

Heavy Duty Slurry Pumps

K-VS™ Vertical Sump

Reliability, Efficiency and Versatility



 **KETO**
MINING PUMPS & SYSTEMS



“Committed to delivering industry leading products and services which meet the technical and commercial challenges of our customers”

We're specialists in the design, manufacture and supply of slurry pumps, parts and associated products. As well as offering complete slurry pump packages to the global mining market, we can also support the existing market with spares for many other pump brands. Our customer focussed aftermarket team offer a comprehensive range of services tailored to your needs; from pump selection and training through to commissioning, technical support and servicing.

Image left: Final inspection of KETO K-VS™ Slurry Vertical Sump pump before despatch to mine site

Expansion

KETO Pumps arose in 2012 from the merger of KETO Pumps Australia, First Africa Pumps and Tri-Invest. Following this consolidation, KETO Pumps continue to grow across Australia, Africa and the Americas providing customers with unparalleled breadth and depth of solutions and services.

Excellence

You can rely on us. We're backed by our parent company Clyde Blowers Capital, a private equity company specializing in engineering. Our sister companies include David Brown Gear, Hydreco, Parsons Peebles, Moventas and Santasalo. We pride ourselves in operational excellence. It's achieved through collaboration with our customers on product and service development.

Leaders

We are ahead when it comes to longevity and bringing customers operational savings. We believe that these achievements and our focus on the quality of our equipment and services make us product and engineering leaders. Working ever closer and longer with our customers will produce further success, which will give our customers even more in terms of better operations, reduced cost and greater profitability.

KETO heavy duty slurry pumps designed for the most arduous pumping applications

Providing complete pumping solutions

The mining industry demands reliable and efficient equipment to operate in typically harsh and remote environments. Mining pumps are no exception. KETO Pumps and parts are specifically designed to endure in the toughest services, offering the most reliable and efficient choice. From long life impellers, to unique sealing solutions we can offer an upgraded part or a complete pumping solution.

- Extended wear life for greater value
- Quality manufactured materials
- Increased efficiency
- Reduced operating costs
- Interchangeable with legacy suppliers
- Short lead times
- Reduced downtime and more reliable service intervals
- Outstanding pre-sale and post sale support
- Prompt and reliable delivery of replacements

Innovative design, reduced costs and greater efficiency

Working closely with system designers and end users, our team of pump industry experts combine the latest design and testing technologies with their vast amount of operational experience to develop high performing pumpsets and parts.

KETO Pumps have developed a range of slurry pump products which feature patented innovative designs that can significantly reduce the operational costs of slurry pumping. By addressing key performance areas, KETO Pumps provide reliability, longer service life and greater efficiency. Whatever the requirement KETO works closely with each customer to determine the best pumping solution.

KETO Pumps global network of manufacturing and service centre facilities are at hand to deliver unbeatable product availability and full technical support. We are committed to providing every customer with outstanding customer service and superior products of the highest quality. For more information on our products and services please visit www.ketopumps.com.

K-VS™ Vertical Sump pump range

KETO Pumps versatile solutions

The KETO K-VS™ Vertical Sump pump range is designed for handling abrasive and corrosive liquids and slurries, while submerged in sumps or pits. With a range of genuine KETO parts and different material combinations K-VS™ slurry pumps have the versatility to ensure the most appropriate pumping solution can be provided for any given application.

- **Standard setting depths:** from 0.9 m to 2.4 m
- **Range from:** 38 mm (1.5") to 152 mm (6")
- **Flow rates to:** 580 m³/hr (2,554 USgpm)
- **Total head to:** 60 m (197 ft)
- **Pressures to:** 2,100 kPa (305 psi)
- **Material options:** chrome iron, rubber, urethane, neoprene
- Specialist materials available on request for highly acidic or caustic duties

Improve Performance

KETO Pumps and replacement parts proven designs can achieve efficiency gains of up to 10% and component wear life of up to 700% longer than that achieved by other brands, resulting in significantly reduced operating costs and greater plant production.

