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Delta TLT Vertical Top Load for Glass Containers.

1. BASIC MACHINE FUNCTION AND DESCRIPTION:

The Delta TLT is a stand alone machine designed to apply a vertical or compressive force to Glass bottles or containers. Typically used in package testing laboratories, bottling plants or at Glass bottle manufacturing facilities. The Delta TLT can apply a force up to 25 kN which complies with the requirements of ISO 8113- 1985. The Delta uses precise state of the art measuring and control systems to reflect accurately the actual force applied. Various ramp and dwell profiles can be created and stored in the machine memory.

2. COMPLIANCE OF DELTA TLT WITH REQUIREMENTS OF TEST STANDARD:

The standard most commonly used for performing Vertical Top Load Test:

ISO 8113- 1985 (Resistance to vertical Load)

The Delta TLT complies with all requirements of the standard.

3. THE DELTA CONSISTS OF:

3.1 Cabinet:

The machine is constructed from a heavy duty aluminium frame which supports a stainless steel burst chamber, the electrical and pneumatic components are located on a Stainless Steel frame within the enclosure. The hinged door is interlocked and incorporates a polycarbonate window to observe the test. The base of the chamber is tapered to assist the broken cullet exit to a collection bin.

3.2 Electrical & Mechanical Components:

All wiring terminals are tagged and all electrical cables and pneumatic hoses are tagged at either end. All electrical, mechanical and pneumatic components are sourced from industry proven leading brands.

3.3. Force Testing and Control System consists of:

Force of the test specimen is measured using an industrial grade Load Cell with an accuracy of +/- 0.5% FSO linearity, hysteresis & repeatability combined.

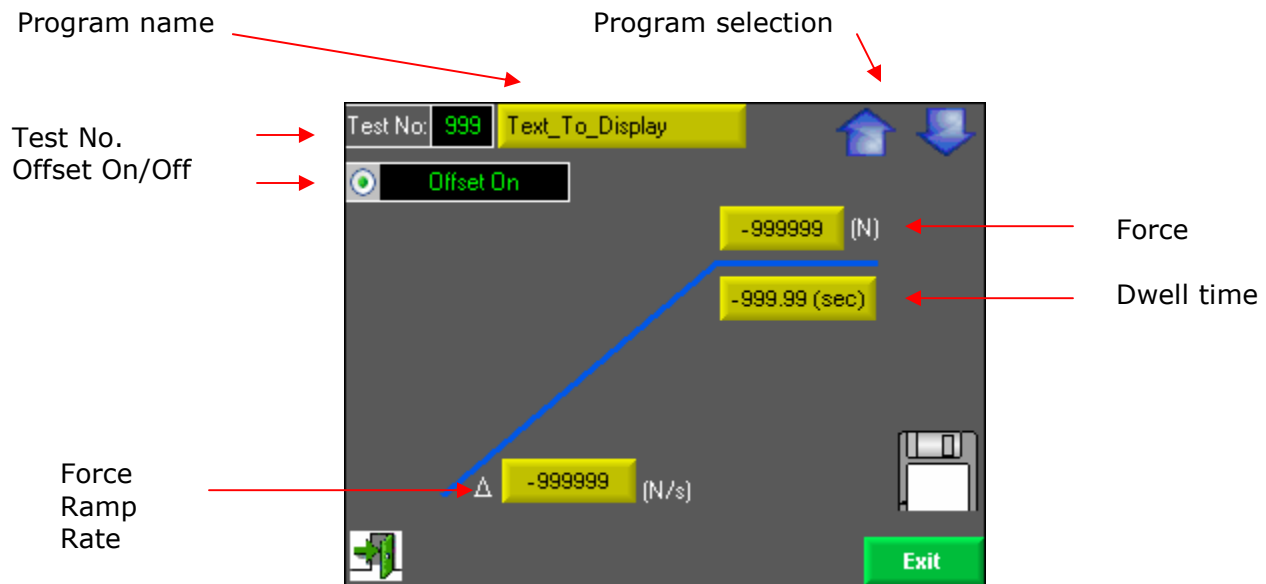
An internal PID control continuously monitors the actual vs. the set force to ensure a deviation of no greater than +/- 2%.

Force on the test specimen is generated by a Servo Motor controlled via Servo Drive with a gear ratio of 120:1 to achieve the high level of force.

3.4 Operator Interface:

A *touch screen* operator interface that is intuitive and easily understood, with the use of symbols rather than text where possible.

Text on Touch Screen can be translated to user language.



4. OPERATION/TEST CYCLE:

4.1 Operation:

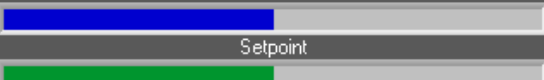

- Select LOAD on the operator screen, plunger tip will travel downwards and stop at the entered "Bottle Height" and the door will open automatically.
- An empty glass bottle or container is loaded by hand onto the target plate.
- The interlocked safety door is closed.
- Using the operator interface load the required recipe.
- Press start.
- When the test has commenced the operator screen will display the set point and the actual forces.

4.2 Results

After a test has completed the results page will be displayed automatically. Within the results page the user will find the data collected during the test, such as;

1. Test Time/Date
2. Test Name
3. Test Number
4. Test Duration
5. Break Detected
6. Max and Break Forces

The user can also view the graph of the last completed test.

| | | | |
|---|----------|--------------|------------|
| Status: | Idle | Test Number: | 999999 |
| Units: | Kilogram | Test Time: | 999.99 (S) |
| Setpoint: | | 99999 | |
| Machine Force: | | 99999 | |
| Offset: | | 99999 | |
|  | | | |
| Graph | | Force | |
|  | | | |



Results can also be downloaded via RS 232 to a local PC.

5. Calibration:

The Delta TLT is preprogrammed with a calibration routine which can be used to ensure the machine remains in calibration. A calibrated force gauge is used to calibrate the Delta at 4 points over the force range. The calibrated force scale can be supplied from Somex on request.

6. Offset.

For certain tests on Glass Bottles, it may be desirable to accelerate the time taken for a test. The Delta TLT can facilitate this function.

7. SAFETY CIRCUIT:

There are several features to ensure access is denied to a specimen under test. The door is interlocked to ensure the cycle cannot begin with the door in the open position. There is a safety sensor detecting a floating plate which is raised when the unit is in contact with a specimen, while this sensor is off the door cannot be opened.

8. ACCURACY:

A typical force profile consists of RAMP (N/sec), FORCE SET POINT (N), HOLD (sec.)

Close monitoring by the control system ensures the actual force follows the set pressure profile to +/- 2% of full scale.



9. Specifications:

| | |
|-----------------------------|------------|
| Maximum container Height: | 400mm |
| Maximum container diameter: | 150mm |
| Maximum force | 25kN |
| Measurement units | kN or kG-F |

10. Installation requirements:

| | |
|--------------------------|---------------------------------|
| Dimensions: | 770 x 670 x 1939 mm |
| Net Weight: | 220 Kg's |
| Electrical Power supply: | <5A, 110V (60Hz) or 230V (50Hz) |