

**Going for gold.
KSB pumps for mining applications.**



All the right elements

A look back over the history of KSB reveals over 135 years of innovative pumps and valves. Groundbreaking and enduring. The KSB reputation stands for foresight with experience – the right elements for designing pumps and valves that uniquely pioneer new industry standards and time and again deliver steadfast performance in tough mining applications.

Take tons of solids, add liquid and shake vigorously – a recipe for slurry. Whatever the mineral, KSB slurry pumps can finesse the complexity of tar sands and phosphates or transport the glint of gold, copper and metal ores. Beyond mineral processing, KSB's expertly engineered and robust pumps and valves can also support secondary operations like chemical processing or wastewater pumping.



A core of experts

KSB combines superior strength corrosion and abrasion resistant materials with an expert's eye for detail. To design high-performance pumps for mining, KSB teams with its subsidiary GIW, a global leader in slurry pump manufacturing for over 90 years. This distinctive partnership delivers single source solutions for mining applications around the world. Whether mining ore in Indonesia or tar sands in Canada, the robust pumps engineered by GIW and KSB can move hundreds of different materials safely and efficiently.

A wide network of experience under one roof – KSB.

KSB/GIW Headquarters
Grovetown, USA



The backbone of every mining operation



GIW Hydraulic Laboratory

An essential part of any mining infrastructure, KSB pumps help ensure cost-effective, continuous operations. Our solutions always focus on the customer, so KSB strives to make pump planning easy by providing products for every step of the mining process – solutions that have proven themselves over time. From the heart of the mine right to the end product, KSB powers the future of high quality, safe mining.

Mining Slurry Applications

Hardrock Mining/
Industrial Commodities
Dig, Concentrate, Process

- Bauxite/Alumina
- Coal
- Copper
- Diamonds
- Dredging
- Gold
- Iron Ore
- Kaolin
- Metal Refineries
- Nickel
- Oil Sands
- Phosphate
- Sand and Gravel
- Titanium
- Tunneling
- Zinc

Mining Non Slurry Applications

- Auxiliary circuits
- Chemical treatment
- Dewatering
- Water supply
- Fire fighting systems

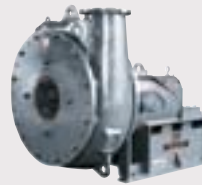
KSB pumps for the long haul

Durable, innovative KSB pumps go the whole distance to deliver even the toughest material down miles of pipeline. Decades of hands-on experience in pump engineering have created high performance, low maintenance pump solutions, ideal for modern mining operations. KSB streamlines hydrotransport by supplying superior, time proven pumps and valves also for auxiliary processes like chemical pumping or wastewater handling. One-stop shopping for every level of mining.

The following is a selection of the many superior pumps and valves KSB can supply for mining operations.

LSA-S Standing up to severe conditions

Even the most challenging slurries can't stop the LSA-S. Hard iron pumps keep the flow steady for ore tailings transport as well as for plant processes. The hard metal wet end with cartridge bearing assembly simplifies installation. Maximum long life operation and easy maintenance are ensured by a single wall construction. Dependability that pays off.



Q m ³ /h	14,000
H m	up to 90
p bar	up to 16
T °C	up to +120

WBC Cool under pressure

Ideally suited for the unpredictable conditions connected with ore and tailings transport, such as sudden pressure surges, WBC pumps are distinguished by a patented hydraulic design that minimizes wear and tear. The shell, built to withstand high-pressure applications, reduces structural failures. A pump for the long haul with unbeatable performance.



Q m ³ /h	13,600
H m	up to 80
p bar	up to 40
T °C	up to +120

LCC-M/LCC-R Fortified pumping

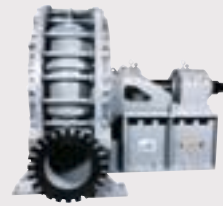
Mineral processing with a high discharge head or mildly corrosive slurries demands a reliable pump that's easy to maintain. The LCC-M consists of a hydraulic wet end with three parts: casing, impeller and suction plate/liner, guaranteeing easy removal to facilitate upkeep. Interchangeable rubber and metal design allows best material choice for any application. Unbeatable, stress free reliability.



Q m ³ /h	3,865
H m	up to 90
p bar	up to 16
T °C	up to +120

TBC Ready for heavy-duty action

The TBC pump sees action wherever severe duties are called for. The horizontal construction with centrifugal end suction promises maximum resistance plus simple maintenance. The single wall design transfers stress loads to side plates minimizing structural failure and maximizing long life operability.



Q m ³ /h	18,200
H m	up to 90
p bar	up to 55
T °C	up to +120

LSR Enduring success

The rubber lined heavy-duty LSR excels under hard conditions such as mill circuit and other abrasive applications. The ultra modern hydraulic design guarantees operating efficiency, outpacing all other pumps. Plus, the cartridge bearing assembly is easily removed for minimized maintenance and uninterrupted power.



