



FINALIST



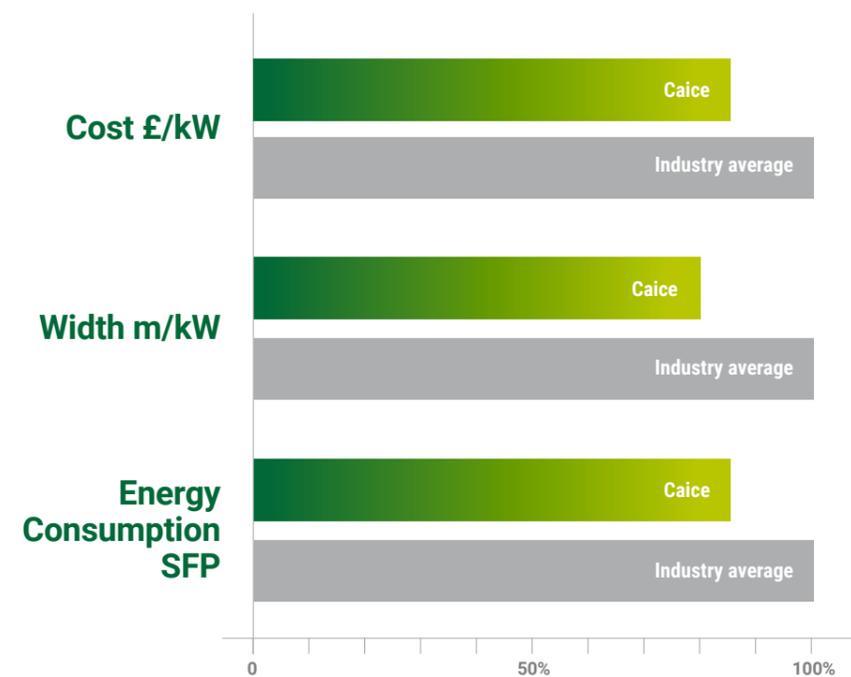
# Fan Coil Units



As acousticians we believe that everyone should enjoy **quiet, comfortable rooms**

## The best value, highest performing Fan Coil Unit range available

Based on outstanding performance, our new Fan Coil Units are the best value on the market for their size and set a new standard for quietness. They are far more energy efficient, more flexible and cost less to run.



Source: Industry average data is from publicly available data and based on five of our closest competitors. August 2018. Illustrative based on NR35 for open plan offices.

# Compact, compliant & rigorously tested

**TREND**  
OEM Partner

## STANDALONE AND BACNET OPERATION WITH TREND CONTROLS

As a Trend OEM partner, we provide an optional integrated controls package.

**>20%  
SMALLER**

approximately 20% smaller than equivalents on the market, making them easier to install and more discreet.

**1400  
HOURS  
OF TESTING**

## IN ACCORDANCE WITH BS EN 1397:2015 (BSRIA) AND BS 4856-4: 1997 & BS 8850: 2020 (LCP)

Nobody else in the market has spent this much time on thermal and acoustic tests so you can be confident about our reliability and performance data.

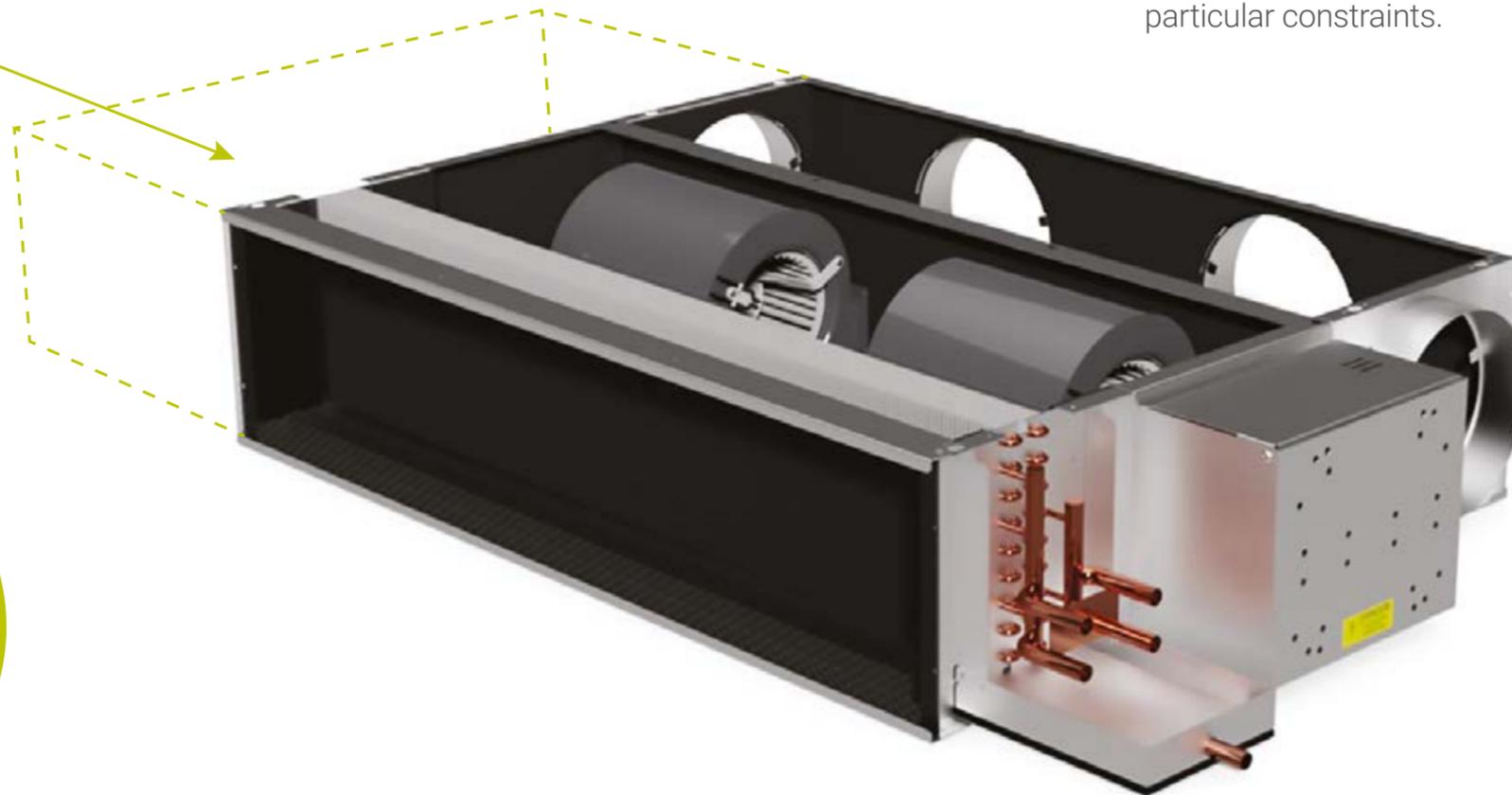


## IDEAL FOR COMMERCIAL PROJECTS WITH A FLEXIBLE, MODERN DESIGN

Suitable for ceiling or floor void applications and perfect for installation in offices, schools, hospitals, leisure and residential environments.

