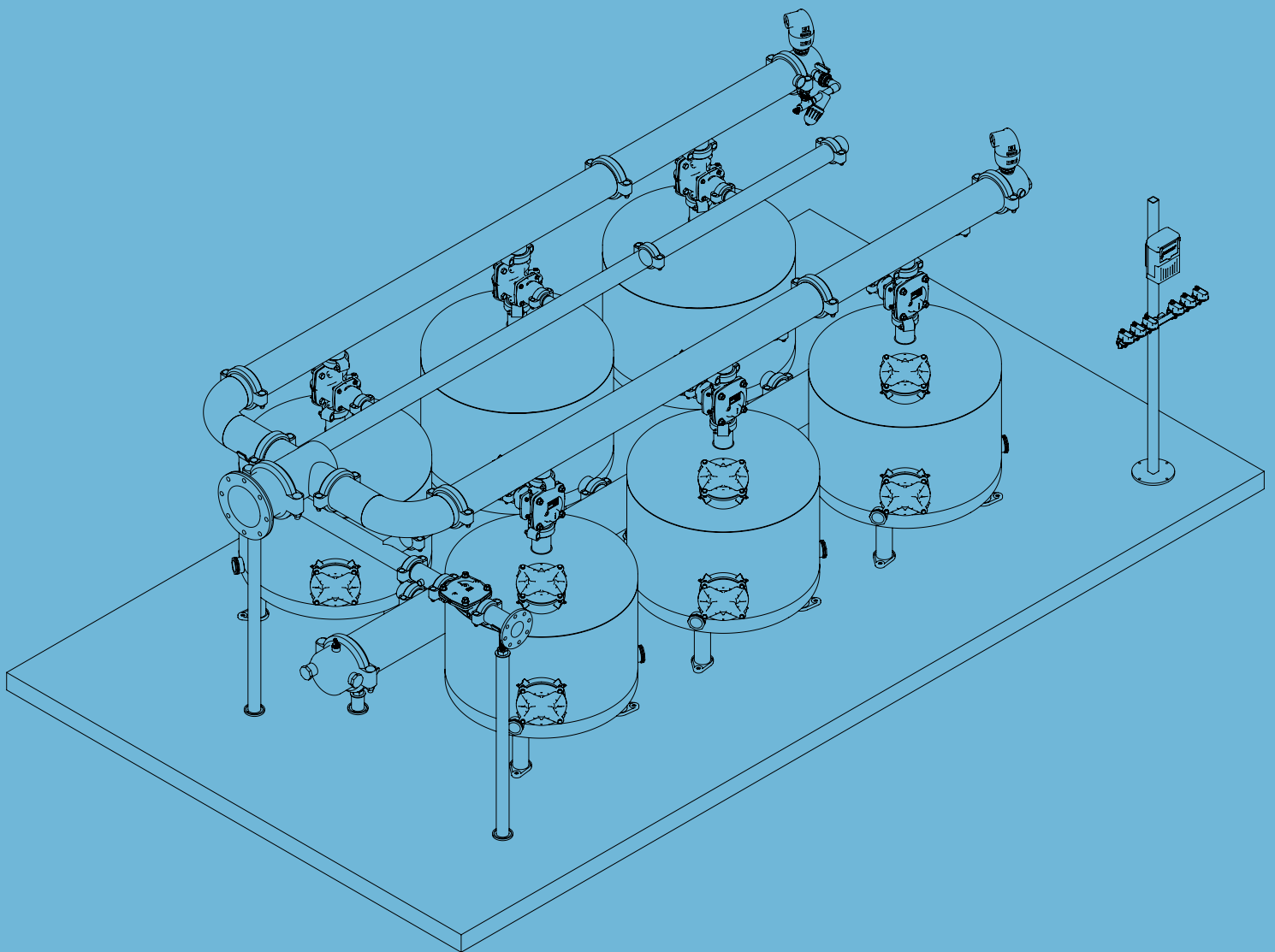


**MEDIA FILTERS**

**SAND STORM™**

**SAND STORM™ NC**

**SALES DOCUMENTATION**



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### **FOREIGN LANGUAGES**

In the event that you are reading this manual in a language other than the English language, you acknowledge and agree that the English language version shall prevail in case of inconsistency or contradiction in interpretation or translation.

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# INTRODUCTION

Over the last 50 years, while developing the best drip irrigation systems, Netafim™ acquired the knowledge and experience of what is needed in order to protect drip and micro-irrigation systems to ensure best performance, irrespective of the source water quality.

Today Netafim™ offers a complete range of filtration solutions. Netafim™ will tailor the required filtration system to address your application specific needs.

In each filtration technology (disc, screen, and media) Netafim™ offers the highest quality products and solutions required for comprehensive protection of our emission devices.

Combined with our patented drip technology, Netafim™ filters will provide the required peace of mind you need delivering the best protection drip and micro-irrigation systems require.

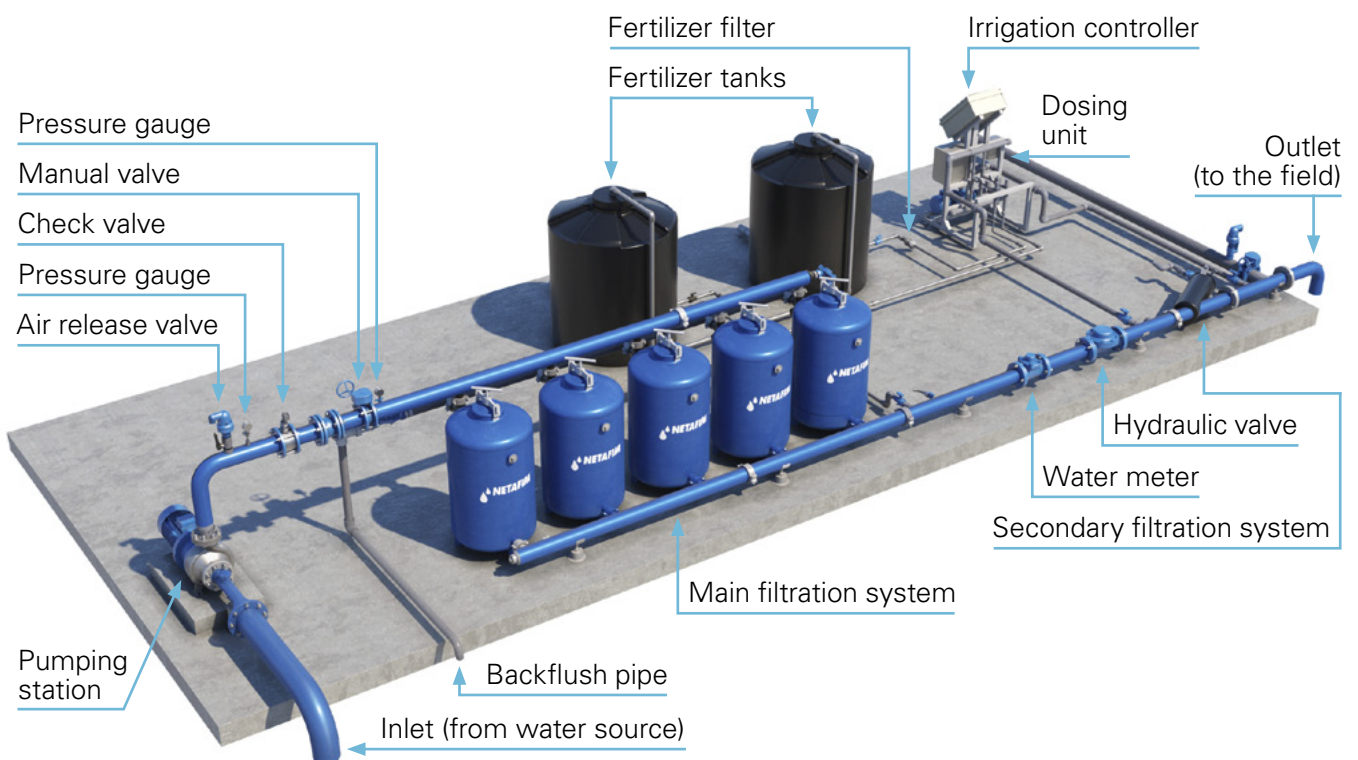
Netafim™ offers a comprehensive range of state-of-the-art media filters for the protection of drip and micro-irrigation systems:

- Sand Storm™ - metal, single chamber (see page 16)
- Sand Storm™ - metal, double chamber (see page 18)
- Sand Storm™ NC - composite material, single chamber (see page 20)

The aim of this document is to present the main features and benefits of each type of media filter, its compatibility with user requirements and site conditions and to provide the basic criteria for the selection of the best solution for each client.

