



CAPILLARY RHEOMETER

Capillary Rheometer Serie

Rheograph 20 | 25 | 50 | 75 | 120

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20 KN



20 KN
25 KN
50 KN
75 KN
120 KN

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Basic device RG 20



- High test piston force of 20 KN
- Single-, twin- or triple barrel system
- Ø 9.55, 12, 15, 20 mm design
- Speed range 0.0001 – 40 mm/s
- High dynamic test piston acceleration
- 0 – 40 mm/s in 0.6 sec
- High resolution encoder 0.000053 mm
- Automatic pressure transducer identification

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RG 25 | RG 50 | RG 75 | RG 120



- High test piston force of 25, 50, 75, 120 kN
- Single-, twin- or triple barrel system
- Ø 9.55, 12, 15, 20, 25, 30 mm design
- Speed range 0.00004 – 40 mm/s
- High dynamic test piston acceleration
- 0 – 40 mm/s in 0.6 sec
- High resolution encoder 0.0000016 mm
- Automatic pressure transducer identification



Representantes / Distribuidores Exclusivos

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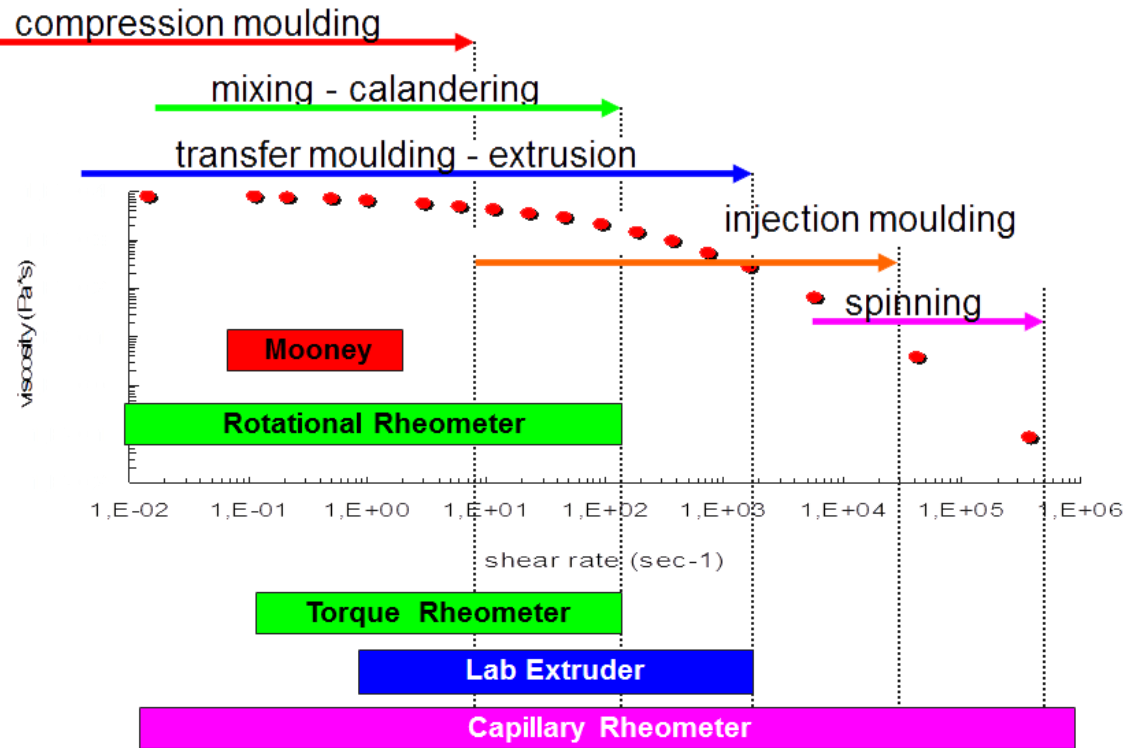
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RG 25 | RG 50 | RG 75 | RG 120

