

Omega Series

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



flow rates

**up to 5,000 m³/h
(22,000 gpm)**

filtration degrees

10-500 micron

inlet/outlet diameter

**200-800mm
(8"-32")**

minimum operating pressure

2 bar (30 psi)

features:

- Based on Amiad's proven suction scanning screen filtration technology
- Highly efficient self-cleaning mechanism; fine filtration performances, down to 10 micron
- Small footprint
- Exceptionally high filtration area & flowrates per unit
- ASME /ATEX /IECEX - available on request
- **Applications:** Membrane Protection, Municipal Water, Industrial Water, Oil&Gas and Irrigation

*Patent pending

How the Omega Filter Works

General

The Amiad Omega Series are automatic filters, with multiple screens operated by a common electric driven screen cleaning mechanism. The "Omega" filter flow rate range is up to 5,000 m³/h (22,000 gpm) and from 10-500 micron filtration degree. Inlet/Outlet flanged connections are available in the range of 200-800 mm (8"-32").

The Filtration Process

Raw water enters from the filter inlet and passes through the multi-screens. Filtered water flows through the filter outlet. The gradual dirt buildup on the inner multi-screen's 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 simultaneously scan the multi-screens by a common electric motor driven gear mechanism. The DP switch signals to open the exhaust valves creating a high velocity suction stream at the nozzle scanner tips 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's 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 an independent stand alone controller to a fully integrated one with the customer's central control system. During the self-cleaning cycle the PLC controls a solenoid that operates the exhaust valves by means of a hydraulic command or compressed air.

How the Omega Filter Works

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 (2,100 in²) & Enlarged (E) 18,000 cm² (2,800 in²)
- Omega II Standard 27,000 cm² (4,185 in²) & Enlarged (E) 36,000 cm² (5,600 in²)
- Omega III Standard 54,000 cm² (8,400 in²) & Enlarged (E) 72,000 cm² (11,200 in²)
- Omega IV Standard 81,000 cm² (12,600 in²) & Enlarged (E) 108,000 cm² (16,700 in²)

Omega I/Omega II

Technical Specifications (flow data at 100 micron, average water quality)

Filter Type	Omega I	Omega I E	Omega II	Omega II E
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General Data*				
Maximum flow rate	675 m ³ /h (2,972 gpm)	880 m ³ /h (3,875 gpm)	1350 m ³ /h (5,944 gpm)	1750 m ³ /h (7,705 gpm)
Inlet/Outlet diameter	200 - 300 mm (8"-12") Flange standards as per request		250 - 500 mm (10"-20") Flange standards as per request	
Minimum working pressure**	2 bar (30 psi)			
Maximum working pressure	10 bar (150 psi) 16 bar (230 psi) upon request			
Filtration area	13,500 cm ² (2,100 in ²)	18,000 cm ² (2,800 in ²)	27,000 cm ² (4,185 in ²)	36,000 cm ² (5,600 in ²)
Weight [empty]	958 kg (2,110 lb)	1,015 kg (2,240 lb)	1,380 kg (3,040 lb)	1,540 kg (3,395 lb)

* Subject to filtration degree & water quality.

** For special low pressure conditions & fine filtration with SLN, Please consult Amiad.

Flushing Data				
Exhaust valve	3"	3"	4"	6"
Flushing cycle time	25 sec	25 sec	25 sec	25 sec
Reject water volume per flush cycle	280 liter (74 gallon)	350 liter (92.5 gallon)	480 liter (127 gallon)	560 liter (148 gallon)
Minimum flow for flushing	40 m ³ /h (176 gpm)	50 m ³ /h (220 gpm)	70 m ³ /h (308 gpm)	80 m ³ /h (352 gpm)

Control and Electricity **	
Electric motor	0.55 kW (1Hp)
Rated operation voltage	3 phase, 220/380/440 VAC 50/60 Hz
Current consumption	2.1 Amp
Control voltage	24 VAC or DC

** Control board is available upon request.

Construction Materials ***	
Filter housing	Carbon steel, epoxy coating inside & outside
Filter lid	Carbon steel, epoxy coating inside & outside
Screen	Weavewire 316L screens or molded reinforced PP with 316L screen
Cleaning mechanism	Stainless steel 316L
Exhaust valve	Epoxy-coated cast iron, natural rubber or EPDM
Seals	Synthetic rubber, NBR
Control	Stainless steel, nylon

*** Other construction materials & coatings for corrosive use, are available upon request.

Standard Filtration Degrees

316L Stainless Steel Weavewire or Molded 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

Omega III /Omega IV

Technical Specifications (flow data at 100 micron, average water quality)

