

# ABEL HM

From the reciprocating positive displacement pump specialist



## Hydraulic Piston Membrane (Diaphragm) Pumps

Reliable under high pressure and increased flow rates

## ABEL HM - Performance range: up to 90 m<sup>3</sup>/h (400 GPM); up to 10.0 MPa (1450 psi)



ABEL HMD-G-12-0060 for transfer of contaminated sludge from soil washing process

The ABEL HM piston diaphragm (membrane) pump range has been specially developed for operations with increased flow rates combined with high operating pressures.

During the last 20 years, ABEL has constantly developed products to overcome the latest challenges and requirements in the industry.

**ABEL HM PISTON DIAPHRAGM PUMPS** are available as single or double-acting models. The design assures an increased performance, reliable functionality and especially low operating and maintenance costs. They can be utilized for flow rates up to 90 m<sup>3</sup>/h (filter press feed), and up to 10.0 MPa operating pressure.

The ABEL HM pumps are equipped with pre-formed diaphragms which remain stable throughout the duration of the pumping operations. The ABEL HM construction method has been tested in many various industries, as well as with very difficult media, and has proven to be operationally secure as well as providing a very high diaphragm and service life time.

The parts of the pump which will come into contact with the materials to be pumped are made of nodular cast iron (also rubber-coated), polypropylene, cast steel or stainless steel. This pump model has developed into the first choice product for critical process operations, such as spray dryer feeding or the transport of highly abrasive slurries containing heterogeneous grain sizes.



ABEL HM for transfer of ferrous jarosite sludge

When utilized as a filter press feed pump with a pressure sensor control, this piston diaphragm pump model is very energy efficient, has a long service life and a high operational capacity.

#### Areas of operation for the ABEL HM

- For slurry transfer
- For filter press feed
- For reactor feed
  
- In the mining industry
- In coal fired power plants
- In the ceramic and chemical industry
- In steel works
- In water works and sewage treatment plants

 Explosion-proof (ATEX) designs are available

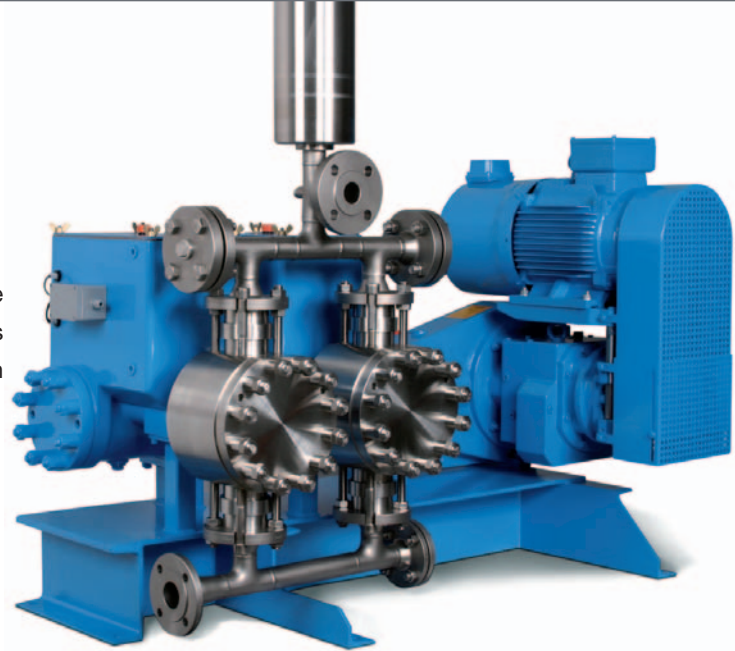
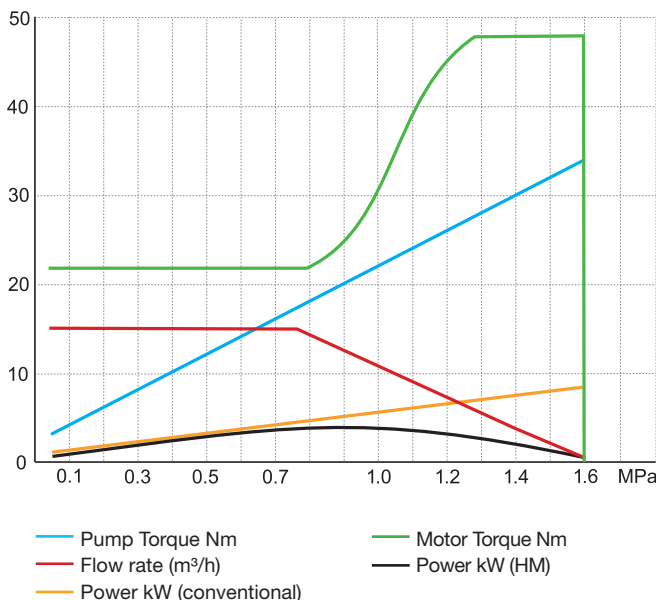
#### Wet end materials:

- Nodular cast iron
- Nodular cast iron/rubber lined
- Stainless steel
- Polypropylene (PPH)
- Other materials on request

#### Energy saving by VFD control

Example Filter Press Control:

- Filtration cycle 1,5 h
- Energy consumption:
  - Conventional 7,08 kWh
  - HM-pump 4,46 kWh
- 2,62 kWh or approx. 37%



Stainless steel high pressure design for applications in the chemical industry

The ABEL hydraulic diaphragm pump is equipped with a newly designed pressure-balanced diaphragm positioning system.

During both the suction and the discharge strokes, the diaphragm is not stressed by pressure peaks and is not subjected to any elongation; the diaphragm position is ensured with optimal diaphragm end positions.

#### Single or double acting

The ABEL HM is available in single or double-acting design. In addition to the attributes of piston diaphragm pumps such as self-priming and dry running resistance, the pumps are characterized by very low power consumption, quiet running and high reliability.

#### Design advantages side by side

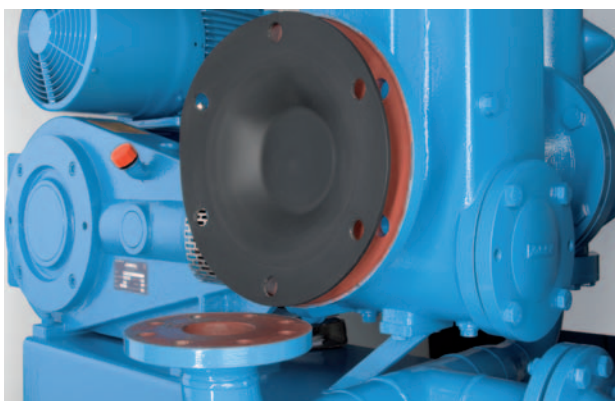
The hydraulic side is equipped with certified safety valves to safeguard the maximum permissible pressure. The product side is equipped with a preformed diaphragm adapted to the operating conditions.

The drive side consisting of the reduction and eccentric gear ensures an optimum power transmission even at lowest speed – and all that without external oil lubrication.

The first HM piston diaphragm pumps were manufactured in 1994. But it was not until 2000 when the actual success story started with the introduction of the whole model line of this piston diaphragm pump which is well-known by its service life.

Since then several hundred pumps have been delivered which are in service nearly everywhere in the world – often where other pumps had failed.

**AS FILTER PRESS FEED PUMPS** ABEL HM pumps are energy saving controlled by variable frequency drives (VFD). Compared to hydraulically controlled pumps not only the energy saving must be emphasized but also the lower stroke rate over the entire filtration cycle which has an impact upon the wear parts lifetime. Especially with long filtration cycles this is a deciding advantage.



