

Omega Series

Automatic self-cleaning filter provides superior efficiency by combining a multi-screen design with Amiad's proven suction-scanning technology.



flow rates

9,700 gpm
(up to 2,200 m³/h)

filtration degrees

10-500
micron

inlet/outlet diameter

4" -20"
(DN100-DN500)

minimum working pressure

30 psi
(2 bar)

features:

- Multi-screen design based on Amiad's proven suction-scanning screen filtration technology
- Highly efficient self-cleaning mechanism to handle heavy dirt loads
- Remarkable operation in fine filtration degrees, down to 10 micron
- Compact footprint
- Exceptionally high filtration area and flow rate per unit
- ASME/ATEX/IECEX available upon request
- **Applications:** Industrial, Municipal and Irrigation

How the Omega Filter Works

General

The Amiad Omega Series of automatic filters have multiple screens operated by a common electrically-driven cleaning mechanism. The flow rate ranges from 350 gpm (80 m³/h) to 9,700 gpm (2,200 m³/h) and the filtration degree from 10-500 micron. Inlet/Outlet flange connections are available from 4"-20" (DN100 - DN500).

Filtration Process

Raw water enters from the filter inlet and passes through the multiple screens. Filtered water flows through the filter outlet. The gradual dirt buildup on the inner screen's surface causes an increase of the pressure differential across the filter. The self-cleaning process begins when the pressure differential reaches a pre-set value.

Self-Cleaning Process

Once the self-cleaning cycle is initiated, the exhaust valve opens, creating a high velocity suction force at the scanner nozzles tips which hydraulically vacuums the filter cake from the screen's surface. The multiple Spring Loaded Nozzles (SLN) simultaneously scan the screens in a helical path by a two-way reversing motorized drive transmission.

The duration of the self-cleaning process is approximately 25 seconds, during which filtered water continues to flow through the filter.

Control System

Operation and monitoring is done by PLC (Programmable Logic Controller). The PLC allows maximum operation flexibility and provides a wide range of control options from an independent stand-alone unit up to full integration within the customer's central control system.

Initiation of self-cleaning process:

1. Flushing by pressure differential – DP analog or digital signal
2. Flushing by time intervals
3. Continuous flushing – regardless of DP or time
4. Remote or local manual start

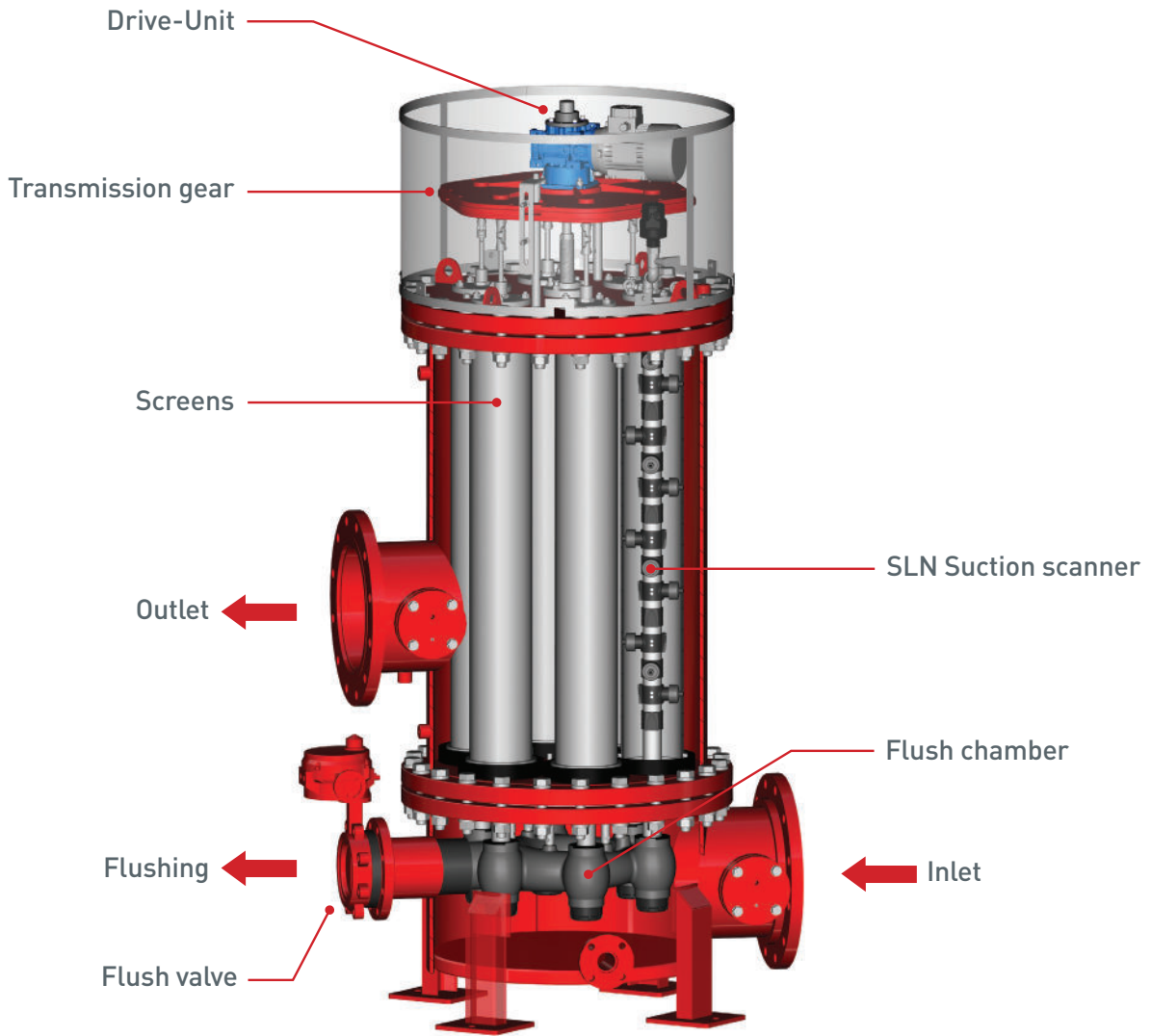
The PLC also provides:

