

ST-91B9

2021.06



❖ Specification

AWS A5.28/ ASME SFA5.28 ER90S-B91
EN ISO 21952 - A W CrMo91

❖ Applications

ST-91B9 is used for components such as headers, main steam piping
And turbine casings, in fossil fuelled power generating plants.

- Suitable for steels to A213 T91(Seamless tube), A335 P91 (Seamless pipe), A387 Gr91(Plate), A182/A336 F91(forging), A234 WP91, etc

❖ Characteristics on Usage

- ST-91B9 is modified 9CrMo for high temperature creep resistance. (small additions of Nb, V, N2 to give improved long term creep properties)
- In the PWHT condition the microstructure consists of tempered martensite with alloy carbides

❖ Note on Usage

Use 100%Ar gas

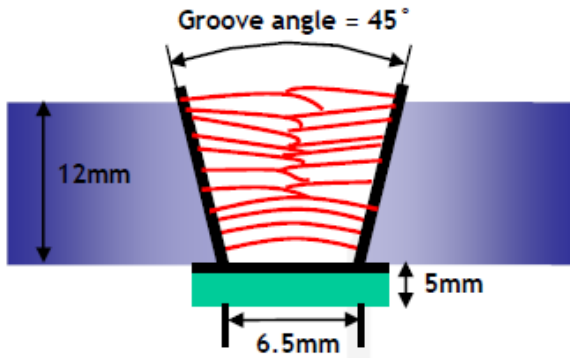
❖ Packing

Dia.	2.4mm (3/32in)	3.2mm (1/8in)
Weight	5kg (11lbs)	



Chemical Composition of Wire & Mechanical Properties of All Weld Metal (GTAW)

❖ Welding Conditions



[Joint Preparation & Layer Details]

Diameter(mm)	: 2.4mm
Shielding Gas	: 100%Ar
Flow Rate(ℓ /min.)	: 20~25
Amp./ Volt.	: 160~240
Pre-Heat(°C) / Interpass Temp.(°C)	: 205~320
PHWT	: 760(±15°C) X 2Hr
Polarity	: DC(-)

❖ Chemical Analysis of Wire(wt%)

Consumable	Chemical Composition (wt%)												
	C	Si	Mn	P	S	Ni	Cr	Mo	V	Al	Cu	Nb	N2
ST-91B9	0.12	0.24	0.74	0.007	0.003	0.40	8.9	0.95	0.20	0.001	0.05	0.06	0.04
AWS A5.28 ER90S-B91	0.07 ~0.13	0.15 ~0.50	≤1.20	≤0.010	≤0.010	≤0.80	8.0 ~10.5	0.85 ~1.20	0.15 ~0.30	≤0.04	≤0.20	0.02 ~0.10	0.03 ~0.07

❖ Mechanical Properties of All weld metal

Consumable	Tensile Test		CVN Impact test
	TS MPa (ksi)	EL (%)	Joule (ft · lbs) R.T (68°F)
ST-91B9	792 (116)	26.4	220 (163)
AWS A5.28 ER90S-B91	≥620	≥16	-

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.