



New Filtration Products from LAKOS

- **Disc Filters**
- **Screen Filters**

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Presented by:
Randy Delenikos
LAKOS Filtration Systems
Randy.Delenikos@lakos.com

Why More Filters?

- Pump Protection Sand Separators came first
- Above-Ground Separators introduced
- Sand Media Filters for drip irrigation markets
- Self-Cleaning Intake Screens
- TwistII Clean Filters for light & variable loads

NEW in 2018

Disc Filters

Self-Cleaning Screen Filters

This now offers you filters for:

Variable-flow conditions

Mixed particle types & loads

Low-pressure operations

Lower backwash requirements

LAKOS Filtration Solutions At-A-Glance

NEW!

NEW!

	LAKOS TwistII Clean Filters	LAKOS Sand Separators	LAKOS Disc Filters	LAKOS Self-Cleaning Screen Filters	LAKOS Sand Media Filters
Typical Particle Size	30 – 200 mesh 600 – 74 microns	+200 mesh +74 microns	35 – 2500 mesh 500 – 5 microns	35 – 2500 mesh 500 – 5 microns	130 – 250 mesh 110 – 60 microns
Particle Type	Sand, sediment, some organics	Primarily inorganic particles...with a specific gravity greater than 2.5	Organic and inorganic	Organic and inorganic	Organic and lightweight inorganic
Volume of Particles	Light to low concentrations	Heavy concentrations Up to 1% of F flow	Light to Medium	Light to Medium	Light to Moderately High
Flow Rate	Up to 150 gpm Variable flows okay	5 gpm – 4,350 gpm. Steady flow required	100 – 4,200 gpm Variable flows okay. Can operate at low operating pressures	50 – 7,350 gpm Variable flows okay. Can operate at low operating pressures	70 – 4,000 gpm and larger. Variable flows okay. Requires at least 25 psi operating pressure
Application notes	Simple flow-through screen with reverse-flush cleaning action. Manual cleaning only.	Uses centrifugal action to remove particles from pumped water. No screens or filter elements to clean or replace. Easily automated	Outside-in flow through discs use channeling in discs to block particles. Compact design, fully automated options	Inside-out flow through screen. Uses suction scanner to remove particles. Compact design, fully automated options	Uses sand media to remove organics & fine silt from pumped water, requires backwashing. Manual & automatic options.

LAKOS Goal:

Your First Choice for All Filtration Solutions

- For heavy loads of sand
- For protecting pump intakes
- For organics & fine silt/sediments
- For variable flow rates
- For low pressure systems

*More solutions
for a wider range of applications*



Variables for Filter Selection

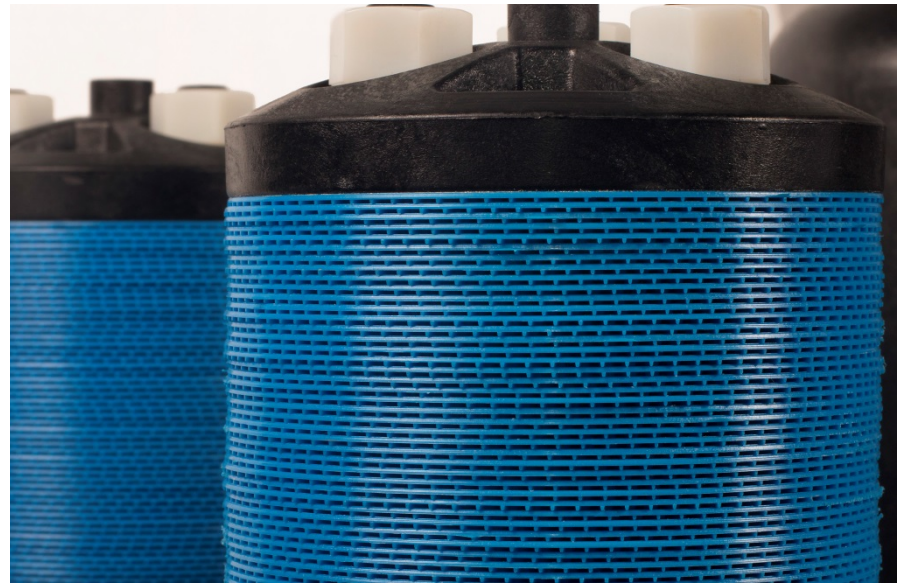
- **Types of particles in the water**
(size, range & settleability)
- **Performance expectation**
(equipment to be protected)
- **System flow rate**
(fixed or variable)
- **System operating pressure**
(pressure loss tolerance, too)
- **Cleaning/servicing requirements**
(purging, backwashing, cleaning)

