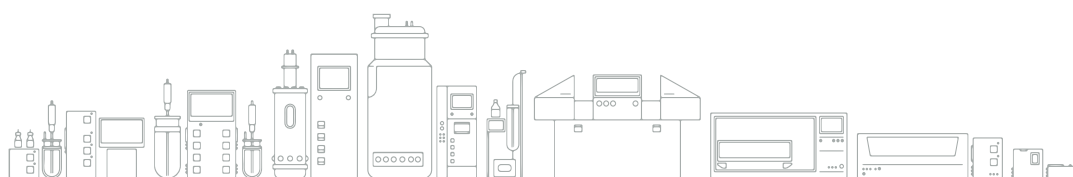


bionet®

Bioprocess lab and pilot equipment



Enhancing Knowledge



FO-BABY

F1

F2

F3

M1

M2

ROSITA & MARTA

bionet™



OUR NEW **F1** IS AN ADVANCED, RELIABLE AND VERSATILE MODEL



The F1 series include autoclavable bench scale stirred bioreactors up to 10L, an airlift bioreactor, and single-use stirred and rocking bioreactors with a patented 2D movement making the system unique in the market. The F1 is designed to meet the challenging and widely diverse R&D requirements and small-scale biomolecules production by using microbial and animal cells for biopharmaceutical-, food-, agricultural- and other biotechnological applications. Though a serially produced and standardized model, to combine the highest technological solutions for the common market demands, it is well thought for its expansion and customization towards a range of special requirements.

Elevate Your Bioprocess:

Experience the **premium quality** of a globally recognized, standardized bioreactor, complete with swift worldwide delivery and expert service support.

Unrestricted from Your Initial

Decision: Our modular Plug&Play design paves the way for seamless **expandability**, ensuring you're prepared for future enhancements and functionalities.

Effortless Operation and

Maintenance: Discover an **ergonomically** designed bioreactor that incorporates cutting-edge technology and reliable innovations, making your daily tasks smoother than ever before.

Empower Your Process Control:

Harness the potential of **advanced software** and instrumentation, providing you with a **user-friendly** interface to expand your knowledge and achieve precise process control.

Versatility Redefined with the F1:

Tailor your bioprocessing needs with ease. Our high **configurability** accommodates various vessel volumes, bioreactor types, and combinations, offering unparalleled flexibility.

CONFIGURABILITY

Unrivalled product, groundbreaking technology: The F1 unit provides the versatility to work with a wide range of applications and combine them, by maximizing the interchangeability of vessels. There are **several models** in Single or TWIN configuration, in multiple and single-use technologies, and in different **application versions**. **These include glass** stirred microbiology and cell culture, airlift, photobioreactor, and the CTB single-use **2D rocking patented** bioreactor. Each of them has unique features.



The CTB bioreactor features its distinctive patented 2D motion, which makes it also perfectly suited for bacteria and yeast fermentation processes.

Its expansion channel feature, also patented, allows a very wide working volume range, reducing the number of bioreactors in the chain and all the benefits this entails.



Equipped with a **gas module** with more than 21.000 combinations between number of mass flow controllers, bioreactor inlet, and gas flows to cover all needs.

Freely assignable pumps that allow to switch between operation modes and be linked to advanced controls from a unique configuration.



EXPANDABILITY

Perfect for R&D phases: Ideal for those dynamic research and development phases where the requirements are constantly evolving and uncertainties abound. The Plug&Play modular design offers a strategic advantage by allowing you to address dynamic process requirements without the need for a substantial upfront investment



The bBreath exhaust gas analyzer, the module you need to carry out O₂/CO₂ composition analysis of your bioreactor exhaust gas (i.e. metabolic indicators) and get the maximum of this data to enhance the quality and productivity of your process.

The **bScale** is the module you need for the connection of scales, from a range of scale precisions and brands used in lab and production settings.

The Variable Speed Pump (bVSP) is the module you need when expanding the number of freely assignable pumps to cover multiple additions or withdrawal/harvesting actions according to a number of feeding/bleeding profiles or advanced controls.



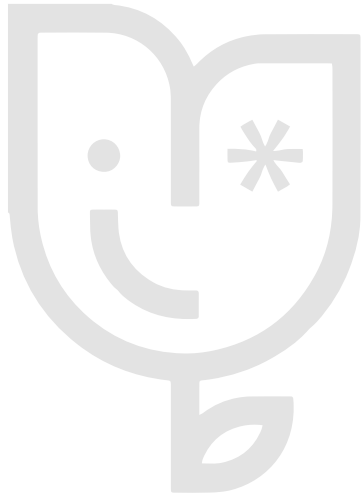
On-Site expansion: enjoy hassle-free modifications at your location. Our experts will handle the modification of actuators such as integrating new mass flow controllers in our expandable gas module, ensuring your equipment remains cutting-edge without the need for factory returns.

