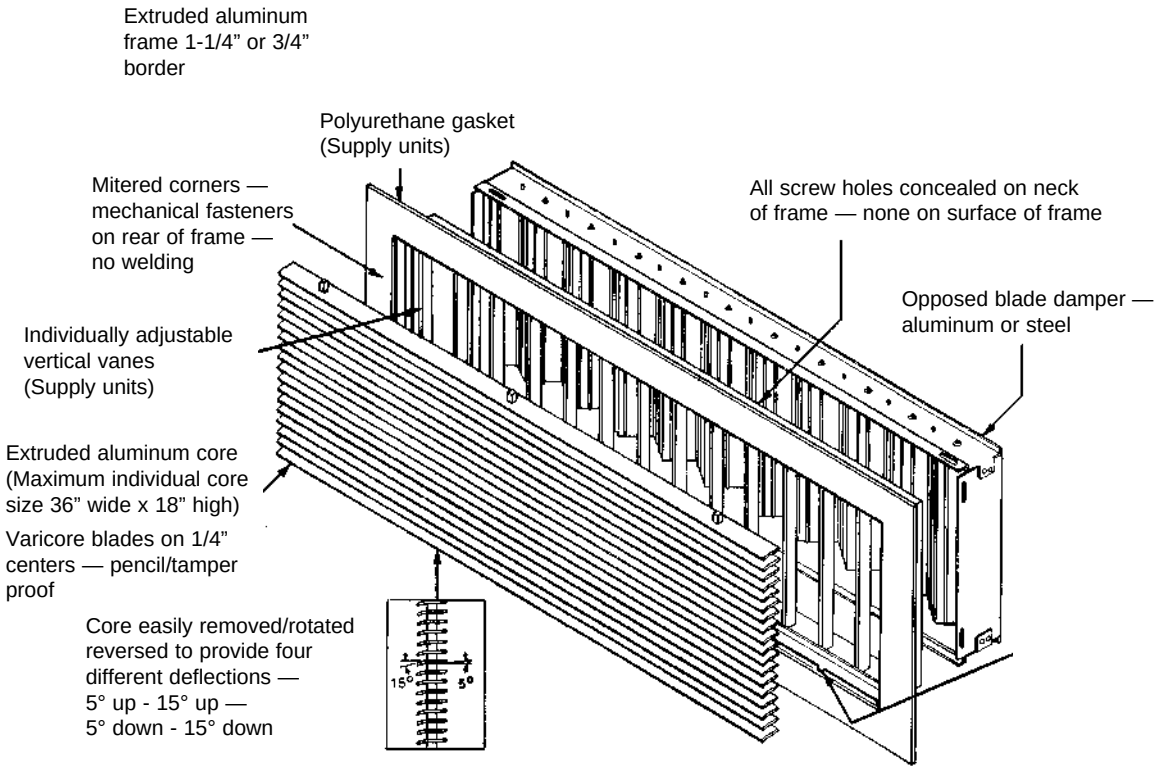
Carnes Varicore grilles and registers are constructed from extruded aluminum and have a reversible core. The rugged appearing bars give the unit an improved appearance and extended life over conventional blade or fin type grilles and registers. Varicore presents an aesthetic appearance with its smooth lines, minimum “see-through” grille and tamper/ pencil proof surface.

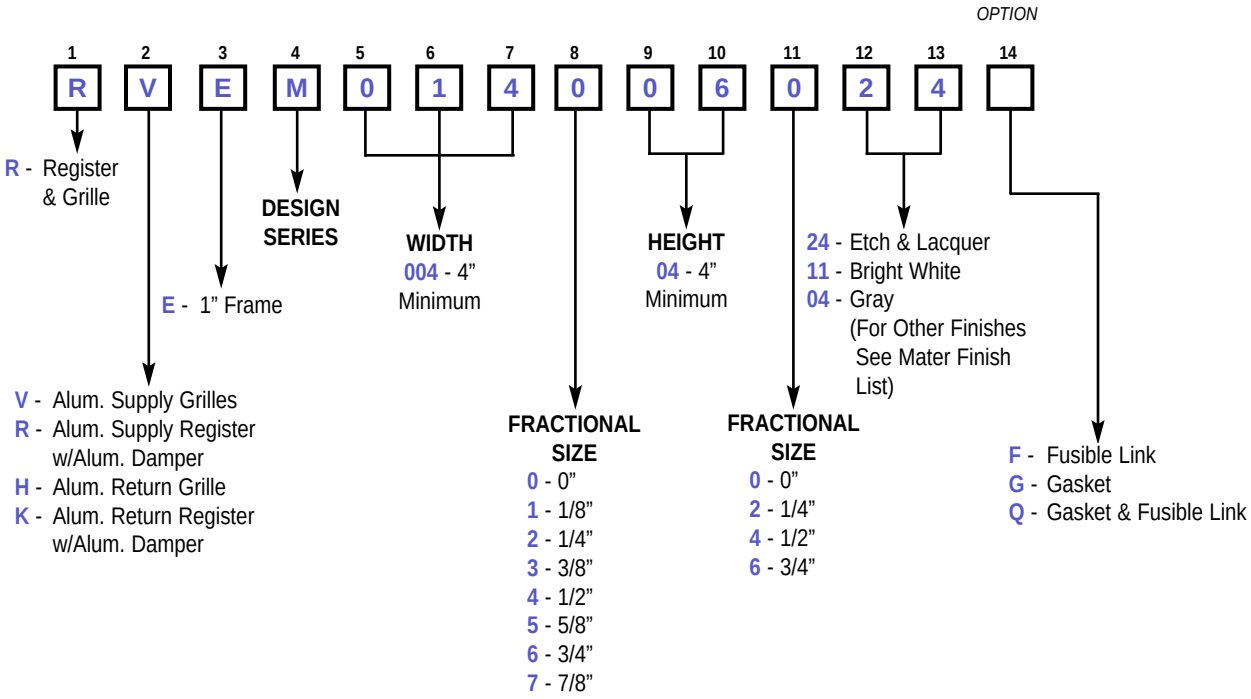
Varicore grilles and registers can be installed in sidewall, sill, various types of air cabinets and convector enclosures. The core section incorporates horizontal blades on 1/4” centers. The core section is easily removed, reversed and rotated providing four different deflection patterns from the same core: 15 degrees upward, 5 degrees upward, 15 degrees downward, 5 degrees downward. The air pattern and unit performance can be changed without altering the units appearance by just repositioning the cores. When this is done the unit will continue to maintain visual uniformity with the other grilles and registers.

