



RHEOMETER RC30

QUALITY CONTROL
AND DEVELOPMENT



Rheometer RC30



Measuring Equipment RC30

The **Rheometer RC30** is a high-resolution laboratory viscosimeter (Searle principle) for sophisticated quality control, enhanced educational purposes, as well as, for product design and R&D challenges. The highly dynamic measuring drive system enables rotational tests with **Controlled Shear Rate (CSR)** or **Controlled Shear Stress (CSS)**.

SPECIAL FEATURES

- ✔ microprocessor-controlled measuring device for mains power operation
- ✔ overload protection (torque/speed)
- ✔ user-friendly, dust proof keyboard for manual use
- ✔ integrated alphanumeric display (4 lines) for optional displaying of 4 running parameters (viscosity, shear rate, shear stress, rotational speed, torque, temperature)
- ✔ data buffering in RAM, storage of measuring data with date and measuring-count for up to 10 measurements with up to 4,800 data-points
- ✔ PC control including data reading, evaluations, calculations, and output options with user software package **RHDS0000**
- ✔ assortment of measuring systems and attachments

STANDARD TEST ROUTINES

- ✔ Single point **viscosity determination**
- ✔ Shear rate/shear stress steps
- ✔ **Flow Curve** measurement
- ✔ **Yield stress** determination
- ✔ Viscosity-Time-Test
- ✔ Determination of **Thixotropy**
- ✔ **Creep/Relaxation** tests
- ✔ **Temperature dependence** of viscosity

TECHNICAL DATA

Torque range	0.05 to 50 mNm
Torque resolution	0.01 mNm
Angular resolution	15.4 µrad
Speed range	0.1 to 1,000 rpm
Viscosity range*	0.0002 to 270,000 Pa.s
Shear rate range*	0.13 to 5,040 s ⁻¹
Shear stress range*	0.67 to 35,000 Pa
Accuracy	± 1% of maximum value
Temperature range	-20° C to +180° C
Temperature sensor	Pt100 I13 DIN
Power supply	100 to 240 V AC / 20 W

* depending from selected measuring system

MEASURED/CALCULATED VALUES

Dynamic Viscosity
Shear Rate
Shear Stress
Rotational Speed
Torque
Temperature
Time
Strain
Compliance
Shear Module

ACCESSORIES

- ✔ Temperature chamber for cylinder systems
- ✔ Temperature sensor Pt100
- ✔ Coaxial Cylinder Systems according to DIN 53019, also available as one-way systems
- ✔ Double Gap System (DG) according to DIN 54453
- ✔ Adapter module for Cone/Plate or Plate/Plate measurements
- ✔ Vane spindles, Brookfield adapter and other spindle tools
- ✔ vertically adjustable stand

ADDITIONAL EQUIPMENT

Computer (Pentium, minimum 64 MB RAM)
User Software RHDS0000 (WINDOWS 95 upwards)
Printer
Circulator (water bath, oil bath)
Viscosity standards (calibration fluids)

Measuring systems according to DIN 53019 and DIN 54453 (consisting of measuring spindle and measuring cup)

Measuring System	Coaxial Cylinder Systems				
	DG DIN	CC37 DIN	CC25 DIN	CC14 DIN	CC8 DIN
Shear rate range [s ⁻¹]	0.5 to 5,040	0.13 to 1,290	0.13 to 1,290	0.13 to 1,290	0.13 to 1,290
Shear stress range [Pa]	0.67 to 67	3.5 to 350	11.4 to 1,140	65 to 6,500	350 to 35,000
Viscosity range [Pa.s]	0.0002 to 133	0.005 to 2,730	0.009 to 8,800	0.05 to 50,350	0.27 to 270,000
Sample volume [ml]	21	60	17	5	0.5

rheotec

Heutech GmbH
Schattenwälder Strasse 23
D-01458 Ortrand/Ortrand (Germany)
Phone: ++49 (0)52051 5947-0
Fax: ++49 (0)52051 5947-30
Internet: www.rheotec.de e-mail: info@rheotec.de

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RHEOMETER RC30-CPS

**FOR QUALITY CONTROL,
PROCESS ENGINEERING,
AND PRODUCT DESIGN**



The **Rheometer RC30-CPS** is a high-resolution cone-plate viscometer for sophisticated quality control, enhanced educational purposes, as well as, for product design and R&D challenges. The highly dynamic measuring drive system enables rotational tests with **Controlled Shear Rate (CSR)** or **Controlled Shear Stress (CSS)**.

