

Two shaft gas turbine unit

DESCRIPTION

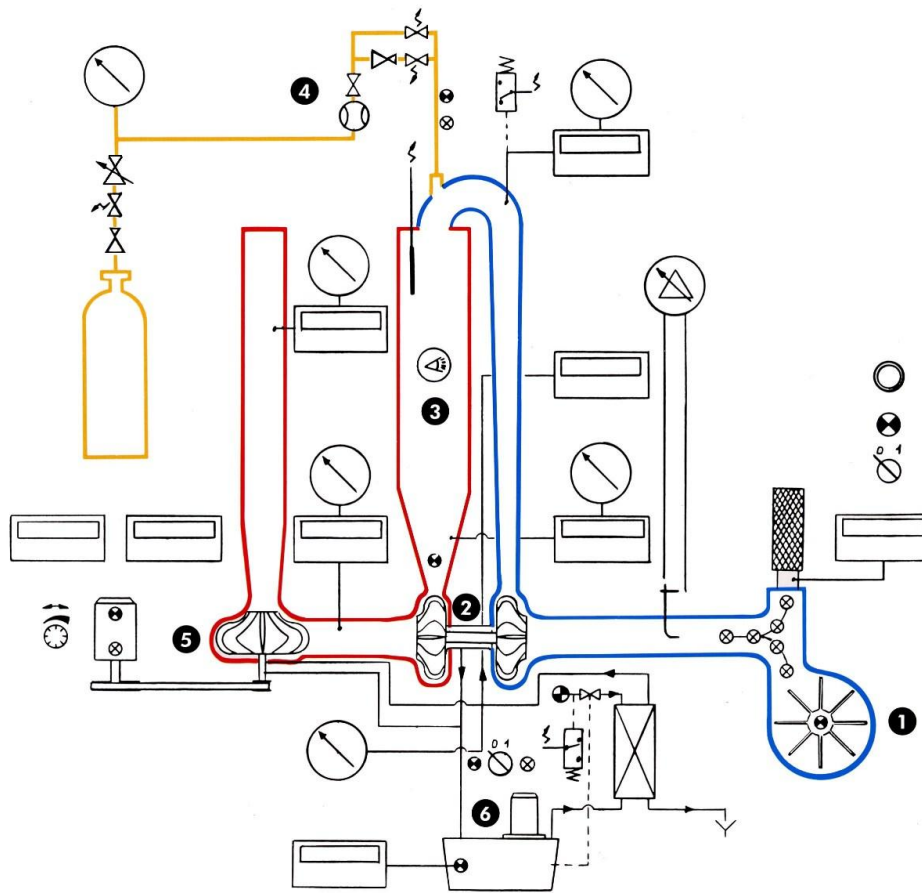
- The gas turbine unit comes complete with instrumentation and a technical and instruction manual.
- Designed and manufactured to industrial standards.
- Works in an open circuit.
- Easy to start, run and maintain.
- This unit is designed for various levels and fields of study.



SUGGESTED APPLICATIONS

- Study of the functioning of a two, independent shaft, gas turbine, operating on propane.
- Measurement of flow rate, pressure, angular speed and torque
- Measurement of electric power.
- Angular speed regulation
- Efficiencies
- Safety precautions