Filter Type	Omega III	Omega III E	Omega IV	Omega IV E
General Data*				
Maximum flow rate	2700 m ³ /h (11,890 gpm)	3500 m ³ /h (15,410 gpm)	4050 m ³ /h (17,830 gpm)	5250 m ³ /h (23,120 gpm)
Inlet/Outlet diameter	350 - 600 mm (14"-24") Flange standards as per request		450 - 800 mm (18"- 32") Flange standards as per request	
Minimum working pressure**	2 bar (30 psi)			
Maximum working pressure	10 bar (150 psi) 16 bar (230 psi) upon request			
Filtration area	54,000 cm ² (8,400 in ²)	72,000 cm ² (11,200 in ²)	81,000 cm ² (12,600 in ²)	108,000 cm ² (16,700 in ²)
Weight [empty]	3,780 kg (8,333 lb)	4,000 kg (8,818 lb)	5,600 kg (12,350 lb)	5,900 kg (13,010 lb)

* Subject to filtration degree & water quality.

** For special low pressure conditions & fine filtration with SLN, Please consult Amiad.

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 (2x127 gallon)	2x560 liter (2x148 gallon)	3x480 liter (3x127 gallon)	3x560 liter (3x148 gallon)
Minimum flow for flushing	2x70 m ³ /h (2x308 gpm)	2x80 m ³ /h (2x352 gpm)	3x70 m ³ /h (3x308 gpm)	3x80 m ³ /h (3x352 gpm)

Control and Electricity **	Omega III + Omega III E	Omega IV + Omega IV E
Electric motor	4 x 0.55 kW motors per filter	6 x 0.55 kW motors per filter
Rated operation voltage	3 phase, 220/380/440 VAC 50/60 Hz	
Current consumption	2.1 Amp	
Control voltage	24 VAC or DC	

** Control board is available upon request.

Construction Materials ***	
Filter housing	Carbon steel, epoxy coating inside & outside
Filter lid	Carbon steel, epoxy coating inside & outside
Screen	Weavewire 316L screens or molded reinforced PP with 316L screen
Cleaning mechanism	Stainless steel 316L
Exhaust valve	Epoxy-coated cast iron, natural rubber or EPDM
Seals	Synthetic rubber, NBR
Control	Stainless steel, nylon

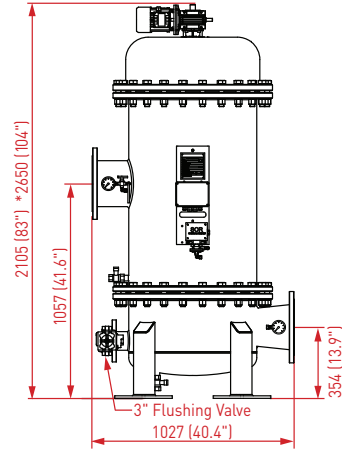
*** Other construction materials & coatings for corrosive use, are available upon request.

Standard Filtration Degrees										
316L Stainless Steel Weavewire or Molded 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

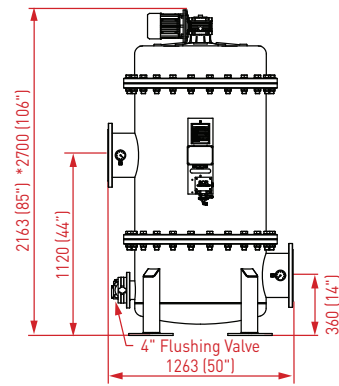
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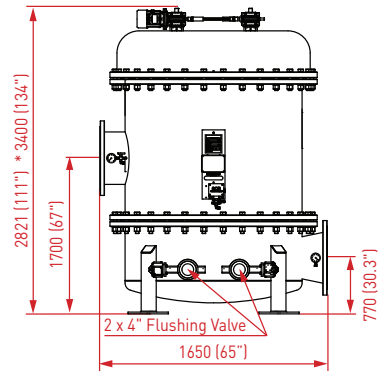
Standard Models



