

Parallel Fan Powered Terminals

fan powered terminals

PFB

- Two casing sizes ease in design layout
- Pressure independent primary airflow control
- AeroCross™ multi-point, center averaging inlet velocity sensor
- Primary airflow balancing connections
- Adjustments are easily accessible through ceiling opening
- Ultra high efficiency, brushless DC ECM motor with a unique microprocessor based motor controller.
- Manual PWM controller allows simple screwdriver adjustment of fan speed.
- Remote PWM controller allows for a 0-10 V signal from the DDC controller to adjust the fan speed.
- Single point electrical, pneumatic main, and thermostat connections
- Dual density insulation, coated to prevent air erosion, meets requirements of NFPA 90A and UL 181
- 20 gauge, galvanized steel casing with leak resistant construction



PFB

- Rectangular discharge opening is designed for flanged duct connections
- Bottom access panel can be removed for service



energy solutions

CONTROLS:

Pneumatic Control
Analog Control
Digital Control

OVERVIEW

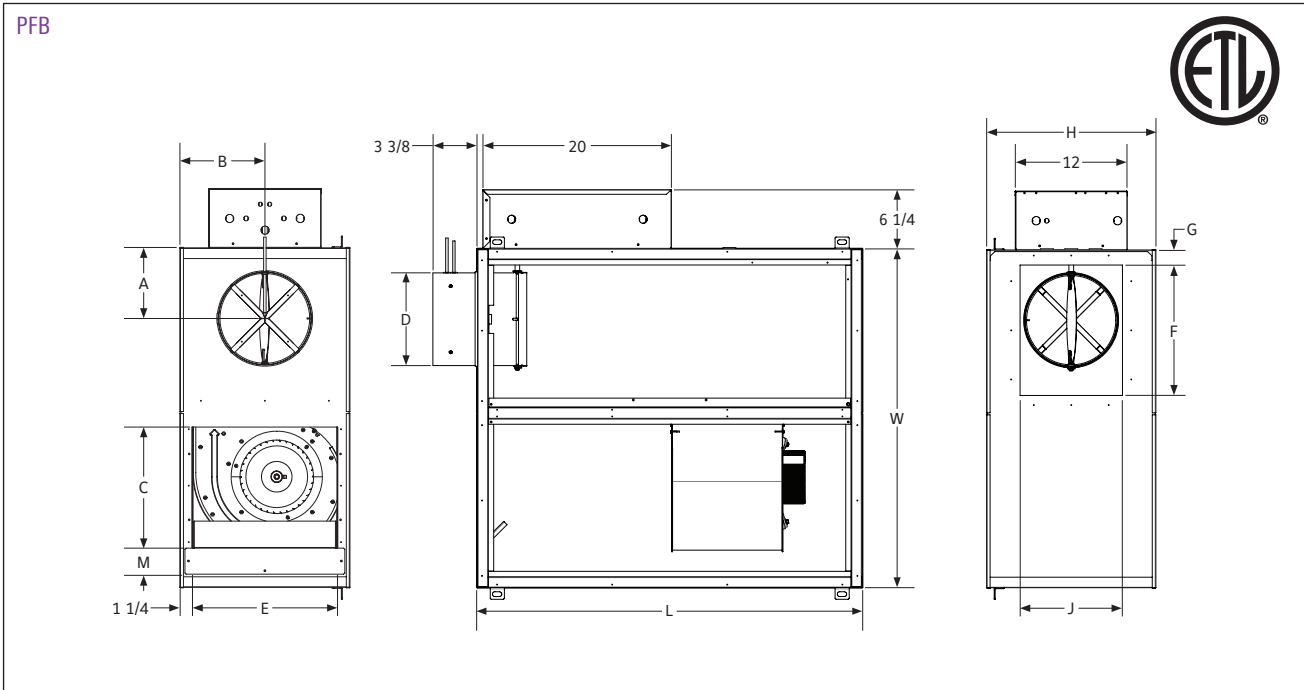
Parallel Flow

In a Parallel Flow terminal, the fan is outside the primary airstream and runs intermittently, when the primary air is off. Parallel flow or variable volume Fan Powered terminals operate in two distinct modes: variable volume, constant temperature when handling high cooling loads; and constant volume, variable temperature when heating or handling light cooling loads.



