DECOQT

Fan Coils



Biddle

QUIET, EFFICIENT & EASY TO MAINTAIN

The Biddle DecoQT fan coil has been designed for applications where silence is key and is ideally suited for use in residential and hotel developments. The acoustically lined casework ensures quiet operation, even when the DecoQT is running at full speed. With a stylish single-piece grille for inlet and outlet air, the DecoQT is discreet and silent, offering a comfortable, draught-free solution which suits the most stylish of environments.

CUSTOMISABLE SOLUTIONS

The DecoQT is available in two sizes: DecoQT 70 and DecoQT 100, with 2 pipe (with or without changeover) and 4 pipe options.

These fan coil units can be provided as a packaged unit including all controls and valves or Biddle can fit all major brands of control ancillaries in our purpose-built manufacturing facility, reducing installation time on site.

APPLICATIONS

The Biddle DecoQT fan coil units are suitable for use in refurbished or newly built residential apartments and hotels.

They are ideally suited to bulkhead installations, but can also be used in exposed situations due to their low noise levels. The DecoQT will operate as low as 28dB(A) and at full speed the DecoQT only produces 33dB(A).

The unit is fitted with a single inlet and outlet grille which directs the air upwards as it leaves the unit, away from the room occupants, ensuring draught-free cooling. The EC fan runs efficiently to minimise energy consumption when the unit is running, whilst giving the ability to run at variable speeds ensuring noise levels and power usage is kept to the minimum.

Painted options are available so there really is a solution for every application. Biddle's fan coil units have been proven over many years in commercial office buildings, hotels, apartments and public buildings.

MAINTENANCE, CLEANING & ACCESS

The DecoQT is designed for continuous operation with minimal maintenance. We know there are times when you will need to access to the unit, so our product design team kept ease of access front of mind when completing the design.

The units have tool free access for changing and cleaning the filter, which can be easily cleaned with a vacuum cleaner by maintenance teams.

Access to all major internal components is via a single-piece removable panel which is held in place with 2 screws and requires lifting to drop down. Whilst working components can be accessible for maintenance, they can also be locked away above the inspection hatch. The condensate tray is also removable allowing easy access to the underside of the coil.

SINGLE INLET AND OUTLET GRILLE

The stylish curved grille is mounted to the front of the unit and is composed of two sections. The bottom section functions as an air inlet grille and allows the unit to draw air in to be heated or cooled as required. The top section functions as the discharge grille and has been designed to direct the leaving air up towards the ceiling to allow it to readily mix with the room air. In cooling modes, this delivers exceptional thermal comfort for the occupants, as it avoids any cold draughts. Further, by directing the supply air up and away from the inlet, it reduces the risk of air short cutting around the unit, promoting greater efficiencies when cooling and heating leading to a more consistent temperature. Finally, the grille has been shaped such that occupants can look up and won't see into the unit through it, allowing it to blend seamlessly into the room's décor.





SPECIFICATIONS

GRILLE

The fan coil unit intakes and discharges air through a single-piece hinged and curved grille that when opened provides access for cleaning or replacing the filter. Angled to obscure any views into the unit and to discharge air towards the ceiling to reduce draught risks, it is supplied in RAL9016 with other colours available on request.

CASING

Manufactured from 1.0mm thick galvanised sheet steel to create a rigid, robust and vibration free construction, the casing is contoured and lined internally in such a way to disrupt and absorb the noise from the fans giving the DecoQT it's quiet performance.

The casing incorporates a stylish single piece curved grille for inlet and supply air with a telescopic duct connection to make installation easier.

FILTERS

A removable open mesh or G3 wire frame filter, secured at the bottom of the unit, is fitted as standard at the inlet of the fan coil. Designed to protect the coil and fans from ingress of small particles, the filter is easily accessible for routine maintenance and cleaning. It can be simply removed tool free by lifting the hinged grille and can be cleaned using a vacuum cleaner. Once removed, no dangerous components can be accessed making it suitable to be accessed by facilities, cleaning and maintenance teams.

