

# COMFORT CIRCLE

Cassette Heater



**Biddle**

# COMFORT CIRCLE CASSETTE HEATER

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The Comfort Circle cassette heater allows you to quickly heat your indoor space, providing an even distribution of air, through the circular air discharge ensuring maximum comfort throughout the room.

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The compact Comfort Circle cassette heater fits into suspended ceiling grids allowing floor and wall surfaces to remain available for shelves, racks and other furniture. The cassette unit heater is a recessed ceiling model and can be quickly easily installed in a suspended ceiling system leaving only the stylish circular air discharge grille visible.

## FEATURES AND BENEFITS:

- Space saving and discreet
- Fits within a standard 600mm x 600mm ceiling grid
- Even air and temperature distribution
- Stylish air discharge grille
- Low energy EC fan motor
- Compact and quiet
- Suitable for lower water temperatures
- Option to re-utilise residual waste heat
- User friendly and low maintenance

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## ENERGY-SAVING AND EFFICIENT

The Comfort Circle cassette heater has been designed for use with a water based heating system. Nowadays, increasing emphasis is being placed on energy-efficient and sustainable climate units, which incorporate low water temperature ranges. This can be achieved, for instance, by utilising the waste heat of a cooling unit or heat pump. The Comfort Circle cassette heater is compatible for use with this kind of system.

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## APPLICATIONS

The stylish circular grille and low noise emissions make the unit ideally suited for use in schools, universities, colleges, shops, offices, showrooms, reception areas, museums, banks and libraries.

## Heating



# HOW IT WORKS

The bottom of the cassette unit consists of a panel with a circular air discharge grille. With recirculation units, the air intake and discharge take place via the same grille panel. The air is drawn in through the perforated pattern in the middle of the panel. After the air has been heated, it is blown evenly into the room across 360° via the air discharge openings on the side of the grille. The circular air discharge pattern generates an optimal and even air distribution, which ensures optimal penetration and air circulation even at low air speeds. Warm air is discharged at a fixed 45° angle towards the floor, to achieve good downward penetration of the air into the room (fig. 1).

## SMART SUSPENSION SYSTEM

Biddle Comfort Circle cassette heaters can be installed either before or after fitting a suspended ceiling. The adjustable mounting system allows the unit to be moved in any direction. This means the unit can be positioned accurately, with minimal effort, and therefore easily integrated into the ceiling.

## TYPE CODES

TYPE CODE: CC 60-H2- Pack 1

CC	Comfort Circle
Model size	
60	60 x 60 recirculation
Coil type	
H2	Hot water heating, 2-row
H3	Hot water heating, 3-row
Control	
BC1	Controls Pack 1
BC2	Controls Pack 2
BC3	Controls Pack 3
ADV	Advanced Controls

# CONTROLS

In commercial offices and retail areas quick and easy adjustment of the climate is essential for users. Therefore, Biddle's advanced control option comes with a user-friendly solution for every situation.

The client can set the desired room temperature via the control panel, quickly and easily bringing the indoor climate to the most comfortable level.



## ADVANCED CONTROL

The programmable control panel has various soft-touch keys and a handy LCD display. The desired room temperature is easily set via the control panel, after which time the control maintains the climate at the correct level. The keys can be locked with a 'key lock'.

One control panel can be connected to and operate a maximum of ten units. The units are then linked together. The maximum length of the control cables in a control system is 100 metres.

The control panel has various menus for several settings such as: operation, installation, service and setting the week timer. The advanced control option will be delivered completely ready to use: plug & play. The control panel, any slave units, inputs and outputs can be connected via the connector plate on the heater.

### Automatic or manual operation

The control panel allows the user to choose between automatic or manual operation of the cassette unit.

In the automatic mode, the correct fan speed is set on the basis of the temperature difference between the actual room temperature and the desired room temperature.

### Automatic on and off control

The control panel features a week timer for switching the unit on and off automatically, each day of the week.

## BASIC CONTROL

For simple and effective control of on/off and automatic speed boost the Control Pack 1 will be the ideal choice. It is supplied with an adjustable low temperature cut-out thermostat that will enable/disable the unit when the pipework temperature dictates and is ideal for use in schools, universities & colleges. There are a number of options available offering additional levels of user control. All options allow you to connect units in Groups and to operate as master/slave units.

