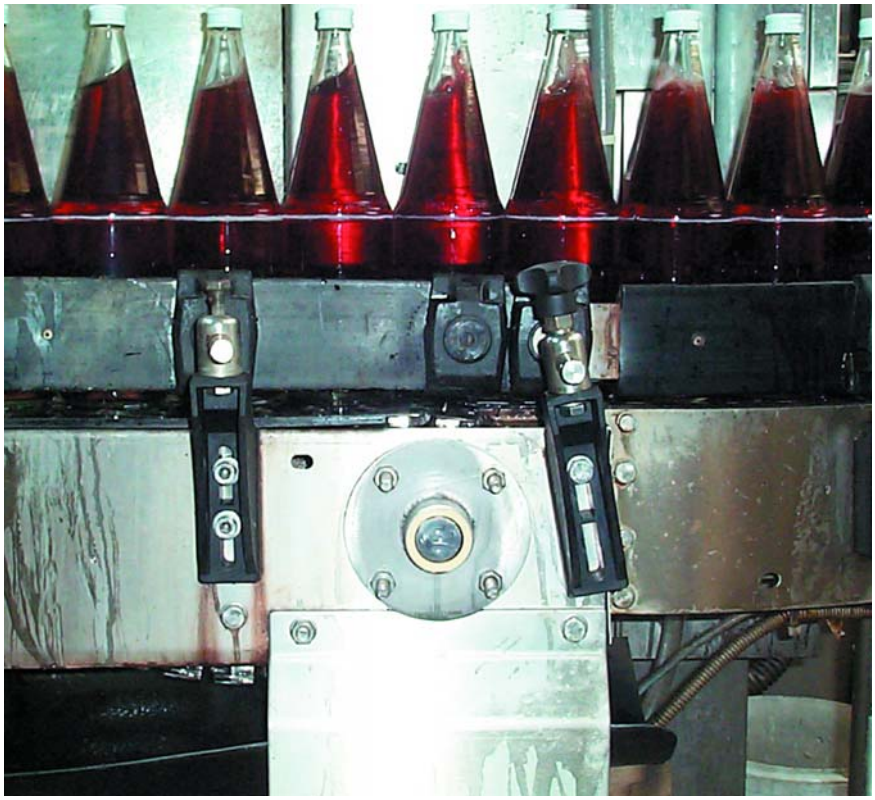
CeMAT trend: plastic bearings for materials handling

There is hardly a branch that has so much potential for cost-cutting and rationalization as technical logistics. Polymer bearings are making what has until now been a little-observed contribution towards optimizing the flow of materials and reducing flow times. At the CeMAT trade fair, igus (Cologne) is now showing how sliding, linear and hinge bearing solutions made of plastic can reduce maintenance rates and increase the useful life of bearings even in adverse conditi-ons. Today's diversity in designs and models of bearings allows for the individual construction of material handling systems with products available from stock.



Picture PM2105-01: igus GmbH, Cologne

"iglidur J" plastic bearings were able to cost-effectively replace lubricated ball bearings in this application (conveyor belts, food industry).

Low-cost package sorting system

For example, the Fraunhofer Institut of Materials Flow and Logistics (Dortmund) is using plastic flange-type bearings for its revolving sorter for automating the sorting of packages - as bearings for the load-bearing shells and for the restraint device on the shells. Winfried Schroer (BEng.) from the Fraunhofer Institute: "Since the screws need to be screwed into thin metal, either bearing blocks would have had to be milled for the sliding bearings or angle-tolerant flange roller bearings would have had to be used. Plastic flange bearings were by far the most cost-effective alternative."

Focus on conveyer belts

WBS Systemtechnik uses maintenance-free plastic swivel heads for their conveyer belts: as the connecting components between the pneumatic cylinders and control levers. The low weight and vibration-reducing properties of the swivel heads mean that very short cycle times can be achieved for this type of application. Reich Anlagenbau GmbH & Co. KG, a company that produces conveyer belts for the food industry, uses a similar procedure. Plummer blocks with plastic can cope with any challenge, such as abrasion, corrosion, a long service life (two years in an endurance run), resistance to cleaning agents and maintenance. Another example is W. Streker Natursaft GmbH: here plastic "iglidur J" sliding bearings, installed in the conveyor belt, now replace lubricated ball bearings.

Scissor lift tables

Another example of the use of high-performance sliding bearings is a retractable mast driving chain for scissor lift tables. Alexander Schmezer from Innovative Hebe Technik GmbH, Georgsmarien-hütte: "With the igus Type Z and W300 bushes, we

found a virtually wear and tear-free bearing system, which is at the same time able to withstand great pressure, to produce and supply our retractable mast driving chain products ready for the market."

In the case of an accumulating conveyor application (Edag Engineering + Design AG) it is short linear strokes and alternating pivoting angles under varying impact loads that challenge "iglidur G" igus plastic plain bearings. This challenge was met without any maintenance and operating dry in an accumulating roller conveyor. This application and other logistical applications (such as the head of a carrying handle dispenser, set-head for small tiles, etc.) were presented to the public by igus (corporate mission: "plastics for longer life") on the company stand at the CeMAT trade fair. Other benefits of the bearings, which engineers and designers pointed out as being decision-making criteria, are their resistance to dirt and good absorption properties.

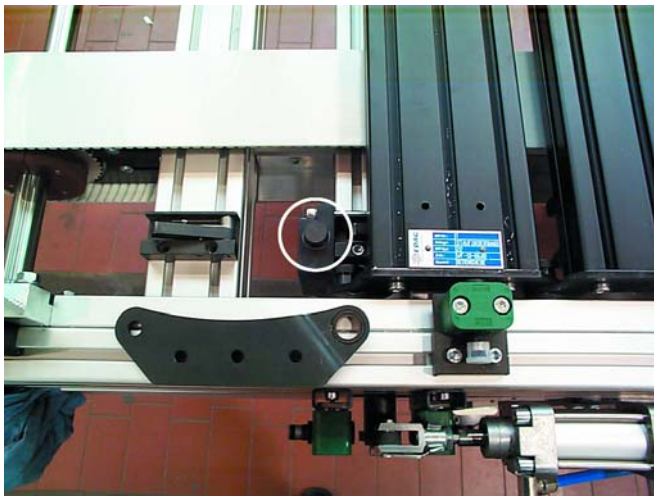
Maintenance-free shelf-access equipment

In linear technology, plastic bearings also have numerous benefits. For example, shelf-access equipment is completely maintenance-free with "DryLin W" linear bearings and operation is virtually silent. The absorption properties of the plastic dampen shocks and vibrations. Rails can easily be extended to more than 15 m in length, hence making the system extremely flexible. The plastic elements slide smoothly over irregularities and the application of double profiles reduces assembly work to a minimum.

Format adjustments of any kind can be implemented with full drive units, which come with a choice of leadscrew modules or synchronous belt drives. All of the bearings of these systems are free from lubrication and so require no maintenance. They are also highly dirt-resistant.

Picture PM2105-02: igus GmbH, Cologne

Vibration-reducing and lightweight: plastic swivel head for a conveyor belt. The bearing connects the pneumatic cylinder and the adjusting head.



Picture PM2105-03: igus GmbH, Cologne

Maintenance-free under great stress: plastic bearings installed in an accumulating conveyor.

Picture PM2105-04: igus GmbH, Cologne

"DryLin W" linear bearings mean that shelf-access equipment requires absolutely no maintenance and operates virtually silently.

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