LAKOS Automatic Disc Filter Systems

100 – 4200 gpm

5 – 500 micron ratings

145 psi max

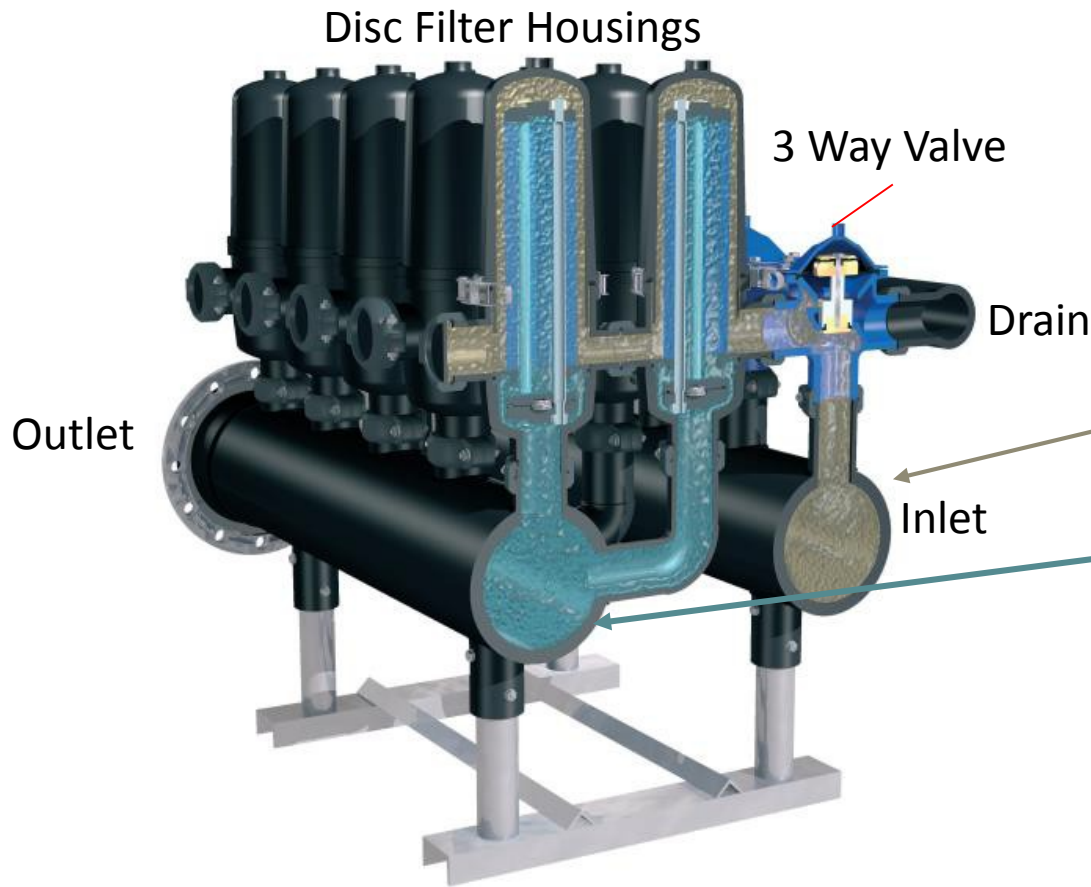


LAKOS Disc Filtration Systems

- Self-contained, fully automated systems
- High flow filtration for removing organic and inorganic particles
- Flow rates: 100 – 4,200 gpm
- Micron ratings: 5 – 500 (each micron size is color-coded)
- Low pressure loss (<5 psi when clean)

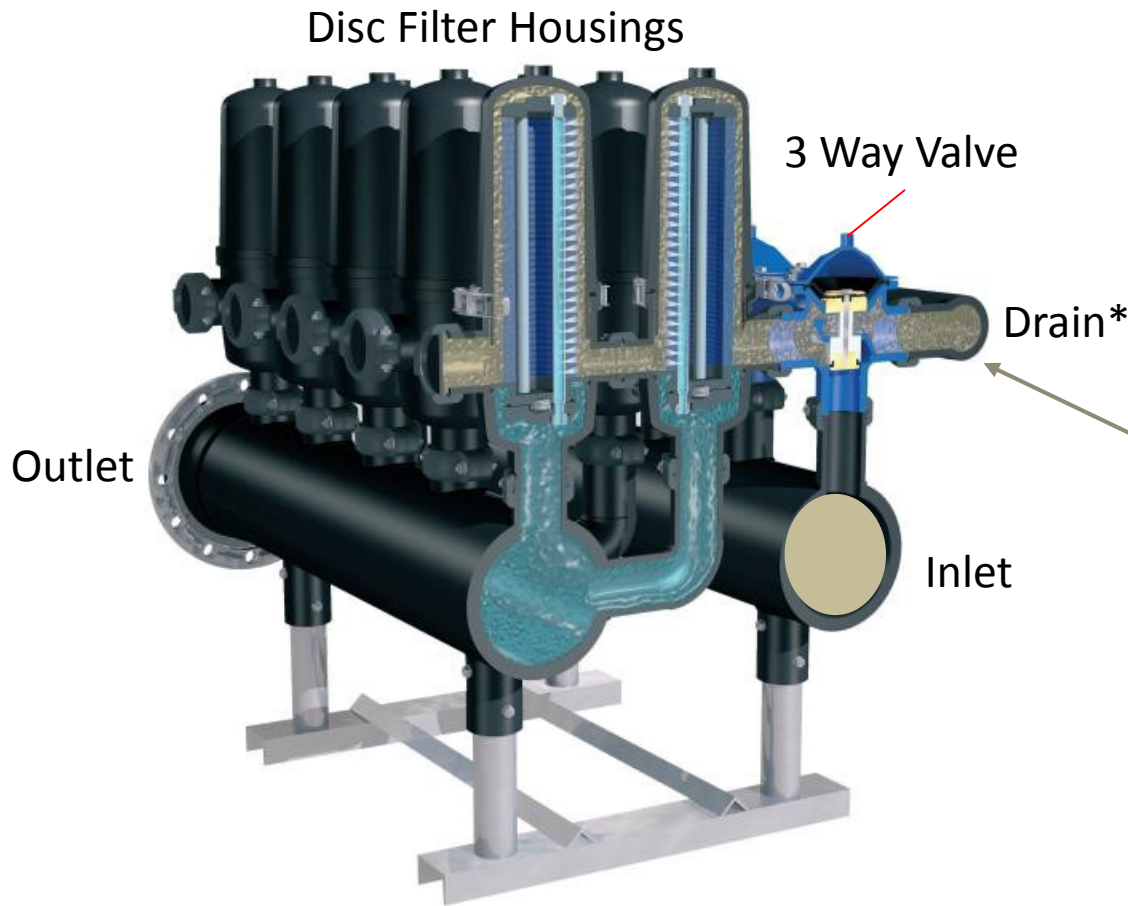


How They Work: Filtration Mode



- Operates continuously without operator intervention
- Flows from **inlet** manifold through the filter to the **outlet**
- Backwash triggered by pressure differential of 15 psi (or other desired setting)

How They Work: Backwash Mode



- One or two filters clean at a time
- Three way valve opens to drain
- Backwash uses a percentage of filtered water from other operating disc filters

**Drain to be piped down and to atmosphere*

Components You Know and Trust

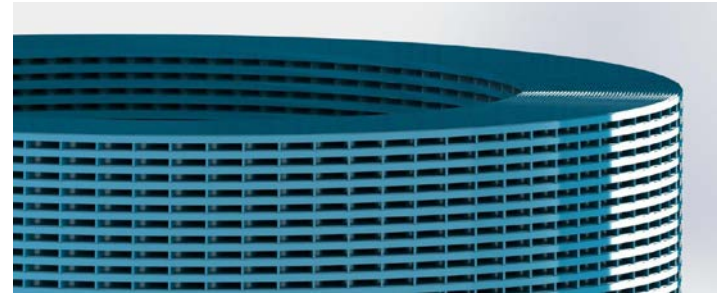
- Alex-Tronix Controllers
- Bermad 3-Way Valves
- Parker Solenoids
- Murphy Pressure Differential Gauge
- Choice of flanged or grooved-end coupling connections



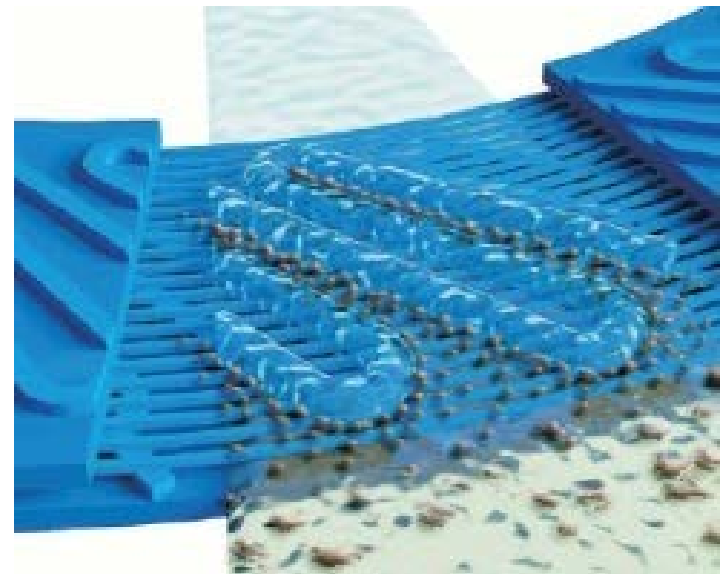
Key Advantages - LAKOS Disc Filtration Systems