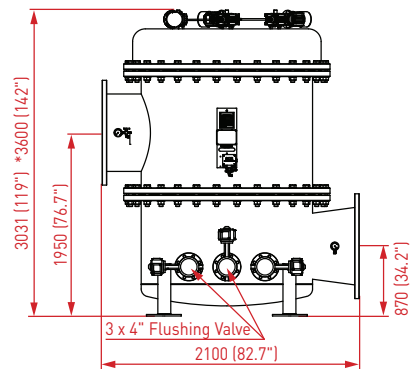
Omega II



Omega III



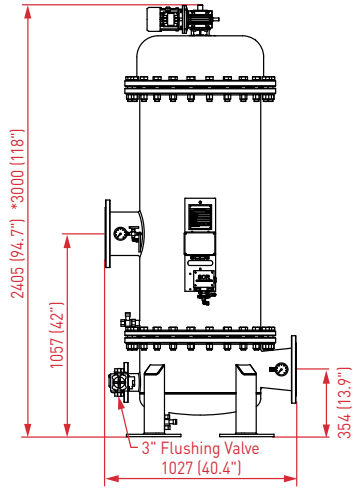
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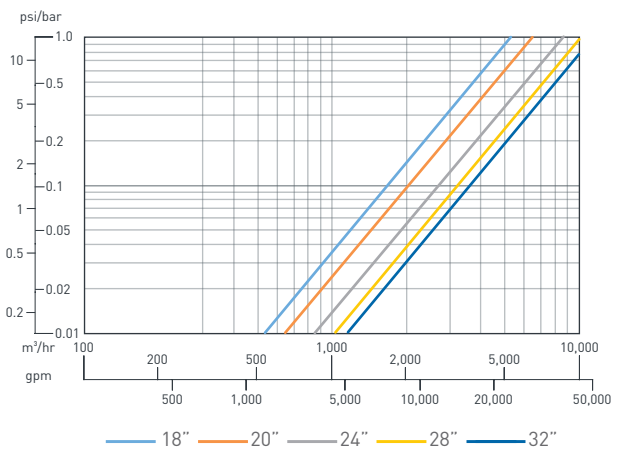
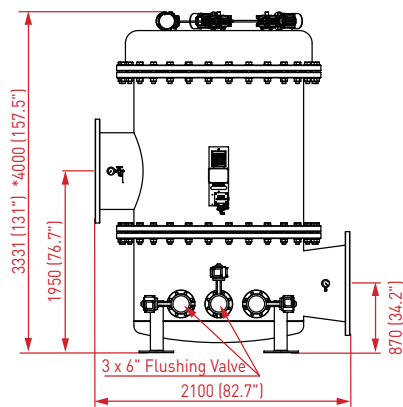
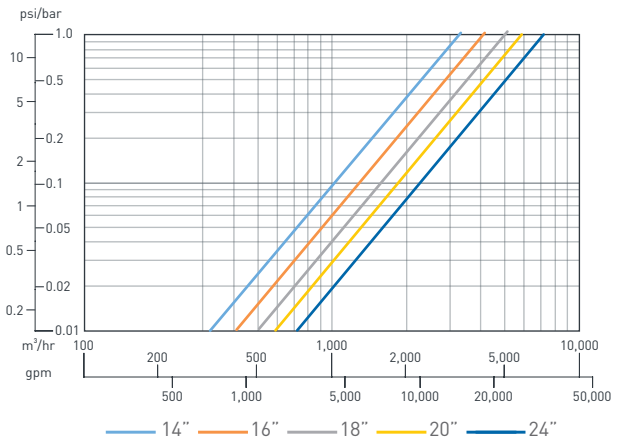
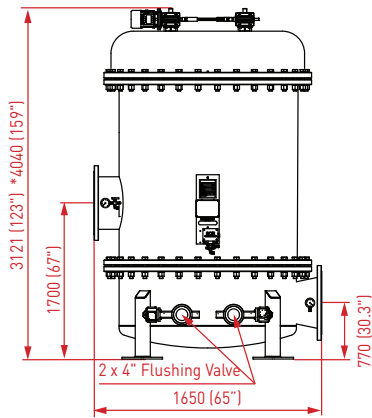
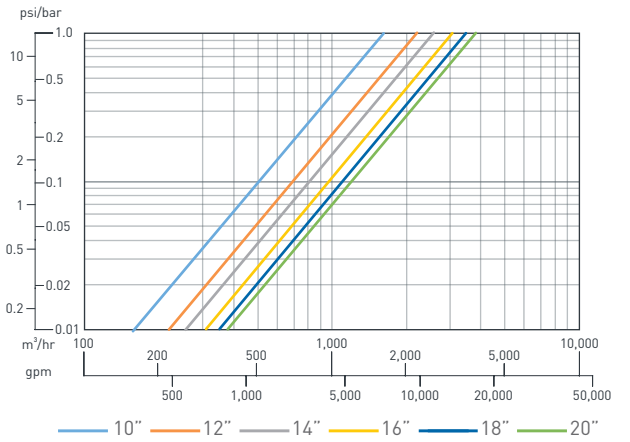
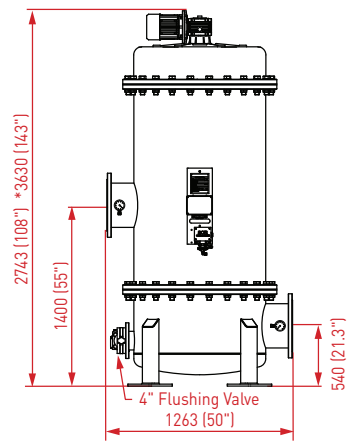
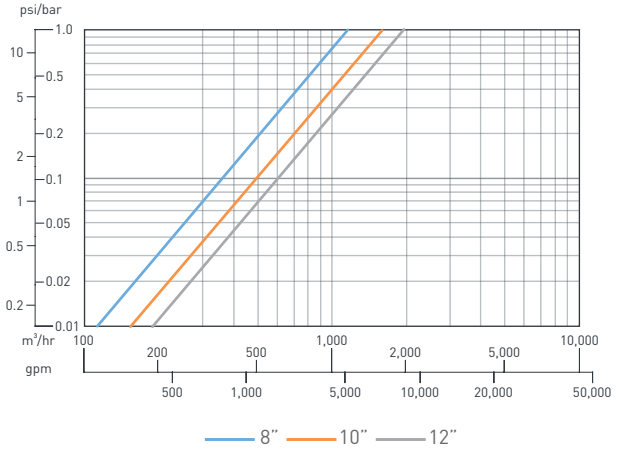
Dim: mm (inch)

