Building Materials Testing Systems

Schleibinger Geräte Teubert u. Greim GmbH was founded 1995 by Dipl.-Ing. (Univ) Markus Greim, Dipl.-Ing. (FH) Oliver Teubert and the Communication-Technician Anton Schleibinger. Our aim is to develop, build and sell innovative Building Materials Testing Systems.

Most of our products are based on patents of Schleibinger or license contracts with industrial partners and Universities. Schleibinger is focused on special products for the constructing material market, developed and built at our own factory.

Schleibinger develops and produces construction materials testing systems for testing the workability, early strength, shrinkage and durability of paste, mortar, concrete and similar materials.

We are a company that ensures its customers satisfaction through offering high-quality and innovative products. An intensive relationship with our customers and the continuous development of our products are the prerequisites for meeting this demand. As a result of our work, we are providing sofisticated measuring instruments offering an optimum of performance. This applies for our service performances and the individual support service.

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CDF Test Equipment

Apperatus for freeze/thaw test according to CDF / CIF Test RILEM, CEN/TS 12390-9, Cube Test and the following procedures:

- CDF RILEM TC 117 FDC
- CIF RILEM TC 176 IDC
- CF/CDF Test CEN/TS -12390-9 Chapter 7
- Cube Test CEN/TS 2390-9 Chapter 6
- DIN 4226 Leightweight and Recycled Aggregates
- DIN 52104 Testing of Natural Stone Leightweight Aggregates
- USA ASTM C666-2008 Resistance of Concrete to Rapid Freezing and Thawing, Procedure A
- EN 13581 Product and Systems for the Protection and Repair of Concrete Structures
- CEN/TR 15177 2006-06 Testing Freeze-Thaw Resistance of Concrete - Internal Structural Demage
- Önorm 23303 XF1 Freeze-Thaw Resistance

Specifications:
Interior Dimensions: (W x L) 171 x 55 cm,
Temperature Range: -20°..+35°C
Maximal Temperature Deviation: < 0.5 K.
Dimensions (L x W x H): 225 x 85 x 120 cm.
Place Requirement: 350 x 145 cm
Required Fuse: 3 x 32 A ore 3 x 25 A (B) 230/400V (Ask for special voltage.)
Weight: 560 kg
Enviromental Conditions: (without water cooling) 5 - 28°C rel. humidity < 65%,.
Max. waste heat ca. 3 kW/h

CDF Test Equipment	Item No. C0001
Option Air and Watercooling	Item No. C0005
Data Logger and Intranet Access	Item No. C0032
Option Cube Test	Item No. C0124

1. SONOREX SUPER RK 514
Ultrasonic Cleaning Aparatus, for removing loose parts from the concrete surface. Inner size 320x300x150 mm. Including Schleibinger support frame for the specimen containers. HF Power 2 x 450 W

Sonorex RK 514	Item No. C0014

2. Hopper container
Container for 10 hoppers, with water-tap

Hopper Container	Item No. C0017

3. Hopper
150 mm diameter made of PP, for filtrating the weathering

Hopper	Item No. C0018

4. Filter
270 mm, 65 g/m², for sellecting scaled material, 100 psc.

Filter	Item No. C0019

5. Butyl Rubber with Aluminium Foil
Lateral sealing for the CDF specimens. Durable at -20°C, resistant against attack of deicing solution.
Length: 10 m; Width 7.5 cm

Butylband	Item No. C00211

6. Primer for Butyl Rubber
Fluid Can 750ml, 600g, for ca. 10 m², maximal storage period about 6 months

Primer	Item No. C00212

7. Glycol Coolant
10 liter, to adjust the heat transfer medium

Coolant	Item No. C0031

8. Refractometer
For testing of the anti-freezing-properties of the heat transfer medium.

Refractometer	Item No. C0061


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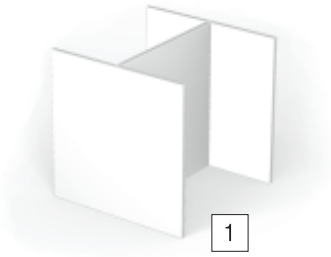
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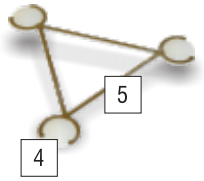
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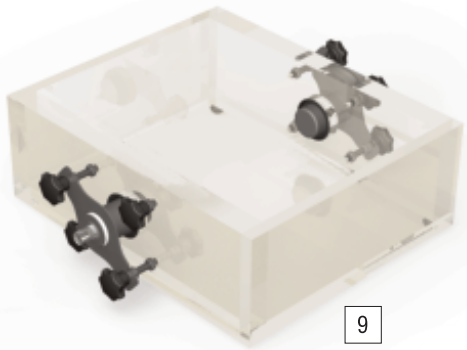
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1. PTFE Disks H shaped
According to the RILEM recomendation for preparing the CDF/CIF specimens. With hydrophobic surface serving as mould inlet, 150 x 150 x 4 mm, 3 elements, H shaped

PTFE Disks H shaped	Item No. C0035

2. PTFE Disks 2 mm
According to the RILEM recomendation for preparing the CDF/CIF specimens. With hydrophobic surface serving as mould inlet, 150 x 150 x 2 mm, 2 elements

