

# AHU Refurbishment

Service and maintenance



Prolong the life-cycle of your AHU with Daikin Applied turn-key solutions for ALL BRANDS of HVAC equipment

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# What is AHU refurbishment?


## AHU refurbishment

*meaning*

Replacing components, rather than entire systems, to achieve additional performance benefits

AHU refurbishment offers a cost effective, streamlined solution to improve the performance of existing AHUs and aid with compliance to the latest HVAC regulations. If you're unsure as to whether you can benefit from AHU refurbishment, as a rule of thumb:

'If equipment is more than 10 years old, it is likely not running as efficiently as it could'



By refurbishing your AHU, you can increase the life expectancy of the system by a further **10-15 years**

# Applications

## What applications are suitable?

The answer here is

**all applications**

There is no restriction to the applications that are suitable for AHU refurbishment.

- Healthcare
- Pharmaceutical
- Commercial
- Industrial and process
- Food industry
- Leisure



# Refurbishment

What services can we offer?



## Fans

- › Fan upgrades from old belt-driven centrifugal fans, or even AC plug fans to EC fan arrays.
- › EC fans not only provide higher efficiencies and therefore significant energy & CO2 savings, but they offer additional redundancy through their multiple fan installation.
- › They are easy to maintain due to their low weight, streamlined wiring connections and easy mounting arrangement.



## Filters

- › Update from BS EN 779 to ISO 16890 has introduced more effective filter solutions to the market.
- › Replacing your filter solutions and housings can have a significant impact on IAQ and system pressure drop.



## Coils

- › Replacing coils where damaged or worn to ensure optimal performance is re-established.
- › Over-time, set point parameters can change which can require the implementation of new coils.
- › DX coils can offer significant cost savings vs electric heater batteries though integration is load dependent.



## Dampers

- › Replacement/repair of dampers where damaged ensures that airflow set-points are re-established at the lowest pressure drop.



## Panels

- › Replacing panels where damaged to help improve casing leakage and thermal performance.
- › Upgrading to new panels can help align to the latest specifications such as HTM-03-01 with the requirements for BS EN 1886 T2/TB2 and Euroclass A insulation.



## Other

- › Site surveys of controls often highlight areas where control set-up is sub-optimal for desired performance.
- › We can offer individual component or full system upgrades and re-commissioning.
- › This can also reduce overall energy consumption.

# The benefits of AHU refurbishment



# The importance of EC fans



# How is an AHU refurbishment carried out?

Upgrading old centrifugal or AC plug fans to EC fans offers the most benefits and return on investment (ROI) in comparison to all other areas of AHU refurbishment. That is not to say that other items are not worth consideration, however, fan upgrades should be at the forefront of refurbishment considerations.

## Redundancy

Replacing old centrifugal fans with an EC fan array improves the resilience and redundancy of the system. Should a fan fail, the other fans in the array will compensate and ramp up. Full duty output in a failure scenario is design dependent, however, where full duty cannot be achieved, a percentage of duty output will be maintained.

## Maintenance effectiveness

The construction and installation of an EC fan is much more maintenance friendly. The fixing arrangement and streamlined wiring allows for the withdrawal and replacement of a fan in under 20 minutes.

EC fans are much lighter in weight, and therefore much easier to handle. They do not require external VSD inverters to operate, so there are less items to maintain.

## Reduced space requirements

EC fans are one of the smallest fan assemblies available on the market. By replacing old fan technologies with EC fans, up to 1m of space can become available, allowing for the retrofitting of any additional items, or for a reduction in the length of the AHU unit, in turn providing more plant space.

## Energy and sustainability savings

EC fans have the most efficient fan technology on the market, with peak efficiencies of 75% using IE5 motors in excess of 95% efficiency. As a result, they require significantly less power to obtain the same duty point as older belt-driven fan technologies. Upgrading to EC Fan technology can result in savings of up to 50% of both energy and CO2.

