



# STARK™ FILTRATION

PENTAIR COMMERCIAL AQUATICS • 1.800.831.7133



## MODULAR BY DESIGN

Standard and custom styles allow for influent and effluent placement to meet any and all design requirements. There are single or multiple units, side-by-side, end-to-end, or stacked. Manway locations are provided for every need.

Architects and engineers favor the Stark™ Filtration System because it is designed to use as little as one-fourth the floor space of other filters. The self-supporting stackable structure eliminates the need for independent framework.

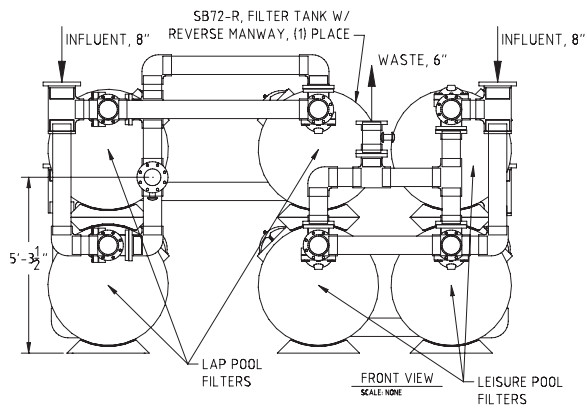
Engineered for a Lifetime of Performance Every Stark Fiberglass Filter is built to resist structural failures caused by fatigue, corrosion, and scaling. It is also protected by a proprietary all-weather coating with UV inhibitors.

## BACKWASH CONTROLS

All Stark systems are provided with all valves and fittings required for an efficient backwash cycle. Fully Automatic, Semi-Automatic and Manual Backwash Options are available.



Custom Face-Piping Kits for your Application.



## VESSEL CONSTRUCTION

Superior, corrosion-proof, fiberglass construction. All Stark vessels are made using a dual-construction method consisting of a multiple-layer fiberglass liner filament wound with continuous fiber strand. Computer-controlled, filament winding covers the entire vessel including the domes. Durable, all-weather coating with UV inhibitors.



## MANWAY VIEWPORT

Provides Visual Observation of the sand bed during Filtration and Backwash. Standard on all Stark vessels. Manway opening is 12" X 16" elliptical for easy access.

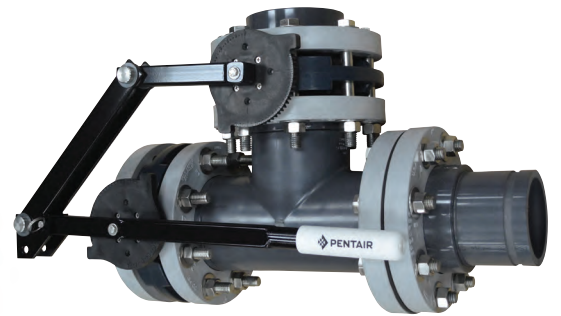


6" Backwash Valve



## VALVES

Cost-effective backwash control valves have manual or automatic options. 6" version (on most models) includes a transparent ABS valve housing and cover to display valve positioning and provide convenient maintenance inspections.



## BUTTERFLY VALVE

Linked Butterfly Valves also available.



## COMMERCIAL LATERAL

2" NPT injection molded ABS with "V" groove slots and reinforcing ribs for best performance and service life.



## Optional Pressure Booster System (PBS01)

Provides consistent valve-actuation where city-water pressure is unreliable.



PBS01

## FEATURED HIGHLIGHTS

- All vessel models are NSF 50 listed.
- End-manways provide easy access for service and maintenance.
- Schedule 80 Face Piping is fully assembled and in our factory for ease of installation.
- Clear backwash valve (most models) provides for intuitive operation and troubleshooting.
- Stark valves and several control options make backwashing simple.
- Unparalleled tank construction and exterior all-weather coating.



