

Mechanically Cleaned Filters and Strainers

DCF, MCF, MCS

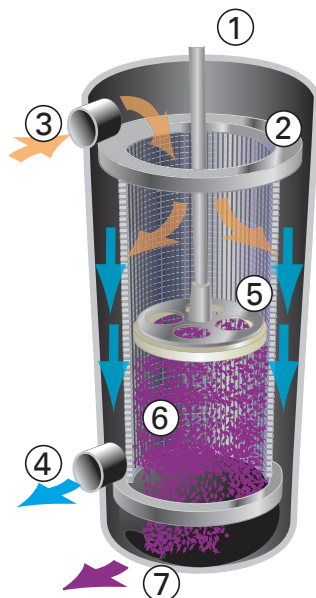
Unbeatable reliability
with measurable ROI

PERMANENT MEDIA WITH DISC CLEANING TECHNOLOGY

- Elimination of or reduction in disposable filter elements to reduce operator intervention, inventory costs and landfill waste
- Minimum contaminant purge for a reduction in product loss
- Reduction in or elimination of operator intervention for safer operation
- Virtually maintenance-free, negligible downtime
- Compact design, lower capital cost to fit most installations
- Choice of pneumatic, motor drive or magnetic actuation
- Stainless steel screens from 15-micron slots to 1/4" perforations to handle a wide range of filtration needs
- Short payback time and increased ROI



Eaton's unique spring-loaded cleaning disc (shown here in an MCS-500) ensures precise contact with the filtration screen to thoroughly and uniformly clean the media.



TYPICAL APPLICATIONS

- Paper coatings • PCC/GCC slurries • Phenolic resins • Detergents
- Petroleum-based greases • Ethanol processing • Hot fry oils
- CIP fluids (sodium hydroxide) • Starch • Lime slurries • Adhesives
- Curtain coaters • Nutraceuticals • Machining coolants • Paint
- Ink • Chocolate • Edible oils • Tallow

Collect, concentrate, expel

Eaton's mechanically cleaned filters are based on a simple concept: A cylindrical stainless steel housing (1) contains a filter screen (2); unfiltered liquids enter the inlet (3); solids are deposited on the interior surface of the filtration screen; and filtered fluid exits at the outlet (4).

When the media requires cleaning (based on time, differential pressure and manual selection), a spring-loaded cleaning disc (5) moves up and down, wiping the media clean of concentrated solids in both strokes. Once the debris is removed from the slotted screen, the cleaning disc directs the contaminant to the bottom of the housing (6) and out of the flow path (7).

This cleaning process happens while the filter remains in service, thereby maintaining process efficiency and dramatically reducing loss of valuable product.

Choice of actuation method

Pneumatic – The cleaning disc can be actuated by air pressure alone (5 bar @ 142 l/min.). DCF-800D and DCF-1600D models feature single or twin air cylinders. The smaller DCF-400D is equipped with a single cylinder.

Pneumatic with magnetic coupling – MCS and MCF series utilize magnets to eliminate the need for cover through-holes and their associated seals. This cost-effective method reduces maintenance and lengthens operating life.

Motorized – The DCF-2000 series uses a motor to drive the cleaning disc through higher viscosity fluids and other challenging conditions.



Powering Business Worldwide

Mechanically Cleaned Filters



DCF-1600D



DCF Series

When processing water and water-like liquids and a low initial investment is demanded, this series delivers tremendous benefits.

DCF-800D



DCF-2000

DCF with Twin Actuation

Designed for the rigours of processing highly viscous, abrasive, sticky or otherwise hard-to-process liquids, the Twin Actuation is ideal for a broad spectrum of challenging applications.



DCF-1600D with twin actuation

DCF-2000 Series

Designed specifically for the needs of the pulp and paper industry, the DCF-2000 features a rugged motorised cleaning action, which can handle the continuous processing requirements of protecting critical wet-end coating operations.

High-Flow MCS Strainer

Engineered to conserve valuable process water while protecting costly equipment from debris, the MCS features fast-cleaning magnetically coupled actuation. This high-flow strainer uses a magnetically coupled cleaning disc, which eliminates the need for cover thru-holes and their associated seals.



