Pipeliner® 81M

AWS E81T1-GM

Pipeliner® 81M is a gas-shielded, flux-cored wire designed for hot, fill and cap pass welding on up to X70 grade pipe. Optimized for automated and semi-automatic pipe welding applications, Pipeliner® 81M has a consistent arc and fast freezing slag to maintain a flat bead shape all around the pipe. The electrode is capable of producing Charpy V-Notch impact properties of 66 - 131 J (49 - 97 ft•lbf) @ -40°C (-40°F). For an electrode that meets the demands of automated and semi-automatic pipe welding on up to X70 grade pipe – choose Pipeliner® 81M.

KEY FEATURES

- **Consistent Arc** – 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.
- **Impact Toughness** – Capable of producing weld deposits with impact toughness exceeding 27 J (20 ft•lbf) at -40°C (-40°F).
- **Q2 Lot® Control and Tested** – Certificate showing actual deposit chemistry and mechanical properties per lot available online.
- **ProTech® Packaging** – Hermetically sealed packaging for moisture resistance.

WELDING POSITIONS

All

APPLICATIONS

- Hot, fill and cap pass welding on up to X70 grade pipe
- Fully automated pipe welding
- Semi-automatic pipe welding
- Meets requirements for NACE applications

CONFORMANCES

AWS A5.29/A5.29M: 2010	E81T1-GM
ASME SFA-5.29	E81T1-GM
ISO 17632: 2006	ISO 17632-B-T554T1-1MA-N1-UH5

SHIELDING GAS

75 - 85% Argon/Balance CO_2
Flow Rate: 40 - 50 CFH

DIAMETERS / PACKAGING

Diameter mm (in)	10 lb (4.5 kg) Plastic Spool Vacuum Sealed Foil Bag	25 lb (11.3 kg) Plastic Spool Vacuum Sealed Foil Bag
1.2 (0.047)	ED033320	ED033321

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THE WELDING EXPERTS®

MECHANICAL PROPERTIES[1] – *As Required per AWS A5.29/A5.29M: 2010*

	Yield Strength[2] MPa (ksi)	Tensile Strength MPa (ksi)	Elongation %	Charpy V-Notch J (ft•lbf) @-29°C (-20°F)	Charpy V-Notch J (ft•lbf) @-40°C (-40°F)
Requirements AWS E81T1-GM	470 (68) min.	550 - 690 (80-100)	19 min.	Not Specified	Not Specified
Typical Performance[3] As-Welded with 75% Argon / 25% CO_2	510 - 560 (74 - 81)	580 - 620 (84 - 90)	25 - 29	83 - 149 (61 - 110)	66 - 131 (49 - 97)

DEPOSIT COMPOSITION[1] – *As Required per AWS A5.29/A5.29M: 2010*

	%C	%Mn	%Si	%P
Requirements AWS E81T1-GM	Not Specified	0.50[4]	1.00[4]	0.030 max.
Typical Performance[3] As-Welded with 75% Argon / 25% CO_2	0.06 - 0.07	1.54 - 1.68	0.34 - 0.37	0.010 - 0.015

	%S	%Ni	Diffusible Hydrogen
Requirements AWS E81T1-GM	0.030 max.	0.50[4]	Not Specified
Typical Performance[3] As-Welded with 75% Argon / 25% CO_2	0.010 - 0.020	0.85	4 - 5

TYPICAL OPERATING PROCEDURES

Diameter, Polarity Shielding Gas	CTWD[5] mm (in)	Wire Feed Speed m/min (in/min)	Voltage (volts)	Approx. Current (amps)	Melt-Off Rate kg/hr (lb/hr)
1.2 mm (0.045 in), DC+ 75-85% Argon / Balance CO_2	19 (3/4)	4.4 - 10.2 (175 - 400)	23 - 30	130 - 275	1.8 - 4.1 (3.9 - 9.0)

[1] Typical all weld metal. [2] Measured with 0.2% offset. [3] See test results disclaimer below. [4] In order to meet 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.
[5] Strength and elongation properties were obtained from a 0.500 in. tensile specimen artificially aged at 104°C (220°F) for 48 hours as permitted by AWS A5.29:2010.

NOTE: This product contains micro-alloying elements. Additional information 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.

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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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