PRO270

Fan Coils

Biddle

EFFICIENT, QUIET, EASY TO INSTALL

This range is the latest addition to the extensive Biddle offering of high performing and energy efficient fan coil units. Suited equally to new build and refurbishment projects, the PRO270 meets the stringent requirements of the UK specification market.

The large range of options available allows customers to create a tailored climate solution for each individual space. The PRO270 can be selected to meet the exact requirements of your room.

Internally lined to ensure the quietest of operation, the PRO270 range of fan coils utilise the most energy efficient motors available.

CUSTOMISABLE SOLUTIONS

The PRO270 is a versatile range of fan coil units offering a wide selection of sizes, performance capabilities, left and right hand orientation, blanking plates, extended acoustic enhancements and colour options.

These units can be provided as a packaged unit including all controls and valves or we can fit all major brands of control ancillaries in our purpose built manufacturing facility.

MAINTENANCE & CLEANING

The PRO270 is designed for long continuous operation with minimal maintenance. Components such as filters and drain trays can be easily accessed for fast, trouble-free cleaning. Filters are held in place by a hinged panel at the inlet of the fan coil which can be easily removed to change or clean the filter.

ACCESS

Access to all major internal components is via a one-piece removable panel which is held in place with 2 screws. The condensate tray is also removable to get to the underside of the coil.

APPLICATIONS

The PRO270 fan coil units are ideal for exposed situations due to their low noise levels but are equally suitable for installation behind false ceilings. Painted options are also available so there really is a solution for every application.

Where a project has strict noise levels to meet, an acoustic inlet extension can be provided to minimise the speed of the motors to reduce the overall sound levels. Biddle's fan coil units have been proven over many years in commercial office buildings, installations in banks, public buildings, commercial offices and universities.

SPECIFICATIONS

CASING

Manufactured from 1.2mm thick galvanised sheet steel, which is then formed in the factory here in the UK creating a rigid, robust and vibration free construction. The casing incorporates a rectangular inlet and a lined discharge plenum which is where the circular spigots are positioned.

FILTERS

A removable G2 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 removed for cleaning by undoing two screws and opening the hinged panel.

FINISH

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

COILS

Coils are manufactured from copper pipe which is mechanically bonded to aluminium fins. On a standard coil block, up to 8 tubes are used for heating with the remainder used for cooling. 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 “hook-up” valve sets. Coils have been leak tested by our suppliers during the manufacturing stage @30 Bar. When factory fitted valves are required, a further leak test is carried out by Biddle.

Coils are rated for a working pressure of 16 Bar. Coils are circuited to provide a low pressure drop, of approximately 10 kPa, at normal operating outputs.

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

An internally powder coated galvanised condensate tray covers the whole of the coil and valve set arrangement. The tray has a fall to one end to a 15mm copper connection to attach to a drain. The underside of the tray is insulated with 3mm thick black foam to prevent moisture formation.

The condensate tray is extended at the drain end to accommodate, and support fitted valve sets.

DISCHARGE PLENUM AND SPIGOTS

The discharge plenum incorporates a number of circular spigots on the front face, and a single spigot at either end of the plenum. Blanking plates with foam backing are then used in place of the spigot where a duct connection is not required. Both the spigots and blanking plates are simply secured in place with 4 screws, allowing them to be easily removed and exchanged for any future reconfiguring of active spigots on site.

FANS

The fans have a metal housing and metal impeller and are fitted with Electronically Commuted (EC), Direct Current (DC) motors. They incorporate sealed-for-life bearings and include features such as ‘soft start’ which help extend their life span.

Where required, a harmonic filter is fitted between the mains supply and the motor(s) to comply with the Electromagnetic Compatibility (EMC) Directive, 2014/30/EU.

The fans used are some of the most energy efficient available. Manufactured as dual inlet, with a direct-driven cylindrical rotor, they utilise state of the art motor electronics and have a lower level of sound emissions. They allow for precise speed control through the adjustment of the fan signal and can adapt to even the lowest levels of cooling needed.

INSULATION

Insulation is provided on all internal surfaces and on the bottom of the condensate tray. Internal insulation is from 12mm Class “O” open cell expanded foam for superior acoustic and thermal performance.

CONTROLS

The product's controls offer is designed to be flexible to suit project specific controls or can be supplied with a capable digital controller. The generous controls enclosure is supplied with every unit as standard. The enclosure includes all electrics, switches and the room controller and is mounted on the side 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 PRO270 unit to be controlled by remotely placed controllers pre-installed on site. For these applications the PRO270 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 side 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 PRO270 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.

