Educational Pressure Swing Adsorption Ethylene Capture Unit Operations Pilot Plant

Item Number: LPK-CYBJ

Introduction

Advanced educational pilot plant for pressure swing adsorption ethylene capture provides comprehensive hands-on training in industrial gas separation processes, featuring an eight-column PSA system, real-time data acquisition, and fully customizable design for chemical engineering unit operations laboratories and research.

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System Component / Parameter	Specification Details	Educational & Experimental Utility
Adsorption Assembly	Eight-column pressure swing adsorption (PSA) configuration	Comparative column studies, cycle sequence optimization, and breakthrough curve analysis.
Feed Gas Compatibility	Nitrogen / Ethylene / Ethane mixture (nominal ratio 80 / 10 / 10)	Multi-component gas separation, selective adsorption, and binary/ternary gas mixture thermodynamics.
Process Control Hardware	12-channel slot module compatible with multi-signal inputs (monitoring up to 24 channels)	Instruction on process control loops, sensor calibration, and industrial data acquisition systems.
Flow & Pressure Control	Mass flow meters, high-precision pressure sensors, and 5L/10L buffer tanks	Dynamic mass balance calculations, pressure swing cycle adjustment, and system stabilization studies.
User Interface	15.6-inch industrial-grade touchscreen terminal	Real-time parameter visualization, trend plotting, and human-machine interface (HMI) operation.
Physical Dimensions	≥ 2200 mm × 1120 mm × 1800 mm (L × W × H) on adjustable casters	Spatial awareness in pilot plant design, industrial footprint utilization, and laboratory safety management.