- Test barrel and optional equipment up to 5 pressure transducers and up to 3 force transducers
- Temperature range up to 400°C (500°C optional) via temperature control algorithm
- 5 calibration data sets for any temperature inside of the range (including respective controlling parameter sets)
- Drive torque monitoring and display
- Infinitely variable manual controlling of the test piston
- Integrated timer for temperature set values
- Intelligent Service Monitoring

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Process and measuring window



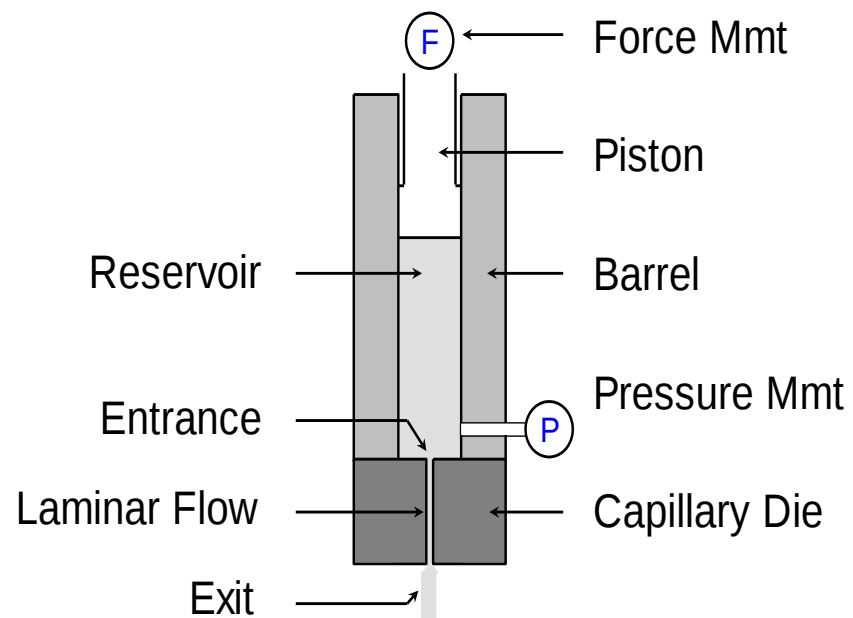
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Shear rate spectrum

	Test piston diameter [mm]				
Capillary [L/D]	12	15	20	25	30
30/0.5	0.36 – 368640	0.576 – 576000	1.02 -1024000	1.6 – 1600000	2.30 – 2304000
30/1	0.046 – 46080	0.072 – 72000	0.12- 128000	0.020 – 200000	0.28 – 288000
30/2	0.005 - 5760	0.009 – 9000	0.016 – 16000	0.025 – 25000	0.036 - 36000

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Single barrel system



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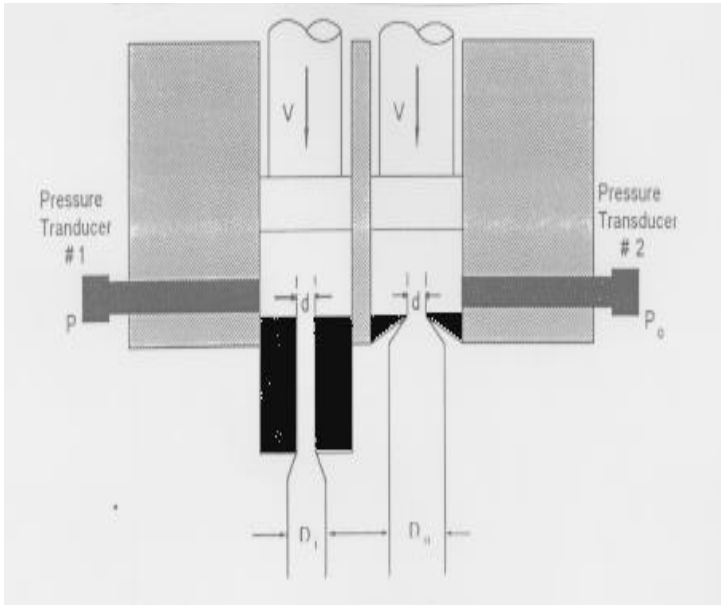
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Twin barrel system

