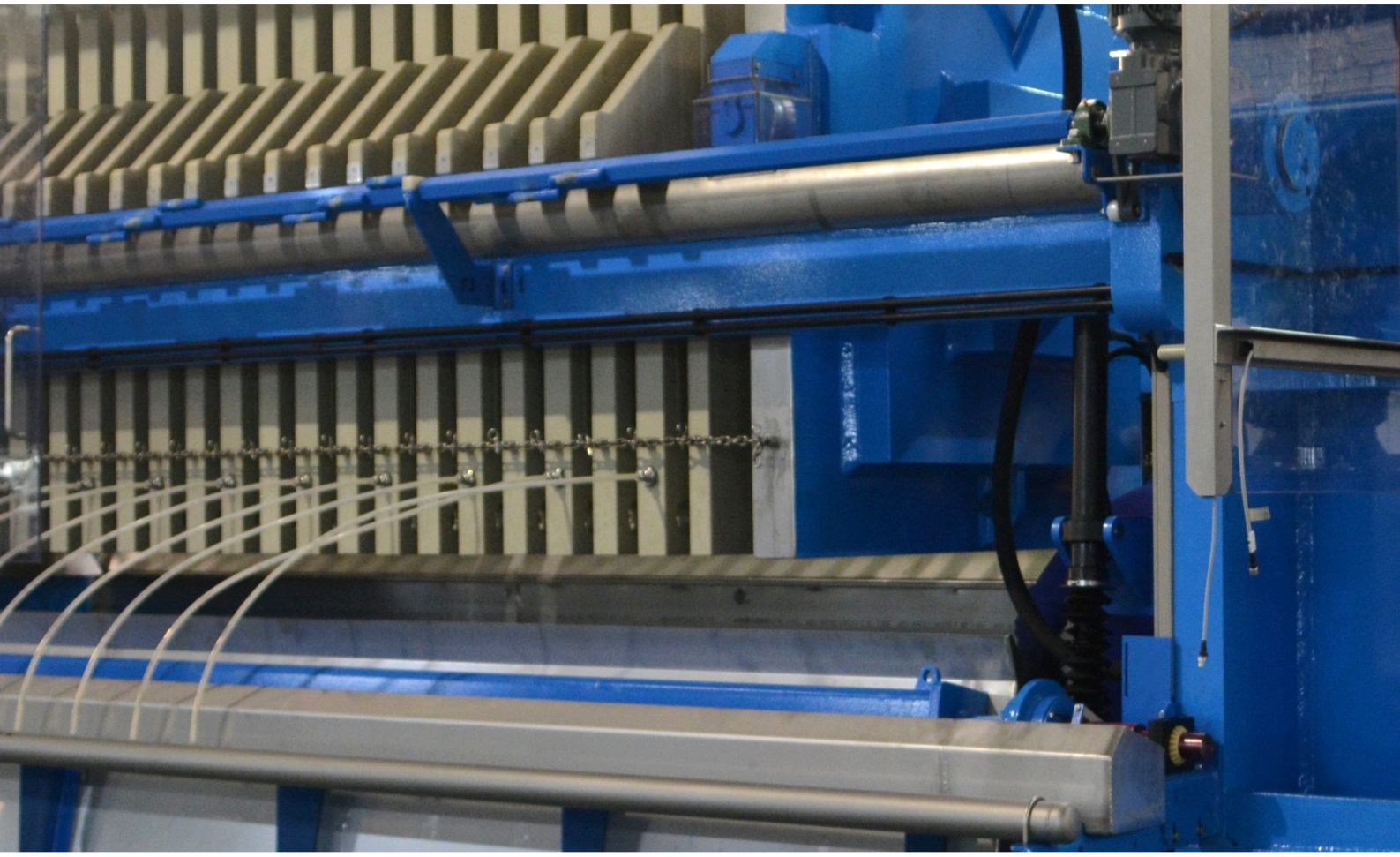
ABEL®
Pump Technology

Since 1947

Pumps for Filter Press Feeding

Made in Germany



Diaphragm Pumps
Solids Handling Pumps
High Pressure Pumps
Marine Pumps

www.abelpumps.com

The Pumping Solution for difficult Media
ABEL Pumps

The ABEL Way

We are continually innovating our pump technology for optimum performance without changing the superior quality that our customers have enjoyed for decades.

