

# Media Filters

Versatile high quality Media Filters solution for depth filtration applications



flowrates standard vessels

**up to 110 m<sup>3</sup>/h  
(484 US gpm)  
per unit**

filtration degrees

**depends on:  
water quality  
water flowrate  
filter bed type**

diameters standard vessels

**16" – 60"**

tested pressure

**10 bar (150 psi)**

## features:

- Complete filtration solutions; Custom designed, manual or automatic backwash systems, complete with manifolds, valves and controllers
- Modularity and flexibility, wide range of vessel types and sizes suitable for many filtration applications
- High quality corrosion resistance vessels, Phosphate pre-treated, Polyester coated steel
- High efficiency; Advanced design for perfect water distribution during filtering and backwashing
- All filters are rated to 10 bar (150psi)
- Various bed types, Sand, Gravel, Activated Carbon, Anthracite, Basalt, etc.
- Various connection types, meeting all international standards
- Meets ISO 9001 standards

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## How the MEDIA Filters Work

### General

With its MEDIA filters line Amiad provides a complete solution for depth filtration requirements.

Amiad's MEDIA filter-vessels are high quality corrosion resistant, polyester coated steel tanks. These modular vessels are Phosphate pre-treated, tested for pressure 10 bars and are available in wide range of types and sizes for flexibility and custom designed applications. Amiad MEDIA vessels are designed for perfect water distribution during filtering and backwashing, providing high filtration efficiency.

In addition to the high quality vessels, Amiad's MEDIA filters line consists of the necessary accessories for constructing a fully operational filtration application, a complete line of manifolds, standard connectors, valves, granular media types and control systems.

Amiad's MEDIA filters use various granular bed types for perfect matching with the raw water type and the filtration degree required. Other bed types include various grades of sand, gravel, activated carbon, anthracite and basalt.

Multi-layer bed types can also be supplied according to the design requirements of the customer application.

Amiad provides excellent design & service capabilities for helping our customers to acquire the best solution for their custom designed manual or automatic backwash system, complete with manifolds, valves and control requirements.

A typical depth filtration installation is assembled from several media vessels connected together to form a filtration battery. The number of the vessels, the diameter of the manifolds and the size & number of the valves depend on the required flowrate, raw water quality and the required filtration degree of the system. Please consult your Amiad dealer for the best design.

Amiad's on-the-shelf standard vessels support flowrates of 6-110 m<sup>3</sup>/h (26-484 US gpm) per unit, with various filtration degrees and vessel inlet/outlet connections of 2"-4" in diameter. Other sizes are available upon request.

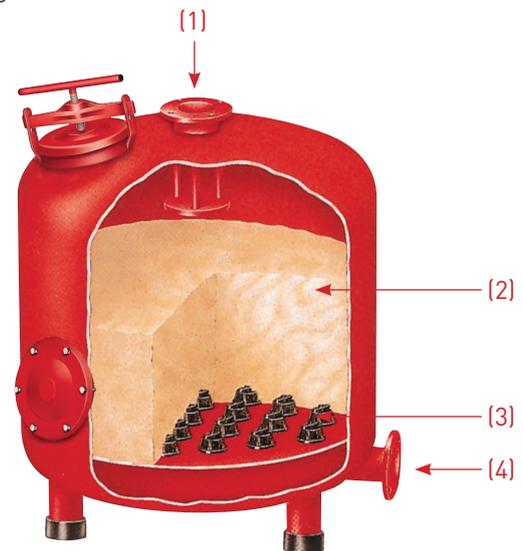
### The Filtering Process

Filtering with media filters, also known as depth filtration, is done by filtering water through a thick layer of graded particles, called the filter bed. These particles can be sand, gravel or other granular materials. The filtration degree depends on the effective size of the bedding and the water velocity through the filter.

Raw water enters from the filter inlet (1) and percolates through the filter bed (2). Suspended materials come into contact and attach to the media particles. Clean water flows through the filtration nozzles (3) and out of the filter via the outlet valve (4).

The gradual dirt buildup in the filter bed causes an increase in the pressure differential across the filter and when it reaches its maximum design value, a cleaning process should be performed.

