

## Editorial

Fast, quiet, wear-resistant, compact, easy to install and fill: these are just some of the trends in the dynamic guidance of energy, data and media to moving consumers. The user should discover that after installation his application runs 100 % without any problems. We will be demonstrating this in the second half of the year at not only MOTEK but also EMO, IAA, K, FachPack, Vision, Productronica, Brau, SPS/IPC/Drives, for example ... This newsletter gives you an initial impression of our new robot products and applications. igus<sup>®</sup> will be presenting several new products and further developments in the Triflex<sup>®</sup> R energy supply system for robots on 200 square metres at the 26th MOTEK!



Jochen Weber

We are constantly working on improving our Triflex<sup>®</sup> R system. In Stuttgart, for example, we present improved protective elements in the field of paint and powder coatings, as well as a bracket holder for 6-axis robots. The Triflex<sup>®</sup> R FlexBar is still available in the field of universal spring modules for difficult robot movements. There is also a new swivel holder for the exact positioning of the chain in the assembly kit.

Yours

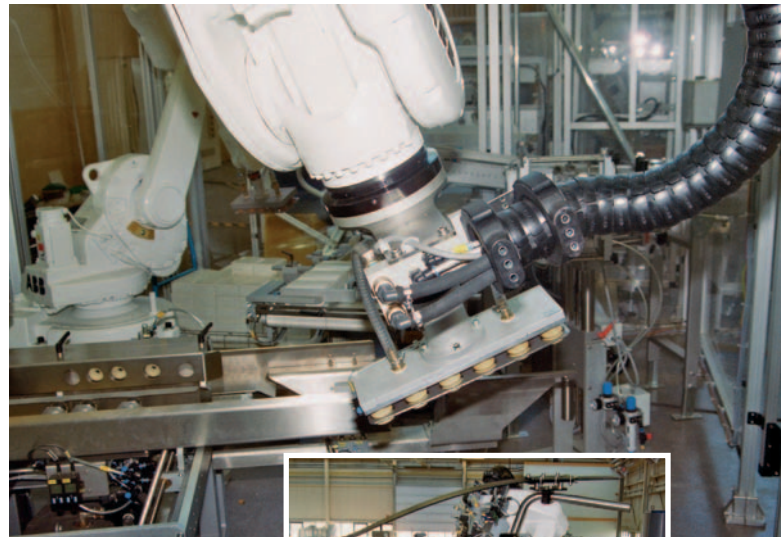


Jochen Weber  
Division Manager Robot Systems

## Title story Energy chain for flexible palleting robot

**Skinetta GmbH specialises in packaging machines and systems for pharmaceutical products. A packing line for glass bottles is characterised by its high flexibility. Consequently, the sequences of movements performed by the palleting robot are complex, its head being supplied with energy and signals via a Triflex<sup>®</sup> R energy chain.**

Up to 17 different formats are handled by the Skinetta packaging system – all of them at high speeds. In this case we see generic drugs that have been filled into glass bottles of between 2 and 100 ml. Up to 350 bottles with a content of 2 to 100 ml can be packed into boxes every minute.

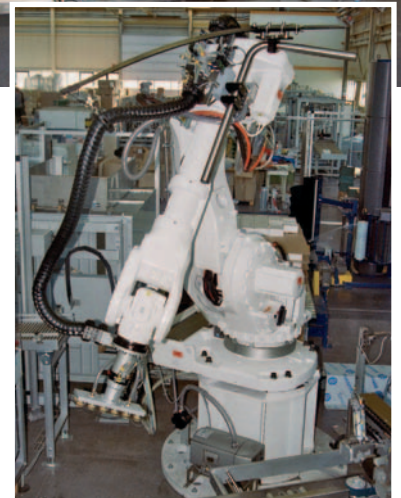


### Multidimensional guidance

Several test stations have been integrated in the line, some with camera systems. If irregularities are discovered the robot places the box in one of the rejection stations, thus further increasing the complexity of movements and ranges. The design engineers decided on a Triflex<sup>®</sup> R energy supply system in which the energy cables and control cables are integrated along with the vacuum lines for the gripper. The igus<sup>®</sup> accessory construction kit was also used for an exact guidance of the chain.

### No looping

In order to optimise the sequences of movements of the chain, a tube with a 90° angle was mounted at the robot's mounting points. A spring



Triflex<sup>®</sup> R supplies robot grip with energy and data.

## Imprint

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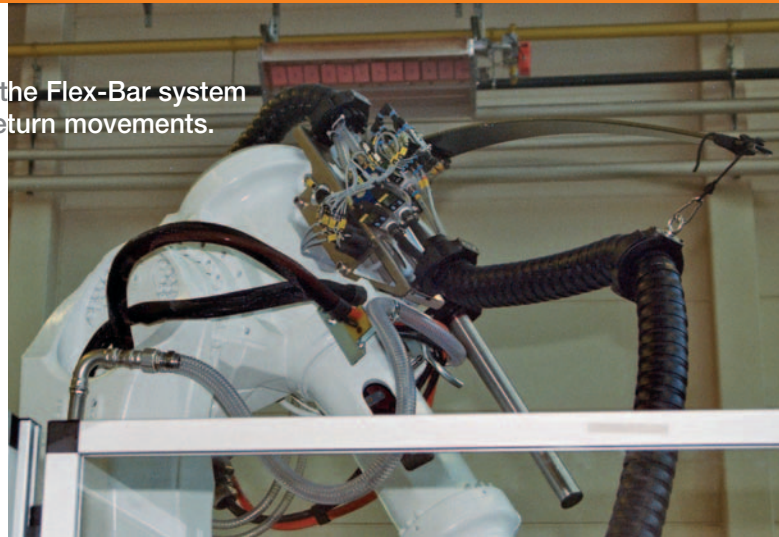
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The „extension arm“ of the Flex-Bar system guarantees controlled return movements.

element was mounted on this tube in the desired position. The desired return movements are initiated via a rope connection between the extension arm of the spring module and the Triflex® R. The chain movement can be multi-axially guided by the position of the mounting tube during the return movement of the robot arm. This prevents the formation of loops at the robot head or chain friction at the robot arms.



