

# PIPELINER® LH-D90

Low Alloy, Low Hydrogen, Pipe ■ AWS E9045-P2 H4R

## KEY FEATURES

- Durable coating that does not break
- NACE MR0175 compliant for sour gas applications
- Easy to use with a controllable slag system
- 80% higher productivity over traditional vertical-up pipe welding
- Q2 Lot® - Certificates showing actual deposit chemistry and mechanical properties available online

## CONFORMANCES

<b>AWS A5.5/A5.5M: 2006</b>	E9045-P2 H4R
<b>ASME SFA-A5.5:</b>	E9045-P2 H4R
<b>CWB/CSA W48-06:</b>	E9045-P2 H4R

## TYPICAL APPLICATIONS

- Fill and cap pass welding of up to X80 grade pipe
- Pipe repair
- Hot tapping

## WELDING POSITIONS

Vertical Down

## DIAMETERS / PACKAGING

Diameter mm (in)	Length in (mm)	10 lb (4.5 kg) Easy Open Can 30 lb (13.6 kg) Master Carton
3.2 (1/8)	14 (350)	ED032629
4.0 (5/32)	14 (350)	ED032630
4.5 (11/64)	14 (350)	ED032631

## MECHANICAL PROPERTIES<sup>(1)</sup> – As Required per AWS A5.5/A5.5M: 2006

	Yield Strength <sup>(2)</sup> MPa (ksi)	Tensile Strength MPa (ksi)	Elongation %	Charpy V-Notch J (ft-lbf)	
				@ -29°C (-20°F)	@ -46°C (-50°F)
<b>Requirements</b> - AWS E9045-P2 H4R	530 (77) min	620 (90) min	17 min	27 (20) min	Not Specified
<b>Typical Results<sup>(3)</sup></b> - As-Welded	550-600 (80-87)	625-670 (91-97)	26-31	75-125 (55-92)	50-95 (37-70)

## DEPOSIT COMPOSITION<sup>(1)</sup> – As Required per AWS A5.5/A5.5M: 2006

	%C	%Mn	%Si	%P	%S
<b>Requirements</b> - AWS E9045-P2 H4R	0.12 max	0.90-1.70	0.80 max	0.03 max.	0.03 max
<b>Typical Results<sup>(3)</sup></b> - As-Welded	0.04-0.06	1.15-1.35	0.35-0.55	≤ 0.01	≤ 0.01
	%Ni	%Cr	%Mo	%V	Diffusible Hydrogen (mL/100g weld deposit)
<b>Requirements</b> - AWS E9045-P2 H4R	1.00 max	0.20 max	0.50 max	0.05 max	4.0 max
<b>Typical Results<sup>(3)</sup></b> - As-Welded	0.25-0.30 <sup>(4)</sup> / 0.80-1.00 <sup>(5)</sup>	≤ 0.05	0.15-0.25	≤ 0.01	2-4

## TYPICAL OPERATING PROCEDURES

Polarity	Current (Amps)		
	3.2 mm (1/8 in)	4.0 mm (5/32 in)	4.5 mm (11/64 in)
DC+	120-170	170-250	200-300

<sup>(1)</sup>Typical all weld metal. <sup>(2)</sup>Measured with 0.2% offset. <sup>(3)</sup>See test results disclaimer on next pg. <sup>(4)</sup>Range for 3.2 mm (1/8 in) size only. <sup>(5)</sup>Range for 4.0 mm (5/32 in) and 4.5 mm (11/64 in) sizes. NOTE: This product contains micro-alloying elements. Additional information available on request.

*Material Safety Data Sheets (MSDS) and Certificates of Conformance are available on our website at [www.lincolnelectric.com](http://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](http://www.lincolnelectric.com) for any updated information.

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