Qey

Retrofit

MatrixAir™

Our EC Fan Retrofit product for Air Handling Units

www.qey.ae

RETROFIT PRODUCTS SERVICES

MatrixAir is our Retrofit product for Air Handling Units - built for:

- Energy Efficiency Upgrades
- Performance Enhancements
- Emergency Replacements
- Refurbishment of AHU's

MatrixAir has been purposely designed to ensure maximum savings utilizing various control options, whilst ensuring the speed and ease of installation is as quick and easy as possible.

For installation, the existing belt-driven centrifugal fan is removed and replaced with the various parts supplied by our MatrixAir kit, with multiple EC Plug Fans installed in an array.

Retrofitting EC Fans into old Air Handling Units is not just about the EC Motors though.

Its much more than that.

The retrofit requires expertise in installation, application, controllability, optimization and speed of install, essential for minimal downtime.

Our kits are designed so that downtime is kept to a minimum, so critical equipment can be back online and performing quickly.

We have our own trained and experienced engineers that cover both mechanical and electrical installation requirements.

The solution can be installed into any brand of Air Handling Unit and we have carried our installations on all major air handling units brands.

Benefits

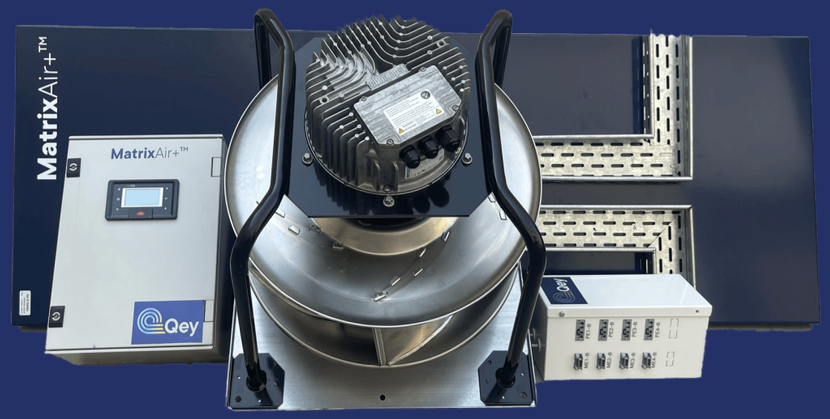
- 30–60% Energy Savings when replacing legacy belt-drive fans
- Modulate fan speeds between 0–100% for part load savings
- Renewed lifespan of the equipment
- Fan redundancy - if one fan fails, the other fans will pick up the load
- Reduced noise - even at design airflows
- No maintenance costs - remove the need for belts and pulleys
- Quick installation for minimal on-site disruption
- Improved indoor air quality - no paint or belt degradation
- Multiple modulation control options available - Supply Temperature, Return Temperature, CO2, Pressure, Airflow, Timed Schedule & BMS
- Renewed warranty, extendable up to 5 years

Quick, Simple Installation

The plug and play installation ability allows for Equipment Manufacturers or Installers to install the MatrixAir solution quickly and easily.

Each part is labelled up, with wiring schematics being provided with every project.

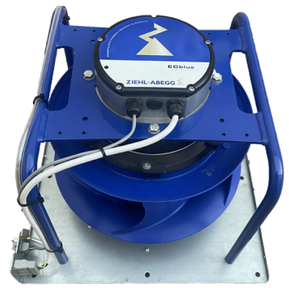
The kit is assembled in Qey's workshop in Dubai and packed and labelled per Air Handling Unit for easy referencing.



All provided parts of the kit are designed for easy installation for minimal down time of critical equipment so that equipment can be operational again.

Each MatrixAir Kit Includes:

1. EC Plug Fans



Pre-wired, pre-addressed and ready to connect via quick connect plugs and sockets.

3. Junction Box

Designed and assembled in our workshop ready to quickly connect the fans and pressure tubing.

2. Control Panel

Fully assembled in Qey's workshop. Power cable is included ready to connect to the existing Power Supply.

