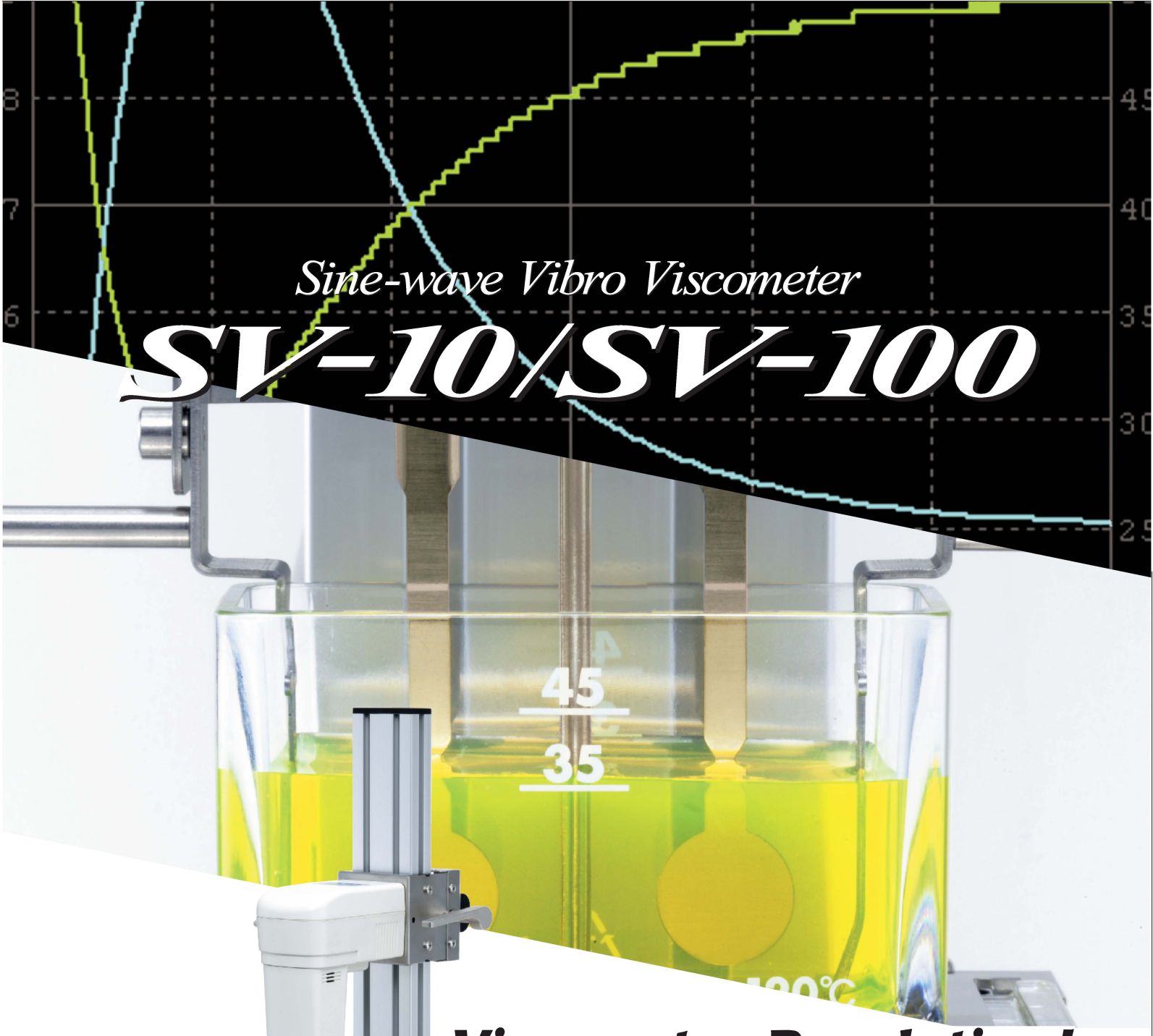
Sine-wave Vibro Viscometer

SV-10/SV-100



Viscometry Revolution!

ISO 9000 CERTIFIED

Sine-wave Vibro Viscometer

Viscometry Revolution!

Newly developed Tuning-fork Vibration method* promises you high accuracy and wide measurement range without replacing sensor plates!! (*Patent pending)

Sine-wave Vibro Viscometer SV series measures viscosity by detecting the driving electric current necessary to resonate the two sensor plates at constant frequency of 30Hz and amplitude of less than 1mm.

