

## **Festo Has Developed a New Series of Bellows Grippers That Gently Expand to Engage Inner Surfaces**

**The Festo DHEB series bellows grippers provide a safe and gentle means of handling fragile work pieces for electronic and light assembly applications**



News Release

**HAUPPAUGE, NY, December 16, 2013** — Festo now delivers the unique [DHEB](#) series of bellows grippers to customers in the electronics and light assembly industries. These bellows grippers expand in diameter when actuated by an integral pneumatically driven piston to securely grip the interior surface of a work piece.

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“There is a whole range of either extremely fragile work pieces or work pieces with an outside geometry that do not lend themselves to automated grippers,” said Chip Arnold, industry segment manager electronics and light assembly for Festo. “The DHEB series of bellows grippers are designed to slip inside these work pieces, expand, and gently grip the interior surface for pick and place, sorting, and other automated assembly applications.”

DHEB grippers are single-acting devices, which simplifies control. When the air supply port is pressurized, an internal piston draws a wedge up or down within a rubber bellow, causing it to deform outwards to meet and conform to the interior contour of the work piece. This bellows action provides a secure but gentle air-tight grip, which is

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maintained until the air supply port is exhausted, whereupon the force of the bellows returning to its original shape pushes the piston back into its initial position.

There are two versions of the DHEB gripper, offering a choice of bellows activation directions to suit different handling machine actions: one uses an upward piston stroke to deform and expand the bellows, the other uses a downward stroke.

For maximum applications flexibility, the compressed air supply for the gripper can either be applied via a side port on the body of the gripper or via a connector at the top of the unit. Alternatively, a variant of the side port version provides a straight-through path from the top connector to a port on the underside of the piston. This can be used for a wide variety of purposes. Air can be injected to cool or clean the work piece, air or vacuum can be employed to check the work piece for leaks, or fluid can be introduced for disinfection or filling purposes. Any of these actions can be performed during work piece transportation, which helps users maximize throughput by overlapping or combining several process stages.

DHEB series grippers are available with 11 choices of contiguous bellow sizes, ranging from .315 to 2.48 inches (8 to 63 mm). The .315 inch (8 mm) model is suitable for work piece diameters from .315 to .433 inches (8 to 11 mm), while the largest gripper can accommodate work piece diameters from 2.6 to 3.35 inches (66 to 85 mm). Depending on various factors such as friction and shape of the work piece, the largest grippers can accommodate work piece weights as high as 114 pounds (52 kg). All models are designed for use with a standard supply of filtered compressed air, with a nominal operating pressure of 58 to 116 Psi (4 to 8 bars). To reset the bellows to their unexpanded form, the pressure to the unit's air supply port simply needs to be reduced

to one bar or less. Opening and closing times depend on the size of the bellows - the 8 mm model for example, opens in 10 milliseconds and closes in 30 milliseconds.

Festo also offers a choice of bellows material to best suit the application. Silicone bellows have a long service life – approximately one million cycles – and an extended operating temperature range of -94 to 392 degrees Fahrenheit (-70 to 200 degrees Celsius). The material is also approved by the U.S. Food and Drug Administration (FDA) for use in food processing applications. For applications demanding a higher coefficient of friction, such as internally gripping heavy straight-sided work pieces or when the work piece might subsequently be painted or coated, bellows manufactured from ethylene propylene synthetic rubber (EPDM) are available. These have a service life of about one-half million cycles, and a temperature range of -58 to 284 degrees Fahrenheit (-50 to 140 degrees Celsius). Both types can easily be replaced by the user, which helps to minimize maintenance time and costs.

Uniquely, any Festo DHEB gripper can optionally be equipped with magneto-resistive or reed switches to sense the upper and lower positions of the internal piston, and provide control feedback on the state of the gripper bellows. The switches are self-aligning and mounted on an external sensor rail secured to the body of the unit.

For more information about the Festo's [DHEB series of bellow grippers](#) for the electronics and light assembly industries, call Festo at 800-993-3786 and visit <http://www.festo.com/us>.

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## **About Festo**

Festo is a leading manufacturer of pneumatic and electromechanical systems, components, and controls for process and industrial automation. For more than 40 years, Festo Corporation has continuously elevated the state of manufacturing with innovations and optimized motion control solutions that deliver higher performing, more profitable automated manufacturing and processing equipment.

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