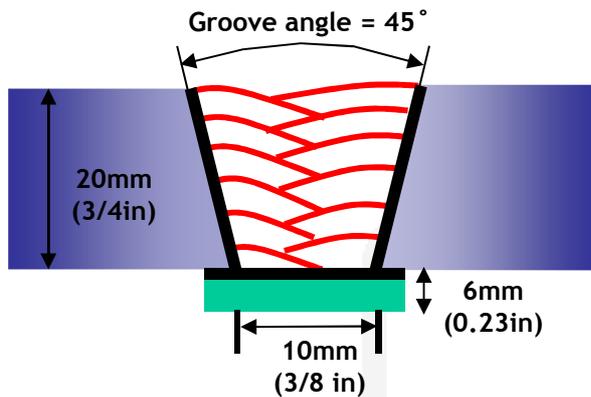
Diameter	1.2mm (0.045in)			
Spool *including ball pac	5kg (11lbs)	12.5kg (28lbs)	15kg (33lbs)	20kg (44lbs)



Mechanical Properties & Chemical Composition of All Weld Metal

❖ Welding Conditions

Method by AWS Spec.



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)	
	YS (Mpa/ksi)	TS (Mpa/ksi)	EL (%)	-20°C (-4°F)	-50°C (-58°F)
SW-2594 Cored	688(100)	896(130)	24.2	27(19.9)	20(14.7)
AWS A5.22 E2594TX-X	-	≥760	≥ 15	Not Specified	

❖ Chemical Analysis of All weld metal(wt%)

Consumable	Shielding Gas	Chemical Composition (%)											PREN
		C	Si	Mn	P	S	Ni	Cr	Mo	N ₂	Cu	W	
SW-2594 Cored	100%CO ₂	0.02 3	0.42	0.74	0.01 8	0.00 2	9.1 6	25. 5	3.7 7	0.2 4	0.01 8	-	41.8
AWS A5.22 E2594TX-X		≤0.04	≤1.0	0.5 ~2.5	≤0.04	≤0.03	8.0~ 10.5	24.0~ 27.0	2.5~ 4.5	0.2~ 0.3	≤1.5	≤1.0	-

* PREN(Pitting resistance equivalent Number): Cr+3.3Mo +16N

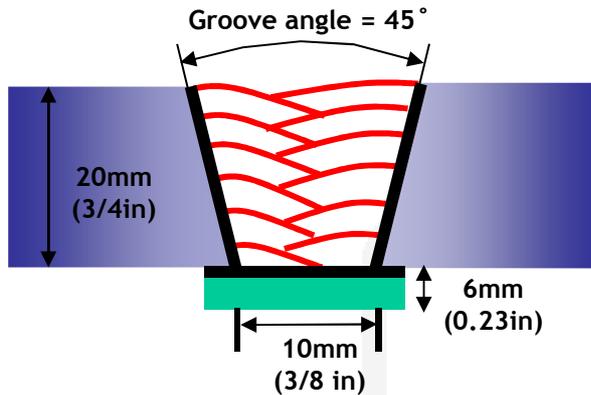
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Mechanical Properties & Chemical Composition of All Weld Metal

❖ 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)	
	YS (Mpa/ksi)	TS (Mpa/ksi)	EL (%)	-20°C (-4°F)	-50°C (-58°F)
SW-2594 Cored	680(90)	891(129)	26.0	37(27.3)	30(22.1)
AWS A5.22 E2594TX-X	-	≥760	≥ 15	Not Specified	

❖ Chemical Analysis of All weld metal(wt%)

Consumable	Shielding Gas	Chemical Composition (%)											PREN
		C	Si	Mn	P	S	Ni	Cr	Mo	N ₂	Cu	W	
SW-2594 Cored	80%Ar + 20%CO ₂	0.031	0.52	0.75	0.012	0.001	9.11	25.7	3.78	0.23	0.019	-	41.9
AWS A5.22 E2594TX-X		≤0.04	≤1.0	0.5 ~2.5	≤0.04	≤0.03	80~ 105	24.0~ 27.0	2.5~ 4.5	0.2~ 0.3	≤15	≤1.0	-

* PREN(Pitting resistance equivalent Number): Cr+3.3Mo +16N

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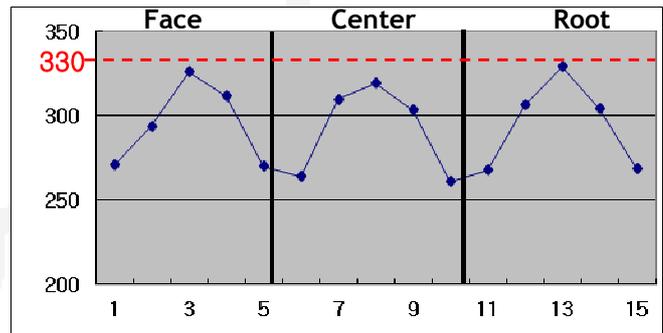
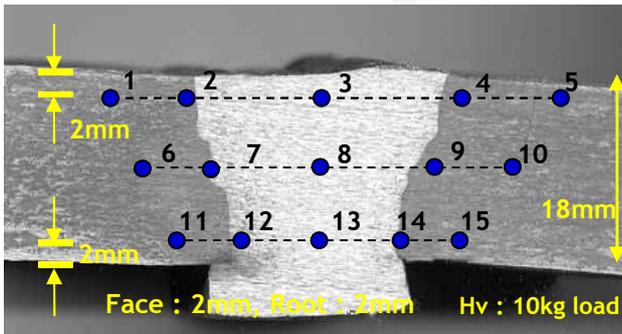


Mechanical Properties & Chemical Composition of All Weld Metal

❖ **δ – Ferrite No.**

Consumable	Shielding Gas	Diagram		
		Schaeffler	WRC(1992)	FERITSCOPE MP-30
SW-2594 Cored	100%CO2	79.1	58.7	40~45
	80%Ar + 20%CO2	75.2	55.9	55~60

❖ **Vickers Hardness test(H_v10,)**



H _v 10, Vickers hardness test							
1	2	3	4	5	6	7	8
270.5	293.9	326.3	311.6	269.7	264.1	309.8	319
9	10	11	12	13	14	15	
303.6	260.9	267.6	306.3	329.3	304.4	268.3	

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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 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)
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-2594 Cored	100%CO ₂ or Ar-20~25%CO ₂	F	160~220Amp
		HF	160~220Amp
		V-Up & OH	140~180Amp

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