PTFE Disks 2 mm	Item No. C0113

3. Specimen Carrier 150 mm
Stainless Steel Plate, avoids loss of scaled material during ultra sonic transition time test, ask for other sizes

Specimen Carrier 150 mm	Item No. C0038

4. Spacer
Made of PVDF, 3 pieces are recomended for each specimen

5 mm	Item No. C0040
10 mm	Item No. C5555

5. Fixing Clip for the Spacer
Makes handling of the spacers easier. 1clip is recomended for 3 spacers.

Clip	Item No. C0041

6. Water Jet Pump
For adjusting the liquid level of the test fluid.

Water Jet Pump	Item No. C0030

7. Vikasonic
Ultrasonic Tester for Measuring the US Transition Time

- BNC-Connectors
- Transducers Ø 25 x 60 mm, long version, according to the new CIF-test-recommendation, ask for other frequences
- Including mounting support for the Schleibinger measuring bath.
- Ultrasonic Measurement Unit 2 μs - 24000 μs
- Calculation of sound speed and elastic modulus accoring to Rayleighs law.
- USB port for recording the data as text files directly on an included USB storage device.
- 200V, 1000V, 1500V and 2000V excitation voltage
- Themocoupled input type K for measuring the temperature inside the measuring bath.
- Battery or Mains Driven, 110..240V, 50..60Hz or 3 AA cells

vikasonic	Item No. U0002

8. Ultrasonic Transducers 80 kHz, long
Ø 25 x 60 mm, for the Schleibinger Vikasonic or similar US measuring devices. BNC-Connector, long version according to the new CIF-test-recommendation. Including mounting support for the Schleibinger measuring bath.

Transducer 80 kHz, long	Item No. U0037

9. Ultrasonic test container 150mm
For 150 mm specimens, made of PMMA. With additional holdings for long ultrasonic transducers allowing the testing of specimens of 110 x 150 mm size (transducers not included)

Test Container 150	Item No. C0026

10. GN Test Container
Type Blanco

for max. specimen 150 x 150 mm	Item No. GN-B 1/2
für max. specimen 150 x 110 mm	Item No. GN-B 1/3

11. Test Containers for the Cube Test
Made of 2 mm thick stainless steel. For two 100 mm cubes, including lid and special spacers,
A maximum of 15 containers fit in the CDF apparatus.

VDZ Test Container	Item No. C0114

Slab Test Equipment

- Freezing Chamber with Temperature and Time Controlled Refrigerating and Heating System
- Fans for Air Circulation in the Freezer
- Allows freezing and thawing of the concrete specimen according to EN 1340, CEN/TS 12390-9, EN 1339, EN 1338, CEN/TS 15177.
- Inner and outer surface made of stainless steel.
- The temperature profile for the Slabtest is programed and may be started, stopped and reset.
- Electronic Controller with Text Display

Specifications:
Minimum Temperature: -35°C
Maximum Temperature: 45°C
Power Supply: 110 V/ 60 Hz or 230 V / 50 Hz, or 240V / 60 Hz, ask for special voltage
Power Consumption: 0.7 kW,
Cooling Power: 0.8 KW/-20°C
Refrigerant: 100g of R290 (Propane)
Dimensions (w x l x h): 70 x 83 x 215 cm
Interior Dimensions (w x l): 51 x 65 x 155 cm
Maximal Weight per Shelf: 60 kg
Weight: 147 kg

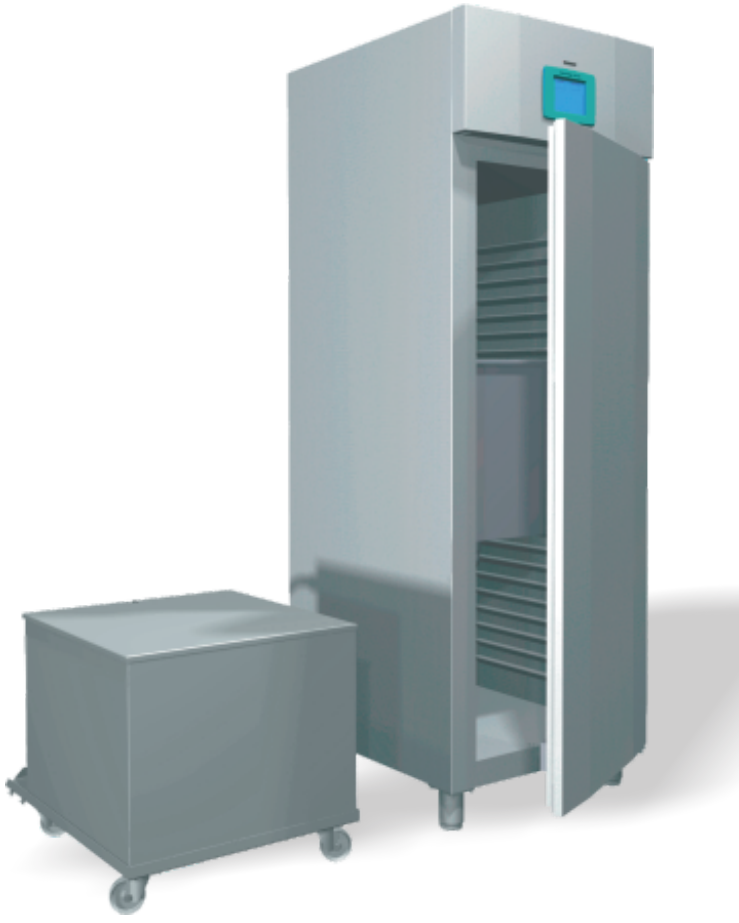
Including:
4 shelves, elektronic controller

