

Ronningen-Petter

Mechanically Cleaned Filter Systems



A revolutionary solution that keeps getting better

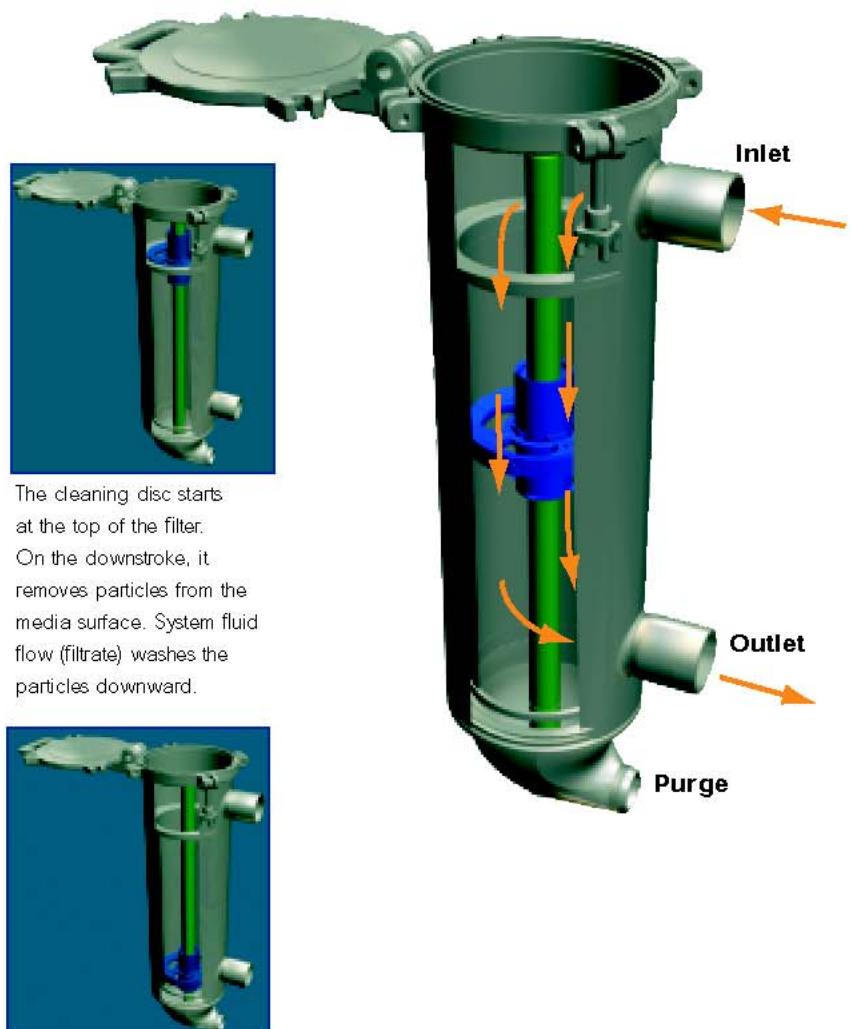
In 1991, we introduced the Ronningen-Petter family of mechanically cleaned filters. Designed to address the challenges of increasing environmental pressures, loss of valuable product, and operator safety, the DCF was like no other filtration system.

Since then, RPA Process Technologies has continued to refine and improve this breakthrough product - with thousands of systems installed to date. Our patented technology delivers a number of unique advantages. And, new product features and available options make the best mechanically cleaned filtration solution even better.

Collect, concentrate, and expel: how it works

Ronningen-Petter mechanically cleaned filters are based on a simple concept: A cylindrical stainless steel housing contains a filter screen; unfiltered liquids enter the inlet; solids are deposited on the interior surface of the filtration media; and filtered fluid exits at the outlet.

When the media requires cleaning (based on time, pressure differential, or manual selection), a cleaning disc travels down and up the screen, removing concentrated solids. This cleaning process happens while the filter remains in service, thereby maintaining process efficiency and dramatically reducing loss of valuable product.



The cleaning disc starts at the top of the filter. On the downstroke, it removes particles from the media surface. System fluid flow (filtrate) washes the particles downward.



Next, the cleaning disc returns to the top of the filter, cleaning the media and reintroducing the contaminant into the downward flow path. Highly concentrated solids can then be purged quickly and easily.

Ronningen-Petter Mechanically Cleaned Advantages

Feature	Benefit
Eliminates the need for disposable media including bags and cartridges	Reduced disposal costs, material loss, labor, exposure, and inventory
Linear down-and-up cleaning motion	Provides a constant, low differential pressure and more thorough contaminant purge
No service interruption for cleaning	Maximum uptime for increased profit
Choice of actuation methods and sealing systems	Match the system to your process and budget needs
Space-saving footprint	Fits in almost any installation
Choice of permanent cleanable media	Enables removal of a wide range of contaminants - including difficult gels and fibers

Cleanable media - a better alternative

The focus of our mechanically cleaned systems is the return on your investment they deliver. Most users experience tremendously short payback periods - a benefit driven by four key factors:

- Eliminated media disposal costs
- A highly concentrated waste stream
- Dramatically reduced product loss
- Reduced (or eliminated) operator intervention

Add it all up and it's easy to see why mechanically cleaned filtration is a prime example of leading-edge innovation from RPA Process Technologies.

