

MTS ElastomerExpress™ Software

Easy-to-use software designed to increase your efficiency in both production quality testing and laboratory testing



Easy-to-use ElastomerExpress Software from MTS is intentionally designed to provide maximum efficiency in elastomer testing. This flexible and cost-effective software package allows you to easily perform both production quality testing and laboratory testing.

Our expertise in the field of elastomer testing provides you with the highest level of confidence. We have the largest installed base of systems in the world, including test lab systems, production quality audit systems, and in-line production quality control systems. The development team at MTS maintains close relationships with elastomer customers across the globe to understand what operators need to make this software easy-to-use and efficient.

Whether you are in a manufacturing or laboratory environment, the flexibility and automated functionality of ElastomerExpress can keep your production schedule on track. It will reduce your risk of costly down time, while keeping your lab testing plan on schedule.

Features

- ▶ User-definable access levels
- ▶ Powers up computer directly to ElastomerExpress test operator page
- ▶ List of user-definable favorite tests for easy test selection
- ▶ Reduced test designer input requirements
- ▶ Reduced operator pass/fail decision-making requirements
- ▶ X-Bar chart capabilities for effective trend analysis
- ▶ Supports Western Electric process control rules for improved real-time response to trend deviations

Benefits

- ▶ Cost-effective software solution to meet your streamlined testing needs
- ▶ Reduced confusion provides improved reliability
- ▶ Reduced risk of operator error provides increased repeatability
- ▶ Reduced operator interaction provides ease of use and increased efficiency

- ▶ **Cost-Effective Software Solution**
- ▶ **Proven Quality & Reliability**
- ▶ **Superior Accuracy & Repeatability**

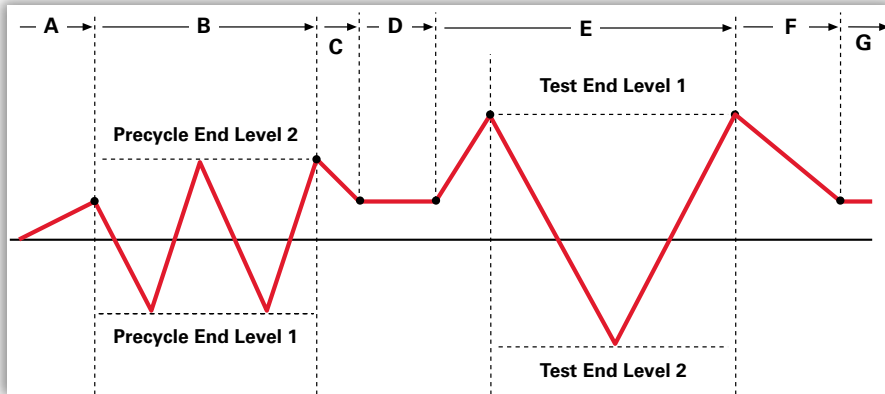


Product Details

Innovative, easy-to-use ElastomerExpress Software speeds testing setup and results. Several standard test templates are predefined within the ElastomerExpress test package:

| Test Type | Test Use |
|--------------------------|---|
| Static Deflection | Used for static characterization of elastomer materials or components. ► The same static deflection test is used for load path correction (when required). |

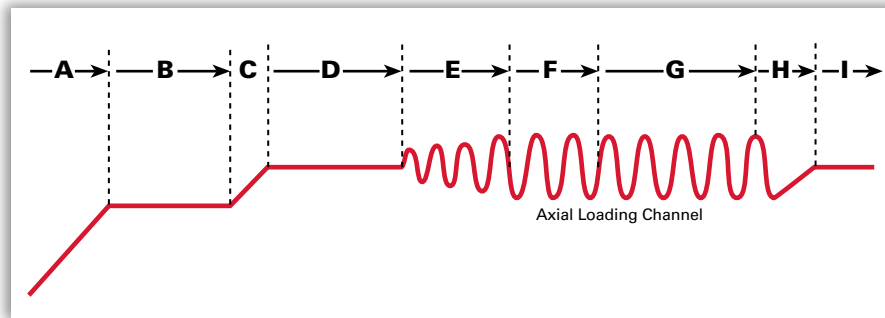
Static Deflection Process Graph



- A. Ramp to preload
- B. Precycle
- C. Return to preload
- D. Dwell at preload
- E. Acquire data
- F. Return to preload
- G. Process data

| Test Type | Test Use |
|---------------------------------|--|
| Dynamic Characterization | Used for dynamic characterization of elastomer materials or components. ► No dynamic calibration test is required since dynamic corrections are pre-installed in all MTS systems, software, and controls. |

