

Sigma

Automatic self-cleaning filter, which combines Amiad's superior Suction-Scanning mechanism with a Multi-Screen design, and a new innovative hydraulic turbine.



flowrate	filtration degrees
30 to 120 m³/h (132-528 gpm)	80 - 300 micron
inlet/outlet diameter	min. operating pressure during flush cycle
100 mm (4")	1.5 bar (22 psi)

Features:

- Based on Amiad's proven suction-scanning screen technology
- Very Large Screen Area
- High flow rate per unit
- Made of polymeric materials; fully resistant to corrosion and most fertilizers (PH > 5)
- Short and efficient self-cleaning process
- Very low energy consumption during flush
- Small footprint compared to other automatic filters
- Unique design, easy to maintain, few tools required
- Applications: Agriculture Irrigation open fields, landscape, green house, aquaculture
- Optional electronic controller AC or DC

*Patent pending

How the Sigma Filter Works

General

The Amiad "Sigma" filter is an automatic filter, with multiple screens operated by a single hydraulic turbine mechanism. With a capacity up to 120 m³/h (528 gpm) and from 80-300 micron filtration degree. Inlet/Outlet connections are 100 mm (4") diameter, and exhaust valve is 50 mm (2").

The Filtration

Raw water enters from the filter inlet and passes through the multi-screens. Clean water flows through the filter outlet. The gradual dirt buildup on the inner screen surface causes a filter cake to develop, with a corresponding increase in the pressure differential across the multi-screens. A pressure differential switch (hydraulic or electric) senses the pressure differential and when it reaches a pre-set value, the self-cleaning process begins.

The Control System

The "Sigma" operation and cleaning cycle is controlled and monitored by a hydraulic rinse control, or an electronic battery/AC controller.

During the self-cleaning cycle the rinse control operates the exhaust valve by means of an hydraulic command, and when the cycle is complete, it automatically closes the exhaust valve and waits for the next cycle. In the case of the 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 means of a hydraulic command, when cycle is complete, the controller will shut the exhaust valve and wait for another cleaning command.

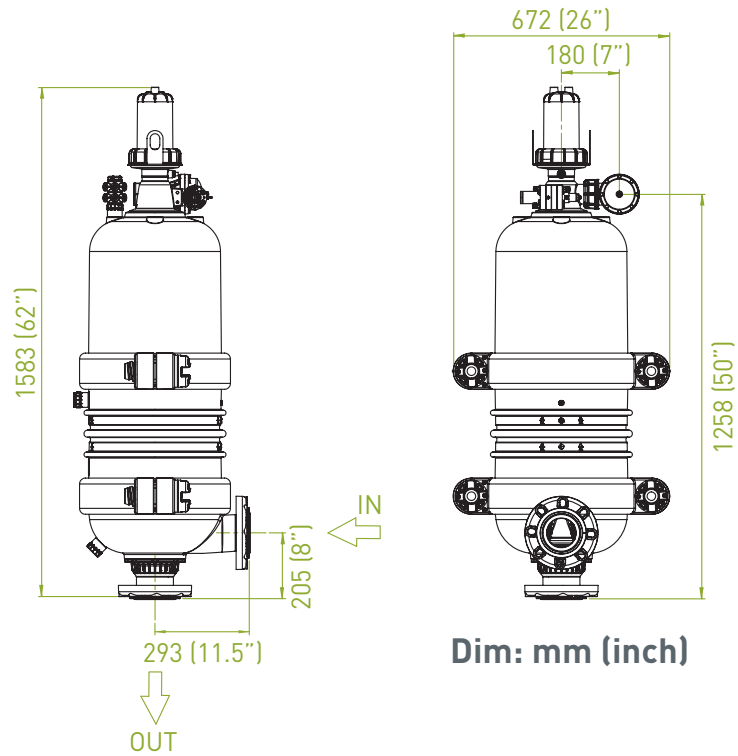
The self-cleaning cycle begins under any one of the following conditions:

1. Receiving a signal from the Pressure Differential Device - which is preset at 0.5 bar.
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.