### Control Pack 1

- Adjustable on/off thermostat
- Tamperproof speed change thermostat
- Adjustable low temperature cut-out pipe thermostat



Adjustable LTC Pipe thermostat



Tamperproof Thermostat

### Control Pack 2

- Adjustable on/off thermostat
- Tamperproof speed change thermostat
- Adjustable low temperature cut-out pipe thermostat
- Wall mounted summer/winter switch



Adjustable Thermostat

### Control Pack 3

- Adjustable on/off thermostat
- Tamperproof speed change thermostat
- Adjustable low temperature cut-out pipe thermostat
- Remote wall mounted switch box, incorporating on/off, 3 x speed and summer/winter switch



Optional Remote Wall Mounted Switch

# SPECIFICATIONS

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## CASING

The casing is made from zinc-plated sheet steel, additionally reinforced to minimise deformations and vibrations. The underside of the unit has a rotatable plastic air inlet and discharge grille. The casing is fitted with sound absorbing, heat insulating material. The complete unit is delivered as standard in the colour RAL 9016 (white). Other RAL colours are available at an additional charge.

## FAN / MOTOR ASSEMBLY

The radial backward curved fans are mounted in the casing and cause no vibration. The fan is driven by an external rotor motor on ball bearings. The fan casing and the impeller are made from aluminium. The motor is manufactured in accordance with DIN 40050, protection category IP44 and insulation category B (CC 60). The motor is protected from overheating by thermal contacts, which will break the electrical circuit as soon as the maximum permissible motor temperature is exceeded (auto-reset).

## HEATING COIL (LPHW)

The coil is manufactured with 3/8" copper tubes and aluminium fins. The coils are available in rows of 2 or 3. The operating pressure is max. 8 bar at max. 90°C. The diameter of the pipe work connections for coil type H1 is DN 15 (15 mm). For coil types H2, H3 this is DN 20 (22 mm).

The maximum water range of an H2 coil with:

-  Thermostatic air-side control (S0/S1) = 80/60°C
-  Modulating air and water-side control (M0/M1) = 90/70°C

The maximum water range of an H3 coil with:

-  Thermostatic air-side control (S0/S1) = 70/50°C
-  Modulating air and water-side control (M0/M1) = 90/70°C

The maximum permissible operating pressure is 8 bar at a water inlet temperature of max. 90°C. The maximum permissible discharge air temperature is 65°C. If a unit has to be connected to a water range with higher temperatures, please consult Biddle for advice.

# DELIVERY & ACCESSORIES

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Various control and assembly accessories are available for the Comfort Circle Cassette Heater.

## STANDARD DELIVERY

-  Two suspension brackets
-  Two covering strips to adjust the air discharge pattern
-  External condensation drain pump (for cooling)
-  External condensation tray (for cooling)
-  One or two water-side valves, fitted with actuators (only with modulating control)

## STANDARD COLOURS:

-  RAL 9016
-  Other RAL colours are available on request

## CONTROL / OPERATION

If one of the two Biddle controls (S0/S1 or M0/M1) is used, these two accessories are always required:

-  Control panel
-  Low voltage cables (various lengths)

## ACCESSORIES

-  Suspension set
-  Change-over-sensor

# HEATING CC 60

## BASIC DATA

### CC 60

Electrical supply	V/ph/Hz	230/1/50		
Max. Input current	A	1.6		
Max. Fan power	W	155		
<b>Fan Speed</b>		<b>Low</b>	<b>Med</b>	<b>High</b>
Fan Voltage	V	4	5	6
Air volume	l/s	107	134	158
Specific fan power	W/l/s	0.14	0.19	0.24
Noise rating	NR	29	35	39
Weight	kg	32		

