

Mixtec: 35 years of continuous improvement

"In Mixtec's 35 years of doing business we have supplied more than 35 000 agitators – and we are growing stronger every year." Mixtec's Rudi Swanepoel presents the case for the company being amongst the world's premier manufacturers of mixing and agitation technologies.

Mixtec was founded as a family-owned and operated business in 1984 by two experts in the field of agitation and mixing, Timothy Clamp and William Baguley. Mixtec director, Jonathan Clamp comments: "I consider myself extremely fortunate to have had the opportunity to learn from some of the most knowledgeable people in the industry."

Mixtec has sustained its continuous improvement approach to development, while retaining its core values, most notably customer service satisfaction.

"Customers have been at the heart of our success since Mixtec's inception. As a result we have grown into a global organisation with six fabrication plants: in the United States, South Africa, Australia, the United Kingdom, Malaysia and Chile. In addition, we have specialised agents in New Zealand, Mauritius, Kazakhstan and France. We continue to network globally to defend our position as a premium provider of agitating and mixing solutions," Rudi Swanepoel tells *MechChem Africa*.

"We pride ourselves on providing best quality and excellent service, while building long term customer relationships. Our efficient designs ensure that our mixers are economical and robust. We partner with several gearbox manufacturers to enable us to offer best-fit drives with readily available

spares and expert assistance," he adds.

"In our laboratories handling facilities, experienced application engineers can test and optimise agitator design, including in-tank additions such as anti-vortex baffles, mounting structures, nozzle orientations and economical vessel shapes. Our custom design service and fluid mixing laboratory can produce complete mixer designs, even if little or no data is available about the onsite application.

"Ongoing research into the latest technologies and processes allows us to provide enhanced efficiency and improved system reliability," says Swanepoel, adding that CFD analysis enables mixer performance to be assessed under a variety of conditions to optimise and improve agitator design.

Extensive finite element analysis of highly stressed components such as impeller hubs and couplings also ensures maximum reliability. "We then bring our design and research into the real-world through stringent international fabrication standards and inspection procedures and the use of state-of-the-art machine tools that ensure accurate alignment to precise tolerances. This applies to our entire offering, from simple baseplate-mounted units to sophisticated high-pressure reactor designs that incorporate sophisticated mechanical seals," he says

Swanepoel notes that, to plant operators, mixers are critical for achieving process



requirements. "We therefore make it our business to understand the large and complex number of elements that have to be combined to efficiently achieve the best end result for our customers. Every one of our mixers is custom-designed to perfectly match the mineral being processed and the processing volumes. This requires a combination of considerable experience and knowledge of the processes and technologies.

"Our first focus, therefore, is the specifics of the process, followed by the mechanical integrity of the mixing components and the drive system. We match the right impeller to the mixer by considering the profile, pumping and power needs of an application. We factor in the velocity gradient, the superficial (in-tank) velocity, the pumping rate, tank turnover rate, tank shape, liquid level variation, location of the impellers and the direction of pumping to ensure that each solution is successful," he says.

Mixtec aims to conduct its business in a sensible and professional manner, whilst seeking continuous improvement and ensuring compliance to all legal and other requirements. From a quality perspective, Mixtec is



Above: Mixtec can supply agitators from small to very large for any greenfield or retrofit project in varieties tailored to the specific needs of a client's processes and applications.

Left: Mixtec units are manufactured under the strictest conditions and to the highest standards to suit their intended operating environments.



Mixtec director, Jonathan Clamp with one of Mixtec's founders, Timothy Clamp.

independently audited every year to ensure compliance to quality and safety. "Mixtec's components also undergo various testing procedures such as non-destructive testing, magnetic particle, ultrasonic and x-rays, according to client requirements. In addition, Mixtec commissioning engineers are permanently available to oversee all installations of new equipment on site to ensure correct procedure is followed," he adds.

Given the wide variety of applications and processes for mixers and agitators, Mixtec offers a range of different configurations, including open top tanks; closed top tanks that require sealing; large scale industrial agitators; side entry mixers; and in-line static mixers.

"Experience gleaned over the past 35 years has resulted in our agitators being employed throughout the world in mining and refining; water treatment; pulp and paper; oil and petrochemical; chemical and industrial; food and beverage and a host of other projects. Our advanced impeller designs are used to solve problems for gold leaching, carbon in pulp adsorption, biological leaching, conditioning and attrition scrubbing, to name a few. Their use has resulted in higher quality mixing, lower power draws and better reliability in thousands of applications in these industries," Swanepoel says.

After sales and Mixtec retrofits

With installations at mines, minerals processing and water treatment plants across Africa and the world, Mixtec's business has expanded significantly over the past 35 years to include a sophisticated after sales service offering that continuously seeks to reduce downtime and improve mixing efficiency.

