Labfors 5

INFORS HT

We bring life to your laboratory

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That’s Labfors 5

A truly flexible bioreactor: The Labfors 5 is suitable for microorganisms as well as solid subtrates and enzymatic bioprocesses. There are almost no limits to its uses. You can control and monitor up to six pieces of equipment at the same time via the touchscreen.

You have a choice

The Labfors 5 comes in two different versions which cover a wide range of microbial applications through to bioprocesses containing solids. Each version of Labfors 5 can be configured to your needs. You can, for example, set the temperature control system, the gassing strategy or the vessel accessories to suit your requirements. This means you can carry out a whole range of batch, fed-batch and continuous cultivations.

Make six out of one

Would you like to organise your laboratory work more efficiently? Then connect your touchscreen control to up to six Labfors 5 devices. You can operate them simultaneously, and save time by, for example, calibrating all pH or pO_2 sensors at the push of a button.

Excellent handling

The Labfors 5 will make it easy for you. The easily accessible ports on the top plate are particularly practical, but that’s not all: the pump heads can be removed. They can be autoclaved together with the vessel and will be ready for use again immediately. The very compact size, with a maximum working volume of 10 L, leaves plenty of laboratory space free.

Fully equipped

The top plate features Pg13.5 and 19 mm ports for sensors, such as for pH, pO_2, anti-foaming agents, optical density and redox. Thanks to the analogue feed pump that comes as standard, the Labfors 5 is ready for use immediately for fed-batch cultures. Three digital pumps are included for acids, bases and anti-foaming agents. Up to four gases (air, N_2, O_2 and CO_2) can be used in almost any combination. The liquid or gas can be fed either via a mass flow controller or a rotameter.

Easy to upgrade

The Labfors 5 can be upgraded with many options – even after commissioning. The LabCIP system can be used for the microbial version, saving you time and money with automated and reproducible cleaning and sterilisation.

Application-specific versions

For microorganisms

- Stirring system with a directly driven high-performance motor
- High oxygenation in high cell density cultivation

Option: LabCIP

- Automatic cleaning (CIP) and sterilisation (SIP) of all parts in contact with the product
- Double throughput possible due to over-night cleaning
- Reliable, reproducible base and/or acid cleaning

For solid substrates and enzymatic bioprocesses

- For various kinds of enzymatic hydrolysis and fermentation
- Powerful motor for best mixing even with viscous substances, or with a high dry substance content in the starting material
- Easy addition of solids through the 40-mm port
- Accurate and safe temperature setting for sensitive media containing solids
- Optional display of the motor torque to analyse progress of the hydrolysis

Contact us and we'll be happy to advise you.

Features

Touchscreen with integrated OPC server

- Reliable measurement and setting of the bioprocess parameters and communication with eve®
- Parallel management and control of up to six Labfors 5 devices
- Up to 24 selectable parameters, such as temperature, stirring speed, pH, pO_2, anti-foaming agent, feed

Vessels

- Working volumes from 0.5 to 10 L
- Up to 14 ports for sensors (anti-foaming agent, optical density, pH, pO_2, redox, conductivity, etc.)
- Can be set individually with a selection of various stirrers, spargers and special accessories
- Without welded top plate parts

High-performance pumps

- Three digital pumps for acids, bases and anti-foaming agent/level/harvest, a pump for variable feed rate
- Pump heads can be sterilised with the vessel
- Secure handling
- Automatic and parallel emptying and filling of the pump tubes
- Gravimetric feeding possible

Open frame gas supply

- Up to four gases (air, N_2, O_2 and CO_2)
- Can be used in almost any combination and easy to upgrade
- Optional pressure regulation

Options and accessories

Use powerful options for optimizing your Labfors 5. If your requirements change later on, its modular design means you can expand your bioreactor at any time.

eve®: The bioprocess platform software
eve® is able to do more than just plan, control and analyse your bioprocesses. The eve® integrates workflows, equipment, bioprocess knowledge and big data in a platform, with which you can organise your bioprocesses in a web-based system. You will have an overview of your projects, and be able to carry them out efficiently thanks to a wide range of monitoring, control and analysis features.

- Connect to third-party bioreactors and analytical instruments
- Communication using the latest OPC UA standard
- A single database for all bioprocess information

Super Safe Sampler
- Aseptic sampling without laminar flow
- No dead volume
- Needle-free
- Reusable (SAT)

Exit gas analysis
- Analysis of the oxygen and carbon dioxide concentrations of the exit gas
- BlueInOne- or BlueVary-Sensor by the manufacturer BlueSens
- Multiplexing capability (one analytical instrument for multiple culture vessels)
- Additional information obtained via the eve® soft sensors, such as OUR, CER or RQ

Qualification and process validation
- Design qualification
- Installation qualification
- Operational qualification
- Factory Acceptance Test (FAT)
- Site Acceptance Test (SAT)
- Software validation

Sensors for PAT
- Redox, conductivity, pCO_2
- Sensors for cell density and biomass measurement, e.g. ASD12-N by the manufacturer Optek

Technical information

	Microorganisms	Solid substrates and and enzymatic bioprocesses
Working volumes	0.5–1.2 L / 0.5–2.3 L / 1–5 L / 2.2–10 L	1–2.5 L
Dimensions (W × D × H)	464 mm × 462 mm × 996 mm	515 mm x 515 mm x 1050 mm
Drive	Direct drive up to 1,500 min^{-1}	up to 1000 min^{-1}
Temperature	Coolant + 5 °C to 70 °C or 95 °C	Coolant temperature + 5 °C to 70 °C
Gassing per vessel	up to 5 MFCs, up to 2 min^{-1} (vvm)	up to 5 MFCs 2 min^{-1} (vvm)
Pump rate per vessel	3 fixed, 1 variable,	3 fixed, 1 variable,
	optional 2 other variable	optional 2 other variable
Ports	up to 4 × 7 mm	2 × 10 mm
	2 × 10 mm	3 × 12 mm (Pg13.5)
	up to 6 × 12 mm (Pg13.5)	4 × 19 mm
	up to 6 × 19 mm	1 × 40 mm
Connectivity	OPC XML DA via Ethernet	OPC XML DA via Ethernet

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