



MTS EN Standards Asphalt Testing System

Designed to meet critical EN 13108-20 material properties test requirements

As of 1 January, 2009, all asphalt pavements used in European Union roadways require CE marking. This means European pavement manufacturers must qualify asphalt materials repeatedly through a series of dynamic tests specified in the new EN 13108-20 standard. To meet the demands of this rigorous new standard, MTS has developed the MTS EN Standards Asphalt Testing System. Leveraging proven MTS testing technology and decades of pavement testing expertise and leadership, this easy-to-use and affordable test platform will enable you to easily meet the critical material properties test requirements of EN 13108-20 and easily adapt to evolving future test needs.

Tightly-Integrated, Adaptable Test System

The MTS EN Standards Asphalt Testing System integrates flexible MTS servo-hydraulic test system technology and a host of precision fixtures to help you easily adapt to the evolving needs of your test lab. With a standard MTS servohydraulic load frame and SilentFlo™ pump as a foundation, the system can be easily reconfigured to accommodate changing requirements. FlexTest® controllers can be scaled-up to handle more complex testing or operate multiple load frames. The EN-compliant test fixtures are compatible with floor standing or table-top MTS load frames, are easily interchanged and accommodate a wide range of specimen sizes. And the EN standard asphalt test methods included in Multipurpose TestWare® (MPT™) software can be readily modified to meet changing standards or research needs.

be certain.

Comply with EN requirements for fatigue, creep and stiffness

The MTS EN Standards Asphalt Testing System is designed to perform EN 12697 material properties tests for fatigue, creep and stiffness, which are required by the new EN 13108-20 standard. The table below lists the EN 12697 test procedures for which the MTS EN Standards Asphalt Testing System offers solutions. Asphalt manufacturers must complete at least one type-test for each of the three material properties test procedures.

EN Asphalt Test Procedure	MTS Triaxial Cell (Static)	MTS 4-pt Beam Bending Fixture	MTS Indirect Tension Fixture	MTS Direct Tension Fixture
12697-24 (Fatigue)		Part-D	Part-E	
12697-25 (Creep)	Part-B			
12697-26 (Stiffness)		Part-B	Part-C	Part-D or E

Robust MTS Servohydraulic Load Frames

An affordable table-top MTS load frame is the heart of the MTS EN Standards Asphalt Testing System. Featuring an extremely stiff design, fatigue-rated actuators and precision transducers, these systems are renowned for running high numbers of test cycles with very little variance. With the added capability of testing in a wide range of temperatures, this system represents a fundamentally superior means for gaining highly accurate and repeatable results from the types of dynamic tests required by the new EN standards.



The MTS EN Standards Asphalt Testing System is designed to perform the EN 12697 material properties tests for fatigue, creep and stiffness required by the new EN 13108-20 standard.

Columns

- » Solid steel for high stiffness and chrome plated for long life and easy cleaning.
- » Precision machining maintains load unit alignment over their entire length.

Crosshead

- » Designed for a high natural frequency.
- » High stiffness for precise displacement measurement and increased dynamic performance.
- » Adjustable position to provide test space flexibility.

Force transducers

- » Strain gage design is accurate for both static and dynamic testing.
- » Force ratings can be matched to specific tests for the most accurate results.

Alignment fixture (optional)

- » Precise load train alignment in minutes.

Load unit control module

- » Puts control of the hydraulic lifts for repositioning the crosshead at a convenient location (optional).
- » Emergency stop shuts off hydraulics.

Grip controls (optional)

- » Provide fingertip control of 4-point bending fixture clamps.

Actuator manifold

- » Provides mounting for servovalve.
- » Mounted on the actuator for the highest possible response and most accurate test control.
- » Close coupled accumulators that help minimize hydraulic pressure fluctuations for improved test control and data accuracy.
- » Local control of hydraulic pressure with proportional valve for bumpless start.

Hydraulic actuator

- » Integrally mounted in the crosshead to shorten the force train for increased stiffness, better side load capability, and more accurate test results.
- » Includes a co-axially mounted displacement transducer for precision displacement control and measurement.

Hydraulic lifts (optional)

- » Allow easy repositioning of the crosshead.

Isolator pads

- » Dampen external vibrations.

EN Standards-Compliant Test Fixtures

The MTS EN Standards Asphalt Testing System features an array of test fixtures designed specifically to meet or exceed the requirements EN 12697 material properties test procedures for fatigue, creep and stiffness. Featuring specimen alignment aids and easy-to-install/remove connections, these fixtures enhance both the accuracy and efficiency of test setup and operation. While one material properties test is underway in the load frame, specimens can be pre-installed and aligned in the other fixtures ready to be inserted into the load frame.

MTS Triaxial Cell (Creep)

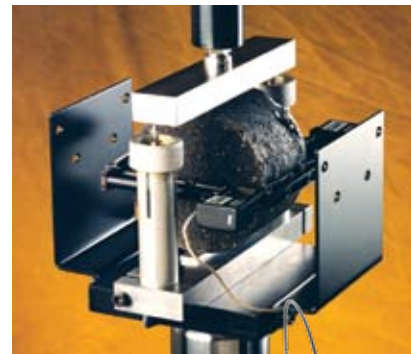
Designed specifically for asphalt testing, this affordable fixture is MTS' solution for meeting EN 12697-25 Part B – Creep. The cell is large and accommodates specimens up to 150 mm in diameter and 300 mm in height. The cell features an automatic pressure control system and is used in conjunction with the system's FlexTest controller; compressed air is supplied through a stand-alone compressor. A heating element and fan are located within the cell and provide local heating to the required 50 °C. Both load and axial strain transducers are mounted within the cell and monitor the conditions in the immediate vicinity of the specimen.



