

SM-2209

AWS A5.9 ER2209
JIS Z3321 YS2209
EN ISO 14343-A - G 22 9 3 N L

HYUNDAI WELDING CO., LTD.



❖ Specification

AWS A5.9	ER2209
JIS Z3321	YS2209
EN ISO 14343	G 22 9 3 N L

❖ Applications

Welding of UNS S31803, S32205
(Independent water power plant)

❖ Characteristics on Usage

1. Weld metal has 30~60% ferrite contents
2. Due to the high chromium contents, corrosion resistance is excellent in most environments(chloride environment)
3. Superior pitting resistance(PREN ≥34)

❖ Shielding gas

100% Ar, Ar+2% O₂

❖ Polarity

GMAW : DC+

❖ Packing

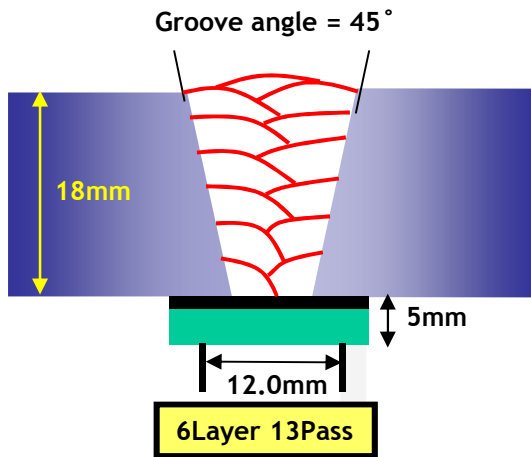
Dia.	1.0mm (0.040in)	1.2mm (0.045in)
Spool	12.5kg (28lbs)	



Mechanical Properties & Chemical Composition of All-Weld Metal (GMAW)

❖ Welding Conditions

Method by AWS Spec.



- Size(mm) : 1.2mm
- Shielding gas : Ar+2% O₂
- Flow(ℓ /min.) : 15~20
- Ampere/Voltage : 190~200A/26~27V
- Speed(cm/min.) : 30
- Heat input(KJ/cm) : 10~15.0
- Base metal: UNS S31803

1-2 Chemical composition of the wire (wt%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu	N
0.018	0.47	1..68	0.014	0.001	8.75	22.90	3.20	0.09	0.16
≤0.03	≤0.9	0.5~2.0	≤0.03	≤0.03	7.5~9.5	21.5~23.5	2.5~3.5	≤0.75	0.08~0.2
AWS A5.9 ER2209									

1-3 Chemical composition of All weld metal (wt%)

C	Si	Mn	P	S	Ni	Cr	Mo	Cu	N ₂	PREN
0.020	0.42	1.73	0.015	0.002	8.93	22.51	3.15	0.139	0.16	34.52

* PREN = Cr + 3.3×Mo + 16×N

1-4 Radiographic Test

Consumable	Specification	Accepted	Rejected
SM-2209	AWS A5.4	○	

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Mechanical Properties & Chemical Composition of All Weld Metal (GMAW)

1-5 Mechanical properties of All-weld metal

Tensile Test Results.		
T.S. MPA (ksi)		EL. (%)
784.0 (114)		30.6
AWS A5.4 E2209	≥ 690	≥ 20

CVN Impact test Joule (ft·lbs)					
°C (°F)	X1	X2	X3	Avg.	
-20 (-4)	86 (63)	92 (68)	73 (54)	83.6 (61.7)	
-50 (-58)	62 (46)	67 (49)	69 (51)	66.0 (48.7)	

1-6 Ferrite content of weld metal

Consumable	Shaeffler	WRC(1992)	FERRITSCOPE (MP-30)
SM-2209	46.4	40.8	34

1-7 Ferric Chloride Pitting Test (ASTM G48 Method A)

Consumable	Specimen Weight(g)		Weight loss(g)	Remark (Pitting)
	Before	After		
SM-2209 (1G)	116.0912	116.0906	0.0006	No Pitting

* Temperature : 25°C ± , Period : 24Hr

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