Fancoil Upgrade Guide

Introduction

This guide gives general technical information and guidance on how to upgrade an AC fancoil unit to use high efficiency, GreenTech EC fans. Upgraded fancoil units will use up to 66% less power.

CAUTION: Although replacement is a simple process, it involves working with electricity and working at height. This work must only be carried out by competent and suitably qualified persons in accordance with current safety regulations. Please read the whole of this guide before undertaking this work.

Suitability for upgrade

This guide is only applicable to fancoil units using individual fans with 133mm diameter impellers*. Units using fan "decks", with separate motors and impellers, cannot be upgraded in this way.

The units may have between 1 and 4 fans fitted. Each fan is the same but the appropriate wiring loom must be selected from the parts list at the end of this guide.

Working at height

Fancoil units are often located in ceiling voids and access requires working at height. Ensure that appropriate safety equipment is used at all times.

Electricity

Replacement of fans requires connection and disconnection to electrical supplies. Ensure that electrical power can be safely isolated.

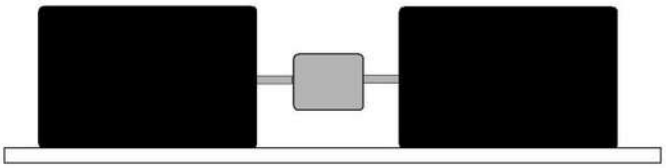
Fan safety

Before undertaking any work which requires physical contact with the fans, ensure that electrical power is disconnected and the fan impeller has stopped rotating.

Initial assessment

An initial assessment of one fancoil unit should be made to confirm suitability for upgrade.

Ensure that the unit is electrically isolated and safe access is provided. Remove the fan access panel and confirm that separate fans are installed and not a fan deck. (See below) Fan decks are not covered by this guide.



Fan deck arrangement ✗



Separate fan ✓

Confirm the installed fan type by checking the part number. The following part numbers are suitable for upgrade using the D3G133-BF05-14 GreenTech EC fan;

D2E133-DM11-50	2GDS35 133x190L
D2E133-DM47-64	DDL133-190
D2E133-DM27-D8	D4E146-AA07-57*

* Although this product has a 146mm impeller, overall dimensions and performance are the same as the 133mm EC fan.

Work instructions

Before disturbing the current fans it is necessary to measure their performance so that the new EC fans can be set up correctly after installation. This requires the use of a Balometer Airflow Measuring Hood or similar product which can be hired from various sources.

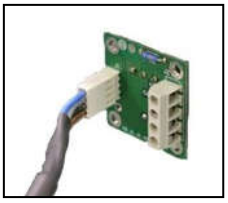
1. Ensure that the fancoil unit is operating normally.
2. Apply the measuring hood to any of the fancoil outlet grilles and note the air volume flow rate. A separate measurement must be taken for each individual fancoil unit to be upgraded.
3. Ensure that electrical power to the unit to be worked on is safely isolated.
4. Remove the fan and outlet plenum access panels.
   CAUTION: Ensure that fans have stopped rotating before carrying out further work.
5. Disconnect electrical wiring from fans.
6. Support fan and remove mounting screws. (Access through air outlet plenum)
7. Remove fan by lowering through fan access aperture.
8. Repeat for all fans.
9. Install new GreenTech EC fans.
10. Remove cover from power supply/switch panel.





11. Disconnect the fan power cables from the power supply terminals, and remove.
    NOTE: The transformer voltage tappings are no longer required to power the fans but may be used for ancillary equipment and should not be disturbed. The speed adjustment switches are made redundant by this modification.
12. Mount the speed controller in a convenient location on the outside of the power supply panel. Ensure that it can be reached by the fan control cable and is accessible for speed adjustment.
13. Connect new power loom to fans.

14. Connect new control loom to fans.
15. Route new cables through to power supply panel. Ensure appropriately restrained so that they cannot foul the fan impeller.
16. Connect fan control cable to speed controller using pre-fitted connector.



17. Connect fan power cable directly to a fused, switched 230V supply.
18. Refit switch panel cover.
19. Refit fan and outlet plenum access panels.
20. Reconnect power to fancoil unit.
21. Modulate speed control knob and ensure that fan speed responds appropriately.

    CAUTION: If fans do not rotate, disconnect power and check all connections. DO NOT carry out any checks with power applied in case fans start to rotate unexpectedly.
22. Set fan speed to roughly the same as the removed fans and allow speed to settle.
23. Apply the measuring hood to the same outlet grille as measured previously. Adjust air volume flow to the same as recorded in step 2 using the speed control knob.

    NOTE: It is recommended that a mark is applied to the controller so that the speed demand can be reset at any time without the use of measuring equipment.
24. Refit any other items removed for access.

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NOTE: A Balometer Airflow Measuring Hood or similar product is required for calibration of the new fans against the performance of the current fans. These can be hired from various sources.

Parts List

Description	ebm-papst Part No	RS Components No
133mm EC fancoil fan	D3G133-BF05-14	8765162
Fan speed controller	RMECi	5413984
Fan speed controller	RMECD	8841199
Harmonic filter	920-CON0085-30	7013589