



## Product Overview



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Eco-efficient **solids separation**



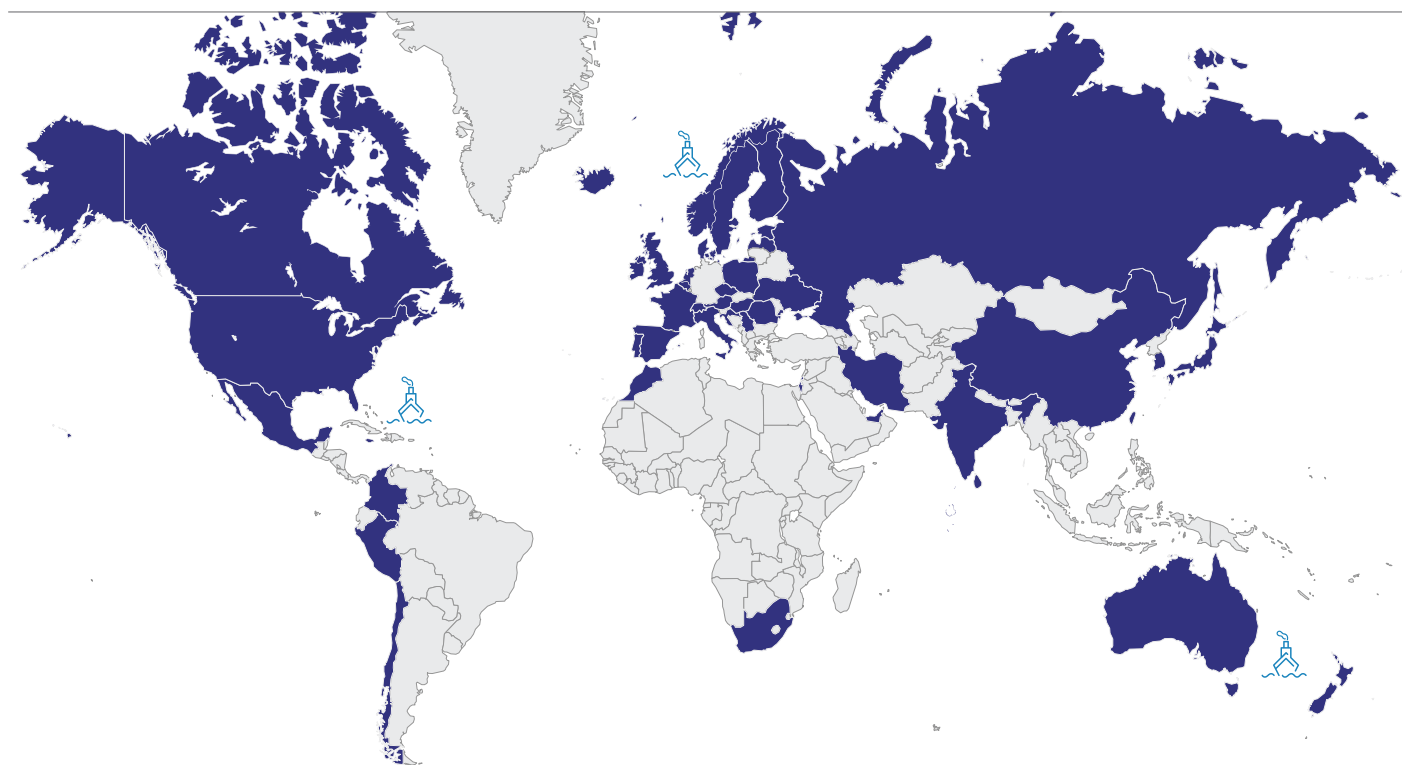
## ABOUT SALSNES FILTER

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Over 30 years ago, we designed the first rotating belt filter to provide customers with a highly efficient and reliable technology that could maximize solids separation and decrease costs. Today, we continue to lead the development of this technology from our office and manufacturing facilities in Namsos, Norway. We are a brand in the Trojan Technologies group of businesses, located in Ontario, Canada.

## SALSNES FILTER SYSTEMS AROUND THE WORLD

We have installed over 900 filters around the world, giving us a global footprint in municipal and industrial markets. Our customers use the Salsnes Filter system in municipal wastewater treatment plants, and for a host of industrial applications such as tanneries, cruise ships, aquaculture, biofuel production, pulp & paper and food & beverage.



