

SW-625 Cored

FLUX CORED ARC WELDING CONSUMABLES
FOR WELDING OF NICKEL-CHROMIUM-MOLYBDENUM ALLOYS



SW-625 Cored

❖ Specification

AWS A5.34 ENiCrMo3T1-1/-4

JIS Z3335 TNI6625-FB1

EN ISO 12153 T Ni 6625 P M/C 2

❖ Applications

Joining nickel-chromium-molybdenum alloys
Cladding steel with nickel-chromium-molybdenum weld metal
LNG storage tank manufacture, desulfurization, heat exchanger

❖ Characteristics on Usage

Excellent corrosion resistance of crevice and pitting, SCC
Good Tensile strength in high temperature
Good impact value at cryogenic temperature

❖ Note on Usage

Use 100% Co₂, Ar+20~25%CO₂ gas

❖ Packing

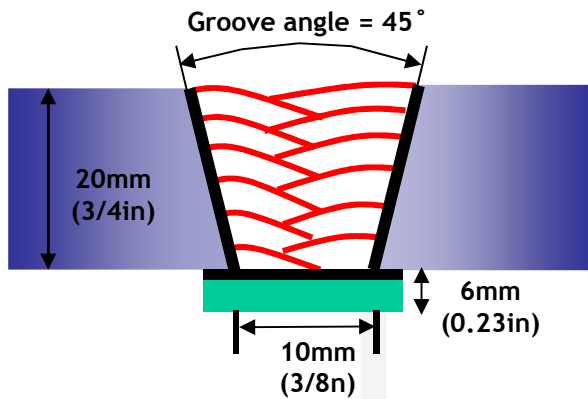
Diameter	1.2mm (0.045in)			
	Spool *including ball pac	5kg (11lbs)	12.5kg (28lbs)	15kg (33lbs)



Mechanical Properties & Chemical Composition of All Weld Metal

❖ Welding Conditions

Method by AWS Spec.



[Joint Preparation & Layer Details]

Diameter(mm)	: 1.2mm(0.045 in)
Shielding Gas	: 100% 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 the All weld metal

Consumables	Tensile Test Results		CVN Impact Value (Joules)
	TS(Mpa/ksi)	EL(%)	
SW-625 Cored	759(110)	40.0	-196°C (-320°F) 75(55.3)
AWS A5.34 ENiCrMo3TX-X	≥ 690	≥ 25	-
EN ISO 12153 T Ni 6625 P M 2	≥ 690	≥ 22	-

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

Consumables	C	Si	Mn	P	S	Ni	Cr	Mo	Ti	Nb	Fe
SW-625 Cored	0.024	0.42	0.34	0.004	0.002	64.9	20.9	8.9	0.23	3.53	0.37
AWS A5.34 ENiCrMo3TX-X	≤0.1	≤0.5	≤0.5	≤0.02	≤0.015	≥58.0	20.0 ~23.0	8.0 ~10.0	≤0.4	3.15 ~4.15	≤5.0
EN ISO 12153 T Ni 6625 P M 2	≤0.1	≤0.5	≤0.5	≤0.02	≤0.015	≥58.0	20.0 ~23.0	8.0 ~10.0	≤0.4	3.15 ~4.15	≤5.0

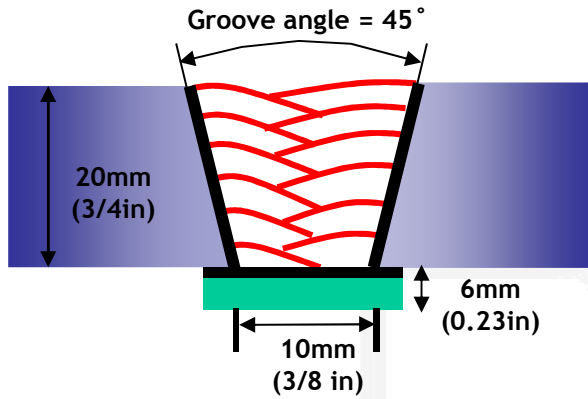
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Mechanical Properties & Chemical Composition of All Weld Metal

❖ Welding Conditions

Method by AWS Spec.