Slab-Test Frostprüfschrank	Item No. C0103

Data Logger and Intranet Access
This feature makes the Schleibinger Slabtester much more sophisticated. You can input up to 8 programs for the temperature over time. Two additional temperature measuring devices for measuring the temperature in the freezing medium on the test surface and in the air. The data from the last temperature cycles are recorded and can be downloaded from any PC by a Ethernet TCP/IP interface. So the Slabtester can be operated by an internet browser from any PC in your intranet. A data acquisition module stores the temperature data of the last 40 weeks on a common USB storage device. The temperature curve of the last 24h may be plotted on the color touch screen.

Including:
TCP/IP network interface, additional temperature sensor, software, USB-device, network cable

Datenlogger und Intranetschnittstelle	Item No. C1041



Freeze Thaw Test for Natural Stones/Aggregates/Tile-Glue
Additional feature for testing materials according to the following standards:

•EN 12371 Natural Stone Test Methods - Determination of Frost Resistance
•EN 1367-1 Tests for Thermal and Weathering Properties of Aggregates - Determination of Resistance to Freezing and Thawing
•EN 1367-6 Tests for Thermal and Weathering Properties of Aggregates. Determination of Resistance to Freezing and Thawing in the Presence of Salt (NaCl)
•EN 1348:2007 Adhesives for Tiles - Determination of Tensile Adhesion Strength for Cementitious Adhesives
•EN 13383-2 Armourstone Part 2: Test Methods
•EN 12091:2013 Thermal Insulating Products for Building Applications. Determination of Freeze-thaw Resistance
•CEN/TR 15177 part 7 Testing the Freeze-thaw Resistance of Concrete - Internal Structural Damage

A stainless steel vessel is mounted inside the chamber (removable). A second topped vessel is standing outside. In this outside vessel a pump and a heating unit is mounted. During freezing the inner vessel is empty. For thawing, water from the outside vessel, is pumped into the inner vessel. Time for flooding and emptying is freely programmable.

This item requires the option Datalogger C1041.

Specifications:
Interior Dimensions Vessel (w x l x h): 50 x 60 x 48 cm
Volume Water Tank: 150 liters

Option natural stones	Item No. C0108

Freeze-Thaw Test according to CEN/TR 15177 part 7
Similar to C0108. Additonally the water is always circulating during the thawing period.

This item requires the option Datalogger C1041.

Option CEN/TR 15177 part 7	Item No. C0108-S

Rheometer viskomat NT

Viscosity findings are of fundamental importance for the development, manufacturing and processing of building materials. The viskomat is a versatile rotational viscometer for determing the workability of fine grained building materials such as cement paste, mortar, fine concrete, plaster etc. with a maximum particle size of 2 mm. It is recommended for developing admixtures of any mortar or concrete as well as SCC. It is further recommended for determing setting time of paste or mortar. With the ethernet interface you can integrate the viskomat in any TCP/IP based network. The viskomat NT has a built-in web server so any browser can be used as a user interface for controlling and data evaluation.

Specifications:
Velocity Controlled: 0.001 - 600 rpm
Torque: 0 - 250 Nmm or 0 - 500 Nmm
Resolution: 0,1 Nmm
Sampling Rate: 0.01 s - 60 s
Sample Volume standard: 365 cm^3
Weight: 41,5 kg

Including:
USB-interface, standard beaker, probe for mortar, probe for cement paste, scraper, computer, software

viskomat NT	Item No. V0001

Shear Stress Controlled Drive
You can run torque ramps or torque-steps, angel-ramps or angel-steps. The torque is measured with a resolution of 0.1 Nmm. The angel is measured with an resolution of 0.01°. Internal resolution 0.001°

Shear Stress Controlled Drive	Item No. V0006

Oscillation Mode
• Maximal Amplitude 30°
• Maximal Frequency < 5 Hz depending on the maximum amplitude
Including software for calculating G‘ and G‘‘.
This item requires the option Shear Stress Controlled Drive.

Oscillation Mode	Item No. V0030

1. Beaker for Temperature Control
A double wall beaker, so that the measurement beaker is running in a water bath, which is circulated by an external cooling/heating unit for example unit V0019.

Beaker for Temperature Control	Item No. V0009

2. Mortar Probe
Mortar probe made of hardened stainless steel. This probe is used for martar with a maximum particle size of 2 mm . Using a scraper is recommended for this probe. A temperature sensor is integrated.

Mortar Probe	Item No. V0011

3. Cement Paste Probe
Cement paste probe made of stainless steel. This probe is used for cement paste and mortar with a maximum particle size of 0.5 mm. A temperature sensor is integrated.

