

Dual Shield B9

Dual Shield B9 is an all-position flux cored electrode designed for the welding of modified 9% chromium creep resisting steels, such as ASTM A335 Grade P91 or ASTM A213 T91. This product is formulated with a combined Mn & Ni <1.20% to meet stringent customer specifications. Dual Shield B9 is packaged on layer level-wound wire spool baskets to allow the product to be placed in a heated storage oven. In addition, the wire is packaged in a vacuum-sealed foil bag to prevent moisture pick-up until such time the sealed bag has been opened.

Specifications

Classifications

ASME IX F No. 6
ASME SFA 5.36
ASME SFA 5.29
AWS A5.36 : E91T1-M21PZ-B91
AWS A5.29 : E91T1-B9M

Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation
75% Ar - 25% CO₂			
Stress Relieved 2 hour(s) 760 °C (1400 °F)	600 MPa (87 ksi)	738 MPa (107 ksi)	21 %

Typical Weld Metal Analysis %

C	Mn	Si	S	P	Cr	Mo	V	N	Nb
0.10	0.96	0.18	0.008	0.009	9.25	1.00	0.22	0.04	0.04

Typical Weld Metal Analysis %

X-bar

< 15 ppm

Deposition Data

Diameter	Current	Voltage	Wire Feed Speed	Deposition Efficiency (%)	Deposition Rate
75% Ar - 25% CO₂					
1.6 mm (1/16 in.)	410 A	33 V	889 cm/min (350 in./min)	88 %	6.35 kg/h (14 lbs/h)
1.2 mm (.045 in.)	150 A	28 V	508 cm/min (200 in./min)	86 %	1.91 kg/h (4.2 lbs/h)
1.4 mm (.052 in.)	245 A	28 V	635 cm/min (250 in./min)	86 %	3.31 kg/h (7.3 lbs/h)
1.6 mm (1/16 in.)	500 A	39 V	1270 cm/min (500 in./min)	87 %	9.11 kg/h (20.1 lbs/h)
1.2 mm (.045 in.)	290 A	33 V	1270 cm/min (500 in./min)	87 %	4.85 kg/h (10.7 lbs/h)
1.4 mm (.052 in.)	155 A	25 V	381 cm/min (150 in./min)	87 %	2 kg/h (4.4 lbs/h)
1.2 mm (.045 in.)	250 A	30 V	1016 cm/min (400 in./min)	87 %	3.86 kg/h (8.5 lbs/h)
1.2 mm (.045 in.)	330 A	34 V	1524 cm/min (600 in./min)	87 %	5.76 kg/h (12.7 lbs/h)
1.6 mm (1/16 in.)	300 A	30 V	35 cm/min (250 in./min)	87 %	4.63 kg/h (10.2 lbs/h)
1.4 mm (.052 in.)	430 A	37 V	1524 cm/min (600 in./min)	87 %	7.98 kg/h (17.6 lbs/h)
1.4 mm (.052 in.)	310 A	33 V	889 cm/min (350 in./min)	85 %	4.63 kg/h (10.2 lbs/h)

Dual Shield B9

Deposition Data

Diameter	Current	Voltage	Wire Feed Speed	Deposition Efficiency (%)	Deposition Rate
1.6 mm (1/16 in.)	450 A	33 V	1016 cm/min (400 in./min)	87 %	7.3 kg/h (16 lbs/h)
1.6 mm (1/16 in.)	365 A	33 V	762 cm/min (300 in./min)	86 %	5.58 kg/h (12.3 lbs/h)
1.2 mm (.045 in.)	210 A	29 V	762 cm/min (300 in./min)	86 %	86 kg/h (6.3 lbs/h)
1.6 mm (1/16 in.)	190 A	27 V	38 cm/min (150 in./min)	87 %	2.77 kg/h (6.1 lbs/h)
1.4 mm (.052 in.)	360 A	36 V	1143 cm/min (450 in./min)	85 %	6.03 kg/h (13.3 lbs/h)