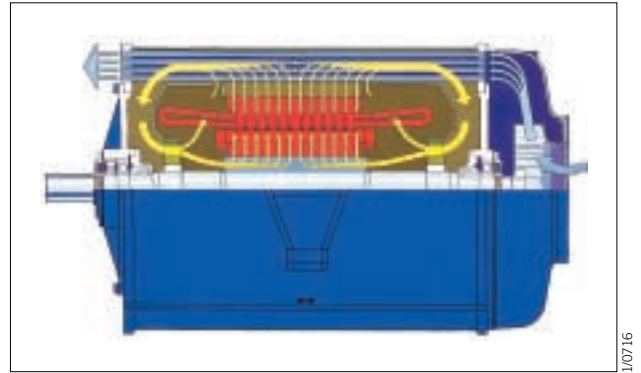


# Ventilation and noise

## Ventilation system

Tubes, concentrically arranged around the active part, act as air/air heat exchangers. Heat generated within the motor is taken up by the cooling tubes which are cooled by external air.

The internal air circulation with axial air ducts in the shaft and radial air ducts in the active part ensures a near uniform temperature distribution in the motor. Hot spots cannot occur, and the thermal life of the winding is prolonged.



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## Noise

In view of ever more stringent regulations concerning protection of the environment and safety at work, the noise reduction of electrical machines is of particular importance.

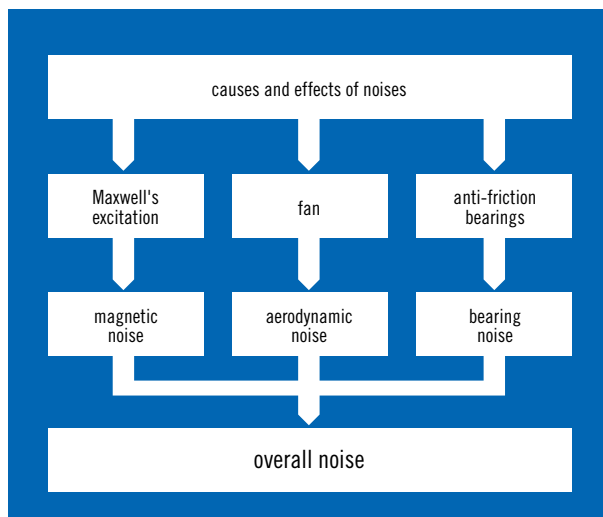
**From the outset, i. e. already in the basic design, our machines are designed as low-noise machines. This is achieved by an interactive design of all components, such as:**

- Frame
- Ventilation System
- Electro-magnetic design
- Bearings

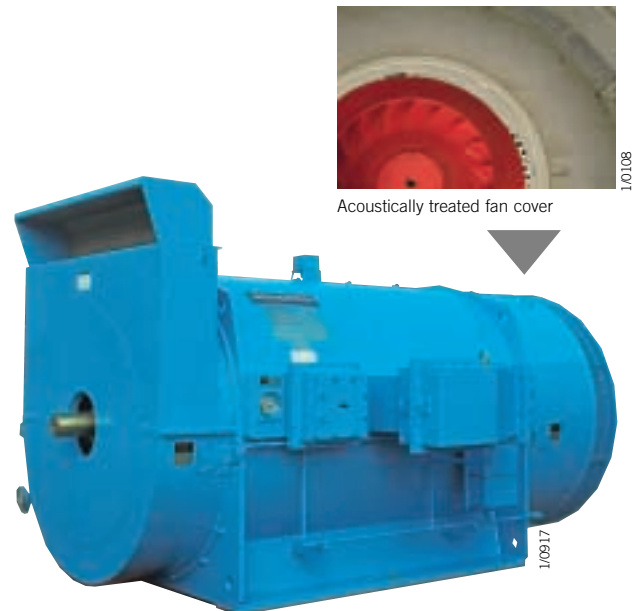
## Noise reduction

Where extreme noise requirements are to be met, various additional measures can be taken.

Depending on the machine design and the number of poles, acoustic absorbers for the air inlet and air outlet are used, which offer noise reductions up to 12 dB.



Sources of noise in electrical machines



1/0108

Motor with air outlet absorber and acoustically treated frame mantle