solaris
group

solaris biotechnology | solaris tech | solaris micromundi

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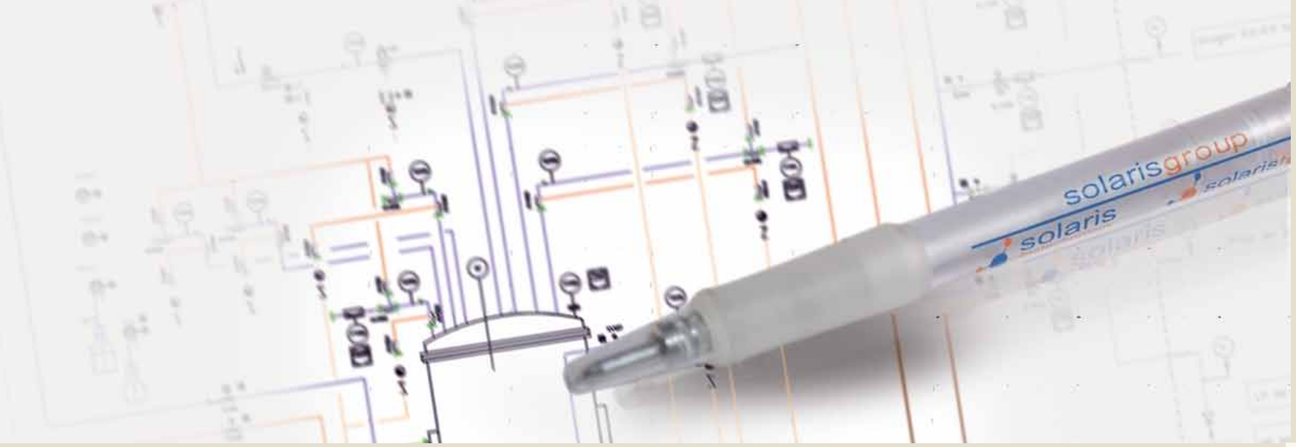
Your right choice without compromises

The mission of Solaris is to be for its customers a partner of choice for process solutions concerning both equipment and processes with the capability of offering an integrated service, which is probably unique in this field.



Production

Fermentation and Process Plants from R&D up to the productive industrial scale. Fermenters, bioreactors, reactors, gas analysers, CIP/SIP systems. Downstream equipments: membrane operations based on the tangential flow filtration technologies (microfiltration, ultrafiltration, nanofiltration and reverse osmosis).

Project

Our company is acknowledged as a leading turnkey project executor and consultant for the process world.

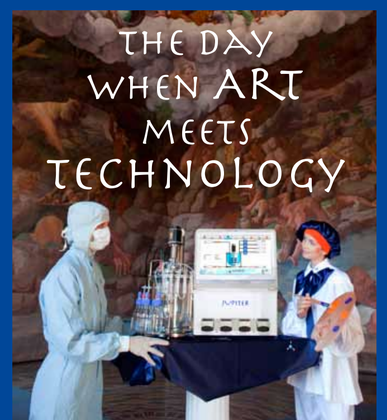
R&D

Autoclavable & SIP Fermenters/Bioreactors

Benchtop Bioreactors - Fermenters of Solaris represent the ideal solution for all necessities in the field of research, teaching and little scale production due to their flexibility and simplicity in use.
The flexibility is guaranteed by a broad range of alternatives which give the client the opportunity to customise the fermenter according to his needs and requirements.
Autoclavable or in situ sterilisable, with mechanic or magnetic agitation, electric thermostatting or hot water recirculation loop, for bacteria or cell cultures, batch or continuous, different automatization and process control grade, wide possibility of sensors installation.

JUPITER

Next generation of
Autoclavable R&D bioreactors/fermenters: NOW



JUPITER has shocked the market of R&D fermenters/bioreactors with a pre-packed high tech innovative solution, ready out of the box at a terrific price.

10 GOOD REASONS TO INVEST IN JUPITER

10. ***Brushless motors***, from 1 to 2000 RPM.

9. Multiple choice of sensors: pH gel electrodes, polarographic or optical dO_2 , traditional analogs or digital with diagnostic analisys.
Redox measurement (with digital pH) included in the entry model. Turbidity, CO_2 measurement in option, anyway located in the master control station.

8. Sterile multiple sampling system.

7. Weight control through load cells as optional

1. 1 TMFC in the entry model.
Gas mixing: up to 5 TMFC (Air, CO_2, N_2, O_2 and Overlay).

2. ***18.5"*** touch display

3. LEONARDO: smart controller designed to provide an high level of automated management of the fermentation processes.
Remote Control, 100% assistance from our office

4. Up to 4 vessels managed with one station

5. N.4 assignable peristaltic pumps, ***all speed controlled.***

6. Compact master control station.
Universal power supply 100-240 V.
Rear module with 3 removable technical trays (power, control, process) to facilitate the after sales service.

GENESIS

Next generation of SIP R&D bioreactors/fermenters: NOW

10 GOOD REASONS TO INVEST IN GENESIS

9. Multiple choice of sensors: pH gel electrodes, polarographic or optical dO_2 , traditional analogs or digital with diagnostic analisys.
Redox measurement (with digital pH) included in the entry model. Turbidity, CO_2 measurement in option, anyway located in the master control station.

