



FAN SELECTION And PERFORMANCE

Your Cincinnati Fan Representative:

Thomas G. Todd
Todd Air Solutions
P.O. Box 4245
Salisbury NC 28145
704-630-1101 Phone
704-630-0528 Fax
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Wednesday, February 22, 2012

Job Name: AVANI ENVIRONMENTAL
Reference: Quote: 172578

Operating Requirements

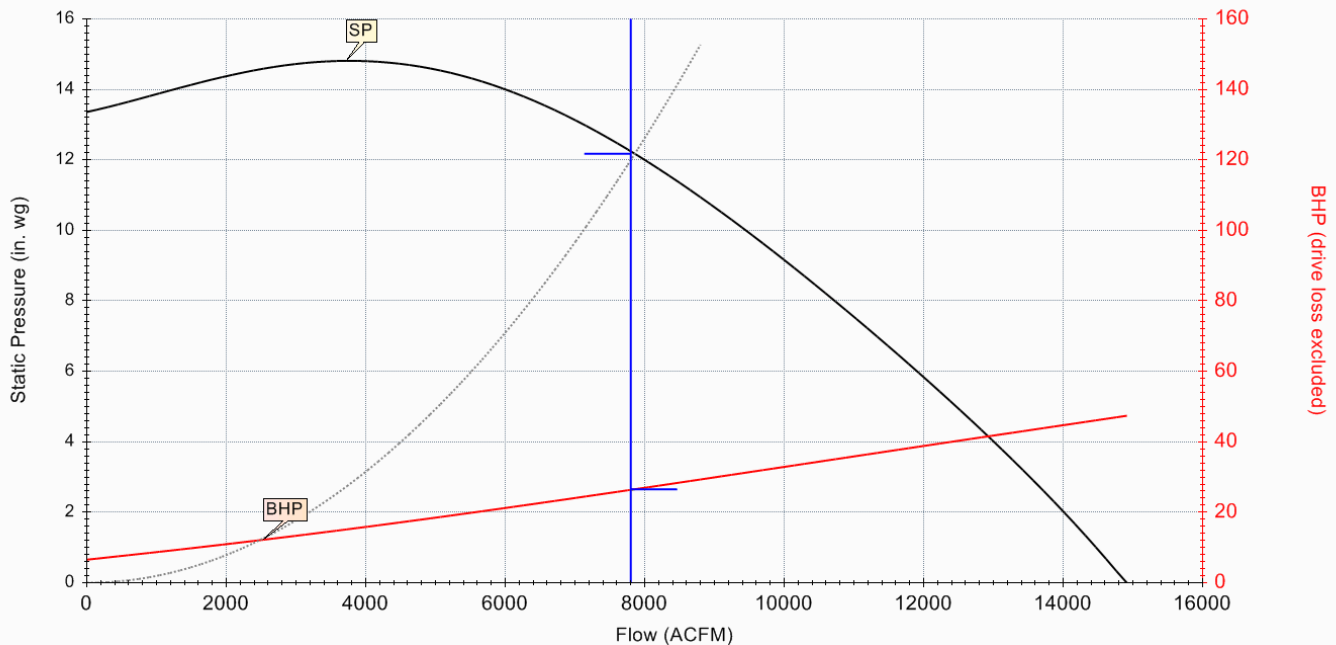
Volume, ACFM	7,800
Static Pressure, in. wg	12.0
Density, lb./ft. ³	0.075
Operating Temperature, °F	70

AMCA Arrangement No.	4
Motor Frequency, Hz	60
Start-Up Temperature, °F	70

Fan Selection and Specifications

Model	RBE-17	
Fan RPM	1,750	
Wheel Description	Open Radial	
Wheel Width, %	100%	
Wheel Diameter, in.	29.63	
Inlet Diameter, in.	17.00	
Outlet Velocity, ft./min.	4,770	
Fan BHP	26.6	Suggested Motor HP: 30.0
Static Efficiency, %	56.7%	
Cold Start BHP	26.6	
Construction Class	Series 25	

Cincinnati Fan Model RBE-17 with Open Radial Wheel (Full Width) @ 1,750 RPM
Rating Point: 7,800 ACFM @ 12.0 in. wg SP, 0.075 lb./ft.³ Density, 26.6 BHP





FAN SOUND DATA

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Fan Sound Data

Lp = Sound Pressure Level at a specific distance from the fan. Measured in decibels (dB) or A-weighted decibels (dB(A)) re 0.0002 microbar.
Lw = Sound Power Level of the fan. Measured in decibels (dB) or A-weighted decibels (dB(A)) re 1E-12 watt.
dB = Decibel, ten times the logarithm (base 10) of the ratio of a value to a reference value.
dB(A) = A-Weighted decibel. A-weighting corrects the spectrum for human hearing response.

