



Vaporless Manufacturing, Inc.

Quality Petroleum Equipment Solutions For Over 20 Years

99 LD-2000

Highest Performance,
Most Requested Mechanical Line Leak Detector Built Today!

- Any Fuel*
 - Alcohols, Biodiesel, Aviation, Gasoline, Diesel
- Any Pump*
- Electronic Interface Available
- Longest Length Pipeline System*
- Largest Volume Pipeline System*
- Integrated Check Valve / Pressure Relief
- Field Adjustable Leak Threshold
- Now Available! Factory Certifications for Installation and Annual Testing**



The **99 LD-2000** is the most requested mechanical line leak detector built today. New engineering and the **Vmi** 2-year warranty (after installation) make the 99 LD-2000 more attractive to station operators today than ever before. Not only is the 99 LD-2000 less expensive to own, it is faster and less subject to field and line variables than ever before!

Integrated In-Line Check Valve / Pressure Relief

A leaking check valve in the turbine, defective submersible pump pressure relief, or a defective bypass valve will allow the line system to depressurize, resetting the leak detector. Drain-back into the tank and thermal contraction will cause vapor pockets to form. Vapor pockets increase the length of time it takes for a leak detector to open to full flow. Pump problems such as these result in slow flow and technical support calls. The resulting service costs and customer dissatisfaction all take away from the bottom line - making money.

The **99 LD-2000** Is The Only 2” Mechanical Line Leak Detector Capable Of Holding Line Pressure After The Pump Is Off, Even With Pump Component Wear Or Failure.

*See Technical Specifications on last page.

**Contact factory for details



U.S. Patent No. 4,966,190 • Designed and Manufactured in U.S.A.

Vmi 99 LD-2000 Leak Detector

In addition to the previously described submersible pump problems encountered without an in-line check valve, the metering portion of the leak detector is hammered by hydraulic shock. This results in leaks going undetected. Those leak detectors are just not equipped for the job you purchased them for.

The 99 LD-2000 is the answer you have been looking for. **Vmi** leak detectors, with an integrated check valve and pressure relief valve, will save money, reduce customer frustration at the dispenser and reduce service calls.

Shortest Leak Detector Profile

The 99 series leak detectors are the lowest profile leak detectors available today.

Higher Level of Performance

The 99 LD-2000 has a higher level of performance over a broader range of burial depth, line length, and piping system types than any other leak detector.

Additional Features

- Over 20% increased flow capacity
- Guaranteed for 24 months from date of installation to detect 3 GPH @ 10 PSI leak
- One-Way Poppet flow path
- Reverse Ratio Piston / Poppet combination
- Smaller volume - faster response piston size
- Shortest profile leak detector available for the “tight” installations
- All fuels: gasoline, diesel, **alcohols, Biodiesel, Aviation**; see *Fuels under technical specifications*.
- All pipelines (flexible - fiberglass - steel) up to 400 ml. resiliency
- Exceeds EPA regulations (3 GPH @ 10 PSI)
- Detects leaks up to 10' above the leak detector
- Installs with 2" six point socket or pipe wrench

Increased Flow Capacity

The 99 LD-2000 has maximized the flow and flow path in existing, older submersible pump heads. This new design allows over 20% more flow than previous LD-2000 models, maximizing pump performance for earlier pump housings.

Longest Guarantee

The 99 LD-2000 shares the longest guarantee available in the industry, along with all other **Vmi** 99 LD-2000 series leak detectors and the 99 LD-3000 series leak detectors. For 24 months from date of installation, the 99 LD-2000 is guaranteed to see a 3 GPH leak @ 10 PSI.

Field Adjustable Leak Threshold

All **Vmi** mechanical line leak detectors have been factory assembled and tested to meet the EPA leak detection threshold established during certification testing. Abnormal field conditions such as high line resiliency (high bleed-back), pump pressures over 30 PSI and high head pressures affect line leak detection sensitivity. Additionally, wear affects performance of leak detection over time. To meet these issues, **Vmi** established through certification testing, the ability of field technicians to adjust **Vmi** mld's to compensate for field variables and normal wear. Please read Technical Bulletin 032805 for specific instructions on this feature.

One-Way Poppet Flow Path

The One-Way Poppet Flow Path isolates pump turbulence from line leak detection at pump start-up. The hardened stainless steel poppet does not dimensionally change because of thermal conditions encountered during station operation (precision metering change is insignificant down to -20° F).

Reverse Ratio Piston / Poppet Combination

Reverse Ratio means the leak detector has a smaller diameter piston area than the poppet it is attached to. This smaller piston area keeps the leak detector in the fast fill position (3 GPM) to a higher line pressure while compressing vapor pockets and expanding flexible pipes faster. *This means less time to full flow.* The leak detector does not have to completely reset (as with competitive leak detectors) for the poppet to be forced into the reset mode at pump start-up.

