Viscosity Sensors & Controllers

**PRODUCT OVERVIEW**

### Viscosity Sensors

- **Model M10**
  - Reactor Sensor
  - (1-1M cps)

- **Model M20**
  - Reactor/In-Line Applications
  - (1,000-1M cps)

- **Model M24**
  - In Line Sensor
  - (0.1-7,000 cps)

- **Model MXBO**
  - In Tank Sensor
  - (0.1-100,000 cps)

- **Model M51**
  - True In-Line Applications
  - (0.1-2,000 cps)

- **Model M8B**
  - In Tank Sensor
  - (0.1-100,000 cps)

- **Model M8BO**
  - In Tank Sensor
  - (0.1-100,000 cps)

- **Model M8B**
  - In Tank Sensor
  - (0.1-100,000 cps)

- **Model M8BO**
  - In Tank Sensor
  - (0.1-100,000 cps)

- **Model M8B**
  - In Tank Sensor
  - (0.1-100,000 cps)

- **Model M8BO**
  - In Tank Sensor
  - (0.1-100,000 cps)

### Viscosity Controllers

- **VISC6000**
  - Touch Screen PLC

- **Model MP2000**
  - Advanced Programmable Viscosity/pH Controller

- **Shell Cup Viscometer**
  - For hand testing viscosity in open tanks/containers. (1-1200 cps)
  - Win a free Shell Cup! register at [www.viscosity.com](http://www.viscosity.com)

- **Other cups available within range 0.3 cps-7,000 cps**

**www.viscosity.com**
## Viscosity Conversion Table

### CENTIGRADE

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<th>Ultra Low* Cup</th>
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<th>Shell Cup #5</th>
<th>Shell Cup #6</th>
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### Temperature & Viscosity Control

**Please Note:**

The USA Flexographic Technical Association published a study by the National Association of Printing Ink Manufacturers (NAPIM) in their June 1988 issue of Flexo.

This study compares and contrasts the Zahn / Shell / ISO & Din Cups.

Copies of this can be obtained by requesting Reprint 0142 from Norcross Corporation.

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**Notes:**

1. This data is based upon a table from Worthington Pump, 1955 which was based upon original test data no longer available. Not all Zahn/Cup match this date.

2. This data is based upon original mechanical design of Shell Chemical. Equations in ANIRA 42-72 do not match actual values, so they were based upon prior data plots that are no longer available and do not match the actual cups.

3. The 2 1/2 and 3 1/2 Shell Cup were introduced by Norcross in the 1970's to provide additional viscosity range coverage.

4. Typical pintem-per temperature recommended for use in the Model MBB-2 process viscometer (when length code C - other lengths may require different pintem-per) - Contact Norcross for information.

5. Data based on B.G. +1.0

6. Centistokes = Centistokes X 0.3.
About the Norcross Shell Cup Viscometer

The Shell Cup is a simple, reliable device for measuring the viscosity of a wide range of fluids. Originally developed for use with printing inks, it has found widespread applications as diverse as fuel oil and industrial finishes for calibrating other viscosity sensors as well as for primary measurements. The cup was developed by Shell Development Company and is marketed by Norcross Corporation.

Viscosity measurement with the Shell Cup

The conversion table indicates the useful range for each size. The measurement is accomplished as follows:

1. Submerge the cup in the fluid for approximately 30 seconds to allow the cup to come to sample temperature. The sample must be representative — thoroughly stirred for example, and at a known, preferably standard temperature.

2. Lift the cup vertically out of the fluid, starting the stopwatch as the cup breaks the surface.

3. Record the time required for the cup to empty, stopping the watch when the stream breaks.

4. Read the viscosity from the appropriate conversion charts or calibration drawings.

About Process Measurement and Control

NORCROSS has been measuring the viscosity of numerous different processes for over 60 years. As shown on the front of the conversion table, we have sensors for measuring viscosity in open tanks, closed tanks, pressurized tanks and inside pipe lines.

We can measure viscosity at different pressures, flows, temperatures and viscosity ranges. The MP2000 can act as a controller and/or transmitter. Full two way RS485 communication is standard in the MP2000. Optional 4-20madc output is available.

About Norcross Sensitivity and Accuracy

The 24hr circular chart, shown here, is an actual recording obtained with NORCROSS Viscometer.

This recording starts with boiling water 212°F/ 100C, which is then allowed to cool.

The viscosity was recorded every three minutes during the cooling period. A few measured temperatures, together with corresponding centipoise viscosities, obtained from tables published by the Bureau of Standards, are shown.

This chart illustrates the outstanding sensitivity of the NORCROSS Falling Piston Viscometer. This sensitivity, which only the NORCROSS Process Viscometer can produce, combined with the simplicity and ruggedness of all NORCROSS units, create a versatile and long lasting viscosity sensor/system.

NORCROSS Viscosity Sensors and/or Viscosity Control Systems are designed to provide years of reliable operation.

www.viscosity.com