ABEL®
Pump Technology

ABEL HMQ

Quadruplex Piston Diaphragm Pump

Pumping large volumes of abrasive fluids



Diaphragm Pumps
Solids Handling Pumps
High Pressure Pumps
Marine Pumps

www.abelpumps.com

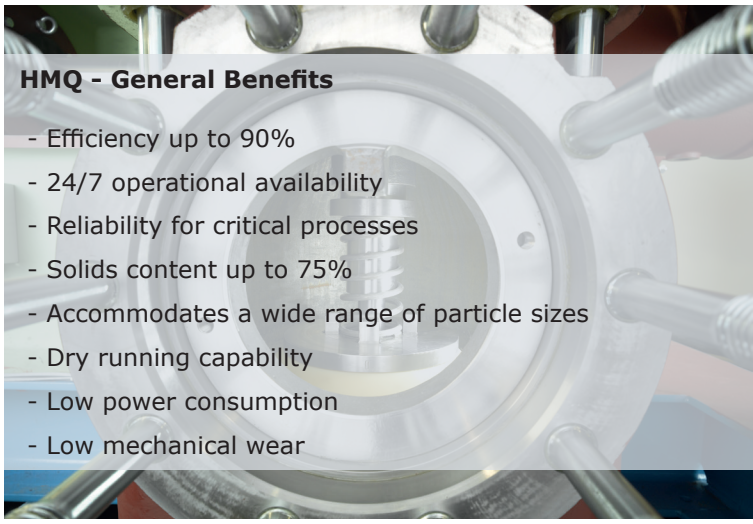
ABEL HMQ Pumps

ABEL specializes in reciprocating positive displacement pumps for varying flow rates and pressures with the particular core competence in diaphragm pumps.

Together with ABEL's usual quality standards, the design principle of the hermetically sealed pump is especially suited for abrasive, aggressive and even shear-sensitive media.

The ABEL HMQ is a quadruple acting piston diaphragm pump that is primarily used for high flow applications.

As part of the HM series, the HMQ also makes use of the advantages of our diaphragm technology: Pre-formed, **pressure balanced diaphragms** which are **hermetically separating the hydraulic and product sides.**



HMQ - General Benefits

- Efficiency up to 90%
- 24/7 operational availability
- Reliability for critical processes
- Solids content up to 75%
- Accommodates a wide range of particle sizes
- Dry running capability
- Low power consumption
- Low mechanical wear

HMQ - General Data

Max. Flow: 410 m³/h (1805 GPM)

Max. Pressure: 25 MPa (3625 psi)

Housing Materials:

- Nodular cast iron
- Stainless steel
- Rubber lined

Choose the right valve

ABEL offers ball and cone valves:

Ball valves are the best choice for low pressure applications and/or fibrous media.

For high pressure applications and/or mineral slurries, spring loaded cone valves with an elastomer insert are beneficial.

ABEL reverse valves are a special feature. They are used for aqueous solutions where larger particles could quickly settle out.

