

Rexnord: for fitting convenience and superior performance

Following the release of SN 500-compatible Rexnord RN series bearings into South Africa by Bearings International (BI) *MechChem Africa* talks to Lingesh Naidoo about the Rexnord brand and its niche advantages.

The current Rexnord product manager for Bearings International, Lingesh Naidoo, began his career some 28 years ago in the Technical Department at Bearings International.

In 1998, BI acquired LBA Transmissions, which at the time was the authorised agent for the Rexnord/LinkBelt bearing range, and Lingesh Naidoo was tasked with the move of the engineering workshop from LBA to BI's premises. "BI sent me on a 30-month course in Mechanical Engineering through Johannesburg University, which I completed in 2005," says Naidoo. "I then moved to a sales and technical management role for a sister company, Arrow Bearings, and from there I spent some time as the INA/FAG specialist for the Eastern Region, before taking over as manager of BI's Witbank branch," he tells *MechChem Africa*.

"But the Rexnord bearing product range has always been my favourite, so when the Rexnord Product Manager post at BI's Parkhaven headquarters became available in April of 2019, I could not miss the opportunity to take on the product again," he continues.

Outlining the Rexnord product offering from BI, Naidoo says that the company has long been a specialist in flat top chains, more specifically, TableTop and MatTop Chain and associated conveyor products, which are still currently available from BI sister company, Brutech. Other Rexnord products supported by BI in South Africa include REX Omega, Viva and Rapflex Couplings, with the new REX CentaFlex Couplings being added soon. "Most notably, though, we carry the full range of Rexnord bearing products: ball bearing units specialised for the food and beverage industries; cylindrical roller bearings for industrial gearboxes; and the unitised bearing ranges, which include the new Rexnord RN series of spherical roller bearings and plummer blocks," he notes.

"Through various shaft locking innovations, Rexnord bearings are renowned for easy on, easy off mounting and dismounting. Also, though, the bearings are purpose-designed to deliver superior performance under extreme operating conditions," Naidoo continues. "The Rexnord brand has proven



The new Rexnord RN series of metric bearings from BI is ideal for arduous, demanding applications.

itself in several industries where opposition or standard plummer block bearings just cannot handle the harsh environments such as in smelters, aggregates, crushers and conveyors applications in all industries, to name a few."

Citing a success in ash conditioners for crushing partly burned coal, he notes that the crushers operate in a sump, where random and sometimes frequent flooding is likely to occur. "When these sumps flood, the bearings become submerged by about 1.5 m of a highly

abrasive mixture of water, ash, coal and other contaminants. We have introduced Rexnord solid-housed plummer blocks with Rexnord's unique sealing arrangement into this application and, in terms of operating hours, these have outperformed the bearings we replaced by about 80%," he says.

Rexnord fitting advantages

Describing the advantages of shaft locking innovations, he says that a leading cause of failures in traditional bearings is contamination. "This does not only occur during operation of the bearing and seal failure, but also during installation and initial grease fill. With Rexnord bearings, which are completely sealed, pre-greased, shaft ready, easy to fit solid units, there is no chance of contamination occurring during installation," Naidoo explains.

"Fitting a traditional bearing really needs to be done by a specialist with a technical background. The bearing has to be carefully and accurately tightened to achieve the correct internal clearances required. This is an art, which depends on the fitter's skill and, on an off-day, is easy to get wrong. Rexnord's unitised bearings come shaft ready with various locking mechanisms: grub screws and spring locking mechanisms, for example, that make fitting easy and risk free. They take away all of the guesswork involved.

Sleeve mount versions are also available, and do not require the use of a feeler gauge. The bearings are simply slid onto the shaft and the Lock Nut is rotated by a specified amount to get the correct tightness. "So a pre-sealed and shaft ready bearing unit simply needs to be slid onto the shaft and locked on using either a few grub screws or a Lock Nut. This makes adjusting or refitting the bearing just as easy," Naidoo explains.

Rexnord has carried this idea through to higher load self-aligning and axial (thrust) bearing designs. On traditional tapered sleeve adapters for roller bearings, for example, the bearing clearance is achieved by pushing the bearing up the sleeve when tightening the locknut, which tightens the adapter sleeve onto the shaft while expanding the inner ring of the bearing.

