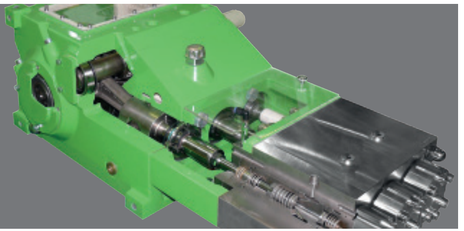
KAMAT – Engineering for Engineers

High power with precise effects

High-Pressure Pumps - Compact and High-Performance



With integrated gear reduction and compact dimensions, KAMAT high-pressure pumps are the ideal tool for numerous applications. Simple operation and maintenance are defining features of KAMAT plunger pumps, as are high modularity and flexibility in regard to delivery rates, pressure settings and fluids. For operating pressures from 0 to 3,500 bar, the input power ranges from 45 to 1200 kW.

KAMAT Hydraulics – Energy for Force and Movement

Based on KAMAT high-performance pumps, KAMAT supplies sophisticated hydraulic systems utilising many years of know-how, but designed entirely according to the customers' wishes.

KAMAT specialises in the development of water-hydraulic systems – of vital importance in mining.

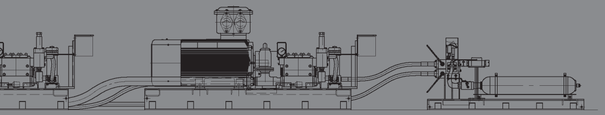
In order to ensure the performance and reliability of the water-hydraulic systems, KAMAT's highly specialised engineers develop all the components required for these systems. The engineering and quality that make KAMAT a leader in the mining hydraulics industry all come from KAMAT's own manufacturing facilities. The corporate philosophy maintains that this is the only way to be certain of reliably fulfilling the special design requirements of water hydraulics.

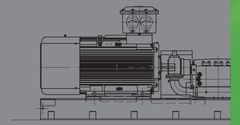
High-Pressure Pump Systems

Upon request, KAMAT supplies individually adapted complete pump systems, containing all components from the drive units, through the control systems, all the way up to the travel mechanisms. The KAMAT engineers also develop customer-specific solutions for special fluids and unusual high pressure pump system utilisation areas.

KAMAT Accessories – Without Compromise

High-performance high-pressure valves are a prerequisite for the reliable continuous operation of plunger pumps. In addition to this, KAMAT offers a wide range of electrically and mechanically controlled high-pressure tools with precision rotation nozzles, reliable tools for high-pressure cleaning.





KAMAT International

Professional partners in 54 countries

One hundred percent of KAMAT high-pressure technology is manufactured in Witten, but eighty percent of it is used internationally. In every country where KAMAT technology is used, KAMAT's intensively trained representatives provide comprehensive advice and customer services, as well as a quick spare parts service.

This ensures that the quality standard inherent in all KAMAT products is consistently maintained.

KAMAT GmbH & Co. KG
Salinger Feld 10
58454 Witten, Deutschland
Fon +49 (0) 23 02 / 89 03-0
Fax +49 (0) 23 02 / 80 19 17
www.KAMAT.de
info@KAMAT.de

KAMAT

High Pressure for Mining

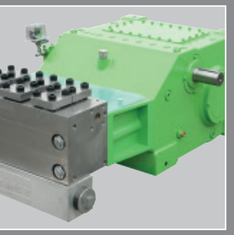
Mining Hydraulics

Individual solutions for the highest safety requirements

Plunger Pumps and High-Pressure Systems for Underground Use

KAMAT Pumps – Always at their Best

Pump Systems – High Performance Series



For many years KAMAT has been developing and producing plunger pumps and hydraulic stations for the global underground mining industry. Today there are in particular high-capacity longwall faces with KAMAT plunger pump technology in the USA, Australia and China.

In the extraction of coal and minerals, longwall mining is the most efficient excavation process. Modern longwall mining uses hydraulic shield support systems to support and secure the excavated space in the area being mined.

The increasing length of the longwall faces, the ever-increasing forces that need to be supported, and hence the increasing hydraulic pressures and cylinder diameters, as well as the increasing excavation speed of the extraction machinery, place high demands on the hydraulics stations used. These have to supply the required volume flow rate of hydraulic emulsion at the required pressure, reliably and with a high availability.

The performance classes available from KAMAT have proven to be optimal, as well as the fact that KAMAT products are designed to pump even pure water.

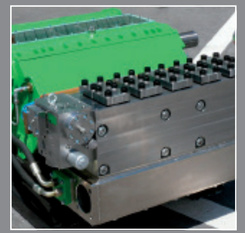
KAMAT high-pressure pumps can be placed in central hydraulics stations to supply entire mines, or in stations close to the longwall face in order to supply the longwall face with the necessary hydraulic fluid.