## THREE CRITICAL PROCESSES

In a Salsnes Filter system SOLIDS SEPARATION, SLUDGE THICKENING and DEWATERING are performed in one compact unit, removing, on average, 50% TSS, 20% BOD and producing drier sludge (20–30% DM). A Salsnes Filter system provides primary treatment in a fraction of the footprint, at 30 – 60% lower capital cost and with significantly lower total lifecycle costs when compared to conventional primary treatment. What's more, sludge handling, transportation and disposal costs are drastically reduced. Today, Salsnes Filter systems are installed around the world in a variety of applications within municipal wastewater treatment plants and in challenging industrial solids separation applications.

Cost-effective, compact, high-performing, chemical-free and sustainable – the Salsnes Filter system defines eco-efficient.

## Seemingly Endless **Applications**

### Municipal Wastewater Treatment

- Enhance primary treatment performance
  - without adding chemicals
- Solids separation upstream of secondary processes such as:
  - Oxidation Ditches
  - Sequencing Batch Reactors
  - Biological Aerated Filters
  - Dissolved Air Flotation
  - Moving Bed Bio Reactors
  - Membrane Bio Reactors
- Primary treatment for new plants
- Increase primary or secondary process capacity
- Plant expansion where land is expensive or unavailable
- Dig-free, concrete-free solution for mountainous or earthquake-prone areas
- Combined sewer overflow (CSO) treatment
- Stormwater treatment

### Industrial Wastewater Treatment

- Aquaculture
- Pulp & paper
- Slaughterhouses
- Food processing
- Breweries and wineries
- Plastic Recycling

## All The **Flexibility** You Need

With both Enclosed and Open modular systems, unlimited design flow capacity and the option to install indoors or outdoors, a Salsnes Filter system provides all the flexibility you need.



SF and SFKC systems are free-standing and enclosed



SFK systems are open for concrete channel installation  
Note: (cover not shown)

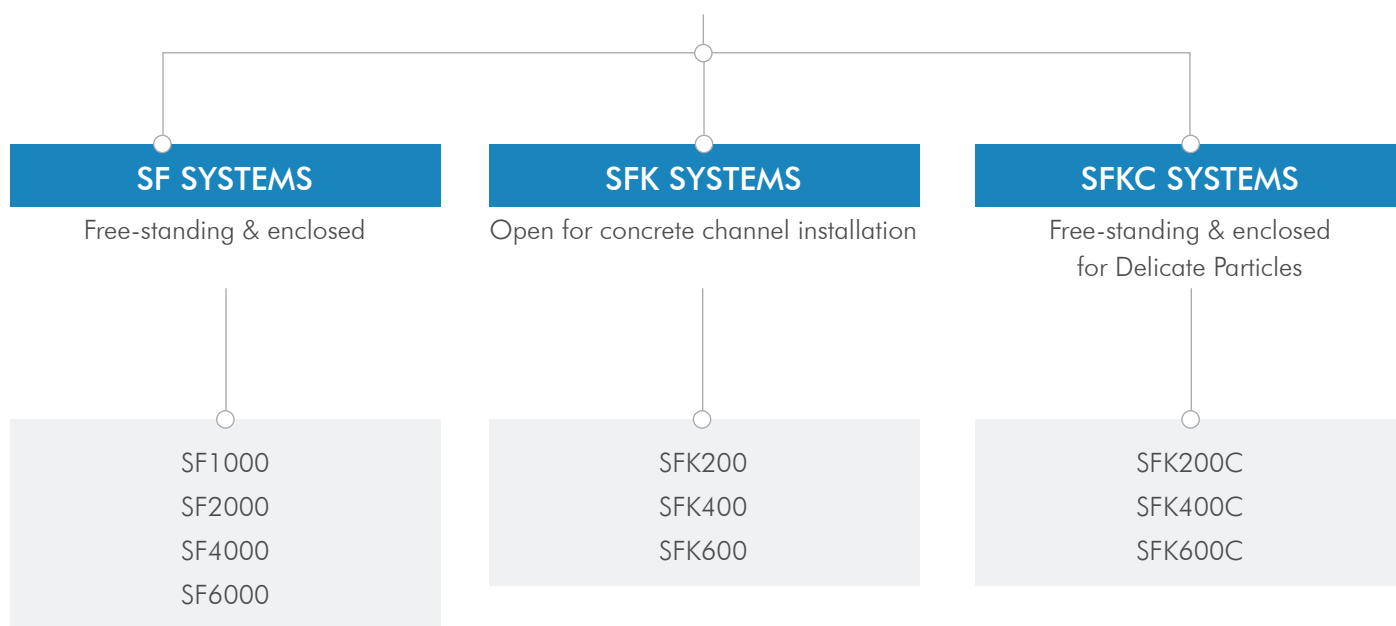
## AN ALTERNATIVE TO CONVENTIONAL PRIMARY TREATMENT