The first choice for exposed fan coil units installations, where our superior acoustic assessment will ensure your noise targets are achieved.

Our optional modules include integral attenuation and inlet and discharge plenums to suit your specific requirements, coordinating with your particular constraints.



**BIM Level 2 Revit®** models available for all products.

## COMPLIANCE WITH PART L OF BUILDING REGULATIONS



Our EC fan motors are compliant with building regulations and set the standard for energy efficiency.

This particular configuration is perfect for **office applications**, with a wide range of sizes available offering outstanding thermal performance, plus circular spigot connections for easy installation to circular ductwork systems.

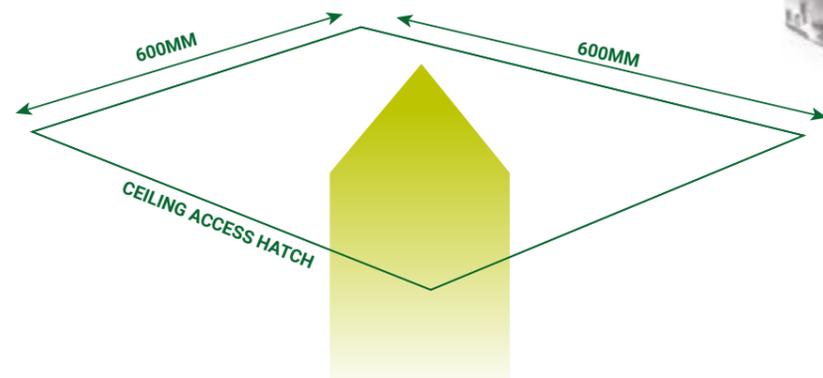
# Quiet, efficient, accessible and lower running costs



## IDEAL FOR RESIDENTIAL PROJECTS WITH A FLEXIBLE, MODERN DESIGN

Suitable for ceiling or floor void applications and perfect for installation in residential and hotel environments.

Our optional modules include integral attenuation and inlet and discharge plenums to suit your specific requirements, coordinating with your particular constraints.



## EASY ACCESS TO MAINTAIN WITH LOWER SERVICE COSTS

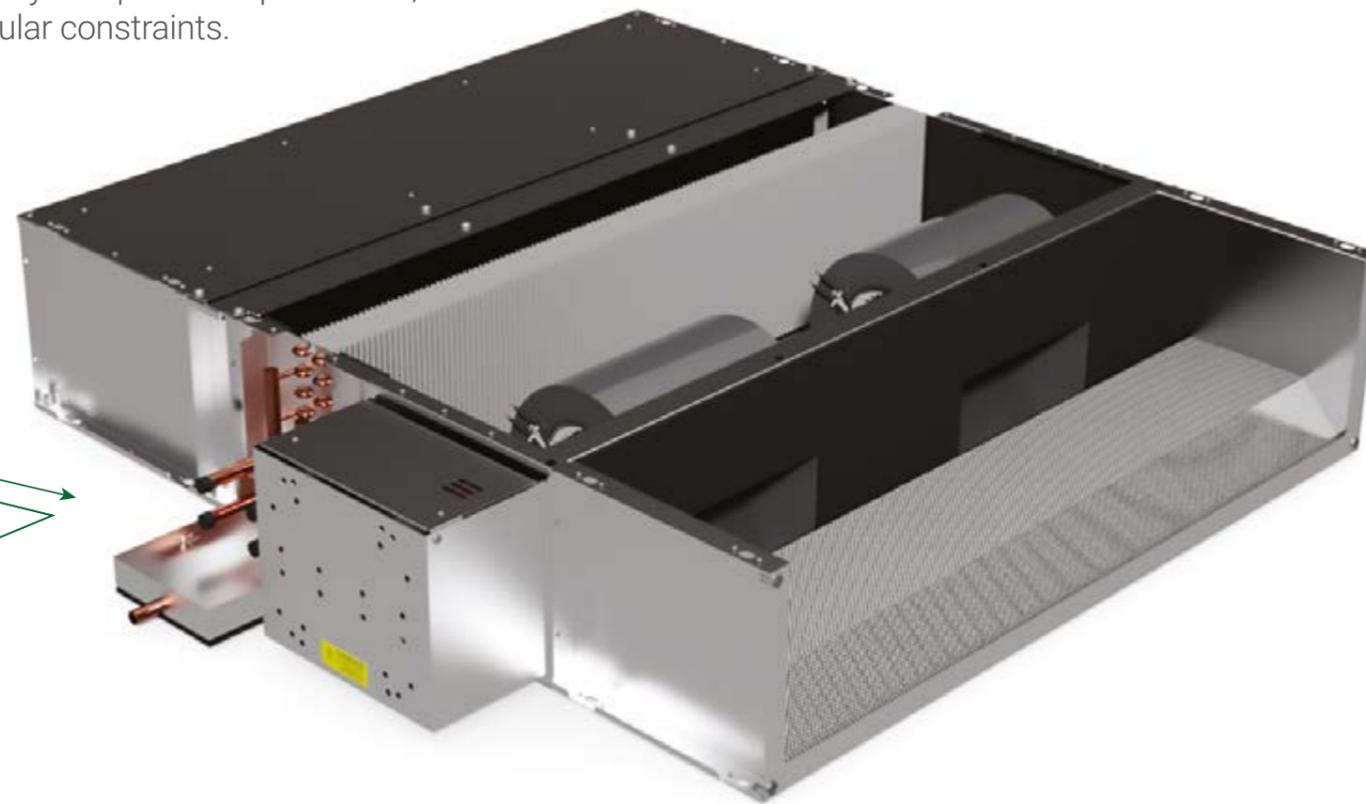
Designed to have a lower total cost of ownership with easily replaceable fan assemblies, drain trays, control boxes and washable filters to maintain maximum efficiency.

Optional side fan access and withdrawal available, allowing all of our fans, controls and filters to be removed, serviced or replaced via a **600mm x 600mm** ceiling access hatch.



