

FULL ISOLATION DUAL SEAL PRECISION DISPENSE PUMP

The Lee Company's Full Isolation (FI) Dual Seal Precision Dispense Pump is a positive displacement, variable volume pump engineered to reliably control more challenging fluids across an extensive cycle life.

Traditional single seal pumps are limited by certain fluid properties. For example, fluids prone to crystallization can scratch the seal, leading to increased wear and a shortened life. Likewise, fluids containing high concentrations of surfactants are susceptible to leakage due to their low surface tension, which can cause failures in the mechanical portion of the pump. Our robust FI Dual Seal Pump is specially designed to handle these challenging fluids, offering sealing reliability above and beyond a typical single seal pump.

The innovative dual seal design of this pump prevents leakage and significantly extends cycle life in applications that require harsh working fluids such as: DNA sequencing and synthesis, immunoassay and hematology, and medical device, pharmaceutical and industrial manufacturing.

The FI Dual Seal Pump is offered in two standard full stroke dispense volumes and includes both a home sensor to establish the end of stroke position and an optical encoder to provide feedback on piston movement.

Performance parameters, dispense volumes, port head configuration, and materials can be customized to meet specific application requirements. Contact your local Lee Sales Engineer for additional technical assistance and application information.

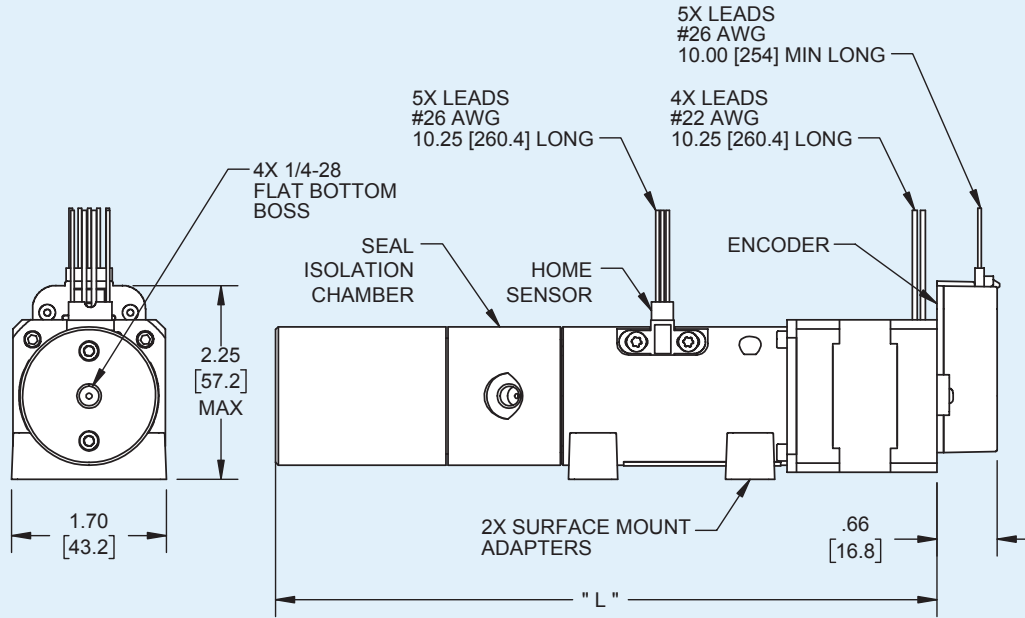
- Seal isolation chamber creates barrier to prolong life
- Primary and secondary seals
- Maintenance-free design
- Home sensor and encoder included
- Dispense volumes (full stroke): 500 μ L and 1000 μ L
- Dispense accuracy: \pm 0.5% (100% total volume)
- Max. instantaneous motor speed: 2000 full steps per second
- Fluidic interface: 1/4-28 flat bottom boss ports
- Maximum discharge pressure: 30 psig
- Integrated backlash compensation
- A drive electronics application development kit is available. Contact The Lee Company for details.



