

LABORATORY FILTRATION SYSTEMS

The indispensable bench tools for a successful scale-up



DrM

www.drm.ch

Lab Systems



This is DrM

Customized solutions

Each solid-liquid separation system is tailor made to the specific application parameters of our clients. We view every application as a challenge to satisfy our clients, regardless if the application is straight forward or complex.

Application comprehension

Every solid-liquid separation application is unique. DrM's comprehension of all of the applications begins with a discussion with the client and is followed by a request that the client complete an application questionnaire to the best of its ability. Following a review of the information submitted by the client, DrM application specialists may suggest that on-site testing and/or piloting be carried out. This hands-on work ultimately gives both DrM and its clients the confidence that the process is scalable. It also puts DrM in a position to submit a technical/commercial proposal that it will stand behind.

Quality above all

DrM's Quality System is ISO 9001 certified for the design and manufacture plants. We are dedicated to continually improving the efficiency and the effectiveness of our quality management system. All of our products follow a rigid quality control program that employs the most current testing and inspection methods prior to shipment.

Lab filter units

The TSD (Totally Scaled Down) Pocket Filter offers the same features as the full-scale industrial FUNDABAC® Filter but on a bench scale. The unique features of the full scale FUNDABAC® filter candle (OD 82 mm) have been scaled down to 30 mm. The same types of filter media used on the industrial filter have been made available for the TSD. The filters have the same functions: filtration, cake washing under pressure and solids discharge either as a slurry by back-wash or as a dry cake.

The TSD enables the chemist to demonstrate process concepts to the chemical engineer and the project manager. The chemist's work will even demonstrate the optimum manner of cake discharge. The filter ability can be determined at various cake thicknesses and pressures as well as the correct levels of pre-coat and body feed to be used. The heating/cooling jacket (SS execution only) further enhances the flexibility of the TSD Pocket Filter.



TSD STAINLESS STEEL		850151.88
Material	SS 316L	
Filter Area (m ²)	0.012	
Filling Volume (lt)	0.95	
Weight (kg)	10.7	
Max. Pressure (barg)	-1/20	
Max. Temperature (°C)	250	
Heating jacket	Yes	
Accessories	Filter candle, various ball valves, pressure gauge, gas flow meter, gas pressure reducers, gaskets in FKM or PTFE	



TSD - XL STAINLESS STEEL		850218.88
Material	SS 316L	
Filter Area (m ²)	0.048	
Filling Volume (lt)	4.5	
Weight (kg)	15.2	
Max. Pressure (barg)	-1/10	
Max. Temperature (°C)	250	
Heating jacket	yes	
Accessories	Filter candle, various ball valves, pressure gauge, gas flow meter, gas pressure reducers, gaskets in FKM or PTFE	



TSD PVDF		850150.31
Material	PVDF	
Filter Area (m ²)	0.012	
Filling Volume (lt)	0.95	
Weight (kg)	7.3	
Max. Pressure (barg)	5	
Max. Temperature (°C)	80	
Heating jacket	No	
Accessories	Filter candle, various ball valves, pressure gauge, gas flow meter, gas pressure reducers, gaskets in FKM or PTFE	

TSD FEED TANK STAINLESS STEEL

850149.88



850139.88

881139.00 / 881140.00 / 881141.00

Custom designed feed tank for perfect integration with the DrM TSD lab filter and pump.



Material	SS 316L
Volume Vessel / Jacket (lt)	20.3 / 3.2
Max. Pressure vessel / Jacket (barg)	0.95 / 5.2
Max. Temperature (°C)	160
Weight (kg)	~25
Agitation options:	<ol style="list-style-type: none"> 1. Pneumatic mixer, 6 barg max drive gas pressure 2. FUNDAMIX® type 1 (see page 10)

NUTSCHE STAINLESS STEEL

850226.35



For initial evaluation of the suspension and preliminary selection of the most suitable filter cloth, Nutsche type pressure filters are available.

Material	SS 316L
Filter Area (m²)	0.001
Filling Volume (lt)	0.2
Weight (kg)	6
Max. Pressure (barg)	30
Max. Temperature (°C)	200
Heating jacket	Yes
Accessories	Ball valve, pressure gauge, gas pressure reducer

NUTSCHE PVDF

850228.31



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Material	PVDF
Filter Area (m²)	0.001
Filling Volume (lt)	0.2
Weight (kg)	5
Max. Pressure (barg)	6
Max. Temperature (°C)	80
Heating jacket	No
Accessories	Ball valve, pressure gauge, gas pressure reducer



TSD FEED PUMP STAINLESS STEEL

850158.04

For optimal feeding of TSD filters, DrM offers air-driven double diaphragm pumps in both stainless steel and PVDF.

