437 times lubricant-free bearings

Record number of entries to the 6th "manus" competition.

The jury, which chooses the prizewinners of the igus-sponsored "manus" competition held every two years had more than ever to do this year. With no less than 437 innovative ideas for the use of lubricant-free plastic plain bearings being submitted, experts and academics had a tough selection job on their hands.
The result was announced at the Hanover Fair.

The search was on for the 6th time for innovative applications that use lubricant and maintenance-free plastic bearings and stand out through their technical and/or economic efficiency and creativity.

Creative application examples from 33 countries
The entries reflect the wide range of possible uses for plastic plain bearings - and are impressive proof of the creativity of design engineers in mechanical engineering and automotive construction. The spectrum ranges from furniture construction through to sports equipment and rehabilitation and medical technology to classical machines and vehicles. Just as impressive is the international character of the competition, with entries being made from 33 countries. More than thirty entries each were submitted from China, German, Great Britain, India, Italy and Poland. The five-strong jury, including academics from the Institute for Composite Materials in Kaiserslautern and Cologne Technical College, viewed and assessed all the suggestions over the past few weeks - and decided on the winners.

Gold for sport: Cross-country skiing in your living room
The jury awarded the golden manus and a cash prize of 5,000 euros to Ulrich Ghisler, design engineer at Thorax Trainer APs in Kokkedal, Denmark. He has developed a training device for cross-country skiing. Users move the sticks as during a real cross-country ski run, thus achieving an optimum training effect for the whole body. To make the simulation as realistic as possible, it

Picture PM1113-01: igus GmbH, Cologne
The jury awarded the golden "manus" to Ulrich Ghisler, design engineer at Thorax Trainer APs in Denmark. His training device for cross-country skiing uses drylin linear guides to guide the ski sticks and simulate a realistic sequence of movements.

was important for the developers that the slides run smoothly backwards and forwards along the rail. In addition, the movement should make as little noise as possible so that the device can be used in the home without any problems. These conditions are optimally met by drylin linear guides. The trainer's ski sticks are mounted on one linear guide each with a slide.

Silver for energy technology: Pneumatic UPS

The silver manus - and prize money of 2,500 euros - goes to Austria. Christian Geistberger from Hitzinger GmbH in Piberbach has developed a new system for an uninterruptible power supply (UPS) powered by compressed air. The basis is a pneumatic rotary piston engine which stands out on account of its high power and extremely fast reaction times, needing less than 30 ms to start up from 0 per cent to 100 per cent load. The air intake on the drive rotor is controlled via flaps. The flap bearings must be able to withstand a high static load and be resistant to extreme temperatures, have a low adhesive friction and be insensitive to dirt. Initial tests with Carobronze bushings failed because the bearings became clogged with dust particles after a short period of use and no longer opened. Ball and needle bearings were not suitable on either account of the lubrication required. Only the lubrication- and maintenance-free iglidur plain bearings guarantee permanent and smooth flap function. This means that at the end of the day the cheapest bearing solution is also the best.

Picture PM1113-02: igus GmbH, Cologne
In the pneumatic rotary piston engine developed by Christian Geistberger from Hitzinger GmbH in Austria, iglidur plain bearings control the air supply. The drive is at the heart of a pneumatic emergency power supply - a real inventor's idea.

Picture PM1113-03: igus GmbH, Cologne
A new bearing concept for an agricultural machine developed by Andreas Höck from GKN Walterscheid GmbH creates the preconditions for improved concentricity and long service life under very unfavourable environmental conditions. A maintenance and lubricant-free iglidur plain bearing forms the basis of this concept.

Bronze for agriculture: Wear-free friction clutch

The bronze manus and 1,000 euros went to Andreas Höck from GKN Walterscheid GmbH in Lohmar/Germany. He had an idea for a new bearing concept for heavy-duty overload protection in the drive train of a machine for harvesting green fodder. One of the aims was to improve running smoothness. To achieve this aim, Andreas Höck put several interfaces together and developed a new bearing concept where the metal bearings previously used are replaced by iglidur plain bearings. The result is a significant improvement in concentricity. In addition, the plastic bearings from igus are corrosion and dirt-resistant.

All entries at a glance

All the plastic plain bearing applications entered can be found on the Internet at www.manus-award.com, many of them include videos. A free 300-page brochure showing

all this year's manus entries can be requested now from manus@igus.de. This makes inspiring reading for design engineers and just goes to show what can be done with plastic plain bearings from igus.

Picture PM1113-04: igus GmbH, Cologne
The winners of the 6th "manus" competition (from the left):
Andreas Höck, GKN Walterscheid GmbH (bronze manus)
Christian Geistberger, Hitzinger GmbH (silver manus)
Ulrich Ghisler, Thorax Trainer ApS (golden manus)
Torben Jensen, Thorax Trainer ApS (golden manus)

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