

New fan speed



For further information on axial fan retrofit solutions please visit www.howden.com or contact your local Howden company.

Change of the power plant processes such as installing FGD or SCR will create new performance demands. Changing the rotational speed of the fan can adjust the fan performance to the actual operating situation and improve efficiency of the fans significantly.

Changing the rotational speed of the fan is an upgrade with minimal outage time. You can keep the foundation, the ducts and the static parts as well as most of the rotating spare parts and the instrumentation.

Depending on the new performance demands the fan speed can be either increased or decreased to give the best possible position of the load points in the performance chart.

When the fan speed is changed, the volume flow changes proportionally and the pressure is proportional to the speed squared.

If only smaller changes are required in rpm and the power of the existing motor is sufficient, the installation of a gear box might be the solution.

The solution chosen depends on an extensive test of the fan and its foundation. It is especially developed by Howden and will be followed by a number of calculations to check firstly the carrying capacity concerning the centrifugal load of the blade bearings and the hub, secondly the rotor dynamics.

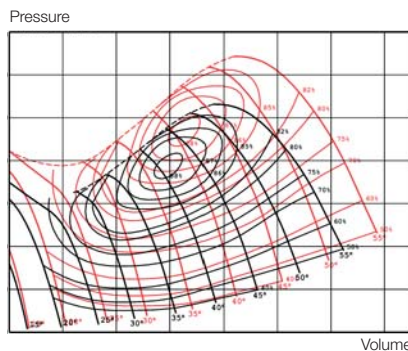


New motor for a vertical fan

The solutions

Depending on the demands for the change of rotational speed, different solutions are available. In the optimal case the only change necessary is a new motor, running at a changed speed and changed power – or maybe a two speed motor if the requirement is two different rpm's by for instance two significantly different performance curves (day/night).

Further to that Howden is also capable of establishing fans with more "fixed" motor speeds.



Fan curve before and after change of rpm
 Black curve = existing fan
 Red curve rpm increased by 10% = volume increased by 10% + pressure increased by 21%

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