

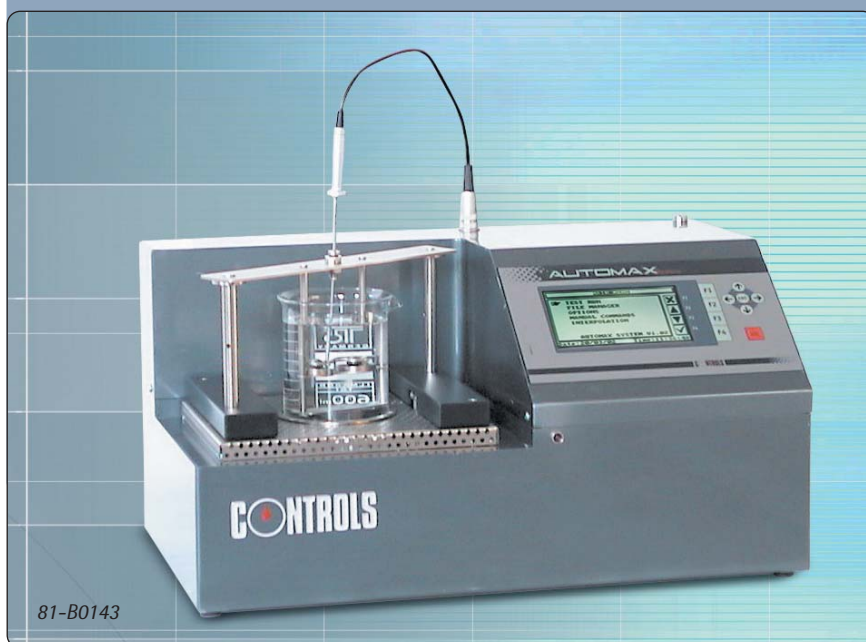
SOFTENING POINT OF TAR PITCHES: RING AND BALL METHOD

We propose two models: automatic and standard. The standard version 81-B0145 can be completed by the hot plate incorporating the magnetic stirrer.

Main features

- Microprocessor control
- Automatic programmable test sequences for water or glycerol
- RS 232 serial port for connection to PC or printer

- Large graphic display 240x128 pixel
- Memory up to 50 tests
- Language selection

**STANDARD**

EN 1427, ASTM D36, AASHTO T53

81-B0143

Automatic ring and ball apparatus.
230 V, 50-60 Hz, 1 ph.

81-B0143/Z

Automatic ring and ball apparatus.
110 V, 60 Hz, 1 ph.

Introduction

This advanced microprocessor controlled automatic tester is used to determine the softening point of bitumen using, as heating fluid, water or glycerol. The softening point is taken by two light barriers suitably positioned and the temperature measured by a PT100 sensor placed in a middle position. During operation a magnetic stirrer with adjustable speed assures temperature uniformity in the vessel.

The temperature gradient is strictly maintained throughout the test by the electronic system conforming to the standards.

General specifications

The apparatus comprises the following parts:

- Heater and magnetic stirrer with speed control
- Temperature probe
- Glass beaker, ring and ball support, test rings and ball support
- Application and centering device of steel balls
- Light barrier system
- Microprocessor system and large graphic display with membrane keyboard
- RS 232 C port for PC or printer.

Safety features

The hot plate is automatically cut off at the end of the test cycle. The apparatus is however fitted with an emergency stop button. The test is automatically interrupted in case of probe failure or not correctly positioned. The hot plate is not damaged or affected by possible water or glycerol leakages or by the beaker failure.