Material body	SS 316L
Material membrane	PTFE
Max. Feed Flow (lt/min)	18.9
Max. Pressure (barg)	8.5
Lt/Stroke	0.02
Temperature (°C)	-25/+105
Accessories	Pulsation dampener, pressure regulator, mounting platform



TSD PVDF FEED PUMP

850158.31

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Material body	PVDF
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Max. Feed Flow (lt/min)	18.9
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PERISTALTIC PUMP

Execution	Stand-alone, integrated user panel with display
Product contact parts	Santoprene / SEBS
Max. Flow (L / min)	2
Max. Pressure (barg)	7
Max. Temperature (°C)	45
Power supply (V AC)	100-240
Note	<ol style="list-style-type: none"> 1. Manual, analog and digital input and output functionality 2. Tri clamp or hose barb fittings available 3. Other peristaltic pump types, materials and compliance on request



LEVITRONIX PUMP

Pump & Flow control arrangement consisting of:

Kit includes	<p>2 pumps for 0.01 - 3 L/min. at 0.1 - 5 bar (in serial installation), max. 19'000 rpm, wetted parts PTFE, 1 In-line Ultrasonic flow meter 0 - 0.8 or 0 - 8.0 L/min., wetted parts PP, max. operating temperature 60°C, clamp on sensors available on request, control system with 7" color touch screen, connections for one flow and 3 pressure sensors</p>
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EXTENSION KIT FOR STAINLESS STEEL TSD FILTER

850157.88

This option allows the installation of a longer TSD candle (212 mm, included in the kit) and doubles the filter area to 0.024 m².

Kit includes

- 10 pcs. Various cloths of extended length
- 1 FKM o-ring gasket
- 1 Vessel tri clamp
- 1 FKM profile gasket
- 1 PTFE profile gasket



EXTENSION KIT FOR GLASS TSD FILTER

850157.68

This option features a borosilicate glass vessel extension with SS 316L connections, allowing a direct view of the filtration process.

Kit includes

- 1 candle extension
- 1 vessel tri clamp
- 1 splinter protection
- 1 FKM profile gasket
- 1 PTFE profile gasket
- 1 Stand extension

Max. Pressure (barg)

6

Max. Temperature (°C)

150

Filling Volume (lt)

1.35

Length / Diameter (mm)

300 / 80

Weight (kg)

~5.6



AUXILIARY KIT FOR STAINLESS STEEL TSD FILTER

850223.00

Kit includes

- Various filter cloths
- Seal tape (Teflon)
- Clamps
- Pincer
- Gasket
- O-ring (Silicon/FEP)
- Various spanners
- Hexagonal screw wrench



AUXILIARY KIT FOR PVDF TSD FILTER

850224.00

Kit includes

- Various filter cloths
- Seal tape (Teflon)
- Clamp
- Pincer
- Screw joint-pneumatic
- Sealing section TSD PVDF
- O-ring (Silicon/FEP)
- Clamping ring
- Cable tie



AUXILIARY KIT FOR FOR STAINLESS STEEL XL TSD FILTER

850279.00

Kit includes

- Seal tape (Teflon)
- Clamp
- Pincer
- Screw joint-pneumatic
- O-ring (Silicon/FEP)
- Various spanners
- Filter cloths according to application



ASSEMBLY SET FOR STAINLESS STEEL TSD FILTER

850222.00

Kit includes

9 pcs. screw joints
9 pcs. support sleeves
10 m of \varnothing 6 x 1 mm PTFE pipe
1 PTFE seal tape roll



ASSEMBLY SET FOR PVDF TSD FILTER

850221.00

Kit includes

10 pcs. screw joints
10 pcs. support sleeves
10 m of \varnothing 6 x 1 mm PVDF pipe
1 PTFE seal tape roll



ASSEMBLY SET FOR STAINLESS STEEL NUTSCHE

850227.00

Kit includes

6 types of filter cloths (5 pcs. of each)
1 FKM gasket
1 Profile gasket
1 O-ring
1 Hook key
1 Filling T