See website for Specifications

PFB UNIT DIMENSIONS



PFB Parallel Unit															
Unit Size	Inlet Size	A	B	C	D	E	F	G	H	J	K	L	W	M	Filter Size
B	6	5½	9	15	5⅞	15½	13¾	1½	18	10¾	41	36⅞	2½	17 x 17	
	8	6½			7⅞										
	10	7½			9⅞										
C	6	5½	10½	15	5⅞	18	16½	9½	21	14½	41	38⅞	4	19 x 20	
	8	6½			7⅞										
	10	7½			9⅞										
	12	8½			11⅞										
D	10	7½	10½	15	9⅞	18	16½	9½	21	14½	41	38⅞	4	19 x 20	
	12	8½			11⅞										
	14	9½			13⅞										
	16	9½			15⅞										
E	10	7½	10½	15	9⅞	18	16½	9½	21	14½	41	38⅞	4	19 x 20	
	12	8½			11⅞										
	14	9½			13⅞										
	16	9½			15⅞										

N

PERFORMANCE DATA

fan powered terminals

HOT WATER COIL SECTION

STANDARD FEATURES

- ½" copper tubes
- Aluminum ripple fins, 10 per inch
- Connections: Male solder 5/8" for both 1- and 2-row. Right hand only.
- Galvanized steel casing
- Flanged duct connection
- Coil is installed at induced air inlet

SUPPLY VOLTAGE

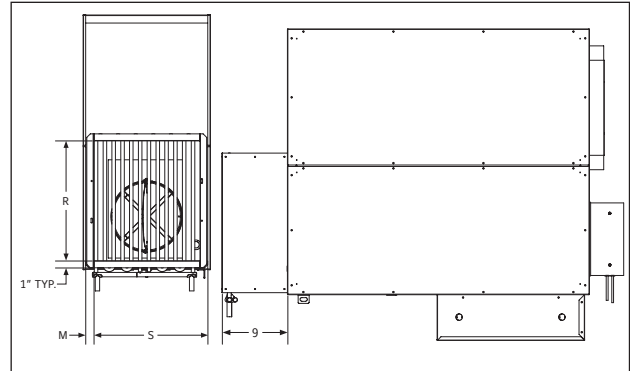
- 120V, 1 ph, 60 Hz.
- 208/240V, 1 ph, 60 Hz.
- 277V, 1 ph, 60 Hz.

COIL ROWS

- 1-Row
- 2-Row

Hot Water Coil Section (Inlet Mounted)				
Unit Size	M (1-Row)	M (2-Row)	R	S
B, C	1	1¼	17	15
D, E	1⅛	1⅛	17¼	17½

Note: R and S are inside dimensions



ELECTRIC COIL SECTION

STANDARD FEATURES

- Auto reset thermal cutouts (one per element)
- 80/20 Nickel chrome heating elements.
- Magnetic contactors, where required, on pneumatic units
- Airflow safety switch
- Line terminal block (277/1Ø, 208/240/3Ø, or 480/3Ø 4 wire)
- Flanged connection

- Control transformer for DDC or Analog electronic controls
- Pneumatic electric switch for pneumatic parallel fan terminals only
- Fan relay for DDC fan terminals
- Magnetic contactor per step on terminals with DDC or analog electronic controls

- Manual reset thermal cutout
- Dust-tight construction
- Optional Lynergy Comfort Controlled SSR Electric Heat available

SUPPLY VOLTAGE

- 208V, 1 ph, 60 Hz.
- 240V, 1 ph, 60 Hz.
- 277V, 1 ph, 60 Hz.
- 208V, 3 ph, 60 Hz.
- 480V, 3 ph, 60 Hz. (4 wire wye only)

OPTIONS

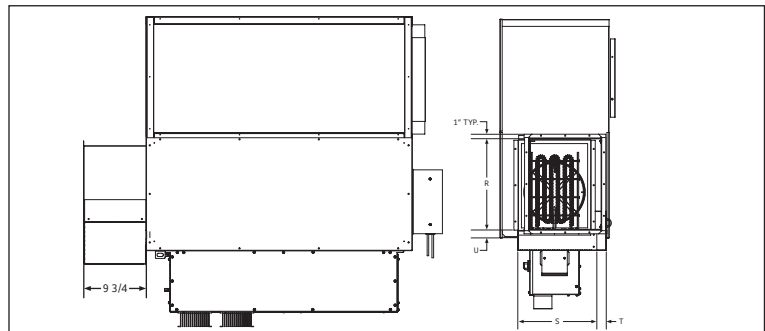
- Interlocking disconnect
- Main power supply fuses
- Mercury contactors

