Bioprocess Lab and Pilot Equipment

F0

F1

F2

F3

M1

M2

MARTA & ROSITA
Bionet F3 models is a unique concept for those seeking for premium quality a Steam In Place (SIP) Bioreactor of industrial scale and conception, with the quality of a standardized product but with the flexibility to develop and scale-up new bioprocesses.

A system with a state-of-the-art technology core technology and many details, has been created to be the market reference in pilot or small industrial fermentation and cell culture. It comes in 3 models with 50, 100 and 200 l maximum working volume.
KEY BENEFITS

AGITATION

Bottom agitation system, with a servo gives a complete (from almost zero to hundreds of rpms) broad speed range and power input, adapted to the needs of your culture.

- Being bottom placed allows for clean and light top lid, giving you easier maintenance and numerous ports.
- Available with standard impellers (Rushton, marine, pitch blade) or special designs on demand.
- Mechanical seal can be single, double (SIP) or magnetic coupling.

GASSING

The F3 has the needed add-ons for giving you the technology for the most demanding gas control. With our Advanced Gas Module for Cell Culture (with Air, N2, O2 and CO2, and inlets in sparger and doom) you will be able to control the parameters you need for optimizing and qualify your protein production.

TEMPERATURE CONTROL

- The temperature control system includes a jacket which covers practically the whole vessel, combined with a primary circuit with heater, heat exchanger for cooling water and recirculation pump.
- All this provides accurate temperature control and big heat exchange capabilities; even for the most demanding cultures.

INTEGRATED CIP

- As its smaller sister the F2 the F3 can integrate a CIP system. All in the same frame, with no extra-footprint, using the dosing pumps for acid and base and the pH probe, the CIP can be made without external intervention.
- All controlled from our control SW MARTA in which the CIP Module allows for programming of recipes which can be created and saved to allow for standardization of cleaning and productivity.

GMP COMPLIANT - DESIGNED, BUILT & QUALIFIED

As all BIONET bioreactors and filtration units, the F3 can be built and qualified under GMP guidelines to allow the validation of your processes in a regulated environment.

- Our GMP approach is structured so it can be adapted to your specific project and regulatory needs. The upgrade from a standard unit to a GMP one will affect many issues on the design and construction: Technologies, Calibrations, Documentation, Qualification and SW (including ERs under CFR 21 c 11).
- At the F3 series we have structured these GMP features in preconfigured technology and service packages, so they can be easy implemented and adapted to your specific demands, saving time and money.

DQ, IQ, OQ.

AUTOMATION

MARTA is the Automation SW which comes installed in the F3 units. This model has off-the-shelf solutions for Cell Culture, Fermentation which can be expanded with additional modules for local SIP and CIP, new instrumentation or advanced gassing or dosing control.
GENERAL

Material: 316L SS in surfaces in contact with product. 304 SS in frame and electrical cabinet. Borosilicate in sight glass. All gaskets FDA compliant.

Skid footprint (W x H x D): 1490 x 2000 x 710 (50 L & 100 L) 1700 x 2080 x 1190 (200 L)

VESSLE & PORTS

Working volumes available (L): 50, 100, 200 20, 50, 100, 200

Vessel total volume (L): 75, 143, 250 22, 75, 143, 250

Vessel design: Flat top and klöpper

Minimum working volume (L): 10 (50L) 6 (20L) 10 (50L) 20 (100L) 33 (200L) 33 (200L)

Total H:D: 3:1

Working H:D: 1.8:1, 2.3:1, 2.3:1 2.1:1, 1.8:1, 2.3:1, 2.3:1

AGITATION

Agitator: Bottom mounted

Impellers: Standard: 3x Rushton Pitched blade; or customised.

Speed (rpm): 0-1000 (50L) 0-800 (100L) 0-600 (200L)

Motorpower: 1.5 kW (50L) 2.2 kW (100L) 3 kW (200L)

GASSING MODULE

Gas lines: Standard: Air

Gas inlet to vessel: Standard: Sparger

Gas flow control and gas mixture: Standard: manual via rotameters, Optional: automatic MFCs.

Gas flows: Air: 1.9-9 Nm3/h (50L) 3.9-18 Nm3/h (100L) 7.8-36 Nm3/h (200L) O2: 0.4-3 Nm3/h (50L) 0.8-6 Nm3/h (100L) 1.6-12 Nm3/h (200L) O2: 0.05-1.2 slpm (20L) 0.3-6 slpm (100L) 0.5-12 slpm (200L)

All flows can be modifed on demand.

0.22 μm filter in gas inlet

Condenser for exhaust gas

0.22 μm filter at exhaust gas

DOSAGE MODULE

Pumps: Standard: 3x fixed speed for Acid, base and Antifoam.

Variable Speed Pump module or Continuous Processing Module (upto 3 pumps).

TEMPERATURE CONTROL

Cooling: Secondary circuit from an external chilled water source to heat exchanger in main circuit.

Heating: Electrical resistance in water circuit.

INSTRUMENTATION

Basic instrumentation package: pH, CO2, temperature, level.

Instrumentation available as add-on: Optical Density, Redox potential, Exhaust gas composition, Conductivity, Volume and Weight.

EXPANSION POSSIBILITIES

Advanced Gas Module (Air, O2, CO2, N2) in sparger and overlay

Variable speed pump for dosing

Continuous process module

Perfusion module

Scales (for precision in additions, sampling, harvesting, continuous processing and perfusion)

CIP (integrated) module

Additional sensors (and associated control loops)

Other customized modules

AVAILABLE MECHANICAL ACCESSORIES

Sterile Addition Ports (SAP); Crane; Spray ball; Exhaust gas filter; Range of Dip Tubes; Several types of turbines; Additional Port Plugg

GMP

AUTOMATION

Installed SW: MARTA

HMI: Integrated touch panel PC 15”

Remote access: Local remote access through a direct LAN connection or external remote access through a properly configured VPN connection.

UTILITY REQUIREMENTS

Chilled water: Minimum pressure: 2.5-3 barg 8-12ºC

Compressed air: 6-7 barg

Steam: 50 kg/h @ 1.5-2.5 barg (Clean Steam) 50 kg/h @ 2.5-3 barg (Industrial Steam)

Electricity: 6 kW (50 L) 6.5 kW (100 L) 8.5 kW (200 L)