Capillary Rheometer

The basic instrument for numerous Add-ons
for advanced material characterization

- PVT isothermal/isobaric
- Thermal Conductivity
- Counter Pressure Chamber
- Elongation
- Die Swell Measurement
- Shark Skin
- Normal Stress Die
- Contifeed

GÖTTFERT
THIS IS RHEOLOGY

HIGH PRESSURE CAPILLARY RHEOMETER

One or multi-barrels for detection of flow and viscosity

HIGHLIGHTS

- The option of a single, dual or triple barrel system with a resolution of 9.5, 12, 15, 20, 25 or 30 mm, as well as flexible measurement is possible
- Speed between 0,00004 - 30mm/s (1:1000000), RG20: 0,0001 - 40mm/s
- Dynamic test stamp acceleration: from 0 to 40mm/s in 0.6s
- Position tracking with high resolution encoder
- Temperature control range up to 400 °C (500 °C optional), display resolution 0.01 °C
- Automatic pressure transducer detection and identifying „Plug & Test"
- Adaptive signal resolution of 0.005% from the pressure transducer range

ADD-ONS FOR ADVANCED MATERIAL CHARACTERIZATION

GÖTTFERT Capillary Rheometers offer viscosity measurements in the basic instrument with plastics, rubbers as well as any flowable materials.

Modular Add-ons offer significant added value in the characterization of material-specific properties.

FROM 0 TO 40 MM/S IN 0.6 SECONDS

RHEOGRAPH 20, 25, 50, 75 and 120 have been redeveloped based on 40 years of experience by previous generations.

A higher level of automation, a user-friendly operation of the instrument, along with a larger shear rate range, as well as huge variety of test loads enables a high degree of customization.

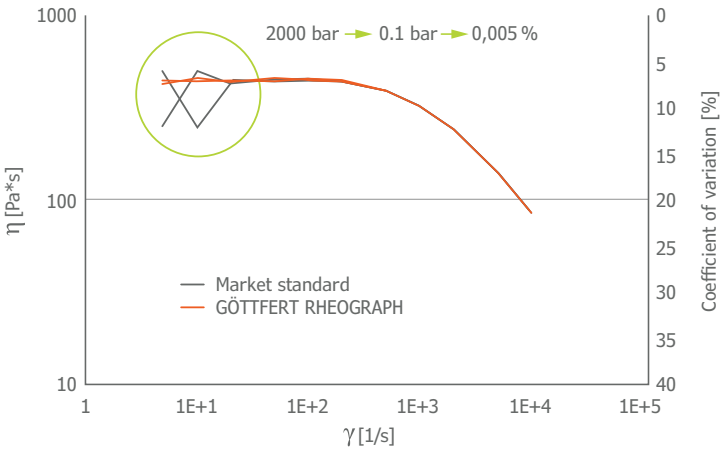
The integrated colored touchscreen, the automatic pressure recognition, as well as signal processing of the pressure value (0,005 % resolution) are just some of the newest features.

With the script capable PC-software LabRheo, the machines **suit perfectly** the demands of users in research and development, quality control, as well as incoming goods inspection.

Learn more **goettfert.com/capillary-rheometer**

ADVANCED THROUGH HIGHER ACCURACY

With the new generation of the RHEOGRAPH, the **accuracy of the pressure transduction has increased 10 times**, which shows that accuracy leads to the extension of the measurement area by one decade. One pressure transducer now works with a resolution **of 0.1 bar or 30000 PSI > 1.5 PSI.**



HIGHLIGHTS

- Resolution of pressure measurement off less than 0.005% of nominal range
- Improvement of repetition accuracy with testing material by factor 10
- Improvement of repetition accuracy of pressure measurement is less than 0.05% off nominal range
- Extension of measurement range in the lower shear speed range by 10 times

KNOWLEDGE

Scan QR code and learn more about the Capillary Rheometer:

Applications
goettfert.com/applications-capillary-rheometer

Rheo-Info (Whitepaper)
goettfert.com/rheo-info-capillary-rheometer

RHEOGRAPH 20

Perfect entry level model for viscosity measurements

HIGHLIGHTS

- Constant and high stamp force of 20 kN
- Dynamic speed range: 0.0001 - 30mm/s (0.006 - 1800mm/min)
- Path tracking with high resolution encoder (0.000053mm)
- PVT-Measurement either isothermal or isobaric
- Optimized test barrel, less heat supply necessary
- Integrated tempering cover for cooling system, max. 30K/min
- Can also be used as a benchtop instrument
- Add-ons for advanced material characterization

Learn more **goettfert.com/RG20**

RHEOGRAPH 20

The entry level model of the newly developed high pressure Capillary Rheometer made by GÖTTFERT is a rheometer with a test force of 20 kN. Besides **measuring viscosity,** the RG20 is capable of accessing the GÖTTFERT **Add-on platform** for the extended material characterization. This is a value added factor in the characterization of material specific behavior. The well established single or multiple barrel models complete the platform of Capillary Rheometers alongside usage specific capillaries and optional special editions.

The essential improvement of the GÖTTFERT Capillary Rheometer has been achieved through the **higher accuracy of pressure measurements.** Reproduction and higher precision have been improved by factor 10. Therefore, the measurement range in the lower shear rate range has been extended.

