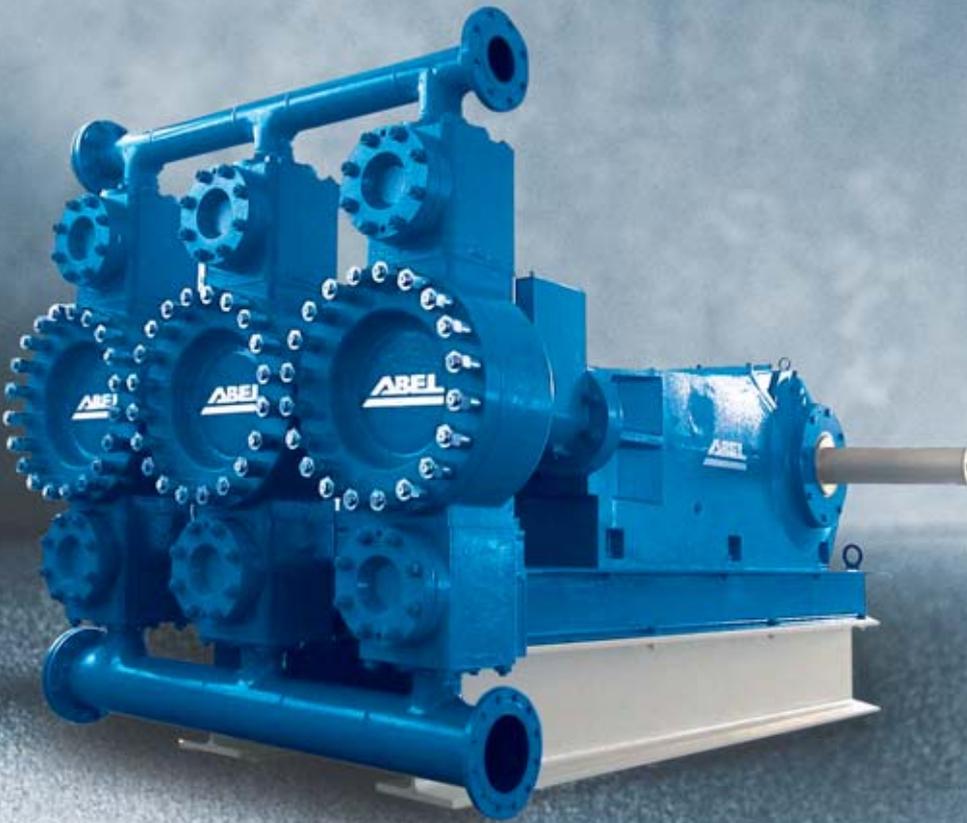


Membrane Pumps
Solids Handling Pumps
High Pressure Pumps
Marine Pumps

ABEL HMT

Heavy Duty Piston Membrane Pumps



Pumps for mining and power industry

Hydraulic Membrane Pump for heavy duty applications in the mining, metallurgical and power industry.

Triplex single acting

The Abel HMT pump is a heavy duty triplex single acting Hydraulic Membrane (HMT) pump. The HMT family actually includes a single piston double acting piston membrane pump (HMD) and a Quadruple acting (double piston, double acting) piston membrane pump (HMQ). The HMT family of pumps can be used for capacities up to 650 m³/h and pressures up to 25 MPa.

The entire HMT pump range is equipped with heavy duty preformed membranes which separate the abrasive slurry from the hydraulic side of the pump where most of the common wear parts (pistons, cylinder liner etc) are located.

The slurry side of the pump consists of heavy duty cone type slurry valves with a long life time of up to 6000 to 8000 hrs (depending on the operating conditions). As a standard, the pump is further equipped with pulsation dampeners which enforces minimal NPSHa conditions and minimize the pulsations in the discharge piping.

Abel HMT pumps are being used for many severe duty applications in the mining, metallurgical and power industry.