Covering a multitude of industries and headquartered in Büchen, Germany, ABEL has been an ISO 9001 certified pump manufacturer since 1991. We were one of the first companies in Germany to obtain this certification from Germanischer Lloyd.

The Mining Industry

Our customers comprise of many of the world's largest producers of concentrated copper, zinc, lead, and steel. Other customers include production of non-metallic minerals such as sepiolite, silica sand, kaolin, slate and potash.



Ceramics

Our pumps handle the pressure necessary to meet the highest standards of the ceramics industry and have become synonymous for heavy duty pumps able to handle very abrasive slurries.



Chemical and Waste Industry

A waste management company needs to handle and treat any type of slurry, therefore, the pump feeding the filter presses has to be an all-rounder. Just what ABEL pumps are. They can handle the pressure required and range of liquid characteristics of waste media.



Automotive

Surface treatments used in the production of vehicles and their components generate slurries which require high pressures and constant flow rates in order to achieve a high degree of dewatering. We have pumps in several major auto manufacturing plants running 24/7 with great success.



Water/Wastewater Treatment and Desalination Plants

The maximum dewatering level of organic sludge can be only achieved with a filter press and by supplying the filter presses pump with a pressure of 16 bar (232 psi). For this application we can deliver a range pumps for effective dewatering and almost any media.



ABEL Customer Service

Trust ABEL to support every aspect of the customer ownership Experience

ABELs legacy of after-sales support in many industries is without peer. With pump safety, solid technical support, quick response, and available parts, we can back what we sell.

We tailor our support offerings to match the customer's needs.

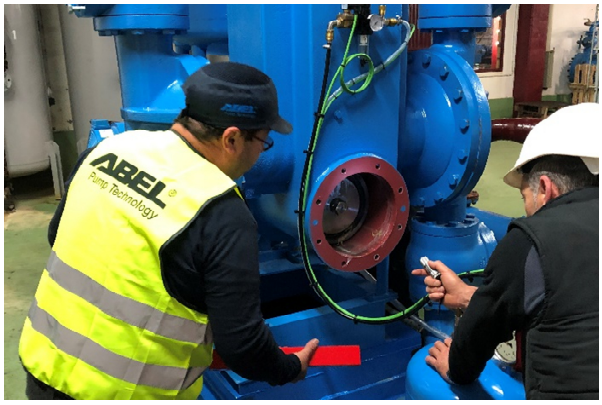
This includes:

- Training and commissioning
- Field Service
- Preventative maintenance
- Optimizing the overall pump system
- Creation of maintenance plans
- Comprehensive maintenance contracts

The technical service offered by ABEL allows the customer to achieve his work in an optimal and efficient manner because he can rely on a team of service engineers which can monitors the pumps in operation.



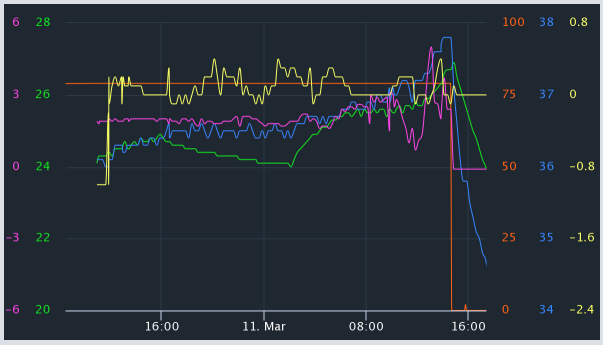
Global preventive maintenance



Training and commissioning



ABEL Smart Pump Assistant



Real time monitoring of different parameters

ABEL Smart Pump Assistant

Full efficiency control

ABEL has developed a monitoring system for its products. This system is capable of measuring critical parameters of a slurry filtration plant in real time. This fully integrated system measures:

- Pump performance
- Number of filtration cycles
- Filtered volume
- Flow rate and pressure
- Prediction of the next maintenance
- Hydraulic fluid temperature

Thanks to this tool, the plant operator is provided with a detailed monthly report on the pumps condition state and, furthermore, based on integrated algorithms, the tool predicts the estimated date on which the pump will require the next maintenance. This helps in avoiding costs caused by unexpected downtimes.

Medium-Size Filter Press Feed
ABEL CM – Compact Diaphragm Pump

The slurry dewatering process is one of the most challenging tasks of any industrial plant. The proven CM series are self-adjusting and well suited for the toughest slurry dewatering applications in medium sized filter presses.