- Flush cycle counter
- Cause of flushing statistics
- Faults and alarms, reaction and messages

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

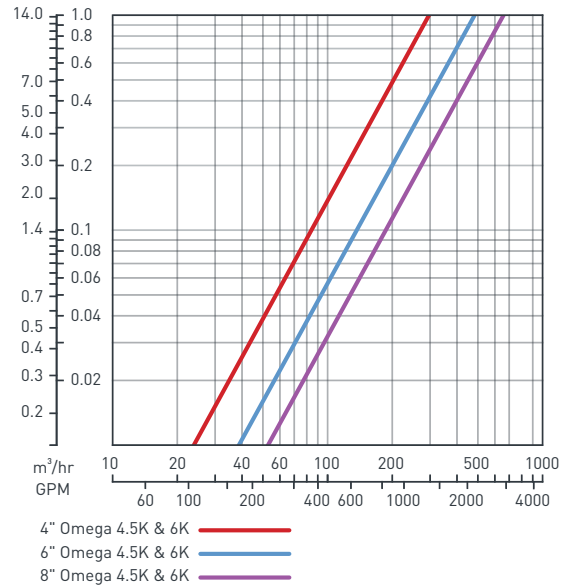
- Omega 4.5K for up to 800 gpm (180 m³/h)
- Omega 6K for up to 1,100 gpm (240 m³/h)
- Omega 13.5K for up to 2,400 gpm (550 m³/h)
- Omega 18K for up to 3,300 gpm (750 m³/h)
- Omega 27K for up to 4,800 gpm (1,100 m³/h)
- Omega 36K for up to 6,600 gpm (1,500 m³/h)
- Omega 54K for up to 9,900 gpm (2,250 m³/h)

Omega Cross-section drawing:

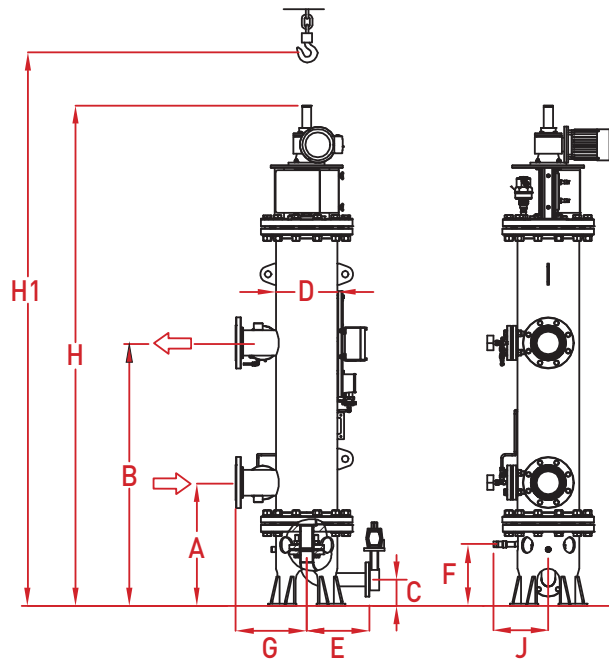


Omega 4.5K/6K

Pressure Loss Graphs in clean water



Dimensional drawings



Model	A	B	C	D	E	F	G	H	H1	J
Omega 4.5K	21.5" [547 mm]	45.9" [1,167 mm]	4.6" [116 mm]	10" [273 mm]	11" [280 mm]	10.91" [277 mm]	12.4" [315 mm]	88.6" [2,220 mm]	137.8" [3,500 mm]	9.6" [244 mm]
Omega 6K	21.5" [547 mm]	46" [1,167 mm]	4.5" [116 mm]	10" [273 mm]	11" [280 mm]	10.94" [278 mm]	12.4" [315 mm]	100" [2,540 mm]	149.6" [3,800 mm]	9.6" [244 mm]

Note: All dimensions are for reference only. Certified drawings are available upon request.

Omega 4.5K, 6K

Technical Specifications

Filter Model	Omega 4.5K	Omega 6K
General Data		
Maximum flow rate*	800 gpm (180 m ³ /h)	1,100 gpm (240 m ³ /h)
Inlet/Outlet size (Flange standards as per request)	4" - 8" (DN100 - DN200)	
Minimum working pressure	30 psi (2 bar)	
Maximum working pressure	150 psi (10 bar)/ 240 psi (16 bar) upon request	
Filtration area	700 in ² (4,500 cm ²)	930 in ² (6,000 cm ²)
Weight (empty)	772 lb. (350 kg)	790 lb. (360 kg)
Operational weight	926 lb. (420 kg)	1,010 lb. (460 kg)

* Consult Amiad for optimum flow depending on filtration degree and water quality.

Flushing Data		
Exhaust valve	2" (DN50)	
Flushing cycle time	15 - 25 seconds	
Reject water volume per flush cycle	18 gallon (70 liter)	24 gallon (90 liter)
Minimum flow for flushing	44 gpm (10 m ³ /hr)	57 gpm (13 m ³ /hr)

Control and Electricity **		
Electric motor	0.25 kW/0.33 HP	
Rated operation voltage	3 phase, 230/400/460 VAC 50/60 HZ	
Current consumption	1.0 A	
Control voltage	24 VDC (24 AC and other voltages upon request)	

** Control board is available upon request.

Construction materials ***		
Filter housing and lid	Epoxy coated fabricated carbon steel	
Filtration elements	Multi-layer reinforced weave wire stainless steel 316L screens	
Cleaning mechanism	Stainless steel 316L and polymeric materials	
Exhaust valve	Cast iron rubber lined	
Seals	NBR/EPDM	
Control and instrumentations	Stainless steel and polymeric	

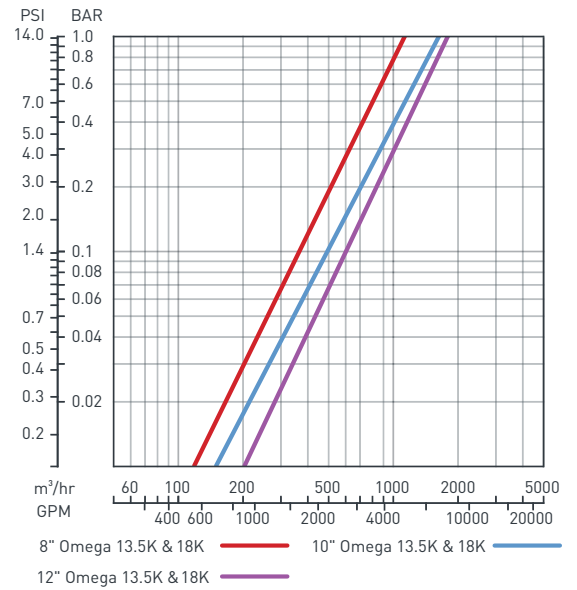
*** Other construction materials and coatings for corrosive environment are available upon request.

Note: Coarse pre-filtration screen is available for horizontal installations or for special requirements.

