

Fit with plastic: igus plain bearings adjust weights in new fitness equipment

Lubrication-free and durable iglidur G plain bearings used in the functional training device "armbar" from Atlas In Gym Neering

In order to achieve a stronger muscles and body core, more and more athletes rely on functional training. One piece of equipment that combines leverage and pendulum strength is the armbar from Atlas In Gym Neering. It was developed by two competitive athletes and is suitable as a compact and cost-effective multifunctional device. For a safe bearing arrangement of the barbell, the engineers relied on durable and lubrication-free igus plain bearings made of iglidur G.

Functional training is becoming increasingly popular in the fitness sector. The workout is designed to improve movement quality and prevent injury by having multiple muscles work together during the exercises. There are many devices for functional training. Till Nonhoff and his team at Atlas In Gym Neering have set themselves the task of developing a multifunctional device for this purpose. The "armbar" is a barbell that hangs from a rope on one side and offers many movement possibilities. The patented device is suitable for gyms, personal training, CrossFit and physiotherapy. With a footprint of just six square metres, the armbar is also a good option for smaller studios. "The quality and durability of the 150 different components were particularly important to us," explains Till Nonhoff. Especially for the bearing points of the armbar, the engineers were looking for tough and lubrication-free plain bearings. They had to be low-friction and maintenance-free. "During our research, we became aware of the igus high-performance plastic plain bearings. We were able to enter the data of our armbar in the online service life calculator and determine the correct material. When there were later changes in the design, the technical igus sales consultant Gerald Voss was there to advise us. A service that is not natural for us as a small start-up," explains the young entrepreneur.

Magnesium, sweat and high weights

A total of four plain bearings from the motion plastics specialist are used. Two bearings made of the high-performance plastic iglidur G ensure a smooth-running weight adjustment of the armbar on a stainless steel shaft. The bearings are located in a carriage on which up to 450 N act. Dirt, sweat, magnesium powder and water can enter the bearing points. Environmental conditions that the high-performance plastics can easily withstand. Two further plain bearings made of the same material are located in the rowing handle of the sports equipment. The polymer is not only characterised by its good technical specifications, but is also very cost-effective. The bearings have already proven their worth in the initial long-term tests. Now the armbar is about to be launched on the market. The device is said to cost just 3,000 euros. "There is already a lot of interest in the product and we are looking forward to delivering the first devices with high quality 'Made in Germany' components soon," said Nonhoff.

Caption:



Picture PM5621-1

For a secure bearing of the armbar, the designers rely on durable and lubrication-free igus plain bearings made of iglidur G. (Source: igus GmbH)

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ABOUT IGUS:

igus GmbH develops and produces motion plastics. These lubrication-free, high-performance polymers improve technology and reduce costs wherever things move. In energy supplies, highly flexible cables, plain and linear bearings as well as lead screw technology made of tribo-polymers, igus is the worldwide market leader. The family-run company based in Cologne, Germany, is represented in 35 countries and employs 4,150 people across the globe. In 2020, igus generated a turnover of €727 million. Research in the industry's largest test laboratories constantly yields innovations and more security for users. 234,000 articles are available from stock and the service life can be calculated online. In recent years, the company has expanded by creating internal startups, e.g. for ball bearings, robot drives, 3D printing, the RBTX platform for Lean Robotics and intelligent "smart plastics" for Industry 4.0. Among the most important environmental investments are the "change" programme – recycling of used e-chains - and the participation in an enterprise that produces oil from plastic waste.

The terms "igus", "Apiro", "chainflex", "CFRIP", "conprotect", "CTD", "drygear", "drylin", "dry-tech", "dryspin", "easy chain", "e-chain", "e-chain-systems", "e-ketten", "e-kettensysteme", "e-skin", "e-spool", "flizz", "igear", "iglidur", "igubal", "kineKIT", "manus", "motion plastics", "pikchain", "plastics for longer life", "readychain", "readycable", "ReBeL", "speedigus", "tribofilament", "triflex", "robolink", "xirodu" and "xiros" are protected by trademark laws in the Federal Republic of Germany and internationally, where applicable.