- **Two-stage filtration design**
 - 500 micron outer first stage.
 - Internal disc surface is finer filtration.
 - Prevents large particles from plugging internal disc surfaces

- **Higher solids-holding capacity than competitors = less backflushing**
 - Unique design of discs acts like a pleated filter, increases filtration surface area



Disc Stack Creates 500 Micron First Stage



Filtration Path from Outside to Inside
Loads Like a Pleated Filter

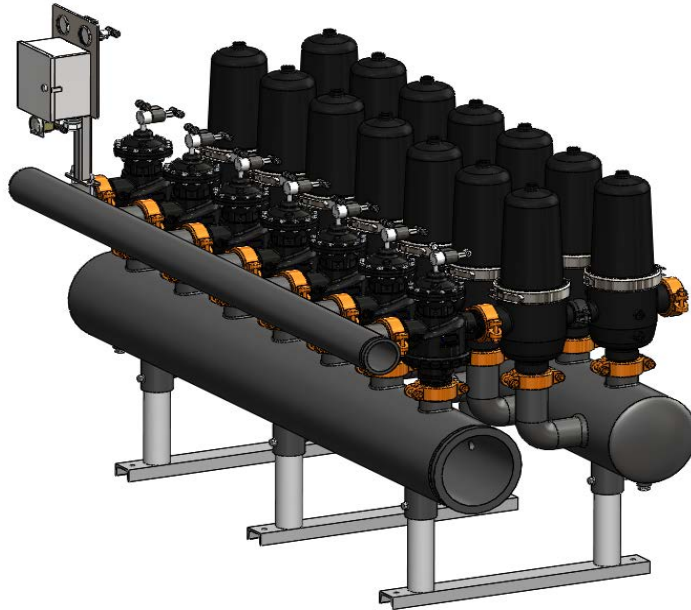
Disc Options

Colour	Mesh	Micrometers	Utilities
OLIVE	30	500	Sprinkling / Coarse filter
ORANGE	40	400	Sprinkle irrigation / Coarse filtration
YELLOW	50	300	Sprinkle irrigation / Average filtration
LIGHT BLUE	75	200	Micro-sprinklers / Average filtration
GREY	85	175	Micro-sprinklers/Fine to average filtration
GREEN	100	150	Micro-sprinklers / Fine to average filtration
BLUE	120	125	Drip irrigation / Fine to average filtration
RED	150	100	Drip irrigation/Fine filtration
BROWN	200	75	Drip irrigation / Fine filtration
BLACK	300	50	Drip irrigation / very fine filtration
LIGHT GREEN	750	20	Primary and Tertiary water treatment
LIGHT GREEN	3000	5	Drinkable water / Ultra-fine filtration

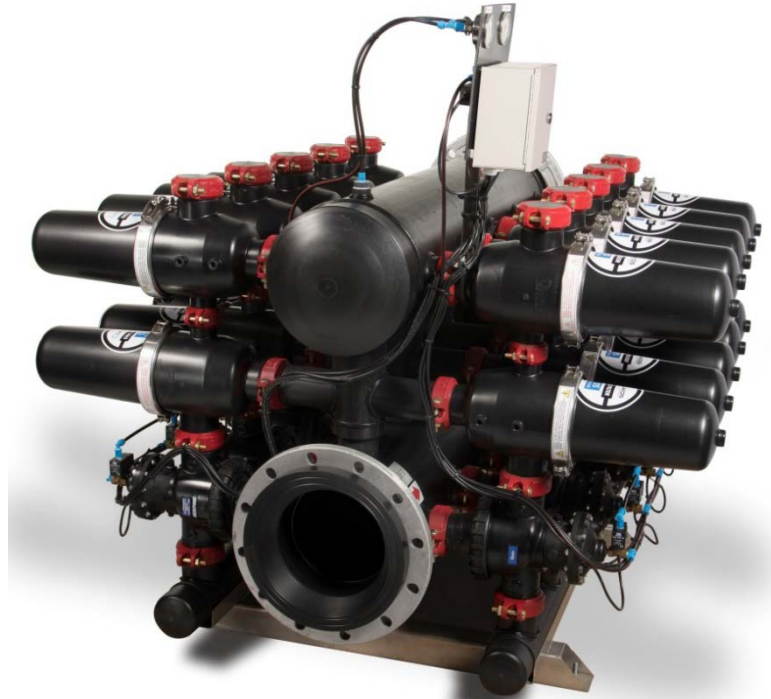
Disc Configurations



L Configuration



V Configuration



H Configuration

Key Advantages - LAKOS Disc Filtration Systems

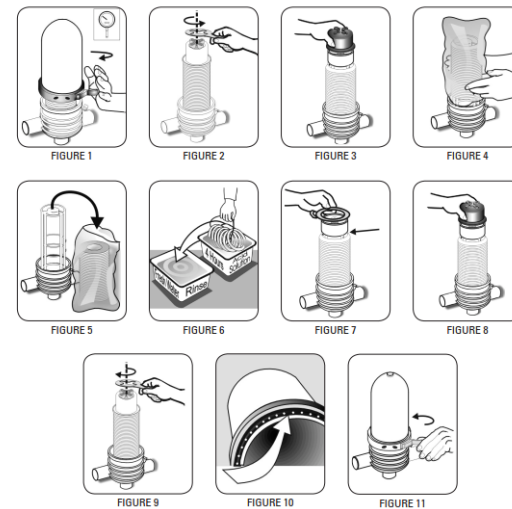
Patented backflush design fully decompresses disc stack, allowing thorough cleaning

- Directed cleaning action is more efficient
- HDPE discs resist calcium build-up
- Does not require annual disassembly and caustic cleaning common to other disc systems



During cleaning mode, entire disc stack decompresses, nozzles flush particles entrapped in disc grooves

LAKOS Design



Competitors require 11-step annual disassembly and hand-washing in acid bath

Competitor Design

Key Advantages - LAKOS Disc Filtration Systems

- **Less Water to Clean**
 - Up to 75% less backflush water, compared to competitive products. Ideal for projects requiring low water loss
- **Larger surface area = less backwash frequency**
 - Disc design offers 2 to 3 times the filter area of competitors
- **Fewer moving parts = less wear = less maintenance**
 - Fewer moving parts, wear and maintenance
 - Only two O-rings (one at disc set, one at housing lid)