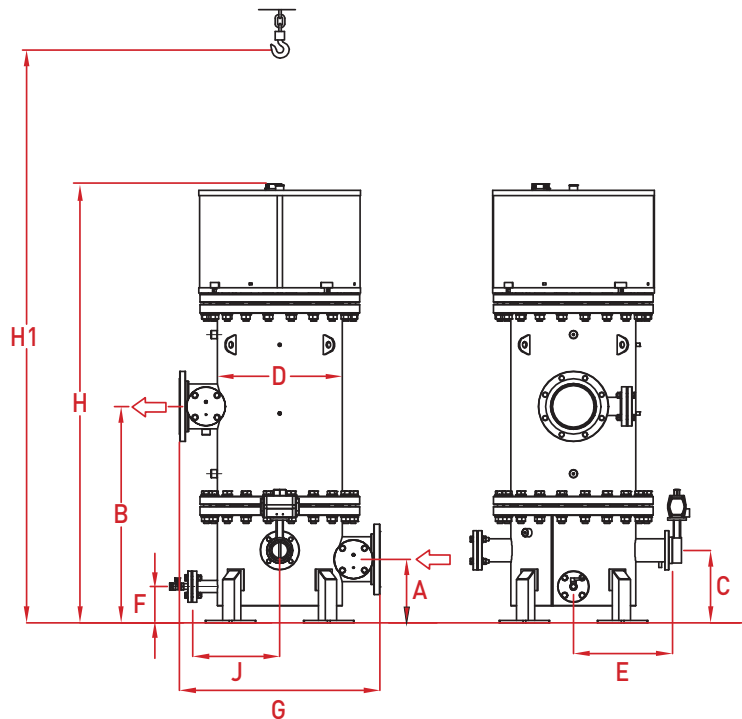
Standard Filtration Degrees												
Stainless steel weave wire screen												
micron	500	300	200	130	100	80	50	40	30	20	10	
mm	0.5	0.3	0.2	0.13	0.1	0.08	0.05	0.04	0.03	0.02	0.01	

Omega 13.5K/18K

Pressure Loss Graphs in clean water



Dimensional drawings



Model	A	B	C	D	E	F	G	H	H1	J
Omega 13.5K	12.20" [310 mm]	41.6" [1,057 mm]	13.9" [354 mm]	24" [610 mm]	19.0" [482 mm]	7.0" [177 mm]	40.4" [1,027 mm]	84.4" [2,144 mm]	121.7" [3,090 mm]	16.7" [424 mm]
Omega 18K	12.2" [310 mm]	41.6" [1,057 mm]	13.9" [354 mm]	24" [610 mm]	19.0" [482 mm]	7.0" [177 mm]	40.4" [1,027 mm]	84.4" [2,144 mm]	145.5" [3,695 mm]	16.7" [424 mm]

Note: All dimensions are for reference only. Certified drawings are available upon request.

Omega 13.5K, 18K

Technical Specifications

Filter Model	Omega 13.5K	Omega 18K
General Data		
Maximum flow rate*	2,400 gpm (550 m ³ /h)	3,300 gpm (750 m ³ /h)
Inlet/Outlet size (Flange standards as per request)	8" -12" (DN200-DN300)	
Minimum working pressure	30 psi (2 bar)	
Maximum working pressure	150 psi (10 bar)/ 240 psi (16 bar) upon request	
Filtration area	2,100 in ² (13,500 cm ²)	2,800 in ² (18,000 cm ²)
Weight (empty)	2,183 lb. (990 kg)	2,240 lb. (1050 kg)
Operational weight	3,086 lb. (1,400 kg)	3,390 lb. (1540 kg)

* Consult Amiad for optimum flow depending on filtration degree and water quality.

Flushing Data		
Exhaust valve	3" (DN80)	
Flushing cycle time	15 – 25 seconds	
Reject water volume per flush cycle	55 gallon (210 liter)	72 gallon (270 liter)
Minimum flow for flushing	132 gpm (30 m ³ /hr)	176 gpm (40 m ³ /hr)

Control and Electricity **		
Electric motor	0.55 kW/0.73 HP	
Rated operation voltage	3 phase, 230/400/460 VAC 50/60 HZ	
Current consumption	1.4 A	
Control voltage	24 VDC (24 AC and other voltages upon request)	

