

Omega Series for seawater applications

Automatic self-cleaning multi-screen filter, provides higher efficiency and smaller footprint. Combines Amiad's superior Suction Scanning mechanism with a multi-screen design.



flowrates

**200 m³/h up to 5,000 m³/h
(880 gpm up to 22,000 gpm)**

filtration degrees

10-500 micron

inlet/outlet diameter

8" - 32"

minimum operating pressure

2 bar (28 psi)

features:

- Based on Amiad's proven suction scanning screen filtration technology
- Highly efficient self-cleaning mechanism; fine filtration performances, down to 10 micron
- Significant cost reduction per filtered cubic meter of water
- Smaller footprint
- Higher flow per unit
- ASME / ATEX / IECEx design optional
- **Applications:** Membrane Protection, Ballast Water, Oil&Gas, Industrial Water and Irrigation

* Patent pending

How the Omega Filter Works

General

The Amiad Omega Series are automatic filters, with multiple screens operated by a single electric self-cleaning mechanism. The "Omega" filters range in flowrates of up to 5,000 m³/h (22,000 gpm) and from 10-500 micron filtration degree. Inlet/Outlet flanges are available from 8" - 32" diameter.

The Filtration Process

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 multi screen surface causes a filter cake to develop, with a corresponding increase in the pressure differential across the multi-screens. A pressure differential switch senses the pressure differential and when it reaches a pre-set value, the self-cleaning process begins.

The Self-Cleaning Process

Cleaning of the filter is carried out by multiple suction scanners with an option for SLN (Spring Loaded Nozzles) which scans across the multi-screens by a common gear operated by up to 3 electric motors. The DP switch signals to open the exhaust valves creating a high velocity suction stream at the nozzle tip which "vacuums" the filter cake from the multi screens. During the self-cleaning process, which takes approximately 25 seconds, filtered water continues to flow downstream.

The Control System

The Omega operation and cleaning cycle is controlled and monitored by a Programmable Logic Control (PLC). The PLC allows maximum flexibility in control options and is provided with a wide range of control options from a local independent stand alone controller to a fully integrated with the customer central control system. During the self-cleaning cycle the PLC controls a solenoid that operates the exhaust valves by means of an hydraulic command or compressed air.

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

1. Receiving a signal from the Pressure Differential Switch
2. Time interval parameter set at the control board
3. Manual Start

The control board also provides:

- Optional continuous flush mode
- Flush cycles counter
- Alarm output – may be used to open a bypass, shut-off a pump, etc.

Omega Models:

Amiad's Omega product line consists of the following models:

- Omega I Standard 13,500 cm² & Enlarged (E) 18,000 cm²
- Omega II Standard 27,000 cm² & Enlarged (E) 36,000 cm²
- Omega III Standard 54,000 cm² & Enlarged (E) 72,000 cm²
- Omega IV Standard 81,000 cm² & Enlarged (E) 108,000 cm²

Omega I / Omega II (Omega SeaWater)

Technical Specifications (flow data at 50 micron)

| Filter Type | Omega I | Omega I E* | Omega II | Omega II E* |
|--------------------------|---|-----------------------|--|-----------------------|
| General Data | | | | |
| Maximum flowrate * | 340 m ³ /h | 450 m ³ /h | 675 m ³ /h | 900 m ³ /h |
| Minimum working pressure | 2 bar | | 2 bar | |
| Maximum working pressure | 10 bar (16 bar upon request) | | 10 bar (16 bar upon request) | |
| Inlet/Outlet diameter | 8" - 12" (Flange standards as per request) | | 10" - 20" (Flange standards as per request) | |
| Weight [empty] | 945 kg | 1015 kg | 1380 kg | 1455 kg |

* At high TSS load, flow reduction might be considered.

| | | | | |
|-------------------------------------|----------------------|----------------------|----------------------|----------------------|
| Flushing Data | | | | |
| Exhaust valve | 3" | 3" | 4" | 6" |
| Flushing cycle time | 25 sec | | 25 sec | |
| Reject water volume per flush cycle | 280 liter | 350 liter | 480 liter | 560 liter |
| Minimum flow for flushing | 40 m ³ /h | 50 m ³ /h | 70 m ³ /h | 80 m ³ /h |

| | |
|-----------------------------------|-----------------------------------|
| Control and Electricity ** | |
| Control voltage | 24 VAC |
| Electric motor | 1 HP - 0.55 kW |
| Rated operation voltage | 3 phase, 220/380/440 VAC 50/60 Hz |
| Current consumption | 2.1 Amp |

