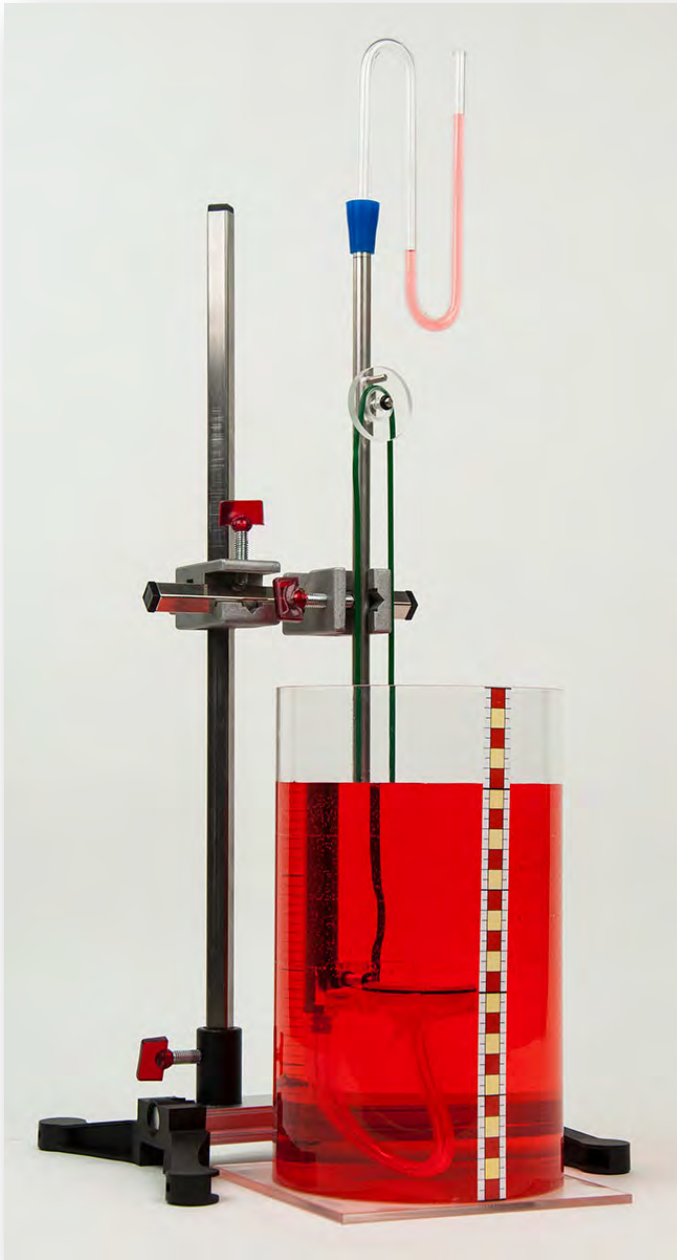


INDICATION OF HYDROSTATIC PRESSURE – SIMPLE MANOMETER

MED 15.03



Material

Item-no.	Qty.	Description
DM425-2G	1	Tower tank with scale
DM420-1D	1	Hartl capsule
C6031-1M	1	Manometer tube accessory with SB19 stopper
P7050-1A	1	Powder dye, red
C6100-2K	1	Syringe, 120ml, plastics
DS090-3K	1	Claw base "Sepp", 260 x 220 mm
DS095-3K	2	Bosshead cross-pattern, demo 03
DS300-50	1	Support rod, squared, L=500 mm, 12x12 mm
DS300-15	1	Support rod, squared, L=150 mm, 12x12 mm

INDICATION OF HYDROSTATIC PRESSURE – SIMPLE MANOMETER

MED 15.03

Purpose

Examining the hydrostatic pressure

Preparation

Fill the tower tank with coloured water up to 20 cm.

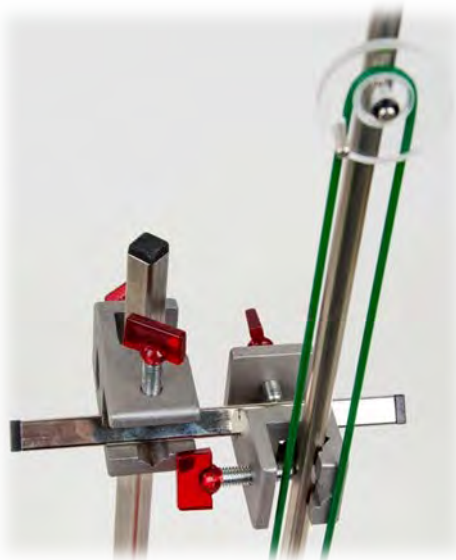
Fix the 500 mm support port to the claw base.



Press the small manometer tube with the attached stopper into the upper opening of the Hartl capsule.



Hold the Hartl capsule in vertical position and press water inside with the help of the syringe until the small Manometer $\hat{}$ -tube is about half full.



The 150 mm support rod is mounted as shown on the image on the left; afterwards the Hartl capsule can be mounted in the second bosshead.