The pre-formed HM diaphragm is not subjected to any elongation during the entire stroke

## Different media – one pump



Silica slurry, 45 % solids concentration



ABEL-HM for transfer of scum



Copper tailings, 60 % solids concentration

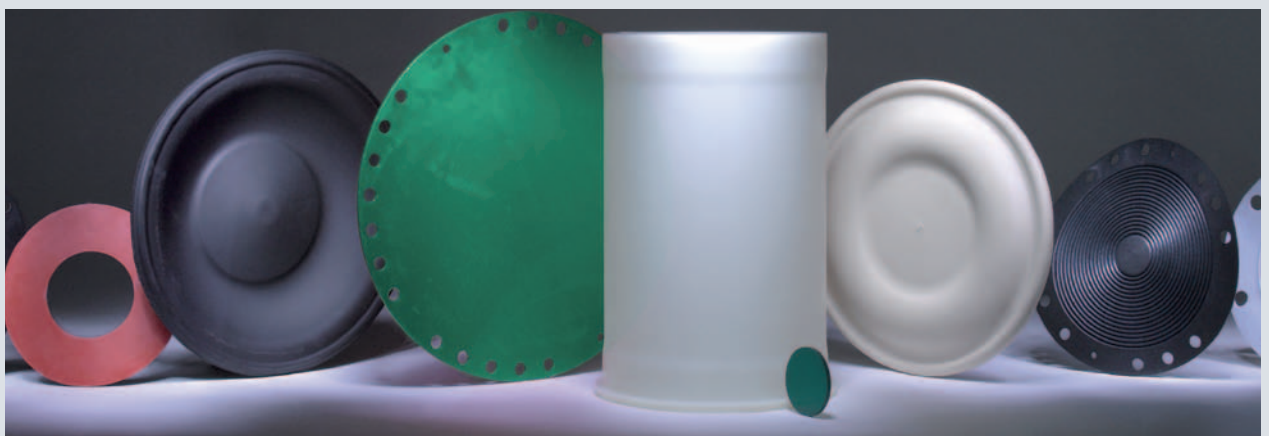
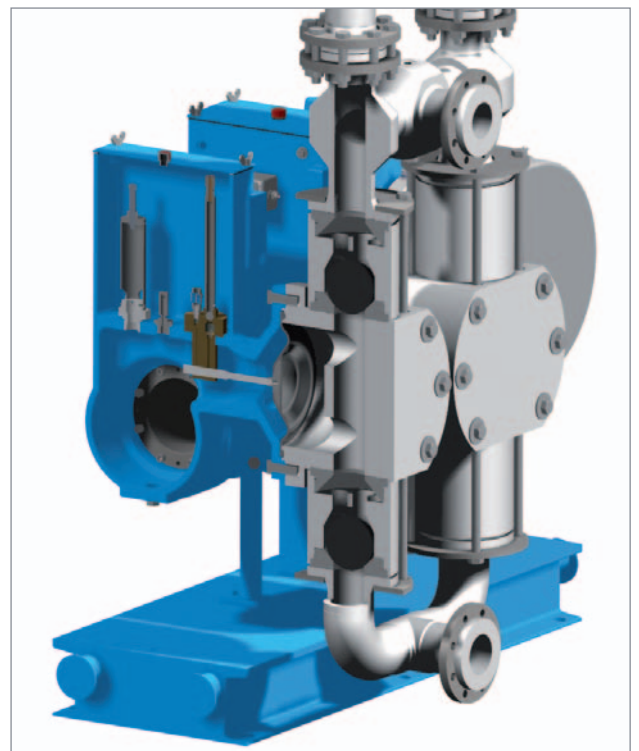


Thickened, digested sewage sludge, 7 % solids concentration

## The ABEL HM advantages

### Technology secure for the future

- The newest diaphragm technology with a pre-molded diaphragm → long service life, low wear and process safety
- Reliable valve technology with ball, cone or spherical cone valves → problem-free conveyance of sludge with high sand and mineral content, free of blockages when pumping fibrous solids
- Patented diaphragm management and monitoring → process safety and operation free of faults
- Compact structure → low space requirement, easy to maintain
- High overall efficiency → low energy costs
- Modern drive technology with helical or planetary gear reducer and frequency controlled motors → simple integration into automated processes, optimal adjustment to the filter press characteristic, quiet running against high pressures
- Efficient pulsation dampening with automatic air cushion control possible (ABEL iOPD) → even flow and efficient pulsation dampening
- After-sales service directly from ABEL → advice and fast help on site, 24-hour-service
- High availability of spare parts



Diaphragm technology from ABEL- for decades



Diaphragm Pumps  
Solids Handling Pumps  
High Pressure Pumps  
Marine Pumps

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