LABPARK

Vocational Food Engineering Pilot Plants Catalog

Contact us for more catalogs of Practical Training Unit Operations Pilot Plants, Educational Unit Operations Pilot Plants, etc.

LABPARK

COMPANY PROFILE

>>> About Us

Labpark is a high-tech enterprise serving universities, research institutes, and enterprises in fields such as chemical engineering, biotechnology, and environmental science. Our main product lines are Educational Unit Operations Pilot Plants and Practical Training Unit Operations Pilot Plants, designed to support practical engineering education. Supported by our own R&D platforms and 209 technical patents, we operate a production facility with a planned area of 49,000 square meters, dedicated to helping institutions enhance laboratory infrastructure and practical training capabilities.

Bio-Fermentation Ethanol Production Practical Training Unit Operations Pilot Plant

Item Number: LPK-IBFE

Introduction

Bio-fermentation ethanol production pilot plant for hands-on training in unit operations: fermentation, solid-liquid filtration, membrane separation, and distillation. Bridges theory with industrial practice using industrial-grade components, customizable for university labs. Hybrid automated and manual control for comprehensive learning.

Learn More

Unit Module	Key Operations & Functional Specifications	Dimensions (L × W × H)
Public Utility Unit	• Supplies stable softened water, cooling water, compressed air, and vacuum. • Features an on-site touchscreen interface for automatic main control combined with manual operation points.	≤ 2200mm × 1120mm × 2050mm
Fermentation Unit	• Supports aerobic fermentation, anaerobic fermentation, and seed culture. • Features steam sterilization, jacketed heat exchange, and pneumatic air transfer. • Equipped with quantitative feeding and automatic temperature control via a water bath.	≤ 2200mm × 1120mm × 2050mm
Product Refining Unit	• Conducts solid-liquid separation via plate-and-frame filtration. • Performs membrane separation to filter out glucose macromolecules. • Equipped with a quantitative feeding system.	≤ 2200mm × 1120mm × 2050mm
Packed Distillation Unit	• Supports batch and continuous distillation with adjustable reflux ratios. • Features constant power or automatic pressure self-control for the reboiler. • Centralized exhaust management to prevent chemical vapors from escaping.	≤ 2200mm × 1120mm × 2285mm

Textbook Reference	Associated Unit Operation	Practical Application in the Pilot Plant
Unit Operations of Chemical Engineering	**Distillation & Mass Transfer**	Operating the packed column under continuous and batch modes, adjusting reflux ratios, and analyzing concentration profiles.
Transport Processes and Unit Operations	**Solid-Liquid Separation & Filtration**	Performing slurry separation via the plate-and-frame filter press and clarifying products via the membrane filtration system.
Chemical Engineering Design	**Bioreactor Design & Thermal Control**	Managing jacketed heat transfer, sterilization cycles, and mass balances across aerobic and anaerobic fermentation processes.
Transport Processes and Unit Operations	**Fluid Flow & Piping Dynamics**	Managing fluid transport, pump calibration, pneumatic material transfer, and utility supply distribution.

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