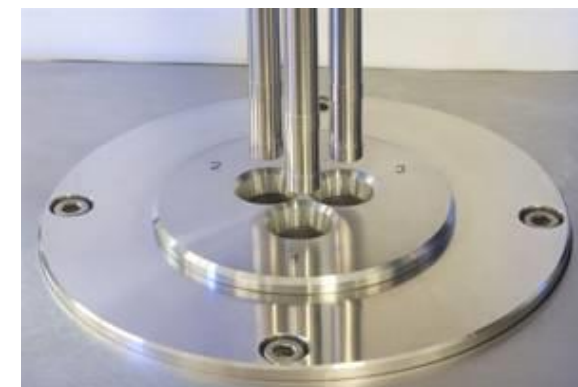
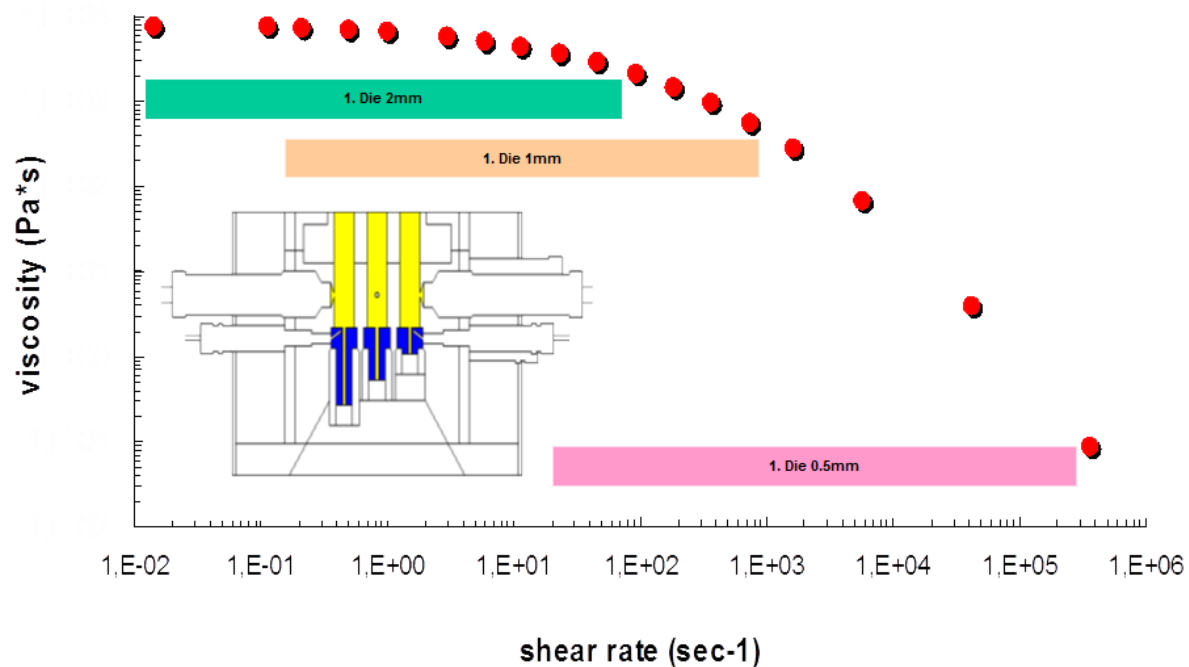


- Interchange any capillaries at any barrel by dual or triple bore system
- Different correction possibilities
- e.g. Bagley & Mooney correction
- Pressure transducer
- Optional melt temperature measurement