ADVANCED CONTROL

For the smaller or simpler projects, Biddle supply a comprehensive controller offer to provide direct digital control of the PRO270 with heating and/or cooling coils. Communication options are available to enable the controller to be integrated into a larger BACnet® network of a building automation system or alternatively multiple PRO270 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 options we offer are as follows:

Description	Item code	Local fan speed adjustment	Adjustable temp. dial
Wall sensor, adjuster and fan speed control	TM-2160-007	3-speed fan override	±3°C
Monochrome wall unit	RS-7080-0002	Auto fan speed	±3°C
Monochrome touchscreen	TRM0312-0W	Auto fan speed	±3°C

TM-2160-007

RS-7080-0002

TRM0312-0W

PRO270

Technical Details

NOISE RATING
PERFORMANCE DATA

Noise Rating 38			Cooling Performance								Heating Performance			
Unit Size	Air Volume l/s	SFP w/l/s	6°C - 12°C 23°C EAT		8°C - 14°C 23°C EAT		10°C - 16°C 23°C EAT		ECODESIGN 7°C - 12°C 27°C EAT		81°C - 72°C 21°C EAT	80°C - 60°C 21°C EAT	60°C - 40°C 21°C EAT	ECODESIGN 70°C - 60°C 20°C EAT
			Sensible	Total	Sensible	Total	Sensible	Total	Sensible	Total	Sensible	Sensible	Sensible	Sensible
61	**170**	**0.22**	**2.31**	**3.01**	**1.93**	**2.22**	**1.55**	**1.55**	**2.94**	**4.99**	**3.93**	**3.72**	**1.65**	**3.93**
91	206	0.32	2.85	3.71	2.37	2.73	1.89	1.89	3.65	6.19	4.77	4.52	2.01	4.77
92	**312**	**0.30**	**4.29**	**5.58**	**3.59**	**4.13**	**2.90**	**2.90**	**5.57**	**9.44**	**7.24**	**6.86**	**3.05**	**7.24**
122	376	0.30	4.70	6.11	3.84	4.42	2.98	2.98	6.09	10.34	8.73	8.27	3.67	8.73
123	**440**	**0.27**	**5.69**	**7.40**	**4.72**	**5.43**	**3.76**	**3.76**	**7.24**	**12.27**	**10.20**	**9.66**	**4.29**	**10.20**
153	489	0.23	6.22	8.08	5.13	5.89	4.04	4.04	7.99	13.55	11.33	10.73	4.77	11.33
183	**544**	**0.28**	**7.16**	**9.30**	**5.94**	**6.83**	**4.72**	**4.72**	**9.18**	**15.57**	**12.60**	**11.94**	**5.30**	**12.60**
184	584	0.23	7.43	9.66	6.15	7.08	4.88	4.88	9.45	16.02	13.53	12.81	5.70	13.53
214	**642**	**0.24**	**8.58**	**11.15**	**7.14**	**8.21**	**5.71**	**5.71**	**10.94**	**18.56**	**14.87**	**14.09**	**6.26**	**14.87**
215	752	0.26	9.64	12.53	7.99	9.19	6.35	6.35	12.29	20.84	17.44	16.52	7.34	17.44

