



News Release

## **Festo Demonstrates a Small, Highly Efficient Wind Powered Generator Ideal for Mounting on Residential and Commercial Buildings**

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**The innovative design is based on the aerodynamics of a seagull's wing and utilizes advanced automation control technology for continuous optimization based on wind conditions.**

**HAUPPAUGE, NY, (July 15, 2014)** — Borrowing from one of the most perfect aerodynamic shapes occurring in nature, a seagull's wing, automation leader Festo has developed a prototype of a small, highly efficient wind powered generator that can be easily mounted on buildings and is effective at low wind speeds.

As measured in wind tunnel tests, the Festo [DualWingGenerator](#) is 45 percent efficient at relatively low wind speeds of 9 to 18 miles per hour. To put this into perspective, the theoretical upper limit of efficiency for a wind-powered generator is 59 percent, only 14 percentage points above the DualWingGenerator.

The pilot unit measures a mere eight feet across. Wind flowing over the aerodynamic surfaces causes the two pairs of gull-contoured wings, one pair on each side of the unit, to rise and fall on a central column. This vertical up and down movement is

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transferred to a rotating belt that turns an electric generator. A Festo [CPX automation controller](#) and servo motors continually optimize the angle of each pair of wings for highest overall efficiency based on wind speed and direction.

High efficiency and small size give the DualWingGenerator versatility not found with large wind turbines and wind farms. In the future, roof top units may be used similarly to residential and commercial solar panels to generate building power and to feed electricity to the power grid. The units may also be used to conserve energy by pumping water or compressing air at food, pharmaceutical, or chemical processing plants.

Festo is working on further increases to efficiency. Instead of the rigid wing surfaces, Festo is testing adaptive wings through the [Fin Ray Effect<sup>®</sup>](#), another process borrowed from nature that mimics the flexible shape shifting of a fish's fin as it moves through water. Utilizing the Fin Ray Effect, the wing surface will change shape depending on the angle of wind flow.

The DualWingGenerator is a Festo Bionic Learning Network project – an open, multi-organization program that applies designs found in nature to motivate, inspire, and stimulate innovation.

“The DualWingGenerator is an inspirational renewable energy demonstration project and a perfect example of what the Bionic Learning Network is all about,” said Frank Langro, Director of Marketing and Product

Management for Festo. “DualWingGenerator concepts will ripple through research and development efforts and potentially make their effects known in hundreds of different ways.”

A six page [brochure](#) detailing DualWingGenerator design is available for free download. A [video](#), still images, and additional information can be found online on the [Bionic Learning Network](#) webpages. For information on the Festo automation solutions, call 800-993-3786 and visit [www.festo.com/us](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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