

General Purpose Cosmetics Production Unit Operations Training Pilot Plant

Item Number: LPK-IFMC



Introduction

Integrated pilot-scale cosmetics production training plant for chemical engineering education featuring utility supply emulsification blending and filtration modules with dual touchscreen manual control customizable mobile design ideal for practical hands-on unit operations and advanced process control learning.

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Unit Module	Key Operations & Teaching Capabilities	Key Components & Technical Parameters	Connected Engineering Concepts
Public Utility Unit	Supply of utility lines, system pressure control, fluid transport dynamics.	Softened water system, cooling water loop, compressed air supply, and integrated vacuum system.	Fluid flow, utility distribution, pressure drop, piping design.
Emulsification & Formulation Unit	Quantitative feeding, jacketed reactions, high-shear emulsification, and mechanical separation.	High-quality stainless steel reaction vessel, metering systems, variable-speed agitator, filtration unit.	Agitation and mixing of liquids, heat transfer via jackets, liquid-liquid dispersion.
Blending & Cooling Unit	Product cooling, degassing, blending, and sanitary processing.	Blending vessel, jacketed cooling system, degassing system, inline sterile filtration.	Mass transfer, thermal processing, sanitization protocols, process control.