Determine absolute viscosity of small samples (0.5 – 2.0 mL)

Available in these models
- DV-III Ultra Rheometer
- DV-II+Pro Viscometer
- DV-I Prime Viscometer

Accuracy: ±1.0% of range
Repeatability: ±0.2%

Electronic Gap Adjustment™
- Simplified setup
- Accurate
- Easy-to-use

RTD Temperature Sensor in Sample Cup (Optional) provides direct measurement of sample temperature

Control Sample Temperature using a Brookfield circulating water bath (p27)

Rapid temperature control due to small sample size

Temperature Range:
- 10°C to 100°C

Precise shear rates for determining a material’s flow curve behavior

What’s Included?

Instrument
Lab Stand (p50)
Choice of one Cone Spindle (p46)
Sample Cup (p46)

Optional Accessories

Embedded Temperature Probe in Sample Cup (p46)
Luer and Purge fittings
Ball Bearing Suspension (p50)
Additional Cone Spindles (p46)
Viscosity Standards (p52)
Circulating Temperature Bath (p33-35)
Rheocalc32 Software ► (DV-III+ Ultra & DV-II+Pro only)
Wingather Software ► (DV-II+Pro only)
Protective Keypad Covers (p51)

Viscosity Range* cP(mPa•s)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LVDV-IIIUCP</td>
<td>.1 - 3K</td>
<td>.5 - 11K</td>
<td>.2 - 6K</td>
<td>2 - 48K</td>
<td>3 - 92K</td>
<td>0.1 - 250</td>
<td>2.6K</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LVDV-II+PCP</td>
<td>.2 - 3K</td>
<td>.6 - 11K</td>
<td>.3 - 6K</td>
<td>2 - 48K</td>
<td>4 - 92K</td>
<td>0.1 - 200</td>
<td>54</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LVDV-IPCP</td>
<td>.3 - 1K</td>
<td>1 - 3K</td>
<td>.6 - 2K</td>
<td>5 - 16K</td>
<td>9 - 30K</td>
<td>0.3 - 100</td>
<td>18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RVDV-IIIUCP</td>
<td>1 - 32K</td>
<td>5 - 122K</td>
<td>2 - 64K</td>
<td>20 - 512K</td>
<td>39 - 983K</td>
<td>0.1 - 250</td>
<td>2.6K</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RVDV-II+PCP</td>
<td>1.6 - 32K</td>
<td>6 - 122K</td>
<td>3 - 64K</td>
<td>25 - 512K</td>
<td>49 - 983K</td>
<td>0.1 - 200</td>
<td>54</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RVDV-IPCP</td>
<td>3 - 10K</td>
<td>12 - 41K</td>
<td>6 - 21K</td>
<td>51 - 170K</td>
<td>98 - 327K</td>
<td>0.3 - 100</td>
<td>18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HADV-IIIUCP</td>
<td>2.6 - 65K</td>
<td>10 - 245K</td>
<td>5 - 128K</td>
<td>41 - 1M</td>
<td>78 - 2M</td>
<td>0.1 - 250</td>
<td>2.6K</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HADV-II+PCP</td>
<td>3 - 65K</td>
<td>12 - 245K</td>
<td>6 - 128K</td>
<td>51 - 1M</td>
<td>98 - 2M</td>
<td>0.1 - 200</td>
<td>54</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HADV-IPCP</td>
<td>6.6 - 21K</td>
<td>24 - 81K</td>
<td>12 - 42K</td>
<td>102 - 341K</td>
<td>196 - 655K</td>
<td>0.3 - 100</td>
<td>18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HBDV-IIIUCP</td>
<td>10.5 - 261K</td>
<td>39 - 982K</td>
<td>20 - 512K</td>
<td>163 - 4M</td>
<td>314 - 7.8M</td>
<td>0.1 - 250</td>
<td>2.6K</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HBDV-II+PCP</td>
<td>13 - 261K</td>
<td>49 - 982K</td>
<td>25.6 - 512K</td>
<td>204 - 4M</td>
<td>393 - 7.8M</td>
<td>0.1 - 200</td>
<td>54</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HBDV-IPCP</td>
<td>26 - 87K</td>
<td>98 - 327K</td>
<td>51 - 170K</td>
<td>409 - 1M</td>
<td>786 - 2.6M</td>
<td>0.3 - 100</td>
<td>18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Dependant upon cone selected.
Rheocalc32 Software  Optional
GET TOTAL CONTROL OF YOUR INSTRUMENT AND TEST PARAMETERS