## MORE COST EFFECTIVE & BETTER VALUE

Delivering more cooling per £ when benchmarked against our competitors.



## INCREASED ENERGY EFFICIENCY

When benchmarked against our competitors, means lower energy bills.

## LOWER SFP RATING



## A QUIET ROOM GUARANTEED DOWN TO NR25

The acoustic performance of our Fan Coil Units and room noise levels are guaranteed and based on actual room acoustic calculations rather than estimated acoustic losses. Down to NR25 and taking into consideration the complexity of your project.

This particular configuration is perfect for **residential and hotel applications**, as it includes inlet and discharge attenuators for extra quietness, plus rectangular connections for easy installation directly to rectangular ducts or grilles.



## Need help selecting the best Fan Coil Unit?

### Partner with experts who understand you and your market

We will provide you with a design review, sound advice and acoustic calculations so you can be sure to select the best, cost optimised Fan Coil Unit for your project that is quiet and with precise temperature control.

### Making everything easier for you to save time

All of our Fan Coil Units are available as BIM files for you to drop into your REVIT building models. Our free REVIT software add-in offers BIM level 2 compliant automated COBie data. It is the most sophisticated, accurate selection software on the market incorporating all new test data and a wider range of products than before as well as being faster and easier to use.



[caice.co.uk](http://caice.co.uk)

### Book our FREE Fan Coil Unit acoustics CPD Seminar now

Book our free CIBSE accredited Fan Coil Unit acoustics CPD seminar to boost you and your team's continued professional development training portfolio.

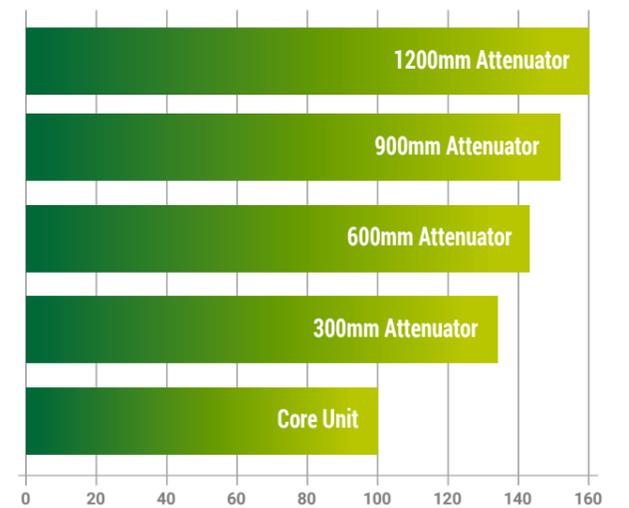


## Up to 60% more kW of cooling with the application of attenuators.

### Discover the cooling benefits of applying attenuators

By adding our range of integrated attenuators instead of specifying larger Fan Coil Units.

### Optimised performance with the application of Attenuators



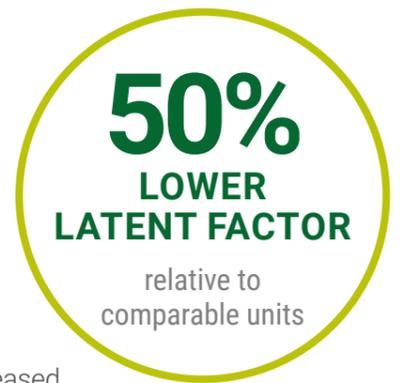
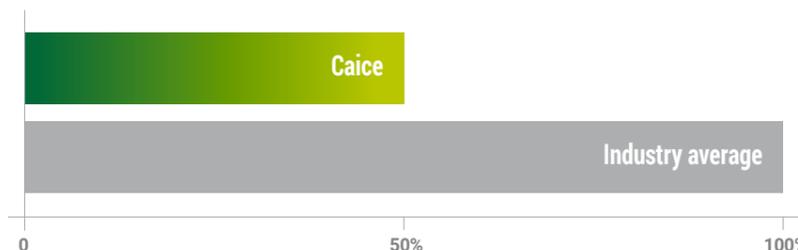
Illustrative based on NR30 for residential bedrooms.

## Why waste energy?

### Latent Factor

Our new coil design offers more uniform thermal transfer leading to an increased Sensible Heat Ratio and reduced Latent Factor.

So with our fan coil unit range your whole system cost has reduced as we've lowered your requirements for Chillers and Pumps.





Supporting you every step of the way

We are always delighted to answer your questions and provide you with detailed specifications, acoustic design and pricing. If you have a complex project then we can develop products or design solutions to meet your specialist needs with our bespoke service.

CASE STUDY

Lillie Square, a vital part of the regeneration of Earl's Court

With this prestigious development of luxury apartments, penthouses and townhouses in Earl's Court, the challenge our client faced was to maintain clean aesthetic lines and ensure the installed Fan Coil Units can be effectively maintained.

Our solution was to provide quiet, energy efficient and powerful air-conditioning by designing and supplying over 650 Fan Coil Units including integral discharge attenuation along with over 2,800 whole house ventilation attenuators. As well as developing folding filters, demountable controls on fly-leads and bespoke drain tray lengths to ensure that ongoing maintenance would not compromise the architect's vision – therefore achieving the best of both worlds.

Performance of our Fan Coil Unit was independently verified at BRE's Watford laboratory to ensure that noise from the unit was kept within the NR25 night time, NR30 day time and NR35 boost noise criteria.



Continuous investment in design and automated manufacturing

Leading edge design

We lead the way with significant investment in the research and development of new and improved Fan Coil Units designed specifically to suit your needs.

1%
Material waste is down below 1% thanks to our unique software. All unused steel is recycled

Advanced technology is central to our Production facilities in Dorset.

From automated laser profiling to precision folding of sheet metal parts we hate waste of all kinds and so continuously drive them out. Guaranteeing you the highest quality products, achieving your expectations and all delivered at the lowest possible cost.

Delivered on time

Your Fan Coil Units will arrive on your site precisely when you need them with factory fitted controls supplied either by us or from your free issue. All labelled and wrapped on pallets with delivery options to meet access requirements.

99.8% DELIVERED ON TIME

We're pioneers.