6" Backwash Valve



## STARK™ SS SERIES™ FILTERS HORIZONTAL SAND FILTRATION SYSTEMS

Stark SS Series Filter Systems are designed with ease of installation, maintenance and minimal floor space in mind. Vessels are side-by-side, with manway access on the ends and all piping above the vessel(s). All piping ships fully solvent-welded and pre-assembled to ensure fit. 100 psi vessel pressure rating.



Stark SS Series Sand Filter

### CAPACITY INFORMATION

# Tanks	System Number	Tank Size	Filtration Area (Sq. Ft.)	Flow (GPM) 12 gpm/sf	Flow (GPM) 15 gpm/sf	Backwash Valve Size/Type	Dimensions			Total Media (Cu. Ft.)	Operating Weight (lbs.)	Shipping Weight (lbs.)
							'W'	'L'	"Hs"			
1	RS1-60-04	36" x 60"	13.5	162	203	4" Gray	38"	63"	68"	15.5	4,600	845
	RS1-72-04	36" x 72"	17.2	206	258	4" Gray	38"	75"	68"	19.0	5,500	915
	SS1-48-04	42" x 48"	12.8	154	192	4" Gray	44"	51"	74"	16.5	4,900	805
	SS1-72-06	42" x 72"	20.0	240	300	6" Clear	44"	75"	86"	26.0	7,500	1,105
	SS1-96-06	42" x 96"	27.0	324	405	6" Clear	44"	99"	86"	36.0	9,800	1,240
2	RS2-60-06	36" x 60"	27.0	324	405	4" Gray	77"	63"	70"	31.0	9,400	1,650
	RS2-72-06	36" x 72"	34.4	413	516	4" Gray	77"	75"	70"	38.0	11,000	1,830
	SS2-48-06	42" x 48"	25.6	307	384	4" Gray	90"	51"	76"	33.0	10,000	1,650
	SS2-72-06	42" x 72"	40.0	480	600	6" Clear	90"	75"	87"	52.0	14,800	2,060
	SS2-96-06	42" x 96"	54.0	648	810	6" Clear	90"	99"	87"	72.0	19,400	2,380
3	RS3-60-06	36" x 60"	40.5	486	608	4" Gray	116"	63"	70"	46.5	14,200	2,420
	RS3-72-06	36" x 72"	51.6	619	774	4" Gray	116"	75"	70"	46.5	16,800	2,670
	SS3-48-06	42" x 48"	38.4	461	576	4" Gray	136"	51"	76"	49.5	14,900	2,420
	SS3-72-08	42" x 72"	60.0	720	900	6" Clear	136"	75"	88"	78.0	22,400	3,140
	SS3-96-08	42" x 96"	81.0	972	1215	6" Clear	136"	99"	88"	108.0	29,400	3,620
4	RS4-60-06	36" x 60"	54.0	648	810	4" Gray	155"	63"	70"	62.0	18,900	3,200
	RS4-72-08	36" x 72"	68.8	826	1032	4" Gray	155"	75"	76"	76.0	22,300	3,560
	SS4-48-06	42" x 48"	51.2	614	768	4" Gray	182"	51"	76"	66.0	19,900	3,200
	SS4-72-08	42" x 72"	80.0	960	1200	6" Clear	182"	75"	88"	104.0	30,200	4,470
	SS4-96-10	42" x 96"	108.0	1296	1620	6" Clear	182"	99"	88"	144.0	39,900	5,145
5	SS5-72-10	42" x 72"	100.0	1200	1500	6" Clear	229"	75"	88"	130.0	38,400	5,650
	SS5-96-10	42" x 96"	135.0	1620	2025	6" Clear	229"	99"	88"	180.0	49,900	6,450
6	SS6-72-10	42" x 72"	120.0	1440	1800	6" Clear	275"	75"	88"	156.0	46,000	6,800
	SS6-96-12	42" x 96"	162.0	1944	2430	6" Clear	275"	99"	97"	216.0	60,800	7,900



## SHELL AND WINDING

Robust Dual-Wall Construction for piece of mind and long service life. Entire vessel including domes is wound on a computer-controlled multi-axis machine.



