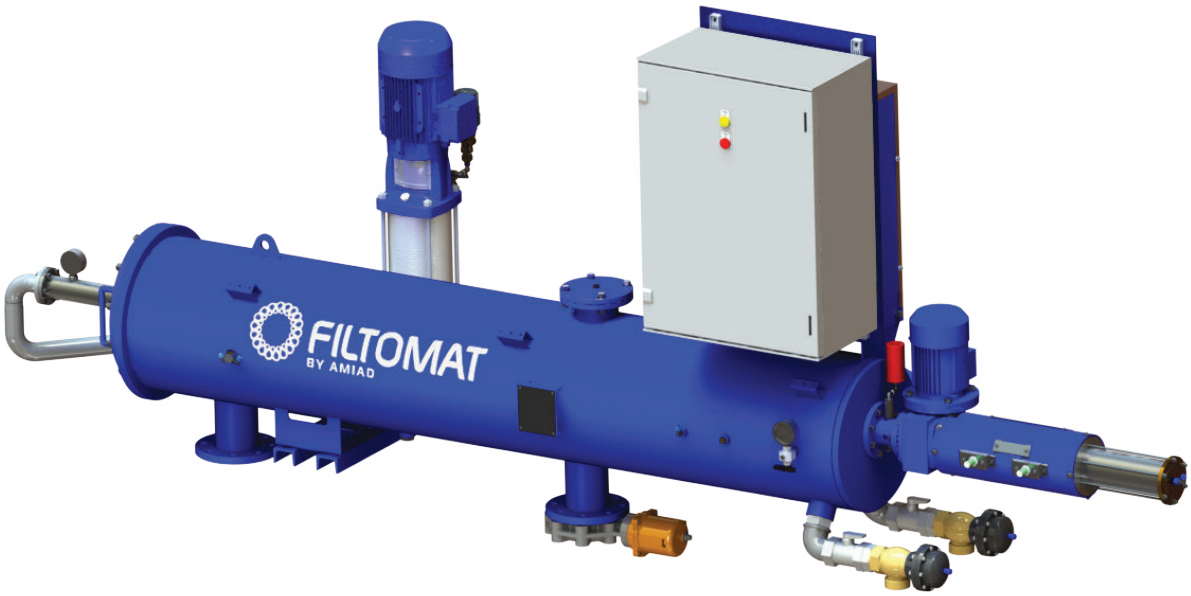
amiad® WATER SYSTEMS | FILTOMAT

MCFM Filters

Automatic self-cleaning filter for high flow rates and heavy dirt loads



flow rate per unit	filtration degrees*	reject water volume	minimum operating pressure
up to 2,200 gpm (500 m^3/h)	3,000–30 micron	35-88 gallon (8-20 m^3/h)	5.8 psi (0.4 bar)

features:

- Designed for heavy dirt load applications
- Unique cleaning mechanism, combining suction and jet scanning
- Outstanding results even in low pressure lines
- Electronically controlled self-cleaning algorithm responding to dirt load variations in real time
- Compact design supporting high flow rates
- Easy to install, operate and maintain

* For filtration degree of 30 micron, minimum working pressure is 21 psi (1.5 bar)

How the MCFM Filters Work

General

Amiad's MCFM filters are automatic filters with an optional continuous self-cleaning mechanism designed for high flow rates and heavy dirt loads.
The MCFM models support flow rates of up to 2,200 gpm (500 m^3/h), in filtration degrees of 3000 down to 30 micron and inlet/outlet diameters of 100-250 mm (4"-10").
The filtration process begins when raw water flows into the filter inlet and through the Coarse Screen (1).
Here, the water is pre-filtered in order to protect the cleaning mechanism from large debris. The water then passes on the inner surface of the fine screen; dirt particles are trapped and accumulate inside the filter while clean water flows out of the filter outlet.