ASSEMBLY SET FOR PVDF NUTSCHE

850273.00

Kit includes

6 types of filter cloths (5 pcs. of each)
1 FKM gasket
2 pcs. O-ring
1 Filling T



EXTENSION KIT FOR PRESSURE NUTSCHE

850229.88

Kit includes

1 Extension
1 Tri-Clamp
1 FKM gasket

Material body

316L

Max. Pressure (barg)

-1/30

Max. Temperature (°C)

200

Filling Volume (lt)

0.80



FILTER AID SELECTION

850480.00

Kit includes

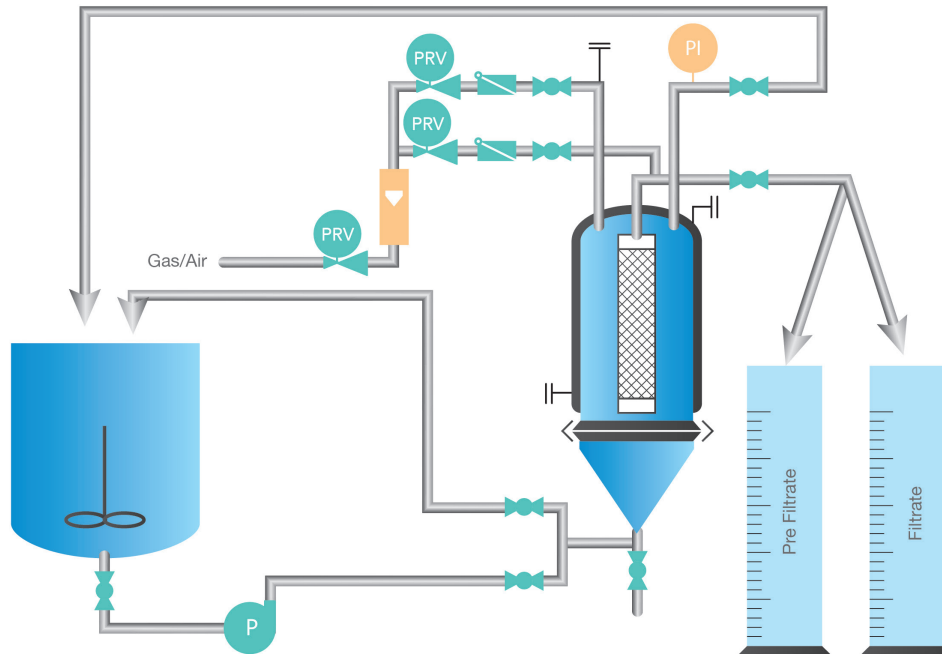
9 different filter aid bottles (100ml):

- Diatomite 50 - 115 mDarcy
- Diatomite 420 - 650 mDarcy
- Diatomite 1100 - 1700 mDarcy
- Diatomite 3200 - 4500 mDarcy
- Perlite 300 - 1200 mDarcy
- Perlite 1600 - 4000 mDarcy
- Cellulose 40 μ m fiber length
- Cellulose 200 μ m fiber length
- Activated Carbon

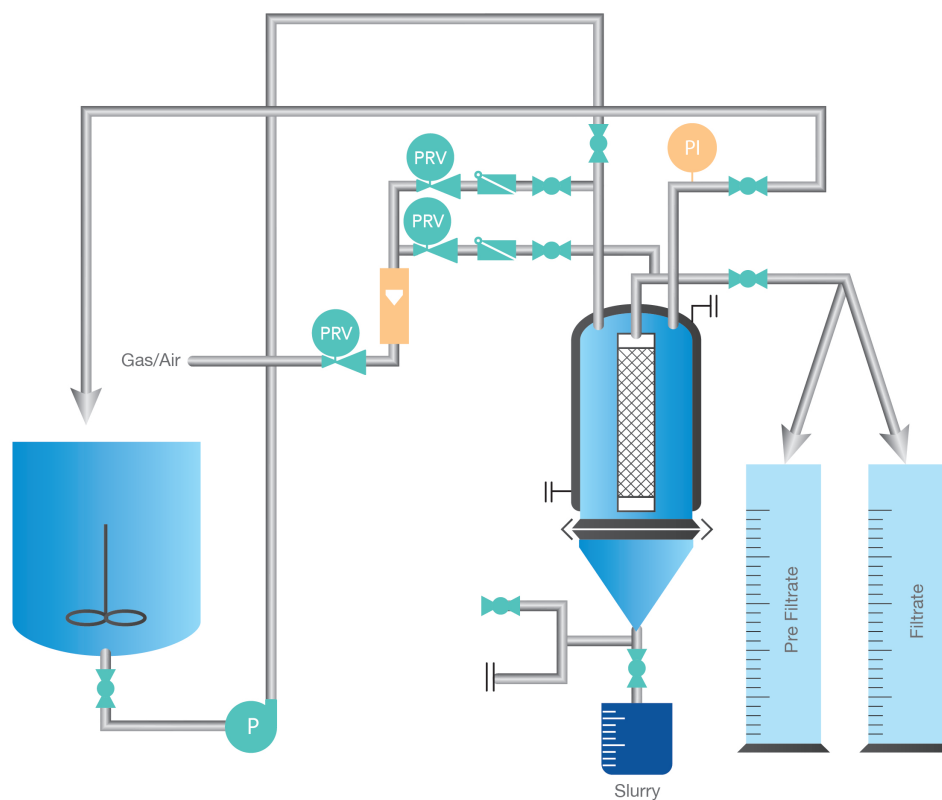
These are the only filter aid options, they cannot be exchanged.

