

**ME
SERIES**

Plexi-Glass see-through Diaphragm Pump – ME305

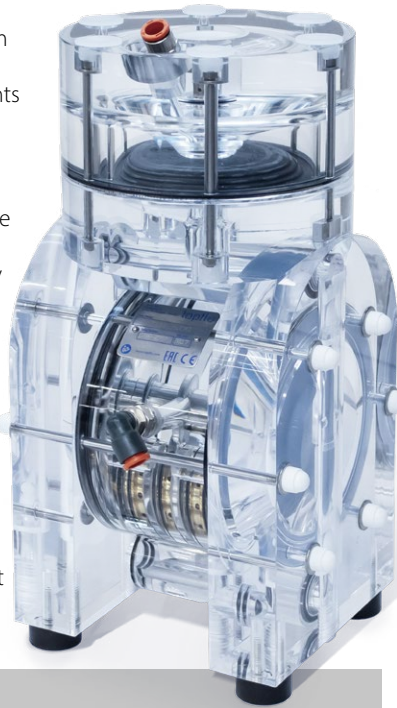
Bringing Pump Mechanics to Life Through Clear Visualisation

The Armfield Plexi-Glass Diaphragm Pump (ME305) is a cutting-edge educational tool that allows students to see the internal mechanics of a diaphragm pump in real time.

Designed for vocational and engineering training, this innovative model offers a fully transparent casing, enabling learners to visually track the diaphragm movement, fluid flow, and valve operations.

By observing the pump in action, students gain a dynamic understanding of how air pressure drives diaphragm motion, facilitating suction and discharge cycles that move fluids effectively.

This see-through design eliminates the need for disassembly, making it ideal for demonstrations, real-time analysis, and group learning.



Operating Principle

The Armfield diaphragm pump is powered by compressed air. The system consists of two diaphragms connected by a diaphragm shaft, which are alternately moved by pressurized air in the chambers behind them. This movement is controlled by an automatic cycling air valve system.

Suction Cycle:

- ▶ One diaphragm retracts, creating suction in one chamber, drawing fluid into the chamber.

Discharge Cycle:

- ▶ Simultaneously, the other diaphragm pressurizes the liquid in the second chamber, pushing it towards the discharge port.

During each cycle, the air pressure behind the discharging diaphragm matches the liquid's head pressure. The pump can safely operate against a closed discharge valve without impacting diaphragm lifespan.

Instructional capabilities

key learning outcomes include:

- ▶ **Visualising Pump Mechanics:** Observe how diaphragms move to create suction and discharge cycles, connecting theoretical concepts to real-world applications
- ▶ **Understanding Fluid Dynamics:** Learn the relationship between pressure, volume, and flow rate in diaphragm-driven systems
- ▶ **Component Functionality:** Identify and understand the roles of key components such as diaphragms, valves, and seals, as they work in unison
- ▶ **Efficient Troubleshooting:** Detect performance issues like uneven flows or air leaks through direct observation of the pump in action.
- ▶ **Applied Engineering Concepts:** Analyze the mechanics of diaphragm pumps without the need for disassembly, making learning accessible and straightforward
- ▶ **Team-Based Learning:** Encourage collaborative problem-solving as students discuss and interpret the pump's operations in real time

This hands-on experience can enhance both theoretical knowledge and practical skills that are essential in mechanical engineering and fluid mechanics.

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Technical specifications

Inlet and outlet connection	Thread ½" BSP (female)
Air connection	Thread ¼" BSP (female)
Max discharge pressure	8 bar (DO NOT RUN HIGHER THAN 4BAR)
Max air pressure	8 bar (DO NOT RUN HIGHER THAN 4BAR)
Max Capacity	51 l/min (DO NOT RUN HIGHER THAN 35 L/MIN)
Volume per stroke	74.38 ml
Temperature range	-20°C... +30°C
Solids Passage	4 mm ø
Suction Lift (Dry / Wet)	2.5-9m
Noise data	Less than 80 dB (A)

Overall dimensions

Length	0.172m
Width	0.185m
Height	0.244m

Packed and crated shipping specifications

Volume	TBC m ³
Gross Weight	TBC kg

Ordering codes

- ▶ ME305

Armfield standard warranty applies with this product

Issue: 1
www.armfield.co.uk/me

Applications
ME IP