

RheoLive – the Online-Rheometer



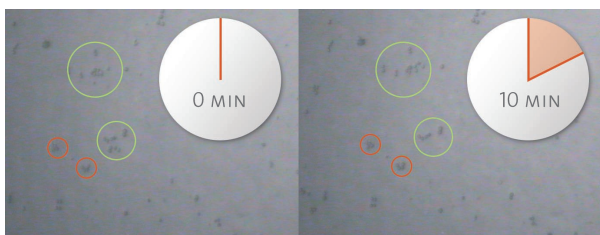
RheoLive is a rheological System including a single examination box. A transparent cone and camera microscope combination are integrated. This offers the possibility to observe and record the incidents during the examination. Consequently the user is able to get a unbroken documentation of the measurement and a temporal attachment with the incidents. Measurements with „before and after pictures“ are bygone.

RheoLive and its applications:

- Cell culture
- Tissue engineering
- Material researches
- Investigations of biocompatibility
- Hemorheology
- Thrombogenesis
- Osteosynthesis

Specials:

All Parameters of the examination box „MainUnit“, e.g. shear stress or temperatur, can be modified and documented individual. This insures the reproduction of all analyse results. The program “RheoControl” guarantees a continuous management of all acquired datas and parameters. The integrated camera microscope combination records single pictures, sequences or short movies on demand during the measurement. The cone plate arrangement can be equipped with plates of any material.



Online picture via Rheocontrol at the Start.

Online picture via Rheocontrol after ten minutes exposure time.

Customizing:

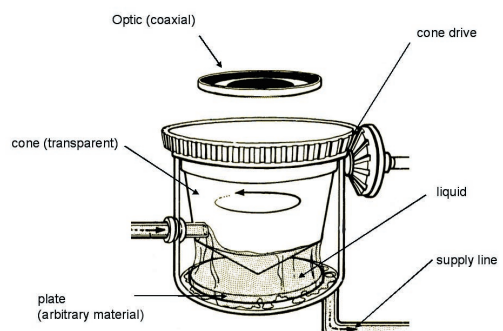
RheoLive can be altered to customers requirements in different ways:

- Integration of High-End-Visualization tools
- Integration of an injection port
- Improved data check
- Increased grade of automation
- Integration of further Sensors, e.g. pH, pO₂..
- Integration of permeability measurement (see NanoPerm)



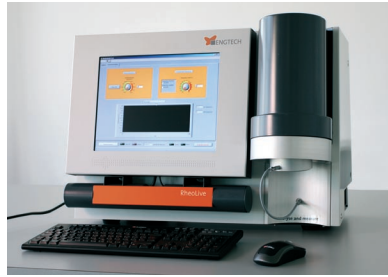
Principle of the cone plate rheometer:

The cone plate core of the system is shown on the picture. The plate is fixed and is made of the material to be tested. The liquid between cone and plate either contains cell culture media with cells in order to asses the adherence of the cells to the plate surface, while the cone is rotating or at rest. Alternatively the liquid contains whole blood or parts thereof (e.g. platelets) making the examination of clotting/thrombus formation, erythrocyte destruction (hemolysis), or the complement activation possible. Of course it is possible although to grow cells on the plate first under stational conditions and than to expose the cells on the biomaterial surface to different levels of shear stress.



Principle view of the inner structure of RheoLive

Technical data



System performance RheoLive:

Sheer stress range:	0,5..25 dyn/cm ² (default)
Sheer stress steps:	0,1 dyn/cm ²
Temperature range:	Room temperature .. +50 °C
Temperature steps:	0,1°C
Picture formats:	TIFF, BMP, JPG
Min. sequence range:	1 pic. per hour
Max. sequence range:	4 pic. per hour
Pixels per picture:	752 x 564 Pixel
Zoom factor range:	ca. 80x ... 1000 (depending to monitor resolution)
Motor drive zoom:	possible
Autofocus:	possible
Monitor:	15"-TFT

Circuit points and power:

Supply voltage:	230V~
Power consumption:	300VAC
Monitor:	15"-TFT
Periphery ports:	1x USB
Additional ports:	RS232, Ethernet (RJ45), PS2

Component and System cleaning:

Glas cone:	sterilizable
Examination unit (taken apart):	all components sterilizable
System surfaces:	washable with alcohol

Measure and weight:

Width/Depth/Hight	650 mm/400 mm/500 mm
Weight:	ca. 30 kg
Needed floor space:	800 mm/600 mm