FINISH

All units are supplied and manufactured, as standard, in unpainted galvanised sheet steel with the grille painted to RAL9016. A selected range of painted finishes are available on request.

COILS

Coils are manufactured from copper pipe which is mechanically bonded to aluminium fins. Coil terminations are 15mm for both the heating and cooling flow/return. The coil terminations are at 40mm centres to enable ease of fitting standard "4 port" valve sets. When commissioning sets are required, these can be installed external to the unit within the roof void.

Coils have been leak tested during the manufacturing stage at 20 Bar and rated for working pressures of up to 8 Bar. Factory fitted valve connections are tested with 8 Bar compressed air and leak detection spray. Coils are configured to provide counter flow where the water will always travel through the coil in the opposite direction of the air flow, providing the most efficient and cost-effective heat exchange possible in a fan coil unit.



CONDENSATE TRAY

Condensate trays are manufactured from powder coated galvanised steel to prevent any corrosion. The underside of the tray is insulated with 2mm closed cell insulation to prevent moisture formation. The tray covers the whole of the coil and any internal valve sets.

A condensate pump is available on request to remove excess condensate from the internal tray. The supplied flexible hose allows for easy connection into the condensate removal system. The pump is fitted with an alarm feature that can be interlocked to the unit's operation to avoid any excessive condensate build up.

FANS

The fans used are some of the most energy efficient available. Each unit has double-inlet, double-width centrifugal fans complete with built-in Electronically Commuted (EC), Direct Current (DC) motors and integral thermal protection. The high specification motors incorporate "sealed for life" bearings and include features such as soft start, which help extend their life span.

The fans are mounted to prevent vibrations and have an expected life more than 40,000 running hours. Connection is via a spring-loaded connector in the unlikely event of needing to be removed.

SPIGOT

The unit can be supplied with a 125mm fresh air spigot to the rear (supplied separately), to allow fresh make up air to be put into the room.

INSULATION

Internal insulation is made from 2mm open cell polyethylene foam with a polyurethane protective skin to reduce absorption of moisture and improve the reduction of noise. Areas such as the inlet and discharge ducts where additional attenuation is needed are lined with a thicker 10mm foam for superior performance.

ACCESSORIES

- Pressure Independent control valve (PICV)
- Valve Packs
- Condensate pump
- Fresh air spigot

CONTROLS

The product's controls offer is designed to be flexible to suit project specific controls or can be supplied with a range of capable direct digital controllers.

The generous controls enclosure is available with every unit. Only supplied on request.

The enclosure includes all electrics, switches and the digital controller and is mounted on the rear of the unit next to the coil terminations and valves. The enclosure is manufactured from galvanised sheet steel and is designed to house the majority of all controls on the market today.

BASIC CONTROL

Some projects require the DecoQT unit to be controlled by remotely placed controllers pre-installed on site. For these applications the unit can be supplied with a basic speed controller (potentiometer) to allow for local setting and adjustment of the airflow at commissioning stage. The speed controller is fitted with a control housing mounted on the rear of the unit. Control of the cooling and/or heating coils is to be provided by others.

PROJECT SPECIFIC CONTROLS

Biddle can work with a project's System Integrators to factory fit third party controls into the product, reducing installation and commissioning time on site with a fully flexible and tailored offer. The DecoQT Series can be supplied with different transformers, fan enable relays and other key components to bridge the gap between the different controllers on the market to ensure all major brands of controller can be supported with ease for everyone involved. Where System Integrators haven't been appointed, the project timelines are short or a particular site must conform to a certain controls manufacturer, Biddle can work with their controls partners to help deliver the project. With an option to supply, factory fit, support and even commission the majority of the controls on the market today, Biddle can ensure that any project specific control requirements can be met.

DIRECT DIGITAL CONTROL

For projects where System Integrators haven't been appointed, or where a controls offer needs to be more advanced than just simple fan speed control, Biddle can supply a wide range of digital controllers with different room controllers to suit the installation. These controls can be fitted with the accessories to report faults, control temperatures to remote locations (useful for shop floor environments where controls are to be hidden) or group together to give zoned temperature control.

