

# CHILLED WATER CASSETTE

Fan Coil Unit



**Biddle**



# UNOBTRUSIVE DESIGN

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The chilled water cassette (CWC) is designed to optimise energy efficiency and air distribution performance. A neat, compact unit, the cassette is both smart and unobtrusive. The smaller size model measures just 600mm square and will fit into the space of a standard ceiling tile. The elegant air inlet grille blends aesthetically with any room décor.

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## IMPROVED COMFORT

The CWC provides a versatile solution for a wide range of applications where maintaining comfortable temperature control of the environment is essential. With a diverse choice of options in terms of heating, cooling and airflow, the optimum model can be selected.

The special design of the diffuser ensures rapid blending of the supply and room air. Conditioned air is directed along the ceiling then evenly distributed throughout the room.

Return air enters the cassette unit through a large grille. It is then cleaned by an easily removable, washable synthetic filter, treated and recirculated.

## VARIOUS HEAT SOURCES

The CWC is available in three versions:

- Chilled water cooling only
- Chilled water cooling with electric heating
- Chilled water cooling with hot water heating

All units have connections for fresh air ducts that considerably improve indoor quality.

## APPLICATIONS

The CWC is available in six sizes suitable for a wide range of applications, with air flows from 100 to 443 l/s. It offers a modern solution for a wide variety of small and medium sized commercial and residential applications. It is ideally suited for large offices, shops, restaurants and bars, hotel receptions, meeting rooms, banks, laboratories, showrooms, etc.

The units offer an ultra-low-noise solution for applications where low noise level is important.

# A SUITABLE SOLUTION FOR EVERY SITUATION

- Designed to fit within typical suspended ceiling grid
- Six model sizes
- AC & EC fan motor options
- Two physical sizes - nominally 600mm x 600mm or 900mm x 900mm and 300mm deep
- Two control options: basic and advanced
- Under typical operating conditions up to 4 kW sensible cooling, 11 kW water heating or 3 kW electric heating
- Four-way air distribution, via purpose designed grille
- Fitted with condensate lift pump and washable filter
- Access to all components from underneath

## HEAT SOURCE:

- Electric
- Water: cooling only or cooling/heating (two or four-pipe)

Chilled water cassette fan coil



## MAINTENANCE & CLEANING

All the components (motors, fans, drain pump) are accessible from the bottom by simply removing the grille. We have designed the unit to allow you to be able to access and remove the key components without impacting the surrounding tiles.

## FRESH AIR INLET OPTION

The fresh air flow must be less than 10% of the total air flow to avoid operating problems and excessive noise. The fresh air is not conditioned by the CWC.

## SUPPLY OF CONDITIONED AIR DUCT TO AN ADJACENT ROOM

This option allows supply of a small amount of conditioned air to a room located close to the cassette through an air duct (customer-supplied). If this option is used, the outlet grille corresponding to the duct position must be closed, using the air supply outlet obstruction kit available. The kit cannot be used in units equipped with electric heater. Duct lengths should be minimal.

## DRAIN PUMP

The high-performance autonomous condensate drain pump is encased in a special sound-insulating material for improved fast and quiet condensate removal.

## CONTROL BOX

All units are equipped with a control box containing the terminal blocks. The box is positioned on the outside of the unit. The additional basic or advanced controls box is supplied loose.

## FILTER

The standard filter for the range has a pleated filter surface, resulting in an 87% larger surface than a conventional filter. The air flow per unit area is lower, resulting in lower pressure drop and reduced noise level. Furthermore, the average interval between filter cleaning is three times longer than standard filters. The filter material is polypropylene and the grade is EU1.

# CONTROL

## BASIC CONTROL

With this option a three-speed switch is supplied in a separate controls box with a 'flying lead' to allow electrical connections to be made to the CWC on site. Control of the cooling and/or heating coils is to be provided by others. This option is not available with electric heating.

## ADVANCED CONTROL

This option provides a configurable Johnson TUC03 terminal unit controller which is designed specifically, to provide direct digital control of the unit fan speeds and the cooling and/or heating coils. Communication options are available to enable the controller to be integrated into an N2 Open or BACnet® network of a building automation system.

