

Success can be measured.

Quartz Viscosimeter QVis // **highly accurate online viscosity measurement**

The Quartz Viscosimeter QVis was developed by flucon fluid control GmbH and is a measuring system that is based upon an oscillating quartz that is immersed into a fluid. The oscillation is created by applying a high-frequent electrical field, where the specific influence on the oscillating behavior in the respective measuring fluid defines the viscosity. This patented method that is proven well in practice makes the QVis a unique measuring device that opens up new possibilities for the determination and the control of viscosity.

The high-shear rate enables measurements without any unwanted temperature changes and without a molecular destruction of the test fluid. The operator can either choose to use the QVis in a stand-alone mode, or a PC / Laptop can be connected to the QVis; an intuitively-operated software that is provided with every flucon QVis then allows the monitoring, control and the processing of the measured values. For connecting the QVis to the computer, the operator can either use the analog interfaces of the QVis or the standard digital interface (RS 232).

Keep control of your fluid viscosity at all times. With QVis from flucon.



Viscosimeter QVis // Features

- // easy to handle
- // short set-up and measuring times (no problems with filling up defined gaps)
- // high reproducibility (approx. 99%)
- // high shear-rates (ca. $3,5 \cdot 10^5 \text{ s}^{-1}$) without any molecular destruction of the test fluid
- // no temperature effect on the fluid
- // only small sample sizes required for measurements (approx. 50 ml)
- // classification of newtonian and non-newtonian fluids even for small amounts of non-newtonian components
- // compact design
- // standard digital interface (RS 232) for connecting the QVis to a PC
- // other programmable standard interfaces (0 - 10 V or 4 - 20 mA) for process management
- // large measuring range (2 to 10.000 mPas) without changing the measuring insert
- // determination of the viscosity independent of the type or direction of flow
- // simultaneous measurements of viscosity and temperature

Viscosimeter QVis // Technical Specifications

Power supply	110-240 V, 50/60 Hz
Energy consumption	<10 W
Viscosity range	1 to 10.000 mPas
Repeatability	+/- 1 % deviation from the displayed value
Precision	+/- 2 % deviation with reference oil calibration
Response time	approx. 15 s
Frequency	approx. 56 kHz
Shear rate	approx. $3,5 \cdot 10^5 \text{ s}^{-1}$
Sensor consumption	<100 mW
Temperature range sensor	-20°C to 120°C (optionally up to 300°C)
Pressure range sensor	16 bar (optionally up to 10.000 bar)
Temperature measurement	PT100 (4-wire technology), +/- 0,1°C
Data communication (computer)	RS 232 interface
Dimensions electronic unit (LxWxH)	330 x 290 x 145 mm
Dimensions sensor	immersion depth 50mm, custom-made sizes available upon request



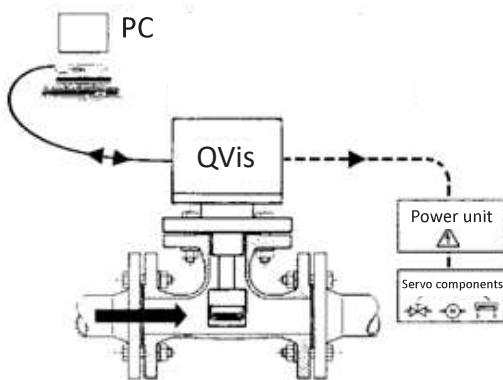
flucon's QVis is more than just a viscosity sensor.

When used in laboratory, the quartz viscosimeter QVis creates new possibilities in the **development of fluids**. In test facilities, QVis enables a quick and reliable quality control, and inserted as an online-measuring device, QVis optimizes **process control** as well as **quality assurance**.

Viscosimeter QVis // Versions and application possibilities

flucon's QVis is available in **two versions**: one version is the **online-viscosimeter QVis 01/o** designed for process monitoring and process control. For the application in laboratory and test field, a **fully automatic hand viscosimeter QVis 01/L** is provided. Both systems distinguish themselves from other viscosimeters due to their highly accurate measuring procedure, their easy handling and their high operational safety. Each QVis is comprised of two components: both the laboratory and the process version come with a basic unit equipped with an electronic control and evaluation system on the one hand and the sensor which surrounds the quartz on the other hand. When connecting the measuring system QVis to a computer, a convenient, user-friendly control software program is available for automating the measuring process and the processing of data. There is the option for an analog output of temperature and viscosity, and furthermore a standardized serial interface can be programmed by the user for specific process management.

