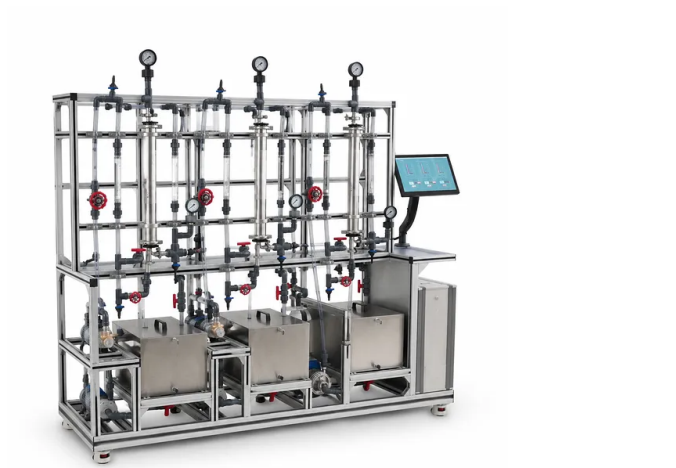


Multi-Functional Membrane Separation Educational Pilot Plant

For Unit Operations Lab

Item Number: LPK-SUNR



Introduction

The Multi-functional Membrane Separation Educational Unit Operations Pilot Plant is an integrated bench-scale laboratory system designed for teaching undergraduate engineering education. It features Ultrafiltration, Nanofiltration, and Reverse Osmosis modules in a compact, mobile unit for practical hands-on learning.

[Learn More](#)

System Parameters & Modules	Technical Specifications & Components	Targeted Experimental Applications	Academic Concepts & Textbook Alignment
Physical Dimensions	Max 2200mm × 580mm × 1995mm (L × W × H)	Structural footprint and spatial planning	Process layout and laboratory design standards
Frame & Support	Anodized aluminum alloy frame with lockable casters	Mobile structural support and safety stability	Structural integrity and materials selection
Ultrafiltration (UF) Module	Industrial-grade UF membrane module, feed tanks, pressure gauges, flow meters	Macromolecular protein separation, concentration, and membrane fouling studies	Concentrating macromolecular solutes, gel layer formation, and fouling resistance
Nanofiltration (NF) Module	Selective NF membrane module, high-pressure pump, safety valves	Softening processes, removal of divalent ions (calcium, magnesium), and small organics	Solute transport mechanisms, electrostatic interaction in membranes, and water softening
Reverse Osmosis (RO) Module	High-rejection RO membrane module, system pressure regulators, feed pumps	Desalination, purification of water, and removal of monovalent salts	Osmotic pressure limits, concentration polarization, and solvent permeation models