

BIOPHARMA

Filtration and mixing solutions



DrM

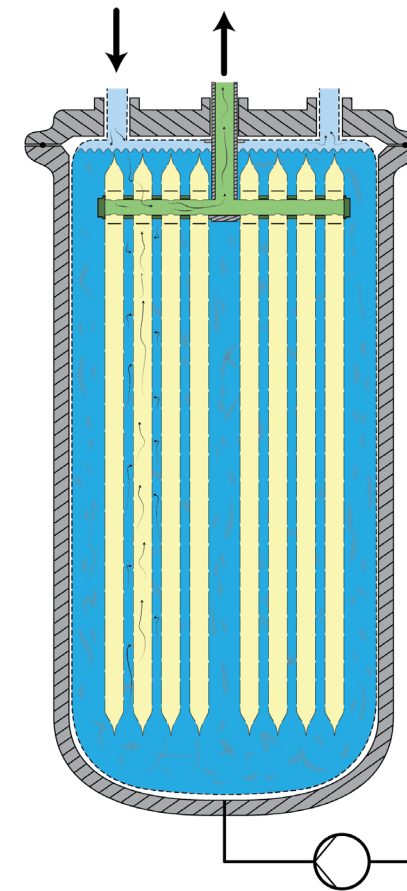
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FUNDABAC® SU

Single-Use filtration systems

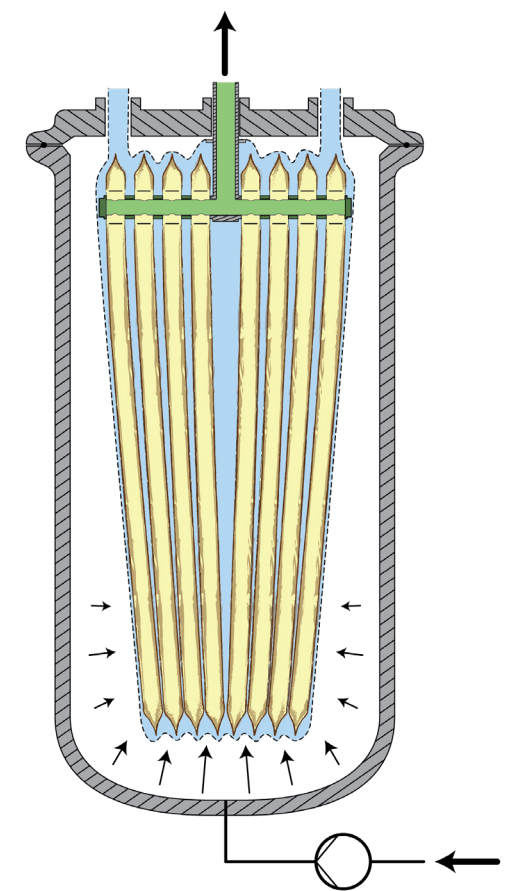
DrM's new single-use filter type, FUNDABAC® SU, consists of large surface area filter elements, packed into a fully contained plastic enclosure. It is a clever alternative to disposable filter cartridges for harvest and purification in biopharmaceutical processes.

The increased surface area boosts the filtration efficiency and results in a higher throughput. All exposed plastic surfaces are pre-sterilised and validated which makes CIP/SIP redundant. The filter bag is installed in a pressure vessel during filtration. This design opens up the possibility to compress the filter bag by applying an external pressure, resulting in very low liquid heel. The unique design allows either a once through filtration or a multi-cycle operation, where the cake can be back-flushed and accumulated on the bottom of the bag. Finally, the compressed bag, including the solid waste, is in very compact form and can be removed and safely disposed of.



Filtration

During filtration, the suspension is flowing into the filter bag and is filtered through the filter membranes. The filtrate can be extracted through a manifold.



Heel Filtration

After solid-liquid filtration is completed, air is pressed into the pressure vessel to squeeze the bag onto the filter elements. This reduces the liquid heel significantly.