[Joint Preparation & Layer Details]

Diameter(mm)	: 1.2mm(0.045in)
Shielding Gas	: Ar + 20% 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 the All weld metal

Consumables	Tensile Test Results		CVN Impact Value (Joules)
	TS(Mpa/ksi)	EL(%)	-196°C (-320°F)
SW-625 Cored	760(110)	40.0	80(59.0)
AWS A5.34 ENiCrMo3TX-X	≥ 690	≥ 25	-
EN ISO 12153 T Ni 6625 P M 2	≥ 690	≥ 22	-

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

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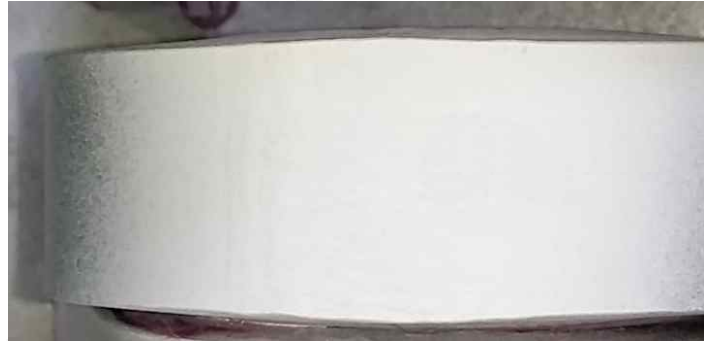


Bending Test(As-weld/PWHT)

❖ Bend Test



As-weld(1G,Groove angle: 60°)



PWHT:620°C*8Hr

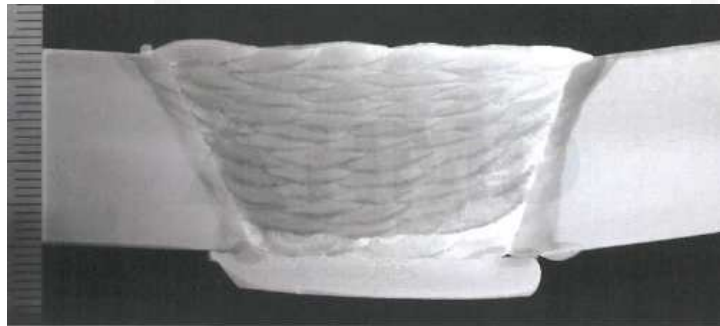


Mechanical Properties of 9% Ni steel with SW-625 Cored

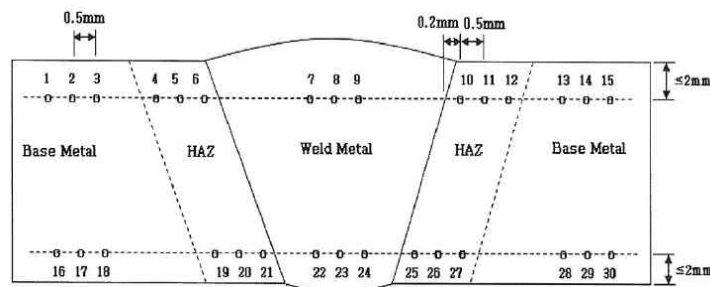
❖ Mechanical properties

Welding Consumable	T.S(Mpa)	El.(%)	Notch Location	-196℃ CVN Imapct(J)			
				X1	X2	X3	Avg.
SW-625 Cored	742 (base metal Fracture)	39.8	W	63	57	68	63
			F	79	76	80	78
Base metal: 9% Ni (ASTM A553)			F+2	110	89	100	100

❖ Macro structure(Etching: 3% HNO3)



❖ Vickers Hardness Test(Base metal:9%ni steel)



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
239	241	238	324	324	331	331	254	267	322	316	325	234	233	231
16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
234	242	239	244	238	260	251	247	243	275	276	278	234	236	239

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Recommended welding parameter range & Bead Appearance

❖ Proper Current Range

Consumable	Shielding Gas	Welding Position	Wire Dia.
			1.2mm (0.045 in)
SW-625 Cored	100%CO ₂ or Ar-20~25%CO ₂	F	160~220Amp
		HF	160~220Amp
		V-Up & OH	140~180Amp



Bead appearance (1G,200A/29V)



Pipe welding(3G) (170A/27V)



Pipe welding(4G) (170A/27V)



Bead appearance (3G,170A/26V)

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