SUPERIOR FILTRATION

PRODUCT SHEET

KLEERFLO SUCTION FILTER (KFS)

Kleerflo Suction Filters (KFS) are in-line, automatic self-cleaning filters. They are designed for installation on the suction side of pumps to minimise the impact of the filter on the supply of water to the pump. They are used for the removal of suspended solids from water. They offer continuous flow and a strong, positive backwash action that ensures thorough cleaning of the screens.

Kleerflo Suction Filters (KFS) have a unique design with no rotating parts or close tolerance elements, very few moving parts and no electric motor that ensures robust performance, proven reliability and low maintenance.

KFS Filter design is flexible and under certain conditions KFS Filters can also be recommended for installation on the delivery side of pumps.

Applications

Kleerflo Suction Filter (KFS) applications include the following:

1. Pre-Filtration:

- For membrane separation processes
- For treatment processes on potable water- and sewage wastewater plants
- For treatment processes on industrial process water plants

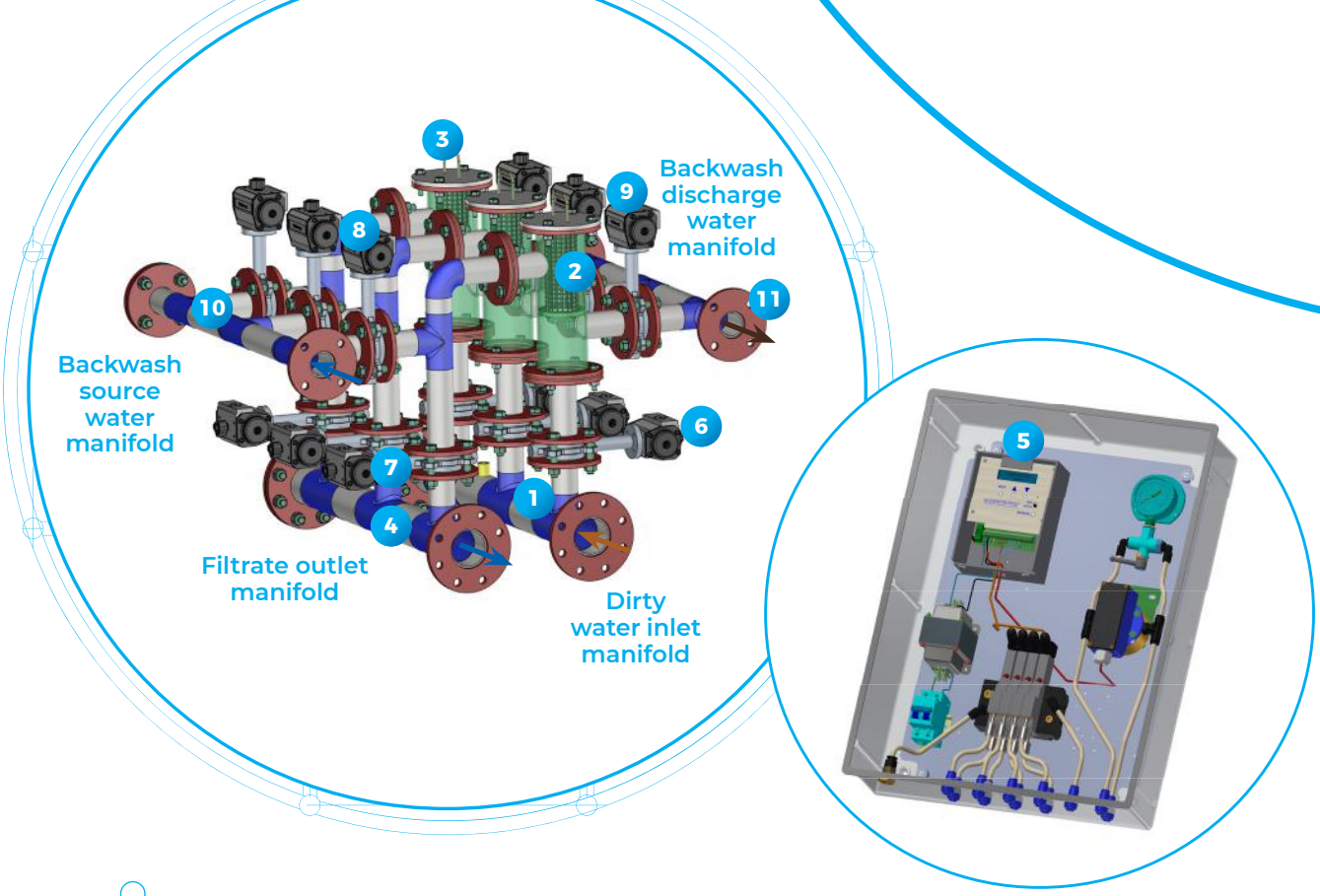
2. Final Filtration

- To protect water spray systems or equipment
  - Water Spray Systems
    - Dust suppression
    - Irrigation
    - Filter presses
  - Equipment Protection
    - Pump glands (gland service water)
    - Measuring and metering equipment
    - Heat exchangers
    - Removal of solids from water for general purpose plant re-use

Industries

Kleerflo Suction Filters (KFS) are used extensively in all industries where water forms part of the process and where macro- and micro-particles need to be removed from suspension. These include:

- **Industrial Process Water**
  - Agricultural and Horticultural
  - Automotive
  - Brewing & Distilling
  - Food & Agri Processing
  - Nuclear
  - Pulp & Paper
  - Power Generation
  - Quarrying
  - Rubber Processing
  - Textiles
- **Mining**
- **Mineral Processing**
  - Steel Processing
- **Potable Water and Sewage Wastewater**
- **Petrochemicals**
  - Refining
  - Pharmaceutical
  - Plastics
- **Oil and Gas**



How it Works

The Kleerflo Suction Filter (KFS) is specifically designed for use on the suction side of pumps to have minimal impact on the supply of water to the pump.