## Structure of the drip-/micro-irrigation system head

The system head comprises many components, each one of them plays a vital part in the operation of the micro-irrigation system.



For a detailed overview of the micro-irrigation system see Netafim™ Drip Irrigation Handbook downloadable at <http://www.netafim.com/irrigation-products-technical-materials>.

# INTRODUCTION

## Filtration

Filtration is critical in the protection of any micro-irrigation system. Effective filtration is essential for proper irrigation system operation and long-term performance, as it prevents the contaminants in the irrigation water from clogging the emitters (drippers, jets, micro-sprinklers) and accessories.

### Filtration requirements

The design of a filtration system involves selection of filter type and filter size (capacity) depending on the general quality of the water supply, the amounts of particulate matter, carbonates and iron in the water and the kinds (if any) of nutrients and/or chemical stock solutions to be injected, with respect to the specific requirements of the micro-irrigation system.

See a description of the water analysis procedure in the Netafim™ Drip Irrigation Handbook downloadable at <http://www.netafim.com/irrigation-products-technical-materials>.

Water quality and emitter specifications will determine the filtration type, level (effective mesh size) and quantity.

- Netafim™ drippers with flow rates lower than 1 l/h require filtration of 130 micron (120 mesh).
- Netafim™ drippers with flow rates of 1 l/h or higher require filtration of 200 micron (80 mesh).
- Netafim™ jets and micro-sprinklers require filtration of 200-300 micron (80-50 mesh) depending on the emitter's flow rate.

(For other brands - contact the manufacturer).

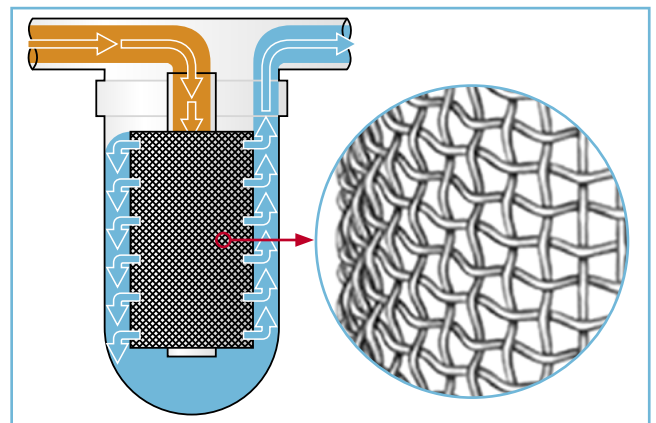
### Types of filters

The types of filters used most often in micro-irrigation systems are:

**Screen filters** (single dimensional filtration) are used mainly as secondary filters with surface water systems or as primary filters with well or municipal water sources.

A screen filter is comprised of a cylinder with a screen that traps the dirt.

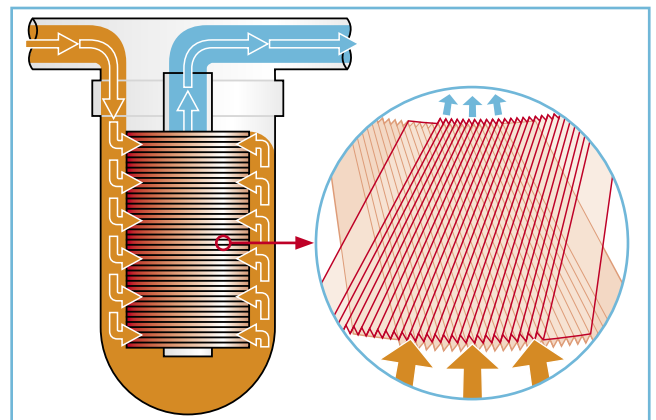
This filter is intended for relatively clean water; its use is less common with surface water (lakes, reservoirs, rivers etc.).



**Disk filters** are an excellent solution for surface water systems.

These filters are comprised of a series of grooved plastic disks stacked together providing excellent protection between 80 – 200 mesh.

This technology enables three-dimensional filtering (e.g. allow entrapment of more particles as water passes through the pores created by the grooves in the surfaces of the filtering disks stacked together in the filter), providing better quality of protection than screen filters.



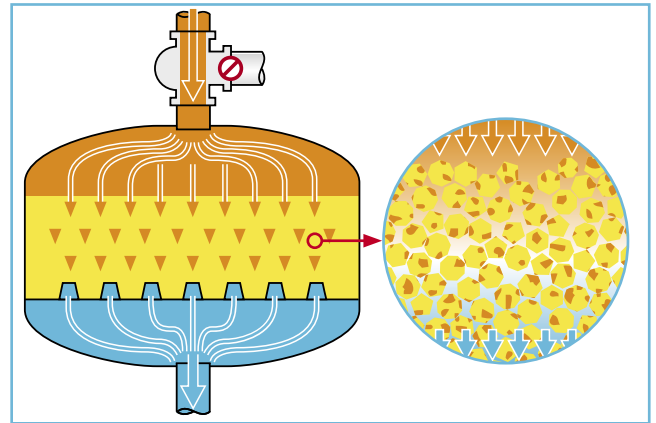
# INTRODUCTION

**Media filters** (also known as gravel filters or sand filters) are necessary for surface water source with heavy load of organic material and/or silt and clay.

They consist of a metal or composite material enclosure incorporating small gravel stones or sand, which traps the dirt.

These filters enable deep three-dimensional filtering (e.g. allow entrapping of more particles as water passes through the gravel in the filter).

Media filtration systems have proven to be the optimal filtration solutions for water from a variety of sources that is used for micro-irrigation applications.



## Selecting a media filtration system

Selection and design of the media filtration system are critical to the efficiency, longevity and manageability of the entire irrigation system.

**The selection of the media filtration system is based on:**

- Irrigation system (media filtration is typically suitable for drip irrigation systems)
- Required filtration (mesh size or microns)
- Type and quantity of impurities in the water (according to the water analysis - TSS and PSD)
- Required flow rate (capacity)
- Maximum and minimum water pressure
- Future needs (modification, expansion)

# MEDIA FILTRATION SYSTEM

## General description

Media filtration is a process where unfiltered water, contaminated with silt/clay, and organic materials flows through a sand/gravel bed that retains the suspended material as the water passes through it at a relatively slow flow rate inside a pressurized tank. This media captures the debris that would normally clog the emitters in the field.

These systems have an effective and efficient design whose high quality filtration and easy and efficient backflush mechanism ensure the user of a consistent, credible water supply for the long term optimal protection of the micro-irrigation system.

Media filters are designed to provide high quality and cost effective filtration solutions for water with a high contamination of organic material and algae.