A wide selection of standard sizes is available in a single frame. There are 369 different sizes with a maximum width of 144 inches and the maximum height of 54 inches. The 1” x 3/4 inch flat borders proportion nicely to the 5/8 mullions on multi-core units. The maximum size for a single core is 36 inches wide by 18 inches high.

Varicore can be used as a supply or return unit. Supply units include the basic horizontal blade core and vertical back-up vanes behind the core. These vanes can be individually adjusted to control the horizontal air flow. Return units use the identical core as the supply units except the vertical back-up vanes are not required or provided. Damper are available on both the supply and return units.



▼ MODEL NUMBERING SYSTEM

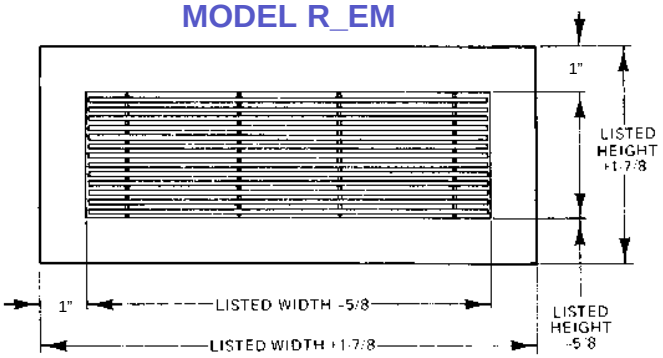


▼ GUIDE SPECIFICATIONS

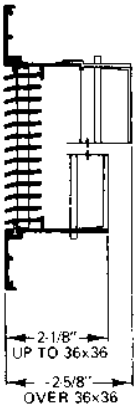
The contactor shall furnish and install Carnes Varicore extruded aluminum reversible core registers and grilles. All units shall have the rugged extruded aluminum core section incorporating horizontal blades on 1/4 inch centers. The cores shall be able to be readily removed, reversed or rotated in the field. Four different deflection patterns shall be achieved from the same core: 5 degrees upward, 15 degrees upward, 5 degrees downward and 15 degrees downward.

The units shall have a 1" flat blade border. The supply units shall include the basic horizontal blade core and vertical back-up vanes behind the core. The return units shall include the identical cores used in supply units with the dampers the same on both the supply and return units.

MODEL R_EM



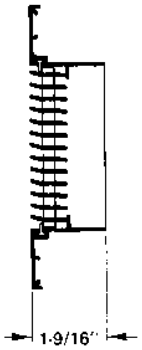
SUPPLY UNITS

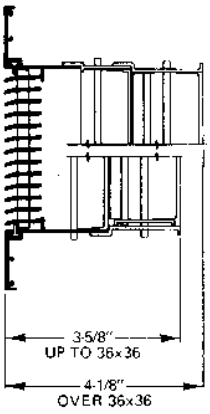


MODEL RV_M
Supply Grille

RETURN UNITS

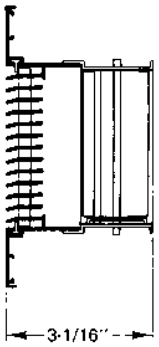
MODEL RH_M
Return Grille





MODEL RR_M
Supply Register w/Aluminum Damper

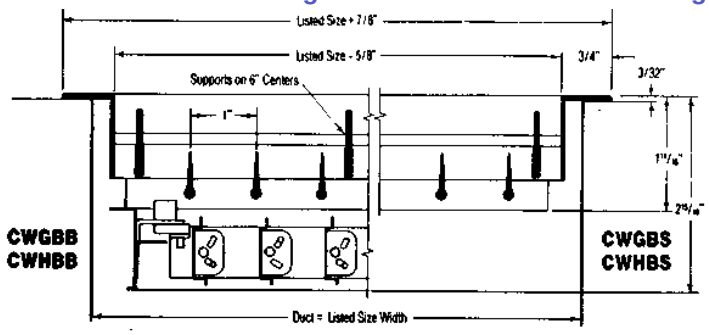
MODEL RK_M
Return Register w/Aluminum Damper

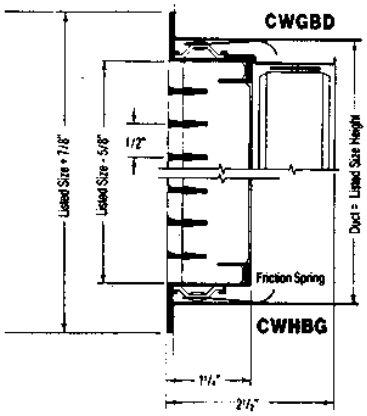


Mullions for Multi-Core Units

(Supply and Return)

No visible mullions through 36x36. 5/8" mullions on larger sizes as illustrated below.



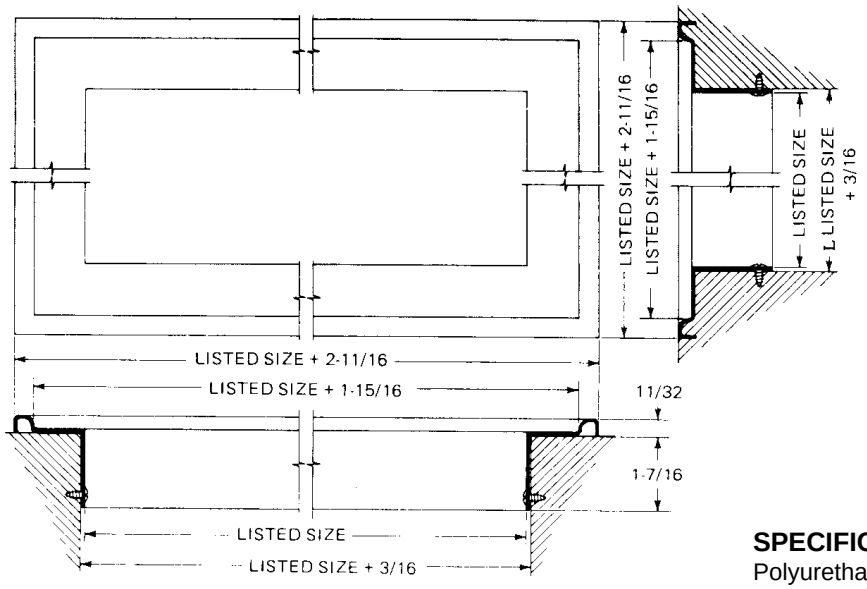


Extruded Aluminum Plaster Frame (Model RXAA)

The Model RXAA extruded aluminum all-purpose frame is available to meet requirements for a plaster stop, or for installation after plastering where it is necessary to frequently remove the register or grille.