Position the tower tank in the centre of the claw base. The membrane of the Hartl capsule should be mounted in the centre above the opening of the tower tank



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Experiment 1

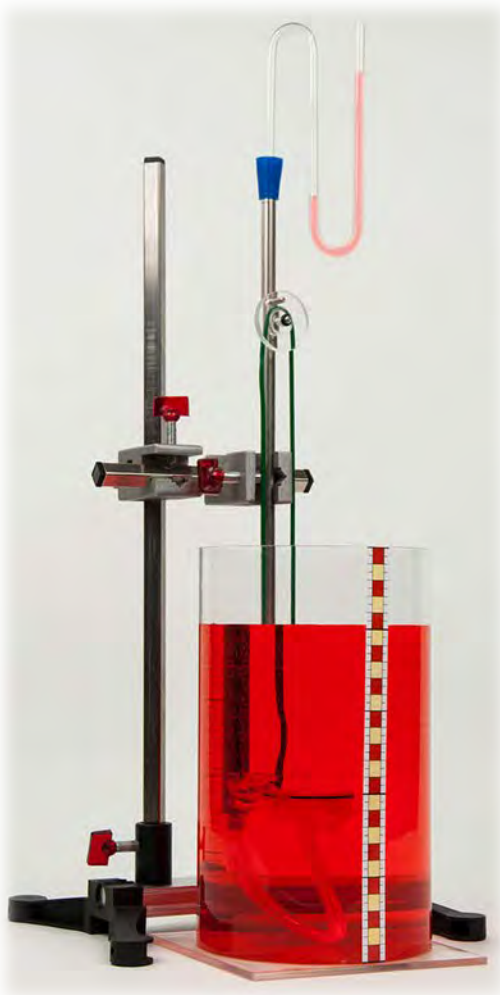
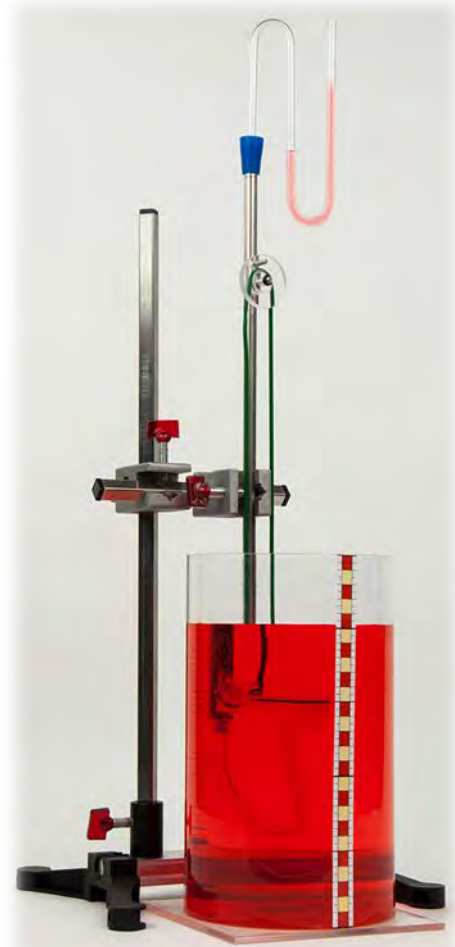
The Hartl capsule is slowly immersed 5 cm deep in the water. The screw on the corresponding bosshead must be loosened so that you can move the Hartl capsule.

We pay attention to the height difference in the Manometer-tube, this serves as a measure of the pressure on the Hartl capsule.

The Hartl capsule is turned into different positions (Membrane on the side – top – bottom) at this water level. Observe the pressure indicated on the Manometer-tube again.

Result

As soon as the Hartl capsule is immersed pressure is exerted on the membrane. With the depth remaining the same the positioning of the membrane causes almost no change in pressure.



Experiment 2

Now the Hartl capsule is immersed 10 cm deep in the water and we observe the indicated pressure on the Manometer-tube.

Again we change the position of the Hartl capsule as in the 1st experiment and observe the pressure.

Result

The pressure increases with the immerse depth. With the depth remaining the same the positioning of the membrane causes almost no change in pressure.

INDICATION OF HYDROSTATIC PRESSURE – SIMPLE MANOMETER

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Attention!

Check the membrane for leaks before starting the experiments. If you submerge it in water no water should be able to enter the Hartl capsule.

The membrane becomes brittle over time because the material is only thin-walled.

Replacement membranes can be obtained from us however condoms are also suitable for this. These only need to be cut accordingly.



Note when performing the experiment quantitatively

Since the pressure is passed on from the air, the smallest possible temperature change during the measuring process must be ensured due to the strong temperature dependency of the air pressure.

The liquid and air temperature should hardly differ and the pipe should not be heated too much by hand (for this reason it is advisable to use support material).

If you fill e.g. alcohol in the container it can also be shown that the pressure is depending on the density of the liquid.