



# PRINCIPLES of AIRFLOW, FRICTION LOSSES in BENDS and PIPE ELEMENTS

## F100K



Year 1  
study

### Features

- 6 pipes and Bends supplied
- 1 Orifice plate
- Variety of arrangements possible
- Bench mountable

### Description

The Optional Principles Of Airflow, Friction Losses In Bends And Pipe Elements F100K components have been designed for operation with the Hilton Airflow System F100. The components allow students to quantitatively investigate pressure drops in pipe sections and bends and flow measurement using an orifice plate. The unit also allows students to utilise the flow measuring devices in conjunction with the fan throttle supplied in order to estimate the fan performance under a range of conditions. A series of straight pipe sections, bends and different air inlet shapes that are equipped with static pressure tapings to allow air pressure drops due to pipe friction to be measured at a range of air velocities. The air flow rate may be measured using a standard orifice using the differential pressure.

### Related Laws/Applications

- Orifice Plate
- Bernoulli's Equation
- Reynolds Number

### Learning capabilities

- Investigation of total pressure and pressure drop along a duct.
- The measurement of duct component loss, (or  $k$ ) factor by experiment.

### Technical Specification

- Large diameter pipe and bend: 106mm Bore
- Small diameter pipe and bend: 82mm Bore
- Orifice Plate inlet diameter 0.071m
- Four tapping's in orifice plate

### Essential Ancillaries

- F100

**What's in the Box?**

- 2 x Ø106mm straight tube
- 2 x Ø82mm straight tube
- 1 x Orifice Plate
- 1 x 82mm elbow
- 1 x 106mm elbow
- 1 x Fan Suction Adaptor
- Fastenings
- 8 x Flange Gasket
- Instruction manual
- Packing List
- Test sheet

**Essential Services**

- F100

**Ordering information**

To order this product, please call PA Hilton quoting the following code:  
F100K

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