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### **Innoventor Awarded Ninth Patent**

**St. Louis** – Innoventor, Inc. has received a patent for a Methods and Systems for a Small Parts Inspection. This system was developed to inspect cylindrical glass tubes produced by a medical device manufacturer. It reduced by a factor of 4 the time required to handle the glass tubes, present them for inspection and grade them under a vision system. The cycle time reduction increased part throughput by a factor of 8 over manual handling and increased their yield by 30%

Innoventor's patented method utilized a combination of precision-machined dial plate and part fixtures, a top quality rotary index table, an automated feeder bowl, an integrated Programmable Logic Controller (PLC) and a vacuum to hold the glass tubes in place.

This innovative approach to handling small, delicate parts inspection can be transferred to many industries including the communications, medical and pharmaceutical.

Innoventor's other patents include technology in air scrubbing in the agricultural industry, food preservation technology using nitrogen for the consumer industry, a tight temperature control chiller, a limb swelling control product for the medical industry and a leak detection technology for the aerospace industry. The company also has a number of additional patents pending including two critical Swine Manure to Green Energy Conversion processes.

Innoventor is an engineering technology company that innovates for its customer and invents proprietary processes and products on its own. Its multiple engineering disciplines and industries participation allows for full turnkey solutions, and the ability to leverage technology from one industry to another.

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## Becton Dickinson Accu-Glass Rotary Index Vision Inspection Machine

Innoventor continues to apply its knowledge and experience in the handling of medical equipment through the development of the Rotary Index Vision Inspection Machine; a second generation of precision automated handling equipment for Becton Dickinson Accu-Glass. The machine successfully reduced (by a factor of 4 from the first generation Vision Inspection Handling Equipment) the time required to handle glass tubes and present them for inspection and grading under a vision system. This cycle time reduction increases part throughput by a factor of 8 over manual handling and inspection of the glass tubes with a 30% increase in production yield.

Utilizing a precision-machined dial plate and part fixtures, a high quality rotary index table, an automated feeder bowl system and an integrated PLC, IEI has developed a fast and reliable part handling system for the inspection of glass tubes. The parts are transferred from the automated feeder bowl to the part fixtures on the dial plate. A vacuum holds the parts to the part fixtures while the index table continually rotates. The parts are first presented under the vision system for inspection/grading and then sorted into one of five part bins after they have been graded.

Features of this machine include:

- Allen Bradley PanelView touch screen operator interface.
- Precision Haas rotary index table, accurate placement to  $\pm 15$  arc-sec.
- Allen Bradley SLC 5/03 controller.
- Safety interlocked guarding.
- Pneumatic vacuum pump.
- 800 millisecond cycle time.
- Part placement cycle time less than 0.8 sec/part.
- In place calibration standard.



The time required to handle glass tubes and present them for inspection under a vision system is successfully reduced by a factor of 4.



The Inspection System utilizes a precision-machined dial plate and part fixtures, a high quality rotary index table, an automated feeder bowl system and an integrated PLC.