Where fan coils need to be integrated into a building management system, all the offered controllers support common BMS protocols to allow them to communicate with new and existing BMS systems. These systems can then further enhance the energy savings from the DecoQT range, whilst giving additional benefits such as fault reporting, trend logging and remote off-site diagnoses.

DIRECT DIGITAL CONTROLLER RANGE

JOHNSON CONTROLS TUC03

Biddle can supply a Johnson Controls TUC03 controller to provide direct digital control of the DecoQT Series with heating and/or cooling coils. Communication options are available to enable the controller to be integrated into a larger BACnet® network as part of a building automation system or alternatively multiple DecoQT units can be connected together to allow a scalable system for larger rooms. With return and supply air sensors built in as standard, the controller will work to ensure that temperatures in the space are controlled and thermal comfort is maintained for the building's users. Where preferred or required, we can offer a room measuring device which provides a greater degree of control for the room occupier to set and adjust. The three JC options we offer are as follows:

Description	Wall sensor, adjuster and fan speed control	Monochrome wall unit	Monochrome touchscreen
Item code	TM-2160 -0007	RS-7080 -0002	TRM0312 -0W
Local fan speed adjustment	3-speed fan override	Auto fan speed	Auto fan speed
Adjustable temp. dial	±3°C	±3°C	±3°C
			

EASYIO FW-14

The FW-14 drives the operation of the fan coil unit and serves as the brain of the control loop. The controller accepts input from either a return air sensor the SH-TSX pictured below and uses its inbuilt ARM processor to calculate the necessary heating, cooling, and fan speeds to maintain a comfortable environment. The connectivity and reporting options make the FW-14 unique, as the unit can communicate using its built-in Wi-Fi access point or Ethernet ports to another device using MQTT, BACnet MS/TP, BACnet IP (BTL Approved), Web Sockets or REST protocols to ensure that your system is connected to the cloud just as your computer. Built in dashboards are also available and can be accessed via mobile phone on password protected pages by the facilities maintenance team.



EASYIO SH-TSX

Digital control options include the Biddle SH-TSX touch screen from EasyIO. The SH-TSX has an attractive 3.5" backlit with a black and chrome surround and a customisable colour wheel that can be changed to match the applications' aesthetics.

The Touchscreen offers PIN code protection to stop unwanted changes to room settings and locking options to help maintain comfortable climates with either on/off/boost functionality, temperature adjustment only, or complete control of temperature, mode, and fan speed.



VALVES & COMMISSIONING SETS

Biddle offers a range of valve options for the DecoQT Series to suit the project's requirements. The options are summarised below but please ask our sales team to discuss the options available to you and help decide which is best suited for your application.

NO VALVES

The unit can be supplied with exposed 15mm copper pipe connections for connecting to valves on site. The pipework is positioned at 40mm centres to facilitate the most common valve types on the market today.

4 PORT

We can supply integrated 4 port valves to reduce site installation time on both the heating and cooling. Controlled by 0-10V motorised actuators these can be operated by either Biddle's own control options or customer specific.

BG29 COMPLIANT PIC VALVES

The DecoQT Series can be supplied with PIC Valves or Valve Commissioning Sets for easier maintenance after handover and better energy savings in use. We ensure a robust product offer that includes options compliant to BSRIA's BG29/2021
Guide on Pre-Commission Cleaning of Pipework System (6th Edition).

A full PIC Valve Commissioning Set includes:

- 0-10V actuator
- Pressure test plug and drain so coil pressure drops, can be measured once installed to identify performance issues
- Flushing bypasses to allow service and maintenance staff to clear the unit of any debris within the system, and safely isolate it should it require future servicing
- Metering station/orifice plate to allow the measurement of flow rates at the FCU to help quantify a product's performance
- Euroconus connections as standard to maximise the options when connection your system pipework to the unit

ADDITIONAL VALVE OPTIONS AVAILABLE:

Branch valve sets – special PIC Valves Commissioning Sets that are designed to be installed at the end of a line to ensure the water can circulate continually within the system, maximising response times.