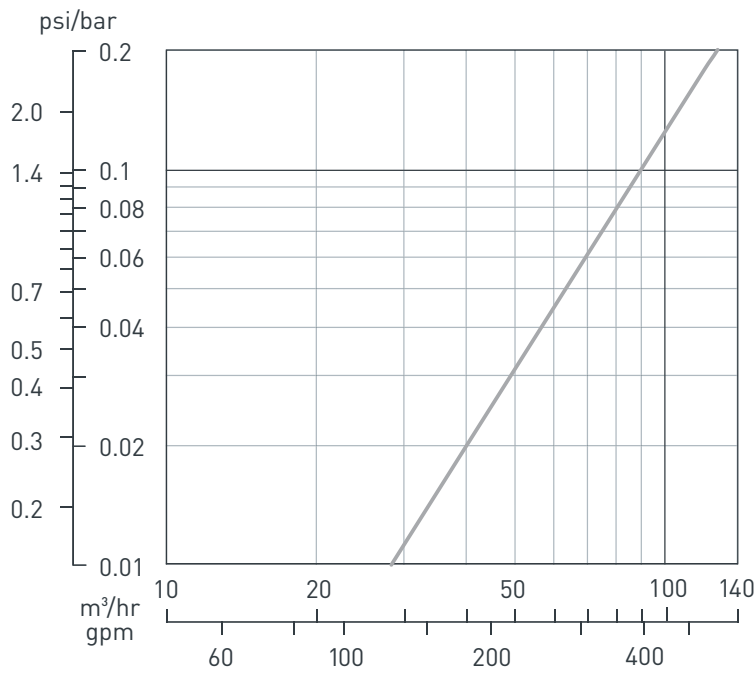
The electronic controller also provides:

- Flush cycles counter
- Alerts output – low battery, DP cycle

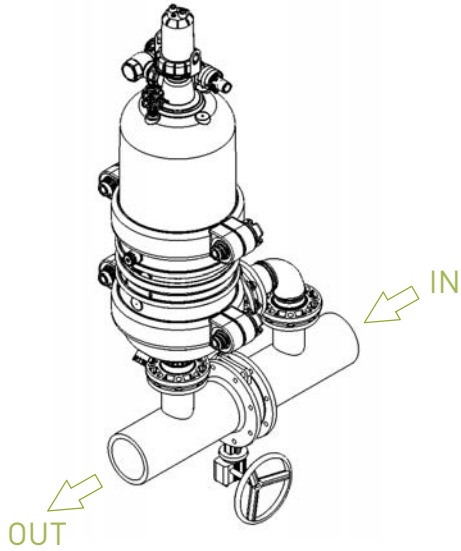
Sigma 4" dimensions



Head Loss Graph (in clean water)

