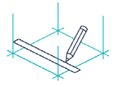
BIOPROCESS EQUIPMENT LINE



Bionet offers a complete and innovative bioprocess tech environment, including bioreactors, TFF systems, bioprocess software and a range of bioprocess accessories, PATs and auxiliary equipment.

Bionet offer spans your whole project life cycle: from multiuse and single-use lab and pilot sizes equipment you find in this brochure, to complete bioproduction plants at industrial scale. All of these are easy to customize with an impressive list of configuration options and add-ons.

All equipment are available for both cell culturing and microbiology applications, and in GMP version upon demand.

BIOPROCESS COMPLEMENTARY TECHNOLOGY

The bSMART product line comprises a number of modules that bring together the hardware and software solutions to expand the funcionalities of your bioreactor and other bioprocess equipment. These are a result of the constant investment in product evolution, in alignment with both technological trends and the latest biorech market demands.

Their Plug&Play design allows for the expansion of functionalities to adapts to the evolution of your process needs and reduces your investment requirements upfront.

The designs incorporate innovative mechanical, instrumentation and control technology, which ensures manufacturing excellence and Bionet presence at the forefront of the industry.

BIOPROCESS SERVICES

One of Bionet's most valuable assets is its Pilot Plant, with dedicated bioreactor and TFF technology and, most importantly, a very experienced group of bioprocess specialists who work to unlock your bioprocess potential.

Bionet reduces the "time-to-market" by helping clients face the challenges posed by the lack of fermentation or TFF proof-of-concepts or the existence of unconfirmed scientific hypotheses and gaps of knowledge in their R&D and/or scale-up activities.

This support is structured across a number of Bioprocess Services, result of the combination of consulting activities and experimental ones.

AFTER SALES SUPPORT

Assisting clients after equipment delivery has become our main priority and strength.

This means ensuring easy access to spare parts as well as offering short and efficient diagnosis and problem.

Bionet guarantees many years of services and access to spare parts by pursuing a design around the integration of non proprietary components from leading international vendors.

An efficient technical service is possible thanks to our dedicated team of experts and a network of inter national partners, that allows us to be close to our clients' need and local particularities.

WHY BIONET?

A consolidated, configurable, scalable and integrated technological environment.

A support team specialized in bioprocesses to help you from R&D to production.

A partner for your entire project lifecycle, from initial technology configuration to after-sales.

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bionet®

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From Lab to Industrial

bionet®

Bioprocess Lab and Pilot Equipment

- F0-BABY
- F1
- F2
- F3
- M1
- CTB & CT-15
- bSMART
- ROSITA & MARTA

Working to improve R&D, productivity and profitability goals for biotechnology, biochemical, food and pharmaceutical sectors

Bionet is an independent company, founded in 1999 and located at Fuente Álamo Technology Park in Murcia in the Spanish Southeast. We are dedicated with passion and professionalism to the Bioprocess Engineering Industry, and have consolidated an international presence as a provider of state-of-the-art bioprocess equipment tailored to the particular needs of your project and company.

F0-BABY

The entry-level bioreactor that comprises the perfect balance between being user-friendly and cost-effective, and yet offering advanced funcionalities and premium quality. Its modular designed makes it highly adaptable to the diverse and fast-changing needs in R&D stages.

APPLICATIONS	Media optimization, process characterization, process development and optimization, training and educational purposes.
WORKING VOLUMES (L)	1, 3, 5, 8, 10 (MB) 2, 4, 8 (CC)
MAIN CONFIGURATIONS	Microbiology (MB) Cell Culturing (CC)
MODULES FOR EXPANSION	bVSP (Variable speed pump) bCPM (Continuous process module) Perfusion module Range of PATs including: Optical Density, Redox, Dissolved CO2, bBreath (O2/CO2 exhaust gas composition), bScale (weight)
SOFTWARE	ROSITA

F1

The benchtop jacketed bioreactor that is ready to meet the needs of very demanding cell types, while maintaining the flexibility and scalability required at laboratory scale thanks to its modular and highly configurable design.

APPLICATIONS	Media optimization, process characterization, process development and optimization. Recommended when working with exothermic processes.
VERSIONS	Single (1 vessel) TWIN (2 vessels) for parallel bioprocessing
WORKING VOLUMES (L)	1, 3, 5, 8, 10 (MB) 2, 4, 8 (CC) 4 (AL) 3, 5 (PBR)
MAIN CONFIGURATIONS	Microbiology (MB) Cell Culturing (CC) Airlift (AL) Photobioreactor (PBR)
MODULES FOR EXPANSION	bVSP (Variable speed pump) Perfusion module LCM (Light Control Module) Range of PATs including: Optical Density, Redox, Dissolved CO2, bBreath (O2/CO2 exhaust gas composition), bScale (weight)
SOFTWARE	ROSITA 2.0
GMP	YES

CTB

The Bionet Celltainer-B (CTB) Single-Use Bioreactor unlocks your Power of bench scale Microbial and high density Cell Cultivation with its patented 2D rocking technology.

