

More than
50 years
experience

brabender
Messtechnik®



Measure Process Viscosity Reliable

CONVIMETER®

Brabender Messtechnik®
GmbH & Co. KG

CONVIMETER®

Why use a CONVIMETER®?

The **CONVIMETER®** records viscosity efficiently in process of fluids and pastes and can be used for adjustment control, also. Therefore it is a necessary auxiliary system for quality control.

The substances can be of low and high viscosities but also newtonian and non-newtonian. Special for non-newtonian fluids it is necessary to record the behaviour of the whole structure of the medium. This is the advantage of **CONVIMETER®**.

Advantages

Laboratory measurements are time-consuming and laborious. The **CONVIMETER®** provides results in a fast and simple way.

The measurement is achieved with a macroscopic shear and low shear rates guaranteeing accurate determination of rheological characteristics.

No bearings or moving seals in contact with substance.

The circular motion of the sensor gives a pumping effect that provides a quick exchange of substance.

Disturbances by granular particles are suppressed, no influence of magnetic particles.

Measuring Principle

A sensing device (1), moved by a drive shaft (2), moves on a circular route (3) within the substance being monitored. Because of the inclined position of the device it may be called a gyratory motion.

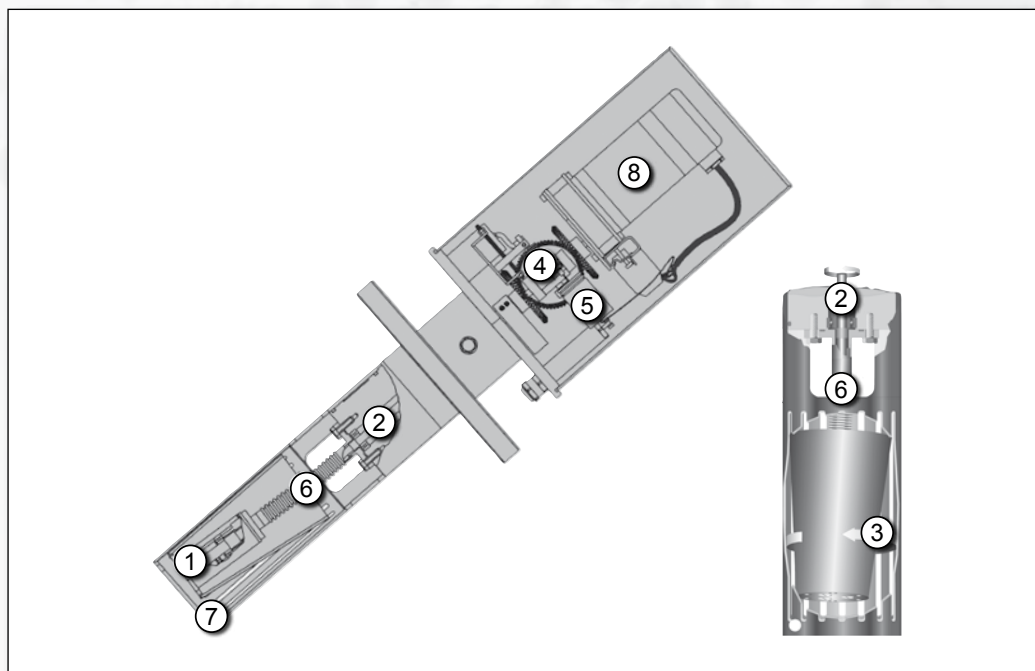
The torque transmitted by the drive shaft is proportional to the viscosity of the substance. A differential gear with a metering spring (4) and an inductive transducer (5) detects the torque.

A flexible metal bellow (6) surrounding the drive shaft forms a seal which is not only frictionless but also temperature and pressure resistant.

The torque is developed in the small gap between the conical mantle of the sensing device and the protection sheath (7).

The protection sheath also eliminates the influence of flow within the substance.

The maintenance-free motor (8) is enclosed within the removable head.



The new design of a separated operation-terminal and electronic makes installation more flexible.

The **CONVIMETER®** operation-terminal has a touch screen with a self-explaining menu and can be run without any special knowledge.

The well engineered software of the prior control unit version has been simplified and any wellknown options are displayed, furthermore.

Viscosity is shown in mPas or Pas, alternatively in cP or P, additional is the measurement signal displayed in % torque, too. Temperature is shown simultaneously if a thermometer Pt 100 is installed near the sensor head. Also different auxiliary units are shown.