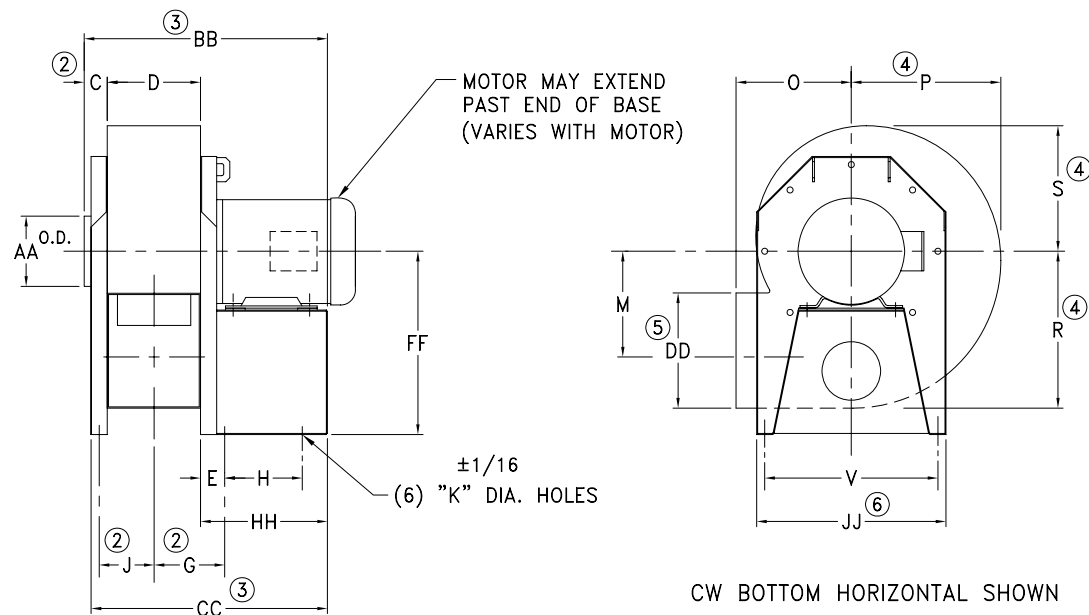
Sound Directivity Factor, Q : 1 - Spherical radiation
Fan Inlet Ducting: Ducted
Fan Outlet Ducting: Ducted

Calculated Octave Band Sound Data (dB)

Quantity	63 Hz	125 Hz	250Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000Hz
Lw Total	130	126	112	103	100	96	92	87
Lw Inlet	127	123	109	100	97	93	89	84
Lw Outlet	127	123	109	100	97	93	89	84
Lp Total	102	99	84	75	72	68	65	60
Lp inlet	99	96	81	72	69	65	62	57
Lp outlet	99	96	81	72	69	65	62	57

Total A-weighted Sound Pressure Level, Lp dB(A) 85 at 3.0 feet from fan
Total A-weighted Sound Power Level, Lw dB(A) 112
Blade Passage Frequency, Hz 175

- Sound Pressure values are calculated based upon assumed environmental conditions. Actual values may vary for specific installations due to environmental factors (other noise sources, walls, duct design, etc.)
- Noise from the driver is not included in these data.
- Sound Pressure Level calculations assume free field propagation occurring outdoors.
- Duct End Corrections applied (AMCA 300-85 Appendix C).



NOTES:

1. FAN HOUSINGS ARE REVERSIBLE AND ROTATABLE IN 45° INCREMENTS.
2. ADD 1/8 INCH FOR AMCA "C" CONSTRUCTION FANS AND/OR DOWNBLAST DISCHARGE POSITION.
3. ADD 1/4 INCH FOR AMCA "C" CONSTRUCTION FANS AND/OR DOWNBLAST DISCHARGE POSITION.
4. ADD 1/16 INCH FOR HEAVY DUTY HOUSING.
5. ADD 1/8 INCH FOR FOR HEAVY DUTY HOUSING.
6. RBE-21: INLET SIDE PLATE IS WIDER THAN BASE.
7. DOWNBLAST DISCHARGE ORIENTATION NOT AVAILABLE WITH DISCHARGE FLANGE.

