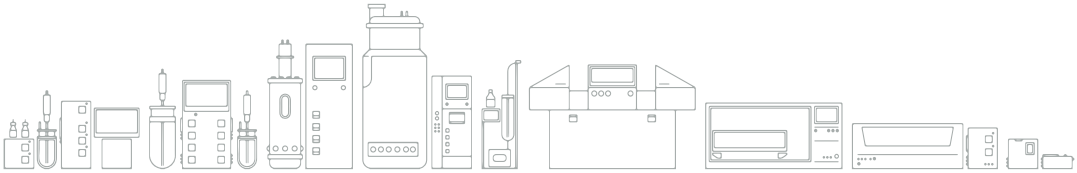
bionet®

Bioprocess lab and pilot equipment

Enhancing Knowledge



FO-BABY | **F1** | F2 | F3 | M1 | M2 | ROSITA & MARTA


I/O
Temp.
Digital Sensors
Level
Ext. Analog 1
Ext. Analog 2
Heating blanket
Agitator
Ext. Pump
Overlay
Sparger
Condenser return
Bioreactor return
Condenser supply
supply
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

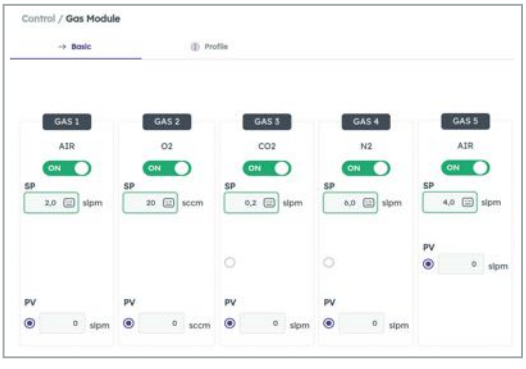
Unrivaled product, groundbreaking technology: The F1 unit provides the versatility to work with a wide range of applications and combine them, by maximizing the interchangeability of vessels. There are **several models** in Single or TWIN configuration, in multiple and single-use technologies, and in different **application versions**. **These include glass** stirred microbiology and cell culture, airlfit, 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 analizer, 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.

KEY BENEFITS

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 unparallel automation flexibility and tight control over the processes and provides the user with ways to visualize, analyze and manage the data.

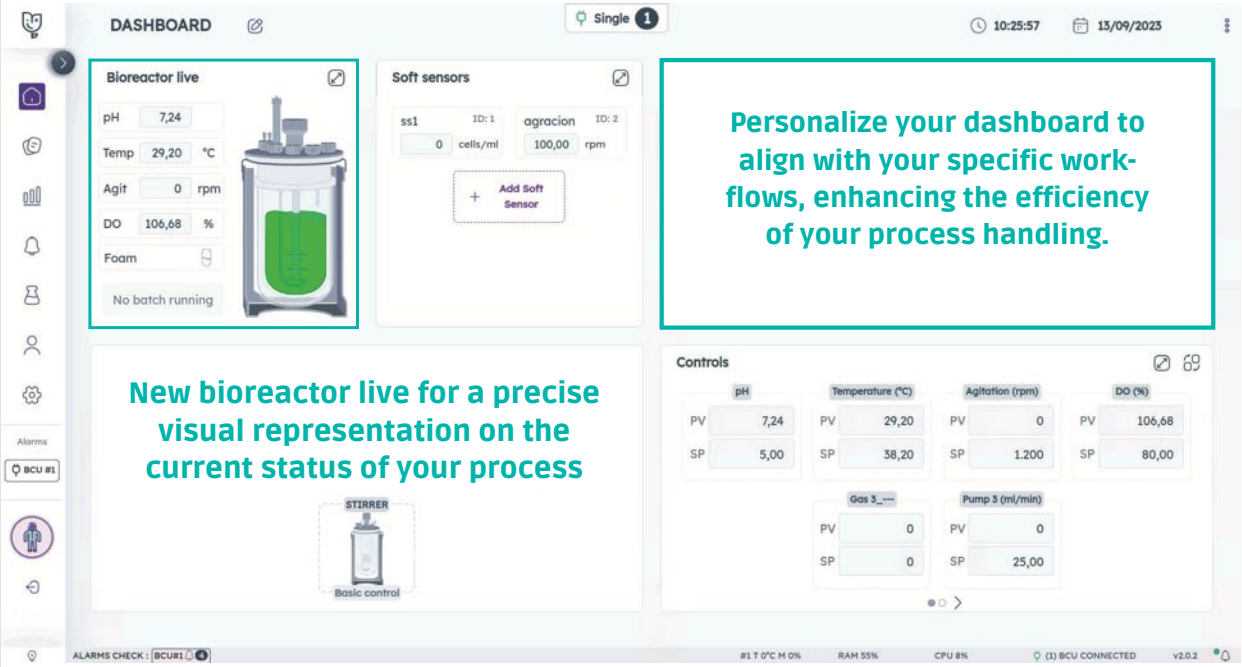
A sophisticated and comprehensive software solution that can rival the most advanced licensed products in the market while offering a more cost-effective alternative

