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FERMENTERS^{FOR}

Biotech & Biopharma

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ABOUT US

- We are a team of Fermentation System Experts with wide experience in the field of Bioprocessing, designing, operating & Automation.
- We are an ISO 9001:2015 Standard Certified Company & we apply harmonized European standards (CE Mark).
- We also, help our client with Civil aspects by providing 3D simulations of their site with our fermenters final placements.
- Our motto is not just selling our product but guiding our clients in the best possible way.
- Our team consists of young, dynamic and skilled professionals in respective fields of Mechanical Engineering, Industrial Automation and Biotechnology.



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FermEx Products Range

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Glass Autoclavable Lab Fermenters & Bioreactors (Fermex BioFMA)



Fermex has earned a reputation of being one of the Best Laboratory Fermenter Manufacturer in India. Fermex Autoclavable Fermenters & Bioreactors are ideal tools for researchers who start fermentation studies and for those applications where small or medium volumes are required. Fermex BioFMA series fermenters and bioreactors are compact in design, to save space in the laboratory with exceptional performance. Fermex Autoclavable fermenters and bioreactors are made up of high-quality materials like Borosilicate glass and SS-316L. BioFMA Series provides sterile conditions for culture growth. Our control system and SCADA software comply with FDA 21 CFR Part 11. Customized controls are available (Basic, Semi, and Fully Automatic). Due to the modular design, & smaller footprint the reactors can be used for a variety of applications, including microbial and yeast fermentation, cell cultures, etc.



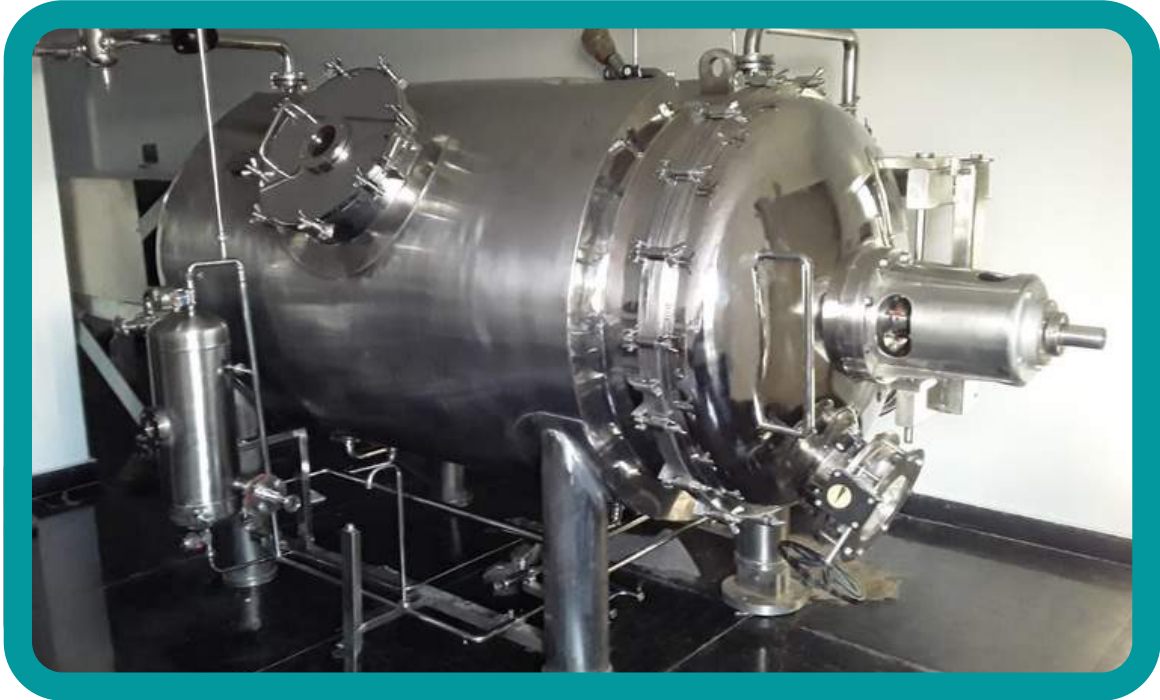
In-situ Lab Fermenters & Bioreactors (Fermex BioFMX)



