AIRCLEAN
YOUR AIR FILTER MANUFACTURER
absolair HEPA FILTERS & AHU
Airclean Ltd, P.O. Box 147, Maidstone, ME14 2LA. sales@airclean.co.uk
Tel: 0845 2300 558 Fax: 0845 2300 559 www.airclean.co.uk

AIRCLEAN CASE STUDY:

AIR HANDLING UNITS USE LESS ENERGY

Air Handling Units use the traditional belt driven fan set, but now they can be designed with a direct drive Plug Fan.
This means lower power motors, as there is now no need for drive belts which would normally add up to 25% of the absorbed power for the fan just for the belt drive system and 10-15% additional power for the larger systems. So instead of using a 7.5kW motor, you may be able to use a 5.5kW, an immediate power saving of 17520 kWhours per annum and lowering your carbon footprint by *** tonnes of CO_2 for the year.

The fan system requires an invertor speed controller, which then offers further savings; it provides soft starts to the motor, lowering the wear on the motor windings, and the amount of power drawn in starting the fan. Further savings can be made by using the inverter controller during the balancing of the air conditioning system to provide the minimum amount of power required for the application, rather than "throttling" the system with balancing dampers, which waste energy. The invertor also provides the motor with the power required for the application not he power for the motor selected.

This fan system can be used effectively in many applications, to minimise the amount of energy used. In the particular applications of Hospital Operating Theatres and similar facilities which have to comply with a specification HTM-03
In these applications then even further savings can be made, as the plug fan is compliant, and is used instead of the complex arrangement which uses a belt driven fan, where the drive belts are located out of the AHU airstream, and has a run and standby motor, which then means that there are two sets of drive belts and a second motor to rotate for no benefit. This results in power savings of at least 35%.

In conclusion the use of the Direct Drive Plug Fan which can make significant savings to the initial cost of an installation and the ongoing running costs.

Plug Fans being used in a new AHU in an energy saving programme being implemented by a major food manufacturing company.

BENEFITS:

- No Fan bearings
- No drive belt power used (motors are usually oversized by up to 25%)
- No Drive Belts to wear and fail
- No Drive belt maintenance required
- Smaller Fan footprint
- Lower running costs as drive gear is eliminated.
- Easier maintenance on fan when required.
- Soft start on motor, less wear
- Energy efficient motors
- Motors only draw required amount of power, for the application. (a motor without invertor control uses 55% of its full load power, when running with no load attached)

Ref: Airclean Case Study – AHU using less energy
Date : 1.11.2009