Selectable Wide Measurement Range

Samples with very low viscosity to very high viscosity can be measured without changing the sensor plates, so a wide range of measurements can be made continuously.
(SV-10: 0.3mPa·s - 10,000mPa·s / SV-100: 1,000mPa·s - 100,000mPa·s)

High Measurement Accuracy

Sine-wave Vibro Viscometer SV series, incorporating innovative Tuning-fork Vibration Method, provides excellent repeatability of 1% of reading for viscosity measurement.

Temperature Measurement

It is very important to measure the temperature of the fluid correctly because the viscosity is very much dependent upon the temperature of the fluid. SV series can detect accurate temperature immediately because the fluid sample and the detection unit (sensor plates) with small surface area/thermal capacity reach the thermal equilibrium in only a few seconds.

Real Time Measurement

The sensor plate for the SV series is of a thin and small size, in area and in mass, making it less influenced by the temperature change of the sample fluid and as a result the viscosity measurement tracks the change of viscosity of sample fluid.

Continuous Measurement

SV series, Tuning-fork Vibration Method does not cause damage to the sample fluid and allows measurement of cloud point of samples such as surface active agents and of surface/interface changes such as wettability because of its excellent feature of wide measurement range without the need to replace the sensor plates.

Viscosity Calibration

With Viscosity Standard, viscosity calibration can be easily done. 1 point calibration or 2 point calibration is selectable in the calibration mode.

Data Collection and Graphing Software

WinCT-Viscosity (RsVisco) is software to import the measured data of viscosity and temperature to a PC and display graphically the changes in real-time for your analysis.

Small Sample Size

Standard sample cup requires the sample fluid of just more than 35 ml so you do not need to waste too much sample fluid.

Easy Cleaning

Due to the simple structure, the SUS 304 stainless steel sensor plates and temperature sensor (all gold-plated) and SUS 304 stainless steel protector can be easily and quickly cleaned.

Non-Newtonian Sample Viscosity Measurement

Thin sensor plates allow little deformation of sample texture and thus enable measurement of stable viscosity values.

Sol and Gel Measurement

Sol and Gel sample fluid like a starch can be measured during the change of material characteristic.

Standard RS-232C Interface

The RS-232C comes standard for your PC or Printer connectivity and the connection cable (25 pin – 9 pin) is also standard accessory for your convenience.

Flowing Sample Measurement

Even the viscosity of flowing samples can be measured, including liquid in turbulent flow, which enables field management with identical data used at the laboratories.

Vacuum Fluorescent Display

You can avoid unnecessary reading errors with easy-to-read, large, clear display: 13mm height for viscosity measurement and 11mm height for temperature measurement.

Foaming Sample Measurement

Low drive frequency of 30Hz allows measurement of foaming samples without breaking minute foams and with less influence scattering larger foams.

Separated Type Model

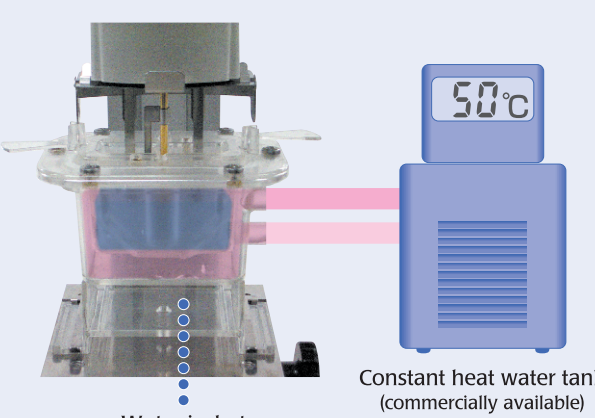
SV-10 series is composed of the Display Unit and Main Unit offering excellent placement flexibility.

Sample Temperature Control

Our water jacket (AX-SV-37) (optional) used in conjunction with a commercially available constant heat water tank to heat the circulating system, ensures that the sample remains at a constant temperature and that the temperature can be changed for viscosity measurement.
(A small sample cup AX-SV-34 and a glass sample cup AX-SV-35 are available, as optional accessories.)