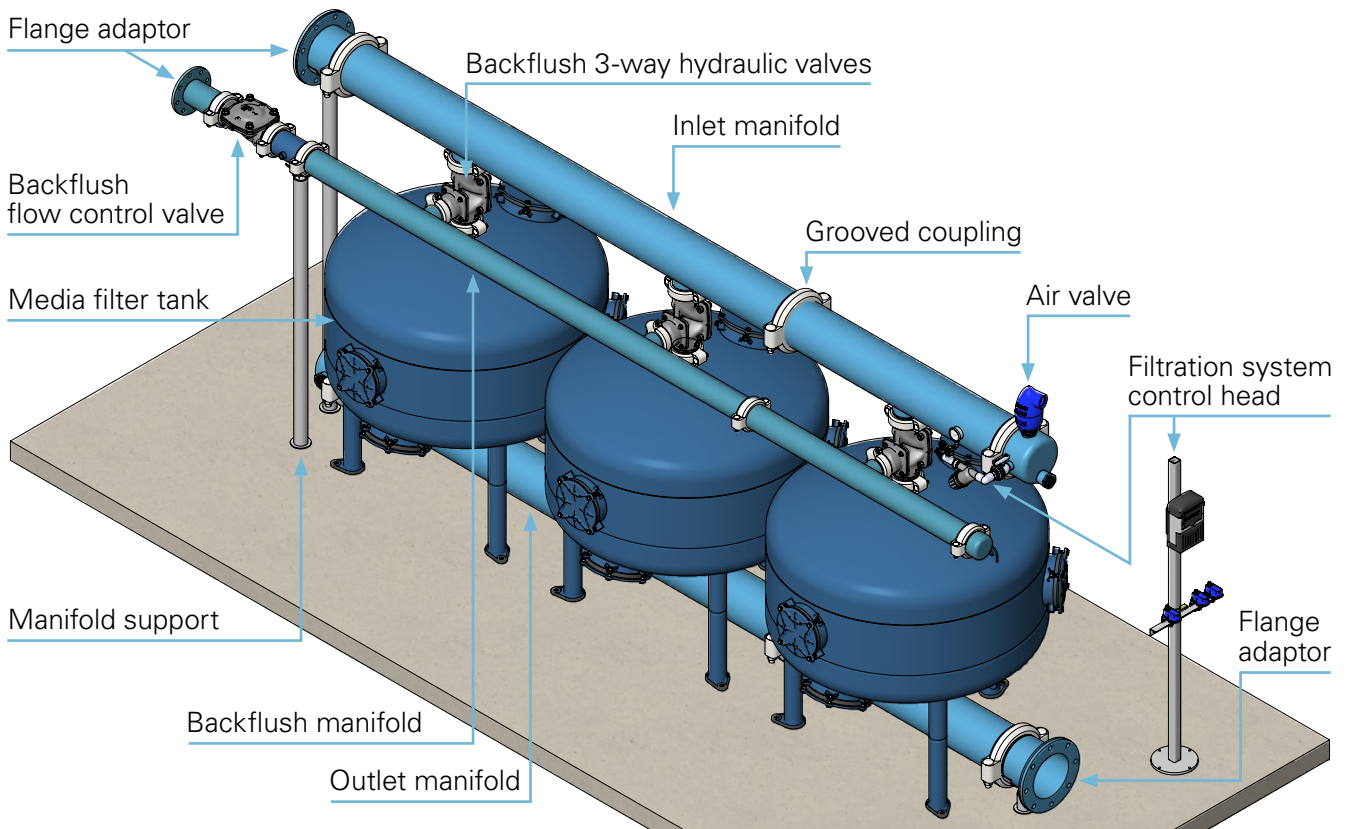
For agricultural applications, the sand in the filter is provided in a layer of 40 cm depth. When the water passes through the sand, most of the dirt is trapped on the upper surface of the sand while small particles of dirt and other floating organic materials are trapped lower in the media bed. The end product water is therefore free from dirt and will not clog or disrupt emitters and irrigation accessories.

Netafim™ Sand Storm™ and Sand Storm™ NC filters are manufactured and available with a full scale of filtration surface sizes allowing for flexible design of filtration systems. The scale of filtration surface sizes is appropriate for any required flow rate ranging from small properties to large farms.

## Components and structure

Each filter tank size has its own criteria and flow rate specifications. In each case, the flow rate will meet the criteria of the irrigation demand. Therefore, filtration systems differ in the number and size of the tanks.

**A media filtration system is comprised of the following components:**



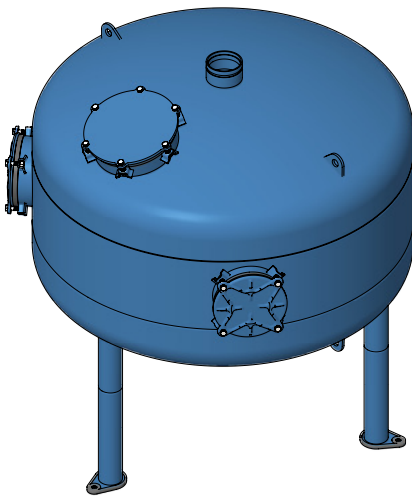
# MEDIA FILTRATION SYSTEM

## Detailed description

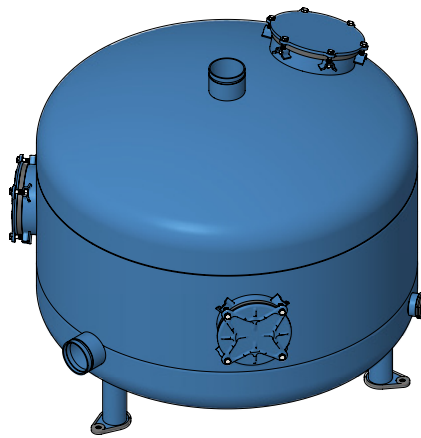
**Media filter tank** - The filter tank is a receptacle that contains the sand/gravel. It includes the diffuser mechanism that move the water into the tank in a gentle way and the under-drain mechanism that collects the filtered water and, when backflushing, introduces clean water into the tank for an effective media cleaning process.

Netafim™ offers 3 types of media filter tanks:

**Sand Storm™ - metal, single chamber**  
(see page 16)



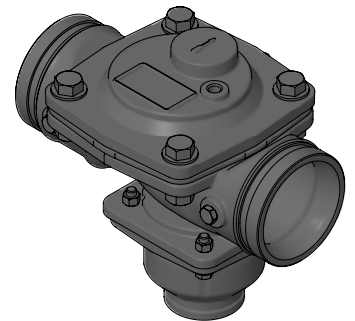
**Sand Storm™ - metal, double chamber**  
(see page 18)



**Sand Storm™ NC - composite material**  
(see page 20)

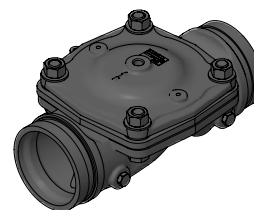


**Backflush 3-way hydraulic valves** - In order to control the processes of filtration and backflush, a backflush valve is installed on each filter inlet. This hydraulic valve allows the water, during filtration, to pass through the filter while closing the flushing outlet. During the backflushing process the inlet is closed while the flushing outlet is open.

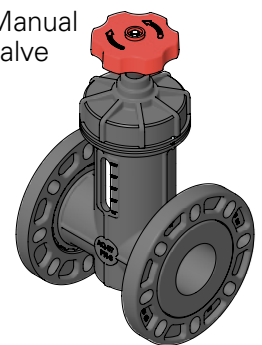


**Backflush flow control valve** - Installed on the backflush manifold, it controls the flow rate of backflush and prevents it from becoming too high as to drag along filtering sand to the drain. The backflush flow control valve can be hydraulic - regulating flow according to the upstream to downstream Delta pressure - or mechanical - manually adjustable.