### NOTES:

1. Standard header sizing shown is based on 10 fps max. at 15 gpm per sq. ft.
2. For more dimensional detail, consult the appropriate Cut Sheet in our Design Manual.
3. S-48 Vessels are not available in A Style. Dimensions above represent C Style.
4. For special requirements including non-standard header sizes/locations and systems consisting of more vessels than shown, please contact our Applications Engineering at: PoolApplicationRFQ@pentair.com

## STARK™ SS SERIES™ FILTERS (continued) HORIZONTAL SAND FILTRATION SYSTEMS

### SS SERIES SYSTEMS INCLUDE:

- Manway viewport standard on all Stark tanks
- Stark backwash valves (1 per tank)
- Pre-glued piping utilizing grooved couplings
- Stark diaphragm-style priority valve (on dual tank systems)

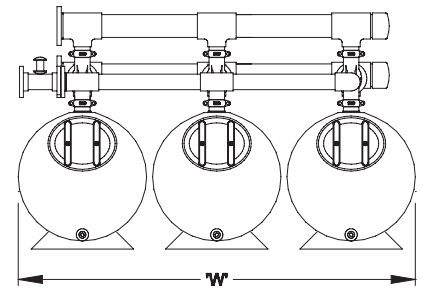
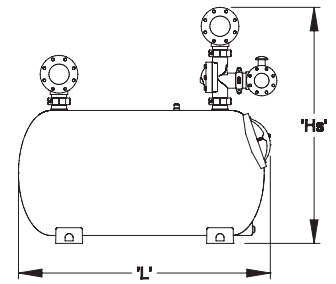
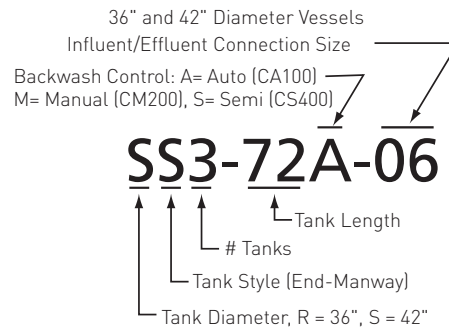
### WITH FULLY AUTOMATIC (CA100) CONTROL OPTION

- Effluent Flow Sensor/Saddle
- Temperature Probe

### ADDITIONAL ADDERS

- Pressure Booster System (PBS01)
- Manual or Motorized Butterfly backwash
- Throttling valve for 3+ tank systems
- Advanced backwash controls

### SS Series System Numbering



Custom Systems Available for your Application.



## FEATURED HIGHLIGHTS

- All vessel models are NSF listed
- Solid composite construction - does not employ a bladder.
- Vessels can be stacked to minimize foot print. Designed for Seismic Zone 4 loading with additional supports or braces.
- Vessels feature proprietary all-weather exterior coating with UV inhibitors.
- Several backwash control options available.
- Multiple influent and effluent pipe locations available - A, B and C style

### S SERIES SYSTEMS INCLUDE

Manway with Viewport standard on all Stark Tanks; Stark backwash valves (1 per tank); Stark diaphragm-style priority valve (on dual-tank systems).

### ADDITIONAL ADDERS

Pressure Booster System (PBS01); Manual or motorized butterfly backwash; Throttling valve for 3+ tank systems; Advanced backwash controls.

## STARK™ S SERIES™ FILTERS HORIZONTAL SAND FILTRATION SYSTEMS

For use in commercial pool, water park and many aquarium applications. Standard systems accommodate flows from 135 to 2,500 GPM – custom systems accommodate unlimited flows.

All Stark S Series vessels are corrosion-proof, composite vessels. Systems are available with 100 psi rated filament-wound vessels. All vessels are 42" diameter to offer the best combination of cost and effectiveness for recreational water. Stark diaphragm valves and controls are standard; butterfly-valve options (including linked valves) are also available.