## In practice 1 Long service lives

Hutchinson GmbH (Aachen), a supplier for the automotive industry, paints around 600,000 rear door seals every year. The painting robots have to work with no hitches. High accelerations and heavy soiling have no effect on the multidimensional, flexible Triflex R® energy supply system.

Around two years ago the existing solution on a painting robot – a corrugated hose – was replaced by a Triflex® R energy supply system. Hutchinson chose the Easy design (TRE). The cables and hoses were simply pushed in from outside so that no fittings or plug-type connectors had to be dismantled.

Accelerations of up to 800 mm/s can occur in the painting booths, placing extreme loads on the energy chain and its leads. Not to mention the paint mist that settles everywhere and leads to

conglutination. The Triflex® R works reliably under these conditions with long service lives and short change-over times.



Energy supply system for painting robot (left). Easy to fill by simply pushing in the cables.



## Innovation RoboCup-WM, Atlanta

Robot teams from around the world held their official football competition at the beginning of July in Atlanta. igus® once again sponsored three teams at this event! We provide not only our experience in humanoid and industrial robot applications but also plastic plain bearings and spherical plain bearings for all moving parts of the robot.



Team „b-smart“ (Uni Bremen): The robots have polymer plain bearings from igus®.



## News 1 New sizes!

The Triflex® R program has been further extended! New series include the TRC/TRE.85, closed or open, and TRC/TRE.30. Fields of use include welding applications and small 6-axes robots with very small bending radii. The Triflex® R program, consisting of over 100 components, serves the complete spectrum of robot equipment – from heavy-duty production through to ultra-small palleting robots.



## News 2 New: robot cable!

Chainflex® CF Robot is the new cable especially for robot applications in the energy chain. The shielded 3D cable for torsion applications has a TPE outer jacket to absorb the torsion. Intermediate layers cushion these so that the single wire inside remains unaffected. Tested in a technical centre with over 3 million torsional movements to +/- 270°!





Design-Award

## Triflex® R light: multi-axis, lightweight, open

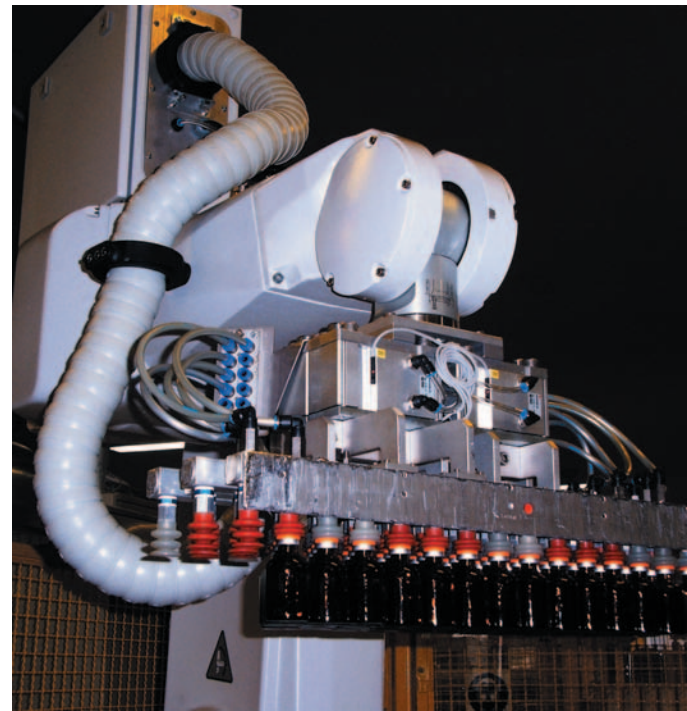
The easy-to-use, modular energy chain Triflex® R „light“ was presented with the „iF Product Design Award“ in the category „Industry“. This energy chain is also suitable for a variety of non-robot applications. As a quick-fit „Light version“ it makes complex, multi-axis handling tasks operationally reliable.

## In practice 2 No cable breakages

Fully automated systems are used for filling tasks in the Parenteralia plant of Bayer AG, Leverkusen. Work is carried out in clean room conditions. A robot places ampoules and medicine bottles into a skeleton box, pallet by pallet. Fitted with the Triflex® R energy chain this helps guarantee operational reliability. The job was to replace an existing robot which repeatedly suffered cable breakages by a new model. The innumerable electric cables and pneumatic hoses are bundled in the Triflex® R energy chain and guided without stress. The closed outer structure of the chain ensures high protection against dirt and dust. Thanks to its round design the energy supply system glides over the outer contour of the robot – without getting caught or becoming twisted.



Triflex® R light: multidimensional, flexible E-Chain® in clean room conditions.



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- Please send me the igus® brochure with all new products for 2007.
- Please send me the latest robotics flyer Triflex® R.
- I would like an igus® robotic expert to visit me – please call me at the number shown above.

