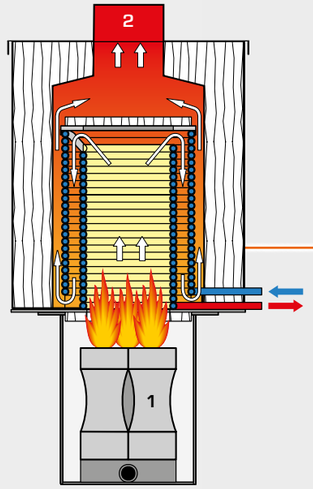
ET 850 + ET 851
Laboratory scale steam power plant

When combined, the ET 850 Steam generator and the ET 851 Axial steam turbine from GUNT represent a real laboratory-sized steam power plant.

This plant has all the important components of a real large-scale plant: A once-through water-tube boiler with superheater, a condenser with water jet pump for vacuum operation, a feed water tank, pumps for condensate and feed water, a steam turbine with dynamometer, shaft sealing with labyrinth and sealing steam.

- once-through water-tube steam boiler design assures highest safety
- quick steam generation due to small water capacity
- electrical superheater enables adjustable superheating of steam
- clean and odourless combustion due to heating with propane or natural gas
- water-cooled condenser evacuated by water jet pump enables operation without steam turbine ET 851 as well



Sectional view of the ET 850 Steam generator

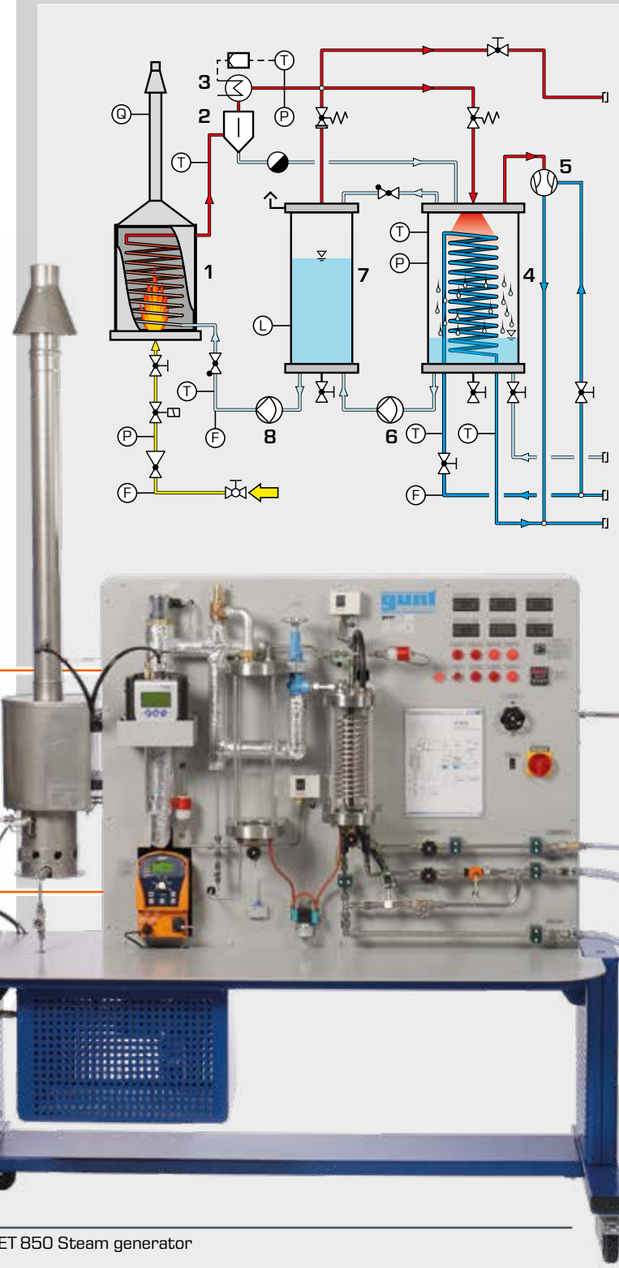
1 burner, **2** exhaust gas, ⬆ direction of flow of the heated air along the heat exchanger

