COOLFLOW

Fan Coils

Biddle

PROVEN PERFORMANCE

With much of the UK market demanding performance within a strict budget CoolFlow offers all that is expected from a fan coil unit on price-driven projects. Used in literally thousands of buildings CoolFlow offers the flexibility of design and installation liked by designers. This range is the latest in a long pedigree of proven, high performance fan coil units which provide economic, high efficiency cooling and heating solutions wherever individual climate control is required. Equally suited to new build projects and building refurbishment programmes CoolFlow is simple to specify and install.

COMPREHENSIVE RANGE

CoolFlow provides individual climate control with exceptional user comfort. The system's efficient performance incorporating EC/DC energy efficient fan motors, keep noise levels to a minimum and allows air volumes with up to 50 pascals resistance per unit. Where fresh air mixing is desired, CoolFlow may be easily linked 'in-line' to Biddle's Modular fan coil system.

CoolFlow is available in two versions:

- Chilled water for cooling
- Low pressure hot water for heating

Optional: discharge module used to contain electrical heating.

Available in both vertical and horizontal chassis versions for recessed applications, CoolFlow is a low-profile system with unit depths from 214mm to 285mm. Thermally or acoustically lined discharge plenum sections may be specified to allow equalisation of air pressure and re-direction of air flow and incorporate circular spigots for ease of ductwork connection. Factory fitted control valve packages can also be specified. Insulated drain trays help prevent the formation of condensation and optional condensate pumps are also available.

MAINTENANCE & CLEANING

CoolFlow is engineered for long-continuous performance and minimal maintenance. Components such as filters and drain trays can be easily accessed for fast, trouble-free cleaning. Filters are secured by quick release 1/4 turn fasteners for ease of maintenance.

APPLICATIONS

The CoolFlow units may be specified across the widest range of applications from single office installations, where comfort and convenience are essential, to building zones or groups of accommodation linked by common climate requirements. CoolFlow has been proven over many years in installations including retail outlets, commercial office buildings, public buildings, banks, showrooms, hotel receptions, lobbies and many more. The fan coil unit is suitable for use anywhere there is chilled water available and providing the unit can be recessed in either a ceiling or low-level casing.

SPECIFICATIONS

CASING

The casings comprising of the chassis and access panel are constructed from galvanised sheet steel 20g (1.0mm thick), stiffened to prevent distortion and drumming. Access panel assemblies are secured by easy access screws.

FILTERS

A withdrawable filter, removable from the rear or bottom of the unit is fitted on the air inlet of the fan coil unit. The filter section is complete with a nylon non-woven type media (G2) and is held in place by quick release fasteners.

FINISH

All units are supplied in a galvanised sheet steel finish.

HEATING/COOLING COILS

Elements comprise Aluminium fins with copper tubes, providing high heat transfer and long life. All coils are tested for a maximum working pressure of 10 Bars.

ELECTRIC HEATING ELEMENTS

Electric heating elements and thermal cut-outs are fitted within a separate plenum fitted to the discharge of the unit.

CONDENSATE TRAY

A galvanised drain tray is fitted under the coil surface and extends beneath the valve package. Drain trays are fully insulated to the underside to prevent moisture formation. Units with PICV valve assemblies, supplied by Biddle, will have drain tray extensions. Units will be supplied with a 15mm condensate connection point.

FANS AND MOTORS

Balanced double inlet, double width (DIDW) centrifugal fans with EC motors. High specification motors have sealed for life bearings and an expected life in excess of 40,000 running hours.

CONTROLS

Units are supplied with an electrics control box containing on/off, manual/auto control changeover switch and 0-10v potentiometer. Dependent upon the control option selected the speed control maybe Manual or Automatic. Units will incorporate an inbuilt 0-10v potentiometer for 'fine' fan speed adjustment.

BASIC CONTROL

With this option a speed controller (potentiometer) is supplied to set and adjust the airflow at commissioning stage. The speed controller is fitted with a control housing mounted on the side of the unit. Control of the cooling and/or heating coils is to be provided by others.