## Case Study Cost Analysis

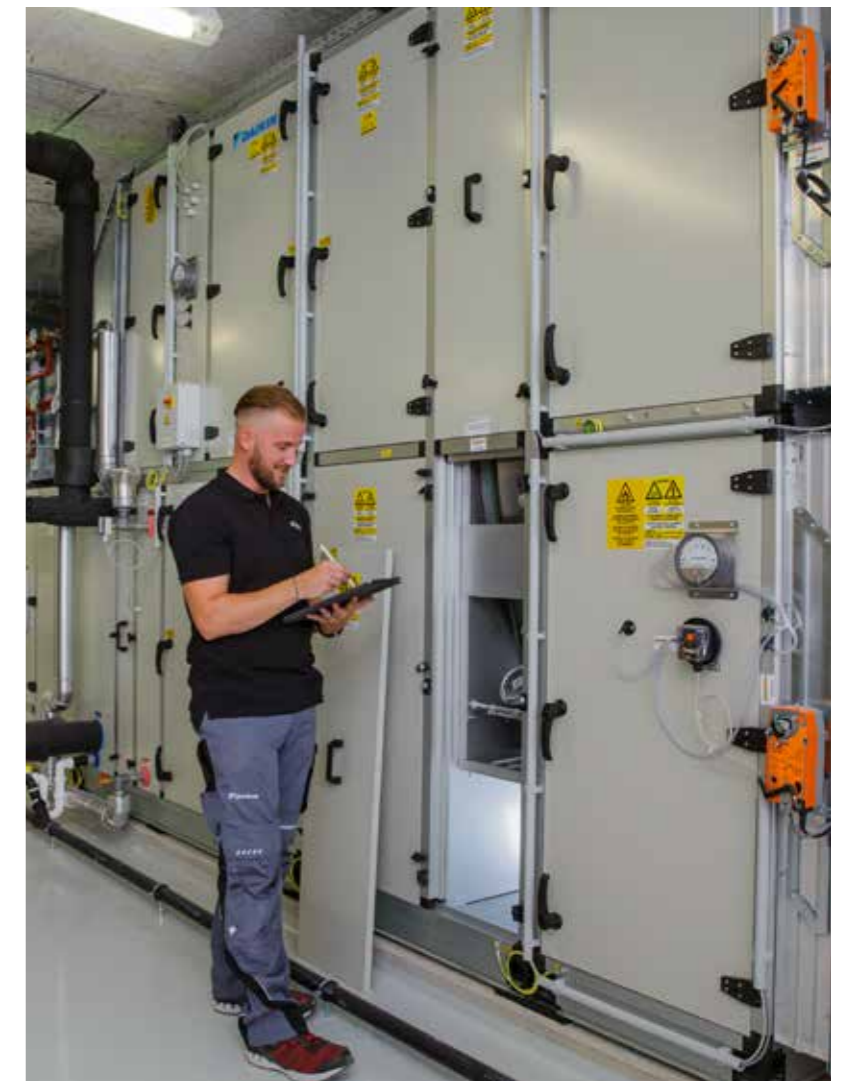
£0.34 per kWh, 0.309 kgCO2/kWh

22.7m3/s @839pa	Original fan (1 off)	EC fan array (9 off)
System efficiency	41%	70.6%
SFP (W/m3/s)	2202	1264
Absorbed Power	50	28.7
Discharge sound power (dBA)	105	95
Fan weight (kg)	319	54

Energy savings	Original fan (1 off)	EC fan array (9 off)
Estimated energy usage (kWh)	503,706.5	250,711.2
Estimated annual cost	£171,260.21	£85,241.81
Estimated CO <sup>2</sup> (tonnes)	155.65	78.18

- ✓ Comprehensive site survey to determine scope of works
- ✓ Schedule of works created for approval
- ✓ Itemised replacement components listed and schedule of works agreed
- ✓ Components delivered to site - flat packed or assembled ready for fitment
- ✓ Refurbishment works commence
- ✓ Unit can be re-started if refurbishment is on a staged basis
- ✓ Unit re-commissioned and full technical specification issued
- ✓ Safe disposal of redundant components stripped out of original AHU



# Tools and platforms through Daikin Applied

## Selection software

Daikin Europe offers you a variety of building modeling, selection, simulation and quotation software tools to support your sales.

### Web-based chiller selection software

A user-friendly interface allows users to quickly create new projects, open and change existing projects or simply do a quick selection.

Technical selection reports can be printed or downloaded in several formats.

To make life easier, the tool is accessible everywhere, via any device. No matter where you are, projects can be consulted.

