

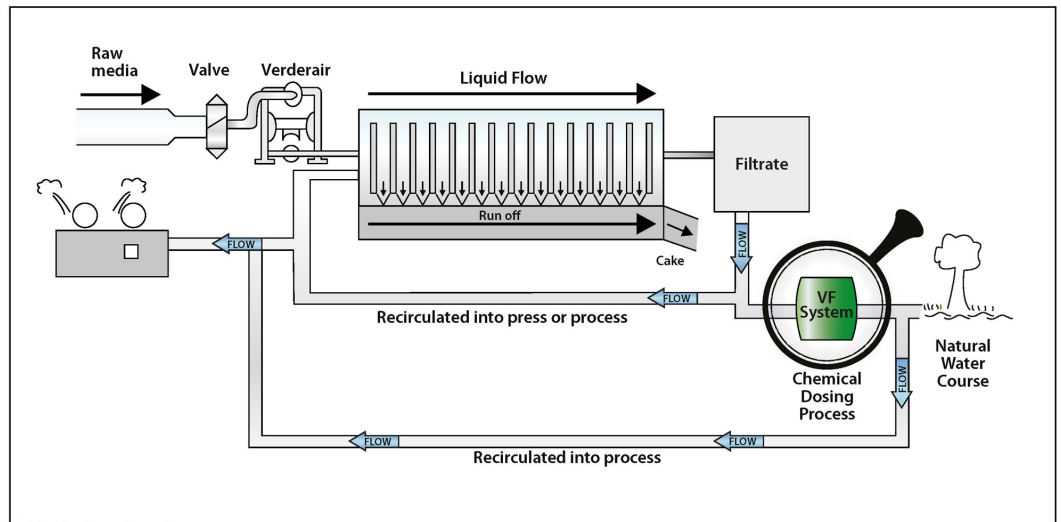
Chamber Filter Press

A chamber filter press is a machine for separating sludges, slurry or fluids containing solids into solid 'cake' and liquid 'filtrate' parts.

A filter press machine is used extensively in the treatment of waste and by-products in the food, chemical, mining and pharmaceutical industries. The cake and filtrate can be recycled back into the process, sold off for further processing or disposed of more economically.

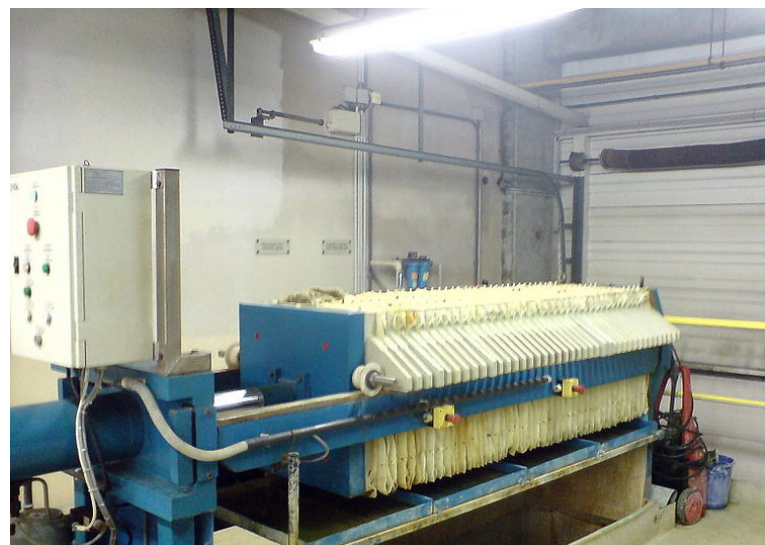
Above: Sludge to be passed through a chamber filter press

Right: An example of a chamber filter press system with optional watercourse outlet and dosing system



Process examples

- Chemical industry dewatering
- Electronics industry dewatering
- Hazardous waste remediation
- Oil & petrochemical recovery
- Effluent
- Recovery of heavy metals from production
- Wine, beer and other alcohols
- Kaolin
- Yeast slurry
- Alum sludge
- Run-off from quarries and ceramic production



A chamber filter press

Process Points

Flow rate

As the slurry mixture is filtered, each screen begins to block with solid particles and either the flow is reduced through the press or more pressure is required to pass the media at the same rate.

The filtration process can be halted manually or at a determined flow rate, which is measured by a filtrate flow indicator. The process pump is stopped and the solid or sludge cake is removed with compressed air.

The filter press process requires a pumping system which can respond to the build-up of pressure in the chamber.

Pumping media

The solid and sludge-like nature of the media that is to be processed is often abrasive or corrosive and will harm the internal workings of pumping equipment.