"Through site visits and inspections, we habitually uncover performance maintenance issues that sites are often not aware of. We have become ideally placed to improve the efficiency of mixing and agitating processes in ways that can radically reduce the downtime caused by unplanned breakdowns and associated repairs," Swanepoel says.

"We frequently find unsuitable designs being used for specific mixing applications. We are able to evaluate these while ensuring

that better quality materials and fabrication standards are employed for replacements. "To keep processes efficient, maintenance is required and we make available all the appropriate spares and service procedures for new and retrofit systems.

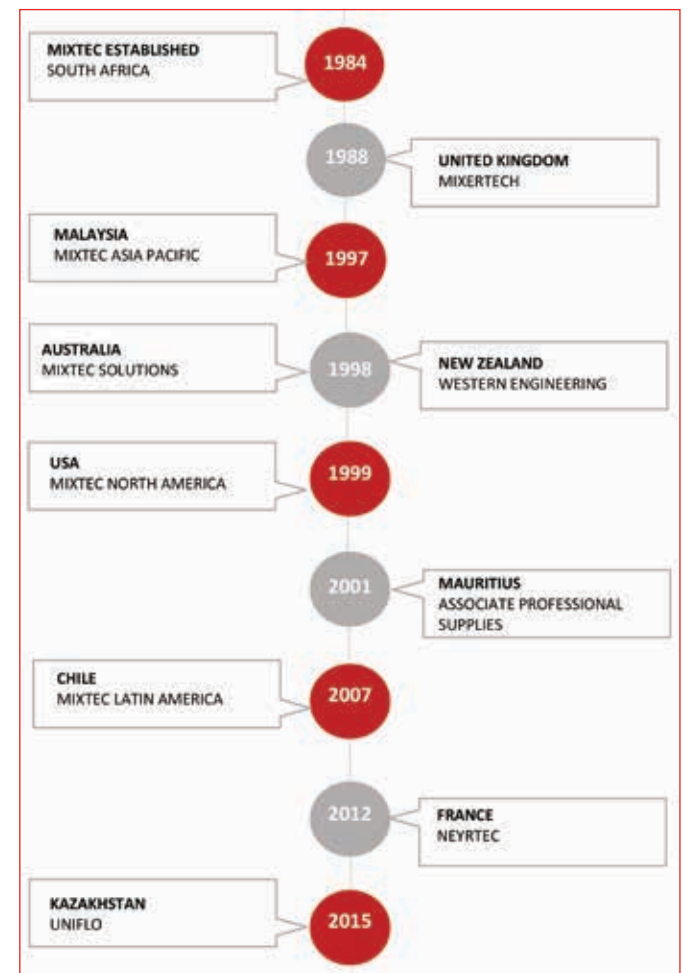
"We have been able to make some massive improvements in copper/co-

balt, phosphate and gold mines across Africa through our service and retrofitting initiatives," notes Swanepoel.

"Mines in Africa tend to have increased their production over time, which impacts their processes significantly. During site visits, we analyse needs and identify ways of replacing or retrofitting our mixers to match increased plant processing requirements," he continues, adding that Mixtec has adopted a highly cost effective approach to plant upgrade projects. "With EPCs and project houses, we have successfully and cost effectively upgraded systems in Zambia, Ghana and DRC, retrofitting pre-existing mixers to improve mixing efficiencies while ensuring we can match production increases, improve reliability and reduce downtime."

Citing an example of a recent plant upgrade project in the DRC at a site with about 130 mixers, Swanepoel says that the mine's pre-existing mixers are being systemically retrofitted with modern technologies such as its high efficiency EDICT impeller design. "We can offer new and existing plants state-of-the-art designs and equipment that can be retrofitted simply and quickly into their current mixer structure, tanks and drive systems. This is a very cost-effective way of adopting modern agitation and suspension solutions without significant amounts of downtime or capital expenditure," he argues.

To expand its African footprint, Mixtec is



renewing its marketing drive through local exhibitions such as Caminex and Electra Mining, where the Mixtec-designed EDICT system was showcased. "Knowledge and interest in our solutions are increasing as we actively showcase our world leading technologies. With our core focus on customer satisfaction and relationship management, we are building lasting long-term relationships with blue-chip customers across Africa and the globe," he informs *MechChem Africa*.

"We are staying abreast of new possibilities and technologies, and actively promoting these at exhibitions, expos and trade shows across Africa. We also offer onsite training for plant operators and maintenance personnel and, for water plant operators, we work closely with government organisations and the public sector, visiting sites several times a year to inspect the equipment and to advise on new ways of ensuring optimal mixing through maintenance and improvements to impellers, drives and tanks.

"Combined, we believe that our state-of-the-art designs and equipment, our specialised capabilities in processing and mixing, and our client-service mindset set us apart from our competitors," says Swanepoel in explaining why Mixtec's footprint still continues to expand 35 years after it first began to design and manufacture mixers and agitators. □

