

Omega Series for seawater applications

Automatic self-cleaning multi-screen filter series 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]	900 kg	970 kg	1455 kg	1495 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,		24 VAC,	
Electric motor	1 HP - 0.74kW		1 HP - 0.74kW	
Rated operation voltage	3 phase, 220/380/440 VAC 50/60 Hz		3 phase, 220/380/440 VAC 50/60 Hz	
Current consumption	2.1 Amp		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]	2400 kg	2600 kg	3250 kg	3435 kg

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

Flushing Data				
Exhaust valve	2x4"	2x6"	3x4"	3x6"
Flushing cycle time	2x25 sec	2x25 sec	3x25 sec	3x25 sec
Reject water volume per flush cycle	2x480 liter	2x560 liter	3x480 liter	3x560 liter
Minimum flow for flushing	2x70 m ³ /h	2x80 m ³ /h	3x70 m ³ /h	3x80 m ³ /h

Control and Electricity**				
Control voltage	24 VAC,		24 VAC,	
Electric motor	2x(1 HP - 0.74kW)		3x(1 HP - 0.74kW)	
Rated operation voltage	3 phase, 220/380/440 VAC 50/60 Hz		3 phase, 220/380/440 VAC 50/60 Hz	
Current consumption	2x2.1 Amp		3x2.1 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

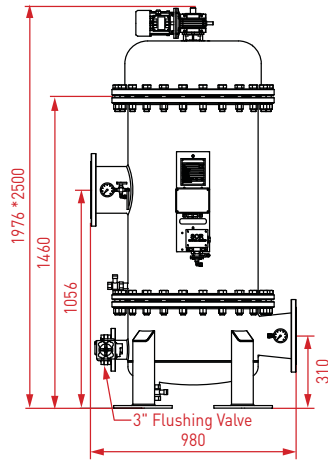
Standard Filtration Degrees

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

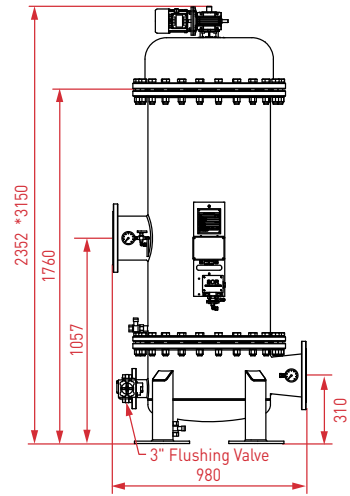
Omega I



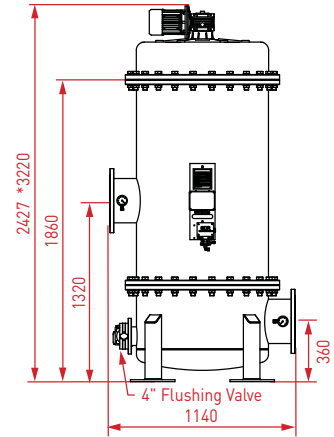
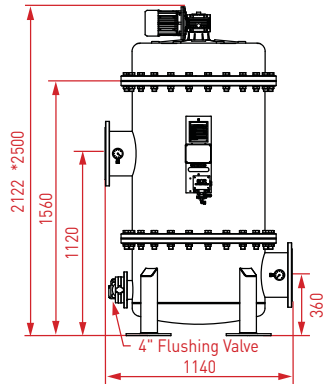
Standard Models



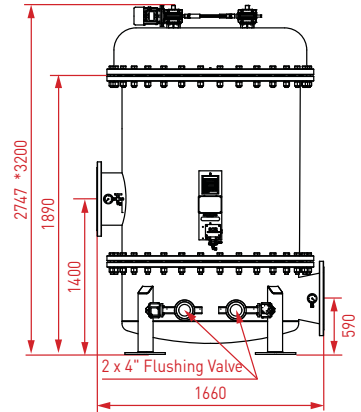
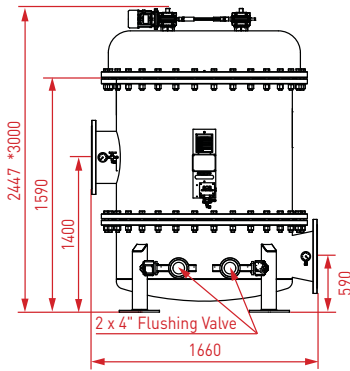
Extended Models



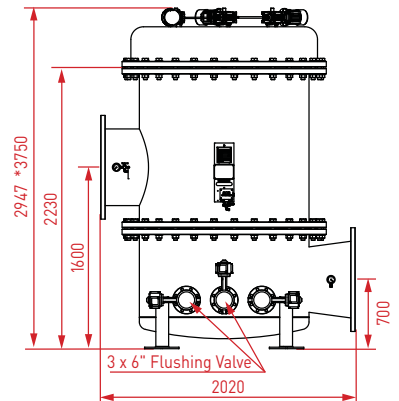
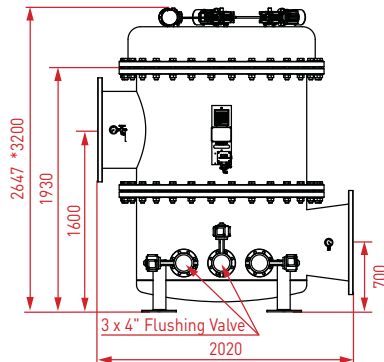
Omega II



Omega III



Omega IV



Dim. in mm

*Approx. length required for maintenance.

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