GÖTTFERT clearly distinguished itself from the market through the improvements in the lower shear rate area.

ADD-ON

- PVT (Pressure, Volume, Temperature)
- Thermal Conductivity
- Counter Pressure Chamber
- Elongation (HAUL-OFF, RHEOTENS)
- Die Swell Measurement
- Shark Skin
- Contifeed

RHEOGRAPH 25/50/75/120

User friendly high pressure Capillary Rheometer
with higher shear rate range and high measuring force

HIGHLIGHTS

- 25 - 120kN measuring force
- The option of a single, dual or triple barrel system with a resolution of 9.5, 12, 15, 20, 25 or 30mm, as well as flexible measurement is possible
- Speed between 0,00004 - 40mm/s (1:1000000)
- High dynamic acceleration of the test stamp from 0 to 40 mm/s in 0.6s
- Path tracking with high resolution encoder
- Temperature control range up to 400 °C (500 °C optional)
- Adaptive signal resolution of 0.005% from the pressure transducer range
- Add-ons for advanced material characterization

Learn more **goettfert.com/25/50/75/120**

RHEOGRAPH-SERIES

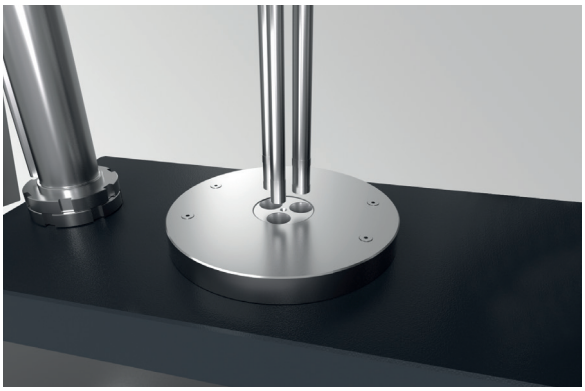
The well-established GÖTTFERT series of high pressure Capillary Rheometers is available **with different testing force like 25, 50, 75 or 120 kN. Therefore, the RG120 is capable of measuring higher testing force and higher shear rate.** The diverse program of Add-ons is an unforeseen platform on the market of capillary rheometry for the extended material characterization. Besides determining of viscosity, modular Add-ons add essential value to the characterization of material specific behavior. The established single or multiple barrel options complete the platform of capillary rheometry alongside multiple user specific capillaries as well as optional special editions.

The essential improvement of the GÖTTFERT Capillary Rheometer has been achieved through the higher accuracy of pressure measurements. Reproduction and higher precision have been improved by factor 10. Therefore, the measurement range in the lower shear rate range has been extended.

GÖTTFERT clearly distinguished itself from the market through the improvements in the lower shear rate area.

ADD-ON

- PVT (Pressure, Volume, Temperature)
- Elongation (HAUL-OFF, RHEOTENS)
- Contifeed
- Shark Skin
- Thermal Conductivity
- Counter-Pressure-Champer
- Die Swell Measurement



The diverse program of Add-ons forms a capillary rheometry platform for **advanced material characterization** that is unique on the market.

In addition to the determination of viscosity, a considerable added value in the characterization of material-specific behavior can be achieved via modular Add-ons.

The established single- or multi-channel design rounds out the platform of capillary rheometry platform, in addition to numerous application-specific capillaries and optional special designs.

RHEOGRAPH auto

A semi-automated capillary rheometer which supports with a high number of viscosity measurements in low and high shear rate range

HIGHLIGHTS

- Maximum test force of 25kN, 50kN
- Single barrel system with 12mm or 15mm
- Dynamic speed range 0.00004 - 40 mm/s (1:1000000)
- Adaptive signal resolution of only 0.005 % from the pressure transducer range
- Temperature up to 400°C (500°C optional)
- Alternative steel grades for barrel and piston with higher corrosion or abrasion resistance
- Integrated Cleaning Modules: barrel cleaning, capillary closing, capillary pre-cleaning
- External Module: Piston Cleaning Tool

Learn more **goettfert.com/rheograph-auto**

RHEOGRAPH auto

The semi-automated capillary rheometer enables the user to carry out automated viscosity measurements. The main automation modules focus on barrel cleaning, capillary closing as well as capillary pre-cleaning.

Furthermore, we offer external cleaning modules for the rheological tester, such as piston cleaning. Optionally, the capillary rheometer can be equipped with **25kN or 50kN test force** and configured between the single-barrel systems with a diameter of 12mm or 15mm.

ADD-ON

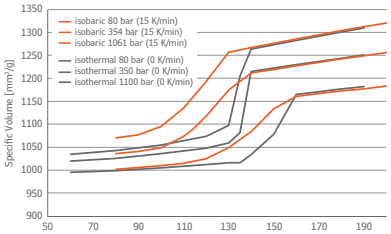
- Die Swell Measurement

RHEOGRAPH ⊕ ADD-ON

Modular platform for the extended characterization of polymers

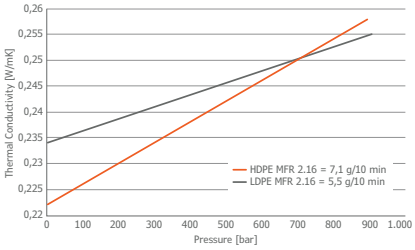
We offer a modular platform for the advanced characterization of polymers. The capillary rheometer serves as the basic instrument to which various additional add-ons can be added.

