

## SINGLE STAGE COMPRESSOR TEST UNIT F860



Year 1  
study

### Features

- Allows Investigation of a Single Stage Compressor at a Range of Delivery Pressures.
- Safe and Suitable For Student Operation.
- Instrumentation Allows Detailed Analysis of Compressor Performance.
- Optional Computerised Data Acquisition

### Description

A bench mounted unit with a belt driven reciprocating air compressor. The drive motor is mounted in bearings and allows the torque required to drive the compressor to be measured using an integral balance. With the measured torque and motor speed the shaft power required to drive the compressor may be determined. Compressor speed is measured through the fixed pulley ratio between the drive motor and compressor. Panel mounted meters allow the motor electrical input to be compared to the measured shaft power. The intake air passes through an orifice for flow measurement to a vessel that reduces intake pulsations and allows various intake conditions to be established. The intake and delivery pressures are indicated on gauges and all of the relevant system temperatures are recorded by thermocouple sensors connected to multiple selector switches and a digital temperature indicator. The flow measurement orifice is connected to a panel mounted manometer to allow differential pressure measurement. Air is delivered to a receiver fitted with a high pressure cut out and relief valve for operator safety. A throttle valve allows discharge pressure to be controlled and adjusted.

#### Related Laws/Applications

- Thermodynamics
- Energy Conservation
- Mechanical Engineering
- Plant and Process Engineering
- Automotive Engineering
- Fluid Mechanics

#### Learning capabilities

- Investigation of Variation in Air Flow Rate With Compressor Pressure Ratio.
- Investigation of Variation in Volumetric Efficiency with Compressor Pressure Ratio.
- Investigation Of Variation Of Isothermal Efficiency With Compressor Pressure Ratio.
- Investigation Of The Compressor Performance Relative To Electrical Power, Shaft Power, And Heat Loss.

#### Technical Specification

- Two Cylinder Compressor
- Compressor Dimensions:
  - Bore: 60mm
  - Stroke: 24mm
- Swept Volume per revolution: 0.135 Litres
- Motor Torque Arm Radius: 112mm

#### What's in the Box?

- 1 x F860
- Country Specific Power Lead
- Instruction manual
- Packing List
- Test Sheet
- Wiring Diagram

#### You might also like

- F865

#### Weights & Dimensions

- Weight: 80 kg
- Length: 940mm
- Width: 600mm
- Height: 1140mm

#### Essential Services

- 220-240 Volts, Single Phase, 50Hz/60Hz (With earth/ground).
- Line current up to 10A at 230v.
- 110-120 Volts, Single Phase, 60Hz (With earth/ground).
- Line current up to 20A at 110v.

#### Data logger channel inputs where applicable\*

[Where the D103 Hilton Data Logger \(HDL\) is fitted, the following data can be recorded \(where applicable\):](#)

F860/115/FC & F860/230/FC

- Compressor air in °C
- Compressor air out °C
- Ambient °C
- Motor Force
- Suction Px
- Orifice Plate
- Compressor Amps
- Compressor RPM
- Discharge Px
- Supply Volts

#### Ordering information

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

F860/230 - SINGLE STAGE COMPRESSOR TEST UNIT

F860/115 - SINGLE STAGE COMPRESSOR TEST UNIT

F860/230/FC - SINGLE STAGE COMPRESSOR TEST UNIT

COMPUTER LINKED

F860/115/FC - SINGLE STAGE COMPRESSOR TEST UNIT

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COUNTRY OF ORIGIN - UK WARRANTY PERIOD - 5 YEARS