SA2-144M-08



### CAPACITY INFORMATION (INDEPENDENT OF STYLE/CONFIGURATION)

# Tanks	General System Number	Tank Size	Filtration Area (Sq. Ft.)	Flow (GPM) 12 gpm/sf	Flow (GPM) 15 gpm/sf	Backwash Valve Size/Type	Total Media (Cu. Ft.)	Operating Weight (lbs.)	Shipping Weight (lbs.)
1	S1-48	42" x 48"	12.8	154	192	4" Gray	16.5	5,280	870
	S1-72	42" x 72"	20.0	240	300	6" Clear	26.0	7,920	1,110
	S1-96	42" x 96"	27.0	324	405	6" Clear	36.0	10,560	1,350
	S1-120	42" x 120"	35.0	420	525	6" Clear	45.5	13,200	1,590
	S1-144	42" x 144"	41.0	492	615	6" Clear	55.5	15,840	1,830
2	S2-48	42" x 48"	25.6	307	384	4" Gray	33.0	10,560	1,740
	S2-72	42" x 72"	40.0	480	600	6" Clear	52.0	15,840	2,220
	S2-96	42" x 96"	54.0	648	810	6" Clear	72.0	21,120	2,700
	S2-120	42" x 120"	70.0	840	1050	6" Clear	91.0	26,400	3,180
	S2-144	42" x 144"	82.0	984	1230	6" Clear	111.0	31,680	3,660
3	S3-48	42" x 48"	38.4	461	576	4" Gray	49.5	15,840	2,610
	S3-72	42" x 72"	60.0	720	900	6" Clear	78.0	23,760	3,330
	S3-96	42" x 96"	81.0	972	1215	6" Clear	108.0	31,680	4,050
	S3-120	42" x 120"	105.0	1260	1575	6" Clear	136.5	39,600	4,770
	S3-144	42" x 144"	123.0	1476	1845	6" Clear	166.5	47,520	5,490
4	S4-48	42" x 48"	51.2	614	768	4" Gray	66.0	21,120	3,480
	S4-72	42" x 72"	80.0	960	1200	6" Clear	104.0	31,680	4,440
	S4-96	42" x 96"	108.0	1296	1620	6" Clear	144.0	42,240	5,400
	S4-120	42" x 120"	140.0	1680	2100	6" Clear	182.0	52,800	6,360
	S4-144	42" x 144"	164.0	1968	2460	6" Clear	222.0	63,360	7,320

### DIMENSIONS - SIDE-BY-SIDE

Descriptive System Number	Single-Tank and Side-by-Side Systems		
	'W'	'L'	'Hs'
*SC1-48-04	44"	82"	47"
*SA1-72-06	44"	107"	67"
*SA1-96-06	44"	122"	67"
SA1-120-06	44"	146"	67"
SA1-144-06	44"	170"	67"
*SC2-48-06	96"	80"	56"
*SA2-72-06	99"	92"	86"
*SA2-96-06	99"	116"	86"
SA2-120-08	110"	144"	91"
SA2-144-08	110"	168"	91"
*SC3-48-06	152"	80"	56"
*SA3-72-08	152"	94"	91"
*SA3-96-08	152"	117"	91"
SA3-120-10	152"	138"	96"
SA3-144-10	152"	162"	96"
*SC4-48-06	200"	80"	56"
*SA4-72-08	200"	94"	91"
*SA4-96-10	200"	118"	96"
SA4-120-10	200"	142"	96"
SA4-144-12	200"	168"	100"

\*For systems with an asterisk, SS Series systems may be used with a smaller footprint.