Typical applications

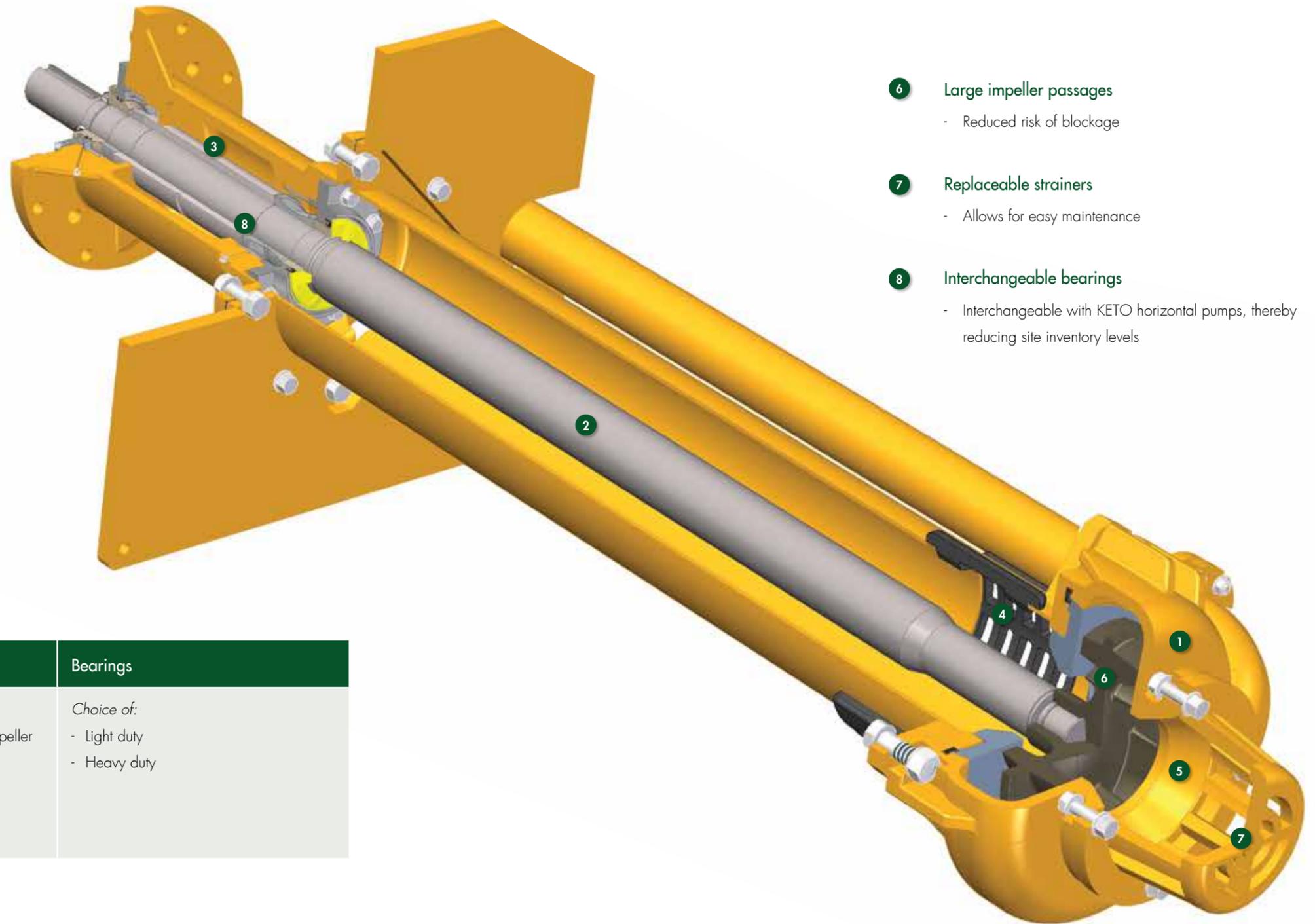
- Mineral processing
- Chemical processing
- Coal preparation
- Effluent handling
- Gravel & sand



KETO K-VS™ Vertical Sump pump

- features and benefits

- 1** **Concentric casing**
 - Minimises shaft load over wide operating range and reduces wear
- 2** **Cantilever heavy duty shaft design**
 - Requires no shaft seal which translates to no shaft sealing problems and no wetted bearing in the slurry
- 3** **Cast bearing housings**
 - Superior critical speeds and lower vibration levels than competitor equipment
 - Extended bearing life
- 4 5** **Top and bottom inlet**
 - Suitable for snore conditions, with no need for priming and self venting



- 6** **Large impeller passages**
 - Reduced risk of blockage
- 7** **Replaceable strainers**
 - Allows for easy maintenance
- 8** **Interchangeable bearings**
 - Interchangeable with KETO horizontal pumps, thereby reducing site inventory levels

Wet End Materials	Impeller	Bearings
<i>Choice of:</i> <ul style="list-style-type: none"> - Natural Rubber - PU01 Urethane - SR42 Neoprene - WI05 27% Chrome - Specialist materials available on request 	<i>Choice of:</i> <ul style="list-style-type: none"> - Standard double suction slurry impeller - Vortex impeller 	<i>Choice of:</i> <ul style="list-style-type: none"> - Light duty - Heavy duty

*Standard range shown above, specialist engineered units are available on request.