SCHEMATIC DIAGRAM



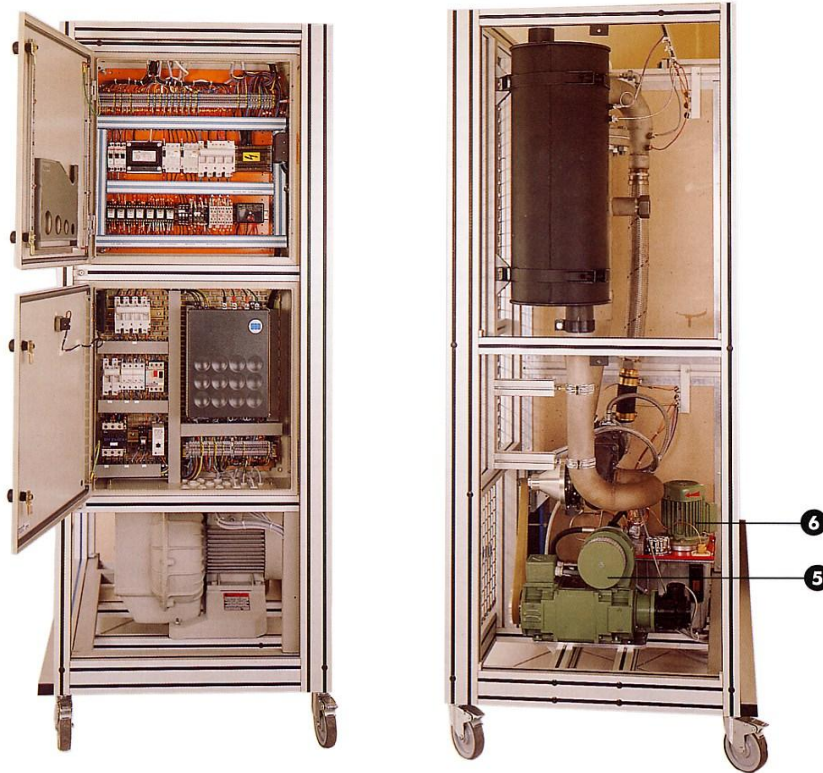
FUNCTIONING OF THE GAS TURBINE UNIT

- The hydraulic unit is turned on
- The fan pushes air through the compressor which is put into rotation
- After a time of pre-ventilation lighting is done by a first
- electromagnetic sluice gate then is relayed by another
- The turbine feeds in air by activating the three-way valve

TGT 1.5 KW



TECHNICAL CHARACTERISTICS



1. Centrifugal fan

Compression 0.5 to 0.7 bars
Air flow rate up to 500m³/h
3-way selection valve
- fan
- self feeding
Suction filters

2. Generator turbine

Centrifugal one-step compressor
- compression ratio from 1.2 to 3
- air flow rate from 100 to 700Kg/h
One-step turbine
- Mounted over the compressor shaft
- Fed by gas expansion from the combustion chamber

3. Combustion chamber

Refractory stainless steel
Porthole for flame observation
Air supply by compressor
Propane supply
Air-propane mix
Electric spark ignition

4. Propane circuit

Pressure regulator
Electro-valve for ignition
Electro-valve for normal use
Propane flow meter

5. Power turbine

Fed by gas expansion from the generator turbine
Speed reduction : ¼
Continuous current generator
-Maximum speed : 3750 RPM
-Maximum power : 1.5 KW

6. Unit for turbine lubrication

Distribution toward the two shafts
Oil/water exchanger

7. Measurements

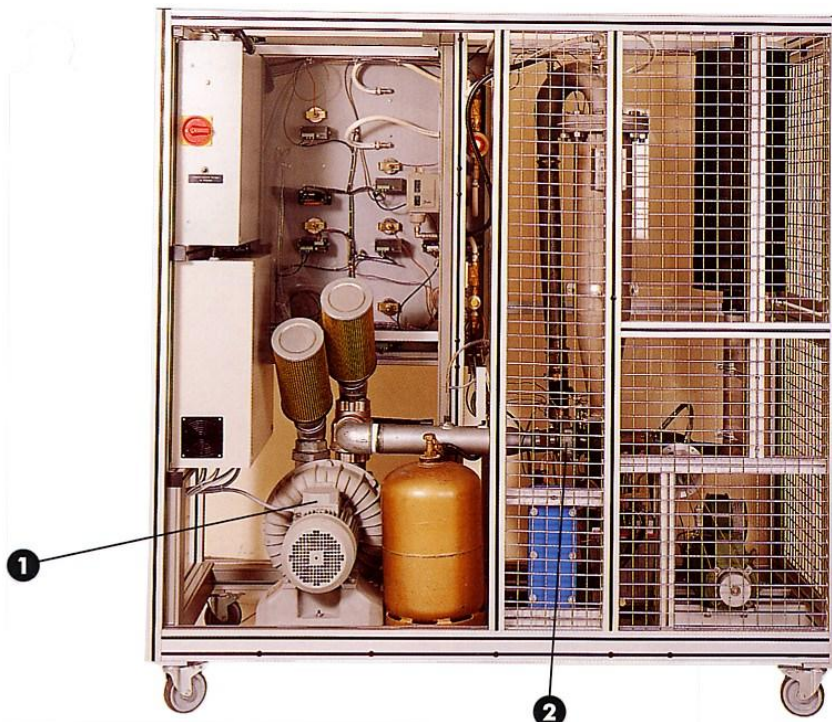
6 temperature measurements
6 pressure measurements
2 flow rate measurements
2 turbine speed measurements
1 power measurement

8. Manual adjustments

Propane pressure
Propane flow rate
Supply by fan and self feeding
Power turbine speed

9. Safety Features

Combustion chamber temperature
Lubricating oil temperature
Combustion chamber air pressure
Cooling circuit water pressure
Flame detection
Generator continuous speed current
Variable speed default



TGT 1.5 KW



UTILITIES:

- Electricity : 415V three-phased + Neutral + earth – 10KW
- Water supply : 3bars, 10L/min, 20°C<T°<30°C
- LPG : standard tank

DIMENSIONS:

- Length : 2000mm
- Width : 825mm
- Height : 2000mm
- Gross weight 780 Kg