Electric Coil Section (Discharge Mounted)				
Unit Size	U	R	S	T
B, C	1⅛	15	12	3
D, E	1⅛	17½	15½	2¾

Note: Coil control box replaces standard terminal unit control box

Note: R and S are inside dimensions

See Electric Heat Coils in Section 0 for more information



ADDITIONAL ACCESSORIES (OPTIONAL)

- 1" and 2" Construction, MERV 8 and MERV 13 induced Air Filters
- Fan unit fusing
- Induced Air Sensor
- Toggle type disconnect switch (not available on units with optional electric coils)
- Bottom Access, 90°, and Remote Enclosures
- Slip and Drive Adaptor
- 1" liner
- Fibre-Free liner
- SteriLoc liner
- EcoShield liner
- Hanger brackets
- Camlocks on fan access door

ECM ELECTRICAL DATA

Unit Size	Motor HP	120/1/60V FLA	208/240/1/60V FLA	277/1/60V FLA
B	1/3	2.9	1.8	1.4
C	1/2	5.7	3	3
D	3/4	9.8	5.5	4.3
E	1	12.3	6.6	5.7

FLA = Full Load Amperage, as tested in accordance with UL 1995

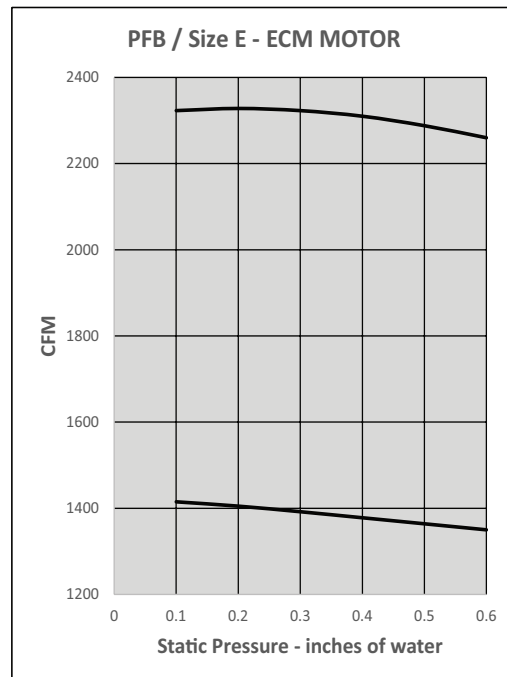
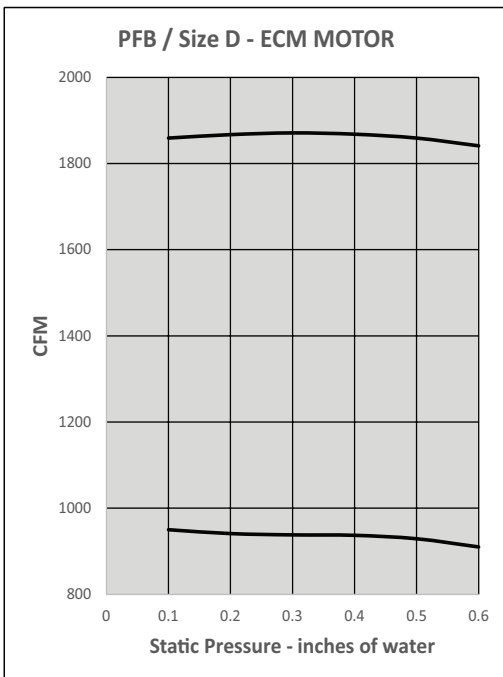
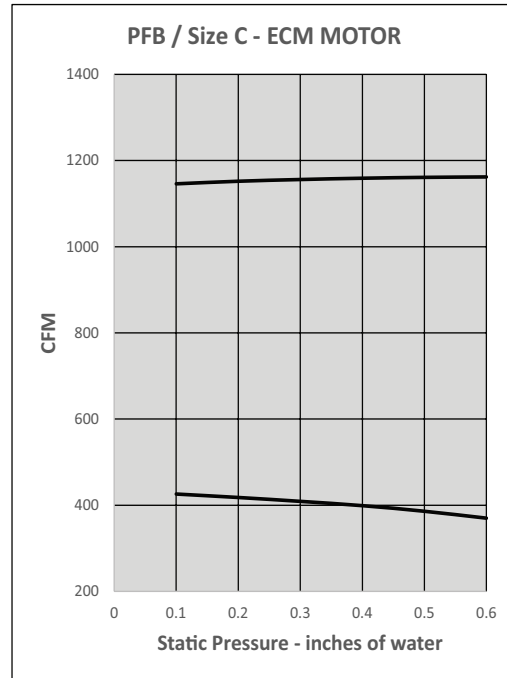
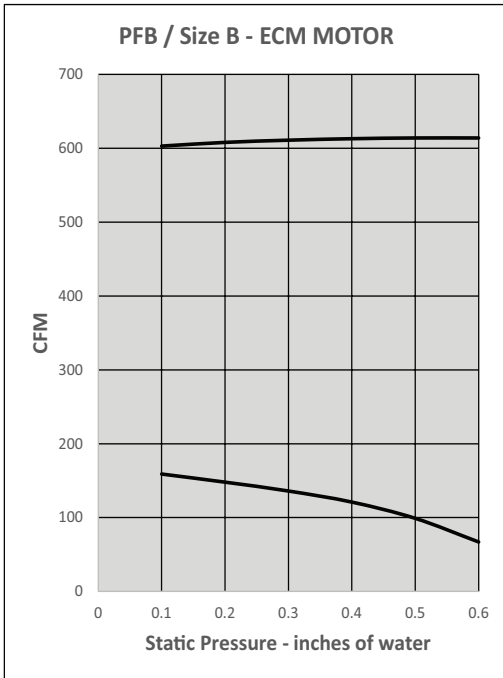
All fan motors are single phase, same voltage as electric coil (when supplied), with exception that 277 voltage motors are used with 480 volt / 3 phase coil (4 wire wye)

