



Merlin VR

Rheosys Viscometers & Rheometers



Merlin VR

A High Performance, Fully Self Contained, Rotational Rheometer

Cone/Plate & Co-Axial Cylinder systems in ONE instrument

All Measuring systems Integrated into the temperature control system. Switching between plates and cups is a snap.

Integrated Peltier Thermo-electric Temperature control system

User Defined, Isothermal or controlled temperature ramps.

Windows™ Research Software MICRA

Full Instrument control through Windows™ Research Software MICRA.. From single point to complete flow curve profiles & yield stress determinations.

For more information please visit our web site: www.rheosys.com

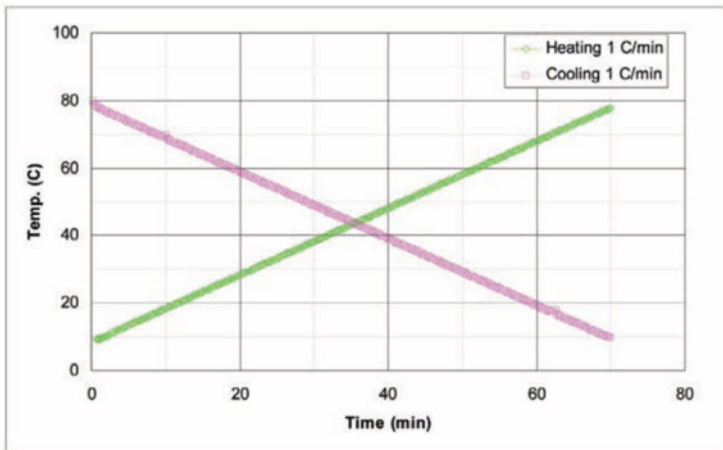
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Tel. 210.568.9300 Fax. 210.568.7454



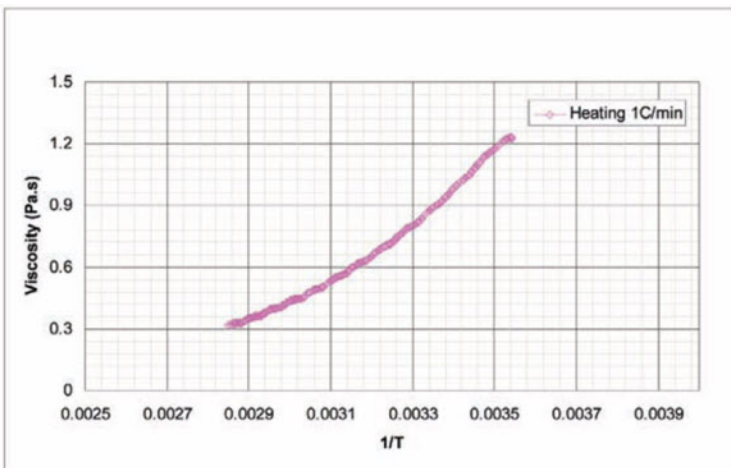
Merlin VR Rheometer

Merlin VR

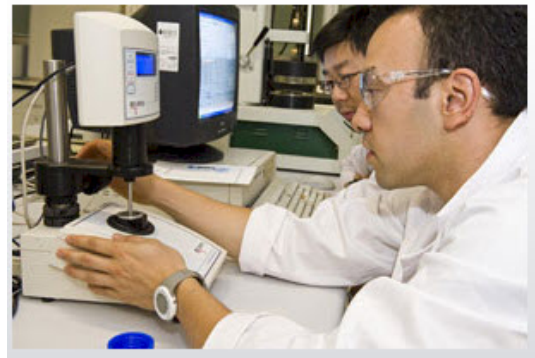
A self-contained, rotational Rheometer, capable of performing routine rheological tests from quick single point checks to complete viscosity flow profiles and yield stress determinations without the need for complicated test method setup. The MERLIN VR is well suited for investigating the mixing, stirring, and pumping behavior of coatings, emulsions, and dispersions, as well as for performing conventional flow and viscosity profile experiments. The innovative design incorporates a Thermoelectric temperature control system that allows isothermal, step, and / or ramp temperature profiles. The DIN standard sample measuring systems of cone and plate, parallel plate, and bob and cup, coupled with a wide shear rate and torque range, provide a measurable viscosity range from 1 to 1E08 cP.