Our pumps maintain a constant flow rate during the entire filling phase. The pump reduces flow rate automatically when it senses that the filter is full by means of a control valve. This control valve is tested at the factory as part of the normal hydraulic testing process to ensure calibration.

Since the system is mechanical, it does not require compressed air to work and thereby saves on energy and ancillary equipment system costs.

Main characteristics:

- Flow rates up to 30 m³/h (132 GPM)
- Pressures up to 25 bar (360 psi)

Advantages:

- Hydraulic balance
- Hydraulic stroke control system
- Plug & play pumping
- No compressed air required
- A frequency converter (VFD) is not necessary
- Double Diaphragm



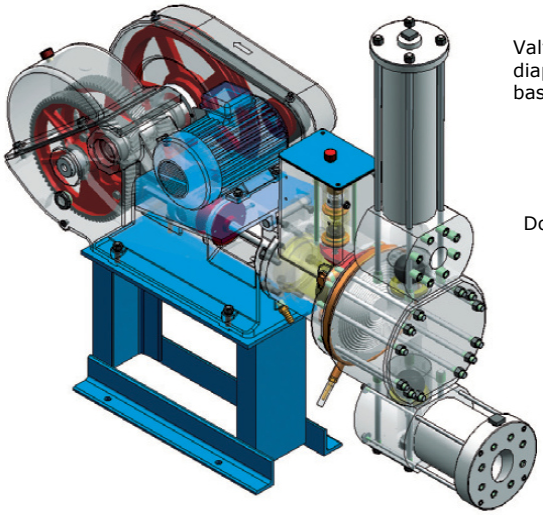
Dewatering automotive slurries with 800x800 mm (31.5x31.5 in.) filter plates: ABEL CM

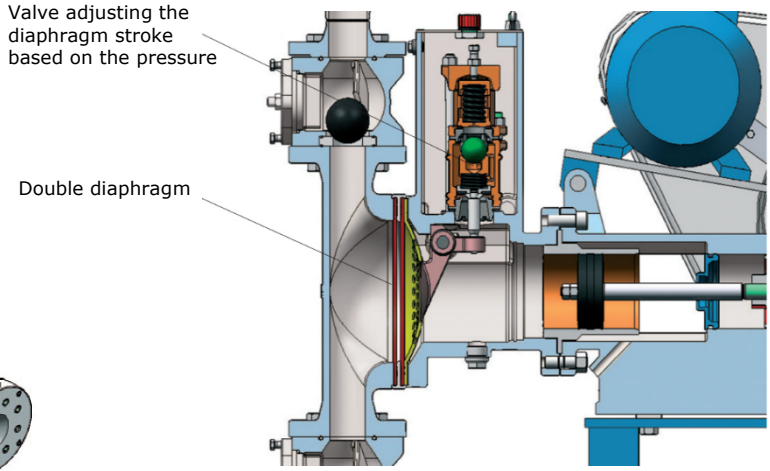


ABEL CM at 16 bar (232 psi), kaolin slurry dewatering



ABEL CM for chemical resin slurries





Large Filter Press Feed
ABEL HM – Piston Diaphragm Pump



ABEL HM in the steel industry



ABEL HM pump at a wastewater treatment plant

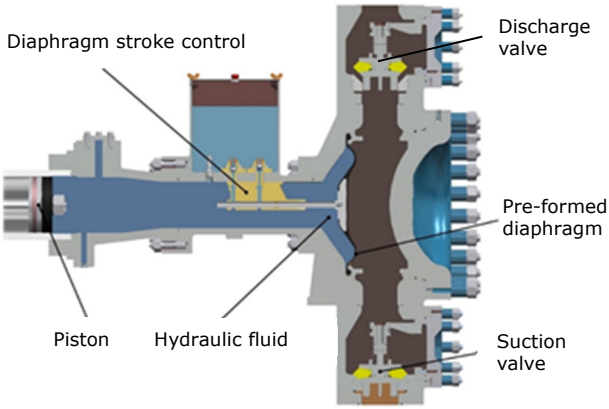
Main characteristics:

- Flow rates up to 250 m³/h (1100 GPM)
- Pressures up to 16 bar (232 psi)

Advantages:

- Automatic flow rate control
- Start-up and shut-down cycle
- Maximum dewatering at 16 bar (232 psi)
- Frequency converter control for maximum efficiency

Generally, ABEL HM pumps are designed to operate in a range of up to 25 bar (360 psi). This maximizes the feed of the chamber filters and allows the maximum efficiency while dewatering any type of abrasive slurries.