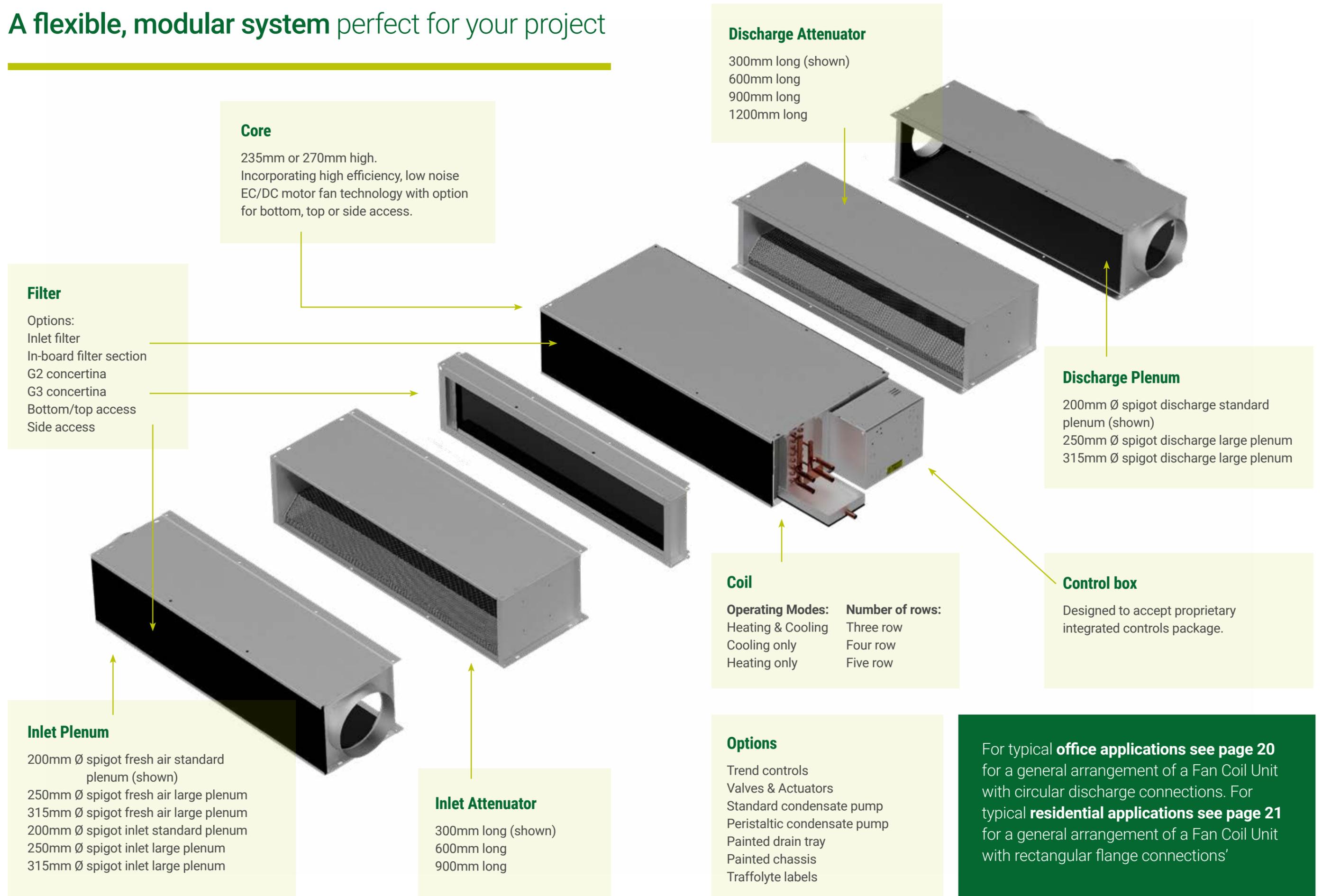
Partnering with you to lead our industry, by creating the best products and structuring our business around you. Sharing our knowledge, embracing new ways of working using the latest technologies and being careful of our environment.

Our Fan Coil Units are designed & manufactured in the UK.



Our Fan Coil Units come with intelligent Trend controls that talk to your Building Management System.

# A flexible, modular system perfect for your project

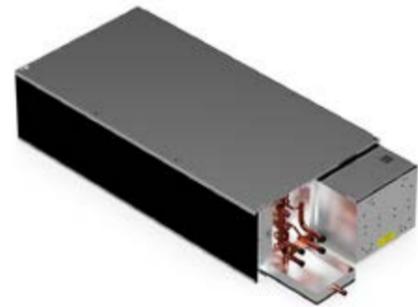


For typical **office applications** see **page 20** for a general arrangement of a Fan Coil Unit with circular discharge connections. For typical **residential applications** see **page 21** for a general arrangement of a Fan Coil Unit with rectangular flange connections'

# These options give you **freedom to design**

We have developed a modular range of Fan Coil Units with many options to suit specific applications, giving you the freedom to design and meet your requirements.

This summary specification explains the key attributes of each of the components and options which make up a Fan Coil Unit.



## Core

Manufactured in either 235 mm or 270 mm high from galvanised sheet steel incorporating fans, motors and heat exchanger.

Options available with top, bottom or side access and insulated throughout with Class O open cell acoustic and thermal insulation. Designed to accept attenuators and plenums to offer multi-spigotted or rectangular discharge connection options.



## Attenuators

Attenuator sections are fitted with internal linings manufactured from galvanised expanded steel mesh, and packed with controlled density acoustic media (mineral wool), with fibreglass tissue bonded to the rear of the facing.

Attenuators are available for both inlet and discharge, with attenuators having an optional flange connection facility where rectangular duct connection is required, such as in hotels and residential apartments.



## Plenums

Multi-spigotted plenums utilise galvanised steel circular spigots of 200mm, 250mm or 315mm diameter.

Where blanking plates are fitted in place of circular spigots, these will have insulation to the rear.



## Fans and motors

Our fans have an individual motor for each impeller, offering superior quality and ease of cost efficient individual replacement.

EC/DC motor fans are double inlet, double width, direct drive centrifugal type with high efficiency, low noise forward curved galvanised steel impellers. Fan scrolls are galvanised steel and all fan assemblies are dynamically balanced in two planes according to BS ISO 21940-11:2003.

All motors operate from a 230v/1ph/50Hz supply, and have sealed for life, maintenance free ball bearings with a life expectancy of 40,000 hours in normal operation.



## Heat exchanger

Offering cooling, heating or a combination of both, coils are manufactured from solid drawn copper tubes, mechanically expanded onto aluminium fins with headers suitable for 2 or 4 pipe systems, and tested up to 15 bar.

All coils are fitted with manual air vents. Coils are mounted within condensate trays, extended under the control valves and connections, with fall to drain to overcome a maximum 50 Pa inlet pressure.

Coil options available to optimise various water temperatures.



## Filters

Concertinaed, wire frame construction for easy removal and washable to reduce maintenance costs.