		HOUSING																																		* WEIGHT		
MODEL NO.	MOTOR FRAME	②		②	K	M	O	④	④	④		AA	⑤	E			G ②			H			BB ③			CC ③				HH								
		C	D	J				P	R	S	V			SM.	LG.	X-LG	SM.	LG.	X-LG.	SM.	LG.	X-LG.	SM.	LG.	X-LG.	SM.	LG.	X-LG.	FF	SM.	LG.	X-LG.	JJ	SM. BASE	LG. BASE	X-LG. BASE		
RBE-7	SM. 143T-184T	3	6 ¹ / ₈	4 ¹ / ₁₆	⁹ / ₁₆	7 ¹ / ₄	9	9 ⁷ / ₈	10 ⁵ / ₈	9 ¹ / ₈	14	7	6 ³ / ₄	3			6 ¹ / ₁₆			5 ¹ / ₂			20 ⁵ / ₈			19 ⁵ / ₈			15 ¹ / ₂	11 ¹ / ₂			16	115				
RBE-9	SM. 143T-215T LG. 254T-256T	3	7 ⁵ / ₈	4 ¹³ / ₁₆	⁹ / ₁₆	9 ³ / ₈	11 ³ / ₈	12 ³ / ₄	13 ³ / ₄	11 ³ / ₄	17 ¹ / ₄	9	8 ³ / ₄	3			6 ¹³ / ₁₆			7 ⁵ / ₈	16		24 ¹ / ₄	32 ⁵ / ₈		23 ¹ / ₄	31 ⁵ / ₈		18 ¹ / ₈	13 ⁵ / ₈	22		19 ¹ / ₄	175	190			
RBE-11	SM. 182T-215T LG. 254T-286T X-LG. 324T	3	9 ³ / ₈	5 ¹¹ / ₁₆	⁹ / ₁₆	11 ³ / ₈	13 ³ / ₄	15 ¹ / ₂	16 ³ / ₄	14 ¹ / ₄	21 ¹ / ₂	11	10 ³ / ₄	3		7 ¹¹ / ₁₆			8 ³ / ₈	18 ¹ / ₂	21	26 ³ / ₄	36 ⁷ / ₈	39 ³ / ₈	25 ³ / ₄	35 ⁷ / ₈	38 ³ / ₈	22 ³ / ₄	14 ³ / ₈	24 ¹ / ₂	27	23 ¹ / ₂	255	290	295			
RBE-13	SM. 213T-256T LG. 284T-326T X-LG. 364T-365T	3	11	6 ¹ / ₂	⁹ / ₁₆	13 ¹ / ₂	16 ¹ / ₈	18 ³ / ₈	19 ⁷ / ₈	16 ⁷ / ₈	26 ¹ / ₈	13	12 ³ / ₄	3		8 ¹ / ₂			11 ¹ / ₂	21	24 ³ / ₄	31 ¹ / ₂	41	44 ³ / ₄	30 ¹ / ₂	40	43 ³ / ₄	26 ¹ / ₄	17 ¹ / ₂	27	30 ³ / ₄	28 ¹ / ₈	355	410	415			
RBE-15	SM. 213T-256T LG. 284T-326T X-LG. 364T-365T	3	12 ³ / ₄	7 ³ / ₈	⁹ / ₁₆	15 ³ / ₄	18 ³ / ₈	21 ¹ / ₄	23	19 ¹ / ₂	28 ¹ / ₄	15	14 ¹ / ₂	3		9 ³ / ₈			11 ¹ / ₂	21	24 ³ / ₄	33 ¹ / ₄	42 ³ / ₄	46 ¹ / ₂	32 ¹ / ₄	41 ³ / ₄	45 ¹ / ₂	28 ¹ / ₂	17 ¹ / ₂	27	30 ³ / ₄	30 ³ / ₄	475	525	540			
RBE-17	SM. 213T-256T LG. 284T-326T X-LG. 364T-365T	3	14 ³ / ₈	8 ³ / ₁₆	⁹ / ₁₆	17 ³ / ₄	20 ³ / ₄	24	26	22	31	17	16 ¹ / ₂	3			10 ³ / ₁₆			11 ¹ / ₂	21		34 ⁷ / ₈	44 ³ / ₈		33 ⁷ / ₈	43 ³ / ₈		31 ¹ / ₄	17 ¹ / ₂	27		33 ³ / ₄	580	650			
RBE-19	SM. 213T-256T LG. 284T-326T X-LG. 364T-365T	4	15 ⁷ / ₈	8 ¹⁵ / ₁₆	⁹ / ₁₆	19 ³ / ₄	24 ⁹ / ₁₆	26 ³ / ₄	28 ¹⁵ / ₁₆	24 ⁹ / ₁₆	34 ¹ / ₄	19	18 ³ / ₈	3		10 ¹⁵ / ₁₆			11 ¹ / ₂	21	24 ³ / ₄	37 ³ / ₈	46 ⁷ / ₈	50 ⁵ / ₈	35 ³ / ₈	44 ⁷ / ₈	48 ⁵ / ₈	34 ¹ / ₂	17 ¹ / ₂	27	30 ³ / ₄	37 ¹ / ₄	690	770	790			
RBE-21	SM. 284T-326T LG. 364T-405T X-LG. 444T	5	17 ³ / ₄	10 ⁷ / ₈	³ / ₄	21 ¹³ / ₁₆	27 ³ / ₁₆	29 ⁹ / ₁₆	32	27 ³ / ₁₆	28	21	20 ⁵ / ₁₆	3 ¹ / ₂		12 ³ / ₈			20	25	29	49 ³ / ₄	54 ³ / ₄	58 ³ / ₄	47 ³ / ₄	52 ³ / ₄	56 ³ / ₄	38 ³ / ₄	27	32	36	⑥ 30	1080	1110	1130			

* WEIGHT DOES NOT INCLUDE MOTOR OR OPTIONS.