The RHEOGRAPH can thus be optimally adapted to the individual requirements of each application. With the fully equipped version, the processing behavior can be characterized completely.



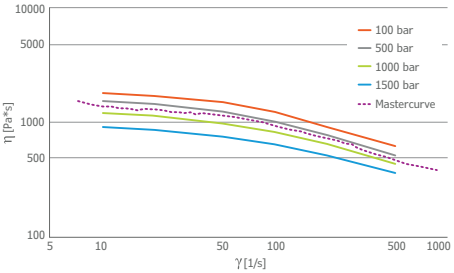
PVT (ISOBARIC & ISOTHERMAL)

- Measuring process according to ISO 17744
- Determination of data about pressure, volume and temperature
- Measuring setting isobar and isotherm
- Variable testing body volume
- Easy handling through quick release fastener
- Illustration of PVT Diagram
- Optimization of Flow- and Shrink process
- Available with automatic process steering



THERMAL CONDUCTIVITY

- Determination of heat conductivity
- Measurement Range: Temperature up to 450°C, Pressure up to 1000bar
- Developed according to ASTM D5930
- Test sensor with integrated heat device and ability to track temperature
- Optimization of cycle time during injection molding
- No mechanical retooling necessary
- Simulation of process
- Available with automatic process steering



COUNTER PRESSURE CHAMBER*

- Determination of pressure coefficient
- Determination of critical wall shear stress wall slides
- Max pressure (Pm) 1200bar
- Temperature range up to 400 °C
- Optimization of flow process in processing machines (Injection molding, Extrusion tools with long flow paths, Melt pumps)

* Further information on page 12

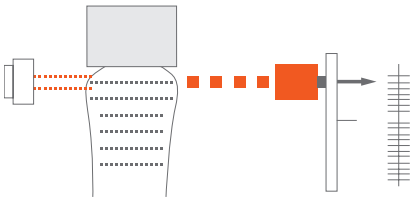
Learn more **goettfert.com/rheograph-add-on**

RHEOTENS

- Infinitely variable speed
- Free selection between linear and exponential acceleration
- Setting, steering of measuring process and test analysis with Windows Program RHEOTENS 97
- Different pull-off wheels – to be specified depending on usage
- Tandem pull-off wheels
- Already existing RHEOTENS machines can be upgraded with new electronic box as well as "RHEOTENS 97"

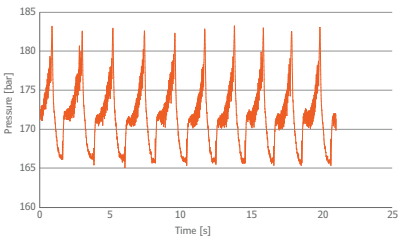
HAUL-OFF

- Indefinitely variable speed of 0 - 600m/min, optional from 0 - 2000m/min
- Optional selection between linear or exponential acceleration
- Anti-adhesion surface of pull-off wheel
- Measurement range up to 1N, Resolution 0.05mN
- Software for setting, steering of measurement and analysis



DIE SWELL MEASUREMENT

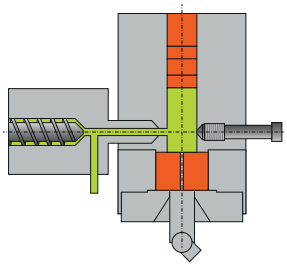
- Determination of dynamic and static die swell
- Analysis of threshold profile (BASELL Method)
- Swivel with infinitely variable hight setting
- Laser measuring head in 0.1µm or 7µm edition
- Optional with automatic melt cutting device
- Application: Simulation of Material-Threshold behavior during injection molding



FLOW INSTABILITIES

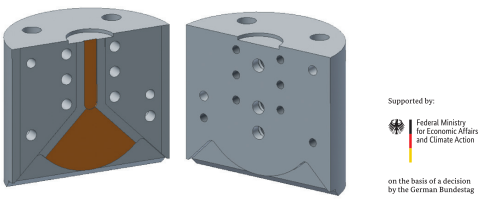
(Shark Skin, Slip Stick,...)

- Measuring cell for tracking of Shark Skin effect
- Consisting of slit die, three high frequency sensors (rate up to 20 kHz), as well as software package
- Determination of frequency spectrum, as well as statistical analysis of pressure signal
- Optimization of extrusion-, film and coating process



CONTIFEED

- Bubble free filling of the test channel
- Automatic loading of bulky samples possible
- Time saving up to 50% during testing process through more effective heating
- Shorter heating period for shorter material dwell time through influence of temperature
- Recognition of process relevant rheological data for injection molding
- By pre-plastification powder materials like PVC dry batches can be measured as well



NORMAL STRESS DIE

- Determination of Normal Stress at high shear rates and closer to the processing shear rates which was not possible with conventional technique
- Detection of flow instabilities at processing shear rates
- Measurement of Viscosity, elongation viscosity and Normal Stress differences

PVT500

Testing device carry out isobaric and isothermal PVT measurements with inspection of material specific behavior