Standard filters with a performance classification of 30% coarse to BS ISO 16890-3: 2016 (G2 in accordance with BSEN779). Enhanced filter performance of 45% coarse (G3) can be provided on request.



### Condensate drain trays

Drain trays are constructed from galvanised steel, with welded corners painted with corrosion resistant zinc rich paint. The drain trays are partially exposed to facilitate easy cleaning or replacement on site and can be extended to cover the largest of valve bodies. Optional polyester powder coat finish can be provided if requested.



### Condensate pumps

Fitted and wired condensate pumps can be supplied where moisture can't freely drain. A peristaltic pump option is also available.



### Controls

In partnership with Trend, control options are provided with BACnet connectivity to a Building Management System. Alternatively, in standalone operation with a range of room sensors.

Our Fan Coil Units have a control box which accommodates most proprietary intelligent controllers which can also be installed from your free-issue supply.

**TREND**  
OEM Partner



### Actuators and valves

Offered to control your water flow with either 2 port or 4 port valves options and associated actuators. Pressure independent control valves (PICV) are available to reduce running costs and energy consumption, whilst improving the efficiency of your system. Supplied and fitted by Caice or accepted as part of your free-issue supply.



### Wall mounted controllers

Energy efficiency and room comfort is offered by Room Controllers to measure temperature, humidity and CO2, whilst the added Room Controller display provides occupants control of their immediate area within the confines of pre-set parameters.

Enhance the occupant experience with an optional Touch Screen LCD Display.



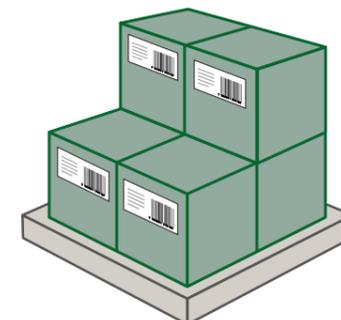
### Transformers

A transformer option provides a nominal 24-volt AC output for powering of associated control devices.



### Painting

Enhance the appearance with polyester powder paint should the Fan Coil Unit be exposed within a room.



### Packaging

With the environment in mind, be it galvanised or painted the Fan Coil Units are palletised and protected for delivery to site. Individual shrink wrapping is available if required.

Fan Coil Units and pallets are clearly labelled for ease of identification with the option of Traffolyte labels for the Fan Coil Units.

# Typical performance of Fan Coil Units at NR35

The table below contains performance data for these sample conditions. If these conditions do not meet your specific requirements then contact us and we will select alternative ones.

## Sample conditions:

<b>CHW 6/12</b>	Chilled water 6°C water going into the coil and 12°C coming out..
<b>LTHW 60/40</b>	Low temperature hot water 60°C going into the coil and 40°C coming out..
<b>Air On 23/20</b>	This is the air coming into the inlet side of the FCU, 23°C for cooling and 20°C for heating.
<b>Relative Humidity 50%</b>	Relative humidity of the air, in this case 50%.
<b>External Pressure 30 Pa</b>	External pressure of the Fan Coil Unit, 30 Pa is typical but can change.
<b>NR35 Room Noise Level</b>	Noise criteria achieved in a typical open plan office – based on assumed acoustic losses, details upon request.

NR35 office with ceiling														
Unit Details				Cooling						Heating				
Range	Size	Air Volume (l/s)	SFP (W/l/s)	Sensible Duty (kW)	Total Duty (kW)	Sensible Heat Ratio	Air off Dry Bulb Deg C	Air off Wet Bulb Deg C	Fluid Flow Rate (l/s)	Fluid Pressure Loss (kPa)	Total Duty (kW)	Air off Dry Bulb Deg C	Fluid Flow Rate (l/s)	Fluid Pressure Loss (kPa)
H235	A	127	0.27	1.22	1.26	0.97	16.5	13.9	0.051	3.64	1.12	27.3	0.013	2
	B	172	0.3	2.35	2.54	0.93	13.3	11.4	0.102	16.32	2.32	31.2	0.028	1.45
	C	165	0.29	2.49	2.73	0.91	12.3	10.7	0.109	8.71	2.15	30.8	0.025	1.62
	D	269	0.24	3.53	3.89	0.91	13	11.6	0.155	16.28	3.9	32	0.047	4.86
	E	313	0.24	4.15	4.64	0.89	12.7	11.6	0.186	19.22	4.23	31.2	0.05	6.41
	F	377	0.26	4.91	5.44	0.9	12.7	11.5	0.217	25.34	5.3	31.7	0.064	9.75
	G	310	0.24	4.16	4.61	0.9	12.5	11.4	0.184	14.52	4.7	32.5	0.055	4.35
	H	410	0.22	4.97	5.46	0.91	13.4	12.3	0.219	19.61	7.1	34.4	0.084	9.17
	I	432	0.23	5.55	6.13	0.91	12.7	11.6	0.245	23.91	8.1	35.5	0.097	11.82
	J	421	0.22	5.23	5.82	0.9	13.1	12.1	0.233	13.31	6.8	33.4	0.079	9.36
K	452	0.2	5.53	6.10	0.91	13.2	12.2	0.244	14.45	8.1	34.9	0.096	13.13	
H270	B	159	0.25	1.96	2.05	0.96	13.3	12.3	0.082	6.78	1.82	29.5	0.022	1.04
	C	151	0.27	2.01	2.24	0.9	12.5	11.8	0.089	5.09	1.6	28.8	0.018	1.01
	D	296	0.24	3.8	4.26	0.89	12.6	11.7	0.17	20.63	3.48	29.7	0.042	4.27
	E	307	0.22	3.78	4.02	0.94	13	12.3	0.161	11.72	3.48	29.4	0.041	4.78
	F	409	0.23	5.28	5.82	0.91	12.5	11.6	0.232	22.38	4.26	28.6	0.051	7
	G	269	0.19	3.56	3.83	0.93	12.4	11.7	0.153	5.79	3.8	31.7	0.044	3.13
	H	460	0.21	5.64	6.26	0.9	13	12.2	0.25	20.69	6.7	32	0.079	8.65
	I	526	0.22	6.4	6.91	0.93	13.1	12.1	0.276	24.55	7.1	31.2	0.085	9.91
	J	407	0.2	5.12	5.46	0.94	12.8	12.1	0.218	10.58	5.95	32.1	0.069	7.8
	K	572	0.21	7.34	8.21	0.89	12.5	11.6	0.328	21.62	9.2	33.4	0.108	17.04