Optional arrangements and features

Pump Size	1.5		2.5		4		6	
Model	VS		VS		VS		VS	
Bearing Assembly Type	40		65		100		150	
Standard Shaft Lengths	0.9m	E	0.9m	E	0.9m	E	0.9m	E
	1.2m	G	1.2m	G	1.2m	G	1.2m	G
	-	-	1.5m	J	1.5m	J	1.5m	J
	-	-	1.8m	L	1.8m	L	1.8m	L
	-	-	-	-	2.1m	N	2.1m	N
	-	-	-	-	2.4m	Q	2.4m	Q
Wet End Casing	Natural Rubber		Natural Rubber		Natural Rubber		Natural Rubber	
	PU01 Urethane		PU01 Urethane		PU01 Urethane		PU01 Urethane	
	SR42 Neoprene		SR42 Neoprene		SR42 Neoprene		SR42 Neoprene	
	WI05 27% Chrome		WI05 27% Chrome		WI05 27% Chrome		WI05 27% Chrome	
Impeller Style	Double Suction		Double Suction		Double Suction		Double Suction	
	Vortex		Vortex		Vortex		Vortex	
Impeller Materials*	Natural Rubber		Natural Rubber		Natural Rubber		Natural Rubber	
	PU01 Urethane		PU01 Urethane		PU01 Urethane		PU01 Urethane	
	SR42 Neoprene		SR42 Neoprene		SR42 Neoprene		SR42 Neoprene	
	WI05 27% Chrome		WI05 27% Chrome		WI05 27% Chrome		WI05 27% Chrome	

*Other materials available on request

Impeller Options

Standard double suction slurry impeller

- Ideal for general sump services

Vortex impeller

- Ideal for air entrained duties and fragile pumpages such as carbon transfer



KETO Pumps offer a wide range of configurations allowing the pump to be tailored to a specific application

Wet End Options

Wetted components are available in a wide range of alloys and elastomers. KETO selects the optimum combination of materials for maximum resistance to wear in virtually any industrial application, including those demanding both erosion and corrosion resistance and where larger particles or high density slurries are encountered. A wide range of wet end materials are available including:

PU01 urethane

- A special grade rubber is available for services which are moderately acidic, where the slurry comprises fine particles or contain oils

Natural rubber

- This is our recommended standard grade rubber for use in corrosive services where 27% chrome is not suitable

WI05 27% chrome iron

- Recommended for the majority of sump services, this slurry grade white iron ensures tramp washed into sump as well as sharp particles and elevated temperature slurries are handled with ease



Metal wet end



Natural rubber / urethane wet end

Bearing Assembly Options

The heavy duty cantilever shaft avoids the need for lower submerged bearings, which can be the cause of early bearing failure.

- Heavy duty roller bearings, located above mounting plate
- Bearings are not submerged
- Labyrinth/flinger bearing protection
- Rigid, large diameter shaft
- The vertical cantilever design with no gland or submerged bearings avoids the need for expensive gland or bearing flushing water