SB2-144M-08ST

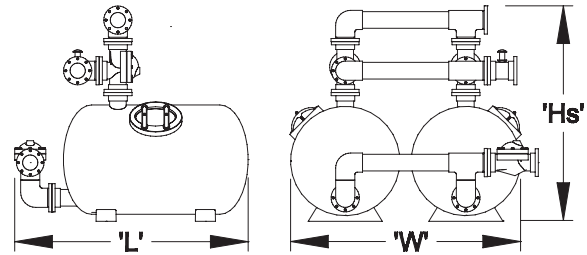
# STARK™ S SERIES™ FILTERS (continued)

## HORIZONTAL SAND FILTRATION SYSTEMS

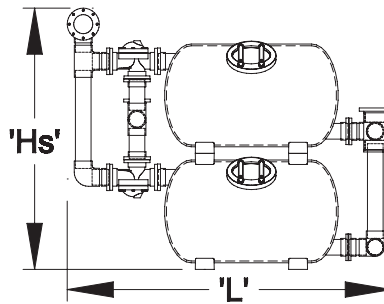
### DIMENSIONS AND PERFORMANCE

**NOTES:**

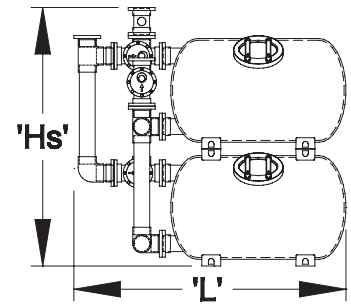
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A-Style Side-by-Side



B-Style Stacked

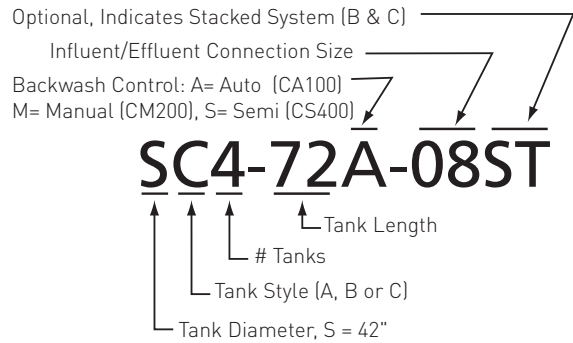


C-Style Stacked

S SERIES

DIMENSIONS - STACKED SYSTEMS						
Style	# Tanks	Descriptive System Number	Filtration Area (Sq. Ft.)	'W'	'L'	'Hs'
SB2-72-06ST	40.0	44"	135"	109"		
SB2-96-06ST	54.0	44"	159"	109"		
SB2-120-08ST	70.0	44"	191"	109"		
SB2-144-08ST	82.0	44"	215"	109"		
Stacked Systems - C-Style	4	SB4-48-06ST	51.2	92"	99"	108"
		SB4-72-08ST	80.0	92"	140"	111"
		SB4-96-10ST	108.0	100"	166"	119"
		SB4-120-10ST	140.0	100"	190"	119"
		SB4-144-12ST	164.0	104"	217"	122"
Stacked Systems - C-Style	2	SC2-48-06ST	25.6	50"	80"	107"
		SC2-72-06ST	40.0	50"	114"	109"
		SC2-96-06ST	54.0	50"	138"	109"
		SC2-120-08ST	70.0	53"	165"	109"
		SC2-144-08ST	82.0	53"	189"	109"
	4	SC4-48-06ST	51.2	92"	88"	108"
		SC4-72-08ST	80.0	92"	122"	111"
		SC4-96-10ST	108.0	100"	146"	119"
		SC4-120-10ST	140.0	100"	169"	119"
		SC4-144-12ST	164.0	104"	193"	122"