For high temperature applications (such as autoclave or digester feeding), our pumps can be equipped with extensions to the membrane suction manifolds which can be cooled by means of a cooling jacket (so called drop legs). By means of this technology slurries with temperature up to 250 degrees C (or even higher) can be handled.

For corrosive slurry handling, the wet slurry end of Abel pumps can be executed in a number of different alloy steels.



Abel HMT

Abel is constantly developing larger pumps for heavy duty applications and is investing heavily in new technologies.

The quality, engineering capabilities and the flexibility of our company ensure that Abel will be at the forefront pumping technology and will develop and produce pumps which ensure complete customer satisfaction.



Abel HMD



Abel HMQ

Keep it simple!

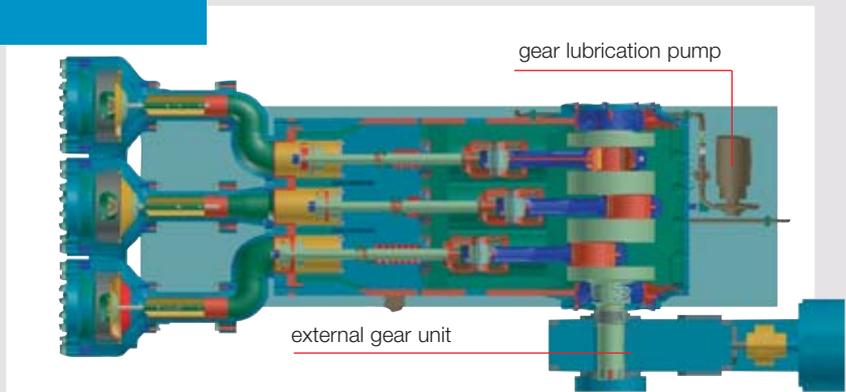
Technical features

Abel always strives to keep technology, maintenance and operation as easy and simple as possible. This will benefit operation reliability. Keeping technology simple requires however extensive and innovative designs which minimizes maintenance and operating costs and increase availability of the equipment.

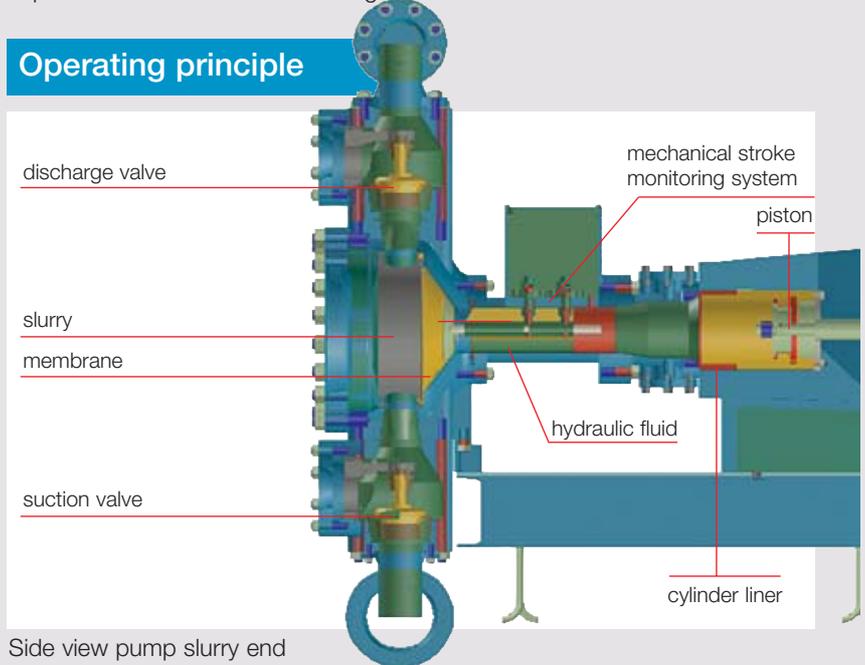
Therefore the Abel HMT family of pumps are equipped with relatively simple and easy to understand, control/maintain operating features. These features include a mechanical membrane stroke control system which will automatically remedy any shortage or excess of propelling liquid or, in case of emergency, shut down the pump. One of the other features is the externally mounted reduction gearbox which is easy to access.

