Bioprocess Equipment

The Company

BIONET is a specialist in bioprocesses engineering.

We provide equipment (bioreactors, membrane filtration and Cleaning In Place Systems) and advanced technical services. Our clients are industries and R&D organizations which work with bioprocesses in the chemical, food and pharmaceutical sectors.

We are an independent company, founded in 1999, and dedicated, with passion and professionalism, to bioprocess engineering. We offer state of the art technology, with a practical approach and tailored for the particular needs of your project and company.

Quality

In BIONET, quality is part of our core culture and we work under a certified quality management system, based on ISO 9001:2008.

We work in a full documented engineering environment and provide our equipment with IQ (Installation Qualification) and OQ (Operation Qualification) and PQ (Performance Qualification). This qualification can be executed according to GMP principles and scope for Pharma process validation.
BIONET, backed by more than fifteen years of experience in the construction of equipment for the pharmaceutical, food and biotechnology industries has developed a complete range of laboratory, pilot and industrial equipment for bioprocesses.

They are practical, innovative and price competitive, with a design focused on reliability and low maintenance costs.
Bioreactors
Fermentors

The F series are BIONET’s laboratory, pilot and industrial scale Bioreactors and Fermentors. They are available with operating volumes in the range of 1 to 900 liters. Based on common engineering solutions, they can be easily customized to suit your process specific needs, based on a sound industrial conception.

All volumes are available both in cell culture and microorganism version, and GMP. On demand we have engineered complete fermentation systems with production volume up to 36,000 liters.

Bioreactor F1

The F1 are autoclavable bench scale Bioreactors designed to meet the R&D requirements in biotechnological and biopharmaceutical processes. The system is user friendly, flexible, and incorporates the highest technology standards of the sector. F1 units are the right tool for initiating and developing your microbial and cell culture processes in stirred reactor.

- Three vessel models (F13, F15 & F18) with working volumes from 1 to 8 liters. All three are compatible with the same control unit and agitator motor.
- Borosilicated glass jacketed vessels for homogenous and accurate temperature control.
- Noiseless servo top mounted agitator with broad speed range (20-1200 rpm). Available with Rusthon or Marine Impellers.
- Controlled parameters: pH, Dissolved O2, T and Level (foam). Other parameters (OD, Exhaust Gas...) can be easily added on demand even after the equipment is delivered and working.
- Four addition pumps, one with variable speed for fed-batch or continuous fermentation.
- Ethernet with LAN and VPN communications.
- Controlled with BIONET’s FCU through industrial PLC (Siemens) and 12” HMI Panel PC, with ROSA+ control software installed. The FCU integrates the system temperature control.
The BIONET F2 is the entry level for all those seeking for a Stainless Steel a steam in place (SIP) bioreactor incorporating the latest technology and practical conception. A modular system designed and constructed under the highest quality standards, equipped for a simple operation that will be easily integrated into your facilities.

F2 are used for both R&D and industrial production due to its high level of automation, control and flexibility on a sound and reliable design and construction.

**Bioreactor F2**

- Two models (F215 & F230) with working volumes from 6 to 30 liters.
- Stainless steel vessel (316) and FCU (Fermentor Control Unit).
- 15+ ports for instrumentation, addition, and outgassing.
- Sterilizable harvest bottom valve.
- Noiseless, maintenance free, 1.1kW top mounted agitator, brushless servomotor, speed range 20-1200 rpm. Available with Rusthon or Marine Impellers.
- Controlled parameters: pH, Dissolved O2, T and Level (foam). Other parameters (OD, Exhaust Gas…) can be easily added on demand even after the equipment is delivered and working.
- Four addition pumps, one with variable speed for fed-batch or continuous fermentation.
- Ethernet with LAN and VPN communications.
- Controlled with BIONET’s FCU through industrial PLC (Siemens) and 12” HMI Panel PC, with ROSA+ control software installed.
- Available in stand-alone version with integrated steam supply.
Bioreactors F3

The BIONET F3 model is an unique concept for those seeking for a steam in place (SIP) bioreactor/ fermentor of industrial size and conception, with the quality of a standardize product but with local costs.

A system with state of the art technology meant to be the reference in industrial fermentation and cell culture. As all our products it comes with practical conception, a limited investment and the premium BIONET quality service.

- Five models (F3050, F3100, F3300, F3500 and F3900) with working volumes from 30 to 900 liters
- Stainless steel vessel (316)
- 20+ ports for instrumentation, addition, and outgassing.
- Bottom agitation system from 1,5 kW to 7kW servo or electrical motor with gear reduction motor. Available with Rusthon or Marine Impellers.
- Controlled parameters: pH, Dissolved O2, T and Level (foam). Other parameters (OD, Exhaust Gas..) can be easily added on demand even after the equipment is delivered and working.
- Four addition pumps, one with variable speed for fed-batch or continuous fermentation.
- Ethernet with LAN and VPN communications.
- Controlled with BIONET’s FCU through industrial PLC (Siemens) and 12” HMI Panel PC, with ROSA+ control software installed.
- Available cGMP version and other multiple options and accessories.
Bioreactors FS

If your needs are beyond our F Series products, or need very special design and requirements BIONET is your right partner to set-up your special fermentation project. We apply our proven engineering solutions and adapt them to specific project and client needs.