The design of the Kleerflo Suction Filter (KFS) ensures that flow to the supply (suction) side of the pump is consistent, even during the cleaning (backwashing) cycle of the pods.

Dirty water is drawn into the Kleerflo Suction Filter via the inlet manifold 1. The water is then passed through several cylindrical, stainless steel wedge wire screens 2 that are installed in individual filtration pods 3. Flow is from the inside to the outside and clean, filtered water is delivered to service via the filtrate outlet manifold 4. The screens are available in a wide range of apertures with the quantity and size of the screens dependent on the selected aperture, the flow rate and the solids load in the water.

Solids accumulate on the inside (dirty side) of the screens 2. As it blocks the gaps in the screens, a pressure differential gradually builds up between the dirty side and the clean side. This pressure differential is ultimately relieved by initiating the backwash cycle. A signal from the control system 5 initiates the backwash cycle, either on a predetermined time interval, or when the pressure differential reaches a predetermined limit. Backwash consists of isolating the individual pod that houses the one screen that is to be backwashed 2.

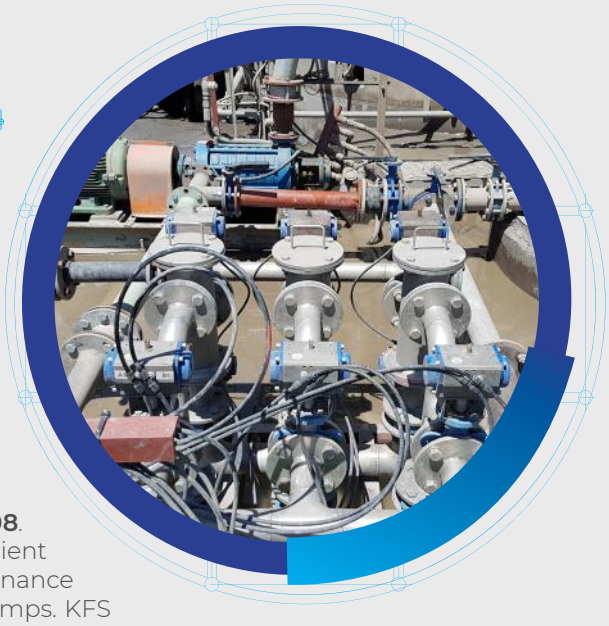
The pod is isolated by closing the valves that control the flow of dirty water into the pod 6 and the flow of filtrate out of the pod 7. Simultaneously, the valves that control the flow of backwash source water into the pod 8 and flow of backwash discharge water out of the pod 9 are opened. The backwash discharge manifold 11 is open to atmosphere. The backwash source water can be supplied from delivery side of the main pump or can be supplied from an independent source (potable water or a clean water reservoir).

The difference in pressure between the backwash source water manifold 10 and the backwash discharge water manifold 11 causes a reversal of flow through the screen 2 that creates a strong, positive backwash that carries the dirt out to waste 11. Backwash takes place sequentially, one pod at a time. The pods that are in filter mode continuously produce filtrate ensuring a constant supply to the pump.

Opening the main inlet 6 and outlet 7 valves whilst simultaneously closing the backwash source water 8 and backwash discharge 9 valves, returns the pod to filtration mode. The unique pod design allows the processing of oversized particles without the need for a manual pre-screen.

The Kleerflo Suction Filter (KFS) design is inherently flexible and process parameters such as backwash frequency, the duration of each backwash and the dwell time between the backwash of each pod can be set independently with the local controller 5 - or written into the plant SCADA. Maintenance on Kleerflo Suction Filter (KFS) is easy. The pods do not have to be removed from the line for service. Access to the screens is allowed by removing the pod cover plates of each pod. No heavy lifting equipment is required, and maintenance staff can be kept to a minimum.

Platinum Mine – Limpopo, South Africa



A Platinum Mine in Burgersfort (Limpopo province of South Africa) recycles process water and uses it for **Gland Service Water** (GSW) on slurry pumps. Suspended solids need to be filtered from the GSW to protect the slurry pump stuffing box components and gland packing. In this instance, the filtration is required on the suction (demand) side of the multi-stage pumps that supply the GSW to the slurry pumps – without risking starvation of the pump.

The mine installed **KFS model 3E1/250/05/08**. The **Kleerflo Suction Filter** provides efficient filtration at 250µm resulting in lower maintenance costs and reduced downtime on the slurry pumps. KFS Filters are designed for the efficient removal of suspended solids on the demand side of pumps.

PMG Mine – North West Province, South Africa

A PMG Mine in Rustenburg (North West province of South Africa) recycles process water and re-uses it for **Gland Service Water** (GSW) and other mining processes. Suspended solids need to be filtered from the process water to protect downstream pumps and equipment. In this instance, the filtration is required on the suction (demand) side of the pump that supply the re-use process water to the mine – without risking starvation of the pump.

The mine installed **KFS model 7E3/250/10-08/25**. The **Kleerflo Suction Filter** provides efficient filtration at 250µm resulting in lower maintenance costs and reduced downtime. KFS Filters are designed for the efficient removal of suspended solids on the demand side of pumps.

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