According the standards:
ISO 17744 (PVT)
ASTM D5930 (TC)
ISO 22007

HIGHLIGHTS

- PVT-Measurement either isothermal or isobaric
- Thermal conductivity measurement
- Test barrel diameter of 9.5mm, maximum pressure of 2500bar
- Path tracking with high resolution encoder (0.000053mm)
- Integrated tempering cover
- Modern cooling system, cooling rate of max. 30K/min
- No liquid cooling necessary, but possible on an optional basis
- Optimized test barrel, less heat supply necessary
- Determination of D3-Coefficient

Learn more **goettfert.com/PVT500**

PVT500

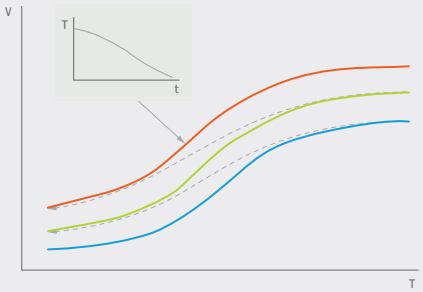
PVT stands for **P**ressure **V**olume and **T**emperature. Isothermal PVT measurements test material specific behavior at constant temperature and variable pressure and force. The isobaric PVT measurement however is exercised at constant pressure and variable temperatures. The collected data from measuring with the PVT500 are especially relevant for the simulation of injection molding processes.

The PVT-measuring delivers an equally accurate description of the cooling process as taken place in the extrusion. The PVT500 comes with the established software LabRheo, in which individual testing parameters can be selected. Additionally, there is the option to have **real time monitoring of measurements.** After defining parameters with the LabRheo script generator, the automatic measurement starts. Besides measurements according to ISO 22007 and ASTM D5930, the PVT500 is also capable of fulfilling measurements according to ISO 17744.

Since its efficient air conditioning, the testing device does not need an additional thermostat, which saves significant amount of space.

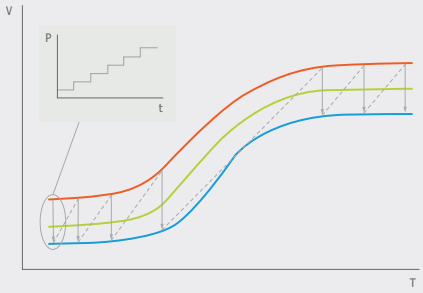
ADD-ON

- Thermal Conductivity
- Additional temperature control with external thermostat
- Hybrid Tempering Option



PVT ISOBARIC

Measurements according to ISO 1744 are standard for instruments with a test piston. Isobaric measurements are being completed under constant pressure and progressively changing temperature. Therefore, the material specific volume can be determined as a function of temperature and pressure. A central part of the PVT-measurement is the cooling behavior, which is relevant for injection molding processes. GÖTTFERT offers the opportunity to measure isobaric and isothermal PVT-measurements, either with the Capillary Rheometer Add-on PVT or the stand alone instrument PVT500.



PVT ISOTHERMAL

During the isothermal PVT-measurement, the material is being filled in at melting temperature and cools up to room temperature. Pressure is then progressively increased, before the next temperature level is being started. This measuring cycle of different pressures, is being applied to earlier defined temperature levels. GÖTTFERT offers the opportunity of isothermal and isobaric PVT-measurements with the Capillary Rheometer Add-on PVT or the stand-alone PVT500.

TCR

for effective analysis of free-flowing thermoset mixtures

HIGHLIGHTS

- Rheological Characterisation of Thermosets
- Use of Spiral mold with up to 5 pressure transducer an up to 4 gradient temperature sensors
- Characterisation of Injection temperature, Material flow behavior in mold and Cross-linking behavior

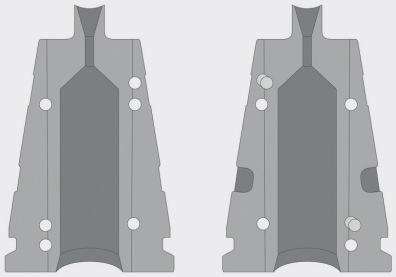
Learn more **goettfert.com/TCR**

THERMOSET CAPILLARY RHEOMETER (TCR)

The TCR is developed based on a capillary rheometer with 75kN piston force. The device also consists of a piston / die plate with test barrel and a mould (flow spiral). To be able to easily remove the cured test material, the test barrel is integrated into a conical seat in the die plate, which is divisible and easily removable. The insulation of the die plate from the upper half of the mould allows to set different temperatures between the mould and the die.

The instrument can measure at both constant pressure and constant speed. The instrument consists of a temperature-controlled feed channel in which the material is preconditioned under defined pressure and volume at a preselected temperature and pressed into a flow spiral with up to 5 pressure and 4 gradient temperature sensors at a pressure of up to 1600bar.

The TCR allows an effective determination of the rheological properties in the range of the injection temperature and over the flow path in the mold at crosslinking temperature.



Divided capillary with test channel

EFFECTIVE ANALYSIS

of free-flowing thermoset mixtures

The TCR is a capillary rheometer for thermosets which is developed for quality testing of thermosets in order to test and compare material batches with regard to processing properties. The instrument is developed on the knowhow of the established method of capillary rheometers for plastics and elastomers.