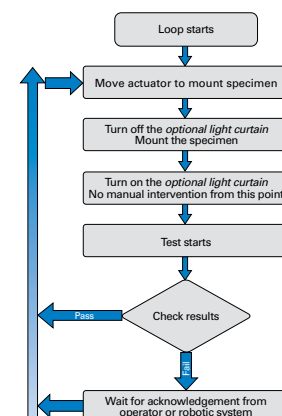
Dynamic Characterization Graph



- A. Ramp to zero
- B. Relax at zero
- C. Ramp to mean or set point
- D. Dwell at mean
- E. Converge dynamic amplitude
- F. Precycle
- G. Acquire data cycles
- H. Return to base or mean level
- I. Process data

| Test Type | Test Use |
|---------------------------------|--|
| Conditional Quality Test | Used for testing specific manufactured quality conditions for manufactured quality verification. ► This type of test can be defined as single condition or multiple condition test. Test can use a static condition, dynamic conditions or a combination of static and dynamic conditions together. AND / OR logic can also be used for improved pass-fail automated decision making. |

Quality Test Flow Chart Example



Test Definition

The ElastomerExpress Software package from MTS allows your operators to easily define and perform laboratory testing and production quality testing.

Laboratory testing profiles minimize the complex layers of setup and

decision making into an easy-to-use interface, but still contain the flexibility you need for most static and dynamic measurements.

Quality testing profiles are designed specifically for conditional testing and automated decision making,

maximizing your throughput and efficiency.

To make the ElastomerExpress Software even easier to use, dynamic corrections never need to be performed: they are built in and invisible to the operator!

Test Definition – Laboratory

Engineer-level access is typically used to design the tests. They can select and design a test on a single screen by choosing the desired test process and their parameters.

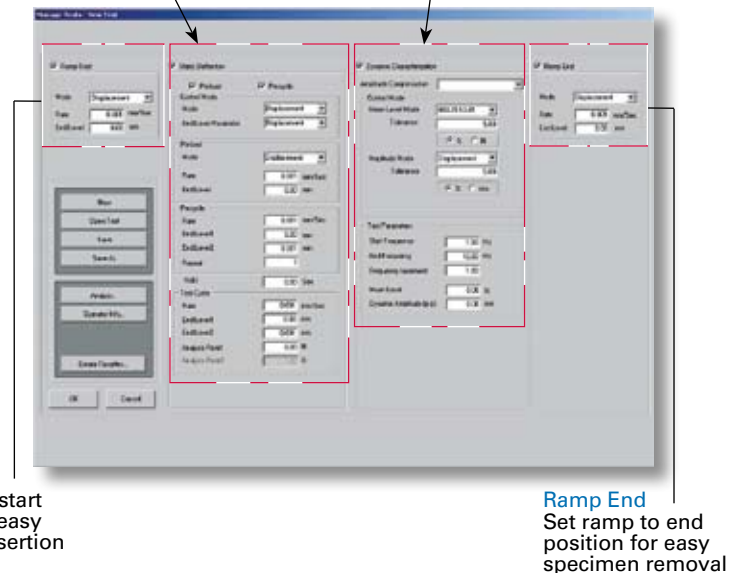
You have the flexibility to:

- Design a single **Static Deflection test**
- Design a single **Dynamic Characterization test**
- Design a test with both **Static Deflection** and **Dynamic Characterization** combined within a single definition

Once you design and save your test settings, you can run it immediately or turn the saved test over to an operator for future test operation.