# Typical performance of Fan Coil Units at NR30

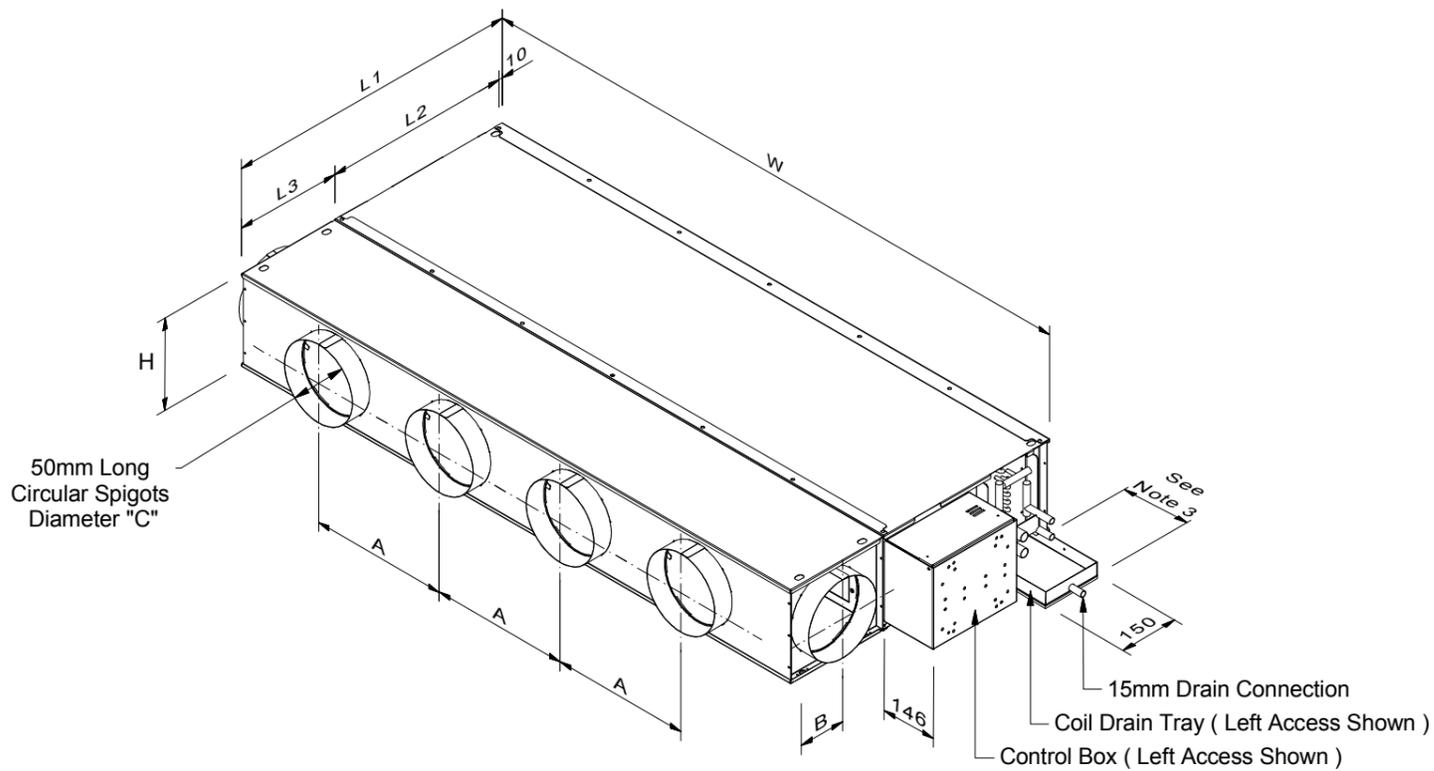
The table below contains performance data for these sample conditions. If these conditions do not meet your specific requirements then contact us and we will select alternative ones.

## Sample conditions:

<b>CHW 6/12</b>	Chilled water 6°C water going into the coil and 12°C coming out..
<b>LTHW 60/40</b>	Low temperature hot water 60°C going into the coil and 40°C coming out..
<b>Air On 23/20</b>	This is the air coming into the inlet side of the FCU, 23°C for cooling and 20°C for heating.
<b>Relative Humidity 50%</b>	Relative humidity of the air, in this case 50%.
<b>External Pressure</b>	External pressure of the Fan Coil Unit - see the table below.
<b>NR30 Room Noise Level</b>	Noise criteria achieved with 600mm long discharge attenuators in a typical residential bedroom – based on assumed acoustic losses, details upon request.

NR30 Bedroom (FCU Mounted above Bathroom)														
Unit Details				Cooling						Heating				
Range	Size	Air Volume (l/s)	SFP (W/l/s)	Sensible Duty (kW)	Total Duty (kW)	Sensible Heat Ratio	Air off Dry Bulb Deg C	Air off Wet Bulb Deg C	Fluid Flow Rate (l/s)	Fluid Pressure Loss (kPa)	Total Duty (kW)	Air off Dry Bulb Deg C	Fluid Flow Rate (l/s)	Fluid Pressure Loss (kPa)
20Pa Rectangular Discharge														
H235	A	90	0.17	1.00	1.03	0.97	16	13.2	0.041	0.05	0.89	28.1	0.01	1.3
	B	91	0.14	1.41	1.49	0.95	13.4	10.9	0.059	0.12	1.62	34.8	0.019	0.78
	C	99	0.15	1.60	1.78	0.9	12.7	10.7	0.071	0.26	1.78	34.9	0.021	1.17
	D	121	0.15	1.90	2.07	0.92	12.2	10.6	0.082	0.25	2.1	34.3	0.025	1.64
	E	149	0.13	2.30	2.56	0.9	12	10.7	0.102	0.38	2.65	34.8	0.032	2.87
	I	170	0.14	2.50	2.82	0.89	12.1	11	0.112	0.46	3.6	37.6	0.043	2.85
H270	B	112	0.16	1.5	1.59	0.94	12.7	11.8	0.064	0.14	1.55	31.4	0.019	0.78
	C	113	0.21	1.57	1.77	0.89	12.3	11.5	0.07	3.98	1.35	29.8	0.015	0.74
	D	162	0.14	2.29	2.55	0.9	11.9	11.1	0.101	0.38	2.3	31.7	0.028	2.07
30Pa Circular Spigot Discharge														
H235	A	98	0.22	1.05	1.09	0.96	16.1	13.3	0.044	3.05	0.93	27.9	0.011	1.42
	B	104	0.19	1.55	1.64	0.95	13.5	11	0.065	4.84	1.85	34.8	0.022	0.98
	C	107	0.19	1.73	1.92	0.9	12.5	10.6	0.076	3.56	1.85	34.2	0.022	1.25
	D	158	0.18	2.40	2.59	0.93	12.1	10.5	0.103	4.89	2.8	34.7	0.034	2.72
	E	168	0.17	2.55	2.82	0.9	12	10.7	0.112	5.11	3	34.8	0.036	3.55
	I	221	0.17	3.00	3.36	0.89	12.7	11.6	0.133	5.15	4	35	0.048	3.43
H270	B	119	0.2	1.56	1.66	0.94	12.9	11.9	0.066	5.35	1.6	31.1	0.019	0.83
	C	113	0.21	1.57	1.77	0.89	12.3	11.5	0.07	3.98	1.35	29.8	0.015	0.74
	D	195	0.18	2.7	2.99	0.9	12	11.2	0.119	6.87	2.68	31.4	0.032	2.7

