



The Glass Jacket Apparatus System



Features

Demonstrative and transparent

Versatile modular system, easy to assemble

Didactically graphic

Ideal for working with gases

Manual with detailed instructions of experiments

Uncomplicated, fast experiments

Excellent results

Can be stored completely assembled



The Glass Jacket Apparatus System

The glass jacket apparatus system was primarily developed for experimenting with gases and can be used for teaching in chemistry, physics and biology classes. It is used to develop the gas laws, to determine molar masses, to measure combustion enthalpies and many other things.

Working with the glass jacket system is easy and the manifold experimentation possibilities of the glass jacket system are described in detail. The handbook contains 17 experiments on the topics:

- gas laws
- determination of molar masses
- quantitative gas reactions
- calorimetry
- steam distillation
- gas chromatography

The results are represented in detail in a graphical and tabular way.

GL 3 Gesetz von Boyle-Mariotte

Beobachtung: Die folgende Tabelle gibt ein Messprotokoll wieder.

Druck p [Pa]	Volumen V [ml]
100	100
150	66,7
200	50
250	40
300	33,3
350	28,6
400	25
450	22,2
500	20
550	18,2
600	16,7
650	15,4
700	14,3
750	13,3
800	12,5
850	11,8
900	11,1
950	10,5
1000	10

Ergebnis: Das Produkt aus Druck und Volumen ist bei näherer Zustandsänderungen unter den vorliegenden Bedingungen (Luft) mit der hohen Drücke und niedriger Temperatur konstant.

Ergebnis: Diese Gesetzmäßigkeit gilt für alle Gase geringerer Dichte und hoher Temperatur (ideales Gas). Die Kompressibilität ergibt sich zu:

$$\kappa = -V \cdot \left(\frac{1}{p} \right) \cdot \left(\frac{dp}{dV} \right) = \frac{1}{p}$$

Hinweis: Durch Füllung des Glasmerks mit Wasser oder Öl wird die Volumenänderung gemindert und damit ein Beweis eines Messgebirges und eines Leertages mit dem richtigen Experiment auch bei anderen Temperaturen durchgeführt werden.

GL 6 Beschreibung des Glasmerks

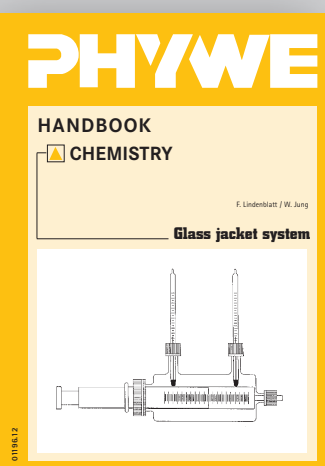
Es sei noch darauf hingewiesen, daß auf die richtige Lage der Dichtungen in den Schraubverbindungen... (text continues)

The system components of the glass jacket are described in detail step by step.

Each experimental setup is described in detail and complemented with a graphic draft.

GL 15 Bestimmung des Heizeswertes von Ethanol und des Brennwertes von Ethanol

Durchführung: Für die Verbrennung von Ethanol werden in diesem Versuch zwei Ethanol-Ölströme benötigt. Diese werden... (text continues)



Handbook
Printed Cobra4 manual with 66 experiments in the fields of everyday phenomena, physics, chemistry and biology.

Handbook Chemistry 01196.12
Glass Jacket System

The Glass Jacket Apparatus System

The glass jacket apparatus system consists of the glass jacket and special inserts and accessories. It was primarily developed for experimenting with gases and can be used for teaching in chemistry, physics and biology classes. It is used to develop the gas laws, to determine molar masses, to measure combustion enthalpies, and many other things.

Gas Laws

Determination of molar masses

Gas reactions (e.g. The law of Avogadro)

Gas reactions (e.g. Empirical molecular formula of methane)

Gas syringe

Plunger eudiometer

Slow eudiometer

Gas jacket

Distillation insert

Gas separation column

Steam distillation

Calorimeter insert

Lid for the calorimeter insert

Gas chromatography

Calorimetry (e.g. Determination of calorific value of coal)

Energy balances at gas reactions

Products

Glass jacket

Cylindrical glass body made of DURAN®.

Using a large socket piece, special inserts (gas syringe, calorimetric insert, etc.) with an outer diameter of 36 mm can be inserted and sealed liquid or gas tight. A second, smaller glass socket piece, with a glass screwthread GL 18/8, on the opposite side holds the axial connection tube of the insert and fixes it. The two upper glass socket pieces with glass screwthread GL 18/8 are used for inserting thermometers or temperature sensors or glass tubes (each with a diameter of 8 mm).

Glass jacket

02615.00



Gas syringe, 100 ml

Gas syringe made of glass with ground in glass plunger. It is used in conjunction with the glass jacket to develop the gas laws and to determine molar masses using the vapour density method.

Gas syringe, 100 ml

02614.00



Plunger eudiometer

The plunger eudiometer consists of a glass cylinder with movable plunger and is used to determine the ratio of volumes in explosive gas reactions. Two 4-mm sockets connect the ignition spark generator.

Plunger eudiometer

02611.00



Slow eudiometer

The slow eudiometer consists of a glass cylinder with movable plunger and a sealing lid with gas connection, ignition electrodes and two 4-mm sockets. It is used to determine the ratio of volumes in the continuous combustion of gas mixtures.

Slow eudiometer

02612.00



Gas separation column

Enables a didactic gas chromatograph to be set up for the low temperature ranges up to 100°C. The gas separation column is suitable to demonstrate the principle of gas chromatography separations (separation agent: Dinonylphthalate on kieselguhr; carrier gas: hydrogen or helium).

Gas separation column

36670.00



Distillation insert

Usable in conjunction with the glass jacket to set up a steam distillation apparatus; with a screw thread GL 25/8 and on the opposite side with a connection tube.

Distillation insert

02615.06



Calorimeter insert for glass jacket

Used in conjunction with the glass jacket results in a calorimeter system for the measurement of calorific values, heat of formation and reaction enthalpies of solid, liquid and gaseous substances.

Calorimeter insert for glass jacket

02615.01



Lid for the calorimeter insert

Can be used in conjunction with the glass jacket and the calorimeter insert for the measurement of the reaction enthalpies of gases.

Lid for the calorimeter insert

02615.02



Heating apparatus

Infrared ceramic radiator for even heating which therefore protects the material of the glass jacket and of cylindrical bodies or devices made of metal, ceramics or glass.

Heating apparatus

32246.93



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