Temperature profiles for heating and cooling between 10 and 80 °C at a rate of 1 °C/min. The sample is 1000 cP oil using bob and cup, 25 mm,



Viscosity as a function of 1/T for heating between 10 and 80 °C at a rate of 1 °C/min. The sample is 1000 cP oil using bob and cup, 25 mm, at a



The Royal Melbourne Institute of Technology, Australia. The Merlin in use at the Rheology and Materials Processing Center

Customers Include:

3M

BASF

Bausch & Lomb

Eastman

Georgia Institute of Technology

Green Mountain Coffee

NIST

Texas A&M University

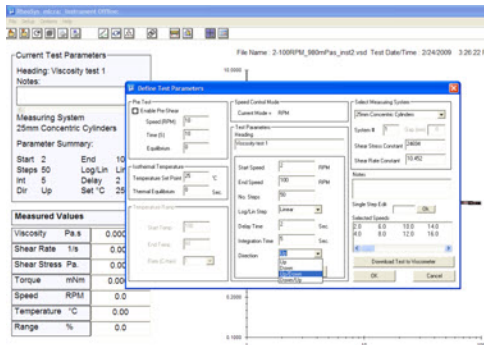
US Army Corp of Engineers



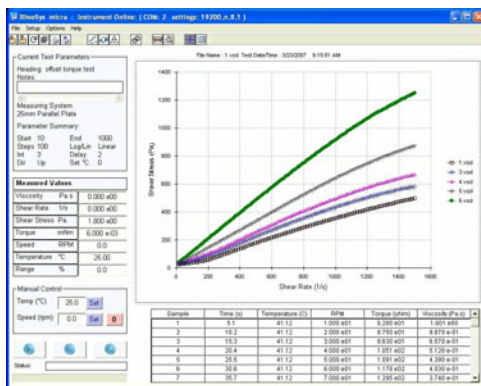
Rheosys Windows™ Research Software MICRA

Analyze data, generate plots, compare results, and much more..

Features & Benefits



Powerful & versatile. From single-point measurements to flow curves to yield stress determinations to complex rheological protocols.



Automated program control using the "test definition" window to rapidly create multiple step tests.



Mathematical data processing models Include: Ostwald (Power), Bingham, Herschel Bulkley, Ellis, Casson, Morre & Others.

- Real time values displayed for % Torque Range, Torque (uNm), RPM, Viscosity, Shear Rate, Shear Stress, Temperature.
- Primary screen allows quick single point viscosity determination.
- Automated program control using the "test definition" window to rapidly create multiple step tests.
- Automates data collection.
- Eliminates operator error when recording data.
- Provides instantaneous viscosity flow curves.
- Creates a permanent record of each test.
- Unlimited data point collection.
- CGS or SI data units (cP or mPa.s)
- Comparison data sets can be entered
- Data saved in encrypted format
- Up to 8 data sets may be plotted simultaneously
- Add or remove variables from plot & table
- Interactive Graph allows full control over displayed variables including scaling, symbol, color, view/hide data, Grid lines
- Plot data available: % Torque, Torque (uNm), RPM, Viscosity, Shear Rate, Shear Stress, Temperature, Time, Sample
- User selectable Signal averaging options
- Copy Graph or table to clipboard
- Temperature control of sample with optional Peltier Thermoelectric temperature controller or Electrical melts cell.
- On-line help system



Merlin VR Rheometer

- Windows™ Research Software MICRA.
- Integrated Peltier Thermo-Electric Temperature Controller.
- Cone & Plate, Co-Axial Cylinder, Parallel Plate as standard.



What's Included?

- 200100 Merlin VR Instrument
- 200200 Peltier Temperature Controller
- 200312 Windows™ Research Software
- 200304 25mm Co-Axial Cylinder set
- 200306 30mm Parallel Upper Plate
- 200308 2 degree 30mm Cone
- 200305 44mm Lower Plate

Optional Accessories

- Additional Measuring Systems
- Viscosity Standards
- 200320 Solvent Trap
- 200340 Thermal Enclosure

Applications

- | | | |
|---------------|-----------|-------|
| Cosmetics | Coatings | Gels |
| Paints | Adhesives | Inks |
| Personal Care | Pastes | Foods |

Features & Benefits

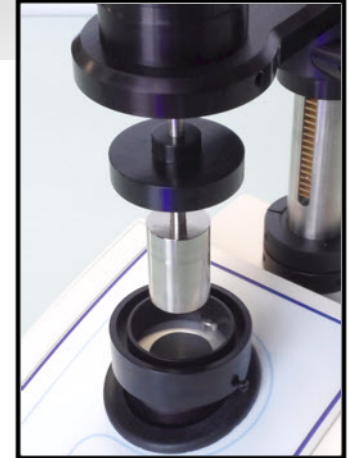
- Cone/Plate & Co-Axial Cylinder systems in **ONE** instrument
- Integrated Temperature control
- Wide Shear Range
- Small sample volume, as low as 150ul
- Full Instrument control through Windows™ Research Software MICRA.