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Triple barrel system

- different dies to cover different shear rates with one measurement
- e.g.: 2mm, 1mm, 0.5mm



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Piston / barrel design

Steelgrade	Hardness	Abrasion resistance	Acid resistance	Temperature range / test material
Steelgrade 2	★ ★	★ ★	★ ★ ★ ★ ★	Up to 500°C, e.g. PVDF, PTFE
Steelgrade 3	★ ★ ★	★ ★ ★	★ ★ ★ ★	Up to 500°C, e.g. PVDF (up to 250°C), PVC, PLA, Bio polymers
Steelgrade 4	★ ★ ★ ★ ★	★ ★ ★ ★ ★	★ ★ ★	Up to 500°C, e.g. PEEK, as well as >30% glass fiber filled PA6, PPT and PP
Steelgrade 5 (standard)	★ ★ ★ ★ ★	★ ★ ★	★ ★	Up to 500°C suitable for all thermosets and elastomers without abrasive and aggressive behaviour
Steelgrade 6	★ ★ ★ ★ ★ ★	★ ★ ★ ★ ★ ★	★ ★	Up to 500°C

★ less suitable
★ ★ ★ ★ ★ very good suitable

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Twin and triple die application

L/D - Ratio		Mooney-Correction	Broad Shear Rate Range
Bagley-Correction	0/1 (5/1)	20/1 (10/1)	20/1
		40/2 (20/2)	20/0.5
		(40/4)	(20/2)

Die dimensions in brackets recommended for non-liner correction

- Recommended die for apparent viscosity 30/1 mm
- Suggestion for the capillaries needed to do different tests
- Mooney: Correction of wall slip behaviour
- Bagley: Correction of entrance pressure loss

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Modular platform for advanced material characterization



For more detailed information about different Add-ons, please have a look on our presentation RG ADD-on

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Die Swell Unit



- Calculates die swell value from diameter or surface ratio between die and strand
- Laser Measurement head
- High resolution 0,1 μ m
- Low resolution 0,44 μ m
- Manual cutting of the strand
- Automatic cutting
- Controlled by software via script file
- Evaluation of a die swell profile



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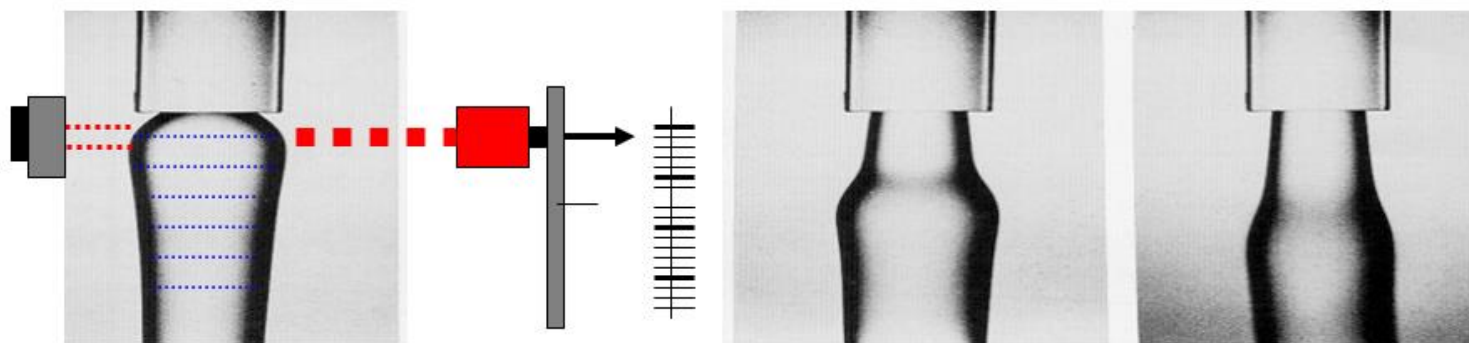
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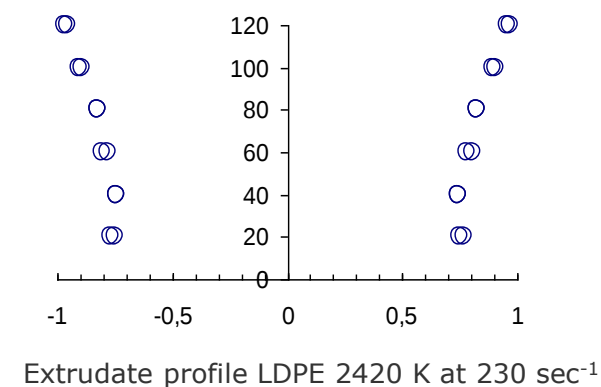
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Die Swell Unit