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SET UP YOUR JUPITER

Vessels

Total Volume	2,0 liters	4,0 liters	6,0 liters	10,0 liters
Working Volume	0.5-1.5 liters	1.0-3.0 liters	1.5-4.5 liters	2.5-7.5 liters
Headplate Ports	n.1 PG 13.5 port, Sampling system n.1 PG 13.5 port, Harvesting system n.1 PG 13.5 port, Gas out/Condenser n.1 PG 13.5 port, Gas Sparger Input n.1 PG 13.5 port, Temperature Sensor n.1 PG 13.5 port, Antifoam probe n.1 PG 13.5 port, pH/Redox sensor n.1 PG 13.5 port, pO_2 sensor n.4 PG 13.5 port, Sterile connections n.2 PG 13.5 port, gas overlay/spare n.1 Ø 26 port, Agitation Group			
Dimensions for Autoclave	Height: 394 mm	Height: 564 mm	Height: 490 mm	Height: 668 mm
	Diameter: 225 mm	Diameter: 225 mm	Diameter: 277 mm	Diameter: 277 mm
Design	Borosilicate Glass Jacketed Vessel			
Materials	Vessel: Borosilicate Glass			
	Others : AISI 316 L			
	AGITATION			
Drive	Brushless Motor Direct Assembly, Accuracy 1 RPM 1-2000 RPM			
Impeller	Select from: Rushton Type, Marine type			
	TERMOREGULATION			
Control	PID Control for Heating and Cooling, Accuracy: 0.1°C			
	Jacket Water Heater			
	AERATION			
Gas Control	TMFC for sparger			
Gas Mixing (Air,N_2,CO_2,O_2)	select from 1 to 5 TMFC			
Sparger Type	Select from: Toro type (ring), Syntered microbubbling, both provided with 0.2μ disposable filter			
Gas Overlay	Optional: TMFC			
Exhaust	0.2μ disposable filter Stainless Steel condenser placed on the exhaust gas in order to avoid the media loss			
	pH			
Sensor	Gel analog or digital with diagnostic analisys technology (with redox measurement integrated)			
Control	Measuring and Control resident in the LEONARDO System (PID)			
Actuators	Cascade to peristaltic pumps for the addition of acid/basic solution and gases			
	pO_2			
Sensor	Polarographic analog, optical or digital with diagnostic analisys technology			
Control	Measuring and Control resident in the LEONARDO System. Auto controlled through variations in the speed of agitation and/or the flow of gas and/or the speed of nutrilite additions,etc			
Actuators	RPM, gases flow, the nutrilite additions, etc. according to the control procedure selected			
	FOAM / LEVEL			
Sensor and Controls	Solaris sensor. Measuring and Control resident in the LEONARDO System			
	PERISTALTIC PUMPS			
Peristaltic Pumps	4 Pumps Watson&Marlow all speed controlled, 4 assignable application from software			
	CONTROLLER			
Master Control Module	Control 1 to 4 vessels			
	Dimensions: Height: 230 mm Largeness: 455 mm Depth: 350 mm			
HMI with LEONARDO software	18,5" Touch screen PC			
Utility Station	Required for optional 2nd,3rd or 4th reactors, including 1 to 4 pumps and all utilities			
	Dimensions: Height: 230 mm Largeness: 455 mm Depth: 350 mm			

OPTIONS

Sterile Multi (4)Sampling System
Autoclavable Bottle 250/500 ml with screw cap, filter, and connections Spare parts kit (OR-SET, pH storage solution,O_2 electrolite solution, buffer 4, buffer 7, FDA grease, mechanical tools)
Turbidity measurement (MT sensor, cable, software-part of Leonardo)
CO_2 measurement (MT sensor, cable, software-part of Leonardo)
Load Cells

UTILITIES

Electrical	Connection: 220 V Cabl e & Plug Requirement: 220 VAC, 50 Hz. Single Phase 16 A
Facility Water (Inlet)	Connection: Quick Connection Requirement: 1 BAR 14.5 PSIG
Process Air	Connection: Quick Connection Requirement: 0.5 BAR 7.25 PSIG
Exhaust	Connection: Quick Connection Requirement: Open
Water Out (Drain)	Connection: Quick Connection Requirement: Open Drain

