

NOZZLE PERFORMANCE TEST MODULE F300A



Year 1
study

Features

- Five nozzles Supplied as standard
- 1 x Convergent
- 4 x Convergent-Divergent
- Micrometer Adjustment

Description

A series of convergent and convergent-divergent nozzles may be installed in one of two locations in a high pressure measuring chamber. A pressure regulator, throttle valve and back pressure valve allow the air flow rate, inlet and discharge (or back) pressure to be varied. Standard unit includes convergent – divergent ducts designed to produce Mach 1.0 at the throat and supersonic velocities downstream. Inlet and outlet air pressures, temperatures and air flow rate are recorded by a combination of instrumentation on the Compressible Flow Range F300 base unit and the optional module.

Related Laws/Applications

- Compressible Flow
- Nozzles
- Flow Theory
- Bernoulli's Equation
- Shock Waves
- Supersonic Flow
- Kinetic Energy Producers
- Thrust Producers
- Fluid Acceleration
- Turbines
- Jet Propulsion
- Rockets
- Ejectors

Learning capabilities

- Visual demonstration of nozzle choking.
- Determination of the effect of inlet and back pressure on mass flow rate through nozzles.
- Comparison of mass flow rate with theoretical values.
- Measurement of the velocity of a jet issuing from a nozzle operating at a variety of inlet and back pressures.
- Calculation of nozzle efficiencies.
- Determination of jet reaction and specific thrust at a range of inlet and back pressures.

Technical Specification

- 2 x Thermocouples
- Calibrated cantilever beam

Essential Ancillaries

- F300

What's in the Box?

- 1 x F300A
- 5 x Nozzles
- 1 x Weight Carrier
- 1 x 0.5N, 1 x 1N, 1 x 2N
- 1 x micrometer assembly
- 1 x Drain Valve key
- 1 x Exhaust coupling assembly
- 2 year spares comprising 'O' ring set
- 1 x PTFE tape
- Instruction manual
- Packing List
- Test Sheet

Essential Services

- Air requirement: approximately 420 litres free air per minute at a pressure of 700 to 1000 kN m⁻² gauge supplied to the F300 base unit.

Ordering information

To order this product, please call PA Hilton quoting the following code: F300A

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COUNTRY OF ORIGIN - UK WARRANTY PERIOD - 5 YEARS