PRIMARY AIR CFM RANGES

Inlet Size	Total cfm Range	TITUS II, IIA Pneumatic Controller		TITUS I Pneumatic Controller		TITUS TA1 Analog Electronic Controller		Typical Digital Controller	
		Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
6	0-500	*80-330	150-500	*105-350	150-500	*80-500	80-500	*45-500	45-500
8	0-900	*145-590	265-900	*190-590	265-900	*145-900	145-900	*90-900	90-900
10	0-1400	*230-925	415-1400	*300-925	415-1400	*230-1400	230-1400	*145-1400	145-1400
12	0-2000	*325-1330	600-2000	*425-1330	600-2000	*325-2000	325-2000	*190-2000	190-2000
14	0-3000	*450-1800	840-3000	*575-1800	810-3000	*450-3000	450-3000	*300-3000	300-3000
16	0-4000	*580-2350	1100-4000	*750-2350	1100-4000	*580-4000	580-4000	*385-4000	385-4000

Note: An asterisk (*) indicates factory cfm settings (except zero) will not be made below this range because control accuracy is reduced. On pressure dependent units, minimum cfm is always zero and there is no maximum.

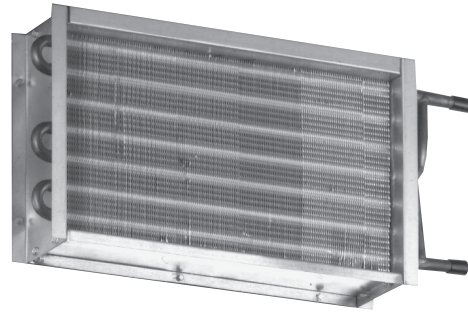
PFB WITH ECM / AIRFLOW VS. DOWNSTREAM STATIC PRESSURE



PFB / WATER COIL HEATING CAPACITY (MBH)

