

Generator Service

## Patented Hydrogen Vent Star for Removing Hydrogen from Generators

The hydrogen in hydrogen-cooled generators must be removed during inspections or repairs and the cooling gas vented above the turbine building roof.

The risk of hazards for personnel or of damage to machinery and buildings can be significantly reduced by blowing out the hydrogen to the atmosphere via the roof.

### Our solution

Siemens has developed a vent star for hydrogen-cooled generators which significantly reduces the risk of formation of a potentially explosive hydrogen/air mixture.

The openings in the vent star are configured such that the concentration of the hydrogen in the surrounding air is kept low even under unfavorable weather conditions.

The dimensions of the overall configuration of the vent star are selected such that the risk of unallowable stresses on the roof area or other roof structures is significantly reduced in the event of any hydrogen reaction above the roof.

### Features

In the event of hydrogen removal from the generator, the hydrogen must be blown out without hazards for the personnel, buildings and machinery in the surroundings.

The new design of the vent star blows the resulting potentially explosive atmosphere out such that the hydrogen concentration in the air is quickly reduced.

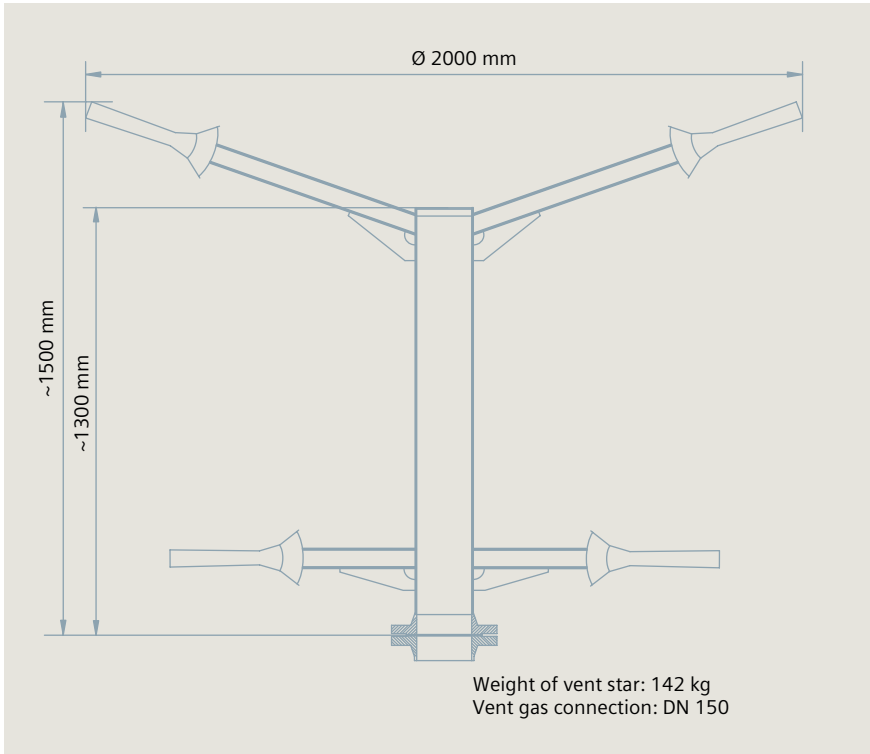
The hydrogen is distributed in multiple clouds by the eight blowout openings, so that the consequences of an explosion, assuming ignition of the hydrogen/air mixture, are less severe than for a standard blowout opening.

Mixing nozzles are used to blow out the hydrogen to shorten the length of the combustible jet by premixing the light hydrogen with air. This ensures separation of the jets with regard to potentially explosive concentrations without necessitating an excessively large distance between the blowout nozzles.

Siemens plans and installs the patented H<sub>2</sub> vent star. This can only be installed during a plant outage, such as during an inspection. Additional measures can also be implemented to increase H<sub>2</sub> safety and explosion protection in auxiliaries.



Installed vent star with equipotential bonding



#### Technical data

In addition to the vent star, integration in the piping is included in the scope of supply as an option. Integration of the vent star and the piping in the lightning protection and equipotential bonding are the responsibility of the plant operator.

#### Your benefits

The vent star is characterized by the following advantages:

- Reduced risk of a potentially explosive atmosphere above roof level
- Current state of the art in compliance with currently applicable guidelines and procedures
- Defined interfaces
- Compact design

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