

Power transmission / machine elements / supplier / design engineering / machine and plant construction

Turns only in one direction

The roller bearing design of RINGSPANN's FZ freewheels offers space advantages in construction

With nominal torques of up to 420 Nm, RINGSPANN's FZ series internal freewheels are suitable for the realisation of backstops, overrunning clutches and the transfer of linear reciprocating motions in incremental rotating or adjusting kinematics (indexing function). The particular attraction of these mechanical elements lies in their compact design, as they feature the same dimensions as the widespread series 62 DIN standard bearings. This makes FZ freewheels ideal when it comes to designing spatially optimised constructions in the drive units of conveyor systems, warehouse handling systems, packaging systems and food processing machinery. Increasingly, they are also being installed in hybrid drive systems.

Bad Homburg, September 2019. – Anyone who thinks the freewheels in RINGSPANN's FZ series are classic bearings couldn't be wider of the mark. While at first glance one could indeed mistake these mechanical elements for roller bearings of a closed design, they are in fact particularly compact internal freewheels that can be used as backstops, overrunning freewheels or indexing freewheels. The reason for the confusion is thus purely of a visual nature, and is due to the fact that the dimensions of RINGSPANN's FZ freewheels are oriented towards those of the series 62 standard grooved ball bearings according to DIN. "This similarity in the size of our FZ freewheels offers significant advantages particularly in the realisation of spatially optimised constructions or when finding solutions to difficult installation conditions in industrial drive technology. These internal freewheels combine the roller bearing design with the functionality of freewheels, whereby the bearing – as if moved by an invisible hand – only rotates in one direction", explains Thomas Heubach, head of RINGSPANN's freewheels division.

Broad range of applications

Deployable as backstops, overrunning freewheels or indexing freewheels with nominal torques ranging from 9.0 to 420 Nm, RINGSPANN's FZ freewheels convince in practice as mechanical elements suitable for universal use in a variety of applications thanks to their bearing-related properties. They are maintenance free, have bores with diameters of up to 40 mm and are suitable for operation under normal conditions. The torque is transferred – depending on the version – either via press fit or keyway connection on the inner ring or on the outer ring of the freewheel. RINGSPANN delivers its FZ freewheels ready for installation with grease filling for integration in the customer's construction. FZ freewheels are also available with food grade lubricant specially for use in hygiene-sensitive industrial sectors such as food

and drinks technology. The FZ versions with both-sided seals made of acrylonitrile butadiene rubber (2RS) sealing are of particular interest for engineers in mechanical engineering and plant construction in food and packaging technology. This feature, too, bears a technical similarity to the series 62 standard roller bearings according to DIN.

Locking, coupling, pushing

As backstops, FZ freewheels prevent unintended rotation against the operational direction of rotation, in their overrunning function they replace complex clutches, and in their indexing function they can transmit linear back-and-forth movements in incremental rotary movements. One typical indexing application, for example, is to use them in pairs in continually adjustable gearboxes of metering rollers in construction machinery or filling systems. Here, you often have two cam disks that are offset and sit on the input shafts of the gearbox, which drive the outer rings of the two internal freewheels by means of lever arms. The freewheels then gradually turn the metering shaft.

Packaging systems, conveyor belts, labelling and textile machines – RINGSPANN's compact FZ freewheels can be found in the drive systems of various systems and machines and are in use all over the world. They have even been installed in the hybrid drive systems of environmentally friendly vehicles. "Here, the alternating function between idling and driving operation ensures that rotors do not rotate and the vehicles can continue to roll while switching", explains RINGSPANN divisional manager Thomas Heubach.

Engineers and sourcing managers will find the entire range of FZ freewheels in RINGSPANN's current online shop offer. Many other series and types of internal freewheels are compiled here so visitors to this modern internet platform can choose from currently twelve freewheel series (www.ringspann.de). ar

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Captions (3 pictures)

Figure 1: RINGSPANN's FZ series internal freewheels correspond in size to the series 62 standard grooved ball bearings according to DIN. This outward similarity enables the realisation of spatially optimised constructions.

Figure 2: RINGSPANN's divisional manager Thomas Heubach: "The similarity in the size of our FZ freewheels with the series 62 standard roller bearings according to DIN offers significant advantages in the realisation of spatially optimised constructions or when finding solutions to difficult installation conditions in industrial drive technology."

Figure 3: RINGSPANN's FZ series freewheels are equipped with bores with a diameter of up to 40 mm and are suitable for nominal torques of up to 420 Nm. The torque is transferred either via press fit or keyway connection on the inner ring or on the outer ring of the freewheel.

(All images: RINGSPANN)

((Infobox))

Between idling and driving operation

RINGSPANN is recognised as an international market leader in the freewheels sector and currently supplies around 6,000 customers worldwide with these mechanical elements for the realisation of backstops, overrunning and indexing freewheels in drive engineering. Freewheels basically consist of an inner and an outer ring with clamping elements in between. In the one direction of rotation, there is no contact between the inner and outer ring (idle); in the opposite direction however, the clamping elements ensure a frictional connection between the inner and outer ring (driving operation).

If freewheels are used as backstops, they are entirely devoted to operational and work safety. In the drive systems of conveyor belt systems, they prevent the reverse movement of conveyor belts when maintenance work is being carried out, in emergency-stop situations or during power failures. To find out which types of backstops there are and what needs to be observed during their selection and installation, you can see a detailed specialist article by RINGSPANN's divisional manager Thomas Heubach, which you can read [here](#) on the company's website.

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