Static Deflection
Define Static Deflection test requirements

Dynamic Characterization
Define Dynamic Characterization test requirements



Ramp Start
Set ramp to start position for easy specimen insertion

Ramp End
Set ramp to end position for easy specimen removal

Test Definition – Quality

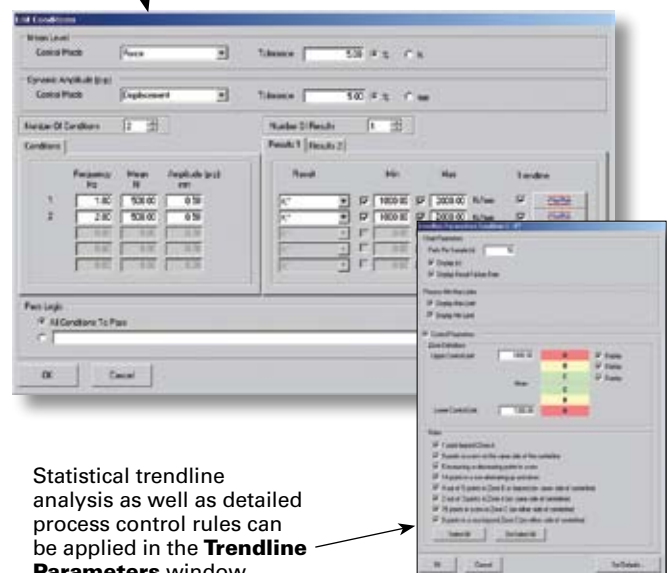
Engineer-level access is typically used to design the tests. They can select and design the test with a similar initial screen with added functionality available to define dynamic test conditions and trendline parameters.

- One static deflection condition and up to five dynamic test conditions can be defined within each test. Each of the conditions can be defined with as many as two user definable properties with limits to determine pass or fail criteria. In addition to simple pass/fail checking, more complex pass/fail criteria can be defined using **AND/OR logic**.
- New support for X-Bar charts provides the mean, standard deviation, failure rate as well as the maximum and minimum value of a defined sample set. Customizable Western Electric process control rules ensure a deliberate response to trend deviations.
- In a manually driven test configuration, digital I/O are used to integrate palm buttons and light curtains for operator protection typically required within quality audit labs. To further maximize efficiency, digital I/O can also be used to integrate the test system directly into a production line to perform fully automated quality testing.

Dynamic Characterization

To enhance efficiency, test conditions are performed rather than frequency sweeps.

Define conditions and pass-fail criteria in the **Edit Conditions** window.



Statistical trendline analysis as well as detailed process control rules can be applied in the **Trendline Parameters** window.

Advanced Capabilities of MTS ElastomerExpress Software

Access Management Controls Testing Program

ElastomerExpress Software is equipped with customer-defined usernames, passwords, and access-level definition. These access levels limit visibility to test definition and decision making through access management minimizing operator confusion and errors.

The typical one-time setup is performed during installation and is found in the advanced settings window. Some of the settings include:

- ▶ Access-Level Manager: Only selected users have access to the Advanced level
- ▶ Selections of Laboratory or Quality Test Type Configuration: Digital input/output-enable used for semi-automated and fully automated quality test operation
- ▶ Control Channel and Transducer Definition
- ▶ Dynamic Characterizations Analysis Method Selection
- ▶ Test and Data Storage Options

After setup by an authorized user, the advanced settings can be hidden to minimize operator confusion.



File Management

File management is easy with ElastomerExpress Software. It uses the most current, commercially available Microsoft® Windows® operating system which keeps your costs low and minimizes the learning curve for users.

The Microsoft Windows file structure allows files to be easily sortable and retrievable using Microsoft Windows tools.

- ▶ The MTS ElastomerExpress application uses MTS Elastomer macros in Microsoft Excel® to create graphics and calculated results for post test analysis.
- ▶ Microsoft Excel also provides you a commercially available and easy-to-use platform to create macros that

can be used to provide additional customized graphics, calculations, and reports.

Global Support

Reliable hardware and software elastomer testing packages from MTS keep your production schedule on track and reduce your risk of costly down-time. With over 40 years of experience MTS provides the best service in the industry to our valued customers in more than 60 offices located throughout the world.

Remain Up-to-Date with MTS Maintenance, Enhancement & Support (ME&S)

As elastomer testing requirements evolve, the easiest, most cost-effective means to keep your lab on the forefront is through an MTS ME&S

agreement. Over time, this agreement costs less than purchasing upgrades and updates separately and makes your budget easier to manage with a low fixed cost. But an ME&S agreement offers much more than simple cost savings. It also features:

Automatic Updates

- ▶ New features added to your software in response to demands from the testing community
- ▶ All software updates that become available after initial program purchase
- ▶ New capabilities added to your previously purchased software packages
- ▶ New software that stays compatible with evolving PC operating systems

Preferential Technical Assistance

Receive preferential access to technical assistance by telephone from MTS software experts at no additional cost.

A Plan to Fit Your Specific Needs

Agreements are purchased at the time of equipment purchase or shortly thereafter. They are sold in 12-month coverage increments; however, you can buy up to 48 months of coverage at the same low annual rate. You can qualify for discounts if you have multiple MTS hardware systems.

For More Information

To learn how MTS ElastomerExpress software can improve the bottom line of your elastomer testing program, contact your local MTS sales engineer, visit www.mts.com or e-mail info@mts.com.

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