Automatically control and collect data with Rheocalc32 and a dedicated computer. Rheocalc32 can analyze data, generate multiple plot overlays, print tabular data, run math models and perform other time-saving routines. Data can be saved in the program or exported to Excel.

- Controls test parameters with powerful scripting capabilities
- Wizard for self-guiding creation of test programs
- Looping functions for repetitive tasks
- Automates data collection to save time
- Math modeling for yield stress calculations, plastic index
- Plot up to four data sets for comparisons

Wingather Software  Optional
DATA COLLECTION SOFTWARE TO COLLECT, ANALYZE AND RECORD TEST DATA

Wingather software provides an easy way to gather data and plot graphs while creating permanent test records. Data can be saved in the program or exported to Excel.

- Automates data collection to save time
- Reduces operator error
- Math modeling for yield stress calculations, plastic index
- Plot up to four data sets for comparisons

Optional Sample Cup

The Optional Sample Cup has luer and purge fittings for introducing and removing test sample while cup remains attached to instrument.
NEW CONE & PLATE VISCOMETERS:
WELLS-BROOKFIELD Programmable Digital Cone and Plate Rheometer Model: DV-III ULTRA CPE

WELLS-BROOKFIELD Programmable Digital Cone and Plate Viscometer, Model: DV-II+PRO CPE

WELLS-BROOKFIELD Digital Cone Plate Viscometer Model: DV-I+CPE

Optional Software and temperature probe available. IF YOU NEED THE TEMPERATURE OPTION, IT MUST BE ORDERED AT TIME OF PURCHASE

PRINCIPLE OF OPERATION

The Wells-Brookfield Cone/Plate Viscometer/Rheometer is a precise torque meter which is driven at discrete rotational speeds. The torque measuring system, which consists of a calibrated beryllium-copper spring connecting the drive mechanism to a rotating cone, senses the resistance to rotation caused by the presence of sample fluid between the cone and a stationary flat plate.

The resistance to the rotation of the cone produces a torque that is proportional to the shear stress in the fluid. This reading is easily converted to absolute centipoise units (mPa·s) from pre-calculated range charts. Alternatively, viscosity can be calculated from the known geometric constants of the cone, the rate of rotation, and the stress related torque.
The correct relative position of cone and plate is obtained by following a simple mechanical procedure without the need for external gauges or supplementary instrumentation.

The stationary plate forms the bottom of a sample cup which can be removed, filled with .5 ml to 2.0 ml of sample fluid (depending on cone in use), and remounted without disturbing the calibration. The sample cup is jacketed and has tube fittings for connection to a constant temperature circulating bath.

The system is accurate to within ±1.0% of full scale range. Reproducibility is to within ±0.2%. Working temperature range is from 0°C to 100°C.

Various cone spindles are available for use with the Wells-Brookfield Cone/Plate instruments. One cone spindle is provided with the instrument and is calibrated for use with the sample cup. Additional cone spindles may be purchased and will be calibrated for use with the same sample cup.

VERSATILITY OF APPLICATION

The Wells-Brookfield Cone/Plate Viscometer/Rheometer provides a wide variety of shear rates and viscosity ranges, which can be further extended by the use of interchangeable cone spindles. Different models can be selected to meet the specific range of viscosities and shear rates required.

Shear rates as high as 1875 sec⁻¹ (DV-III Ultra Rheometer) can be achieved.