- Laser Measurement head - adjustable in height
- Maximum of swelling depends on material relaxation



Photographs from H. Giesekus, Rheologica Acta, 8,1968



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Elongation Rheometer

Rheotens

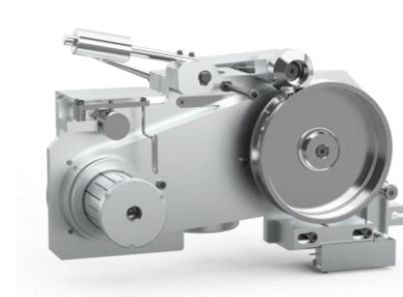
- Elongation viscosity modelling



- Speed: 0-114m/min
- Force Range 2N
- Resolution 1mN
- Feeding by Rheograph or Extruder

Haul-Off

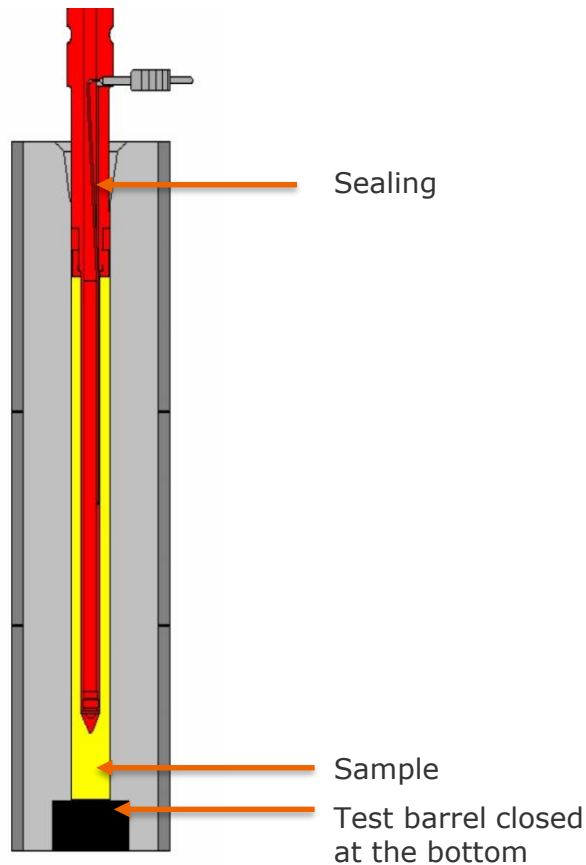
- Standard Haul-Off
- Fibre Spinning



- Speed: 0-2000m/min
- Force Range 1N
- Resolution 0,05mN
- Feeding by Rheograph or Extruder