The Self-Cleaning Process

The self-cleaning process of the MCFM is unique in its ability to handle heavy dirt loads, combining high pressure suction and jet action by use of the Booster Pump (10), effectively removing debris from both sides of the screen. The process is operated by a programmable logic controller (PLC), with an algorithm that shifts the cleaning process, back and forth, between the following modes according to the actual real-time dirt load on the filter.

1. Pressure Differential and/or Time Interval – This mode is active in inconsistent, moderate dirt load conditions. The cleaning process is activated according to the reading of the pressure differential across the filter's screen or by a pre-set time interval.

2. Continuous Flushing – This mode is active in persistent high dirt load conditions. The cleaning process is constantly active and the filter's PLC controls its intensity.

3. Super Flush – This mode is active when the Continuous Flushing mode is not sufficient to maintain a proper low pressure differential across the screen. A secondary Super Flush Valve (2) is activated to increase the suction force across the screen during flushing.

4. Reduced Flow – This mode is active (mostly momentary) when the Super Flush mode is not sufficient to maintain a proper low pressure differential across the screen. The flow of water through the filter's outlet is reduced by the Reduced Flow Automatic Valve (11) and therefore the pressure in the filter is increased. This enables the cleaning mechanism to cope with the exceptional momentary heavy dirt load.

The self-cleaning process continuously releases a small quantity of water to the atmosphere through the Flush Valve (3), creating a steady back-flush stream through the Fine Screen (4), the double acting Nozzles (5), the Collector Pipe (6), the Flushing Chamber (7) and out of the filter through the flush valve.

The Electric Drive Unit (8) rotates the collector pipe and the nozzles, while the Piston (9) moves the collector pipe back and forth. This spiral movement of the collector pipe ensures that the suction nozzles sweep the entire inner surface of the fine screen.

