

# Customised steam turbine generator sets

## Solutions built to deliver a competitive advantage

For power generation applications Peter Brotherhood provide a complete package comprising the turbine, gearbox, generator, instrumentation, control and monitoring systems and associated auxiliary equipment. These units are normally mounted on a fabricated baseplate so that they can be transported to site in their assembled form, reducing site installation time.

### 1. Steam Turbine

Oil operated fail safe isolation valve with steam regulation through single or multi-valve control. The rotor and discs are manufactured from a single piece forging. Bearing pedestals are separate from the steam casings and exhaust orientation can be up, down or axial.

### 2. Condensers

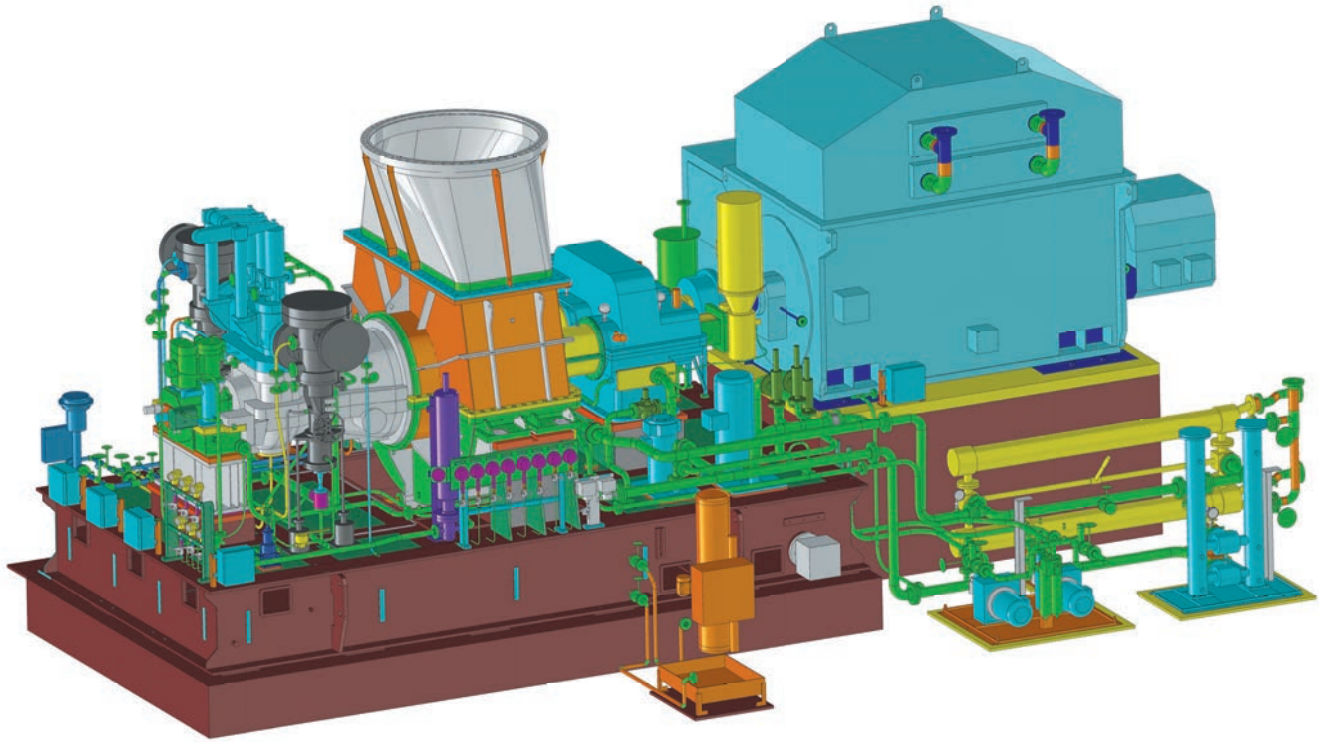
Water-cooled multi-pass shell and tube condensers can be provided together with vacuum-raising equipment and condensate extraction pumps.

### 3. Lubrication

Forced lubrication is normally provided by an oil pump driven from the gearbox. The oil is contained in the turbine base-plate and is passed through a heat exchanger and duplex cartridge type filters to the bearings and gearbox. A completely separate lubrication oil console can be supplied in accordance with the customer's specification and/or to API 614 standard.

### 4. Gearing

Peter Brotherhood turbine frames operate in the speed range 4,000 – 15,000 rpm. They are geared to the driven equipment's speed using a reduction gearbox.



### 5. Instrumentation

The level of instrumentation can be tailored to suit customers' needs and ranges from a simple local control panel to a sophisticated monitoring system remote from the turbine.

### 6. Control & Monitoring System

Electronic speed governing devices are fitted to provide either remote or local regulation of the turbine. Monitoring of vibration and the axial displacement of the rotor shaft can also be incorporated. Remote or local push-button starting using a PLC-based control system can be provided, as can systems to provide full remote control of the turbine.

### 7. Security Trip Systems

An emergency trip is fitted on each turbine to trip it in the event of any fault condition arising. A SIL 3 electronic overspeed trip system is fitted as standard. Programmable control systems can be provided which initiate shutdown of the turbine in response to a variety of conditions, ranging from excessive vibration to low oil pressure.

### 8. Generators

Well-established relationships have been built with a number of leading generator suppliers to allow the company to supply the optimum unit for any application.



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