A Salsnes Filter system can completely replace conventional primary solids separation. Or, it can augment existing primary treatment to improve plant performance and reduce overall costs.

Compared to conventional systems, a Salsnes Filter system can offer:

- 30-60% lower investment costs
- 1/10th the land requirements
- Integrated thickening and optional dewatering
- Significantly lower lifecycle costs
- Smaller volume of drier sludge that reduces disposal costs
- Less civil works
- Fully automated equipment
- Optimal removal of TSS to ease demand on downstream biological treatment
  - 30-60% removal in a typical municipal installation
  - up to 80% removal when a polymer is used
- Higher Volatile Solids content in primary sludge for biogas production
- Fast and easy maintenance
- Lower operating costs

## OUR PRODUCTS

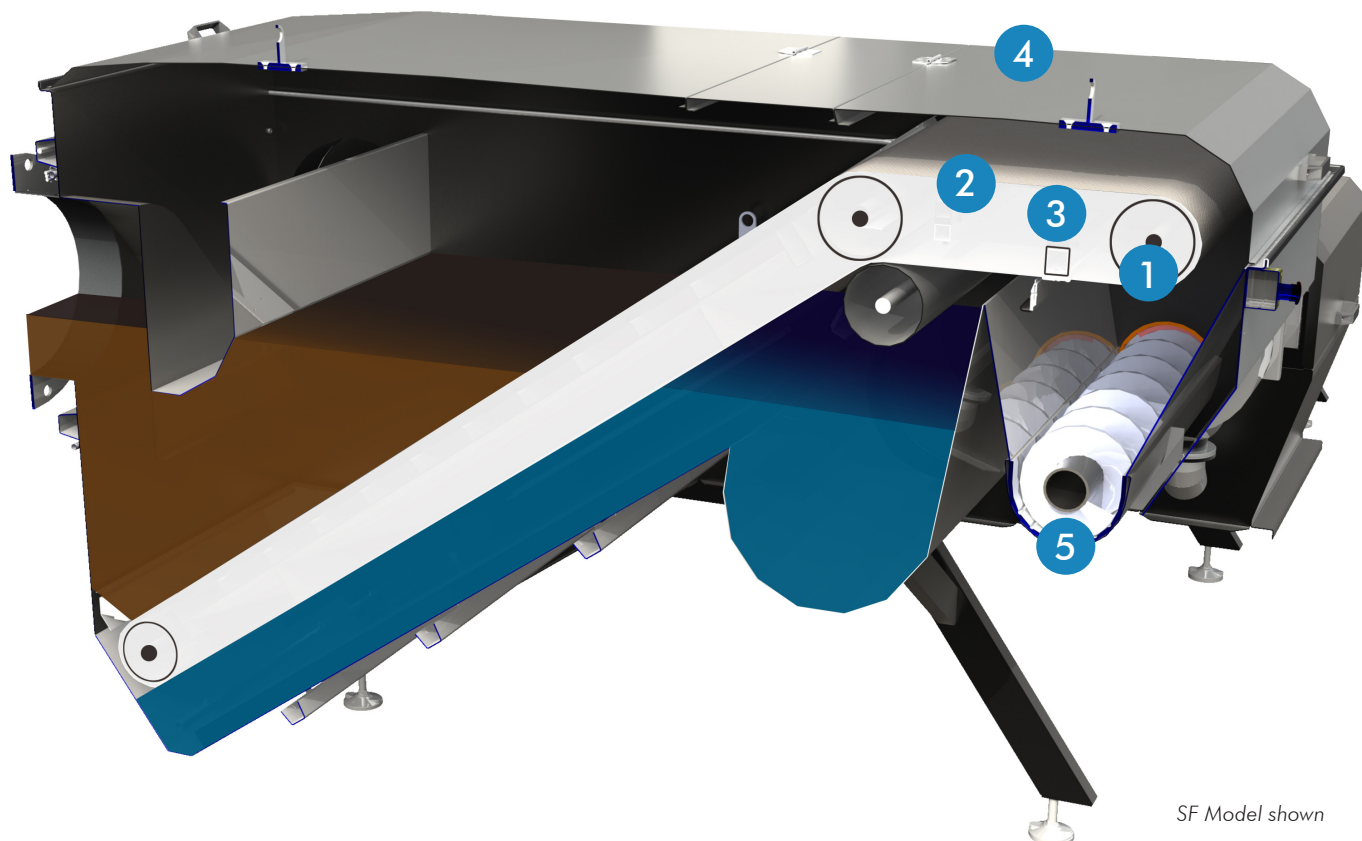


### Filter Sizing and Demonstration Systems

We offer a number of services and options to assist you with the selection and sizing for your Salsnes filter needs. We can provide water sampling and analysis support right up to demonstration systems for application verification.



## SF, SFK & SFKC PRODUCT COMPONENTS



SF Model shown

### 1 Filtermesh & Cogwheel

The filtermesh is made of polyethylene and is very durable. The way it's mounted and tensioned to the cogwheel is patented - it improves performance and allows the filter to handle higher flow rates and solids loadings, increasing treatment capacity in a smaller footprint.

### 2 Maintenance Wash Process Low Pressure Water Cold, Low Pressure Water Hot, High Water, Medium Water

Hot water or cold water filter mesh washing options are available. To those facilities that have a high concentration of fat, oil and grease (FOG) in their process stream high and medium pressure options are available. Operating only one – four times daily, this flush effectively cleans the hard-to-remove FOG from filtermesh openings.

