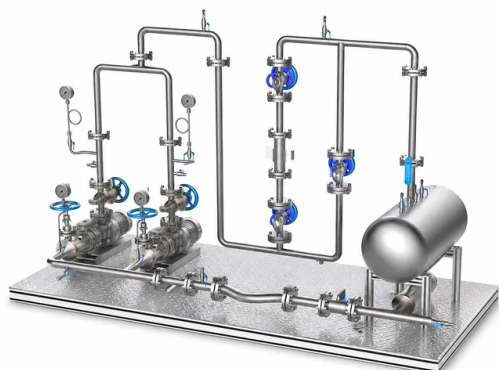


Chemical Pipeline Assembly And Fluid Transport Practical Training Unit Operations Pilot Plant

Item Number: LPK-GLCZ



Introduction

Integrated skid-mounted engineering training pilot plant for university labs offers hands-on experience in chemical pipeline assembly, fluid transport, centrifugal pump operation, and pressure testing. Customizable system bridges academic theory and industrial practice with digital pre-lab resources and comprehensive tools.

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Academic Course / Discipline	Reference Textbook	Aligned Unit Operations & Knowledge Points
Chemical Engineering / Fluid Mechanics	<i>Unit Operations of Chemical Engineering</i>	Fluid flow in pipes; frictional losses in fittings and valves; centrifugal pump performance curves; cavitation and NPSH; flow measurement devices.
Process & Environmental Engineering	<i>Transport Processes and Unit Operations</i>	Momentum transfer; liquid transport systems; piping design and sizing; pressure drop calculations in turbulent flow.
Plant & Process Design	<i>Chemical Engineering Design</i>	Piping and Instrumentation Diagrams (P&IDs); valve and fitting selection; piping layout design; industrial safety standards and leak testing protocols.

Category	Description / Specification
Structure & Materials	Industrial-grade stainless steel piping, robust metal structural skid with an integrated checker-plate work platform, and dedicated tool/component storage racks.
Fluid Transport Equipment	Industrial centrifugal pumps arranged for parallel/series configuration studies; integrated horizontal liquid storage tank.
Instrumentation & Controls	Industrial pressure gauges, vacuum gauges, and inline flowmeters for real-time process monitoring.
Connections & Fittings	A diverse selection of flanged connections, threaded joints, globe valves, ball valves, and industrial sealing gaskets.
Safety & Testing Auxiliary	Manual/electric hydrostatic pressure-test pump for pipeline integrity verification; complete set of assembly hand tools and PPE.
Core Laboratory Modules	1. Pipeline blueprint reading and physical assembly. 2. Threaded and flanged joint installation and sealing. 3. Centrifugal pump commissioning, startup, and operational monitoring. 4. Flowmeter and pressure gauge installation and calibration. 5. Pipeline pressure testing, leak detection, and troubleshooting.