Sigma Pro Series

Multi-screen, polymeric, self-cleaning filter combining Amiad’s suction-scanning technology with a unique mechanism and innovative design.

**features:**

- Reliable and durable
- Proprietary suction-scanning cleaning technology
- Large filtration area
- Polymeric housing - corrosion and fertilizer resistant
- Low water and energy consumption
- Compact design and small footprint
- Easy installation and maintenance
- Ideal for open-field irrigation, landscaping, greenhouse and aquaculture applications
- AC/DC electronic controller (optional)

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**Specifications:**

<table>
<thead>
<tr>
<th></th>
<th>4”</th>
<th>6”</th>
<th>8”</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>flow rate</strong></td>
<td>30-120 m³/h (132-528 gpm)</td>
<td>50-180 m³/h (220-792 gpm)</td>
<td>50-280 m³/h (220-1,233 gpm)</td>
</tr>
<tr>
<td><strong>inlet/outlet diameter</strong></td>
<td>100 mm (4”)</td>
<td>150 mm (6”)</td>
<td>200 mm (8”)</td>
</tr>
<tr>
<td><strong>filtration degrees</strong></td>
<td>80-500 micron</td>
<td></td>
<td></td>
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<tr>
<td><strong>min. operating pressure during flush cycle</strong></td>
<td>1.5 bar/22 psi (electronic controller)</td>
<td>2.2 bar/32 psi (hydraulic controller)</td>
<td></td>
</tr>
<tr>
<td><strong>max. operating pressure</strong></td>
<td>10 bar (145 psi)</td>
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How the Sigma Pro Filter Works

General
Amiad's Sigma Pro is a multi-screen, polymeric filter that combines Amiad's unique suction-scanning screen technology with a compact design and an innovative self-cleaning mechanism. The filter capacity range is up to 280 m³/h (1,233 gpm) and with filtration degrees from 80-500 micron. Inlet/outlet connections are available in 100 mm (4"), 150 mm (6") and 200 mm (8") diameter. Filters include a 50 mm (2") exhaust valve.

The Filtration Process
Raw water enters through the filter inlet and passes through the multiple screens. Clean water flows through the filter outlet. The gradual dirt buildup on the screens' inner surface causes a filter cake to develop, which creates an increase in the pressure differential across the filter system. A differential pressure (DP) switch (hydraulic or electronic) senses the pressure differential and when it reaches a pre-set value, the self-cleaning process begins.

The Control System
The Sigma Pro operation and cleaning cycle is controlled and monitored by a hydraulic rinse controller or an electronic controller. During the self-cleaning cycle, the rinse controller operates the exhaust valve by hydraulic command. When the cleaning cycle is complete, the exhaust valve is automatically closed and is ready for the next cycle. With an electronic controller, the self-cleaning cycle is triggered by the DP switch, then the AC or DC controller switches the solenoid to open or close the exhaust valve by hydraulic command. When the self-cleaning cycle is complete, the controller signals the exhaust valve to close and the system is ready for the next cleaning cycle.

The electronic controller also provides:
- Flush cycle counter
- Alerts – low battery, DP cycle

The Self-Cleaning Process
The self-cleaning cycle begins under any one of the following conditions:
1. Receiving a signal from the DP switch, preset at 0.5 bar (7 psi)
2. Time interval parameter set at the controller (electronic controller only)
3. Manual start, triggered by 3-way ball valve or via electronic controller keypad

The flush water flows through the hydraulic turbines, causing the suction-scanners to spin. The drop in pressure forces the suction-scanners into an axial movement upward, ensuring that the nozzles sweep and clean the entire inner side of the fine screens.

Sigma Pro models
Amiad's Sigma Pro series consists of the following models:
- Sigma Pro 4” for up to 120 m³/h (528 gpm)
- Sigma Pro 6” for up to 180 m³/h (792 gpm)
- Sigma Pro 8” for up to 280 m³/h (1,233 gpm)
Various Inlet/Outlet Configurations

Sigma Pro 6” and 8” filters are to be installed on a flat surface only.
### Sigma Pro 4"

<table>
<thead>
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<th>Dim: mm (inch)</th>
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<td>672 (26&quot;)</td>
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### Sigma Pro 6"

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### Sigma Pro 8"

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**Sigma Pro 4"**

![Image of Sigma Pro 4"

**Sigma Pro 6"**

![Image of Sigma Pro 6"

**Sigma Pro 8"**

![Image of Sigma Pro 8"

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**Pressure Loss Graph**
(in clean water)