- Wetted materials:
 - Port Head Chamber:
 - Piston (TZP)
 - Port Head (PEEK or PMMA)
 - Primary Seal (UHMWPE)
 - Seal Isolation Chamber:
 - Piston (TZP)
 - Chamber (PEEK)
 - Primary Seal (UHMWPE)
 - Secondary Seal (UHMWPE and 316SS)

PART NUMBER	FULL STROKE DISPENSE VOLUME (μ L)	PORT HEAD MATERIAL	FULL STEP DISPENSE RESOLUTION (μ L /step)	PRECISION (CV)	
				10% TOTAL VOLUME	100% TOTAL VOLUME
LPVA1725350D	500	PMMA	0.47	\leq 0.3%	\leq 0.03%
LPVA1755350D	500	PEEK	0.47		
LPVA1725310H	1000	PMMA	0.40	\leq 0.3%	\leq 0.03%
LPVA1755310H	1000	PEEK	0.40		

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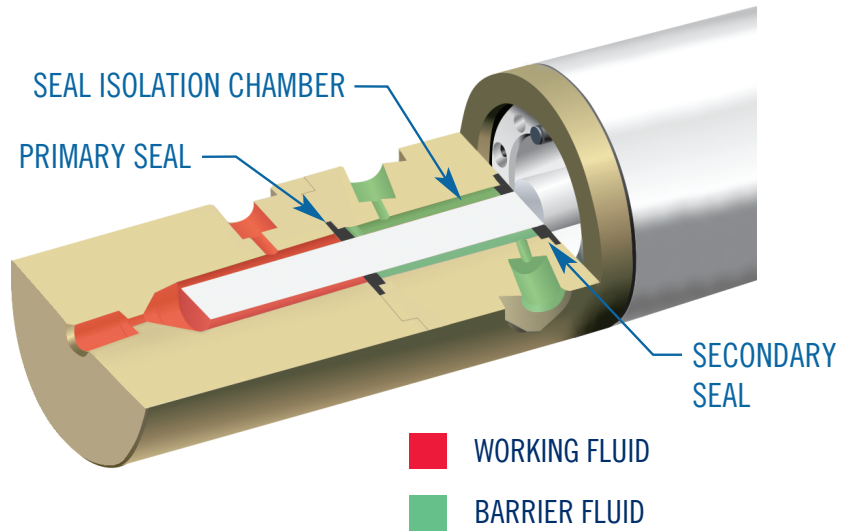


VOLUME (μL)	MAXIMUM LENGTH "L"
500	5.86" [148.8 mm]
1000	7.24" [183.9 mm]

All dimensions are in inches [mm].

DUAL SEAL DESIGN WORKING PRINCIPLE

The FI Dual Seal Pump's innovative design utilizes two seals to isolate the motor from the working fluid. The range of piston movement is shorter than the spacing between the primary and secondary seals which guarantees no part of the piston in contact with working fluid will ever retract past the second seal. Between the two seals is the seal isolation chamber, which can be used in various ways to prevent crystallization and dilute working fluid residue on the piston. The simplest method is to plug this chamber and leave it full of air. This limits the evaporation of the working fluid residue on the piston, reducing the buildup of harmful crystals. Alternatively, the chamber can be filled with a barrier fluid and plugged. This prevents crystallization and dilutes surfactants which eliminates leakage. In the most extreme cases, the seal isolation chamber can be actively flushed with liquid, consistently diluting the working fluid while washing the piston and primary seal.



Our FI Dual Seal Pump requires valves to direct fluid into and out of the chambers. Due to the highly customized nature of each pumping system, valves are not included with the sale of each standard pump. However, we offer standard valves with 1/4-28 ports to easily connect fittings to our standard pumps. Our manifold mount valves can also be directly mounted to pumps with a customized port head design. Please refer to our Pump Technical Guide for more information.

