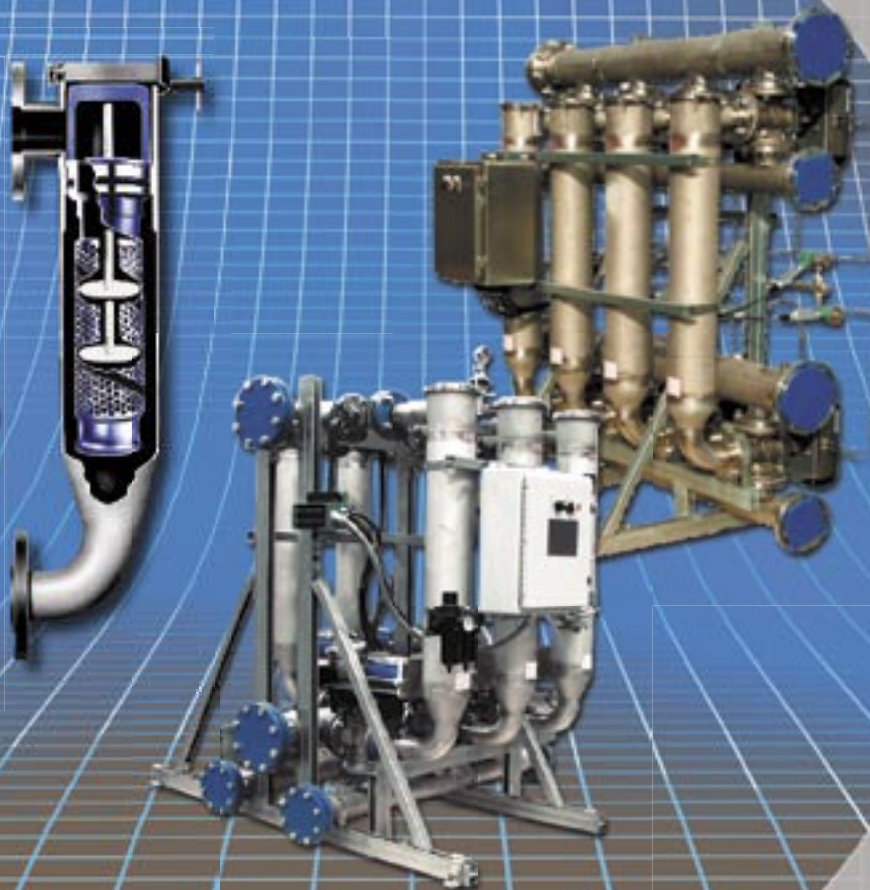


Tubular Filters

Typical Applications:

- Pulp and Paper Mills (White and River Water, Spray Nozzle Protection)
- Petrochemicals (Brine Caustic, Hydrochloric)
- Food and Beverage (Fruit Juices, Vegetable Oils, Syrups)
- Pharmaceutical and Cosmetics (Acetic Acid, Bath Oil, Citric Acid, Glycerin)
- Guard Filters (Pre-Filtration)
- Boiler Feed Water
- Condensate



Filter Element Types



Perforated



Slotted



Wire Mesh

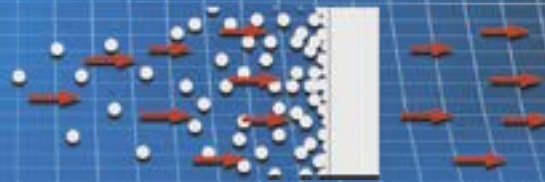


Fabric




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Tubular Filters

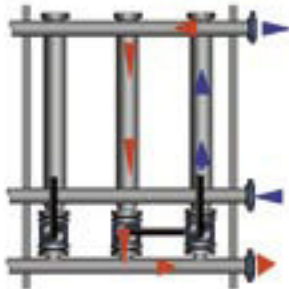


Howes tubular, in-line pressure filters are used for the separation of suspended solids from a liquid stream. Best used for easily filtered granular solids less than 200 PPM and where the differential pressure across the filter is less than 20 psi.

Single Tube Filters	Dual Tube Filters	Multiple Tube Filters
		
<p>The Howes Single Tube Filter is suitable for many industrial applications from straining to fine polish filtration. Single Tube Filters are available in 4" and 6" sizes for flow rates from 1 to 245 gpm. A wide selection of filter media is available to handle levels of separation from 3/16" to 1 micron (nominal)</p>	<p>Howes Dual Tube Filter System allows for continuous flow. Two filter units are interconnected with 3-way plug valves. One unit operates on stream while the other unit is on standby (off stream) for cleaning or inspection. The Howes Dual Tube Filter System typically has the same flow capacity as the Single Tube Filter.</p>	<p>The Howes Multiple Tube Filter System manifolds multiple filters together for parallel operation. The System provides continuous uninterrupted flow with automatic cleaning of the filter elements during backwashing. The system is typically sized to maintain flow capacity while one unit is off stream for backwashing. Manifold arrangements can be made to permit backwashing with either the process stream (internal) and/or another liquid stream (external).</p>

Multiple Tube Filter Backwash Options

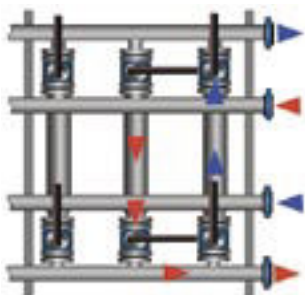
Internal Backwash



Internal backwash utilizes the system's filtrate to clean the system. This is accomplished by changing the lower valve from the inlet to the drain position on one filter unit. A portion of the filtrate from the remaining on-stream units flows in the reverse direction through the backwashing unit to dislodge collected solids. Each unit is backwashed in turn, individually and consecutively to return the system to a clean condition.

Internal backwash should be considered when the process stream is of sufficient flow and pressure to ensure an adequate backwash, or when the process stream is inexpensive and does not create a disposal problem.

External Backwash



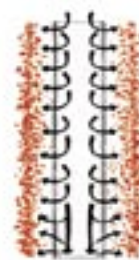
External backwash uses a clean secondary liquid stream, typically plant water, supplied by an additional header to clean the system. This is accomplished by rotating the upper valve to the backwash position and the lower valve to the drain position. The backwashing filter unit is cleaned by the reverse flow of the external stream. Each unit is backwashed in turn, individually and consecutively to return the system to a clean condition.

During backwashing, a continuous uninterrupted process flow can be maintained by the remaining on-stream units.

External backwash should be considered when the process stream is not of sufficient flow and pressure to ensure an adequate backwash, or when the process stream is valuable or creates a disposal problem



During Operation



During Backwash

We provide interchangeable FSD and Duriron parts

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