H-6174-CDLC

Continuous 10-Tray Distillation Column

Purpose

The Hampden **Model H-6174-CDLC** Continuous 10-Tray Distillation Column allows the student to study industrial equipment with related instrumentation and control, operate steady-state, analyze tray samples, determine set-point temperature and calculate reflux ratio.

The process and data acquisition is controlled by an IBM compatible computer (not included). Computer input signals are transmitted from thermocouples, differential pressure transmitters, float level transmitters, pressure transmitter, feed flow, and valve position transmitters. Computer output signals are input to a reflux splitter, bottoms overflow solenoid valve, and steam control valve.

Description

The Hampden **Model H-6174-CDLC** Continuous 10-Tray Distillation Column is equipped with all the components required to operate the system. This system consists of two feed tanks with control valves, pump, boiler, ten-tray column, reboiler, bottoms receiver, reflux splitter, condenser, and product receiver. Each tray assembly includes a thermocouple and sampling port.

Specifications

The superstructure is manufactured of 2" square mechanical tubing complete with levelers. The instrumentation terminal box is code gauge steel with locking cover. The instrument panel is 11 gauge steel. The superstructure is finished in instrument tan texture and the instrument panel in gloss white enamel.

The distillation column is constructed of glass and stainless steel tubing with associated couplers and thermocouple compression fittings as required.

The condenser, feed and storage tanks are manufactured of stainless steel with liquid level gauges provided on all tanks.

The reboiler is a stainless steel tank with liquid level gauge, thermocouple, electric heater, heater controller, and differential pressure port.

The feed column heater includes the heater controller and thermocouple.

The feed metering pump is constructed of non-corroding materials. The flow rate can be varied from 4–368 ml/min. The flow rate is controlled externally from a 4–20mA signal.

All interface piping is 1/4" stainless steel with associated ball valves, needle valves, and hardware as required.

Cooling water is controlled with a pneumatic control valve with positioner and flow transmitter. The reflux three way control valve is pneumatically operated and controlled by a 4–20mA signal.

The pressure and differential pressure transmitters produce a 4–20mA output signal.

The data acquisition and control section consists of analog and digital I/O boards, cables, and software support package.

Services Required

Electrical:

This unit operates on one of the following:

120/208V AC 3ϕ 60Hz @ 17A
220/380V AC 3ϕ 50Hz @ 10A
240/415V AC 3ϕ 50Hz @ 9A

Instrument Air:
100 PSI @ 4cu.ft./min.

Water:
Cooling, 2 gallons/min @ 30 PSI
Hot water for cleaning

Drain:
Waste Water

Options

MODEL H-6174-P Printer

MODEL H-6174-CS IBM Compatible Computer System

MODEL H-6174-CC Computer Workstation

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

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