Create now a new account on:

> <http://tools.daikinapplied.eu/>



### ASTRA Web

- > Quick AHU selection that will save you precious time, drastically reducing selection time through the new software interface.
- > Very competitive solution available within the Wizard thanks to pre-uploaded parameters.
- > High selection quality, thanks to the intelligence embedded within the software core.

## Online support

### Business portal

Experience our new extranet that thinks with you

- > Find information in seconds via a powerful search
- > Customize the options so you see only info relevant for you
- > Access via mobile or desktop via [my.daikin.eu](http://my.daikin.eu)

## Daikin on Site

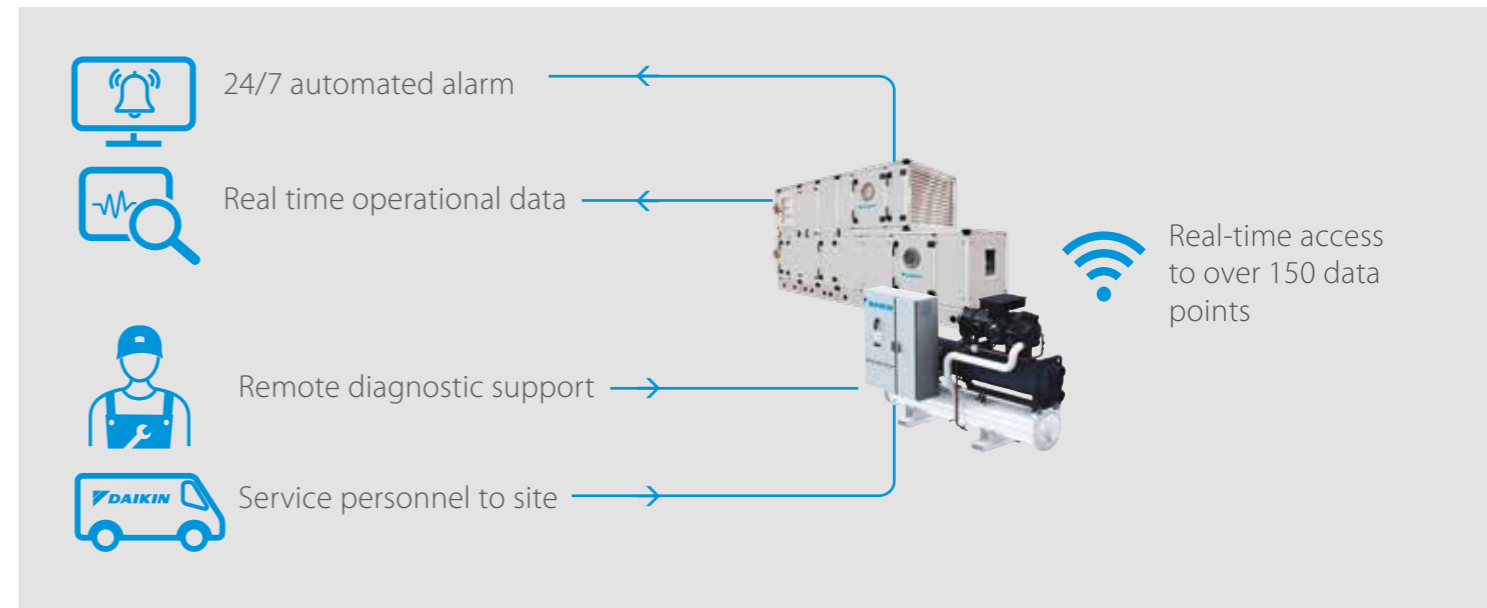
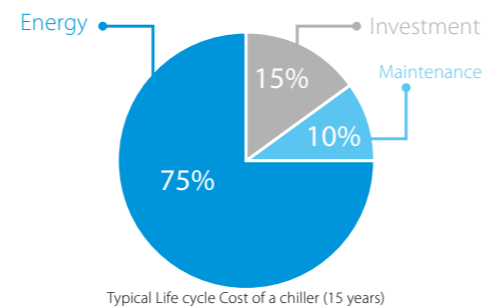
### What is Daikin on Site?

Daikin on Site (DoS) is a web-based 24/7/365 active remote monitoring system that collects complex operational data from the AHU or chiller control system.

