

New Two-Component Injection-Molded Heavy-Duty Plain Bearings From igus for High Mechanical Loads

Injection-molded iglide Q3E plain bearing ensures dry-running maximum load capacity performance in efficient high-volume product

STAMFORD, CONNECTICUT, UNITED STATES, September 27, 2023 /EINPresswire.com/ -- igus®, a leading global manufacturer of engineered components to increase the service life of customers' machines, has introduced a new two-component injection-molded heavy-duty plain bearing for high mechanical loads.

A first for the construction machinery and agricultural machinery industry: With the new [iglide Q3E](#) plain bearings, igus has, for the first time, found a way to manufacture heavy-duty bearings made of two layers of high-performance plastic using the cost-effective injection molding process. Until now, a plastic-based multilayer structure was only possible using the winding process, which is more cost-intensive for large series.

Excavators lift hundreds of pounds of sand with each scoop of their shovel. This heavy load puts intense pressure on the pivot points of the shovel arm. igus has traditionally used [igutex](#) series plain bearings to handle these heavy loads. These bearings are made by winding different materials together. The inner layer has solid lubricants that let the bearing slide smoothly without needing oil. The tough outer layer



Hard shell and wear-resistant core: the new cost-effective iglide Q3E plain bearing supports heavy loads without lubrication. (Source: igus GmbH)

gives the bearing the strength to handle the excavator's intense loads.

"Now we have succeeded in realizing a multilayer structure also in the injection molding process, thus combining materials with complementary properties," says Uwe Sund, product manager for iglide heavy-duty bearings. "Thanks to the new technology, multi-component heavy-duty bearings can now be produced in large series in the particularly cost-effective injection molding process."

The challenge: Injecting and fusing two materials in one operation

The new iglide Q3E series is the result of intensive cooperation between igus material development and specialists from its own toolmaking department. The biggest challenge was to process the two different materials in the injection molding process in such a way that two components become one. This combines the advantages of both materials.

"With the development of iglide Q3E, we had the goal of achieving a similar, multi-part structure as with the igutex series - with the high-performance plastic iglide Q3 for a tribologically optimized core and a particularly reinforced polymer for a mechanically highly resistant shell," explains Sund. "This is achieved in the multi-component injection molding process with complex and sophisticated injection molds."

Robust load capacity meets convincing sliding properties

The iglide Q3E plain bearings are suitable for heavy-duty applications where plain bearings made of metal or fiber-reinforced bushings are traditionally used, and cost savings are to be achieved, including in the construction and agricultural machinery industry. Their maximum dynamic surface pressure is 75 MPa.

"This allows us to cover many heavy-duty applications with iglide Q3E," says Sund.

The decisive advantage: The plain bearings do not require grease. Microscopically small solid lubricants are integrated into the polymer of the inner layer, which are successively released during the service life of the bearing.

"Especially when servicing construction and agricultural machinery, lubricating the bearing points is one of the most time-consuming tasks," concludes Sund. "By switching to iglide Q3E or igutex, users save maintenance costs and increase the service life of the machines. Because neglected lubrication of classic metal bearings repeatedly leads to expensive damage to shafts and plain bearings."

ABOUT IGUS:

igus GmbH develops and produces motion plastics. These self-lubricating, high-performance polymers improve technology and reduce costs wherever things move. In energy supplies, highly

flexible cables, plain and linear bearings, and lead screw technology made of tribo-polymers, igus is the worldwide market leader. The family-run company based in Cologne, Germany, is represented in 31 countries and employs 4,600 people across the globe. In 2022, igus generated a turnover of €1.15 billion. Research in the industry's largest test laboratories constantly yields innovations and more user security. Two hundred thirty-four thousand articles are available from stock, and service life can be calculated online. In recent years, the company has expanded by creating internal startups, for example, ball bearings, robot drives, 3D printing, the RBTX platform for Lean Robotics, and intelligent "smart plastics" for Industry 4.0. Among the most significant environmental investments are the "chainge" program – recycling used e-chains and participating in an enterprise that produces oil from plastic waste.

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