

**VINCI**  
TECHNOLOGIES

*Exploration & Production | PVT Analysis*

# CAPILLARY VISCOMETER

**CAVIS**

ISO 9001 Certified | Bureau Veritas

## Objective & Key Benefits



### OBJECTIVE

Measure the viscosity of single phase reservoir fluids from 0.1 cP to 10,000 cP

### KEY BENEFITS

1

#### Extremely Simple Operation

Designed for ease of use with minimal operator training required

2

#### Minimal Sample Volume

Only 10 cc of sample needed — ideal for scarce or expensive fluids

3

#### Fast Measurements

Rapid data acquisition with automated calculation and reporting

4

#### Reliable Temperature Control

Thermostatic fluid bath ensures  $\pm 0.1^{\circ}\text{C}$  temperature stability

5

#### Easy Maintenance

Accessible architecture and insulation jacket for hassle-free servicing

# Technical Specifications

## MAIN SPECIFICATIONS

Viscosity Range	<b>0.1 – 10,000 cP</b>
Sample Volume	<b>10 cc</b>
Pressure Range	<b>Up to 15,000 psi</b>
Temperature Range	<b>Ambient to 200°C</b>
Wetted Parts	<b>Stainless Steel 316L</b>
Pressure Accuracy	<b>0.02% full scale</b>
Temperature Accuracy	<b>±0.1°C</b>
Power Supply	<b>110–220 VAC, 50/60 Hz</b>

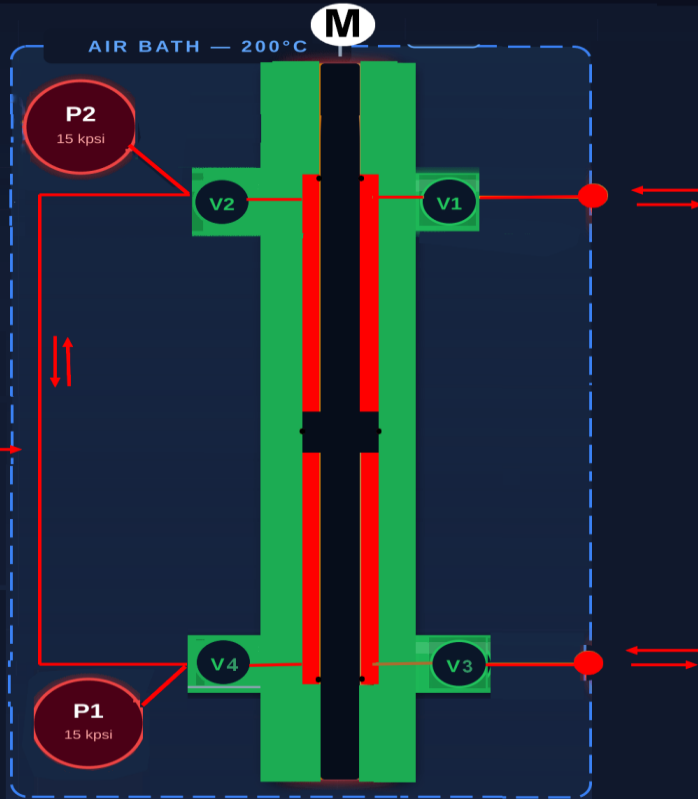
## AIR BATH

Working Temp	<b>Up to 200°C</b>
Bath Size	<b>130 × 100 × 150 mm</b>
Heating Time	<b>~1 hour to 200°C</b>
Connections	<b>1/8" LP</b>

## COMPATIBLE FLUIDS

- Hydrocarbons (single phase)
- Water
- Solvents

# Flow Diagram — Operating Principle



## CAPILLARY TUBES

- **Tube 1**  
Ø=0.02mm - L=300mm
- **Tube 2**  
Ø=0.02mm - L=300mm
- **Tube 3**  
Ø=0.02mm - L=300mm
- **Tube 4**  
Ø=0.05mm - L=300mm

## POISEUILLE'S LAW

$$\eta = \frac{\pi r^4 \Delta P}{8 L Q}$$

r:radius L:length Q:flowrate

## Poiseuille's Law

The fluid viscosity is a function of the pressure drop in a laminar fluid flowing through a capillary tube.

## CAPILLARY TUBE SET

- **Tube 1**  
0.01 to 2 cP
- **Tube 2**  
1 to 20 cP
- **Tube 3**  
2 to 300 cP
- **Tube 4**  
80 to 10,000 cP

## SYSTEM COMPONENTS

### Pressure Transducers

Precisely measure pressure drop across the capillary tube to compute viscosity

### Air Bath (200°C)

Thermostatic control ensures constant temperature throughout measurement

### Opposed Pump

200°C / 15 kpsi rated, 10 cc volume, stainless steel wetted parts

### Computer Workstation

Intuitive software for data acquisition, real-time calculation, and automated reports