

As strong as a tree: bionic design makes igus plastic pillow blocks robust

New igubal® pillow blocks are a maintenance-free, economically effective alternative to classic cast iron housing bearings

UNITED STATES, January 5, 2022 /EINPresswire.com/ -- Nature is frequently a model for engineering materials, and the new igubal® [pillow block](#) from igus® – based on the design principles of a tree – provides an alternative to classic cast iron housings.

Flattened radii ensure maximum resistance to mechanical stresses. The bionic shaped housings, made with high-performance materials from the international leader in the motion plastics industry, require no lubrication or maintenance. igus, based in Cologne, Germany, runs its North American operations out of Providence, Rhode Island.

Cast housing bearings with metal ball bearings quickly reach their limits in dusty, wet and dirty environments. Whether in pulleys on conveyor belts in the cement factory or in tipping devices on trailers in the field, they are prone to failure. A high degree of contamination and inadequate lubrication are responsible for 80 percent of premature bearing failures. There is also the constant risk of corrosion.

Lubrication-free bearing inserts made of high-performance plastic solve the problem. igubal® polymer pillow blocks in the standard sizes 20, 25, and 30 millimeters enable quick one-to-one replacement. Two-hole and four-hole flange bearings in the sizes of 20, 30, and 40 millimeters are also available.

The tree is the model: rounding ensures even stress distribution



In the bionic design of the robust, maintenance-free igubal® pillow blocks, the igus® designers use a tree crotch as a model. (Source: igus GmbH)

Engineers at igus use two strategies to ensure that the plastic pillow blocks are sufficiently robust in industrial applications. The first is working with fibers and fillers that reinforce the igubal® plastic so that it withstands high surface pressure and edge loads even under continuous stress.

The second follows a model from nature: the tree crotch, a connection found between branches and trunk or where the tree is firmly anchored in the ground. The design is considered particularly efficient and robust.

The designers have optimized the shape of the housing notches and done away with constant radii in order to distribute the stress more evenly. This makes igubal® housing bearings highly resilient. Their chemical resistance, freedom from corrosion and insensitivity to dirt give the bearing inserts made of the iglide® J tribo-polymer a significantly longer service life in numerous customer applications over metallic bearings.

The absence of lubricants also reduces maintenance and cleaning requirements and enhances environmental protection. There are no lubricants at any point in the system that could get into the environment or on to the product.

igus expands the igubal series range

The new pillow blocks and flange bearings are not the only products igus is adding to the igubal® range. There are also three bearing inserts for the imperial market, now available in 1, 1.5, and 2 inch inside diameter sizes. The price for FDA-compliant iglide® [A350](#) plain bearings will also be reduced by around 50 percent in the future. This is because igus no longer manufactures the bearing exclusively by turning bar stock, but has recently added the more cost-effective injection molding process.

Thomas Renner
Catalyst Marketing Communications
[email us here](#)

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