Cement Paste Probe	Item No. V0013

4. Modified Cement Paste Probe
Formed like the standard cement-paste-probe, but for suspension up to 2 mm of maximum grain diameter. A temperature sensor is integrated.

Modified Cement Paste Probe	Item No. V0003

5. Basket Probe
Invented by Prof. R. Vogel, Weimar. Double gap system with a net formed surface. Specially developed for self compacting mortars. Including special vessel and calibration certificate. Recommended if you need a defined shear rate and if your material has no segregation during measurement.

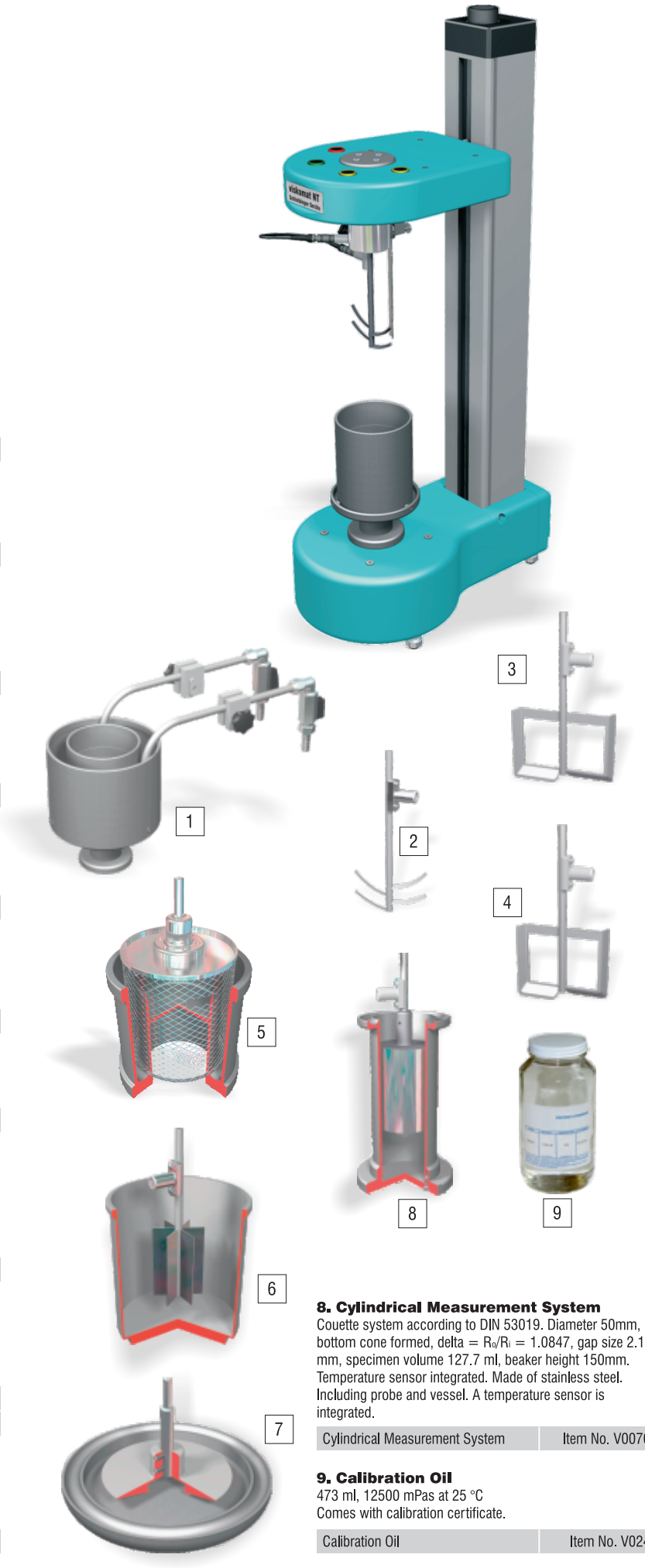
Basket Probe	Item No. V0014

6. Vane Probe
This kind of probe is an approximation to a cylinder/cylinder geometry. 6 wings, diameter 40mm, height 60mm, Vessel inner diameter 100mm, inner height 110mm, smooth vessel wall structure. A temperature sensor is integrated.

Vane Probe	Item No. V0004
Vessel for Vane Probe	Item No. V0005

7. Plate-Cone Probe
Specially developed for glue like specimen. Fits best for speeds betwen 0 and 0.5 rpm. Cone diameter 100mm, angle 15°. Inner diamter vessel: 128mm

Plate Cone Probe	Item No. V0002



8. Cylindrical Measurement System
Couette system according to DIN 53019. Diameter 50mm, bottom cone formed, delta = R_0/R_i = 1.0847, gap size 2.12 mm, specimen volume 127.7 ml, beaker height 150mm. Temperature sensor integrated. Made of stainless steel. Including probe and vessel. A temperature sensor is integrated.

Cylindrical Measurement System	Item No. V0070

9. Calibration Oil
473 ml, 12500 mPas at 25 °C
Comes with calibration certificate.

Calibration Oil	Item No. V024

Rheometer viskomat XL

Based on 20 years experience with rheometers for mortar and fresh concrete, Schleibinger has developed the viskomat XL. It is filling the gap between the viskomat NT for mortar and paste and the concrete rheometer eBT2. The operation principle of the viskomat XL is near the same as for the viskomat NT. So a mixer formed probe is measuring the torque, and the specimen vessel is rotating. An additional scraper is cleaning the wall of the vessel. The viskomat XL is controlled by a TCP/IP interface 100 MHz, Ethernet and any PC runníng a web browser. The viskomat XL may be integrated in your Intranet.

