Balanced Mix Design:
Testing Solutions for Rutting and Cracking Resistance

Rutting and cracking resistance are the two distresses addressed with **Balanced Mix Design (BMD) tests**, whereas the **Semi-Circular Bend (SCB) test** at intermediate temperature is adopted to ascertain **cracking resistance**.

During the **SCB test**, a **semi-circular specimen** is loaded monotonically until **fracture failure** occurs under a constant rate of deformation in a **three-point bending configuration**.

Ideal-CT is a **cracking test** performed at **room temperature** on **Ø150 mm × 62 mm cylindrical specimens** at a **loading rate of 50 mm/min** in a **standard indirect tensile strength testing machine**.

Ideal-RT is a **rutting test** performed at **high temperature (50±15°C)** on **Ø150 mm cylindrical specimens**, using a **monotonic compressive load** at a **loading rate of 50 mm/min** in a **standard indirect tensile strength testing machine**.

Main features related to these tests are:

- **Simplicity:** no auxiliary equipment for cutting, gluing, notching.
- **Practicality:** minimum training needed for routine operation.
- **Efficiency:** short-duration test with good correlation to field performance.
- **Test equipment:** no high-performance machines required; tests can be performed on **standard equipment.**
- **Sensitivity:** responsive to asphalt mix composition.

Matest solutions are designed to meet the **methodological criteria of current standards** for this type of testing.

S205M

UNITRONIC
UNIVERSAL TESTING FRAME 50 KN

The **Unitronic 50 kN** is a versatile testing frame designed for **compression, flexural, splitting tensile and direct tensile tests**. Its modular crosshead allows easy coupling with multiple test devices, making it a **compact and reliable solution** for routine and research laboratories.



B230

DTS-30
DYNAMIC TESTING SYSTEM 30 KN

The **DTS-30** is a **servo-hydraulic machine** designed for **tension, compression and dynamic loading up to 100 Hz**. Compliant with the latest international standards, the DTS-30 is a **flexible, high-performance solution** for laboratories requiring precision and adaptability.



Unitronic: the best solution for SCB, Ideal CT and Ideal RT tests

SCB

STANDARD: ASTM 8044

Evaluation of Asphalt Mixture Cracking Resistance using the Semi-Circular Bend Test (SCB) at Intermediate Temperatures.

B208 Jig for SCB test
B254-02 Springs
B254-10 Roller support
S337-31 Load cell 2.5 kN capacity
B045-13 Loading piston
S336-12 Linear horizontal transducer, 25 mm travel
S305-05 Mounting device of the coupling pliers
S335-15 Coupling pliers to hold transducers
B043-05N In-built firmware for SCB test
SSW-UTM2 Software for remote control



S205M + SCB

IDEAL CT

STANDARD: ASTM 8225

Determination of Cracking Tolerance Index of Asphalt Mixture Using the Indirect Tensile Cracking Test at Intermediate Temperature.

B257-KIT or **B250-01** Jig for Ideal CT test
B045-13 Loading piston
S337-34 Load cell 50 kN capacity
S336-12 Linear horizontal transducer, 25 mm travel
S305-05 Mounting device of the coupling pliers
S335-15 Coupling pliers to hold transducers
2xS337-51 Calibration process of the load cell/transducer
B043-04N In-built firmware for Ideal CT test
SSW-UTM2 Software for remote control



S205M + Ideal CT

IDEAL RT

STANDARD: ASTM 8360

Determination of Rutting Tolerance Index of Asphalt Mixture Using the Ideal Rutting Test.

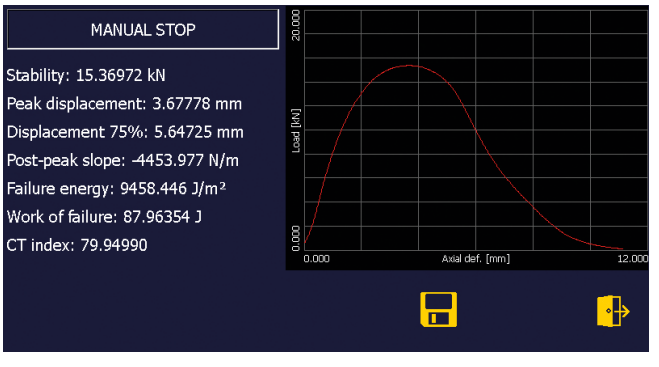
B256-KIT Jig for Ideal RT test
B045-13 Loading piston
S337-34 Load cell 50 kN capacity
S336-12 Linear horizontal transducer, 25 mm travel
S305-05 Mounting device of the coupling pliers
S335-15 Coupling pliers to hold transducers
2xS337-51 Calibration process of the load cell/transducer
B043-07N In-built firmware for Ideal RT test
SSW-UTM2 Software for remote control