### 3 Sludge Removing Process Airknife, Water knife, Scraper

The filtermesh cleaning system starts automatically when the mesh begins to rotate. Based on application requirements continuous mesh cleaning can be accomplished by an air knife, water knife or a self cleaning scraper system.

### 4 Access Hatch

Enables quick visual inspections of performance and internal components.

### 5 Particle Transportation Auger System

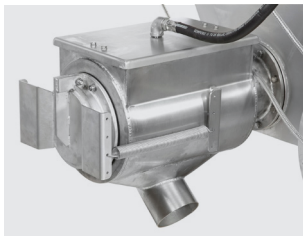
Particles that are captured in the particle collection area are easily transported to a dumpster or an further dewatering process.



# SF, SFK & SFKC PRODUCT COMPONENTS

## Integrated Dewatering

To save space and money, the enclosed SF systems contain an optional integrated dewatering process. Particle drops into the collection area from the thickening process at 3 – 8 % DM and is conveyed across the unit by an auger. It can then be fed to a sludge stabilization process (e.g. direct digester feed); Or processed further through the dewatering unit to produce sludge that is 15 – 30% DM (without the need for any additional dewatering equipment).



## Control Power Panel (CPP)

The CPP houses a Programmable Logic Controller (PLC) that makes this a completely automated system, ideal for remote or unstaffed facilities. A water pressure sensor tells the unit when to rotate the filtermesh (and at what speed), while the PLC simultaneously manages all the automated processes.



## External Dewatering

### Common Dewatering:

For larger installations, stand alone common dewatering units are available to dewater sludge from multiple filters. They are capable of applying a higher pressure to produce even drier sludge (20 – 40% DM typical). Salsnes can provide guidance on system selection

### Vacuum System:

Ideal for Particles that are adjustable to manage to specific DM requirements for the application. Our vacuum system can be installed to produce sludge as dry as 15% to 30% DM before the integrated dewatering auger.

