

Cone-plate Viscometer

Description: Paintings or inks often experience different shear rates from manufacturing to practical application. As a typical non Newtonian fluid, paintings or inks exhibit different viscosity characteristics at different shear rates.

The paint is in a low shear rate state when it is stored, transported, flowing and hanging. The medium shear rate is used for pumping, dipping and mixing at low speed. High-speed dispersion, roll, spray and brush coating are in a high shear state, and the shear rate is generally 9000S^{-1} to 12000S^{-1} . Therefore, understanding the rheological characteristics of paint or ink at such high shear rates requires the use of cone-plate viscometer to measure.

BGD 182 Cone-plate Viscometer uses a special angle conical spindle, which generates a very high shear rate on the measured sample under the high-speed drive of a stepper motor. It conforms to ISO 2884-1 « Paints and varnishes — Determination of viscosity using rotary viscometers — Part 1: Cone-and-plate viscometer operated at a high rate of shear » .



Features

- ◆ 1.7-inch touch screen, menu based operation, rich display content (measurement values, spindle type, speed, shear rate, etc.), simple and convenient operation.
- ◆ Metal shell and beautiful and durable; Upgraded handle design, precise and fast positioning, high reliability.
- ◆ The electrical part of the whole machine has been carefully designed, with high reliability, precision, stability, and ease of use.
- ◆ ARM chip processor, with faster data processing speed.
- ◆ High precision linear calibration before leaving the factory, capable of interpolating multiple points to ensure higher measurement accuracy.
- ◆ Continuously variable speed measurement of sample viscosity facilitates users to choose different shear rates based on the actual application conditions of the sample.



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- ◆ The viscosity measurement value shows continuous variation, and multiple viscosity units can be freely interchanged.
- ◆ Exceed the measuring range of the instrument automatic alarm prompts.
- ◆ High speed data transmission interface ensures fast and stable communication connection between the instrument and the computer.
- ◆ Data storage and external USB data export function.
- ◆ Built in high-precision PT100 temperature sensor, with high temperature control accuracy and good stability.
- ◆ Integrated temperature calibration function ensures precise and reliable temperature control.
- ◆ Powerful calibration function: Users only need one bottle of standard oil and can quickly complete calibration through the instrument's built-in calibration menu with simple operations.
- ◆ Optional data acquisition and programmable software can be used to comprehensively analyze the rheological features of the sample.

Main Technical Parameters:

- ★ Speed range: 5rpm ~ 1000rpm (continuously viable, @1rpm)
- ★ Measurement error: < 2% (Full scale)
- ★ Sample volume: < 2ml (See the table below for specific data)
- ★ Two built-in temperature control options: Low temperature 5–75 °C; High temperature 50–235 °C
- ★ Temperature resolution: 0.1°C
- ★ Temperature control accuracy: ± 0.5°C
- ★ A total of ten spindles can be selected (corresponding shear rates and measurement ranges are shown in the table below)
- ★ Power supply: AC 220V, max current about 1.5A
- ★ Size: 275mm × 210mm × 460mm (L × W × H)
- ★ Net weight: 12KG
- ★ **Ordering information:** BGD 182/1---Low torque cone-plate viscometer;
BGD 182/2---High torque cone-plate viscometer

Spindle type	CAP-01	CAP-02	CAP-03	CAP-04	CAP-05	CAP-06	CAP-07	CAP-08	CAP-09	CAP-10
Sample size	67μL	38μL	24μL	134μL	67μL	30μL	1,700μL	400μL	100μL	170μL
Shear rate range (S ⁻¹)	66.5~13,300	66.5~13,300	66.5~13,300	16.5~3,300	16.5~3,300	16.5~3,300	13~2,000	13~2,000	13~2,000	25~5,000
BGD 182/1 Measurement range (mPa.s)	20~1,600	20~3,200	20~6,600	20~13,000	20~26,000	20~66,000	20~2,600	20~10,800	20~44,000	20~4,400
BGD 182/2 Measurement range (mPa.s)	20~37,500	40~75,000	80~150,000	100~300,000	300~600,000	800~1,500,000	78~62,500	313~250,000	125~1,000,000	100~100,000

Note:The formula for calculating the shear rate value is: 13.33 × the current speed (spindles 1-3);
3.33 × the current speed (spindles 4-6);
2 × the current speed (spindles 7-9);
5 × the current speed (spindle 10).