ROSITA 2.0

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

Programmable control loops via **equations**.

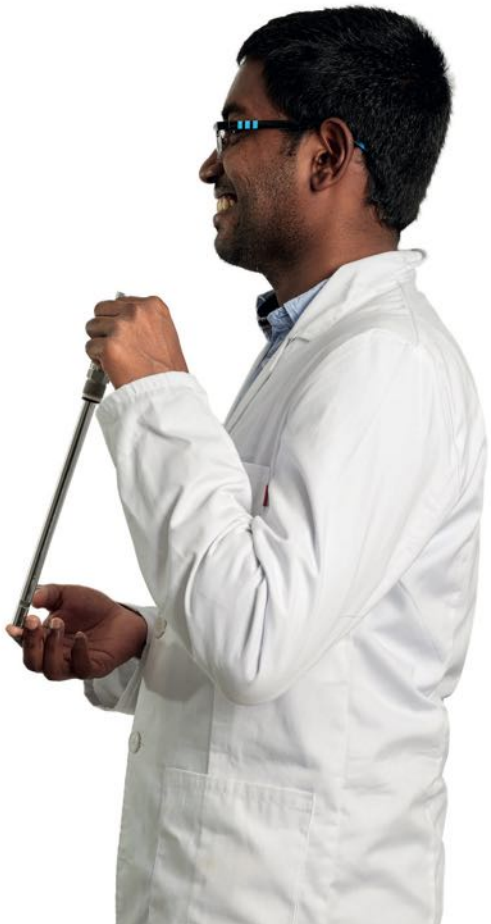
Configuration of **soft sensors** that can be visualized but also used for control.



