

Mining pumps - made in Germany



Use of ABEL HMQ piston-diaphragm pumps in Tailings & Paste transport

pumps for such challenging applications able to withstand such extreme conditions wherever the mine might be.

Recently, ABEL has received orders for HMQ pumps in different locations especially in the Asia-Pacific region for tailings transfer and backfill applications in gold projects and it represents an advance of growth for our company in the global scale. Mining has always been at our heart and the journey is continuing in Africa and Australia where strategic alliances have been made to support the mining sector and provide our worldwide experience and expertise.

Thanks to these properties and design, the pumping equipment offers a long, useful lifetime and satisfies the particular requirements and needs of the tailings transfer and backfilling applications. Put simply, the process can't stop. Therefore, ABEL closely cooperates with its clients and engineers on designing and defining a specific pump for the specific tailings application by adapting its structural design to the specificities of each slurry conditions. The use of pulsation dampener allows a continuous flow discharge of the slurry that preserves pipe works that is crucial in most processes. 

Since the origins of the company, ABEL says it has continuously worked to offer a suitable and complete range of pumps in the mining sector

Mining companies worldwide rely on ABEL as their main supplier for fulfilling their needs in the transfer of abrasive media. End users have identified ABEL's strengths in important mining applications such as dewatering, thickener underflow, filter press feed, tailings management and backfilling, which demonstrates the company's capacity to give successful solutions which cover the most challenging situations.

ABEL has suitable pumps for any type of mining operation, ranging from the extraction of water containing solids from the bottom of the mine, sometimes at depths of more than 1,000 m in deep underground mines, to the transfer at very high pressures of viscous and abrasive media used for mine backfilling.

On every continent there are open-cast mines and underground mines where the process of metal extraction and further concentration (beneficiation in processing plants) is accompanied by the accumulation of large quantities of non-valuable processing by-products effluents or tailings, sometimes used for refilling stopes no longer in use (backfill) or just disposed in large Tailings Storage Facilities (TSF).

Due to increasing environmental awareness, the handling of waste stream tailings from mining processes has become a crucial issue for every mining company nowadays. Thickening the tailings with the highest solids content has become a common method to recover water, reduce the amount of disposed tailings, footprint impact and improve disposal stability, thus reducing risk of possible failures with

conventional impoundment systems and waste of water in the tailings management system. Current technologies (high density thickeners or deep cone thickeners) allow to reach solids content sometimes over 70% by weight (paste tailings) depending on tailings physical and chemical properties. However, it leads to challenging conditions specially with viscous and high abrasive slurries when pumping takes place.

That's exactly where ABEL HMQ piston diaphragm pumps (positive displacement pumps) provide high performance and high reliability even in the most severe applications like cemented backfill or surface paste disposable systems. In the case of conventional thickened tailings, most of the time tailings are transferred through long pipelines to discharge areas that are located several kilometres away and in some cases in topographical high points, thus increasing pumping pressure requirement and need of heavy-duty pumping solutions for slurries containing high solids content.

ABEL HMQ pumps offer maximum availability and versatility of the pumping system with the minimum consumption and mobilisation of operating resources despite possible fluctuations of the pumping properties like solid content, viscosity or product density coming from downstream thickened systems. Mines operate remotely in all continents, under varying climatic conditions, outside in extreme heat or cold, humidity, dirt etc. Despite all these unfavourable conditions, pumps must stay operational and in perfect condition every day, 24 hours and our job is to design and build

ABEL HMQ piston diaphragm pumps represent a solution for every challenging work condition

The introduction of the diaphragm as a means of separation between the slurry and the drive side of the pump allows longer maintenance intervals compared to equipment in direct contact with slurry.

Main Characteristics

ABEL HMQ performance: up to 400 m³/h and up to 23 MPa

Advantages

- Transfer of solids, pumping of fluids with solids content concentration > 75% w/w
- Pre-formed diaphragm: separation between slurry and drive
- Extra-large suction valves with high degree of volumetric efficiency
- Yield stress > 200 Pa
- Strokes per minute are low and ensure a low mechanical wear
- Individual, customised case-by-case design and dimensioning