TECHNICAL SPECIFICATIONS

Geological Equipment

TS DATA SHEETS

- GE -

Continuing development sometimes necessitates specification changes without notice

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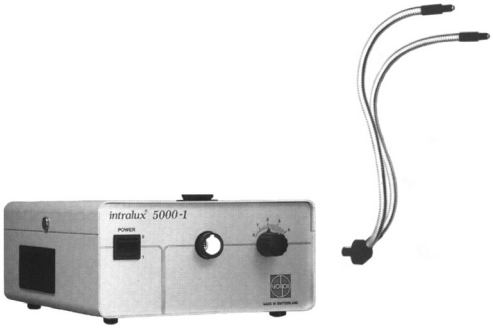
STEREOMICROSCOPE

(with illumination)



Binocular microscope for geological work

Reliable stereomicroscope with tripod and strong illumination with 2 flexible fiber-optic bifurcated illuminators for best illumination of the sample

- Zooming range from 8x – 50x
- Easy adjustment
- Eyepieces with crosshair micrometer
- Diopter adjustment
- Other accessories like polarizor and analyser on inquiry

Description

The binocular microscope is used for all geological works like petrographic descriptions of cuttings, cores and the determination of microfossils. With the crosshair micrometer the selective measuring of each compound is possible. The cold light source gives a high intensity of light with constant colour temperature. The infinitely variable adjustment of the light intensity creates a perfect illumination of the sample.

Microscope and illumination are packed in a stable case.

Maintenance

Normally no maintenance is necessary.
To clean lens surfaces, remove dust by using a soft brush or gauze.
When not in use, cover the microscope.

Technical specification

	Microscope
▪ **Model**	Stereomicroscope
▪ **Zooming range**	8x – 50x (infinitely variable)
▪ **Observation field**	28,8 – 4,6 mm
▪ **Working distance**	max. 100 mm
▪ **Weight**	2,9 kg

	Illumination
▪ **Model**	Cold light source flexible fiber-optic bifurcated illuminators
▪ **Certified for hazardous areas**	– / –
▪ **Certificate of conformity**	– / –
▪ **Supply voltage**	230 V, 50/60 Hz (185 W)
▪ **Weight**	6,3 kg

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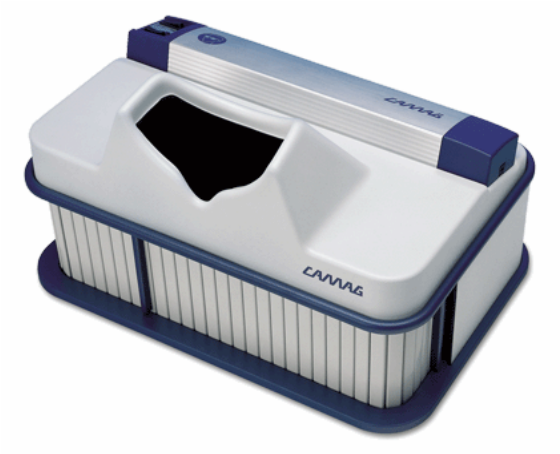
UV - Box



UV Viewing Box for examination of oil shows under ultraviolet light in daylight rooms

Oil shows in rock samples are better observed by using the UV-light source. Oil bearing particles fluoresce with yellow colour.

- UV Box easy to handle with shatters
- Viewer is protected against UV light by glas filter
- Can be used in daylight rooms
- UV lamp can be lifted and used independent from the Box.

Description

The UV-Box can be used in daylight rooms. Samples can be easily put in by shatter. For best observation the distance between sample, UV source and eyes of the viewer should be carefully kept.

Maintenance

Normally no maintenance is necessary. Dust and other contaminations can slightly cleaned by a wet sheet or by alcohol.