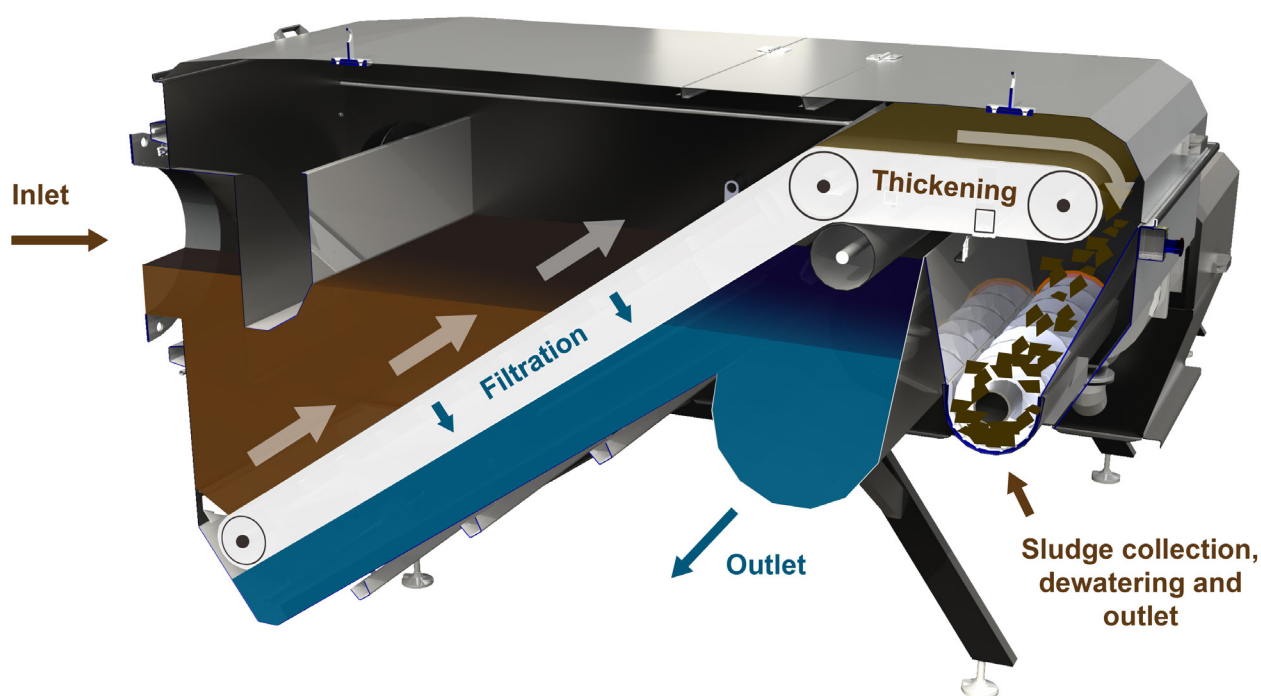




**Free-standing and enclosed systems for municipal and industrial applications.**  
SF1000, SF2000, SF4000, SF6000

### Solids Separation with Integrated Particle Thickening and Dewatering

In SF systems, wastewater enters the inlet and is distributed (to prevent particle breakage) onto the filtermesh for solids separation. The filtermesh rotates like a conveyor belt, transporting sludge and enabling the thickening process. Sludge then drops into a collection area and goes through a dewatering unit (optional) before it exits the system.



*Note: Picture shown SF2000 - SF6000*

### Modular, Flexible Design

The modular design of the Salsnes Filter system allows for installation configurations to serve practically any capacity requirement. Single or multiple filters can be easily installed in new or existing facilities thanks to flexible design options.





# SFK SYSTEMS

## Systems for concrete channel installation in municipal and industrial markets. SFK200, SFK400, SFK600

### Solids Separation, Sludge Thickening and Dewatering

In SFK systems, wastewater flows through the channel and meets the filtermesh, where solids are separated. The filtermesh rotates, transporting sludge above the channel's water level to the thickening stage. Thickened sludge is then dropped into a collection area when it can optionally go through a dewatering process before it exits the system.

### Modular, Flexible Design

SFK Systems can be easily retrofitted into the channels at existing facilities. A group of filters can form a module which allows for a variety of installation configurations that service practically any capacity requirement.

One Module



### SFK200/400/600



# SFKC SYSTEMS



## Solids Separation with Integrated Sludge Thickening and Dewatering

In SFKC systems, wastewater enters the inlet at reduced angle on the filter mesh and is distributed (to prevent particle breakage) onto the filtermesh for solids separation. The filtermesh rotates like a conveyor belt, transporting sludge and enabling the thickening process. Sludge then drops into a collection area for transport.

## Overflow management is handled upstream of the system

Heavy particles are prevented from sliding down the filter mesh due to reduced angle.