The frames are constructed to fit standard grille sizes. Duct openings should be made 3/16" oversize to accommodate the frame. When installed after plastering, the frame protrudes only 11/32" from the wall. When mounted before plastering, the frame acts as a plaster ground and its edge is embedded in a plaster to make a flush mounting installation. A gasket is furnished to prevent air leakage around the frame. The natural finish is natural anodize.

Sizes greater than 48" in one direction and greater than 36" in the other direction, will be shipped knocked down.



SPECIFICATION:
Polyurethane Gasket
Standard Finish: Natural Anodize Aluminum

NOTE:
Screws, screw holes and duct by others.

THROW

Extensive research indicates the aspect ratio of a grille has only a negligible effect on the throw and drop of an air stream. This is because of definite similarities that exist in the shape of the air stream a short distance from the outlet face regardless of whether the outlet is square or rectangular.

The maximum aspect ratio of any of the grilles listed in this catalog is ten to one. For convenience, and because of the negligible variation in performance, sizes with approximately equal core areas have been grouped in the performance data section.

The published values for throw (T) are base on sidewall mounted grilles mounted one foot below the ceiling, 0 and 45 degree settings of the rear blades and upward deflection of the adjustable core. The rated throw is based on the full distance the mixed air stream will travel to a terminal velocity (V_t) of 150 FPM.

Grilles of equal capacities throwing towards each other should be sized for throw equal to one-third the distance between them. Throw the single outlets should be sized for 75% to 100% of the distance to the opposite wall.

SILL MOUNT

Recommended blade deflection is toward the adjacent wall or window. Isothermal throw values for sill mounts may be calculated by first determining the tabulated throw values for sidewall mount, and then:

- Subtract the grille face to ceiling distance.
- Apply an additional reduction factor when the tabulated throw is at least 50% greater than the ceiling height. Use the table immediately below:

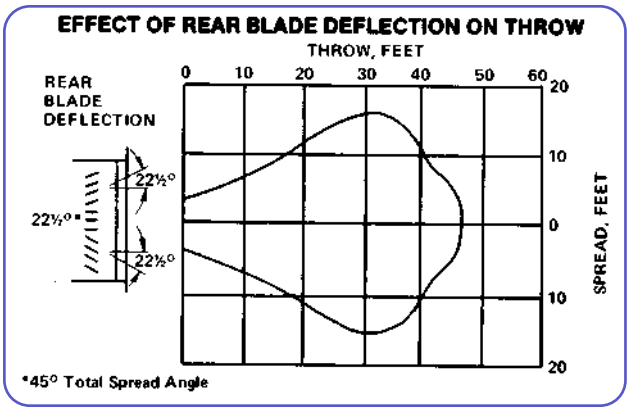
Duct Velocity	Reduce Throw Be (feet)
Up to 400 FPM	1
400 to 800 FPM	2
Over 800 FPM	3

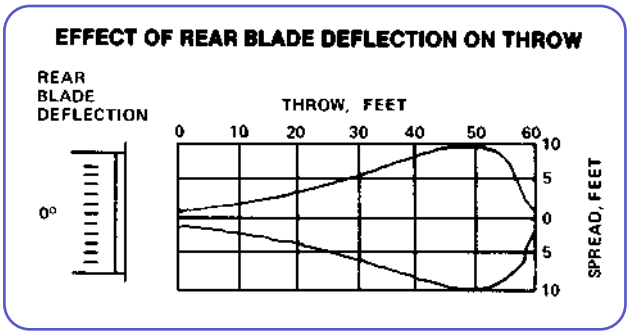
SPREAD

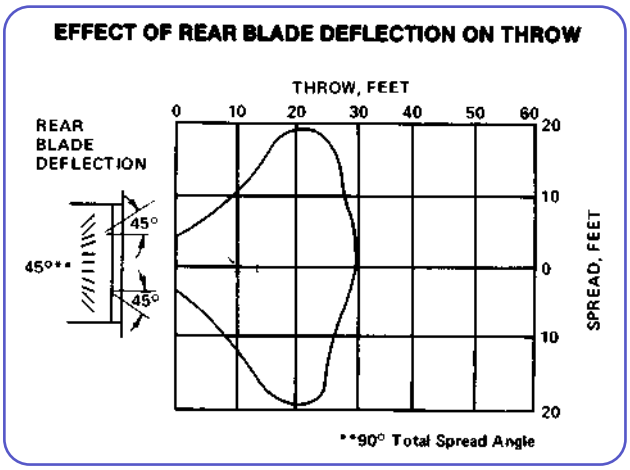
Maximum throw values occur when the rear set of blades are set at 0 degrees deflection. The normal air stream expansion is then in the range of about eight to fourteen degrees.

As the deflection angle of the rear blades increases, throw shortens. This is largely due to the increased exposure of primary air to room air and the resulting entrainment of larger quantities of room air. The primary air is then dissipates more rapidly.

Published throw data is indicated at zero and 45 degree deflection of the rear blades. The amount of spread to be anticipated at these throw values, as well as the intermediate 22-1/2 degree position, is shown on the diagrams below.







DROP AND RISE

The upward or downward deflection of an air stream from a sidewall mounted grille is influenced primarily by:

- The position of the horizontal blades.
- The temperature difference between the primary and secondary air masses.

Known as “drop” or “rise”, this deflection of the air stream should be considered in unit selection to provide maximum comfort in the occupied zone.

Considering blade position only, a 5 degree blade deflection produces an isothermal drop or rise of 0.8 feet for each 10 feet of horizontal throw. Outlet velocity has minimal effect on isothermal delivery.

A change from isothermal to temperature differential delivery will increase drop if chilled and increase rise if warmed. The effect is influenced by outlet velocity.

- Higher velocities reduce rise and drop.
- Lower velocities increase rise and drop.

The top section of the table below indicates typical air stream drops for a 20 degree differential on cooling for 0 degree blade deflection. Since the blade deflection will not be 0 degrees, but rather 5 or 15 degrees up or down, the data at the bottom of the table shows the values to be used when considering the effect of blade deflection.