Q m ³ /h	9,000
H m	up to 60
p bar	up to 14
T °C	up to +120

LCV Top value adaptability

This rugged vertical sump pump provides good value for money. It combines corrosion resistant alloys with expertly engineered hydraulics for high durability and efficiency. Ideal for aggressive, corrosive and abrasive slurry applications, the LCV time proven design includes replaceable wet end parts for easy adjustment and adaptability.



Q m ³ /h	1,360
H m	up to 38
p bar	up to 14
T °C	up to +120

UPA 200-250c

Design: Single- or multistage centrifugal pump in ring section design for vertical installation. Non return valve integrated in the discharge nozzle. Applications: handling of clean or slightly contaminated water in general water supply, irrigation and spray irrigation systems, maintaining/ lowering of ground water levels, fountains, pressure boosting systems, in mines, sprinkler systems, emergency water supply systems, etc.



DN	200 - 250
Q m ³ /h	up to 840
H m	up to 460
p bar -	
T °C	up to +50
n min ⁻¹	up to 2,900

Multitec

Design: Multistage horizontal centrifugal pump in ring section design, long coupled and close coupled variant, with axial or radial suction nozzle, cast radial impellers. Design to ATEX.

Applications: water and drinking water supply systems, general industry, pressure boosting systems, irrigation systems, in power stations, heating, filter, fire fighting, reverse osmosis and washing plants, snow guns, etc.



DN	32 - 150
Q m ³ /h	up to 850
H m	up to 630
p bar	up to 63
T °C	up to +200
n min ⁻¹	up to 2,900

KWP

Design: horizontal, radially split volute casing pump in back pull out or close coupled design, single stage, single entry, available with various impeller types: non clogging impeller, open multi vane impeller, free flow impeller. Design to ATEX. Applications: handling of pre-treated sewage, waste water, all types of slurries without stringy substances and pulps up to 5% bone dry with a maximum density of 1.1 kg/dm³.



DN	40 - 800
Q m ³ /h	up to 1,300
H m	up to 100
p bar	up to 10
T °C	up to +280
n min ⁻¹	up to 2,900

Amarex KRT

Design: Vertical, singlestage submersible motor pump in close coupled design, various impeller types, for wet or dry installation, stationary and transportable version. Design to ATEX. Applications: handling of all types of abrasive or aggressive waste water in water and waste water engineering as well as industry, especially untreated sewage containing long fibres and solid substances, fluids containing gas/air, as well as raw, activated and digested sludge.



DN	40 - 700
Q m ³ /h	up to 10,800
H m	up to 100
p bar	-
T °C	up to +60
n min ⁻¹	up to 2,900

CPKN

Design: Horizontal, radially split volute casing pump in back pull out design to EN 22 858 / ISO 2858 / ISO 5199, single stage, single entry, with radial impeller. Also available as variant with "wet" shaft, conical seal chamber, heatable volute casing (CPKNO-CHs) and/or semi open impeller (CPKNO). Design to ATEX. Applications: handling of aggressive liquids in the chemical and petrochemical industries as well as in refinery systems.



DN	25 - 400
Q m ³ /h	up to 4,150
H m	up to 185
p bar	up to 25
T °C	up to +400

Etanorm/Etanorm R

Design: Horizontal, long coupled, single-/two-stage volute casing pump in back pull out design. Replaceable shaft sleeves/shaft protecting sleeves and wear rings. Design to ATEX. Applications: spray irrigation, irrigation, drainage, water supply systems, heating and air conditioning systems, condensate transport, swimming pools, handling of hot water, cooling water, fire fighting water, oil, brine, drinking water, brackish water, service water, etc.



DN	32 - 300
Q m ³ /h	up to 1,900
H m	up to 102
p bar	up to 16
T °C	up to +140
n min ⁻¹	up to 2,900

Omega

Design: Axially split, single-stage volute casing pump for horizontal or vertical installation with double-entry radial impeller, connection flanges drilled to DIN, ISO, BS or ANSI standards.

Applications: pumping untreated and clean water, service water and seawater in waterworks, irrigation and drainage pumping stations, power stations, fire fighting systems, shipbuilding and petrochemical plants.



DN	80 - 350
Q m ³ /h	up to 2,880
H m	up to 170
p bar	up to 25
T °C	up to +105
n min ⁻¹	up to 2,900

ZTS

Design: Butt weld end gate valve with pressure seal bonnet, billet forged body, seats made of wear and corrosion resistant stellite, flexible wedges for exact adaptation to valve seats.

Applications: in industrial plants, power stations, process engineering and shipbuilding. For water, steam, gas, oil and other non-aggressive fluids. Other fluids on request.



