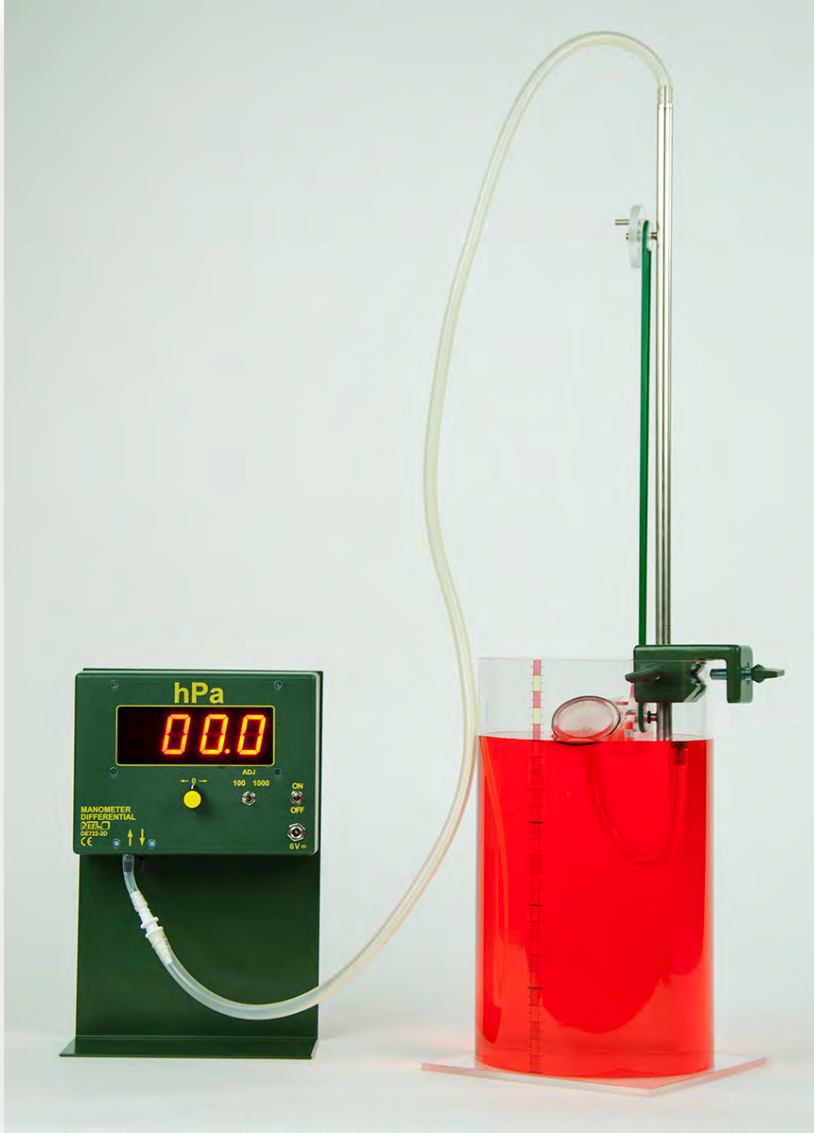


MEASUREMENT OF HYDROSTATIC PRESSURE – DIGITAL MANOMETER

MED 15.04



Material

Item-no.	Qty.	Description
DM425-2G	1	Tower tank with scale
DM420-1D	1	Hartl capsule
DS400-3K	1	Bosshead cross-pattern, Demo, green
C7445-7S	1	Hose, silicone, D=7/9 mm, L=100cm
DE722-2D	1	Manometer differential, „inno“
P3120-4A	1	L-shaped assembly platform

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Purpose

Demonstration of the increase in hydrostatic pressure with depth and the directional independence of the pressure.

Preparation

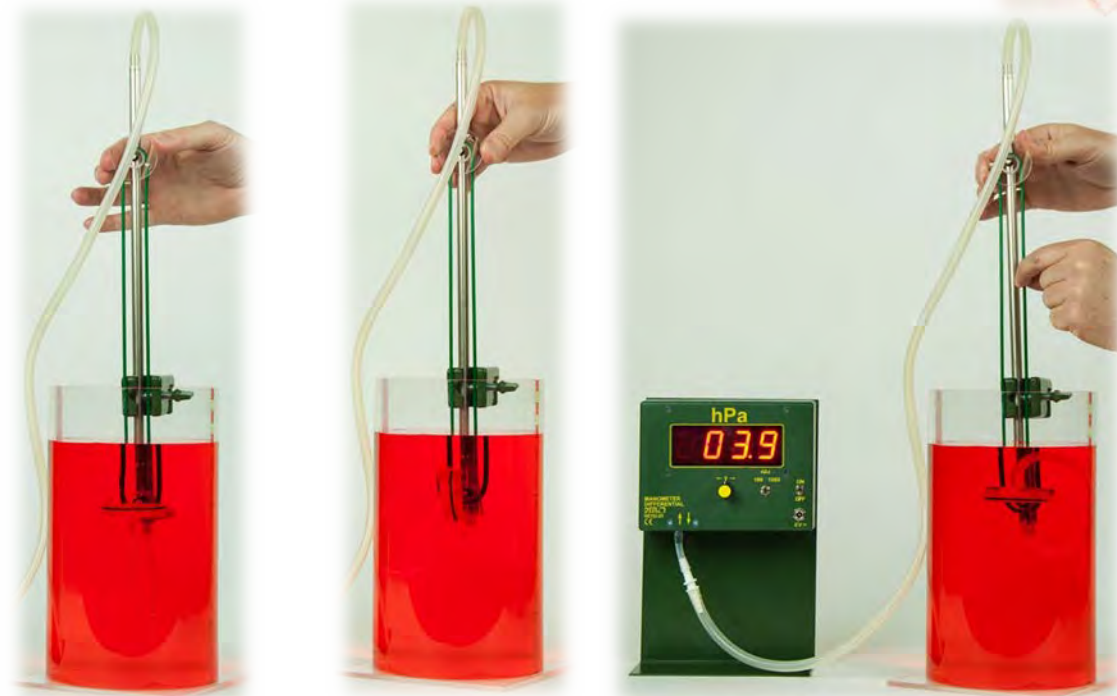
- fill the tower tank with coloured water up to 20 cm
- position the bosshead at the upper edge of the tank and carefully fix it there with the screw (do not fasten it completely!)
- place the Barometer on the L-shaped assembly platform
- connect the Barometer to the Hartl capsule with the silicone hose
- as shown on the image on the right the Hartl capsule is mounted to the bosshead on the tower tank