AX-SV-37 Application of temperature control of sample fluid
Water jacket (body: polycarbonate, packing: silicon gum)
- Small sample cup & lid (4 of each provided)
- Can be used with the small sample cup provided, or with a glass sample cup (AX-SV-35)
- Specifications Application temperature range : 0°C – 100°C
  Outer dimension of nozzle for circulation : 10.5mm diameter
  Recommended hose : silicon tube, inner measurement 8mm diameter
- Additionally, a commercially available constant heat water tank is necessary
- A stirrer can be set at the base of the water jacket, and can stir up to a viscosity of 1,000mPa·s. (SV-10 only)

Stirrer: VARIOMAG MICRO made by H+P Labortechnik (Germany)
Please use a rotator with dimensions 6mm (length) x 4mm (diameter).



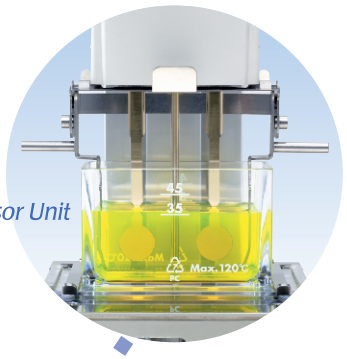
Water jacket

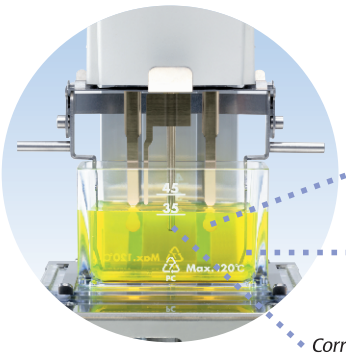
Constant heat water tank
(commercially available)

SV-10/SV-100

SV-10
0.3mPa·s–10Pa·s*
(0.3–10,000mPa·s)

SV-100
1–100Pa·s
(1,000–100,000mPa·s)





Display Unit
Easy-to-read VFD for viscosity and temperature.
Only 6 keys for simple operation.

Wide range
SV-10 0.3mPa·s–10Pa·s
SV100 1–100Pa·s

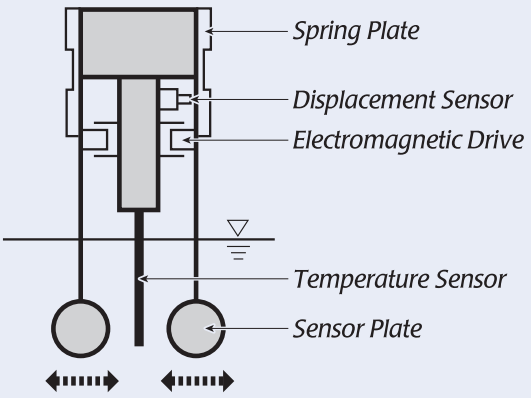
Measurement begins just 15secs (approx.) after pressing the [START] key

Separated Display Unit
Main Unit and Display Unit for a variety of applications

Measurement Principle for SV Series

The SV series has 2 thin sensor plates that are driven with electromagnetic force at the same frequency by vibrating at constant sine-wave vibration in reverse phase like a tuning-fork.

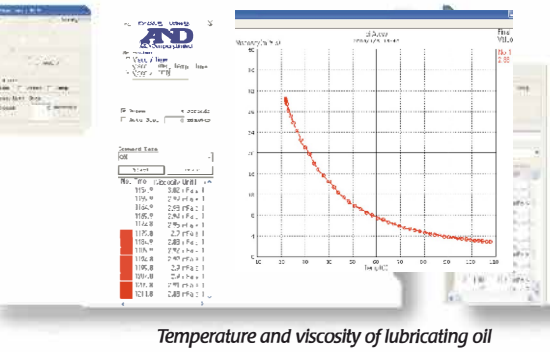
The electromagnetic drive controls the vibration of the sensor plates to keep in constant amplitude. The driving electric current, which is exciting force, will be detected as the magnitude of viscidity produced between the sensor plates and the sample fluid. The coefficient of viscosity is obtained by the correlation between the driving electric current and the magnitude of viscidity.



