

Large Scale Cell Culture Single Column Chromatography Systems

Confidential Client

Pharmaceutical and
Biopharmaceutical

MANDATE

Biopharm Engineered Systems LLC (BPES) was retained to design and construct three (3) Single Column Chromatography units. Two of the units had a feed flow range of 8-104 LPM, while the third had a feed range of 2-53 LPM.

Buffer feed and product paths were designed for steam-in-place, while the internal buffer and product paths of the system were chemically sanitizable and capable of clean-in-place (CIP).

Each of the skids was based on existing custom chromatography units at the customer's site but with design modifications that improved maintenance access, drainability and compliance with component manufacturer's installation recommendations.

DESCRIPTION | FEATURES | BENEFITS

The three (3) Single Column Chromatography units included the following parameters:

- Rotary Lobe Feed Pumps
- Feed Static Mixer
- Bubble Trap
- Dual (Parallel or Series) Feed Filters
- Pre-Column Air Sensors
- Pre- & Post Column Conductivity & pH
- CIP Rinse Conductivity
- Post Column Dual UV Sensors
- 2-6 port block diaphragm valve
- Controls/Software
- Customer supplied DeltaV programming



SERVICES PROVIDED

BPES scope of work included the following:

- Process Engineering
 - Up to 60-120 cm Ø columns
 - Product Loading
 - Washing & Equilibration
 - Isocratic or Gradient Elution
 - Product Collection
 - Waste segregation
 - Feed & Product SIP
 - System CIP plan & manifolds
- Interconnecting wiring design
- Equipment, Valve & Instrumentation selection
- Mechanical Skid designs
 - 3D Model
 - ASME BPE compliant piping design
 - Piping sloped for gravity draining
 - Maintenance accessibility
- System Fabrication
 - Skid frame fabrication
 - Pipe manifold fabrication & documentation
 - Instrumentation installation & wiring
- Quality Documentation
 - Material Test Reports
 - Video Borescope
 - Weld Mapping
 - Factory Acceptance Testing

SECTOR OF ACTIVITY
Biotechnology

CLIENT
Confidential Client

YEAR OF COMPLETION
2022

TOTAL PROJECT COST
US \$ Confidential

BPES PROJECT VALUE
US \$ Confidential