

Quality control/Quality assurance software

MTS Model 793.35 Elastomer Quality Control/Assurance software is a member of a family of software applications engineered specifically for elastomer testing applications.

The Model 793.35 package is an extension of Model 793.31 Dynamic Characterization and Model 793.33 Static Deflection applications which are used to determine the basic material properties of the test specimen. Because it is designed for the QC/QA environment, Model 793.35 software has a simplified user interface as well as a pass/fail test criteria determination. With it you can pre-define upper and lower limits for any of the parameters measured by the Dynamic and Static deflection applications. Based on the established pass/fail criteria, the operator will be notified of the test result and instructed to insert a new specimen.

The following example describes a typical test operation in a quality control/audit environment. A flow chart is provided in Figure 1. This example assumes that the frame is equipped with a light curtain installed in front of the load frame, two switches which must be engaged (one with each hand) for operator safety, and that there is a continuous supply of test specimens to be subjected to the same test.

- » The test begins with the operator moving the actuator to mount the specimen to the load frame.
- » The light curtain is disabled.
- » Operator mounts the specimen.
- » The operator controls the actuator to establish contact with the specimen.
- » The light curtain is enabled. From this point, no manual intervention can be made to the test. This is to protect the operator from accidental injury.
- » The operator activates the test by holding down two switches (one with each hand – another safety feature).

At the conclusion of the test, results are checked against pre-defined limits. If the result falls outside any of the limits a message will be sent to the PC monitor and the Remote Workstation Controller. The operator is required to acknowledge this message in order to complete the specimen test. This is achieved by pressing the "Fail Test" acknowledge switch.



Figure 1. Operation flow chart for QC test





| | ditor < TSIIM QC.cfg > Display Tools Window | | | | _ D X | | |
|---------------------------------------|--|-------------------------------|---------------------------|-------------------------------------|---|--|---------------------------|
| | | | | | 8 | | |
| Procedure | 00 V 100 08 | | | | | | |
| Туре | Name | Sta | 4 | Interrupt | | | |
| QC Loop | | (Procedure).Start | | | | | |
| Procedure / 0 | C Loop | | | | _ I X X | | |
| Type | Name | SI | art | Interrupt | | | |
| | Ramp to 30mm (Group).Stat | | | | | | |
| Di Clear Li | ght Curtain | Ramp to 30mm.Done | | | | | |
| Ramp to | -5N | Clear Light Curtain.Don | e | 1 | | | |
| Enable | Light Cuitain | Ramp to -5N.Done | MPT Procedure | Editor < TSIIM QC.cfg | > Test Procedure | | |
| Dynami | : Test | Enable Light Curtain.D | File Edit Group | | v Help | | |
| | | Group is don | | | 8 | | 8 |
| | | | Dynamic Test | t - Dynamic Characteriz | ation Parameters | | |
| | | Procedure is done | | | | tination Digital I/O Conditions Gene | |
| Ready | | | Channet | Avial | | | |
| | | | Control Condition | s File-Display Charts L | imits Variables | | |
| Fig. 2. MPT test tem | plate | | Available: | al in a shart lanara la | Contraction in the second second second | uded: | 1 |
| This is the test | sotup using | | Phase | | - > K' | | |
| | estWare [®] softwar | r0 | K" C | | < | | - |
| WulliFulpose I | | e. | C Tr | | | | - |
| | | | Tan Dalta | | <u> </u> | | |
| | | | Property: | K* | | | |
| | | | Limit Type: | Minimum / Maximu | m | | |
| | | | Condition | 1 💌 🕂 🔤 | | Apply to All | F |
| | | | Warn Minimum | | | 1.00000e+023 (N/mm) | |
| | | | | | | | <u> </u> |
| | ditor < TSIIM QC.cfg > | | | | _101 ×1 | 1.00000e+023 (N/mm) | L |
| File Edit Group I | | | | | | 1000.0 (N/mm) | |
| | | | | | 8 | 1100.0 (N/mm) | |
| Type | Name | Start | | Interrupt | | 1100.0 [[textual | |
| QC Loop | | <procedure>.Start</procedure> | | interrupt | | | Simulation |
| Procedure / 0 | | | 1 | | | | |
| Type | Name | Start | | Interrupt | | Fig. 3. Define the li | mits for the test results |
| Ramp to 30mm | | | | | T 1 () (| | |
| Clear Light Curtain Ramp to 30mm.Done | | | | | | ameter window to | |
| Ramp to -5N Clear Light Curtain Done | | | | _ | | ult limits in the | |
| Enable I | ight Curtair | est - Dynamic Character | instice Decompositions | | | Dynamic Char | acterization test. |
| Dynamic Dynamic | Test Channels Con | trol Definition Dwell Spi | cinen Analysis Destin | ation Digital UO Conditions (| General | | |
| | | Digital Input Opt | | | | | |
| Digital Input 1: Digital Input 2 | | Acknowledge, H | | | • | | |
| | | None | | | - | | |
| | Digital Input 3 | None | None | | | | |
| | Digital Input 4: | Lisone | | | - | | |
| | | | | | | | |
| Beadu | | | | | Simulation | | |

