

02/15-W07-GENZ

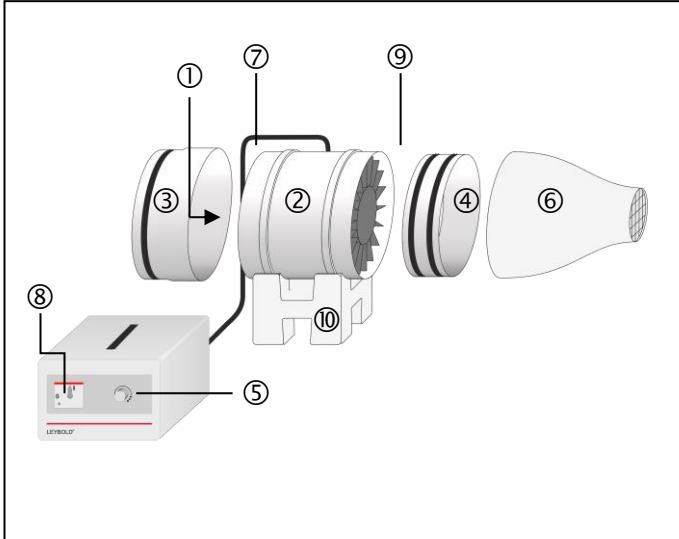


Fig. 1: Suction and pressure fan.

## 1 Description

The apparatus is mainly used for experiments on aerodynamics. For experiments on the open aerodynamics working section (373 06) and the Venturi tube (373 091) it is used as a pressure fan. In connection with the wind tunnel (373 12) it is used as a suction fan.

## Safety Notes

### Take notice of the instruction sheet and all safety notes!

Before powering on the fan, ensure a stable position and a clearance of at least 1 m before and after the experimental setup.

Before removing the nozzle or before disconnecting the fan from the wind tunnel

- Pull out the mains plug and
- Wait for at least 30 seconds until the fan comes to a complete stop.

Before exchanging the fuse pull out the mains plug!

Never place a mechanical load on the protective grid on the suction side of the fan or the lamellae on the pressure side.

Never place a mechanical load on the nozzle grid.

Maximum permissible ambient temperature: 50 °C.

## Instruction Sheet 373 041

### Suction and pressure fan (373 041)

## 2 Scope of Delivery

- ① Protection grid
- ② Fan
- ③ Adapter ring for suction side
- ④ Connector ring for pressure side
- ⑤ Potentiometer for continuous adjustment of the fan speed
- ⑥ Nozzle, Ø 100 mm, for the pressure side ⑨ of the fan  
Opening suitable for use with the Venturi tube (373 091)
- ⑦ Suction side
- ⑧ Motor protection switch  
with overload protection and short circuit protection
- ⑨ Pressure side
- ⑩ Base for securing the fan

Not shown: Polystyrene ball, Ø 70 mm

Total weight: 12 kg

## 3 Technical Data

Max. fan speed	2900 r.p.m.
Volumetric flow rate	1700 m <sup>3</sup> /h
Sound power level	approx. 80 dB
Run-up time	approx. 3 min
Response time for speed changes	approx. 30 s

Mains supply voltage	AC 230 V / 50 Hz
Nominal output	170 W
Protection fuse:	T 1.25 A

## 4 Operation

Depending on the experiment, either place the fan on the base horizontally as in Fig. 2 or vertically as in Fig. 4.

Test the stability of the fan before switching it on! Before switching on the fan, always set the potentiometer ⑤ to minimum speed.

### Safety Notes

Never remove the protective grid ① on the suction side of the fan.

For speed adjustments turn the potentiometer ⑤ carefully! Small changes in the setting can lead to large changes in wind speed:

Run-up time of the fan: approx. 3 min.

Response time for changes in fan speed: approx. 30 s.

## 5 Exchanging the fuse

- Turn off the motor protection switch ⑧ (Fig. 1)!
- Pull the power supply cable out of the potentiometer ⑤. The fuse cover is directly below the potentiometer's plug socket for the power supply cable (Fig. 2).
- Open the fuse cover using a flat-blade screwdriver. Push out the fuse sideways and exchange the old fuse with a new one: Fuse Type: T 1.25 A.