Strainers – Biddle always recommends fitting strainers to the central trunk in the hydronic system as it will reduce maintenance. In some projects, especially refurbishment and fit out, this is not possible, so Biddle can supply.

Raise lower actuators - with some controllers, a 0-10V actuator is unsuitable. In these cases, we can supply a raise lower actuator to ensure it will be fully compatible with your controls.

OPTIONAL EXTRAS

With configurability in mind, Biddle can also supply a range of items to suit on site requirements.

FAN MONITORING BOARD

A fan monitoring board enables the fan's health to be continuously monitored. Fitted with the controller the device can send alerts in case there are problems with the unit, by monitoring the fan's speed.

CONTROL RELAYS

Relays for 24V and 230V are available as standard, allowing the unit to be enabled by external controllers. Where these enable signals are absent, volt detecting relays can be utilised to turn on the fans when the control signal rises above a set threshold.

TRANSFORMERS

Some controllers need 24VAC supplies to function, and these are typically obtained from a transformer housed within the device. To fit a wide range of conventional controllers and, occasionally, additional actuators like shading or lights (where appropriate), we can provide two different sized 24V transformers.

DECOQT

Technical Details



TECHNICAL DETAILS

NOISE RATING DECOQT
PERFORMANCE DATA

DECOQT - H1C4

NR	Unit Size	Air volume	Anticipated Installed SFP w/l/s	6°C - 12°C EAT=23°C		8°C - 14°C EAT=23°C		10°C - 16°C EAT=23°C		Ecodesign 7°C - 12°C EAT=27°C		82°C - 71°C EAT=21°C	80°C - 60°C EAT=21°C	55°C - 45°C EAT=21°C	60°C - 40°C EAT=21°C	Ecodesign 70°C - 60°C EAT=20°C
		l/s	SFP	Sensible	Total	Sensible	Total	Sensible	Total	Sensible	Total	Total	Total	Total	Total	Total
30	**DECOQT 70**	**94**	**0.15**	**1.43**	**1.71**	**1.22**	**1.29**	**1.02**	**1.02**	**1.84**	3.00	**2.18**	**2.18**	**2.18**	**2.18**	**2.28**
30	DECOQT 100	134	0.14	2.12	2.53	1.94	2.04	1.65	1.65	2.77	4.52	3.10	3.10	3.10	3.10	3.23
35	**DECOQT 70**	**112**	**0.18**	**1.64**	**1.95**	**1.40**	**1.47**	**1.18**	**1.18**	**2.11**	**3.45**	**2.57**	**2.57**	**2.57**	**2.57**	**2.70**
35	DECOQT 100	160	0.17	2.54	3.03	2.23	2.34	1.90	1.90	3.26	5.32	3.71	3.71	3.71	3.71	3.88
38	**DECOQT 70**	**125**	**0.20**	**1.79**	**2.14**	**1.53**	**1.61**	**1.29**	**1.29**	**2.30**	**3.76**	**2.88**	**2.88**	**2.88**	**2.88**	**2.88**
38	DECOQT 100	179	0.19	2.82	3.36	2.43	2.55	2.07	2.07	3.56	5.81	4.12	4.12	4.12	4.12	4.12

DECOQT - C5

NR	Unit Size	Air volume	Anticipated Installed SFP w/l/s	6°C - 12°C EAT=23°C		8°C - 14°C EAT=23°C		10°C - 16°C EAT=23°C		Ecodesign 7°C - 12°C EAT=27°C	
		l/s	SFP	Sensible	Total	Sensible	Total	Sensible	Total	Sensible	Total
30	**DECOQT 70**	**94**	**0.15**	**1.50**	**1.87**	**1.30**	**1.42**	**1.09**	**1.09**	**1.94**	3.23
30	DECOQT 100	134	0.14	2.12	2.65	1.85	2.03	1.55	1.55	2.76	4.61
35	**DECOQT 70**	**112**	**0.18**	**1.75**	**2.19**	**1.50**	**1.64**	**1.26**	**1.26**	**2.23**	**3.72**
35	DECOQT 100	160	0.17	2.49	3.12	2.13	2.34	1.79	1.79	3.20	5.34
38	**DECOQT 70**	**125**	**0.20**	**1.92**	**2.40**	**1.64**	**1.80**	**1.38**	**1.38**	**2.45**	**4.09**
38	DECOQT 100	179	0.19	2.72	3.41	2.32	2.55	1.95	1.95	3.49	5.83

