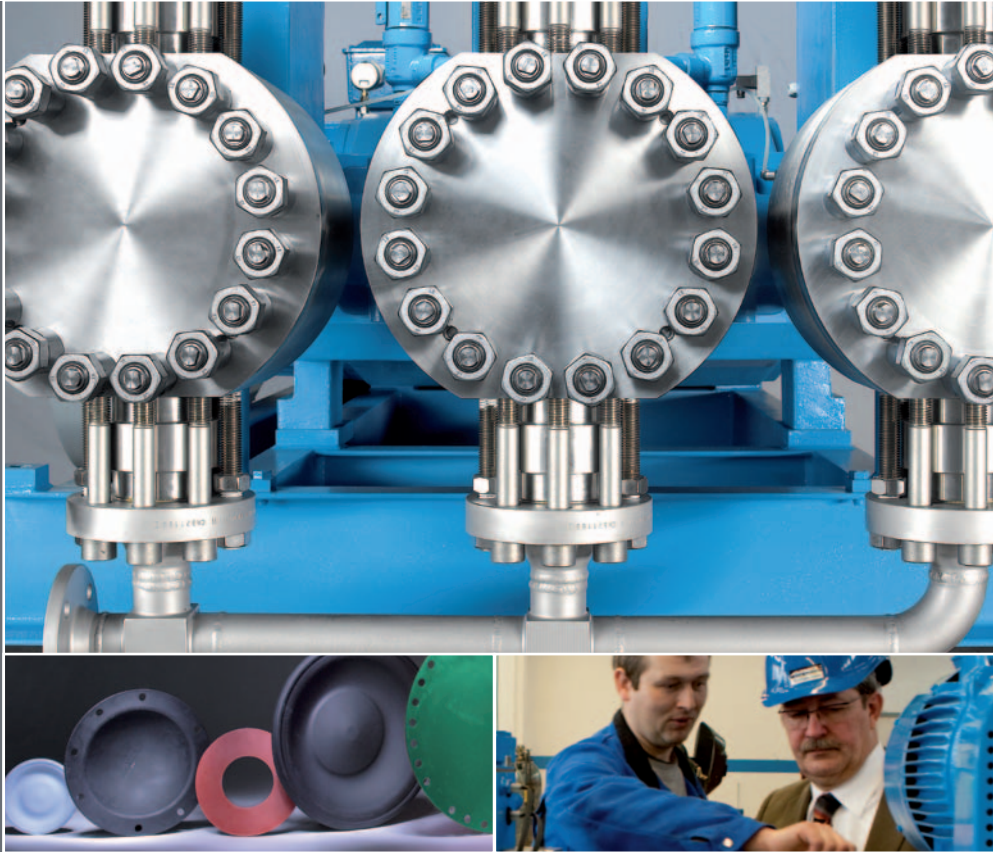


Our program

From the reciprocating positive displacement pump specialist



**An ABEL pump helps you
work with difficult media**

ABEL Reciprocating Positive Displacement Pumps. Development + Design + Manufacture + Service

When you are confronted with the decision concerning investment in pump technology, you have the option of thousands of manufacturers worldwide.

Almost all of them use first-class raw materials and modern production methods. Many of them have a functioning quality assurance system. Therefore, it does not matter how you decide. Or does it?

Doesn't it really matter?

Specialization creates Know-how

The physics of the different pump principles fundamentally differ from each other. Anybody mastering fluid machines in their function cannot utilize this knowledge in the field of positive displacement pumps – and vice versa. The decisive lead in know-how results from focusing. Only those who specialize have the chance to gain experience, without which the real advanced technology does not and cannot develop.

ABEL focuses on reciprocating positive displacement pumps – on development, design, manufacture, marketing and, last but not least, service. Pumps customized for your application.

ABEL GmbH was among the first hundred German mechanical engineering companies who, in 1991, submitted their entire company activities to the standards of DIN EN ISO 9001 (today 9001:2008).

After 8 successful certification procedures we now have the lead which has grown over many years in the application of our quality management system.

In December 2006 the company received the certificate SCC** for the department service that confirms the compliance of defined specification for working security, environmental protection and health.