*Approx. length required for maintenance.

Enlarged Models



Pressure Loss Graphs in clean water



Headquarters

Amiad Water Systems Ltd. D.N. Galil Elyon 1, 1233500, Israel,
Tel: 972 4 690 9500, Fax: 972 4 814 1159,
E-mail: info@amiad.com

America



Amiad USA Inc. Main Office and Manufacturing: 120-J Talbert Road, Mooresville, NC 28117,
Tel: 1 704 662 3133, Fax: 1 704 662 3155, Toll Free: 1 800 24 FILTER,
E-mail: info@amiadusa.com www.amiadusa.com

West Coast Sales Office and Warehouse:
2220 Celsius Avenue, Oxnard, California 93030
Tel: 805 988 3323, Fax: 805 988 3313, Toll Free: 1 800 969 4055

Brazil

Amiad Sistemas de Água Ltda., Av. Funchal, 411, Conj. 42, Vila Olimpia, São Paulo, CEP 04551-060
Tel: +55 11 31923824, E-mail: infobrasil@amiad.com

Amiad Oil & Gas, E-mail: amisur@adinet.com.uy

Mexico

Amiad Mexico SA DE CV,
Priv. Retorno 8, Lote 3, Mza. 1, Interlomas Estado de Mexico
Tel/Fax: +52 55 636 28122, E-mail: info@amiadmexico.com

Asia



India

Amiad Filtration India Pvt Limited, 305 Sai Commercial Building,
Govandi St Rd, Govandi Mumbai 400 088,
Tel: 91 22-67997813/14, Fax: 91 22-67997814, Email: info@amiadindia.com

China

Amiad China (Yixing Taixing Environtec Co., Ltd.) 70 Baihe Chang, Xingjie Yixing Jiangsu, 214204,
Tel: 86 510 87134000, Fax: 86 510 87134999, E-mail: marketing@taixing.cc

South-East Asia

Filtration & Control Systems Pte. Ltd., 22 Sin Ming Lane #07-88 Midview City, Singapore 573969,
Tel: 65 6 337 6698, Fax: 65 6 337 8180, E-mail: amiad@amiad.com.sg

Australia



Amiad Australia Pty Ltd. 138 Northcorp Boulevard, Broadmeadows, Victoria 3047,
Tel: 61 3 93585800, Fax: 61 3 93585888, E-mail: sales@amiad.com.au

Europe



Amiad Water Systems Europe SAS, Ilot No4 ZI La Boitardière, 37530 Chargé, France,
Tel: 33 (0) 2 47 23 01 10, Fax: 33 (0) 2 47 23 80 67, E-mail: info@amiad-europe.com

Germany

Amiad Water Systems SAS Europe (German branch office)
Zweigniederlassung Deutschland Prinz-Regent-Str. 68 a 44795 Bochum,
Tel: 49 (0) 234 588082-0, Fax: 49 (0) 234 588082-10, E-mail: info@amiad.de

Turkey

FTS – Filtration & Treatment Systems, Istanbul yolu 26 Km, Yurt Orta Sanayii, Saray, Ankara,
Tel: 90 312 8155266/7, Fax: 90 312 8155248, E-mail: info@fts-filtration.com