Experiment

The display on the barometer is set to zero.

Afterwards the screw on the boss head is loosened, the Hartl capsule is immersed to a depth of 5 cm and then the screw is fixed again.

If you turn the Hartl capsule in the different positions (sideways – up – down) there is almost no pressure change with the same depth.



If the belt slips due to moisture you can also pull or push the belt directly.

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Note the measured results for an immersion depth of 5 cm in the chart below.

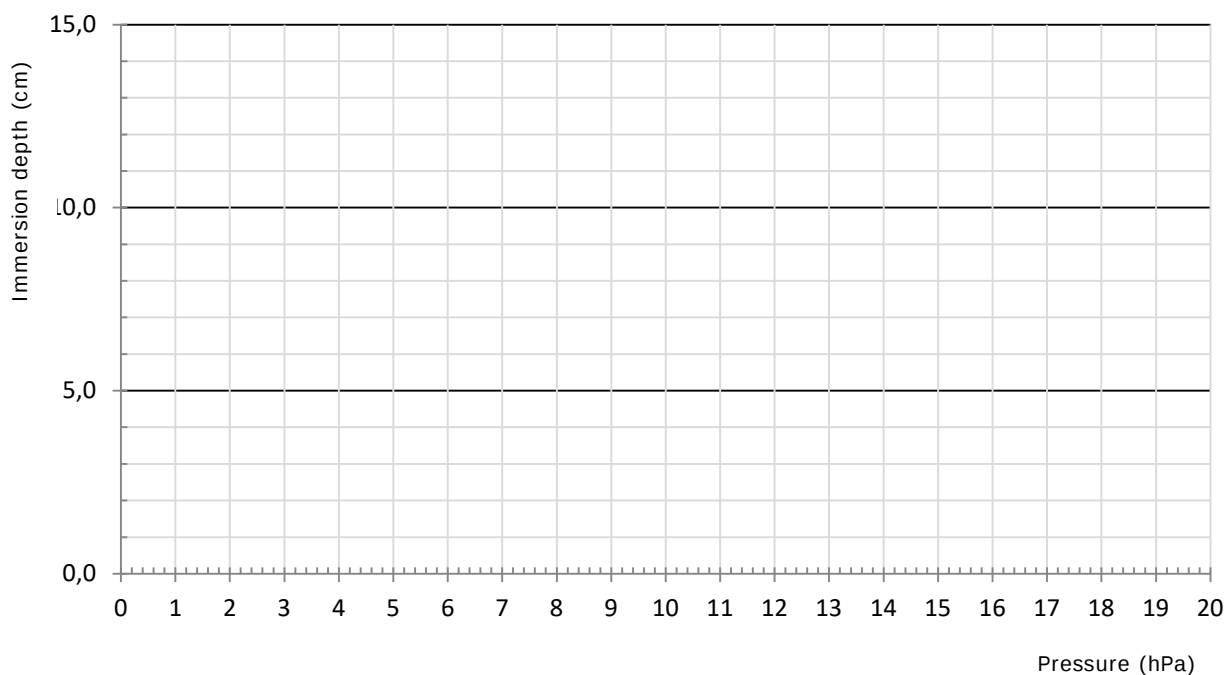
Pressure from ...	Pressure (hPa) at an immersion depth of		
	5 cm	10 cm	15 cm
... above			
... the side			
... below			

Repeat the measurements for an immersion depth of 10 cm and 15 cm and note them in the chart too.

Conclusion

The hydrostatic pressure is almost the same from all directions at the same immersion depth.

Transfer the values from the chart into the diagram below:



Conclusion

The hydrostatic pressure increases almost linearly with the immersion depth.

Note on theory

1 bar 100 000 Pa 1000 cm (= 10 m) water pillar
1 mbar..... 100 Pa (= 1 hPa) 1cm water pillar

With 1cm water depth, the pressure increases by 1 hPa = 1mbar.