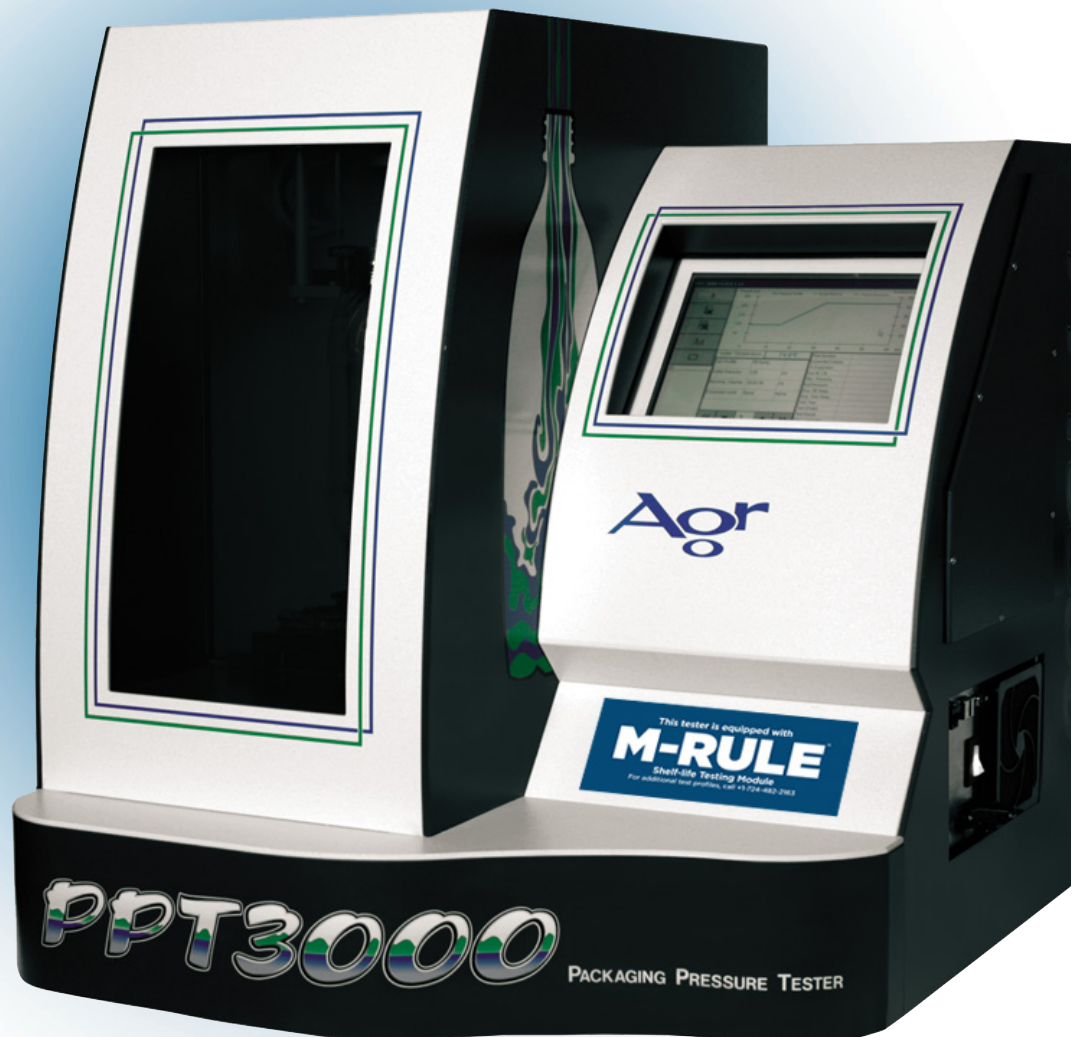




PPT3000™

Packaging Pressure Tester



A new generation in pressure testing

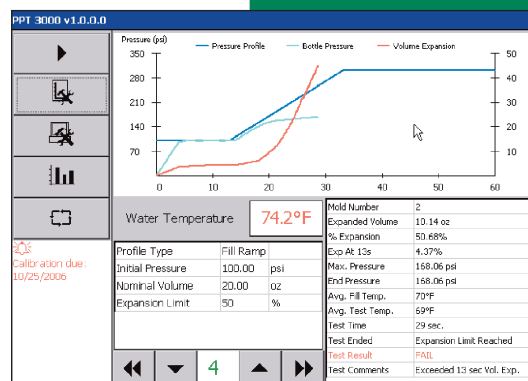
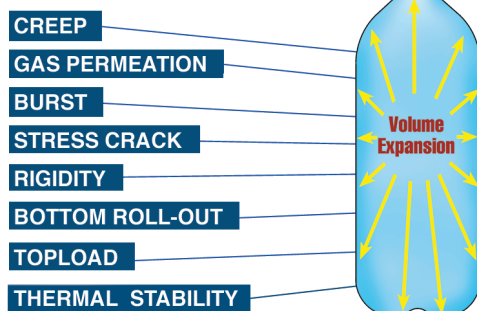
- Test plastic bottles and similar products for pressure and expansion
- Predict O₂ or CO₂ shelf-life of PET containers
- Perform mold-correlated fill-ramp, burst, or custom tests on containers
- Perform dome tests on aluminum bottles per industry protocol
- Monitor temperature for volume expansion and burst tests

The PPT3000™ Packaging Pressure Tester offers high-resolution, servo-controlled pressure and volume expansion testing capabilities for plastic and related containers with the versatility to perform a number of industry standard and custom test profiles. Optional fixtures are available for aluminum bottle dome testing as well as other package applications. The PPT 3000™ test system can be used in the laboratory or along side manufacturing lines to verify that containers meet packaging industry specifications.

VALUABLE PROCESS TOOL FOR PET CONTAINER PRODUCTION

The PPT3000™ is a critical process tool for the management of PET container production, given the relationship of volume expansion to key container performance variables including creep, gas permeation, burst, stress cracks, rigidity, bottom roll-out, topload, and thermal stability.

Key PET Container Performance Factors Affected by Volume Expansion



EASY-TO-USE OPERATOR INTERFACE

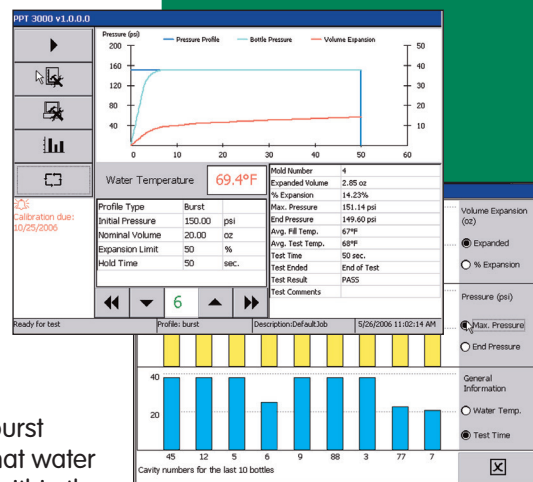
The PPT3000™ pressure tester features a large color, touch-screen display that is the center for operator interaction and presentation of on-going test data. All functions of the testing system are managed from this ergonomically designed user interface.

