



Wayne Holton, BMG's GM for the Consumables Divisions – Bearings, Power Transmission, Seals and Gaskets, Fasteners, Tools & Equipment and Automotive.

BMG's focus is on optimising productivity to minimise downtime and reduce operational costs for companies in all sectors of industry, says Wayne Holton, BMG's GM for the Consumables Divisions. "This is realised through a total solutions service that starts with the selection of appropriate quality branded components and correct installation, and goes on to include comprehensive predictive maintenance services, which include condition monitoring and oil analysis," he says.

Bearings, he continues, are critical in all types of machinery. They are key components for the efficient and reliable operation of any rotating shaft or accurate positioner. "Bearings are essential for reducing friction and for supporting loads wherever two connected parts of a machine are required to rotate or move relative to each other. They also maintain alignment and accuracy, and support the transmission of power," he adds.

BMG Bearings Division offers a comprehensive range of bearings throughout

BMG's World of bearings

Wayne Holton, BMG's GM for the Consumables Divisions – Bearings, Power Transmission, Seals and Gaskets, Fasteners, Tools & Equipment and Automotive – unpacks BMG's bearings range and the company's total solutions service offering to support industry in reducing downtime and optimising productivity.

Southern Africa, including ball, roller and linear bearings. These range in size from miniature to extremely large units. The company's product offering is enhanced by technical expertise, including bearing selection to suit exact requirements, condition monitoring, re-classification and repairs, bearing modification, manufacturing of assemblies and bearing and housing interchanges.

"Our Bearings team focuses on every customer's specific process needs and the formulation of integrated product solutions to ensure high efficiency. Very often, an enquiry for a bearing translates into a comprehensive long-term solution for a machine, or provides a solution to an ongoing problem in that machine," explains Holton.

"By providing the correct components, we are able to improve machine performance, enhance reliability and extend maintenance intervals and service life. This approach to bearings reduces the total costs of owning and operating an asset, which translates into maximum return on investment for our customers," he says.

BMG has secured distribution and service agreements with some of the world's most respected manufacturers of bearings, including

BMG's comprehensive range of bearings extends from precision miniature bearings used in machine tools and electronics applications, to giant size bearings that meet the demands of steel and mining industries.

NSK, NTN, Timken, IKO, TR, RegalRexnord, FSQ and Rollix. "Our extensive bearings portfolio is carefully selected in terms of consistent quality controls, compatibility, standardisation, reliability and extended service life," Holton explains.

The most commonly used bearings in the BMG bearing range are deep groove ball bearings, where radial and axial loads can be applied in both directions. These versatile bearings are suitable for applications where high speeds are required, for example, electric motors, compressors, and idler rollers for conveyors. This range is available in open type variants or sealed with either steel shields or rubber seals assembled on one or both sides. Sealed bearings are pre-lubricated with grease and BMG can offer polyamide, steel or brass cage assemblies.

Angular contact ball bearings are designed to accommodate combined radial and axial



loads. These are formed by combining two bearings as a 'duplex pair'. Possible combinations include face-to-face, which have the outer rings facing together, back-to-back, or both front faces in the same direction. Typical applications include gearboxes, clutches, pumps, machine tools, steel mills and wind turbines.

Self-aligning ball bearings generate less friction than other types, which allows them to run at higher speeds without building up as much heat. Self-aligning ball bearings are designed with two raceways and the outer ring has a single spherical raceway. These bearings can accommodate minor angular misalignment of the shaft relative to the housing, which could be caused by machining or mounting errors. This type of bearing often has a tapered bore for mounting with an adapter sleeve.

Cylindrical roller bearings offer high radial load capacity, because each cylindrical roller is in line contact with its raceway. Different types are denoted by NU, NJ, NUP, N, NF for single-row bearings, and NNU, NN for double-row bearings, depending on the bearing design.

A variant of the cylindrical roller bearing is the needle roller bearing, which contains many slim rollers with a length of 3 to 10 times their diameter. As a result, the ratio of the bearings' outside diameter to the inscribed circle diameter is small, giving needle roller bearings a high radial load carrying capacity. Needle roller bearings offer a low-cost per kg of capacity and have an advantage where space is limited, making them particularly well-suited for use on automated assembly equipment.

Another popular roller bearing variant is the spherical roller bearing, which has two rows of barrel-shaped rollers running in a single spherical raceway. Spherical roller bearings are self-guiding and can accommodate angular misalignment. They are especially well suited for use where there is heavy and/or impact loading.

Split roller bearings have a split-to-shaft feature, which allows them to be fitted where access to the shaft ends is difficult or where the drive side is difficult or costly to disassemble. Using a split bearing allows the shaft to be raised and the split components to be assembled without having to remove other elements from the rotating shaft.

Where high axial or thrust forces are required, BMG specialists recommend the use of tapered roller bearings. These bearings,

which are capable of supporting combined radial and axial loads in one direction, use cone shaped rollers guided by a backing rib on the cone, which runs against a mating outer race called a cup. If mounted as opposing pairs, axial loads in both directions can be achieved – and double-row and four-row tapered roller bearings are also available to cater for increasingly high load capacities.

For axial-only rotating applications, where one ring needs to rotate while in contact with another, thrust ball bearings, needle roller thrust bearings, spherical roller thrust bearings, and slewing rings are recommended. Slewing ring bearings link two mechanical components on one axis of rotation and are capable of handling axial, radial and moment loads. Advantages over a traditional bearing arrangement include the requirement for a reduced number of rolling elements, less machining, quicker and easier assembly, weight and space saving, and thus lower capital investment and operating costs. Downtime for maintenance is also reduced.

Maintenance management and lubrication

The introduction of a structured maintenance management programme, which can be implemented in-house or partially outsourced to a professional organisation, is critical to maximising production efficiencies. The effects of friction and the resulting wear of moving components are significantly reduced by effective lubrication.

Condition monitoring identifies lubrication problems, misalignment and vibration troubles and helps in identifying the causes of the damage so units can be fixed before further destruction occurs. This means reduced downtime, efficient production and substantial cost savings. BMG's team of mobile technicians conducts breakdown and

routine maintenance on site and carries out troubleshooting and advising on possible productivity improvements to ensure the highest level of plant output and reliability. Specialist services include installation, adjustment, replacement and maintenance of components, shaft and pulley alignment, balancing, condition monitoring, oil sampling and analysis and critical equipment inspections and lubrication schedules.

BMG's Bearings Division, together with Timken's local expertise, also offers a complete bearing re-manufacturing and repair service, where used large size bearings are reconditioned to original specifications for optimum performance and extended service life. This repair service includes a customised assessment, analysis, re-manufacturing and preventative maintenance programme for the bearings and auxiliary components used in all industries.

The value of re-manufacturing is enormous in that it ensures substantial savings in downtime and reduced replacement costs. A reconditioned bearing can result in significant cost and time savings when compared with purchasing a new one.

Efficient refurbishing options, using the most sophisticated processes and equipment, are offered for all brands, types and sizes of bearings. BMG works closely with a customer's maintenance team to analyse the condition of bearings and to assess when a bearing needs to be serviced. When preventative maintenance programmes complement reconditioning, bearings are capable of reaching their full life potential. Technical training is delivered to all BMG staff to promote a culture of ongoing learning. This training is also available to BMG customers to assist them to understand their bearing products and to enhance their maintenance practices.

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NSK's angular contact ball bearings feature a contact angle that sustains significant axial loads as well radial loads. They are usually used in pairs.