This and low operating speed of the pump via the use of a VFD in the dewatering phase ensure low mechanical wear.

Furthermore, the maximum flow rate and filtration pressure can be adjusted on site and even during operation. This gives the pump the ability to set different operational points to match the media being pumped.

This is very advantageous in the case of heavy slurries with migrating solids that are hard to dewater and usually require higher filtration pressures over a long period of time. For this, the start/stop feature of the pump is useful, because it allows the pump and its components to have a longer operational life which could not be reached by using other pump technologies.

ABEL HM pumps are suitable for feeding filter presses dimensioned for dry cakes sizes of up to 15 m³ (792 US gal) without requiring any additional secondary pumps for the fast filling phase.



Different Slurries
Customized ABEL Solutions

ABEL HM Series offers maximum Efficiency

Maximum efficiency is achieved through the use of a VFD to accommodate specific processes which help obtain the maximum filling efficiency and flow rates, while working at the higher end of average filter press limits.

This feature – in conjunction with the fact that, at the maximum pressure, the pumps are operated at their lowest stroke rate, demonstrate that there is a pump able of getting the maximum efficiency out of the filter press: the ABEL HM.



ABEL HM for jarosite filtration (AISI 316)

ABEL pumps can be tailored to the customers exact specifications depending upon:

- Filtration time
- Filtration pressure
- Solid content
- Cake dryness level

Features \ Technology	ABEL CM	ABEL HM	Centrifugal Pump	AODP	Progressive cavity Pump	Peristaltic Pump
Constant flow rate during filling	X	X			X	
Maximum pressure	X	X				
Able to run dry	X	X		X		X
Operation without compressed air	X	X	X		X	X
No cavitation	X	X		X	X	X
Min. rpm at max. pressure		X		X	X	X
Adaptation to organic sludge	X	X		X	X	X
Adaptation to mineral slurries	X	X	X	X		
Maximum cake dewatering	X	X				

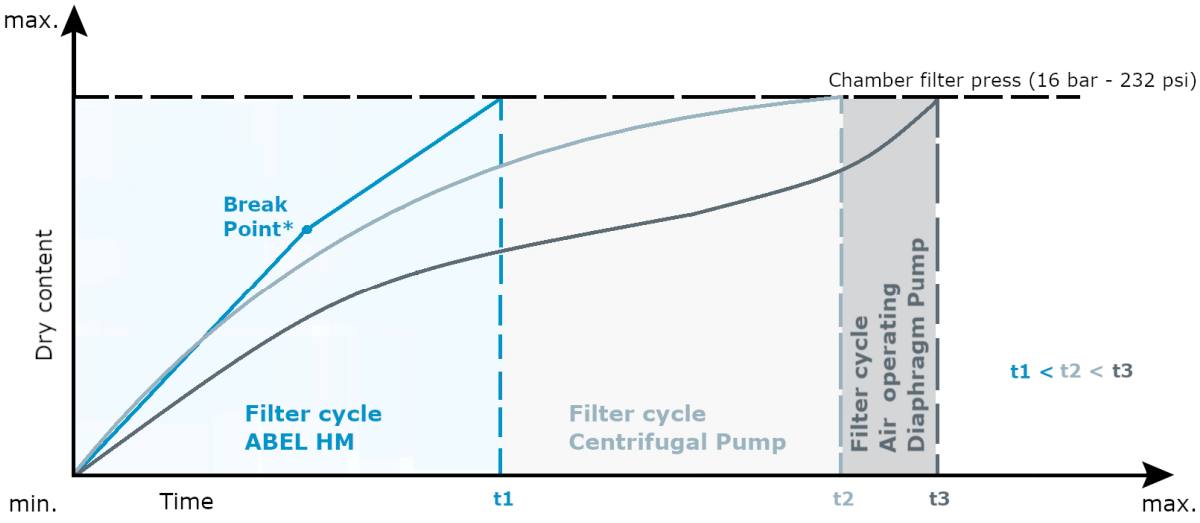
Pump materials

- Nodular ductile iron
- Stainless steel
- Polypropylene
- Rubber lined

Diaphragm/ Ball/ Seat materials

- NBR
- EPDM
- FPM
- PU
- PTFE
- RCH1000

Comparison of different pump technologies used for filter press feeding



*The break point can be customized via VFD.