Hydraulic valve



Manual valve



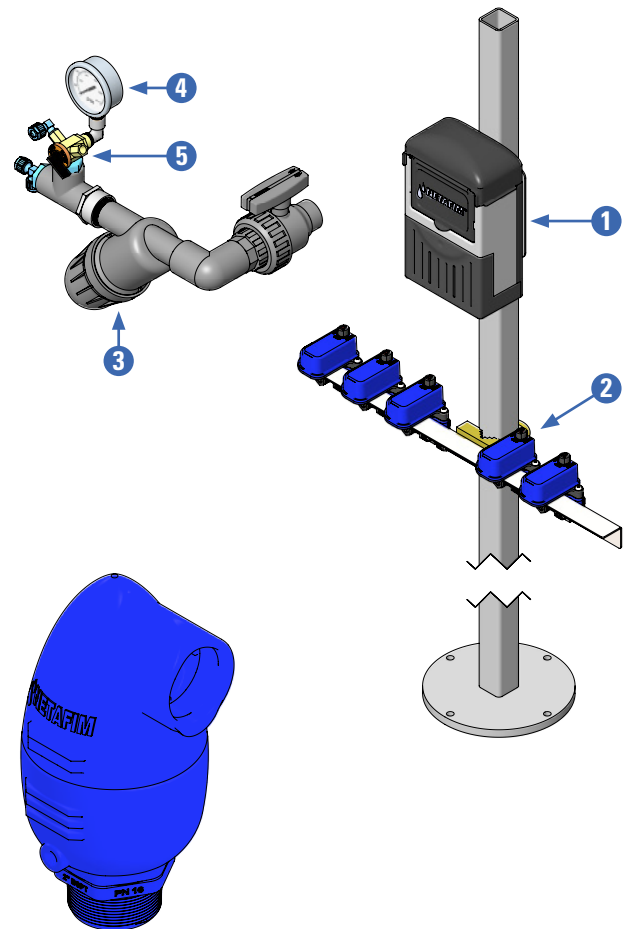


# MEDIA FILTRATION SYSTEM

**Filtration system control head** - Monitors the pressure at the inlet and the outlet of the filtration system and controls the backflushing intervals and backflushing duration for each filter.

The Filtration system control head comprises of:

No.	Part	Function
1	Backflush electronic controller	Manages the backflush cycle of all the filters in the system
2	Set of solenoid valves	Activate the 3-way backflush valves, 1 solenoid for each filter in the system
3	Small screen filter	Cleans the water feeding the hydraulic control accessories
4	Pressure gauge	Measures the filtration system inlet and outlet pressure
5	3-way ball valve	Manually toggles between inlet and outlet pressure measurement



**Air valve** - drains air from the system and maintains proper hydraulic function of the filtration system. Necessary for preventing air locks, preventing water hammer and allowing the system to breath at start up and shut down.

## Manifolds

A full range of modular manifold sections and accessories, from 3" to 10" diameter, are available for the assembly of any required media filtration system (other diameters are available upon request).

2 types of manifolds are proposed:

- **Metal** - for Sand Storm™ metal filter installations.  
Double-layered coating process for high corrosion and UV resistance:
  - Phenolic - for high corrosion resistance
  - Epoxy - for high UV protection
- **PE** - mainly for Sand Storm™ NC composite material filter installations.  
Non-corrosive with high UV resistance.

**Inlet manifold** - Delivers the unfiltered water into the filter tank. Modular, made of standard units allowing the assembly of any system configuration.

**Outlet manifold** - collects the filtered water from all the filters in the system and delivers it to the irrigation main irrigation line. Modular, made of standard units allowing the assembly of any system configuration.

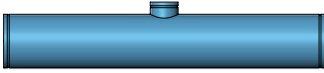
**Backflush manifold** - Collects the backflush water containing dirt and debris from the filtration system and passes it to the drain or back to the water source (Observe your local regulations). Modular, made of standard units allowing the assembly of any system configuration.

# MEDIA FILTRATION SYSTEM

## Examples of manifold sections:

### Metal

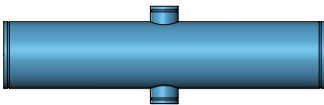
Inlet/outlet manifold sections -  
Single-sided - 1 output



Single-sided - 2 outputs



Outlet manifold sections -  
(for parallel centered installations only)  
2-sided - 2 outputs



2-sided - 4 outputs



Backflush manifold sections -  
Single-sided - 1 output



Single-sided - 2 outputs



### PE

Inlet/outlet manifold sections -  
Single-sided - 1 output



Single-sided - 2 outputs



Backflush manifold sections -  
Single-sided - 1 output



Single-sided - 2 outputs

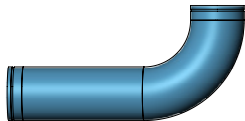


**Manifold accessories** - Elbows, T-fittings, end-caps, Manifold support legs and other accessories enabling the implementation of virtually any shape of filtration system.

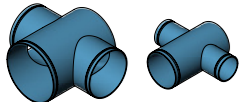
## Examples of manifold accessories:

### Metal

Elbows



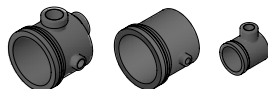
T-fittings



End-caps

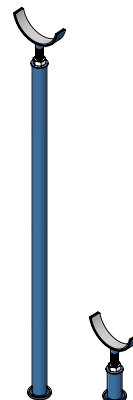


### PE

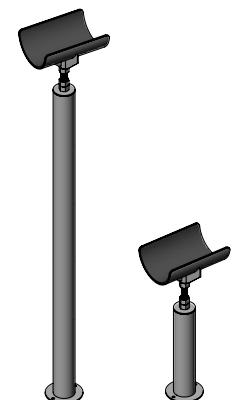


### Metal

Manifold support legs



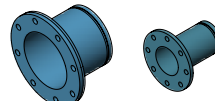
### PE



**Inlet/outlet flange adaptors** - Offered for installations where the connection of the media filtration system to the irrigation main line cannot be done with the standard grooved couplings. Available from 3" to 10" diameter.

## Examples of Inlet/outlet flange adaptors:

### Metal

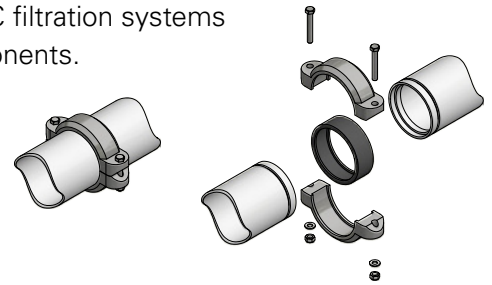


### PE



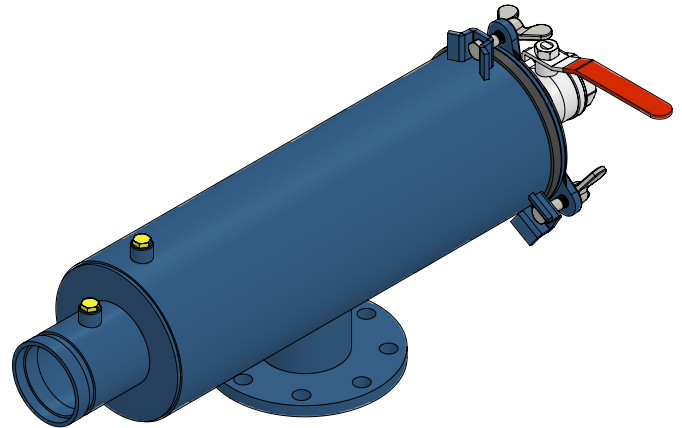
# MEDIA FILTRATION SYSTEM

**Grooved couplings** - Netafim™ Sand Storm™ and Sand Storm™ NC filtration systems are assembled with metal grooved couplings connecting the components.