Effect on Rise or Drop of Cooling Differential Drop

20° Cooling Differential
0° Blade Deflection
Sidewall Mount

	Throw In Feet				
Duct Velocity	**10**	**20**	**30**	**40**	**50**
Up to 400 FPM	4	8	11	16	19
400 to 800 FPM	3	7	10	14	17
Over 800 FPM	2	4	6	8	12

Effect on Rise or Drop of Blade Deflection

	Throw In Feet				
Blade Deflection	**10**	**20**	**30**	**40**	**50**
5°	0.8	1.6	2.4	3.2	4.0
15°	2.7	5.4	8.1	10.8	13.5

Subtract - For Upward Deflection.
Add - For Downward Deflection.

SILL MOUNT

For sill mounted grilles, apply the drop or rise factors only to the horizontal segment of the throw.

SOUND

NC = Catalog decibel rating in db, the sound pressure level in the space, due to grille performance, will not exceed that noise criteria curve in any brand.

These ratings were determined from sound power levels based on 10^{12} watts and 8 db assigned to the attenuation due to the room. Room attenuation is dependent upon the size and shape of the room and the absorption characteristics of all the surfaces in the room. The 8 db used is a conservative figure and most rooms will have higher values of room attenuation.

DAMPERING

Laboratory test data shows that drastic dampering at the grille will result in a considerable db increase if the pressure at the outlet is high.

In general, dampering at the grille should be reserved for fine balancing, and gross balancing should be provided for by dampers upstream in the supply ductwork. The remote location of the gross dampering allows for acoustical lining prior to the grille. Tabulated values are based on no damper installed in the neck. If a damper is installed, partially closed dampers will raise the noise levels as follows:

Effective Damper Opening $	Total Resistance %	db To Be Added
100	100	1
82	150	8
71	200	13
50	400	21

RETURN REGISTERS AND GRILLES

The location of return grilles is not as critical as the supply grilles. Air velocity in the occupied zone near the intake and allowable pressure drop through the intake should be given primary consideration. A table of recommended velocities is included here:

Recommended Intake Duct Velocities	
Above occupied zone	800 FPM
Within occupied zone (not near work area)	600 -800 FPM
Within occupied zone (near work area)	400 -600 FPM
Door or wall louvers	200 - 300 FPM

The performance data which follows permits easy selection of Varicore grilles and registers. Two things needed for proper selection are: 1) determine the structural and room-use considerations, and 2) determine performance characteristics of the grilles and registers.

First consider the area to be conditioned and its effect upon outlet selection.

CFM - The air volume to be delivered to the space is determined by the overall system design. CFM for each outlet is determined by the number of outlets in the space.

NC Level - The permissible sound level in an area can be specified by the owner architect, or it can be designed into the unit.

Throw Requirements - The required throw is determined from the building plan. The throw requirement is the distance from the outlet to the opposite wall or the distance from an outlet to the intersection of an airstream of another supply outlet.

When the design requirements—CFM, duct velocity, throw, NC level and total pressure—are known, the outlet can be selected.

To illustrate the use of the performance tables in selecting a grille or register, a typical selection is presented.

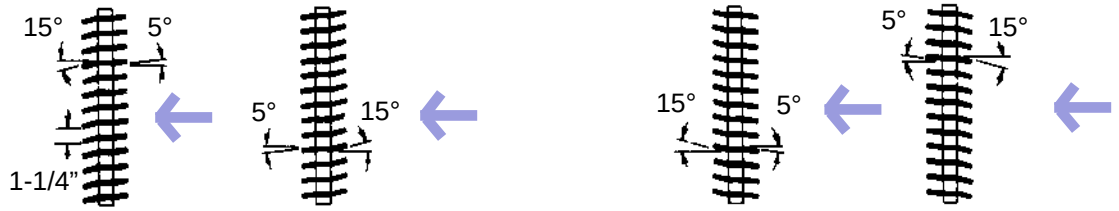
Given: Determine the size grille needed for 275 CFM, NC less than 30, the duct velocity between 600-625 FPM and the vertical back-up blades set at 0 degrees.

Steps:

1. Refer to page 9, Table 3, performance data chart for 200-400 CFM.
2. Follow the CFM across to 275, then down until NC less than 30 is found, and a duct velocity of 600-625 FPM.
3. This criteria falls into Group 5. Any of the sizes listed could be used.
4. These units have NC 28 and duct velocity of 618 FPM which meets the requirements. The total pressure is .10 and the throw is 18 feet, which is permissible for this applications.

Because of the large number of standard sizes available, 369 in total, units with very similar performance have been grouped in the tabular performance data on the following pages. There are 37 groups oriented with respect to core area from the smallest to the largest sizes. Core areas have been arranged so that the maximum variation within a given group is not more than ±6 percent from the arithmetic midpoint.

REVERSIBLE CORE PATTERNS



15° Down | 5° Down | 15° Up | 5° Up

Table 1 - **Group Numbers for Standard Sizes**

HEIGHT	WIDE																																		
	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	40	44	48	56	60	64	72	78	84	90	96	102	108	114	120	126	132	138	144
4	1	2	3	4	5	6	6	7	8	8	9	9	10	10	11	11																		
5	2	3	5	6	7	8	9	9	10	10	11	11	12	12	13	14	14	15																
6	3	5	6	7	9	9	10	11	11	12	13	13	14	14	15	15	16	17	18	19														
8	5	7	9	10	11	12	13	13	14	15	15	16	16	17	17	18	19	20	21	22	22	23	24											
10		9	10	12	13	14	14	15	16	17	17	18	18	19	19	20	21	22	23	23	24	25	26	27	27	28								
12			12	13	14	15	16	17	18	18	19	19	20	21	21	22	23	24	25	26	26	27	28	28	29	30	30	31	31	31				
14				14	16	17	17	18	19	20	20	21	21	22	23	24	24	25	26	27	27	29	29	30	30	31	32	32	33	33	33	34	34	
16					17	18	19	19	20	21	22	22	23	23	24	25	26	26	28	28	29	30	30	31	32	32	33	33	34	34	35	35	36	36
18						19	20	20	21	22	23	23	24	24	25	26	27	27	29	29	30	31	32	32	33	33	34	34	35	35	36	36	37	37
20							21	21	22	23	24	24	25	25	26	27	27	28	30	30	31	32	33	33	34	34	35	35						
22								22	23	24	25	25	26	26	27	28	28	29	30	31	32	33	33	34	35	35	36	36						
24									24	24	25	26	26	27	27	28	29	30	31	32	32	33	34	35	35	36	37	37						
26										25	26	27	27	28	28	29	30	31	32	33	33	34												
28											27	27	28	28	29	30	31	31	33	33	34	35												
30												28	28	29	29	30	31	32	33	34	34	35												
32													29	29	30	31	32	33	34	34	35	36												
34														30	30	31	32	33	34	35	36	37												
36															31	32	33	34	35	36	36	37												
40																33	34	34																
44																34	35	35																
48																34	35	36																
54																36	36	37																

