

# CANNON® miniAV-X® Automatic Viscometer

- Meets all ASTM D445 Precision Specifications
- Affordable Automated Testing
- Low Solvent/Sample Volume
- Faster Through-Put
- 100-Fold Tube Ranges for KinVis up to 5000 cSt
- Selectable Temperature from 20 to 100°C
- Smart Table Technology
- Attractive and Compact Benchtop Unit—Saves Space, Saves Time, Saves Money!



# CANNON®

**CANNON® miniAV-X® Automatic Viscometer with 10 place auto sampler**

**ASTM D445, ISO 3104, IP 71, ASTM D446, ISO 3105**

**Affordable D445 Automation**

The miniAV-X® from CANNON Instrument Company offers every laboratory an exciting new tool for convenient and highly accurate kinematic viscosity measurement. Occupying roughly the same footprint as a tabletop rotational viscometer, the miniAV-X® automates the time-consuming sample measurement and viscometer tube wash/dry procedures associated with the ASTM D445 method, freeing the laboratory technician for other duties. The miniAV-X® has been designed as an affordable alternative to traditional labor-intensive manual KinVis measurement methods, and provides full laboratory automation.

The miniAV-X® performs in tandem with the proven VISCPRO® II software for Windows® 98/NT®/XP®, providing convenient sample ID data entry, database maintenance, and powerful reporting and LIMS connectivity capabilities.

**Operation**

Operation of the miniAV-X® is simple. The user fills the sample vials and then places them into a numbered carousel beneath the viscometer. Carousel locations are numbered 1 to 10. Sample ID information is entered via the computer. The user initiates the test with a single mouse click. Without further operator involvement, the sample is drawn into the viscometer tube, held for temperature equilibration, and then measured. Data is transferred to the computer database via the RS-232 serial connection. The sample is then ejected as waste, and the sample vial becomes a wash station as solvent is automatically metered into the viscometer tube and then evacuated to complete the cleaning cycle. Following tube drying, the vial is lowered and placed in its original position. The next sample is automatically advanced to a position directly under the viscometer tube. This sequence is repeated until all 10 tests are complete. Total cycle time for each test is 3 to 5 minutes depending on the viscosity. Connect two miniAV-X®'s to a single PC to easily determine Viscosity Index for a sample. Up to four miniAV-X®'s may be controlled by a single PC.

**Accuracy**

The miniAV-X® provides automatic kinematic viscosity testing within parameters specified by ASTM D445/446 and ISO 3104/3105. The miniAV-X® measures flow rates within ±0.001 second by electronically timing the liquid meniscus as it moves between thermistor timing sensors. Bath temperature is controlled with accuracy better than ±0.01°C between 20° and 100°, as required by ASTM D445/446. Thermistor sensors allow dark or opaque liquids to be measured with

the same precision as transparent fluids – without the need to change tubes. Unlike non-traditional bench-top instruments which claim D445 correlation, the miniAV-X is truly a KinVis instrument. Using a capillary viscometer defined in D446, the miniAV-X performs equally well on Newtonian materials, fully formulated oils and additives.

**Features**

The miniAV-X bath unit housing is only 10"W x 17"D x less than 21"H. Modular side panels swivel out for convenient maintenance/ replacement. The modified Ubbelohde compound viscometer tube offers a 100-fold viscosity range (easily covering the range of 5 separate manual glass viscometers), and requires only 5 mL of sample (3 mL with Fast-Run tubes). The tube rests in a 1-liter temperature bath that also contains temperature and fluid level sensors, optional TE cooling device, heating elements, and an impeller that circulates bath fluid to ensure high temperature uniformity.

Like the fully-automatic high capacity CAV 2000 Series instruments, the miniAV-X offers selectable temperatures between 20° and 100°C. Data is transmitted to and from the controlling computer via a standard RS-232 serial interface.

The instrument is shipped with the VISCPRO II controlling software, external power supply, and waste receiver assembly. Convenient chromatography-type container lids are provided for connecting your in-house solvent containers to the miniAV-X®.

**Required accessories**

The miniAV-X® requires a computer with the Windows® 98/NT®/XP® operating system. The user must provide a suitable non-pressurized solvent container for each solvent. For test temperatures below 30°C or for operation in high-ambient environments, an optional chiller or TE bath chiller is required.



**miniAV-X® Automatic Viscometer Specifications**

miniAV-X® Dimensions:	254 mm wide x 437 mm deep x 526 mm high (10 x 17.2 x 20.7")
Power Supply Dimensions:	330 mm wide x 396 mm deep x 172 mm high (13 x 15.6 x 6.8")
Weight:	Bath Unit: 18 kg (40 lbs); Power Supply: 11 kg (24 lbs); Waste Receiver: 6 kg (13 lbs)
Shipping Weight:	57 kg (125 lbs) with all units/accessories
Operating Conditions:	15°-30°C, 10%-90% RH non-condensing, Installation Category II, Pollution degree 2
Fuse Rating:	115V & 100V Units: M 250V 8A, 1.25 x 0.25"; 230V Unit: M 250V 4A, 1.25 x 0.25"
Compliance:	CE Mark: EMC directive (89/336/EEC); Low voltage directive (73/23/EEC); HI-POT (1900 VDC, 60 sec.)
Computer Requirements	Computer not included, please contact Cannon for specifications.

**miniAV-X® Order Information**

Catalog #	Item Description
9725-A85	miniAV-X 115v 50/60 hz
9725-A86	miniAV-X 230v 50/60 hz
9725-A87	miniAV-X 100v 50/60 hz
P61.5600	Dostmann Thermometer, Calibrated, Digital Dual Channel Kit
P61.5601	Standard Size Smart Probe



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