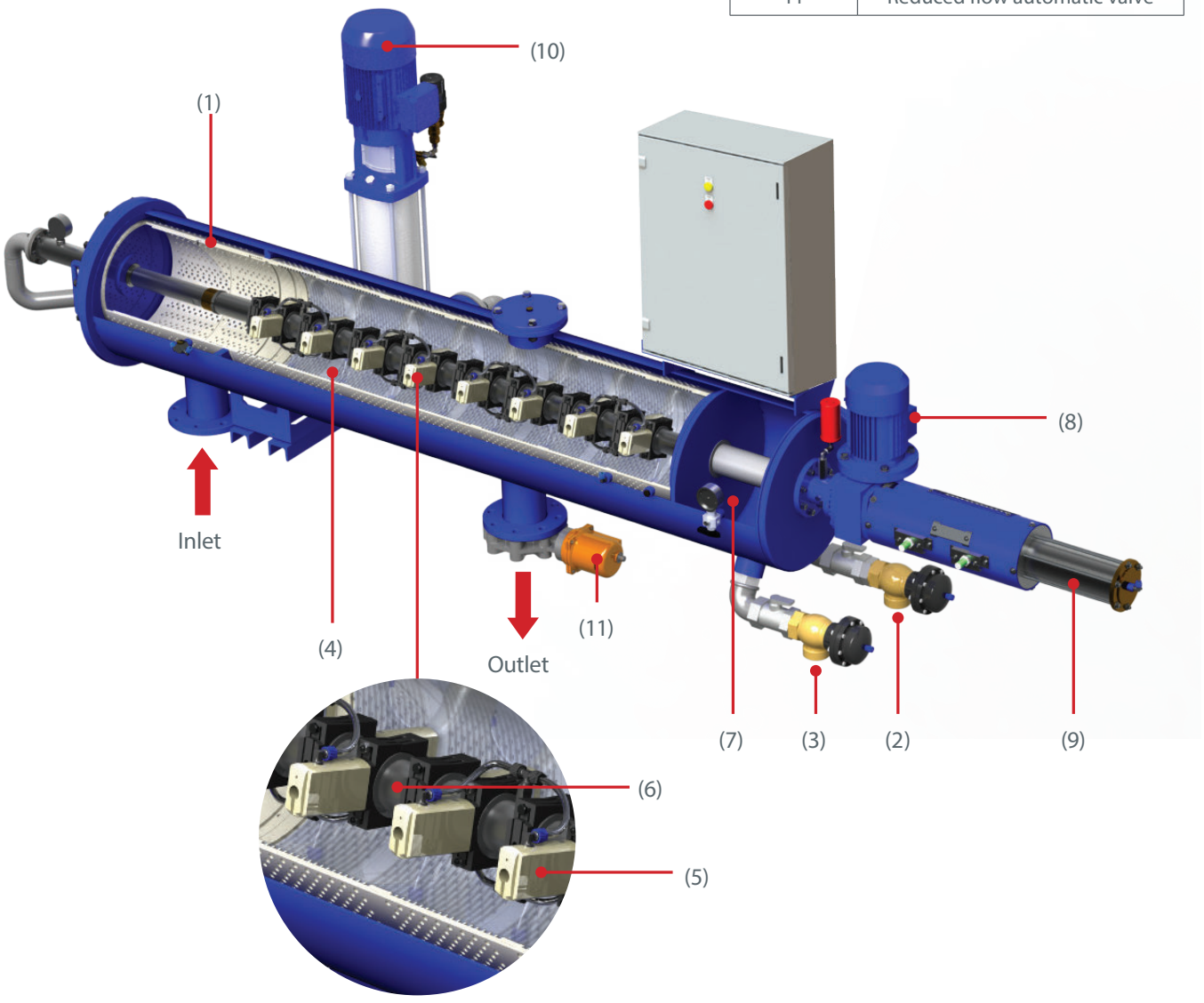
MCFM Series Models

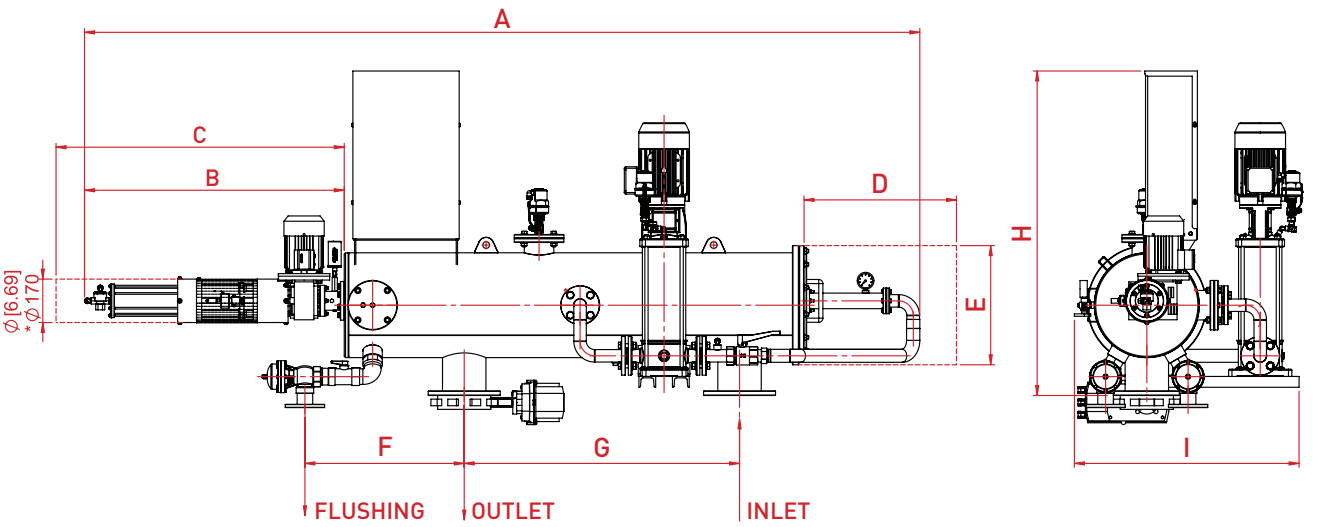
Amiad's MCFM Series consists of the following models:

MCFM-8000 supporting flow rates of 375 m^3/h (1,650 gpm)

MCFM-12000 supporting flow rates of 500 m^3/h (2,200 gpm)

No	Part Description
1	Coarse screen
2	Super flush valve
3	Flush valve
4	Fine screen
5	Nozzles (suction and jet)
6	Collector pipe
7	Flush chamber
8	Electric drive unit
9	Piston
10	Booster pump
11	Reduced flow automatic valve





Dimensional Drawing

Filter Type	A		B		C		D		E		F		G		H		I	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
MCFM-8000	127.5	3,237	39.8	1,010	53	1,340	33.5	850	18.2	462	24.3	617	42	1,067	49.5	1,258	34.3	871
MCFM-12000	141.2	3,600	39.8	1,010	53	1,340	63	1,600	18.2	462	41	1,042	42	1,067	49.5	1,258	34.3	871

Inlet/Outlet diameter:
MCFM-8000: 4" (100 mm), 6" (150 mm)
MCFM-12000: 4" (100 mm), 6" (150 mm), 8" (200 mm), 10" (250 mm)

Technical Specifications

	MCFM 8000		MCFM 12000			
Filter Type	**4″**	**6″**	**4″**	**6″**	**8″**	**10″**
General Data						
Max. flow rate*	396 gpm (90 m³/h)	1,100 gpm (250 m³/h)	396 gpm (90 m³/h)	1,100 gpm (250 m³/h)	1,650 gpm (375 m³/h)	2,200 gpm (500 m³/h)
Inlet/Outlet diameter	4″ (100 mm)	6″ (150 mm)	4″ (100 mm)	6″ (150 mm)	8″ (200 mm)	10″ (250 mm)
Filtration degrees	3,000, 1,500, 800, 400, 200, 130, 100, 80, 50, 30 micron					
Min. working pressure	5.8 psi (0.4 bar) 21 psi (1.5 bar) for filtration degree of 30 micron					
Max. working pressure	150 psi (10 bar)					
Max. working temperature	149°F (60°C) ***					
Weight [empty]**	904 lb (410 kg)	915 lb (415 kg)	1,016 lb (461 kg)	1,025 lb (465 kg)	1,039 lb (470 kg)	1,058 lb (480 kg)

* Consult Amiad for optimum flow depending on filtration degree & water quality.
** Due to the wide range of elements, the weight stated is approximate only.
*** Consult Amiad for high temperature configuration.

Flushing Data		
Minimum flow for flushing (at 30 psi-2 bar)*	26-70 gpm (6-16 m³/h)	35-88 gpm (8-20 m³/h)
Flush valve	2 x 2″ (2 x 50 mm)	
Flushing modes	DP/Time interval, continuous, super-flush, reduced flow	DP/Time interval, continuous, super-flush, reduced flow

* Consult Amiad for lower or higher flow rates.

Engineering Data

Screen Data		
Filtration area	Flat = 742 in² (4,785 cm²) Multi layer = 1,270 in² (8,192 cm²)	Flat = 1,078 in² (6,954 cm²) Multi layer = 1,880 in² (12,126 cm²)
Screen types	Flat = Stainless steel 316L and PVC Multi layer = Stainless steel 316L	

Construction Materials*	
Filter housing	Epoxy-coated carbon steel 37-2 / Stainless steel 316 on request
Filter lid	Epoxy-coated carbon steel 37-2 / Stainless steel 316 on request
Cleaning mechanism	Plastic, Stainless steel 316
Flush valve	Brass housing

* Amiad offers a variety of construction materials. Consult Amiad for specifications.

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