cincinnati fan
7697 SNIDER ROAD MASON, OHIO 45040

TOLERANCES:
ANGLES: ± 1°
FRACTIONS ± 1/8

ALL DIMENSIONS IN INCHES
UNLESS OTHERWISE SPECIFIED

SUPERSEDES:
RBE4-600

CERTIFIED
DRAWING

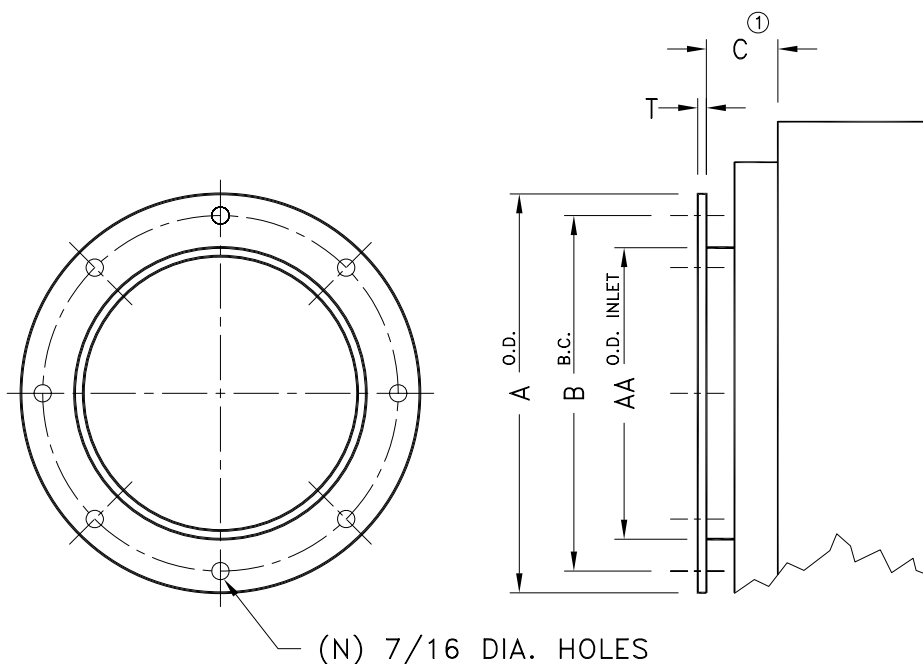
TITLE

RBE ARR. 4

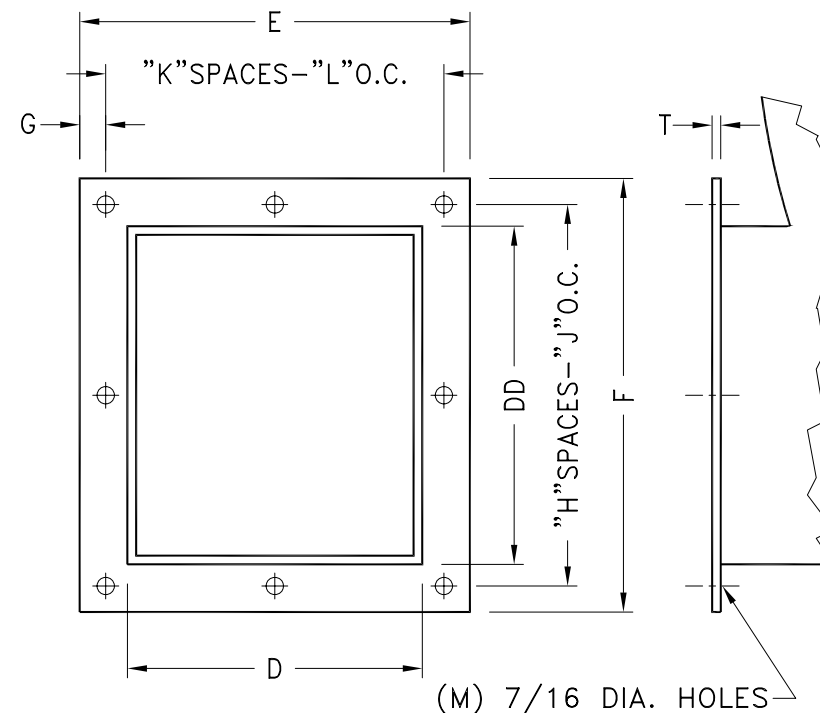


DRAWING NO.
RBE4

REV.



INLET FLANGE



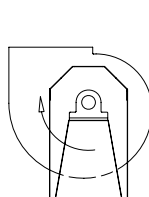
DISCHARGE FLANGE *

* NOT AVAILABLE ON ANY MODEL FOR DOWNBLAST OR BOTTOM ANGULAR DOWN, OR RBE-7 TOP ANGULAR DOWN DISCHARGE POSITION.