Many more technical details, such as a reinforced piston and gear lubrication system ensure that Abel piston membrane pumps will ensure maximum longevity, availability and minimum operating costs.

Although the technology is simple and easy to understand, it provides the pump with excellent protection measures and easy operational procedures.



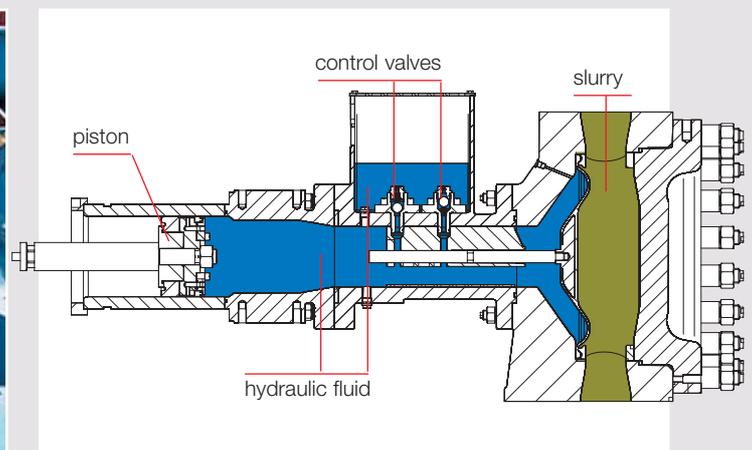
Top view of an HMT with external gearbox



Side view pump slurry end



Safety valves



Mechanical stroke control system

Long life time, short replacement time

Maintenance and availability

A minimum of maintenance ensures a maximum of availability. That's why ABEL pumps are equipped with heavy duty, long lasting wear parts such as preformed membranes and cone valves.

Another factor which contributes to a max. availability is the time required for maintenance and replacement of wear parts. ABEL has gone to great length to

minimize down time due to wear parts replacement. Special tools have been developed to replace valve components and membranes. In addition the valve seats can be removed hydraulically.

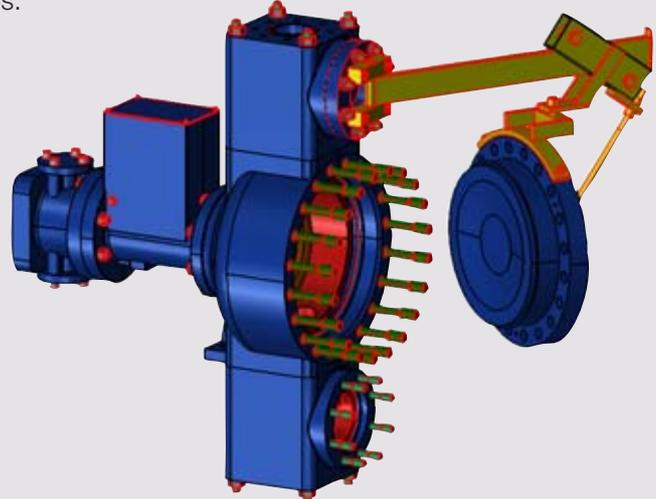
Due to the longevity of wear parts and the innovative design of replacing these parts, usually an availability of 96%+ can be achieved, thus avoiding the need of stand-by pumps.