Unit Size	Rows	gpm	Head Loss	Airflow, cfm				
				175	280	385	490	600
B	One Row	1.0	0.17	8.5	10.8	12.5	13.8	14.8
		2.0	0.53	9.1	12	14.1	15.8	17.3
		4.0	1.96	9.5	12.6	15.1	17.1	18.8
		6.0	4.26	9.6	12.9	15.4	17.5	19.4
		Airsides ΔPs		0.01	0.01	0.02	0.03	0.04
	Two Row	1.0	0.35	12.6	16.8	19.8	22.2	24.1
		2.0	1.01	13.6	18.9	23.1	26.5	29.5
		4.0	3.71	14.1	20	24.9	29.1	32.8
		6.0	8.02	17.3	20.4	25.6	30	34.1
		Airsides ΔPs		0.01	0.02	0.03	0.05	0.07
Unit Size	Rows	gpm	Head Loss	Airflow, cfm				
				415	600	785	970	1150
C	One Row	1.0	0.17	12.9	14.8	16.2	17.3	18.1
		2.0	0.53	14.6	17.3	19.3	20.9	22.2
		4.0	1.96	15.7	18.8	21.3	23.3	24.9
		6.0	4.24	16	19.4	22	24.1	25.9
		Airsides ΔPs		0.02	0.04	0.05	0.08	0.1
	Two Row	1.0	0.34	20.6	24.1	26.5	28.2	29.6
		2.0	1.01	24.1	29.5	33.6	36.8	39.3
		4.0	3.68	26.2	32.8	38.1	42.4	46
		6.0	8	26.9	34.1	39.8	44.6	48.6
		Airsides ΔPs		0.04	0.07	0.11	0.15	0.2
Unit Size	Rows	gpm	Head Loss	Airflow, cfm				
				945	1175	1405	1635	1855
D	One Row	1.0	0.2	18.7	19.9	20.8	21.6	22.2
		2.0	0.61	22.7	24.6	26.1	27.4	28.5
		4.0	2.26	25.2	27.5	29.5	31.2	32.7
		6.0	4.91	26.1	28.7	30.9	32.8	34.3
		Airsides ΔPs		0.06	0.08	0.11	0.13	0.16
	Two Row	1.0	0.42	29.8	31.6	33	34	34.9
		2.0	1.17	38.9	42.5	45.4	47.7	49.7
		4.0	4.3	44.9	50	54.2	57.8	60.8
		6.0	9.3	47.2	52.9	57.8	61.9	65.4
		Airsides ΔPs		0.11	0.16	0.21	0.27	0.33
Unit Size	Rows	GPM	Head Loss	Airflow, cfm				
				1400	1635	1860	2090	2275
E	One Row	1.0	0.2	20.8	21.6	22.2	22.8	23.2
		2.0	0.61	26.1	27.4	28.5	29.5	30.2
		4.0	2.26	29.5	31.2	32.7	34	35
		6.0	4.91	30.8	32.8	34.4	35.8	36.9
		Airsides ΔPs		0.1	0.13	0.16	0.2	0.23
	Two Row	1.0	0.43	32.9	34	34.9	35.6	36.1
		2.0	1.17	45.3	47.7	49.7	51.4	52.6
		4.0	4.29	54.1	57.8	60.9	63.6	65.6
		6.0	9.29	57.7	61.9	65.5	68.7	71.1
		Airsides ΔPs		0.21	0.27	0.33	0.43	0.46

- All coil performance in accordance with AHRI 410-2001
- Heating capacities are in MBH
- Data based on 180°F entering water and 75°F entering air
- For temperature differentials other than 105°, multiply MBH by correction factors below
- Head loss is in feet of water
- Always supply water to lowest connection pipe to prevent air entrapment
- Air temperature rise = 927 x MBH/cfm
- Water temperature drop = 2.04 x MBH/gpm
- Connection size is 5/8" OD male solder
- Coils are not intended for steam applications and are labeled for a maximum water temperature of 200°F
- Coils are tested for leakage at test pressure of 500 psi
- Water volumes less than those shown may result in laminar flow and reduced heating capacity. If possible reduce the number of coil rows to increase water velocity into turbulent range.



Correction factors for other entering conditions:

ΔT	50	60	70	80	90	100	115	125	140	150
Factor	0.52	0.6	0.69	0.78	0.87	0.96	1.08	1.15	1.28	1.38

