

New igus Energy Supply System for SCARA Robots in Cleanrooms

Clean SCARA Cable Solution works almost particle-free according to ISO Class 2

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/EINPresswire.com/ -- igus®, the world leader in motion plastics and moving cable management systems, is launching a new energy supply system for SCARA robots in cleanrooms: the Clean SCARA Cable Solution is made of tribologically optimized high-performance plastics and works almost particle-free according to [ISO Class 2](#) even in high-speed applications. It is also stronger and more user-friendly than classic corrugated hoses.

In electronics production, tiny particles invisible to the naked eye can wreak havoc, ruining electronic components, semiconductors, and displays. Therefore, it's critical that machines like SCARA robots, which move rapidly along four axes in under a second, generate as little friction and contamination as possible.

During these high-speed applications, there is always a risk that tiny particles will detach from corrugated hoses and tubes. Maintaining ultra-clean manufacturing conditions is essential to prevent microscopic contaminants from damaging electronics.

Just as microscopic debris can silently destroy production in electronics, contamination is a



Even with highly dynamic movements, the Clean SCARA Cable Solution ensures a particle-free energy supply. (Source: igus GmbH)

constant threat that must be guarded against vigilantly. With machines moving at high speeds below a second, any friction risks releasing particles that could potentially ruin sensitive electronics and components. By minimizing contamination, manufacturers can avoid catastrophic damage at the smallest scales.

"Finding a way to guide cables and hoses on a SCARA robot in a cleanroom is a science in itself. Fast movements are pure stress for the material, which releases unwelcome abrasion particles," says Matthias Meyer, Head of the triflex and Robotics Business Unit at igus.

For this reason, igus has added a cleanroom variant to the SCARA Cable Solution energy supply system, which it originally developed in 2020.

"The new Clean SCARA Cable Solution is a cleanroom-compatible energy supply system for high-speed applications - reliable, compact, easy to use, and quick to retrofit," says Meyer.

ISO Class 2: hardly any particles in the surrounding air, even with the wildest movements

The core of the new cleanroom energy supply system is the [e-skin®](#) soft, a modular e-chain® cable carrier that guides cables and hoses in an arc from the robot's vertical arm to the end effector. Its separable upper and lower shells can be combined to form a closed, dust-proof, water-resistant tube. This ensures that particles from the cables and hoses do not get into the surrounding air from the inside - even during the wildest movements.

"To reduce stress on the cables and increase their durability, we have provided a rotating mount for the connections to the fixed and moving ends of the energy supply system," says Meyer.

"That is what is special about the energy supply system. At the same time, the rotary bearings are designed to be almost particle-free, even during the most dynamic movements."

The e-chain itself is also especially abrasion-resistant thanks to tribologically optimized high-performance plastic. Its ISO certification by Fraunhofer Institute experts confirms this. The Clean SCARA Cable Solution has ISO Class 2, meaning that it is so abrasion-resistant that a maximum of 100 particles up to a size of 0.1 microns can be found in one cubic meter of air during operation. For comparison, a sheet of paper is 80 microns thick, or 800 times as thick as a particle.

Clean SCARA Cable Solution as an alternative to classic corrugated hoses

With its new energy supply system, igus offers an alternative to classic corrugated hoses, which has two other advantages besides cleanroom compatibility. First, the thin corrugated hoses most often used with the SCARA have hardly any inherent rigidity and are, therefore, susceptible to kinking. There is no bearing to absorb torsion, and can tear easily.

"Unlike corrugated hoses, the Clean SCARA Cable Solution supports itself and has a unique rotary bearing. This makes it ideal for short unsupported lengths and highly dynamic

applications," says Meyer. "The oval chain geometry is especially advantageous when lateral forces are applied since it offers additional strength."

Standard SCARA energy supply solutions use static connections at the moving and fixed ends. This leads to unnecessary fatigue on the corrugated tube at both points and increased wear on the cable package. The Clean SCARA Cable Solution uses rotary connections at both ends, which all but eliminates mechanical stress on the energy supply system. With the high speeds seen in Scara applications, this improvement is a game changer.

The second advantage over the corrugated hose is that the zipper principle makes the Clean SCARA Cable Solution easy to open, enabling users to insert cables and hoses quickly. An optional interior separation provides additional protection that corrugated hoses cannot. Upon request, the customer can receive the new cleanroom energy chain as a ready-to-connect complete system with igus chainflex® cables. More than 900 highly flexible cables of IPA Class 1 are available.

You can find more information about the Clean SCARA Cable Solution here:

<https://www.igus.com/info/clean-scara-cable-solution>

ABOUT IGUS:

igus GmbH develops and produces motion plastics. These self-lubricating, high-performance polymers improve technology and reduce costs wherever things move. In energy supplies, highly flexible cables, plain and linear bearings, and lead screw technology made of tribo-polymers, igus is the worldwide market leader. The family-run company based in Cologne, Germany, is represented in 31 countries and employs 4,600 people across the globe. In 2022, igus generated a turnover of €1.15 billion. Research in the industry's largest test laboratories constantly yields innovations and more user security. Two hundred thirty-four thousand articles are available from stock, and service life can be calculated online. In recent years, the company has expanded by creating internal startups, for example, ball bearings, robot drives, 3D printing, the RBTX platform for Lean Robotics, and intelligent "smart plastics" for Industry 4.0. Among the most significant environmental investments are the "chainge" program – recycling used e-chains and participating in an enterprise that produces oil from plastic waste.

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