The SFKC Filter provides a compact footprint option for multiple unit installations without significant civil works requirements.

# SPECIFICATIONS

Model	SF1000	SF2000	SF4000	SF6000
General				
Style	Enclosed, free-standing			
Environment	Ambient Temperature: 0-40oC (32-104oF)  Filter may be installed outdoors. Installation design should protect filter from heat caused by extreme sun loading. Installations with potential for salt spray may require additional protections and should be evaluated on a case-by-case basis.			
Influent Water	pH 5 - pH 9 Temperature: 0 to 35°C  Constant operation at high temperature combined with low or high pH may cause premature mesh degradation. Applications subject to these potential conditions should be evaluated on a case-by-case basis.			
Dimensions				
Filter Enclosure Material	Stainless Steel AISI 316L Gasket materials; Neoprene double seal, EPDM edge double seal and carbon steel reinforced PVC edge seal housing			
Length, main housing	1220mm (48 in)	~1950mm (77 in)	~2250mm (89 in)	~2600mm (102 in)
Length, total	~1550mm (61 in)	~2250mm (89 in)	~2500mm (98.5 in)	~3050mm (120 in)
Width, main housing	~750mm (29 in)	~975 (38.5 in)	~1350mm mm (53 in)	~1850mm (73 in)
Width, total	~1350mm (53 in)	~1700mm (67 in)	~2000mm (79 in)	~2500mm (98,5 in)
Height, total (without pipe for ventilation)"	~1400mm (55.5 in)	~1350mm (53 in)	1550mm (61 in)	~1850 mm (73 in)
Height, total (with pipe for ventilation)"	~1500mm (59 in)	~1400mm (55 in)	~1600mm (63 in)	~1900mm (75 in)
Approx weight: (minor impact; dependent on flange selection, selected add-on's etc)	~500kg (1100 lbs)	~550 kg (1200 lbs)	~900 kg (2000 lbs)	~1250 kg (2750 lbs)
Wet Weight	720 kg (1587 lbs)	1200 kg (2645 lbs)	2100 kg (4630 lbs)	3800 kg (8377 lbs)
Integrated Sludge Transport / Dewatering System				
Quantity	One per filter			
Material	"Trough & Lid - 316L Standard - carbon steel"			
Dewatering Reject Water Pipe	98 mm flush pipe (for 100 mm / 4" hose)			
Screw diameter	102 mm / 4 in	122 mm / 4.8 in	172 mm / 6.8 in	196 mm / 7.7 in
Screw length (dewatering)	950 mm / 37.4 in	1250 mm / 49.2 in	1480 mm / 58.3 in	2000 mm / 78.7 in
Control Power Panel (CPP)				
Quantity	One (1) per Filter Unit			
Controller Type	AB CompactLogix 5370 LXX			
HMI	Beijer X2 Pro 7 (CE, UL)			
Network Interface	Ethernet/IP			
Ambient Temperature	Standard: 0 Deg C to 35 Deg C (Cooling Fans) Option: 0 Deg C to 40 Deg C (Air Conditioned)			
Cabinet Cooling	Standard: Cooling Fans (Type 12) Option: Air Conditioner (Required for Type 4, Type 4X)			
Operating Voltages and Frequencies	480V 3 ph , 3 wire + gnd, 60 Hz, WYE 400V 3 ph , 3 wire + gnd, 50 Hz, WYE			
Maximum Distance Between Filter and Panel	Standard: 35 m (115 ft)			
Regulatory Compliance	CE UL UL Class I Div I - Electrical Components			

