H-6150

Liquid-Liquid Extraction Demonstrator

Purpose

The Hampden **Model H-6150** Liquid-To-Liquid Extraction Demonstrator has been developed to permit student study of the fundamentals of a liquid-to-liquid extraction system. In addition to demonstrating the hydrodynamics of liquid-to-liquid extraction systems and interface control techniques, this unit can also be used to determine the mass transfer rates, heat transfer coefficients, extraction efficiency, and operating conditions at different liquid flow rates. The extraction process can be operated in a continuous or semi-continuous mode. The unit comes fully equipped with all of the instrumentation and accessories necessary to function as a stand-alone device. It is completely factory wired and plumbed.

Description

The feed, solvent, extract, and raffinate solutions are contained in corrosion resistant 316 stainless steel tanks. These tanks are polished inside for quick, easy cleaning and added sanitation. The extract and raffinate solutions can be fed into an optional distillation column or into the laboratory sump tank.

The unit can be supplied with an optional distillation column. The distillation column comes complete with an electrically heated boiler and water cooled condenser. The distillation column can be used to recover the solvent from the raffinate for reuse in the extraction process or to concentrate the product in the extract solution.

The unit is supplied with a comprehensive instruction manual, Bulletin 615-OI, which includes:

(1) operating instructions;

(2) equipment data;

(3) theoretical background of the process kinetics.

An experiment manual is also provided.

Model H-6150-CDL Liquid-Liquid Extraction Demonstrator shown above with optional Computer Data Logging (CDL) package
Dimensions: 102"H x 57-1/4"W x 29"D, Weight: 800 lbs.

All Hampden units are available for operation at any voltage or frequency

Hampden® ENGINEERING CORPORATION

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Chemical Engineering Systems

Educational Training Equipment for the 21st Century

Technical Specifications

Extraction Column
working length of 1200 mm with a column diameter of 50 mm. The column comes complete with all of the necessary sampling ports, pressure ports, temperature ports and fluid inlet and outlet ports.

Feed Solution Pump
a variable speed pump constructed out of corrosion resistant materials. The pump has an output range of 0 to 800 ml/min.

Solvent Solution Pump
a variable speed pump constructed out of corrosion resistant materials. This pump has an output range of 0 to 300 ml/min.

Chemical Solution Storage Tanks
four corrosion resistant storage tanks constructed out of 316 stainless steel. These tanks have the following capacities:

a. feed tank - 30 liters

b. solution tank - 15 liters

c. extract tank - 10 liters

d. raffinate tank - 15 liters

Distillation Column
has a working length of 500 mm and a diameter of 50 mm.

Distillation Boiler
a steam boiler with a capacity of 5 liters and a variable heater element rated at 1000 watts.

Equipment Specification

All components are mounted on a steel frame constructed out of square mechanical tubing.

All steel surfaces are finished with oven-baked enamel.

The control instrumentation is located on a control panel which is surface-mounted to the steel frame.

The control panel is finished in white, oven-baked enamel.

All control instruments are clearly identified by means of a silkscreened legend. The entire unit is completely factory-assembled and tested.

The unit is self-contained, requiring only the listed services.

Services Required

- Cold water supply (tap)
- Electrical supply: 120/220V.AC-1ϕ-60Hz
- Air ventilation system.

Computer Data Logging

This feature adds two dual thermocouples, two flow transducers, and two pump inputs into the system. One interface package consisting of National Instruments I/O modules and LabVIEW® templates is provided for interfacing into an IBM compatible computer through the RS-232 port.

Specify **Model H-6150-CDL** ♦

Shop view of multiple **Model H-6150** Liquid-Liquid Extraction Demonstrators and **Model H-6160** Solid-Liquid Extraction Trainer

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