MCS-500

MCF Series

The MCF features a magnetically coupled cleaning disc, which eliminates the need for cover thru-holes and their associated seals. The MCF was designed specifically for the most challenging process liquids and conditions, and features the fastest cleaning action of the mechanically cleaned family.



MCF

	DCF-400D	DCF-800D	DCF-1600D	DCF-2000	MCF	MCS-500	MCS-1500
Total volume (litres)	4.6	15.0	42.0	41.6	41.6	70.8	186.2
Flow rate range at 100 µm (m³/h)	max. 4.5	max. 13.6	max. 45.4	max. 45.4	max. 45.4	max. 112.5	max. 337.5

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Disc Power

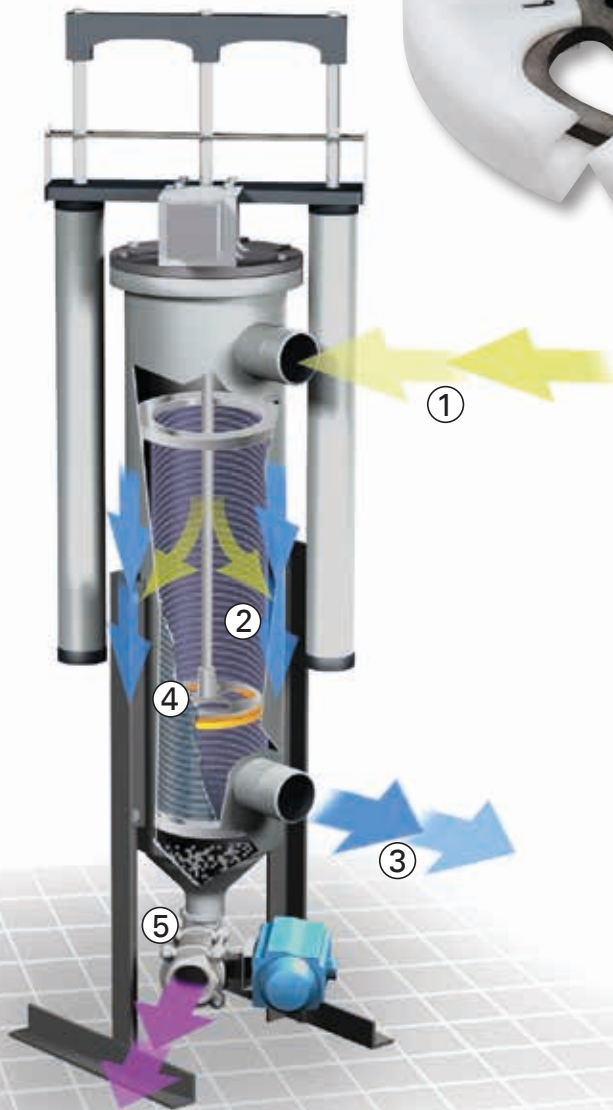


Our unique circular cleaning disc design (MCF series design shown) ensures precise contact with the screen to thoroughly and uniformly clean the media.

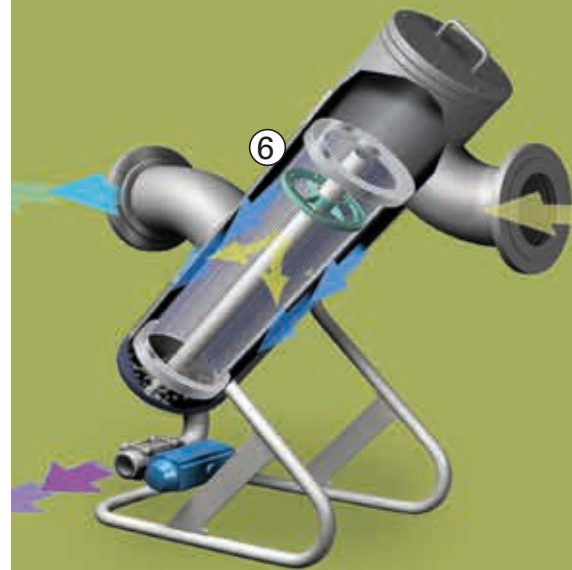
How it works

Eaton's 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 screen; and filtered fluid exits at the outlet.

