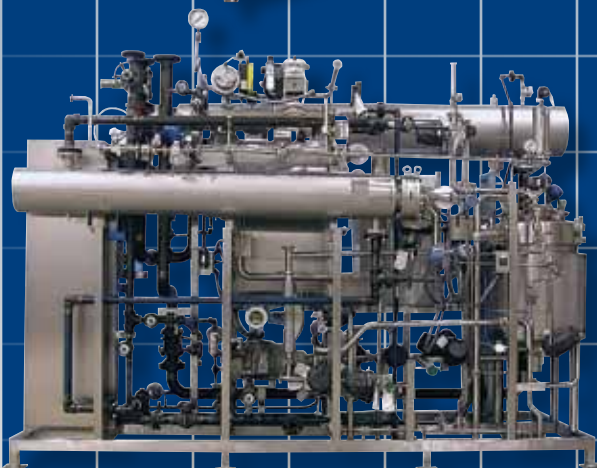




# IPEC

Integrated Process Engineers & Constructors, Inc.





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## CORPORATE MISSION STATEMENT

IPEC provides design, engineering, project management, fabrication, installation services and prepackaged modular systems through employees dedicated to providing total customer satisfaction and value.

IPEC is recognized as a company that provides turnkey solutions to customers because of its ability to provide services, materials and systems, beginning with the conceptual phase of a project through start-up and commissioning.

Our services and systems are targeted towards the Biotech, Pharmaceutical, Food, Dairy and Cosmetic industries and users.

IPEC recognizes that its most valuable asset is its employees. Providing professional and personal assistance to our employees will guarantee company growth and the highest quality services and systems for our customers.



*Left: Shop Floor*

*Bottom: Isolated Fabrication Rooms*





# SERVICES PROVIDED

## MECHANICAL ENGINEERING AND DESIGN

- Existing Equipment/System Evaluations
- Conceptual Process Design Consultation
- Budgetary Project Analysis
- Preliminary Process Flow Diagram Generation
- Equipment and Installation Specifications
- Equipment Arrangement Drawings
- Process Flow and Instrumentation Diagrams
- Isometric, Plan View and Elevation Drawings
- Modular System Package Drawings
- Detailed Equipment Drawings
- Start-up and Commissioning Services



## ELECTRICAL ENGINEERING AND DESIGN

- Existing Equipment/System Evaluations
- Conceptual Process Design Consultation
- Budgetary Project Analysis
- Equipment and Instrumentation Specifications
- Control Panel Design and Specifications
- Electrical and Pneumatic Schematic Generation
- Field Wiring Schematics and Specifications
- Functional Description Specifications
- PLC Programming and Documentation
- Start-up and Commissioning Services

## FABRICATED COMPONENTS

- Atmospheric Tanks
- Balance and Surge Tanks
- Transfer Panels
- Hold Tubes
- Valve Manifolds
- Sprayball Assemblies
- Control Panels

## FABRICATED MODULAR SYSTEMS

- Single and Multiple Tank CIP Systems
- Media Preparation Systems
- Buffer Preparation Systems
- Chromatography Systems
- UF, NF and DF Systems
- HTST Systems
- Waste Decontamination Systems
- Slurry Make-up & Use Systems
- Syrup Make-up & Use Systems
- Vitamin Make-up & Use Systems
- Solution Preparation Systems
- Temperature Control Units (TCU's)

## FIELD SERVICES

- Sanitary Piping Installation
- Installation Coordination
- Project Management
- Start-up & Commissioning



# MODULAR PROCESS SYSTEMS

IPEC Modular Process Systems are designed to reduce installation time and are pre-tested, ready for final process, utility and electrical connections when shipped from IPEC's state of the art manufacturing facility.

The modular system approach eliminates costly project over runs, typical with stick built projects. Weekly Web-X review meetings allow our customers to make changes before, not after, fabrication or installation.

## Modular System Advantages:

- Single Source Responsibility. Design, engineering, fabrication, testing and start-up provided by one company.
- Early to market. Process systems are built in parallel with the facility. Shipment of the equipment coincides with completion of the facility.
- Factory Acceptance Testing. Systems are pre-validated and any changes are made in a controlled environment, reducing costly on-site time and delays.
- Smart floor space. Systems are compact, efficient and maintenance friendly.
- Project Management. Web-X meetings allow review of information. IPEC manages the project by working with key client personnel throughout the multiple phases of the project.
- Control Integration. Customer preferred control architecture is integrated into the system with all conduit, pneumatics and wiring completed.

## Systems Offerings:

- Buffer and Media Preparation
- Final Formulation & Fill
- Slurry, Syrup, Vitamin, Flavor Make-Up & Use
- UF, NF and DF
- Chromatography
- CIP, WIP and COP
- Process Utility and Temperature Control Units (TCU's)
- Decontamination and Neutralization





# SUPER Super Skids



IPEC is an industry leader in the provision of small and large scale process or "Super Skids". IPEC has a diverse in-house engineering group, necessary to support our customers' needs. Our certified craftsmen are fully equipped to meet the latest cGMP, BPE, USDA and FDA requirements.

Being first to "market" by our customers requires that installation, start-up and commissioning times are minimized. On-time delivery requires successful project execution from the very beginning of a project. IPEC implements experienced and dedicated project teams on our "Super Skid" projects to ensure the success of each project.

As an OEM, we can utilize our customers' preferred suppliers for tanks, heat exchangers, pumps, valves, instrumentation and controls. Our certified Q.C. and documentation procedures ensure on-time delivery of turn-over documentation, further minimizing start-up, commissioning and validation times.