Flow sheets

FUNDABAC® TSD Filter for dry cake discharge



CONTIBAC® TSD Filter for slurry cake discharge



FUNDAWAVE®

Lab crossflow filter unit

FUNDAWAVE® is a new filtration concept which targets applications that so far could not give satisfactory results with any type solid/liquid separation equipment. The equipment is based on the cross-flow principle with membrane-based filtering media adapted to specific filtration duties. The flow rate is maintained by constantly removing the solids layer forming on the membrane. In contrast to standard tangential flow filtration equipment (TFF) the cross-flow is accomplished by movement of the filter membrane across a stationary liquid.

FUNDAWAVE® vs. FUNDABAC®

For substances which are difficult to filter, the achievable flux rate is the decisive factor leading to a successful implementation of a filtration equipment. In a FUNDABAC® Filter with typical cycle times of 30-120 min., the long cake build-up time can cause diminishing flux rates due to the cake resistance.

The CONTIBAC® Filter is an improvement to this shortcoming, as the cake build up time is reduced and the filtration cycles shorter. It can run at 5-10 cycles per hour, which increases the overall flux rate.

The FUNDAWAVE® goes one step further where the actual filtration cycles are reduced to a period many times shorter than a CONTIBAC®. As a matter of fact we are talking about cycles at a fraction of a second. In other words the cake is being removed many times per second. These extremely short cycles open up completely new possibilities. It allows filtration of solids which, under normal circumstances would very quickly block the filtering media once a cake layer is formed. The required pressure drops are factors lower than in a dead end filtration. This prevents build up of solid cakes which are difficult to remove. As there is essentially no cake being formed the filtering elements can be packed very closely which reduces module size and liquid hold up.