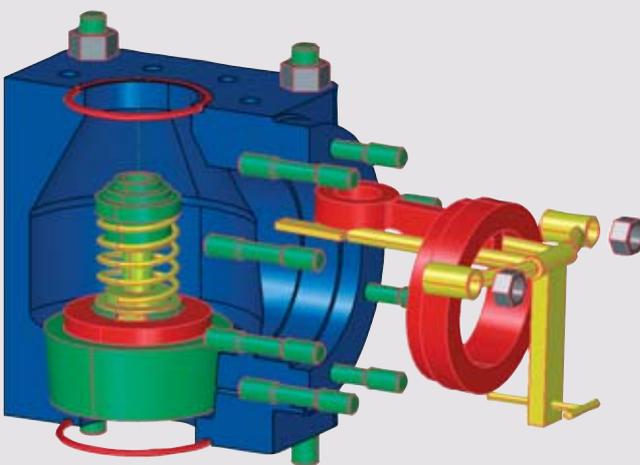
Moulded membranes



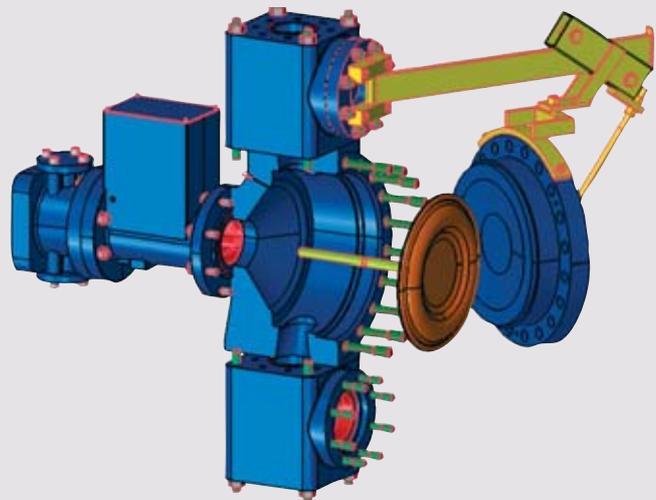
Valve components



Innovative tools for replacement of membranes



Replacement of valve parts



Applications and references



High density tailings slurry pump HMT in Africa

ABEL HM pumps are being used for the transfer of high density tailing slurries in many countries worldwide. Another important application is the transfer of high density fly ash at coal or lignite fired power stations.

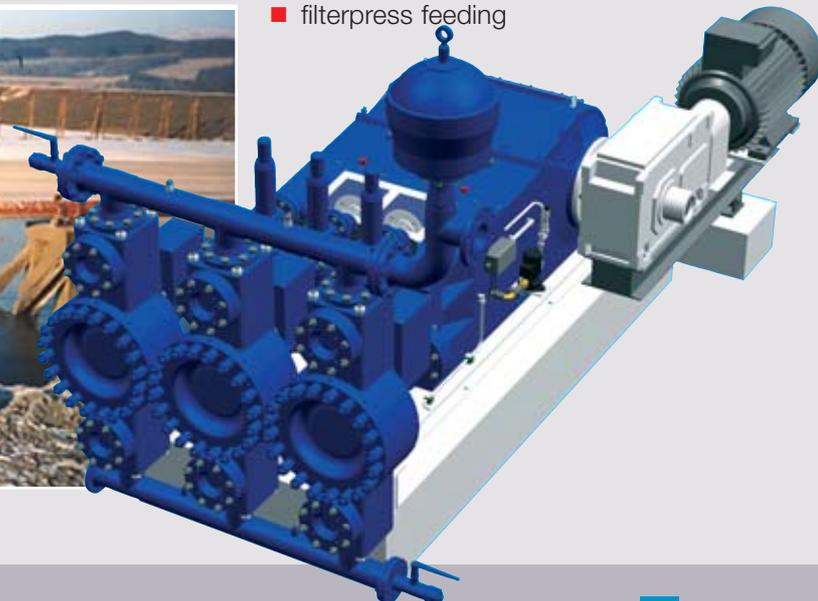
ABEL was founded in 1947 the German city of Essen which still is the heart of the German mining industry. Consequently, ABEL pumps have been used since more than 50 years in the mining industry for mine dewatering and tailings transfer applications. Presently, more than 200 ABEL pumps are in operation in mining, power and metalurgical processing installations.



ABEL HM pumps are in operation at a lignite fired power plant in North America for the transfer of abrasive fly ash. Solids concentration is almost 75%. Similar pumps are transferring gold tailings in South America. Other interesting applications can be found in India (bauxite), Zambia (copper), Czech Republic (power), Norway (nickel), Brazil (magnetite) and many more countries, worldwide.

