

Lubricant-free world

Plastic plain bearings: 300 entries from 28 countries submitted for the 5th “manus” competition

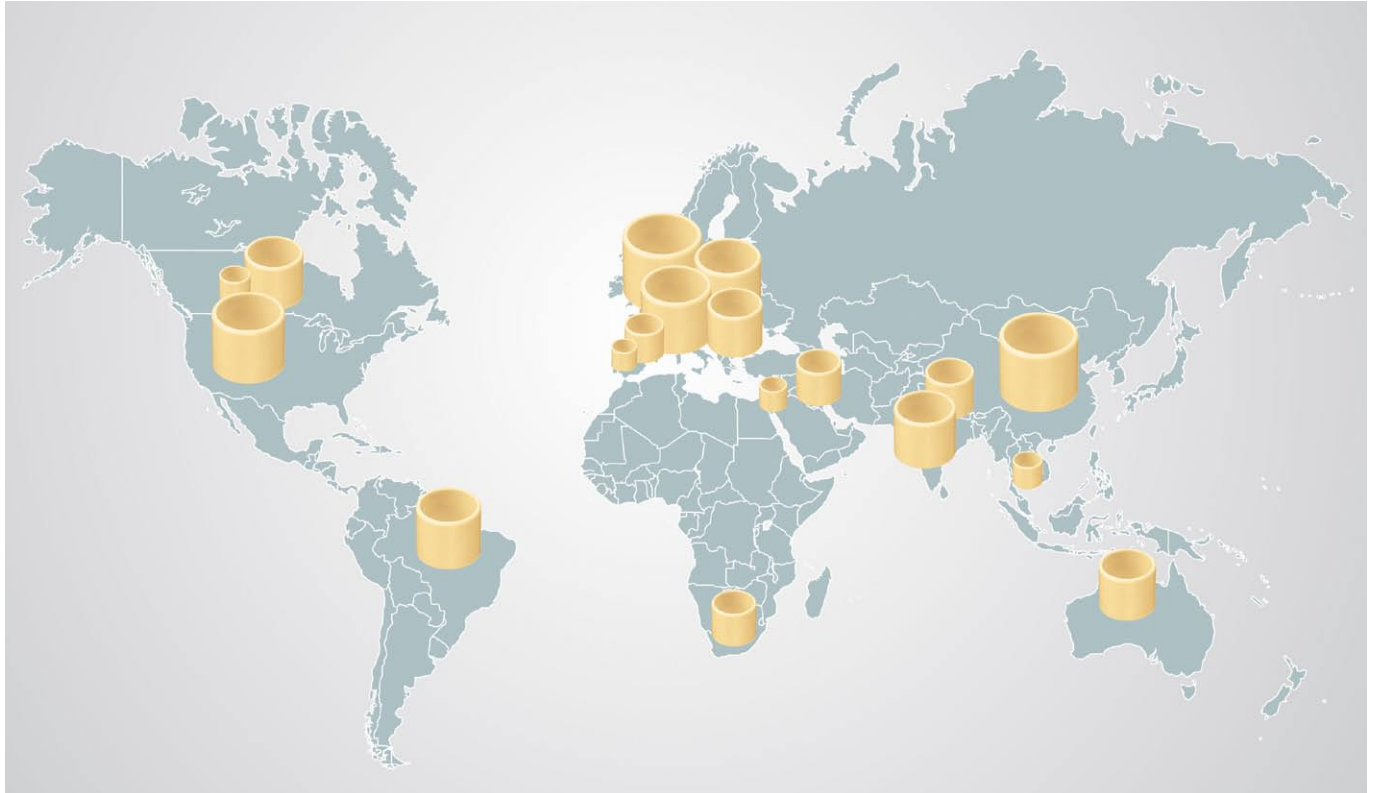


Photo PM0511-01: igus GmbH, Cologne

Lubricant-free world: 300 entries from 28 countries all over the globe were submitted for the 5th “manus” competition from igus for innovative polymer plain bearing applications.

Polymer researcher and bearings specialist igus GmbH, Cologne, presented the results of the 5th “manus” competition for plastic plain bearings at an awards ceremony during the Hanover Trade Show. The expert panel of scientists had been overwhelmed by the 300 entries from 28 countries all over the world. Competition entries were still coming in after the official closing date.

Due to the enormous success of the four previous “manus” competitions, the contest for design engineers was organised for entries from all over the world for the first time this year, in cooperation with academic partners such as the Institute for Composite Materials in Kaiserslautern and Cologne Technical College. The search was on again for innovative applications that use lubricant and maintenance-free polymer bearings and stand out through their techni-

cal and/or economic efficiency and creativity. Eligible for entry were all applications using solid plastic plain bearings and plastic compounds, but not applications that only use coated bearings.

