CAV® 4.2 is a fully automated, dual-bath, benchtop viscometer with two 14-position sample handlers for unattended D445 processing. Each of the two Ubbelohde-style tubes (one per bath) covers a 100-fold viscosity range at values between 0.5 mm²/s (cSt) and 10,000 mm²/s (cSt) from 15 °C to 150 °C (with available options).

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

CAV® 4.2
Dual-Bath 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

- Viscpro software required for calculation

D445 precision in a modern, dependable design

- Temperature range: ambient to 100 °C (15 °C to 150 °C with available bath options)
- Viscosity range: 0.5 mm²/s (cSt) to 10,000 mm²/s (cSt)* in 100-fold increments (easily covering the range of 5 separate manual glass viscometers)
- Dual, independent baths enable simultaneous testing at two different temperatures
- Two fully accessible, 14-position sample handlers ensure reliable, unattended processing of up to 24 determinations per hour
- Automation provides an alternative to labor-intensive manual testing and reduces operator to operator variability
- A well tested CANNON® viscometer platform offers reliability and dependable support

Compact & self-contained with flexible configuration

- Simple, out-of-the-box installation
- 35% smaller footprint conserves lab space
- Optional, environmentally friendly Peltier cooling requires no external refrigeration
- An onboard computer permits preprogrammed test parameters to be run 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
- User-configurable reports may be viewed, printed, saved and exported

Professional installation†, VISCPRO® data storage and management software, viscometer tubes, standards, and a high precision digital thermometer are included

Reduced consumable costs

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

Simplified maintenance & test versatility

- Modular bath for easy maintenance access
- Operators physically replace tubes in minutes, eliminating the need for related service calls
- Single-point temperature calibration avoids tube recalibration costs and maximizes flexibility
- Colored status indicator bath lights provide a simple remote indication of operational status
- Multiple predefined/user-defined test methods can be run within the same sample tray
- High throughput, selective zone heating of individual samples to temperatures from ambient to 100 °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.

CANNON INSTRUMENT COMPANY®
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CAV® 4.2 Dual-Bath Kinematic Viscometer

Ordering Information

CAV® 4.2 Dual-Bath 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-B30
115 VAC, 50/60 Hz, 1200 watts	9725-B35
230 VAC, 50/60 Hz, 1200 watts	9725-B40

Options

Factory installed options (see NOTE) must be specified when ordering. Part numbers are listed below for field installable options. Field installation must be performed by factory-trained personnel (unless indicated by an asterisk *). Field installation costs are additional.

Description	Part #
Sample preheater for glass vials (left/right)	68.0538/ 68.0540
Sample preheater for metal sleeves (left/right)	68.0537/ 68.0539
Sample carousel safety cover*	68.0299
Integrated thermoelectric bath cooling (per bath)	68.0541
External heated waste drain lines*	68.3112
Laser printer*	93.6005
Enhanced vapor reduction (100VAC & 115VAC/230VAC)	68.0484/ 68.0485

NOTE: A third solvent input, integrated high temperature baths (left or right) and additional temperature calibration (for each temperature beyond the first) are also available for an added charge at the time of ordering.

Accessories & Consumables

Description	Part #
Viscosity reference standards	various
Replacement silicone bath fluid, 1 L	9726-L40
Vials (glass); case of 144	9717-V01
Vials (polypropylene); pack of 1,000	61.3663
Metal sleeves (for waxy samples); case of 14	68.0455
Pedestal base (fits up to two CAV 4.2 units)	68.0298
Extra sample carousel (for glass vials)	68.0049
Extra sample carousel (for metal sleeves)	68.0092
Spare parts kit (for one year)	68.0542

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	63.0 kg (140.0 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 are also available.
Timing resolution	0.01 s (timing accuracy to ± 0.001 s)
Temperature range & accuracy	15 °C to 100 °C ± 0.01 °C* Up to 150 °C, ± 0.03 °C (with high temp bath) *temperatures within 5 °C of ambient and below require bath cooling
Minimum sample/ solvent volume	8 mL sample*/15 mL solvent per test *as little as 3 mL with fast run tubes
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	10-1,000	12.0294	10-100	12.0312
1-100	12.0287	1-10	12.0305	15-1,500	12.0302	15-150	12.0313
2-200	12.0288	2-20	12.0306	20-2,000	12.0295	20-200	12.0314
3-300	12.0289	3-30	12.0307	30-3,000	12.0296	30-300	12.0315
4-400	12.0290	4-40	12.0308	40-4,000	12.0297	40-400	12.0316
5-500	12.0291	5-50	12.0309	50-5,000	12.0298	50-500	12.0317
6-600	12.0292	6-60	12.0310	60-6,000	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	100-1,000	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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