

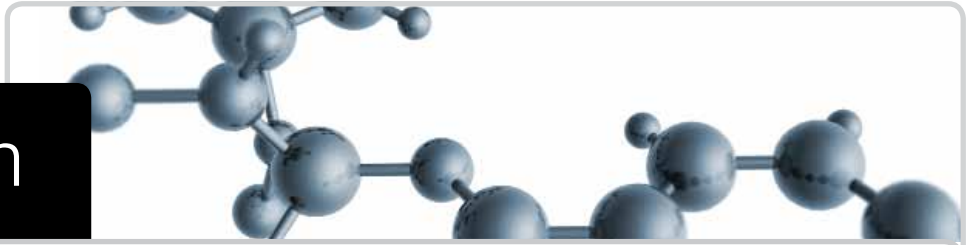


BIOPROCESS

Up Stream & Down Stream

 **THURNE**
TEKNIK

Up Stream

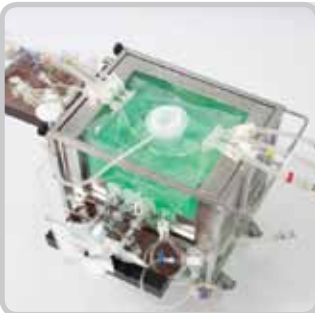


BIOREACTORS & FERMENTERS

Classical stirred tank bioreactors & fermenters suitable for microbial, yeast, algae, plant and animal cells are offered in all sizes from laboratory to production.

Technical details:

Either as stand alone unit or as part of a complete system (seed to harvest), all controlled by one control system.



SINGLE-USE BIOREACTOR

The single-use bioreactor is perfectly suited for laboratory environments, process development centers, clinical material supply and flexible GMP manufacturing.

Technical details:

Available vessel sizes: 25, 50, 250, 600 and 1200 L. Spargers can be integrated with mixing paddle.



GAS / VENT FILTERS

Filters for sterile air/gas can be used in applications such as cultivation and fermentation, filling machines as well as venting of gas from storage tanks.

Technical details:

Both capsules and cartridges available in sizes ranging from 1,5" to 30" and in materials PTFE, glass fiber, impregnated glass fiber.



POWDER CHARGING

Flexible, transparent, funnel-shaped bags with tri-clamp interfaces for powder storage and transfer applications such as media, buffers and pharmaceutical ingredients.

Technical details:

Bag capacity from 5 to 100 L with tri-clamp connector sizes from 2" to 6". All bags are 100% integrity tested and made of antistatic contact film.



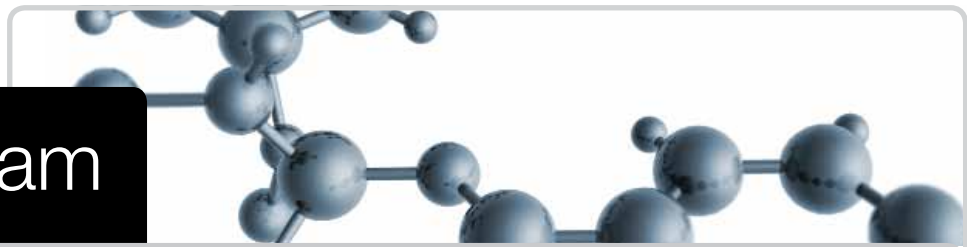
COMPONENTS

A full range of peripherals, accessories, probes and measuring systems and components is offered for bioreactors & fermenters.

Technical details:

Examples include CIP-valve, sampling systems, foam separator systems, mobile CIP systems and magnetic and direct drive stirrer systems.

Down Stream



PRE-FILTRATION

A comprehensive range of protection filtration solutions including everything from clarification to pre-filtration in different filter media and their combinations.

Technical details:

Filter capsules and cartridges in a wide range of different pore sizes and surface areas.



FINAL FILTRATION

Highly validated filter units adapted to final filtration in critical applications. All filter units are designed to be integrity tested.

Technical details:

Sterilizing grade filter range based on PES membrane, demonstrating high flow and high capacity performance in critical applications. For ophthalmic applications a hydrophilic PTFE membrane is used, giving low preservative binding and retention of diminutive organisms.



TFF REUSABLE & SINGLE USE FILTER MODULES

TFF-filter cassettes offer both microfiltration and ultrafiltration range of cross-flow membranes both in traditional, re-usable format or in fully disposable format for ease of use and less validation required.

