

- Biddle Air Systems Limited
St. Mary's Road, Nuneaton
Warwickshire CV11 5AU

Tel: +44 (0)24 7638 4233
Fax: +44 (0)24 7637 3621
Email: sales@biddle-air.co.uk
http://www.biddle-air.com

- Biddle B.V.
P.O. Box 15
NL-9288 ZG Kootstertille
The Netherlands

Tel: +31 (0)512 335555
Fax: +31 (0)512 331424

- Biddle GmbH
Emil - Hoffmann - Straße 55-59
50996 Köln
Germany

Tel: +49 (0)2236 96900
Fax: +49 (0)2236 969010

- Biddle
21 Allée de Vendanges
77183 Croissy Beaubourg
France

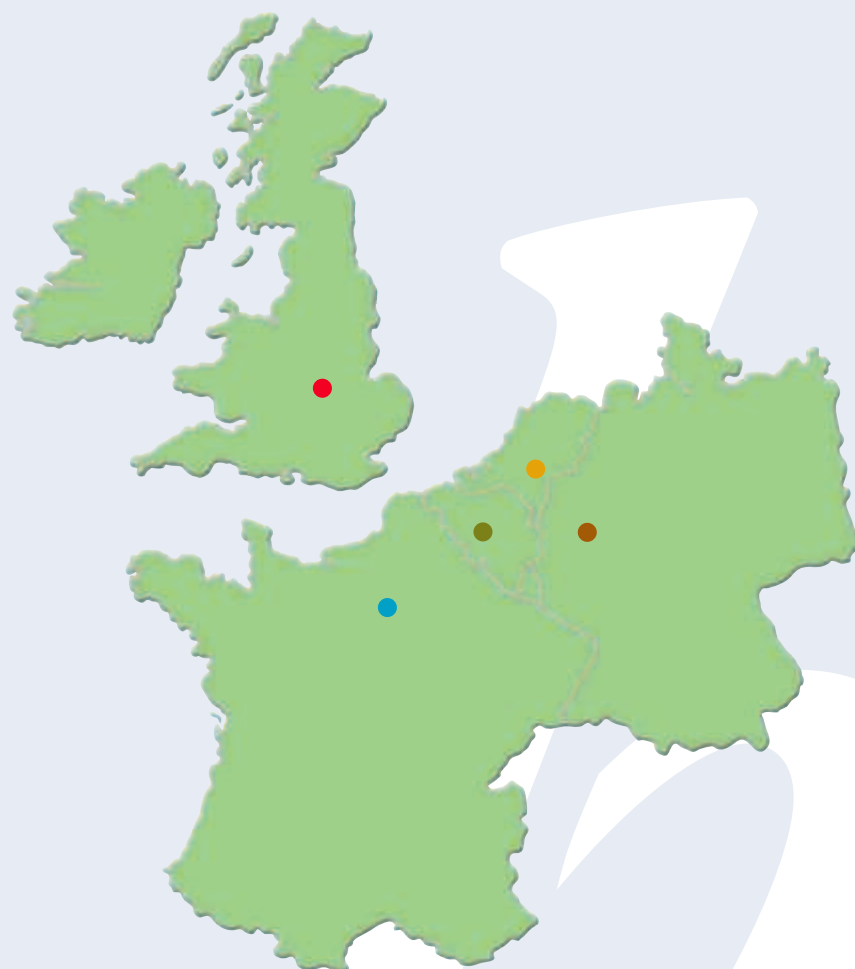
Tel: +33 (0)1 64 11 15 55
Fax: +33 (0)1 64 11 15 66

- Biddle NV
Business Park E19
Battelsesteenweg 455E
2800 Mechelen
Belgium

Tel: +32 (0)15 287676
Fax: +32 (0)15 287677



Condensing Boiler Fan Convector



The information given in this brochure is, to the best of our knowledge, correct at the time of going to print. However, Biddle Air Systems are constantly looking at ways of improving their products and services and therefore reserve the right to change without prior notice any of the data contained in this publication.

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Forceflow™
FAN CONVECTOR RANGE **CB**

Why use a Fan Convector ?

Widely used in buildings such as schools, libraries, churches, hospitals, leisure centres, shops and offices fan convectors have for many years been universally acknowledged to be one of the simplest and most cost-effective ways of heating a room quickly. With minimal maintenance requirements, fan convectors are designed to rapidly distribute heat throughout a room whilst occupying much less wall space than a radiator of equivalent output.

Why use a Forceflow ‘CB’ Fan Convector ?