Technical specification

	UV-lamp
▪ **Model**	Ultraviolet burner (wavelength 360 nm) 2 x 8 Watt
▪ **Certified for hazardous areas**	– / –
▪ **Certificate of conformity**	– / –
▪ **Observation area**	400 x 260 mm
▪ **Dimension of device**	490 x 350 x 290 mm
▪ **Power supply**	110/230 V, 50/60 Hz; 12 V, 20 VA
▪ **Weight**	Approx. 5 kg

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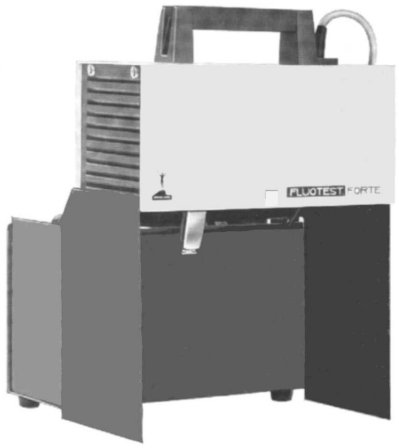
Fluoroscope
(UV – box)



Analytical lamp for examination of oil shows under ultraviolet light

Oil shows in rock samples are better observed by using the UV-light source. Oil bearing particles fluoresce with yellow colour.

- Simple use
- Can be used in different positions
- Darken the observation area by using the provided plastic shields

Description

The UV-lamp can be used as laboratory or mobile instrument. The lamp consists a lower part with power supply and others and an upper part with UV-lamp, fan and filter element. Both parts can be connected. For better examination it is recommended to darken the observation area using the provided plastic shields.

Maintenance

Normally no maintenance is necessary. Dust and other contaminations can slightly cleaned by a wet sheet or by alcohol.

Technical specification

	UV-lamp
▪ **Model**	Ultraviolet burner (wavelength 360 nm)
▪ **Certified for hazardous areas**	– / –
▪ **Certificate of conformity**	– / –
▪ **Observation area**	280 x 230 mm
▪ **Working distance**	approx. 190 mm
▪ **Power supply**	220 V, 50 Hz (210 W)
▪ **Weight**	Approx. 7,5 kg

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CALCIMETER

Automated measuring and recording of carbonate content in rocks

The device measures carbon dioxide deriving from chemical reaction of carbonate with hydrochloric acid. The pressure of developing carbon dioxide is measured by a sensing cell. The calcite / dolomite ratio is calculated.

- Simple to operate
- Robust hardware
- Differentiation of calcite and dolomite
- Documentation on chart recorder

Description

The pulverized, dry and weighted sample is placed into the pressure cylinder. Hydrochloric acid will be added. The carbon dioxide evolution is tracked by monitoring gas pressure in the reaction cell and presenting this against time on a chart recorder. The course of the graph of the chart recorder shows the ratio of calcite to dolomite.

Maintenance

Normally no maintenance is necessary.

The calcimeter must be calibrated with calcium carbonate (99,99%) before use. The seal seat on the sensor head should be greased with silica grease every 15 to 20 readings.

Delivered Accessories

Chart recorder, precision scales, Sieve , mesh size 0,2mm with sieve pan, mortar, spatula, hydrochloric acid, (10 %), calcium carbonate, paper rolls and stylus for the chart recorder.

Technical Specification

	Calcimeter
▪ **Model**	Pressure sensor with reaction cylinder
▪ **Certified for hazardous areas**	– / –
▪ **Certificate of conformity**	– / –
▪ **Range of measure**	0 – 100 %
▪ **System accuracy**	± 1 %
▪ **Sample weight**	0,5 g
▪ **Supply voltage**	220 V, 50 Hz (10 W)
▪ **Weight including accessories**	approx. 9 kg

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ELECTRONIC SHALE DENSITY METER

Measurement of the Shale density

When zones of geopressuring are approached, the density of the rocks above such zones is reduced..

The density of the rocks is an important factor used for the early recognition of over pressured zones. In thick, homogenous and impermeable sequences of rocks (e.g. Shales), the density of the overlying rocks can be an early indication of an overpressured zone. This is the case when the value is reduced owing to an increase in pore pressure.