** Control board is available upon request.

| | |
|-------------------------------|---|
| Construction Materials | |
| Filter housing | Carbon steel, Polyamine epoxy coating inside, epoxy coating outside |
| Filter lid | Carbon steel, Polyamine epoxy coating inside, epoxy coating outside |
| Screens | Weavewire 316L or SMO 254 |
| Cleaning mechanism | Stainless steel 316L or SMO 254 |
| Exhaust valve | Epoxy-coated cast iron, natural rubber |
| Seals | Synthetic rubber, NBR |
| Control | Stainless steel, nylon |

* E = Extended Model

| Standard Filtration Degrees | | | | | | | | | | |
|---|-----|-----|-----|------|-----|------|------|------|------|------|
| 316 or SMO 254 Stainless Steel Weavewire Screen | | | | | | | | | | |
| micron | 500 | 300 | 200 | 130 | 100 | 80 | 50 | 40 | 25 | 10 |
| mm | 0.5 | 0.3 | 0.2 | 0.13 | 0.1 | 0.08 | 0.05 | 0.04 | 0.02 | 0.01 |
| mesh | 30 | 50 | 75 | 120 | 155 | 200 | 300 | 350 | 450 | 600 |

Omega III /Omega IV (Omega SeaWater)

Technical Specifications (flow data at 50 micron)

| Filter Type | Omega III | Omega III E * | Omega IV | Omega IV E * |
|--------------------------|--|------------------------|--|------------------------|
| General Data | | | | |
| Maximum flowrate * | 1350 m ³ /h | 1800 m ³ /h | 2025 m ³ /h | 2700 m ³ /h |
| Minimum working pressure | 2 bar | | 2 bar | |
| Maximum working pressure | 10 bar (16 bar upon request) | | 10 bar (16 bar upon request) | |
| Inlet/Outlet diameter | 14" - 24" (Flange standards as per request) | | 18" - 32" (Flange standards as per request) | |
| Weight [empty] | 3750 kg | 3960 kg | 5600 kg | 5900 kg |

* At high TSS load, flow reduction might be considered.

| | | | | |
|-------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Flushing Data | | | | |
| Exhaust valve | 2 x 4" | 2 x 6" | 3 x 4" | 3 x 6" |
| Flushing cycle time | 2 x 25 sec | 2 x 25 sec | 3 x 25 sec | 3 x 25 sec |
| Reject water volume per flush cycle | 2 x 480 liter | 2 x 560 liter | 3 x 480 liter | 3 x 560 liter |
| Minimum flow for flushing | 2 x 70 m ³ /h | 2 x 80 m ³ /h | 3 x 70 m ³ /h | 3 x 80 m ³ /h |

| | | | | |
|----------------------------------|-----------------------------------|--|----------------------|--|
| Control and Electricity** | | | | |
| Control voltage | 24 VAC | | | |
| Electric motor | 2 x (1 HP – 0.55 kW) | | 3 x (1 HP – 0.55 kW) | |
| Rated operation voltage | 3 phase, 220/380/440 VAC 50/60 Hz | | | |
| Current consumption | 2 x 2.1 Amp | | 3 x 2.1 Amp | |

** Control board is available upon request.

| | | | | |
|-------------------------------|---|--|--|--|
| Construction Materials | | | | |
| Filter housing | Carbon steel, Polyamine epoxy coating inside, epoxy coating outside | | | |
| Filter lid | Carbon steel, Polyamine epoxy coating inside, epoxy coating outside | | | |
| Screens | Weavewire 316L or SMO 254 | | | |
| Cleaning mechanism | Stainless steel 316L or SMO 254 | | | |
| Exhaust valve | Epoxy-coated cast iron, natural rubber | | | |
| Seals | Synthetic rubber, NBR | | | |
| Control | Stainless steel, nylon | | | |

