

Team Player

An innovative radial shaft seal and a new type of water guard show their real potential in the sealing of roller bearings in work rolls

Team player – with this term we associate primarily that we can rely on each other. When applied to a sealing system it means that each element reliably performs its function. That is the ambition with which Freudenberg Sealing Technologies sends its innovative radial shaft seal, the Merkel Radiamatic RPM 41, into the race together with a new type of water guard, the deflector Merkel Enviromatic. Because operators of steel plants think in terms of tons produced and do not want to count lost hours.

In the harsh environment of a steel plant the reliability of people and materials is essential. An unplanned breakdown of, for example, a sealing system causes aggravation and additional work for all parties involved. But above all, it costs a lot of money, whether through the loss of production itself or through the costs of spare parts. This also applies to scheduled maintenance, when things like the procurement of spare parts, assembly costs or even rework of components lead to avoidable delays and additional costs.

This is where Freudenberg Sealing Technologies can provide help - with years of experience in the sealing business and reliable sealing systems for demanding applications. Excellent protection of the expensive rolling bearings, reliable performance until the next scheduled maintenance, ease of installation and, very importantly, readiness of supply - within hours, if necessary - are the main criteria that must be met by sealing systems like those used in work rolls of steel plants.

Solid as a Rock

In order for the actual sealing elements of the rolling bearing, i.e. the radial shaft seals, to function perfectly, they should be protected by a reliable, axial sealing water guard. This is because water ingress and associated water content in the lubricant are factors which shorten the service life of the bearings due to premature wear. Unlike the usual V-rings, which have a soft, flat sealing lip with a broad contact surface, Freudenberg's new Merkel Enviromatic deflector/water guard type has a

defined, linear sealing edge. This functional, linear contact of the sealing lip remains intact even in the case of axial shaft misalignment of ± 4 mm. The result is maximum protection against ingress of water. In addition, steel plants benefit from a perfected joining process for this type of seal, proven at large diameters of up to 4 meters for example for wind turbines. This means that replacement seals for existing housings of any diameter can be shipped to the customer within 24 hours.

The Workhorse

Nowadays, the term workhorse component implies an "all-in carefree package". The Merkel Radiamatic RPM 41 radial shaft seal, which is used in particular in work rolls applications, is such a performer. Its installation is pretty unspectacular. It is completely coated in rubber, leaves no traces in the installation space and slides effortlessly into place without needing to be hit with a hammer - a completely new experience for the on-site maintenance staff. This new radial shaft seal functions without any spring element at the sealing lip and is made possible by a newly developed elastomer material with low compression set, in other words a material with high elasticity. For many, the unique design of the seal is also unfamiliar. The reason for this springless radial shaft seal design is obvious: it completely eliminates any potential hazard which metal objects of any kind present for the rolling bearing - another thing operators of steel plants no longer need to worry about.

For steel mill operators it is not only the reliable sealing function of the Merkel Radiamatic RPM 41 which is important – a matter of course for a premium manufacturer such as Freudenberg – but the availability of the seal in a spontaneous failure is also crucial. To meet this requirement of the steel industry, the RPM 41, like his team player Enviromatic, is available within 24 hours if necessary. This is valid for all standard profiles and all diameters in the typical range from 200 mm to 1000 mm.

The Symbiosis

The requirements of steel plant operators are met in an ideal way by the combined performance of the Merkel Radiamatic RPM 41 and the matching Enviromatic. The symbiotic behavior of the seals offers long, reliable and most of all cost saving performance. These team players are now used in 25 German and American steel plants. But even more important than this number is for us the following statement of our customers: "Your sealing system has beaten the competition by a mile!"