MTS SERVO CONTROLLED ACTUATORS (03Nos)

Max Capacity : 250 kN, 500kN, 1000kN

Experiment : To determine the tensile strength

Year of Purchase: 2013

Cost : 245.00 L

Advanced design characteristics make MTS actuators the preferred choice for hydraulic force generation around the world. With hundreds of standard configurations and optional life-extending features, these actuators can support a full array of test applications.

KEY FEATURES

- Available with or without displacement transducer to meet specific application needs
- Low-friction seals comprise only 1% of rated load for energy-efficient operation
- Optional hydraulic cushions to protect the actuator from the effects of high-speed or high-inertial impacts
- Optional MTS SureCoat Rod Finishing Technology to maximize performance and increase actuator life

Ideal for
- Dynamic component fatigue testing
- Structural fatigue testing

Piston design
Double ended

Piston rod end attachment available with metric or US customary threads. Rod end has spanner wrench holes to aid in fixture attachment.

Single-ended piston rod reduces overall actuator length. Two-piece rod with proprietary fatigue rated joint is available in transducer-ready or solid rod configurations.

Proprietary MTS rod seals provide long life, low friction and exceptional performance in high frequency, low displacement applications. Rod seals and bearings can be replaced without breaking the critical cylinder preloaded joint.

Bearing insert extends actuator life and is field-replaceable.

Ports sized to accommodate approximately 1m/s piston rod velocity, or a servovalve flow rate of up to 340 lpm (90 gpm).

A reinforced PTFE piston seal provides a positive seal and reduces friction. Optional upper and lower hydraulic cushions minimize damage by safeguarding the actuator from accidental high-velocity impacts between the piston and end cap. Two types of mounting patterns to optimize swivel size to application.

Force capacity
- **250kN (with 250mm stroke)**

- **500kN (with 250mm stroke)**
- **1000kN (with 250mm stroke)**

Features & Benefits
- Superior reliability and versatility for dynamic force generation
- MTS SureCoat Rod Finishing Technology for 10x longer life than hard chrome-plated rods
- Standard options for Temposonics® linear transducers or traditional/conventional LVDTs
- Proprietary MTS seal and bearing designs for superior performance and long life
- MTS-exclusive direct-bonded polymer bearings reduce friction and heat
- Hydraulic cushions protect end cap

SERVO CONTROLLESD HYDRAULIC POWER PACK

Load frame / Servo Actuator to meet your specific static or dynamic high-force testing requirements. Critical components include MTS servovalves and performance-matched SilentFlo™ Hydraulic Power Units (HPUs). MTS servovalves are available with flows of 112, 340, or 680 lpm rated at 70 bar pressure drop. Servovalve pilot pressure ensures tight control of the system actuator at startup. Available in a variety of capacities to accommodate required test loads and speed, SilentFlo HPUs deliver the cleanest and quietest hydraulic power available. They can be deployed directly in the lab, eliminating the cost for special pump housing facilities and reducing supply line cost and space requirements.

MTS TESTSUITE MULTIPURPOSE APPLICATION

The MTS TestSuite Multipurpose Software family is a set of applications, modules and options that you can configure to meet the unique needs of your test program.

The offerings include:

» Multipurpose Elite (MPE)
» Multipurpose Express (MPX)
» Analysis & Reporting Tools
» Fatigue, Fracture & Tensile Testing Modules

Multipurpose Elite

This application is the engine that drives all the MTS TestSuite Multipurpose offerings. With this powerful tool, you can create, edit, and run tests with more flexibility than ever before. You can then tailor these test setups to make them even easier for your test operators to run. If you have only a few individuals creating tests, and several more people operating tests, you can purchase a few Multipurpose Elite software licenses, and several more Multipurpose Express software licenses.

Multipurpose Express

This application is designed for the test operator. It is used for running tests that were created with MTS TestSuite Multipurpose Elite Software or MTS supplied modules. When using Multipurpose Express software, even the most complex tests are easy to operate, and there is no danger of things being changed from the original test design. This application allows the operator to run tests and see the acquired data or calculated values in a user-configurable runtime view, so the operator can choose which aspects of the tests to monitor during the test. They may also interact with the test based on user-defined prompts that were created by the test designer.

Analysis & Reporting Tools

For more in-depth analysis of fatigue and fracture test data, we offer a Fatigue Analyzer and a Fracture Analyzer. For easy report creation, there is a Reporter Add-In for use with Microsoft Excel® that allows you to organize your raw data and create impressive reports with little time investment or manual intervention.

Complete Flexibility with Test Data

The MTS TestSuite platform provides flexible analysis tools that allow you to interact numerically and graphically with the test data, and conduct "what if " studies by adding variables, calculations or charts. You can create an analysis definition that includes the charts, tables, views, variables and calculations you prefer to see. An analysis definition acts as an overlay to the information in the test run to produce an analysis run. This overlay approach means that you can use a single analysis definition to produce analysis runs for multiple, similar tests. Changes you make to an analysis definition are reflected in any analysis run that uses the definition. The overlay approach also means that you can easily apply different analysis definitions to the data from the same test to produce different analysis runs.