COUNTER PRESSURE VISCOSIMETER

Different and multiple test modes in one instrument

According the standards:

DIN 54811
ASTM D3835
ISO 17744 (PVT)
ASTM D5930 (TC)
ASTM D5099
ISO 11443

HIGHLIGHTS

- Constant high piston force over the entire speed range
- Speed range: 0.0004mm/s to 40mm/s
- (0.0024mm/min - 2400mm/min), corresponding to a ratio of 1:1,000,00
- High dynamic die acceleration: 0 - 40mm/s in 0.6s
- Position Detection: High Resolution Encoder (0.0000016mm)
- Automatic pressure sensor recognition: Plug & Test

Learn more **goettfert.com/counter-pressure-viscosimeter**

COUNTER PRESSURE

This modified Capillary Rheometer consists of **two connected Capillary Rheometers** and can be used in different test modes. Therefore, both rheometers can be used independently.

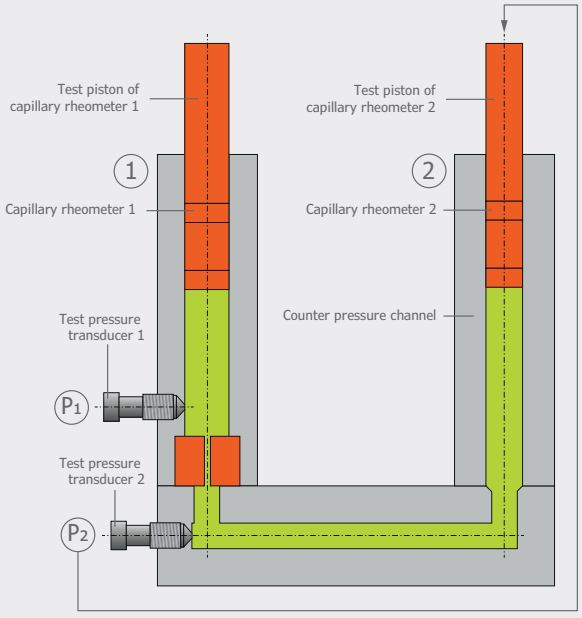
The counter pressure viscosimeter is a rheological instrument, that is used for the **determination of the viscosity** of plastics and other flow able materials **in dependence to counter pressure.** It consists of two Capillary Rheometers, which are simultaneously connected through a connection barrel and are therefore both able to influence the test ample. With this modified instrument, it is possible to determine the flow curve of materials in dependency to counter pressure.

Barrel 1 **Viscosity measurements**

Barrel 2 **Regulation of counter pressure**

ACCURACY

The signal of pressure transducer RG20, RG25, RG50, RG75 and RG120 can be shown with a resolution 0.005 % off the par range, which means 0.1 bar with a 2000 bar sensor. All of GÖTTFERT's pressure sensors are being calibrated with our software in order to guarantee highest quality.



FUNCTION

The RG Counter Pressure offers the opportunity to automatically measure different viscosity functions under counter pressure. Capillary rheometer 2 regulates counter pressure. After a flow curve is determined, the material is being pushed from Capillary Rheometer 2 into Capillary Rheometer 1. Now, a flow curve can be measured under different counter pressure. The illustration shows a schematic example of two connected Capillary Rheometers.

RHEOGRAPH 25E

Clean room production of pharmaceutical implants

HIGHLIGHTS

- Complete stainless steal edition, for usage in clean room, category A
- Piston speed of 0.00004 until 40mm/s over entire force measuring range 25kN
- Test barrel diameter of 20mm
- Temperature regulation of +30 °C until +250 °C
- Measuring mode „constant speed" or „constant force"
- Determination of test piston speed, apparent and true shear stress
- Selecting parameters, steering and measurement with software LabRheo, Analysis with software WinRheo 2
- SCRIPT-Steering for three defined measuring- and production processes

Learn more **goettfert.com/RG25E**

RHEOGRAPH 25E

The RHEOGRAPH 25E is an innovative high pressure Capillary Rheometer for the determination of flow behavior and viscosity of thermoplastic plastics and rubber, as well as for the **production of pharmaceutical implants.**

Screw extruder being used, the RHEOGRAPH 25E uses a RAM extrusion process, with already homogenized material (active and inactive material). The material in the barrel can now be compressed, while it is heated and melted at the same time.

Later extruded at constant speed, this method produces a **air-bubble free and homogeneous strand.**

ADD-ON

- Die Swell Measurement
- Melt Cutting Unit

SOFTWARE

LabRheo – Network compilable software system
for finding parameters, measurements and analysis

LABRHEO

Terminal-independent functions

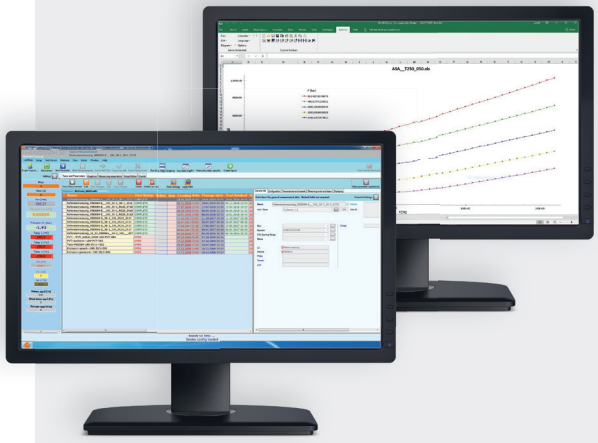
The **user friendliness, wide spectrum of application opportunities** and saving of testing data were a central point and priority in the redevelopment of this software.

