

# PIPELINER® LH-D80/90/100

Low Hydrogen Vertical-Down SMAW electrode designed for welding high strength pipe

Cross country pipe welding electrodes designed for vertical down progression producing repeatable mechanical properties with lowest diffusible hydrogen levels.

## PERFORMANCE PERFECTED

### Welders Prefer Pipeliner LH-D

- Easy to use with controllable slag
- Easy transition for welders experienced with cellulosic electrodes
- Touch start tapered tip eliminates starting porosity and arc strikes on pipe

### Durable, Reliable, Consistent

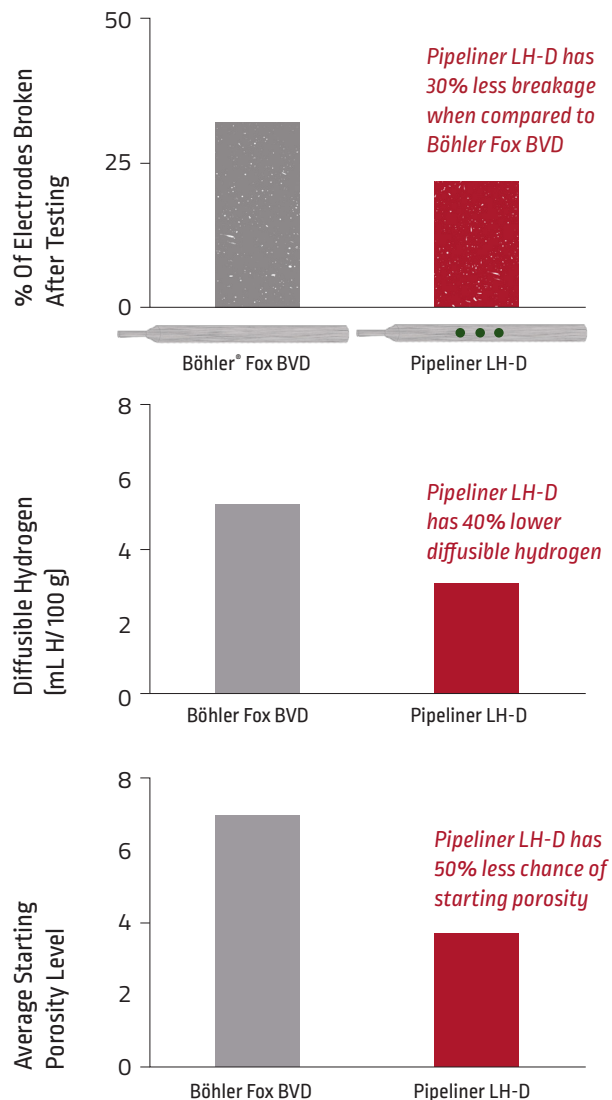
- Durable coating doesn't break during shipping or usage
- 80-90% higher productivity versus vertical-up welding
- Q2 Lot® - Each lot certified with actual deposit composition

### Properties you can Count On

- H4R diffusible hydrogen and moisture resistance requirements.
- Pipeliner LH-D80 and 90 complies to NACE MR0175 for sour gas applications.
  - » Hardness < 235 HV<sub>10</sub>
  - » Ni < 1.0%

### The Symbol of Dependability

- Our stick electrodes are easily identified by three dots, which are a symbol of quality, consistency, and unparalleled welding expertise.



### 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.

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## DIAMETERS / PACKAGING

Diameter mm (in)	Length mm (in)	PIPELINER LH-D80		PIPELINER LH-D90		PIPELINER LH-D100	
		10 lb (4.5 kg) Easy Open Can	30 lb (13.6 kg) Master Carton	10 lb (4.5 kg) Easy Open Can	30 lb (13.6 kg) Master Carton	10 lb (4.5 kg) Easy Open Can	30 lb (13.6 kg) Master Carton
3.2 (1/8)	350 (14)		ED032626		ED032629		ED032632
4.0 (5/32)	350 (14)		ED032627		ED032630		ED032633
4.5 (11/64)	350 (14)		ED032628		ED032631		ED032634

## 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]
PIPELINER LH-D80	Requirements - AWS E8045-P2 H4R	460 (67) min	550 (80) min	19 min	27 (20) min	Not Specified
	Typical Results <sup>(3)</sup> - As-Welded	485-515 (70-75)	570-600 (83-87)	26-31	75-125 (55-92)	50-95 (37-70)
PIPELINER LH-D90	Requirements - AWS E9045-P2 H4R	530 (77) min	620 (90) min	17 min	27 (20) min	Not Specified
	Typical Results <sup>(3)</sup> - As-Welded	550-600 (80-87)	625-670 (91-97)	26-31	75-125 (55-92)	50-95 (37-70)
PIPELINER LH-D100	Requirements - AWS E10045-P2 H4R	600 (87) min	690 (100) min	16 min	27 (20) min	Not Specified
	Typical Results <sup>(3)</sup> - As-Welded	620-690 (90-100)	705-750 (102-109)	21-28	75-110 (55-81)	56-85 (41-63)

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

		%C	%Mn	%Si	%P	%S
		Requirements - AWS E8045-P2 H4R	0.12 max	0.90-1.70	0.80 max	0.03 max
PIPELINER LH-D80	Typical Results <sup>(3)</sup> - As-Welded	0.04-0.06	1.10-1.25	0.35-0.50	≤ 0.01	≤ 0.01
		%Ni	%Cr	%Mo	%V	Diffusible Hydrogen (mL/100g weld deposit)
	Requirements - AWS E8045-P2 H4R	1.00 max	0.20 max	0.50 max	0.05 max	4.0 max
	Typical Results <sup>(3)</sup> - As-Welded	≤ 0.04	≤ 0.05	≤ 0.02	≤ 0.01	2-4
PIPELINER LH-D90		%C	%Mn	%Si	%P	%S
	Requirements - AWS E9045-P2 H4R	0.12 max	0.90-1.70	0.80 max	0.03 max	0.03 max
	Typical Results <sup>(3)</sup> - As-Welded	0.04-0.06	1.10-1.25	0.35-0.50	≤ 0.01	≤ 0.01
		%Ni	%Cr	%Mo	%V	Diffusible Hydrogen (mL/100g weld deposit)
Requirements - AWS E9045-P2 H4R	1.00 max	0.20 max	0.50 max	0.05 max	4.0 max	
Typical Results <sup>(3)</sup> - 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	
PIPELINER LH-D100		%C	%Mn	%Si	%P	%S
	Requirements - AWS E10045-P2 H4R	0.12 max	0.90 - 1.70	0.80 max	0.03 max	0.03 max
	Typical Results <sup>(3)</sup> - As-Welded	0.04-0.06	1.25-1.65	0.35-0.55	≤ 0.01	≤ 0.01
		%Ni	%Cr	%Mo	%V	Diffusible Hydrogen (mL/100g weld deposit)
Requirements - AWS E10045-P2 H4R	1.00 max	0.20 max	0.50 max	0.05 max	4.0 max	
Typical Results <sup>(3)</sup> - As-Welded	0.70-1.00	≤ 0.08	0.40-0.50	≤ 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)
PIPELINER LH-D80	DC+	120-170	170-250	200-300
PIPELINER LH-D90	DC+	120-170	170-250	200-300
PIPELINER LH-D100	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 previous page <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.

## CUSTOMER ASSISTANCE POLICY

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