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**6" SIGMA FILTER FOR CUSTOMER**

**SUBJECT/PROJECT:**

**PART NAME/TITLE:**

**CAT. NO:**

**MATERIAL:**

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**DRAWN**

**CHECKED**

**APPROVED**

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**B.O.M.**

**NAME DATE**

**ELENA 06/07/2016**

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**Confidential property information.**

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**DRW. NO:**

**ASSEMBLY DRAWING**

**DATE DESCRIPTION NAME**

**Ref.**

**Backup Drawing:**

**Rev.**

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**6" SIGMA FILTER**

**MARINA**

**054002-000052**

**OLEG**

**MARINA**

**12/07/2016**

**12/07/2016**

**12/07/2016**

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**MATERIAL:**

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Sigma Pro 8” installation of 4 units with manifold, for flow rates up to 1,120 m³/h (4,932 gpm)

Sigma Pro 6” installation of 2 units with manifold, for flow rates up to 360 m³/h (1,584 gpm)
# Technical Specifications

<table>
<thead>
<tr>
<th>General data</th>
<th>Sigma Pro 4”</th>
<th>Sigma Pro 6”</th>
<th>Sigma Pro 8”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. flow rate* (130µ) in average water quality</td>
<td>120 m³/h (528 gpm)</td>
<td>180 m³/h (792 gpm)</td>
<td>280 m³/h (1,233 gpm)</td>
</tr>
<tr>
<td>Min. operating pressure when cleaning</td>
<td>1.5 bar (22 psi) - electronic controller</td>
<td>2.2 bar (32 psi) - hydraulic controller</td>
<td></td>
</tr>
<tr>
<td>Max. operating pressure</td>
<td></td>
<td>10 bar (145 psi)</td>
<td></td>
</tr>
<tr>
<td>Filtration area</td>
<td>6,000 cm² (930 in²)</td>
<td>8,000 cm² (1,240 in²)</td>
<td>8,000 cm² (1,240 in²)</td>
</tr>
<tr>
<td>Inlet/Outlet diameter</td>
<td>4” (100 mm) Flange &amp; Victaulic</td>
<td>6” (150 mm) Flange</td>
<td>8” (200 mm) Flange</td>
</tr>
<tr>
<td>Weight</td>
<td>Empty: 75 kg (110 lb) Full: 145 kg (213 lb)</td>
<td>Empty: 110 kg (242 lb) Full: 225 kg (496 lb)</td>
<td>Empty: 120 kg (264 lb) Full: 235 kg (518 lb)</td>
</tr>
</tbody>
</table>

* Maximum flow rates depends on water quality and micron size.

### Hydraulic controller
- **Rinse controller**: PP (Polypropylene), PA (Polyamide)
- **DP switch**: Built-in rinse controller set at 0.5 bar (7 psi)
- **Operation mode**: 3-way ball valve, indicate: automatic or manual

### Electronic controller
- **Control voltage**: 6 VDC or 110 or 220 VAC
- **Control power supply**: 4 x D type 1.5V batteries or AC power
- **Solenoid operation data**: 9-12 VDC latching solenoid or 24 VAC solenoid
- **DP switch**: Dry contact switch

### Flushing data
- **Exhaust valve**: 2” (50 mm)
- **Flushing time**: 10 seconds
- **Reject water volume per flush cycle**: 75 liters (20 gallons) 90 liters (23 gallons) 90 liters (23 gallons)
- **Flushing flow (at 1.5 bar/22 psi)**: 34 m³/h (153 gpm) 36 m³/h (161 gpm) 36 m³/h (161 gpm)

### Construction materials
- **Filter housing and lid**: RPP (reinforced polypropylene) RPA (reinforced polyamide)
- **Screens**: Molded weavewire, stainless steel 316L
- **Cleaning mechanism**: PBT (polybutylene)
- **Exhaust valve**: Polymeric
- **Seals**: EPDM
- **Control command tubing**: PE (polyethylene)

### Standard Filtration Degrees

<table>
<thead>
<tr>
<th>micron</th>
<th>500</th>
<th>300</th>
<th>200</th>
<th>130</th>
<th>100</th>
<th>80</th>
</tr>
</thead>
<tbody>
<tr>
<td>mm</td>
<td>0.5</td>
<td>0.3</td>
<td>0.2</td>
<td>0.13</td>
<td>0.1</td>
<td>0.08</td>
</tr>
</tbody>
</table>

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service@irrigationglobal.com  

Sigma Pro Automatic Screen Filter - Online orders