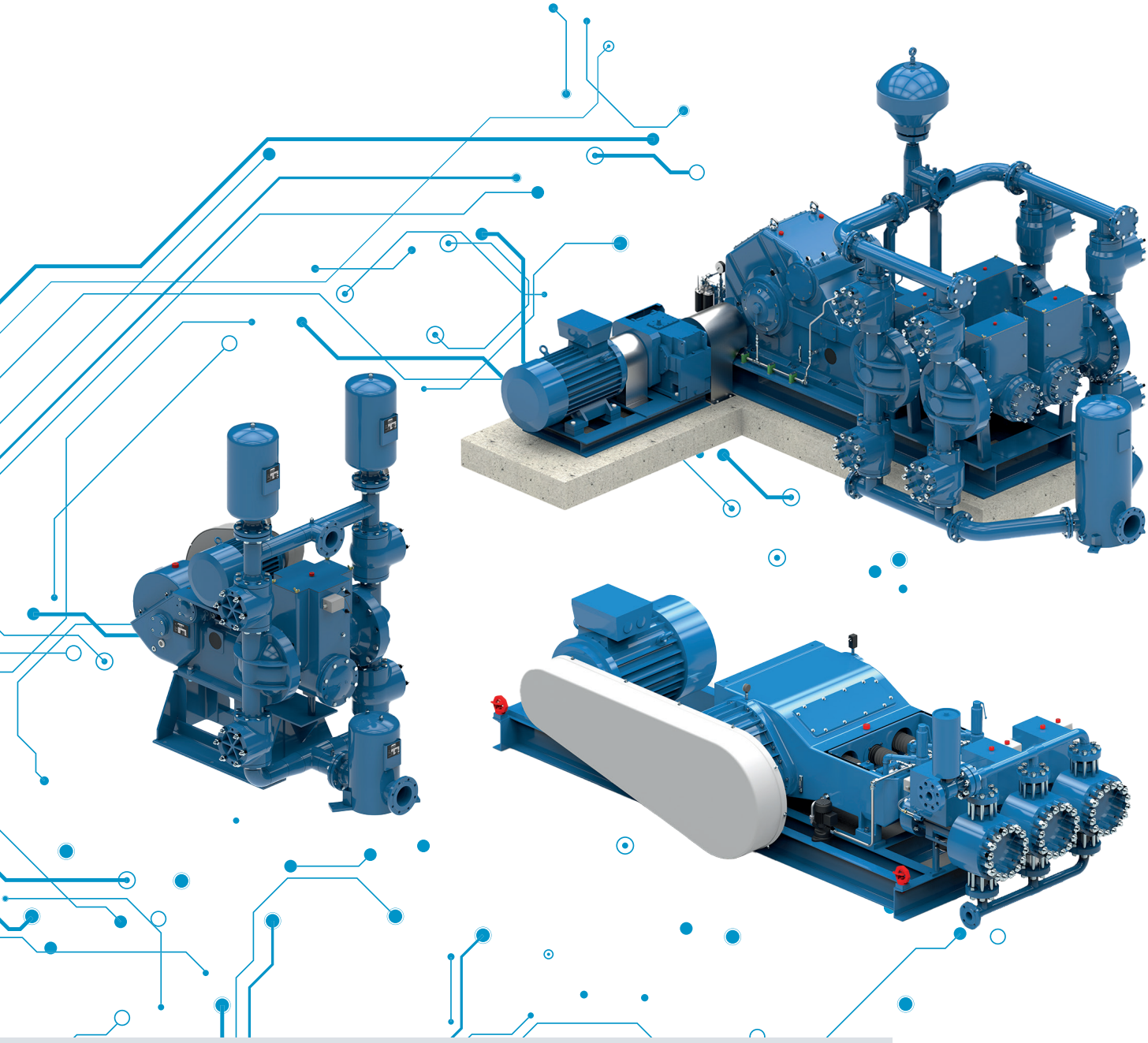
ABEL®
Pump Technology

ABEL HM

Piston Diaphragm Pumps

AI-Powered Pumps for harsh and critical Applications



Diaphragm Pumps
Solids Handling Pumps
High Pressure Pumps
Marine Pumps

www.abelpumps.com

ABEL HM Pump Series

The new generation of HM piston diaphragm pumps for abrasive and corrosive fluids offers several intelligent features.