In addition to tailings transfer at processing plants and fly ash transfer at power plants, ABEL piston membranes pumps are being used for applications such as :

- autoclave feeding
- digester feeding
- mine dewatering
- mine desludging
- mine backfilling
- ore pipeline transfer
- filterpress feeding



Reasonable options for measurement, control and regulation

Accessories

In order to operate ABEL HMT pumps efficiently, our pumps are usually equipped with a number of accessories.

These accessories consist of suction and discharge pulsation dampeners or air vessels, charge pumps, flow meters, pressure gauges, monitoring equipment etc.

Even more important for an efficient pump operation is the drive of the pump: HMT pumps are always driven by electric motors which usually require a soft start up. This can be realized by means of frequency converters or other electronic or mechanical accessories. Also the control and protection of the pumps is of importance. The ABEL control and protection panels can be mounted locally and/or in a central control room for remote control.

ABEL is capable of supplying standard solutions for drives and control/protection as well as tailor made arrangements which meet the customer requirements and specifications. Upon request, ABEL can also assist in the engineering of the control panels and other accessories.

Upon request, ABEL pumps can be equipped with a sophisticated pressure/capacity monitoring and control system which safeguard the pump and system piping against cavitation, over pressure and damages to pipelines.



Suction and discharge side pulsation dampeners on an ABEL HMT pump

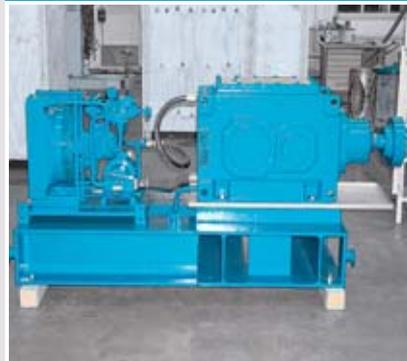


In order to safeguard our quality standards, ABEL makes sure that all sub-suppliers meet the same quality criteria. In addition, all ABEL sub-suppliers are all DIN EN ISO 9001:2000 certified.

Electrics



Reduction gear



Gear lub oil pump unit



Torque monitoring



Maximum availability: Service around the world



What can we do for you:

- **Service hotline:**
telephone diagnostics from expert service engineers
- **Service engineers:**
a team of dedicated service engineers is available for start up, commissioning and service work. There are several ABEL service points worldwide.
- **Inspection and maintenance:**
ABEL Service offers extensive maintenance and inspection contracts which increase availability and reliability.
- **Service certification:**
Service activities are well documented in accordance with DIN/ISO standards
- **Original spare parts:**
ABEL stores essential spare parts at various locations worldwide. The use of original ABEL spare parts is essential for a reliable pump operation



ABEL manufacturing program

Besides HMT piston membrane pumps, ABEL manufactures a complete range of piston and membrane pumps for applications in the mining, power and metallurgical industry. Our manufacturing program consists of :

ABEL SH:

hydraulically driven piston pumps for the transfer of "dry" slurries, max capacity 103 m³/h, max. pressure 16 MPa.

ABEL EM:

crankshaft driven membrane pumps for the transfer of slurries against pressures up to 0,6 MPa, max. capacity is 120 m³/h

ABEL HP:

high pressure piston pumps for cleaning purposes and reverse osmosis technology, max. capacity 115 m³/h, max. pressure is 25 MPa.



ABEL SH:



ABEL EM:



ABEL HP:



Membrane Pumps
Solids Handling Pumps
High Pressure Pumps
Marine Pumps

ABEL[®] Pump Technology

Headquarter

ABEL GmbH & Co. KG
ABEL-Twiete 1
D-21514 Buechen, Germany
Phone +49 (4155) 818 - 0
Fax +49 (4155) 818 - 499
mail@abel.de · www.abel.de

Also ABEL offices in:

Shanghai, China
Pittsburgh, USA
Madrid, Spain
Stoke-on-Trent, UK

and a network of representatives worldwide.