FESTO

News Release

Breakthrough with high-speed handling units

H-gantry and T-gantry with high dynamics – and low costs

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SAN FRANCISCO, July 12, 2011 — A new age is dawning in the field of handling technology with the Festo high-speed H- and T-gantries. These handling units on display at the Festo Intersolar North America booth #9577 combine the dynamics of a linear motor handling system with the lower costs relative to robotics of a toothed belt handling solution. These solutions can be 30 percent faster than conventional handling units.

Festo has developed both these high-speed handling units as an overall package consisting of controller and mechanical system for fast transfer and positioning, as well as for dynamic handling and assembly operations with work piece loads ranging from zero to 6.6 pounds (3 kg) in the fields of special machinery manufacturing, photovoltaic, electronics, and small parts handling.

High-speed H-gantry

This new type of 3D/planar surface gantry covers a square-shaped working area that is significantly larger than that of robot systems with delta kinematics, which can

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only work in round or kidney-shaped areas. Other disadvantages of delta robots are the high costs, the installation weight of around 330 pounds (150 kg), and the space needed.

The high-speed H-gantry, on the other hand, can be scaled to any stroke, has a very low profile, a low center of gravity, and a simpler base than fast delta robots. Optimized acceleration and deceleration characteristics enable strokes of 6.56 feet (2 m) and 3.37 feet (1 m), the X and Y direction respectively, with an accuracy of .79 inches (.2 mm).

High-speed T-gantry

The Festo T-gantry is a high-speed pick-and-place unit with higher dynamics than a conventional linear gantry and can be scaled to any stroke. In addition, the T-gantry is very compact and its high rates of acceleration in the Z direction are impressive. Strokes in the Y direction are 39.37 inches (1000 mm) and in the Z direction 11.81 inches (300 mm), with a positioning accuracy of .79 inches (.2 mm.)

The engineering solution

Thanks to an engineering solution, both gantries reach speeds of 16.4 feet (5 m) per second and acceleration rates of 164 feet (50 m) per seconds^2 over the entire working area. The two toothed belt axes are connected to the cross member with a single rotating toothed belt around the drive shaft. The belt is driven by two Festo servomotors EMMS. A positive side effect is that no motor needs to be

moved within the X-Y area with its two degrees of freedom. And reduced loads and two servomotors, which are mounted parallel to each other, facilitate quick, dynamic motion and result in less wear.

The linear-rotary module of the high-speed H-gantry is a breakthrough as well. It consists of a spindle sleeve with integrated energy through-feed for the front-end module and comprises the Z-axis, to which the gripper unit is attached. The linear-rotary module accelerates to a speed of 4.92 feet (1.5 m) per second at a rate of 65.61 feet (20 m) per seconds^2. Suction and mechanical grippers with work piece loads ranging from zero to 4.4 pounds (2kg) can thus be operated.

Robotics for system solutions

The handling unit is based on the Festo robotic controller CMXR. The CMXR unites mechanical systems, as well as electric drive and control technology, into a complete kinematic system solution and coordinates highly dynamic motion in 3D space. The robotic controller CMXR interpolates and positions all axes that are capable of tracing contours along a centerline, as is required for bonding, laser welding and water jet cutting. It’s capable of setting path switching points and is thus able to accurately switch process devices.

The CMXR functions as an interface to the master controllers on the one hand and to the servo-axes’ motor controllers and the valve terminals on the other. And that’s not all: the controller makes it possible to incorporate image processing systems such

as the Festo intelligent SBO..-Q compact camera system. Applications with moving objects can also be implemented with the help of the camera system and available conveyor systems.

Simple subsystem integration

The ready-to-install system solution is delivered directly to the machine, completely tested and assembled. All pertinent engineering data and circuit diagrams are also supplied, together with a comprehensive functions and fixed-price guarantee. Users don't just receive hardware in the form of a ready-to-connect assembly or subsystem, but a complete package. Complete solutions reduce the workload for technical staff, keep engineering expenses to a minimum, facilitate the procurement process, and reduce process costs. And it's precisely this cost/benefit relationship that applies to these two trailblazing, high-speed handling solutions.

For sales information call Festo at 800-993-3786 and visit www.festo.com/us.

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Festo images
Please refer to: Festo press photo
IPK_Motek_0510_H_T_Portal_1.tif

Caption to illustration: A breakthrough in handling technology: the high-speed H-gantry offers the dynamics of a handling system with linear motor at the price of a handling solution with toothed belt. These systems are 30 percent faster than conventional handling systems. (Photo: Festo)

Please refer to:	Festo press photo IPK_Motek_0510_H_T_Portal_2.tif
Caption to illustration:	The innovative three-dimensional/planar surface gantry covers a much larger, square-shaped working space than robotic systems using delta kinematics, which can only operate in round or kidney-shaped spaces. (Photo: Festo)
Please refer to:	Festo press photo IPK_Motek_0510_H_T_Portal_3.tif
Caption to illustration:	The linear-rotary module is also ingenious. It consists of a spindle sleeve with integrated power through-feed for the front-end module and comprises the Z-axis on which the gripper unit is mounted. It accelerates at 20 m/s² to a speed of 1.5 m/s. (Photo: Festo)
Please refer to:	Festo press photo IPK_Motek_0510_H_T_Portal_4.tif
Caption to illustration:	The T-gantry is a high-speed pick and place system with higher dynamics than conventional linear gantries and can be scaled to any stroke. (Photo: Festo)

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Journalists write to the Festo Marketing Manager marketingmgr@us.festo.com for addtional information and for access to high resolution images.