ABEL Pumps are available in an explosion-proof (ATEX) design



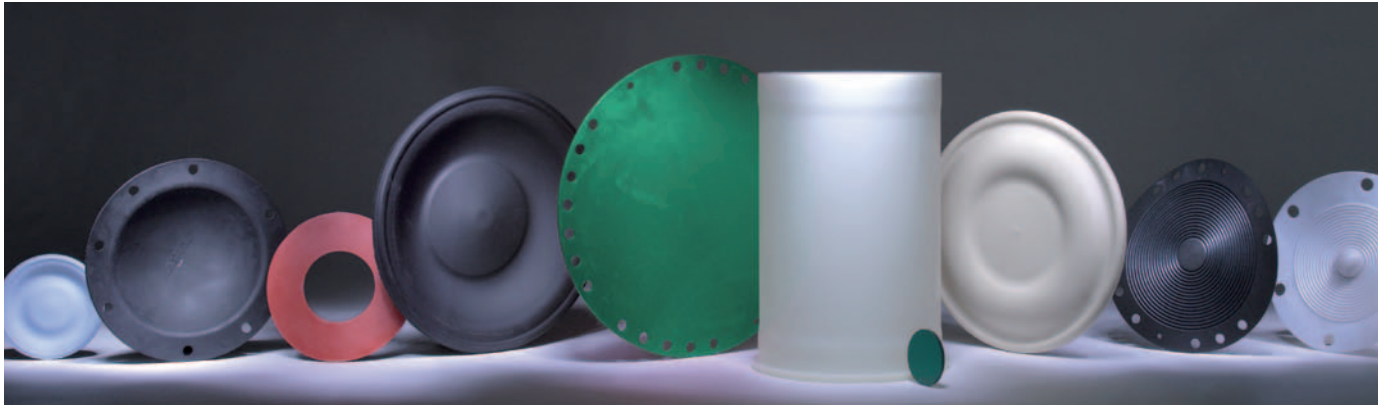
Your satisfaction – our promise



Designed and manufactured for extreme operating conditions



ABEL Pump for mobile use



The diaphragm (membrane) – the superior design principle.

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

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

Thanks to our technological advantage in mechanical diaphragm pumps, ABEL has earned a well respected reputation around the world. Solids handling pumps for paste-like and non-Newtonian media and high pressure plunger pumps round off our range of high-capacity pumps.



The superior diaphragm technology of the HM serial leads to long service life

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

This includes:

- Every pump is tested before delivery
- We conduct our own research in fluid physics and metal stress
- Comprehensive product documentation for all pump types
- Extensive application consulting from our sales engineers
- High degree of availability for spare parts (even for old pump types)
- Product instruction and training courses
- Lifetime service: 24 hours a day, 7 days a week, 365 days a year
- Monitoring for particularly critical production applications

WE ALSO BUILD PUMPS WITH SPECIAL CERTIFICATIONS FOR SPECIFIC APPLICATIONS.

Almost all of our pumps are available with ATEX certification. In fact, some of our products far exceed the standards of this directive.

These are all good reasons as to why ABEL pumps last so much longer than normal pumps. Some ABEL pumps have been in use for more than 40 years and are still in operation today.

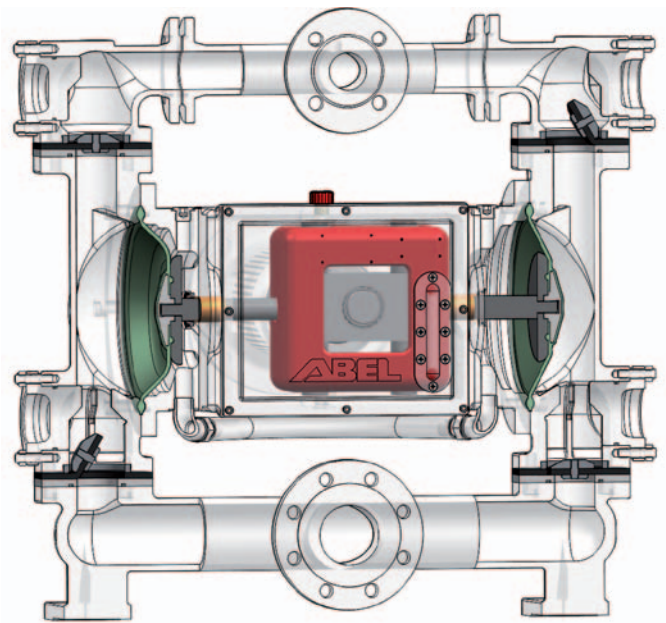
This extra value makes ABEL the first choice among plant manufacturers and end customers from various industries throughout the world.