The advantages of energy efficient condensing boilers are well documented, but traditional fan convectors do not perform well with condensing boiler water temperatures. The Forceflow ‘CB’ fan convector has been designed to provide similar heating duties to traditional fan convectors (operating with constant temperature systems of 82°C flow and 71°C return) but with condensing boiler water temperatures of 60°C flow and 40°C return. For even greater energy efficiency the unit will also operate at water flow temperatures less than 60°C.

What tests have been undertaken to verify the Forceflow ‘CB’ Fan Convector ?

The Forceflow ‘CB’ fan convector is manufactured and tested in accordance with BS EN 442, under a BS EN ISO 9001:2000 quality system. BSRIA tests confirm heat output by measuring the water flow rate at a water flow temperature of 60°C and a water return temperature of 40°C and then calculating heat output using the formula: *Heat Output (kW) = Water Flow Rate (kg/sec) x Water Temperature Drop (°K) x Specific Heat Capacity of Water (kJ/kg°K).*

How does the Forceflow ‘CB’ Fan Convector work ?

A purpose-designed coil/heater battery with a greater surface area than used in a traditional fan convector optimises heat transfer and although air volumes are reduced by circa 8%, ensures similar heating duties are achieved as with a traditional fan convector operating with water temperatures of 82°C flow and 71°C return. Control is identical to that used on a traditional fan convector, being via on/off and speed change thermostats. If water temperature in the coil drops below 35°C, typically because the boiler plant is turned off centrally, then a low water temperature cut-out thermostat turns the fans off.

What styles are available ?

All of the 19 styles illustrated in our Forceflow 900 Series brochure and many more besides, are available as Forceflow ‘CB’.



Performance*

Model	Fan Speed	Air Volume (l/s)	Heating Duty (kW)	Noise Level (NR)	Water Flow Rate (l/s)	Water Pressure Drop (kPa)	Full Load Current (Amps)
915-CB	high	109	4.13	40	0.050	0.6	0.33
	medium	80	3.11	35	0.038	0.4	0.28
	low	54	2.26	27	0.027	0.2	0.21
930-CB	high	175	7.32	41	0.089	2.1	0.49
	medium	162	6.88	35	0.084	1.8	0.48
	low	96	4.08	25	0.049	0.7	0.43
935-CB	high	234	11.27	43	0.138	5.7	0.45
	medium	186	8.93	35	0.109	3.7	0.42
	low	125	5.94	24	0.073	1.8	0.38
940-CB	high	293	14.58	42	0.177	10.7	0.50
	medium	229	11.60	35	0.142	7.1	0.43
	low	151	7.49	30	0.092	3.2	0.39
975-CB	high	428	17.25	46	0.210	5.6	1.70
	medium	375	15.41	37	0.188	4.6	0.91
	low	230	9.38	29	0.115	1.9	0.74

*Based on Entering Air Temperature of 20°C and Water Temperatures of 60°C Flow and 40°C Return

Correction Factors

Water Flow Temperature	Water Temperature Drop = 20°C				
	Entering Air Temperature				
	23°C	21°C	20°C	18°C	16°C
60°C	0.89	0.96	1.00	1.07	1.15
55°C	0.71	0.78	0.82	0.89	0.96

Water flow rate can be calculated for your specific conditions using the formula:
Flow Rate (l/s) = $\frac{\text{Corrected Heat Output (kW)}}{\text{Water Temperature Drop (°C) } \times 4.18}$

Water pressure drop can be calculated for your specific conditions using the formula:
Pressure Drop (kPa) = $\left(\frac{\text{Corrected Heat Output (kW)}}{\text{Heat Output in Performance Table (kW)}} \right)^2 \times \text{Pressure Drop in Performance Table (kPa)}$

Controls

Each Forceflow ‘CB’ fan convector has three speeds and is supplied as standard with:

- built-in on/off, fan speed and summer/winter rocker switches
- an on/off (T1) thermostat: built-in or remote depending on style
- a medium/low speed change (T2) thermostat: built-in or remote depending on style
- a low water temperature cut-out (T4) thermostat
- a textured white (RAL9010) paint finish
- an EU3 grade disposable panel filter
- a screw-fixed or lockable access panel
- discharge and return air grilles: fixed or loose depending on style
- 3/4 " BSP female pipe connections

Remote on/off fan speed and summer/winter switches, pencil proof grilles and plinths are also available as options.

Dimensions

The dimensions of all the Forceflow ‘CB’ fan convectors are identical to those of our Forceflow 900 Series fan convectors and are therefore detailed in our Forceflow 900 Series brochure.