Operator Interface Features:

- Touch-screen operation
- Easy navigation
- Graphic display of test curves
- Comprehensive post-test data
- Test parameters display
- Mold number input
- Alarm notification
- Ability to input post-test comments

MANAGING THE EFFECT OF WATER TEMPERATURE

Water temperature has a direct influence on volume expansion and burst pressure test results of PET containers. Agr internal studies indicate that water temperature affects container volume expansion and burst pressure within the temperature range of 40° to 110° F. Tests show that differences in volume expansion ranged from 5% to 30% of volume and burst pressure from 20 to 30 psi across the measured temperature range. The Agr PPT3000™ can help manage this variation by monitoring and providing a documented record of infeed and test temperatures for every test.



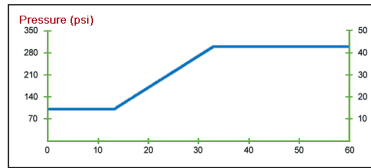
The PPT3000™ operates in accordance with all industry standards for pressure testing including ASTM, ISBT, etc.

TESTING VERSATILITY

The PPT3000™ pressure tester offers testing modes that allow operators to perform a variety of industry standard tests as well as customized tests for unique applications.

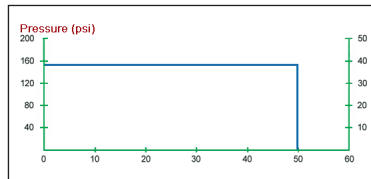
Fill-Ramp Mode

This test mode is designed to simulate the conditions for PET container filling operations. In this mode of operation, the container is pressurized quickly to an operator-specified level and held for 13 seconds. The pressure is then ramped at a rate of 10 psi per second until container failure or the maximum level of pressure or volume is achieved. Input parameters include: initial pressure, nominal volume, and expansion limit.