Electromechanical Diaphragm Pumps

Performance range: up to 120 m³/h (530 GPM);
up to 0.8 MPa (120 psi)

THE ADVANTAGE OF DESIGN. This robust pump technology is especially advantageous for many applications that require low pressure.

The ABEL EM is a mechanically driven diaphragm pump that is highly energy efficient, because the drive does not require expensive compressed air. Its compact, special design does not require hydraulic fluid, and it can be suitably equipped to provide the performance required by each specific application.



ABEL EM Metal



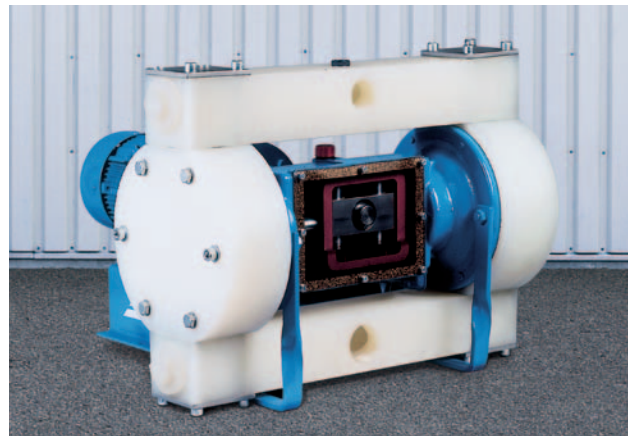
Performance range: up to 120 m³/h (530 GPM);
up to 0.8 MPa (120 psi)*

The ABEL EM Metal is available in three different metal designs: Nodular cast iron (SG), stainless steel (ED) or aluminum (AL). Through purposeful use of suitable, resistant materials for diaphragms, valve seats and balls you will achieve the best possible material combination for your application.

ABEL EM Metal

- Water and sewage industry
- Ceramic industry
- Surface technology
- Marble and stone plants
- Navigation, offshore
- Automobile industry
- Mechanical engineering
- Pigment processing
- Paper industry
- Mining
- Lacquer and paint industry
- Steel works

ABEL EM Plastic



Performance range: up to 20 m³/h (90 GPM);
up to 0.8 MPa (120 psi)*

In the chemical industry and in other areas of process technology aggressive media require the use of high-quality plastics such as polypropylenes (PP) or PVDF (PV), as well as explosion proof motors. With ABEL EM Plastic ABEL provides excellent technology for these applications with flow rates up to max. 20 m³/h.

ABEL EM Plastic

- Chemical industry
- Pharmaceutical industry
- Refineries
- Power plants

ABEL EM pump application

- Process pumps for the transfer of liquids and powders
- Filter press feeding
- Centrifuge feeding
- Metering



Series EM pumps are available in an explosion-proof (ATEX) design

* depending upon pump size and application

CM Compact Diaphragm Pumps

Difficult media would rather deal with this pump.



Performance range: up to 215 m³/h (950 GPM);
up to 6.4 MPa (930 psi)

ABEL CM piston diaphragm pumps are single or double-action specialized pumps that are used for difficult media. They are highly resistant to wear, even when used at high pressures over an extended period of time. Their true double-diaphragm technology offers a high degree of safety.

When used as a pump for feeding filter presses, the rugged, automatic flow rate control (which does not use complex electronics) is another impressive feature that makes it even more reliable.

ABEL CM pumps – specialists for difficult media

- For sludge transfer
- Feeding filter presses, rotary kilns, or spray driers (spray dryer feed pump)
- Raw sewage transfer
- Transfer of abrasive, corrosive, acidic, alkaline, pigmented, viscous, and grainy media

 Available with ATEX certification.

HM Hydraulic Piston Diaphragm Pumps

Reliable under high-pressure and increased flow rates.



Performance range: up to 100 m³/h (450 GPM);
up to 10.0 MPa (1,450 psi) for metal and
up to 1.6 MPa (225 psi) for plastic design

The ABEL HM piston diaphragm pump range has been especially developed for operations with increased flow rates combined with high operating pressures. During the last 15 years we have constantly developed our products to comply with the latest challenges and requirements in the industry.