SET UP YOUR GENESIS

Vessels

Total Volume	3,0 liters	6,0 liters	8,0 liters	15,0 liters
Working Volume	0.75-2.25 liters	1.5-4.5 liters	2.0-6.0 liters	3.75-11.25 liters
Design	Single Wall Glass			
Materials	Vessel: Borosilicate Glass			
	Others : AISI 316 L			
	AGITATION			
Drive	Brushless Motor Direct Assembly, Accuracy 1 RPM 1-2000 RPM			
Impeller	Select from: Rushton Type, Marine type			
	IN SITU STERILIZATION / TERMOREGULATION			
Control	PID Control for Heating and Cooling, Accuracy: 0.1°C			
	Electric Heating and Cooling Finger			
	AERATION			
Gas Control	TMFC for sparger			
Gas Mixing (Air,N_2,CO_2,O_2)	select from 1 to 4 TMFC			
Sparger Type	Select from: Toro type (ring), Syntered microbubbling, both provided with 0.2μ filter			
Gas Overlay	Optional: TMFC			
Exhaust	0.2μ filter Optional: Stainless Steel condenser placed on the exhaust gas in order to avoid the media loss			
	PRESSURE			
Sensor	Hi Precision Electronic Pressure Transmitter			
Visualization	Measuring resident in the LEONARDO System			
Actuators	Diaphragm Valve			
	pH			
Sensor	Digital ISM® Mettler Toledo			
Control	Measuring and Control resident in the LEONARDO System (PID)			
Actuators	Cascade to peristaltic pumps for the addition of acid/basic solution and gases			
	pO_2			
Sensor	Digital ISM® Mettler Toledo			
Control	Measuring and Control resident in the LEONARDO System. Auto controlled through variations in the speed of agitation and/or the flow of gas and/or the speed of nutrilite additions,etc			
Actuators	RPM, gases flow, the nutrilite additions, etc. according to the control procedure selected			
	FOAM / LEVEL			
Sensor and Controls	Solaris sensor. Measuring and Control resident in the LEONARDO System			
	PERISTALTIC PUMPS			
Peristaltic Pumps	4 Pumps all variable speed, configurable application from software			
	CONTROLLER			
Master Control Module	Control 1 to 4 vessels			
	Dimensions: Height: 230 mm Largeness: 455 mm Depth: 350 mm			
HMI with LEONARDO software	18,5" Touch screen PC			
Utility Station	Required for optional 2nd, 3rd or 4th reactors, including 1 to 4 pumps and all utilities			
	Dimensions: Height: 230 mm Largeness: 455 mm Depth: 350 mm			

OPTIONS

Autoclavable Bottle 250/500 ml with screw cap, filter, and connections Spare parts kit (OR-SET, pH storage solution,O_2 electrolite solution, buffer 4, buffer 7, FDA grease, mechanical tools)
Turbidity measurement (MT sensor, cable, software-part of Leonardo)
CO_2 measurement (MT sensor, cable, software-part of Leonardo)
Load Cells

UTILITIES

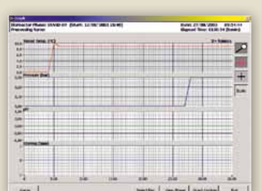
Electrical	Connection: 220 V Cable & Plug Requirement: 220 VAC, 50 Hz. Single Phase 16 A
Facility Water (Inlet)	Connection: Quick Connection Requirement: 1 BAR 14.5 PSIG
Process Air	Connection: Quick Connection Requirement: 0.5 BAR 7.25 PSIG
Exhaust	Connection: Quick Connection Requirement: Open
Water Out (Drain)	Connection: Quick Connection Requirement: Open Drain

ESEDRA

100% R&D
Customized solutions

Esedra series bioreactors/ fermenters have been created with the intention to face all the problems related to scaling-up, from the laboratory to the pilot and productive stage, with maximum easiness and flexibility.
Esedra series units has the same hardware control configuration of pilot and industrial bioreactors/ fermenters; fitted with a measurement and control system based on a PLC and the SCADA supervisory Solaris SBC-12.
The system is in accordance with CFR 21 Part 11.

SBC-12 This applications program is designed to provide a high level of automated management of the fermentation processes.



FURNISHING:

Vessels from 1up to 15 L.

Instrumentation (sensors inclusive) for control and measurement of pH, Eh, dO_2, CO_2 RPM, Gas Mixing,Temperature, Antifoam, Feeds turbidity, weight.

SCADA Control System.

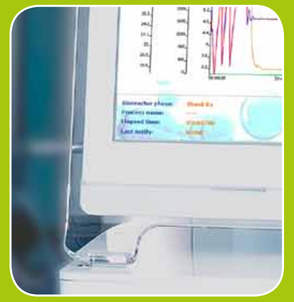
Software management data - trends.

Designed for microbial and cell cultivations.

Complete range of accessories.

Mechanic or magnetic agitation system.

TAKE IT EASY!



10

Single Use

Fermenters/Bioreactors

10

Single-Use, Stirred-Tank Bioreactor
an exclusive system fully configurable that meets any design request in a scalable platform ranging 1-25 litre Working-Volume (WV).

CellVessel™ series of Single-Use-Bioreactors (SUB) for batch and fed-batch cultivation of various cell lines in suspension applications are unique as they are fully configurable and meet any design request in a scalable platform ranging 1-25 litre Working-Volume (WV).

Basic specifications:

- PC (polycarbonate) vessel in 5 different diameters and 4 different height = 13 different sizes
- PC cover with a number of PG13.5 ports according to the diameter
- Rigid design for stable servo motor connection