Advantages of the digital version

- Automatic adaptation of the number of resolutions to the viscosity
- Automatic calibration of the zero point with an Auto-Zero-function, which corrects the influence of temperature on the zero point
- Temperature compensation of the viscosity according to procedures

The **CONVIMETER®** is used in very different industrial processes - for measurement of viscosity to determine quality and for control of process. The success of the **CONVIMETER®** becomes evident in more than 1400 applications in industries as

- chemical
- petrochemical and refining
- food and beverages
- paper
- body care

and many others.

Dimensions

	D	L1	L2	L3
NW 50 / NW 80	48 / 69	344 / 354	95 / 120	175 / 180
NW 50 / NW 80 Ex	48 / 69	545	95 / 120	175 / 180
NW 50 P / 80 P	48 / 69	569 / 545	160 / 187	200
NW 80 L	79	354	120	230
NW 80 PL	79	545	187	245

All dimensions in mm



Operation-terminal CV-T

CONVIMETER® type L for low viscosities

Lowest range:

0 - approx. 35 mPas

CONVIMETER® type H for high viscosities

Highest range:

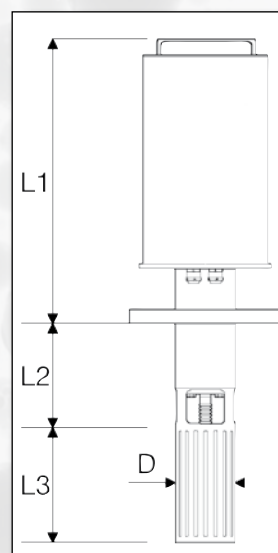
0 - approx. 10⁷ mPas

CONVIMETER® type P for high pressure

Type P is suitable in a pressure range of 10 to 150 bar. The sensor is encapsulated in a pressure resistant membrane which is filled with silicone oil and thus pressure compensated.

CONVIMETER® type EHEDG

For higher requirements according the hygienically cleaning process, the **CONVIMETER®** is available in an EHEDG accordant and certified version.



Dimensions

The standard measuring head of the **CONVIMETER®** can be mounted in any position. Only in case of high temperatures above approx. 130 °C a minimum angle of 10° with the horizontal (3) shall be kept.

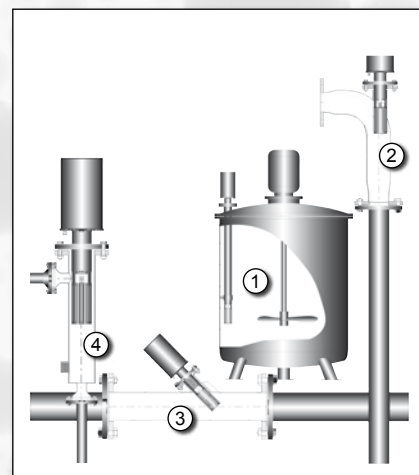
In pipe lines mounting is simply done in an elbow pipe (2). In case of small diameters or online applications a measuring pot (4) should be installed.

In open tanks and batch mixers the head can be provided with an extension tube (1), if mounting into the wall of the container is not possible.

The detecting zone of the head shall be submerged into the medium up to 180 mm. Flow rate should not exceed 0,5 m/s.

The **CONVIMETER® NW 50** measuring head is supplied with a flange DN 50 and the **CONVIMETER® NW 80** accordant with a flange DN 80.

For the food industry it can also be provided with screw cap according DIN 11851 or an aseptic flange according DIN 11864.



Installation examples

Technical data

Measurable Viscosities	Approx. 5 - 10 ⁷ mPas newtonian and non-newtonian fluids
Measuring Range	Standard type approx. 50 - 2 * 10 ⁵ mPas within several sub-ranges Special versions for low and high viscosities
Accuracy	± 1% of full scale, ± 1 mPas abs.
Indication	Viscosity in mPas, Pas, cP, P, torque in % Optional temperature in °C
Range of Pressure	Vacuum to 10 bar, optional up to 150 bar
Range of Temperature	Max. 300 °C
Material	Parts in contact with fluid, stainless steel DIN 1.4571 Other materials optional
Output Signal	0 - 20 mA, 4 - 20 mA, optional: Modbus Bus Coupler
Power Supply	115 V, 230 V, 50 and 60 Hz
Protection	Measuring head: IP 54 Optional: II ½ G EEX ed IIC T4 (Zone 0) Optional: Ex NEPSI or Ex Kosha Electronics: IP65
Dimensions (W x H x D)	Electronics: 230 x 330 x 111 mm Terminal: 172 x 145 x 42 mm Measuring head: see inside
Special version	Optional L, H, P, EHEDG

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