# Clean-In-Place (CIP) Systems

## SYSTEMS



IPEC provides custom-designed clean-in-place systems for leading manufacturers in the food, dairy, beverage, consumer products and pharmaceutical/biotech industries. To better meet specific needs, our cleaning systems are custom-designed and fabricated based on our customers' unique requirements. Built for efficient chemical and energy usage, our clean-in-place systems provide maximum cleaning capabilities for each facility. Our in-house staff of engineering experts are partners throughout the design, fabrication, installation and commissioning phases of the project to ensure that these requirements are continuously met.



Available in single or multi-tank design, our systems may be skid-mounted or field-assembled.

All modular CIP systems are thoroughly dry tested prior to shipment. For additional confidence, optional wet testing capabilities are also available. A complete documentation package provided with each system ensures regulatory compliance and assists in validation.

Our clean-in-place maintenance package allows you to completely control the cooperation of your cleaning system from your PC. Our Microsoft Access based system puts you in control, with the flexibility to easily change cleaning cycle sequencing, times, temperatures and other parameters for each individual cleaning circuit.





# FILTRATION SYSTEMS

IPEC provides tangential flow filtration (TFF) systems to biopharmaceutical drug developers and manufacturers. Designed for all applications, requiring concentration and diafiltration of suspended micro particulates or dissolved solutes, the fully drainable designed systems meet the demands of cGMP environments with full traceability of wetted materials. IPEC utilizes standard third party filters and filtration components to reduce costs and minimize lead times. These filter systems are available in the range of ultra filtration and micro porous membranes. The systems can be scaled from small bench top to production sized units and are designed to minimize hold up volumes and maximize the yield and recovery of valuable product.



Some of the system features includes:

- Direct flow measurement, utilizing magnetic or mass flow meters.
- Pressure alarms, interlocks and control.
- Tank level monitoring and control through load cells, differential pressure transmitters or other level transmitting systems.
- Variable speed control of pumps and tank agitators.
- Complete documentation package, including drawings, calibration certificates, welding documentation and component literature.



# Chromatography



IPEC chromatography systems enable the user to separate and purify a broad range of proteins, vaccines, and other bio-engineered products at the methods development, pilot separation and large manufacturing scale.

Each system is designed to provide a full range of features and capabilities which meet the most stringent and demanding purification requirements. Each system may be fitted with a wide variety of options to configure the system to meet our customer's specific needs. The units are sanitary in design, with pipework configured to ensure optimal fluid management, near-zero unswept volume with no cross-port contamination from deadlegs or trapped fluids, which results in superior chromatographic separations with improved purity and increased product yields.

Industry-standard instrument sensors and "off the shelf" components are used, ensuring high system reliability, quick availability of spare parts and minimized process down time. Each unit is supplied with a comprehensive turn-over-documentation package and is subjected to a full Factory Acceptance Test (FAT) prior to shipment, thus ensuring proper operation at the customer's site. All wetted materials are FDA conforming to ensure suitability for BioPharm applications.

Each chromatography unit includes the customer's preferred control platform and can be based on widely accepted SCADA or PLC programs. System operation, programming and protocol development is done through an intuitive, user-friendly, graphical interface which shows system status, allows manual control and initiation of automated recipes. The embedded PC downloads recipes to the system's on-board PLC for later execution and connects to a plant network via a high speed Ethernet communication link.





# Pasteurization (HTST) Systems

## SYSTEMS

IPEC pasteurization systems are supplied to leading manufacturers in the food, dairy, pharmaceutical and biotech industries. Pasteurization or High Temperature Short Time (HTST) systems are utilized to heat and hold product at a specific temperature for a period of time to ensure complete inactivation of microorganisms contained in the product.

The custom designed systems utilize tubular or plate and frame heat exchangers and can include regeneration and cooling equipment, dependent on the customer's specific process requirements. Typical systems include a product supply "balance" tank, feed and booster pumps, heat exchanger(s), hold tube, instrumentation, Temperature Control Unit (TCU) and local control panel, with customer preferred control platform.



Operation functions include automatic changeover from water to product, product to water, CIP and hot water sanitization. Instrumentation is provided to ensure appropriate regulatory compliance to meet USDA, FDA and cGMP standards. A comprehensive turn-over documentation package is provided with each system.



# Continuous and Batch Decontamination Systems



IPEC provides Batch or Continuous Biowaste Decontamination Systems to thermally inactivate effluents containing viruses or bacteria. These large scale systems are custom designed and can be electrically or steam operated.

Each system includes adjustable set point temperature control and hold times specific for each process. Material of construction is selected in accordance with chemical compatibility and required thermal schemes. The continuous systems are designed to eliminate cross contamination that could possibly occur when using a secondary heating or cooling fluid in the heat exchangers.



Each system can be provided with the standard PLC control architecture or customer preferred control platform. The systems are thoroughly tested prior to shipment and include a complete documentation package to ensure regulatory compliance.





# PROCESS UTILITY SYSTEMS

## Process Utility Systems

IPEC Process Utility Systems include WFI point of use systems, DI, RO, WFI loop circulation systems, water/water heat exchanger systems, steam to water heat exchanger systems, tower water storage and circulation systems and many others. The systems can be provided as stand alone units or built to support IPEC process systems and equipment.



### Features include:

- Welded, braised, soldered, flanged or threaded pipe connections, to meet customer specifications.
- Materials of construction: stainless steel, carbon steel, PVC, CPVC, galvanized and copper.
- Local, PLC or DCS based control system.
- Designed to match available plant utility systems.
- Factory Acceptance Tested (FAT) prior to shipment.
- Electrical construction and wiring performed according to U.L., CSA and CE electrical codes.





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