Process Viscosimeter Type QVis 01/o

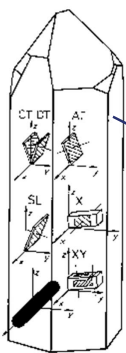


The quartz viscosimeter QVis 01/o (**online-viscosimeter version**) is suited for continuous process monitoring and process control. The device consists of two components: the basic unit and the measuring head; this head comes along in a 1" coupling and allows a maximum flexibility concerning the mounting position of the sensor. Since viscosity measurement with QVis is **independent of the kind of flow**, the mounting can be realized in any pipe system, with various flow conditions.

The measurements and the processing of data are carried out by the QVis basic unit; **two analog interfaces** or the **digital interface RS232** can be used for communication purposes with a computer.

In order to ensure maximum operating safety, the device was developed in a way that voltage fluctuations or even power cuts do not harm the device and do not lead to longtime sensor failure. Thanks to the self-regulating ability of the QVis, the measuring process including the user-specific parameters is simply started over. The device furthermore offers the possibility to save important parameters in a non-volatile memory which can be overwritten by the user any time.

The integrated controller output (RS 232 / 0 to 10 V / 4 to 20 mA) is of special significance since it enables the online-viscosimeter to autonomously activate the various regulating units for purposes of process monitoring and process control.



// the Sensor

The core of the patented measuring system is an oscillating quartz which is constituted by a synthetically produced piezoelectric crystal.

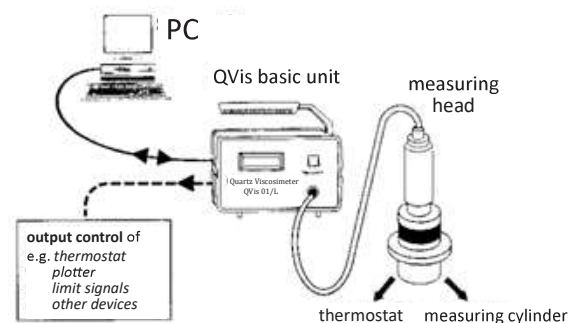
The QVis sensor is characterized by its suitability in the area of viscosity measurements under **high pressure** (up to 10.000 bar) and **high temperatures** (up to 2500°C) as well as its broad chemical resistance.

A compact table housing encloses the basic unit of the **laboratory version** of the QVis viscosimeter. The ergonomically shaped measuring head is attached to the basic unit by means of a flexible plug connection.

The handling of this measuring system is very easy, and the required set-up time is kept at minimum – there is no need for a complicated fluid preparation, the **complete immersion of the torsional quartz** is the only precondition for quick and reliable measuring results.

The quartz viscosimeter opens up new possibilities as it offers accurate viscosity measurement in a large measuring range (**2 to 10.000 mPas**) without requiring a change of the measuring equipment.

Laboratory Viscosimeter Type QVis 01/L



>> Please do not hesitate to contact us for additional information on the QVis system – we are looking forward to your inquiry!

Hightech made by flucon.

flucon // Our Company

The company flucon fluid control GmbH, situated in the Harz mountain area in the northern part of Germany, is dedicated to capture and to handle material properties of liquids with a special focus on thermal conductivity and viscosity of fluids. The development, construction and distribution of measuring devices to determine properties of liquids as well as supporting services in this field are objects of the company. Flucon fluid control GmbH was founded in 1991 by graduates and former members of the Institute of Tribology & Machine Kinetics of the Technical University of Clausthal, Germany.

flucon // Our Product Range

- // viscosimeter **QVis** for use in laboratory and field
- // aeration measurement system **CGS** for the inline determination of external gas content in fluids
- // in development: compact oil aeration unit **FOAM** (2017)
- // measuring system **LAMBDA** for the determination of thermal conductivity of fluids
- // highly accurate process measuring technology
- // analysis of fluid properties in our unique **flucon high pressure laboratory**
- // development and advisory service for customer-specific problems

// Contact

flucon fluid control GmbH
Hauptstrasse 114
D-37520 Osterode am Harz / Freiheit
Germany
phone: +49 55 22 95 57 006
fax: +49 55 22 95 59 085
email: info@flucon.de

www.flucon.de 

founder and CEO: Dr. Ing. Berthold Bode
Commercial Register entry: HRB4124
/ District Court of Clausthal-Zellerfeld (Germany)
VAT ID: DE1155380721