Smaller Volume / Faster Response Piston Size

With a reduced piston size, there is one-fourth the fuel volume to replace when in leak search and one-fourth the fuel volume to return to the line when the pump turns off. This combination makes for a more responsive and faster leak detector. Less volume to leave the line for the leak detector to reset and catch leaks. *Less volume to fill and provide full flow for dispensing!*

Superior Flex-Pipe Performance

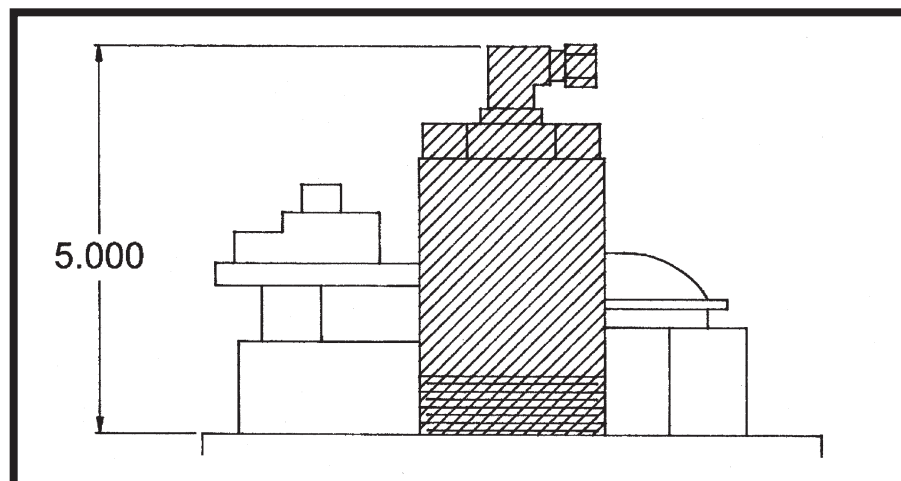
The reduced surface area of the piston significantly reduces the surface area exposed to hydraulic line shock. This results in enhanced performance with steel and fiberglass pipe, *and especially with today's flexible pipe.*

99 LD-2000\E

In the early 1990's, the first commercially successful flexible pipe, Total Containment PP-1500, was introduced to the U. S. petroleum industry. Due to the flexibility of this pipe system, no line leak detection would work. In 1992, the **Vmi** LD-2000\E was certified for 3 GPH @ 10 PSI on Total Containment PP-1500 pipe. The 99 LD-2000\E is still required for existing PP-1500 pipe. Additionally, today the 99 LD-2000\E is used in sites that have the same line characteristics as the LD-2000\E was originally certified for, even though the pipe is different. The original certification of the LD-2000\E concerned the bleed-back modulus of PP-1500 pipe. Today, lines with high bleed-back (generally above 600 ml.) and high head pressure may require the 99 LD-2000\E to pass a field test for annual certification. Consult with factory before ordering and installing the 99 LD-2000\E.

Electronic Line Leak Detection Upgrade!

The **99 LD-2000** may be upgraded in the field to eliminate thermal induced slow-flow, provide submersible shut-down, and alarm notification to site monitoring equipment. Request information on the **ISM-4080**, an easy upgrade for existing or new installations. The **ISM-4080** also stages turbines and controls solenoid valves for loading racks and marine applications. If there is no need for staged turbines, solenoid valve control, alarm notification or submersible shut-down, request information on the **ARM-4073** to eliminate false alarms only.



Technical Specifications 99 LD-2000

Fuels:

- Gasoline, **100% methanol***, **100% ethanol***, up to 15% MTBE
- Any combination of the above
- #1 or #2 diesel, kerosene, Jet A* or JP-4*, AV Gas* and **Biodiesel*** (all blends)

* When used with Biodiesel, any alcohol fuel concentration above 20%, Jet A, JP-4 or AV Gas, order part # LD2-SSVS for stainless steel fittings and stainless steel vent tubing. For chemical applications other than those listed above, contact factory.

Certified to meet EPA 3 GPH @ 10 PSI:

- Maximum Rigid Pipeline size: 400 feet of 3.25 inch diameter line or up to 172 gallon volume
- Maximum Flexible Pipeline size: 415 feet of 1.5 inch diameter line or up to 39.5 gallon volume

U.L. Recognized Containment Housing:

- For pump pressures through 50 PSI
- Schedule 40 cast iron with zinc phosphate protection
- Externally finished with oven baked powder coat

Check Valve:

- Acetron GP
- Viton F Seal

Pressure Relief:

- Stainless Steel, 29 PSI pressure relief. This pressure is in addition to the pump pressure relief.

Seals:

- Piston / Poppet: Teflon, stainless steel spring energized
- O Rings: U.L. Approved V9702-Viton Type B Fluorocarbon

Metering Pin and Poppet:

- 17-4 Stainless Steel

Misc. Component Specification:

- 2011-T3 Aluminum, anodized
- 6061-T6 Aluminum, anodized
- 1026 cold roll steel, chrome plated
- Acetron GP

Reverse Ratio Piston-Poppet One-Way Poppet Flow-Path

For Installation with variable or non-variable speed turbines.

Vent line must be unobstructed, leak tight and connected to headspace of tank, not to be subjected to pressure or vacuum.

Can be installed in submersible pump or leak detector Adapter Tee, part # LD99-5040



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