Safety

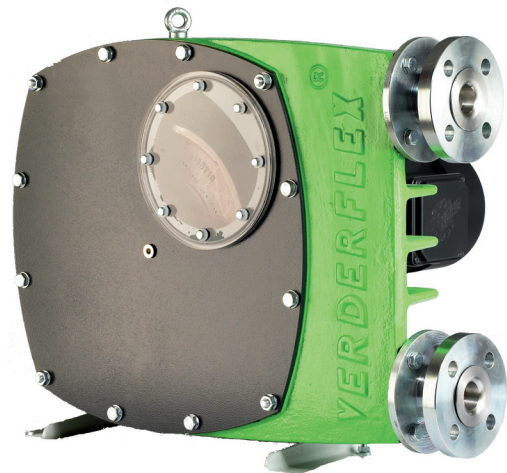
Due to the nature of the media, it is imperative that any pump involved in the filtration process be seal-less as to avoid wear on perishable and abrasion sensitive components.

Customer requirements

A pumping solution is required that can deliver a flow rate of viscous and abrasive media into the chamber and can allow for changes in pressure as build-up occurs on the screens. For H&S purposes and for continuity of production the pump needs to be seal-less and be easy to service and maintain.



The Verderair and Verderflex ranges are excellent for handling difficult to pump media in Chamber Filter Press applications



Solution

The Verderair and Verderflex ranges

The Verderair series of AODD (air-operated double diaphragm) pumps have been successfully installed in a variety of industry chamber filter press processes.

Why is the Verderair AODD pump series suitable for filter press applications?

- It is designed to provide a constant, non-stalling operation – As the pressure builds in the chamber the Verderair pump is self-regulating and will cut out at a predetermined pressure and/or with an alarm trigger signal from a flow sensor. As the pressure is released in the tank the pump will self-prime and return to its original flow rate.
- The innovative Verderair pump design is seal-less and can handle abrasive and viscous, sludge-like fluids. The design of the pump reduces the chance of fluid leaking and the risk to employee safety.
- Verderair pumps can be specified with a range of materials and external casings so the working life, maintenance cycles and MTBF are maximized.

Other advantages and benefits of Verderair include

- It is easy to install, maintain and transport
- There are a wide range of accessories such as pulsation dampeners, monitors to indicate a failed diaphragm, solenoid valve for remote operation and stroke counter.
- Can run dry without pump damage
- There is no air lubrication necessary
- Up to 16 bar pressure and 1060l/min flow

Why use the Verderflex range?

- Verderflex pumps require no valves, seals or glands which makes them inexpensive to maintain. The only maintenance item is the hose or tube.
- A Verderflex pump can run dry without costly downtime or repairs. The recovery of the hose or tube creates a powerful self-priming action and allows the pump to move liquids containing entrapped air or gas.
- Verderflex hose pumps can pump slurries containing up to 80% inorganic solids or 15% organic sludge, which is particularly suitable for the thick sludges often found in filter press applications.
- Peristaltic pumps are reversible and can be used to empty lines or clear blockages.
- Certified to EHEDG standards for use in the food and drinks industry, pharmaceutical industry and other sanitary related applications.
- Easy to link to a filtrate flow or pressure indicator.
- Verderflex peristaltic pumps are extremely cost efficient to run.



A Verderflex in a Ferric Sludge filter press application

Filtrate treatment

For filtrate that is to be returned to the natural watercourse or is to be purified before being recycled, the filtrate may be treated with chemicals.

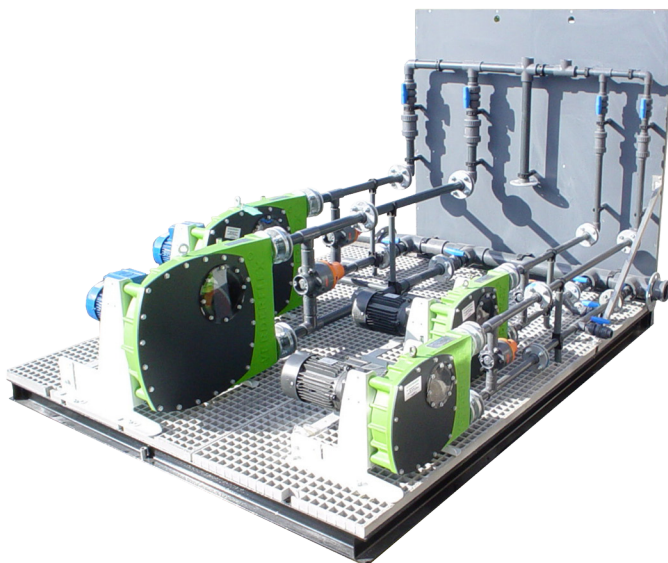
Dosing of chemicals can prove to be a costly process with demands being put on storage of a liquid solution and extra deliveries of chemicals to site.

In partnership with Dr. Philip Kerrison of Naiad Aquatic Environmental Services, Verder have developed a chemical dosing system capable of dosing both liquid and solid chemicals such as ferric chloride, ferric sulphate and copperas crystal.

Using a crystal form of the chemical reduces the cost of storage and minimizes your handling of chemicals.

To create an end-to-end solution for our customers, Verder UK offer an innovative packaged chemical dosing system which is designed, supplied and installed by Verder Project Engineers.

Our project team can consult about your wastewater treatment needs and design and fabricate a chemical dosing system around your site requirements. The Verder project team can commission the system, train your staff as well as provide a full service and maintenance programme.



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passion for pumps