Larger Surface Area – Reduced Costs

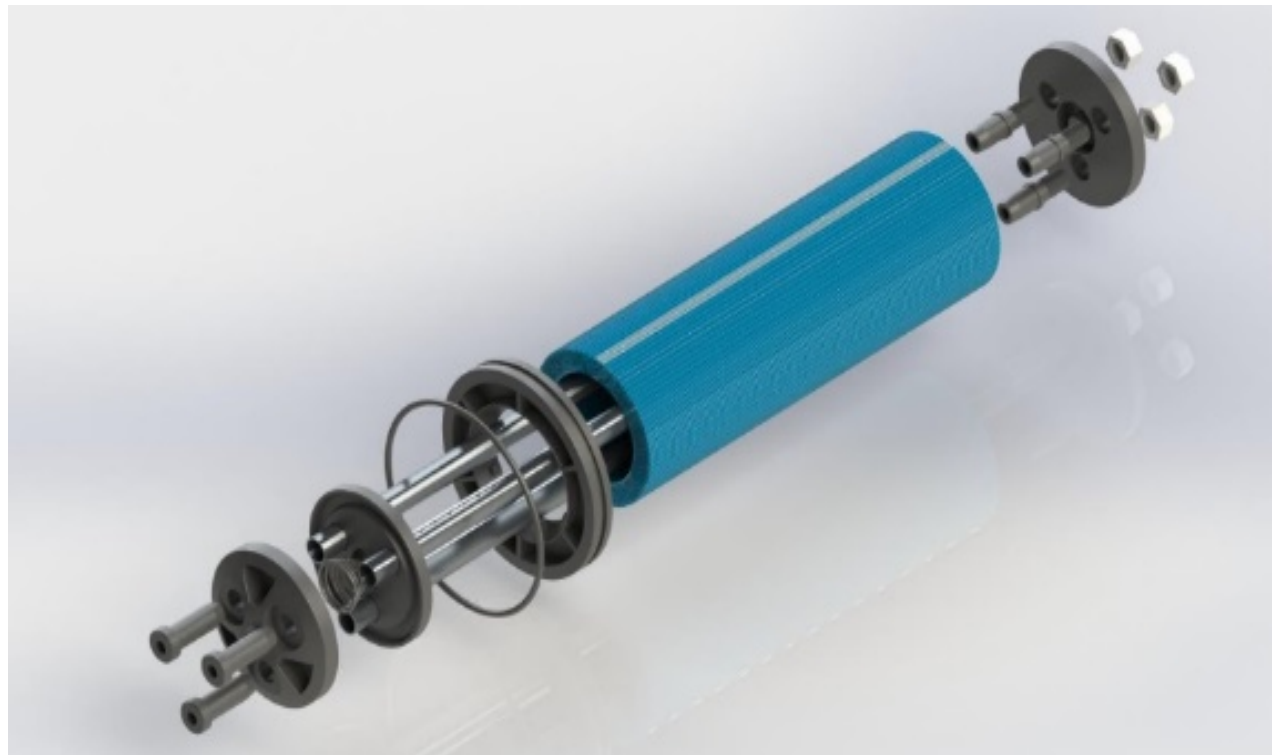
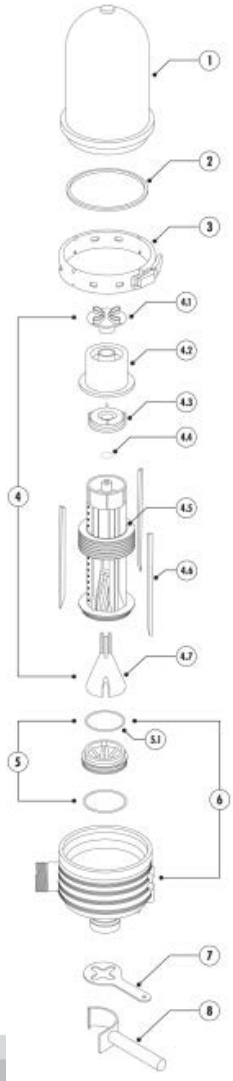
- **300 gpm Example**
 - 783 in² vs. 273in²
 - 3 modules vs. 6 modules
 - ***About \$4,000 savings***

- **3,000 gpm Example**
 - 783 in² vs. 405 in²
 - 24 modules vs. 46 modules
 - ***About \$30,000 savings***



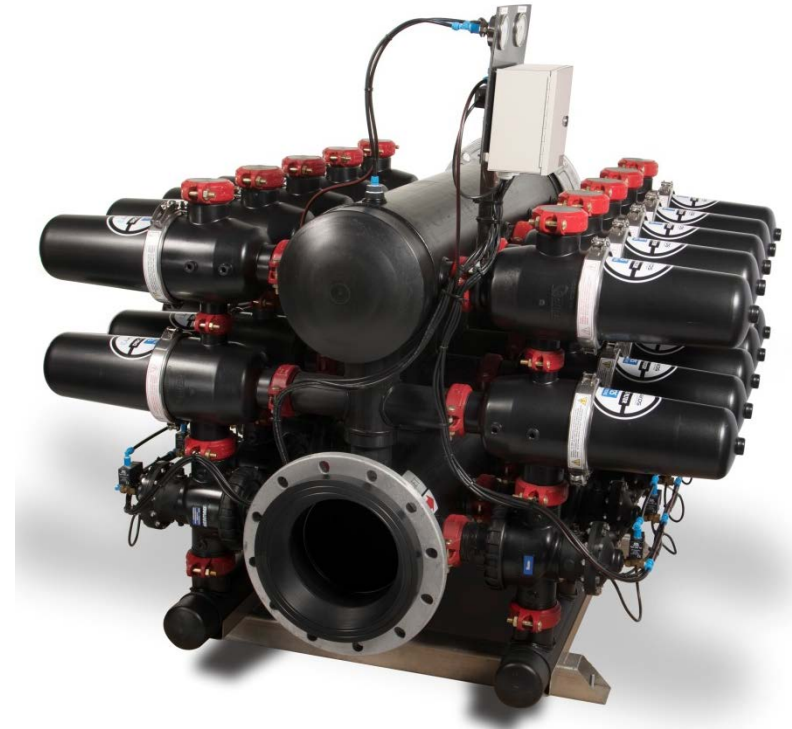
Key Advantages - LAKOS Disc Filtration Systems

- Fewer Parts = Less Maintenance



Turn-key Systems: Just Place & Connect

- Filter Housings
- HDPE Inlet, Outlet & Drain Manifolds
- 3-way Valves
- Solenoid Valves
- Controller
- Differential Pressure Switch
- Base Supports/Skid
- Tubing connections for 3-way valves



*Customer only supplies pump and
water/power connections*

Common Applications

- Drip irrigation & micro-spray systems
- Portable skids are lightweight for easy moving to another site
- Compatible with fertilizer & chemical injections upstream of filters



Disc Filters Summary

Benefits:

- High flow with both inorganic and organic solids
- Ideal for low solids loading applications: 5 – 20ppm
- Handles variable flows
- Corrosive environments (*select models*)
- Fully automatic turn-key systems

Advantages:

- More efficient (greater disc surface area, longer run times before backflush and better backflush process)
- Lower maintenance (fully automatic with no annual cleaning)