ADVANCED AUTOMATION



The new F1 is powered by its inseparable and renewed friend **ROSITA 2.0**, Bionet's proprietary automation software for laboratory use, which allows for unparalleled automation flexibility and tight control over the processes and provides the user with ways to visualize, analyze and manage the data.

A sophisticated and comprehensive software solution that can rival the most advanced licensed products in the market while offering a more cost-effective alternative

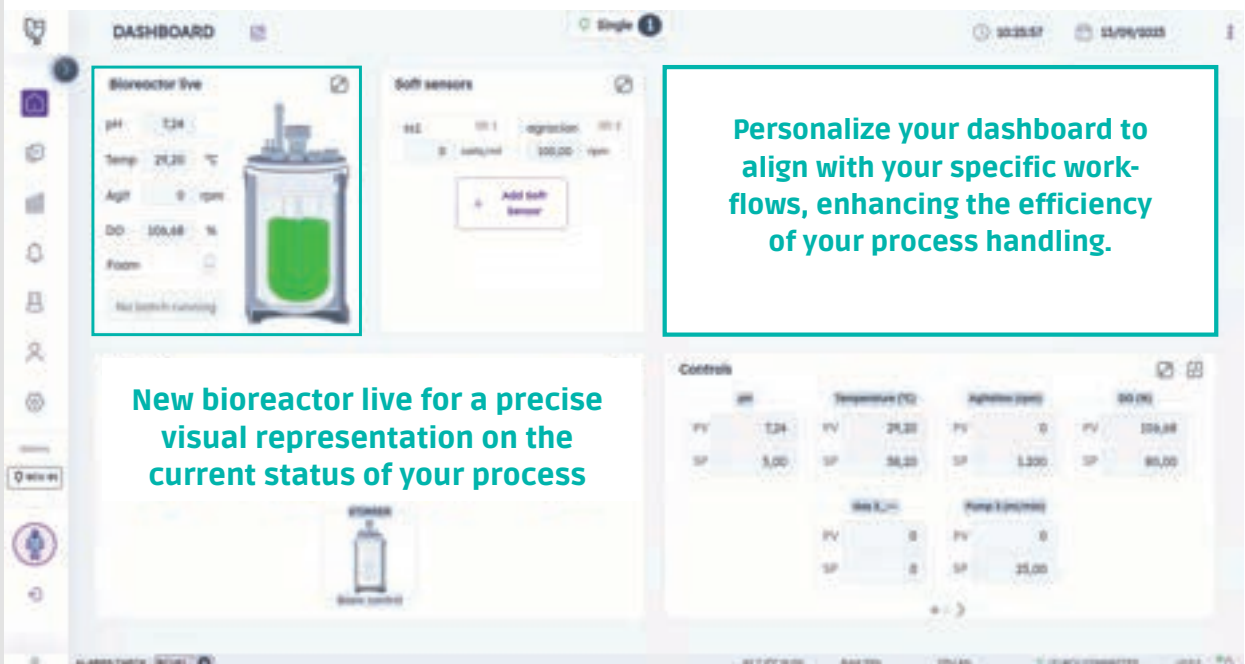


ROSITA 2.0

Configurable control loops between a number of sensors and actuators of choice, beyond the standard.

Programmable control loops via **equations**.

Configuration of **soft sensors** that can be visualized but also used for control.



PREMIUM QUALITY



Our unwavering commitment to quality is reflected in our practice of incorporating top-tier instrumentation and components from the market, ensuring that our product achieves the highest standards of performance.



Your go-to choice for small-scale or sample productions: the F1 can be designed, constructed, and qualified in strict accordance with GMP guidelines, ensuring unparalleled quality and compliance.