DECOQT - H5

NR	Unit Size	Air volume	Anticipated Installed SFP w/l/s	82°C - 71°C EAT=21°C	80°C - 60°C EAT=21°C	55°C - 45°C EAT=21°C	60°C - 40°C EAT=21°C	Ecodesign 70°C - 60°C EAT=20°C
		l/s	SFP	Total	Total	Total	Total	Total
30	**DECOQT 70**	**94**	**0.15**	**2.18**	**2.18**	**2.18**	**2.18**	2.22
30	DECOQT 100	134	0.14	3.10	3.10	3.10	3.10	3.14
35	**DECOQT 70**	**112**	**0.18**	**2.57**	**2.57**	**2.57**	**2.57**	**2.62**
35	DECOQT 100	160	0.17	3.71	3.71	3.71	3.71	3.77
38	**DECOQT 70**	**125**	**0.20**	**2.88**	**2.88**	**2.88**	**2.88**	**3.00**
38	DECOQT 100	179	0.19	4.11	4.11	4.11	4.11	4.30

NOTES:

a) Noise rating guide based on standard office environment and units installed in a suspended ceiling with a Dncw/Dnfw of 35 dB with up to 0 Pa external static resistance.

b) EAT - Entering air temperature.

c) Specific fan power values are calculated at 0 Pa.

d) Heating outputs are based on a maximum supply air temperature of 40°C.

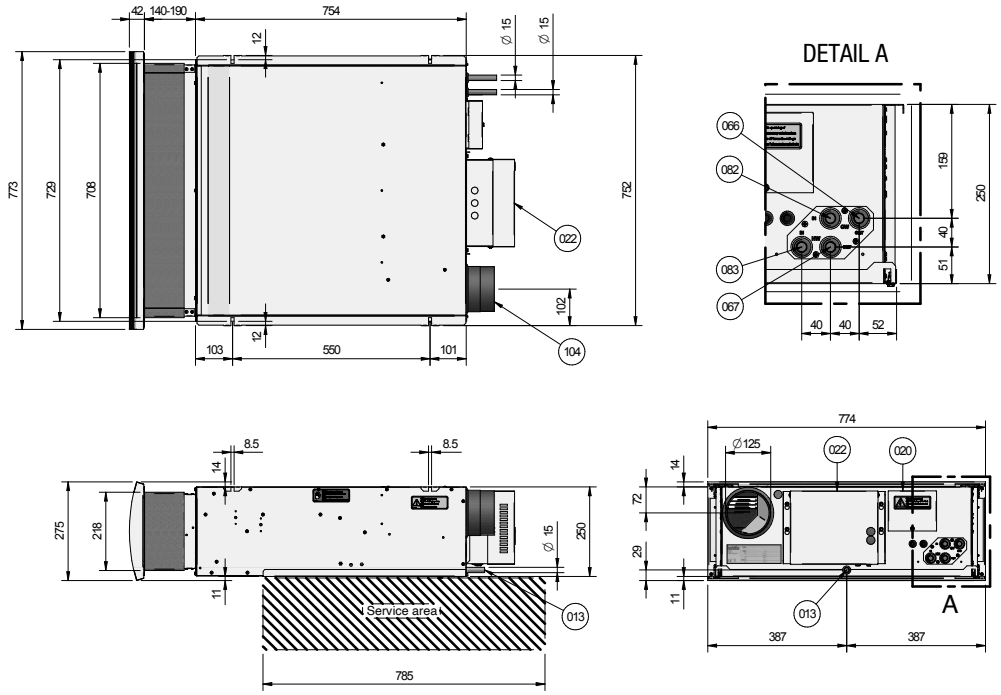
e) Noise rating levels are for guidance only and we recommend a full acoustic analysis is carried out by the clients consultants.

