

RapidKleen™ Auto-Strainer



Reliable and robust
solution for your
high-volume industrial
filtration needs.

RapidKleen Auto-Strainer

The Design

The RapidKleen auto-strainer features simple, yet rugged construction. The RapidKleen auto-strainer housings are manufactured either in cast iron, carbon steel, or stainless steel. Strainers are available in flange sizes up to 40" for flow rates up to 40,000 gpm. Filter elements and all internal components are stainless steel. The only moving parts are the flushing and throttling arms. All contact parts are self-adjusting.

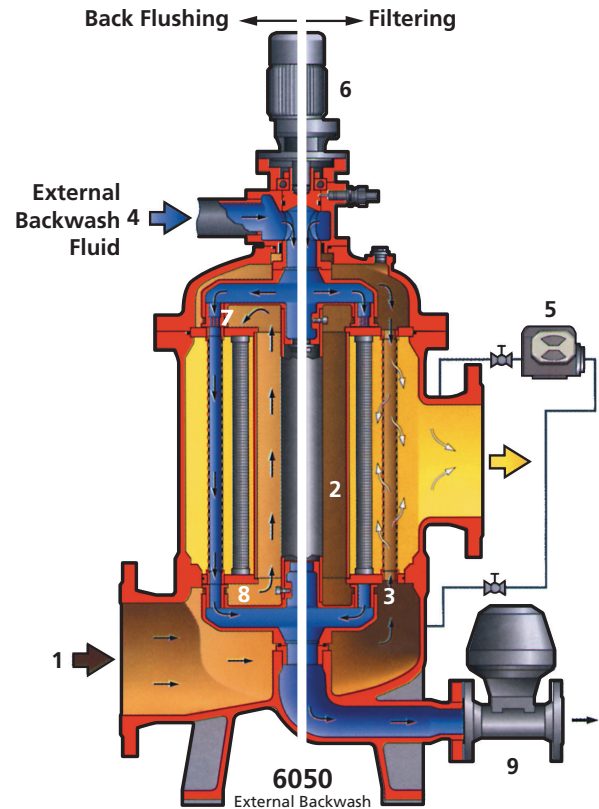
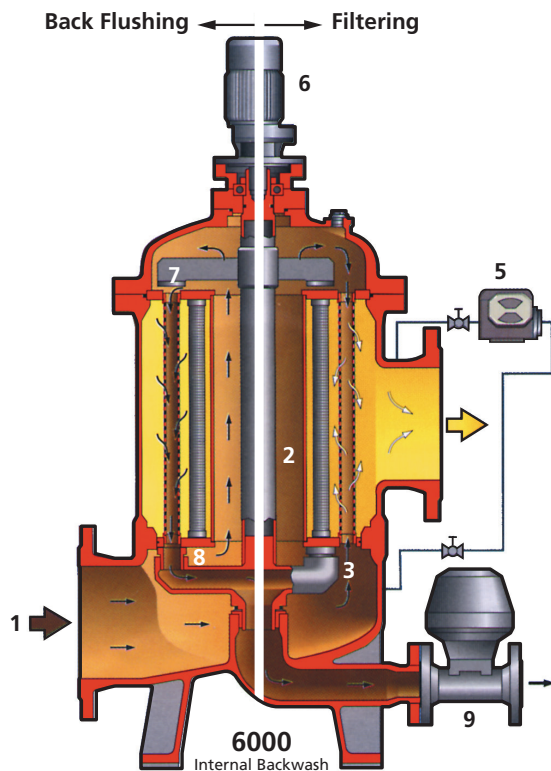
Filtration Operation

During the straining process, fluid flows through the inlet flange (1) into the bottom of the filter housing. A partial flow, approximately 50% of the unfiltered fluid, is fed through a central riser in the filter element assembly (2) to the top of the filter housing and into the open filter elements. The remaining fluid flows through the bottom of the filter elements (3).

The fluid flows through the elements from the inside out.

During the cleaning cycle, each element is cleaned in succession, with no interruption of the straining process. Backflow is achieved with filtered process fluid (model 6000) or an external fluid (4) (model 6050), for operating pressures less than 30 psi, or when straining sticky contaminants. High-pressure water or steam can be used as the external fluid in the model 6000.