## Accessories and add-ons

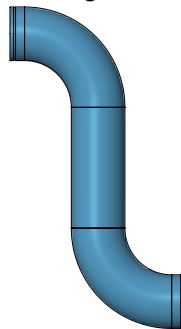
**Secondary filter** - A screen filter that is installed, either on each filter outlet or at the outlet of the entire filtration system. This filter plays an important role in the system's ability to maintain filtration results. In the event of "dirt breakthrough" where cleaning was not performed as required, the secondary filter keeps the dirt from flowing into the irrigation system and its accessories. In the unlikely event that one of the under drain diffusers inside the media filter becomes damaged or unplugged and sand flows out of the filter with the water flow, the secondary filter will trap it and prevent it from flowing into the irrigation system.



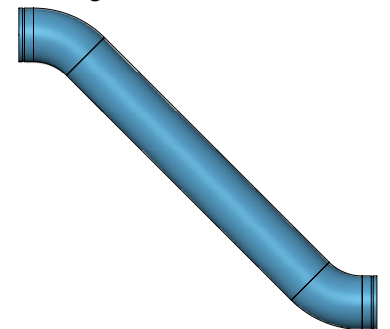
**Inlet adaptor pipe** - A pipe section designed to equalize the elevation difference between the filtration system inlet and its outlet.

- Available from 4" to 10" diameter.
- Connection standard: Grooved coupling.

90 deg.



45 deg.



## Filtration media

- For efficient filtration the sand media should be crushed with sharp edges.
- Flow recommendation according to dirt load (for crushed granite and crushed basalt):
  - 75 m<sup>3</sup>/h/m<sup>2</sup> for good water condition.
  - 45 m<sup>3</sup>/h/m<sup>2</sup> for dirty water.
  - Average: 60 m<sup>3</sup>/h/m<sup>2</sup>.(m<sup>3</sup>/h/m<sup>2</sup> = flow rate per 1 square meter of filtration area)
- When planning a media filtration system, the flow rate range should be: from the flow rate for dirty water up to the average flow rate, (i.e. 45-60 m<sup>3</sup>/h/m<sup>2</sup>) multiplied by the total filtration area of the system.
- For special water conditions, e.g. iron content and recycled water, other media types are available at lower flow rates – consult a Netafim™ subject matter expert.
- Sand media grain size: 0.6-1.2 mm according to the type of media.
- As a rule of thumb, the recommended backflushing flow rate for crushed silica is 50% the backflushing flow rate for crushed basalt.

# MEDIA FILTRATION SYSTEM

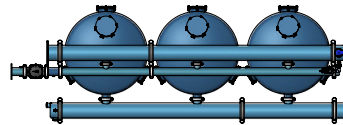
## Media filtration system configurations

The shape and configuration of the media filtration system is selected by convenience considerations regarding mainly the available space in the installation site (irrigation system pump station/house). All the configurations have the same filtering capacity but with different manifold shapes.

### Media filtration systems can take many configurations, among them:

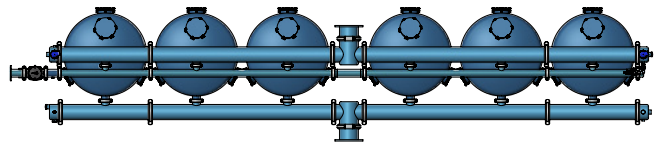
**Straight-line** - Unfiltered water enters one end of the straight inlet manifold, flows through the filters in the system and exits at the opposing end of the straight outlet manifold as filtered water.

- Number of tanks: 2-5



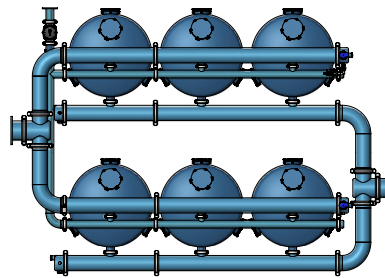
**Straight-line center feed** - Unfiltered water enters at the center of the straight inlet manifold, flows through the filters in the system and exits at the center of the straight outlet manifold as filtered water.

- Number of tanks: 5-10



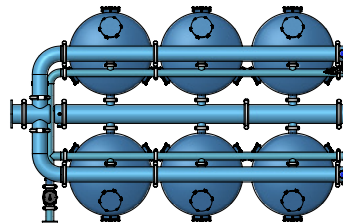
**Parallel** - Unfiltered water enters at the center of the "U" shaped inlet manifold, flows to the 2 side-by-side rows of filters and exits at the center of the inverted "U" shaped outlet manifold as filtered water. (Not applicable with single chamber filters).

- Number of tanks: 5-10



**Parallel centered** - Unfiltered water enters at the center of the "U" shaped inlet manifold, flows to the 2 side-by-side rows of filters and exits at the opposing end of the straight outlet manifold as filtered water.

- Number of tanks: 5-10



# PRE-INSTALLATION REQUIREMENTS

The following items should be set up on site before the installation of the filtration system.

## Electricity supply



### WARNING

Only qualified electricians are permitted to perform electrical installations!

### The BackFlush controller is supplied in either of two versions:

- 100-240v AC input - Powered by an external 100-240v AC to 12v DC power supply.  
Requires mains electricity supply - 100-240v AC ~, 50/60 Hz 0.4 A Max.  
Ensure that suitable electrical power supply is available in the vicinity of the BackFlush controller  
A readily accessible circuit breaker, rated according to the BackFlush controller total rated power for peak demand, certified as a branch circuit over current protector, compliant with the national code and requirements. Grounding connection:  $\leq 10 \Omega$ .
- 6v DC input - Powered by 4 x 1.5v D-size alkaline batteries (not supplied).  
Does not require mains electricity supply.



### NOTE

The filtration system can be supplied without a BackFlush controller and be connected to an existing irrigation system controller (see the irrigation controller for instructions).

## Concrete slab

The sand filtration system will weigh from 250 kg up to a few tons. The system foundation must take into consideration the total weight of the system when filled with sand and water.

The media filtration system should be installed on a concrete slab with proper reinforcement, anchored to the ground, at least 10 cm thick. The minimum slab dimensions should allow a 1 meter margin around the filtration system for service and maintenance purposes. The slab should have a slight grade to allow for water run-off. But not too great that the manifold will not bolt together easily. The soil all around the slab should be compacted to prevent erosion.

## Backflush pipe

A pipe taking the backflush water from the backflush manifold back to the water source (Observe your local regulations) or to the closest drainage ditch.

See Structure of the drip-/micro-irrigation system head, page 4.

### In order not to limit backflush flow rate:

- The pipe should not be longer than 20 m.
- The pipe diameter should not be smaller than the flushing manifold diameter.
- The pipe should not ascend from the elevation of the flushing manifold outlet.

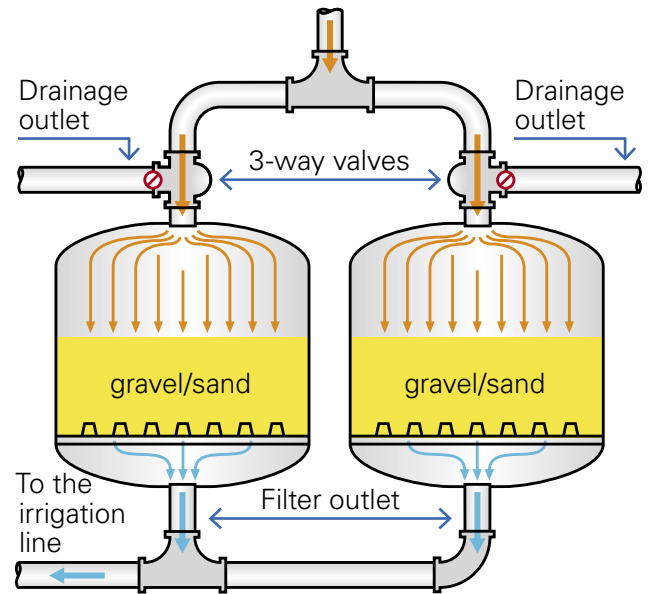
For further information, see the Installation manual.