Table 2 - **40 to 180 CFM**

Group	Sizes	CFM	40		60		80		100		120		140		160		180	
		Blade Set	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°
1	8x4	Duct Velocity	180		270		360		450		540		630		720		810	
		Throw	4	2	6	4	8	5	10	6	12	7	13	8	14	8	15	9
		NC	L	L	L	L	L	L	20	23	25	28	29	32	33	36	36	39
		PT	.01	.01	.02	.03	.04	.05	.06	.08	.08	.12	.11	.16	.14	.20	.18	.26
2	8x5 10x4	Duct Velocity			216		288		360		432		504		576		648	
		Throw			5	3	7	4	9	5	11	6	12	7	14	8	15	9
		NC			L	L	L	L	L	L	L	22	23	26	26	29	29	32
		PT			.01	.02	.02	.04	.04	.05	.05	.08	.07	.10	.09	.13	.11	.17
3	8x6 10x5 12x4	Duct Velocity					240		300		360		420		480		540	
		Throw					6	4	8	5	10	6	11	7	13	8	14	9
		NC					L	L	L	L	L	L	L	20	21	24	24	27
		PT					.02	.02	.02	.04	.04	.05	.05	.07	.06	.09	.08	.12
4	14x4	Duct Velocity					205		257		308		360		411		462	
		Throw					6	4	7	4	9	5	10	6	12	7	13	8
		NC					L	L	L	L	L	L	L	L	L	22	22	25
		PT					.01	.02	.02	.03	.03	.04	.04	.05	.05	.07	.06	.09
5	8x8 10x6 12x5 16x4	Duct Velocity							225		270		315		360		405	
		Throw							7	4	8	5	10	6	11	7	12	7
		NC							L	L	L	L	L	L	L	L	L	L
		PT							.01	.02	.02	.03	.03	.04	.04	.05	.04	.07
6	12x6 14x5 18x4 20x4	Duct Velocity							200		240		280		320		360	
		Throw							6	4	8	5	9	5	10	6	12	7
		NC							L	L	L	L	L	L	L	L	L	L
		PT							.01	.02	.02	.02	.02	.03	.03	.04	.04	.05
7	10x8 14x6 16x5 22x4	Duct Velocity									216		252		288		324	
		Throw									7	4	9	5	10	6	11	7
		NC									L	L	L	L	L	L	L	L
		PT									.01	.02	.02	.03	.02	.04	.03	.04

Notes on Performance Data

- Performance data is based on tests conducted in accordance with ANSI/ASHRAE Standard 70-1991.
- Actual performance in the field may vary.
- Tests were conducted in isothermal conditions.
- Sound levels are based on a room absorption of 10 db re 10^{-12} watts.

Notes on Units of Measure Used

- Air flow is given in cubic feet per minute (CFM).
- Static and Total Pressure is given in inches of water (w.g.).
- Sound data is given in NC.
- L indicates an NC of less than 20.

NOTES:

Table 3 - **200 to 400 CFM**

Group	Sizes	CFM	200		225		250		275		300		325		350		400	
		Blade Set	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°
1	8x4	Duct Velocity	900		**1012**		**1125**		**1237**		**1350**		**1462**					
		Throw	15	9	**16**	**10**	**17**	**10**	**18**	**11**	**19**	**11**	**20**	**12**				
		NC	38	41	**42**	**45**	**44**	**47**	**47**	**50**	**49**	**52**	**51**	**54**				
		PT	.22	.31	**.27**	**.39**	**.34**	**.48**	**.41**	**.58**	**.48**	**.68**	**.57**	**.79**				
2	8x5 10x4	Duct Velocity	720		810		900		990		**1080**		**1170**		**1260**		**1440**	
		Throw	15	9	16	10	17	10	18	11	**19**	**11**	**20**	**12**	**21**	**12**	**22**	**13**
		NC	32	35	35	38	38	41	40	43	**42**	**45**	**44**	**47**	**46**	**49**	**50**	**53**
		PT	.14	.20	.18	.26	.22	.31	.26	.37	**.31**	**.44**	**.36**	**.52**	**.42**	**.60**	**.55**	**.77**
3	8x6 10x5 12x4	Duct Velocity	600		675		750		825		900		975		**1050**		**1200**	