Benefits

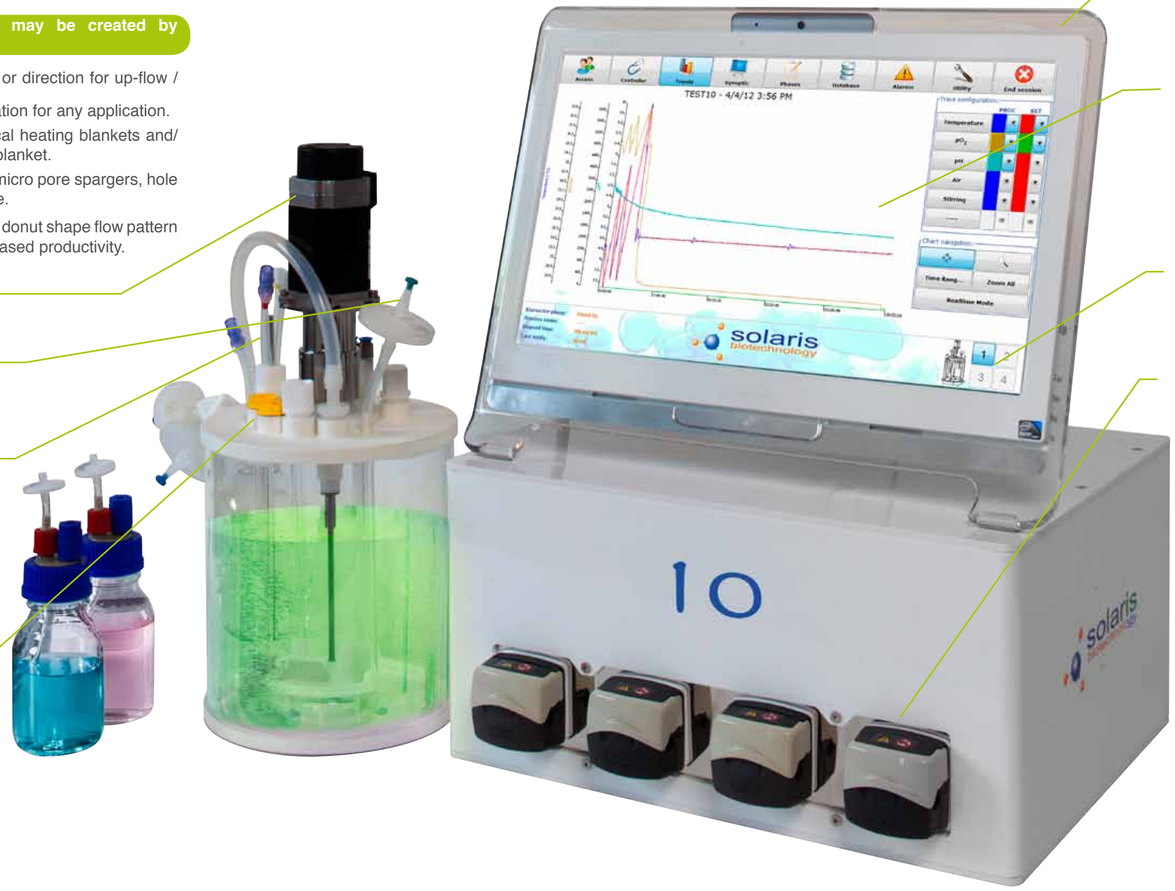
1. Reduced start up costs
2. Cut out downtime of cleaning and autoclaving
3. Reduced validation
4. Reliable scalability (stirred tanks design)

Fully configurable CellVessel™ may be created by selecting components from:

1. A range of impeller(s), any rotation or direction for up-flow / down-flow / axial / radial fluid circulation for any application.
2. Temperature controlled with electrical heating blankets and/ or with waterborne heating/cooling blanket.
3. Various aeration methods; such as micro pore spargers, hole spargers, head space gas exchange.
4. Baffled stator for axial vortex mixing, donut shape flow pattern for improved mass transfer for increased productivity.
5. Brushless motors.
6. 7 different exhaust methods.

7. 5 different liquid In&Out methods.

8. A range of Single-Use-Sensor (SUS).



9. 1 TMFC in the entry model.
Gas mixing: up to 5 TMFC (Air, CO_2, N_2, O_2 and Overlay).

10. ***18.5"*** touch display.

11. LEONARDO: smart controller designed to provide an high level of automated management of the fermentation processes.
Remote Control, 100% assistance from our office.

12. Up to 4 vessels managed with one station.

13. N.4 software assignable peristaltic pumps, ***all speed controlled.***

14. Compact master control station.
Universal power supply 100-240 V.
Rear module with 3 removable technical trays (power, control, process) to facilitate the after sales service.

Io

Single-Use, Stirred-Tank Fermenter
an exclusive system fully configurable that meets any design request in a scalable platform ranging 1-25 litre Working-Volume (WV).

BactoVessel™ series of Single-Use-Fermenters (SUF) for batch and fed-batch microbial applications are unique as they are fully configurable and meet any design request in a scalable platform ranging 1-25 litre Working-Volume (WV).

Basic specifications:

- PC (polycarbonate) vessel in 5 different diameters and 4 different height = 13 different sizes
- PC cover with a number of PG13.5 ports according to the diameter
- Rigid design for stable servo motor connection

Benefits

1. Reduced start up costs
2. Cut out downtime of cleaning and autoclaving
3. Reduced validation
4. Reliable scalability (stirred tanks design)

Fully configurable BactoVessel™ may be created by selecting components from:

1. A range of impeller(s), any rotation or direction for up-flow / down-flow / axial / radial fluid circulation for any application.
2. Temperature controlled with electrical heating blankets and/ or with waterborne heating/cooling blanket.
3. Various aeration methods; such as micro pore spargers, hole spargers, head space gas exchange.
4. Baffled stator for axial vortex mixing, donut shape flow pattern for improved mass transfer for increased productivity.

