

Offset compensation in all directions

RINGSPANN is extending its portfolio with several types of compact helix couplings

In a few days, RINGSPANN will be launching several designs of helix couplings made of steel and aluminium. With these, the company can offer designers of drive technology an additional compact and wear-free solution for backlash-free and angular synchronous connection of and on pinion and drive shafts. The huge advantage here is that, in contrast to other coupling types, helix couplings can offset both angular and oblique misalignment as well as radial and axial displacements of shafts – simultaneously and, depending on the type, even in three-dimensions!

Bad Homburg, September 2023. – The new helix couplings in the RBC series in RINGSPANN's one-stop shop are compact shaft connections that are manufactured from a single piece of stainless steel or aluminium. Characteristic for their design is a cylindrical main body in which one or more helix grooves – the coils – are incorporated. This spiral-like shape gives the coupling one or more flexible areas with precisely calculable elasticity. One-piece production also enables the integration of multiple functions and features into a single, space-saving machine element. "Our RBC helix couplings therefore don't have any additional moving parts. This means they are wear-free and offer the advantage of high dynamic stability with vibration-free, smooth-running and low bearing loads – even with large angular, inclined, radial and axial misalignments," explains Daniel Jenny, the Managing Director of RINGSPANN AG in Zug. The RINGSPANN subsidiary in Switzerland is directing the market launch of the new helix couplings, which will be offered in three types right from the start: as couplings with a single helix, with two helixes and in a helix beam variant. The programme also includes the development and production of customer-specific helix couplings – for use in medical and food technology, for example. "In the field of special solutions, we have already implemented micro couplings for micro apparatus construction or helix couplings with integrated pinions for direct connection to adjustment units," reports Daniel Jenny.

Three basic types and plenty of room for manoeuvre

The single helix couplings of the new RINGSPANN RBC series transmit torques of 9.5 Nm in the aluminium version and 18.5 Nm in the steel version. They are designed for mounting on shafts that rotate at speeds of up to 10,000 rpm. The double-helix couplings have higher torque capacities of 18.6 Nm (aluminium) and 41.7 Nm (steel). They are primarily suitable for slower running shafts with speeds of up to 3,600 rpm. The helix beam coupling is initially only available in aluminium and transmits at revolutions of up to 10,000 rpm. Torques of up to 10 Nm. For fixation to the connection

shafts, RINGSPANN offers clamping hubs or set screws as standard. "On the other hand, the connections are freely selectable with the special solutions. The same applies to the material specification. The only requirement here is that the material can be machined," says Daniel Jenny.

Close on the inside, stretch on the outside

The new helix couplings from RINGSPANN are recommended as a solution for many areas of industrial drive technology. Their typical areas of application include, for example, assembly of encoders, tachometer generators or spindle drives, as well as drive trains with servo and stepper motors, as they are often found in apparatus engineering and positioning technology. In principle, helix couplings are among the standard shaft connections in general mechanical and plant engineering. They show their strengths wherever shafts in drive trains have to run with offsets and displacements. Angular displacements are a fairly common phenomenon. Helix couplings can compensate for them by closing their inner bars and stretching the outer ones. If there is sufficient space between the helix groove, displacements of up to 20° or more are possible. Radial displacements place much higher demands on a coupling. "If the coupling system cannot compensate for them, the resulting lateral forces damage the bearing points. However, the helix principle offers a way out here. Even our standard solutions allow values of up to ± 0.8 mm. Customer-specific designs can achieve even higher values," explains Daniel Jenny. If the helix is sufficiently long, a RINGSPANN helix coupling can even compensate for a three-dimensional oblique displacement in which the drive shafts do not have a common plane.

Almost all important types of construction

With the new helix couplings of the RBC family, the already very comprehensive shaft coupling range from RINGSPANN has been further expanded. Besides the new additions, designers of industrial drive technology will now find a wide selection of flange and compensating couplings, conical clamping couplings and gear couplings, steel belt couplings and pin couplings, as well as jaw couplings and multi-plate couplings in twenty-three series. The company's portfolio covers almost all technically relevant types and offers a wide range of solutions for compensating for axial, radial and angular misalignments for nominal torques from 2.0 to 1,299,500 Nm. This opens up a great deal of freedom for designers and engineers in plant construction to realize rigid, torsionally rigid or torsionally elastic connections between shafts, gears, motors and machines. *ms*

727 words with 5,761 characters (with spaces)

Mirco von Stein, freelance specialist journalist, Darmstadt

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

Captions (5 pictures)

Figure 1: New in RINGSPANN's one-stop shop: compact helix couplings, made from a single piece of stainless steel or aluminium.

Figure 2: Daniel Jenny: "Our new RBC-helix couplings are wear-free and offer the advantage of high dynamic stability with vibration-free, smooth-running and low bearing loads – even with large angle, incline, radial and axial misalignments."

Figure 3: The new helix couplings from RINGSPANN are offered in three types right from the start: as couplings with a single helix, with two helices and in a helix beam version

Figure 4: If the helix is sufficiently long, a RINGSPANN helix coupling can even compensate for a three-dimensional oblique displacement.

Figure 5: Helix coupling with integrated pinion: the development and production of such customer-specific helix couplings is one of RINGSPANN's strengths.

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