Supplied as standard with this option are:

- Unit controller supplied in a separate controls box with a 'flying lead' to allow controller to be connected to the chilled water cassette unit on site.
- 4-way valves and actuators for fitting and wiring on site.
- Wall mounted temperature sensor, type TM-2140-0000

When it is preferable to use a different measuring device, to offer a degree of control for the room occupier to set and adjust, the following options are available (all sensors are supplied separately):

Description	Item code	Local fan speed adjustment	Adjustable temp. dial
Wall mounted sensor only	TM-2140-0000	No	No
Wall mounted sensor and adjuster	TM-2160-0005	No	± 3°C
Wall sensor, adjuster and fan speed control	TM-2160-0007	3-speed fan override	± 3°C
Wall sensor, adjuster and fan speed control with LCD display	RS-1180-0007	3-speed fan override	± 3°C



TM-2140-0000



TM-2160-0005



TM-2160-0007



RS-1180-0007

# CWC ELECTRIC & WATER UNITS

## COOLING ONLY

(\*add suffix for AC or EC type motors as required)

Model Type/Code		CWC-004-2P*	CWC-008-2P*	CWC-010-2P*	CWC-012-2P*	CWC-016-2P*	CWC-020-2P*
Speed - Motor type	*=AC	1/2/3					
Speed - Motor type	*=EC	2v/6v/10v					
Air Volume	l/s	100/125/183	89/140/204	134/173/249	147/199/271	139/229/321	166/299/443
Total Cooling	kW	0.94/1.09/1.53	1.34/2.09/2.95	1.95/2.52/3.45	2.35/3.19/4.42	2.58/3.85/5.13	2.91/4.75/6.33
Sensible Cooling	kW	0.88/1.02/1.42	1.05/1.63/2.31	1.55/2.00/2.74	1.92/2.60/3.56	1.97/3.01/4.04	2.22/3.68/4.90
LPHW Heating	kW	n/a					
Noise Rating	NR	18/23/33	18/30/38	28/34/43	20/26/33	23/32/39	26/38/45
Power Input - AC*	W	58	54	94	63	85	123
Power Input - EC*	W	23	33	57	25	46	115
Current - AC*	A	0.27	0.24	0.41	0.30	0.46	0.63
Current - EC*	A	0.19	0.27	0.46	0.23	0.40	0.89
Grille size	mm	720x720			960x960		
Weight	kg	18	20	20	42	45	45

## COOLING ONLY WITH ELECTRICAL HEATING

(\* add suffix for AC or EC type motors as required)

Model Type/Code		CWC-004-2P*	CWC-008-2P*	CWC-010-2P*	CWC-012-2P*	CWC-016-2P*	CWC-020-2P*
Electric Heating	kW	1.5	2.5	2.5	3	3	3
Current Input	A	5.9	9.4	9.4	11.3	11.3	11.3

(Only available when combined with advanced control package)

## HEATING & COOLING

(\*add suffix for AC or EC type motors as required)