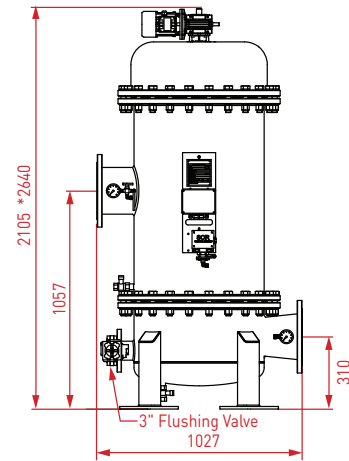
* E = Extended Model

| Standard Filtration Degrees | | | | | | | | | | |
|---|-----|-----|-----|------|-----|------|------|------|------|------|
| 316 or SMO 254 Stainless Steel Weavewire Screen | | | | | | | | | | |
| micron | 500 | 300 | 200 | 130 | 100 | 80 | 50 | 40 | 25 | 10 |
| mm | 0.5 | 0.3 | 0.2 | 0.13 | 0.1 | 0.08 | 0.05 | 0.04 | 0.02 | 0.01 |
| mesh | 30 | 50 | 75 | 120 | 155 | 200 | 300 | 350 | 450 | 600 |

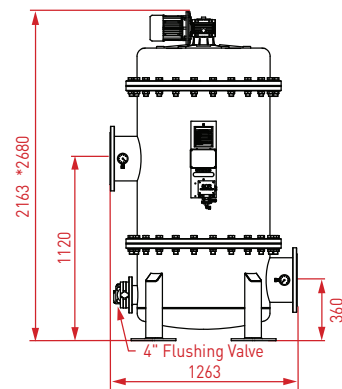
Omega I



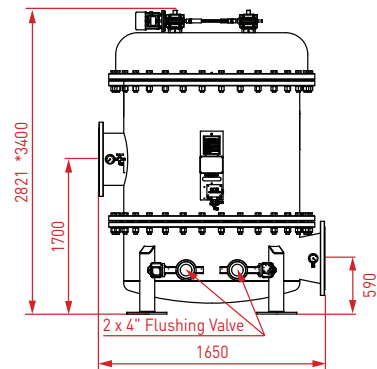
Standard Models