# OPERATION AND MAINTENANCE

## Filtration and backflush

### The filtration process

During the filtration process the inlet and outlet ports are open and the backflush ports are closed. Unfiltered water enters the filter tank via the filter inlet manifold, spreads evenly by the diffuser plate on the media layer inside the filter and, once filtered, the water is discharged through the under drain diffusers (single chamber - "flutes"; double chamber - "mushrooms") to the irrigation main line via the outlet manifold.

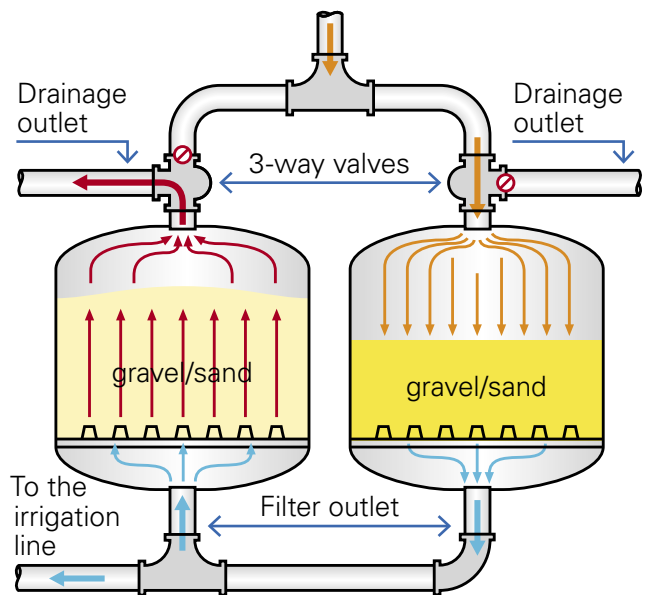


### The backflush process

During the backflush process the inlet port closes and the backflush port opens reversing the flow of water through the filter.

Clean pressurized water from the other filters now flows through the flushed filter outlet into the bottom of the filter, lifting and fluidizing the media, freeing the accumulated dirt and debris caught by it and flows out through the backflush valve and into the backflush manifold. If the backflush restriction valve is adjusted properly, the debris will be flushed out of the filter while the media, being of a higher bulk density than the debris will remain in the filter tank.

The backflush operation of a filter is automatically triggered by the backflush controller when the pressure differential between the inlet and the outlet of a filter, or when the set time-between-backflushings is reached (the earlier). Filters in a system are backflushed in sequence. Only one filter is backflushed at a time while all the other filters in the system are performing regular filtration.



# OPERATION AND MAINTENANCE

## Maintenance

Media filters are a very simple and reliable. They generally require minimum servicing.

### **Periodic inspection**

In order to properly protect your irrigation system, frequent inspection of the filtration system is needed.

#### **During the inspection:**

- Check the pressure differential between the system inlet and outlet.
- Check the accumulating number of flushes since the last inspection (to see if water quality is deteriorating).
- Initiate a manual flush and check for a proper operation and sequence.

#### **Once a quarter:**

- Perform a manual backflush of all the tanks in the system.
- Afterwards check the sand level in each tank in reference to the media level indicator on the tank outside.

For detailed maintenance instructions please see the User Manual, supplied with the product.

# NETAFIM™ 3 TYPES OF MEDIA FILTERS

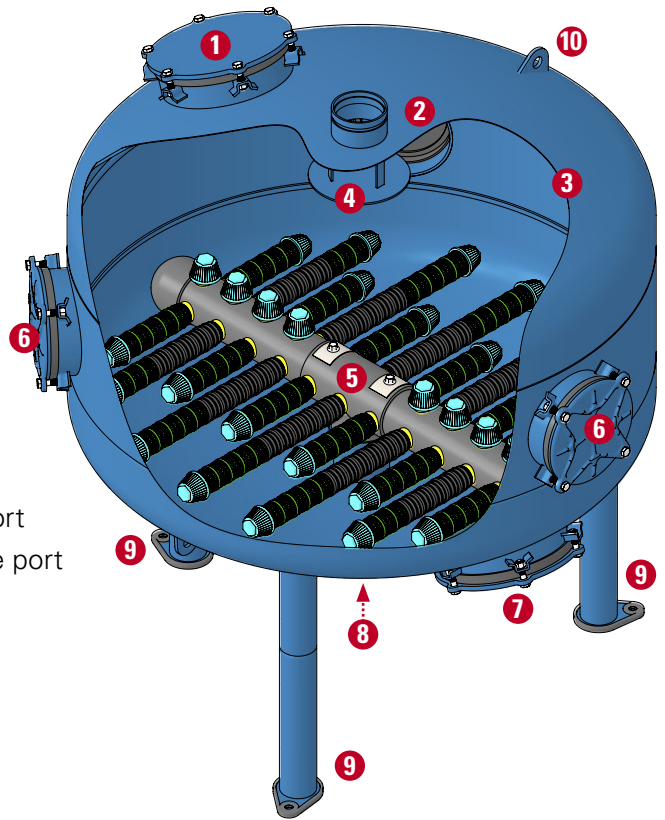
## Sand Storm™ - metal, single chamber media filters

Highly durable metal media filters with double-layered coating for high corrosion and UV resistance.

### Features

- Double-layered coating process for high corrosion and UV resistance:
  - Phenolic - for high corrosion resistance
  - Epoxy - for high UV protection
- Large access ports for easy inspection and maintenance
- Modular manifold construction for easy assembly/expansion
- Wide range of tank diameters and configurations for meeting specific customer needs

### Description



### Legend

- |                                    |                       |
|------------------------------------|-----------------------|
| 1 Filling port                     | 6 Side service port   |
| 2 Inlet                            | 7 Bottom service port |
| 3 Tank body                        | 8 Outlet              |
| 4 Inlet diffuser                   | 9 Legs                |
| 5 Under drain diffusers ("flutes") | 10 Lifting hooks      |

### Filter tank technical specifications

#### Properties

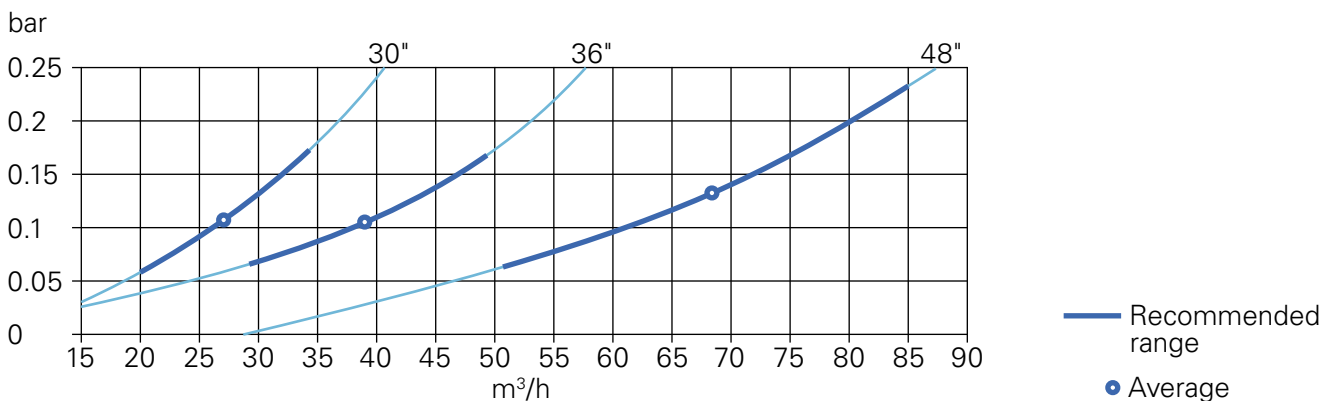
Tank diameter (in)	Weight empty tank (kg)	Inlet and outlet diameter (in)	Filtration area (m <sup>2</sup> )	Sand quantity* (kg)
30	120	3	0.45	270
36	155	3	0.65	350
48	235	4	1.13	675

\*Crushed basalt

#### Capacities

Tank diameter (in)	Recommended flow rate (m <sup>3</sup> /h)			Maximum operating pressure (bar)
	Min	Max	Backflushing	
30	20	34	36	8
36	29	49	50	
48	51	85	80	

### Head loss/flow rate





# NETAFIM™ 3 TYPES OF MEDIA FILTERS

## Filtration system configurations

Configuration	Straight	Parallel	Center feed
No. of tanks	2-5	5-10	5-10

## Flow rates for Basalt No. 1 media\*

Tank diameter (in)	Flow rate (m <sup>3</sup> /h)		
	Min	Max	Backflush
30	20	35	36
36	30	50	50
48	50	85	80

\*For silica, see the USC sales documentation.