In automatic media filter installations a pressure differential switch senses the pressure differential and when it reaches a preset value, the self cleaning process begins.



## **The Cleaning Process**

Cleaning is done by backwashing; pressurized water flows in reverse direction – from the nozzles upwards, causing suspension of the filter bed, thus releasing the suspended matter from the bedding. The dirt particles are then washed out of the filter through the back-flush valve. In automatic media filters installations the cleaning process is done by the system's controller. When the pressure differential switch senses that the differential pressure across the system reached a pre-set value, a signal is sent to the flushing controller and the self cleaning process begins.

## **The Control System**

Amiad supplies several control systems for its MEDIA filters such as Electrical Control Boards, Programmable Logic Controllers (PLCs) and Amiad's proprietary AC/DC Flushing Controllers for supporting any size of media filters installation, starting at a single vessel and ending at very large filtration batteries.

Amiad control systems starts the self-cleaning cycle under any one of the following conditions:

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

The control systems also provide:

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

## **Amiad "MEDIA" Filters Models**

Amiad's "MEDIA" product-line consists of standard on-the-shelf vessel units and specially designed vessels and systems. The following is a list of the standard vessels:

- 16"/2" for up to 10 m<sup>3</sup>/h (44 US gpm)
- 20"/2" for up to 18 m<sup>3</sup>/h (79 US gpm)
- 24"/2" for up to 25 m<sup>3</sup>/h (110 US gpm)
- 30"/3" for up to 35 m<sup>3</sup>/h (154 US gpm)
- 36"/3" for up to 50 m<sup>3</sup>/h (220 US gpm)
- 42"/3" for up to 65 m<sup>3</sup>/h (286 US gpm)
- 48"/4" for up to 90 m<sup>3</sup>/h (396 US gpm)
- 60"/4" for up to 110 m<sup>3</sup>/h (484 US gpm)

## Technical Specifications

Filter Type	16"/2" Vessel	20"/2" Vessel	24"/2" Vessel	30"/3" Vessel
<b>General</b>				
Flowrate range*	6-10 m <sup>3</sup> /h (26-44 US gpm)	10-18 m <sup>3</sup> /h (44-79 US gpm)	15-25 m <sup>3</sup> /h (66 -110 US gpm)	15-35 m <sup>3</sup> /h (66 -154 US gpm)
Vessel diameter	16" (400 mm)	20" (500 mm)	24" (600 mm)	30" (750 mm)
Inlet/Outlet diameter	Threaded 1.5" (40 mm)	Threaded 2" (50 mm)	Threaded 2" (50 mm)	Flanged or Victaulic 3" (80 mm)
Filtration degrees	Depends on filter-bed type and raw water quality			
Max. working pressure	6.5 bar (97 psi)			
Tested pressure	10 bar (150 psi)			
Max. working temperature	60°C (140°F)			
Vessel Weight [empty]	35 kg (77 lb)	50 kg (110.2 lb)	95 kg (209 lb)	125 kg (275.5 lb)
Vessel Volume	90 liter (23.7 gallon)	150 liter (39.6 gallon)	275 liter (72.6 gallon)	350 liter (92.5 gallon)

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

<b>Flushing Data</b>				
Minimum flow for flushing	9-11 m <sup>3</sup> /h (39-48 US gpm)	12-16 m <sup>3</sup> /h (52-70 US gpm)	18-25 m <sup>3</sup> /h (79-110 US gpm)	30-38 m <sup>3</sup> /h (132-167 US gpm)
Reject water volume per flush cycle	225-366 liter (59-96 US gallon)	300-535 liter (79-141 US gallon)	450-830 liter (118-219 US gallon)	750-1260 liter (198-332 US gallon)
Flushing cycle time	90-120 seconds			
Exhaust valve	2" 50 mm		3" 80 mm	
Flushing criteria	Differential pressure of 0.5 bar (7psi), time intervals and manual operation			

