PIPELINER® 91M

Low Alloy, All Position ▪ AWS E91T1-GM-H4

KEY FEATURES

- Designed for optimal performance in automated pipe welding applications where a consistent arc length is critical.
- Flat bead shape, fast freezing slag provides consistent puddle support all the way around the pipe.
- Capable of producing weld deposits with impact toughness exceeding 27 J (20 ft▪lbf) at -40°C (-40°F).
- Q2 Lot® - Certificate showing actual deposit chemistry and mechanical properties per lot available online.

WELDING POSITIONS

All

CONFORMANCES

AWS A5.29M: E91T1-GM-H4

ISO 18276-A: T 55 4 1,5NiMo P M 2 H5

TYPICAL APPLICATIONS

- Hot, fill and cap pass welding on up to X80 grade pipe
- Fully automated pipe welding
- Semi-automatic pipe welding

SHIELDING GAS

75-85% Argon/Balance CO_2
Flow Rate: 35-55 CFH

DIAMETERS / PACKAGING

Diameter mm (in)	11 lb (5 kg) Plastic Spool 33 lb (15 kg) Master Carton	33 lb (15 kg) Plastic Spool
1.2 (0.047)	ED0379936	ED0379937

MECHANICAL PROPERTIES[1]

	Yield Strength[2] MPa (ksi)	Tensile Strength MPa (ksi)	Elongation %	Charpy V- Notch J (ft▪lbs) @ -40°C (-40°F)
Requirements AWS E91T1-GM-H4	540 (78) min	620-760 (90-110)	17 min	Not Specified
Typical Results[3] As-Welded with 80% Argon / 20% CO_2	640 (93)	700 (102)	19	60 (44)

DEPOSIT COMPOSITION[1]

	%C	%Mn[4]	%Si	%P	%S
Requirements - AWS A5.29: E91T1-GM H4	Not Specified	0.50	1.00	0.030 max.	0.030 max.
Typical Results[3] As-Welded with 80% Argon / 20% CO_2	0.05	1.40	0.20	0.013	0.010
	%Ni[4]	%Cr[4]	%Mo[4]	%V[4]	Diffusible Hydrogen (mL/100g weld deposit)
Requirements - AWS A5.29: E91T1-GM H4	0.50	0.30	0.02	0.10	4
Typical Results[3] As-Welded with 80% Argon / 20% CO_2	1.40	0.05	0.42	0.01	3

[1]Typical all weld metal. [2]Measured with 0.2% offset. [3]See test results disclaimer [4]In order to meet all the requirements of the –G group, the undiluted weld metal shall have not less than the minimum specified for one or more of the elements listed.

TYPICAL OPERATING PROCEDURES

Diameter, Polarity Shielding Gas	CTWD[6] 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 (%)
0.047 in (1.2 mm), DC+, 75-85%Argon/Balance CO_2	20 (3/4)	4.5 (175) 7.0 (275) 9.5 (375) 12.7 (500)	20-22 23-25 25-27 27-29	130 180 220 265	1.9 (4.2) 3.0 (6.6) 4.1 (9.0) 5.4 (11.9)	1.6 (3.5) 2.5 (5.5) 3.4 (7.5) 4.5 (9.9)	83

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

FUMES AND GASES can be hazardous to your health.

- Fumes from the normal use of this product contain significant quantities of potentially hazardous compounds. See consumable product label/insert.
- Keep your head out of the fumes.
- Use enough ventilation and local exhaust to keep fumes and gases from your breathing zone and the general area.
- An approved respirator should be used unless exposure assessments are below applicable exposure limits.

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.

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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.

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