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

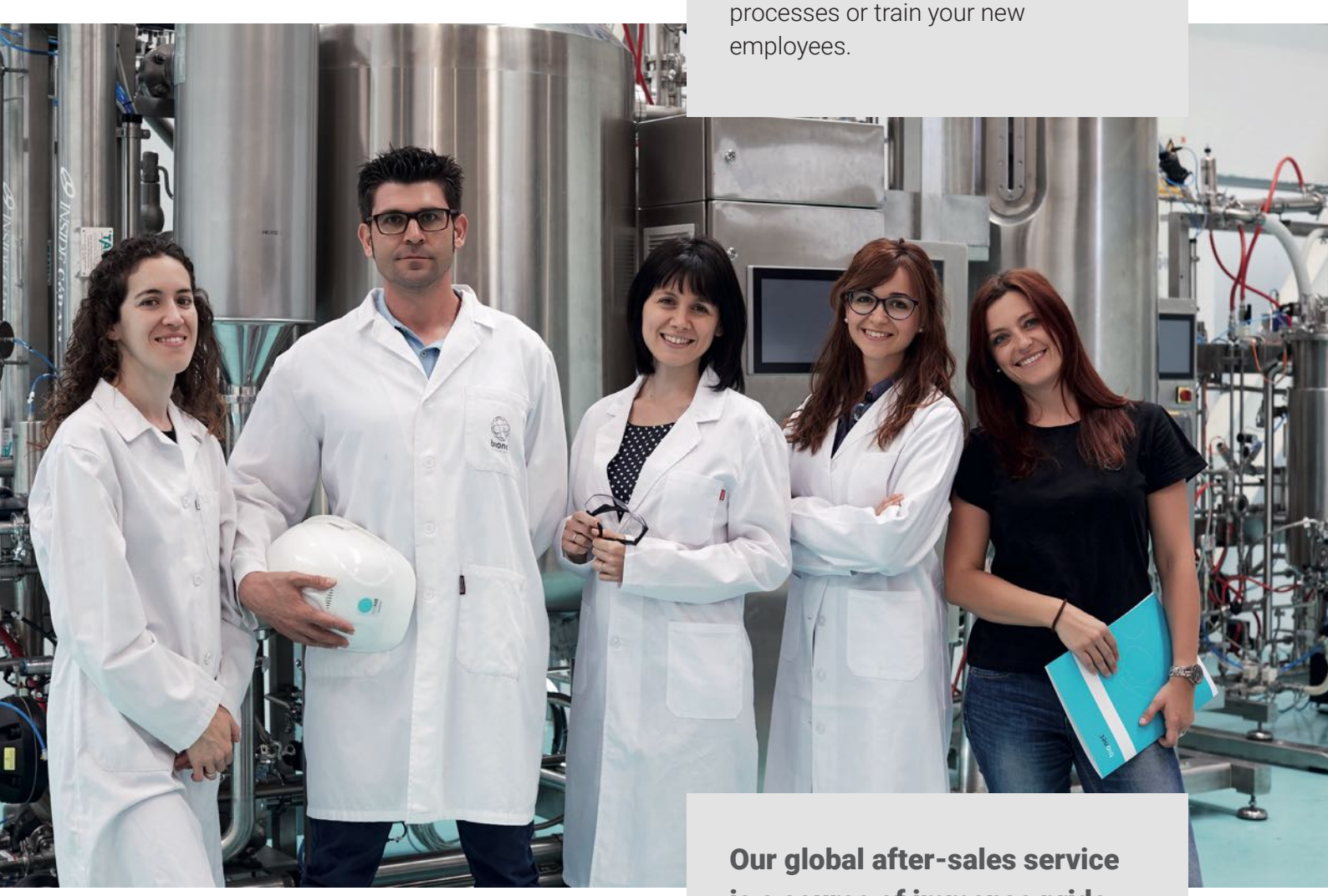
	AUTOCLAVABLE						
	STIRRED						
	MICROBIOLOGY						CELL CULTUR
MODELS	F1-1 MB	F1-3 MB	F1-5 MB	F1-8 MB	F1-10 MB	F1-2 CC	F1-4 C
VESSEL							
Total volume [L]	2.2	4.3	7.1	11.4	13.3	13.4	5.2
Working volume (max) [L]	1.3	3.0	4.8	8.0	10.0	1.85	4.0
Working volume (min) [L]	0.35	0.65 [1]	0.8	17 [2]	1.5	0.4	0.9
Vessel Material	Borosilicate glass						
Vessel frame & lid	SS 316						
GENERAL							
Total footprint on bench (HxWxD) [mm] - SINGLE	746 x 854 x 542		779 x 910 x 542		844 x 920 x 542	746 x 854 x 542	746 x 910 x
Total footprint on bench (HxWxD) [mm] - TWIN	746 x 1388 x 593		779 x 1500 x 593		844 x 1520 x 593	746 x 1388 x 593	746 x 1500 x
AGITATION							
Agitator	Top mounted - Single mechanical seal						
Impellers	2x Rushton						1x Pitched bla
Speed [rpm]	80-2000	80-1800	80-1500	80-1200	80-1000		80-500
Motorpower [kW]	0.092	0.314					0.092
GAS MODULE							
Gas lines (MFCs)	**Standard**: 1 / **Optional**: Up to 5						
Gases	**Gas line 1**: Air - N_2 / **Gas lines 2 to 5**: Air -						
Gas inlet to vessel	**Gas Line 1**: Sparger / **Gas line 2**: Sparger / **Gas lines 3 & 4**: Selectable[4] - Sp						