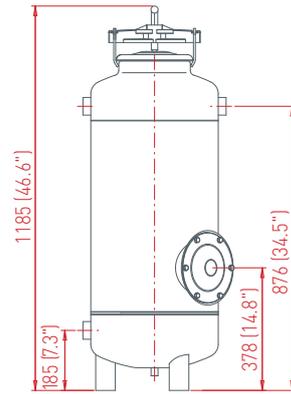
<b>Data</b>				
Bed depth	400 mm (15.7 In)	400 mm (15.7 In)	400 mm (15.7 In)	400 mm (15.7 In)
Bed volume	65 liter (17.2 gallon)	100 liter (26.4 gallon)	140 liter (37 gallon)	175 liter (46.2 gallon)
Bed weight 1 mm graded gravel	100 kg (220 lb)	160 kg (352 lb)	210 kg (463 lb)	280 kg (617 lb)

<b>*Construction Materials</b>	
Filter vessel	Phosphate pre-treated, Polyester coated steel
Seals	NBR
Filter covers	Phosphate pre-treated, Polyester coated steel
Nozzles	Polypropylene

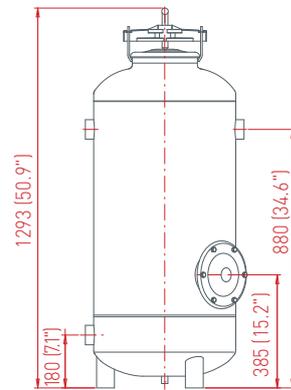
\* Amiad offers a variety of construction materials. Consult us for specifications.

16"/2"

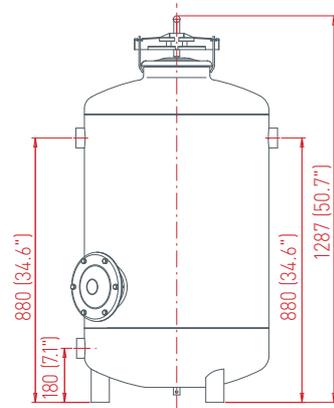
Typical Installation Drawing



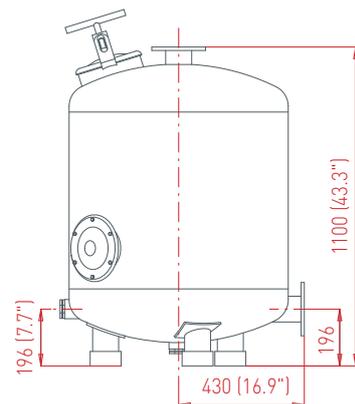
20"/2"



24"/2"



30"/3"



Dim: mm (inch)

## Technical Specifications

Filter Type	36"/3" Vessel	42"/3" Vessel	48"/4" Vessel	60"/4" Vessel
<b>General</b>				
Flowrate range*	30-50 m <sup>3</sup> /h (132-220 US gpm)	45-65 m <sup>3</sup> /h (198-286 US gpm)	50-90 m <sup>3</sup> /h (220-396 US gpm)	80-110 m <sup>3</sup> /h (352-484 US gpm)
Vessel diameter	36" (900 mm)	42" (1050 mm)	48" (1200 mm)	60" (1500 mm)
Inlet/Outlet diameter	Flanged or Victaulic 3" (80 mm)	Flanged or Victaulic 3" (80 mm)	Flanged or Victaulic 4" (100 mm)	Flanged or Victaulic 4" (100 mm)
Filtration degrees	Depends on filter-bed type and raw water quality			
Max. working pressure	6.5 bar (97 psi)			
Tested pressure	10 bar (150 psi)			
Max. working temperature	60°C (140°F)			
Vessel Weight [empty]	200 kg (440.8 lb)	245 kg (540 lb)	300 kg (661 lb)	400 kg (882 lb)
Vessel Volume	493 liter (130 gallon)	716 liter (189 gallon)	937 liter (247.5 gallon)	1465 liter (387 gallon)

