

Adjusted quickly – precisely mounted

igus as a module supplier for KHS labelling machines

Numerous rotary and linear bearings from the igus product range are not the only ones installed in KHS GmbH's labelling machines. The company igus also supplies complete, ready-to-install modules such as, for example, adjustment systems and guide rollers. From the KHS's point of view, this not only simplifies assembly. It also ensures high precision high speed working sequences

60,000 bottles per hour or 1,000 bottles per minute and just under 17 every second: this is the output of a typical beverage filling and packing plant of the KHS. The company, which is headquartered in Dortmund, is one of the market leaders worldwide, who develop, design and build such systems - turnkey on request. KHS employs approximately 5,000 people, generated sales of around € 1.18 billion in 2016 and is a wholly-owned subsidiary of the Salzgitter Group.

The distribution of sales in the Labelling Division shows the impressive international presence of the company: More than 80 percent are generated outside Europe.

Core competence - Labelling technology

Labelling technology has traditionally been one of the core competencies of KHS. From the point of view of the customer, the label – just like the bottle design – is becoming more and more important because the competition in the beverage market is large and the consumers decide within a few seconds for one or the other product. Cornelius Adolf, Product Manager for KHS labelling technology: "With the label, beverage manufacturers can generate attention and stand out positively. This has a direct sales promotion effect."

High-speed: 300 labels in 20 seconds

KHS offers bottlers labelling stations for different technologies (hot glue, cold glue, rolled or self-adhesive). One of the latest developments in the modular system "Innoket Neo" is the roll-fed station, which replaced the predecessor Innoket 360S at the end of 2016. Roll-fed means: The wrap-around labels are

unwound from a roll, cut to the correct length in the cutting unit and glued by a roller. Then they are applied to the bottle. The bottle rotates during delivery of the label, which is directly brushed down. A typical feature of this technology is the "autosplicer", which glues the two label rolls seamlessly and thus ensures uninterrupted operation of the machine.

The entire process takes place at a breathtaking speed. During the 20 seconds you need to read the previous paragraph, the Innoket Neo RF labels more than 300 bottles. This places high demands on all movable components, in particular also on their precision.

Ready-to-install components instead of individual parts

The strategy of KHS can be seen in this context: In the case of new developments in labelling technology, modules and systems for individual functions – for example, horizontal adjustment unit or guide rollers – are increasingly purchased as ready-to-install components.

Here, a whole series of prerequisites must be fulfilled. Cornelius Adolf: "During filling it is actually always wet or at least damp. For this reason, the components must be very resistant to corrosion and common cleaning media. At least as important are high wear resistance and hygiene. Lubrication-free components help to avoid contamination - especially when empty, open bottles are labelled."

Deflection and adjustment systems as ready-to-install components

This feature profile fits igus' bearing technology, which has also been used in various KHS systems for around twenty years. This applies to both the rotary iglidur plain bearings and the drylin linear technology. What is new, however, is that igus not only supplies the bearings, but also completely ready-to-install functional components.

In the roll-fed station of the Innoket Neo numerous examples can be seen - in the height adjustment of the cutting mark sensor (**Picture 2**). Cornelius Adolf: "So far, we have always assembled this function ourselves from numerous parts. Now we are completely covered by igus: with linear adjustment unit,

clamping, measuring scale and fixing for assembly." The basis is a drylin W linear guide of the type WS-10-40.

A second example is the guide rollers for the label guidance through the roller-fed station (**Picture 3**). The rollers - which are also lubrication-free and corrosion-resistant - are equipped with xiros polymer ball bearings (**Picture 4**). The roller material was selected in practical tests to ensure the desired frictional resistance is met.

Higher precision through standardisation

A further complete system is the horizontal adjustment unit of the entire work table. With its help, the distance of the roller-fed station to the ground machine is adjusted. The adjustment is done by a handle using a lead screw (**Picture 5**). The rear guidance was designed with drylin W linear guides of the type WSQ-16 (**Picture 6**). And since the labelling station is mobile, an energy chain from the igus product range takes over the flexible supply of energy, signals, vacuum and compressed air (**Picture 7**).

Not just for economic reasons, the KHS uses ready-to-install components and systems. Cornelius Adolf: "Of course, we now save time in assembly. More importantly, all processes of labelling have to be very precise and at maximum speed. When we obtain ready-to-use, standardised modules in which all parts are matched to each other, this precision is ensured."

Demanding customer as a source of ideas

For some components, such as the guide rollers, the igus engineers had to step in. Florian Blömker, responsible technical sales consultant at igus: "KHS has introduced many ideas into the collaboration, but also made very high demands. We have undoubtedly benefited from this, and has given us the impetus for real new developments in functional modules."

High flexibility, reproducible labelling performance

Cornelius Adolf: "Many users are moving disposable and reusable bottles on one line and therefore require two different label types on one machine. The changeover time is therefore an important criterion, just like a fast format change depending on bottle and label sizes." The igus components help to

meet these requirements economically and with high repeatability. The latter is always a decisive factor for beverage manufacturers with full flexibility. Cornelius Adolf: "Even if 60,000 bottles are labelled per hour, one bottle must look exactly like the other." The functional systems and components of igus also make an important contribution to obtain this result.

