

Terrafors-IS

A solid state, in situ sterilisable bioreactor



- ▶ Compact, for laboratory use
- ▶ Automatic in situ sterilisation
- ▶ Vessel with 15 L total volume
- ▶ Monitoring using exit gas analysis
- ▶ Simple and intuitive local control
- ▶ Enhanced process understanding

Powerful Solid State Bioreactor

▶ Compact, for laboratory use

Terrafors-IS is mounted on a single column with the vessel to one side and the instrumentation to the other for minimum use of space in the laboratory.

▶ Automatic in situ sterilisation system

The automatic in situ sterilisation system uses direct steam injection with a maximum temperature of 134°C. An optional steam generator can be mounted on the base for ease of use.

▶ Vessel with 15 L total volume

The Terrafors-IS vessel is made from 316L stainless steel and provides a total capacity of 15 L. Maximal working volumes include 3–4 kg of solids (e.g., soil), semi-solids (e.g., sludge) or up to 7 L of liquids (e.g., oil). Two ports on the top plate are included for substrate addition/removal, and sampling.

▶ Monitoring using exit gas analysis

With the additional INFORS HT Gas Analyser the evolution of CO₂ can be related to rates of substrate utilisation and parameters such as respiratory quotient (RQ) determined using oxygen and carbon dioxide ratios. These can, in turn, be used to e.g. control feed rates.

▶ Simple and intuitive local control

Terrafors-IS is equipped with a high-performance touch screen controller. The responsive touch screen features a simple and intuitive local operation and allows easy access to all functions. Peripherals such as the INFORS HT Gas Analyser for exit gas measurement and analysis can be readily connected to the system.

Up to 24 parameters: Rotation speed/direction; Temperature (including in situ sterilisation); Feed; Gas flow; + several free channels, e.g., for exit gas analysis (O₂ and CO₂) using the INFORS HT Gas Analyser or for pressure measurement and control up to 2 bar.

▶ Enhanced process understanding

Terrafors-IS can be linked to the Parallel Bioprocess Control Software Iris for data logging, customisable feedback control, and data analysis. The Iris Software allows automatic rotation sequences, collection of off-gas sampling with automatic analysis and provides for integration of off-line data. Thus Iris is the centre for true biological process understanding and control.



Applications

- Production of enzymes and other biologically active compounds
- Bioremediation of soils, slurries etc.
- Biofuel production through conversion of agricultural waste and similar material
- Wastewater remediation

Key technical data

- Dimensions (WxDxH):** 950 x 980 x 1650 mm
- Total volume:** 15 L
- Working volumes:** 3–4 kg solids/semi-solids or 7 L liquids
- Speed range:** 0.1–10 rpm
- Temperature range:** ~5°C above coolant to 80°C (134°C for sterilisation)
- Standard parameters:** Rotation speed/direction, temperature (including in situ sterilisation), feed, gas flow
- Optional parameters:** Exit gas analysis, pressure control

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