



## The classic is now online

RINGSPANN's FXM-series integrated freewheels have long since become a staple of drive trains in international machine and plant construction. Equipped with the now legendary sprag lift-off type X, they impress with maximum torques of up to 1,230,000 Nm, low lift-off speeds and wear-free continuous operation. The entire FXM series currently comprises more than 40 standard sizes and can now be ordered directly in the company's online shop. In addition, the price structure has been optimised, which is of particular benefit to small series customers. The freewheel classic is currently arousing the interest of numerous e-mobility manufacturers and is part of the RINGSPANN product range at this year's Hannover Messe.

The integrated freewheels from the FXM series are a central focus of this year's RINGSPANN appearance at Hannover Messe (Hall 5, Stand D32/1). They are among the classics of freewheel technology and have been setting the international standard in terms of quality and performance since their market launch in 1971. RINGSPANN is now offering this best-seller in its wide range of freewheel products in its online shop. Furthermore, the price structure of the FXM series has been completely revised as part of its integration into the online order assortment. "This results in attractive economies of scale in pricing, which particularly benefits all those buyers

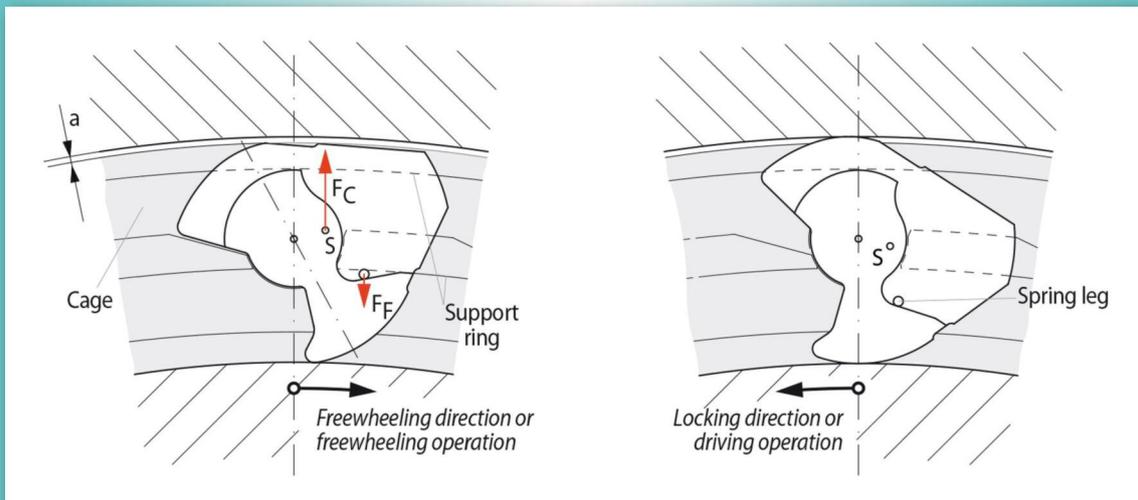
and sourcing managers who often only want or need to order smaller quantities – for example to cover their spare parts requirements", explains Thomas Heubach, head of the freewheels division at RINGSPANN. All sizes with standard bores are available at short notice and customer-specific special designs can be quickly implemented thanks to the modular design of the integrated freewheels. Design and development engineers can find technical data sheets and installation instructions for all FXMs in the company's online shop – and above all: the respective 3D CAD models in various file formats and levels of detail for free download.

## The centrifugal force trick: The sprag lift-off X

Integrated freewheels FXM from RINGSPANN operate with sprag lift-off X. It is used for backstops and overrunning clutches, provided that in freewheeling operation the inner ring is rotating at high speed and providing with overrunning clutches that the driving operation is conducted at low speed. In freewheeling operation, the centrifugal force causes the sprags manufactured in an X-like form to lift off from the outer track. In this operating state, the freewheel works wear-free, i.e. with unlimited service life. The sprags, which are supported in a cage connected with the inner ring, rotate with the inner ring. The centrifugal force turns the sprag counter-clockwise and rests against the support ring of the cage. This results in a gap between the sprag and the outer track; the freewheel works without contact. If the inner ring speed decreases to such an extent that the effect of the centrifugal force on the sprag is less than that of the spring force, the sprag again rests on the outer ring and the freewheel is ready to lock. Please note: If used as an overrunning clutch, the driving speed must not exceed 40 percent of the lift-off speed.

## Deployable as a return stop and coupling

The integrated freewheels from RINGSPANN's FXM series are universally usable machine elements that can be used as backstops and overrunning clutches and cover a very wide range of applications in machine and plant construction. They do not have their own bearing support, are prepared for front-sided screw assembly, and have race diameters from 31 to 750 mm. Depending on the variant, they generate torques ranging from 110 Nm to 1,230,000 Nm. These performance figures enable them to cover, for example, an enormously wide range of gear applications in light, medium and heavy machine construction. FXM freewheels are, for example, used as backstops between the shafts of spur gearboxes in conveyor belt drives or as overrunning clutches in the gearbox units of bucket elevators, where they automatically engage and disengage the main and creep drives. "The FXM series has been continuously developed over the years and adapted to new areas of application time and again. It's one of the reasons why RINGSPANN engineering has a very high level of design competence for this incredibly versatile freewheel type. For example, our FXMs are currently under discussion for various e-mobility applications. This will be a topic of discussion at this year's Hannover Messe", says division manager Thomas Heubach.



## Compact design and quality in detail

Among the most important design features of the FXM freewheels are their compact design, their guide elements for the cage rings and sprags that are milled with the highest precision, and the excellent functionality of the type-X sprags acting inside them – a pioneering development of RINGSPANN engineering. Thanks to the generally low lift-off speeds for the sprags, a well thought-out overall design and the high manufacturing quality of their components, these freewheels not only achieve the highest torques but also prove to be wear-free marathon runners. “As low-maintenance fire-and-forget solutions, our FXMs have been proven over many years in numerous long-term applications in mechanical and automotive engineering”, reports Thomas Heubach.

In addition, there are two other important factors that underline the universal character of these RINGSPANN integrated freewheels. Firstly, the exceptional X-geometry of their sprags allows the FXMs to be used with friction-reducing solid lubricants (e.g. molybdenum sulphide). And secondly, the FXMs do their job even with larger runout deviations! They are therefore very well suited for use in plain bearing applications, for example.

Today, the RINGSPANN Group manufactures in production plants on three continents. These integrated freewheels are thus not only a real example of the company's market leadership on global freewheels markets, but also represent RINGSPANN's development into an international one-stop supplier of high-quality components for industrial drive engineering.



**Thomas Heubach**  
Head of Division Freewheels  
at RINGSPANN GmbH