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 controls box mounted on the side of the fan coil unit casing
- 4-port valves and actuators
- Return air temperature sensor

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 room sensors are supplied loose):

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

COOLFLOW

Technical Details

K92
PERFORMANCE DATA

K92 - H3		Horizontal units (type H3)		
Speed setting	Volts	Low 6.5v	Med 8.5v	High 10v
External ductwork resistance	Pa		30.0	
Air volume	l/s	80.0	133.0	164.0
Noise rating	**NR**	**30.0**	**35.0**	**40.0**
Specific fan power	W/l/s	0.26	0.26	0.45
Cooling capacity - total	kW	1.25	1.68	1.9
Cooling - sensible	**kW**	**1.05**	**1.49**	**1.71**
Water flow rate	l/s	0.05	0.07	0.08
Coil pressure drop	kPa	1.4	2.7	3.3
LPHW heating capacity	**kW**	**2.23**	**3.4**	**3.82**
Water flow rate	l/s	0.03	0.04	0.05
Coil pressure drop	kPa	0.4	0.9	1.2
Electrical power input	W	21.0	35.0	74.0
Electrical running current	A	0.16	0.18	0.34
Approx weight	kg		35.0	

K92 - V3		Vertical units (type V3)		
Speed setting	Volts	Low 6.0v	Med 8.0v	High 9.5v
External ductwork resistance	Pa		10.0	
Air volume	l/s	117.0	150.0	187.0
Noise rating	**NR**	**31.0**	**35.0**	**40.0**
Specific fan power	W/l/s	0.19	0.22	0.33
Cooling capacity - total	kW	1.55	1.8	2.08
Cooling - sensible	**kW**	**1.36**	**1.61**	**1.81**
Water flow rate	l/s	0.06	0.07	0.08
Coil pressure drop	kPa	1.7	3.0	3.9
LPHW heating capacity	**kW**	**3.06**	**3.62**	**4.12**
Water flow rate	l/s	0.04	0.05	0.05
Coil pressure drop	kPa	0.8	1.1	1.3
Electrical power input	W	22.0	33.0	62.0
Electrical running current	A	0.15	0.19	0.29
Approx weight	kg		31.0	

- Selection data above shows example performance at three chosen speeds. The fan motors are controllable on a 0-10v control basis so there are many other alternatives available – please contact the Biddle sales office for additional details.
- Chilled water cooling is based on 6/12°C, with air entry 23°Cdb/50%RH.
- LPHW heating is based on 80/60°C, with air entry at 21°C.
- Performance data is based on a minimum air off temperature of 12°C.
- NR values are guidelines only, for full details please contact us.

K95
PERFORMANCE DATA

K95 - H3		Horizontal units (type H3)		
Speed setting	Volts	Low 4.3v	Med 5.0v	High 6.0v
External ductwork resistance	Pa		30.0	
Air volume	l/s	70.0	122.0	197.0
Noise rating	**NR**	**31.0**	**35.0**	**40.0**
Specific fan power	W/l/s	0.16	0.16	0.21
Cooling capacity - total	kW	1.1	1.92	3.1
Cooling - sensible	**kW**	**0.92**	**1.61**	**2.6**
Water flow rate	l/s	0.04	0.08	0.12
Coil pressure drop	kPa	1.1	2.0	5.9
LPHW heating capacity	**kW**	**2.07**	**3.21**	**4.31**
Water flow rate	l/s	0.03	0.04	0.05
Coil pressure drop	kPa	0.5	1.0	1.8
Electrical power input	W	11.0	20.0	42.0
Electrical running current	A	0.10	0.14	0.21
Approx weight	kg		55.0	

K95 - V3		Vertical units (type V3)		
Speed setting	Volts	Low 3.5v	Med 4.6v	High 5.5v
External ductwork resistance	Pa		10.0	
Air volume	l/s	100.0	175.0	236.0
Noise rating	**NR**	**32.0**	**35.0**	**40.0**
Specific fan power	W/l/s	0.09	0.11	0.17
Cooling capacity - total	kW	1.57	2.74	3.71
Cooling - sensible	**kW**	**1.32**	**2.3**	**3.11**
Water flow rate	l/s	0.06	0.11	0.15
Coil pressure drop	kPa	1.6	4.7	8.2
LPHW heating capacity	**kW**	**2.75**	**4.01**	**4.81**
Water flow rate	l/s	0.04	0.05	0.06
Coil pressure drop	kPa	0.8	1.6	2.2
Electrical power input	W	9.0	20.0	41.0
Electrical running current	A	0.10	0.13	0.21
Approx weight	kg		31.0	

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- Chilled water cooling is based on 6/12°C, with air entry 23°Cdb/50%RH.
- LPHW heating is based on 80/60°C, with air entry at 21°C.
- Performance data is based on a minimum air off temperature of 12°C.
- NR values are guidelines only, for full details please contact us.

