

Automated pressure strength and volume assessment

According to David Dineff, Agr International's latest SPT2 automated pressure and volume measurement system offers a throughput increase of 35% over existing glass bottle testing equipment.

Agr International's recently announced sampling pressure tester, the SPT2, offers the next level of testing capability for the glass container industry. In addition to unparalleled measuring and testing precision, the equipment can test up to 270 bottles/h, offering a 35% throughput improvement over existing designs. This capability is a key advantage of this system and can result in significant savings in testing and production efficiencies.

To achieve this throughput at this rate, the SPT2 employs a two-station design with concurrent volume measurement and pressure testing operations. A robotic handling

system provides for optimal bottle travel and placement through the system. Closed-loop controls are in place to manage bottles throughout the system and dynamically monitor the testing process to maintain the most efficient bottle processing and throughput.

Multiple line compatibility is another added feature. The SPT2's 'intelligent management system' and universal bottle holders can automatically adjust for bottles of different sizes and finishes. This capability makes it possible to test different bottles from multiple manufacturing lines, or hand-feed a set of bottles as required, without the need to stop and reconfigure the system.

With the increased throughput and the ability to accept bottles from multiple lines, the SPT2 provides users greater flexibility and savings in

their testing programme. Additionally, the increased throughput offers glass bottle makers a way to sample ware on a more frequent basis and as a result, proactively detect and correct pressure and volume-related problems before they become quality issues.

EQUIPMENT FEATURES

The Agr SPT2 automated testing station is designed to provide critical pressure strength and volume performance data for glass containers, on a sampling basis, on the production floor. When integrated into the production line, it can automatically test and collect pressure and volume data on bottles selected for sampling, without operator intervention, on a 24/7 basis.

The SPT2 utilises an advanced pressure generation system that makes it possible to precisely pressurise containers at a constant



Agr SPT2 incorporates an integrated volume measurement system that performs volume measurements simultaneously with pressure testing, on the plant floor, with laboratory accuracy.



A robotic handling system and universal bottle holders accommodate a range of bottle sizes, without job changes.



Agr SPT2 offers precision volume measurement and pressure testing in a single, compact system.

ramp rate up to 69 bar (one minute equivalent). In addition to testing capabilities for high strength containers, the SPT2 tests low pressure ware with a high level of confidence. The equipment's precise control facilitates the detection of low pressure leaks and can distinguish them from low pressure breaks.

This design provides extremely accurate and controlled pressurisation throughout the testing process that meets the rigid testing requirements defined in 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 precise and defined manner. The SPT2 offers the choice of pressurising bottles to a predefined pressure point (proof testing), or to destruction.

An optional volume measurement system offers manufacturers an alternative to the time-consuming and labour-intensive work required for laboratory volume measurements. With the SPT2, volume measurements can be performed simultaneously, with pressure tests capturing data for volume fill point, fill point at a given volume and overflow.

"The volume measurement system on the SPT2 is more precise and repeatable than any volume measurement product on the market" comments Senior Process Leader, Sudha Christy. "After extensive testing and research, we determined that positive-displacement technology would provide the accuracy and repeatability necessary for the type of measurements that are needed for the glass container industry. With this technology, we have been able to achieve the necessary accuracy yet overcome the problems and inaccuracies associated with flow meter-based systems and the complexity and variability of gravimetric methods. Furthermore, measurement precision is unaffected by water quality or density of water."

The SPT2 can be

configured on a sampling line to provide a protocol to integrate easily with commercial process management systems. It is also designed to operate seamlessly with Agr's OmniLab automated measurement system. When integrated with the OmniLab system, pressure and volume as well as dimension, weight and thickness data can be correlated into a single report.

The SPT2 is the latest generation in a long line of automated pressure testing systems supplied by Agr for the glass container manufacturing industry. The company's automated pressure testing stations date back to 1979, when Agr first pioneered the concept of automatically

sampling containers from the production line and testing them for pressure strength on a regularly scheduled basis. This development made it possible to continuously monitor the pressure strength of bottles produced and provide a statistically significant level of sampling that is not cost-effective or practical with laboratory-based testing. ■

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