S205M + Ideal RT



Flexible Standard Method Selection



Example of an Ideal CT test

DTS-30: easy-upgradable for SCB, Ideal CT and Ideal RT tests

SCB | MF013/MF045/MF027

STANDARD: ASTM 8044

Evaluation of Asphalt Mixture Cracking Resistance using the Semi-Circular Bend Test (SCB) at Intermediate Temperatures.

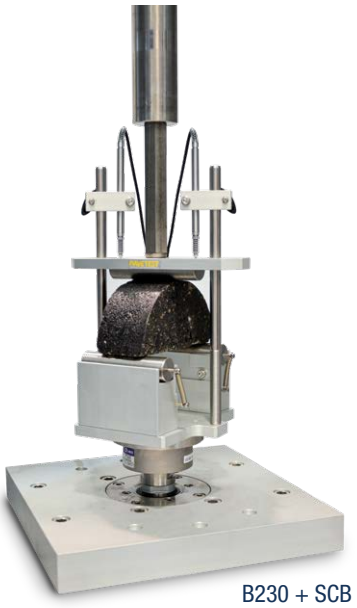
B232	Temperature controlled cabinet
H009-01EN	PC complete with TestLab Software
B250-07-KIT	Temperature measuring kit
B254-02-KIT	ASTM/AASHTO SCB testing kit

Optional accessories for ASTM 8044 and AASHTO T393 (Method B) Determining the fracture potential of asphalt mixtures using semi-circular bend geometry (SCB) at intermediate temperature.

B290-02N	LVDT (10mm) (1 or 2)
B254-11	LVDT mounting assembly (q,ty according to B290-02N)
B254-12	Positioning device
B254-03	Upgrade for AASHTO T393

Needed accessories for AASHTO T394 Determining the fracture energy of asphalt mixtures using the semicircular bend geometry (SCB).

B254-13	Gauge point template
B254-14	LVDT mounting hardware (2 needed)
B254-15	LVDT mounting frame (2 needed)
B253-53	Gauge point (2 needed)
B290-05N	Gauge point (2 needed)
or	
B290-06N	LVDT 1.00 mm (2 needed)
B290-07N	SCB deformation gauge



B230 + SCB



SCB Method File 027

IDEAL CT | MF068

STANDARD: ASTM 8225

Determination of Cracking Tolerance Index of Asphalt Mixture Using the Indirect Tensile Cracking Test at Intermediate Temperature.

B232	Temperature controlled cabinet
H009-01EN	PC complete with TestLab Software
B250-07-KIT	Temperature measuring kit
B257-KIT	Jig for Ideal CT test



B230 + Ideal CT

IDEAL RT | MF024F

STANDARD: ASTM 8360

Determination of Rutting Tolerance Index of Asphalt Mixture Using the Ideal Rutting Test.

B232	Temperature controlled cabinet
H009-01EN	PC complete with TestLab Software
B250-07-KIT	Temperature measuring kit
B256-KIT	Jig for Ideal RT test



B230 + Ideal RT

Note: it is possible to upgrade your DTS-30 by purchasing the test jigs only. Together with the accessories, you will also receive the Method Files, needed for the execution of the test via TestLab software.

Upgrade your system with our retrofit option

B044M-SET

CYBER-PLUS PROGRESS DATALOGGER

This unit is designed and manufactured to meet the needs of all laboratories. Featuring an 8-channel acquisition and data processing system, it automatically manages both data acquisition and processing. Each channel can be independently calibrated, zeroed, and configured to display the relevant measurement units.

Test data can be stored directly on the unit's flash memory and later transferred to a PC via USB flash drive or SD card.

Each channel offers multiple sampling modes (linear, quadratic, logarithmic, etc.), with sampling frequencies ranging from 50 msu up to continuous acquisition.