Gas flows	**Low**: 20-2000 sccm / **Mid**: 0.1 - 9 slpm / **High**						
Condenser	•	•	•	•	•	•	•
High capacity condenser	-	-	°	°	°	-	-
Filter at exahust gas	•	•	•	•	•	•	•
DOSAGE MODULE							
Pumps	**Standard**: 2 fixed speed pumps / **Optio**						
TEMPERATURE CONTROL							
Temperature range	**10°C to 80°C**						
Cooling	**Circuit with automatic valves from external chiller to vessel jacket**						
Heating	**Electrical resistance**						
INSTRUMENTATION							
Basic package	pH - Dissolved Oxygen - Temperature - Leve						
EXPANSION POSSIBILITES							
Scales (bScale)	°	°	°	°	°	°	°
Light Control Module (LCM)	-	°	°	-	-	-	-
Optical density	-	°	°	°	°	°	°
Exhaust Gas Analysis (bBreath)	°	°	°	°	°	°	°
Dissolved CO2	-	°	°	°	°	°	°
Viable Cells	-	°	°	°	°	°	°
UTILITY RQUIREMENTS							
CHILLED WATER							
Minimum flow rate	6 L/min SINGLE - 12 L/min TWIN						
Minimum pressure	0.8 barg						
COMPRESSED AIR SUPPLY	2-3 barg						
POWER SUPPLY							
	230 V (± 10 %), 50 Hz, Max power consumpti						
	120 V (± 10 %), 60 Hz, Max power consumption 2500 W (						
	100 V (± 10 %), 50 Hz, Max power consumpti						
	Protection class IP 21						