But when the locknut is loosened, nothing happens because the nut is not connected to the sleeve, so it cannot 'break' the mating tapered surfaces between the bearing and sleeve. This often results in having to cut the bearing off with a torch or cut-off wheel, which is time consuming and can create equipment damage.

When tightening the nut, the RN Series Shurlok does the opposite of a traditional tapered adapter and pushes the sleeve into

the bore of the bearing, rather than pushing the bearing onto the sleeve. The sleeve and locknut are connected, so when loosening the locknut, the sleeve is drawn out of the inner ring, breaking the taper. Also, the Shurlok design rotates the inner ring of the bearing in one direction and the locknut and sleeve in the other direction, which further helps to break the taper.

Naidoo cites two more prominent fitting features: field interchangeability of the seal and field internal clearance adjustment. "Seals can be changed in the field: from a labyrinth seal for higher speed application to a Buna heavy duty spring loaded seal for extreme applications, for example. These bearing seals can be replaced during maintenance shutdown intervals," he says, adding, "in rare cases and if necessary, when abnormally high temperatures are being seen, for example, the internal clearance of Rexnord bearings can also be adjusted in the field by end-users."

Rexnord capacity advantages

"The most obvious technical superiority Rexnord has over opposition bearings is the ability to over-size the rolling elements due to the unique two-piece outer ring design. This unique-to-Rexnord feature of spherical roller bearings allows for an industry-leading steeper contact angle of up to 28° compared to one piece standard outer rings, where 17° is the norm," Naidoo explains. This allows for much larger axial load carrying capacity compared to other spherical roller bearing brands. In addition, Rexnord RN bearings, for example, allow for an industry leading misalignment capability of 4°, that is, 2° either side of the centreline.

Because the Rexnord Spherical Roller bearing's outer dimensions and width are not restricted by a one-piece, one-size outer ring Rexnord has more flexibility with respect to

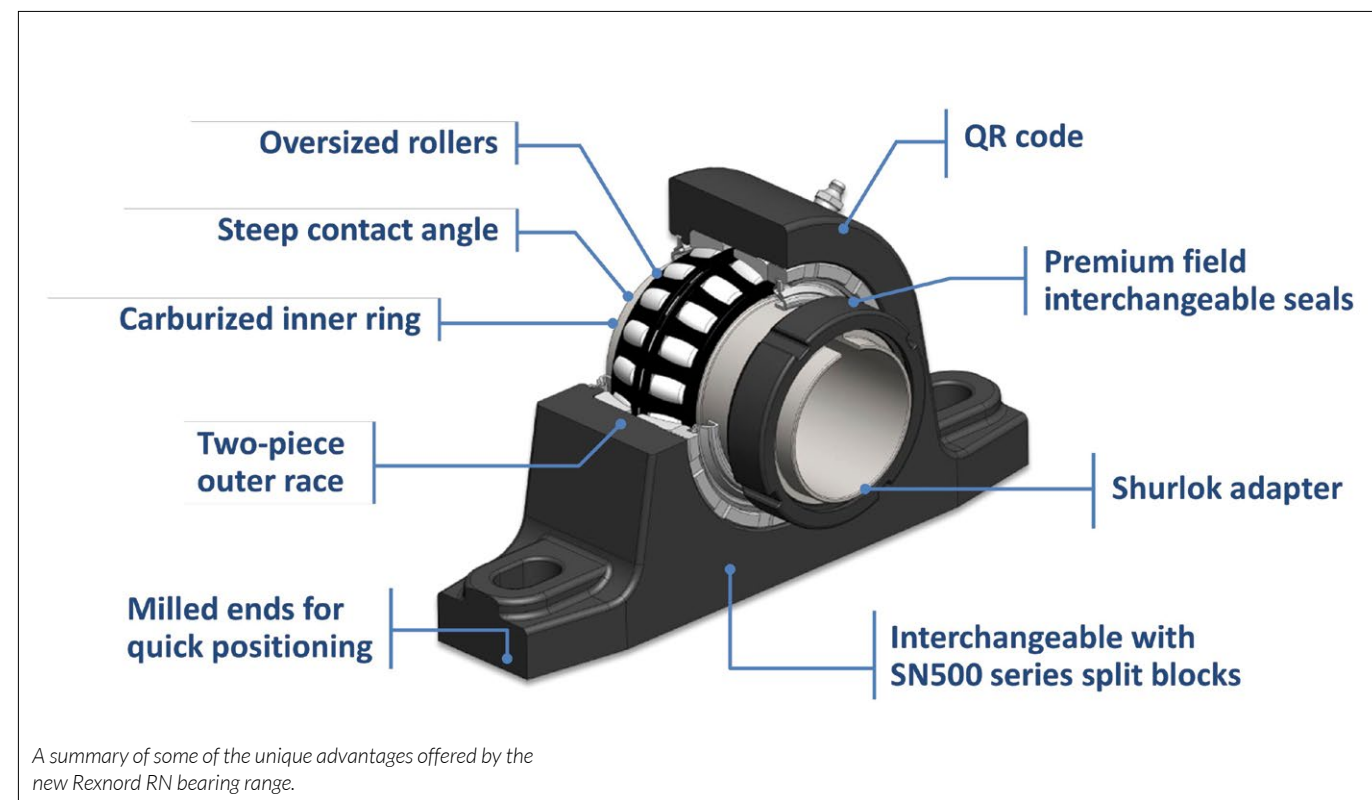
the size of rolling elements and therefore, the load carrying capacity of the bearing.