ABEL HM PISTON DIAPHRAGM PUMPS are available as single or double-acting models as well as assuring an increased performance, reliable functionality and especially low operating and maintenance costs.

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

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 also possible

HMQ Hydraulic Piston Diaphragm Pumps

Efficiently handling large volumes



Performance range: up to 800 m³/h (3,522 GPM); up to 25.0 MPa (3,625 psi)

The pumps which are included in the ABEL range, HMQ (Quadruplex) are easily identifiable due to their unique compactness and space-saving designs. They come to the fore when large volumes of abrasive materials need to be transferred under high pressure conditions. This also applies when slurries with a high, mineral based content have to be transferred, in such environments as the mining and/or cement industry.

The four, pre-formed diaphragms which are incorporated in an ABEL HMQ remain stable throughout the duration of the pumping operations. A control valve installed on the hydraulic side of the unit monitors not only the front diaphragm position, but also the rear diaphragm position. This concept of diaphragm monitoring, which provides a high service life standard, is one of the basic reasons behind the reliability and durability of these products.

EVERY ABEL HMQ PUMP is equipped with an integral reduction gear and can be fitted with ball and/or API cone valves. 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), cast steel or stainless steel.

Areas of operation for the ABEL HMQ

- For transfer of slurry or ash
- For filter press feed
- For autoclave and reactor feed
- For mine dewatering
- In the mining industry
- In coal fired power plants
- In the cement industry
- In water works and sewage treatment plants

 Explosion-proof (ATEX) designs are possible

HMT Hydraulic Piston Diaphragm Pumps

Transfer abrasive slurries up to 25.0 MPa



Performance range: up to 600 m³/h (2,640 GPM); up to 25.0 MPa (3,625 psi)

Very high operating pressures in connection with increased flow rates create special environments for pump specifications. When abrasive materials with an increased percent solids content are present, many industrial partners decide on an ABEL HMT.

This simple operating, slow-running Triple Piston Diaphragm Pump operates safely, even when dry, and can be utilized in conditions where the flow rates reach 600 m³/h.

THE HMT PUMPS ARE ALSO EQUIPPED with pre-formed diaphragms to the same specifications as the whole ABEL HM range. The superb resistance qualities of the special diaphragms are constantly demonstrated throughout the whole pumping process as there is no evidence of stretching or shrinking.

In conjunction with our decades of construction experience we are able to set new standards for pumping technology and equipment, products which are regarded as the market leader by many industries around the world.

The pumps in the HMT range are equipped with API cone valves and are also available for reverse-flow for non-stable sedimentary slurries.

Potential media:

- Mineral based slurry
- Fly ash
- Chemicals
- Granulate suspension

Industries:

- Mining
- Coal fired power plants
- Chemical industry
- Petro-chemical

SH Solids Handling Pumps

Difficult medium, extremely high pressure, easy decision: ABEL SH



Performance range: up to 200 m³/h (880 GPM);
up to 16.0 MPa (2,300 psi)

ABEL SH solids handling pumps span a wide performance range and are also suited for a large number of pumping media and applications. These high pressure pumps really prove their worth when extremely abrasive, paste-like and compact media (e.g. dehydrated sewage sludge) have to be conveyed safely at high pressure.

AT ABEL, THIS HIGH-CAPACITY PUMP has extra wall thickness and a large intake valve, which, when combined with a very good filling ratio, produce a service life that is longer than the norm.

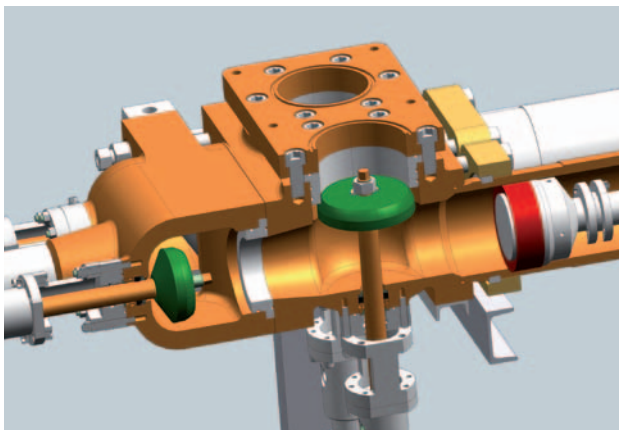
Along with the actual pump unit (consisting of sludge, hydraulic main and valve cylinders) an ABEL SH thick matter pump comprises a total of four components: the actual pump, the hydraulic drive unit, a feed screw to fill the product cylinder, and a control cabinet with PLC.