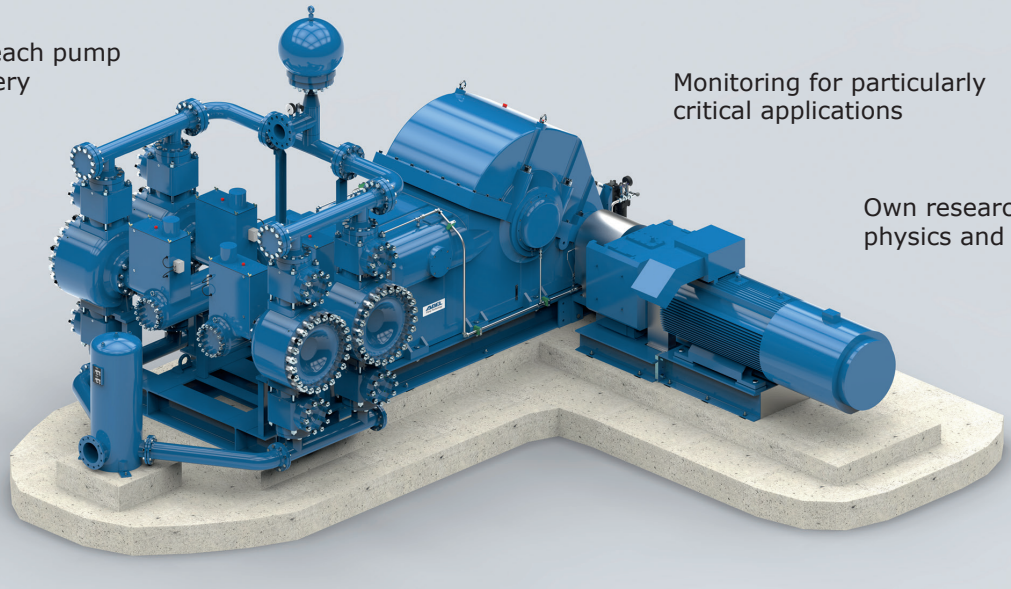
The ABEL Difference

We constantly aim for top performance in all aspects of our work – and not just in production.

Test run of each pump before delivery

Monitoring for particularly critical applications

Own research in fluid physics and materials



Pump documentation and training courses

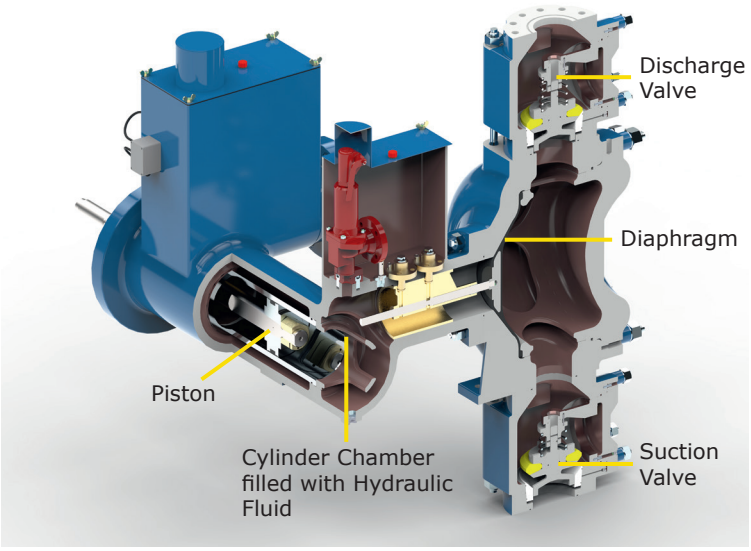
High availability of spare parts

Extensive consulting by our sales engineers

Operation

The pump consists of four individual pump chambers, where two chambers are actuated respectively by one piston.

The two chambers work alternatingly, i.e. when the front chamber is performing an **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.

The discharge valve is closed.

Discharge stroke

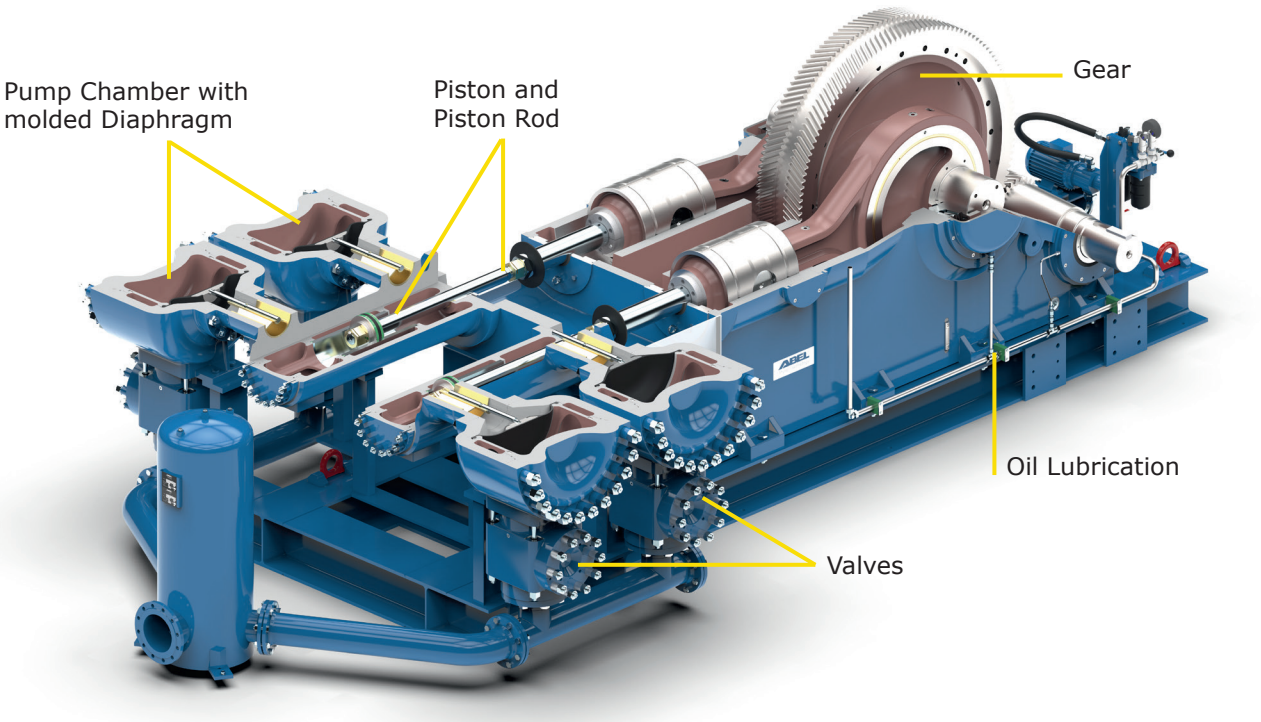
When the discharge stroke starts, the piston displaces the hydraulic fluid out of the cylinder chamber and the hydraulic fluid thus presses the molded diaphragm into the pump chamber.