In BIONET we have designed, engineered and built numerous industrial fermentation processes, with fermentation volumes up to 36,000 liters.
BIONET CIP Systems are engineered to warranty effective and efficient equipment of your lines, vessels, reactors and process units. Our designed are based on proven engineering solutions (process, equipment and control SW) and we adapt them to specific project and client needs.

Cleaning in an integrated and automated way helps warranty process quality, and maintains reproducibility and operation data control.

- Models to clean process vessels from 30 to 10,000 liter of volume, plus piping and ancillary equipment.
- Portable or stationary design.
- One-tank (Wash & Rinse) or Multi-tank version for shorter process cycle.
- All systems performance can be qualified including Riboflavin testing.
- Full automated version with process instrumentation and control through ROSA+SW. HMI Touch Panel PC 12”.
- Available with cGMP and ASME-BPE standards, including CFR 21.11.
BIONET has developed de M series, a complete range of pilot and industrial scale cross-flow filtration systems.

We have systems in all range of filtration sizes (microfiltration, ultrafiltration, nanofiltration and reserve osmosis). They can integrate most membrane technologies (ceramic, hollow fiber, spiral, cassettes..), from leader membrane vendors.

They are available from pilot units with working volumes of less than 30 liters, to units for industrial production capable of processing beyond 2000 liters per hour.

- Full automated version with process instrumentation and control through ROSA+SW, HMI Touch Panel PC 12”.
- ATEX compliant version for organic solvent filtration-extraction processes
- Based on standard capacity most units can incorporate further membranes units to increase filtration surface
- Alternative pump technologies depending on the rheology of the medium
- All systems can incorporate Temperature Control through a jacketed harvest vessels or with a heat exchanger integrated in the filtration circuit
- BIONET own Backpulse devices for cleaning enhancement and/or for delaying fouling episodes.
- Available with cGMP and ASME-BPE standards, including CFR 21.11.
Control SW ROSA+

ROSA+ is the advanced SW solution created by BIONET to automate Bioprocesses Equipment and Complete Bioprocesses.

The original and core module is the control fermentation and cell culture SW installed in all BIONET F Series. It is a powerful tool that incorporates all the functions necessary for integrated process control, process qualification and validation, and data analysis and management.

ROSA+ is installed as standard in each BIONET FCU (Fermentor Control Unit). The FCU is the unit where all the operations (utility supply, process and automation control) are centralized and has been designed to be compatible with each particular model of the F series.

ROSA+ offers also filtration and CIP automation modules, allowing a smooth integration of these process units with upstream operations.

• 7 screen modes:
  - Process synoptics,
  - System Alarms,
  - Process tendency curves
  - Loading and programming of recipes,
  - Instruments calibration,
  - Controls,
  - Batch Reports
• 2 User levels (Operator and Administrator)

• 3 types of data logging:
  - Alarms and messages of the system
  - Process data
  - Audit trail, regarding the change status of process variables
• VPN connection via Ethernet port
• MODBUS communication to the process hardware (instruments, pump, etc.)
• All modules are available in cGMP version complying with CFR 21.11
The objective of BIONET’s process development services is to reduce time-to-market and risk in the transition from the lab to the industry of biotech projects.

Very often the R&D, in which companies have to based their new developments, is incomplete, or too science driven. It has significant gaps of knowledge needed to assess the industrial viability, or scale-up the results.

What BIONET’s does is to translate R&D to industrial language, reducing uncertainty through wise pilot and our extensive experience. Our job provides the input data for feasibility studies, business plans and scale-up process engineering, helping our clients reduce the risk in their projects.

We have applied, with success, this methodology in APIs, Biopharma, Biocides, Food additives-ingredients and other Bio-chemicals, creating feasible bio-based processes.

BIONET has an extensive experience in the design and construction of industrial bioprocess projects. In the Engineering, Procurement and Construction (EPC) Service concept we integrate our own process units with the rest of process packages, utilities and installations giving our clients a global solution.

We have completed with success, in time and costs, EPC projects in Biotech R&D facilities, Biopharmaceutical, Food and Biochemical. BIONET has a unique expertise in the upscale of innovative bioprocesses from laboratory to demonstration or industrial scale.

Our EPC proposals include total responsibility for the project assuming all the fundamental aspects related to project development: design and engineering, equipment procurement, construction, commissioning, qualification, start up and validation.