

The CANNON® CAV® 4.1 is a fully automated, single bath, benchtop viscometer with two 14-position sample handlers for unattended D445 processing. Each of the two Ubbelohde-style tubes covers a 100-fold viscosity range at values between 0.5 mm²/s (cSt) and 10,000 mm²/s (cSt) from 40 °C to 150 °C (down to 20 °C with optional integral bath cooler).

Common Applications

- Formulated oil analysis
- Hydraulic oil analysis
- Additive analysis
- Marine fuel testing
- Base stock analysis
- Light and heavy fuel testing
- Waxes/paraffin
- Crude oil testing
- Glycols/polyols

CAV® 4.1 Single-Bath Benchtop Kinematic Viscometer

For Kinematic Viscosity of Transparent and Opaque Liquids
ASTM D445/D446, ISO 3104/3105, IP 71

Product Features & Benefits

D2270 Viscosity Index Calculation

- Includes VISCPRO® software for calculation

D445 precision in a modern, dependable design

- Standard temperature range: 40 °C to 150 °C (down to 20 °C with TE bath cooler option)
- Viscosity range: 0.5 mm²/s (cSt) to 10,000 mm²/s (cSt)* in 100-fold increments (easily covering the range of five separate manual glass viscometers)
- Two fully accessible 14-position sample handlers ensure reliable, unattended processing of up to 24 determinations per hour
- Removable carousels
- Automation provides an alternative to labor-intensive manual testing and reduces operator to operator variability
- A trusted CANNON viscometer platform offers reliability and dependable support

Compact & self-contained with flexible configuration

- Simple, out-of-the-box installation
- 35% smaller footprint than CAV-2000 series conserves lab space
- An onboard computer permits running pre-programmed test parameters without an external PC
- VISCPRO PC software enables programming of user-defined test methods, and permits one PC to manage and control up to four instruments
- View, print, save and export user-configurable reports

Reduced consumable costs

- ASTM D446/ISO 3105 Ubbelohde-style tubes reduce solvent usage and disposal costs by 50% over larger Atlantic-style tubes
- Automated vial washing and drying enables reuse and reduces vial consumption

Simplified maintenance & test versatility

- Modular chassis design for easy maintenance access
- Operators can physically replace tubes in minutes, eliminating the need for related service calls
- Single-point temperature calibration maximizes flexibility and avoids tube recalibration costs
- Colored status indicator bath lights provide a simple remote indication of operational status
- Run multiple predefined/user-defined test methods within the same sample tray
- High throughput with optional preheating, capable of reaching 135 °C
- Instrument includes standard dual-solvent input

*Some upper viscosity measurements may be limited by test temperature and sample type. Fast run (10-fold range) tubes are also available.

†Installation outside the domestic U.S. may incur additional charges.



Includes professional installation†, VISCPRO® data storage and management software, viscometer tubes, standards, and a high precision digital thermometer



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CAV[®] 4.1 Benchtop Kinematic Viscometer

Ordering Information

The CANNON CAV 4.1 Single Bath Benchtop Kinematic Viscometer comes with two 14-position sample carousels, two viscometer tubes, one set of oil viscosity standards, a case of glass vials, a high precision digital thermometer with probe, VISCPRO data storage/management software, a one year warranty and professional installation/training (within the domestic U.S.). Specify desired factory installed options and viscometer tubes when ordering. Computer sold separately.

Description	Part #
100 VAC, 50/60 Hz, 1200 watts	9725-D30
115 VAC, 50/60 Hz, 1200 watts	9725-D35
230 VAC, 50/60 Hz, 1200 watts	9725-D40

Options

These factory installed options, see NOTE, must be specified when ordering.

Description
Sample Preheating, per tube
TE-Cooling Option

NOTE: A third solvent input and additional temperature calibration (for each temperature beyond the first) is also available for an added charge at the time of ordering.

Accessories & Consumables

Description	Part #
Viscosity reference standards	various
Replacement silicone bath fluid - 1 Gallon (bath requires 2.5 L)	9726-L37
Vials (glass); case of 144	9717-V01
Vials (polypropylene); pack of 1,000	61.3663
Metal sleeves for preheating; case of 14	68.0455
Pedestal base (fits up to two CAV 4.1 units)	68.0298
Extra sample carousel (for glass vials)	68.1047
Extra sample carousel (for metal sleeves)	68.1115
Spare parts kit (for one year)	68.1116
Sample carousel safety cover	68.1233
Laser printer	93.6005

Product Specifications

Dimensions (W x D x H)	36.0 cm x 66.0 cm x 72.0 cm (14.3 in x 26.0 in x 28.5 in)
Weight	54.0 kg (130.0 lb)
Shipping dimensions (W x D x H)	81.3 cm x 53.3 cm x 99.0 cm (32.0 in x 21.0 in x 39.0 in)
Shipping weight (with all items)	96.6 kg (213.0 lb)
Max. throughput	24 tests per hour
Automated sample capacity	28 (2 x 14 positions)
Viscosity range	0.5 mm ² /s (cSt) to 10,000 mm ² /s (cSt) in 100-fold increments (depending on viscometer tube selection) Fast run tubes also available
Timing resolution	0.01 s (timing accuracy to ± 0.001 s)
Temperature range & accuracy	40 °C to 100 °C ± 0.01 °C (down to 20 °C with cooling options)
Minimum sample/ solvent volume	8 mL sample*/15 mL solvent per test <i>*as little as 3 mL with fast run tubes</i>
Operating conditions	15 °C to 30 °C, 10% to 75% relative humidity (non-condensing), installation Category II; Pollution Degree 2
Electrical specifications	100 VAC, 50/60 Hz; 115 VAC, 50/60 Hz; 230 VAC, 50/60 Hz; 1,200 watt power consumption
Compliance	CE Mark; EMC directive (2004/108/EC); Low voltage directive (2006/95/EC); HI-POT (1900 VDC, 60 sec.); ROHS
Data output	USB

Viscometer Tubes

Std Tubes	Part #	Fast Run Tubes	Part #	Std Tubes	Part #	Fast Run Tubes	Part #
KV Range in mm ² /s (cSt)				KV Range in mm ² /s (cSt)			
0.5-50	12.0581	0.5-5	12.0304	10-1000	12.0294	10-100	12.0312
1-100	12.0287	1-10	12.0305	15-1500	12.0302	15-150	12.0313
2-200	12.0288	2-20	12.0306	20-2000	12.0295	20-200	12.0314
3-300	12.0289	3-30	12.0307	30-3000	12.0296	30-300	12.0315
4-400	12.0290	4-40	12.0308	40-4000	12.0297	40-400	12.0316
5-500	12.0291	5-50	12.0309	50-5000	12.0298	50-500	12.0317
6-600	12.0292	6-60	12.0310	60-6000	12.0303	60-600	12.0318
7-700	12.0578	-	-	-	-	80-800	12.0319
8-800	12.0293	8-80	12.0311	100-10,000	12.0299	100-1000	12.0532

CANNON Instrument Company[®] provides a variety of physical property testing equipment and consumables (vials, bath fluids, and reference materials) for your testing needs. To learn more, contact sales@cannoninstrument.com.



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