



Glass jacket

02615.00

Operating instructions



1 APPLICATIONS AND CHARACTERISTICS

The glass jacket 02615.00 (cf. fig. 1) is the central part of an extremely versatile chemical and physical experimenting system. E. g., the following set-ups can be realised with the assistance of special inserts:

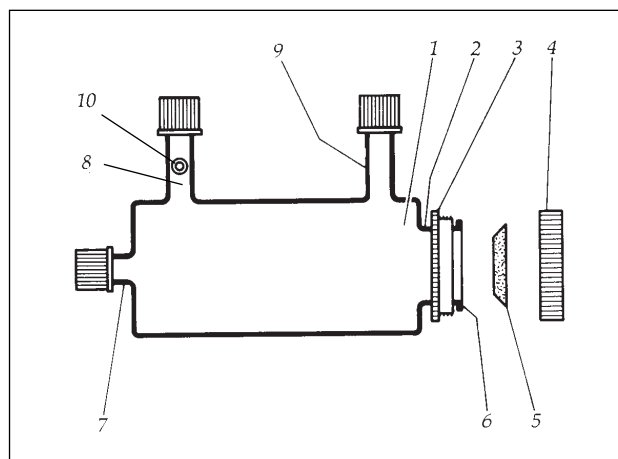
- Heatable gas syringe (piston sampler) to verify the laws of gases and to determine molar masses according to the vapour pressure method (Victor Meyer).
- Calorimeter to measure reaction enthalpies of solid, liquid and gaseous substances.
- Water vapour distillation apparatus which requires a single heat source.
- Medium capacity gas generator.
- Heatable eudiometer for the volumetric investigation of gas reactions.
- Didactic gas chromatograph to demonstrate the principle of a gas chromatograph and to separate mixtures of substances.

Several glass devices, which can be inserted water or gas tight into the glass jacket, are available to set up these systems:

- 02614.00 gas syringe 100 ml
- 02615.01 calorimeter insert
- 02615.04 dust removal chamber for smoke purification
- 02615.06 distilling insert for glass jacket
- 02611.00 piston eudiometer, heatable
- 02512.00 still eudiometer, heatable
- 36670.00 gas separating column

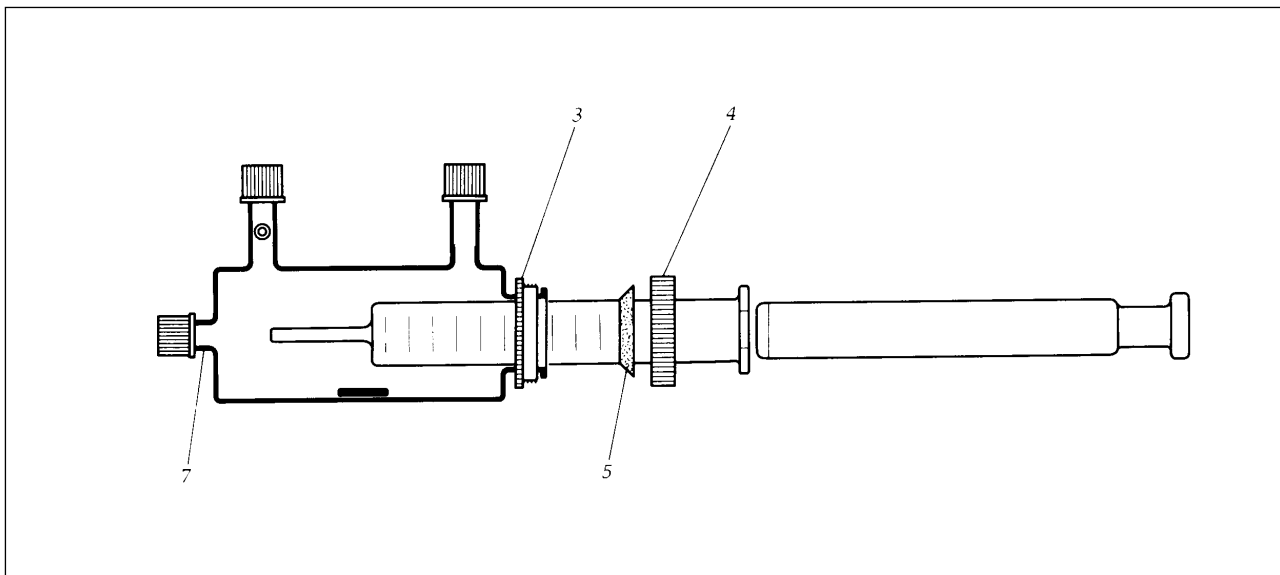
These devices are described in detail together with further special accessories in the corresponding operating instructions. Experiments with the glass jacket system are described in the following literature:

- 01196.12 Handbook Glass jacket system



2 DESCRIPTION

The glass jacket (represented schematically in fig. 2) consists of a cylindrical body 1 made of temperature resistant Duran glass (diameter 75 mm, length 155 mm). One end has a large connecting sleeve 2 which allows the water or gas tight insertion of all the special inserts (which all have an exterior diameter of 36 mm). A ring 3 with exterior thread fixed to the sleeve allows to screw on coupling ring 4. The latter presses the silicone rubber gasket which is fitted over the used insert against flange 6 of the sleeve. Furthermore, the glass jacket has three smaller glass connecting sleeves 7, 8 and 9, whose ISO thread 18 carries a coupling screw cap GL 18 with a silicone ring gasket (diameter 16 mm, orifice 8 mm). The ring is inserted so that the Teflon layer faces the glass sleeve. The axial connecting tube (which all inserts have) passes through sleeve 7; the coupling cap assures water or gas tight fitting in this case, too. Connecting sleeves 8 and 9 are used for the passage of thermometers or of glass tubes (diameter 8 mm), or to fill in the heating bath fluid, e. g. water. Furthermore, connecting sleeve 8 is



fitted with a connecting olive 10 for a rubber tube, which can for example allow for a foaming heating liquid to run over into a glass beaker.

There are applications for which connecting sleeves 7, 8 or 9 must be closed tight without anything being inserted through them. In this case, the coupling cap is replaced by a coupling cap without an orifice (order n° 41220.03). Olive 10 can be closed by a rubber cap (order n° 02615.03).

3 HANDLING

Technique for combining the glass jacket with the diverse inserts:

Here general handling instructions are given; further instructions for use with specific devices or experiments are given - as far as required - with the examples of experiments in literature or in the operating instructions of the inserts.

All glass jacket inserts have an exterior diameter of 36 mm; furthermore, they are fitted with an 8 mm diameter connecting sleeve. Insertion into the glass jacket is carried out according to the following steps (cf. fig. 3):

- Unscrew coupling ring 4 from the glass jacket and slide it over the corresponding insert with the non-threaded side first (this is illustrated in fig. 3 using a gas syringe as an example)
- Slide ring gasket 5 with the wide side first over the insert.
- Introduce the insert into the glass jacket, passing the central connecting tube through connecting sleeve 7. For this, the coupling screw-on cap must be loosened (it need not be removed). Tighten the connection by screwing tight the coupling cap.
- Using coupling ring 4, push ring gasket 5 uniformly into the annular gap between the insert and the connecting sleeve so as to achieve perfectly tight fitting, and screw the coupling ring tight onto ring 3. Make sure the threads are correctly aligned before screwing tight, so that they will engage easily (if necessary, loosen coupling and adjust the ring gasket).

If the glass jacket is to be filled with a liquid which must either transfer or receive thermal energy uniformly, it is filled into the glass jacket through one of the sleeves 8 or 9 (do not fill to the brim, so that the liquid may expand when warming up).

If one introduces a stirring magnet (e. g. order n° 46299.02), the liquid (usually water) can be stirred from the outside using a rod magnet (e. g. order n° 06311.00).

It is expressly pointed out to the fact that the gaskets must be correctly placed within the coupling caps (or in the shutting off caps): the Teflon layer is meant to protect the silicone against thermal and chemical strains. For this reason, it must be against the glass when the cap is screwed tight. For heating, the glass jacket can be directly laid on an electric heater (order n° 32246.93). This causes the cylindrical body of the glass jacket to be heated rather gently over its whole length through radiation heat. A gas flame may also be used, it is then recommended to let the flame brush rather fast over the jacket.

For safety reasons, the mounted glass jacket should always be held with supporting accessories.