## Filtration system physical specifications

Each different filtration system configuration has its own specifications - external dimensions, weight and connection diameters. The table below present the specifications for straight line filtration systems only. For other filtration system configurations, contact your local Netafim™ representative.

### Straight line filtration systems

No. of tanks	External filtration system dimensions (cm)			Total system weight* (kg)	Connection diameter (inch)	
	Length	Width	Height		Inlet/outlet	Back flush

#### 30" tanks

2	329	83	212	1000	6	3
3	449			1500		
4	569			2000		
5	689			2500		

#### 36" tanks

2	329	92	219	1600	6	3
3	449			2400		
4	569			3200		
5	689			4000		

#### 48" tanks

2	356	128	221	2600	8	4
3	488			3900		
4	620			5200		
5	752			6500		

\*Filled with sand and water

# NETAFIM™ 3 TYPES OF MEDIA FILTERS

## Sand Storm™ - metal, double chamber media filters

Highly durable metal media filters with double-layered coating for high corrosion and UV resistance.

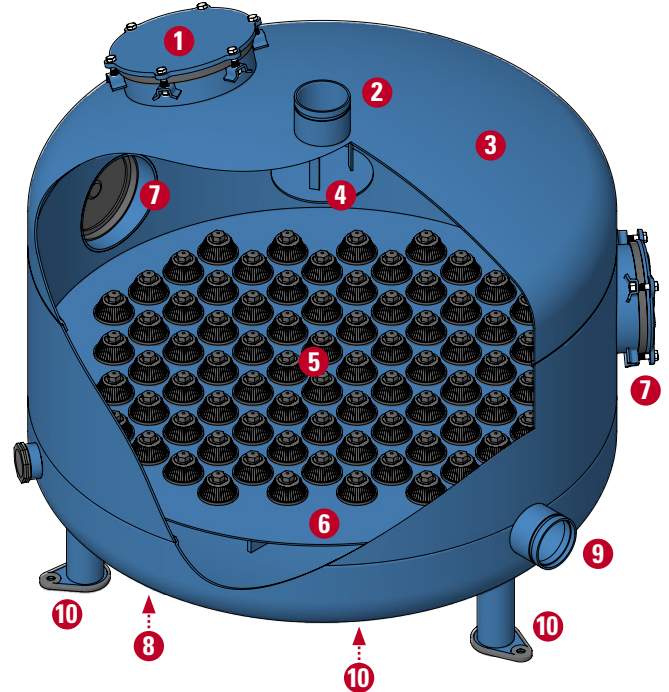
### Features

- Double-layered coating process for high corrosion and UV resistance:
  - Phenolic - for high corrosion resistance
  - Epoxy - for high UV protection
- Large access ports for easy inspection and maintenance
- Modular manifold construction for easy assembly/expansion
- Wide range of tank diameters and configurations for meeting specific customer needs

### Legend

- |                                       |                         |
|---------------------------------------|-------------------------|
| 1 Filling port                        | 6 Under drain partition |
| 2 Inlet                               | 7 Side service port     |
| 3 Tank body                           | 8 Bottom service port   |
| 4 Inlet difuser                       | 9 Outlet                |
| 5 Under drain diffusers ("mushrooms") | 10 Legs                 |

### Description



### Filter tank technical specifications

#### Properties

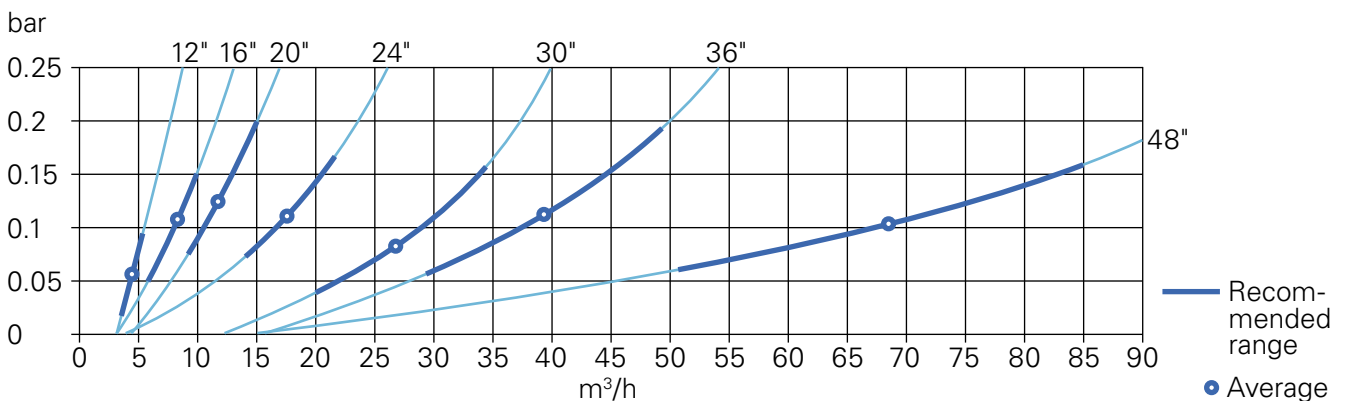
Tank diameter (in)	Weight empty tank (kg)	Inlet and outlet diameter (in)	Filtration area (m <sup>2</sup> )	Sand quantity* (kg)
12	45	1	0.075	60
16	60	1.5	0.13	90
20	75	2, 3	0.20	120
24	110	2, 3	0.29	180
30	125	3	0.45	240
36	160	3	0.65	360
48	275	4	1.13	575

\*Crushed basalt

#### Capacities

Tank diameter (in)	Recommended flow rate (m <sup>3</sup> /h)			Maximum operating pressure (bar)
	Min	Max	Backflushing	
12	3.5	5.5	7	8
16	6	10	10	
20	9	15	16	
24	13	22	22	
30	20	34	36	
36	29	49	50	
48	51	85	80	

#### Head loss/flow rate



# NETAFIM™ 3 TYPES OF MEDIA FILTERS

## Filtration system configurations

Configuration	Straight	Parallel	Center feed
Tank diameter (in)	No. of tanks		
12, 16	2-5	5-10	-
20, 24, 36, 48	2-5	5-10	5-10

## Flow rates for Basalt No. 1 media

Tank diameter (in)	Flow rate (m <sup>3</sup> /h)		
	Min	Max	Backflush
12	3.5	6	7
16	6	10	10
20	9	15	16
24	13	22	22
30	20	35	36
36	30	50	50
48	50	85	80

\*For silica, see the USC sales documentation.

## Filtration system physical specifications

Each different filtration system configuration has its own specifications - external dimensions, weight and connection diameters. The table below present the specifications for straight line filtration systems only. For other filtration system configurations, contact your local Netafim™ representative.

