WATER FLOW AROUND A POLYSTYRENE BALL

MED 17.08

Material:

Item-no.	Qty.	Description
DS090-3K	1	Claw base "Sepp", 260 x 220 mm
P7240-1G	1	Support rod, round, L=500 mm, D=10 mm
DS502-02	1	Support ring on support clamp, D=102 mm
C1000-1K	1	Beaker glass, 2000 ml, low form, Borosilicate
DM410-1B	1	Pascal's Vases
DM366-1K	1	Ball, D=30 mm, Styrofoam
DG110-1B	1	Measuring beaker, plastic, 1000 ml

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Purpose
In the case of moving (flowing) liquids and gases, dynamic forces occur in addition to the buoyancy.

Preparation
- the 500 mm support rod is clamped into the claw base
- fix the support ring on clamp to the support rod (at a height of 30 cm)
- the conical vessel attachment of the Pascal's Vases is inserted into the support ring
- place a Styrofoam ball in the vessel attachement
- place the 2000 ml beaker below the vessel.

Experiment 1
With the measuring beaker we pour water into the conical vessel.

How does the Styrofoam ball behave?

Experiment 2
While pouring water into the conical vessel close the opening of the vessel with your finger and interrupt the flow.

How does the Styrofoam ball behave now?

Result
The Styrofoam ball rises immediately.

Note
This experiment corresponds to the experiment in 19.10 - Aerodynamic paradox - with the funnel and the ball; however here the direction of force and the direction of flow through the funnel are reversed.