

SUPERCORE® F91

Low Alloy, All Position ■ AWS E91T1-B9C/M-H4

KEY FEATURES

- High deposition rates
- Fast freezing slag for out of position welding
- Designed to weld the modified steels T91, P91 or Grade 91. Which are designed to provide improved creep strength, toughness fatigue and oxidation, resistance at elevated temperatures

SHIELDING GAS

100% CO₂
75% Argon / 25% CO₂
Flow Rate: 40-50 CFH

CONFORMANCES

AWS A5.29M	E91T1-B9C/M-H4
AWS A5.36M	(Dependent on shielding gas) E91T1-C1PZ-B91-H4 or E91T1-M21PZ-B91-H4
BS EN ISO 17634-B	T69T1-1C/M-9C1MV

TYPICAL APPLICATIONS

- Power Plants
- Piping
- Turbine Castings
- Oil Refineries

WELDING POSITIONS

All

DIAMETERS / PACKAGING

Diameter mm (in)	15 kg (33 lb) Spool
1.2 (0.045)	ED033387, SCF91-12*

*The Metrode part number will be replacing the current EDO numbers after the inventory has been depleted.

MECHANICAL PROPERTIES⁽¹⁾

	Yield Strength ⁽²⁾ MPa (ksi)	Tensile Strength MPa (ksi)	Elongation %	Charpy V-Notch J (ft·lbf) @ 20°C (68°F)	PWHT
Requirements AWS E91T1-B9C/M-H4	565 (82) min	690 (100) min	16 min	—	—
Typical Results⁽³⁾					
2 hr @ 760°C (1400°F)	RT 660 (96)	790 (115)	20	25 (18)	260
6 hr @ 760°C (1400°F)	RT 630 (91)	760 (110)	—	—	—
High Temperature					
+566°C (1050°F)	360 (52)	450 (65)	21	—	—
+600°C (1112°F)	288 (42)	420 (61)	27	—	—
+650°C (1202°F)	245 (36)	396 (57)	29	—	—

DEPOSIT COMPOSITION⁽¹⁾

	%C	%Mn	%Si	%S	%P	%Cr	%Ni
Requirements AWS E91T1-B9C/M-H4	0.08 - 0.13	0.60 - 1.20	0.50 max	0.015 max	0.020 max	8.0 - 10.0	0.80 max
Typical Results⁽³⁾	0.10	0.80	0.30	0.01	0.016	9.0	0.50
	%Mo	%Nb	%V	%N	%Cu	%Al	%Ni+Mn
Requirements AWS E91T1-B9C/M-H4	0.85 - 1.2	0.02 - 0.07	0.15 - 0.25	0.02 - 0.07	0.15 max	0.40 max	1.5 max
Typical Results⁽³⁾	1.0	0.04	0.20	0.05	0.05	0.01	1.30

TYPICAL OPERATING PROCEDURES

Diameter in (mm)	Amp-Volt Range	Typical	Stickout in (mm)
1.2 (0.045) DC+	140 - 170A 24 - 26V	160A, 25V	15 - 25 (5/8 - 1)

⁽¹⁾Typical all weld metal. ⁽²⁾Measured with 0.2% offset. ⁽³⁾See test results disclaimer ⁽⁴⁾Industry specific data, not required by AWS.
NOTE: Additional test data available upon request.

Material Safety Data Sheets (MSDS) and Certificates of Conformance are available on our website at www.lincolnelectric.com

TEST RESULTS

Test results for mechanical properties, deposit or electrode composition and diffusible hydrogen levels were obtained from a weld produced and tested according to prescribed standards, and should not be assumed to be the expected results in a particular application or weldment. Actual results will vary depending on many factors, including, but not limited to, weld procedure, plate chemistry and temperature, weldment design and fabrication methods. Users are cautioned to confirm by qualification testing, or other appropriate means, the suitability of any welding consumable and procedure before use in the intended application.

CUSTOMER ASSISTANCE POLICY

The Lincoln Electric Company is manufacturing and selling high quality welding equipment, consumables, and cutting equipment. Our challenge is to meet the needs of our customers and to exceed their expectations. On occasion, purchasers may ask Lincoln Electric for information or advice about their use of our products. Our employees respond to inquiries to the best of their ability based on information provided to them by the customers and the knowledge they may have concerning the application. Our employees, however, are not in a position to verify the information provided or to evaluate the engineering requirements for the particular weldment. Accordingly, Lincoln Electric does not warrant or guarantee or assume any liability with respect to such information or advice. Moreover, the provision of such information or advice does not create, expand, or alter any warranty on our products. Any express or implied warranty that might arise from the information or advice, including any implied warranty of merchantability or any warranty of fitness for any customers' particular purpose is specifically disclaimed.

Lincoln Electric is a responsive manufacturer, but the selection and use of specific products sold by Lincoln Electric is solely within the control of, and remains the sole responsibility of the customer. Many variables beyond the control of Lincoln Electric affect the results obtained in applying these types of fabrication methods and service requirements.

Subject to Change – This information is accurate to the best of our knowledge at the time of printing. Please refer to www.lincolnelectric.com for any updated information.