

## VORTEX TUBE REFRIGERATOR MODULE F300F



Year 1  
study

### Features

- No moving Parts

### Description

A compressed air vortex tube has two outlet ports that can be adjusted to vary the proportion of flow that leaves from the hot and cold exit points.

Using a common compressed air source at ambient temperature, the cold stream can reach temperatures below  $-30^{\circ}\text{C}$  and the hot stream temperatures above  $50^{\circ}\text{C}$ .

The effect of air supply pressure on the performance can be investigated together with the overall refrigerating effect. The 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

- The cooling or warming of protective clothing
- Electronic cabinet cooling
- Chilling hot melt adhesives
- Dry drilling and machining of plastics
- Laboratory sample coolers
- Instrument cooling
- Cooling small plastic mouldings
- Environmental cabinet temperature control
- Shrink fitting
- Cutter cooling when machining

### Learning capabilities

- Investigation of torque/speed and power/speed characteristics of a single stage reaction turbine.
- Application of the First Law of Thermodynamics to a

simple open system undergoing a steady flow process.

- Determination of the isentropic efficiency of a turbine.
- Construction of retardation curve and from this the estimation of the effect of resistances due to mechanical and fluid friction.

#### **Technical Specification**

- 3 x Thermocouples
- Cold Stream: -30°C
- Hot Stream: +50°C

#### **Essential Ancillaries**

- F300

#### **What's in the Box?**

- 1 x F300F
- 1 x T-S Diagram
- Instruction manual
- Packing List
- Test Sheet

#### **Essential Services**

- Air requirement: approximately 300 litres free air per minute at a pressure of 300 to 1000 kN m<sup>-2</sup> gauge supplied to the F300 base unit.

#### **Ordering information**

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

F300F

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COUNTRY OF ORIGIN - UK WARRANTY PERIOD - 5 YEARS