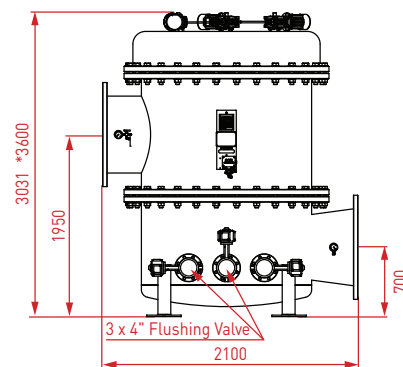
Omega II



Omega III



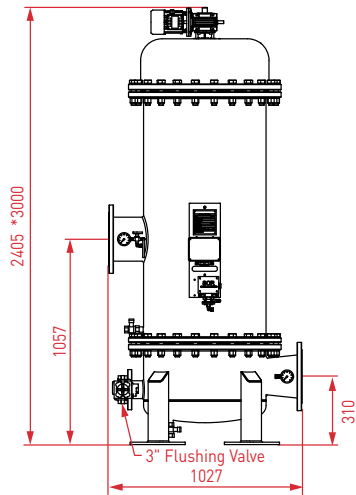
Omega IV



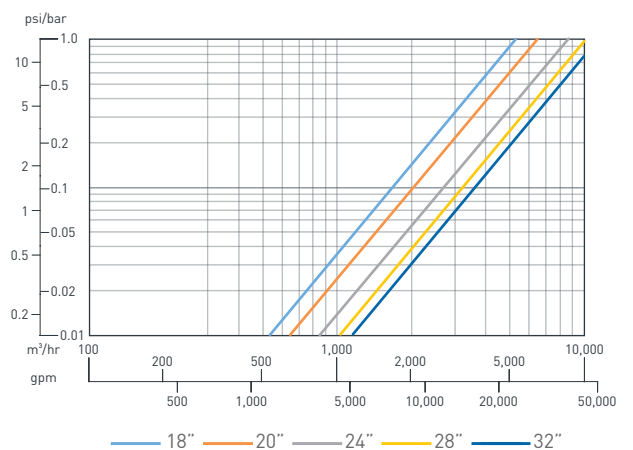
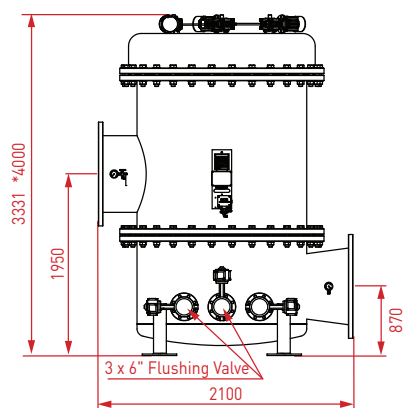
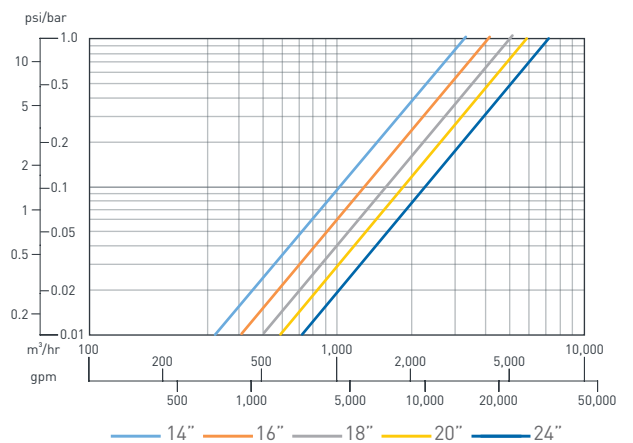
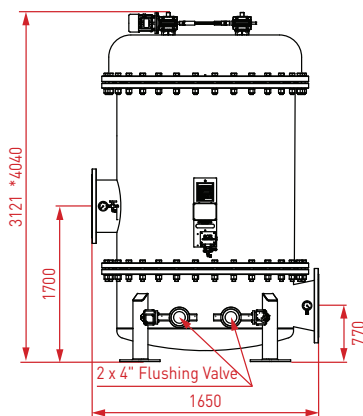
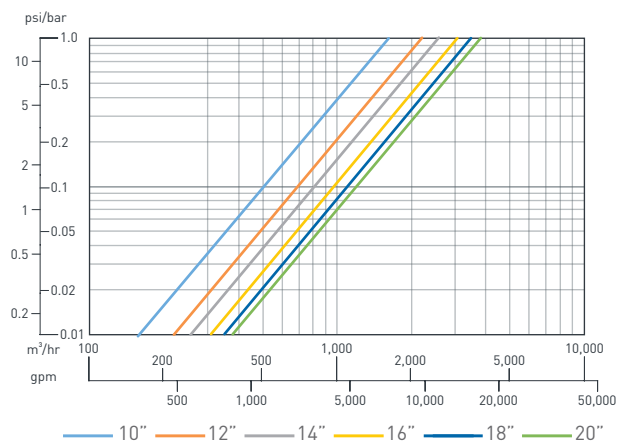
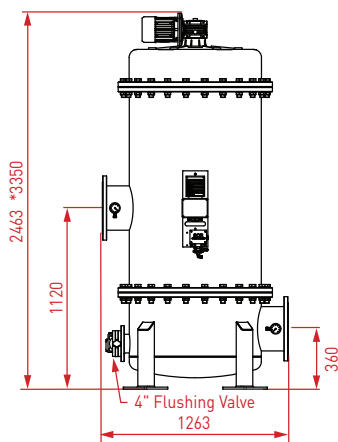
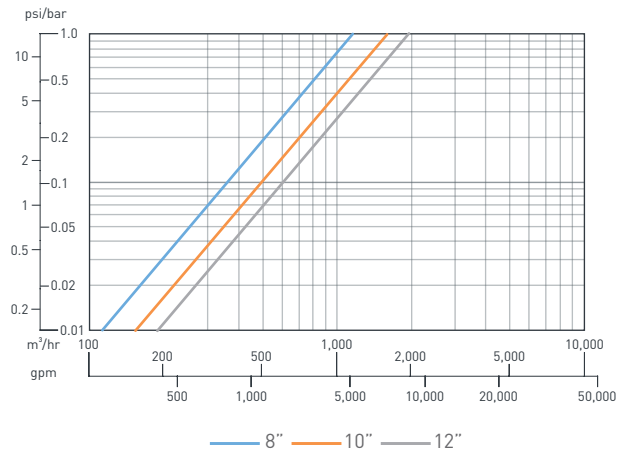
Dim: mm (inch)

*Approx. length required for maintenance.

Extended Models



Pressure Loss Graphs in clean water



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