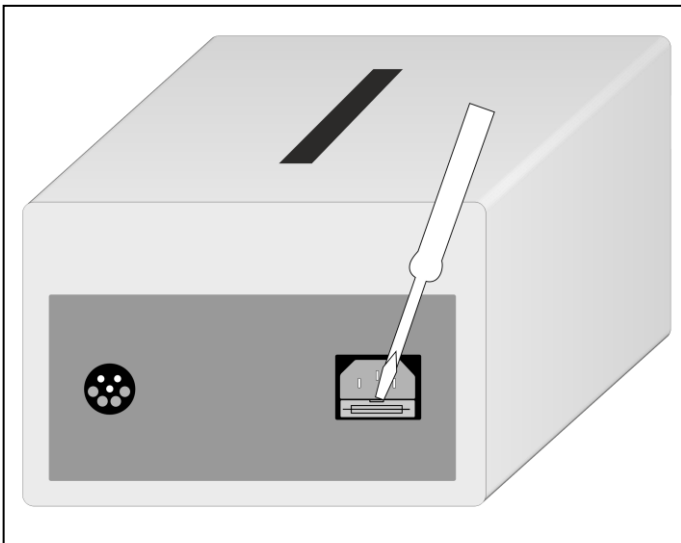


Fig. 2: Backside of the potentiometer ⑤.

## 6 Example Experiments

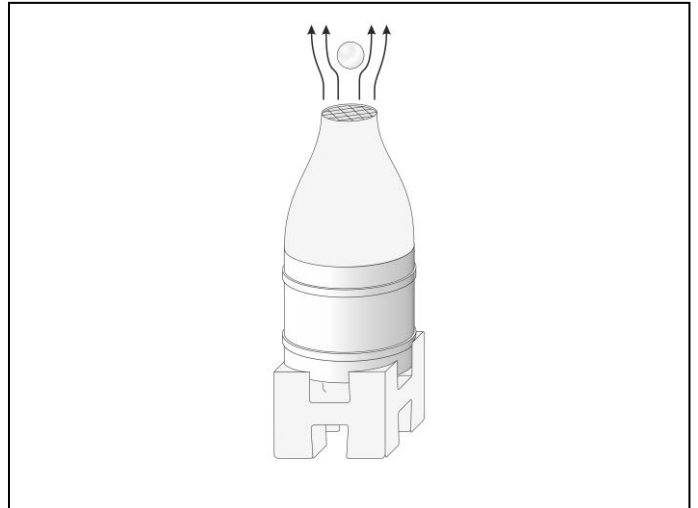


Fig. 3: Polystyrene ball in a vertical air flow (use connector ring ④ for pressure side).

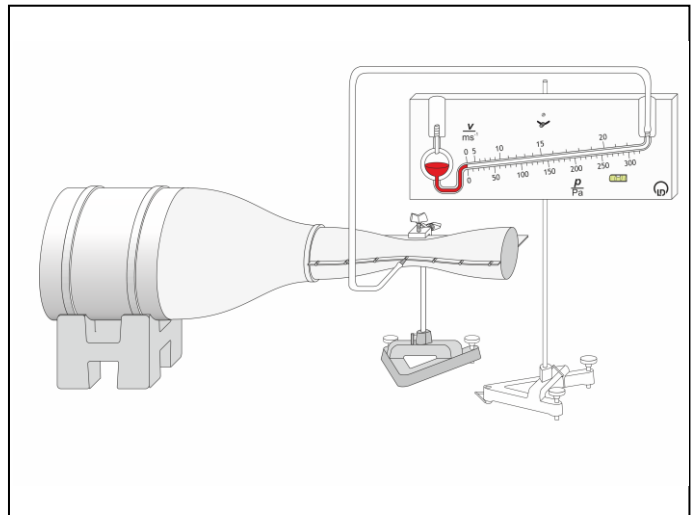


Fig. 4: P1.8.5.1: Static pressure in a reduced cross section (use connector ring ④ for pressure side).

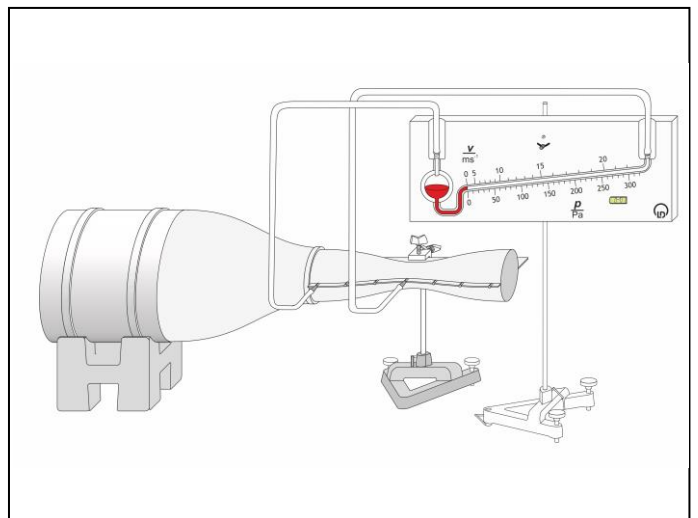


Fig. 5: P1.8.5.2: Determining the volume flow with a Venturi tube (use connector ring ④ for pressure side).

