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**Version 1**

Quarrying and mining is one of *the* most challenging applications for bearings. Dust, debris, moisture, heavy and shock loads and all that in oftentimes hardly accessible locations. Consequently, durability and reliability are of paramount importance for the components in use. Reduction of downtime is the key word, as mines and quarries are often located in mountains or desserts, where a quick trip to a certified distributor selling the bearings needed is just not happening. Therefore, NSK puts a lot of effort into the components used in Q&M applications, in order to make them withstand the arduous conditions in a mine longer. This increased service life is achieved by focussing on three major aspects: material, lubrication and sealing.

First of all, protecting a bearing from contamination by sealing it in the best possible way helps achieve a longer service life. As an alternative NSK offers moulded oil bearings which feature a lifelong lubrication in a special oil impregnated material. Ideal in wet and dusty conditions. Add to that the special corrosion resistant steel the bearings are made of and you end up with long lasting components.

*<Show picture of molded oil bearings>*

However, where the use of sealed bearings is not possible, the materials they are made of move even more into the focus. NSK´s Super- and Hi-TF-Steel is such an example. Through a special heat treatment, they become tougher on the surface, so that after an -often unavoidable- ingress of foreign particles into the bearings, the surfaces of raceway and rolling elements remain in operable shape for longer. One might say they even cure their surfaces themselves. The result of that is an increased service life. When Hi-TF-Steel is used, a service life of up to seven times as long as the one of bearings made of carburized steel can be achieved, when unavoidable contamination of the lubricant is the reason for bearing failure. With Super-TF-Steel these figures even climb to 10 times as long a service life. When insufficient lubrication is the culprit, bearings made of Super-TF-Steel can achieve 5.5 times the service life of normal steel bearings.

*<Show Picture of TF-Steel Bearing>*

If in your application in Quarrying and Mining premature bearing failure is an issue, get in touch with our colleagues at NSK to discuss, what their solutions are, to increase service life and bring down maintenance and downtime cost!