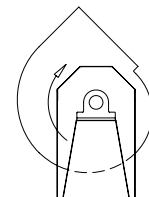
MODEL	INLET						DISCHARGE									
	A	B	C ^①	AA	N	T	D	E	F	G	H	J	K	L	M	DD
RBE-7	9-3/8	8-1/2	3	7	8	1/8	6-1/8	10-1/8	10-3/4	1	2	4-3/8	2	4-1/16	8	6-3/4
RBE-9	11-5/8	10-5/8	3	9	8	1/8	7-5/8	11-5/8	12-3/4	1	2	5-3/8	2	4-13/16	8	8-3/4
RBE-11	13-7/8	12-3/4	3	11	8	1/8	9-3/8	13-3/8	14-7/8	1-1/16	3	4-1/4	3	3-3/4	12	10-3/4
RBE-13	16-1/8	15	3	13	8	1/8	11	15	16-11/16	1-1/32	3	4-7/8	3	4-5/16	12	12-3/4
RBE-15	18-1/8	17	3	15	8	1/8	12-3/4	16-3/4	18-5/8	1-1/16	4	4-1/8	3	4-7/8	14	14-1/2
RBE-17	20-1/8	19	3	17	8	1/8	14-3/8	18-3/8	20-5/8	1-1/16	4	4-5/8	4	4-1/16	16	16-1/2
RBE-19	22-1/8	21	4	19	8	1/8	15-7/8	19-7/8	22-3/8	1-1/16	4	5-1/16	4	4-7/16	16	18-3/8
RBE-21	24-1/2	22-1/2	5	21	12	3/16	17-3/4	21-3/4	24-11/32	1	5	4-15/32	4	4-15/16	18	20-5/16

① ADD 1/8 FOR AMCA "C" CONSTRUCTION FANS AND/OR DOWNBLAST AND BOTTOM ANGULAR DOWN DISCHARGE POSITIONS.

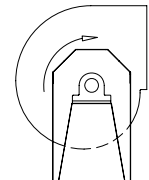
CLOCKWISE ROTATION



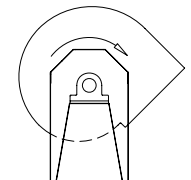
CLOCKWISE
UP BLAST



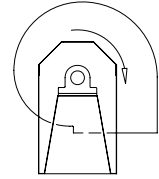
CLOCKWISE
TOP ANGULAR UP



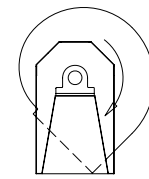
CLOCKWISE
TOP HORIZONTAL



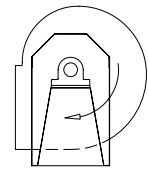
CLOCKWISE
TOP ANGULAR DOWN



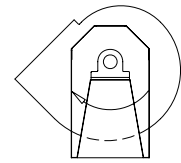
CLOCKWISE
DOWN BLAST



CLOCKWISE
BOTTOM ANGULAR DOWN

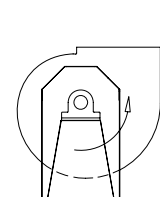


CLOCKWISE
BOTTOM HORIZONTAL

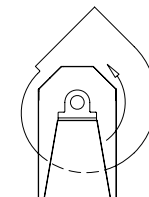


CLOCKWISE
BOTTOM ANGULAR UP

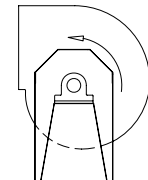
COUNTERCLOCKWISE ROTATION



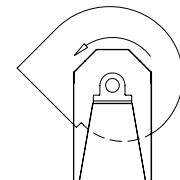
COUNTERCLOCKWISE
UP BLAST



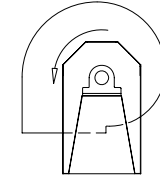
COUNTERCLOCKWISE
TOP ANGULAR UP



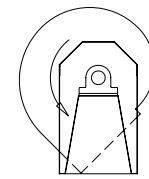
COUNTERCLOCKWISE
TOP HORIZONTAL



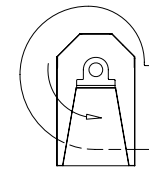
COUNTERCLOCKWISE
TOP ANGULAR DOWN



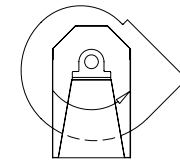
COUNTERCLOCKWISE
DOWN BLAST



COUNTERCLOCKWISE
BOTTOM ANGULAR DOWN



COUNTERCLOCKWISE
BOTTOM HORIZONTAL



COUNTERCLOCKWISE
BOTTOM ANGULAR UP

NOTES:

1. DIRECTION OF ROTATION IS DETERMINED FROM DRIVE SIDE OF FAN.
2. SAME AS AMCA STANDARD 99-2406-83.



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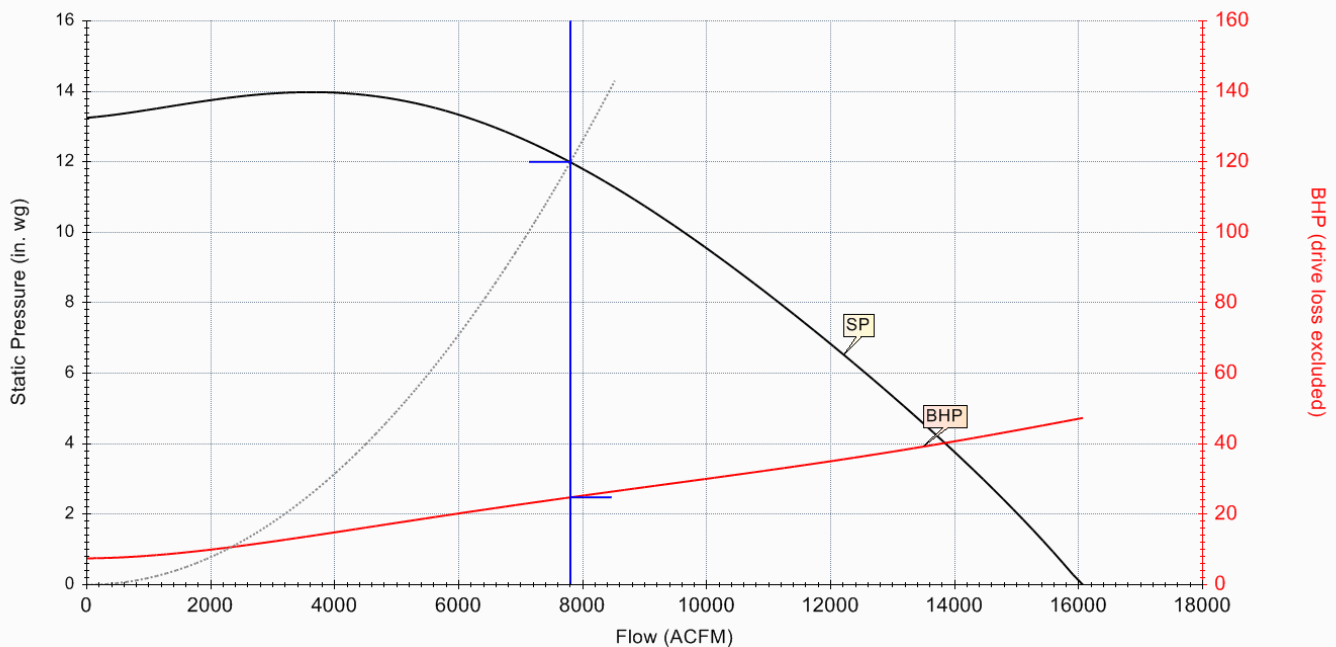
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Volume, ACFM	7,800
Static Pressure, in. wg	12.0
Density, lb./ft. ³	0.075
Operating Temperature, °F	70
AMCA Arrangement No.	9
Motor Frequency, Hz	60
Start-Up Temperature, °F	70

Fan Selection and Specifications

Model	RBE-19
Fan RPM	1,511
Wheel Description	Open Radial
Wheel Width, %	90%
Wheel Diameter, in.	33.00
Inlet Diameter, in.	19.00
Outlet Velocity, ft./min.	4,570
Fan BHP	24.8
Static Efficiency, %	59.3%
Cold Start BHP	24.8
Construction Class	Series 18
Suggested Motor HP: 30.0	

Cincinnati Fan Model RBE-19 with Open Radial Wheel (90% Width) @ 1,511 RPM
Rating Point: 7,800 ACFM @ 12.0 in. wg SP, 0.075 lb./ft.³ Density, 24.8 BHP





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Lw = Sound Power Level of the fan. Measured in decibels (dB) or A-weighted decibels (dB(A)) re 1E-12 watt.
dB = Decibel, ten times the logarithm (base 10) of the ratio of a value to a reference value.
dB(A) = A-Weighted decibel. A-weighting corrects the spectrum for human hearing response.

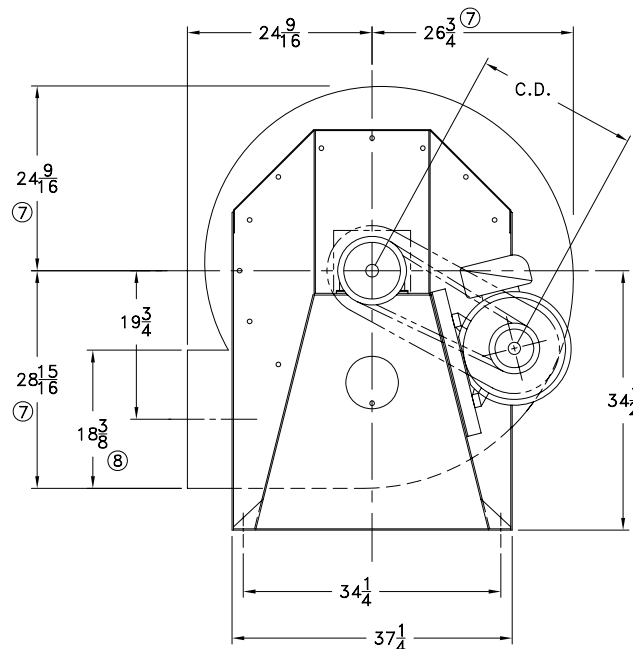
Sound Directivity Factor, Q : 1 - Spherical radiation
Fan Inlet Ducting: Ducted
Fan Outlet Ducting: Ducted

Calculated Octave Band Sound Data (dB)