A choice of actuation methods

Because no two applications are alike, we offer a wide range of actuation methods to meet the unique characteristics of your process.



MCF - this system features magnetically coupled actuation that eliminates the need for external seals. This reduces maintenance demands, and lengthens operating life.



Twin - Designed for highly viscous or abrasive liquids, our Twin Series isolates the actuation mechanism from the filtrate with a bridged actuation system. The benefit is a long operating life in challenging conditions. Various types of cartridge seals, along with an optional FluidSeal, keep the integrity of the seal.



Standard - Suitable for a broad range of conditions, our Standard Series delivers simple, reliable operation with water-like liquids. Standard designs are ideal where a low initial investment is a key driving factor. Various types of cartridge seals, along with an optional FluidSeal, keep the integrity of the seal.



2000 - The 2000 Series was designed specifically for paper coating applications. The 2000's mechanical rotating seal with water quench is optimized for its rotary actuation to deliver reliable, continuous operation.

A solution for many liquid processing challenges

Ronningen-Petter DCF filter

systems are offered in thousands of configurations to help meet a wide range of applications requiring filtration from 15 microns (.0006") to 6,360 microns (.25") for liquids up to 1,000,000 centipoise. Because the surface area of the media is larger than the inlet, our mechanically cleaned systems operate at consistently low differential pressure.



MCF

The MCF features an innovative design driven by a magnetically coupled cleaning disc. This actuation method eliminates the need for lid thru-holes and their associated seals. MCF was designed specifically for the most challenging process liquids and conditions, and features the fastest cleaning action of the mechanically cleaned family.



Twin Series

Designed for the rigors of processing highly viscous, abrasive, sticky, or otherwise hard-to-process liquids, the Twin is ideal for a broad spectrum of challenging applications. Systems are available in 800 and 1600 sizes, to accommodate a wide range of flow and retention requirements to fit your application.



DCF 1600
Twin



DCF 400



DCF 800

Standard Series

When processing water and water-like liquids where a low initial investment is demanded, the Standard Series delivers tremendous benefits. Available in 400, 800, and 1600 models, the Standard Series enables operation at a vast range of flow rates and retentions.



DCF 1600

Comparison Chart

	DCF 400	DCF 800	DCF 1600	DCF 2000	MCF
Total Volumetric Capacity	0.94 gal (3.5 liters)	3.9 gal (14.8 liters)	11 gal (41.6 liters)	11 gal (41.6 liters)	11 gal (41.6 liters)
Purge Chamber Capacity	4 fl. oz (119 ml)	25 fl. oz (0.74 liters)	1.5 gal (6 liters)	1.5 gal (6 liters)	1.3 gal (5 liters)
Filtration Surface Area	112 in ² (722 cm ²)	264 in ² (1703 cm ²)	610 in ² (3935 cm ²)	610 in ² (3935 cm ²)	610 in ² (3935 cm ²)
Flow Rate Range at 100psi	2–30 gpm 0.45–6.8 m ³ /hr	10–60 gpm 2.27–13.6 m ³ /hr	30–200 gpm 6.8–45.4 m ³ /hr	30–200 gpm 6.8–45.4 m ³ /hr	30–200 gpm 6.8–45.4 m ³ /hr
Temperature, maximum *	400° F (204° C)	400° F (204° C)	400° F (204° C)	180° F (82° C)	180° F (82° C) **
Pressure, maximum	300 psi (21 bar)	150 psi (2–10.5 bar) standard	-----	-----	-----
Single Unit Weight	35 lbs (16 kg)	75 lbs (34 kg)	215 lbs (97.5 kg)	564 lbs (256 kg)	200 lbs (91 kg)
Service Height	61.25" (1556 mm)	69.25" (1760 mm)	102" (2591 mm)	72" (1829 mm)	72" (1829 mm)
Service Requirements					
Air for Actuator Drive, min.	400/800 = 60 psi at 5 cfm (4 bar @ 8.5 m ³ /min) 1600/MCF = 80 psi at 5 cfm (5 bar @ 8.5 m ³ /min)				
Electrical for Controllers	Control for all four models, automated only, 110/220V, 50/60 Hz, single phase				
Electrical for Motor Drive	Control option for DCF 2000 only, single phase 110/220V, 50/60 Hz for control and three phase 220/380/440/575V (please specify), 50/60 Hz for motor.				

*Dependent on elastomer seal selection
**450° F (232° C) capability also available.
Ask your representative.



DCF 2000 Series

The DCF 2000 Series was designed specifically for the needs of the pulp and papermaking industry. With a rugged motorized cleaning action, the DCF 2000 can handle the continuous processing requirements of protecting critical wet-end coating operations.