PFB / DISCHARGE SOUND PERFORMANCE / PRIMARY AIR ONLY

Unit Size	Inlet Size	cfm	Min ΔPs	Octave Band Sound Power, Lw																											
				1.0" ΔPs							1.5" ΔPs							2.0" ΔPs													
				2	3	4	5	6	7	NC	2	3	4	5	6	7	NC	2	3	4	5	6	7	NC							
B-C	6	300	0.04	67	61	49	46	45	43	19	68	63	51	48	47	45	21	69	64	53	49	48	47	23							
		350	0.05	68	63	51	47	46	44	22	70	65	53	49	47	46	24	71	66	55	50	49	48	25							
		400	0.07	70	64	52	48	46	45	23	71	66	55	49	48	47	25	72	68	57	50	49	49	27							
		450	0.09	71	66	54	49	47	45	25	73	68	56	50	49	48	27	74	69	58	51	50	50	29							
		500	0.11	72	67	55	49	48	46	27	74	69	57	51	49	48	29	75	71	59	52	51	50	30							
B-C	8	600	0.05	68	65	53	49	47	45	24	70	68	55	51	49	48	28	71	71	57	53	51	50	31							
		650	0.06	68	65	54	50	47	46	24	71	69	56	52	50	49	28	72	71	58	54	51	51	31							
		700	0.07	69	66	54	51	48	46	25	71	69	57	53	50	49	29	73	72	59	54	52	51	32							
		750	0.08	70	66	55	52	48	47	24	72	70	58	54	51	50	28	74	72	60	55	52	52	31							
		800	0.09	70	66	56	52	49	47	24	73	70	59	54	51	50	28	74	73	61	56	53	52	31							
B-C	10	900	0.05	72	64	56	52	48	43	23	74	67	59	55	51	47	26	75	69	61	56	52	51	28							
		1000	0.06	72	66	58	53	49	44	24	75	69	60	56	52	48	27	76	71	63	57	53	52	29							
		1100	0.08	73	68	59	54	50	45	26	75	71	62	57	52	49	29	77	73	64	59	54	53	32							
		1200	0.09	74	70	60	55	51	46	28	76	73	63	58	53	50	32	78	75	65	59	55	53	34							
		1300	0.11	75	71	61	56	51	47	30	77	74	64	59	54	51	33	78	76	66	60	56	54	36							
C	12	1200	0.05	72	64	59	56	53	46	23	74	67	62	59	56	49	27	77	70	64	61	58	52	29							
		1400	0.07	73	67	61	58	55	48	25	76	70	64	60	58	51	29	78	72	66	63	60	54	32							
		1600	0.09	75	69	63	59	56	50	27	78	72	66	62	59	53	31	80	74	68	64	61	56	34							
		1800	0.12	76	71	65	61	58	51	29	79	74	68	64	61	55	33	81	76	70	66	63	57	36							
		2000	0.14	77	72	66	62	59	53	31	80	75	69	65	62	56	35	82	78	71	67	64	58	37							
D-E	10	900	0.10	72	65	55	51	52	52	23	76	70	59	54	54	56	28	78	73	62	56	56	58	32							
		1000	0.13	72	67	56	52	53	54	24	76	71	60	54	55	57	30	79	74	63	56	57	59	33							
		1100	0.16	73	68	56	52	53	55	26	77	72	60	55	56	58	31	79	75	63	57	58	60	34							
		1200	0.19	73	69	57	53	54	56	27	77	73	61	55	57	59	32	80	76	64	57	58	61	36							
		1300	0.22	74	70	57	53	55	57	28	78	74	61	56	57	60	33	80	77	64	58	59	62	37							
D-E	12	1200	0.09	72	65	57	53	52	53	24	75	69	61	56	55	56	28	78	72	64	58	57	59	31							
		1400	0.12	73	67	58	54	54	54	25	77	71	62	57	56	58	30	79	74	65	59	58	60	33							
		1600	0.16	74	68	59	55	55	56	27	78	72	63	57	57	59	31	80	75	66	59	59	62	35							
		1800	0.20	75	69	60	55	56	57	28	79	73	64	58	58	60	33	81	76	67	60	60	63	36							
		2000	0.24	76	70	61	56	57	58	29	80	75	65	59	59	61	34	82	77	67	61	61	64	37							
D-E	14	1500	0.11	74	67	61	58	55	52	26	77	71	65	61	58	56	30	79	74	67	63	60	58	33							
		1800	0.16	75	68	63	59	56	54	27	78	72	66	62	60	58	31	80	75	68	64	62	61	35							
		2100	0.22	76	69	64	61	58	56	28	79	74	67	64	61	60	33	81	76	69	66	63	62	36							
		2400	0.29	77	70	65	62	59	57	30	80	75	68	65	62	61	34	82	77	70	67	65	64	37							
		2700	0.37	77	71	65	62	61	59	30	81	75	69	65	64	63	35	83	78	71	68	66	65	38							
D-E	16	2000	0.14	72	66	60	55	55	54	24	76	70	63	59	57	59	29	78	73	66	61	60	62	32							
		2400	0.21	73	68	61	57	56	55	26	77	72	65	60	59	60	30	80	74	67	62	61	63	34							
		2800	0.28	75	69	62	58	57	56	27	78	73	66	61	60	61	32	81	76	69	63	62	64	35							
		3200	0.37	76	70	63	59	58	57	28	79	74	67	62	61	62	33	82	77	70	64	63	65	37							
		3600	0.46	77	71	64	60	59	58	30	80	75	68	63	62	62	34	83	78	70	65	64	66	38							

