



# SAFETY ALERT

## Pressure Vessels with Quick Lock Closures

### HAZARD WARNING

**Never open a Quick Lock Closure while the vessel is pressurized or contains liquid above 200 degrees Fahrenheit. Opening a Quick Lock Closure on a vessel containing pressure or liquid above 200 degrees F may force the lid open and expose the operator to steam and/or scalding liquid. Property damage, serious injuries and/or death can result. Always open a test valve to verify no steam, pressure or liquid discharge before releasing lid.**

The purpose of this SAFETY ALERT is to inform you of a potential hazard associated with Quick Lock Closures on Gaston County pressure vessels, and to advise you of available safety upgrades to minimize this hazard. We are also enclosing a copy of our *Safety Inspection Check List for Quick Lock Closures* (2-011800). Safety Warning Labels are available on request from the company.

Over the past forty years Gaston County Dyeing Machine Company has manufactured pressure vessels equipped with manual Quick Lock Closures. Our design consists of a toggle operated locking band which secures the lid in a closed position while the machine is in operation. A toggle locking pin locks the band closed preventing operation of the opening mechanism until such time as the machine is considered safe for opening as indicated by associated sensors and control circuits. The toggle locking pin is designed to retract and allow opening the lid only after certain pre-requisites have been satisfied.

Pressure vessels having manual Quick Lock Closures contain various safety interlocks to prevent the toggle locking pin from being retracted and the lid being opened while the vessel is pressurized and/or the temperature of the liquid in the vessel is above 200 degrees F. Older machines, especially those manufactured prior to 1979, may not be equipped with the latest and most effective safety features for the toggle interlock system and should be updated accordingly. A list of recommended safety updates is included for your reference.

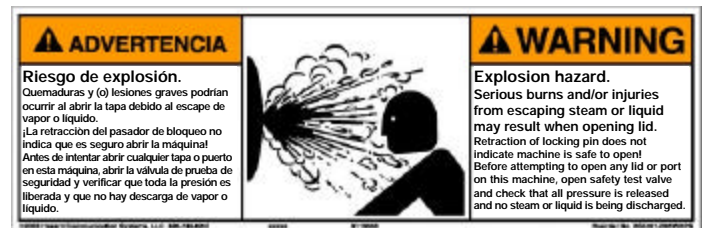
Pressure and temperature sensors used in conjunction with Quick Lock Closures can malfunction for a variety of reasons including inadequate maintenance, falsely indicating a safe condition. Should this occur, the toggle locking pin can retract prematurely allowing the lid to be opened while the machine is under pressure and therefore unsafe. **Retraction of the toggle pin does not indicate a machine is safe to open!** For this reason, all machines having Quick Lock Closures should be equipped with an interlocking manual safety test valve which the machine operator is required to open and then verify that there is no discharge of pressure, steam or liquid from the vessel before opening the lid. Should there be any discharge from the test valve, no further attempt should be made to open the vessel until the interlock system has been thoroughly checked and repaired by a qualified maintenance technician.

### RECOMMENDATIONS:

1. Warnings regarding lid opening hazards must be prominently displayed on or about any pressure vessel. Adhesive backed warning labels are available through the Gaston County Dyeing Machine Company Parts Department by calling 704-822-5000. Part numbers and wording are shown below:



FREE UPON REQUEST - Adhesive Label (8.3" x 2.7") P/N 4121608



FREE UPON REQUEST - Adhesive Label (8.3" x 2.7") P/N 9119048

**Note: Due to the harsh environment associated with dyeing and bleaching equipment, warning plates and labels may deteriorate over time and require periodic replacement. For proper application instructions, refer to "Application Procedures for Pressure Sensitive Adhesive Backed Labels & Plates" which can be found on our website at [www.gaston-county.com](http://www.gaston-county.com).**

**See these and all of our available SAFETY WARNING LABELS on our website at [www.gaston-county.com](http://www.gaston-county.com).**

2. All vessels having a Quick Lock lid (manual or automatic) should have an automatic vent valve by which the vessel may be freely vented to atmosphere as a prerequisite to opening the lid. As an additional safety interlock, the air supply to the solenoid which retracts the toggle locking pin should be derived from the vent signal air such that the toggle pin cannot be retracted without the automatic vent having first been opened.
3. All vessels having a Quick Lock lid with manually operated toggle must have an *Interlocking Manual Safety Test Valve Assembly* by which the machine operator is required to check for discharge of pressure, steam or liquid before the vessel lid can be unlocked.