The small sample volume required permits rheological evaluations to be made on materials where sample availability is limited, such as biological fluids and thick film coatings that contain precious metals.

All wetted parts are stainless steel for corrosion resistance and ease of cleaning.

Optional purge fitting, luer fitting, and embedded temperature probe available.

ELECTRONIC GAP SETTING

Wells-Brookfield Cone/Plate Digital Viscometers/Rheometers are now supplied with an advanced Electronic Gap Setting feature. This technology allows faster set-up time and minimizes the possibility of gap adjustment errors. With the enhanced system, a bright LED lights up when a hit point is achieved. A simple turn of the micrometer adjustment ring and the gap is set, reducing the time required associated with manual detection methods.

The new electronic gap setting system is now a standard feature on our complete line of Wells-Brookfield Cone/Plate Digital Viscometers/Rheometers. These instruments provide precise shear profiles necessary to determine viscosity and develop rheological data.

FEATURES AND BENEFITS

- Determine absolute viscosity of small samples (0.5 - 2.0 mL)
- Precise shear rates for determining a material's flow curve behavior
- Rapid temperature control due to small sample size
- Electronic gap adjustment for simplified setup and increased throughput
- Available on DV-III Ultra Rheometer and DV-II+Pro and DV-I Prime Viscometers
- Auto-zero function to ensure precision torque measurement
- Auto-range function to define full scale range (FSR) for all spindle/speed combinations
- Torque measurement accuracy: 1% of full scale range
• Repeatability: 0.2% of full scale range

SPECIFICATIONS

Wells/Brookfield Spindles & Cups

Wells/Brookfield cones and cups are used with standard Brookfield Cone/Plate series Viscometers and Rheometers. All cones and cups are calibrated at the factory to ensure accurate, precise measurements.
Cones ordered after initial shipment of Viscometer/Rheometer require the return of the sample cup for calibration to the new cone.

### Wells/Brookfield Spindles & Cups

<table>
<thead>
<tr>
<th>MODEL</th>
<th>SHEAR RATE</th>
<th>SAMPLE VOLUME</th>
<th>CONE ANGLE</th>
<th>CONE RADIUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPE-40</td>
<td>7.50N sec⁻¹</td>
<td>.5 mL</td>
<td>.8°</td>
<td>2.4 cm</td>
</tr>
<tr>
<td>CPE-41</td>
<td>2.00N</td>
<td>2.0 mL</td>
<td>3°</td>
<td>2.4 cm</td>
</tr>
<tr>
<td>CPE-42</td>
<td>3.84N</td>
<td>1.0 mL</td>
<td>1.5°</td>
<td>2.4 cm</td>
</tr>
<tr>
<td>CPE-51</td>
<td>3.84N</td>
<td>.5 mL</td>
<td>1.5°</td>
<td>1.2 cm</td>
</tr>
<tr>
<td>CPE-52</td>
<td>2.00N</td>
<td>.5 mL</td>
<td>3°</td>
<td>1.2 cm</td>
</tr>
</tbody>
</table>

### CUP

<table>
<thead>
<tr>
<th>MODEL</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPE-44Y</td>
<td>Standard cup without temperature probe</td>
</tr>
<tr>
<td>CPE-44PY</td>
<td>Standard cup with RTD temperature probe</td>
</tr>
<tr>
<td>PCPE-3Y</td>
<td>Cup with 1 purge fitting</td>
</tr>
<tr>
<td>PCPE-6Y</td>
<td>Cup with luer fitting and 1 purge fitting</td>
</tr>
<tr>
<td>PCPE-4Y</td>
<td>Cup with luer fitting and 2 purge fittings</td>
</tr>
<tr>
<td>PCPE-7Y</td>
<td>Cup with luer fitting and 4 purge fittings</td>
</tr>
</tbody>
</table>

**Note:**
1. Wells-Brookfield cones and cups are calibrated at the factory. Cones ordered after shipment require cups to be returned for calibration to new cone.
2. See page 16 for viscosity ranges.