



AUTOMATIC KINEMATIC VISCOSITY APPARATUS

Automatic Kinematic Viscosity Apparatus TT-445W

Automatic Kinematic Viscosity Apparatus TT-445W conforms to the ASTM D445 Standard Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (and Calculation of Dynamic Viscosity).

Automatic Kinematic Viscosity Apparatus TT-445W is used to test liquid petroleum products, both transparent and opaque, by measuring the time for a volume of liquid to flow under gravity through a calibrated glass capillary viscometer. The dynamic viscosity, η , can be obtained by multiplying the kinematic viscosity, ν , by the density, ρ , of the liquid at a constant temperature. The range of kinematic viscosities covered by this apparatus method is from 0.2 to 300,000 mm²/s at all temperatures.

APPLICATIONS

The primary application of the Automatic Kinematic Viscosity Apparatus TT-445W is to automatically determine the kinematic viscosity of both transparent and opaque liquid petroleum products.

It works by automatically measuring the time it takes for a specific volume of liquid to flow under gravity through a calibrated glass capillary viscometer (either Ubbelohde or Cannon-Fenske type). The results can also be used to calculate the dynamic viscosity of the liquid.

Key Industries

This apparatus is essential for quality control and research in a wide range of industries, including:

- **Petroleum Refining and Petrochemical:** For quality control of fuels (gasoline, diesel, jet fuel), base oils, and finished lubricants to ensure they meet product specifications.

- **Automotive and Aerospace:** To test engine oils, hydraulic fluids, transmission fluids, and jet fuels, where viscosity is a critical parameter for performance and equipment protection.
- **Power Generation and Marine:** For monitoring the quality of fuel oils and heavy-duty lubricants used in large engines and turbines.
- **Industrial Manufacturing:** For quality checks and in-service monitoring of hydraulic oils, gear oils, and other machinery lubricants.
- **Third-Party Testing Laboratories:** For providing routine analytical services to all the industries listed above.
- **Research and Development (R&D):** For formulating and characterizing new fuels, lubricants, and additives.

FEATURES

- Users can choose either the Ubbelohde viscometer or the Cannon-Fenske opaque reverse flow viscometer. Both come calibrated with certificates.
- The operating system uses Windows Embedded Compact 7 real-time industrial control system.
- It features a PT100 platinum resistance temperature sensor, a high-precision AD converter, an excellent linear mathematical model, and a special control algorithm.
- The random free-floating test technology can quickly and accurately capture the sample movement moment, completely avoiding false or missed inspections during the test process. It is also equipped with an embedded thermal printer.
- Data storage utilizes Flash storage, capable of storing more than 2000 experimental results.
- Two sample channels can be measured simultaneously and asynchronously.

TECHNICAL SPECIFICATIONS

1. Water bath: 600W heating power
2. Temperature control range: ambient temperature to 120°C (adjustable)

3. Temperature control precision: 0.01°C
4. Timing range: 0 to 999.9 seconds ± 0.01 seconds
5. Testing stations: 2
6. Humidity: $\leq 85\%$
7. Rated voltage: AC 220V $\pm 10\%$, 50Hz (110V also available)
8. Power: 1600W
9. Dimensions: 650 × 400 × 540 mm
10. Weight: <50 kg



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