**S Series System Numbering**



## FEATURED HIGHLIGHTS

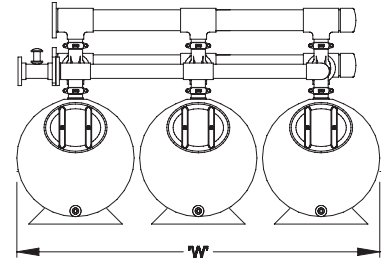
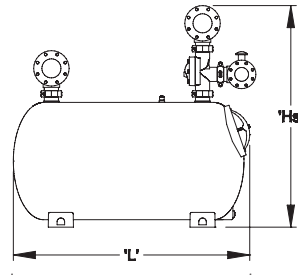
- All vessel models are NSF listed.
- Manway cover has integral viewport for Internal filter observation.
- Solid composite construction - does not employ a bladder.
- Schedule 80 Face Piping is fully assembled.
- Vessels feature proprietary all-weather exterior coating with UV inhibitors.
- Vessels greater than 40 SF utilize an innovative 8" air-actuated backwash valve.
- Several backwash control options available.
- Butterfly-valve options including linked tandem valves are also available.



## STARK™ 5S SERIES™ FILTERS HORIZONTAL SAND FILTRATION SYSTEMS

The 5S Series Filter Systems are designed as an extension to the industry-leading SS Series Filtration Systems, with many of the same features including fully-assembled Schedule 80 Face Piping, with the addition of new innovations. The 5S Series Filter Systems include the only 8" backwash valve in the industry, and air valve actuation for the smoothest, quickest valve movement.

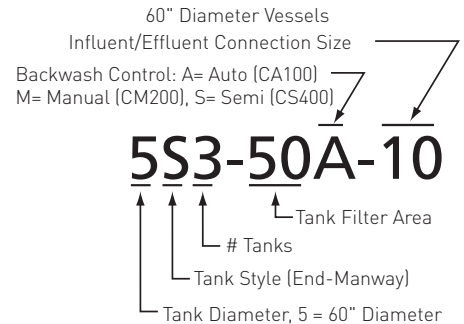
### DIMENSIONS AND PERFORMANCE



#### NOTES:

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2. For more dimensional detail, consult the appropriate Cut Sheet in our Design Manual.
3. For special requirements including non-standard header sizes/locations and systems consisting of more vessels than shown, please contact our Applications Engineering at: PoolApplicationRFQ@pentair.com

#### 5S Series System Numbering



### CAPACITY INFORMATION

# Tanks	System Number	Tank Size	Filtration Area (Sq. Ft.)	Flow (GPM) 12 gpm/sf	Flow (GPM) 15 gpm/sf	Backwash Valve Size/Type	'W'	'L'	"Hs"	Total Media (Cu. Ft.)	Operating Weight (lbs.)	Shipping Weight (lbs.)
1	5S1-30-06	60" x 78"	30.0	360	450	6" Clear	62"	83"	106"	63.5	15,000	2,000
	5S1-35-06	60" x 90"	35.0	420	525	6" Clear	62"	95"	106"	74.3	17,000	2,300
	5S1-40-06	60" x 102"	40.0	480	600	6" Clear	62"	107"	106"	96.4	20,000	2,600
	5S1-45-08	60" x 114"	45.0	540	675	8" Gray	62"	119"	123"	26.4	23,000	2,900
	5S1-50-08	60" x 126"	50.0	600	750	8" Gray	62"	131"	123"	107.4	25,000	3,200
2	5S2-30-08	60" x 78"	60.0	720	900	6" Clear	128"	83"	111"	127.0	30,000	4,100
	5S2-35-08	60" x 90"	70.0	840	1050	6" Clear	128"	95"	111"	148.6	35,000	4,600
	5S2-40-08	60" x 102"	80.0	960	1200	6" Clear	128"	107"	111"	170.8	40,000	5,200
	5S2-45-08	60" x 114"	90.0	1080	1350	8" Gray	128"	119"	127"	192.8	45,000	5,700
	5S2-50-10	60" x 126"	100.0	1200	1500	8" Gray	128"	131"	133"	214.8	49,000	6,300
3	5S3-30-08	60" x 78"	90.0	1080	1350	6" Clear	194"	83"	111"	190.5	45,000	6,100
	5S3-35-10	60" x 90"	105.0	1260	1575	6" Clear	194"	95"	117"	222.9	53,000	6,900
	5S3-40-10	60" x 102"	120.0	1200	1800	6" Clear	194"	107"	117"	256.2	60,000	7,800
	5S3-45-10	60" x 114"	135.0	1620	2025	8" Gray	194"	119"	133"	289.2	68,000	8,600
	5S3-50-12	60" x 126"	150.0	1800	2250	8" Gray	194"	131"	135"	322.2	75,000	9,500
4	5S4-30-10	60" x 78"	120.0	1440	1800	6" Clear	260"	83"	117"	254.0	61,000	8,100
	5S4-35-10	60" x 90"	140.0	1680	2100	6" Clear	260"	95"	117"	297.2	70,000	9,200
	5S4-40-12	60" x 102"	160.0	1920	2400	6" Clear	260"	107"	119"	341.6	80,000	10,400
	5S4-45-12	60" x 114"	180.0	2160	2700	8" Gray	260"	119"	135"	385.6	92,000	11,500
	5S4-50-12	60" x 126"	200.0	2400	3000	8" Gray	260"	131"	135"	429.6	100,000	12,600