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Thermal conductivity

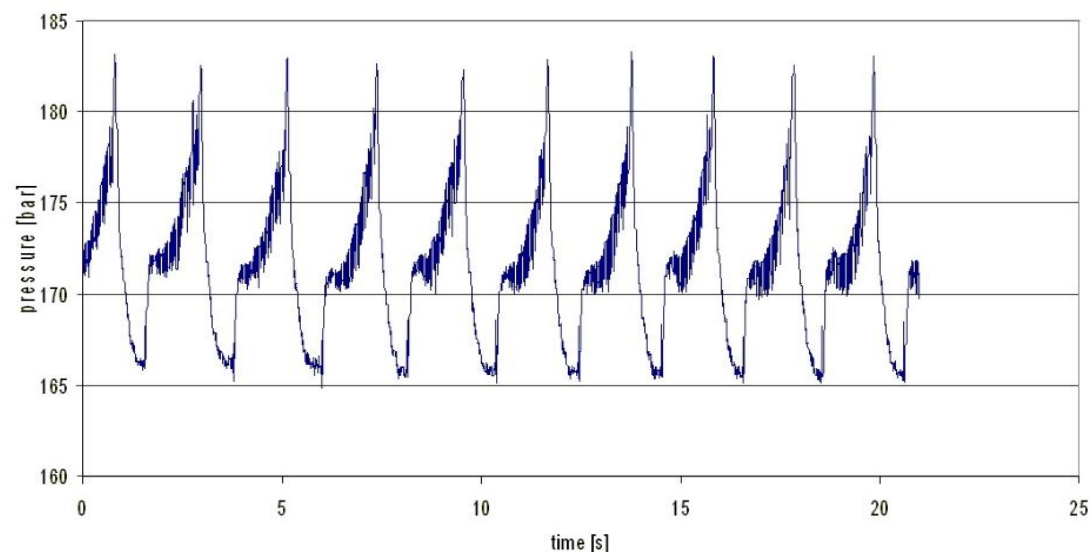
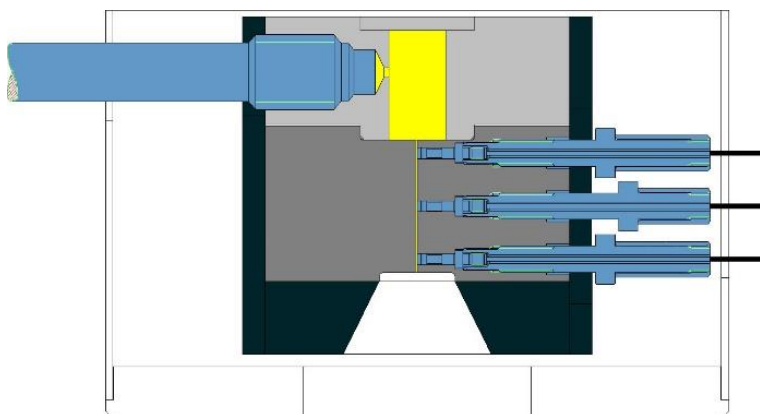


- Based on a test according ASTM D5930
- Evaluation by the software from a single test
- 15 mm bore minimum
- Temperature up to 450°C
- Pressure up to 1000 bar
- Script Generator for automatically test procedure