K96
PERFORMANCE DATA

K96 - H3		Horizontal units (type H3)		
Speed setting	Volts	Low 5.7v	Med 6.5v	High 7.5v
External ductwork resistance	Pa		30.0	
Air volume	l/s	167.0	223.0	290.0
Noise rating	**NR**	**30.0**	**35.0**	**40.0**
Specific fan power	W/l/s	0.22	0.26	0.33
Cooling capacity - total	kW	2.62	3.49	4.52
Cooling - sensible	**kW**	**2.2**	**2.93**	**3.8**
Water flow rate	l/s	0.1	0.14	0.18
Coil pressure drop	kPa	2.0	4.5	7.2
LPHW heating capacity	**kW**	**4.4**	**5.2**	**6.1**
Water flow rate	l/s	0.05	0.06	0.07
Coil pressure drop	kPa	2.4	3.2	4.3
Electrical power input	W	36.0	58.0	96.0
Electrical running current	A	0.20	0.27	0.41
Approx weight	kg		65.0	

K96 - V3		Vertical units (type V3)		
Speed setting	Volts	Low 5.7v	Med 6.1v	High 7.2v
External ductwork resistance	Pa		10.0	
Air volume	l/s	238.0	264.0	321.0
Noise rating	**NR**	**32.0**	**35.0**	**40.0**
Specific fan power	W/l/s	0.19	0.22	0.29
Cooling capacity - total	kW	3.73	4.13	5.03
Cooling - sensible	**kW**	**3.13**	**3.47**	**4.22**
Water flow rate	l/s	0.15	0.16	0.2
Coil pressure drop	kPa	5.1	6.1	8.7
LPHW heating capacity	**kW**	**5.4**	**5.8**	**6.5**
Water flow rate	l/s	0.07	0.07	0.08
Coil pressure drop	kPa	3.5	4.0	4.9
Electrical power input	W	45.0	57.0	92.0
Electrical running current	A	0.23	0.27	0.41
Approx weight	kg		61.0	

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- Chilled water cooling is based on 6/12°C, with air entry 23°Cdb/50%RH.
- LPHW heating is based on 80/60°C, with air entry at 21°C.
- Performance data is based on a minimum air off temperature of 12°C.
- NR values are guidelines only, for full details please contact us.

K97
PERFORMANCE DATA

K97 - H3		Horizontal units (type H3)		
Speed setting	Volts	Low 5.5v	Med 6.5v	High 7.0v
External ductwork resistance	Pa		30.0	
Air volume	l/s	200.0	293.0	340.0
Noise rating	**NR**	**30.0**	**35.0**	**40.0**
Specific fan power	W/l/s	0.23	0.25	0.28
Cooling capacity - total	kW	3.13	4.58	5.32
Cooling - sensible	**kW**	**2.63**	**3.85**	**4.47**
Water flow rate	l/s	0.13	0.18	0.21
Coil pressure drop	kPa	4.4	8.7	11.5
LPHW heating capacity	**kW**	**5.38**	**6.78**	**7.38**
Water flow rate	l/s	0.07	0.08	0.09
Coil pressure drop	kPa	4.2	6.4	7.4
Electrical power input	W	45.0	74.0	96.0
Electrical running current	A	0.22	0.34	0.34
Approx weight	kg		76.0	

K97 - V3		Vertical units (type V3)		
Speed setting	Volts	Low 5.5v	Med 6.2v	High 6.8v
External ductwork resistance	Pa		10.0	
Air volume	l/s	295.0	348.0	398.0
Noise rating	**NR**	**32.0**	**35.0**	**40.0**
Specific fan power	W/l/s	0.19	0.22	0.26
Cooling capacity - total	kW	4.6	5.49	6.26
Cooling - sensible	**kW**	**3.87**	**4.6**	**5.25**
Water flow rate	l/s	0.18	0.22	0.25
Coil pressure drop	kPa	8.8	12.1	15.4
LPHW heating capacity	**kW**	**6.78**	**7.48**	**8.08**
Water flow rate	l/s	0.08	0.09	0.1
Coil pressure drop	kPa	6.4	7.6	8.8
Electrical power input	W	55.0	76.0	102.0
Electrical running current	A	0.26	0.35	0.44
Approx weight	kg		70.0	

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- LPHW heating is based on 80/60°C, with air entry at 21°C.
- Performance data is based on a minimum air off temperature of 12°C.
- NR values are guidelines only, for full details please contact us.