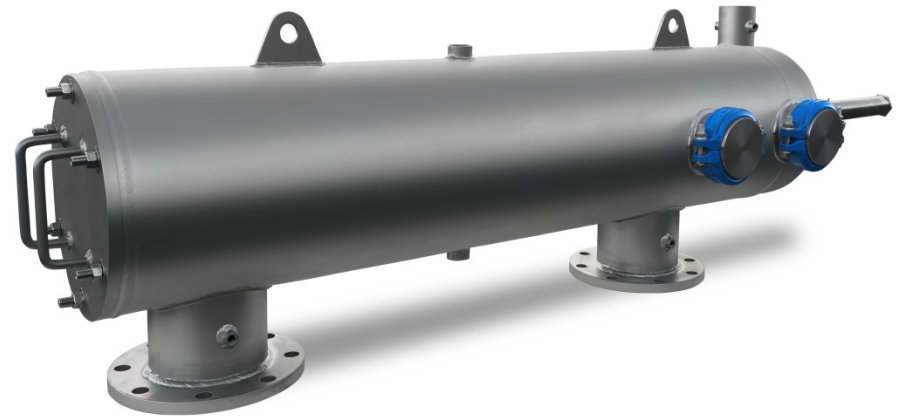


LAKOS Automatic Screen Filter Systems

50 – 7350 gpm

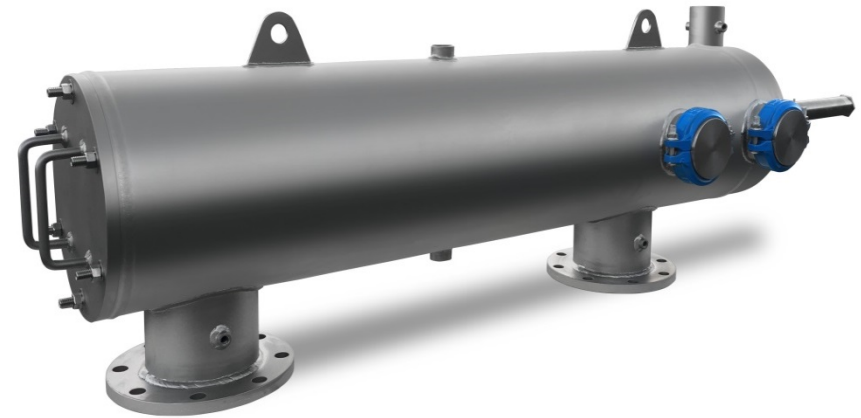
5 – 500 micron ratings

150 psi max

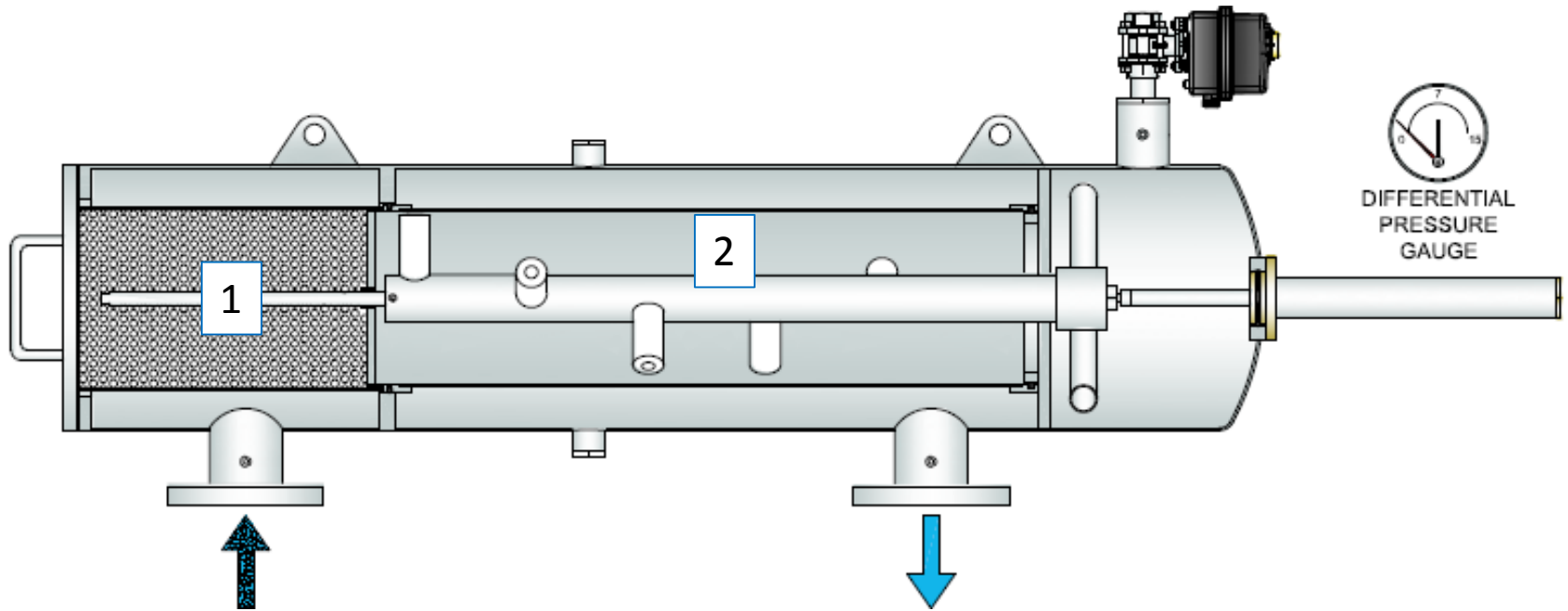


LAKOS Screen Filter Systems

- High-efficiency, high-flow screen filtration in a compact footprint
- Flow rates from 50 – 7,350 GPM
- Micron ratings from 5 - 500
- Continuous automatic operation, no operator intervention
- All stainless steel construction
- NSF Certification is in progress

