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**Tarif HAAKE- Viscosimètre VT 6/7 ( plus )**

Référence	Libellé	Prix HT
	<b>Pour basse viscosité</b>	
	<b>HAAKE Viscotester 6/7L ( plus ) et accessoires</b>	
387-0100	Viscotester <b>VT6-L plus</b> (100-240V/50-60Hz) avec support, rotors L1 à L4, support, garde de protection pour rotors, mode d'emploi et valise, version L pour viscosité basse de 3 - 6 000 000 mPas	<b>3.291,00</b>
389-0100	Viscotester <b>VT7-L plus</b> (100-240V/50-60Hz) avec support, rotors L1 à L4, support, garde de protection pour rotors, mode d'emploi, valise et Pt100, version L pour viscosité basse de 3 - 6 000 000 mPas	<b>3.834,00</b>
098-5037	RheoWin logiciel de pilotage et de traitement de données pour VT7-L plus ( avec câble )	<b>932,00</b>
222-1380	Pied Hélipath (230V/50Hz) avec servomoteur pour travailler en pénétration sur la partie non cisailée de l'échantillon	<b>2.015,00</b>
222-1379	Adaptateur pour viscosité faible	<b>1.650,00</b>
222-1378	Adapateur pour faibles volumes	<b>1.657,00</b>
222-1397	Jeu de rotors VT6/7-L pour adaptateur pour faibles volumes 222-1378	<b>767,00</b>
222-1398	Jeu de rotors pour VT6/7-L ( plus ) : L1-L4	<b>848,00</b>
222-1661	Rotor L1 pour Viscotester 6/7L	<b>248,00</b>
222-1662	Rotor L2 pour Viscotester 6/7L	<b>172,00</b>
222-1663	Rotor L3 pour Viscotester 6/7L	<b>172,00</b>
222-1664	Rotor L4 pour Viscotester 6/7L	<b>172,00</b>
739-3151	Pt100 sonde de température pour Viscotester 7	<b>353,00</b>
222-1701	Pt100 sonde de température pour Viscotester 7 plus	<b>372,00</b>
999-0118	Imprimante à jet, uniquement pour Viscotester 7 Plus, avec indication de la date, l'heure, la viscosité, la température ( si Pt100 ) et de la vitesse de rotation	<b>685,00</b>

## Tarif HAAKE- Viscosimètre VT 6/7 ( plus )

### Pour moyenne viscosité

<b>HAAKE Viscotester 6/7R ( plus ) et accessoires</b>		
388-0100	Viscotester <b>VT6-R plus</b> (100-240V/50-60Hz) avec support, rotors R2 à R7, support, garde de protection pour rotors, mode d'emploi et valise, version R pour viscosité moyenne de 20 - 40 000 000 mPas	<b>3.297,00</b>
390-0100	Viscotester <b>VT7-R plus</b> (100-240V/50-60Hz) avec support, rotors R1 à R4, support, garde de protection pour rotors, mode d'emploi, valise et Pt100, version R pour viscosité moyenne de 20 - 40 000 000 mPas	<b>3.833,00</b>
098-5038	RheoWin logiciel de pilotage et de traitement de données pour VT7-R plus ( avec câble )	<b>932,00</b>
222-1380	Pied Hélipath (230V/50Hz) avec servomoteur pour travailler en pénétration sur la partie non cisailée de l'échantillon	<b>2.015,00</b>
222-1379	Adaptateur pour viscosité faible	<b>1.650,00</b>
222-1378	Adaptateur pour faibles volumes	<b>1.657,00</b>
222-1387	Jeu de rotors VT6/7-R pour adaptateur pour faibles volumes	<b>779,00</b>
222-1396	Jeu de rotors pour VT6/7-R ( plus ): R2-R7	<b>1.002,00</b>
222-1395	Rotor R1 pour VT6/7-R	<b>301,00</b>
222-1655	Rotor R2 pour VT6/7-R	<b>172,00</b>
222-1656	Rotor R3 pour VT6/7-R	<b>172,00</b>
222-1657	Rotor R4 pour VT6/7-R	<b>172,00</b>
222-1658	Rotor R5 pour VT6/7-R	<b>172,00</b>
222-1659	Rotor R6 pour VT6/7-R	<b>172,00</b>
222-1660	Rotor R7 pour VT6/7-R	<b>172,00</b>
739-3151	Pt100 sonde de température pour Viscotester 7	<b>353,00</b>
222-1701	Pt100 sonde de température pour Viscotester 7 plus	<b>372,00</b>
999-0118	Imprimante à jet, uniquement pour Viscotester 7 Plus, avec indication de la date, l'heure, la viscosité, la température ( si Pt100 ) et de la vitesse de rotation	<b>685,00</b>

#### **Conditions de vente 2007**

Colonne Prix euro HT = prix de vente HORS TAXES, TVA 19,6% en sus

Frais transport si commande < 400,00 EUR

25,00 EUR

Paiement: 30 jours date de facture

Installation et mise en route sur site: demandez notre tarif

**GARANTIE: UNE ANNEE CONTRE TOUT VICE DE FABRICATION**

## ViscoTester® 6/7

### Application

The fastest way to carry out viscosity measurements is by using a rotational viscometer. Another advantage is the simple and easy-to-clean geometry of the rotors that are in contact with the fluid. This is especially true for the ViscoTester, which is the reason why this instrument is often favored for quick quality control applications.