Specifications:
Velocity Controlled: 0.001 - 80 rpm
Steady Speed and Speed Ramp Mode
Two Measurement Torque Range: 0 - 3 Nm and 0 - 10 Nm
Resolution: 0.1 mNm
Accuracy: 2 mNm
Sampling Rate: 0.005 s - 60 s
Vessel Diameter: 165mm
Vessel Height: 175 mm
Usable Volume: 3000 cm^3
Maximum Grain Size: < 8 mm
Weight: incl. electronic 90 kg

Including:
USB-interface, standard beaker, probe for mortar, probe for concrete, scraper, double wall vessel with connection to an external cooling and heating unit, computer, software

viskomat XL	Item No. VX0001

Shear Stress Controlled Drive

You can run torque ramps or torque-steps, angle-ramps or angel-steps. The torque is measured with a resolution of 0.1 Ncm. The angle is measured with an resolution of 0.01°. Internal resolution 0.001°

Shear Stress Controlled Drive	Item No. VX0006

Oscillation Mode

• Maximal Amplitude 10°
• Maximal Frequency < 3 Hz depending on the maximum amplitude
Including software for calculating G‘ and G‘‘.
This item requires the option Shear Stress Controlled Drive.

Oscillation Mode	Item No. VX0030

Beaker for Temperature Control

A double wall beaker, so that the measurement beaker is running in a water bath, which is circulated by an external cooling/heating unit for example unit V0019.

Beaker and Tubes	Item No.

Mortar Probe for the Viskomat XL

Mortar or fresh concrete probe made of stainless steel. It´s used for mortar with a maximum particle size of 4mm . Using a scraper is recommended for this probe. A temperature sensor is integrated.

Mörtelpaddel XL	Item No. VX0013

Chiller

Temperature Control System for Viskomat NT and Viskomat XL

Specifications:
• Temperature Range: 0 - 65 °C
• Temperature Stability: +/- 0,1 K
• Cooling Power: 250 W at 20°C
• Heating Power: 1 kW
• Power Consumption: 1,2 kW
• Power Supply: 230V 1~ 50Hz
• Pump Performance: max. 18 l/min
• Maximum Pressure: 0,3 bar
• Dimensions (w x l x h): 28 x 38 x 50 cm
• Weight: 25 kg

Chiller	Item No. V0019

Concrete Probe for the Viskomat XL

Mortar or fresh concrete probe made hardened stainless steel. It´s used for mortar with a maximum particle size of 8mm . Using a scraper is recommended for this probe. A temperature sensor is integrated.

Concrete Probe	Item No. VX0011

eBT2

The eBT2 is a compact rheometer for fresh concrete.
In opposite to the spread table or slump flow the concrete is tested at various loads. Therefore you can determine a relative yield-stress and a relative viscosity. The construction avoids structural breakdown and segregation during measuring. The eBT2 is small, battery driven and easy to use.
Stainless steel 39 l or 19 l container. Motor driven unit with 2 momentum sensors and 1 speed sensor. Autocalibration, nonvolatile storage for 35 datasets. Battery powered. Bluetooth wireless link to Android Smartphones (included) for programming the speed profile and readout the data. Graphical display of the measurement sets on the Smartphone. Including vessel, meas. unit, Smartphone, Android App , software for the datatransfer to a PC and Excel data evaluation.

Specifications:
Vessel Volume 29.6 Ltr.
Vessel Diameter 50 cm
Weight 17,5 kg

eBt2	Item No. B0010

Alkali-Silica-Reactor

For storing concrete specimen at 60°C (freely programable) and nearly 100% rel. humidity according to the French standard NF P18-454 (Décembre 2004) : Béton - Réactivité d'une formule de béton vis-à-vis de l'alcali-réaction - Essai de performance and the RILEM test method TC 101-ARP AAR-4 -Detection of Potential Alkali-Reactivity - Accelerated method for testing aggregate combinations using concrete prisms.

Control and graphical data plot with a color-touch-screen. Full text state and error messages. Integrated data-logger, Ethernet / TCP/IP interface for remote control from any PC in your intranet via WeB-browser. Temperature profiles are programmable. A data acquisition module stores the temperature date of the last 40 weeks on a common USB storage device. The temperature curve of the last 24h may be plotted on the color touch screen.