DN 50-600
p bar up to 600
T °C -10 to +650

Sisto KB

Design: Flanged end diaphragm valve; shut off and sealing to atmosphere by diaphragm; straight way pattern, position indicator with integrated stem protection. DN125-200 with threaded bush. All moving parts are separated from the fluid by the diaphragm. Maintenance free. Applications: in building services, industrial plants, power stations; suitable for abrasive and aggressive products such as service water, waste water, acids, alkaline solutions, sludges and suspensions.



DN 15-200
p bar up to 10
T °C -10 to +140

Staal 40 Akk

Design: Flanged or weld end swing check valve, with bolted cover, internal stem, body of forged or welded steel construction; seats made of wear and corrosion resistant 17% Cr steel.

Application: in industrial plants, power stations, process engineering and shipbuilding. For water, steam, gas, oil and other non-aggressive fluids. Other fluids on request.



DN 80-400
p bar 10-40
T °C -10 to +400

Isoria 25

Design: Centered disc butterfly valve with elastomer liner. With lever, manual gearbox, pneumatic, electric or hydraulic actuator. Semi-lug type body (T2) or U-section body with flat faces (T5). Permissible operating pressure up to 25 bar. Body types T2 and T5 are suitable for downstream dismantling and dead-end service with counterflange. EN, ANSI, JIS connections possible. Application: shut-off service for liquids only.



DN 32-1000
p bar up to 25
T °C -10 to +80

Nori 160 ZXL Top value adaptability

Design: Flanged or weld end globe valve with gland packing, shut-off or throttling valve plug, rotating stem; seats made of wear and corrosion resistant 17% Cr steel or stellite.

Application: in industrial plants, power stations, process engineering and shipbuilding. For water, steam, gas, oil and other non-aggressive fluids. Other fluids on request.



DN 10-200
p bar 63-160
T °C -10 to +550



Modernizing mining

On the oil sands of Canada, mechanical diggers mine the entire sandy layer. KSB's subsidiary GIW was called in to help cut costs of this complicated endeavor. A series of LSA pumps replaced tricky and unreliable conveyor belts with hydraulic transfer. In action around the clock, these robust slurry pumps now move the muddy mixture of oil sand and water along pipelines straight into the plant's separation vessels. A new generation of mining.



Partners in phosphate

Phosphate deposits in central Florida formed 10 to 15 million years ago. Today, over 75% of America's supply is produced in Florida. The phosphate mixture found underground is removed to a slurry pit where high-pressure water guns turn the mixture into slurry to be pumped to the plant. GIW recently developed a new LSA pit pump for a phosphate customer to improve suction lift and even the spikes in hydrotransport across a ten-mile matrix pumping system. The result: an extremely broad range of high efficiencies, illustrating how a partnership and progress can grow hand in hand.



KSB Service – a global thinker at your door

Service which lasts as long as our technology – a lifetime. Your KSB contact person will continue to support you after sales and advise you on spare parts, upgrades and service. A familiar face that stands for KSB excellence and knows the mining in-

dustry through and through. And with a technical focus on cost-effectiveness, our personal service balances world-class engineering with achieving a high return on investment. KSB thinks it all through and delivers – wherever you are in the world.

Dedicated to achieving results

A copper mine in a tropical forest in Indonesia, one of the largest and most remote in the world, was experiencing severe wear and tear of its parts. KSB's subsidiary GIW went back to the drawing board to develop a special heavy-duty version of the LSA, creating an optimized pump with an operating life of 2,500 hours. The perfect solution for one of the most demanding mining applications in the world.



Bringing copper to the world

High in the hills of northern Chile lies the Atacama Desert – one of the most productive copper mining regions in the world. These mines move approximately 350 million tons of material a year. The impressive operation includes a filtering plant, pulp ducts for transporting copper concentrates and shipping facilities at the Port of Coloso. The various KSB pumps support smooth processing every step of the way, guaranteeing a steady flow of copper from the desert hills to the coastal ports and around the world.



Iron ore reserves on a grand scale



Welcome to the Kursk region of Russia where, in one deposit, 11 billion tons of ore spread out over a field 2.5 km wide and more than 7 km long. For the smooth production of pellets, iron ore concentrate (including dried iron ore concentrate), sintered iron ore and blast-furnace ore, KSB supplies rugged rubber lined pumps. Where metal might fail, rubber keeps abrasive solids flowing. A hard job, but not too tough for KSB.



Contact your personal KSB representative for a personal consultation and to set up an on-site meeting. Our experts and engineers aren't afraid of getting down and dirty to tailor our world-class technology to your mining challenges. Get solutions that go deeper today.



We look forward to hearing from you.

Your local KSB representative:



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