- Discharge sound is the noise emitted from the unit discharge into the downstream ductwork
- Min ΔPs is the static pressure drop from the unit inlet to the unit outlet with primary damper full open
- Sound power levels are in dB, ref 10⁻¹² watts
- Sound performance based on units lined with standard dual density fiberglass lining
- All performance based on tests conducted in accordance with ASHRAE 130-2016 and AHRI 880-2017
- All NC levels determined using AHRI 885-2008 Appendix E. See Terminal Unit Engineering Guidelines.
- Dash (-) in space denotes NC value less than NC10
- Only highlighted data points are AHRI Certified. See page N89 for AHRI Certified Performance Listings.

PFB / SOUND PERFORMANCE / FAN ONLY

Size	CFM	Discharge Ps	RADIATED							DISCHARGE						
			Octave Band Sound Power, Lw							Octave Band Sound Power, Lw						
			Fan Only							Fan Only						
			2	3	4	5	6	7	NC	2	3	4	5	6	7	NC
B	175	0.25"	54	50	47	40	36	30	21	54	49	41	38	34	24	-
	280		57	53	50	44	41	36	24	58	53	46	43	40	33	12
	385		58	55	52	47	44	41	26	60	56	49	46	44	39	13
	490		60	57	54	49	46	44	28	61	58	52	49	47	43	15
	600		61	58	55	51	48	47	29	63	60	54	51	49	47	17
C	415	0.25"	56	55	51	46	42	37	25	62	58	50	47	45	38	16
	600		60	59	55	51	47	44	30	64	61	54	51	49	44	19
	785		63	61	58	54	51	48	33	66	64	57	54	52	48	21
	970		65	64	60	57	54	52	35	68	65	59	57	54	52	23
	1150		67	65	62	59	57	55	38	69	67	61	59	56	54	25
D	945	0.25"	65	64	59	54	53	52	34	67	62	60	54	52	51	19
	1175		68	66	61	56	56	55	37	70	65	62	58	56	55	23
	1405		70	68	62	59	58	58	39	73	68	64	61	58	58	26
	1635		72	70	64	61	60	60	41	75	70	66	64	61	60	29
	1865		74	71	65	62	62	62	43	77	72	68	66	62	63	31
E	1400	0.25"	69	65	61	58	58	57	36	70	64	62	58	56	55	22
	1630		71	68	63	60	60	60	39	73	67	65	62	59	59	25
	1860		73	71	65	63	63	62	42	75	70	67	65	62	61	28
	2090		75	73	67	65	65	64	45	77	72	69	68	64	64	31
	2320		77	75	68	66	66	66	47	79	74	70	70	66	66	33

FAN ONLY RADIATED

- Radiated sound is the noise transmitted through the unit casing and emitted from the induction port
- Sound power levels are in dB, ref 10⁻¹² watts
- Sound performance based on units lined with standard dual density fiberglass lining
- All performance based on tests conducted in accordance with ASHRAE 130-2016 and AHRI 880-2017
- All NC levels determined using AHRI 885-2008 Appendix E. See Terminal Unit Engineering Guidelines.
- Dash (-) in space denotes NC value less than NC10
- Only highlighted data points are AHRI Certified. See page N89 for AHRI Certified Performance Listings.
- Discharge sound is the noise emitted from the unit discharge into the downstream ductwork

FAN ONLY DISCHARGE

- Discharge sound is the noise emitted from the unit discharge into the downstream ductwork
- Sound power levels are in dB, ref 10⁻¹² watts
- Sound performance based on units lined with standard dual density fiberglass lining
- All performance based on tests conducted in accordance with ASHRAE 130-2016 and AHRI 880-2017
- All NC levels determined using AHRI 885-2008 Appendix E. See Terminal Unit Engineering Guidelines.
- Dash (-) in space denotes NC value less than NC10
- Only highlighted data points are AHRI Certified. See page N89 for AHRI Certified Performance Listings.