K98
PERFORMANCE DATA

K98 - H3		Horizontal units (type H3)		
Speed setting	Volts	Low 4.3v	Med 5.1v	High 5.8v
External ductwork resistance	Pa		30.0	
Air volume	l/s	235.0	403.0	526.0
Noise rating	**NR**	**30.0**	**35.0**	**40.0**
Specific fan power	W/l/s	0.15	0.2	0.25
Cooling capacity - total	kW	3.68	6.31	8.21
Cooling - sensible	**kW**	**3.09**	**5.3**	**6.9**
Water flow rate	l/s	0.15	0.25	0.33
Coil pressure drop	kPa	4.2	11.3	18.2
LPHW heating capacity	**kW**	**5.3**	**7.3**	**8.5**
Water flow rate	l/s	0.07	0.09	0.11
Coil pressure drop	kPa	4.1	7.4	9.7
Electrical power input	W	35.0	79.0	132.0
Electrical running current	A	0.19	0.35	0.56
Approx weight	kg		80.0	

K98 - V3		Vertical units (type V3)		
Speed setting	Volts	Low 4.3v	Med 4.8v	High 5.0v
External ductwork resistance	Pa		10.0	
Air volume	l/s	411.0	485.0	513.0
Noise rating	**NR**	**32.0**	**35.0**	**40.0**
Specific fan power	W/l/s	0.14	0.16	0.16
Cooling capacity - total	kW	6.43	7.63	8.04
Cooling - sensible	**kW**	**5.4**	**6.4**	**6.75**
Water flow rate	l/s	0.26	0.3	0.32
Coil pressure drop	kPa	11.7	15.9	17.5
LPHW heating capacity	**kW**	**7.4**	**8.1**	**8.4**
Water flow rate	l/s	0.09	0.1	0.11
Coil pressure drop	kPa	7.5	8.9	9.5
Electrical power input	W	56.0	83.0	97.0
Electrical running current	A	0.28	0.36	0.43
Approx weight	kg		73.0	

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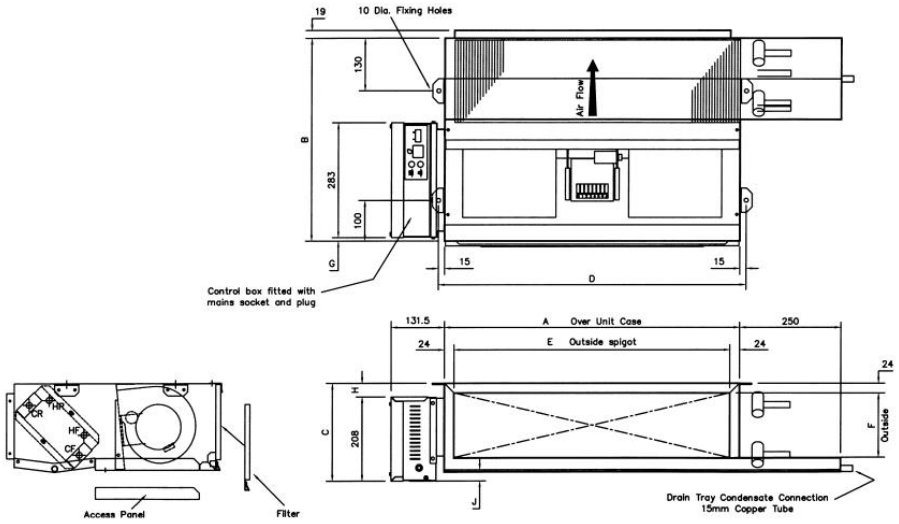
- LPHW heating is based on 80/60°C, with air entry at 21°C.
- Performance data is based on a minimum air off temperature of 12°C.
- NR values are guidelines only, for full details please contact us.

HORIZONTAL CHASSIS TYPE H3 - MODELS K92 – K98

Dimensions of control box is subject to change dependent upon individual requirements



Right Hand Connections as shown. Left Hand Connections opposite hand.