DECOQT ELECTRICAL DATA

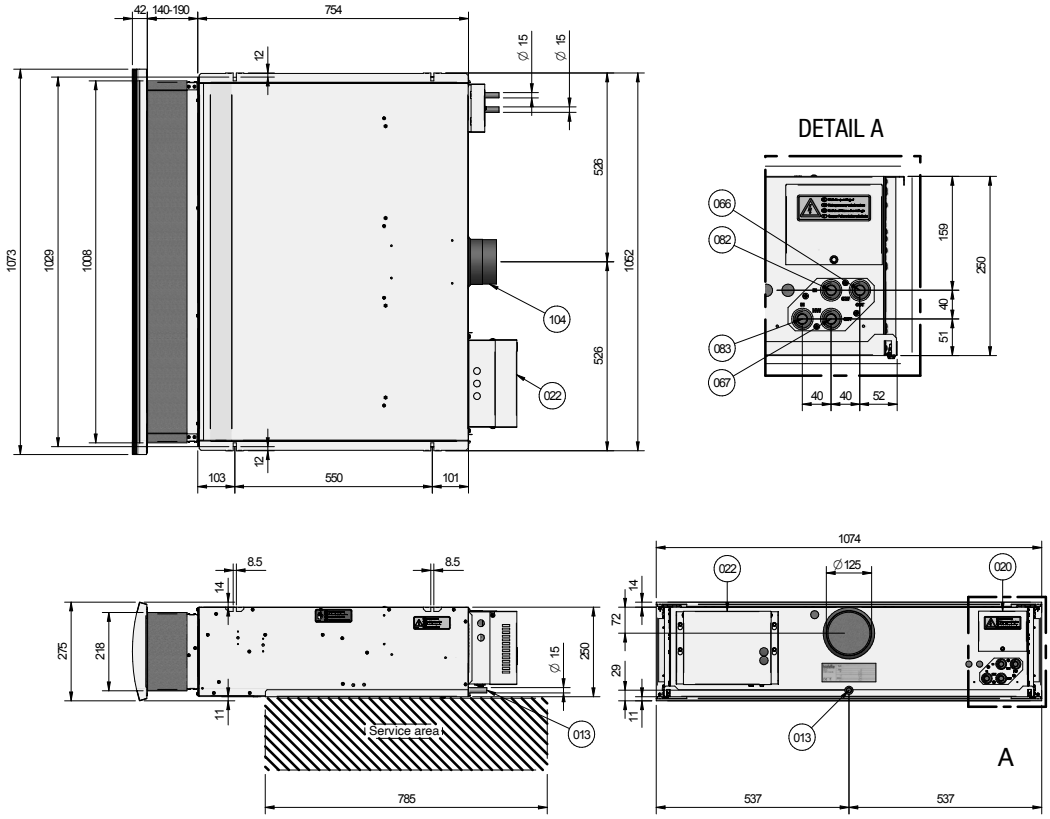
UNIT SIZE	MAX RUNNING CURRENT AMPS [A]	MAX RUNNING POWER WATTS [W]	STARTING CURRENT AMPS [A]
DECOQT 70	**0.42**	**58.3**	**0.42**
DECOQT 100	0.55	78.1	0.55

DRAWINGS

DECOQT 70



DECOQT 100



INDEX

13–Condensate discharge. **16**–Condensation tray (only for cooling). **20**–Connection plate. **22**–Control System Enclosure. **66**–Return C. **67**–Return H. **82**–Supply C. **101**–Supply air. **Hatched area**–Indicates service area. **104**–Fresh Air.

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WARRANTY 3 YEARS ON SITE

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Every effort has been made to ensure descriptions are correct at the time of print.
Errors and omissions excepted. DECOQT | V2/2023