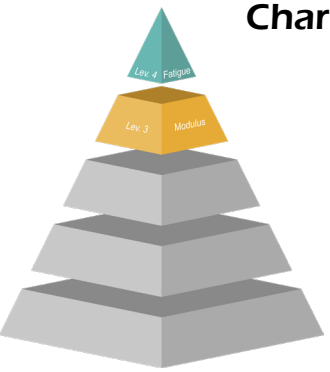
M2F : TWO POINT TRAPEZOIDAL BENDING BEAM MACHINE (2PB - TR)

Characterize fatigue and stiffness of bituminous mixtures



mlpc

EN 12697-24 (Annexe A)
EN 12697-26 (Annexe A)

Device qualified mlpc®

Description

Automated laboratory equipment, designed to carry out the strength test to fatigue on 2 or 4 trapezoidal specimens of bituminous materials (NF EN 12697-24 Appendix A).
This material also allows for the use of a specific enclosure, to measure the complex modulus (an isotherm) on 4 trapezoidal specimens of bituminous materials (2PB-TR) according to standard NF EN 12697-26 Appendix A.

Fatigue strenght test :

The trapezoidal specimens are subject to displacement imposed by bending in 2 points for a given frequency of sinusoidal displacement. The test is repeated for 3 deformations at controlled temperature.

The result is the fatigue slope calculated from three deformations and the allowable deformation ε6 to obtain a life expectancy of 106 cycles.

Complex test module :
Test specimens are subject to constant sinusoidal loads on the head at set frequencies and temperatures. The result is the module averages of 4 specimens tested. The value of module retained in the standards produced is the module at 15 °C and 10 Hz.

The test is practiced on trapezoidal specimens collected from roads or sawn on plates manufactured in the laboratory using the BBPAC plate compactor. The test temperature is regulated and controlled.

European standards
CE
Normes européennes

Made in France
Fabriqué en France

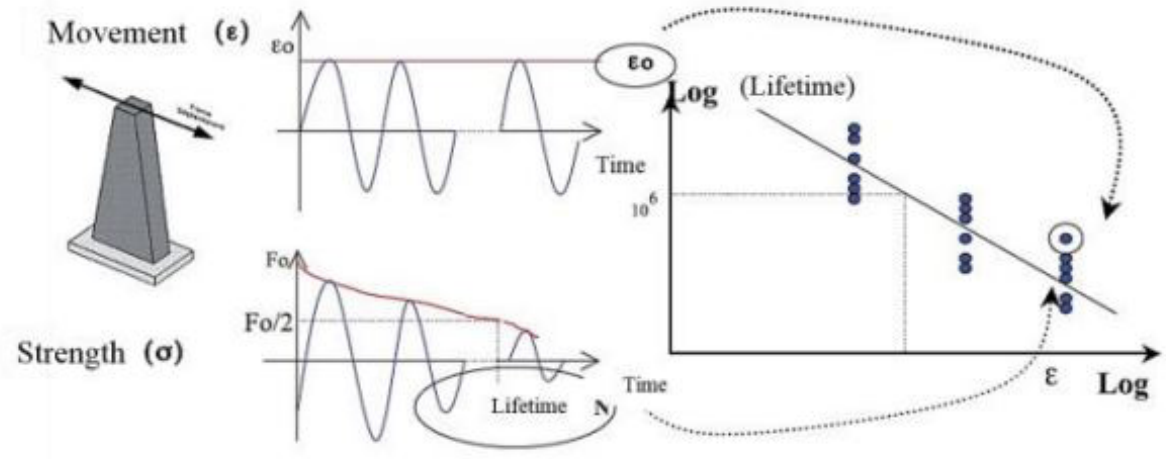
Highlights

- **Durability**
  → Units with service lives in excess of 20 years in heavy conditions.
- **Safety**
  → Separate climatic chamber.
- **Quality**
  → Accessibility to the apparatus.

Features

Technical features	
Frequency of use	1 to 40Hz
Number of measurement stations	2
Displacement range	up to 2 mm (peak-to-peak)
Dimensions of test specimens	according to standard EN 12697-24 and EN 12697-26
Dimensions and weight	
Frame dimensions	L = 770 mm; l = 440 mm; h = 960 mm, L = 1.96 ft; l = 1.31 ft; h = 5.9 ft
Frame weight	200 kg (1,808 lbs)

Scheme of operation



Standard equipment

- M2F software that allows the fast and automatic calculation of the fatigue line equation and the determination of the allowable deformation. A test result report is issued by the software.
- The system is equipped with an in-service control device and a calibration mode to facilitate metrological interventions.
- The climatic chamber can be supplied to meet the specifications of both standards.

Terms of use

The test is practiced on trapezoidal specimens collected from roads or sawn on plates manufactured in the laboratory using the BBPAC plate compactor. The test temperature is regulated and controlled.

The mlpc® equipment designed for asphalt mix design are developed by UGE (previously LCPC), Cerema and Vectra.