		Throw	15	9	16	10	17	10	18	11	19	11	20	12	**20**	**12**	**22**	**13**
		NC	27	30	30	33	33	36	35	38	37	40	39	42	**41**	**44**	**45**	**48**
		PT	.10	.14	.12	.18	.15	.22	.18	.26	.22	.31	.25	.36	**.29**	**.42**	**.38**	**.54**
4	14x4	Duct Velocity	514		578		642		707		771		835		900		**1028**	
		Throw	15	9	16	10	17	10	18	11	19	11	20	12	20	12	**22**	**13**
		NC	25	28	28	31	31	34	33	36	35	38	37	40	39	42	**43**	**46**
		PT	.07	.11	.09	.13	.11	.16	.13	.20	.16	.23	.19	.27	.22	.31	**.28**	**.40**
5	8x8 10x6 12x5 16x4	Duct Velocity	450		506		562		618		675		731		787		900	
		Throw	14	8	16	9	17	10	18	11	19	11	20	12	20	12	22	13
		NC	L	22	22	25	25	28	28	31	30	33	32	35	34	37	37	40
		PT	.06	.08	.07	.10	.09	.13	.10	.15	.12	.18	.14	.21	.17	.24	.22	.31
6	12x6 14x5 18x4 20x4	Duct Velocity	400		450		500		550		600		650		700		800	
		Throw	13	8	15	9	16	10	18	11	19	11	20	12	20	12	22	13
		NC	L	20	20	23	23	26	25	28	27	30	29	32	31	34	35	38
		PT	.04	.07	.06	.08	.07	.10	.08	.12	.10	.14	.11	.17	.13	.19	.17	.25
7	10x8 14x6 16x5 22x4	Duct Velocity	360		405		450		495		540		585		630		720	
		Throw	12	7	14	8	15	9	17	10	18	11	19	12	20	12	22	13
		NC	L	L	L	20	L	22	22	25	24	27	26	29	28	31	32	35
		PT	.04	.05	.04	.07	.06	.08	.07	.10	.08	.12	.09	.14	.11	.16	.14	.20
8	18x5 24x4 26x4	Duct Velocity	320		360		400		440		480		520		560		640	
		Throw	12	7	13	8	14	9	16	10	17	10	19	11	20	12	22	13
		NC	L	L	L	L	L	21	21	24	23	26	25	28	27	30	30	33
		PT	.03	.04	.04	.05	.04	.07	.05	.08	.06	.09	.07	.11	.08	.13	.11	.16
9	10x10 20x5 12x8 22x5 16x16 28x4 18x6 30x4	Duct Velocity	288		324		360		396		432		468		504		576	
		Throw	11	7	12	7	14	8	15	9	16	10	18	11	19	11	22	13
		NC	L	L	L	L	L	L	L	L	L	22	21	24	23	26	26	29
		PT	.02	.04	.03	.04	.04	.05	.04	.06	.05	.08	.06	.09	.07	.10	.09	.13
10	12x10 20x5 14x8 32x4 20x6 34x4 24x5	Duct Velocity	240		270		300		330		360		390		420		480	
		Throw	10	6	11	7	12	7	14	8	15	9	16	10	17	10	20	12
		NC	L	L	L	L	L	L	L	L	L	L	L	L	L	21	22	25
		PT	.02	.02	.02	.03	.02	.04	.03	.05	.04	.05	.04	.06	.05	.07	.06	.09
11	16x8 30x5 22x6 36x4 24x6 40x4 28x5	Duct Velocity	225		253		281		309		337		365		393		450	
		Throw	10	6	11	6	12	7	13	8	14	9	16	9	17	10	19	12
		NC	L	L	L	L	L	L	L	L	L	L	L	L	L	20	20	23
		PT	.01	.02	.02	.03	.02	.03	.03	.04	.03	.05	.04	.06	.04	.06	.06	.08
12	12x12 32x5 14x10 34x5 18x8 26x6	Duct Velocity	200		225		250		275		275		300		350		400	
		Throw	9	5	10	6	11	7	12	7	14	8	15	9	16	9	18	11
		NC	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	20
		PT	.01	.02	.01	.02	.02	.03	.02	.03	.02	.04	.03	.04	.03	.05	.04	.07
13	14x12 28x6 16x10 30x6 20x8 36x5 22x8	Duct Velocity					214		235		257		278		300		342	
		Throw					10	6	11	7	12	7	14	8	15	9	17	10
		NC					L	L	L	L	L	L	L	L	L	L	L	L
		PT					.01	.02	.02	.02	.02	.03	.02	.03	.02	.04	.03	.05
14	14x14 24x8 44x5 16x12 32x6 18x10 34x6 20x10 40x5	Duct Velocity							202		220		238		257		293	
		Throw							10	6	11	7	12	7	13	8	15	9
		NC							L	L	L	L	L	L	L	L	L	L
		PT							.01	.02	.01	.02	.02	.02	.02	.03	.02	.04