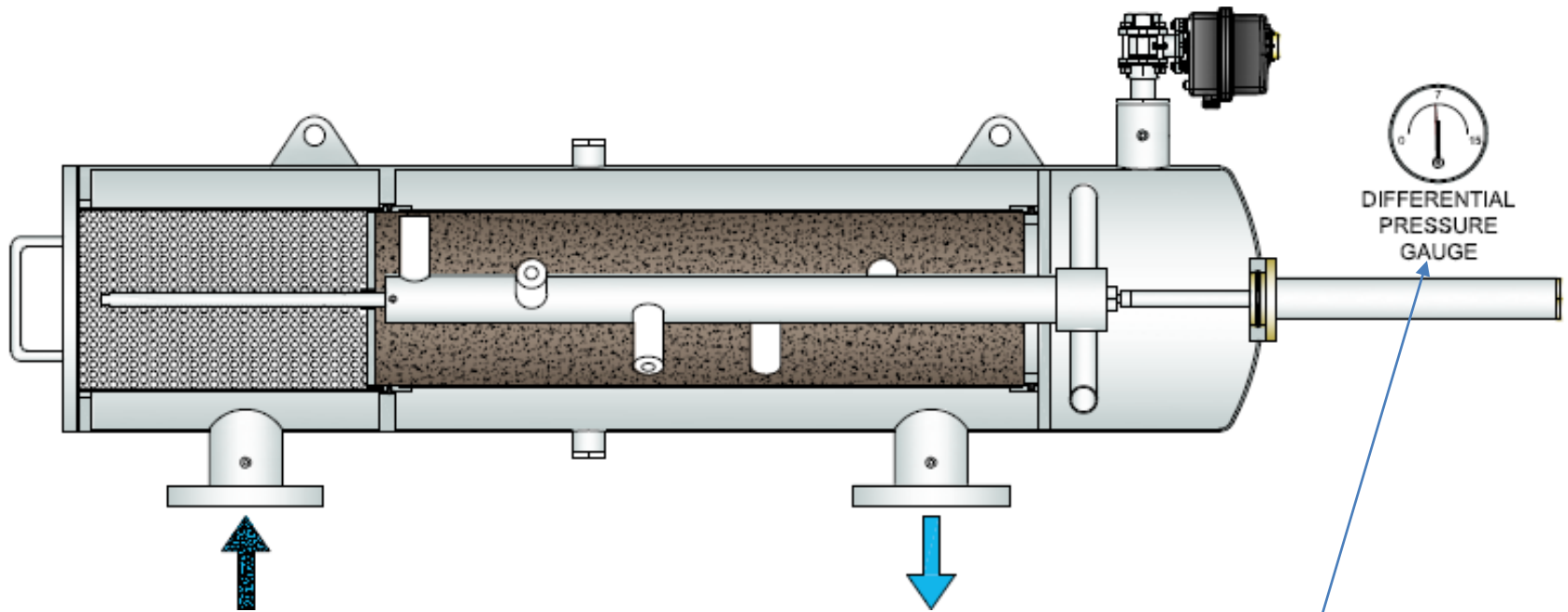


Filtration Mode



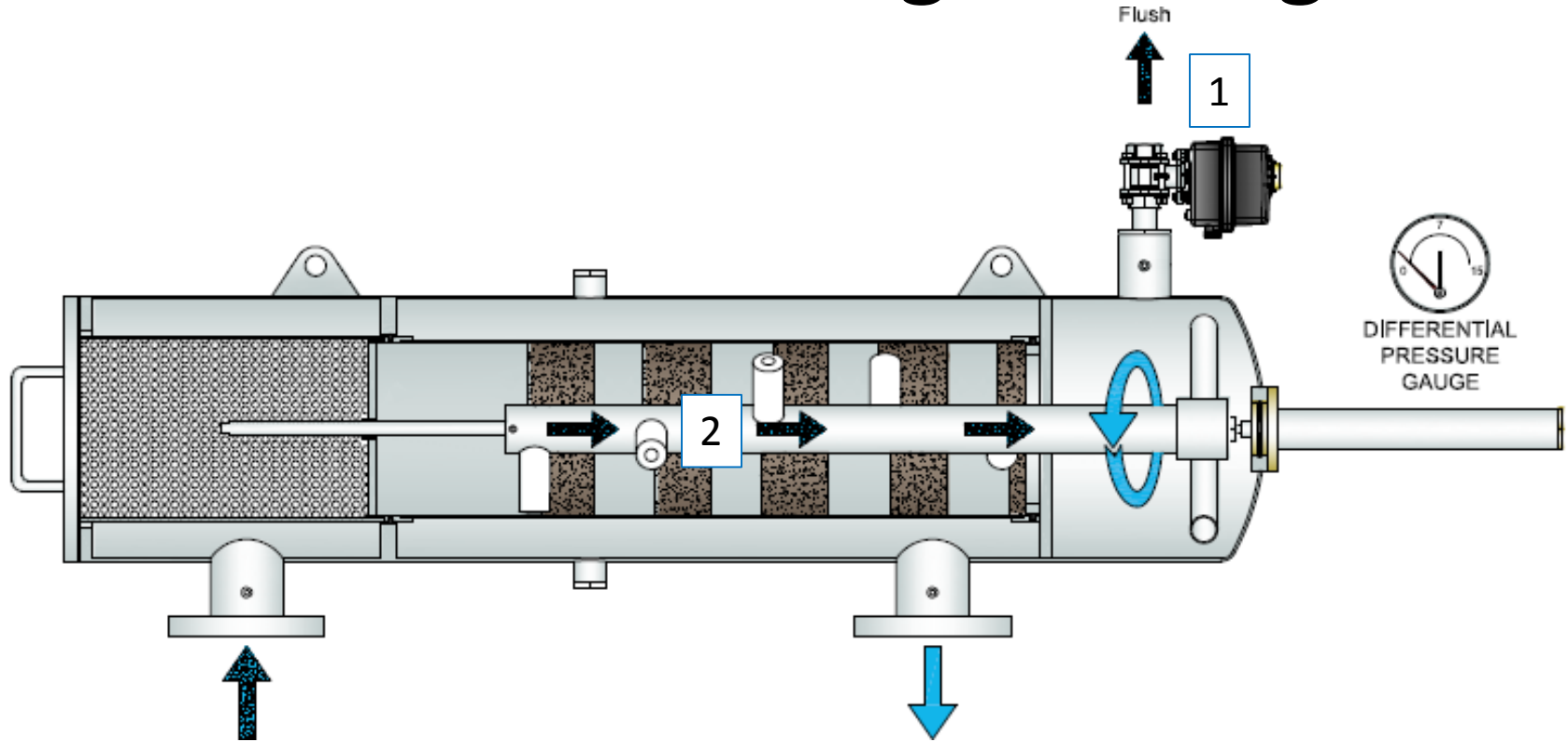
1. Water flows through the coarse screen, trapping larger particles
2. Micron-rated fine screen removes suspended particles