As a result of the volume reduction in the pump chamber, the product to be conveyed is forced through the independently opening discharge valve.

The suction side valve is closed.

The HMQ is known for its robust design and few parts make the it easy to install and maintain.

Compact and Robust Design



The one and only for Mining Applications

ABEL‘s founding roots were in the German mining industry. Since then, ABEL has delivered reliable pumps to this industry worldwide.

Especially when it comes to process pumps that transport abrasive mine slurries, the ABEL HMQ is in demand. Appropriate material selection for the wet end parts can maximize it‘s service life and can avoid unexpected production downtimes.

Even while running slowly, the HMQ can convey large volumes in a short time with its gentle operation.



Main Applications:

- Mine Dewatering
- Thickener Underflow
- Backfilling
- Sludge/Fluid Transfer
- Autoclave Feed
- Filter Press Feed

We have the pump solution for mining - whether metallic or mineral mining - whether open pit or underground mining.

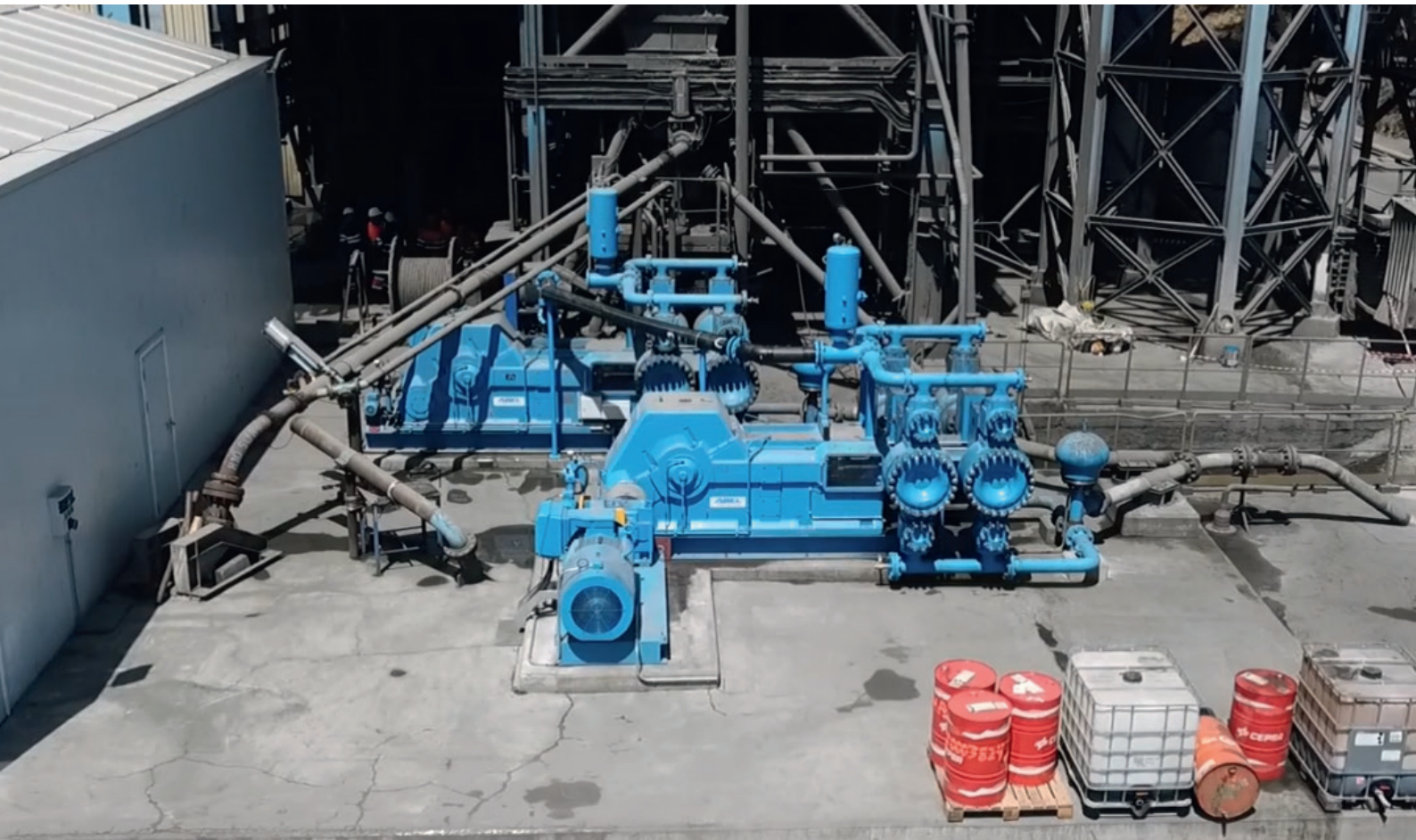
Further Applications and Industries

HMQ pumps are being used successfully around the world for applications as diverse as transferring phosphate slurry, feeding filter presses in the cement industry, as well as pumping fly ash and bottom ash.



Ash dyke - an ABEL HMQ pump conveys the ash slurry with 65% concentration to this spot 7.5 km away - with such little water content the dry ash solidifies in 3 to 5 hours

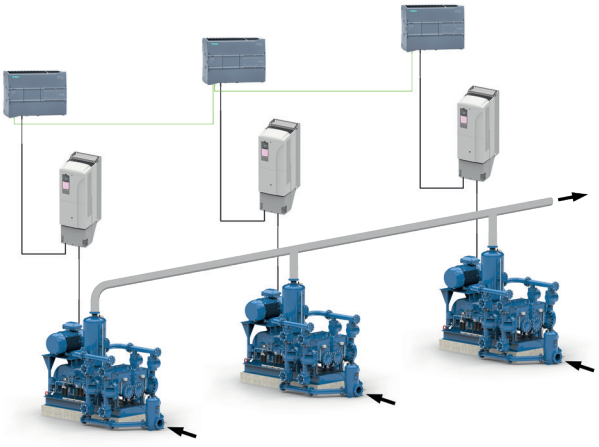