Technical details:

Cut-offs from 1 kD to 0,65 um in PES membranes. Filter cassettes starting from 0,01 m² up to 2,5 m².



SINGLE-USE MIXING

Mobile, flexible mixing systems allow efficient and reproducible mixing of a broad range of volumes and a wide series of Life Science applications.

Technical details:

Five different mixing technologies (Pad-Drive, LevMixer, Magnetic Mixer, WandMixer and Jet-Drive) cover mixing volumes from 2 to 2000 L.



STORAGE BAGS 2D & 3D

The bioprocess vessel (BPV) products have been developed to meet the demand for cost-effective, scalable single-use liquid storage containers.

Technical details:

For 2D, size range is 1 to 50 L and for 3D, size range is 100 to 1000 L. Same film is used as for single-use bioreactors and single-use mixings systems.

Down Stream



DISPOSABLE SENSORS

The sensors - pressure, conductivity and temperature - provide high precision sensing capabilities in a compact, disposable package also suitable for reuse.

Technical details:

Pre-calibrated, certified calibration, gamma-stable, autoclavable, NaOH stable, real-time documentation. Available in several sizes and connectors.



DYNAMIC CROSSFLOW FILTRATION

The DCF system works with overlapping rotating ceramic filter discs, which generate a turbulent differential flow of the feed towards the filter surface and minimize clogging.

Technical details:

High filtration throughput and handling of high viscosities compared to traditional TFF. Suitable for SIP and filtration in dead-end mode.



TRADITIONAL CROSS FLOW FILTRATION

A range covering user friendly complete TFF systems from laboratory to pilot plant and production scale applications is offered based on single-use technology.

Technical details:

Filter surface areas from 0.1 to 5 m². Suitable for cassettes from different suppliers.



PROCESS THERMOSTATS

Complete, turn-key stand alone units for heating/cooling applications in which the unit operates with a single heat transfer fluid and controls the temperature of the process.

Technical details:

Available from heating and cooling capacity from 1 kW and upward and with both water based and oil based heat transfer fluids.



PUMPS

The pumps provide high precision capabilities in a compact design. All pumps collect real-time data/graphing and can be programmed to monitor and control the process.

Technical details:

Capacities from few mL/min to 2,5 L/min and available with different pump heads (peristaltic, piston head, magnetic gear, "piggy-back" tandem, q-piston).

Down Stream



PLATE & FRAME FILTER SYSTEMS AND FILTER SHEETS

The filter sheets, with or without filter aids such as DE and perlites, provide high dirt holding capacity and wide range of filtration ratings from coarse pre-filtration up to fine filtration towards the end of the process.

Technical details:

Filter systems from 200x200 to 1200x1200mm filter sheets + special designs available. Filtration ratings from 0,2 to 35 um.



SINGLE USE LENTICULAR FILTER FOR CELL SEPARATION

A lenticular filter module in fully disposable format is now available specially designed for cell harvesting. Gentle alternative to centrifugation.

Technical details:

Fully scalable from 0,02 up to 2 m2 filter units. Pharma grade filter aid is included within the filter units.

Service & Support



INTEGRITY TESTING

As an added value, we offer integrity testing of filters, both gas and liquid, on customer site or by customer sending the filters to us.

FILTER SCHOOL

It is one thing to understand a filter itself as a product, and it is another thing to understand how it works when fulfilling a filtration task. Therefore, we offer a basic filtration course to explain the theoretical background of separation by filtration.

The theory is varied with practical examples. Duration of the course is half a day. For more information check our website.



CUSTOMIZED SOLUTIONS

Many processes deliver optimal results only when customized process equipment is used. Therefore, especially on the single-use technology, we design tailor made solutions to fit its purpose at its very best.



SUPPLIERS

Up Stream & Down Stream



Some equipment may not be available from Thurne Teknik in certain geographical areas.

A network for life.

In the beginning of the year 2000, Thurne Teknik started to build up the program for the Biotech Industry by cooperation with Bioengineering.

In the same way as for our technology group Chemical Process, Thurne Teknik started with the heart of the process, the bioreactor or fermenter. Since then we have continuously developed our program and included buffer preparation, media handling, process filters, pre-filters, membrane technology and all kinds of Single Use Technology.

We are proud to present our partners below:



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