Wind flow direction of air-cooled generator

How does an air cooled generator work?

Air cooled unit draws cooling air from different ends of the unit to cool the system, dependent upon the units cooling system design. Check with the generator's manufacturer to determine the optimal cooling method for the system. Factors such as climate and direction of prevailing winds must be considered in an outdoor installation.

Should a generator air inlet be facing the wind?

When ever possible,face the generator air inlet openings away from the wind. The wind can prevent the air intake louver from opening on start up. The air inlet must be capable of moving enough air through the room to provide the correct minimum CFM (cubic feet per minute) cooling for generator as specified by the generator's manufacturer.

What is a restriction to air flow in an air cooled generator?

Louvers, screening, expanded metal and other materials used to cover air openings are a restriction to air flow. This restriction must be compensated for by making the air opening size proportionally larger. When possible, position the engine end of air cooled generators in line with the air inlet per the manufacturer's recommendation.

How does a favorable air flow affect a generator?

A favorable air flow must provide a convective heat transfer that keeps the temperature spatially and temporally uniform, and below the maximum allowable insulation temperature. The temperature of the insulation can have a great impact on the reliability and lifetime of the generator.

A generator typically needs 35-40% over-sizingof the incoming air based on the internal generator inlet air temperature being ambient +20 degrees Celsius. For typical 32 degrees Celsius water,there is no ...

In-line installations oriented in the same direction run the risk of hot air from the first generator being ingested by the second generator. Please see Figure 11 for preferred orientations for ...

Abstract: In the design and calculation of a 330 MW water-water-air cooling turbo-generator, it was found that the flow direction of the fluid in the local stator radial ventilation duct is ...

The main objective of this paper is to elucidate the effect of rotor end structures of a large-scale air-cooled turbo-generator on the flow rate distribution and fluid flow pattern in the rotor ...

When discharging air vertically, because the generator is surrounded on all sides, can result in higher than ambient air temperatures being pushed into inlet vents. Prevailing Wind ...

For megawatt permanent magnet direct drive wind generator, with the increase of its power level, the insulation of the motor may be threatened by the increase of operating temperature, ...

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Direct-drive permanent magnet synchronous generators (DD-PMSGs) have been widely adopted in wind power generation systems owing to their distinctive advantages, including direct ...

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Abstract: Knowledge of the ventilation flow field characteristics in electric generators is crucial for both designing new generators and refurbishing old ones. Such knowledge is achievable ...

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