Thermal Enclosure, for use on all systems. Designed to insulate the sample from the environment.



Wide range of additional measuring systems for low or high viscosity samples. Co-Axial, Double Gap, Vane Rotors Cone and Plate, for all sample types.



Solvent trap. For use on all systems. Prevents solvent loss & drying of sample using a liquid seal.



Technical Specifications

Specifications for included measuring systems

Instrument Specifications

Minimum Viscosity 1cP (mPa.s)*

Maximum Viscosity 100M cP (mPa.s)*

Speed RPM 0.1 to 2000 1/min

Angular Velocity 0.01 to 200 rad/s*

Shear Rate Range Measuring System Dependent

Shear Stress Range Measuring System Dependent

Torque Range 0.001 to 20 mNm

Temperature Resolution 0.01°C

Temperature Range -10 to 120 °C

Temperature Control +/- 0.1 °C

Selectable Speeds 20,000 discrete steps

Measuring Systems Included Cone & Plate, Parallel Plate, and Co-Axial Cylinders

Dimensions 180 x 520 x 340 mm

Weight 5 Kg

NOTES:

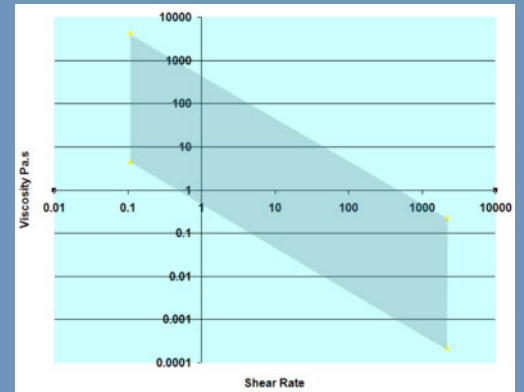
* As with all commercial Rheometers and Viscometers practical limitations apply to all "Approximate Viscosity Range" values. These include, but are not limited to: The onset of turbulent flow (Taylor Vortices). Loss of sample at high rotational speeds with plate systems. High torque signal to noise ratio at torque values of <0.2%

** Cones and Plates are used in conjunction with the included 44mm lower plate part number 200305.

Part # 200304 CUP & BOB 25mm Co-Axial Cylinder system (C25)

| | |
|------------------------|----------------|
| Strain Rate Coeff | 1.045E1 |
| Stress Coeff (Pa/Nm) | 2.500E4 |
| Stress Range (Pa) | 0.5 ~ 500 |
| Shear Rate Range | 0.11 ~ 2189 |
| Viscosity range (Pa.s) | 1.E-3 ~ 4.51E3 |
| Sample Volume (ml) | 12.0 |

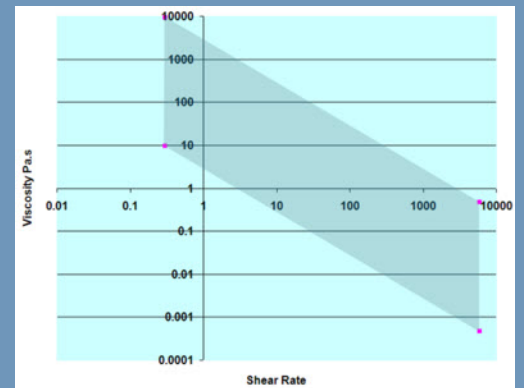
Approximate Viscosity range Pa.s*



Part # 200308 2°/30mm Cone (CP2/30) **

| | |
|------------------------|---------------|
| Strain Rate Coeff | 2.864E1 |
| Stress Coeff (Pa/Nm) | 1.414E5 |
| Stress Range (Pa) | 2.8 ~ 2829 |
| Shear Rate Range | 0.3 ~ 6000 |
| Viscosity range (Pa.s) | 5E-3 ~ 9.43E3 |
| Sample Volume (ml) | 0.14 |

Approximate Viscosity range Pa.s*



Part # 200306 30mm Parallel Plate (PP30) with 1mm Gap **

| | |
|------------------------|---------------|
| Strain Rate Coeff | 1.125E1 |
| Stress Coeff (Pa/Nm) | 1.414E5 |
| Stress Range (Pa) | 2.8 ~ 6000 |
| Shear Rate Range | 0.12~ 2356 |
| Viscosity range (Pa.s) | 1.E-2 ~ 2.4E4 |
| Sample Volume (ml) | 0.75 |

Approximate Viscosity range Pa.s*