BioFMX series is a range of In-situ fermenters for the lab to pilot scale. They are available in standalone, twin, and parallel models. Fermex In-situ fermenters and bioreactors are made up of high-quality SS-316L material which is non-corrosive and non-toxic and provides the best sterile environment for microbial culture growth. BioFMX range starts from 5L to 750L, and is available in various Automation modes (Basic, Semi, and Fully Automatic). Fermex is the best quality Bioreactors manufacturer in India, thus our Bioreactors are an asset for any research labs, universities, biotechnology, and biopharma industries.



Solid State Fermenters (Fermex BioSFX to BioSFXL)



Fermex BioSFX to BioSFXL series Solid State Fermenters (SSF) provide better yield and economic feasibility. It is the technology that can directly convert solid substrates into high-value products by offering direct fermentation of solids in powder form. BioSFX to BioSFXL series follow ASME BPE-2016 standards. Fermex SSF series are made of SS316L with superior corrosion resistance properties. SSF are ranging from 20L to 5000L as well as on request we can make custom builds. Automation modes are available (Basic, Semi, and Fully Automatic). Our SSF is an asset for various fields such as enzyme production to the production of antibiotics, including fertilizers, and food industry.



Production Fermenters & Bioreactors (Fermex BioFMXL)



The goal of Fermex Industrial Fermenters is to enhance the microbial production of commercially and economically useful substances, on a large scale, to produce products or to carry out important biochemical transformations. Our Industrial Fermenters and Bioreactors are made up of the best grade material like SS316L for wet parts and SS304 for non-wet parts. Our BioFMXL series fermenters and bioreactors are designed in such a way so as to improve biochemical or physiological processes while yielding the highest quality and quantity of a particular product. Fermex Large Scale Fermenters and Bioreactors are highly energy efficient with a robust design. Fermex BioFMXL fermenters and bioreactors are available in three automation modes such as Basic, Semi and Fully automatic, ranging from 1KL to 50KL. BioFMXL series is an asset for large-scale industries, including microbiology, food, pharmaceutical, biotechnology, and biochemical.



Photobioreactors (Fermex BioFoton to BioFotonL)



Fermex BioFoton to BioFotonL Photobioreactors range provides the users, various control parameters like illumination, temperature, pH, DO, recirculation and agitation for optimum production of photosynthetic microorganisms, nutraceuticals, proteins, biofuels and biomass. Our BioFoton systems are manufactured & designed by professional and skilled engineers according to user requirements under strict code of "Good Manufacturing Practices" and we follow the principles of bioprocess technology and the latest guidelines of ASME BPE-2019. Equipment is made up of Borosilicate glass and SS316. BioFoton series are available from lab to Industrial range (2L-1000L), with customized controls.



DOWNSTREAM EQUIPMENT

Falling Film Evaporator (Fermex BioFFE)

Fermex BioFFE Falling Film Evaporators respond fast to feed quality and heat source supplied. Fermex Falling Film Evaporator is very efficient to operate across small temperature differences so that they can be arranged in cascading manners for maximum efficiency. BioFFE is made of SS316, ranging from 1LPH to 100LPH. Our BioFFE currently leads in the processes industries because of many advantages over submerged tube evaporators.



Tangential Flow Filtration (Fermex BioTFF)



The Fermex Tangential Flow Filtration system is operated by a control system hub in an integrated skid. The Fermex TFF system is flexible enough to operate for a wide range of applications. It utilizes robust industry-standard components and operations with increased throughput. Fermex TFF equipment is supplied along with all necessary piping, valves and instruments. All the wetted parts are made of SS316L and gaskets are made of food-grade silicone material. BioTFF range starts from 1 LPH to 1000 LPH. Our BioTFF system is used to remove fine colloidal particles (MF and UF), large bacteria (MF and UF), viruses (UF) and large molecules (UF) such as proteins.