Spezifications:
- Temperature Range: 0 - 65 °C
- Temperature Stability: <1K, except after opening the lids
- Interior Dimensions (L x W x H): 150 x 110 x 95/67 cm,
- Outer Dimensions (L x W x H): 168 x 135 x 127 cm
- Weight: 460 kg
- Water Content: 280 liters
- Insulation: polystyrol rigid foam 50 mm
- 2 Lids: with torque compensated hinges
- Insulated and Lid Selant
- Removable Shelfs for 600 kg Load
- Chamber inner side is made of stainless steel.
- Heating Power: 12 kW
- Savety Devices: temperature limiter, power switches, residual current circuit-Breakers

AKR Truhe	Item No. K001

ASR Specimen Container

- For 3 specimen with a size of 75 x 75 x 280 mm³.
- Inner Size (L x W x H): 280 x 130 x 400 mm
- Made of 1,5 mm thick stainless steel, complete welded, pickled and passivated
- Lid with Drip-down Tin
- Removable Grating for Concrete Specimen at 50mm Level
- Specimen Spacers at 260mm Height
- Weight ca. 6.5 kg

ASR Specimen Container	Item No. K002

ASR Fog-System

Fog-generating system for the ASR reactor. With a high pressure pump and special stainless steel nozzles. The size of the droplets is smaller than 30 micron. The fog function may be controlled with the ASR control unit by duration and intensity.

ASR Fog-System	Item No. K003

SLIPER - Sliding Pipe Rheometer

The SLIPER is testing the pumpability of fresh concrete in the lab as well as at the construction site.

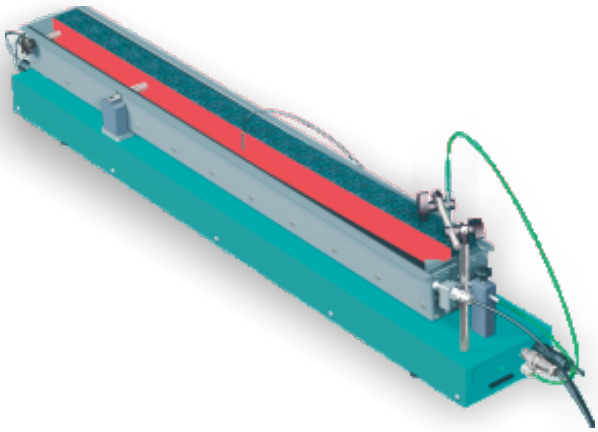
The SLIPER provides a vertical standing standard pipe which is filled with fresh concrete. In the pipe there is a piston which is standing on the groundfloor. Integrated into the top of the piston there is a pressure sensor. If the pipe is sliding downwards, the pressure in the pipe is measured. Also the speed of the pipe is recorded. The measurment data are sent wireless to a common smart phone. There the data are stored and displayed graphically. The system is portable, robust, battery driven and designed for the cosntruction site.

The properties of the fresh concret are evaluated by the software app included. With this software the design and parameters for the pump application may be estimated. Therefore a computational model is used which calculates the expected pressure loss in the concrete pump.

Specifications:
Pipe Diameter : 125 mm
Fillig Height: 500 mm
Pressure Range: 0 - 1500 mbar
Speed Range: 0 - 4 m/s

Including:
Weights 2x 2.5kg,2 x 5 kg, Android smartphone incl. software, 2 batteries, charging device, transport case

Sliper	Item No. B0200

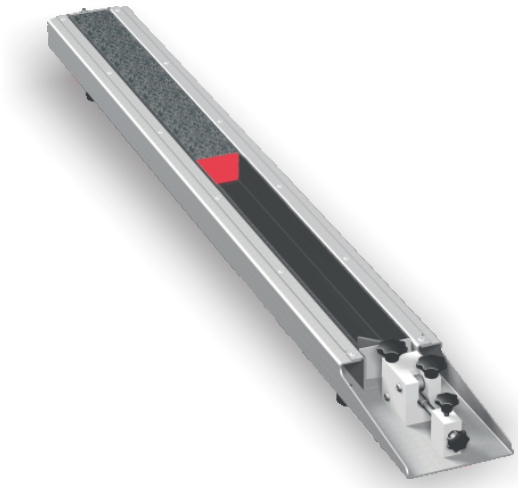


Bending Measuring Unit

This unit is made to measure bending and shrinkage of building materials, for example attic. A heating system is built in. To avoid sliding friction the gutter is covered with a removable compressible rubber. Also it enables unstressed deformation of the sample.The sample is mounted on two massive supports. The sample container with the heating system is statically independant of the supports. The bending unit has a Ethernet interface and a built-in web-server. Temperature profiles are programmable. You can integrate the logger in your intranet to access the measurement data from every PC in your network using any internet browser. Two temperature probes and one humidity probe are included.

Specifications:
Specimen Size: 1000 x 100 x 60 mm,
Dimensions: (L x W x H) 115 x 16 x 17 cm
Weight: 35 kg
Measuring Sensor: 2 probes stroke 5mm
Resolution: 0.36 mikron = 0.00036 mm
Accuracy: ± 0.64 μm ± K x 2.0 μm
Power Supply: 230V 1~ 50Hz

Bending Measuring Unit	Item No. S0018

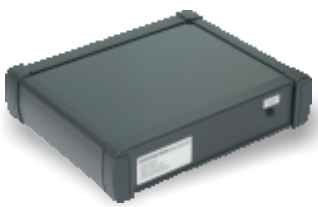


Shrinkage Drain

Conforming to ÖNORM B3329:2009
The shrinkage drain is made of a 1m long u-shaped stainless steel profile which contains the specimen. To avoid wall friction the drain is covered with a removable compressible rubber. On one side an anchor is fixed. On the other side this anchor is slidable on two rollers. The motion of this anchor is registered by a high sensitive digital probe. Up to 10 probes may be connected over a digital bus system to the datalogger.