SHARK SKIN

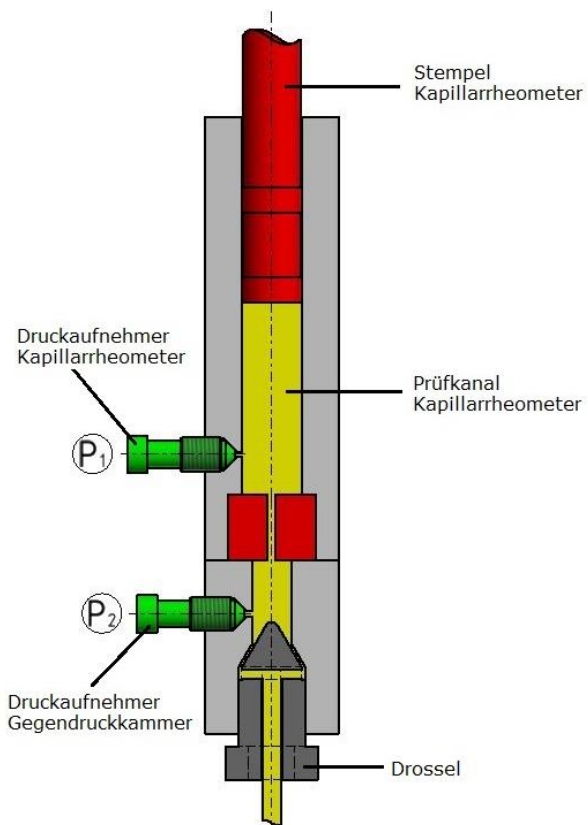
Add-on for Capillary Rheometer

- Measuring cell for detection of the Shark-Skin effect
- Determination of the frequency spectrum and the statistical evaluation of the pressure signal.
- Used for optimization in Extrusion, film and coating process



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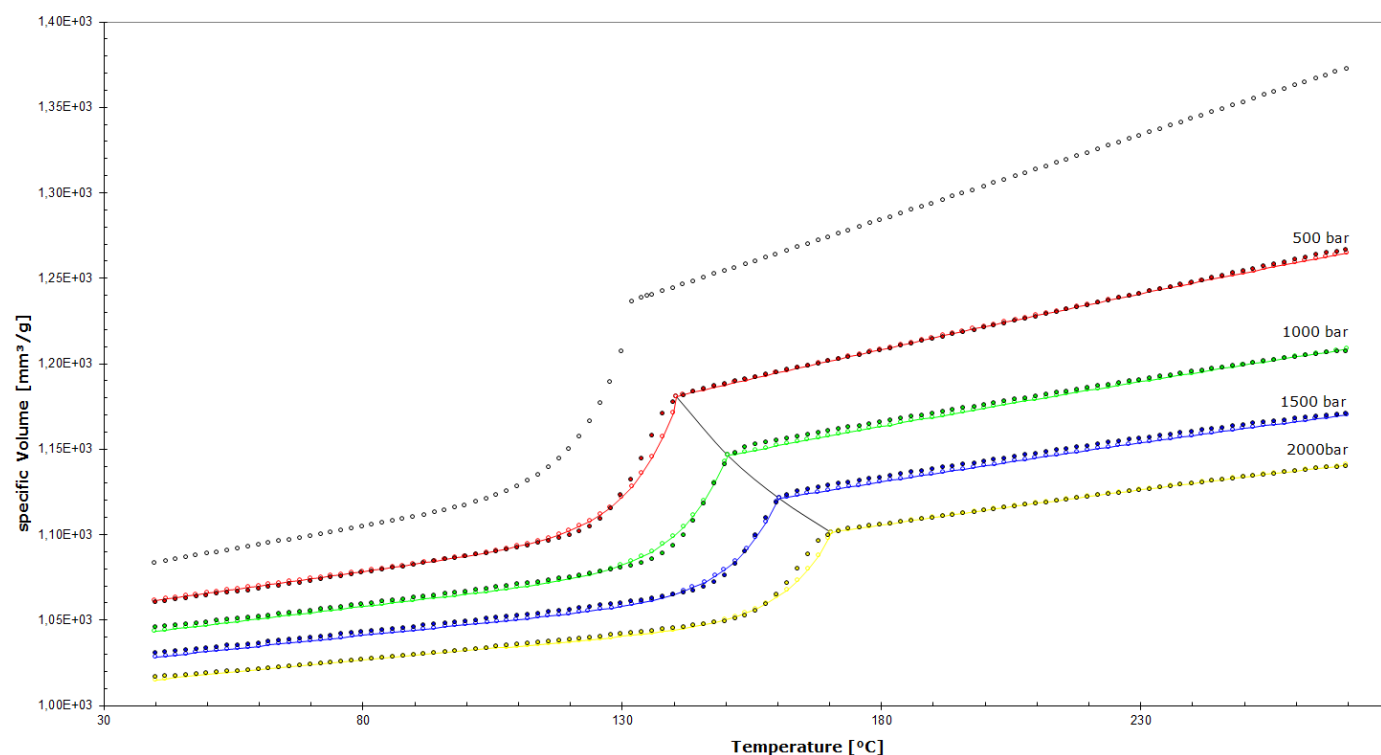
Counter Pressure Chamber



