

Continuous Sieve-Plate Distillation Pilot Plant For Unit Operations Laboratory Education

Item Number: LPK-BDIS



Introduction

Integrated pilot-scale teaching system for continuous sieve-plate distillation studies. Visual demonstration of tray hydraulics, flexible feed positions, and automatic reflux control for hands-on unit operations education in engineering labs. Designed for higher education engineering laboratories.

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System Component / Feature	Technical Specifications	Associated Unit Operations & Educational Concepts
Distillation Column	Sieve-plate type with a single overflow downcomer; integrated observation sight glasses.	Vapor-liquid equilibrium (VLE), tray hydraulics, weeping, flooding, and plate efficiency.
Reflux Control System	Automatic reflux ratio control; configurable for continuous total and partial reflux.	Operating lines, minimum reflux ratio, and the McCabe-Thiele graphical method.
Feed System	Minimum of three configurable feed entry points along the column height.	Feed tray location, feed quality (q -line), rectifying and stripping section dynamics.
Chassis & Build	High-strength aluminum alloy structural frame with heavy-duty casters. Dimensions: $\leq 2200\text{mm} \times 580\text{mm} \times 2500\text{mm}$.	Pilot plant safety, industrial equipment layout, and structural design.
Instrumentation & Control	Digital sensors, temperature probes, rotameters, and integrated DCS-ready software interfaces.	Process control, sensor calibration, data acquisition, and automated process monitoring.