

Lubrication-free World

Plastic plain bearings: 300 entries from 28 countries submitted for fifth manus competition

East Providence, RI - May 31, 2011

Polymer developer and bearings specialist igus® presented the results of its fifth manus® competition for plastic plain bearings at an awards ceremony during the Hannover 2011 tradeshow. The expert judging panel had been overwhelmed by the 301 entries received from 28 countries all over the world. Competition entries were still coming in after the official closing date.

Due to the enormous success of previous manus competitions, the contest for design engineers accepted 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, a city in southwest Germany. The search was on again for innovative applications using lubrication- and maintenance-free plastic bearings that stand distinguished by technical or economic efficiency and creativity. Any applications using a solid plastic plain bearing and plastic compounds was eligible for entry, but not applications using plastic-coated bearings.

From the USA to China to Australia

Around 80 entries were received for the last manus competition, which accepted entries from Germany, Austria and Switzerland. This year, the judges noted exactly 301 entries from all over the world: including the USA, Canada, Brazil, South Africa, Australia, Malaysia, Singapore, India, the People's Republic of China, Taiwan, Korea, Iran, the Republic of Lebanon, and across Europe. Details of the winners can be found at www.igus.com/manus. A 240-page brochure can also be downloaded.

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Gold: Hygienic design for Spanish omelettes

Gold and silver both go to the Iberian peninsula. The judges awarded the gold manus award and prize money of 5,000 euros to Carmelo Lagunas, a design engineer from Tudela 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 - involving long-term temperatures between 104 to 158 degrees Fahrenheit and short-term temperatures up to 347 degrees Fahrenheit during the frying process - lubrication and maintenance-free iglide® Z plastic plain bearings from igus are used due to the high loads and temperatures. Plain bearings made from iglide A200, which comply with the requirements of the Food and Drug Administration (FDA), are used in places where direct food contact is involved. The resistance of the bearings to the chemicals in cleaning agents is another important reason why they are used.

Silver: Portuguese blade strikes stones with great impact

The silver manus award and 2,500 euros went to Marco Portocarrero from the company Produlex Lda in Caminha near Porto, the second largest city in Portugal. His newly developed disc mower has self-sharpening blades which can even cut thin tree trunks during forest clearing work. Robust, heavy-duty bearings made from the polymer material iglide Q from igus link the support and the blade shafts of the disc mower. With a tensile strength of 3,086 pounds, the blade rotation adapts to the balance between centrifugal force and cutting resistance and can rotate completely around its own axis when the impetus is particularly hard, for example when the blade strikes a stone. The plastic plain bearing, as the central blade link, takes the whole force of the impact.

Bronze: Wear-free finger prostheses

The bronze manus and 1,000 euro prize went to Dr. Stefan Schulz, Managing Director of Vincent Systems GmbH in Weingarten, Germany, a company which specializes 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 and the central joint moved via a spring link. All the axes involved in this movement are fitted with plain bearings made from iglide J from igus, which is a plastic material distinguished by an extremely low coefficient of friction and long service life. The plastic bushings were machined from iglide bar stock. The eight bearings per finger absorb static, pulsating and oscillating loads in the smallest of spaces.

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The judges also awarded a special manus award for exceptional creativity to Frank Spenling, Head of Product Design at Archimedes Consulting in Berlin, Germany. The company has developed a robot head that can express emotions and react to the facial expressions of the person opposite. Plastic 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. The bearings are fitted in each rotating joint.

About igus

igus develops industry-leading Energy Chain[®] cable carriers, Chainflex[®] continuous-flex cables, iglide[®] plastic plain bearings, igubal[®] spherical bearings, and DryLin[®] linear bearings and guide systems. These seemingly unrelated products are linked together through a belief in making functionally advanced, yet affordable plastic components and assemblies. With plastic bearing experience since 1964, cable carrier experience since 1971 and continuous-flex cable since 1989, igus provides the right solution from over 80,000 products available from stock. No minimum order required. For more information, contact igus at (800) 521-2747 or visit www.igus.com.

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