

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

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

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.



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

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 preheat assembly for glass vials (left/right) | 68.0538/ 68.0540 |
| Sample preheat assembly 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.



2139 High Tech Road | State College | PA | 16803
800-676-6232 | 814-353-8000 | Fax 814-353-8007

sales@cannoninstrument.com | www.cannoninstrument.com