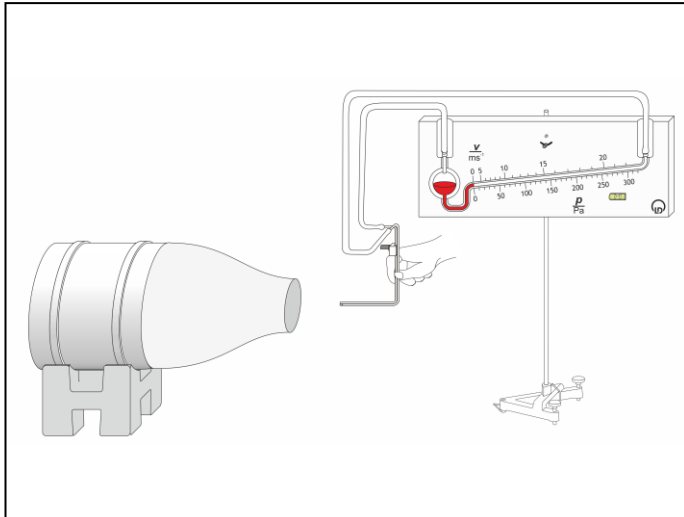


Fig. 6: P1.8.5.3: Determining the wind speed with a Prandtl pressure probe (use connector ring ④ for pressure side).

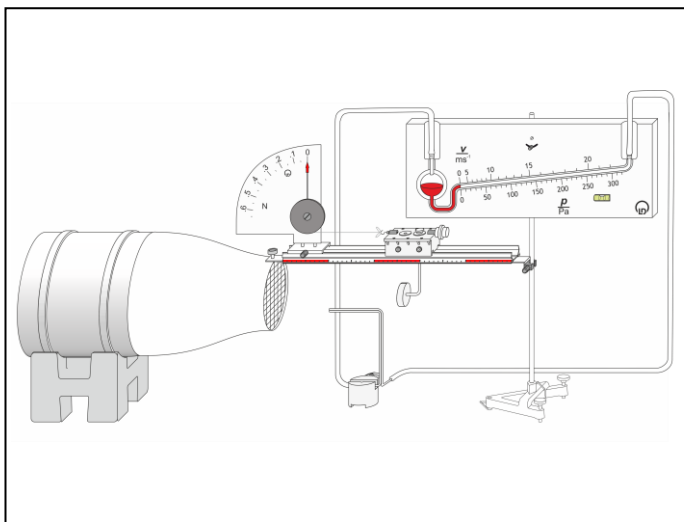
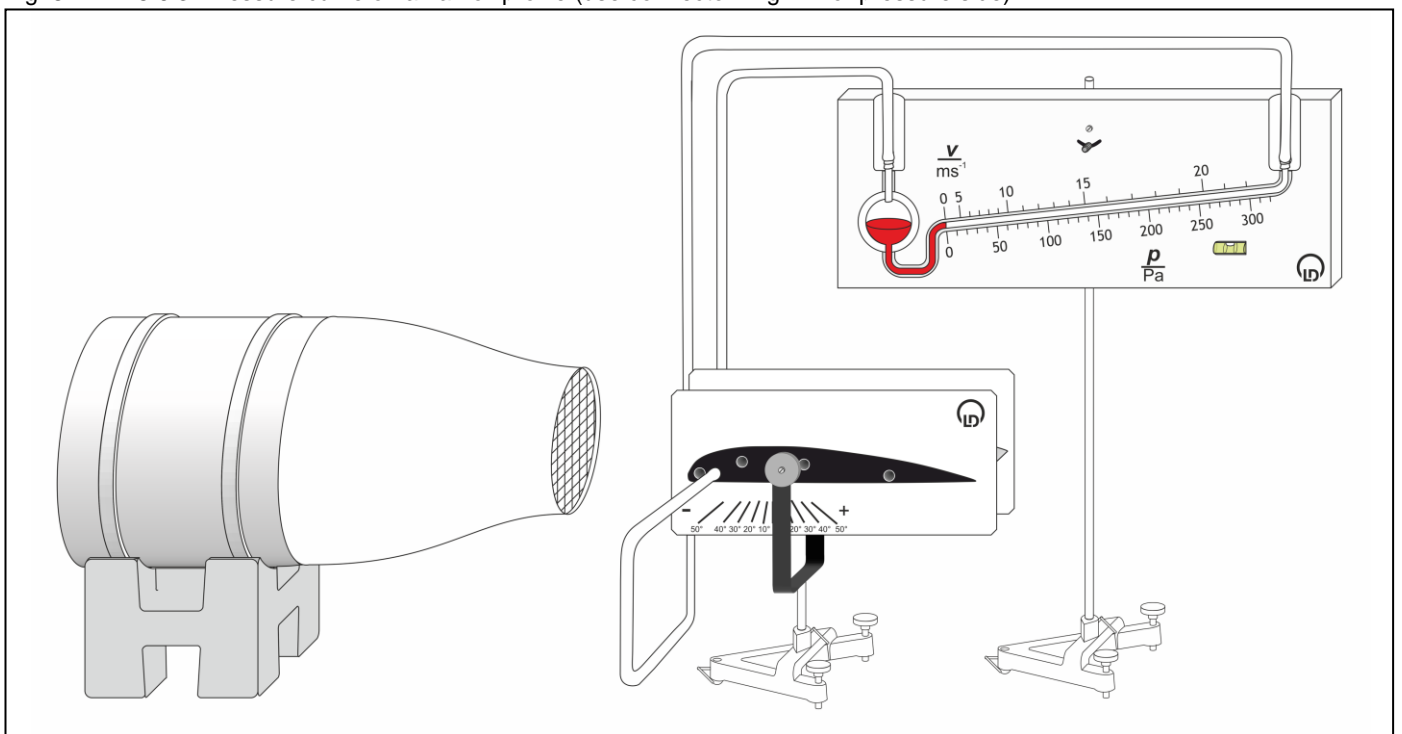