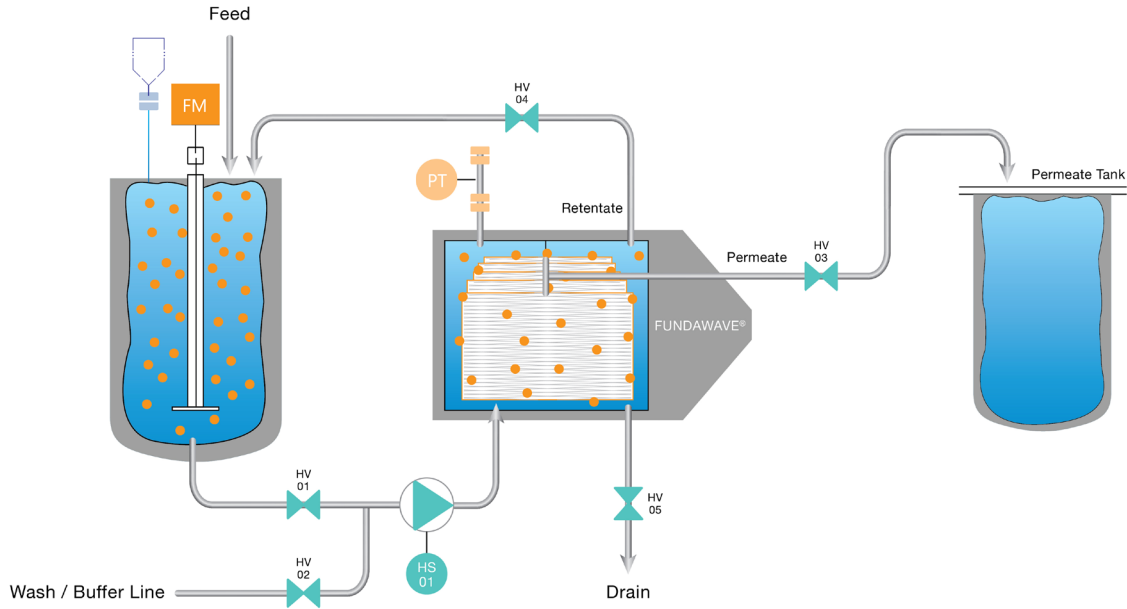
FUNDAWAVE® LABORATORY UNIT

806005.57

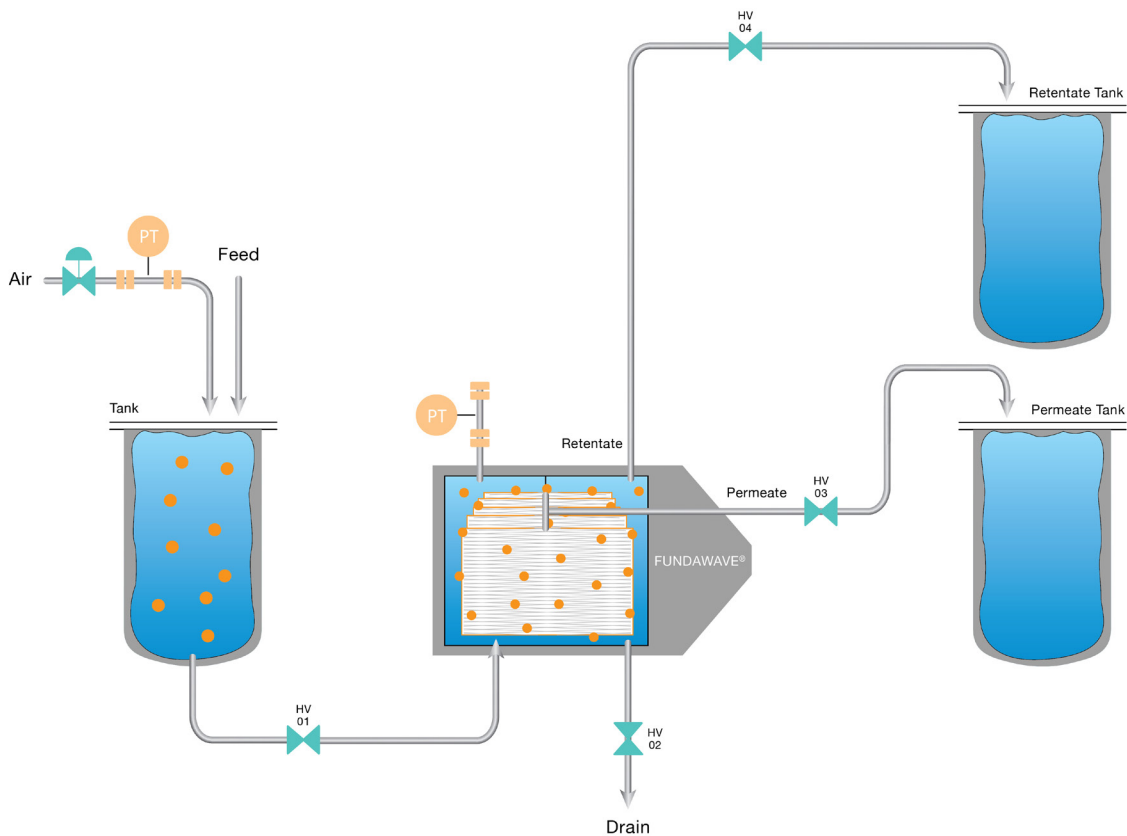
Filter Area	0.35 m ²
PVC housing operating conditions	3 barg max. 55 °C,
Filter elements	Polypropylene
Membrane	full range as for industrial size
Motor	230 VAC / 40 W
Oscillation frequency	20 Hz
Add-on equipment	Feed Tank 9 lt, stainless steel with feed pressure regulator, pressure relief valve, fittings, valves and hoses

Flow sheets

FUNDAWAVE® paired with FUNDAMIX®



FUNDAWAVE® paired with a pressurized feed tank





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