

UltraCore® SR-12H

AWS E71T-1M-JH4, E71T-9M-JH4, E71T-12M-JH4



UltraCore® SR-12H is a mild steel, gas-shielded flux-cored wire designed to provide low temperature toughness properties in as-welded and stress relieved conditions. It features (H4) diffusible hydrogen levels and protech packaging for improved moisture resistance. For a mixed gas electrode optimized to meet your post weld heat treatment needs - choose UltraCore® SR-12H.

KEY FEATURES

- ▶ **Impact Toughness** - Capable of producing weld deposits with impact toughness of 70 - 110 ft•lbs @ -40°F (as welded and after 8 hrs. PWHT @ 1150°F).
- ▶ **Diffusible Hydrogen** - Meets H4 diffusible hydrogen levels
- ▶ **Q2 Lot® Controlled and Tested** - Certificate showing actual deposit chemistry and mechanical properties per lot available online
- ▶ **Prior to Using this Material** for ASME Boiler and Pressure Vessel Code Section III applications, please contact the Lincoln Electric Specials Department to receive a Certified Material Test Report (CMTR) which meet all requirements of NCA-3860

WELDING POSITIONS

All

APPLICATIONS

- ▶ Nuclear applications
- ▶ Applications requiring PWHT of mild steel

CONFORMANCES

AWS A5.20/5.20M: E71T-1M-JH4, E71T-9M-JH4, E71T-12M-JH4

ASME SFA-5.20 E71T-1M-JH4, E71T-9M-JH4, E71T-12M-JH4

SHIELDING GAS

75-80% Argon / Balance CO₂

DIAMETERS / PACKAGING

Diameter in. (mm)	15 lb (7 kg) Plastic Spool 60 lb (28 kg) Carton
0.045 (1.1)	ED034122

MECHANICAL PROPERTIES⁽¹⁾ – As Required per AWS A5.20/5.20M

	Yield Strength ⁽²⁾ MPa (ksi)	Tensile Strength MPa (ksi)	Elongation %	Charpy V-Notch J (ft•lbf) @ -40°C (-40°F)
Requirements - AWS E71T-12M-JH4 As-Welded with 75% Ar / 25% CO ₂	400 (58) min.	480 - 620 (70 - 90)	22 min.	27 (20) min.
Test Results⁽³⁾ As-Welded with 75% Ar / 25% CO ₂ Stress-Relieved for 8 hrs. @ 620°C (1150°F)	510 - 550 (74 - 80) 450 (65)	570 - 600 (83 - 87) 540 (78)	25 - 32 30	110 - 200 (80 - 150) 100 - 150 (70 - 110)

DEPOSIT COMPOSITION⁽¹⁾ – As Required per AWS A5.20/5.20M

	%C	%Mn	%Si	%Ni	%S	%P	Diffusible Hydrogen (mL/100g weld deposit)
Requirements - AWS E71T-12M-JH4 As-Welded with 75% Ar / 25% CO ₂	0.12 max.	1.60 max.	0.90 max.	0.50 max.	0.03 max.	0.03 max.	4 max.
Test Results⁽³⁾ As-Welded with 75% Ar / 25% CO ₂	0.03 - 0.06	1.27 - 1.60	0.27 - 0.45	0.34 - 0.41	<0.01	<0.01	1 - 4

TYPICAL OPERATING PROCEDURES

Diameter, Polarity Shielding Gas	CTWD ⁽⁴⁾ mm (in)	Wire Feed Speed m/min (in/min)	Voltage (Volts)	Approx. Current (Amps)	Melt-Off Rate kg/hr (lb/hr)	Deposition Rate kg/hr (lb/hr)	Efficiency (%)
0.045 in. (1.1 mm), DC+ 75-80% Ar / balance CO ₂	22 (7/8)	4.4 (175)	22-24	125	1.8 (4.0)	1.5 (3.4)	88
		5.7 (225)	22-24	145	2.3 (5.1)	2.0 (4.4)	
		7.0 (275)	23-25	165	2.9 (6.3)	2.5 (5.5)	
		8.3 (325)	23-25	185	3.4 (7.4)	2.9 (6.4)	
		9.5 (375)	24-26	205	3.9 (8.6)	3.4 (7.5)	
		10.8 (425)	25-27	225	4.4 (9.7)	3.8 (8.4)	
		12.1 (475)	26-28	245	4.9 (10.9)	4.3 (9.5)	

⁽¹⁾ Typical all weld metal. ⁽²⁾ Measured with 0.2% offset. ⁽³⁾ See test results disclaimer below. ⁽⁴⁾ To estimate ESO, subtract 1/4 in. (6.0 mm) from CTWD.
Note: This product contains micro-alloying elements. Additional information available upon request.

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.