Specifications:
Specimen Size: 1000 x 60 x 100 mm or 1000 x 40 x 60, ask for other sizes
Dimensions: (l x w x h) 122 x 12 x 8 cm
Weight: 8,2 kg
Measuring Sensor: 1 probes stroke 5mm
Resolution: 0.36 mikron = 0.00036 mm
Accuracy: ± 0.64 μm ± K x 2.0 μm

Shrinkage Drain Mortar, 40 x 60 x 1000 mm	Item No. S0103
Shrinkage Drain Condrete, 60 x 100 x 1000 mm	Item No. S0033



Datalogger
You can connect up to 12 shrinkage drains to the datalogger. The length change is registered with a resolution of 1/10 mikron. The measurement values are digitised and stored by the data-logger. Synchronously with the length change , temperature or rel. humidity may be stored by the data-logger.
The data-logger has an Ethernet interface 100Base/T and a built in web server. So you can integrate the logger in your Intranet. You can access your measurement data from every PC in your network with a normal Internet browser. Additionally you can save the data on a common USB storage device.

Specifications:
Dimensions: 24 x 21 x 6 cm
Weight 1.8 kg.

Datalogger	Item No. S0001

vikasonic Early Setting

The early setting is usual measured with the penetrometer or the Vicat apparatus. This kind of measurement has some disadvantages. In the early sixties some researchers suggested to use the ultrasonic transition time as method for measuring the setting of mortars or fresh concrete. In cooperation with a German dry mix company, Schleibinger developed a special ultrasonic unit with an integrated datalogger and a special designed setup for the mortar specimen.

Fresh mortar or cement paste is placed between two ultrasonic transducers, which are supplied with 1 pulse per second at a frequency of 54 kHz. The speed of sound through the mortar is changing with the setting. The strength developement cam be measured from the fluid to the already hardened state of the material.

The vikasonic is an ultrasonic tester for measuring US transition time, US transducers 54 kHz and a test cell for measuring the setting of mortar and paste.

Specifications

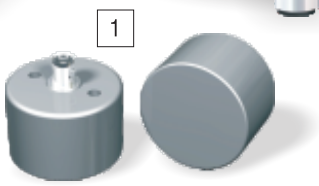
- Ultrasonic Measurement Unit 2 μs - 24000 μs
- Calculation of sound speed and elastic modulus accoring to Rayleighs law.
- USB port for recording the data as text files directly on an included USB storage device.
- 200 V, 1000 V, 1500 V, 2000 V excitation voltage
- Thermocouple input type K for measuring the temperature inside the specimen.
- Battery or Mains Driven, 110 - 240V, 50 - 60Hz or 3 AA cells
- LCD display
- One Knob Handling
- Dimensions Vikasonic: 210 x 145 x 90 mm
- Weight without Test Cell: 650 g
- Dimensions Test Cell: Ø 110 mm x 175 mm
- Sample Volume: 177 cm^3
- Weight Test Cell: 1600 g

Includes:
US Transmitter 54kHz, Thermocouple Sensor, Vicat Ring Formed Sample Container Ø 70/80 x 40 mm, US Receiver 54 kHz, BNC cables, Software

Vikasonic early setting Set	Item No. U0001

Vikasonic singly
Without Transducers, incl. Reference bar

Vikasonic singly	Item No. U0002



1. Pair Ultrasonic Transducers 54 kHz
Dimensions: Ø 50 mm x 42 mm

54 kHz Transducers	Item No. U0009

2. Ultrasonic Coupling Gel
For coupling the ultrasonic transducers to the specimen, no fat, 1 liter

Ultrasonic Coupling Gel	Item No. U0118

3. Thermocouple Type K
Exposed junction thermocouple with fitted miniature plug and insulated leads.
Fast response, PTFE insulated wires 1/0.2 twin twist 1m, class 1 to BS EN IEC 60584, Rated -75 °C to +250 °C

Thermoelement	Item No. U0028

Thin Layer Shrinkage System

With the thin layer shrinkage measurement system the shrinkage or expansion of fluid thin film building materials like self leveling flooring compounds can be measured in the first minutes and hours after start of mixing. The expansion of the building material is registered touchless and very exactly by two laser beams. The lasers are directed horizontally onto a pair of light weight reflectors, which are placed on top of the fresh mortar. The change in distance between the reflectors is then registered with an accuracy of tenth of a micron. By this setup the shrinkage or expansion measurement can be started right after the mortar is applied. There is no mechanical coupling between the fluid and the sensor.

The measurement values are digitised and recorded by the datalogger delivered with the system. Synchronous with the length change, temperature or relative humidity may be stored by the data-logger (option). The data-logger has an Ethernet interface 100Base/T and a build in web server. So you can integrate the logger in your Intranet. You can access your measurement data from every PC in your network with a normal Internet browser. Additionally you can save the data on a common USB storage device.