Triggering Automatic Cleaning



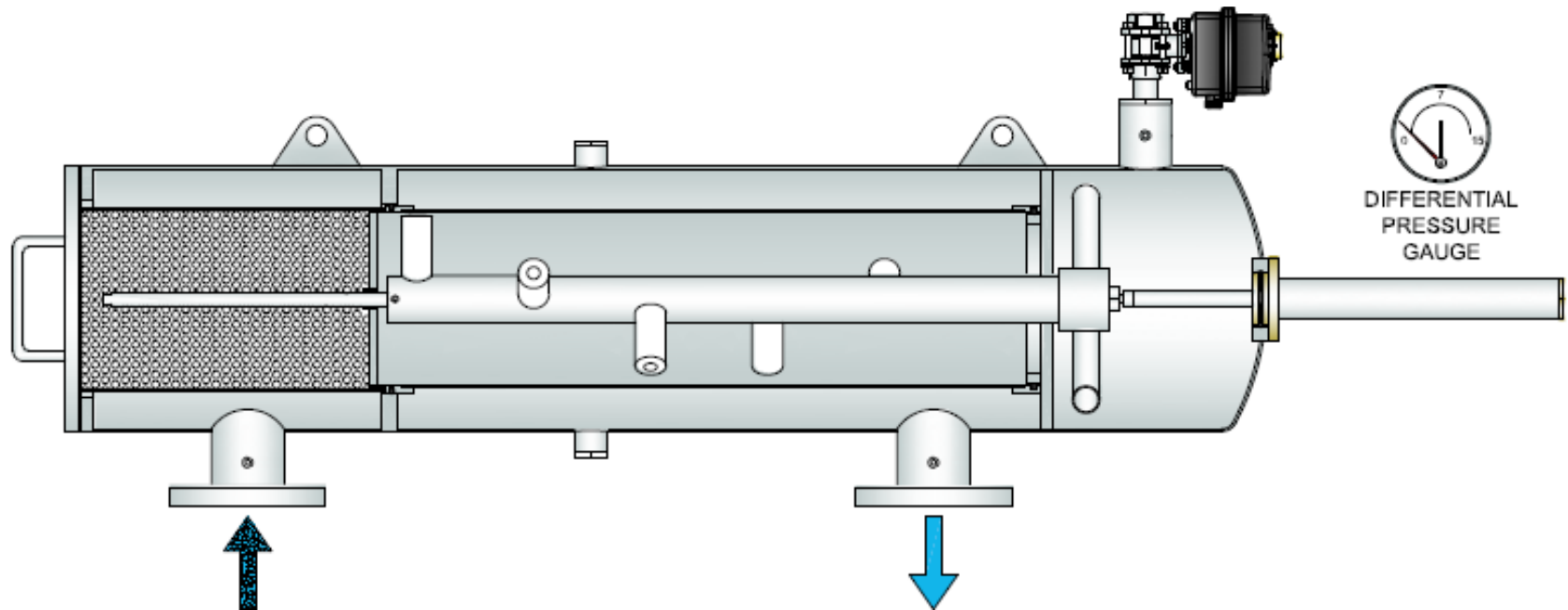
Particles build on the inside of the screen until **7 PSI** is reached on the differential pressure gauge

Suction Scanning Cleaning



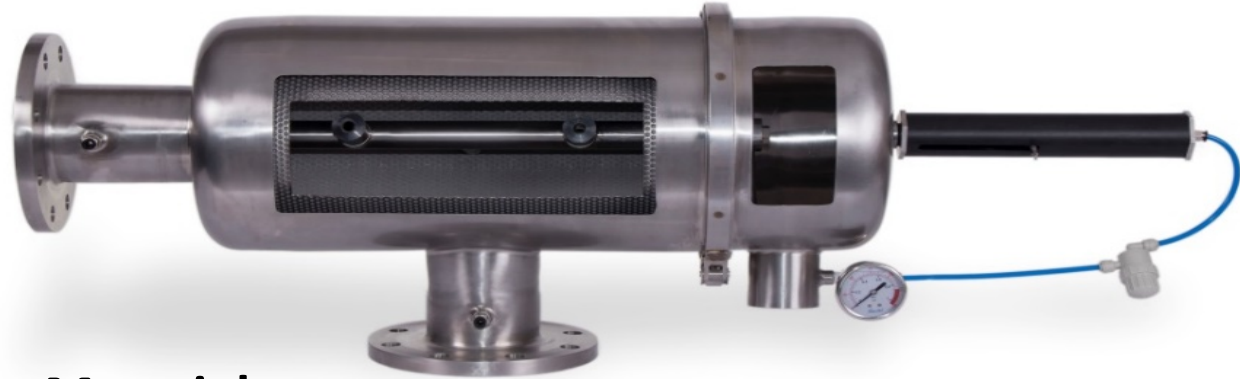
1. Flush valve opens, creating a low pressure path for suction nozzles to vacuum debris from the screen
2. Suction nozzles move with an electric motor or a hydraulic cylinder

Clean Again



**Cleaning cycles continue until differential pressure drops below 1 psi.
The filter continues normal operation uninterrupted.**

Key Advantages of LAKOS Screen Filter Systems



Heavy Duty Screen Material

- Unlike competitive PVC-backed screens, LAKOS screen is fused to stainless steel plate for maximum durability

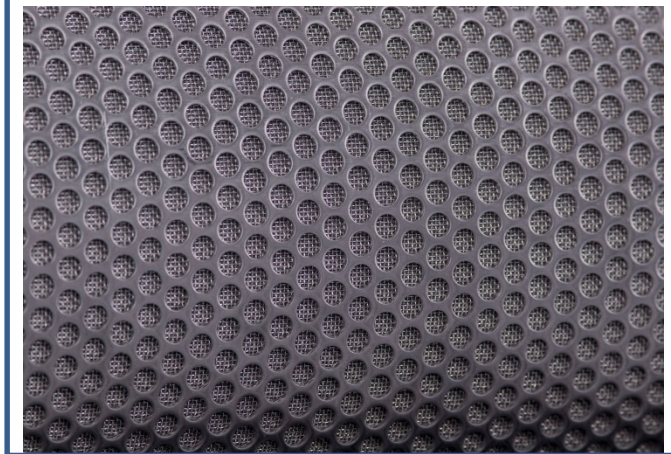
Low Water Consumption for Cleaning

- Typically less than 1% of total flow

Continuous Operation

- Cleaning does not stop filtration process
- Automatic cleaning by pressure differential

Sintered Stainless Screen



Self-Cleaning Screen Filter Applications

- Ag Irrigation
- Turf & Landscape Irrigation
- Parks, schools, golf courses
- Well water systems
- Rivers, canals & reservoirs
- Municipal water systems



Automatic Self-Cleaning Screen Models



Dual Screen -
Heavy Duty Model



Dual Screen -
Standard Duty Model



Single Screen –
Standard Duty Model

Dual Screen - Heavy Duty

Premium construction with two stage filtration

- Body connection is flanged (heavy duty)
- ¼" coarse screen for large particles
- Micron-rated 2nd stage fine screen

Two methods of actuation

- Hydraulic: 40 to 150 psi
- Electric: 15 to 40 psi

Details:

- Flows up to 7300 gpm
- 200°F max temperature
- Design pressure is 150 psi
- All stainless steel construction



Dual Screen - Standard Duty

Two stage filtration

- Body connection is clamp-style for filter access
- ¼" coarse screen for large particles
- Micron-rated 2nd stage fine screen

Two methods of actuation

- Hydraulic: 40 to 150 psi
- Electric: 15 to 40 psi

Details

- Flows up to 1,000 gpm
- 200°F max temperature
- Design pressure is 150 psi
- All stainless steel construction



Single Screen - Standard Duty

- Single stage, micron-rated fine screen
- Clamp-style body connection
- Right-angle design for compact spaces
- Hydraulic actuation only, operating range 40 to 150 psi
- Flows up to 1,600 gpm
- 200°F max temperature
- 150 psi pressure rating
- All stainless steel construction