Back flushing is controlled automatically based on either inlet/outlet differential or pre-set time intervals.



Overview



Features

- Flow capacities from 35 to 40,000 gpm
- Compact and space-saving design
- Highly efficient back-flushing system
- Large filter surface area
- Minimal back-flushing quantity
- Low pressure drops



Benefits

- Rugged design for long filter service life
- Low operating costs
- Extended maintenance intervals
- Available with 2" to 36" flanges
- Filter elements and tube sheets are removable as one assembly

Backwash Cycle

The RapidKleen auto-strainer uses open-ended cylindrical filter elements. As fluid flows through both ends of the elements, particles in suspension are trapped along the entire length of the elements. This ensures that contaminants are distributed uniformly over the entire filter surface area.

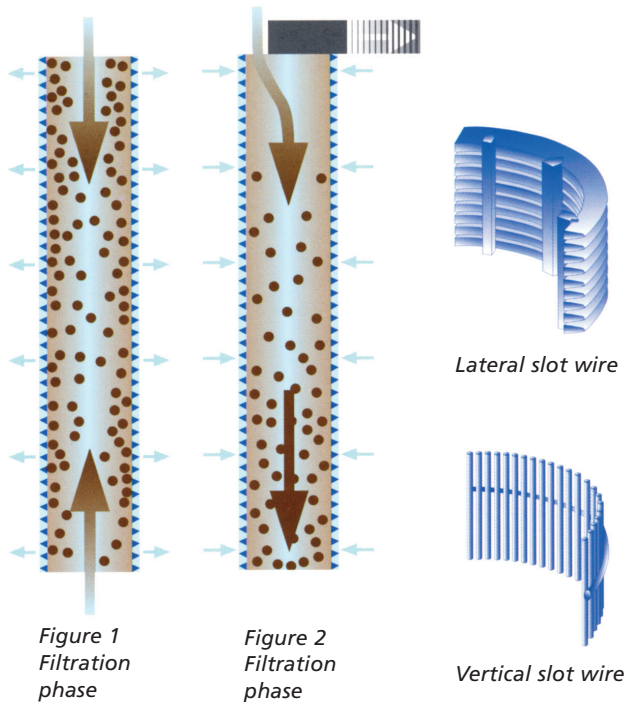
As deposits accumulate (Figure 1) differential pressure across the elements rises and a differential pressure switch (5) triggers a back-flushing cycle automatically.

A gear motor (6) starts the cycle by sliding the upper throttling arm (7) on a 6000 series (or rotating the upper flushing arm on a 6050 series) over the upper end of each filter element.

Simultaneously, the lower flushing arm (8) is rotated, sealing the bottom edge of each element, and the backwash valve (9) is automatically opened flushing contaminants to the drain.

The pressure gradient generated between system pressure and atmospheric pressure allows a small quantity of fluid to flow from the outside through the elements, detaching the particles from the elements. At the upper end of the filter elements, the throttling arm provides a cross flow, flushing down the detached particles. This combination (Figure 2) of axial and

cross flows provides a high-effective flushing action, uniform across the entire filter surface area.