A range of media and configuration options to adapt

At RPA Process Technologies, we understand the impact your filtration system can have on your process. That's why we offer our mechanically cleaned systems with several media options and with a full spectrum of standard and optional features.

You can custom-configure a system to precisely fit the demands of your application and process. And our experienced team can help seamlessly integrate a filtration solution into your new or existing application for optimum performance.

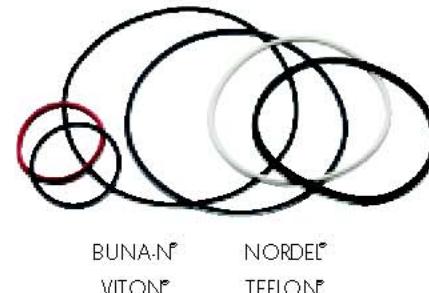
Disc and seal choices to meet your needs

To meet the widest range of operating conditions and process liquid characteristics, Ronningen-Petter mechanically cleaned systems are available with a number of cleaning disc, lid, and element seal elastomers.

Cleaning disc

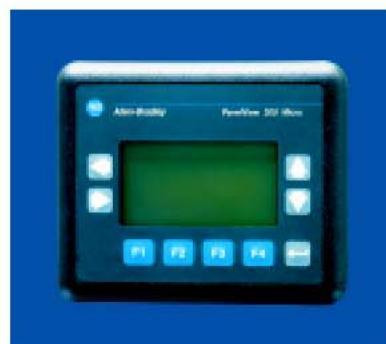


Lid and element seals



Control system choices

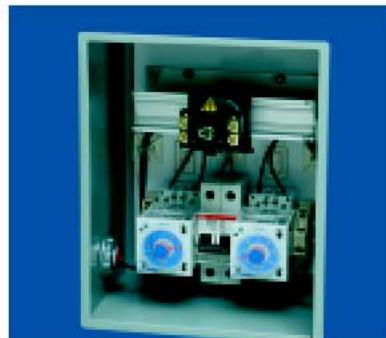
The control options for mechanically cleaned filters are as broad as the applications they serve. Available controllers include:



PLC microcomputer control delivers programmable standalone performance or can integrate with control networks.



Continuous Cleaning Valve (CCV) is the standard configuration where the cleaning disc continuously cycles, driven by shop airflow. Purge is controlled by a manual valve or push-button.



Electric timer for timed stroke (single) or stroke and purge (dual) in a NEMA 4, 7, or 12-rated enclosure.



Semi-automatic electric control units for use with customersupplied controls for stroke and purge.

Media - it's what's inside that counts

At RPA Process Technologies, we understand that a superior filter is powered by superior media. The DCF Series offers slotted-wedge wire, defined-pore, or perforated media.

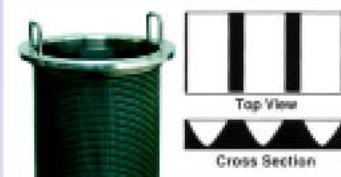
Media Retentions

Type	Inch	Micron	Mesh	% Open Area
Slotted	.0006"	15	—	1
Wedge	.001"	25	—	2
Wire	.0015"	38	400	3
	.002"	50	325	4
	.003"	75	200	6
	.004"	100	150	8
	.006"	150	100	11
	.007"	180	80	13
	.008"	200	70	14
	.009"	230	60	16
	.015"	380	40	24
	.024"	600	30	34
	.030"	700	20	39
	.045"	1140	15	49
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Defined Pore	.001"	25	400	No direct flow path.
	.0015"	38	325	
	.002"	50	200	
	.003"	75	150	No real value for
	.004"	100	100	% open area.
	.006"	150	80	
	.009"	230	70	
	.015"	380	60	
	.024"	610	40	
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Perforated	1/16"	1575	12	40
	1/8"	3175	6	40
	1/4"	6360	3	57



Our patented circular cleaning disc design (MCF design shown here) ensures intimate contact with the screen to thoroughly and uniformly clean the media.

Media Options



Slotted Wedge Wire

DCF filter screens feature special wedge wire that is honed perfectly circular to guarantee contact with the cleaning disc so the slot openings are smallest at the screen's surface. This design helps prevent particle plugging of the slot openings while assuring total rated solids removal.



Defined Pore

The tortuous path design of our defined pore media enables elimination of difficult-to-filter gels. Our media is also calendered flat to ensure a uniform, defined pore size.



Perforated

Perforated screens feature precise and uniform perforation patterns for complete removal of larger solids.

Other system options

To ensure your system precisely meets your processing needs, we offer a number of additional customization options, including:

- Multi-station configuration
- Steam-jacketed housings
- ASME Code units
- Stealth purge option to minimize pressure drop
- Automatic pressure transmitters
- Purge welding, internal and external polishing
- Higher pressure units
- Air bleed capability

RPA Process Technologies welcomes custom requests. If you need special elastomers, piping configurations, or alternate options, contact RPA or your local representative for more information.