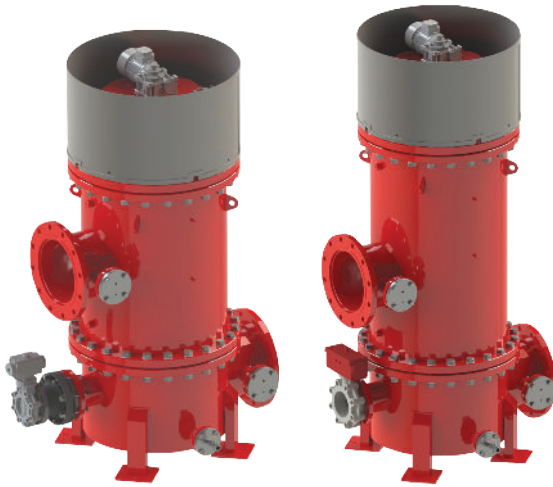
** Control board is available upon request.

Construction materials ***		
Filter housing and lid	Epoxy coated fabricated carbon steel	
Filtration elements	Multi-layer reinforced weave wire stainless steel 316L screens	
Cleaning mechanism	Stainless steel 316L and polymeric materials	
Exhaust valve	Cast iron rubber lined	
Seals	NBR/EPDM	
Control and instrumentations	Stainless steel and polymeric	

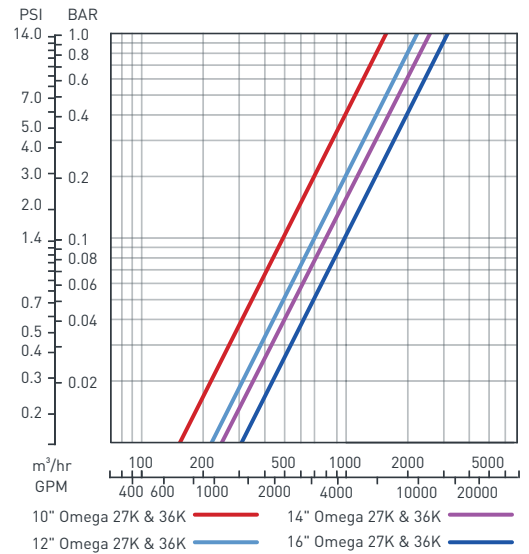
*** Other construction materials and coatings for corrosive environment are available upon request.

Standard Filtration Degrees												
Stainless steel weave wire screen												
micron	500	300	200	130	100	80	50	40	30	20	10	
mm	0.5	0.3	0.2	0.13	0.1	0.08	0.05	0.04	0.03	0.02	0.01	