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Fig 4. Define the digital input channel for acknowledgement

Operator can use the digital input channel to signal the acknowledgement.

| hoced | ure | | | _ [O] X | | |
|-----------|----------------------|---------------------|---|-----------|--|--|
| Type Name | | | Start | Interrupt | | |
| | | | Procedure>.Start | | | |
| Proc | edure / QC Loop | | | | | |
| Туре | N | ame | Start | Interrupt | | |
| | Ramp to 30mm | | (Group).Start | | | |
| | Clear Light Curtain | | Ramp to 30mm.Done | | | |
| | Ramp to -5N | | Clear Light Curtain.Done | | | |
| | Enable Light Curtain | | n - nin | i alatati | | |
| | Dynamic Test | Channels Cont | Inic Test - Dynamic Characterization Parameters | | | |
| | | - | Digital Output Actions | | | |
| | | - Digital Output 1: | Pass, High | | | |
| | Digital Output | | Pass, Low | | | |
| | | Digital Output 3: | None | | | |
| | | Digital Output 4: | None | • | | |

Fig 5. Define the digital outputs for communicating the test results to the external digital devices.

Operator can use the digital output channels to pass the test results to the external digital devices.

QC Part file format

Part file description User comments

| Control Channel Condition | I (| Channel 1 1 | | | |
|------------------------------|--------------------|----------------|--------|----------|--------|
| Part ID | Time | K* | Status | Phase | Status |
| Part ID-1 | 7/18/2001 10:07:45 | 1518.408 | 3 | 7.95E-08 | 1 |
| Part ID-2 | 7/18/2001 10:07:55 | 1518.408 | 3 | -4.5E-08 | 3 |
| Part ID-3 | 7/18/2001 10:08:06 | 1518.408 | 3 | -2.3E-08 | 3 |
| Part ID-4 | 7/18/2001 10:08:16 | 1518.408 | 3 | 3.45E-08 | 1 |
| | ••• | | ••• | ••• | ••• |
| | | | ••• | ••• | ••• |
| | ••• | | ••• | ••• | ••• |
| Part ID-1000 | 7/18/2001 10:58:16 | 1518.408 | 3 | 3.45E-08 | 1 |

Status code: 1 Pass

2 Warn

3 Fail

test result to be checked and pass/fail status. You can select the file format using Microsoft Excel tab delimited format, or using serial port (COM1 or COM2) to spool the result to an external data logger.

QC part file contains the date/time stamp,

For More Information

Contact your local MTS field sales engineer for more information on MTS Elastomer QC software and the MTS Elastomer QC test system. You may also contact the company directly, or send e-mail to: info@mts.com. You are invited to visit our web site at www.mts.com.



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