- Pressure dependency of viscosity
- Wall slip behavior
- Process simulation
- Maximum Pressure 1200 bar
- Temperature range up to 400°C

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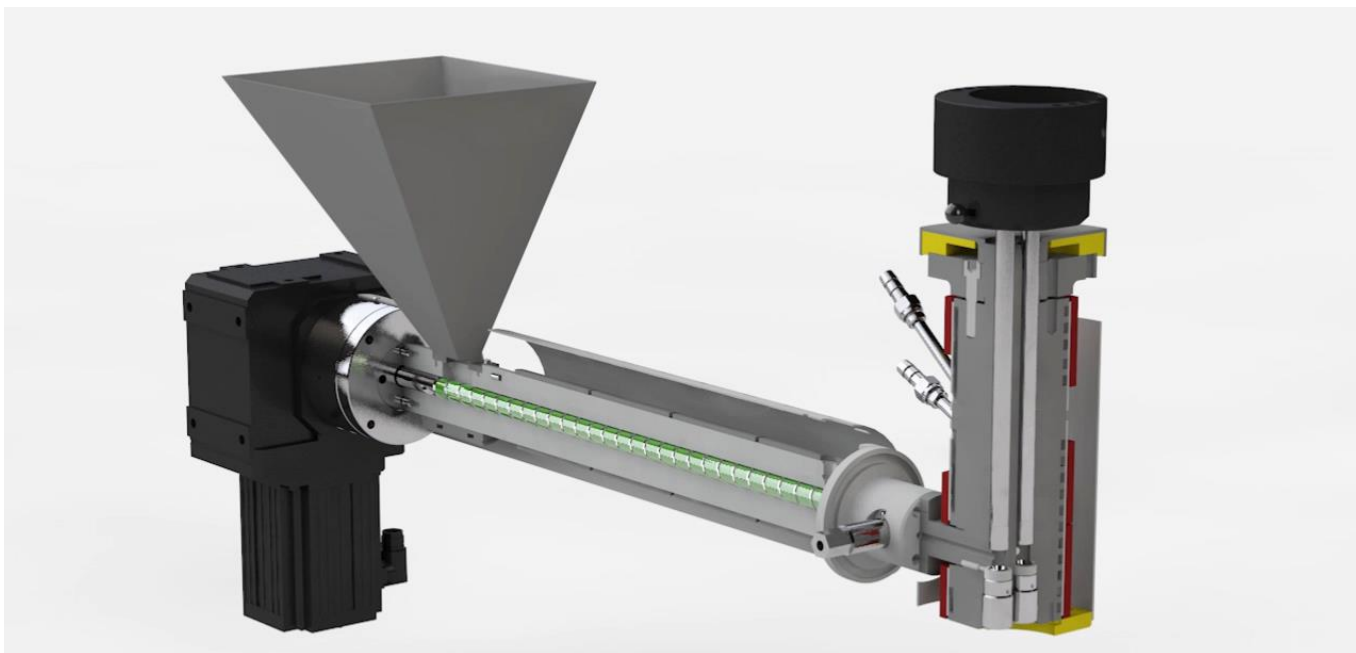
pVT isobaric and isothermal



- According to ISO 17744
- Isothermal (up to 450°C)
- Isobaric (up to 380°C)
- Up to 25K/min

CONTIFEED

Add-on for Capillary Rheometer



- Fully automatic Melt Feeding Unit
- Measuring of non flowing samples
(e.g. PVC)
- Suitable for thermally less stable polymers
and elastomers
- Air bubble free filling
- Shorter heating time, reduced material
residence time

WATCH on YouTube

GÖTTFERT



THIS IS RHEOLOGY



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