Daikin's Smart Centre turns the operational data into useful information that allows the user to remotely monitor performance. It also allows Daikin professionals to remotely optimise and maintain the equipment.

### Lifetime cost of your system

Energy costs and maintenance typically account for 85% of the system's total lifetime cost. With DoS we can provide a preventative maintenance schedule to ensure maximum efficiency and reliability of your equipment, preventing costly downtime and major repairs and keeping your energy costs to a minimum.



### Daikin on Site - How it works



Using cloud technology, process data is collected automatically in real time and stored centrally.



Most Daikin Applied Chiller and AHU controllers allow connection through LAN or with a wireless modem.

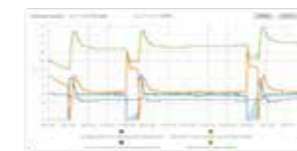


Through enhanced operational data, Daikin engineers are able to remotely monitor system performance, run diagnostics and software upgrades. If an on-site visit is required, the service engineer will arrive already informed of the issue, reducing system downtime.



Secure in data privacy, data storage security and data transport.

- > All connections are encrypted (HTTPS) to prevent wire-tapping and man-in-the-middle (MITM) attacks
- > CSA security attestation - security level 2.
- > EU General Data Protection GDPR compliant
- > Geo-redundant data storage in Northern Europe



### What you get with Daikin on Site



#### Active monitoring and assistance

- > 24/7/365 automated alarm via email
- > Remote diagnostic support from Daikin experts
- > Quick site assessment
- > Smart mobilisation of service personnel to site if necessary



#### User friendly

- > Access to DoS web app
- > Remote software upgrades
- > Interactive personalised dashboards



#### Control and measuring

- > Master / slave functionality
- > Real time operational data and trend insights 24/7/365
- > Life-cycle data log
- > Automated and tailored reports



#### Efficiency and reliability

- > Reduced operational costs
- > Optimised energy efficiency
- > Reduced waste
- > Reduced carbon footprint
- > Enhanced system reliability
- > Reduced system downtime

# Why choose Daikin Applied UK?



- ✓ We have over 50 years experience in the manufacture and supply of AHU equipment
- ✓ All of our solutions are bespoke and can be made to meet the exact requirements of your project
- ✓ We are well versed in the latest regulations from EU1253, ERP compliance, BS EN 1886 to HTM-03-01
- ✓ We offer full or partial refurbishment dependent on your needs
- ✓ We offer refurbishment on **any brand** of AHU
- ✓ We have the ability to replace and align entire AHU sections, not just components
- ✓ We have the availability for the integration of a remote-monitoring system through Daikin On-Site (DoS)
- ✓ We offer market-leading components and technology
- ✓ We can provide historical data of all AHUs previously procured through Daikin Applied UK or McQuay
- ✓ All of our site engineers are highly qualified to the required standards

# What about Chiller maintenance?



## Chiller service and maintenance solutions on all brands of HVAC equipment

### Service capabilities

- › Flexible maintenance contracts tailored to your business needs
- › Maintenance of ALL brands of HVAC equipment
- › 24/7 emergency call out service
- › Up to four hour response time
- › Qualified site service engineers (F-Gas Registered)
- › Remote monitoring with Daikin On Site (DOS)
- › On site training for front-line personnel
- › Tailored Service Level Agreement (SLA)
- › Full chiller running logs taken on every service visit
- › Comprehensive spare parts availability & support on all brands
- › Retrofitting & refurbishment

### Benefits of a maintained system

- › Lower operation costs and energy usage
- › Extended life-cycle of assets
- › Fast and reliable remote diagnostics with Daikin On Site
- › Reduced equipment downtime and costly repairs
- › Improved indoor air quality