Down time in an ash disposal section of a power plant directly translates to loss of revenue as the coal firing rate needs to be reduced. ABEL is aware of this fact and therefore pays special attention to the reliability.





Pump Synchronization

Thanks to our concept of pump synchronization, 2 or more pumps can easily pump into a common pipeline. The phase shift of the pumps thereby reduces pulsations and vibrations in the pipeline.



To synchronize multiple pumps, each pump must be equipped with a VFD and PLC Control.

One pump specifies the operation and thus acts as the master pump. The other pumps follow and act as slaves.

The main advantage of synchronization is that the life cycle costs of the pumps can be reduced and overall, that the pumps are operated more efficiently and economically.

Smart Pump Assistant

With the ABEL Smart Pump Assistant (SPA), you can achieve a far-reaching upgrade of your pump.

The monitoring is only part of the ABEL SPA and the basis for our intelligent services - such as analyzing and improving the pump and pumps process.

SPA - Benefits

- 24/7 Online Pump Monitoring
- 24/7 Real-Time alerts by SMS or E-Mail
- Full access via Browser or App
- Historical Trends
- Maintenance Planner
- Reduced Service Times & Operating Costs
- Intelligent Online Services
  (Data Analysis, Efficiency Improvements)

The SPA is the best choice to operate an ABEL pump efficiently and economically.

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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