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

<b>Flushing Data</b>				
Minimum flow for flushing	40-50 m <sup>3</sup> /h (176-220 US gpm)	60-75 m <sup>3</sup> /h (264-330 US gpm)	78-90 m <sup>3</sup> /h (343-396 US gpm)	125-145 m <sup>3</sup> /h (550-638 US gpm)
Reject water volume per flush cycle	100-1660 liter (264-438 US gallon)	1500-2500 liter (396-660 US gallon)	1950-3000 liter (515-792 US gallon)	3125-4830 liter (825-1276 US gallon)
Flushing cycle time	90-120 seconds			
Exhaust valve	3" 80 mm	4" 100 mm		
Flushing criteria				

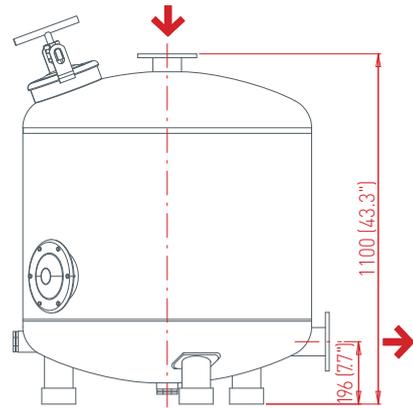
<b>Data</b>				
Bed depth	400 mm (15.7 In)	400 mm (15.7 In)	400 mm (15.7 In)	400 mm (15.7 In)
Bed volume	270 liter (71.3 gallon)	320 liter (84.5 gallon)	450 liter (118.8 gallon)	707 liter (187 gallon)
Bed weight 1 mm graded gravel	420 kg (926 lb)	480 kg (1058 lb)	720 kg (1587 lb)	1060 kg (2337 lb)

<b>*Construction Materials</b>	
Filter vessel	Phosphate pre-treated, Polyester coated steel
Seals	NBR
Filter covers	Phosphate pre-treated, Polyester coated steel
Nozzles	Polypropylene

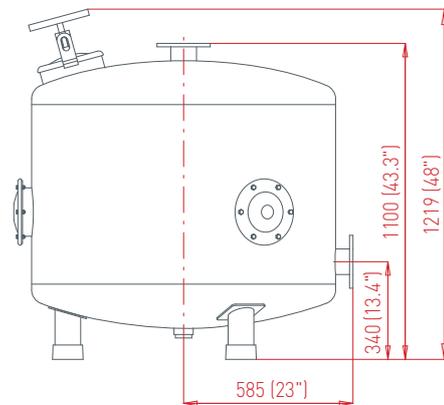
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36"/3"

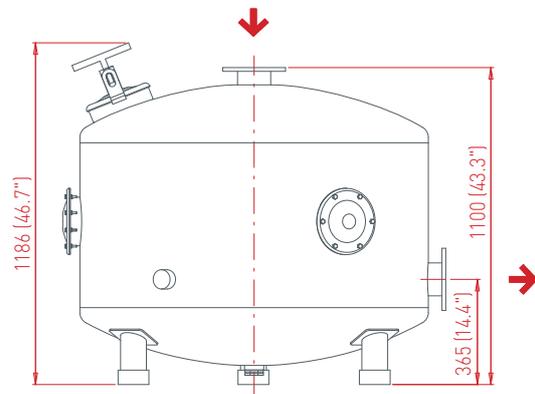
Typical Installation Drawing



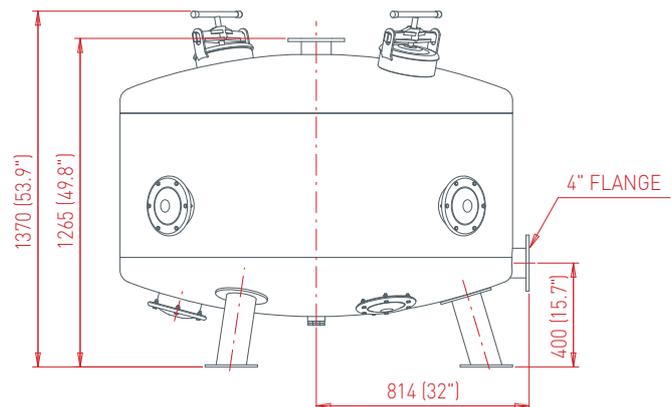
42"/3"



48"/4"



60"/4"



Dim: mm (inch)