More Powerful Report Generation

MTS TestSuite Multipurpose Elite and Express applications contain standard report generation capability that allows you to create a report during runtime. For more detailed reporting after runtime, you can use the MTS TestSuite Reporter Add-In for Microsoft Excel. Create test report templates, and generate reports post-test from test run data. When you create a report, the placeholder values in the report template are replaced with the data and images for a particular test or analysis run. This modular approach means you can use the same template for any number of similar tests. You can also easily create and manage multiple report templates to produce a library of reusable

report designs. With the Reporter Add-In, you receive publication-ready test reports that require no post-processing. These reports can contain text, charts and calculations. The calculations can be performed in the MTS TestSuite Multipurpose application or Excel. Integration between the MTS TestSuite platform and Microsoft Excel means you get the full range of features in Excel with drag-and-drop simplicity from MTS TestSuite software.

Fatigue, Fracture & Tensile Modules
These modules contain the test and report templates and calculations you'll need to test to current industry standards. They can be used with results obtained from either Multipurpose Elite or Multipurpose Express Software.

TEST DEFINITION & EXECUTION

Intuitive Test Creation
Designing a test flow has never been so easy to understand. The intuitive flowchart interface lets you drag-and-drop test activities into a graphical depiction of the test workflow. MTS TestSuite Multipurpose Elite allows you to create tests that consist of only a single activity, or tests that are more complicated with multiple command processes sequenced with multiple data acquisition processes to build complex test flows. To convert a sample plan into a test, you drag test activity icons into the Test Editor, and arrange them in the order you want them to execute.

Standard and Custom Templates
Offer customizable test templates for testing to specific industry standards – use the MTS template or modify it to meet your interpretation of the standard. If you are repeating a specific type of test, you or MTS can create new templates to meet your specific needs.

Control Your Test Flow

Test activities execute from top to bottom as they appear in the Test Editor. To execute activities simultaneously, add Parallel Paths activities to the test flow from left to right. You can also add While Loop, If-Else Condition, and Periodic Time Event activities to control the test flow.

VIRTUAL SPECIMEN

Accurately predict test behavior before breaking any test articles. With the Virtual Specimen feature, you choose a standard specimen and define the parameters, such as stiffness, degradation, initial crack length, crack growth rate, yield load and ultimate load. Then you set up the virtual test to receive physically meaningful feedback of realistic specimen behavior without using an actual specimen. You'll be able to validate your setup and approach before you test, saving you time and effort in test design.

Activities

Multipurpose software provides test activities, such as command and data acquisition, and are represented by icons on the toolbox. You create a test procedure by adding and linking activity icons together on the Test Editor surface according to your test requirements. Multipurpose software is equipped with the following types of activities: » Commands send various types of command instructions to a servovalve or servomotor. » Data Acquisition stores sensor data to disk. » Event Detection monitors test signals to detect test conditions that you specify, or which generate a user event. » Control Settings set specific signals such as digital Inputs and Outputs and Span and Set point. » Test Flow Control allows the user to define logic elements such as If-Else conditions and parallel paths of test execution. » Operator Entry defines information the user will read and enter during the test execution. » Program Actions allow for the

export of data, execution of external applications and creation of reports.

Commands
Custom Waveform, Profile, Cycle, External Command, Sweep, Dwell, Ramp.

Data Acquisition
Max/Min Data Acquisition, High-Speed Data Acquisition.

Event Detection
Break Detection, Limit Detection, Cycle Change Detection, Stable Cycle Detection, State Change Detection, Digital Input, Peak/Valley Change Detection, Wait for Event.

Control Settings
Auto Offset, Reset Cycle Count, Set Control Event, Digital Output, Set Calculation Parameter, Set Span and Setpoint.

Test Flow Control
If-Else Condition, Parallel Paths, Periodic Time Event, While Loop

Operator Entry
Custom Message Window, Input Parameters.

Program Actions
Assign Variables, Log Message, Run Report, Calculate Variables, Run External Application, Send E-Mail, Export Data, Wait.

MODULES AND APPLICATIONS

The MTS TestSuite Multipurpose Software supports several optional modules and applications for conducting tests that meet industry standards.

FATIGUE TESTING SOLUTIONS

Low-Cycle Fatigue Module
This module contains the test and report templates and analysis definitions needed for low-cycle fatigue testing up to 12 Hz, in full compliance with current engineering standards.

High-Cycle Fatigue Module
Get the test and report templates and analysis definitions required to run high-cycle force-controlled fatigue tests up to 70 Hz. These tests will comply with current engineering standards.

Advanced Low-Cycle Fatigue Module
This solution includes the test and report templates and analysis definitions needed to run constant amplitude strain-controlled fatigue testing up to 12 Hz, in compliance with current engineering standards. It also calculates and corrects for thermal expansion during non-ambient testing. In addition, a custom waveform activity allows you to efficiently define arbitrary waveforms, including user-defined hold times.