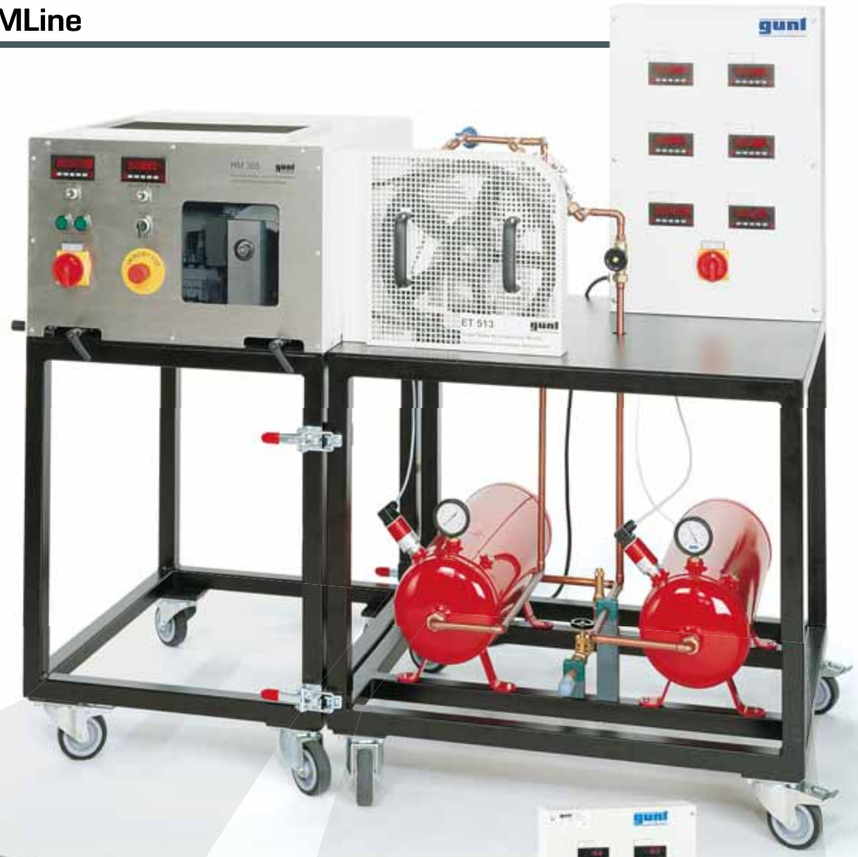
ET 513
Single-stage piston compressor with drive unit HM 365

Part of the GUNT FEMLine

- operating principle of a piston compressor
- measurement of volumetric flow rate and pressures
- power measurement
- determination of efficiency
- plotting of compressor characteristic
- determination of intake and volumetric efficiency

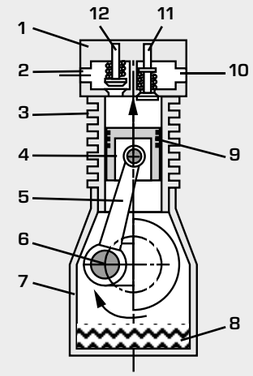


HM 365 Universal drive and brake unit

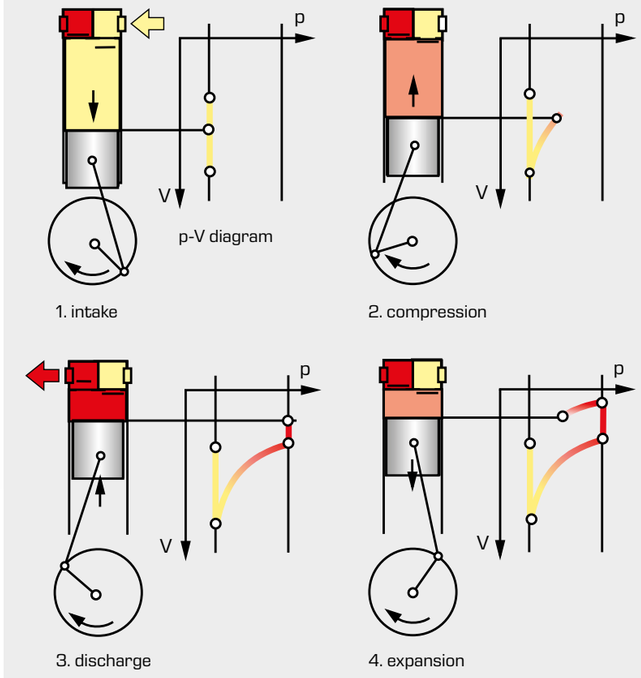
ET 513 Single-stage piston compressor

Piston compressors deliver compressible media such as gas or air.

Piston compressors are positive displacement machines. The piston (displacement element) forms a space with variable volume together with cylinder and cylinder cover. A crank mechanism generates the periodic reciprocating movement of the piston inside the cylinder. The self-acting valves in the cylinder cover control the inflow and the outflow of the delivered medium.



1 cylinder head,
2 air outlet,
3 cylinder with cooling fins,
4 piston,
5 connecting rod,
6 crank shaft,
7 crank case,
8 oil sump,
9 piston rings,
10 air intake,
11 intake valve,
12 discharge valve



The process of delivery is divided into four steps

1. intake
The piston moves downwards and the delivery medium (air) is sucked into the cylinder via the opened intake valve.

2. compression
The piston moves upwards, the intake valve is closed and the pressure in the cylinder increases.

3. discharge
Once the pressure in the cylinder exceeds the pressure inside the outlet line, the discharge valve opens and the piston pushes the compressed medium into the outlet line.

4. expansion
The cylinder volume is not emptied completely into the outlet line. A small part remains inside the cylinder. This part expands during the downward movement of the piston until the pressure inside the intake line is reached. The first step (intake) follows.

The software enables display of measured values on a PC. Recording and saving of data history is possible.

With the help of spreadsheet programmes (e.g. MS Excel) saved data can be evaluated. The measured values are directly transmitted to the PC via USB.