SPECIAL FEATURES

- ▶ microprocessor-controlled measuring device for mains power operation
- ▶ overload protection (torque/rotational speed)
- ▶ user-friendly, dust proof keyboard for manual use
- ▶ integrated alphanumeric display (4 lines) for optional displaying of 4 running parameters (viscosity, shear rate, shear stress, rotational speed, torque or temperature)
- ▶ data buffering in the RAM, storage of measuring data with date and measuring-count for up to 10 measurements with up to 4,800 data-points
- ▶ Cone-Plate- and Plate-Plate Measuring Systems according to DIN 53018 (see table)
- ▶ Sample temperature by liquid circulation, Peltier heating, or electrical heating
- ▶ PC control including data reading, evaluations, calculations, and output options with user software package RHEO3000

TECHNICAL DATA

Torque range	0.05 to 50 mNm
Torque resolution	0.01 mNm
Angular resolution	15.4 μ rad
Speed range	0.1 to 1,000 rpm
Viscosity range*	0.0008 to 125,000 Pas
Shear rate range*	0.13 to 6,000 s^{-1}
Shear stress range*	4.5 to 16,300 Pa
Accuracy	$\pm 1\%$ of max. value
Temperature range	-20°C to +250°C (Circulator connection) -20°C to +180°C (Peltier heating) +40°C to +250°C (Electrical heating)
Temperature sensor	Pt100 1/5 DIN
Power supply	100 to 240 V AC / 20 W

* depending from selected measuring system

ADDITIONAL EQUIPMENT

Computer (Pentium, minimum 64 MB RAM)
User Software RHEO3000 (WINDOWS 95 upwards)
Printer
Circulator (water bath, oil bath)
Viscosity standards (calibration fluids)

Measuring systems according to DIN 53018
(consisting of rotating spindles Cone C or Plate P, and fixed ground plate with integrated temperation system)

Measuring system	Cone-Plate						Plate-Plate		
	C25-1	C25-2	C50-1	C50-2	C75-1	C75-2	P25	P50	P75
Shear rate range [s^{-1}]	0.6 to 6,000	0.3 to 3,000	0.6 to 6,000	0.3 to 3,000	0.6 to 6,000	0.3 to 3,000	0.13 to 1,300	0.26 to 2,600	0.79 to 7,900
Shear stress range [Pa]	122 to 12,200	122 to 12,200	15.7 to 1,570	15.7 to 1,570	4.5 to 4,500	4.5 to 4,500	163 to 16,300	20.4 to 2,040	6 to 600
Viscosity range [Pas]	0.02 to 30,300	0.04 to 40,700	0.003 to 2,500	0.005 to 5,000	0.008 to 750	0.005 to 1,500	0.125 to 125,000	0.088 to 7,500	0.0015 to 1,300
Sample volume [ml]	0.08	0.15	0.6	1.2	2.0	3.9	0.5	2.0	4.5
Cone or Plate spindle diameter* [mm]	25	25	50	50	75	75	25	50	75
Cone angle* [°]	1	2	1	2	1	2	-	-	-
Cone truncation [μ m]	50	50	50	50	50	50	-	-	-

*Manufacturing of special diameters or cone angles on request

MEASURED/CALCULATED VALUES

Viscosity
Shear Rate
Shear Stress
Speed
Torque
Temperature
Time
Strain
Shear Modul
Compliance

STANDARD TEST ROUTINES

- ▶ Single point **Viscosity determination**
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- ▶ **Flow Curve** measurement
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Messtechnik GmbH
Schutterwälder Strasse 23
D-01458 Ottendorf-Oberilla (Germany)
Phone: ++ 49 (0)52 05) 59 67-0
Fax: ++ 49 (0)52 05) 59 67-30
Internet: www.rheotec.de • e-mail: info@rheotec.de
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