Fig. 7: P1.8.6.1 / P1.8.6.2: Measuring the air resistance as a function of the wind speed or as a function the body shape (use connector ring ④ for pressure side).

Fig. 8: P1.8.6.3: Pressure curve on an airfoil profile (use connector ring ④ for pressure side).



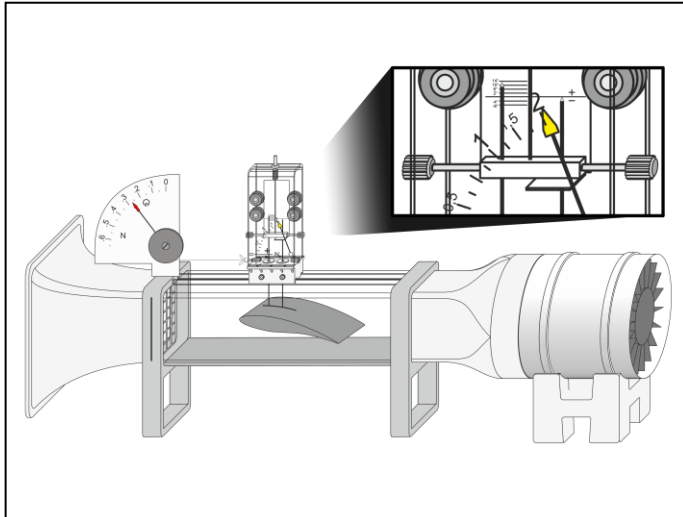


Fig. 9: P1.8.7.1: Recording an airfoil profile polar in a wind tunnel (use Adapter ring ③ for suction side).

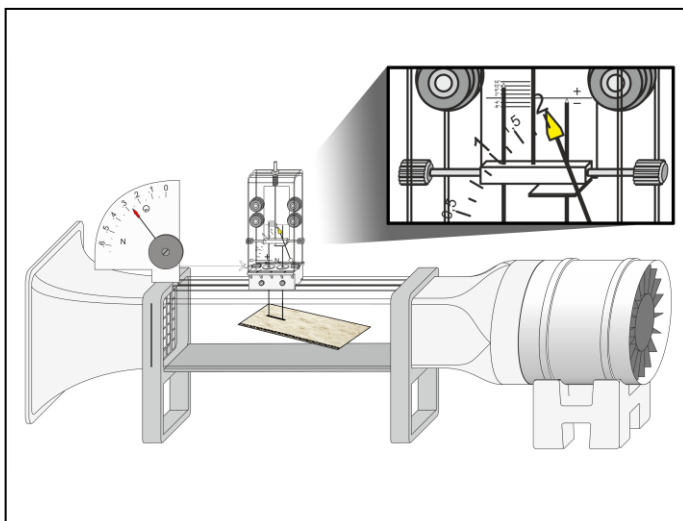


Fig. 10: P1.8.7.2: Measuring students' own airfoils and panels in the wind tunnel (use Adapter ring ③ for suction side).

Fig. 11: P1.8.7.3: Verifying the Bernoulli equation (use adapter ring ③ for suction side).