Noise Rating 35			Cooling Performance								Heating Performance			
Unit Size	Air Volume l/s	SFP w/l/s	6°C - 12°C 23°C EAT		8°C - 14°C 23°C EAT		10°C - 16°C 23°C EAT		ECODESIGN 7°C - 12°C 27°C EAT		81°C - 72°C 21°C EAT	80°C - 60°C 21°C EAT	60°C - 40°C 21°C EAT	ECODESIGN 70°C - 60°C 20°C EAT
			Sensible	Total	Sensible	Total	Sensible	Total	Sensible	Total	Sensible	Sensible	Sensible	Sensible
61	**153**	**0.18**	**2.05**	**2.67**	**1.75**	**2.01**	**1.41**	**1.41**	**2.67**	**4.53**	**3.54**	**3.36**	**1.49**	**3.54**
91	175	0.25	2.35	3.05	2.06	2.37	1.65	1.65	3.16	5.37	4.05	3.84	1.71	4.05
92	**281**	**0.24**	**3.77**	**4.90**	**3.24**	**3.73**	**2.62**	**2.62**	**5.00**	**8.49**	**6.51**	**6.17**	**2.74**	**6.51**
122	332	0.24	4.24	5.52	3.48	4.00	2.71	2.71	5.50	9.32	7.69	7.28	3.24	7.69
123	**388**	**0.24**	**5.17**	**6.72**	**4.29**	**4.93**	**3.41**	**3.41**	**6.57**	**11.14**	**9.00**	**8.53**	**3.79**	**9.00**
153	433	0.21	5.65	7.34	4.66	5.36	3.68	3.68	7.27	12.33	10.04	9.52	4.23	10.04
183	**477**	**0.21**	**6.40**	**8.32**	**5.32**	**6.12**	**4.24**	**4.24**	**8.24**	**13.97**	**11.06**	**10.48**	**4.66**	**11.06**
184	515	0.18	6.82	8.87	5.67	6.52	4.51	4.51	8.71	14.77	11.93	11.30	5.02	11.93
214	**580**	**0.19**	**7.79**	**10.12**	**6.50**	**7.47**	**5.20**	**5.20**	**9.94**	**16.85**	**13.45**	**12.74**	**5.66**	**13.45**
215	652	0.20	8.70	11.31	7.24	8.32	5.77	5.77	11.08	18.79	15.12	14.33	6.37	15.12

- Noise rating guide based on standard office environment and units installed above a suspended ceiling with a Dncw/Dnfw of 35 dB with up to 30 Pa external static resistance.
- EAT - Entering air temperature.
- Specific fan powers are anticipated installed values and are dependant on final external static resistance and other factors.
- Heating outputs are based on a maximum supply air temperature of 40°C.
- Noise rating levels are for guidance only and we recommend a full acoustic analysis is carried out by the clients consultants.

NOISE RATING
PERFORMANCE DATA

Noise Rating 30			Cooling Performance								Heating Performance			
Unit Size	Air Volume l/s	SFP w/l/s	6°C - 12°C 23°C EAT		8°C - 14°C 23°C EAT		10°C - 16°C 23°C EAT		ECODESIGN 7°C - 12°C 27°C EAT		81°C - 72°C 21°C EAT	80°C - 60°C 21°C EAT	60°C - 40°C 21°C EAT	ECODESIGN 70°C - 60°C 20°C EAT
			Sensible	Total	Sensible	Total	Sensible	Total	Sensible	Total	Sensible	Sensible	Sensible	Sensible
61	**118**	**0.15**	**1.73**	**2.24**	**1.45**	**1.66**	**1.17**	**1.17**	**2.21**	**3.74**	**2.74**	**2.59**	**1.15**	**2.74**
91	135	0.18	2.01	2.61	1.68	1.94	1.36	1.36	2.58	4.38	3.13	2.96	1.32	3.13
92	**206**	**0.15**	**2.93**	**3.81**	**2.48**	**2.86**	**2.04**	**2.04**	**3.96**	**6.72**	**4.77**	**4.52**	**2.01**	**4.77**
122	275	0.18	3.61	4.69	2.97	3.41	2.33	2.33	4.66	7.90	6.37	6.04	2.68	6.37
123	**266**	**0.14**	**3.59**	**4.67**	**3.02**	**3.47**	**2.45**	**2.45**	**4.89**	**8.29**	**6.16**	**5.84**	**2.59**	**6.16**
153	322	0.16	4.24	5.51	3.54	4.07	2.84	2.84	5.78	9.81	7.47	7.08	3.15	7.47
183	**346**	**0.14**	**4.76**	**6.18**	**3.99**	**4.59**	**3.23**	**3.23**	**6.40**	**10.85**	**8.02**	**7.60**	**3.38**	**8.02**
184	391	0.15	5.48	7.12	4.58	5.26	3.67	3.67	7.03	11.93	9.07	8.59	3.82	9.07
214	**441**	**0.15**	**6.33**	**8.23**	**5.30**	**6.09**	**4.27**	**4.27**	**8.08**	**13.70**	**10.23**	**9.69**	**4.31**	**10.23**
215	482	0.15	6.80	8.84	5.69	6.54	4.58	4.58	8.65	14.67	11.17	10.58	4.70	11.17