On the new 50 mm Rexnord RN series bearing, the two-piece outer ring has enabled Rexnord to introduce rolling elements that have a 19% greater surface contact area than standard (22210) spherical roller bearings. This translates into a higher dynamic radial and axial load carrying capacity, which is further improved by including a case-carburised inner ring to cater for higher impact loading.

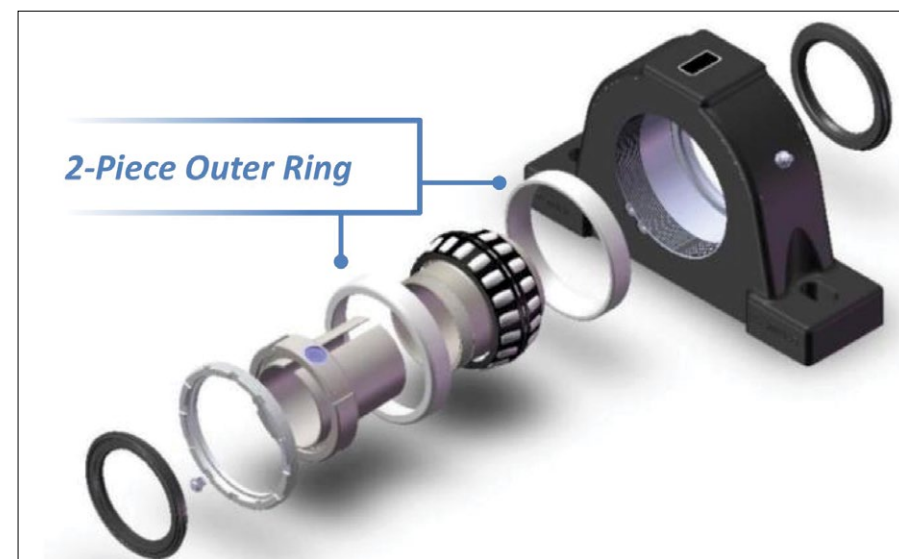
Talking directly about the new Rexnord RN series spherical roller bearings, he says that after 80 years of experience in the development of bearing technology based on US sizes and standards, the RN series is based on ISO SN 500, which is fully metric. "In South Africa, we have had to manufacture metric-sized housings to accommodate the US Rexnord bearing inserts. The new Rexnord RN series is fully metric and comes with standard SN 500 plummer block dimensions, so they are 100% compatible with OEM equipment built outside the US," he tells *MechChem Africa*.

Available for shaft sizes from 35 mm to 125 mm, this widens availability of the Rexnord premium bearing solution, while enabling BI to shorten lead times and improve stockholding.

"Rexnord bearings provide superior convenience, performance and value because of their better design features, which include a greater contact angle, more robust shoulders, more contact surface, field interchangeable seals and clearances and many other advanced features that distinguish them from other roller bearing products. And, with the introduction of the new Rexnord RN series plummer blocks, these advantages are all now available in a standard SN 500 series unitised package," he concludes. □



A summary of some of the unique advantages offered by the new Rexnord RN bearing range.



The unique two-piece outer ring design of the Rexnord RN spherical roller bearings allows for an industry-leading contact angle of up to 28°.