*NOTES: Performance data in **purple bold** type is outside the recommended operating range.*

Notes on Performance Data

- Performance data is based on tests conducted in accordance with ANSI/ASHRAE Standard 70-1991.
- Actual performance in the field may vary.
- Tests were conducted in isothermal conditions.
- Sound levels are based on a room absorption of 10 db re 10^{-12} watts.

Notes on Units of Measure Used

- Air flow is given in cubic feet per minute (CFM).
- Static and Total Pressure is given in inches of water (w.g.).
- Sound data is given in NC.
- L indicates an NC of less than 20.

Table 4 - **400 to 750 CFM**

Group	Sizes	CFM	400		450		500		550		600		650		700		750	
		Blade Set	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°
5	8x8	Duct Velocity	900		1012		1125		1237		1350		1462					
	10x6	Throw	22	13	23	14	25	15	26	15	27	16	28	17				
	12x5	NC	37	40	40	43	43	46	46	49	48	51	50	53				
	16x4	PT	.22	.31	.27	.39	.34	.48	.41	.58	.48	.68	.57	.79				
6	12x6	Duct Velocity	800		900		1000		1100		1200		1300		1400		1500	
	14x5	Throw	22	13	23	14	24	15	26	15	27	16	28	17	29	17	30	18
	18x4	NC	35	38	38	41	41	44	43	46	45	48	47	50	49	52	51	54
	20x4	PT	.17	.25	.22	.31	.27	.38	.32	.46	.38	.54	.45	.63	.52	.73	.60	.83
7	10x8	Duct Velocity	720		810		900		990		1080		1170		1260		1350	
	14x6	Throw	22	13	23	14	24	15	26	15	27	16	28	17	29	17	30	18
	16x5	NC	32	35	35	38	38	41	40	43	42	45	44	47	46	49	48	51
	22x4	PT	.14	.20	.18	.26	.22	.31	.26	.27	.31	.44	.36	.52	.42	.60	.48	.68
8	18x5	Duct Velocity	640		720		800		880		960		1040		1120		1200	
	24x4	Throw	22	13	23	14	24	15	26	15	27	16	28	17	29	17	30	18
	26x4	NC	30	33	33	36	36	39	39	42	41	44	43	46	45	48	47	50
		PT	.11	.16	.14	.20	.17	.25	.21	.30	.25	.35	.29	.41	.28	.48	.38	.54
9	10x10 20x5	Duct Velocity	576		648		720		792		864		936		1008		1080	
	12x8 22x5	Throw	22	13	23	14	24	15	26	15	27	16	28	17	29	17	30	18
	16x6 28x4	NC	26	29	29	32	32	35	34	37	37	40	39	42	41	44	43	46
	18x6 30x4	PT	.09	.13	.11	.17	.14	.20	.17	.24	.20	.29	.23	.34	.27	.39	.31	.44
10	12x10 26x5	Duct Velocity	480		540		600		660		720		780		840		900	
	14x8 32x4	Throw	20	12	22	13	24	15	25	15	27	16	28	17	29	17	30	18
	20x6 34x4	NC	22	25	25	28	27	30	30	33	32	35	34	37	36	39	38	41
	24x5	PT	.06	.09	.08	.12	.10	.14	.12	.17	.14	.20	.16	.24	.19	.27	.22	.31
11	16x8 30x5	Duct Velocity	450		506		562		618		675		731		787		843	
	22x6 36x4	Throw	19	12	22	13	24	14	25	15	27	16	28	17	29	17	30	18
	24x6 40x4	NC	20	23	24	27	26	29	29	32	31	34	33	36	35	38	37	40
	28x5	PT	.06	.08	.07	.10	.09	.13	.10	.15	.12	.18	.14	.21	.17	.24	.19	.28
12	12x12 32x5	Duct Velocity	400		450		500		550		600		650		700		750	
	14x10 34x5	Throw	18	11	20	12	23	14	25	15	26	16	28	17	29	17	30	18
	18x8	NC	L	20	20	23	23	26	26	29	28	31	30	33	32	35	34	37
	26x6	PT	.04	.07	.06	.08	.07	.10	.08	.12	.10	.14	.11	.17	.13	.19	.15	.22
13	14x12 28x6	Duct Velocity	342		385		428		471		514		557		600		642	
	16x10 30x6	Throw	17	10	19	11	21	13	23	14	25	15	27	16	29	17	30	18
	22x8 36x5	NC	L	L	L	20	L	22	22	25	24	27	26	29	28	31	30	33
	22x8	PT	.03	.05	.04	.06	.05	.08	.06	.09	.07	.11	.08	.12	.10	.14	.11	.16
14	14x14 24x8 44x5	Duct Velocity	293		330		367		404		440		477		514		551	
	16x12 32x6	Throw	15	9	17	10	19	12	21	13	23	14	25	15	27	16	29	17
	18x10 34x6	NC	L	L	L	L	L	L	L	L	21	23	23	26	24	27	26	29
	20x10 40x5	PT	.02	.04	.03	.05	.04	.06	.04	.07	.05	.08	.06	.09	.07	.11	.08	.12
15	18x12 36x36	Duct Velocity	266		300		333		366		400		433		466		500	
	22x10 40x6	Throw	15	9	16	10	18	11	20	12	22	13	24	14	26	15	28	17
	26x8 48x5	NC	L	L	L	L	L	L	L	L	L	21	20	23	22	25	24	27
	28x8	PT	.02	.03	.02	.04	.03	.05	.04	.06	.04	.07	.05	.08	.06	.09	.07	.10
16	16x14 32x8	Duct Velocity	257		289		321		353		385		417		450		482	
	20x12 44x6	Throw	14	9	16	10	18	11	20	12	22	13	23	14	25	15	27	16
	24x10	NC	L	L	L	L	L	L	L	L	L	20	L	22	21	24	23	26
	30x8	PT	.02	.03	.02	.04	.03	.04	.03	.05	.04	.06	.05	.07	.06	.08	.06	.09
17	16x16 26x10 48x6	Duct Velocity	225		253		281		309		337		365		393		421	
	18x14 28x10	Throw	13	8	15	9	17	10	18	11	20	12	22	13	23	14	25	15
	20x14 34x8	NC	L	L	L	L	L	L	L	L	L	L	L	L	L	21	20	23
	22x12 36x8	PT	.01	.02	.02	.03	.02	.03	.03	.04	.03	.05	.04	.06	.04	.06	.05	.07
18	18x16 30x10	Duct Velocity	200		225		250		275		300		325		350		375	
	22x14 32x10	Throw	12	7	14	8	16	9	17	10	19	11	20	12	22	13	24	14
	24x14 40x8	NC	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	20
	26x12 56x6	PT	.01	.02	.01	.02	.02	.03	.02	.03	.02	.04	.03	.04	.03	.05	.04	.06
19	18x18 28x12 44x8	Duct Velocity			200		222		244		266		288		311		333	
	20x16 30x12 60x6	Throw			12	7	15	9	16	10	18	11	19	12	21	12	22	13
	22x16 34x10	NCL			L	L	L	L	L	L	L	L	L	L	L	L	L	L
	24x14 36x10	PT			.01	.02	.01	.02	.02	.03	.02	.03	.02	.04	.03	.04	.03	.05

*NOTES: Performance data in **purple bold** type is outside the recommended operating range.*

Notes on Performance Data

- Performance data is based on tests conducted in accordance with ANSI/ASHRAE Standard 70-1991.
- Actual performance in the field may vary.
- Tests were conducted in isothermal conditions.
- Sound levels are based on a room absorption of 10 db re 10^{-12} watts.

Notes on Units of Measure Used

- Air flow is given in cubic feet per minute (CFM).
- Static and Total Pressure is given in inches of water (w.g.).
- Sound data is given in NC.
- L indicates an NC of less than 20.