7. 5 different liquid In&Out methods.

8. A range of Single-Use-Sensor (SUS).

5. ***Brushless motors***, from 1 to 2000 RPM.

6. 7 different exhaust methods.

9. N.4 software assignable peristaltic pumps, ***all speed controlled.***

10. 1 TMFC in the entry model.
Gas mixing: up to 5 TMFC (Air, CO_2, N_2, O_2 and Overlay).

11. ***18.5"*** touch display.

12. LEONARDO: smart controller designed to provide an high level of automated management of the fermentation processes.
Remote Control, 100% assistance from our office.

13. Up to 4 vessels managed with one station.

14. Compact master control station.
Universal power supply 100-240 V.
Rear module with 3 removable technical trays (power, control, process) to facilitate the after sales service.

SET UP YOUR Io

Ask for the Configurator Tool for your own SUB/SUF design!

CellVessel™ and BactoVessel™ frequently requested volumes

Vessel volume (ml)	OD110	OD130	OD150	OD200	OD250
N. of PG13.5 ports	6	7	9	10	12
245 mm height	2,100	3,000			
340 mm height		4,100	5,600	10,300	15,700
420 mm height		5,100	6,900	13,400	19,300
520 mm height			8,500	16,500	23,800
620 mm height			10,100	19,600	28,300

The smallest Cell/Bacto Vessel offers WV from 60 ml.











Pilot & Industrial
Bioreactors / Fermenters

M Series

SIP Bioreactors/ Fermenters

100% Customized solutions

M Series are steam in place bioreactors/ fermenters available in a range of volumes from 5 up to 200 litres

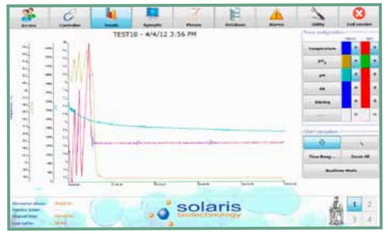
FURNISHING:

Instrumentation (sensors inclusive) for control and measurement of pH, Eh, dO2, CO2, RPM, Gas Mixing, Temperature, Antifoam, Feeds, turbidity, weight,etc.
SCADA Control System.
Software management data - trends.
Designed for microbial and cell fermentation.
Complete range of accessories.
Mechanic or magnetic agitation system.

M70, 70 litres

M150, 150 litres

LEONARDO: smart controller designed to provide an high level of automated management of the fermentation processes. Remote Control, 100% assistance from our office.



S Series

SIP Pilot Scale Bioreactors/ Fermenters

100% Customized solutions

S series bioreactors / fermenters have been created with the intention to face all the problems related to the scaling-up, from the laboratory to the the productive stage, with maximum easiness.
All fermenters/bioreactors of this series are compact and flexible (optionally on wheels) with the possibility to be installed even in limited space places.

FURNISHING:

- Culture vessels from 5 to 200 L.
- Instrumentation (sensors inclusive) for control and measurement of pH, Eh, dO2, CO2, RPM, Gas Mixing, Temperature, Antifoam, Feeds, Turbidity, Weight, etc...
- SCADA Control System.
- Software management data - trends.
- Designed for microbial and cell fermentation, for batch, fed-batch and continuous processes.
- Complete range of Accessories.
- Mechanic or magnetic agitation system fitted with a measurement and control system based on a PLC and the SCADA supervisor

S10, 10 liters

Completely assembled and tested in the factory, these fermentation units are ready for installation at the user' site.
The control system is based on a PLC and the SCADA supervisory Solaris SBC-12 and is designed to provide an high level of automated management of the fermentation processes; installed from Esedra up to industrial I series facilities the scaling-up procedures.
The system is in accordance with CFR 21 Part 11.

S20, 20 liters











GMP Customized solutions:

fully automated,strongly engineerized to fulfill the customer needs of compactness and operability. Top quality stainless steel with excellent finishing, high technology and italian design On line removable and sterilizable sensors permits their replacement during the process without comprimising the sterility.
Steam bridge diaphragm valves to guarantee the sterility during inoculum, sampling, harvesting and feedings. Easy to access service lines for performing the maintenance job without any difficulty.


S150, 150 liters

I Series

Industrial Scale Bioreactors/ Fermenters

This option particularly results in beeing effective in case of installation of the line composed of different productive units, also when complete production lines are realized, in which different parts can be placed in connection, thus being globally automatised.

Bioreactors - Fermenters of the **I series** are highly automated fermentation systems, available from 200 litres up to 30 m³ fully customised. The control system technology permits the linking of several units by ETHERNET, for the eventual connection to the supervision system.