## FEATURED HIGHLIGHTS

Also available in complete systems using either our proprietary diaphragm valves or linked butterfly valves.

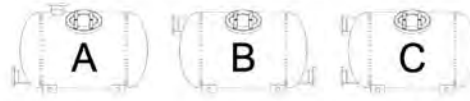


## STARK™ AQ SERIES™ FILTERS LARGE DIAMETER SYSTEMS & VESSELS

48" and 60" Diameter Stackable Horizontal Filters are available as complete filtration systems. The Stark AQ Series Filters are ideal for high-load or large flows of water, such as water parks and public aquariums. NSF-50 Listed. 75 psi pressure rating.



Stark AQ Series Sand Filter



### AQ SERIES VESSEL SIZING AND CAPACITY INFORMATION

Vessel Model Number	Available Styles*	Filtration Area (sq ft)	Internal Diameter (feet)	Internal Length (ft) (feet)	Standard Flange Size (ANSI)
4X6	A, B, C	22	4.0	6.0	6"
4X8	A, B, C	30	4.0	8.0	6"
4X10	A, B, C	38	4.0	10.0	6"
4X12	A, B, C	46	4.0	12.0	8"
4X14	A, B, C	54	4.0	14.0	8"
5X8	A, B, C	37	5.0	8.0	8"
5X10	A, B, C	47	5.0	10.0	8"
5X12	A, B, C	57	5.0	12.0	8"
5X14	A, B, C	67	5.0	14.0	8"
5X16	A, B, C	77	5.0	16.0	8"

\*Styles B and C are stackable. All are available with the manway on the other side (reverse manway).



Stark V Series Sand Filter

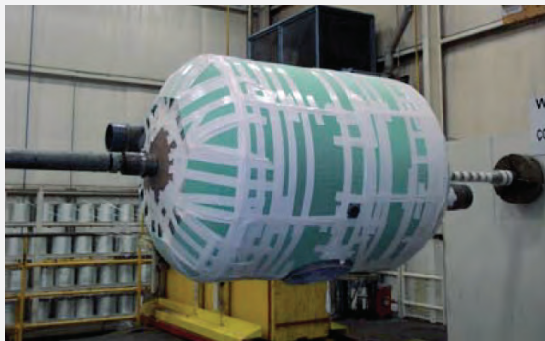
## STARK™ V SERIES™ FILTERS HIGH LOAD VERTICAL FILTERS

Deep-Bed Filters provide "plug-flow" for extreme load applications such as sea-water intake, mammal and marine mammal exhibits. They are also frequently used as carbon (GAC) filters.