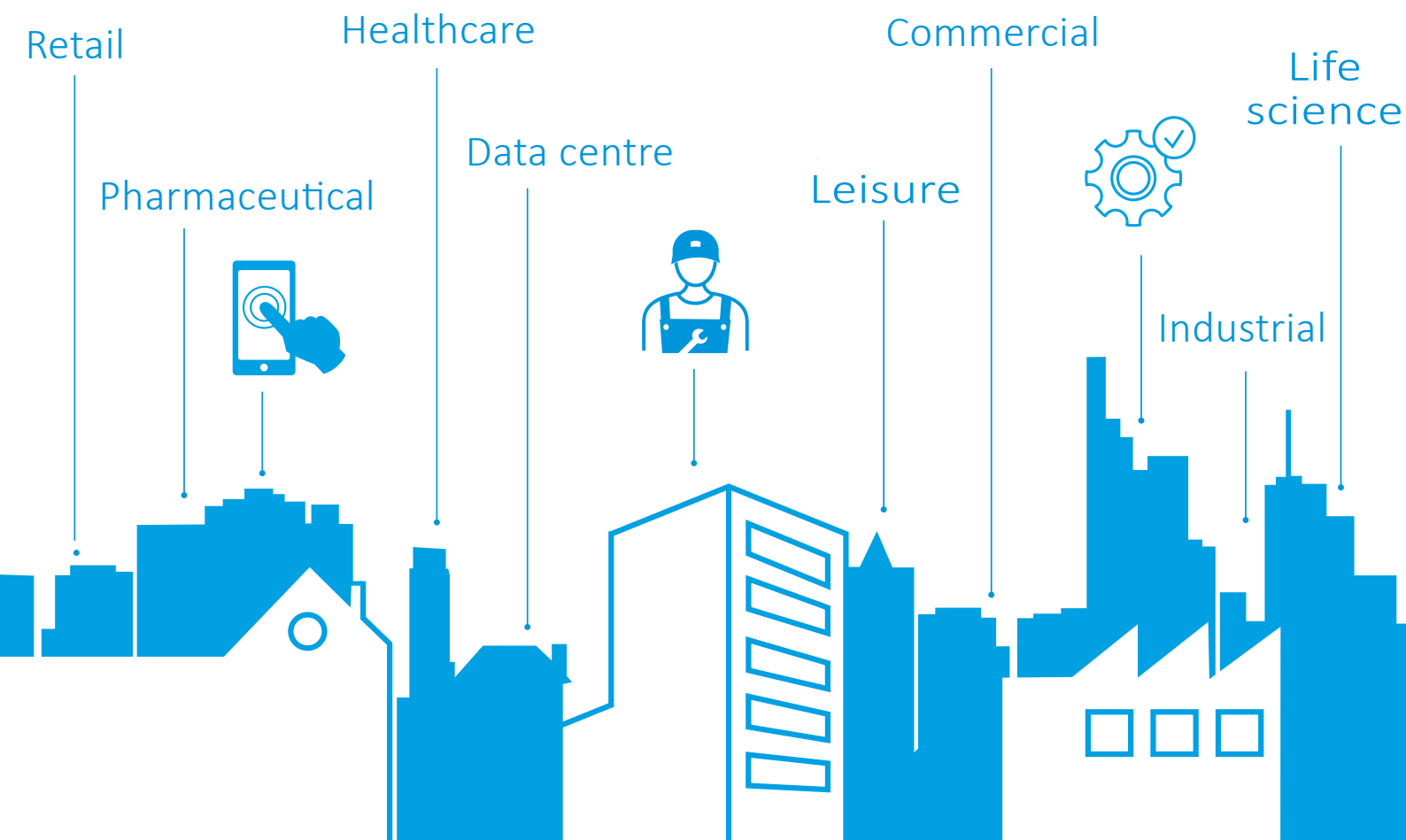
## Daikin PROtect:

**Daikin PROtect is your long term economical and sustainable maintenance solution, direct from the manufacturer.**

We offer a three year maintenance package (option to extend to five years) designed to protect and optimise your HVAC equipment.

- ✓ Fast and reliable remote diagnostics with Daikin On Site active monitoring
- ✓ Rapid fault identification and resolution
- ✓ Protected three year parts warranty (option to extend to five years) plus labour in the first year
- ✓ Up to four hour response time for emergency call-outs
- Factory trained technicians (F-gas registered)

Conforms to SFG20 maintenance standard	✓
F-Gas leak test	✓
Oil Analysis	✓
Daikin on Site active monitoring	✓
Four visits per annum (1 major / 3 minor)	✓
3 years parts warranty	✓
1 point vibration analysis	Optional extra



For more information email [info@daikinapplied.uk](mailto:info@daikinapplied.uk) or visit [www.daikinapplied.uk](http://www.daikinapplied.uk)

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**0345 565 2700**



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