### Measuring principle

The ViscoTester is a classical rotational viscometer that measures the resistance of a test substance against a pre-set speed. The resulting torque or resistance is the measure for the viscosity of the fluid. The higher the torque, the higher the viscosity. Due to the standardized geometry, the generated shear rates can only be determined exactly for Newtonian substances.

### Compatibility

The basic standard ISO 2555 describes the design and the characteristic measurement technique of a viscosity measuring instrument (torque, speed, rotor geometry). If a rotational viscometer meets these requirements, it complies with the Brookfield method and is 100% compatible as long as comparable versions are used. This is the reason why many instrument manufacturers use our designations such as:

**L** - for low-viscous substances  
**R** - for medium-viscous substances

### Version L or R

# L

is mainly used for low-viscous substances such as diluted solutions, oils, dispersions and emulsions. Milk-like fluids (2-5 mPas) may be considered the lower viscosity limit and the recommended upper limit can be described using products like motor oil. Measuring range is from 3 - 2 000 000 mPas.

# R

is the "standard" viscometer for 80% of all viscosity measurements. It is especially suited for the medium viscosity range extending from sewing machine oil up to PVC plastisols or whipped cream.

### ViscoTester 6

- RS232 interface to transfer data to a PC or printer
- Windows-based RheoWin software (optional) to present and evaluate data
- Bi-directional RS232 interface to control the instrument and transfer data to PC
- Windows RheoWin software (optional) to run the device, present and evaluate data
- Temperature sensor Pt100 to monitor the sample temperature

### Common features

- Complete package; switch on and measure viscosity
- Digital display of viscosity, % torque, speed and rotor number
- Digital display of the sample temperature (only VT7)
- Complete instrument diagnosis when switching on and warning of malfunction
- Visual and acoustic signals at critical measuring conditions

- Warning in case the permitted measuring range is exceeded
- Digital calibration of the "torque" with "national traceable standards"
- Digital speed control with "built-in" accuracy via a step motor
- Non-contact, electro-optical torque measuring system with high accuracy without the risk of wear and tear

### Two-year warranty

Due to these superior technical features and our confidence in this instrument, the ViscoTester comes with a 2-year warranty. The ViscoTester 6/7 is the most stable measuring instrument in its viscometer class



### Standards

Many national and international standards describe viscosity measurements according to the Brookfield method. The ViscoTester meets the following standards:

BS: 6075, 5350  
ISO: 2555, 1652  
ASTM: 115, 789, 1076, 1084, 1286, 1417, 1439, 1638, 1824, 2196, 2336, 2364, 2393, 2556, 2669, 2849, 2983, 2994, 3232, 3236, 3716

**Technical Data**

● **Ambient conditions:**  
The instruments can be used at ambient temperatures from +10°C to +40°C and a relative humidity of up to 80%. The power supply should be between 110 - 240V/50-60Hz.

● **Display:**  
 $\eta$  dynamic viscosity in mPas  
 $\% \tau$  torque in % of the max. limit value  
 $n$  speed in rpm  
 $\#$  number of the selected spindle  
 $T$  temperature in °C (only VT7)

● **Speeds:**  
All models have the following standard speeds (rpm):

0.3	0.5	0.6	1
1.5	2	2.5	3
4	5	6	10
12	20	30	50
60	100	200	

Accuracy: better than +/- 0.5% of the absolute value

● **Torque:**  
The versions L and R differ in the torque range roughly by a factor of 6. The value displayed is measured with a maximum uncertainty of +/- 1 % in relation to the full scale (100%).

● **Viscosity range:**  
Apart from the following theoretical viscosity ranges, practical considerations also should play a role for the instrument selection.  
accuracy: +/- 1% of full scale  
reproducibility: +/- 0.2 %

**Version L:**  
3 - 2 000 000 mPas  
in 76 ranges  
(19 speeds with 4 spindles for low to medium viscosity test fluids)

**Version R:**  
20 - 13 000 000 mPas  
in 114 ranges  
(19 speeds with 6 spindles for medium to higher viscosity test fluids)



**VT6 R with standard accessories**

**Options:** For special measuring requirements the following accessories are recommended to be used with the standard ViscoTester:

**Ordering Information**

The ViscoTester is supplied as a complete instrument in a stable carrying case with multilingual documentation. Standard accessories for each basic instrument are a stand and the measuring spindles with a storage rack.