Specifications

Power: 750 W

Overall dimensions: 530x300x280 mm

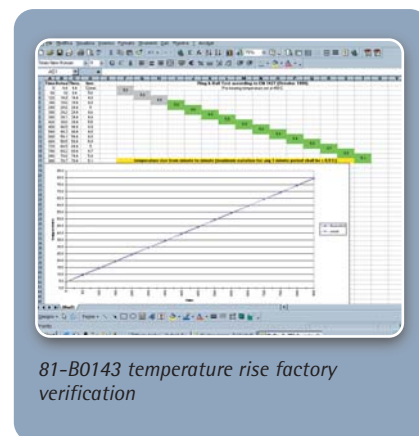
Weight approx.: 16 kg

Firmware**Main menu:**

- Test on boiled distilled or deionized water for softening point between 30 and 80°C
- Test on glycerol for softening point above 80 and up to 150°C
- Test configuration set up
- File management.

Functions:

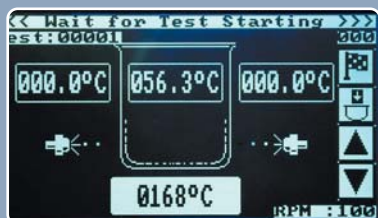
- Date and time
- Operator name, test number, general notes
- Language selection: English, French, Spanish, German, and Italian
- Test parameters conforming the type of test: up to 80°C and above 80 up to 150°C. Hot plate pre-heating temperature and thermocouple calibration for measuring the hot plate temperature
- Magnetic stirrer speed adjustment from 0 to 150 r.p.m.
- Baud rate selection: 38400 for PC and 9600 for printer
- Test start.



81-B0143 temperature rise factory verification

AUTOMATIC RING AND BALL APPARATUS (CONTINUED)

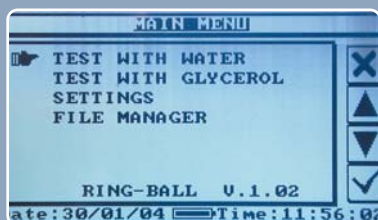
Example of display



During the test, both water (or glycerol) and plate temperatures are displayed in real-time, together with test status, ball detection device status and stirrer speed



In the file manager it is possible to recall a saved test (containing test data and softening temperatures) and send it to a PC or a serial printer



From the main menu it is possible to select both tests with water or glycerol

STANDARD RING AND BALL APPARATUS

STANDARD

EN 1427, ASTM D36, AASHTO T53

81-B0145

Ring and ball apparatus

General description and specifications

Used for determining the softening point of bituminous materials. Comprising:

- Two brass rings
- Two steel balls 9.5 mm dia.
- Two brass ball centering guides
- Glass vessel
- Glass thermometer -2 +80°C.

Weight approx.: 1 kg



81-B0145 with 81-B0145/C1

Accessories

Hot plate only with centering/ protection device

81-B0145/C1 Hot plate only with centering/protection device for 81-B0145. 230 V, 50-60 Hz, 1 ph.

81-B0145/C1Z Same as above but 110 V, 60 Hz, 1 ph.

Hot plate with magnetic stirrer system

81-B0145/D Hot plate with magnetic stirrer. 230 V, 50-60 Hz, 1 ph. Aluminium plate, electronic adjustment from 100 to 1200 r.p.m., 700 W. Conforming to CE directive. Weight approx. 3 kg

Other accessories and spare parts

81-B0145/1 Brass ring

81-B0145/2 Steel ball

81-B0145/3 Ball centering guide

81-B0145/4 Glass vessel

82-D1200/1 Thermometer ASTM 15C -2 +80°C, 0.2°C graduation

82-D1200/2 Thermometer ASTM 16C +30 +200°C, 0.5°C graduation



81-B0145 with 81-B0145/D. Hot plate incorporating stirring system: practical and easy to operate

Accessories

82-P0172 Digital printer. 230 V, 50 Hz, 1 ph.

82-P0172/Z Digital printer. 110 V, 60 Hz, 1 ph.

82-P0172/1 Cable for RS 232

Spare parts

81-B0145/1 Brass ring

81-B0145/2 Steel ball

81-B0145/3 Ball centering guide

81-B0143/1 600 ml beaker