



AUTOMATIC RING AND BALL

ASTM D36, EN 1427, NFT 66008, ISO 4625, DIN 52011, NFT 66147, IP 58

- Accurate, Modern, Reliable, Fast, Versatile
- Fully automatic tester with two independent test cells, compact and self contained
- Four pre-set or programmable Softening Point methods: Repeatability and reproducibility according to the standard methods
 1. *ASTM D36 / IP58 / DIN 52011 / NFT 66008 with water or glycerol*
 2. *ISO 4625 with water, glycerol, paraffin (resins, binders for paints and varnishes)*
 3. *NFT 60147 (compound paraffins and paraffin melts)*
 4. *Other specified methods with mineral oil or silicone*
- Enhanced temperature detecting range from 0° C to +250° C
- Controlled stirring speeds and glycerin preheating cycle ($\pm 1^{\circ}$ C)
- Automatic recooling by air fan at end of test (less than 5 minutes)
- Programmable safety on heating block, sample, probe, initial temperature
- Auto calibration of the PT100 probe from the keyboard by means of regulated bath or variable resistor box and software
- Supervision maintenance and calibration software utilities
- Printer and RS 232C PC outputs for curve tracking and data processing

TECHNICAL FEATURES

The fully automatic NBA 440 Ring and Ball Tester performs a dual determination of softening point of bituminous materials, waxes, rubbers, adhesives and similar products in the range 0° C to 250° C by using distilled water (up to 85° C), glycerol (from 80° C to 157° C), ethylene glycol(+30° C to 110° C), paraffin, mineral oil or silicone oil (+80° C to 199° C). The softening point is reported as the mean of the temperatures out of which two disks soften enough a ball, enveloped in bitumen, to fall a distance of 25 mm.

PRINCIPLE

Two horizontal disks of bitumen in, cast in shouldered or straight brass rings, are heated at a controlled rate (4.5 to 5.5° C per minute) in a liquid bath while each supports a steel ball. Stirring temperature rate, detection and safety are automatically controlled, recorded and displayed by means of the NBA 430 processing unit or by means of a computer.

TECHNICAL SPECIFICATIONS:

- Complete instrument according to the standards with full diagnostics
- Selection of method to be performed by means of supervision software
- Display and tracking program, parameters, time, sample and results
- Results, test data and heating profile are printed out at the end of the test
- Standard RS 232 C output for PC and 25 pins parallel output for printer
- Ticket printer, PC connection and power supply cables supplied with tester
- Stirrer with two programmable speeds and four propellers to ensure a good temperature stability
- Fall detection by light barrier and adjustment of sensitivity by software
- Programmable set-up temperature of sample at start and end of test
- Programmable end of stirring just before detection to avoid disturbances
- Print-out of test configuration on request
- Drain system in case of beaker breaking
- Programmable emergent stem correction
- Measurement of sample temperature by 4-wired glass PT100 (1/10 th °C)
- Sample-tight keyboard located in the front panel of the upper module
- Electronics isolated from hot and mechanical parts
- Maintenance utility to operate or check all logical inputs and
- outputs
- Safety alarms are triggered, message displayed and shut-offs
- activated in case of faulty probe, abnormal initial test temperature and overheating
- Programmable over-heating safety cut-out on heating element and sample
- Automatic calibration and storage of test parameters by means of software

SPECIFICATIONS C/N°: 40 100

SIZE : 260 x 535 x 500 mm

SUPPLY : 230V ± 10% - 50/60 Hz

CONSUMPTION : 1200 Va

WEIGHT : 20 Kg

OPTIONS

- Official PT 100 Calibration
- Metallic PT100
- 80 columns graphical plotter
- Print out of temp gradients
- Other voltage supply