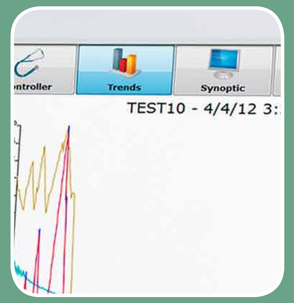
I300, 300 liters

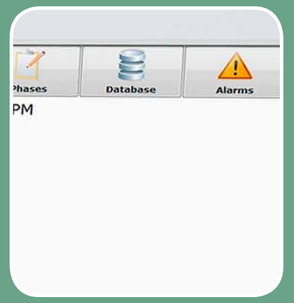
I1000, 1000 liters

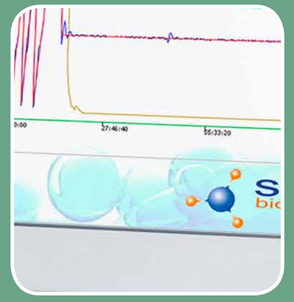
I Series

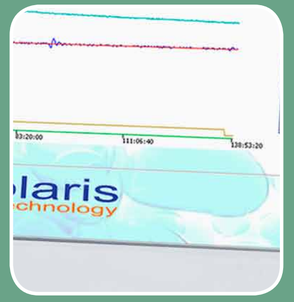
I1500, 1500 liters

I6000, 6000 liters









Controllers

Leonardo e SBC-12

Solaris developes advanced software systems for managing fermentation and downstream processes, local or remote control, from the single equipment up to the productive industrial plant.

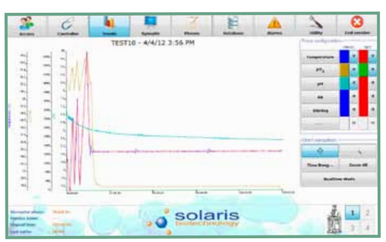
LEONARDO

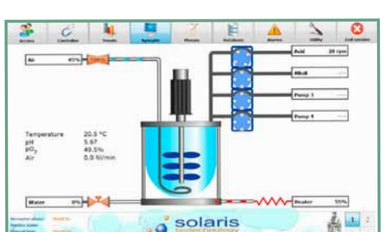
SBC-12

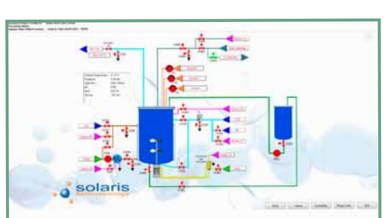
LEONARDO smart touch screen controller for R&D bioreactors / fermenters

- Multi-level password protection
- User friendly fermentation management
- Controller page to view setpoints, process values and control mode, to set up customized PID (or use factory defaults) and alarm limits
- Continuous trends representation to track, print and export data.
- Different dynamic zooms and configurations.
- On line parameters calibration
- Events log and alarm register
- Possibility of saving recipes for repeat usage
- Remote control for after sale assistance

In accordance with 21 CFR Part 11
This applications program is designed to provide a high level of automated management of the fermentation processes.







SBC-12 smart controller for pilot and industrial plants

- Home with Multi-level password protection.
- Synoptic page with manual operation of all the actuators (pumps, valves etc.).
- Controller page to easily view setpoints, current values and control mode, to set up customized PID (or use factory defaults) and alarm limits.
- SBC-12 is managing different phases of the fermentation process: stand by phase for cleaning procedures or maintainance, fully automatic sterilization program (with media or empty), before cultivation (automatic phase after sterilization managing the pre-inoculum) and cultivation with control modes set up: set point maintenance, set point profiles and cascade.
- Continuous trend graphs representation to track, print and export data on up to 4 process and set point variables. Different dynamic zooms and configurations in a time frame that can be set interactively.
- Producing setpoint profiles of the variables over time.
- Pumps Configurator.
- On line parameters calibration.
- PID setting
- USB connection for free data extracting.
- Remote control for after sale assistance. 100% assistance from our office.
- Possibility of saving up to recipes for repeat usage.
- Attribution to the variables of maximum and minimum values to act as alarm thresholds.SMS alarm service through internal modem.
- Connection via Ethernet to other fermenters, connected instruments and supervision computers.
- Print-out of hard copy of each screen.

Solaris Fermentation Manager Software Release 2013

Data extracted from SBC-12 are compatible with Window Excel.
However, Solaris has developed a platform where to easily and quikly manage fermentation data.

This software is included in the fermenter supply and it can be installed on unlimited number of client's PC.

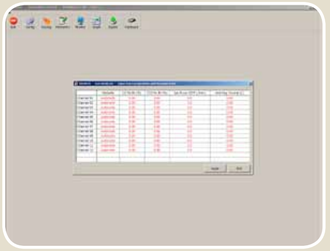
O_2 concentration in the sample is measured by means of a transducer based on the zirconium dioxide properties of this gas, whereas CO_2 determination is based on the measurement of absorption of infrared (IR) radiation.

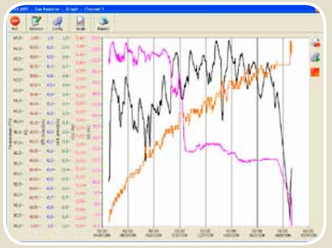
Solaris GA is equipped with an inlet line selector (multiplex) that allows the unit to be connected with up to 12 bioreactors, and includes a pump for gas sampling and a gas drying device.

The concentration values of two gases are visualised on the monitor, are analysed and represented graphically ON LINE, with subsequent culculation of the respiration coefficient.