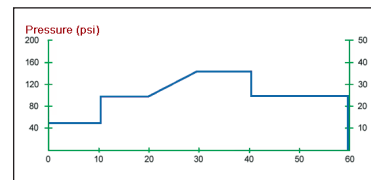
Burst Pressure Mode

In this mode of operation, the container is pressurized quickly to a predefined pressure level and held for a specific time. Input parameters include: initial pressure, nominal volume, expansion limit, and hold time.



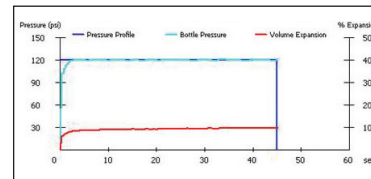
Custom Test Mode

The PPT3000™ custom test mode provides the capability of creating unique profiles to meet special testing requirements. The PPT3000™ custom profile editor lets operators build custom test profiles on a segment by segment basis. As each segment is developed, it is graphically displayed on the user interface.



M-RULE® Shelf-Life Mode (optional)

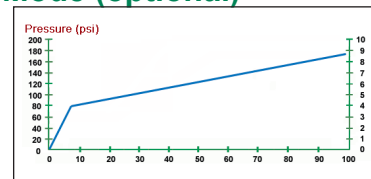
The M-RULE® shelf-life mode is designed to provide material utilization and predicted shelf-life data. In this mode, bottles are pressurized at a precise rate up to 60 psi. Pressure and expansion data is captured then analyzed by the embedded version of the M-RULE® Container Performance Model software to ascertain material utilization. Predicted O2 or CO2 shelf-life for the bottle is presented based upon test data and bottle attributes.



The M-RULE® Container Performance Model is a proven, software-based predictive tool that operates by integrating the fundamentals of permeation with critically evaluated, physical data for the component materials and other pertinent data affecting the permeability of a container. *M-RULE® is a registered trademark of Container Science, Inc.*

Metal Doming/Reversal Detection Mode (optional)

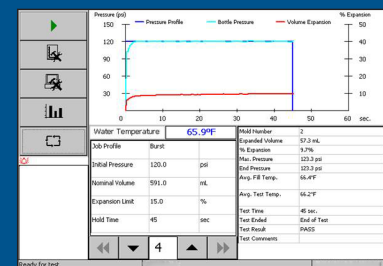
This test is designed specifically for aluminum beverage containers. This test mode applies internal pressure (up to 300 psi) to the container, at a controlled rate, to the point of base failure. The PPT3000™ system tracks the pressure value, elapsed time, and volume expansion as the dome reverses under pressure to the “buckling” point. The pressure/volume test curve is then displayed on the user interface for operator interpretation.



Available with 13 second and user-defined volume expansion points that enable operators to configure the duration of time for capturing volume expansion during testing. This feature makes it possible to precisely simulate actual filling conditions and how the bottle will perform under those conditions.

FEATURES

- Integrated variable pressure programmability
- Water temperature monitored and included as part of the data packet
- Pressure and volume expansion curves displayed during the test
- Operator input for:
 - ✓ mold number
 - ✓ end of test details
- Capabilities for setting upper and lower control limits
- Integrated M-RULE® shelf-life prediction module (optional)



OTHER VALUABLE FEATURES

- Alarm and maintenance log
- Serial and Ethernet data output
- Composite housing with stainless steel inner workings
- Integrated diagnostics:
 - ➡ One-touch calibration verification
 - ➡ Friendly reminders for calibration and filter changes

Available Options

- Floor stand
- Water-saver recirculation system
- Water filtration system
- Additional inserts and fixtures for aluminum bottles
- Test gauge assembly for calibration verification
- Custom shelf-life test profiles
- Programmable volume expansion

Testing Other Package Types

The **PPT3000™** pressure tester is designed for versatility. We welcome inquiries for custom pressure and volume-expansion testing applications involving tubes, flexible packaging, medical products, and similar packages.

Glass Containers

Agr offers a dedicated testing system, the **RPT2™** pressure tester, for testing glass containers.

Contact us today for more information!



Products shown in this brochure are for illustrative purposes only and do not constitute an endorsement of any Agr products by the respective manufacturers.

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