

Cavitation Phenomenon Demonstration And Analysis

Educational Unit Operations Pilot Plant

Item Number: LPK-CATT



Introduction

Advanced educational pilot plant for demonstrating and analyzing cavitation phenomena in fluid systems. Features a transparent acrylic Venturi test section, high-precision pressure and flow sensors, digital data acquisition, and integrated safety relief valves for engineering curricula.

[Learn More](#)

Experimental Module / Component	Technical Details & Functions	Academic Focus & Textbook Correlation
Upstream Pressurized Vessel	Stainless steel construction, equipped with pressure gauges and relief valves; pressurized via external air source.	Fluid storage under pressure, energy balance in closed systems.
Cavitation Test Section	Precision-machined acrylic convergent-divergent nozzle (Venturi geometry) for localized velocity increase and pressure drop.	Bernoulli's equation application, localized vapor pressure threshold determination.
Instrumentation & Control Panel	Real-time digital displays for inlet/outlet pressure, differential pressure, and fluid flow rate.	Calibration of sensors, process variable monitoring, data acquisition practices.
Cavitation Inception Study	Determination of the critical velocity and pressure at which vapor bubbles first appear.	Vapor pressure concepts, phase equilibrium, cavitation index calculations.
Cavitation Collapse & Noise Observation	Visual and acoustic observation of bubble collapse in the divergent section of the nozzle.	Shockwave generation, erosion mechanics, mechanical wear in hydraulic systems.