SAMPLING PRESSURE TESTER 2

Automated Pressure Testing and Volume Measurement for Glass Containers

Automatically pressure test bottles at the line

Consistent, reliable, repeatable pressure testing to ASTM C147 and ISO 7458

No job change for different bottle types

35% greater throughput over existing systems

Volume measurement with lab precision on the plant floor

OUR BRAND PROTECTS YOUR BRAND
Advanced pressure testing to meet the needs of today’s glass container industry

The Agr SPT2™ is an automated testing station designed to provide critical pressure strength and volume performance data for glass containers, during the production process. The SPT2™ can work on a stand-alone basis or be incorporated into one or more sampling lines to automatically collect pressure and volume data on a 24/7 basis, without operator intervention.

The design of the SPT2 is built upon Agr’s years of experience and innovation in container pressure testing. The SPT2 combines Agr’s proven testing protocols for glass container pressure testing with the latest in technological developments. This advanced pressure testing system meets the high throughput and performance requirements of today’s glass container manufacturing industry.

**SPT2 pressure generation system**

The pressure generation system on the SPT2 incorporates a high-precision hydraulic system utilizing an FPGA-based controlled velocity pressure management method. The SPT2 can test containers up to 69 bar (1000 psi) (1 minute equivalent) while providing extremely accurate and controlled pressurization throughout the testing process. The SPT2’s pressure system is designed specifically to perform precisely to the rigid testing requirements of the glass container industry.

Tests are performed with strict adherence to ASTM C-147, Standard Test Method for Internal Pressure Strength of Glass Containers, and ISO 7458, where a constant rate of increasing pressure must be applied to the bottle in a very precise and defined manner. The SPT2 meets and exceeds these industry requirements by offering unmatched precision in the control and application of pressure, resulting in the highest accuracy and repeatability of test data possible.

**Pressure capability for even the toughest bottles**

The SPT2 is designed to pressurize bottles up to 69 bar (1000 psi). This capability is ideal for the performance testing of heavy-wall champagne bottles or other high-strength bottles.

**Tolerance for low pressure**

During a test, pressure is continuously monitored and evaluated to differentiate between leaks and actual low pressure breaks. SPT2 has the sensitivity to accurately report bottle failures as low as 1.4 bar (20 psi).

**Integration with other plant devices**

The SPT2 can be configured to automatically receive and test rounds of containers as directed by external devices, such as a mold reader, process control system or automated measuring system (DSG/OmniLab). All data is job and cavity correlated and sent to in-plant data management and/or process control systems.

**Multiple production line support**

The SPT2 can accept bottles from single or multiple production lines for pressure testing and/or volume measurement. All processing is performed on a continuous basis without the need for job change or operator intervention. This feature is particularly valuable for applications where floor space is limited. With the dynamic bottle handling capabilities and universal bottle clamps, SPT2 automatically adjusts for bottle height, capacity and finish.

**Seamless integration with Agr’s OmniLab system**

The SPT2 is designed to work seamlessly with Agr’s OmniLab automated testing station. When connected to an OmniLab, testing is fully handled by the OmniLab control system. Pressure and volume data is cavity-correlated with all other measurement data and consolidated into a single report that is sent to in-plant data management or process control system.
Volume measurement with lab precision on the plant floor

Agr’s volume system in the SPT2 incorporates leading edge, positive-displacement technology. This technology was selected because of its ability to provide the highest accuracy for volume, fill point and overflow measurement, yet meet the high-production volume and fill measurement applications required by the glass container manufacturing industry.

Ensuring fast throughput and the highest accuracy possible

The SPT2’s positive-displacement technology makes it possible to fill at any rate without compromising the accuracy of the measurement. Measurement precision is not affected by the water quality, container shape or rate of fill, regardless of the size and volume of the container. This filling technique, in tandem with a high-precision fill-height sensor, makes it possible to deliver defined volume and fill measurements at any point within the process, to an accuracy of ± 0.5 ml, meeting the requirements of ISO 8106.

Final test data can be reported as:
- Volume at defined fill point
- Fill height at defined volume
- Brimful volume

The SPT2 volume technology offers numerous advantages over other traditional volume measurement techniques; particularly, the inaccuracies associated with flow-meter based systems, the “cleanroom” complexity of gravimetric products and the variability due to water density.

<table>
<thead>
<tr>
<th>Performance factors</th>
<th>Volume measurement technology</th>
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<tbody>
<tr>
<td></td>
<td>SPT2</td>
</tr>
<tr>
<td>Measurement accuracy ±0.5ml</td>
<td>★</td>
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<tr>
<td>Accurate dosing regardless of flow rate</td>
<td>★</td>
</tr>
<tr>
<td>No water density compensation</td>
<td>★</td>
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<tr>
<td>No scales or balances</td>
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*dependent on operator, water temperature and density
SPT2 incorporates a number of advanced features

**Leading-edge technology**
The SPT2 incorporates Linux-based technology to manage the continuous, multi-function operations of this testing system. The Linux platform offers an unmatched combination of processing power, long-term stability, fast operational response and resistance to outside influences. It is ideally suited to manage system operations and process a wealth of test data in a highly efficient manner.

**Unmatched testing throughput**
Concurrent volume measurement and pressure testing operations provide for the most efficient bottle processing. A servo-controlled positioning system provides for optimal bottle travel and placement through the system. Continuous bottle management and closed-loop monitoring of all processes eliminates timing and associated delays. This capability affords maximum throughput based on the bottle size and type, while providing live process updates for the operator and a continuous flow of testing data for process management purposes.

**Universal bottle clamps**
To simplify operation and accommodate from multiple sources, the SPT2 incorporates a universal bottle clamping system. The SPT2 clamping system automatically adjusts for the finish and firmly holds the bottle throughout the testing process. Bottle finishes up to 38mm can be handled without the need for job change parts.

**Dynamic bottle handling**
The SPT2 incorporates a flexible yet robust, multi-axis bottle handling station to facilitate fast throughput and multiple line operation. The SPT2 handling station can accommodate a range of bottle heights and diameters without job change. Intake height and finish gripping are adjusted “dynamically” to accommodate bottles of different heights and finish sizes, making it possible for the SPT2 to accept and test a wide range of ware from multiple production lines.

**Hi-tech polymer seals**
The SPT2 utilizes Agr’s proprietary compensating pressure seals. These seals are made of a special hi-tech polymer that offers long-life durability and flexibility to support a wide range of finishes. The unique design takes advantage of increasing water pressure to complete the seal and provide leak-free operation throughout the testing cycle. The SPT2 seals support a full range of testing from low pressures up to the maximum operation of the system.

**Intuitive user interface**
The SPT2 is designed for ease of setup and operation. A touch-panel user interface provides for easy and intuitive job setup. During operation, live status updates are provided for in-process volume and pressure testing operations as well as results for the last 20 tests. For maintenance purposes, the SPT2 offers built-in alarms and comprehensive diagnostic information for all system functions.

**Rugged construction**
The SPT2 is designed to stand up to the harsh environment of glass container manufacturing and filling plants. All components are housed in a rugged stainless steel enclosure and any that are in contact with water are manufactured from corrosion-resistant materials. Electrical components are positioned away from hydraulic and water lines and given protective enclosures to prevent accidental contact with water and fluids. All parts are rated for high temperature industrial environments, eliminating the need for supplemental air conditioning.

Agr reserves the right to alter design and/or specifications without notification.