

## **New igus cable solution for SCARA robots prevents cable damage**

### **The SCARA Cable Solution reinforces corrugated pipes and makes the supply of energy more durable in fast dynamic applications**

SCARA robots used for “pick & place” and simple assembly tasks in industry move incredibly fast. But these rapid dynamics have a price; classic corrugated cable hoses for energy supply wear out quickly. In response, igus has developed the SCARA Cable Solution, a quickly retrofittable alternative that greatly increases service life.

SCARA robots work super-fast – watching them work can appreciate the huge accelerations present. All four axes of the horizontal articulated arm robots work quickly; the inner and outer arms swivel horizontally, and the ball screw, the component for gripping objects, moves rotationally and linearly. Designed in this way, the robot arm can reach almost every point in its working radius. But such fast and precise dynamics mean that the cables and hoses, often guided externally, must often be replaced or maintained frequently due to the high loads.

This was the case for an automotive manufacturer who wanted to optimize its energy supply in both the corrugated pipe and the rotary bearing. “Inspired by this challenge, we looked at the weak points of the hoses and connectors and then developed the SCARA Cable Solution in a two-year research and test process,” says Rob Powell, Scara specialist at igus UK. The result is a customer-specific cable routing that safely carries the energy from axis 1 to the ball screw and prevents the cables from buckling even in continuous and rapid operation.

#### **Ball bearings and additional side support**

The SCARA Cable Solution has three components: rotary bearings for the carrier and the fixed point, and the corrugated hose with the e-rib. The key feature is in the new rotary connection, which accommodates the torsional forces. Here, integrated ball bearings ensure a smooth-running energy supply

that provides strength and resistance even at high accelerations. Meanwhile the corrugated hose is reinforced with an e-rib so that it can only move in one direction. The guide elements on the sides support the hose along its length.

**SCARA Cable Solution extends service life**

In tests in igus's fully equipped test laboratory in Cologne, the new energy supply system has proven itself. In cooperation with robot manufacturer EPSON, the behaviour of the energy supply in extreme positions is assessed on a SCARA robot. Forces up to 6G act on the system in some movements. Results show the energy supply in SCARA robots fitted with the Cable Solution can withstand over three million cycles at rotations above 5,000 degrees per minute on a continuous cycle. "With the SCARA Cable Solution, we can increase the service life of used energy supply systems on SCARA robots," says Powell. "The robots now run for longer on maintenance-free and fail-safe cycles".

All three components of the system are available either as a ready-made, retrofittable complete system, as an empty pipe or supplied individually for retrofitting.

Learn more about the SCARA Cable Solution at:

<https://www.igus.co.uk/info/scara-cable-solution>

**For further information, please contact:**

Erin Kemal

Tel: 01604 677240

Email: [ekemal@igus.co.uk](mailto:ekemal@igus.co.uk)

Hannah Durrant

Tel: 01604 677240

Email: [hdurrant@igus.co.uk](mailto:hdurrant@igus.co.uk)



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**Caption:**

igus has developed the new SCARA Cable Solution to protect energy supplies in fast moving SCARA robots. It consists of ball bearing rotary connections and an e-rib to stabilize the corrugated hose. (Source. igus GmbH)

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