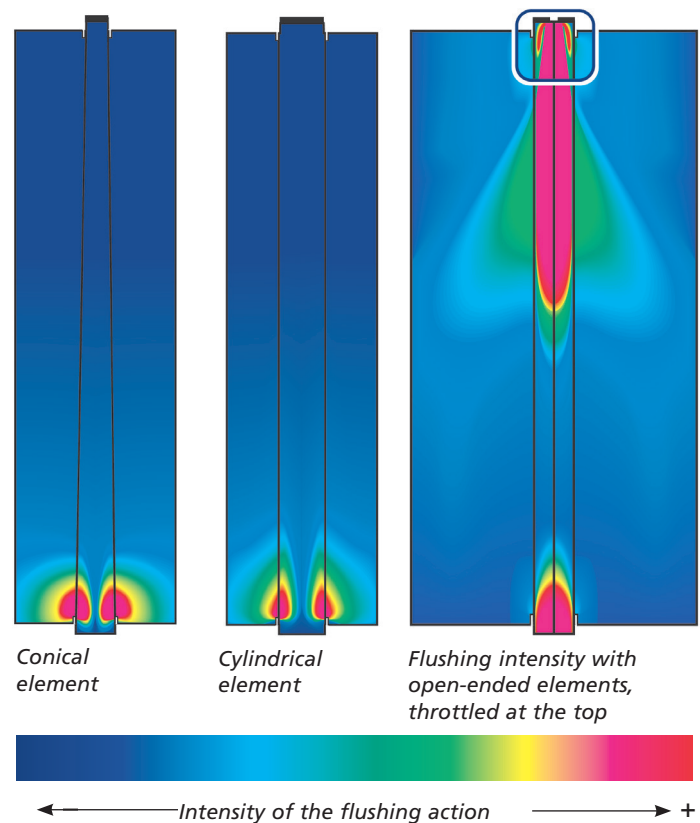
The Open-Ended Element Advantage

Because the filter elements are cylindrical and open at both ends, the RapidKleen auto-strainer elements are flushed with a much greater energy intensity compared to competitive strainer designs. The high-energy backwash allows for a very efficient screen cleaning resulting in fewer backwashes and less backwash water use.

Unlike conical or expanding disc filter elements, RapidKleen auto-strainer elements can be fitted with either lateral slot wedge wire or vertical slot wire. This option provides improved release characteristics during backwash for difficult contaminants.

System Data Necessary To Size A RapidKleen Auto-Strainer

- Flow rate
- Water contamination (PPM)
- Particle size to be removed
- Operation pressure
- Maximum allowable pressure loss in the strainer



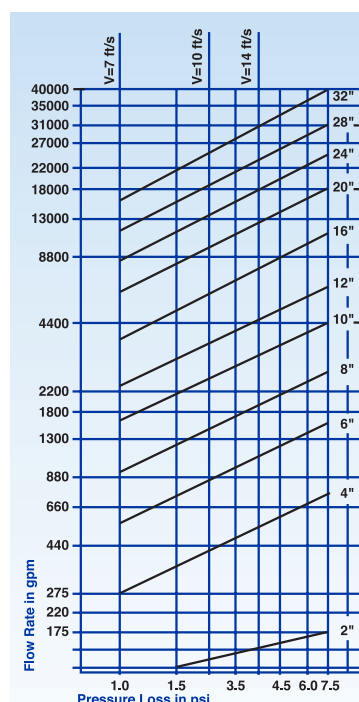


6000



6050

Model	Back-Flushing Liquid	Capacity	Particle Size Removed	Flange Size	Design Pressures	Housing Material	Back-Flushing Control	Filter Element Type	Element Construction	Control Panel	ASME "U" Stamp
6000	Filtered process fluid	35–40,000 gpm	50–500 microns	2" to 36"	145 psig, 230 psig standard, to 580 psig on some models	Cast iron, carbon steel, 316 stainless steel (pickling and passivating optional), rubber-lined steel	Differential pressure timer override	Open-ended cylindrical elements	Lateral or vertical slotted wedge wire	Standard scope of supply 220, 460, 575V/3Ph/60Hz	Optional
6050	External fluid	35–11,000 gpm	50–500 microns	2" to 16"	145 psig, 230 psig standard, to 360 psig on some models	Cast iron, carbon steel, 316 stainless steel (pickling and passivating optional), rubber-lined steel	Differential pressure timer override	Open-ended cylindrical elements	Lateral or vertical slotted wedge wire	Standard scope of supply 220, 460, 575V/3Ph/60Hz	Optional



Water flow rates per strainer size at 00 micron straining, as a function of pressure loss

Overview



Applications

- Pulp and Paper
Mill process water, intake river water, paper machine shower protection
- Automotive
Process water, cooling water, fire protection
- Chemical/Petrochemical
Process, fire protection, cooling water
- HVAC
Cooling water air conditioning systems, computer rooms
- Mining
Process and cooling water
- Oil and Gas/Offshore
Injection water for oil rigs
- Power Generation
Cooling water for turbines and oil circuits, sealing water
- Sewage Treatment
Effluent for use as process water, and prior to discharge into open waters
- Steel
*Caster: Spray nozzle cooling water, internal machine (IM)
Hot Strip Mill: Laminar flow, workroll, descale water
Cold Mill: Make-up water for hydraulic systems, emulsions*