### V SERIES VESSEL SIZING AND CAPACITY INFORMATION

Vessel Model Number	Styles	Filtration Area (sq ft)	Internal Diameter (feet)	Internal Height (ft) (feet)	Standard Flange Size (ANSI)
V3672	Vertical	7.1	3.0	6.0	3"
V4272	Vertical	9.6	3.5	6.0	3"
V4872	Vertical	12.6	4.0	6.0	4"
V6072	Vertical	19.6	5.0	6.0	6"
V72	Vertical	28.3	6.0	8.8	6"
V96	Vertical	50.3	8.0	9.5	6"

## TANK WINDING



## STARK™ TANKS ARE CORROSION PROOF

Stark fiberglass filters are designed to have a life span three-to-five-times longer than metal filters. Each Stark filter tank is manufactured under the strictest quality-control procedures. The integral composite fiberglass construction eliminates welds or seams that can leak, blow out, or rupture from vacuum damage.

All NSF-50 listed Stark Horizontal filters are designed for 75 or 100 psi working pressure, and 400 psi burst test, to meet multiple budgets and specs. Each tank is pressure tested prior to shipment. And the tank is completely impervious to corrosion.

Stark's 100 percent corrosion-resistant fiberglass filters provide the perfect solution: dependable performance with ease of operation.



VESSEL FEATURES

## OPTIONAL INTEGRAL INSULATION

Any Stark Filter can be manufactured with integral insulation between the shell and winding layers to last as long as the vessel. Used for both cold water and warm water life support applications when filters are installed where a high differential exists between water and ambient air temperature.

## STARK™ FILTRATION ADDITIONAL FEATURES AND OPTIONS

### COMMERCIAL LATERAL

2" NPT injection molded ABS with "V" groove slots and reinforcing ribs for best performance and service life.



### MANWAY VIEWPORT

Provides Visual Observation of the sand bed during Filtration and Backwash. Standard on all Stark vessels. Manway opening is 12" X 16" elliptical for easy access.



### VALVES

Cost-effective backwash control valve have manual or automatic options. 6" version (on most models) includes a transparent ABS valve housing and cover to display valve positioning and provide convenient maintenance inspections.



### OPTIONAL PRESSURE BOOSTER SYSTEM (PBS01)

Provides consistent valve-actuation where city-water pressure is unreliable.

# BACKWASH CONTROLS

## CM200 MANUAL BACKWASH CONTROLLER

(Backwash Option "M")

This is the simplest option. No electronics or programming required; simply turn the knob to backwash each tank in the system.

## CS 400 SEMI-AUTO BACKWASH CONTROLLER

(Backwash Option "S")

This controller is programmable and controls every aspect of the backwash cycle once initiated. Backwash can be initiated three ways: by an operator with the touch of a button, by a signal from a master controller (such as the AK600), or by a signal from an optional differential pressure switch (CS400-DP). Stored backwash data and history, alarms, and calculated backwash cycle times are also features of the CS400 controller, as are relays for communication with the heater, pump and Acu-drive.

## CA 100 AUTOMATIC BACKWASH CONTROLLER

(Backwash Option "A")

This is the most comprehensive backwash controller and can be readily reprogrammed to initiate backwash automatically based on differential pressure (integral pressure transducers are standard), time (internal seven-day clock with battery back-up is standard), flow (with optional flow sensor), or any combination of the above. The controller has real-time display of operation mode, filter flow rate, and water temperature (with optional temperature probe). Also, includes Energy Saver Mode for simple On/Off pump scheduling and various interlocks and relays to communicate with other equipment (pump, heater, Acu-Drive).

## BUTTERFLY VALVE SYSTEMS

Systems are also available with various, simple butterfly valve backwash options, including Single Lever Linkage (Backwash Option "SL"; Single-Tank Systems Only – tank is backwashed by the throw of a single lever); and Tandem Butterfly Valve Configurations (Backwash Option TM; Multiple Tank Systems - each Stark backwash valve is replaced by a linked pair of butterfly valves. Tanks are backwashed one-at-a-time with filtered water from adjacent tank(s)). Custom systems are also available using individual (non-linked) butterfly valves.







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