

Plate Column Hydrodynamics Tray Demonstration Educational Pilot Plant

Item Number: LPK-BMT



Introduction

Advanced transparent educational pilot plant for chemical engineering labs demonstrates plate column hydrodynamics with industrial sieve bubble cap serrated valve trays for visual observation of gas-liquid contact pressure drop measurement and operational limit analysis including flooding weeping entrainment

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Parameter	Description / Specification
Frame Material	High-quality anodized aluminum alloy with heavy-duty caster wheels
Max Dimensions	2200 mm × 580 mm × 1925 mm (Length × Width × Height)
Column Construction	High-transparency acrylic / polycarbonate cold-model column
Included Tray Designs	Sieve tray, Bubble cap tray, Serrated tray, Valve tray
Measurement Devices	Multi-tube differential manometer board, gas rotameter, liquid rotameter
Safety and Drainage	Integrated bottom water seal and easy-access liquid reservoir with drainage valve
Fluid Circulation	Low-noise air blower and industrial-grade water pump

Experimental Module	Measurable/Observable Parameters	Connected Textbook Concept
Tray Geometry Comparison	Structural differences, bubbling active area, downcomer layout	Column Internals and Tray Design Selection
Single-Plate Pressure Drop	Liquid level, air flow rate, differential pressure	Plate Column Hydraulics and Flow Resistance
Operational Limits Analysis	Flooding velocity, weeping thresholds, mist entrainment	Column Capacity Limits and Operating Windows
Water Seal Operations	Gas bypass prevention, bottom liquid level stability	Column Bottom Design and Safety Seals