AF80

FLOW VISUALISATION WIND TUNNEL

Uses smoke trails to show air flow around different shaped models

SMOKE TRAILS AROUND A HEMISPHERE MODEL (INCLUDED)

SMOKE TRAILS AROUND THE HEAT EXCHANGER MODEL FROM THE AF80B SET

- High quality, vertical wind tunnel that helps students understand air flow around different shaped objects
- Ideal for small group experiments or classroom demonstrations
- Includes smoke generator and lighting to show flow clearly
- Variable air speed
- Includes a set of models
- Additional model set available separately

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DESCRIPTION

A vertical, suction-type wind tunnel with smoke visualisation. Allows demonstrations and student investigations into the flow of air around a wide variety of differently shaped models.

Ideal for small group experiments or classroom demonstrations, the apparatus is floor standing. A variable-speed fan mounted on top of the wind tunnel produces the air flow through the working section. Air flow is vertically upwards.

A smoke generator connects to a comb mounted in the wind tunnel below the working section. Students can move the comb from side to side to aid investigations into the aerodynamic properties of a test model. Smoke is produced by the vapourisation of a high-quality food-grade oil. A filter helps provide uniform air flow. The smoke is non toxic.

The front wall of the working section of the wind tunnel is transparent and removable. This enables users to easily and quickly attach the optional models to the back of the working section. It also allows a clear view of the smoke trails. The wind tunnel includes a set of models, with an additional set available separately (AF80b). Lamps illuminate the working section from both sides to improve the visibility of the smoke.

The wind tunnel is held on a metal frame fitted with castors for mobility. A control unit on the frame contains the controls for the fan speed.

STANDARD FEATURES

- Supplied with comprehensive user guide
- Five-year warranty
- Manufactured in accordance with the latest European Union directives

RECOMMENDED ANCILLARIES

Additional Model Set (AF80b), including:

- Bend
- Cascade corner
- Plain corner
- Heat exchanger tube bank

LEARNING OUTCOMES

When used with the optional models, the visualisation and demonstration of:

- Boundary layers
- Separation
- Rotational flow

THE STANDARD MODEL SET (INCLUDED)

THE OPTIONAL ADDITIONAL MODEL SET AF80B

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ESSENTIAL SERVICES

ELECTRICAL SUPPLY:

(Specify on order)

110 VAC 60 Hz
230 VAC 50 Hz
at nominal 10 A

SITING:

Needs a floor space of 600 mm x 700 mm.

The apparatus is 1950 mm high. You must use it in a well-ventilated room with at least 1 m clearance from the top of the apparatus, and near a suitable extractor to remove the smoke.

COMPRESSED CARBON DIOXIDE:

The smoke generator has a gas bottle, which is shipped empty to obey transport laws.

You must fill the gas bottle with compressed carbon dioxide before you use the wind tunnel.

OPERATING CONDITIONS

OPERATING ENVIRONMENT:

Well ventilated laboratory

STORAGE TEMPERATURE RANGE:

–25°C to +55°C (when packed for transport)

OPERATING TEMPERATURE RANGE:

+5°C to +40°C

OPERATING RELATIVE HUMIDITY RANGE:

80% at temperatures < 31°C decreasing linearly to 50% at 40°C

SPECIFICATIONS

NETT DIMENSIONS AND WEIGHT:

700 mm x 600 mm x 1950 mm

Main unit 34 kg, smoke generator 17 kg

Total net weight 51 kg

PACKED DIMENSIONS AND WEIGHT:

1.03 m^3 and 159 kg

WORKING SECTION:

Width 180 mm x depth 100 mm x height 240 mm

AIR VELOCITY:

0 to 5 $m.s^{-1}$

COMB:

23 smoke filaments with 7 mm spacing

SOUND LEVELS:

Lower than 70 dB(A)

STANDARD MODEL SET (INCLUDED)

- Aerofoil
- Circular cylinder
- Slotted orifice
- Disc
- Circular orifice
- Two hemispheres (can make a complete sphere)
- Wing tip
- ISA nozzle
- Model car and van

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