

Pipe friction & pressure loss

1. Install the desired fitting (see Chapter 3.2.5, Page 9).
2. Remove the perforated orifice at the fan outlet (see Chapter 3.2.3, Page 8).
3. Install the orifice in the measuring flange (see Chapter 3.3.2, Page 12).
4. Connect measuring connection 1 at the intake pipe inlet and measuring connections 2 and 3 on the iris diaphragm to fittings 1, 2 and 3 on the water manometer using hoses.
5. Detach hoses 4 to 18 from the fittings.
6. Turn on the main switch.
7. Turn on the fan switch.
8. If necessary, adjust the inclination of the water manometer (Chapter 3.2.2, Page 7).
9. Iris diaphragm in position 1.
10. Read off and note the pressures p_1 , p_2 , p_3 and p_4 at the manometer capillary tubes 1, 2, 3 and 4. Here, p_4 is the ambient pressure.

The values read may need to be divided by 2, 5 or 10, depending on the inclination of the water manometer.

11. From the pressures p_1 and p_4 calculate the pressure loss Δp_{4-1} at the fitting.

From the pressures p_2 and p_3 calculate the pressure loss Δp_{3-2} at the measuring flange.

Repeat the measurement with different iris diaphragm positions.

Then repeat the experiment with the other fittings.

For calculation of the flow rate, see Chapter 4.1, Page 16.

Position Iris diaphragm	Pressure loss $\Delta p_{4,1}$ at fitting		Pressure loss $\Delta p_{3,2}$ at measuring flange		Flow rate \dot{V} in m ³ /h (calculated)
	in mm WC	in Pa	in mm WC	in Pa	
1					
2					
3					
4					
5					
6					

Tab. 4.5 Example results: Pipe bend 90°, PVC 90x2,7

Position Iris diaphragm	Pressure loss $\Delta p_{4,1}$ at fitting		Pressure loss $\Delta p_{3,2}$ at measuring flange		Flow rate \dot{V} in m ³ /h (calculated)
	in mm WC	in Pa	in mm WC	in Pa	
1					
2					
3					
4					
5					
6					