

High Performance Ductilometer for Force Ductility test - Ductimeter

DUCTIMETER High performance model which cover all Standards requirements within the innovative CVI-TECH concept



EN 13398 | ASTM D113 | AASHTO T51 | EN 13589 | EN 13703 | ASTM D6084 | AASHTO T300

MAIN FEATURES

- **4 tension line (briquette capacity) x 1500 mm**
- **Easy and free access to the large testing space**
- **Double drive screw rod**
- **Closed-loop PID temperature control system**
- **Stainless steel insulated water bath**
- **Exclusive in-built thermoregulation system compensating the control, optimized by the connection to chiller (optional)**
- **High carriage return speed 500 mm/min for greater productivity**
- **Adjustable speed range from 5 to 100 mm/min**
- **PC-controlled using dedicated software**
- **Includes a system for measuring forces up to 4x300 N with load cells**
- **Temperature range at 25±0.2°C and from 4 to 30±0.2°C**
- **Elongation measurement system by encoder**
- **Real-time load and displacement graphics via PC**

GENERAL DESCRIPTION

The ductility test is performed for determining the ductility of bituminous materials by measuring the elongation before breaking when two ends of briquette specimens are pulled apart at a specified speed and temperature.

Water bath

Insulated stainless steel water bath with a heating system located over the entire base surface and a stainless steel cooling coil (for connection to water mains or chiller) distributed over the three side walls assuring temperature uniformity without water turbulence inside the bath. All parts in contact with water are made of stainless steel.

Carriage displacement

Double-screw rods and mobile carriage enable test speeds from 5 to 100 mm/min. The system also permits the fast return of the carriage at the end of the test (500 mm/min) to reduce dead time and increase productivity. The carriage return is automatic, manual intervention is not required.

DATA SHEET

Temperature control

- A closed-loop PID system assures constant temperature of $25\pm 0.2^{\circ}\text{C}$
- Temperature range from 4 to 30°C , ± 0.02 with a water chiller (see accessories)
- Stainless steel cooling coil
- Plate-type base heaters give better temperature uniformity
- The thermoregulation system is based on control of the heater (which increases the temperature of the bath) and the control of the flow rate of the cooling coil by an electro-valve. This important feature assures control of the temperature within strict limits and permits the use of suitable standard water chillers.

Load and elongation measurement

Automatic measurement of the elongation by an encoder and of the test load of the four testing lines with load cells (not included).

Testing software

- Selection of test parameters (speed, temperature etc.) by PC. The test temperature, however, can be set in advance using the control panel of the machine.
- Test control by PC: Start-Stop-Carriage return
- Specimen failure recognition
- Real-time display of load/elongation graph with advanced visualization options (single or multi-graph)
- Data acquisition and processing conforming to Standards
- Function for multiple test data comparison
- Storage of test data

Machine control

By PC (not included)

Water cooling

This model is proposed without a chiller for use with a suitable cooling system that could be available in the laboratory. It is important, however, that this unit is capable of delivering a flow rate of 6 litres/min, 1 bar, at the minimum temperature of 2°C .

See-through cover

Essential for better temperature control of the bath.

ORDERING INFO

- 81-PV10B02** **DUCTIMETER High Performance Ductility Testing machine.** PC-controlled, 4 briquettes capacity, 1500 mm carriage travel, adjustable testing speed from 5 to 100 mm/min, thermostatically controlled water bath at $25\pm 0.2^{\circ}\text{C}$ and from 4 to $30\pm 0.2^{\circ}\text{C}$, force measurement facility up to 300 N per line.
230 V, 50-60 Hz, 1 ph

DATA SHEET

TECHNICAL SPECIFICATIONS

Models	81-PV10B02
Conforms to Standards	EN 13398, EN 13589, EN 13703, ASTM D113, ASTM D6084 AASHTO T51, AASHTO T300
Machine control by	PC with dedicated software (PC not included)
Thermostatically controlled water bath temperature	at 25±0.2°C and from 4 to 30±0.2°C with water chiller
Temperature control system	Heater and cooling coil for connection to cold water or water chiller
Structure	Stainless steel tank
Briquettes capacity	4
Max carriage travel	1500 mm
Testing speed	Adjustable from 5 to 100 mm/min
Elongation measurement by	Encoder (optical system)
Max. load and tension load measurement	1200 N (4 x 300 N) by load cells (500N capacity)
Tension load/elongation graph	Real-time graphs by PC
Carriage return speed	500 mm/min
Power rating (approx.)	1200 W
Transparent cover	Included
Overall dimensions	(l x d x h) 2434 x 412 x 385 mm
Weight approx.	100 kg

ACCESSORIES

Ductility briquette moulds

- 81-B0141** Briquette mould conforming to EN 13398
- 81-B0141/A** Briquette mould conforming to ASTM D6084 and EN 13589
- 81-B0141/B** Briquette mould conforming to ASTM D113 and AASHTO T51
- 81-B0142** Ductility mould plate

Water chiller

- 81-PV1002** (for 81-PV10B02) Water chiller, flow rate 6 litres/min at 1 bar, 2°C minimum temperature.
 Dimensions: 450 x 450 x 825 mm (w x d x h)
 Weight: approx. 35 kg
 1200 W, 230 V, 50-60 Hz, 1 ph.

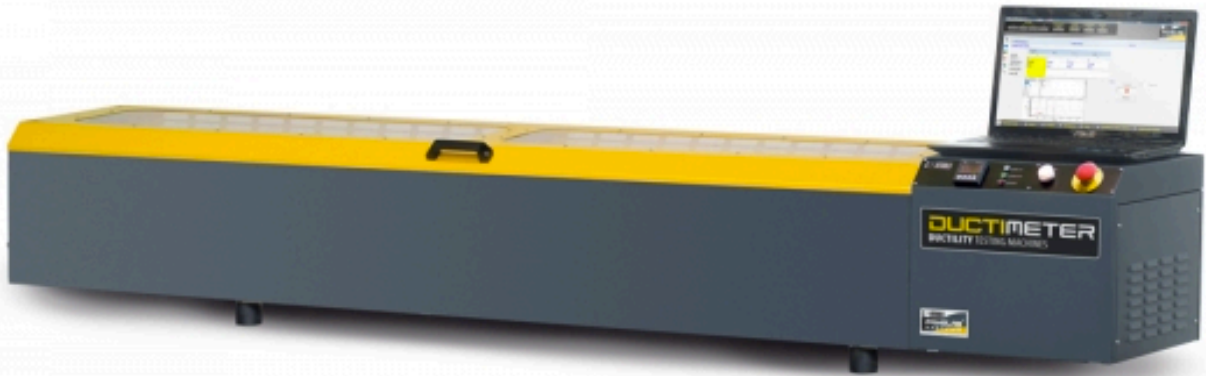
Load cells

- 81-PV10020** High precision strain gauge load cell 0-500 N capacity.

Machine base

- 81-PV10010** Support base for ductility machines, stainless steel table
 Dimensions (l x d x h): 2370 x 600 x 670 mm
 Weight: approx. 50 kg

DATA SHEET



Ductility Testing Machine DUCTIMETER
 High performance model - 81-PV10B02



Briquettes



Briquettes moulds



Ductility machine tank



Water chiller 65-D2031



Software for Ductility Test



Software screen shot