ANALYSIS WITH WINRHEO II

- Calculations for round hole capillaries and slit capillaries
- Corrections like Rabinowitsch-Weissenberg, Bagley (linear/ not linear), Mooney, Hagenbach, Gleissle
- Approximation of flow curves according to the following models: Ostwald-De Waele (power set), Carreau-Winter, Yasuda, Sabia, Münstedt and Cross
- Elastic viscosity after Cogswell
- Extensive analysis like Non-Newton-Index (NNI factor), thermo stability, relaxation, wall slipping and ramps
- Normal voltage
- PVT Diagram and Tait Adjustment
- Temperature Shift: Creation of master curves out of flow curves at different temperatures, Determination of model coefficient for master curve, approximation of master curve after Carreau-Winter and Cross, Calculation of shift factors after WLF and Arrhenius

HIGHLIGHTS

- Free illustration of raw values- and analysis graphic
- Continuous display of instrument status
- Automatic reading of testing instrument information
- Self explanatory dialogs and information fields, Online assistance
- Open platform for application specific fields, filter for measurements
- Selective access right for optimized security
- Script steered measuring process



MAINTENANCE AND CALIBRATION

of our test instruments for a long service life with minimum failure rate

SUITABLE SERVICE

for various requirements

To ensure sustainably reproducible and reliable test results, periodic maintenance of reliable test equipment is essential. The **globally active and highly trained team** of our service technicians ensures sustainably reliable and accurate rheological test results.

Only **regular maintenance** ensures long-term reliability. We offer you a service contract tailored to your needs to ensure that your equipment is always maintained at the highest quality level. Our professionally trained service team and our certified quality management system (according to the international standard DIN EN ISO 9001) guarantee fast and **reliable service worldwide**.

Our service technicians are able to perform rheological tests on behalf of our customers in our expanded ISO/IEC 17025 certified testing laboratory.

MAINTENANCE PACKAGES

SERVICE BASIC*

- ✓ Maintenance and calibration with traceable measuring equipment
- ✓ After successful completion Handover of maintenance checklist (test report)

SERVICE BASIC+

- ✓ Maintenance and calibration with traceable measuring equipment
- ✓ Specification of statistical uncertainty of measurement, determined from statistical evaluation of the measured quantities on several instruments
- ✓ After successful completion Issue of factory calibration certificate (test report)

SERVICE ISO 17025

- ✓ Maintenance and calibration with traceable measuring equipment
- ✓ Specification of the smallest measurement uncertainty, determined directly on the test instrument on site determined
- ✓ After successful completion handing over of the calibration report/verification report acc. to requirements of ISO/IEC 17025

Learn more
goettfert.com/maintenance

* SERVICE BASIC is no longer provided for manually operated melt index testers and Capillary Rheometers of the current model series.

EXTENDED SAFETY

for Melt Index Testers and Capillary Rheometers

BEST ADVICE

and sustainable support

All GÖTTFERT test instruments are supplied with a statutory warranty of 1 year. For our manually operated melt index testers and high-pressure Capillary Rheometers, „Extended Security" additionally offers an extension of the warranty by another 24 months if the reliability of the machine is ensured with a maintenance contract (term 36 months from purchase and up to 12 months thereafter) and thus by semi-annual or annual maintenance visits.

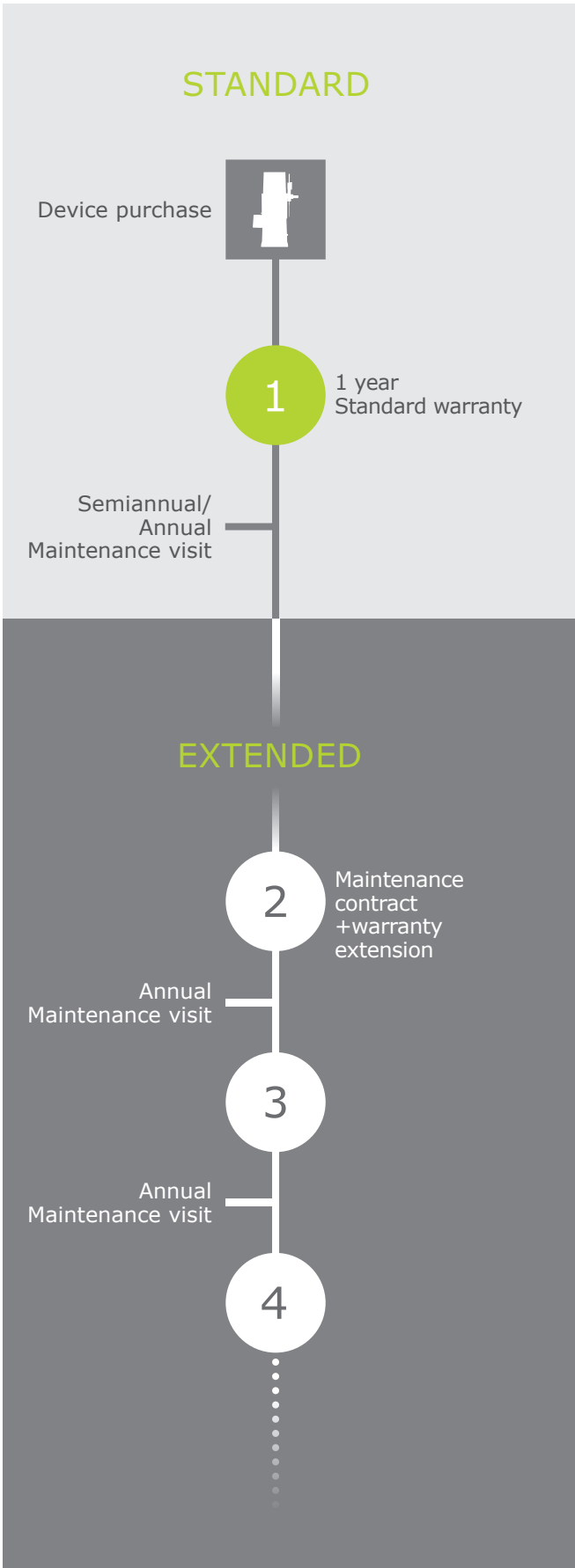
We will be happy to provide you with a customized offer that includes other benefits such as SERVICE BASIC+ or SERVICE ISO 17025, discounted spare parts or priority handling of inquiries. This makes budget and operating costs easy to calculate.

