

Power Transmission / Conveying Engineering / Coal and Steel Technology / Bulk Material Technology / Plant Construction / Supplier

Safe flow of forces even under high bending loads

RINGSPANN offers cone clamping elements for applications with bending moments

In its one-stop shop, RINGSPANN provides mechanical and plant engineering designers with a large selection of different shaft-hub connections for power transmission in drive trains. The cone clamping elements of the RLK series are specially designed for scenarios in which high bending moments have to be absorbed in addition to axial and radial loads. They have proven themselves as guarantors of operational safety, among other things, in the belt drums of large bulk material conveyor systems, such as those found in mining, raw materials and mining technology.

Bad Homburg, June 2026. – Employment in driven and deflecting drums of conveyor systems that are used to move coarse and abrasive bulk material in mines, raw material mining and the mining industry, is undoubtedly one of the most demanding applications for shaft-hub clamping sets. Unlike in many standard applications of industrial drive technology, they not only have to absorb torques, but also high bending moments. This is because in the heavy-duty conveyor systems, load situations constantly arise during operation in which the rotating drums bend considerably – and by no means always evenly, but to varying degrees, depending on the load. The clamping sets mounted between the shaft of the drum and its frontal bottoms must be able to cope with this interplay reliably and permanently, while always ensuring the loss-free flow of force in the drive train. In order to provide drive technology designers with a high-quality solution for this complex task, RINGSPANN has specially developed the cone clamping elements of the RLK series. They are tailor-made for the scenario described and are among the top products in the company's one-stop-shop. "Their constructive design, the selection of materials, the processing of the surfaces – everything here is precisely tailored to applications with high bending moments. Quality management for the production of our RLK cone clamping sets is extremely strict, and includes concentricity optimization ensuring the implementation of the highest precision standards," says André Artmann, customer team leader for the clamping elements and couplings product areas at RINGSPANN.

Clamping sets ensure system availability

Both manufacturers and operators of systems with drive trains, which have to work safely under the load of changing bending moments, are offered a high level of added value by the high-quality design of RINGSPANN's RLK clamping sets. This is because they make a significant contribution to the operational safety and availability of the system, because they minimise the risk of operational

damage, time-consuming repairs and expensive downtimes. "Familiar problems such as deformation of the drum bottom, undesirable axial displacements, difficult disassembly or shaft failure – indicated by fretting corrosion – can be almost completely ruled out if the design is correct. In addition, our cone clamping sets support easy assembly and quick replacement," emphasises André Artmann. Incidentally, when designing the RLK clamping sets, the RINGSPANN engineers followed the usual specifications of well-known drum manufacturers.

Seven variants for many drums

RINGSPANN currently offers its clamping elements for applications with bending moments in seven maintenance-free basic versions, each of which is available in up to 30 sizes as standard. All versions are self-centring with high accuracy, are also suitable for use in reversing drive systems and are delivered ready for installation. Overall, the designers have the choice between cone clamping sets for transmittable torques of up to 1,727,560 Nm and bending moments of up to 1,122,900 Nm (M_b max). André Artmann explains: "Our clamping sets are designed for drum use, and are suitable for different types of drums and different installation scenarios. Depending on the series and size, they allow exceptionally high bending moments of up to 60 percent of the transmittable torque! Their structural design is based on current results from joint study projects with leading universities and research institutes." In addition to the series versions, the realization of customer-specific modifications and special solutions is also part of the RINGSPANN portfolio.

RINGSPANN offers a great deal of additional information about its cone clamping sets, as well as on the numerous other shaft-hub connections on its website www.ringspann.de. Here, designers will also find access to CAD models, brochures, data sheets and a free calculation program. *ms*

585 words with 4,897 characters (incl. Spaces)

Author: Michael Söcker, freelance specialist journalist, Darmstadt

Note for editorial staff: Text and images available at www.pr-box.de!

Captions (4 pictures)

Figure 1: In heavy-duty conveyor systems, stress situations constantly arise during operation, in which the rotating drums bend considerably. RLK cone clamping sets from RINGSPANN are specially designed for such applications. *Image: RINGSPANN*

Figure 2: Belt drum with fully assembled RLK cone clamping set from RINGSPANN before delivery. *Image: RINGSPANN*

Figure 3: André Artmann: "Our clamping sets are designed for drum use, and are suitable for many types of drums and different installation scenarios. Depending on the series and size, they allow high bending moments of up to 60 percent of the transmittable torque!" *Image: RINGSPANN*

Figure 4: RINGSPANN currently offers its RLK cone clamping elements in seven basic versions, each of which is available in up to 30 sizes as standard. Designers can thus choose between clamping sets for transmittable torques (axial forces) of up to 1,727,560 Nm and bending moments of up to 1,122,900 Nm (M_b max). *Image: RINGSPANN*

Add-on:

Video – Direct link to [RINGSPANN-Produktanimationen](#).

(Infobox)

Friction closure and adhesive friction

Drive engineers understand clamping sets to be multi-part ring-shaped connecting elements whose function is to transmit the torques between shafts and hubs in drive trains of machines and systems safely and without loss. For this purpose, the rings of the clamping sets from RINGSPANN have conical sliding surfaces that are pushed over each other in an axial direction by screwing in and out of clamping screws. In the process, the outer ring expands while the radius of the inner ring shrinks. This creates a frictional connection between the shaft and the hub, which enables reliable transmission of torque via static friction. Mechanical processing of the shaft – for example, for keyways – is not necessary. The special feature of the RINGSPANN's RLK cone clamping sets is that they are designed for applications in which the rotating components not only have to transmit high axial and radial loads, but also have to absorb high bending moments.

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