Steam turbine generator inlet and outlet air

How does a steam turbine work?

The steam turbine is a turbine in which the potential energy of heated and compressed steam produced in a special device, a steam generator, or steam of natural origin (for example, from geothermal springs) is converted into kinetic energy (when the steam expands in the turbine blade cascades) and then into mechanical work on the rotating shaft.

What is a GE steam turbine generator?

GE has been the pioneer in the area of "pack-aged" industrial steam turbine-generators,which are completely assembled and aligned in the quality-controlled environment of the facto-ry. The units can be mounted on bases for quick and easy installation and alignment verification in the field.

What is a geared steam turbine generator?

Geared steam turbine generator sets installation. The turbine exhaust is adaptable to up or down orientations,and internal extrac-tion/admission valves can be added to the steam turbine to suit a customer's process steam needs. Single-shaft steam turbine designs are available.

What is a GE gas turbine?

14. GE gas turbines are designed to allow up to 5% of the compressor airflow for steam injec-tion to the combustor and compressor dis-charge. Steam must contain 50 F/28 C super-heat and be at pressures comparable to fuel gas pressures.

Does GE offer packaged steam turbine-generators?

The experience gained in packaging these smaller units has now been applied to larger units. Specifically,GE now offers packaged steam turbine-generatorsusing up to a 23-inch/584.2 millimeter last-stage bucket in down exhaust configurations and a 30-inch/762 mil-limeter last-stage bucket in axial exhaust config-urations.

How do I calculate a steam turbine's power and efficiency?

A steam turbine's power and/or efficiency can be quickly and accurately calculated using Flexware's Steam Flex steam properties program. It will be necessary to obtain the following operating data from the field. See Figure 1 for typical units used for the calculations.

Problem 3-(20 pts) A steam turbine drives an air compressor, as shown in the figure. The known information about the inlet and outlet states of the devices is given on the diagram. For this ...

Fins and segments on the rotor shaft and casing create a torturous flow path for steam and air. ... Typical Power Plant Steam Turbine and Generator. A typical marine steam turbine will operate at 65 bar (943 psi) and 5150C (9590F) at the ...

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The Engineer must 1st determine which are the steam conditions at the inlet and outlet of the steam turbine that will be applied. For example, the inlet conditions may be known because there is a source of steam in the factory to be used, ...

The high-pressure steam is then used in a steam turbine generator set to produce rotational mechanical energy. The shaft of the steam turbine in connected to an electrical generator that then produces electrical power. ... The CT exhaust ...

For each condition, inlet and outlet, the pressure and the temperature of the steam must be determined. P 1 = pressure at inlet of the steam turbine (bar abs) T 1 = temperature at inlet of ...

In modern turbines, the live steam pressure reaches 30 MPa, and the temperature exceeds 600 °C. Due to such large parameter values, the expansion process takes place in three or four ...

is added to the air and the air/fuel mixture is ignited, increasing the working fluid temperature significantly. The combustion products move downstream through a turbine, which extracts ...

This study conducted an extensive review of compressor inlet air cooling (IAC) technologies applied to gas turbine power plants. The findings of this investigation are outlined ...

and optimization. In terms of the ratio of half the gap width to inlet radius and the ratio of outlet- to inlet radius, the designer of a tesla turbine has to find a compromise between optimal ...

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