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**Pressure Vessels With Quick Lock Closures (continued)**

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An integral limit switch interlock requires the test valve to first be opened before the toggle pin can be retracted. The test valve must have an open discharge to give audible and/or visual indication to the operator if the vessel is pressurized or has hot liquor above the valve level. The bore of the valve must be large enough (typically ½ inch) to avoid blockage. For vertical pressure vessels, the Test Valve Assembly must be situated below the vessel lid. For horizontal vessels, the Test Valve will be mounted to the side of the vessel and an additional interlock provided to insure the machine is fully drained before retracting the toggle pin to allow opening the lid.

4. Some older machines utilized a Gaston County manufactured pressure switch as the primary interlock for the toggle locking pin. Any Gaston County manufactured pressure switches should be replaced with a new Static-O-Ring pressure switch (GC P/N 7759509) set for 4 inches of water column.
5. Interlock systems for quick lock lids must include an auxiliary safety pressure sensing device set for 4 psi or less to prevent operation of all atmospheric functions and the toggle locking pin above the set pressure. Note: This safety pressure sensor is in addition to the Static-O-Ring pressure switch which serves as the primary interlock for the locking pin.
6. Interlock systems for quick lock lids must include a temperature sensing device set for 200 degrees F or less to prevent operation of the toggle locking pin above the set temperature. The sensor must be configured for "fail safe" operation to a high temperature condition.
7. Gauges may be installed on pressure vessels to provide visual indication of a pressurized condition. However, due to the relatively high pressure range (0-100 psi) required for most dyeing and bleaching applications, gauge resolution and readability may not provide a reliable indication of pressure on the lower end of the scale. Like other sensing devices, gauges are also subject to calibration error and failure. While gauge readings can be used to indicate the presence of pressure within a vessel, the gauge alone must not be relied upon to indicate the absence of pressure or to indicate that a machine is safe for opening.
8. Each plant must develop written procedures, instructions, and training for the safe operation of machines having Quick Lock Lids. This includes use of a test valve to verify no steam, pressure or liquid discharge prior to opening. Operators must be provided with suitable protective gear, especially where "in bath sampling" is utilized, and training in its use. Required equipment may include such items as face shield, body apron, boots, gloves, etc. Adherence to procedures and use of protective equipment must be strictly enforced.
9. Quick Lock systems are subject to failure and require regularly scheduled inspection and preventive maintenance at least monthly - more often where experience dictates or problems are suspected. Refer to "Gaston County's Safety Inspection Check List" for further recommendations and procedures. Particular attention should be given to operation of the Static-O-Ring pressure switch which is a vital part of the interlock system. This switch is factory pre-set at 4 inches of water column and should never be field adjusted or repaired. Any switch that fails to meet the specification outlined in the aforementioned check list or fails to operate correctly should be replaced with a new switch of the same type - no substitutes permitted.
10. Machines found to have defective Quick Lock systems should be removed from operation until repairs can be made. Under no circumstances should components be removed, substituted, defeated or altered in any way.
11. Machine operators should be trained to assume that any closed vessel is pressurized until proven otherwise by use of the manual Safety Test Valve.
12. Insert this SAFETY ALERT in your Gaston County Operating and Maintenance Manual for quick reference.

Should you have any questions regarding this SAFETY ALERT please contact Gaston County Dyeing Machine Company Customer Service Dept. For a nominal charge, we can do a full safety inspection of your machine(s) as well as providing parts and technical service for recommended updates and any other needed repairs. You can reach our offices at the following telephone and FAX numbers:

Telephone: (704) 822-5000  
FAX: (704) 822-0753

Written inquiries may be addressed to the attention of your Account Manager at the following address:

Gaston County Dyeing Machine Co., Inc.  
P.O. Box 308  
Stanley, NC 28164

You may also contact us through our website at:

**[www.gaston-county.com](http://www.gaston-county.com)**

where you will find the latest postings on safety related matters.