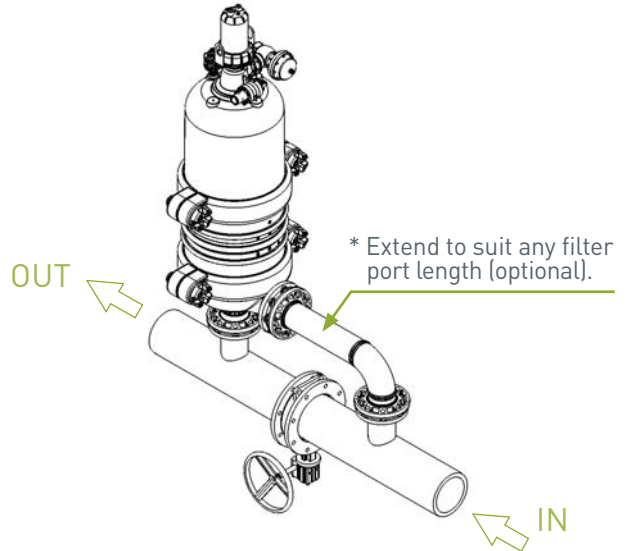


**Single Filter
Recommended installation**

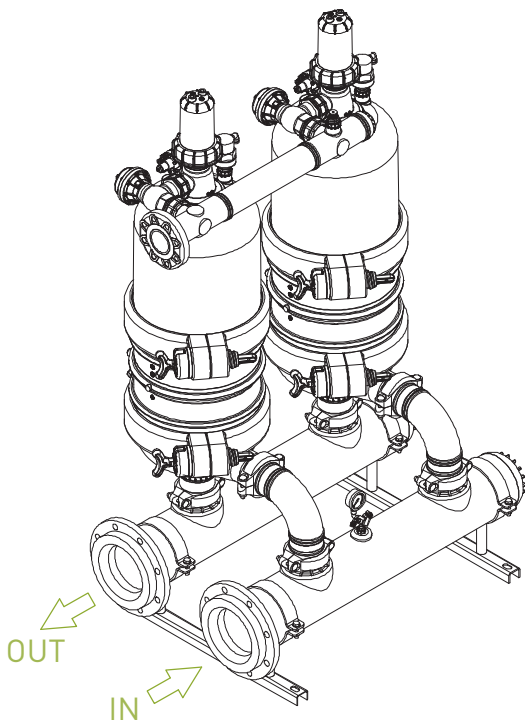


* Filter installation only in vertical position, upright plumb.

**Single Filter
Recommended installation as
a replacement for a parallel filter**

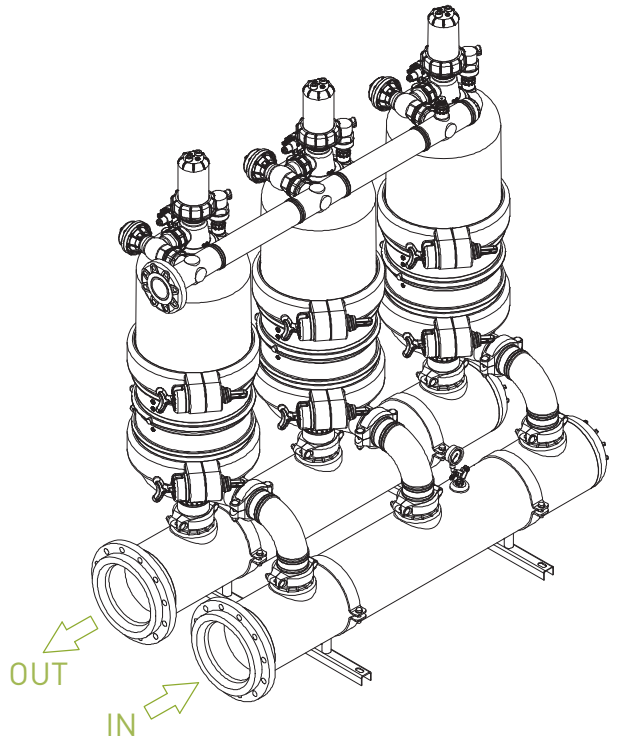


Sigma 4" installation of 2 units with manifold, flow up to 240 m³/h (1,056 gpm)



* 8" (200 mm) inlet/outlet.

Sigma 4" installation of 3 units with manifold, flow up to 360 m³/h (1,584 gpm)



* 10" (250 mm) inlet/outlet.

Technical Specifications

General data*	Sigma 4"
Max. flowrate (100µ) in average water quality	120 m ³ /h (528 gpm)*
Min. operating pressure when cleaning	1.5 bar (22psi)
Max. operating pressure	10 bar (145 psi)
Filtration area	6,000 cm ² (930 in ²)
Inlet/Outlet diameter	4" (100 mm) Flange & Victaulic
Weight	Empty: 75 kg (110 lb) Full: 145 kg (213 lb)

* Refer to Amiad's flow recommendation per water quality.

Hydraulic control	
Rinse control	PP (Polypropylene), PA (Polyamide)
DP switch	Built-in rinse controller set at 0.5 bars
Operation mode	3 way ball valve, indicate: Automatic & Manual

Optional electronic control	
Control voltage	6 VDC or 24 VAC
Control power supply	4 D type 1.5V batteries/AC power
Solenoid operation data	12-9 VDC latching solenoid or 24VAC solenoid
DP switch	Dry contact switch

Flushing Data	
Exhaust valve	2" (50 mm)
Flushing cycle time	20 sec
Reject water volume per flush cycle	approx. 150-200 liter (40-53 gallons)

Construction materials	Sigma 4"
Filter Housing & Lid	RPP (Reinforced Polypropylene) RPA (Reinforced Polyamide)
Screens	Molded Weave wire 316L, screen mesh
Cleaning mechanism	PBT (Polybutylene)
Exhaust valve	Polymeric actuator
Seals	EPDM
Control command tubing	PE (Polyethylene)

Standard Filtration Degrees					
micron	300	200	130	100	80
mm	0.3	0.2	0.13	0.1	0.08