Process Vessel (Fermex BioPV)

Fermex BioPV is designed to handle pressure, temperature and these vessels are used in all types of industries. BioPV is made of SS316, ranging from 50L to 5000L. Fermex Process Vessels are used for various functions such as media or buffer preparation, inactivation, PEGylation, emulsification, or any other requirement.



Ribbon Mixer (Fermex BioRB)



Fermex BioRB Ribbon Mixer is equipped with a powerful drive to mix the contents efficiently in a pretty short time. Our BioRB series Ribbon Mixer has contact parts that are made up of SS 316 material and it has specially designed double vortex blades for efficient and faster mixing than any single blade Ribbon mixer available in the market. An optional liquid spraying system and in-place sterilization with steam is available on request. Our BioRB ranges from 50Kg to 1000Kg. Fermex Ribbon Mixers are widely used for mixing dry powder and granule.



Vacuum Dryer (Fermex BioVacD)

Fermex BioVacD Vacuum Dryer offers a clean, simple and effective method of drying filtered/centrifuged wet powders and slurries. Fermex BioVacD works by removing moisture through a vacuum created, able to withstand the vacuum pressure without deforming. BioVacD dryer effectively dries heat-sensitive materials to very low LOD (Loss on drying) levels. Operation is batch and drying time depends on the material being dried, amount of solvent or water to be removed, desired LOD level, permissible jacket temperature, etc. All the wet parts are made of SS316L.

SPECIAL PURPOSE REACTORS

High Pressure Reactor (Fermex BioHTX)

The Fermex High Pressure Reactor is used to carry hydrothermal reactions at high pressure and high temperature. Our Reactor is mainly made up of high-quality pharma grade stainless steel SS316 which has excellent corrosion resistance to most organic acid systems like acetic, formic acid, ammonia compounds, many salts except chlorides & most commercial gases at moderate temperature & pressures. Fermex High Pressure Reactor is extensively used in the scientific laboratory, research and development labs, institutional organizations, quality analysis section in industries, etc.



Fuel Cell Reactor (Fermex BioFCR)



Fermex Fuel Cell Reactors are environment-friendly devices for energy conversion and power generation and are often regarded as one of the promising advanced energy technologies of the future. Fermex BioFCR whole setup including electrodes is made up of Polytetrafluoroethylene (PTFE) which plays an important role in the performance of polymer electrolyte membrane fuel cell (PEMFC) when the cell is tested under low temperature and under ambient pressure. PTFE is added to the PEM (Proton exchange membrane) fuel cell electrode to improve the mechanical strength and to help in removing the product water formed on the cathode.



Solvent Extraction Plant (Fermex BioPTX)

The main objective of Fermex BioPTX is to reduce oil contained in oilseed to the minimum possible level. Fermex SEP is used to extract oil from oil seeds like soybean, sunflower, cottonseed, other oilseeds, and oil cakes like mustard cake, groundnut cake, and rice bran. Our BioPTX is designed for the oil extraction process with minimum losses. Fermex SEP has a lot of energy conservation opportunities such as steam, water, and power.

BioPTX has V.F.D. (Variable frequency drive) installed for some major pumps and at the extractor drive to reduce power and hexane consumption. Some modifications in the pipelines of condenser water and cooling tower water may help to reduce water consumption. BioPTX steam distribution is composed of P.R.V. (pressure reducing valve) and R.T.D. (Residence Time Distribution) in heaters with PLC Control which helps to reduce steam consumption.

In SEP, there are three major processes involved:

- i. Solvent Extraction
- ii. Disolventisation & Toasting (DT)
- iii. Distillation

UTILITIES

Chiller Circulator (Fermex BioChilX)



For All Chilling Requirements In Closed Loop Conditions, Fermex BioChilX is ideal for chilling and condensing applications in external systems such as Fermenter, Rotary Vacuum Evaporators, Electrophoresis Systems, Chilling of heated water baths and general lab applications of chilling in closed-loop systems. Fermex BioChilX available from 3000BTU/hr to 60,000BTU/hr.