4. Fan Bulkhead

Designed and fabricated in-house with all required cable routes and optimized fan positions.

Control Panel

Controlling EC Plug Fans in Air Handling Units is often overlooked but plays a very important role to maximise and optimize the airflow delivery and overall Air Handling Unit performance.

Every retrofit kit is provided with a control panel with standard features designed to easily integrate into existing building configurations.

Each Control Panel includes:

- A modern microprocessor controller with software pre-loaded, engineered and designed for retrofitting of Air Handling Units by Qey
- Built-in Display for easy control and full overview of data
- Included Fan over-pressure safety switches for fan protection
- Circuit-breakers for each newly supplied fan
- 400v/24v Transformer for low voltage circuit
- Included quick connect terminal blocks for connecting external devices and signals
- Remote On/Off terminal blocks
- General Alarm volt-free contact
- Door inter-locked Isolator
- Cable and component labelling as per ISO standards
- Ability to ‘unlock’ Options for a more data rich overview of the EC Fan Array

Software

Our MatrixAir Controller and Software have been developed especially for Retrofitting.

Standard features include:

- Display of individual fan status, speeds and alarms
- Display of individual fan input power
- Display of real time fan array airflow in m3/h
- Display of Air Handling Unit temperatures
- Hand, Off, Auto software switches
- Fan Scheduling program
- Modulation ability of all EC Plug Fans with internal strategies, or ability to control from an external input
- Ability to read all available variables on a BMS - supports MODBUS IP & RS485 (BACNet optional)
- Optional sensors to display temperature, humidity, CO2 and Indoor Air Quality ready to be added
- Possibility to upgrade to full Air Handling Unit control with an optional module

Control Strategies

The software comes with pre-developed control strategies for various applications.

Certain strategies require external optional sensors, such as temperature or CO2 sensors, that can be easily wired into the control panel.

If an optimal control strategy already exists, or if a new external control strategy is to be implemented by the BMS, an external signal cable can be simple wired into the panel for use.

The following control strategies are available as standard:

Supply or Return Temperature - Control based on a Duct or Room Temperature Sensor

CO2 - Control Fresh Air intake based on Return or Room CO2 levels

Pressure - Control the fans based on a duct, or other pressure

Airflow - Control the fans based on an airflow setpoint. The setpoint can be changed throughout a typical day for various airflow demands

Timed Scheduled - Control the fans based on time, with different speeds used throughout different days. Each day can have a different schedule.

External 0-10v - Control the fans based on an external 0–10v input from an existing BMS or controller

External MODBUS - Control the fans with a MODBUS variable input from a BMS

Additional Options

The following additional options are available to be connected to the supplied Control Panel, giving further enhancements to the retrofit, including a more comprehensive Air Handling Unit performance overview with extra controllability

Energy Monitoring

Remote Monitoring

Temperature Sensors: Supply, Return, Fresh

Humidity Sensors

CO2 Sensors

Full AHU Control*

***Full AHU Control Upgrade Option includes the following features:**

Cooling Valve Control, Filter Alarms, Airflow Alarms, Humidity Control, Damper Control, Heat Wheel Control, Heating Control

RETROFIT

Swiss Tower, JLT

FAHU EC PLUG FAN UPGRADE
MATRIXAIR+

Turnkey Retrofit of our MatrixAir+ EC Fan and Control Panel solution.

Upgraded a total of 4 Fresh Air Handling Units with controls to modulate EC fans to a specific fresh air strategy.

350,000 kWh
ENERGY SAVED

1.9 Years
ROI

185,000 AED
SAVINGS P/Y

RETROFIT

IKEA, Dubai

FAHU EC FAN AND CONTROL PANEL UPGRADE
MATRIXAIR+

Turnkey Retrofit of our MatrixAir+ EC and Control Panel solution.

Included 26 Nos. of EC Plug Fans with multiple Fan Junction boxes for quick installation

428,000 kWh
ENERGY SAVED

2 Years
ROI

185,500 AED
SAVINGS P/Y

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