Key advantages

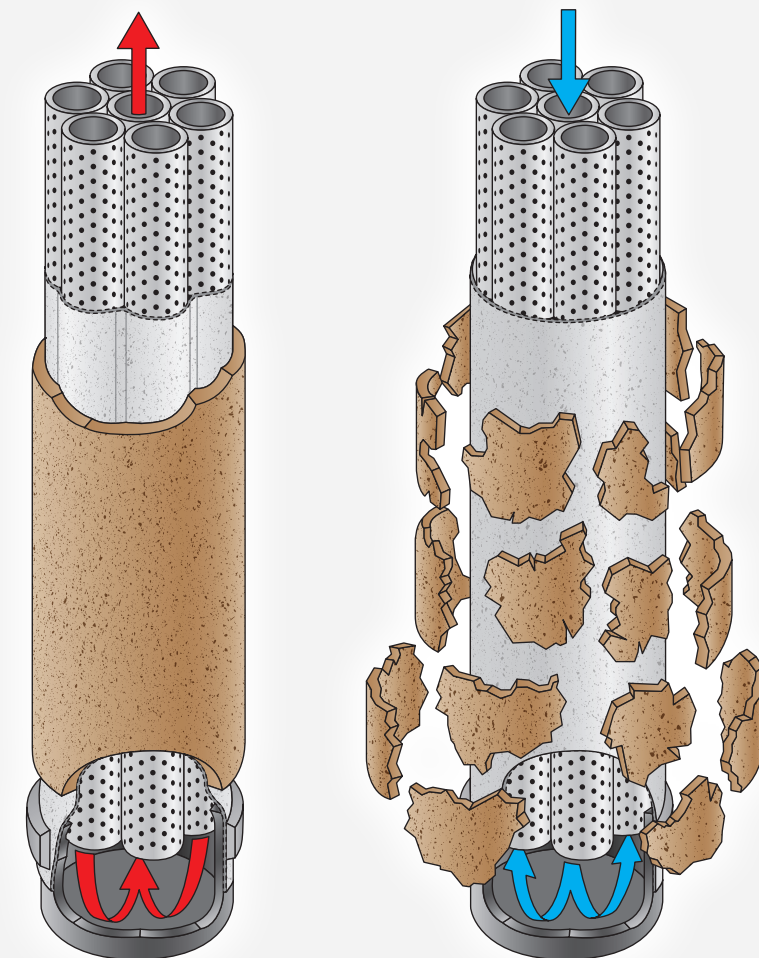
- High throughput
- Increased yield
- Robustness
- Decreased reactor downtime due to reduced cleaning and validation requirements
- Pre-sterilised and validated filter enclosure
- Reduced heel volume and compaction of solid waste due to the external pressure
- Fully enclosed containment made completely with plastics ensures safe handling and disposal of hazardous compounds

STERIBAC®

Hygienic automated systems

The well known technology of conventional DrM FUNDABAC® Filters is also the core of the STERIBAC® Filter; a permanent filtration system specifically designed for cGMP applications. STERIBAC® Filters are closed, automatic systems with no rotating parts, suitable for CIP/SIP, with no residual product heel ensuring batch integrity.

The design of internals is a development of the FUNDABAC® and features: a polished surface down to $Ra=0.2\text{ }\mu\text{m}$, a crevice-free candle shape, an extractable centre tube for quick disassembly and thorough cleaning and a bayonet coupling between the candle and register.



Formation and drying of the filter cake with DrM's automated FUNDABAC® candle filter system.

Key advantages

STERIBAC® Filters are the ideal solid-liquid separation equipment for API production processes, such as:

- Separation of biomass from fermentation slurries
- Separation of precipitates in downstream processes
- Separation of activated carbon or catalyst
- Separation and washing of crystals

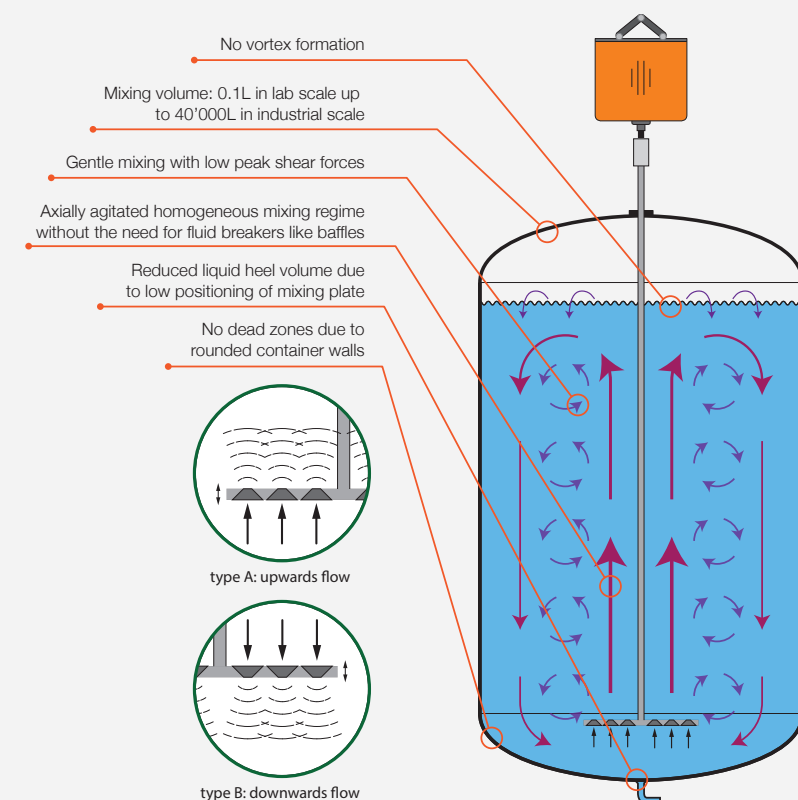
FUNDAMIX®

Vibratory mixing systems

FUNDAMIX® – Mixing systems

The FUNDAMIX®, also called Vibromixer, is a sophisticated mixing device that generates its mixing effect by vibrating a plate with conical bores. The oscillation of the plate causes the liquid to be pumped through the holes according to the Bernoulli effect. Its key advantages include low shear forces with a high mixing effect and high sterility due to the absence of rotating parts, resulting in low contamination risk. This mixing device is perfectly suitable for CIP and SIP and has very low energy consumption and maintenance costs.