Captions



Picture FA1917-1

The Innoket Neo module for bottling plants labels up to 60,000 bottles per hour - in a compact space and with high precision. (Source: KHS GmbH)



Picture FA1917-2

igus provides the sensor adjustment for the cutting mark detection of the label as a ready-to-install module. The basis is a drylin W linear guide. (Source: igus GmbH)



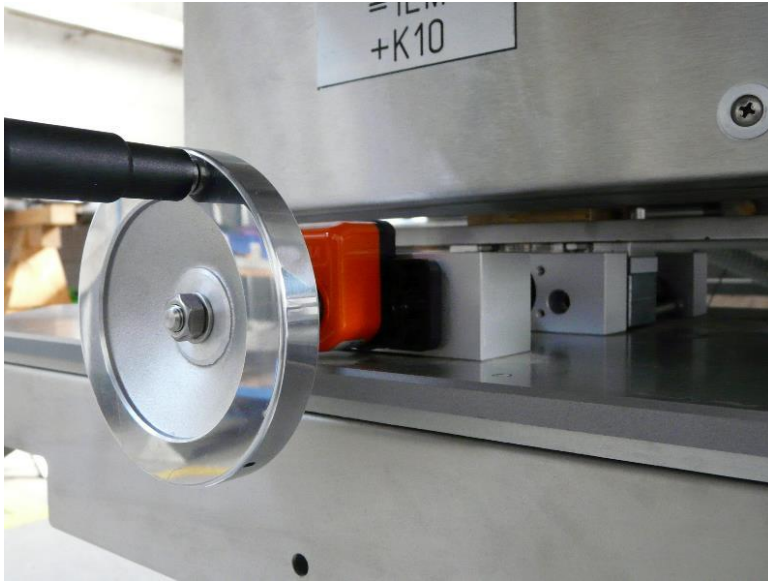
Picture FA1917-3

Various guide rollers are also provided by igus. (Source: igus GmbH)



Picture FA1917-4

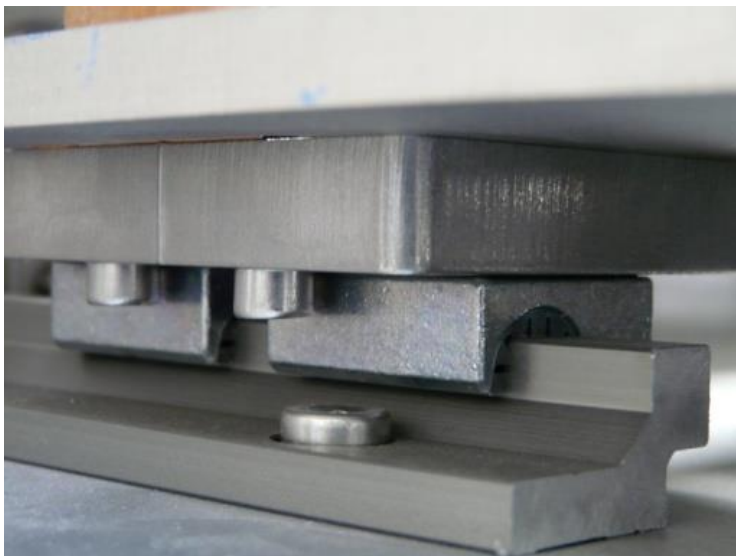
Ideal solution for the beverage industry: the axes of the guide rollers are mounted with xiros polymer ball bearings. In the picture: Top view of the roll from above. (Source: igus GmbH)



Picture FA1917-5

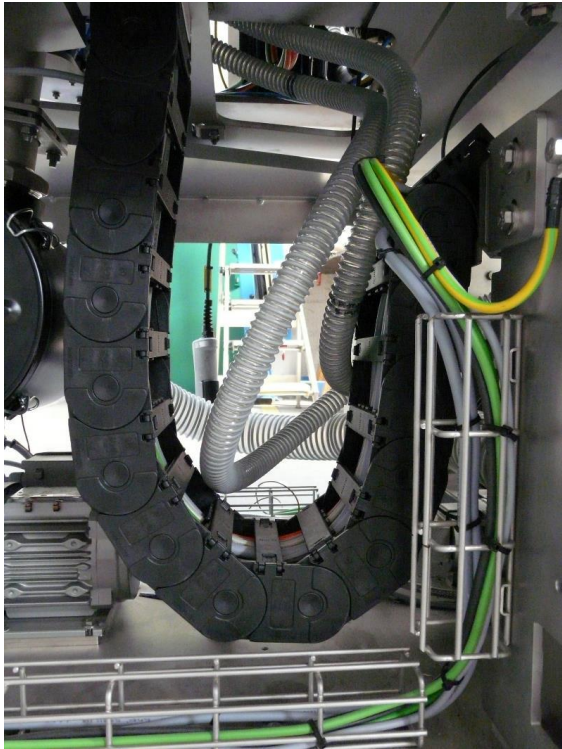
The entire worktable can be adjusted horizontally - with a lubrication-free system consisting of the building blocks of the drylin linear technology.

(Source: igus GmbH)



Picture FA1917-6

For the rear bearing of the worktable, drylin W linear guides are used (Source: igus GmbH)



Picture FA1917-7

The energy chain of igus in the substructure ensures mobility of the energy and signal supply. (Source: igus GmbH)



Picture FA1917-8

From left to right Cornelius Adolf, Product Manager Labelling Technology at KHS, Florian Blömker, Technical Sales Consultant at igus. (Source: igus GmbH)

PRESS CONTACT:

Oliver Cyrus
Head of Media and Advertising

igus[®] GmbH
Spicher Strasse 1a
51147 Cologne
Tel. 0 22 03 / 96 49-459
Fax +49 22 03 / 96 49-631
ocyrus@igus.de
www.igus.de/de/presse

ABOUT IGUS:

igus GmbH is a globally leading manufacturer of energy chain systems and polymer plain bearings. The Cologne-based family business has offices in 35 countries and employs 3.800 people around the world. In 2017, igus generated a turnover of 690 million euros with motion plastics, plastic components for moving applications. igus operates the largest test laboratories and factories in its sector to offer customers quick turnaround times on innovative products and solutions tailored to their needs.

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