### CC 60-H2

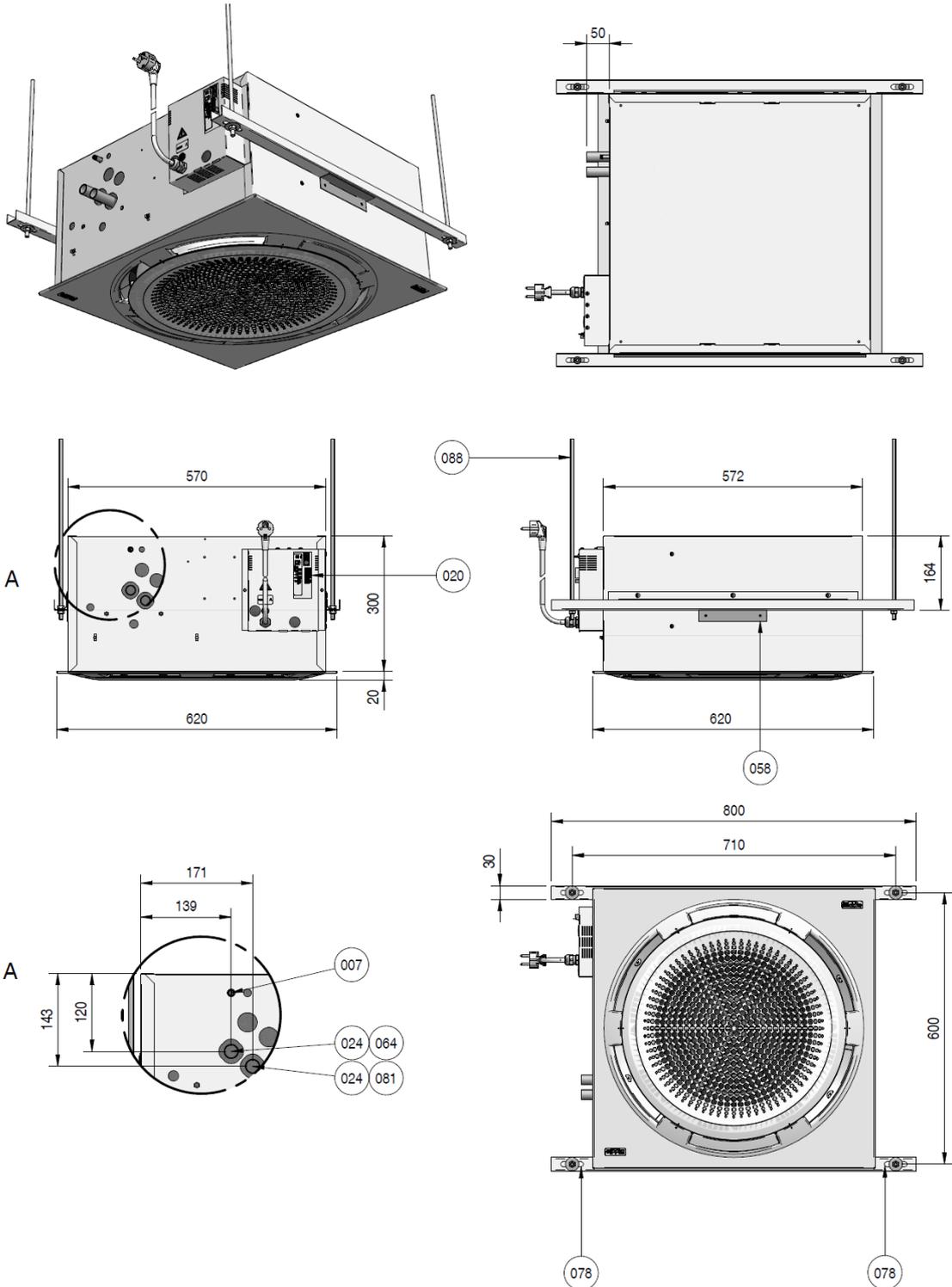
Air inlet temperature	°C	18			18		
Flow/Return temperature	°C	82/71			80/60		
<b>Speed</b>		<b>Low</b>	<b>Med</b>	<b>High</b>	<b>Low</b>	<b>Med</b>	<b>High</b>
Heating capacity	kW	6.1	7.6	9.0	6.2	7.3	8.3
Discharge air temperature	°C	65	65	65	65	63	61
Water flow rate	l/s	0.06	0.09	0.14	0.08	0.09	0.10
Unit pressure drop	kPa	3.9	8.3	18.8	6.9	8.3	9.5

### CC 60-H3

Air inlet temperature	°C	18			18		
Flow/Return temperature	°C	60/40			50/30		
<b>Speed</b>		<b>Low</b>	<b>Med</b>	<b>High</b>	<b>Low</b>	<b>Med</b>	<b>High</b>
Heating capacity	kW	4.3	5.1	5.8	2.9	3.4	3.8
Discharge air temperature	°C	51	49	48	40	39	38
Water flow rate	l/s	0.05	0.06	0.07	0.03	0.04	0.05
Unit pressure drop	kPa	3.4	4.1	4.9	2.1	2.5	3.3

- NR values are calculated using Q=2, R=4m, V=300m<sup>3</sup>, Reverberation time = 0.4s.
- Units are capable of continuously variable speed but factory set at 4V (low), 5V (medium) and 6V (high) as shown above.
- Units come with integral thermostatic valve to limit air leaving temperature to 65°C

# CC60 DRAWING



## INDEX

The corresponding numbers in the dimensional sketches are explained here: **7**-Air vent. **20**-Connection plate. **24**-Heating for 2-pipes. **51**-Heating for 4-pipes H1C3. **58**-Locking. **64**-Return. **78**-Slotted holes. **81**-Supply. **88**-Threaded rods (M8) are not supplied as a standard.

## EXPLANATION DIMENSIONAL SKETCHES

⌀ All dimensions in mm  
 ⓐ = detail water connections  
 The diameter of the pipework connections for coil type H1 is DN 15 (15 mm). For coil types H2, H3, C2 and C3 this is DN 20 (22 mm).

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Every effort has been made to ensure descriptions are correct at the time of print. Errors and omissions excepted. COMFORTCIRCLECASS[V107]2021