From the USA through to China and Australia

Around 80 entries were received for the last “manus” competition (restricted to Germany, Austria and Switzerland), while this year the jury noted exactly 301, sometimes spectacular, entries from all parts of the world: from the USA, Canada and Brazil through to South Africa and Australia, Malaysia and Singapore, India, the People’s Republic of China, Taiwan, Korea, Iran and the Lebanon as well as from across Europe. All the plastic plain bearing applications entered can be found on the Internet at www.manus-award.com, many of the entries include webcasts. A free 240-page brochure can also be requested by sending an

e-mail to manus@igus.com.

Gold: Hygienic design for Spanish omelettes

Gold and silver both go to the Iberian peninsula. The jury awarded the “manus” gold award and prize money of 5,000 euros to Carmelo Lagunas, a design engineer from Tuleda in Spain, for his machine which produces potato omelettes. This machine can make more than 1,800 tortillas de patatas per hour. The pans for the individual omelettes are moved in rows of four through the machine. In the hot and greasy environment (permanent temperature 40 to 70°C, during the frying process up to 175°C short term), lubricant and maintenance-free “iglidur Z” plastic plain bearings from igus are used for high loads and high temperatures. Plain bearings made of “iglidur A200”, which comply with the requirements of the “Food and Drug Administration” (FDA) are used in places with direct food contact. The resistance of the bearings to chemical cleaning agents is another important factor.

Silver: Portuguese blade strikes stones with great impact

The “manus” silver award and 2,500 euros prize money went to Marco Portocarrero from the company Produlex Lda in Caminha near Porto/Portugal. His newly developed cutting and mowing disc with self-sharpening blades can cut even thin tree trunks during forest clearing work. Robust heavy-duty bearings made of the polymer material “iglidur Q” from igus link the support and the blade



Photo PM0511-02: igus GmbH, Cologne

The jury awarded the golden “manus” to design engineer Carmelo Lagunas (Tuleda, Spain) for his potato omelette machine. Lubricant-free “iglidur Z” polymer plain bearings are fitted in the hot greasy environment for high loads and high temperatures, while FDA-approved “iglidur A200” plain bearings are fitted at points with direct food contact.



Picture PM0511-03: igus GmbH, Cologne

Marco Portocarrero (Caminha, Portugal) was awarded the silver “manus” for his free-cutting mowing disc. Sturdy heavy-duty bearings made of the polymer material “iglidur Q” link the supporting and the blade shafts. During forest clearing work, the blades regularly hit stones with great impact. This impact is totally absorbed by the igus plain bearings.

shafts of the mowing disc. With a tensile strength of 1,400 kg, these ensure that the blade rotation adapts to the balance between centrifugal force and cutting resistance and can even rotate completely around its

own axis when the impetus is particularly hard, for example when the blade strikes a stone. The polymer plain bearing, as the central blade link, takes the whole force of the impact.

Bronze: Wear-free finger prostheses

The “manus” in bronze and 1,000 euros prize money went to Dr. Stefan Schulz, Managing Director of Vincent Systems GmbH in Weingarten, a company which specialises in medical prostheses and robots. The company has developed hand and finger prostheses with power-driven fingers. The basic finger joint is moved directly by a gear motor, whereby the central joint is also moved via a spring link. All the axes involved in this movement are fitted with plain bearings made of “iglidur J” material for extremely low friction values combined with a long service life. The plastic bushings were manufactured from iglidur stock bar. The eight bearings per finger absorb static, pulsating and oscillating loads in the smallest of spaces.

In addition, the jury awarded a “special manus” for great creativity. This went to Frank Spenling, Head of Product Design at Archimedes Consulting in Berlin. The company has developed a robot head that can express emotions and react to the facial expressions of the person opposite through the numerous movement possibilities in it’s face. Polymer plain bearings from igus were “the key components in the whole design structure”, explained Spenling, in order to achieve a low-clearance, long-life and compact design. They are fitted in all the rotating joints.



Picture PM0511-04: igus GmbH, Cologne

Dr. Stefan Schulz from Vincent Systems GmbH in Weingarten is the winner of the bronze “manus”. “iglidur J” plain bearings are used in the power-driven finger prostheses made by the company, for a combination of extremely low friction values and long service life. They absorb static, pulsating and oscillating loads in the smallest of spaces.

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Photo PM0511-05: igus GmbH, Cologne

The winners of the global plastic bearing competition “manus 2011” (from the left): Silver award winner Marco Portocarrero (Portugal), CEO Frank Blase (igus), bronze award winner Dr. Stefan Schulz (Germany), special award winner Frank Spenling (Germany), Pedro Vilas Boas (igus Portugal), gold award winner Carmelo Lagunas (Spain), Dr. Matthias Meier (igus Spain), vice president Gerhard Baus (igus).