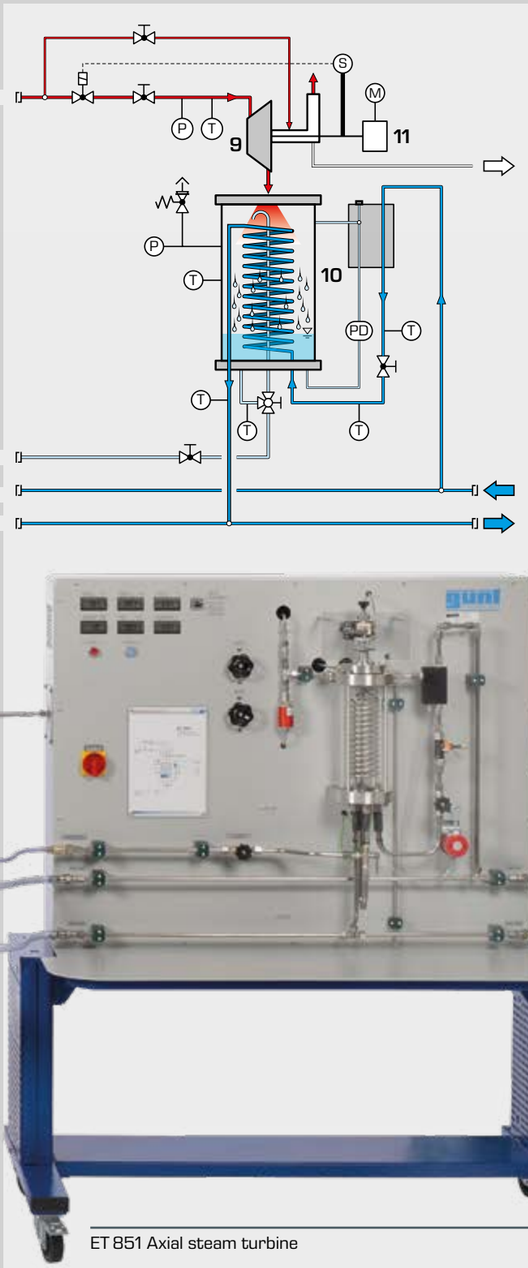
ET 850 Steam generator

1 steam boiler, **2** water separator, **3** superheater, **4,10** condenser, **5** water jet pump, **6** condensate pump, **7** feed water tank, **8** feed water pump, **9** turbine,

ET 851 Axial steam turbine

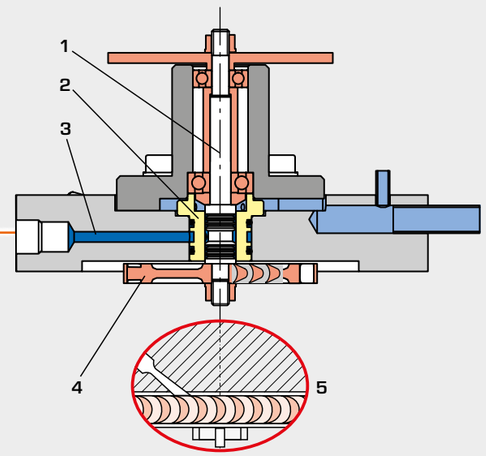
11 brake; **F** flow, **P** pressure, **PD** differential pressure, **Q** exhaust gas analysis, **S** speed, **T** temperature, **M** torque





The operating behaviour is very similar to that of a real plant. Students can observe and practice the careful adjustment of the steam generator, turbine, condenser and superheater. The data acquisition software evaluates the results efficiently and accurately, and provides a quick overview.

- single-stage axial flow impulse turbine
- vertical shaft mounted on ball bearings
- contactless labyrinth gland with sealing steam enables vacuum operation
- transparent, water-cooled condenser
- wearless eddy current brake with permanent magnet
- safety cut-off in case of overspeed via trip valve
- steam flow rate determined via condensate level



1 shaft, **2** labyrinth unit, **3** steam inlet, **4** rotor, **5** sectional view of nozzle and blades

ET 850 Steam generator

ET 851 Axial steam turbine