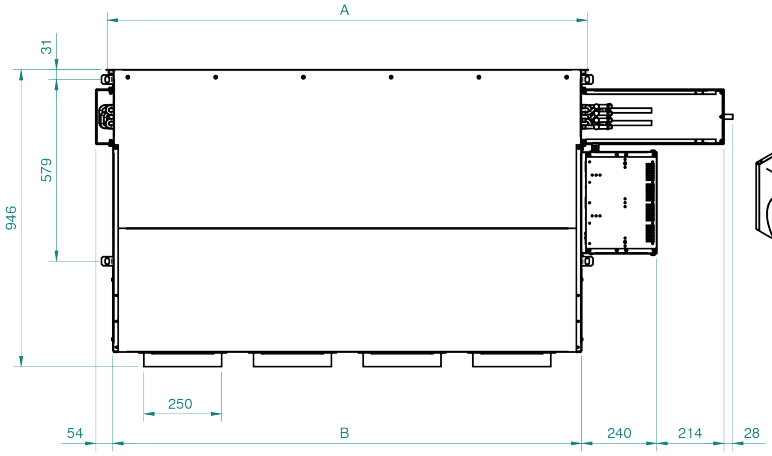
FAN ELECTRICAL DATA

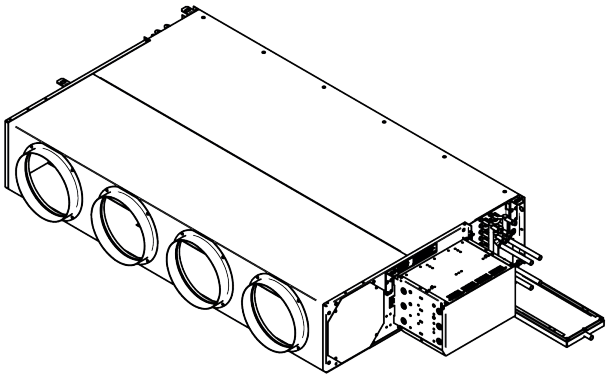
- The table below provides electrical data for the PRO270 range of fan coils.
- For project specific values please refer to Biddle.

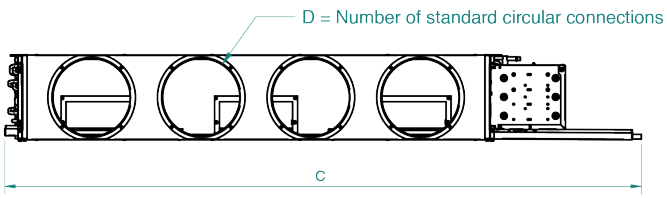
Unit Size	Max Running Current Amps	Max Running Power Watts	Starting Current Amps
61	**0.64**	**83**	**0.64**
91	0.64	83	0.64
92	**1.2**	**170**	**1.2**
122	1.22	170	1.22
123	**1.74**	**254**	**1.74**
153	1.74	254	1.74
183	**1.74**	**254**	**1.74**
184	2.26	338	2.24
214	**2.26**	**338**	**2.24**
215	2.72	420	2.72

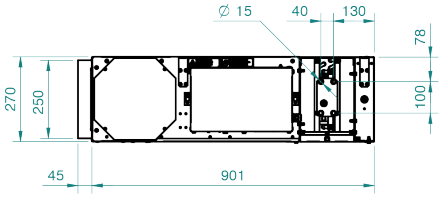
- Noise rating guide based on standard office environment and units installed above a suspended ceiling with a Dncw/Dnfw of 35 dB with up to 30 Pa external static resistance.
- EAT - Entering air temperature.
- Specific fan powers are anticipated installed values and are dependant on final external static resistance and other factors.
- Heating outputs are based on a maximum supply air temperature of 40°C.
- Noise rating levels are for guidance only and we recommend a full acoustic analysis is carried out by the clients consultants.

PRO270









	A	B	C	Spigot Diameter	Number of Spigots as standard (D)
PRO270-61	**632**	**596**	**1132**	**250mm**	**1**
PRO270-91	932	896	1432	250mm	2
PRO270-92	**932**	**896**	**1432**	**250mm**	**2**
PRO270-122	1232	1196	1732	250mm	3
PRO270-123	**1232**	**1196**	**1732**	**250mm**	**3**
PRO270-153	1532	1496	2032	250mm	4
PRO270-183	**1832**	**1796**	**2332**	**250mm**	**4**
PRO270-184	1832	1796	2332	250mm	4
PRO270-214	**2132**	**2096**	**2632**	**250mm**	**5**
PRO270-215	2132	2096	2632	250mm	5

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WARRANTY 3 YEARS ON SITE

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