Description
The electronic densimeter works on the Archimedes' principle, which states in its most general form that: When a body is wholly or partially immersed in a fluid, it experiences an upthrust equal to the weight of the fluid displaced. The determination of the (relative) density is based on the density of water at a temperature of 4°C and corresponds to a density of 1g/ccm
.

Care and Maintenance
The densimeter generally requires no maintenance

Supplied Accessories
Draught protection, thermometer, calibration weights, steel angle iron and tweezers.

Technische Informationen

	Electronic densimeter
▪ **Model or type**	Hydraulic precision scales
▪ **Safety protection**	– / –
▪ **Certificate of conformity**	– / –
▪ **Standard range of measurement**	0,01 – 200 g
▪ **Accuracy of measurement**	0,001 g/cc
▪ **Weight of sample**	20 - 25 g
▪ **Electrical supply**	115 ~ 240 V, 50/60 Hz (5 W)
▪ **Weight**	Approximately 1 kg
▪ **Installation**	Table instrument

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POTASSIUM DIOXIDE DETECTOR

(Contact detector for β and γ type radiation)

Contact detector for rapid, on-site K_2O detection

The potassium detector is used for the fast and reliable definition of the presence of potassium salt in core samples.

- Simple operation
- The sample can be scanned from almost any position by the battery operated hand set

Description

The contact detector measures the β and γ type radiation from Potassium dioxide on the basis of the natural radiation intensity of Potassium 40 ions. The potassium dioxide content is displayed as a percentage number, as a linear value determined from the count rate. The potassium monitor is packed with the accessories in a robust aluminium case.

Care and Maintenance

The detector generally requires no maintenance.

The detector must be zeroed and calibrated using a 60% salt solution before beginning a series of measurements

Supplied Accessories

Steel covering plate for zeroing and a set of R14 batteries (3 x 1.5V).

Technical Data

	Potassium Detector
▪ **Model or type**	Contact detector for β and γ type radiation
▪ **Safety protection**	– / –
▪ **Certificate of conformity**	– / –
▪ **Standard range of measurement**	0 – 100 %
▪ **Accuracy of measurement**	± 0,1 %
▪ **Sampling time**	60 Seconds
▪ **Electrical supply**	4,5 V (3 x 1,5 V Batteries, Type R14 / Baby Cells)
▪ **Weight**	2,3 kg
▪ **Installation**	Hand set

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CUTTINGS GAS BLENDER

High-speed mixer for the de-gassing of cuttings samples

The direct comparison with the gas values obtained from the drilling fluid with the gas shows released by the cuttings samples from the mixer is a useful means of estimating the permeability of the rock. An analysis of the gas released by the mixer can be completed by using either the Chromatograph or a total gas detector.

- Hermetically sealed container with manometer and a valve for sample extraction
- The form of the container allows the cuttings to be completely pulverised by the rotating knives.

Description

The container with a capacity of 1000 ml is filled with a 250 ml sample volume and 250 ml of water. The sample is pulverised by the cutters for a pre-defined period of time. Released gas forms a gas cap above the fluid/cuttings mixture. Subsequently the gas sample is extracted by using a syringe and injected into the chromatograph or total gas detector for analysis.

Care and Maintenance

The mixer generally requires no maintenance. The drive shaft, bearings and gaskets must NOT be lubricated, since they have been greased and sealed by the Manufacturer!
When the instrument is cleaned then it should be kept in an upright position to prevent fluid from entering the drive shaft housing.
The instrument should never be left unsupervised whilst the operation is in progress!

Supplied Accessories

Stop watch or timer, 20 ml glass syringe and replacement cutters.

Technical Data

	Gas Mixer
▪ **Model or type**	High speed mixer with stainless steel hermetically sealed container.
▪ **Safety protection**	– / –
▪ **Certificate of conformity**	– / –
▪ **RPM**	15,000 / 20,000 (Two speed switch)
▪ **Container volume**	1 Litre
▪ **Sample volume**	250 ml
▪ **Electrical supply**	220/240 V, 50/60 Hz (750 W)
▪ **Weight**	Approximately 4 kg
▪ **Installation**	Table operated instrument

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CORE DE-GASSER

Recovery of uncontaminated gas samples

The core de-gasser is used to recover gas samples from rock samples (cores or cuttings) and fluid (drilling fluid or water). The recovered samples can be either analysed in the field unit by using the chromatograph or sent to a laboratory in special glass containers.