Over 1900 systems are in operation for demanding applications such as insulin manufacture, blood plasma fractionation, vaccine production and many more.



Key advantages

- No rotating parts (low maintenance costs and less risk for contamination)
- No mechanical seal
- Efficient mixing
- Low shear force
- Simple installation
- Long service life

FUNDAMIX® SU

Single-Use vibratory mixing systems

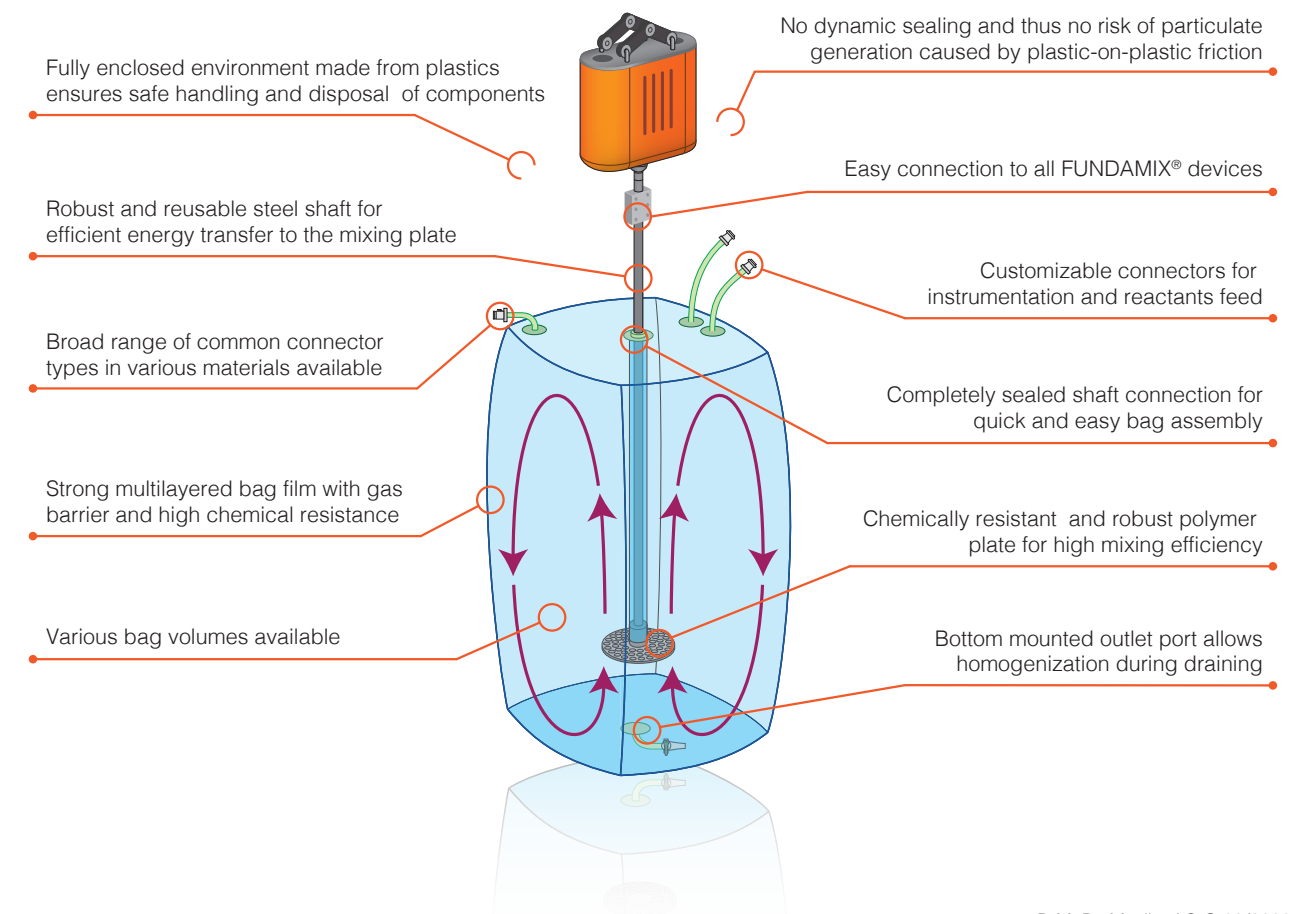
FUNDAMIX® SU – Mixing technology

DrM has developed a new type of single-use mixing device, the FUNDAMIX® SU system, which combines the proven FUNDAMIX® mixing technology (over 1900 stainless steel executions) with the advantages of a closed and disposable plastic enclosure. A wide range

of different connections allows for a modular and very flexible approach in the design of the production chain. The bags are delivered sterilized and therefore cleaning/sterilization processes as CIP/SIP is no longer necessary.

Key advantages

The FUNDAMIX® SU mixing technology provides the following benefits, in addition to the main advantages of the conventional FUNDAMIX® technology:





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