Quantity	63 Hz	125 Hz	250Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000Hz
Lw Total	130	122	109	102	99	95	91	86
Lw Inlet	127	119	106	99	96	92	88	83
Lw Outlet	127	119	106	99	96	92	88	83
Lp Total	102	94	82	74	71	68	63	58
Lp inlet	99	91	79	71	68	65	60	55
Lp outlet	99	91	79	71	68	65	60	55

Total A-weighted Sound Pressure Level, Lp dB(A) 82 at 3.0 feet from fan
Total A-weighted Sound Power Level, Lw dB(A) 110
Blade Passage Frequency, Hz 151

- Sound Pressure values are calculated based upon assumed environmental conditions. Actual values may vary for specific installations due to environmental factors (other noise sources, walls, duct design, etc.)
- Noise from the driver is not included in these data.
- Sound Pressure Level calculations assume free field propagation occurring outdoors.
- Duct End Corrections applied (AMCA 300-85 Appendix C).



ARR. 9R, CLOCKWISE ROTATION, BOTTOM HORIZONTAL DISCHARGE SHOWN

	SERIES	Y SHAFT DIA.	Z KEYWAY	MOTOR FRAME
	18	$2\frac{3}{16}$	$\frac{1}{2}$	182T-326T
	25	$2\frac{7}{16}$	$\frac{5}{8}$	254T-364T
	32	$2\frac{11}{16}$	$\frac{5}{8}$	254T-364T
	40	$2\frac{15}{16}$	$\frac{3}{4}$	254T-364T

	⑤	⑤	⑥	⑥	WEIGHT **				
% FLOW	D	G	J	BB	CC	SERIES			
						18	25	32	40
100%	15 $\frac{7}{8}$	10 $\frac{15}{16}$	8 $\frac{15}{16}$	56 $\frac{5}{8}$	48 $\frac{5}{8}$	910	950	1090	1100
95%	14 $\frac{1}{2}$	10 $\frac{1}{4}$	8 $\frac{1}{4}$	55 $\frac{1}{4}$	47 $\frac{1}{4}$	903	943	1082	1092
90%	13 $\frac{3}{8}$	9 $\frac{11}{16}$	7 $\frac{11}{16}$	54 $\frac{1}{8}$	46 $\frac{1}{8}$	896	936	1074	1084
85%	12 $\frac{3}{8}$	9 $\frac{3}{16}$	7 $\frac{3}{16}$	53 $\frac{1}{8}$	45 $\frac{1}{8}$	889	929	1066	1076
80%	11 $\frac{11}{16}$	8 $\frac{27}{32}$	6 $\frac{27}{32}$	52 $\frac{7}{16}$	44 $\frac{7}{16}$	882	922	1058	1068
75%	10 $\frac{15}{16}$	8 $\frac{15}{32}$	6 $\frac{15}{32}$	51 $\frac{11}{16}$	43 $\frac{11}{16}$	875	915	1050	1060
70%	10 $\frac{1}{4}$	8 $\frac{1}{8}$	6 $\frac{1}{8}$	51	43	868	908	1042	1052
65%	9 $\frac{9}{16}$	7 $\frac{25}{32}$	5 $\frac{25}{32}$	50 $\frac{5}{16}$	42 $\frac{5}{16}$	861	901	1034	1044
60%	9	7 $\frac{1}{2}$	5 $\frac{1}{2}$	49 $\frac{3}{4}$	41 $\frac{3}{4}$	854	894	1026	1036
55%	8 $\frac{9}{16}$	7 $\frac{9}{32}$	5 $\frac{9}{32}$	49 $\frac{5}{16}$	41 $\frac{5}{16}$	847	887	1018	1028
50%	8 $\frac{1}{8}$	7 $\frac{1}{16}$	5 $\frac{1}{16}$	48 $\frac{7}{8}$	40 $\frac{7}{8}$	840	880	1010	1020