When the media requires cleaning (based on time, differential pressure and manual selection), a spring-loaded cleaning disc moves up and down, wiping the media clean of concentrated solids in both strokes. Once the debris is removed from the slotted screen, the cleaning disc directs the contaminant to the bottom of the housing and out of the flow path. This cleaning process happens while the filter remains in service, thereby maintaining process efficiency and dramatically reducing loss of valuable product.



In Eaton's DCF mechanically cleaned filter unit, incoming fluids (1) are channelled from the interior cylinder through a wire screen (2) to the outer cylinder and out the discharge port (3). A cleaning disc (4) moves up and down inside the cylinder to periodically clear the filter screen. Particles are collected at the bottom of the housing where they can be discharged (5).



Eaton MCF and MCS units operate in much the same manner as DCF units, but add the advantage of a magnetically coupled disc mechanism (6). This unique design eliminates the need for internal seals and reduces maintenance costs.

TECHNICAL INFORMATION

Mechanically Cleaned Filters and Strainers



	DCF-400D	DCF-800D	DCF-1600D	DCF-2000	MCF	MCS-500	MCS-1500
Weight (kg)	approx. 21	approx. 45	approx. 156	approx. 256	approx. 91	approx. 159	approx. 352
Service height (mm)	approx. 1,460	approx. 1,800	approx. 2,720	approx. 2,031	approx. 1,875	approx. 1,686	approx. 2,576
Volumetric capacity (litres)	4.6	15.0	42.0	41.6	41.6	70.8	186.2
Purge chamber capacity (litres)	0.2	0.9	2.5	6	5	2.1	4.1
Filtration surface area (cm ²)	722	1,704	3,995	3,935	3,935	3,935	9,729
Flow rate range at 100 µm (m ³ /h)	4.5	13.6	45.4	45.4	45.4	max. 114	max. 342
Temperature, max (C)	200°	200°	200°	200°	82°	82°	82°
Pressure, max. (bar)	10	10	10	10	10	10	10

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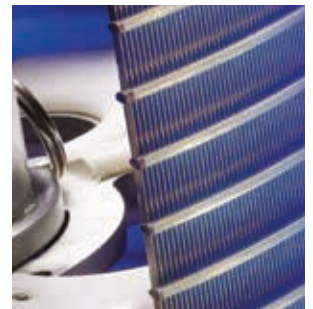
Cleanable Media and System Options

Selection of media retentions and degree of automation is easy with Eaton mechanically cleaned filtration systems. Choose from 15-micron filter elements to 1/4" strainers. Manual, semi-automatic and fully microprocessor-controlled systems can be configured to suit specific operations, and the range of internal and external components helps make Eaton systems a logical choice for long-term efficiency and cost control.

MEDIA ELEMENTS



Slotted wedge wire
DCF/MCF/MCS filter screens feature special wedge wire that is 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.



Perforated
Perforated screens feature precise and uniform perforation patterns for complete removal of larger solids. These elements are ideal for straining large volumes of viscous fluids. 1/16", 1/8" and 1/4" perforations are available.



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Mechanically Cleaned Filter Media and Options

MEDIA RETENTIONS

Slotted wedge wire

Inch	Micron	Mesh	% open area
.0006	15	—	2
.001	25	—	3
.0015	38	400	5
.002	50	325	6
.003	75	200	9
.004	100	150	12
.006	150	100	17
.007	180	80	19
.008	200	70	21
.009	230	60	23
.015	380	40	33
.024	600	30	44
.030	700	20	50
.045	1,140	15	60

Perforated

Inch	Micron	Mesh	% open area
1/16	1,575	12	40
1/8	3,175	6	40
1/4	6,360	3	57

Additional retentions available. Please contact Eaton.

CONTROL SYSTEM CHOICES

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

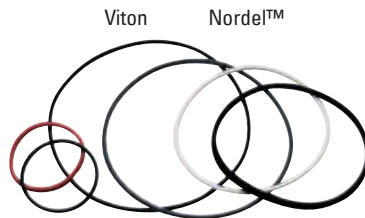
PLC or Smart Relay controls deliver programmable stand-alone performance; Eaton solutions range from Easy Relay to superior HMI PLC control packages. Customary PLC Options are also available on request.



DISC AND SEAL CHOICES

To meet the widest range of operating conditions and process liquid characteristics, Eaton mechanically cleaned systems are available with a number of cover and element seal elastomers and cleaning discs.

Cover and element seals



Cleaning discs



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