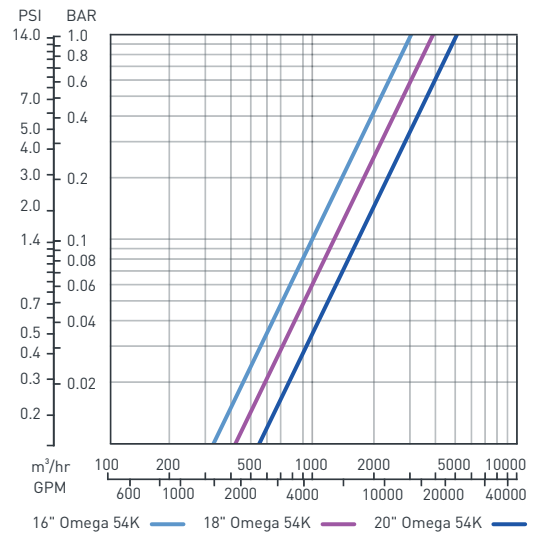
Omega 27K/36K



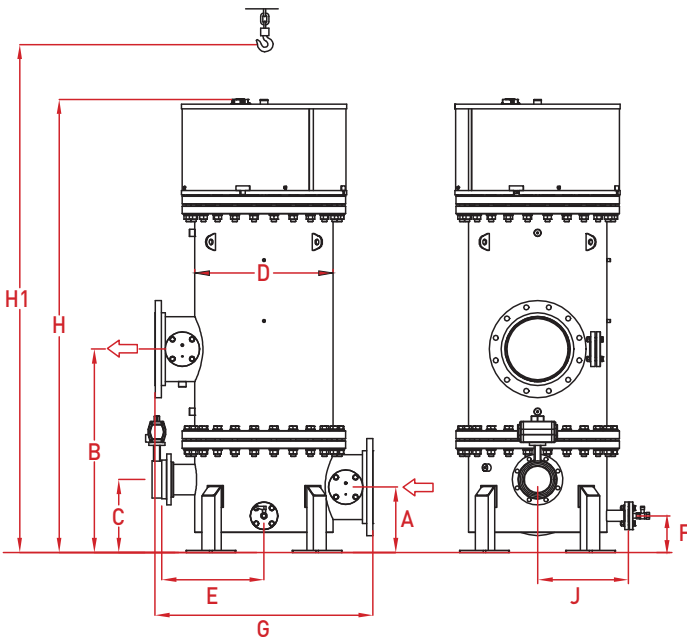
Pressure Loss Graphs in clean water



Omega 54K



Dimensional drawings



Model	Omega 27K	Omega 36K	Omega 54K
A	14.2" (360 mm)	21.26" (540 mm)	15.75" (400 mm)
B	44.1" (1,120 mm)	55.12" (1,400 mm)	55.1" (1,400 mm)
C	15.8" (402 mm)	26.85" (682 mm)	15.8" (400 mm)
D	21.35" (762 mm)	30" (762 mm)	32" (813 mm)
E	22.2" (563 mm)	22.2" (563 mm)	21.7" (550 mm)
F	8.0" (202 mm)	8.0" (202 mm)	3.3" (84 mm)
G	49.3" (1,253 mm)	49.3" (1,253 mm)	49.21" (1,250 mm)
H	86.5" (2,196 mm)	109.4" (2,778 mm)	112" (2,845 mm)
H1	123.6" (3,140 mm)	158.7" (4,030 mm)	167.3" (4,250 mm)
J	19.7" (500 mm)	19.7" (500 mm)	19.7" (500 mm)

Note: Dimensions may vary according to inlet/outlet flange size. Certified drawings are available upon request.

Omega 27K, 36K, 54K

Technical Specifications

Filter Model	Omega 27K	Omega 36K	Omega 54K
General Data			
Maximum flow rate*	4,850 gpm (1,100 m ³ /h)	6,600 gpm (1,500 m ³ /h)	9,900 gpm (2,250 m ³ /h)
Inlet/Outlet size (Flange standards as per request)	10" -16" (DN250 – DN400)		16" -20" (DN400-DN500)
Minimum working pressure	30 psi (2 bar)		
Maximum working pressure	150 psi (10 bar)/240 psi (16 bar) upon request		
Filtration area	4,185 in ² (27,000 cm ²)	5,600 in ² (36,000 cm ²)	8,400 in ² (54,000 cm ²)
Weight (empty)	3,042 lb. (1,380 kg)	3,439 lb. (1,560 kg)	5,170 lb. (2,345 kg)
Operational weight	4,475 lb. (2,030 kg)	5,556 lb. (2,520 kg)	10,990 lb. (4,985 kg)

* Consult Amiad for optimum flow depending on filtration degree and water quality.

Flushing Data			
Exhaust valve	4" (DN100)	6" (DN150)	6" (DN150)
Flushing cycle time	15 – 25 seconds		
Reject water volume per flush cycle	110 gallon (420 liter)	145 gallon (550 liter)	220 gallon (840 liter)
Minimum flow for flushing	264 gpm (60 m ³ /hr)	352 gpm (80 m ³ /hr)	528 gpm (120 m ³ /hr)

Control and Electricity **			
Electric motor	0.75 kW/1.0 HP		1.1 kW/1.4 HP
Rated operation voltage	3 phase, 230/400/460 VAC 50/60 HZ		
Current consumption	1.9 A		2.4 A
Control voltage	24 VDC (24 AC and other voltages upon request)		

** Control board is available upon request.

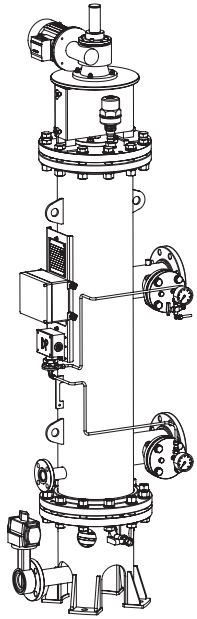
Construction materials ***			
Filter housing and lid	Epoxy coated fabricated carbon steel		
Filtration elements	Multi-layer reinforced weave wire stainless steel 316L screens		
Cleaning mechanism	Stainless steel 316L and polymeric materials		
Exhaust valve	Cast iron rubber lined		
Seals	NBR/EPDM		
Control and instrumentations	Stainless steel and polymeric		

