



Air Ducts are used in many areas. They are used to ventilate offices, sports halls, production halls, conference halls etc. These systems consist of an air duct system and often other facilities for the conditioning of room air. There may also be elements for air purification or sound insulation, e.g. filters.

Tesca Air Duct Training System 32413 examines how the air can be distributed in a building. The air duct system is supplied via a speed-controlled fan. The trainee constructs variable air duct systems from commercial components, such as pipes, bends, branches, filters and outlet valves. Connections for pressure measurements can be installed at any position.

The effects of the individual components on the pressure loss and thus on the velocity and flow rate of the air are examined. For this purpose there are two manometers with different measuring ranges and a manual device for measuring the air velocity. The fan characteristic is also determined. To determine the power consumption of the fan there are a voltmeter and an ammeter.

The well-structured instructional material sets out the fundamentals and provides a step-by-step guide through the experiments

Specifications

- Experimental set-up for training in ventilation engineering
- Radial fan, on mobile frame, to connect air ducts
- Air ducts from galvanized folded spiral-seam pipe with bends, joints and components
- Pressure measuring connections with variable locations
- Set of bends and connections, each DN 100 and DN 200: 90° bend, 45° bend, 45° branch, T piece, T piece with reducer, reducer, plug-in connection, pipe coupling
- Flow restriction elements, each DN 100 and DN 200: throttle valve, iris diaphragm
- Filters, each DN 100 and DN 200: pocket filter, filter cartridge
- 5 assembly stands to attach the air ducts
- Inclined tube manometer and digital manometer for 2 different measuring ranges
- Measuring of the air velocity by anemometer
- Switch cabinet with display of current and voltage

Fan

- Power consumption: 1100W

Note: Specifications are subject to change.

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- Max. flow rate: 1680m³/h
- Max. differential pressure: 1000Pa
- Speed: 0...2800rpm

Pipes

- Length: 1600mm
- Diameter: 8x DN 200, 8x DN 100

Measuring ranges

- Pressure: 0...200Pa / 0...2000Pa
- Velocity: 0.25...30m/s
- Current: 0...10A
- Voltage: 0...230V

Experiment possibilities

- Plan, set-up and test air duct systems
- Typical components of ventilation technology
- Measure the flow rate and velocity of the air
- Measure dynamic and static pressures
- Determination of the pressure loss via different components: bends, angles, distributors etc.
- Recording of system characteristics
- Recording of the fan characteristic
- Determination of the operating point
- Calculate the electric capacity of the fan motor with regard to current and voltage
- Calculate the fan efficiency

Services Required

- 240 AC 1Ø 50Hz 20A with ground

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