

Press information

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More compact and lightweight for state-of-the art power trains:

Face Spline Joint Technology by GKN Automotive

GKN Automotive is rethinking articulated joints – with its interlocking Face Spline technology that is more efficient and saves both space and weight. Where conventional approaches usually rely on pins, Face Spline uses splines on the front of the joint. Thanks to its wider surface area, this solution is able to transmit up to 50 percent higher torques. It can be attached at the front with a single bolt, which makes installation easier than ever. An appealing proposition for premium car manufacturers like BMW Group, that uses Face Spline to significantly reduce weight in the drive train of their xDrive models.

A summary of the benefits offered by Face Spline:

- Highly integrated, Face Spline technology is more compact and weighs less than drive joints with pin connections
- Up to 50 percent more torque transmitted using wide front splines over the entire joint face
- Easy installation and centered, zero-clearance connection to the wheel hub thanks to a joint cone and a single fastening screw
- Deflection angles of up to 25 degrees at the rear axle through use of a diaphragm bellows
- Like the entire GKN Automotive product range, the Face Spline hub connection can be ordered from all major wholesalers and is listed on TecDoc

Light, compact and powerful

The future of mobility has a clear objective. To achieve ambitious climate goals, emissions need to be reduced. Components that save as much weight and space as possible are therefore more important than ever. This is where GKN Automotive can score with its innovative Face Spline connections. Not only are they lighter and more compact (in conjunction with a monobloc tubular shaft) than conventional solutions for connecting the joint of a side shaft to the wheel hub – they also perform better. In contrast to common approaches – like pin joints – GKN Automotive uses a special spline design over the entire surface of the joint front. This front spline and its counterpart on the wheel hub mesh precisely and are centered by the cone of the Face Spline joint. The components are secured and friction-locked with a fastening screw. Another innovative new feature of the Face Spline shafts by GKN Automotive is the use of special space-saving diaphragm boots for sealing the rear axle, which are suitable for any application with a deflection angle of up to 25 degrees.

The advantages speak for themselves: These new technologies allow transmission of up to 50 percent higher torques. The weight saving on the wheel reduces the unsprung mass by about 20 percent, which noticeably increases ride comfort. The use of GKN Automotive's ST technology (Sideshaft Twin Ball with S-shaped ball track) also further reduces the internal frictional resistance in the joint. Together with the decreased weight, this leads to lower fuel consumption and improves the vehicle's environmental footprint. The hollow monobloc shaft, which is characterised by minimum weight with maximum stability and torsional rigidity, also contributes to this.

A winning combination for tomorrow's mobility

"This combination of Face Spline toothing, Sideshaft Twin Ball technology and hollow monobloc shaft is GKN Automotive's lightweight, compact and powerful solution for future-proof mobility," says Holger Freese, Sales Manager for Germany, Austria and Switzerland at GKN Automotive Aftermarket. "This is also seconded by premium manufacturer BMW Group, whose xDrive models have been using Face Spline technology since 2013. At that time, the focus of the development was on weight savings throughout the vehicle. Other benefits of GKN Automotive products include reduced levels of noise and greater ride comfort. Thanks to these features, shafts with Face Spline technology have already made it into the top 5 of the GKN Automotive portfolio."

GKN Automotive is the only manufacturer of ST technology in combination with Face Spline technology on the market. This means that the company plays not only a vital role as an OEM supplier, but also in the aftermarket. For example, to enable workshops to easily repair vehicles with Face Spline hub connections, the technology is available from all major wholesalers. Ordering is possible with just a few clicks. Customers benefit twice by receiving OEM quality at wholesale conditions, while employees at the garage benefit from working with this easy-to-install component.

The extensive product range of GKN Automotive propshafts can be ordered from all major wholesalers and is listed on TecDoc.



Product images

With only one bolt and the help of the cone, the Face Spline joint is securely connected and centered to the wheel hub. Thanks to the wide spline surface, the joint is more efficient than conventional pin solutions.



Allows a deflection angle of up to 25 degrees on the rear axle: the space-saving diaphragm boots.

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About GKN Automotive Aftermarket Business

GKN Automotive Aftermarket Business is the world's leading supplier of original drive components and systems in the independent aftermarket. With our extensive range of drive products, we guarantee the consistent supply of our customers through wholesalers and local retailers. Our product range includes seshifts, joint kits, boot kits and propshafts. We also offer a variety of suspension springs and steering components under the SPIDAN brand.

For more information, visit: www.gknautomotive.com