Specifications:
Measurement Range: 2x5 mm
Resolution: 0.1 μm
Accuracy better than: +/- 12 μm
Diameter of Laser Spot: 0,8 mm
Laser Power: 1 mW at 675 nm, Class 2.
Dimension of the Platform: 700 x 375 mm
Lengt of the Linear Translation Stage : 609 mm

Thin Layer Shrinkage System	Item No. S0060

Balance Interface
For balances of Mettler-Toledo, Sartorius or Kern with serial RS232 interface. The mass change of the specimen is recorded online with the length change. Including interface cable. Please contact us before ordering. We must check if your balance type will fit the technical requirements.

Balance Interface	Item No. S0030

Combined Temperature and Humidity Channel
Combined temperature and humidity measurement. A sensor is recoding the temperature and humidity of the environment. Accurray humidity sensor 0-100% +/- 1.8 % r. H. not condensing, temperature accurray +/-0.5° C.

Combined Temperature and Humidity Channel	Item No. S0016

Thermo-Couple Temperature Measurement
Additional temperature measurement channel for measuring the specimen temperature. Maybe embedded in the specimen. Including one thermo-couple type K.

Thermo-Couple Temperature Measurement	Item No. S0027

Shrinkage Cone

With the shrinkage cone the shrinkage or expansion of fluid building materials can be measured in the first minutes and hours after start of mixing. The expansion of the building material is registered touchless and very exact by a laser beam. There is no mechanical coupling between the fluid and the sensor. The Shrinkage cone is hollow. With tubes you may connect the specimen container to a chiller for example item no. V0019. To ensure that the measured distance correlates with the relative length change of the material we use a special formed specimem container. The form is like a cone. A Cone is a special geometry, where the volume change and the height change is in a direct mathematical correlation.

The measurement values are digitised and recorded by the datalogger delivered with the system. Synchronous with the length change, temperature or relative humidity may be stored by the data-logger (option). The data-logger has an Ethernet interface 100Base/T and a build in WEB server. So you can integrate the logger in your Intranet. You can access your measurement data from every PC in your network with a normal Internet browser. Additionally you can save the datas on a common USB storage device. The PC is only required for starting the measurement or readout the data. During the test there is no PC necessary.

Specifications:
Measurement Range: 5 mm
Basic Distance : 25 mm
Resolution: 0,1 μm
Volume Cone Vessel: 349 cm^3
Specimen Height: 100 mm
Dimensions: (l x w x h): 25 x 25 x 48 cm

Shrinkage Cone with Cone Vessel Mortar	Item No. S0050
Cone Vessel Concrete	Item No. S0051

Concrete Curing Simulator

An instrument for curing simulation. A sensor, placed in the fresh concrete measures the temperature. Specimen of the same concrete are placed in a water tank. The temperature of the water is kept on the same temperature as the concrete part at the building site. The strength development of the specimen is the same as the strength at the building site. The measured temperature profile is recorded and may be recalled later. A curing number is automaticly calculated, displayed and recorded. The temperature sensors may be connected directly, but also a wireless mobile data connection is possible.

Specifications:
Pump for more then 150l/min
Water Filter
Maximum Temperature 85°C
Minimum Temperature 5°C depending on the environmental temperature
Heating power 4 kW
Cooling power 2,5 kW/5°C
Corrosion protection by an integrated sacrificial anode
Temperature sensor RTD PT100 integrated in the water circulation
Configuration and data display: TFT colored touch screen
Graphical display of all temperatures, curing number etc.
Integrated SD card for recording all temperatures
Recording of all temperatures as text file on USB storage device
Network interface for reading out the data
Integrated WEB , FTP and Telnet server.
Target temperature controlled by an external thermo couple (Type K), by an external wireless temperature transmitter, programmable at the touch screen or defined by an external text file
Interface for a extra RTD for measuring the environmental temperature
Integrated UPS. The electronic can be buffered by an external 12V 36Ah car battery for 24 hours. The battery is automaticaly recharged when the power supply is ok again
Housing Ip44
Size 65 x 50 x 100 cm

Concrete Curing Simulator	Item No. T0001

Wireless 4 Channel Thermocouple Transmitter

- Four sensors thermocouples type K
- Transmitter according to IEEE 802.15 (ZigBee), max. distance 1000m to the next base station or to the curing simulator
- Additional the environmental temperature and the battery capacity is measured and transmitted
- Battery life time more then 3 months if every 30s a dataset is transmited
- 7 x 7 x 5 cm incl. antenna batteries etc.
- Very ruggedized

Wireless 4 Channel Thermocouple Transmitter	Item No. T0006

Receiver for the Wireless Thermocouple

- IEEE 802.15 Zig Bee receiver for integration into the Schleibinger curing simulator
- The temperature data are read in and may be used as target or control temperatures.
- Data transfer is bidirectional, a broken transmitter will be detected
- Antenna (2,4 GHz) included.

Receiver for the Wireless Thermocouple	Item No. T0007

Data Transfer over Mobil Phone Net

- The Schleibinger Curing Simulator is world wide wireless accessable by the Internet (GSM/GPRS net must be available).
- Frequency GSM/GPRS/EDGE Quad band
- Speed max. 36kbit/s
- Password protected
- If the Curing Simulator is stopped, started, or if there is any problem with instrument automaticly an SMS and a e-mail is sent.
- The receivers phone-number is free programmable.
- Including antenna and software

Data Transfer over Mobil Phone Net	Item No. T0008

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