

# MINING

REVIEW AFRICA

**pump & abrasion**<sup>®</sup>  
TECHNOLOGIES

**CURVE slurry pump**  
at the top of its  
game



## WEST AFRICA

Juniors with major appetites

## IN THE SPOTLIGHT P6

“Through digital transformation, we can improve the turnaround times and complexities in the business,” **Matimba Mahenge**, Barloworld Equipment chief business development officer for southern Africa



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## PUMP AND ABRASION TECHNOLOGIES

# CURVE slurry pump at the top of its game

Pump manufacturer **Pump and Abrasion Technologies** has achieved numerous installation successes since unveiling its **CURVE** range of slurry pumps in 2016. These successes are a true testimonial to the exceptional design of what could be considered one of the best slurry pumps on the market.

**T**he technology employed in the CURVE range represents a spectrum of advantages bundled together to deliver a tangible step-change and ultimate benefit to our clients. The clean-sheet design approach adopted in the development presented an opportunity to critically evaluate every aspect of centrifugal slurry pump design. A central objective in the development of the CURVE range was to minimise the adoption cost of the new technology. Therefore, CURVE technology can be retrofitted to legacy pumping systems with minimal changes to piping required. Existing equipment with outdated technology can thus be upgraded without the need to change the base or mechanical-end, depending on the specific model.

The considerations for the CURVE technical design firstly focused on the internal hydraulic layout. Two fundamental elements prompted special attention, namely specific geometric size and the exact profiles of hydraulic passage through the pump. The specific geometric size of a centrifugal pump refers to the rotational speed of the pump relative to the flow rate. As such, it is the fundamental size of the individual model and represents a key dimensionless determinant in the trade-off between capital cost and in-situ wear life. When plotting specific geometric size against total lifecycle cost there is a point where capital and operational costs achieve a combined optimum.

“The exciting design of the CURVE slurry pump range encapsulates key fundamentals – which ensures the lowest operating cost, improved power consumption, extended wear life cycles and industry leading gland sealing to avoid unnecessary and costly downtime due to secondary equipment failure. This is all in addition to our over-arching approach focused on enhancing and promoting a



▲ The CURVE pump lifting hooks are designed to assist with the safe and positive location and lifting of pumps

▲ A full range of fitting tools for the entire CURVE range has been designed to meet specific customer expectations

safer product which is easier to maintain and operate,” says James Pienaar, sales director at Pump and Abrasion Technologies.

“The CURVE pump is the best possible slurry pump solution for clients in the mining industry. The success we have achieved speaks true to my statement, and I feel that the client finally has a solution tailored to his exact needs and

requirements. At Pump and Abrasion Technologies our ethos ensures that our clients are the most important aspect of our business and thus we need to ensure each CURVE pump installation exceeds all expectations,” Pienaar continues.

The CURVE pump has to date delivered on the ideas which were first conceptualised by the team. It minimises

the adoption cost of new technology and consequently can be retrofitted to legacy pumping systems with minimal changes to piping required.

Since the inception of the CURVE range of slurry pumps the following successes have been achieved:

- Successful installation across **eight countries**;
- The CURVE range is now successfully operating on **three continents**;
- The CURVE range has been chosen as the preferred slurry pump in **numerous**

**Greenfields** projects and applications worldwide;

- A total of **53% savings on total ownership cost** achieved (on average) for the end user.

#### New addition

The latest addition to the CURVE S-range, the CURVE S400 was in 2018 successfully dispatched to a prominent gold producing client for its mill circuit application. Conservative prediction calculations reveal the potential for

savings up to US\$500 000 per year thanks to the pump – with a further increase in life cycle of up to 200%.

“We are very excited and proud of the latest addition to the CURVE family. The CURVE S400 incorporates all the features that has made the CURVE S-range so successful. This is a large pump aimed at addressing clients’ frustrations about the effect of frequent failures resulting in very long downtime. The CURVE S400 was designed to ensure much longer wear life, which limits maintenance interaction with the pump. When maintenance has to be done, the mean time to repair is significantly lower and the risk rating is reduced by more than 60%,” says Zak van der Westhuizen, general manager at Pump and Abrasion Technologies.

“Slurry pumps and slurry pump maintenance account for a large portion of any plant engineer’s budget. Pump and Abrasion Technologies has always been looking for ways to assist our clients in driving down these costs through improved pump selection strategies, improved material composition of wear components, client inventory cost reduction and innovative pricing strategies,” Van der Westhuizen continues.

## WHAT DOES THE CURVE PUMP RANGE MEAN FOR YOUR OPERATION?

### Total ownership cost (TOC) reduction

- o TOC reduction due to optimised CAPEX and OPEX pumping package (between 40 and 60%)
- o Reduced downtime during maintenance intervals (up to 80% reduction)

### Longer wear life

- o Longer time between maintenance intervals
- o Optimised wear material distribution
- o Significantly reduced sealing maintenance due to Hi-Cr shaft sleeve and lantern ring

### Improved efficiency

- o Matched impeller inlet profiles for optimum wear
- o Matched shroud and impeller faces for reduced recirculation
- o Higher efficiency vane profile

### Lower power consumption throughout the lifecycle

- o Improved flow profiles reduce wear rate and maintain efficiency throughout operational life
- o Adjustable liners reduce recirculation, increasing pumping efficiency

### Improved safety during maintenance

- o Volute anchors for maximum safety during assembly
- o Clip-in suction joint
- o Single piece volute liner
- o Rear split face casing encapsulates entire liner – class-leading safety
- o Easy to install parts due to design and form
- o Easy three step assembly

### Fitting tools for optimal delivery

A full range of fitting tools for the entire CURVE range has been designed to meet specific customer expectations. These ensure easy maintenance and create a safer environment for all people working on CURVE slurry pumps.

Impellers, expellers, and suction and drive liners are notoriously difficult to handle safely, especially when wear has occurred. The tools dramatically change time spent to safely handle, disassemble and assemble all the maintenance spare parts.

The CURVE pump lifting hooks are designed to assist with the safe and positive location and lifting of pumps. **MRA**