Filter Cloth Wash
ABEL HP – High Pressure Pump

In applications such as the dewatering of mineral slurries with chamber filter presses or diaphragm filter presses, apart from facilitating the achievement of an excellent filtration with shorter cycles (and, most likely, a better cake discharge), the pump and all its components must also ensure a high degree of reliability.

This applies to the filter cloth cleaning system as well. HP pumps achieve a high level of clean at the due to a superior design and pressure control management control system. Our customers and end-users are known worldwide and trust ABEL for their high pressure and filter cloth wash needs.



ABEL HP-K-25 for filter cloth cleaning

Used for a cleaning system with spray nozzles to clean filter plates, ABEL HP pumps have operated in several high-pressure applications around the world in the toughest environments for years.

Like all ABEL pumps, the HP series is very robust and built for high efficiencies for many years of service with flow rates up to 28 m³/h (123 GPM) at a pressure up to 160 bar (2300 psi).

Main characteristics:

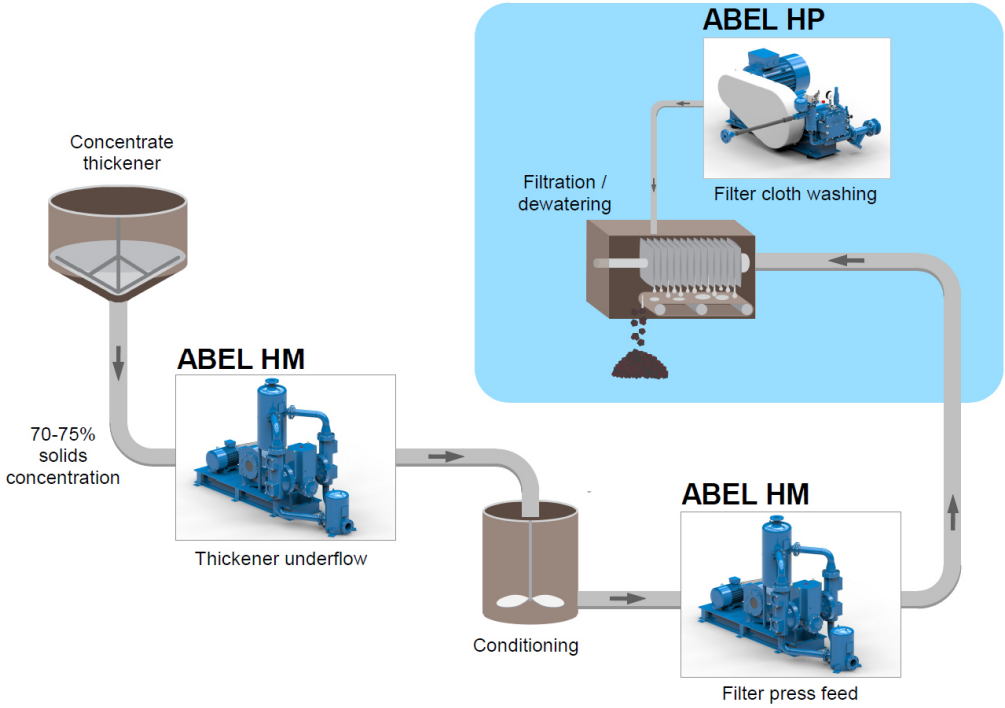
- Flow rates up to 28 m³/h (123 GPM)
- Pressures up to 160 bar (2300 psi)

Advantages:

- The 3/2 way bypass valve specifically designed for filter cloth cleaning works as a bypass valve when filter plates are being replaced. This avoids wasting water.
- Manual setting valve for the discharge pressure in case of wear of the cleaning nozzles.



Pneumatically actuated 3/2-way bypass valve



ABEL®
Pump Technology

The pumping solution for your industry:

- Mining
- Water and Wastewater
- Ceramics
- Chemical
- Oil and Gas
- Energy Industry
- Corrugated Board
- Paint and Varnish
- Petrochemical

Diaphragm Pumps
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High Pressure Pumps
Marine Pumps

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