*** Other construction materials and coatings for corrosive environment are available upon request.

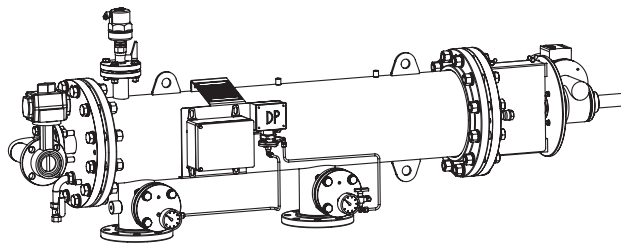
Standard Filtration Degrees											
Stainless steel weave wire screen											
micron	500	300	200	130	100	80	50	40	30	20	10
mm	0.5	0.3	0.2	0.13	0.1	0.08	0.05	0.04	0.03	0.02	0.01

Omega - Optional Configurations:

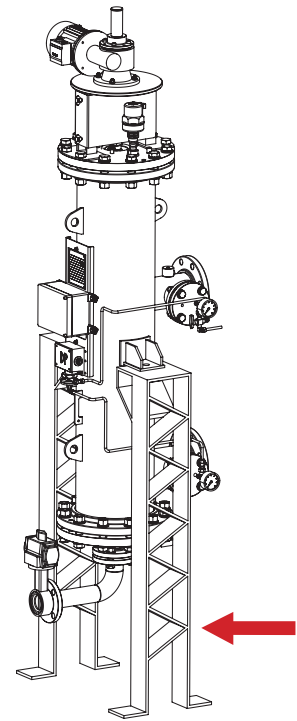
Omega 4.5K-6K Installation Options



Vertical with heavy duty support legs



Horizontal Installation



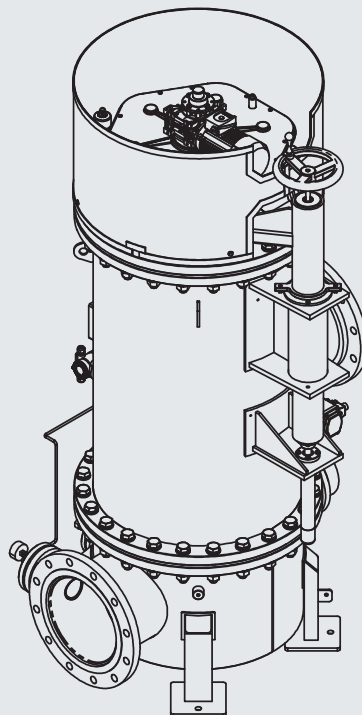
By customer

Vertical with lug support for skid mounting

Optional Davit Arm Lift

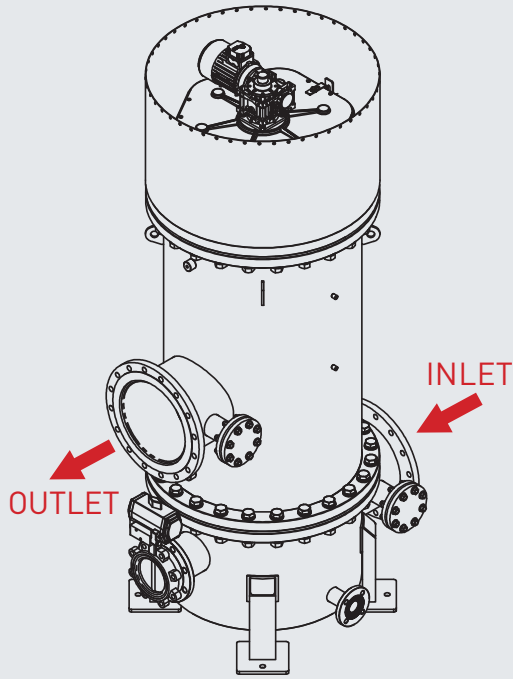
Models are available with a specifically-designed manual Davit arm lift for easy vessel lid removal

***Must be specified in order

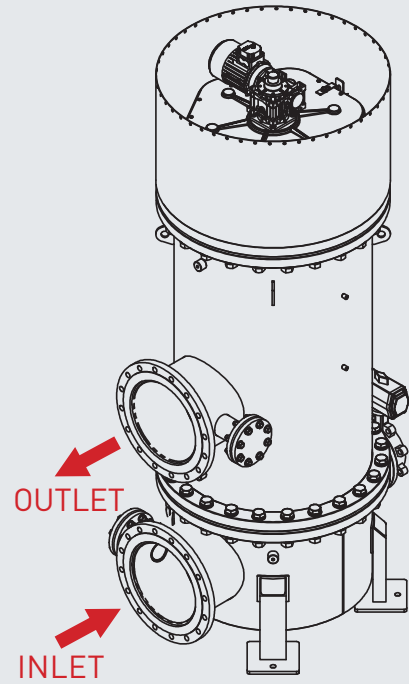


Optional Inlet-Outlet Configurations:

The inlet and outlet flanges can be configured in different positions, and easily integrated into customer's layout.