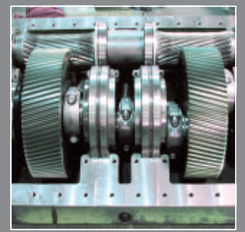
The mining industry typically uses pumps with power ratings ranging from 132 to 350 kW. KAMAT has pumps with power ratings of up to 1,200 kW. The installed electrical power ratings of the entire station can exceed 2,000 kW in individual cases, and also provide the necessary pressure for dust supression by spraying water.

KAMAT takes after-sales care seriously. The prompt supply of replacement parts and support for the stations are guaranteed by many partners worldwide.

Benefits

- **decades of experience with hydraulic pressure ranging up to 3500 bar**
- **decades of experience with drive power ratings up to 1200 kW per pump**
- **pump supplier for many high-capacity longwall faces, including in China, Australia, Russia and the USA**
- **worldwide network of representatives and partners**





KAMAT supplies pumps of all required performance classes: from 45 kW to 1,200 kW, from 0 bar to 3,500 bar and up to 3,939 l/min volume flow rate for each pump: Performance characteristics that exceed all requirements in mining hydraulics.

In addition, KAMAT has long been able to guarantee high delivery rates of up to 640 l/min per pump, without the use of booster pumps. The advantages are obvious: fewer parts, fewer electrical connections, fewer components at risk of failure, fewer shear effects on the emulsion and hence less foam.

Integrated gear reductions with force-fed oil lubrication, all parts in fluid contact are stainless and plungers are made from solid ceramics make the KAMAT pump technology robust and compact, guarantee a low failure rate, high performance and a long service life.

KAMAT pumps function perfectly well without "drinking water".

Poor water quality and large particle sizes of up to 250 µm filtration, conditions met all too frequently in mining, are no problem.

One of the major requirements for pumps and systems in mining is a wide adjustment range for input speeds. KAMAT pumps are specially designed to meet this requirement.

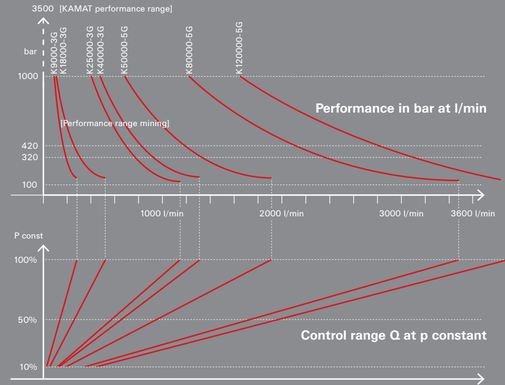
Ultimately, all productivity is dependent on the service factor. KAMAT pumps are simple and quick to service without the need for dismounting the head at any time, hoisting gear f.e. is never needed.

In addition, KAMAT uses identical parts wherever possible, in order to guarantee straightforward stocking of replacement parts: low costs, quick availability and the shortest possible interruption in operation.

The new generation of pumps have balanced crankshafts with three or five plungers, producing extremely low values for vibration and noise emissions.

Benefits

- **45 to 1200 kW**
- **0 to 3,500 bar**
- **up to 3,939 l/min volume flow rate per pump**
- **integrated gear reduction with force-fed oil lubrication**
- **plungers made from solid ceramics**
- **all parts in fluid contact stainless**
- **compact dimensions, good power to weight ratio**
- **servicing with minimal operational interruption**
- **consequent usage of interchangeable parts**
- **low vibration and noise emission values**



KAMAT pump systems are designed for use on foundation frames, caterpillar tracks or suspended in the overhead monorail.

Our systems with variable speed drives have been in use underground around the world since 2002. These systems work particularly gently on pumps, hoses and pipelines, and always maintain the required nominal pressure.

Operating the KAMAT systems also only requires a single frequency converter. As a result of the astonishingly wide adjustment range for the input speed, between 10 and 100% of the nominal volume flow rate can be freely selected.

KAMAT systems can naturally also be fitted upon request with electronic control systems, data transmission to the central mine control station and a remote control system, as well as an online emulsion monitoring system and a fully electronic concentrate dosing system.

Benefits

- **only one frequency converter required per system**
- **volume flow rate between 10 and 100 %**
- **energy-saving thanks to frequency control**
- **electronic control system, remote control system, remote data transmission, automatic emulsion mixing**
- **unmanned operation**
- **fully electronic emulsion measurement and dosing system**