- Acquisition of data in real time and conversion of the signals from the sensors applied to the process into values expressed in the specific units of measurement of each variable.
- Continuous graphic representation of the the behaviour of O_2, CO_2, OUR, RQ, with possibility of changing configuration, scale, dynamic zoom and exporting graphs on a printer.
- Channel Configuration with possibility to set the reading parameters of gas to analyse.
- Probes Calibration
- Temperature Compensation
- Calculation of:

OUR (Oxygen Uptake Rate)
CER (Carbon Dioxide Evolution Rate)
RQ (Respiratory Quotient)



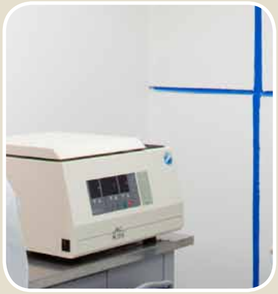


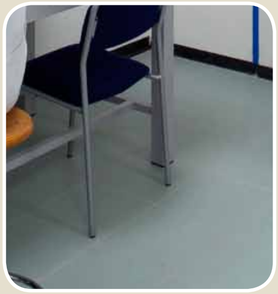
Gas Analyser

UP TO 8 FERMENTERS CONNECTED!

Solaris Gas Analysers are a combined CO_2 and O_2 analyser, specifically designed to be used in fermentation processes.

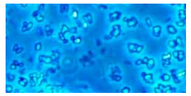
O_2 and CO_2 are the gases whose rates of consumption or production are most frequently measured for the purposes of study and process control (energetic metabolism, substract utilisation, etc.). The measuring ranges of the GA analyser (0÷10 or 15% for CO_2, and 21÷10% for O_2) have been chosen specifically for your application.
The system is based on well-proven, high quality transducers, and is characterised by an extremely reduced internal volume, to reduce overall response times.

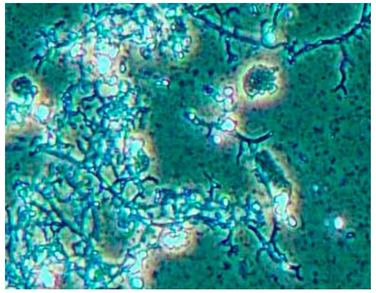


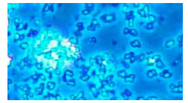


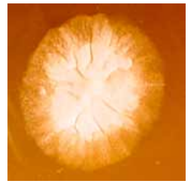
Education & Training

The approach and the type of practice which we are proposing are not just providing with relevant data or bibliographic research, but giving the opportunity of practical experiments which consist in a small scale realisation and verification of fermentation processes.
Our collaborators are strongly present in Italian and foreign market in the field of research and development of industrial biotechnological processes, also our products are being utilised in many famous research universities both in Italy and abroad. In particular, Solaris is providing: Training courses in biotechnology for teaching staff and students. Manual practicum in biotechnology concerning the procedure, microorganisms and culture media. Training period for scholars in our pilot plant. The possibility to use our research laboratories for various training programs. Lectures and conferences on contemporary biotechnology.











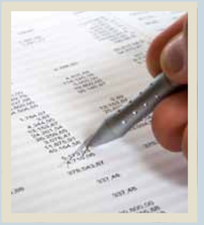


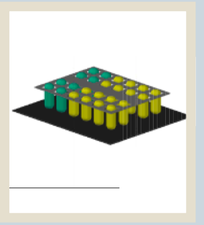


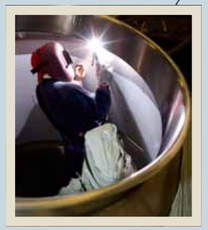




Thought


Feasability Study


Project


Manufacturing


Delivery


Installation & Validation


Personnel Training

Process Plants

Single Process Equipment, Engineering and Turnkey Projects

Atmospheric, under pressure and under vacuum tanks. Excellent finishing granted by high tech automatic polishing machines, different kinds of heat exchanging, mixing solutions, taylor made systems for varied products and applications, PED, ATEX, SVTI certifications.











Solaris provides all path required for the design and realization of complete integrated process plants, from the feasibility studies to the start up.

- **CONSULTANCY**
  GMP audit
  Project URS preparation
  Feasibility Study
  Conceptual Design
  Process Simulation

- **ENGINEERING & MANUFACTURING**
- **HANDOVER**
  Commissioning
  Qualification /Validation
  Start-up & training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Downstream Equipment

Solaris biotechnologies posses the know how for choosing between the best membrane available on the market (in terms of materials, geometrical configuration and operative parameters), for:
-concentrating with the best efficiency
-avoiding the problem of the gel layer
-increasing the efficiency in Diafiltration choosing the most suitable membrane

In summary, ***optimizing*** the ratio cost/profit.
The innovation drive of Solaris Biotechnology has created two new series of equipments, based on the technology ot Tangential Flow Filtration. These equipments are devoted to the Recovery of biotechnological products in Downstream Operations.

Tytan series

The TYTAN series are based on Microfiltration and Ultrafiltration techniques and operate in the ranges of low pressures (1-5 bar).

