



WA. ALLOY CO.

WASHINGTON ALLOY'S Quality Management System is Certified to **ISO 9001:2008**
Cert # 05-R0925

E91T1-B3 Flux Cored Welding Wire

U.S. ALLOY CO.
dba Washington Alloy
7010-G Reames Rd.
Charlotte, NC 28216
www.weldingwire.com



American Welding Society
Sustaining Company Member



ALLOY DESCRIPTION AND APPLICATION:

E91T1-B3 is a titania slag formulation flux-cored wire for single or multi-pass welds on 2.25% Cr 1.0% Mo steels used for high pressure steam pipes of boilers, power generation plant equipment, oil refining processing equipment, pressure vessels and castings of the same alloy content. The weld deposits are designed to operate at high temperature service. The shield gas recommended is 100% CO₂ for E91T1-B3C & Argon-CO₂ mixed shield gas for E91T1-B3M. E91T1-B3 is used extensively in the fabrication, erection and repair of pressure vessels, petrochemical processing equipment, and piping systems. The weld metal analysis of the deposit is similar to E9018-B3 Low Hydrogen Electrodes. The weld deposits are smooth and have deep penetration. E91T1-B3 is noted for its smooth arc and minimum spatter. This is an all-position wire however when used for horizontal fillet joints the weld bead has equal leg lengths with flat faced fillets with fine ripples.

PREHEAT AND POST WELD HEAT TREATMENT: A preheat of 390-655°F(200-350°C) and a post-weld heat treatment of 1250-1355°F(680-730 C) for 1 hour per inch of thickness followed by air cooling to ambient temperature is required.

TYPICAL FCAW WELDING PROCEDURES; DCEP with 100% CO₂ (35-45cfh)

Wire Diameter	Wire Speed (ipm)	Amps	Volts	Electrical Stickout
0.035"	450- 580 -675	100- 215 -260	21- 26 -28	3/8-3/4"
0.045"	150- 410 -575	100- 245 -300	24- 28 -30	1/2-3/4"
0.052"	295- 400 -515	210- 310 -350	26- 28 -32	1/2-1"
1/16"	260- 345 -430	225- 355 -410	27- 29 -33	1/2-1"

Procedures may vary with change in position, base metals, filler metals, equipment and other changes.
(OPTIMUM IN BOLD Based on FLAT) for mixed gas lower the voltage by 2-5 %

TYPICAL WELD METAL (%) AND WELD METAL PROPERTIES (PWHT);

	AWS Spec.	E91T1-B3		AWS Spec	E91T1-B3
Carbon	0.05-0.12	0.065	Tensile Strength (psi)	90-110,000	98,900
Manganese	1.25 max.	1.18	Yield Strength (psi)	78,000 min.	87,700
Chromium	2.00-2.50	2.27	Elongation in 2"	17% min.	27 %
Silicon	0.80 max.	0.51	Sulfur	0.03 max.	0.011
Molybdenum	0.90-1.20	1.03	Phosphorus	0.03 max.	0.014

AVAILABLE SIZES: TCF 91T1-B3= Spools of .045, 1/16
Other sizes may be available – please inquire

SPECIFICATIONS; ANSI/AWS A5.29 E91T1-B3C, E91T1-B3M
ASME SFA A5.29 E91T1-B3C, E91T1-B3M

EAST COAST
7010-G Reames Rd
Charlotte, NC 28216
Tel (888) 522-8296
Fax (704)598-6673

GULF COAST
4755 Alpine Drive #100A
Stafford, TX 77477
Tel (877) 711-9274
Fax (281)313-6332

WEST COAST
8535 Utica Ave
Rancho Cucamonga, CA 91730
Tel(800)830-9033
Fax (909)291-4586



2018 DC

Warehouse Distribution Center – Portland, Oregon & Boston, Massachusetts Head Office – Puyallup, Washington

Washington Alloy Company believes that all information and data given is correct. Use this information to assist in making your own evaluations or decisions and this information should not be mistaken as an expressed or implied warranty. U.S. ALLOY CO. assumes no liability for results or damages incurred from the use of any information contained herein, in whole or in part.