DATA SHEET

BIOREACTOR CONTROL UNIT (BCU)	
GENERAL DATA	
Weight [kg]	~40 [SINGLE] ~ 50 [TWIN]
Dimensions H x W x D [mm]	746 x 393 x 542 [SINGLE] 746 x 393 x 593 [TWIN]
DOSAGE MODULE	
Basic configuration	2x Fixed Speed Pumps & 1x Variable Speed Pump
Optional	1x Integrated Variable Speed Pump & 3x External Variable Speed Pump (bVSP)
GAS MODULE	
Basic configuration	1x Mass Flow Controller (MFC) for Air/N ₂ via Sparger
Optional	4x MFCs for Air/O ₂ /CO ₂ /N ₂ via Sparger/Overlay
Range	Low: 20 - 2000 sccm Mid: 0.1 - 9 slpm High: 0.2 - 18 slpm
TEMPERATURE MODULE	
Cooling	Jacket water (External chiller water)
Heating	Jacket water
Range	10 to 80 °C
AGITATION MODULE	
Agitator	Top mounted - Single mechanical seal
Impellers	MB: 2x Rushton CC: 1x Pitched blade
Speed [rpm]	(MB) 1L: 80-2000 3L: 80-1800 5L: 80-1600 8L: 80-12000 10L: 80-1000 (CC) 2L: 80-500 4L: 80-500 6L: 80-500 8L: 80-500
UTILITIES REQUIREMENTS	
Power supply	230 V (± 10 %), 50 Hz, Max. power consumption 2500 W 120 V (± 10 %), 60 Hz, Max. power consumption 2500 W (UL compliant version) 100 V (± 10 %), 50 Hz, Max power consumption 1100 W Device protection class IP 21
Gases supply	Gases supply pressure: calibrated pressure 2 barg. Max. pressure 3 barg All gases must be dry, oil and dust free Connection: press fitting OD 6 mm
Chilled water	Water supply minimum pressure: 0,6 barg Max pressure: 5 barg Minimum water flow rate: [SINGLE] 12 [TWIN] L/min Connection: hose ID 10 mm or press fitting OD 10 mm

Autoclavable Bioreactors						
Microbiology (MB)						Airlift (AL)
Model	F1-1 MB	F1-3 MB	F1-5 MB	F1-8 MB	F1-10 MB	F1-4 AL
Total volume [L]	2.2	4.3	7.1	11.4	13.3	4.7
Working volume (max) [L]	1.3	3.0	4.8	8.0	10.0	[3]
Working volume (min) [L]	0.35	0.65 ^[1]	0.8	1.7 ^[2]	1.5	[3]
Vessel material	Borosilicate glass					
Frame & lid material	SS 316					
Dimensions (H x W x D) [mm] ^[4]	402 x 186 x 182	459 x 220 x 212	595 x 276 x 254	595 x 276 x 267	650 x 276 x 286	696 x 236 x 204
Cell Culture (CC)						
Model	F1-2 CC		F1-4 CC	F1-6 CC	F1-8 CC	
Total volume [L]	3.4		5.2	7.0	9.65	
Working volume (max) [L]	1.85		3.5	6.0	7.0	
Working volume (min) [L]	0.41		1.05	0.9	1.0	
Vessel material	Borosilicate glass					
VESSEL & lid	SS 316					
Dimensions (H x W x D) [mm] ^[4]	400 x 186 x 182		445 x 276 x 235	506 x 276 x 257		534 x 286 x 260
Single-Use Bioreactors						
Model	F1-SU		CTB			
Total volume [L]	3.0		6.0 [MB] 10.0 [CC]			
Working volume (max) [L]	2.4		2.5 [MB] 5.0 [CC]			
Working volume (min) [L]	1.0		0.2			
Vessel material	Polycarbonate		Single-Use bag			
Frame & lid material	HDPE		–			
Dimensions (H x W x D) [mm]	249 x 241 x 241		346 x 685 x 554			
Process Controls & Instrumentation						
Basic Configuration			Optional			
pH			Weight			
Dissolved oxygen			Optical density			
			Exhaust gas (O ₂ /CO ₂)			
Temperature			ORP			
			Dissolved CO ₂			
Level			Light Control Module (LCM) ^[5]			
			Viable cells			

[1] Standard is 1.5L minimum working volume. This 0.65L is with an optional Add-on Kit

[2] Standard is 2.65L minimum working volume. This 1.7L is with an optional Add-on Kit

[3] Depends on Draft Tube height

[4] Dimensions for autoclave without motor & condenser

[5] Available for F1-3 & F1-5 MB

AFTER-SALES SERVICE

We acknowledge that acquiring our bioprocess equipment signifies the start of a lasting partnership, and rest assured, we'll be here to support you every step of the way! Our core business is after-sales service, and this does not exist only in the form of maintenance and repair work but goes far beyond that. We offer product and process training to unblock gaps in processes or train your new employees.



Our global after-sales service is a source of immense pride, delivered through our dedicated network of distributors who receive regular training at Bionet headquarters.



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**