APPLICATIONS	Process characterization, process and product development and optimization.
WORKING VOLUMES (L)	2.5 (MB) 5 (CC)
MAIN CONFIGURATIONS	Microbiology (MB) Cell Culturing (CC)
MODULES FOR EXPANSION	bVSP (Variable speed pump) bScale (weight)
SOFTWARE	ROSITA 2.0
GMP	YES

CT15

The CT15 Single-Use Rocking Bioreactor enriches your lab with its multipurpose, plug-and-play philosophy, stackability and the highest volume flexibility to date (0.15-15L in ONE bag).

APPLICATIONS	Process and product development, scale-up, seeding for multiuse bioreactors.
WORKING VOLUMES (L)	0,15 - 15L
MAIN CONFIGURATIONS	It can grow at very high density E. coli, P. pastoris, fungi, plant, mammalian or human stem cells.

F2

Make the jump to stainless steel with Bionet's F2 and F3 pilot bioreactors, your best partner for process development, process scale-up and commercial production.

The perfect solution for a first Steam in Place (SIP) stainless steel bioreactor. It comprises the perfect bioreactor for scale-up studies and an accurate representation of an industrial unit while offering an ergonomic and laboratory-friendly design, which allows a smooth and transition into an uncertain production environment and stricter facilities' requirements.

APPLICATIONS	Scale-up, scale-dow and optimization, qualification and validation, production, seeding of larger bioreactors.
MAXIMUN WORKING VOLUMES (L)	15 and 30
MAIN CONFIGURATIONS	Microbiology (MB) Cell Culturing (CC)
MODULES FOR EXPANSION	Self-sterilisation, Automatic SIP, Automatic pressure control, bVSP (Variable speed pump), bCPM (Continuous process module), Flexible gas module, Advanced gas module, CIP Module, Range of PATs including Optical Density sensor, Redox sensor, bBreath (O2/CO2 exhaust gas composition), bScale (weight), Load cells, Range of operational accessories including those for sterile additions (e.g. SAPs), sampling, harvesting, cleaning (e.g. spray balls), lid-lifting actions, etc.
SOFTWARE	MARTA
GMP	cGMP version and 21 CFR part 11 available.

F3

Its premium SIP bioreactor for developing and scaling new bioprocesses, capable of enabling customizable engineering designs while being a highly tested and well-documented product that is difficult to find in industrial-sized environments.

APPLICATIONS	Qualification and validation production, seeding of larger bioreactors.
MAXIMUN WORKING VOLUMES (L)	50,100 and 200
MAIN CONFIGURATIONS	Microbiology (MB) Cell Culturing (CC)
MODULES FOR EXPANSION	Automatic SIP, Automatic pressure control, bVSP (Variable speed pump), bCPM (Continuous process module), Flexible gas module, Advanced gas module, CIP Module, Range of PATs including Optical Density sensor, Redox sensor, bBreath (O2/CO2 exhaust gas composition), bScale (weight), Load cells, Range of operational accessories including those for sterile additions (e.g. SAPs), sampling, harvesting, cleaning (e.g. spray balls), lid-lifting actions, etc.
SOFTWARE	MARTA
GMP	cGMP version and 21 CFR part 11 available.

M1

The only tangential flow filtration (TFF) system that offers the flexibility and scalability that the clarification and concentration processes require in their development stages as well as the robustness required when performing the downstream treatment of small batches.

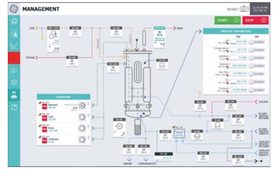
MEMBRANE	Ceramic, Cassettes, Flat-sheet and Hollow fiber.
PUMP	4-piston diaphragm pump
MEMBRANE AREA	47-528 cm2 (Ceramic) 420-10000 cm2 (Hollow Fiber) 100-3300 cm2 (Cassettes) 42-140 cm2 (Flat-sheet)
PORE SIZE	Ceramic: 0.05-1.4 µm (MF) & 1-300 kD (UF) Hollow Fiber: 0.05-0.65 µm (MF) & 1-750 kD (UF) Cassettes: 0.1-0.65 µm (MF) & 5-100 kD (UF) Flat-sheet: 0.1-0.2 µm (MF) & 1-800 kD (UF)
MAIN CONFIGURATIONS	Microfiltration & Ultrafiltration
OPTIONS FOR EXPANSION	Recirculation Flow registration and control. Permeate pressure registration TMP registration, permeate Flow registration. Temperature registration & control.

ROSITA & MARTA

ROSITA and MARTA are our proprietary software solutions for the monitoring, advanced control, visualization and registration of bioprocesses.

By sharing similar interfaces and workflows, they ease the learning curve of its operators and enhances the reproducibility and scalability of the bioprocess.

	SW PACKAGE	User interface
F0	ROSITA	External PC
F1	ROSITA 2.0	Integrated PC
F2	MARTA	Integrated PC
F3	MARTA	Integrated PC



bSmart

A range of plug&play modules to expand the functionalities of your bioprocess equipment.

Its Plug&play design allows this expansion to be immediate, adapting to the evolution of your process needs and reducing your investment requirements.

bBreath	02/c02 exhaust gas composition and derived calculations (RQ,OUR,CER) for metabolic characterization.
bVSP	A variable speed pump for addition of sustrates (e.g. fed-batch processes).
bCPM	Variable speed pump for addition and withdrawal functions (e.g. continuous process)
bSCALE	An interface module for the connection of a variety of scales to enhance process precision.