## MCFM Filters

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

**features:**

- Designed for heavy dirt-load applications
- Very affective in filtering out particles
- Outstanding results even in low pressure lines
- Electronically controlled self-cleaning algorithm responding to dirt-load variations in real time
- Cost effective solution for wide range of high dirt-load applications
- Compact design supporting high flowrates
- Easy to install, operate and maintain

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<table>
<thead>
<tr>
<th>feature</th>
<th>value</th>
</tr>
</thead>
<tbody>
<tr>
<td>flowrate per unit</td>
<td>up to 2200 US gpm (500 m³/h)</td>
</tr>
<tr>
<td>filtration degrees</td>
<td>3000–15 micron</td>
</tr>
<tr>
<td>reject water volume</td>
<td>35-88 US gallon (8-20 m³/h)</td>
</tr>
<tr>
<td>minimum operating pressure</td>
<td>5.8 psi (0.4 bar)</td>
</tr>
</tbody>
</table>

* For filtration degree of 30 micron and finer, minimum working pressure is 21 psi (1.5 bar)
How the FILTOMAT MCFM Filters Work

General
Amiad’s FILTOMAT MCFM filters are automatic filters with an optional continuous self-cleaning mechanism designed for high flowrates and heavy dirt loads of particles. The “MCFM” models support flowrates of up to 3300 gpm (750 m³/h), in filtration degrees of 3000 down to 15 micron and inlet/outlet diameters of 4”-12”.

The filtration process begins when raw water flows into the Filter Inlet (1) and through the coarse screen (2). 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 (7).

The Self-Cleaning Process
The self-cleaning process of the “MCFM” filters is operated by a programmable logic controller (PLC). The PLC algorithm 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 loads 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 (13) 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 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 (9), creating a steady back-flush stream through the Fine Screen (6) the Nozzles (5), the Collector Pipe (4), the Drain Chamber (8) and out of the filter through the flush valve.

The Electric Motor (3) rotates the Collector Pipe and the nozzles, while the Piston (12) 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 “FILTOMAT MCFM SERIES” consists of the following models:

**MCFM-4000** supporting flowrates of 528 US gpm (120 mm³/h)

**MCFM-8000** supporting flowrates of 1650 US gpm (375 m³/h)

**MCFM-12000** supporting flowrates of 2200 US gpm (500 m³/h)
Dimensional Drawing
This is a conceptual installation drawing. Note that piping is not included.

<table>
<thead>
<tr>
<th>FILTER TYPE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCFM-8000</td>
<td>86.4</td>
<td>2195</td>
<td>53</td>
<td>1340</td>
<td>44</td>
<td>1100</td>
<td>36</td>
<td>910</td>
</tr>
<tr>
<td>MCFM-12000</td>
<td>103</td>
<td>2620</td>
<td>53</td>
<td>1340</td>
<td>63</td>
<td>1600</td>
<td>49</td>
<td>1250</td>
</tr>
</tbody>
</table>

Inlet/Outlet diameter:
- **MCFM-4000**: 4”.
- **MCFM-8000**: 4”, 6”, 8”.
- **MCFM-12000**: 6”, 8”, 10”.
## Technical Specifications

### General Data

<table>
<thead>
<tr>
<th>Filter Type</th>
<th>MCFM 8000</th>
<th>MCFM 12000</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Maximum flowrate</strong>*</td>
<td>528 US gpm (120 m³/h)</td>
<td>528 US gpm (120 m³/h)</td>
</tr>
<tr>
<td>Inlet/Outlet diameter</td>
<td>4” (100 mm)</td>
<td>6” (150 mm)</td>
</tr>
<tr>
<td>Filtration degrees</td>
<td>3000, 1500, 800, 400, 200, 150, 120, 100, 80, 50, 40, 30, 25, 15 micron</td>
<td></td>
</tr>
<tr>
<td>Min. working pressure</td>
<td>5.8 psi (0.4 bar)</td>
<td>21 psi (1.5 bar) for filtration degree of 30, 25, 15 micron</td>
</tr>
<tr>
<td>Max. working pressure</td>
<td>150 psi (10 bar)</td>
<td>149°F (65°C)</td>
</tr>
<tr>
<td>Weight (empty)**</td>
<td>920 lb (410 kg)</td>
<td>1058 lb (480 kg)</td>
</tr>
</tbody>
</table>

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

### Flushing Data

<table>
<thead>
<tr>
<th>Flushing modes</th>
<th>Minimum flow for flushing (at 2 bar-30 psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>35-88 US gpm</strong> (8-20 m³/h)</td>
<td><strong>2 x 2”</strong> (2 x 50 mm)</td>
</tr>
</tbody>
</table>

* Consult Amiad for lower or higher flow-rates

### Engineering Data

<table>
<thead>
<tr>
<th>Screen Data</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Filter area</strong></td>
</tr>
<tr>
<td><strong>Screen types</strong></td>
</tr>
</tbody>
</table>

### Construction Materials

| Filter Housing | Epoxy-coated carbon steel 37-2. (Stainless steel 316 on request) |
| Cleanig Mechanism | Plastic and stainless steel 316 |
| Flush Valve | Brass, stainless steel 316, BUNA-N |

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