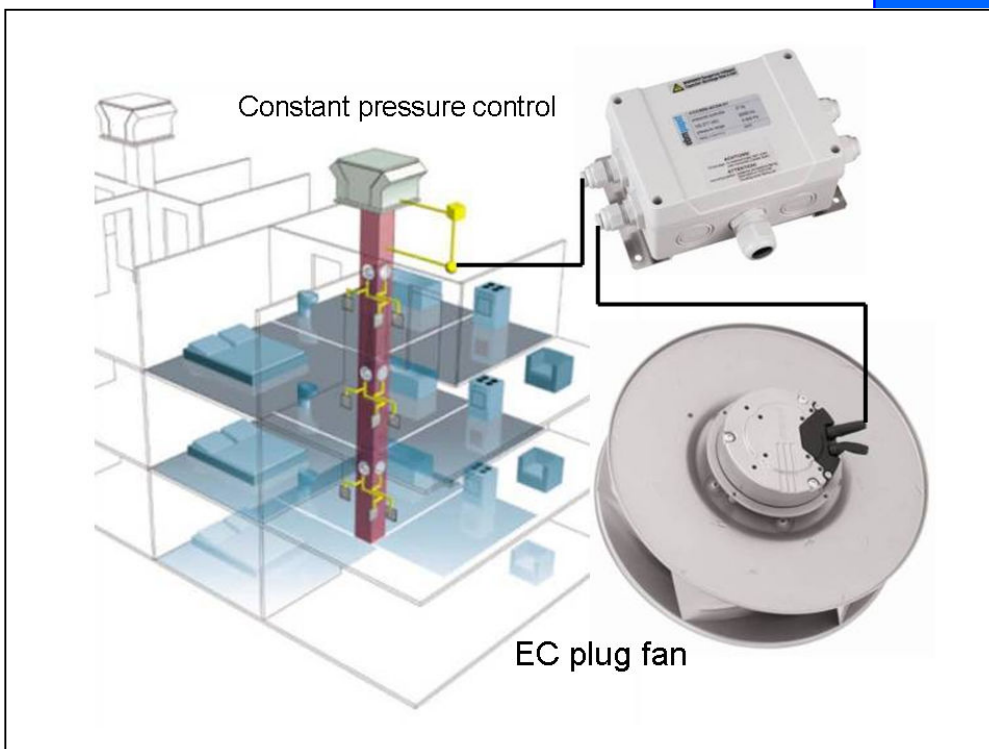


High efficiency, EC ventilation systems

EC fans plug fans are being used in air conditioning to domestic ventilation. EC offers the combination of high efficiency motors with simple, integrated speed control. This in turn offers wide ranging solutions for many ventilation systems.

With EC backward curved impellers in combination with pressure monitoring controllers, required ventilation rates can be specified and maintained irrespective of the number of exhaust vents that are open.

Here is a physical example of an apartment building lay out is shown with room ventilation systems discharging into a central system. The central system consist of a ebm-papst EC plug fan and an ebm-papst CCC constant pressure controller.



For further information contact:
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Quieter, better fan solutions

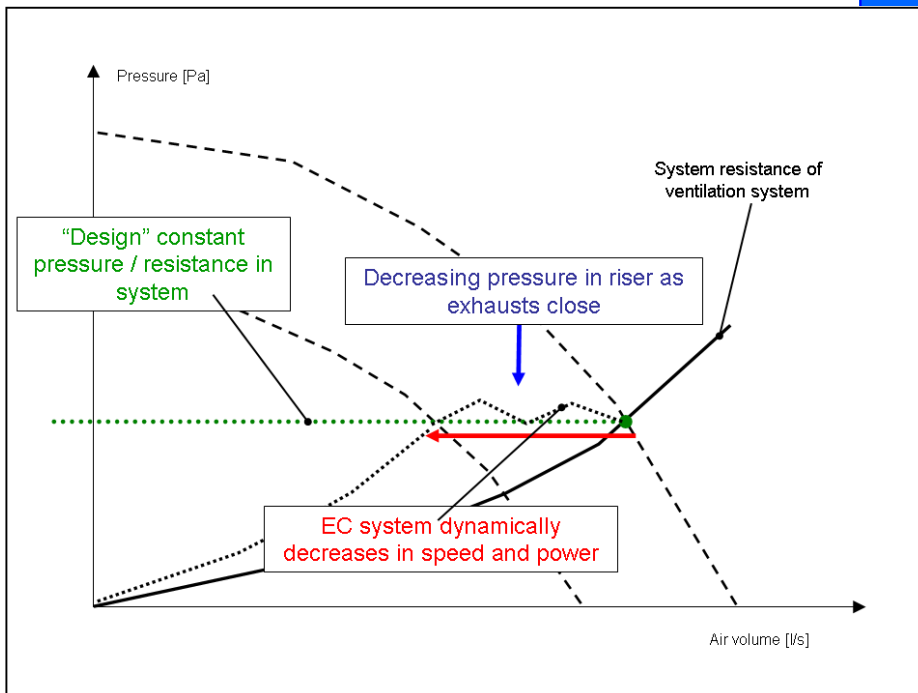
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High efficiency, EC ventilation systems

In order for the rooms to ventilate at the regulated required rate their ventilation fan must operate against a known and constant back pressure. Commonly axial fans are used to ventilate apartments and therefore back pressure control is paramount as axial fan performance is particularly sensitive to changes in pressure.

Traditionally a central ventilation unit is specified for the maximum pressure required when all the bathroom fans are discharging into the central system. The fan runs giving this pressure at all times irrespective of the number of exhaust units operating and therefore the system is never balanced.

With EC however, the central ventilation unit can be controlled by measuring pressure in the central system as a differential against atmosphere. The design pressure at maximum ventilation is calculated at the design stages and then this is set in the ebm-papst controller as shown before at commissioning with all the exhaust systems in the building running.



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Typically individual exhaust systems in an apartment building operate at varying times of the day dependant upon the occupants. Therefore there will be varying number of axial fans pressurising the central riser at any one time. Using EC, this pressure variation is sensed and the EC fan is reduced in speed maintaining the constant pressure in the system, as shown. This in turn ensures the correct ventilation rates in each room.

By controlling the ventilation system as its design pressure then the optimum control is obtained. This means that during periods of non occupancy, the central ventilation system will reduce in fan speed, as shown here on the fan curves.

Typically 50% power savings is available with EC when speed is reduced by 20% - i.e. if 20% of the occupants go to work in the day and turn off their ventilations systems – approximately 50% power savings will be achieved.

As central ventilation systems are often driven by greater than 2 kW motors. This could result in savings up to and beyond 3MW per annum.

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