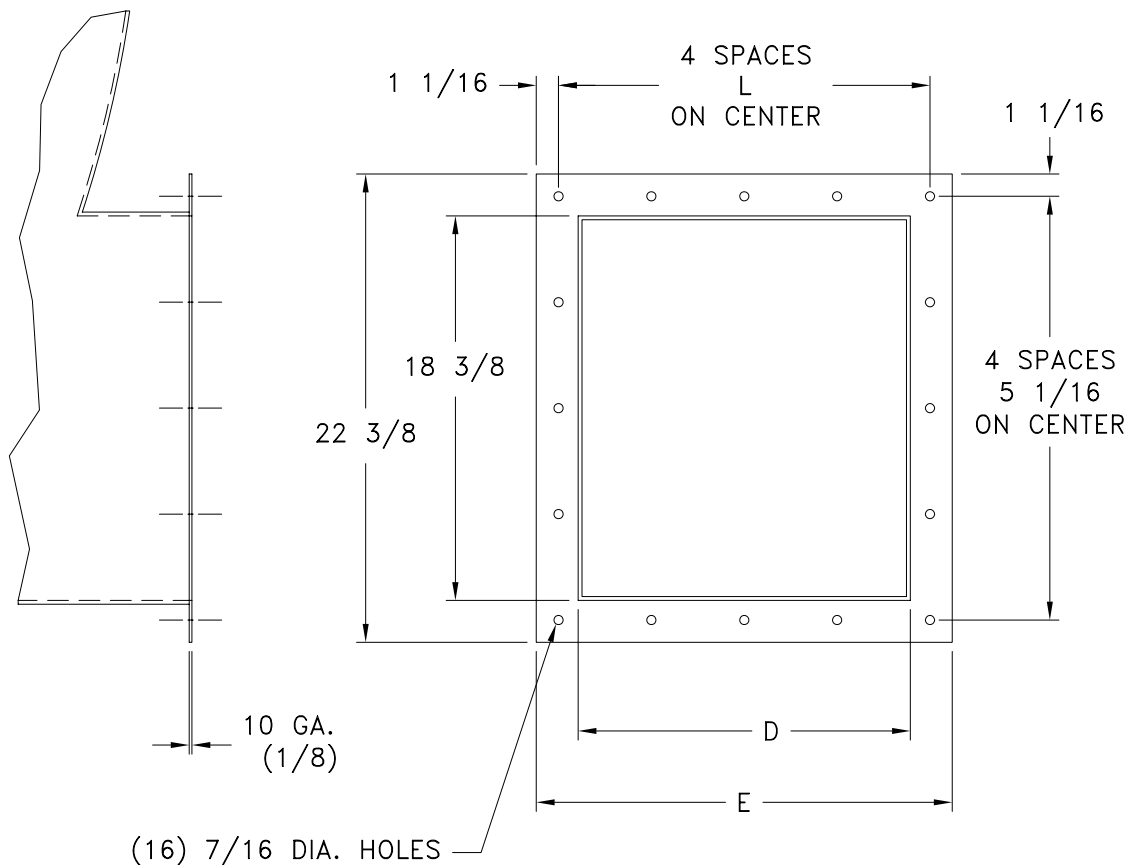
C.D. BELT CENTER DISTANCE

	MOTOR FRAME SIZE	SERIES 18		SERIES 25		SERIES 32		SERIES 40	
		MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
	182T-184T	15 $\frac{15}{16}$	17 $\frac{5}{16}$						
	213T-215T	17 $\frac{15}{16}$	19 $\frac{3}{4}$						
	254T-256T	19 $\frac{9}{16}$	21 $\frac{11}{16}$	19 $\frac{15}{16}$	22 $\frac{3}{8}$	20 $\frac{7}{8}$	23 $\frac{1}{8}$	20 $\frac{7}{8}$	23 $\frac{1}{8}$
	284T-286T	20 $\frac{5}{8}$	23 $\frac{1}{8}$	21	23 $\frac{5}{8}$	21 $\frac{3}{4}$	24 $\frac{5}{16}$	21 $\frac{3}{4}$	24 $\frac{5}{16}$
	324T-326T	22 $\frac{7}{16}$	25 $\frac{1}{2}$	22 $\frac{7}{8}$	26 $\frac{1}{16}$	23 $\frac{13}{16}$	27	23 $\frac{13}{16}$	27
	364T-365T			24 $\frac{5}{16}$	28	25 $\frac{1}{4}$	28 $\frac{15}{16}$	25 $\frac{1}{4}$	28 $\frac{15}{16}$

NOTES:

1. FANS ARE REVERSIBLE AND ROTATABLE IN 45° INCREMENTS.
2. FAN SHAFTS ARE TREATED WITH A RUST INHIBITIVE COATING.
3. BELT GUARD IS STANDARD ON ARR. 9.
4. ARR. 1 PROVIDED WITHOUT MOTOR, MOTOR SLIDE BASE, BELT GUARD AND DRIVE.
5. ADD 1/8" FOR AMCA "C" CONSTRUCTION FANS AND/OR DOWN BLAST DISCHARGE POSITION.
6. ADD 1/4" FOR AMCA "C" CONSTRUCTION FANS AND/OR DOWN BLAST DISCHARGE POSITION.
7. ADD 1/16" FOR HEAVY DUTY HOUSING.
8. ADD 1/8" FOR HEAVY DUTY HOUSING.

* MAXIMUM ALLOWABLE MOTOR LENGTH WITH STANDARD BASE.
** WEIGHT DOES NOT INCLUDE MOTOR, DRIVE, OR OPTIONS.



	% WIDTH	D	E	L
	100	15-7/8	19-7/8	4-7/16
	95	14-1/2	18-1/2	4-3/32
	90	13-3/8	17-3/8	3-13/16
	85	12-3/8	16-3/8	3-9/16
	80	11-11/16	15-11/16	3-3/8
	75	10-15/16	14-15/16	3-3/16
	70	10-1/4	14-1/4	3-1/32
	65	9-9/16	13-9/16	2-27/32
	60	9	13	2-23/32
	55	8-9/16	12-9/16	2-19/32
	50	8-1/8	12-1/8	2-1/2
	45	7-3/4	11-3/4	2-13/32
	40	7-3/8	11-3/8	2-5/16