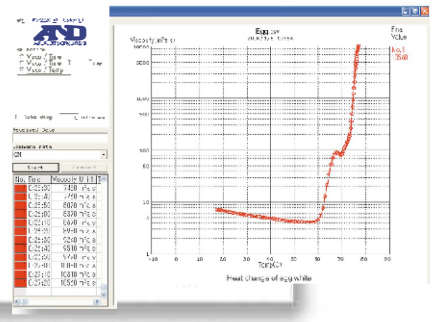
*1,000mPa·s - 10,000mPa·s can be written also as 1Pa·s - 10Pa·s

WinCT-Viscosity

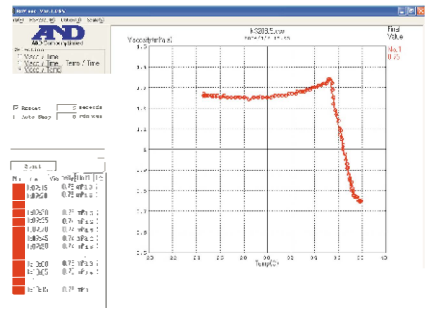
Rs-Visco is software to import the measurements of viscosity and temperature by SV series to a PC automatically and display the measurement result by graph on a real-time basis, the scaling function and the logarithm display is selectable in the function.
Saving the measurement data by "CSV" file and open it on the Rs-Visco is very convenient for your future analysis of your sample fluid viscosity.



Temperature and viscosity of lubricating oil



Heat change of egg white or Log display



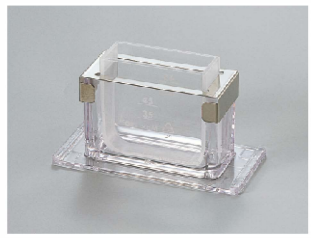
Cloud point measurement of detergent

SV-10

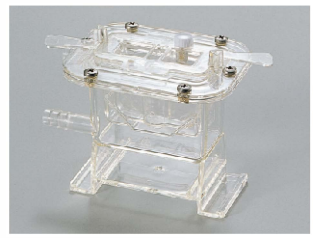
Measurement Method	Sine-wave Vibro Viscometer using Tuning Fork Vibration Method	
Vibration Frequency	30Hz	
Viscosity Measurement Unit	mPa·s , Pa·s , cP , P	Pa·s , P
Viscosity Measurement Range	0.3mPa·s – 10Pa·s (0.3 – 10,000mPa·s)	1 – 100Pa·s (1,000 – 100,000mPa·s)
Accuracy	1% of Repeatability (S.D. , 20 – 30°C , No condensation)	
Operating Temperature	10 – 40°C (50 – 104°F)	
Minimum Sample Amount	Standard Sample Cup (35ml-45ml), Optional Small Sample Cup (10ml), Optional Glass Sample Cup (13ml)	
Temperature Measurement	0 – 100°C /0.1°C (32 – 212°F/0.1°F)	
Display	Vacuum Fluorescent Display (VFD)	
Interface	RS-232C	
Power Supply	AC Adaptor	
Power Consumption	Approx. 14VA	
Physical Dimensions	Main Unit : 332 (W) x 314 (D) x 536 (H) mm / Approx. 5.0 kg Display Unit : 238 (W) x 132 (D) x 170 (H) mm / Approx. 1.3 kg	
Connection Cable Length	1.5m (Between the Main Unit and the Display Unit)	
Standard Accessories	Manual , AC Adaptor , CD-ROM (WinCT-Viscosity) Sample Cups , RS-232C Cable (25 pins – 9 pins)	

Accessories

Small sample cup (10ml)
Used when measuring small volume samples



Glass sample cup (approx. 13ml)
Glass container for use when measuring solvents, etc.



Water jacket
Used to keep the temperature of the sample constant, or to change the temperature. A constant temperature water tank is also necessary.

Positioning stopper
Used to set the height of the sensor unit and sensor plates to a uniform one when making repeated measurements.

AX-SV-33	Sample cup (PC [polycarbonate], volume 35ml – 45ml) Same as container that comes as standard with the SV unit. Set of 10 pcs
AX-SV-34	Small sample cup (PC [polycarbonate], volume 10 ml) Set of 10 pcs Set of 10 lids included
AX-SV-35	Glass sample cup (volume approx. 13ml)
AX-SV-36	Positioning stopper
AX-SV-37	Water jacket (body: polycarbonate, packing: silicon gum), with 4 sets of small sample cup and lids
AX-SV-42	Analogue voltage output (0 – 1V)
AX-SV-43	Extension cable (5m) to connect measuring unit to display unit
AD-8121B	Compact printer

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