The programmable logic controller is the “brain” of the system and allows for integration with complex processes and control room systems.

Applications of the ABEL SH

- For the transfer of dewatered sludge or filter cakes from
 - Industry and municipalities
 - Centrifuges, chamber filter presses, vacuum presses, and belt presses
- Feeding incinerators for dehydrated and pre-dried sludge, hazardous waste, chemical residues, and solvents
- In mining, for refilling and transporting paste-like mine slurry

 Available with ATEX certification



Cone valves with elongated valve rods prevent from contamination of the hydraulic system even in case of worn sealings



ABEL SH with double screw feeder for transfer of dewatered sewage cakes

HP/HPT High Pressure Pumps

An efficient, solid purchase: ABEL HP



Performance range: up to 25 m³/h (110 GPM) and 16.0 MPa (2,300 psi)

The HP series offers a triplex plunger pump for high pressure cleaning with up to 16.0 MPa (2,300 psi). This series has proven its worth many times over, especially when used to clean filter cloths for chamber and diaphragm filter presses.

With accessories that are designed to meet the specific needs of cleaning applications, such as the ABEL directional control valve, this series lives up to expectations. The ABEL Series HP pumps can be used in the oil and gas industries, and for feeding combiners in the food industry.

Applications of ABEL high pressure pumps

Cleaning of:

- Filter cloths
- Containers
- Pipes

Feeding of:

- Gas washers and gas dryers
- Reverse osmosis systems
- Reactors
- High pressure injection on gas and oil fields



Our high pressure plunger pumps are also available with ATEX certification for our customers in the chemical and petrochemical industries



HPT: Performance range: up to 80 m³/h (350 GPM); up to 25.0 MPa (3,625 psi)

Especially in process technology, ABEL **HPT high pressure plunger pumps** show a technological edge when used rigorously over a longer period of time. And that applies for quite varied media, such as salt water and salt solutions, acids, margarine, chemicals, and even lightly contaminated fluids. Designed to meet the requirements of the media being pumped, various materials are used, such as high quality stainless steel. Different types of valves are also used, such as cone, spherical cone, and ball valves.

The plunger seal, which is adapted to meet the requirements of the application and pumping media, is made using V-rings or stuffing boxes with flushed or lubricated versions available if required.

Built in mobile turnkey containers, HPT series pumps can be used in a number of applications, especially when you require a high degree of mobility because you need to keep changing locations.



Different media require different sealings

Long-term safety can be planned with ABEL service

ABEL's after-sales solutions are well thought out and geared towards the customer. Efficient investment of time and effort helps keep the pumps performing reliably over the long-term. Our service concepts provide services that offer maximum safety, and yet are still in line with the customer's economic interests.

This service can be put together and accessed according to the specific requirements of the application and customer.

This includes:

- On-site repairs
- Factory repairs
- Preventative maintenance
- Training for the customer's personnel
- Set-up and modification of systems
- Commissioning
- Remote diagnosis via telephone
- Maintenance and maintenance agreements
- Revision service

ABEL'S SPECIAL REVISION SERVICE offers comprehensive assistance for upcoming revisions, modernizations and overhauls.

- Assessment of defects and explanation of causes
- Creation of maintenance plans
- Advice for converting traditionally operated systems to frequency-controlled operation
- Performance tests

ABEL SERVICE. The investment protection concept that can be planned – now enhanced with SCC**/EHS (Environment, Health and Safety) certification.

SCC** and ESH management system

The ABEL service department was certified in accordance with SCC**. ABEL guarantees optimally maintained pumps with a high degree of availability, as well as:

- Responsible compliance with legal and official regulations, clauses, directives and standards to ensure personal and operational safety.
- Preventative measures directed towards occupational safety and health.
- Preventative measures related to environmental protection.
- Routine training and continuing education for employees in the EHS field.
- Certified environment, health and safety protection.



Origin ABEL spare parts assure a high availability of your system



ABEL monitoring systems helps to prevent unscheduled repairs



Worldwide service and spare parts availability – We are there for you where you are



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Solids Handling Pumps
High Pressure Pumps
Marine Pumps

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