Two Stage Reciprocating Air Compressor Study Unit with Intercooler (SMT-HT-17)

The trainer provides all necessary data for recording the compressor characteristic and to depict the compression process on a p-V diagram. The pressures and temperatures for both stages are recorded using sensors and indicated on digital displays & optional DAQ Software on Computer. The air throughput and the electrical power consumption are also measured. The measured values can be read on digital displays. At the same time, the measured values can also be transmitted directly to a PC using Data Acquisition Card (Optional).

The unit has Touch LCD display for visualization of process and the measurements. The Unit is also connected to Software for computer connectivity and data analysis. The Touch screen and computer software is included in the package.

Technical Specifications

Specifications:

- Trainer for recording the characteristic curve of a two-stage compressor.
- Compressor with 2 cylinders in a V-arrangement.
- Pressure vessel on 1st stage as intermediate reservoir.
- Intake vessel, with nozzle to measure the airflow rate, pressure sensor and additional manometer
- Pressure vessel on 2nd stage with safety valve, control valve and outlet silencer, and additional manometer.
- Instrumentation: sensors with digital LCD displays.
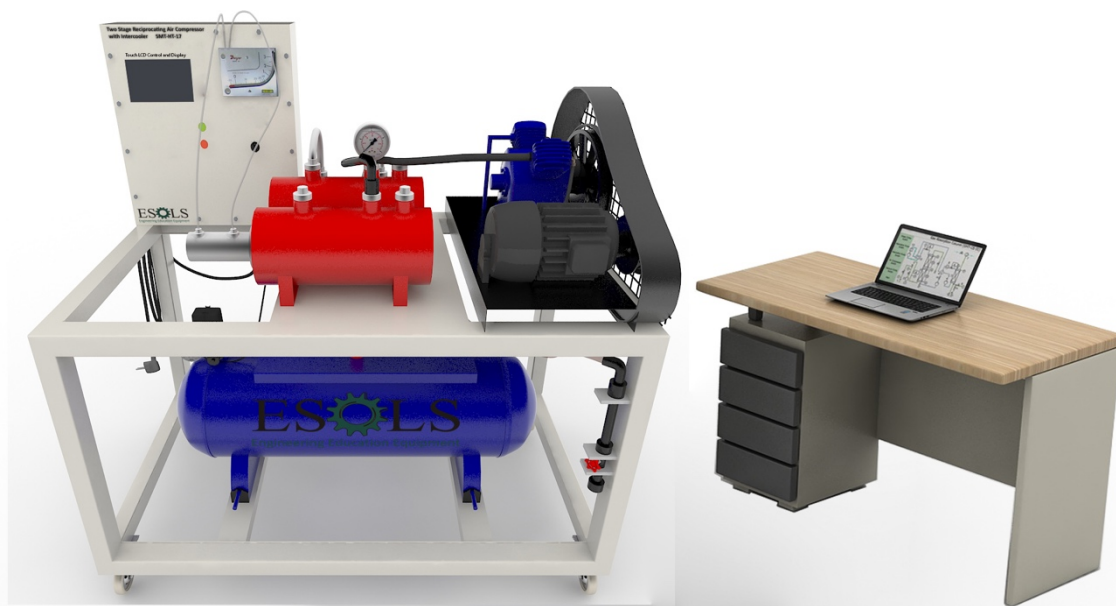
Technical Data:

- Compressor:
  - Two-stage.
  - With 2 cylinders in a V-arrangement.
  - Power consumption: 2.2kW.
  - Speed: 710rpm.
  - Intake capacity 250L/min.
  - Operating pressure: 12bar, max. 20bar.
- Pressure vessels, 16bar; capacity:
  - 1st stage: 5L.
  - 2nd stage: 20L.
  - Intake vessel: 20L.
- **Measuring ranges:**
  - Differential pressure: 0 to 25mbar.
  - Pressure: 1x 0 to 1.6bar / 2x 0 to 16bar.
  - Temperature: 4x 0 to 200°C.
- 230V, 50Hz, 1 phase
  230V, 60Hz, 1 phase
  120V, 60Hz, 1 phase
- Touch LCD with GUI Interface for better monitoring and accurate measurement of Plant variables.
- ESOLS DAQ Software for monitoring and control.
  - Graphical visualization.
  - Security mechanism for login.
  - USB Connected
  - Compatible with Windows 7,8.1,10.
- Digital Instrumentation
- Capability to modify according to end user.
- Can be used in Research Purposes.

Experiments:

- Layout and function of a two-stage compressor.
- Measurement of relevant pressures and temperatures.
- Determination of the intake airflow rate.
- Compression process on a p-V diagram.
- Determination of the efficiency.