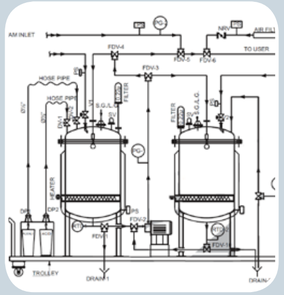
Geometrical configurations of membranes available on the market:

- spiral wound
- hollow fiber
- cassettes
- tubular ceramic

TYTAN 100
Micro / Ultrafiltration Unit

Equipped with ceramic tubular membranes

TYTAN 500
Microfiltration Unit



C.I.P. & S.I.P. Systems

Solaris developes C.I.P. / S.I.P. systems for reliable and repeatable processes that covers strong hygiene regulations demanded by the food, dairy, biotechnology and pharmaceutical industries.
Single or Multi-tank configuration, with independent, stainless steel tanks used to hold water of different quality, Deionized water (DI), hot or cold water for injection (WFI) and water from reverse osmosis units (RO).
Washing Cyclic Operatios in sequences: Wash down rinse, Acid wash , Alkaline wash, Wash down, Final wash. Fully automated or manual as well.
Washing processes controlled via the operation panel of the CIP/SIP unit.
Touch screen HMI to set up washing processes: number of tasks / repetitions of tasks, amount of litres (water, WFI), dosage of detergents, temperature of the CIP fluid, washing pressure, purge (drainage of process equipment and CIP/SIP unit with compressed air), total times.

Cow less impellers for powders

Gate impellers

Cosmetic scrabber

Marine impeller

Rushton impellers

Cosmetic blender

Glve scrabber

Turbine for biscuit preparation

Cream scrabber

Agitation Groups

Varied range of agitation groups for the mixing of liquids with different possibilities of impellers: scrabbers, anchors, propellers, rushtons, marine blades, ribbons, turbines, etc.
Fully customized solutions in close collaboration with our clients.

High quality process piping installation for the pharmaceutical, food processing, biotech and cosmetic industries.



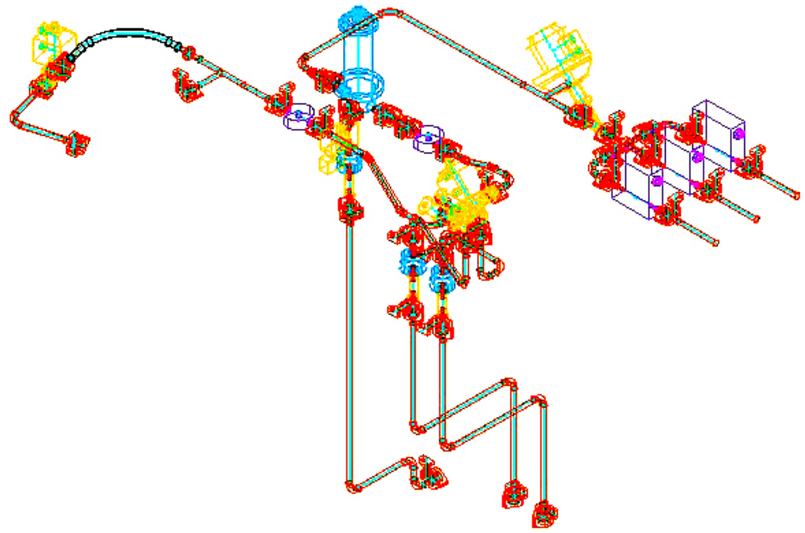








Piping



Our approach utilizes, preassembly, modularization, and offsite fabrication, skilled technicians and high tech instrumentation like laser cutting and orbital welding machines.

Solaris proposes total or partial solutions, with mechanical, piping, automation and control revamping.
We have developed special software possible to adapt to fermenters of different brands and our staff is ready to be at your service in order to find the best solution possible to satisfy your needs.

Revamping

Solaris Biotechnology has designed a series of accessories for the functional implementation on its own equipment and general ones.
Solaris produces and distributes valves, mechanical seals, sterile sampling systems, agitation groups, impellers, heat exchangers, weighting systems, reflux coolers, etc., developed on customers specifications.

Accessories

FDA compliant multi bioreactors system under laminar flow

Other Products

Advanced bioreactor for R&D on Biotissues Cultivation

60 liters glass bioreactor for Bioremediation Cultivations

MICRO MUNDI is a department of Solaris Group, mainly involved in research and development of fermentation processes.
Process scale-up from research and development up to the production at industrial scale.
MICRO MUNDI brings a wealth of additional experience to your project, our staff have matured many years of experience in managerial and technical positions in the biotech and pharmaceutical industry. This experience gives full confidence in the successful implementation of technologies.
We cooperate with world-wide reputed private companies and public research institutes , in the development of new technologies and also in the improvement of the existing one.

Fermentation and Biotech Development

MICRO MUNDI ‘s discovery-led R&D is a technologically advanced structure focused on microbiology , analysis and up-to-date recovery. Our experience and background are referred to the production at an industrial scale and our main skill is the knowledge of the issues involved in the commercial scale production , substantially different from the lab scale process.
The R&D center is fully equipped for successful product and process development from bench to pilot scale and it is concerned with 4 major areas:

1. Strain selection and maintenance
2. Fermentation
3. Downstream processing
4. Analytical development

The development of technologies is based on:

1. Strain selection, maintenance and improvement
2. Process development , considering all metabolic , chemical and physical parameters useful to optimize the bioproduction.

We develop technologies which are strictly confidential and all biological and intellectual results are the property of our clients.
MICRO MUNDI has already experience in different fields like:

- Classical fermentation (API, anti-tumorals, vitamins, etc)
- Biofuel
- Cell plant fermentation
- Bioremediation
- Mammalian cells

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solaris biotechnology
solaris tech
solaris micromundi

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