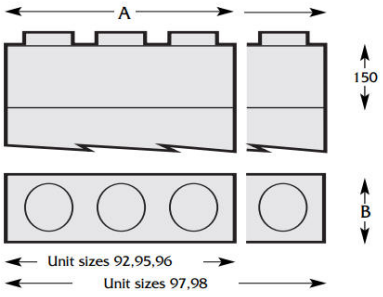
Coil connection sizes for basic unit are shown (i.e. no valves).

Please contact sales office for specific valve connection details and dimensions.

Model No.	Casing			Support	Spigot					Cooling conns.		Heating conns.	
	A	B	C	D	E	F	G	H	I	Flow CF	Flow CR	Flow HF	Flow HR
K92	730.0	500.0	241.5	760.0	682.0	161.0	8.5	33.5	27.5	Ø15	Ø15	Ø15	Ø15
K95	980.0	550.0	250.0	1010.0	932.0	197.0	18.5	43.5	0.0	Ø22	Ø22	Ø15	Ø15
K96	1230.0	550.0	250.0	1260.0	1182.0	197.0	18.5	43.5	0.0	Ø22	Ø22	Ø15	Ø15
K97	1480.0	550.0	250.0	1510.0	1432.0	197.0	18.5	43.5	0.0	Ø22	Ø22	Ø15	Ø15
K98	1480.0	640.0	285.0	1510.0	1432.0	232.0	79.5	75.5	0.0	Ø22	Ø22	Ø15	Ø15

DISCHARGE PLENUM – OPTIONAL

Discharge plenums having circular spigot connections are available for chassis type units

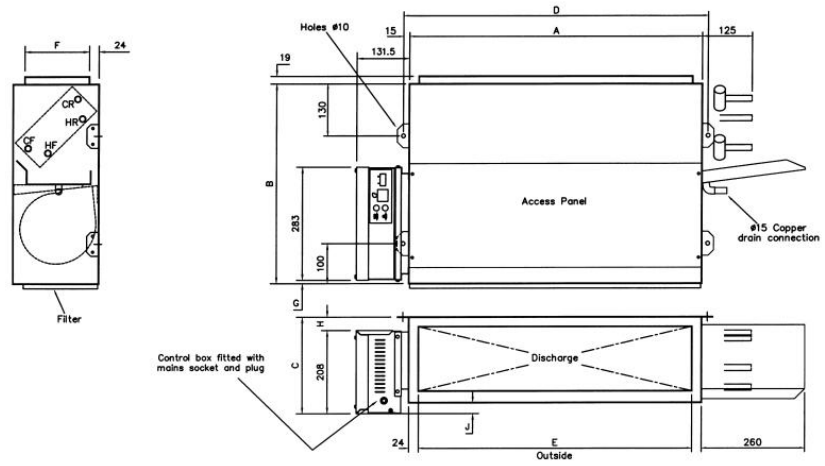


Dimensions of Discharge Plenum

Model No.	A	B	Spigot dia.	Quantity
92	730.0	214.0	150.0	3
95	980.0	250.0	200.0	3
96	1230.0	250.0	200.0	3
97	1480.0	250.0	200.0	4
98	1480.0	285.0	250.0	4

VERTICAL CHASSIS
TYPE V3 - MODELS K92 – K98

Dimensions of control box is subject to change dependent upon individual requirements



Right Hand Connections as shown. Left Hand Connections opposite hand.

Coil connection sizes for basic unit are shown (i.e. no valves).

Please contact sales office for specific valve connection details and dimensions.

Model No.	Casing			Support	Spigot					Cooling conns.		Heating conns.	
	A	B	C	D	E	F	G	H	I	Flow CF	Flow CR	Flow HF	Flow HR
K92	730.0	500.0	241.5	760.0	682.0	161.0	8.5	33.5	27.5	Ø15	Ø15	Ø15	Ø15
K95	980.0	550.0	250.0	1010.0	932.0	197.0	18.5	43.5	0.0	Ø22	Ø22	Ø15	Ø15
K96	1230.0	550.0	250.0	1260.0	1182.0	197.0	18.5	43.5	0.0	Ø22	Ø22	Ø15	Ø15
K97	1480.0	550.0	250.0	1510.0	1432.0	197.0	18.5	43.5	0.0	Ø22	Ø22	Ø15	Ø15
K98	1480.0	640.0	285.0	1510.0	1432.0	232.0	79.5	75.5	0.0	Ø22	Ø22	Ø15	Ø15

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WARRANTY 3 YEARS ON SITE

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