

3. Analytical measurement and testing

Density determination/Viscosimeter

1 Measuring instrument for viscosity analysis ViscoClock

Introductory model for automatic viscosity analysis.
For determining absolute and relative viscosity.

SI Analytics

The most precise method for determining the viscosity of liquids is to measure it in capillary viscometers. The ViscoClock works in accordance with this method. Optical fibres precisely determine the liquid meniscus on two measuring planes, the running time is determined and displayed with a resolution of 0.01 secs. Since the measuring process runs automatically, subjective sources of error are reliably excluded. The 0.01% accuracy of the measured time for calculating the absolute and relative viscosity is given as a measuring uncertainty with a confidence level of 95 %.

The ViscoClock was designed to use Ubbelohde, micro Ubbelohde or micro Ostwald viscometers and can be operated in all thermostatic baths with transparent tanks.

Specifications

| | |
|----------------------------|--|
| Measuring range: | Up to 999.99 secs./resolution 0.01 sec. |
| Timing accuracy: | ±0.01 sec. ±1 digit, but not more accurate than 0.1%, given as measuring uncertainty with a confidence level of 95% |
| Measuring range viscosity: | 0.35 to 10000 mm ² /sec. (cSt) The absolute, kinematic viscosity is also dependent on the uncertainty of the numerical value of the viscometer constants and on the measuring environment, in particular the measuring temperature |
| RS 232C interface: | For connecting a printer with a serial interface or a computer (PC) for documenting the data |
| Operating temperature: | Stand: -40 to +150°C Electronic measuring unit: +10 to +40°C |
| Dimensions (WxDxH): | approx. 95 x 50 x 490 mm |
| Weight: | approx. 450g (without viscometer) Power pack approx. 220g |
| Viscometers accepted: | Ubbelohde (DIN, ISO, ASTM, micro), micro Ostwald. |

| Type | PK | Cat. No. |
|------------|----|-----------|
| ViscoClock | 1 | 9.269 480 |



BOECO ROTARY VISCOMETER BRV 3000

is a rotational viscometer for fast determination of viscosity as specified in ISO 2555 and other ASTM norms. The BRV 3000 offers viscosity measurements which are 100 % compatible with Brookfield method and permits to carry out comparative measurements in accordance to recognized standards in quality control laboratories.

Viscometers are present in different industrial sectors - chemical, food, pharmaceutical, cosmetic and print industry - to measure viscosity beneath others of products like: adhesives, paints and coatings, inks, dairy products, hot wax, solvents, paper, pulp, gel, asphalt, chocolate, varnish, oils.

The BRV 3000 comes with under- and over range warning signal, RS 232 interface, temperature probe (PT 100) and has a digital display for direct reading of the following parameters:

| | | |
|------------------------------------|---------------------|------------------------------|
| Speed selected: | Spindle used: | RPM |
| Dynamic viscosity: | Full scale | Spindle Reference mPas or CP |
| percentage: | Sample temperature: | % |
| range to display viscosity limits: | | °C or °F |
| | | mPas or CP |

Two different versions are available "L" for low to medium viscosity and "R" for medium to high viscosity.

They will be supplied with PC based Software "ViscosoftBasic", which allows to download data directly from the Viscometer. Measured values are shown in a chart and can be saved in Excel format for posterior evaluation.

Scope of Delivery:

The BRV 3000 is supplied as a complete system in a very robust carrying case, incl. stand, a complete set of standard spindles with storage rack (4 spindles with version L and 6 spindles with version R), spindle guard, temperature sensor, Viscosoft Basic Software, calibration certificate and user manual.