- The sample used for analysis is uncontaminated by the influence of other gas phases
- The transparent sample cylinders and integrated manometer allow the observation and control during the de-gassing process (e.g. type and grade of de-gassing).

Description

The sample is placed and sealed in the transparent sample cylinder, which is filled with previously de-gassed water. The sample container is then pressure reduced. As a result moveable gas is released from the sample into the cylinder. The gas is collected in the conical cylinder cap. After restoring normal pressure conditions the collected gas sample can be removed using a syringe through a valve and analysed.

Care and Maintenance

The de-gasser generally requires no maintenance.

The seals should be occasionally greased with silicon paste.
The water in the sample cylinder should be de-gassed prior to processing the sample. This prevents possible contamination of the sample by gas contained within the water. des Wassers ausschließen zu können.

Supplied Accessories

Pressure reduction pump, short length of water hose, sample syringe and gas sample collection bottles (on request).

Technical Data

	Core De-gasser
▪ **Model or type**	Pressure reduced gas extractor
▪ **Pressure reduction**	1 bar
▪ **Degassing processing time**	10 minutes (minimum)
▪ **Sample chamber dimensions**	H 350 mm, inner diameter 120 mm
▪ **Dimensions**	H 660 mm x W 390 mm x L 200 mm
▪ **Weight**	Approximately 4 Kg
▪ **Installation**	Table operated instrument

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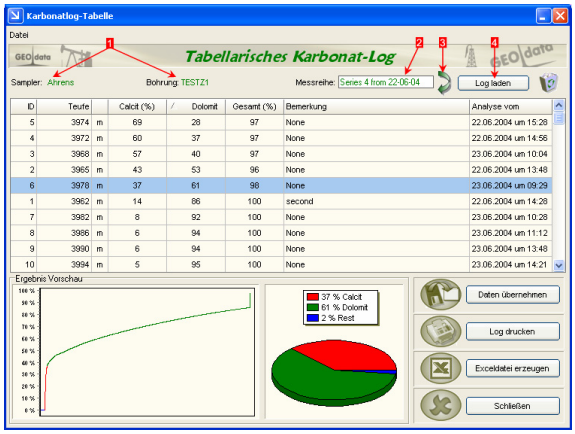
Electronic CALCIMETER



Automated measuring and recording of carbonate content in rocks

The device measures carbon dioxide deriving from chemical reaction of carbonate with hydrochloric acid. The pressure of developing carbon dioxide is measured by a sensing cell. The calcite / dolomite ratio is automatically determined from GEO-data Software.

- Simple to operate
- Robust hardware
- Differentiation of calcite and dolomite
- Documentation on PC as table or chart

Description

The pulverized, dry and weighted sample is placed into the pressure cylinder. Hydrochloric acid will be added. The carbon dioxide evolution is tracked by monitoring gas pressure in the reaction cell against time. The data are calculated by GEO-data software and can be shown as graphic charts or table.

Maintenance

Normally no maintenance is necessary.

The calcimeter must be calibrated with calcium carbonate (99,99%) before use. The seal seat on the sensor head should be greased with silica grease every 15 to 20 readings.

Delivered Accessories

Software, electronic box, pressure head, precision scales, Sieve, mesh size 0,2mm with sieve pan, mortar, spatula, hydrochloric acid, (10 %), calcium carbonate.

Technical Specification

	Calcimeter
▪ **Model**	Pressure sensor with reaction cylinder
▪ **Certified for hazardous areas**	No
▪ **Certificate of conformity**	– / –
▪ **Range of measure**	0 – 100 %
▪ **System accuracy**	± 1 %
▪ **Sample weight**	0,5 g
▪ **Supply voltage**	220 V, 50 Hz (10 W)
▪ **Weight including accessories**	approx. 2 kg

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