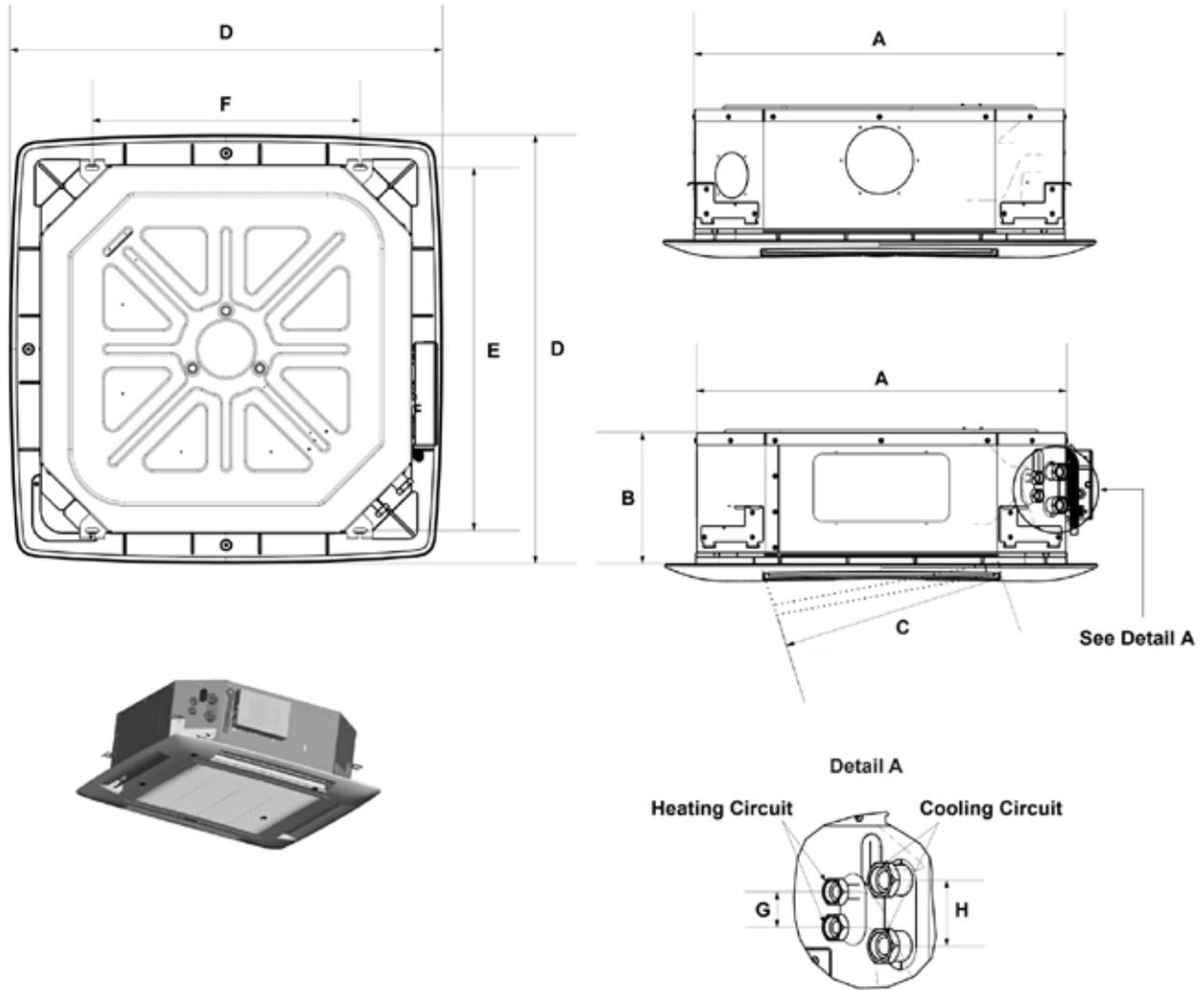
Model Type/Code		CWC-004-4P*	CWC-008-4P*	CWC-010-4P*	CWC-016-4P*	CWC-020-4P*
Speed - Motor type	*=AC	1/2/3				
Speed - Motor type	*=EC	2v/6v/10v				
Air Volume	l/s	100/125/183	89/140/204	134/173/249	139/229/321	166/299/443
Total Cooling	kW	1.01/1.14/1.54	1.40/1.88/2.49	1.51/2.02/2.61	1.84/3.41/4.66	2.41/4.85/5.73
Sensible Cooling	kW	0.93/1.08/1.45	1.10/1.51/2.02	1.37/1.78/2.33	1.59/2.78/3.79	2.01/3.83/4.66
LPHW Heating	kW	1.24/1.44/1.90	3.60/5.10/6.37	5.00/5.80/6/80	6.00/8.90/11.50	7.30/11.50/16.00
Noise Rating	NR	18/23/33	19/31/40	28/34/43	23/32/39	26/38/45
Power Input - AC*	W	58	54	94	85	123
Power Input - EC*	W	23	32	57	46	115
Current - AC*	A	0.27	0.24	0.41	0.46	0.63
Current - EC*	A	0.19	0.29	0.46	0.40	0.89
Grille size	mm	720x720			960x960	
Weight	kg	18	20	20	45	45

○ Chilled water cooling based on 7/12°C, with air entry 23°Cdb/17°Cwb

○ LPHW heating based on 70/60°C, with air entry 20°C

○ NR values based on an hypothetical sound attenuation for the room of -9dB(A)

# CWC ELECTRIC & WATER



mm	A	B	C	D	E	F	G	H
<b>CWC004/008/010</b>	569	298	400	720	515	550	40	40
<b>CWC012/016/020</b>	822	302	620	960	812	595	40	74

## HEATING AND COOLING CONNECTIONS

- The cooling and heating coils are integrated (factory-mounted) in the unit.
- The smaller sized units have 3/4" diameter cooling pipe connections and 1/2" diameter heating pipe connections.
- The larger sized units have 1" diameter cooling pipe connections and 3/4" diameter heating pipe connections.



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Every effort has been made to ensure descriptions are correct at the time of print.  
Errors and omissions excepted. CWC/|V1|05|2019