

Atom Arc 9015-B91

Atom Arc 9015-B91 is designed to weld martensitic 95% Cr & 1% Mo-V steels known by the designations T91, P91 or Grade 91. These steels are designed to provide improved creep strength, fatigue, oxidation, and corrosion resistance at elevated temperatures. It also provides good weld metal ductility and high charpy values at room temperature. This product is optimized to meet the requirements for Mn + Ni contents <1.0 wt %.

Specifications

Classifications	ASME SFA 5.5 : E9015-B91H4R AWS A5.5 : E9015-B91H4R
Industry	Pipeline Petrochemical Power Generation

Welding Current	AC, DC+
Diffusible Hydrogen	< 4.0 ml/100g
Alloy Type	Low alloyed (9% Cr - 1% Mo-V-Nb)

Tensile Properties

Testing Condition	Yield Strength	Tensile Strength	Elongation
Stress Relieved 2 hour(s) 760 °C (1400 °F)	586 MPa (85 ksi)	738 MPa (107 ksi)	22 %

Charpy Testing

Testing Condition	Testing Temp	Impact Value
Stress Relieved	22 °C (72 °F)	84 J (62 ft-lb)

Typical Weld Metal Analysis %

C	Mn	Si	S	P	Ni	Cr	Mo	V	Cu
0.10	0.75	0.18	0.01	0.01	0.21	8.55	0.93	0.21	0.04

Typical Weld Metal Analysis %

N	Nb	X-bar	Mn+Ni
0.043	0.04	< 15	<1.0

Deposition Data

Diameter	Amps	Volts	Efficiency (Per)	Fusion time per electrode at 90Per I max	Deposition rate at 90Per
2.4 x 356.0 mm (3/32 x 14.0 in.)	70-110 A	23.2 V	69.01 %	60 sec	0.92 kg/h (2.0 lbs/h)
3.2 x 356.0 mm (1/8 x 14.0 in.)	90-160 A	23.9 V	72.23 %	70 sec	1.36 kg/h (3.0 lbs/h)
4.0 x 356.0 mm (5/32 x 14.0 in.)	130-220 A	24.3 V	72.06 %	75 sec	1.89 kg/h (4.2 lbs/h)
4.8 x 356.0 mm (3/16 x 14.0 in.)	200-300 A	24.3 V	71.04 %	74 sec	2.53 kg/h (5.6 lbs/h)