## Typical Fan Coil Unit with **circular** discharge connections

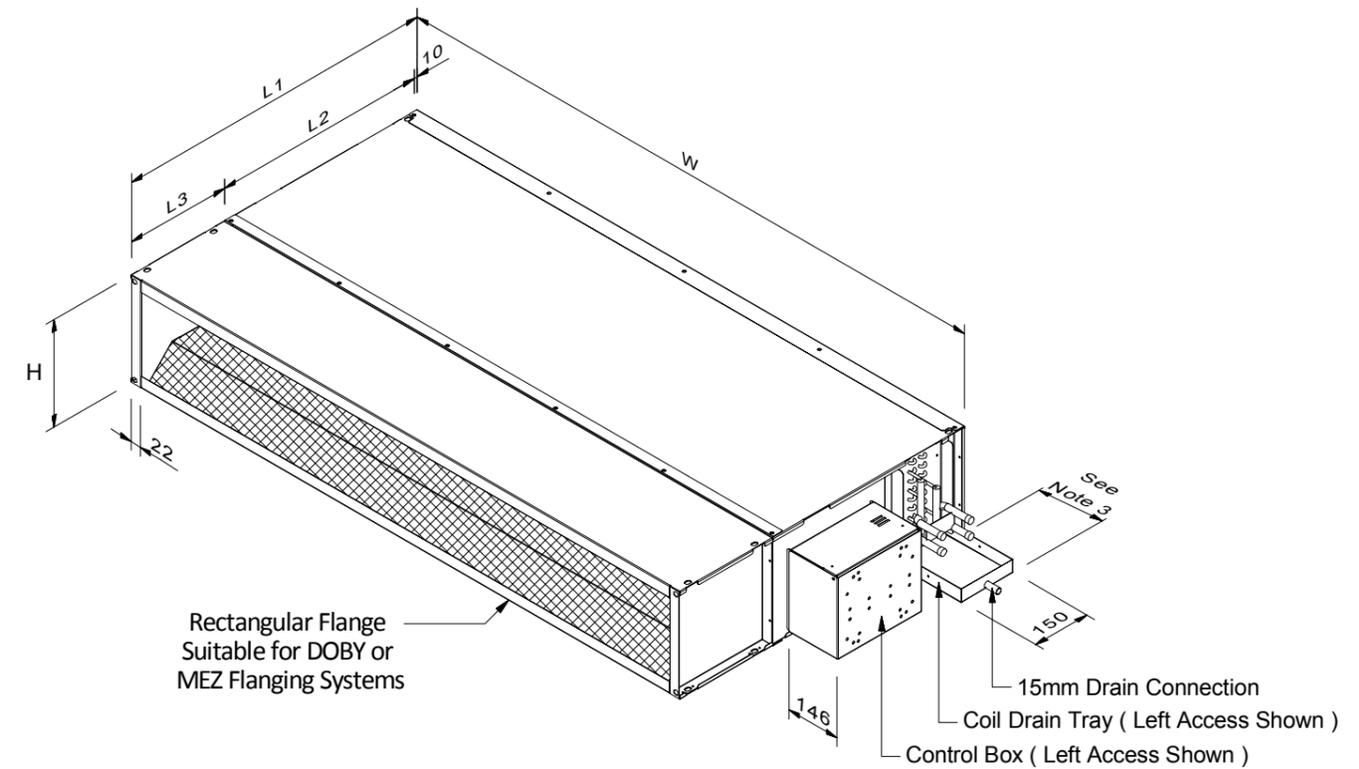


Model		Overall dimensions					Spigot details			Coil connections		
Range	Size	W	H	L1	L2	L3	A	B	C	QTY	Cooling	Heating
H235	A	430	235	755	475	270	-	120	197	3	15 Ø	15 Ø
	B	646					-			3	15 Ø	
	C, D	961					400			4	15 Ø	
	E, F	1276					350			5	15 Ø	
	G, H, I	1591					350			6	22 Ø	
	J, K	1906					500			6	22 Ø	
H270	B	646	270	880	550	320	-	120 or 145	197 or 247	3	15 Ø	15 Ø
	C, D	961					400			4	15 Ø	
	E, F	1276					350			5	15 Ø	
	G, H, I	1591					350			6	22 Ø	
	J, K	1906					500			6	22 Ø	

### NOTES

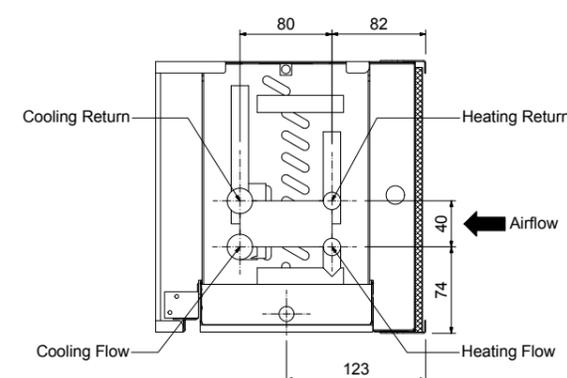
- Refer to FCU Installation, Operation and Maintenance Manual for detailed information on these topics.
- Spigots are removable. Blanking plates are available at extra cost if required for fitting on site.
- Standard drain tray protrudes 181mm from side of FCU.  
However -  
Product Code Option 'L' denotes 'Longer Drain Tray' which protrudes by 381mm.  
Product Code Option 'D' denotes 'Double Extension Drain Tray' which protrudes by 481mm.
- Coil connections are all plain copper.
- Spigot tolerance +1/-2.
- All dimensions in mm.