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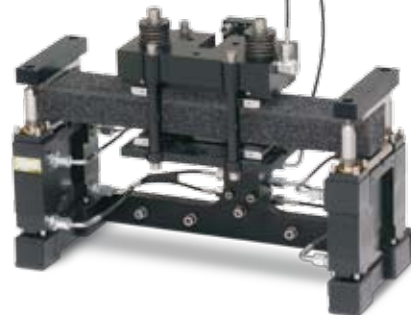
MTS Indirect Tension Fixture (Stiffness)

Engineered for accuracy, this fixture is MTS' solution for meeting EN 12697-26 Part C – Stiffness. A true indirect tension condition is difficult to apply to specimens without inducing unwanted bending moments. As a first defense, the MTS fixture employs a precision set-up device to ensure proper specimen alignment. Secondly, the effects of imperfectly formed specimens are mitigated with a fully articulated upper joint. Additionally, the fixture does not require guide bearings like other competitive fixtures, which provides for the application of dynamic loads with no added friction. This test fixture also uses MTS 632.11F-90 dual averaging extensometers, which are prescribed in the EN test standard as acceptable and preferred.



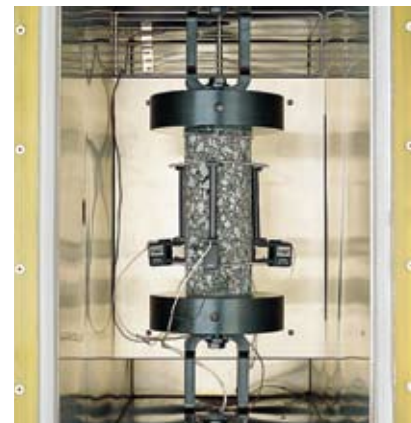
MTS 4-point Beam Bending Fixture (Fatigue)

Built to handle even the largest aggregates, this fixture is MTS' solution for meeting EN 12697-24 Part D – Fatigue. According to EN standards, the cross-sectional size of a bending specimen is determined by the size of the largest aggregate in the asphalt mixture. A typical 4-point bend fixture is limited to 50 mm by 50 mm cross-sections, which corresponds to a 16.7 mm maximum aggregate size. The MTS fixture accommodates a 70 mm by 70 mm cross-section, increasing the maximum aggregate size to 23.3 mm and allowing for a greater variety of mixtures to be tested. This fixture can also operate at 60 Hz, which meets specimen warm-up procedures prescribed in the EN standard.



MTS Direct Tension Fixture (Stiffness)

This optional fixture is MTS' solution for meeting EN 12697-26 Part D/E – Stiffness. Direct tension/compression specimens can be easily aligned and mounted to this fixture outside of the load frame, greatly streamlining installation of both 100 mm and 150 mm diameter specimens. This test fixture can repurpose the same 632.11F-90 dual averaging extensometers used for the MTS Indirect Tension Fixture; a different mounting and calibration are used, but the switch-over is simple and easy.



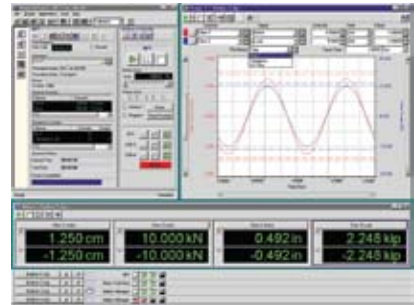
Versatile FlexTest Control

MTS FlexTest digital controllers provide the features and versatility to accommodate a broad range of testing needs. Based on decades of MTS expertise in servohydraulic structural and material testing, they employ proven VME-based MTS hardware to deliver high-speed closed-loop control, data acquisition, function generation, and transducer conditioning for 8 channels and multiple test stations. FlexTest controllers deliver test profile commands to the system load frame with an extremely high degree of fidelity, ensuring test repeatability. The controller's MTS Model 793 Software allows you to manage test data and load histories efficiently, easily integrate your test system into your organization's computer network, and leverage the full array of MTS test application software.



Easy-to-use MTS Application Software

MPT software is designed to help you keep up with changing test requirements. It is the foundation of the system's asphalt test methods. Developed specifically to address EN test standard requirements, these test methods can be easily modified to adapt to evolving asphalt needs. MPT features an easy-to-use "drag and drop" environment for building both standard and nonstandard tests. Users can link basic processes, including function generation, data acquisition, events, and triggers, to quickly and easily build complex tests. Once hydraulics has been activated and the specimen information entered, test execution is performed with the touch of a button. The software features transducer ID capabilities, which provide an easy way to identify the different transducers that are needed for each of the various fixtures. MPT also allows you to use your favorite spreadsheet program or analysis package to analyze, plot, and report data.



Trouble-free SilentFlo Hydraulic Power Unit

SilentFlo HPU's make for a safe and comfortable working environment - they are quiet, simple to use and very reliable. They can be located directly in the laboratory next to the load frame system eliminating the need for a separate pump room or long pipes or hoses.



Unrivaled MTS Service & Support

To help you maximize the return on your system investment MTS fields the largest, most experienced worldwide service, support and consulting staff of any testing solution provider. This global team offers lifecycle management services for all your test systems to optimize your test laboratory's productivity and help you complete test programs as quickly as possible.

Learn More

Prepare your test lab for the unprecedented levels of testing required by EN 13108-20. Contact MTS and learn how the new MTS EN Standards Asphalt Testing System will solve your asphalt testing needs for 2008 and well into the future.



MTS Systems Corporation
14000 Technology Drive
Eden Prairie, MN 55344-2290 USA
Telephone: 1.952.937.4000
Toll Free: 1.800.328.2255
Fax: 1.952.937.4515
E-mail: info@mts.com
www.mts.com
ISO 9001 Certified QMS



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