ADVANTAGES & BENEFITS

A compact circulator chiller can be placed under the workbench. Hermetically sealed compressor with environment-friendly CFC free refrigerants. Built-in circulator pump for efficient circulating processes. Offers the highest level of performance, flexibility and control for most demanding applications. Low noise level. Wide operating ranges and applications.

Electric Steam Generator (Fermex eSTG) (10Kg/hr to 70Kg/hr)

For your disinfection, Sterilization and temperature control you need Fermex eSTG. It is one of the electric boiler products for its nice design and technology of Fermex eSTG steam generator provide steady and clean steam using the electrical heating system as a source of heating. Fermex eSTG, an Electrical heating boiler is an intelligent and clean machine whose safety characteristics will meet your requirements. Fermex eSTG available from 10Kg/hr to 70Kg/hr. The water tank, water pump, pressure gauges as such elements are all installed in the boiler in such a way that your precious spaces will be immensely saved. the boiler is fully controlled, and all the heating elements and other electric elements are of standard make components. A small footprint enables very less space consumption in your laboratory. The boiler is delivered to the site assembled, tested and ready for installation.



Exhaust Gas Analyzer (Fermex BioeGA7)



Fermex Exhaust Gas Analyzer (BioeGA7) consists of a CO₂/O₂ sensor to analyze the amount of oxygen uptake and carbon dioxide production in the outlet gas from the bioreactor or fermenter.

BioeGA7 is designed for real-time monitoring of CO₂ and O₂ which is a valuable tool for the measurement of cell growth within the fermenter vessels. Exhaust gas monitoring is a powerful tool for process control and troubleshooting at all scales of fermentation and can improve productivity by indicating the correct rates for oxygen flow and substrate feed. Fermex Exhaust Gas Analyzer is an asset for any industry, including microbiology, food, pharmaceutical, biotechnology, and chemical.

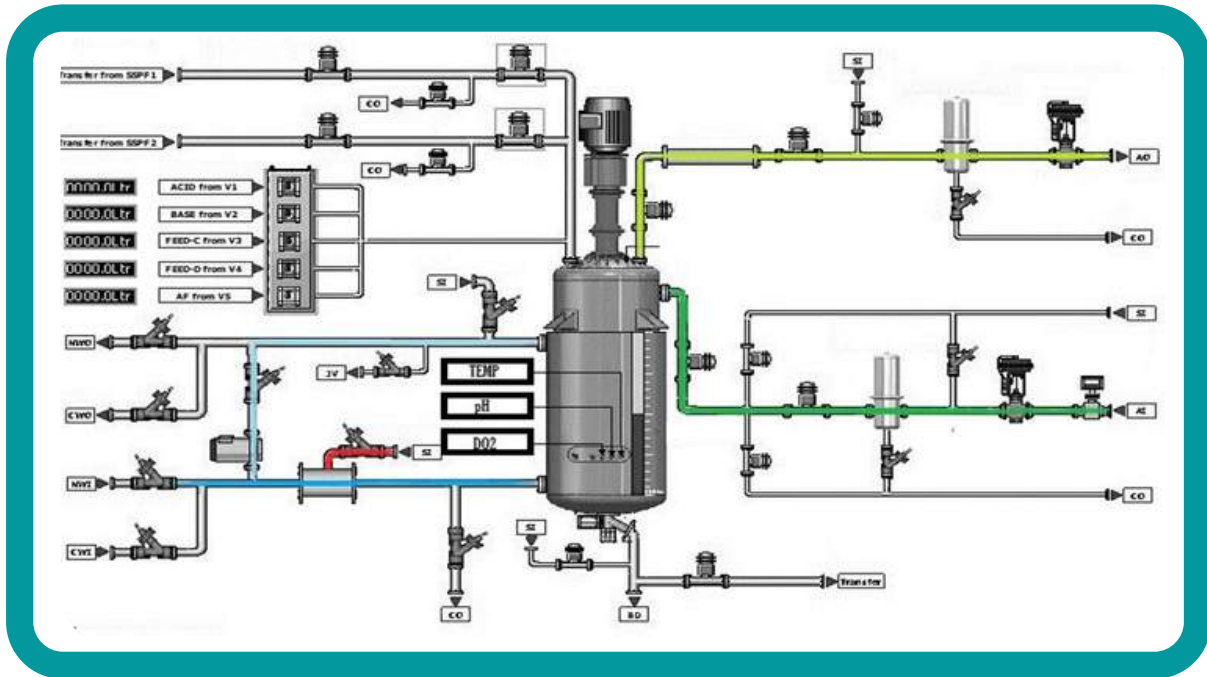
Cleaning-in-place (CIP)