## Typical Fan Coil Unit with **rectangular** discharge connections

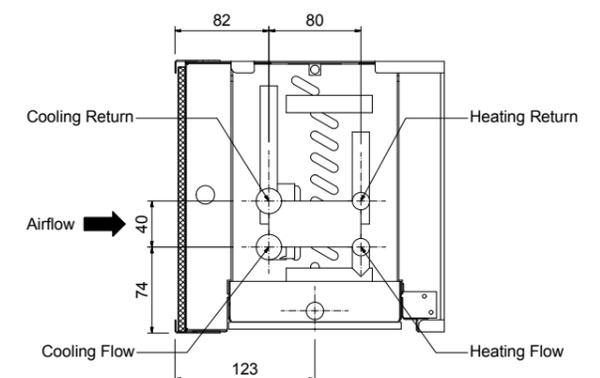


Model		Overall dimensions					Coil connections		Ductwork connections
Range	Size	W	H	L1	L2	L3	Cooling	Heating	
H235	A	430	235	785 or 1085 or 1385 or 1685	475	300 or 600 or 900 or 1200	15 Ø	15 Ø	20mm Flanged Connection W Duct = W - 47mm H Duct = H - 43mm
	B	646					15 Ø		
	C, D	961					15 Ø		
	E, F	1276					15 Ø		
	G, H, I	1591					22 Ø		
	J, K	1906					22 Ø		
H270	B	646	270	785 or 1085 or 1385 or 1760	550	300 or 600 or 900 or 1200	15 Ø	15 Ø	30mm Flanged Connection W Duct = W - 59mm H Duct = W - 55mm
	C, D	961					15 Ø		
	E, F	1276					15 Ø		
	G, H, I	1591					22 Ø		
	J, K	1906					22 Ø		

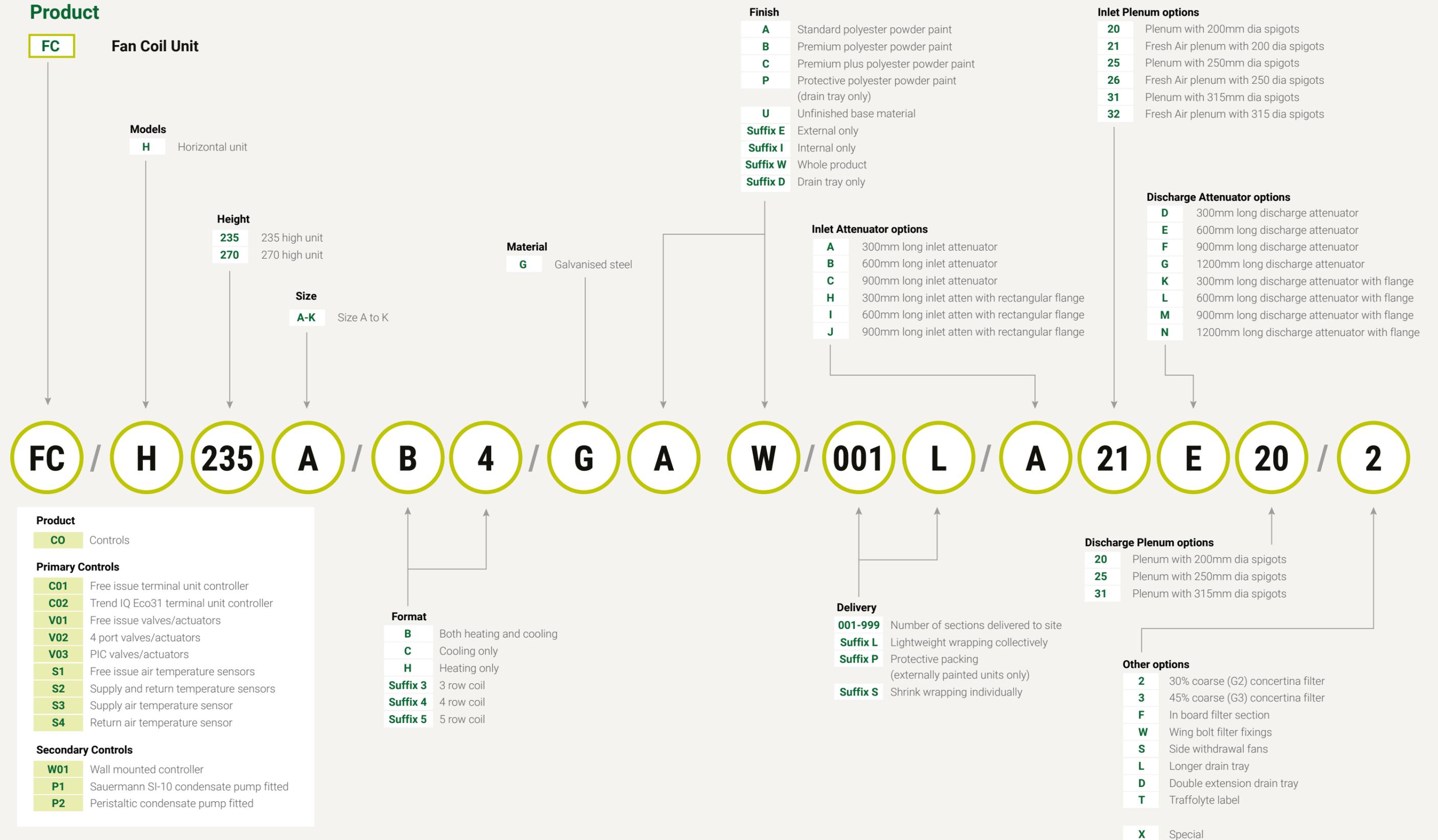
### COIL CONNECTIONS - LEFT HAND UNITS



### COIL CONNECTIONS - RIGHT HAND UNITS



# Fan Coil Unit Product Code Definitions



# Specifying the Fan Coil Unit

## Fan Coil Unit specification

We're here to help and can provide a detailed Fan Coil Unit specification for inclusion within the overall specification for your project. This is also available in short form NBS Specification format if required.

t: +44 (0)118 918 6470

f: +44 (0)118 918 6480

enquiries@caice.co.uk  
caice.co.uk



### Head office & registered office

Riverside House, Unit 3, Winnersh Fields  
Wokingham, Berkshire  
RG41 5QS

### Northern region sales office

Ground Floor, Units C - E  
Toller Court, Short Bank Road  
Skipton, North Yorkshire  
BD23 2HG

### South west region sales office

Bank House, Bath Road  
Chippenham, Wiltshire  
SN15 2SA



\* Gold Award in the prestigious Command Wessex BEST Awards 2001, with a "World Class" benchmarked score against thousands of other similar businesses throughout the UK and Europe.