Their innovative design combined with high manufacturing quality, results in a much **longer service life** than usual, allowing extremely abrasive products to be transported with **maximum reliability and availability.**

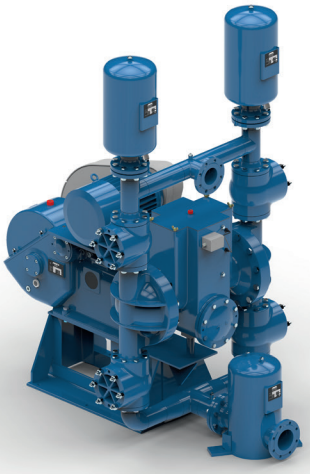
As always, the HM pumps make use of pre-formed, pressure balanced diaphragms which are hermetically **separating the hydraulic and product sides.**



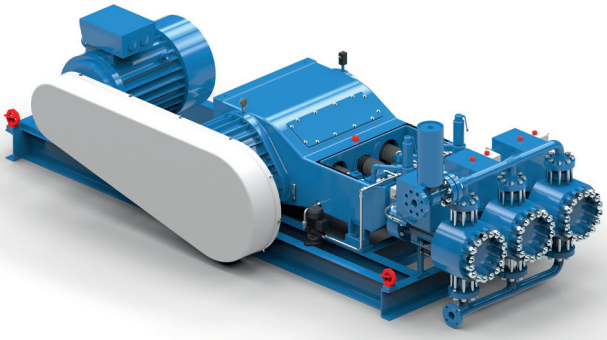
Complemented by the latest AI technology, ABEL HM pumps are the best and **most economical choice when it comes to difficult media**.

In addition, the AI let the pumps talk and allow the operation team to easily understand what the pump needs to operate at maximum efficiency.

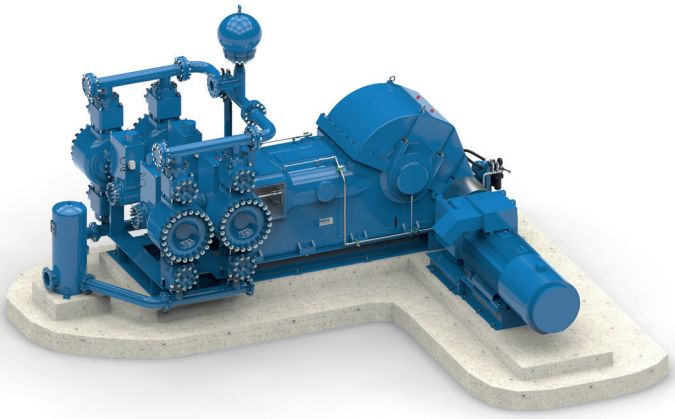




HMD
up to 90 m³/h (400 GPM)
up to 10 MPa (1450 psi)



HMT
up to 210 m³/h (925 GPM)
up to 25 MPa (3625 psi)



HMQ
up to 410 m³/h (1805 GPM)
up to 25 MPa (3625 psi)

Industries & Applications

Mining



Applications:

- Mine dewatering
- Thickener underflow
- Mine backfilling
- Tailings & paste transfer
- Ore preparation/leaching
- Autoclave feed
- Filter press feed

Sludge Treatment Plants



Applications:

- Transfer of industrial or municipal wastewater, raw sewage, primary and secondary sludge
- Filter press feed with sludge and wastewater from various industrial and municipal processes

Oil & Gas



Applications:

- Gas drying
- Well injection
- Transfer of (used) oil, oil sludge and hydrocarbon mixtures

Chemical Industry



Applications:

- Filter press feed
- Spray dryer feed
- Transfer of dyes, dispersion paints and other chemical liquids

Ceramics



Applications:

- Transfer of abrasive ceramic slip and glaze
- Filter press feed
- Spray dryer feed

Cement

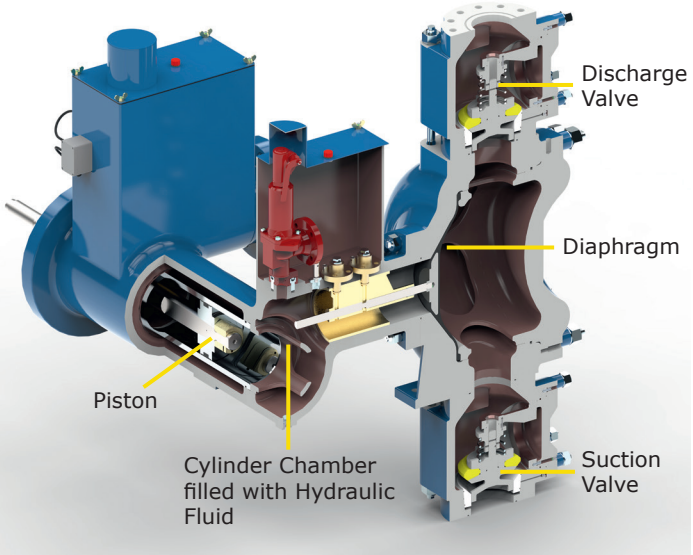


Applications:

- Rotary kiln feed
- Filter press feed

Operation

The pump chambers work alternatingly, i.e. when the front chamber is performing a suction stroke the rear chamber is performing a discharge stroke.