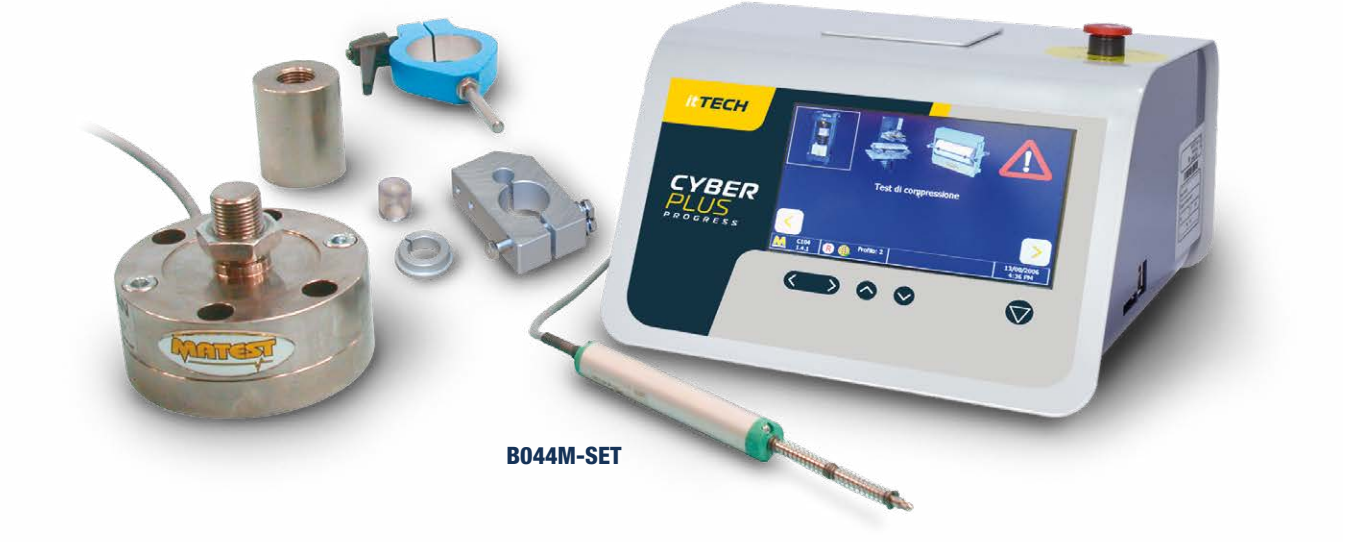
The Windows-based software, with its intuitive menu-driven interface, is simple to use and requires no specialized operator skills.

B044M-SET is supplied with:

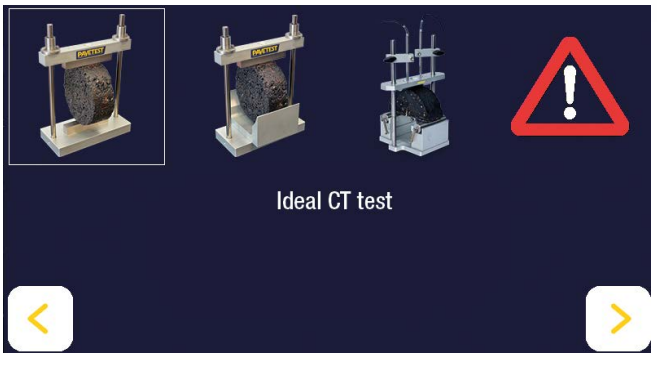
B044M Cyber-Plus Progress 8-channel unit for data acquisition
S337-34 Load cell 50 kN with cable and connector
S336-14 Linear displacement transducer with cable and connector

All necessary accessories for fixing the load cell and transducer to the test machine are provided. The system is calibrated ready to use and complete with calibration certificate

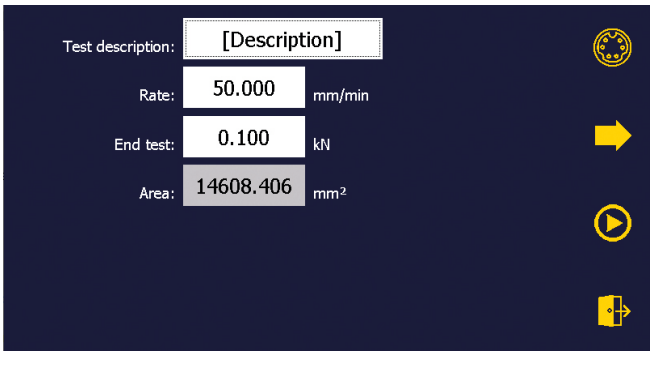
To evaluate the compatibility of your machines and identify the best configuration, we invite you to contact our product specialists.



B044M-SET



Selection of test method on touch-screen panel



Customizable test parameters

MATEST S.p.A.
www.matest.com

PAVETEST Pty. Ltd.
www.pavetest.com