Standard Screen: Sintered Mesh



Sintered Mesh on Reinforced Perforated Plate

Screen is fused to 316L stainless steel perforated plate for maximum durability (most competitors use screen glued to PVC plastic frame)

Fine Screen Micron Options:

5, 10, 25, 50, 75, 100, 120, 150, 200, 300, 500

98-100% particle removal efficiency above the degree of filtration

Maximize flow per square inch of screen area with sintered mesh

Screen Option: Wedge Wire Slotted



Wedge Wire Slotted Screen

316L Stainless Steel

98-100% particle removal efficiency above the degree of filtration. Great for removal of fibrous algae

Robust construction ideal for high pressure environments

Fine Screen Micron Options:

25, 50, 75, 100, 120, 150, 200, 300, 500

Primary Filter Screen: Perforated Plate



Perforated Plate used in 2-stage systems as coarse pre-filter

316L Stainless Steel

Typically 1/4" (6mm)

Screen Filters Summary

Benefits:

- High flow, both inorganic & organic solids
- Ideal for low solids loading of 1 - 100 ppm
- Handles variable flows up to 7,350 gpm
- Fully automatic turn-key systems

Advantages:

- Heavy-duty screen material
- Designed to reduced wear and improve durability
- All stainless steel construction
- Typically less than 1% water use for cleaning



Disc & Screen Filter Resources

Disc Filters:

<http://www.lakos.com/products/lakos-disc-filter-systems>

Self Cleaning Screen Filters:

<http://www.lakos.com/products/self-cleaning-screen-filters>

- Product Brochures & Installation/Operation Manuals
- Sizing & selection info
- Complete technical info & product specifications

Who's the Competition?

- **Amiad**
- **Netafim**
- **Azud (sells OEM through others)**

Get A LAKOS Quote!

- Check out our products & compare
- Check out our prices
 - Flow rate/range
 - Performance requirement
 - Particle concentration
- Check out our INCREASED ability to get you the right filter for all your applications

Thank You!

Please email your questions to:

Randy.Delenikos@lakos.com

or

Jerri.Stancoff@lakos.com

or

Toua.Cha@lakos.com

Appendix

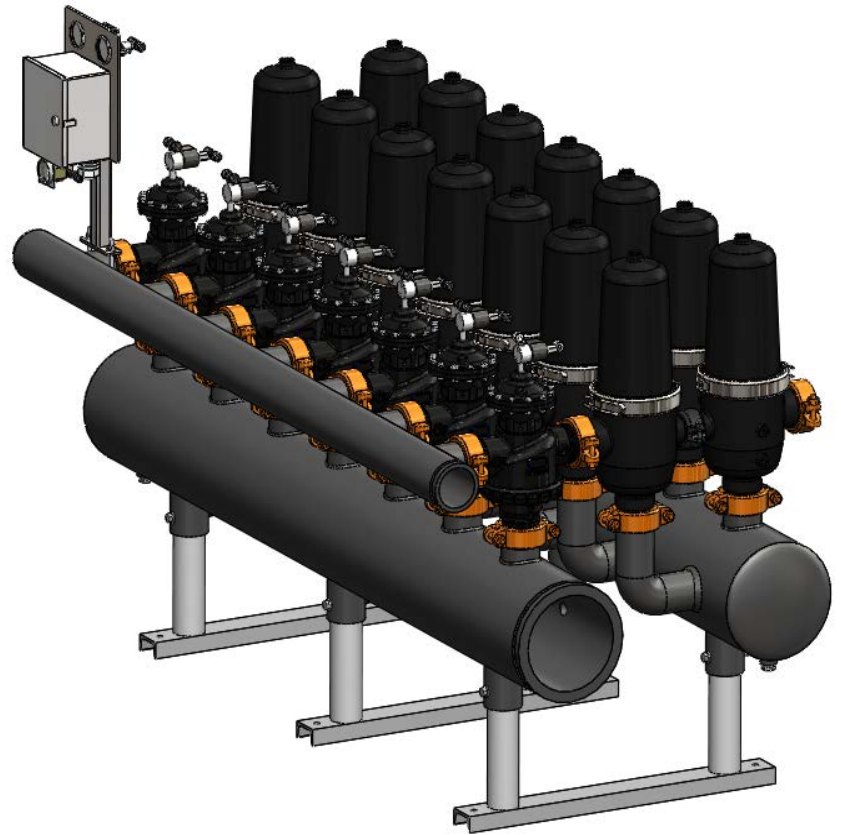
L Configuration



- Flows up to 1300 GPM
- Systems of < 10 Filters
- Backwashes one filter at a time

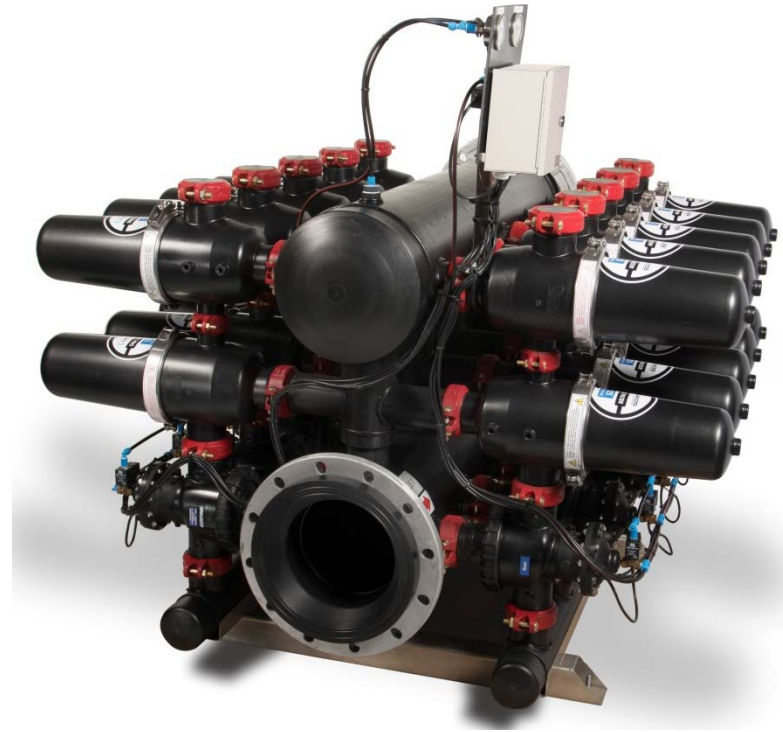
V Configuration

- Higher flows from filters in parallel up to 2,000 GPM
- More compact design (filter area per footprint)
- 8 to 16 filters
- Backwashes two filters at a time



H Configuration

- Most compact design (filter area per footprint)
- 16 to 32 filters
- Suitable for large flows up to 4200 GPM
- Backwashes two filters at a time



Common Applications

- Process Cooling
- Chilled Water
- Muni/Water Treatment