Suction stroke

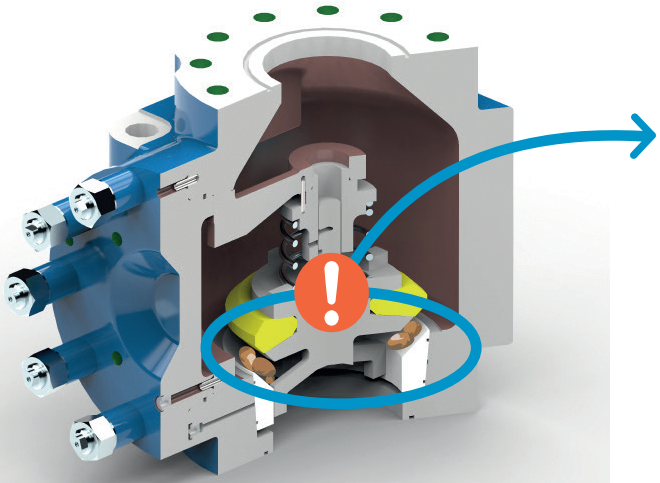
The volume taken by the piston is compensated by the molded diaphragm, which enlarges on its side the pump chamber, so that the conveyed product is drawn through the suction valve opened by the vacuum.

Discharge stroke

When the discharge stroke starts, the piston displaces the hydraulic fluid out of the cylinder chamber and the hydraulic fluid thus presses the molded diaphragm into the pump chamber. As a result of the volume reduction in the pump chamber, the product to be conveyed is forced through the opening discharge valve.

Large particles from the production process can lead to a valve blockage or wear. Our **AI immediately detects** a blockage and with regards to wear, **predicts** the remaining lifetime. Pump operators receive **real time information** about the failure diagnosis.

Practical Example:



Even more unique with AI

The HM pump is known for its robust design and its **intelligent failure communication.** Few parts make it easy to install and maintain.

Our AI combined with an applied predictive maintenance approach **solves 99% of challenges** during pump operation.

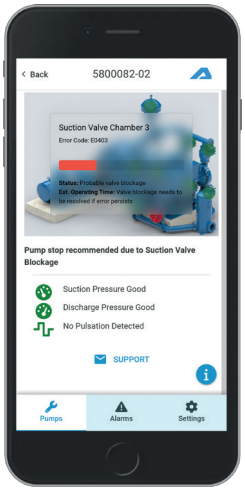
AI detects:

- Piston wear
- Suction valve wear
- Discharge valve wear
- Valve blockages
- Too high discharge pressure
- Hydraulic control functionality
- Wrong pulsation dampener setting
- Sedimentation in downstream pipeline

„We are able to predict wear based failures up to several weeks in advance."

Benefits

- 24/7 AI powered operational analysis
- Monthly performance report
- Smart communication via mobile app
- Ability to run predictive maintenance
- Automated process failure detection and prediction of wear based failures



Real-time Notifications via App:

When an error is detected, you will be automatically notified via the app and receive detailed error information.

Maintenance

We make maintenance smart and predictable!

Our AI predicts the next maintenance date depending on the actual use of the pump and its degree of wear. The pump will automatically tell you what it needs and when.

Why Predictive Maintenance?

- Up to 50% longer maintenance cycles
- Up to 25% lower spare parts costs
- Improved maintenance planning
- Minimized unplanned downtimes
- Early detection of critical situations
- Reduced reaction times
- Best possible pump performance

Overall result:

- Up to 25% reduction of operating costs
- Peace of mind

„Predictve maintenance as a philosophy to be enabled for and with the customer."

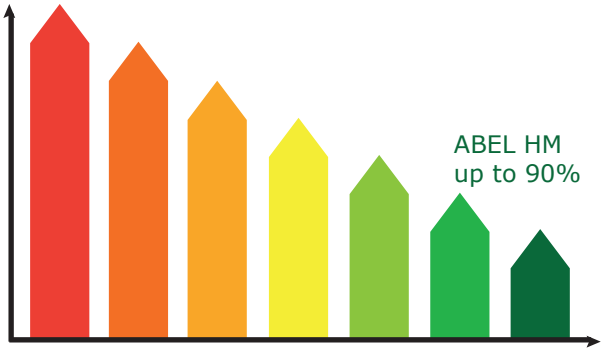


Sustainability

Sustainably through

- Reliable performance in critical processes
- Robust design: Pump life time up to 40 yrs
- Transfer of solids content up to 75%
- Low mechanical wear
- Few wearing parts
- Easy maintenance

High Energy Efficiency



Save Water in Pump Applications

ABEL pumps can convey slurries with high solids concentrations (up to 75%). Where other pump technologies require additional water to pump sludges, the ABEL HM pump can do without it and thus saves water.

In filter press applications, ABEL pumps dewater sludges to the maximum so that the largest possible amount of water can be recovered from the sludge to reuse it.



Filter cake from ceramic process

Made in Germany: ABEL contributes to the goal of sustainable production by using cleaner technologies and promoting the efficient use of resources, reducing our environmental footprint.

Sponsored by the German Federal Ministry of Education and Research

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
Solids Handling Pumps
High Pressure Pumps
Marine Pumps

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