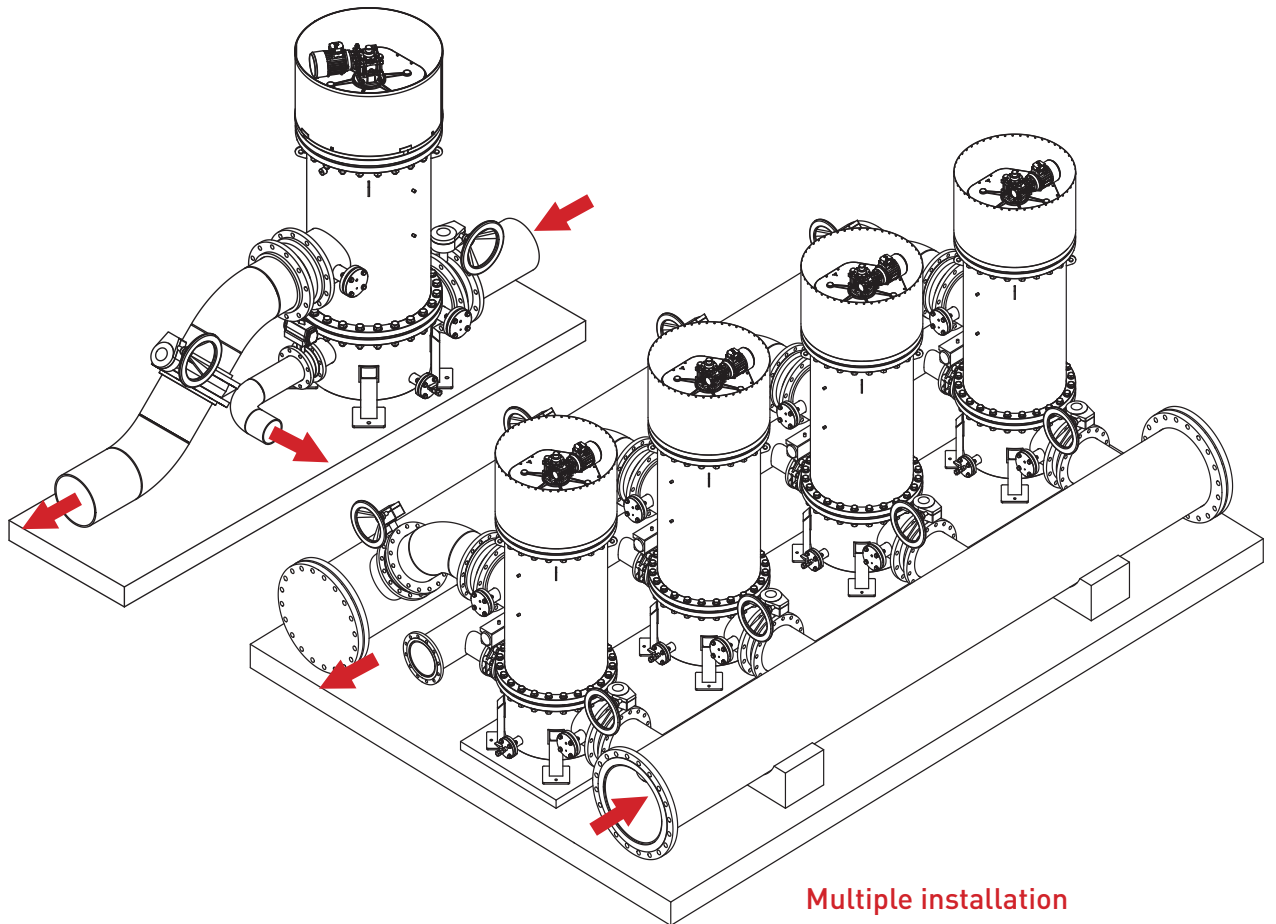


Inlet/Outlet - Opposite sides



Inlet/Outlet - Same side

Typical Installation Drawings



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