Order No.	Description
387-0001	ViscoTester 6L (110-240V/50-60Hz); with stand, spindles L1 to L4, rack, spindle guard, and documentation in a case
388-0001	ViscoTester 6R (110-240V/50-60Hz); with stand, spindles R2 to R7, rack, spindle guard, and documentation in a case
389-0001	ViscoTester 7L (110-240V/50-60Hz), with stand, spindles L1 to L4, rack, spindle guard, and documentation in a case. Pt100 temperature sensor standard
390-0001	ViscoTester 7R (110-240V/50-60Hz), with stand, spindles R2 to R4, rack, spindle guard, and documentation in a case. Pt100 temperature sensor standard

Order No.	Description
098-5013	RheoWin data evaluation software for ViscoTester 6L
098-5014	RheoWin data evaluation software for ViscoTester 6R
098-5011	RheoWin control and data evaluation software for ViscoTester 7L
098-5012	RheoWin control and data evaluation software for ViscoTester 7R
799-3151	Pt100 temperature sensor (1/3 DIN) with handle for VT7
222-1380	Helipath stand (230V/50Hz) to penetrate motor driven new test fluid to measure thixotropic fluids more reproducibly
222-1386	Helipath stand (115V/60 Hz) as above
222-1379	Adapter for thin fluids, which extends the measuring range down to the viscosity of water.
222-1378	Adapter for small samples if only 20 cm <sup>3</sup> are available
222-1387	Set of spindles for the adapter with small volume with version <b>R</b>
222-1397	Set of spindles for the adapter with small volume with version <b>L</b>
222-1395	Spindle 1 for version <b>R</b>
222-1396	Set of spindles for version <b>R</b>
222-1398	Set of spindles for version <b>L</b>

## Accessories, Instrument Selection

The selection of a viscometer should not only depend on the price; it also has to be suitable for the special application and substance. The adjacent selection table should facilitate this selection:

CRITERION	Falling Ball C	ViscoTester 01/02	ViscoTester 6/7
Standards	DIN 53015/ ISO 12058	no	ISO 2555
Temperature	-20/120 °C	-20/200°C	-30/300°C
Viscosity from:	0.5 mPas	1.5 mPas (VT01); 30 mPas (VT02)	3 mPas (Type L); 20 mPas (TypeR)
Viscosity up to:	100 000 mPas	330 mPas (VT01); 400 000 mPas (VT02)	2·10 <sup>6</sup> mPas (Type L); 13·10 <sup>6</sup> mPas (Type R)
Flow curve	no	one point	19 points per sensor
Yield stress	no	no	relative determination
Accuracy	+/- 0.5% absolute	+/- 7% of full scale	+/- 1% of full scale
Measuring cycle	5-10 minutes	approx. 1-2 minutes	approx. 1-2 minutes
Power supply	none necessary	battery	100-240 V / 50-60 Hz

### Standard Liquids

According to ISO 9000, measuring devices which are used in the production and quality processes have to be inspected...

- periodically at regular intervals
- with nationally traceable standards

The inspection intervals, criteria and admitted tolerances are defined in the quality handbook of the company using the instrument.

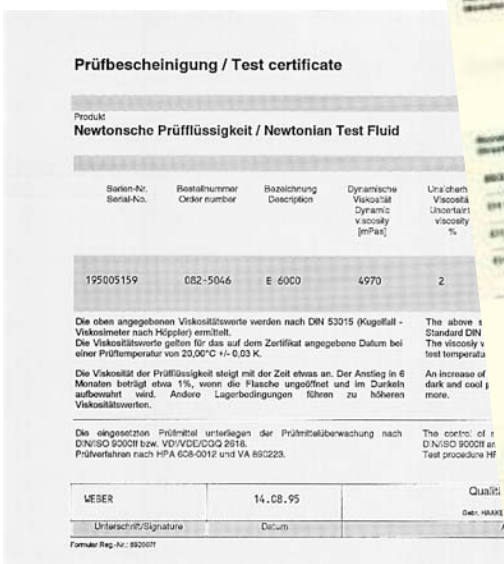
Thermo Haake supplies liquids with a known viscosity for the functional inspection of a measuring instrument. Deviations of the indicated viscosity of up to 3% from the true value are still within tolerance; the viscosity values apply to a reference temperature of 20.00°C.

If a viscometer is to be inspected and calibrated according to ISO 9000, the following standard liquids

(which are recommended for ISO 9000) are to be used:

Order No.	Type	Description	η (20°C)
082-5042	E7	Test fluid 100 ml	5 mPas
082-5043	E200	Test fluid 100 ml	120 mPas
082-5044	E2000	Test fluid 100 ml	1900 mPas
082-5046	E6000	Test fluid 100 ml	6000 mPas
082-5336	E15000	Test fluid 100 ml	15000 mPas
082-5335	E40000	Test fluid 100 ml	40000 mPas

Order No.	Type	Description	η (20°C)
082-5303	100BW	Standard liquid 100 ml	100 mPas
082-5004	2000AW	Standard liquid 100 ml	2000 mPas
082-5005	10000B	Standard liquid 100 ml	100000 mPas



### Service contracts

Thermo Haake manufactures viscometers and rheometers in an ISO 9001 environment to ensure total quality for the products.

The instruments have been designed and manufactured to comply with the standard for "Electromagnetic Compatibility Directive" especially the standards EN 50081, Part 2, EN 50082, Part 2, and EN 55011. All relevant products carry the CE sign.