

#igusHM17: Human exoskeleton wins the 2017 golden manus

541 applicants at the 8th edition of the international competition in search of the most exciting plain bearing applications

Hannover/Cologne, 26. April 2017 – What began in 2003 with 34 participants has meanwhile developed into a worldwide competition for the entire industrial environment, which proves what plastic plain bearings are capable of today. The eighth edition of the manus award, which is conferred every two years by igus GmbH at the 2017 Hannover Messe, attracted a total of 541 inventors and developers from all over the world with their plastic bearings applications. The golden manus went this year to the USA, awarded to the company Pathway LLC in cooperation with Levitate Technologies, which developed an exoskeleton to facilitate assembly work.

Constantly repetitive assembly procedures, in the most unfavourable case standing and looking upward – sooner or later this often leads to discomfort in the neck, shoulders and back or adjustments of the movement apparatus. To prevent this, the American company Pathway, in cooperation with Levitate Technologies, developed a light exoskeleton that relieves the muscles, supports movement sequences and can be worn effortlessly throughout the day. In the exoskeleton "Airframe", special attention was paid to the rotation mechanisms, which must easily rotate even under high axial loads. To ensure this, a large number of different iglidur bearings from igus are installed in the mechanical support system. They do not have to be lubricated unlike metallic bearings, which is a huge plus when wearing in direct contact with clothing, and they are also light and corrosion-free. Thus, the exoskeleton can also be used in difficult environmental conditions. All these features impressed the jury of the 2017 manus award, consisting of representatives from specialist media, business and research, who distinguished the application with the golden manus. This first place is endowed with a prize of 5,000 euros.

Silver for underwater gripping arm

The silver manus was presented to the company Ocean Innovation System from France for its electric manipulator arm, which can be used up to a depth of 500 metres under water. The system is equipped with over 30 igus plain bearings, which enable the various movements of the arm. The arm has a load-bearing capacity of 16 kg (dynamic) to 50 kg (static) in the extended state. The requirements for the igus components: Applicable in freshwater and seawater, with pressures up to 150 MPa, light weight, wide selection, maintenance-free and cost-effective. Plain bearings made of the material iglidur X, which withstands particularly high pressure loads and has a very low moisture absorption, meet these requirements without restrictions.

Research project in outer space receives bronze

More than 30,000 objects move as space debris in the Earth's orbit and represent a danger to satellites. The student project UB-SPACE, which took third place in the 2017 manus, is concerned with the analysis of how the parts move in space. The 5-member team from Bremen has developed a module that transports a cube-shaped object – the so-called "free falling unit" (FFU) – into space using an ejection mechanism on board a rocket, to record how the object moves in space with the help of a camera system and other sensors. The mechanism consists of two stepper motors, each of which is connected by a coupling to a lead screw. The opposite side is mounted on the rocket wall by a 3D-printed bearing made of iglidur J260 Tribo-Filament. In order to prevent tilting of the FFU, the running surface of the ejection chute was lined with the plastic liner Tribo-Tape made from iglidur V400. After extensive tests, the system was deployed on the sounding rocket REXUS 21 in March 2017.

In the next few weeks, you can also find all the news relating to igus at Hannover Messe 2017 on Facebook and Twitter under the hashtag #igusHM17

Captions:



PicturePM2217-1

The winners of the 2017 manus award were honoured at the Hannover Messe by igus CEO Frank Blase (right), Gerhard Baus, Vice President bearings (4th from left) and Tobias Vogel, Head of Division iglidur bearings and drylin linear and drive technology (left). The golden manus was won by the company Pathway in cooperation with Levitate Technologies from the USA. The silver award went to the French company Ocean Innovation System, the bronze manus was conferred to the student project UB-SPACE from Germany. (Source: igus GmbH)



Picture PM2217-2 and -3

The 'Airframe' exoskeleton supports movement sequences during assembly work and thus relieves the neck, back and shoulder area. (Source: igus GmbH)

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