Heavy Duty Bearing

KETO K-IBA™ heavy duty

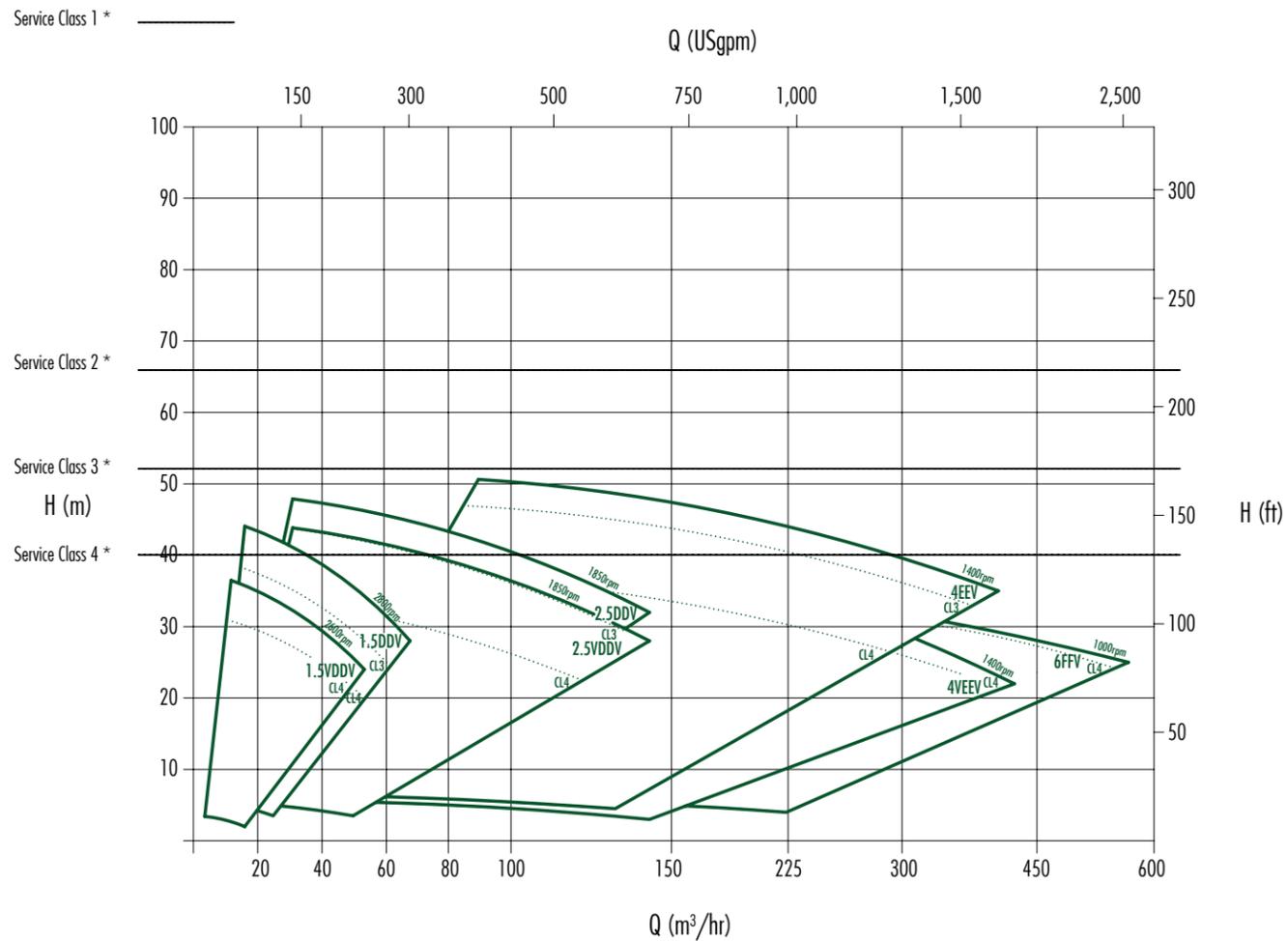
- Shaft has wide diameter with larger bearings to reduce deflection and increase long bearing life

Light duty

- Ideal for common pit depths
- Interchangeable with dominant brand

Standard hydraulic range - coverage chart

K-VS™ Slurry Pumps Range Coverage Chart



* Service Class X - maximum head per stage per Hydraulics Institute recommendations for acceptable wear.
 * CLX - based on maximum operating speed for rubber lined pumps per Hydraulics Institute recommendations for acceptable wear.
 Class 1 - 38m/s maximum peripheral speed
 Class 2 - 28m/s maximum peripheral speed
 Class 3 - 26m/s maximum peripheral speed
 Class 4 - 23m/s maximum peripheral speed

Global aftermarket solutions

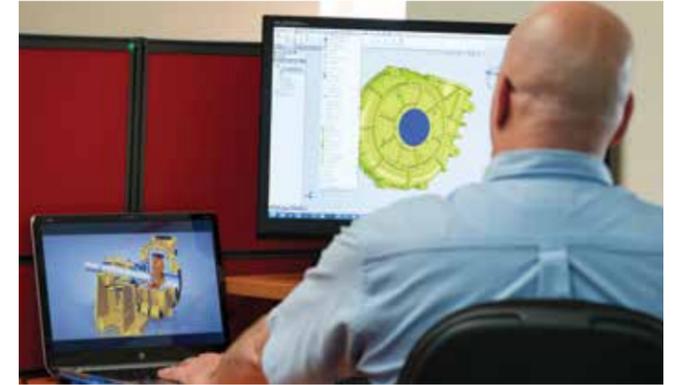
Service Solutions

KETO Pumps understand the process and demands of the mining industry and can offer comprehensive services tailored to your needs. Our global network of service facilities are fully equipped with the latest technology and equipment to ensure your pump, whatever the make or model, is up and running, optimizing performance and minimizing downtime.

KETO Pumps offering includes service exchange programmes for slurry pumps and slurry pump bearing assemblies. The KETO Pumps service exchange programme has been established to allow fast delivery of critical components for the overhaul and other necessary pump repairs. All remanufactured products are rebuilt to as new condition therefore all service exchange products are supplied with new product warranty.

The combination of our in-depth technical expertise and first-class facilities ensures reliable quality, delivery and service every time. Our service offerings include:

- Installation and commissioning
- Inspection and maintenance
- Repair and overhaul
- Service exchange programme
- Technical services
- Pump assessment
- Upgrades and re-rates
- On-site / off-site support
- Training
- Spare parts



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