Model	SFK200	SFK400	SFK600
General			
Style	Filter frame for installation into a concrete channel		
Environment	Ambient Temperature: 0-40oC (32-104oF)  Filter may be installed outdoors. Installation design should protect filter from heat caused by extreme sun loading. Installations with potential for salt spray may require additional protections and should be evaluated on a case-by-case basis.		
Influent Water	pH 5 - pH 9 Temperature: 0 to 35°C  Constant operation at high temperature combined with low or high pH may cause premature mesh degradation. Applications subject to these potential conditions should be evaluated on a case-by-case basis.		
Filter Frame Information			
Length:	2408 mm (94.8 in)	2930 mm (115.4 in)	~2950 mm (116.4 in)
Width, main housing:	~1000 mm (39.6 in)	1306 mm (51.4 in)	~1800 mm (71.1 in)
Max Width, including motor:	1227 mm (48.3 in)	1509 mm (59.4 in)	~2050 mm (80.7 in)
Filter Frame Height	"35° = 1500mm 20° = 1000mm"	"35° = 1600mm 20° = 1100mm"	"35° = 1800mm 20° = 1200mm"
Complete Filter Weight	~450 kg (1000 lbs)	~650 kg (1400 lbs)	~750kg (1650 lbs)
Filter Frame /Casette Weight	~200 kg (450 lbs)	~250 kg (550 lbs)	~300kg (650 lbs)
Water Volume usage other	Dependent on selected method of Mesh Cleaning and Maintenance Wash		
Sludge outlet connection	Hex profile - auger must be ordered to fit (works with PST, MEVA etc) Option: Slugde chute/ hopper directly into pump		
Concrete Channel Design	Custom design - project dependent Concrete channels typically reduces the number of valves for etc for a multi-filter project.		
Sludge Transport			
	External sludge screw for one or more units		
Control Power Panel (CPP)			
Quantity	One (1) per Filter Unit		
Controller Type	AB CompactLogix 5370 LXX		
HMI	Beijer X2 Pro 7 (CE, UL)		
Network Interface	Ethernet/IP		
Ambient Temperature	Standard: 0 Deg C to 35 Deg C (Cooling Fans) Option: 0 Deg C to 40 Deg C (Air Conditioned)		
Cabinet Cooling	Standard: Cooling Fans (Type 12) Option: Air Conditioner (Required for Type 4, Type 4X)		
Operating Voltages and Frequencies	480V 3 ph , 3 wire + gnd, 60 Hz, WYE 400V 3 ph , 3 wire + gnd, 50 Hz, WYE		
Maximum Distance Between Filter and Panel	Standard: 35 m (115 ft)		
Regulatory Compliance			
	CE UL UL Class I Div I - Electrical Components		

# SPECIFICATIONS

Model	SFK200C	SFK400C	SFK600C
General			
Style	Enclosed, free-standing		
Environment	Ambient Temperature: 0-40oC (32-104oF)  Filter may be installed outdoors. Installation design should protect filter from heat caused by extreme sun loading. Installations with potential for salt spray may require additional protections and should be evaluated on a case-by-case basis.		
Influent Water	pH 5 - pH 9 Temperature: 0 to 35°C  Constant operation at high temperature combined with low or high pH may cause premature mesh degradation. Applications subject to these potential conditions should be evaluated on a case-by-case basis.		
Dimension			
Filter Enclosure Material:	Stainless Steel AISI 316L  Gasket materials; Neoprene double seal, EPDM edge double seal and carbon steel reinforced PVC edge seal housing		
Length:	2408 mm (94.8 in)	2930 mm (115.4 in)	~2950 mm (116.4 in)
Width, main housing:	~1000 mm (39.6 in)	~1300 mm (51.4 in)	~1800 mm (71.1 in)
Max Width, including motor:	1227 mm (48.3 in)	1509 mm (59.4 in)	~2050 mm (80.7 in)
Max Height, with covers closed:	1275 mm (50.2 in)	1374 mm (54.1 in)	~1500 mm (57.0 in)
Max Height, when opening service cover:	2098 mm (82.6 in)	2656 mm (104.6 in)	~2500 mm (98.4 in)
Weight of the machine:	550 kg (1200 lbs)	750 kg (1650 lbs)	900 kg (2000 lbs)
Weight with water (approx.):	1200 kg (2650 lbs)	2200 kg (4850 lbs)	2300 kg (5100 lbs)
Sludge Transport			
	External sludge screw for one or more units		
Control Power Panel (CPP)			
Quantity	One (1) per Filter Unit		
Controller Type	AB CompactLogix 5370 LXX		
HMI	Beijer X2 Pro 7 (CE, UL)		
Network Interface	Ethernet/IP		
Ambient Temperature	Standard: 0 Deg C to 35 Deg C (Cooling Fans) Option: 0 Deg C to 40 Deg C (Air Conditioned)		
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Maximum Distance Between Filter and Panel	Standard: 35 m (115 ft)		
Regulatory Compliance			
	CE UL  UL Class I Div I - Electrical Components		