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INDUSTRY : IN MOTION

THE SMART FLEX EFFECTOR

by Bosch Rexroth | Revolutionizing Automation Processes

In the realm of industrial robotics, precision is everything. Unfortunately, it takes a lot of time, effort, and money to teach robots to be both precise and adaptable to inevitable errors and variants. That's where the Smart Flex Effector comes in. This innovative technology not only increases precision in handling robots, but also opens up new possibilities for industrial robots and Cartesian systems. Let's delve into the capabilities of the Smart Flex Effector and see how it can revolutionize automation processes.

- **Precise Measurements**
- **Real-time Readjustment**
- **Intelligent Data Collection**
- **Precision and Efficiency**
- **Improved Prossess Quality**
- **Transparency and Stability**
- **Enhanced Productivity**
- **Diverse Applications**

Scan to watch a video on how the smart flex actuator works.

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The Smart Flex Effector is the first of its kind in the world of robotics. Its precise measurements, real-time readjustment, and intelligent data collection capabilities bring a new level of precision and efficiency to industrial robots and cartesian systems. By utilizing this technology, businesses can achieve improved process quality, transparency, and stability, enhancing productivity and performance for many industrial applications. With such a diverse range of applications, are you ready for the next level of robot precision?

NEW LEVELS OF PRECISION

The Smart Flex Effector takes robot precision to the next level by combining vision and sensing capabilities with mechanical ingenuity. Equipped with a sensory touch and compensation unit boasting six independent degrees of freedom, it facilitates seamless joining for complex tasks. It also precisely measures components in real time, enabling quality inspections and ensuring processes are executed with the utmost accuracy.

REAL-TIME READJUSTMENT

Speaking of real-time, thanks to its intelligent sensor technology, the compensation element of the Smart Flex Effector can dynamically readjust the robot on the fly. This feature allows for immediate corrections, enhancing precision throughout the operation. This level of adaptability makes it much easier to maintain optimal performance and efficiency.

PROCESS TRANSPARENCY AND QUALITY MONITORING

The Smart Flex Effector not only provides precise measurements but also delivers valuable insights into process quality. By leveraging the measured values, it becomes possible to monitor and log the quality of each operation. This information is instrumental in ensuring that processes meet the desired standards and can be used for continuous improvement initiatives.

INTELLIGENT DATA COLLECTION AND DIGITAL TWIN

The Smart Flex Effector records all this data, but it also makes gaining access to that processed data easy. Its intelligent logging system captures movement profiles, offering process transparency and stability, but also enables the creation of a digital twin, which is a digital representation of the physical process. This virtual counterpart duplicates real-world data, facilitating simulations, analysis, and optimization.

OPTIMAL USE-CASES

Ideal for cartesian systems, industrial robots, and cobots to perform tasks such as:

- Defined Picking - Picking, positioning, placing, and insertion of objects.
- Complex Joining - Precision joining with pin accuracy.
- Process Stability - Joining of circuit boards.