### Straight line filtration systems

No. of tanks	External filtration system dimensions (cm)			Total system weight* (kg)	Connection diameter (inch)	
	Length	Width	Height		Inlet/outlet	Back flush

#### 20" tanks

2	209	120	132	500	4	3
3	269			750		
4	329			1000		
5	389			1250		

#### 24" tanks

2	249	120	132	720	4	3
3	329			1080		
4	409			1440		
5	489			1800		

#### 30" tanks

2	329	110	182	1200	6	3
3	449			1800		
4	569			2400		
5	689			3000		

#### 36" tanks

2	329	125	186	1800	6	3
3	449			2700		
4	569			3600		
5	689			4500		

#### 48" tanks

2	356	178	204	3000	8	4
3	488			4500		
4	620			6000		
5	752			7500		

\*Filled with sand and water

# NETAFIM™ 3 TYPES OF MEDIA FILTERS

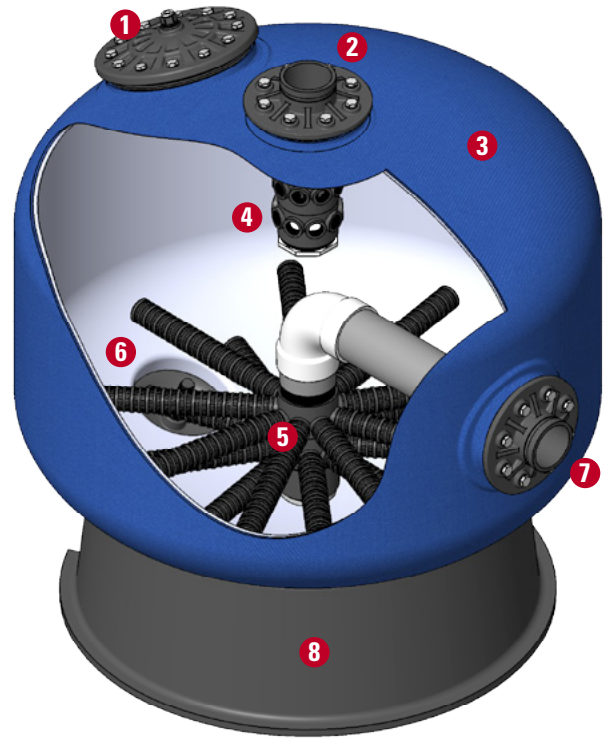
## Sand Storm™ NC - composite material, single chamber media filters

Non-corrosive, highly durable media filters made of a PE liner and composite material coating - fiberglass strands for structural strength, and epoxy resin for high UV resistance.

### Features

- Lifetime anti-corrosion warranty for outstanding performance, even when applying fertilizers and acids
- Lightweight system for assembly without forklift or other lifting equipment
- Large access ports and low tank height for easy media filling and maintenance
- Modular polyethylene manifold for simple and flexible assembly and expansion

### Description



### Legend

- 1 Filling port
- 2 Inlet
- 3 Tank body
- 4 Inlet difuser
- 5 Under drain diffusers ("flutes")
- 6 Bottom service port
- 7 Outlet
- 8 Base

### Filter tank technical specifications

#### Properties

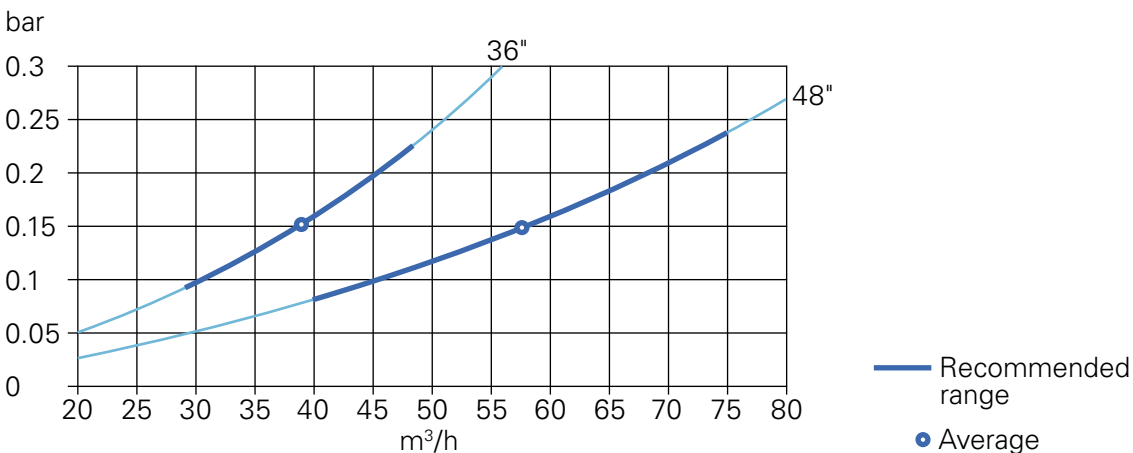
Tank diameter (in)	Weight empty tank (kg)	Inlet and outlet diameter (in)	Filtration area (m <sup>2</sup> )	Sand quantity* (kg)
36	100	3	0.64	425
48	150	4	1.09	750

\*Crushed basalt

#### Capacities

Tank diameter (in)	Recommended flow rate (m <sup>3</sup> /h)			Maximum operating pressure (bar)
	Min	Max	Backflushing	
36	29	48	35	6
48	40	75	65	

### Head loss/flow rate



# NETAFIM™ 3 TYPES OF MEDIA FILTERS

## Filtration system configurations

Configuration	Straight	Parallel	Center feed
No. of tanks	2-5	5-10	5-10

## Flow rates for Basalt No. 1 media

Tank diameter (in)	Flow rate (m <sup>3</sup> /h)		
	Min	Max	Backflush
36	30	50	50
48	50	85	80

\*For silica, see the USC sales documentation.

## Filtration system physical specifications

Each different filtration system configuration has its own specifications - external dimensions, weight and connection diameters. The table below present the specifications for straight line filtration systems only. For other filtration system configurations, contact your local Netafim™ representative.

### Straight line filtration systems

No. of tanks	External filtration system dimensions (cm)			Total system weight* (kg)	Connection diameter (inch)	
	Length	Width	Height		Inlet/outlet	Back flush

#### 36" tanks

2	326	119	195	1600	6	3
3	428			2400		
4	530			3200		
5	632			4000		

#### 48" tanks

2	406	162	205	2600	8	4
3	538			3900		
4	670			5200		
5	802			6500		

\*Filled with sand and water

# SAFETY AND WARRANTY

## Safety

- All safety regulations must be applied.
- Ensure that the installation is carried out in a manner that prevents leaks contaminating the environment, soil or ambient area.
- Measures must be taken to prevent fertilizer infiltration of the water source, to avoid water pollution.
- Electrical installation should be performed by an authorized electrician only.
- The electrical installation must comply with the local safety standards and regulations.
- Installation must be performed by authorized technicians only.
- Protection provided by the equipment can be impaired if the equipment is used in a manner other than that specified by the manufacturer.
- Netafim™ filter systems should be placed in an environment with pollution not exceeding degree 3.
- When using acid - always observe the acid manufacturer's safety instructions.
- In agricultural environment - always wear protective footwear.
- Always use protective equipment, gloves and goggles when handling fertilizers, acid and other chemicals!
- When opening or closing any manual valve, always do it gradually, to prevent damage to the system by water hammer.

## Warranty

Netafim™ warrants all the components of the Sand Storm™/Sand Storm™ NC media filter system to be free of defects in material and workmanship for 5 (five) years from the date of installation.

If a defect is discovered during the applicable warranty period, Netafim™ will repair or replace, at its discretion, the product or the defective part.

This warranty does not extend to repairs, adjustments or replacements of a Netafim™ media filter system or part that results from misuse, negligence, alteration, force majeure, lightning, power surge, improper installation or improper maintenance.

If a defect arises in your Netafim™ product during the warranty period, contact your local Netafim™ representative.

### Limited warranty

This warranty is subject to the conditions in Netafim's official warranty statement. (For the full text of Netafim's official warranty statement, please contact your local Netafim™ representative).



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