ADVANTAGES

- Cleaning, functional testing, replacement of wear parts* and calibration with certified standards according to the **SERVICE BASIC** maintenance protocol as well as calibration with **SERVICE BASIC+** or **SERIVCE ISO 17025** factory calibration certificate.
- Spare parts and travel costs are included in SERVICE BASIC (excluding consumables and wear materials* as well as user-caused damage or transport costs).
- Extended Security" is available from the date of purchase of the system and for up to 12 months thereafter.
- Individual offers are also available upon request
- Software updates within the software version (subgroup) included
- Software updates according to individual offer

Learn more
goettfert.com/service-contract

* Wearing parts are test barrels, test plungers, nozzles, test plunger holder, touch screen (operating panel), gas pressure spring of the protective hood as well as cleaning tools and cleaning material.



SPECIFICATIONS

Modell	RG20	RG25	RG50	RG75	RG120
Force range	20 kN	25 kN	50 kN	75 kN	120 kN
Test barrel geometry*: 1-Barrel					
9.55mm / 12mm / 15mm / 20mm	•	•	•	•	•
9.55mm / 12mm / 15mm / 20mm / 25mm	-	•	•	•	•
9.55mm / 12mm / 15mm / 20mm / 25mm / 30mm	-	-	-	•	•
Test barrel geometry*: 2-Barrel					
2x 12mm / 2x 15mm / 1x 12mm + 1x 15mm	•	•	•	•	•
2x 12mm / 2x 15mm / 1x 12mm + 1x 15mm / 2x 20mm	•	-	-	-	•
Test barrel geometry*: 3-Barrel					
2x 12mm + 1x 15mm / 3x 12mm	-	•	•	•	•
2x 12mm + 1x 15mm / 3x 12mm / 3x 15mm / 3x 20mm	-	-	-	-	•
Temperature range: +5 °C higher than room temperature up to 400 °C (option 500 °C)	•	•	•	•	•
Temperature control algorithm, Display +/- 0.01 °C	•	•	•	•	•
Temperature control: 3x Pt100 sensor	•	•	•	•	•
5 Temperature calibration and control data set	•	•	•	•	•
Integrated timer for temperature set value	•	•	•	•	•
Servo drive, resolution 0.0000016mm	0.000053mm	•	•	•	•
Test piston speed range 0.00004 - 40mm/s (0.0024 - 2400mm/min)	0.0001 - 30mm/s	•	•	•	•
Drive torque monitoring and display	•	•	•	•	•
Continuous variable control of test piston movement	•	•	•	•	•
Pressure transducers Accuracy of range	20 - 2000bar 0.2 %	20 - 2500bar 0.2 %			
Force transducers Accuracy class Accuracy (in range from 1 % - 100 %)	20kN 0.02 0.4 %	25kN 0.02 0.4 %	50kN 0.02 0.4 %	75kN 0.02 0.4 %	120kN 0.02 0.4 %
Maximum number of pressure/force transducers	5/2	5/2	5/2	5/3	5/3
Automatic identification of installed pressure transducers	•	•	•	•	•
Adaptive signal processing of pressure signal	+/- 0.005 %				
Device integrated PC with 14.48 cm (5.7") Color-QVGA-Touchscreen	•	•	•	•	•
Microsoft Windows® data base Software "LabRheo" (script capable)	•	•	•	•	•
Measuring mode constant speed or pressure/force	•	•	•	•	•
3 times overload detection	•	•	•	•	•
Power supply 3x 400 V, 3x 230 V, 50/60 Hz	1x 230 V, 50/60 Hz	•	•	•	•
Size (device) width x depth x height	850 x 635 x 1,550mm	1,255 x 600 x 1,739mm	1,255 x 600 x 1,739mm	1,255 x 600 x 1,739mm	1,255 x 600 x 1,739mm
Size (table) width x depth x height	600 x 600 x 550mm	790 x 600 x 620mm	790 x 600 x 620mm	790 x 700 x 620mm	790 x 700 x 620mm
Weight	Approx. 270 kg	Approx. 450 kg	Approx. 480 kg	Approx. 630 kg	Approx. 650 kg
Add-On	Detection of flow instabilities (Shark Skin), Thermal Conductivity, PVT, Die Swell, Pressure dependence of Viscosity (Counter Pressure Chamber)				
Options*	Melt Cutting Unit, Slit Die, RHEOTENS, HAUL-OFF, Thermocouple for determining the melt temperature, External tempering of the test chamber, Corrosion- and wear-resistant test barrel system, Nitrogen purge unit, Pneumatic or battery driven cleaning device				