Fermex designed CIP (Cleaning-in-place) system for continual internal cleaning without the disassembly of equipment. Most commonly CIP system is used for the cleaning of fermenters, vessels, bioreactors and other products. Our CIP system is an asset for the industries that required CIP & a high level of cleanliness or sanitation, where CIP is an integral part of the process such as: - biotech, pharmaceutical, dairy, beverage or brewery, & cosmetics, including processed food Industries. The designing & cleaning process of our CIP system is based on the cleaning principle of TACT where 'T' indicates Time, 'A' indicates Action, 'C' indicates Chemical & 'T' indicates Temperature respectively.

Feature of Fermex Multi-use Automated CIP system:-

- Reproducible, Repeatable and Controllable Results
- Reduction of Cleaning Time
- Automatic cycles ensure each item is cleaned every time
- Increased productivity through reduction of downtime
- Follows the GMP Procedures
- Produce clean and Sterile Products
- Reduced the use of chemicals
- Different types of spray balls are available for cleaning application



SCADA Software (Fermex BioSCX) (FDA 21 CFR part 11 Complied)

Fermex BioSCX SCADA is a system of Software and Hardware elements that allows industrial organizations to control fermenter and bioreactor processes locally or at remote locations. It monitors, gathers and processes real-time data & records events into a log file. Our SCADA system directly interacts with devices such as sensors, valves, pumps, motors, and more through a Human Machine Interface known as HMI software. Our SCADA software comprises computers, networked data communications and graphical user interfaces (GUI) for high-level process supervisory management, while also comprising other peripheral devices like programmable logic controllers (PLC) and discrete proportional-integral-derivative (PID) controllers to interface with process plant or machinery.

Fermex BioSCX SCADA Software is composed of the following features:-

- Display of all parameters of all reactors on the same page with pop-up set point window
- Display of minute-wise updates of all configured parameters.
- Feed pump configuration page – pump calibration; pulse width; feed volume; etc details.
- Acid/alkali/antifoam pump page - pump on /off and status configuration.
- Controller configuration page- PID, valve opening, high setpoints, low setpoints, etc. configuration.
- History display of the changes effected during the batch progress – password protection.
- Report Manager – daily/batch-wise datasheet of all parameters on hourly execution basis.
- The alarm for all parameters/valves depends on the conditions and set point deviations.
- Data acquisition for all parameters.
- Plotting and display of up to 10 process variables for online or offline values.
- The SCADA Software will be given with a Personalized Serial Number (ID) or Hardware Lock.

APPLICATIONS



Food Industry

- Production for ethanol (Alcohol, beer wine, etc.)
- Cheese production
- Vinegar production
- Meat production



Pharmaceutical & Biotech Industry

- Antibiotic Production :- Penicillin, Insulin, etc.
- Biochemical production
- Primary metabolites production.
- Secondary metabolites production.
- Pharmaceutical Product (API)
- Vaccine production
- Production of protein
- Production of enzyme or extraction of enzyme.



Waste Management Industry

- Treatment of waste water through microbial culture.
- Sewage waste is treated with microbes used for producing manure.
- Vector Control



Research

- Process and product optimization
- Insect cell culture growth and analysis
- Strain development
- Biomass research



Agriculture Industry

- Bio fertilizer Production
- Biomass Production
- Animal Feed

OUR PRESTIGIOUS CLIENTS



OUR SUPPORTING PARTNERS



FOR MORE DETAILS...

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