[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] Select from the software interfce the bioreactor inlet fot that gas line

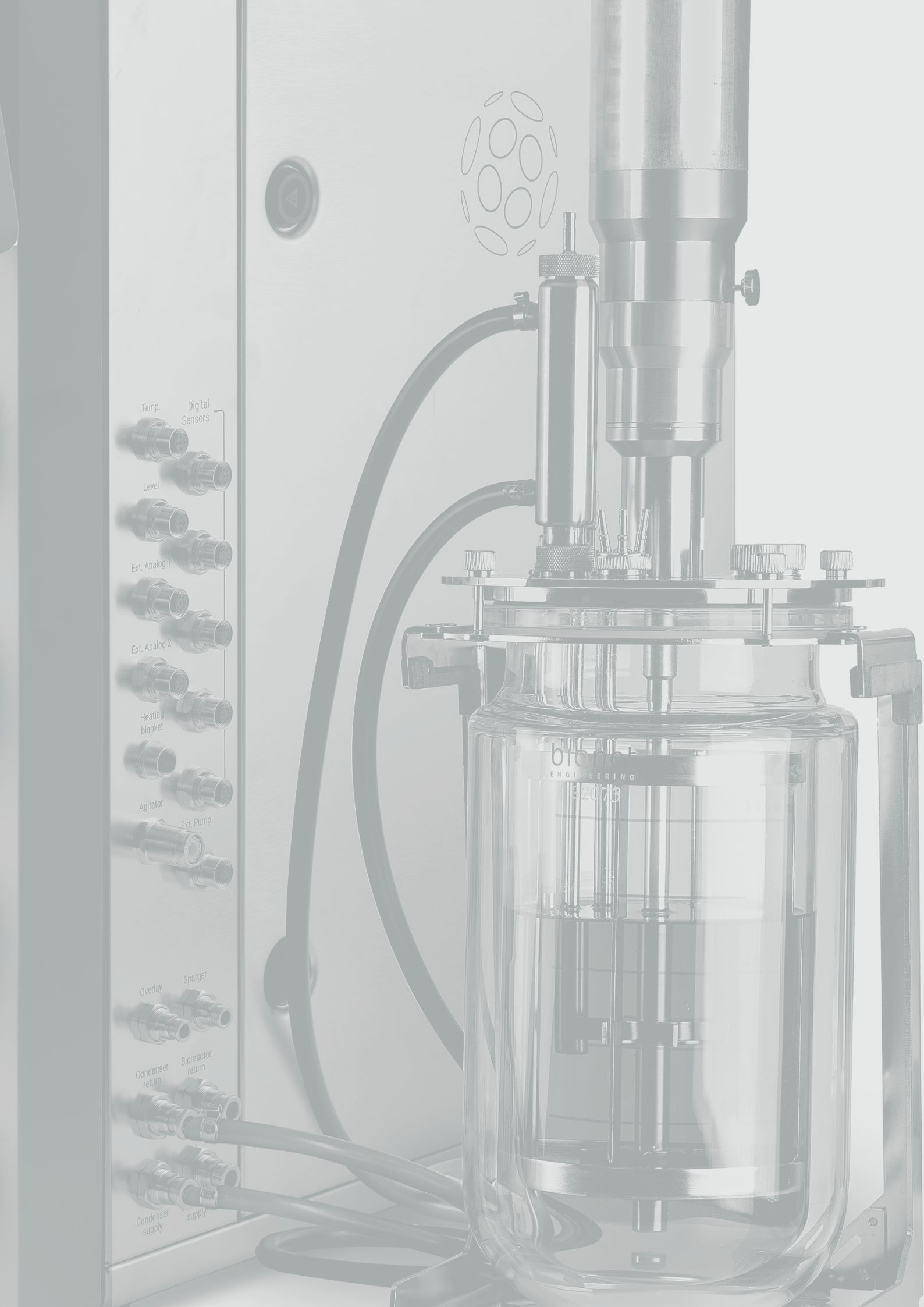
			SINGLE-USE		
		AIRLIFT	STIRRED	ROCKING BIOREACTOR	
RE			CELL CULTURE		MICROBIOLOGY
C	F1-8 CC	F1-4 AL	F1-SU	CTB	CTB
	9.65	4.7	3.0	6	10
	7.0	[3]	2.4	2.5	5.0
	1.0	[3]	1.0	0.2	0.2
			Polycarbonate	Single-use bag	
			HDPE	-	
: 542 7	46 x 920 x 542	746 X 910 X 542	746 x 854 x 5427	46 x 1300 x 585	
x 593	746 x 1520 x 593	746 x 1500 x 593	746 x 1388 x 593	746 x 2220 x 593	
		Airlift effect	Top mounted	Rocking platform	
de		-	1x Pitched blade	-	
		-	80-500	0-35	
		-	0.092	-	
				Standard: 1 / **Optional**: Up to 4	
O_2 - CO_2 - N_2				**Gas line 1:** Air - N2 / **Gas lines 2 to 4**: Air - O_2 - CO_2 - N_2	
parger - Overlay / **Gas line 5**: Sparger - Overlay				**Overlay**	
: 0.2 - 18 slpm				**25 - 2500 sccm**	
	•	•	-	-	-
	-	-	-	-	-
	•	•	•	•	•
nal: 2x integrated varibale speed pumps & 3x external variable speed pumps					
			Room temperature to 55°C	20°C to 40°C	
			-	Heat exchanger underneath the bag	
			Heating blanket	Heat exchanger underneath the bag	
el - Redox					
	°	°	°	°	°
	-	-	-	-	-
	°	°	°	-	-
	°	°	°	-	-
	°	°	°	-	-
	°	°	°	-	-
			-		
			-		
on 2500 W					
(UL compliant version)					
on 1100 W					

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.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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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From Lab to Industrial