* Further test barrel geometry, more applications and modifications on request.

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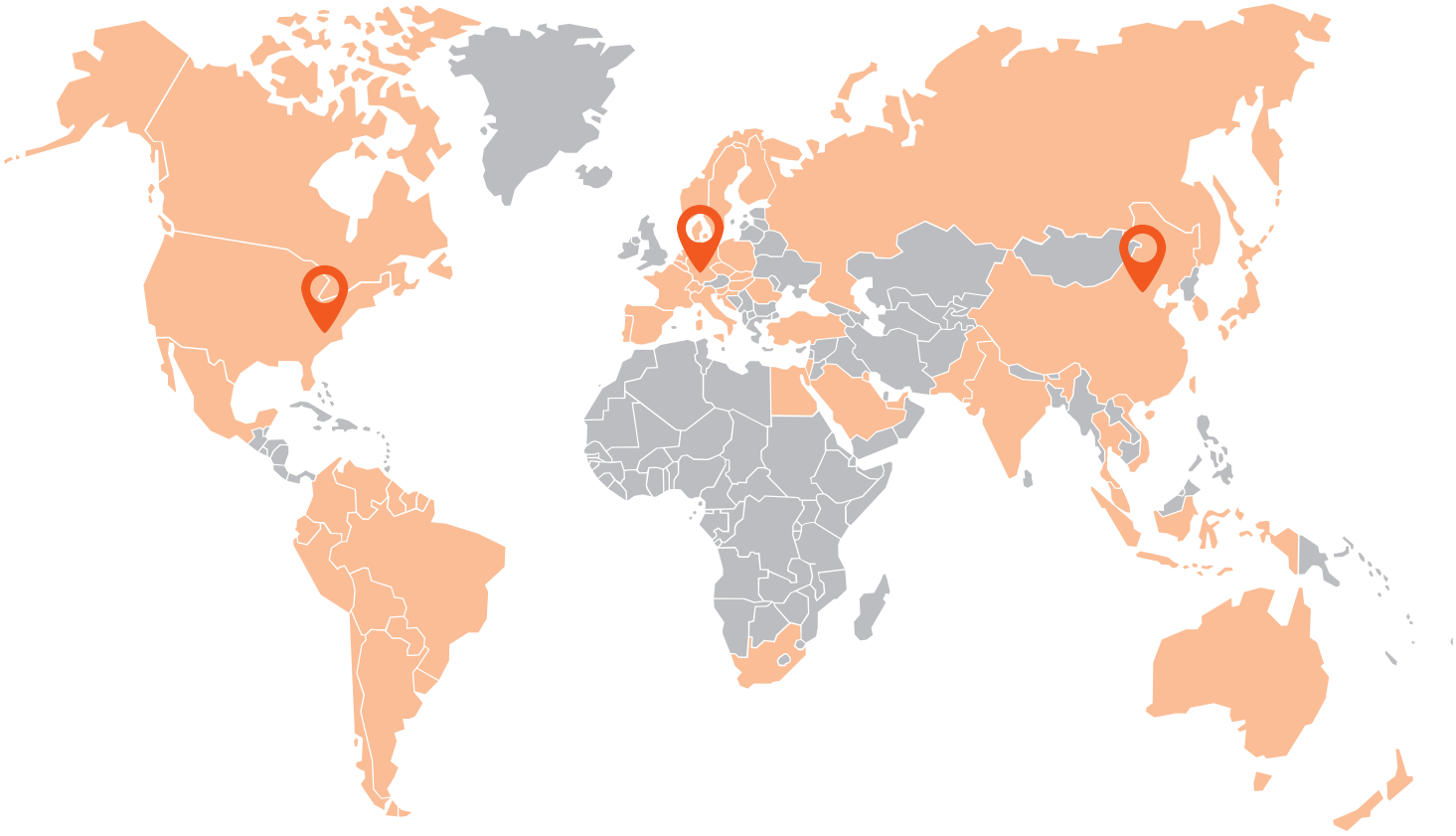
THIS IS RHEOLOGY



GOETTFERT Inc.

Rock Hill, SC 29730
USA
+1 803 324 3883
info@goettfert.com

GÖTTFERT | Werkstoff-Prüfmaschinen GmbH

74722 Buchen
+49 (0) 62 81 408-0
info@goettfert.de

GOETTFERT (China) Ltd.

Beijing 100027
CHINA
+86 10 848 320 51
info@goettfert-china.com

www.goettfert.com