Generator hydrogen-cooled rotor air path

Can a self-circulating hydrogen cooling structure be used for a pm wind generator?

With the continuous improvement of permanent magnet (PM) wind generators' capacity and power density, the design of reasonable and efficient cooling structures has become a focus. This paper proposes a fully enclosed self-circulating hydrogen cooling structure for a originally forced-air-cooled direct-drive PM wind generator.

How does a hydrogen cooling system work?

The proposed hydrogen cooling system uses the rotor panel supports that hold the rotor core as the radial blades,and the hydrogen flow is driven by the rotating plates to flow through the axial and radial ventsto realize the efficient cooling of the generator.

How does a rotor-stator ventilation system work?

The air flows radially through ducts in the rotor, into the rotor-stator air gap and then through the stator channels. The usage of one or the other ventilation system depends mainly on the rotor type, the size, and the power rating of the generator. Generators convert the rotational mechanical power of the prime mover into electric power.

How does a generator ventilation system work?

The usage of one or the other ventilation system depends mainly on the rotor type, the size, and the power rating of the generator. Generators convert the rotational mechanical power of the prime mover into electric power. Figure 1 shows a schematic cross-section of a two-pole sector of an electric generator with a salient pole rotor.

For this reason, a hydrogen supply device must be installed. The base and end cover of hydrogen-cooled generators need to adopt explosion-proof structures, which use more steel and are much ...

Hydrogen-cooled generator with water-cooled stator, segmented rotor coils, advanced ventilation, and safety features including sealing and cooling systems.

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For generators up to 60 MW,air cooling can be used. Between 60 and 450 MW hydrogen coolingis employed. For the highest power generators,up to 1800 MW,hydrogen and water cooling is used; the ...

In terms of environmental problems and power generation costs, an increase of the capacity of indirect hydrogen-cooled turbine generators with high efficiency and good maintainability ...

Learn how hydrogen cooled generators work. Its core components, working principle, safety engineering, and common troubleshooting tips.

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The integration of water electrolysis for hydrogen production with power plant generator rotor cooling systems is not only a technological innovation but also a crucial path for power plants to ...

The struc-tures and manufacturing methods used on the stator windings, stator core and rotor windings for this indi-rectly hydrogen-cooled turbine generator are roughly the same as those ...

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The hydrogen ventilation cooling area of the 1100 MW water-hydrogen-hydrogen-cooled turbine-generator is depicted in Fig. 4, which contains multi-stage compressing axial flow fans, axial ...

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