Table 5 - **800 to 1500 CFM**

Group	Sizes	CFM	800		900		1000		1100		1200		1300		1400		1500	
		Blade Set	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°
9	10x10 20x5 12x8 22x5 16x6 28x4 18x6 30x4	Duct Velocity	1152		1296		1440											
		Throw	31	19	33	20	35	21										
		NC	44	47	47	50	50	53										
		PT	.35	.50	.45	.63	.55	.77										
10	12x10 26x5 14x8 32x4 20x6 34x4 24x5	Duct Velocity	960		1080		1200		1320		1440							
		Throw	31	19	33	20	35	21	36	22	38	23						
		NC	40	43	43	46	46	49	48	51	50	53						
		PT	.25	.35	.31	.44	.38	.54	.46	.65	.55	.77						
11	16x8 30x5 22x6 36x4 24x6 40x4 28x5	Duct Velocity	900		1012		1125		1237		1350		1462					
		Throw	31	19	33	20	35	21	36	22	38	23	40	24				
		NC	38	41	42	45	44	47	47	50	49	52	51	54				
		PT	.22	.31	.27	.39	.34	.48	.41	.58	.48	.68	.57	.79				
12	12x12 32x5 14x10 34x5 18x8 26x6	Duct Velocity	800		900		1000		1100		1200		1300		1400		1500	
		Throw	31	18	33	20	35	21	36	22	38	23	40	24	41	25	43	26
		NC	35	38	38	41	41	44	44	47	46	49	48	51	50	53	52	55
		PT	.17	.25	.22	.31	.27	.38	.32	.46	.38	.54	.45	.63	.52	.73	.60	.83
13	14x12 28x6 16x10 30x6 20x8 36x5 22x8	Duct Velocity	685		771		857		942		1028		1114		1200		1285	
		Throw	31	18	33	20	34	21	36	22	38	23	39	24	41	25	43	26
		NC	32	35	35	38	37	40	40	43	42	45	44	47	46	49	48	51
		PT	.13	.19	.16	.23	.20	.28	.24	.34	.28	.40	.33	.47	.38	.54	.44	.62
14	14x14 24x8 44x5 16x12 32x6 18x10 34x6 20x10 40x5	Duct Velocity	587		661		734		808		881		955		1028		1102	
		Throw	31	18	32	19	34	21	36	22	38	23	39	24	41	25	42	25
		NC	28	31	31	34	34	37	36	39	38	41	41	44	43	46	44	47
		PT	.09	.14	.12	.17	.15	.21	.18	.25	.21	.30	.24	.35	.28	.40	.32	.46
15	18x12 36x6 22x10 40x6 26x8 48x5 28x8	Duct Velocity	533		600		666		733		800		866		933		1000	
		Throw	29	18	32	19	34	21	36	22	38	23	39	24	41	24	42	25
		NC	26	29	29	32	32	35	34	37	36	39	38	41	40	43	42	45
		PT	.08	.11	.10	.14	.12	.18	.14	.21	.17	.25	.20	.29	.23	.33	.27	.38
16	16x14 32x8 20x12 44x6 24x10 30x8	Duct Velocity	514		578		642		707		771		835		900		964	
		Throw	29	17	32	19	34	21	36	22	38	23	39	24	41	24	42	25
		NC	25	28	28	31	31	34	33	36	35	38	37	40	39	42	41	44
		PT	.07	.11	.09	.13	.11	.16	.13	.20	.16	.23	.19	.27	.22	.31	.25	.36
17	16x16 26x10 48x6 18x14 28x10 20x14 34x8 22x12 36x8	Duct Velocity	450		506		562		616		675		731		787		843	
		Throw	27	16	30	18	34	20	36	22	38	23	39	23	41	24	42	25
		NC	22	25	25	28	27	30	30	33	32	35	34	37	36	39	38	41
		PT	.06	.08	.07	.10	.09	.13	.10	.15	.12	.18	.14	.21	.17	.24	.19	.28
18	18x16 30x10 22x14 32x10 24x12 40x8 26x12 56x6	Duct Velocity	400		450		500		550		600		650		700		750	
		Throw	25	15	28	17	32	19	35	21	37	22	39	23	41	24	42	25
		NC	L	22	22	25	25	28	27	30	29	32	32	35	33	36	35	38
		PT	.04	.07	.06	.08	.07	.10	.08	.12	.10	.14	.11	.17	.13	.19	.15	.22
19	18x18 28x12 44x8 20x16 30x12 60x6 22x16 34x10 24x14 36x10	Duct Velocity	355		400		444		488		533		577		622		666	
		Throw	24	14	27	16	30	18	33	20	36	21	39	23	40	24	42	25
		NC	L	L	L	22	22	25	24	27	27	30	29	32	31	34	33	36
		PT	.03	.05	.04	.07	.05	.08	.06	.10	.08	.11	.09	.13	.10	.15	.12	.18
20	20x18 28x14 22x18 32x12 24x16 40x10 26x14 48x8	Duct Velocity	320		360		400		480		520		520		560		600	
		Throw	22	13	25	15	28	17	31	19	34	20	37	22	40	24	42	25
		NC	L	L	L	20	20	23	22	25	24	27	26	29	28	31	30	33
		PT	.03	.04	.04	.05	.04	.07	.05	.08	.06	.09	.07	.11	.08	.13	.10	.14
21	20x20 30x14 44x10 22x20 32x14 56x8 24x18 34x12 26x16 36x12	Duct Velocity	288		324		360		396		432		468		504		540	
		Throw	21	13	24	14	27	16	29	18	32	19	35	21	37	22	40	24
		NC	L	L	L	L	L	20	20	23	22	25	24	27	26	29	28	31
		PT	.02	.04	.03	.04	.04	.05	.04	.06	.05	.08	.06	.09	.07	.10	.08	.12
22	22x22 30x16 60x8 24x20 34x14 64x8 26x18 40x12 28x16 40x10	Duct Velocity	238		267		297		327		357		386		416		446	
		Throw	19	12	22	13	24	14	27	16	29	17	31	19	34	20	36	22
		NC	L	L	L	L	L	L	L	L	L	20	20	23	21	24	23	26
		PT	.02	.02	.02	.03	.02	.04	.03	.04	.03	.05	.04	.06	.05	.07	.05	.08
23	24x22 32x16 56x10 26x20 34x16 72x8 28x18 36x14 30x18 44x12	Duct Velocity	281		245		272		300		327		354		381		409	
		Throw	18	11	21	12	23	14	25	15	28	17	30	18	32	19	35	21
		NCL	L	L	L	L	L	L	L	L	L	L	L	21	L	22	21	24
		PT	.01	.02	.02	.03	.02	.03	.02	.04	.03	.04	.03	.05	.04	.06	.05	.07

*NOTES: Performance data in **purple bold** type is outside the recommended operating range.*

Notes on Performance Data

- Performance data is based on tests conducted in accordance with ANSI/ASHRAE Standard 70-1991.
- Actual performance in the field may vary.
- Tests were conducted in isothermal conditions.
- Sound levels are based on a room absorption of 10 db re 10^{-12} watts.

Notes on Units of Measure Used

- Air flow is given in cubic feet per minute (CFM).
- Static and Total Pressure is given in inches of water (w.g.).
- Sound data is given in NC.
- L indicates an NC of less than 20.

Table 6 - **1500 to 2400 CFM**

Group	Sizes	CFM	1500		1600		1700		1800		1900		2000		2200		2400	
		Blade Set	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°
15	18x12 36x6 22x10 40x6 26x8 48x5 28x8	Duct Velocity	1000		1066		1133		1200		1333		1400		1466			
		Throw	42	25	44	26	45	27	47	28	49	29	50	30	52	31		
		NC	42	45	44	47	45	48	47	50	50	53	51	54	52	55		
		PT	.27	.38	.30	.43	.34	.49	.38	.54	.47	.66	.52	.73	.57	.80		
16	16x4 32x8 20x12 44x6 24x10 30x8	Duct Velocity	964		1028		1092		1157		1285		1350		1414			
		Throw	42	25	44	26	45	27	46	28	49	29	50	30	52	31		
		NC	41	44	43	46	44	47	46	49	49	52	50	53	51	54		
		PT	.25	.36	.28	.40	.32	.45	.36	.51	.44	.62	.48	.68	.53	.74		
17	16x16 26x10 48x6 18x14 28x10 20x14 34x8 22x12 36x8	Duct Velocity	843		900		956		1012		1125		1181		1237		1350	
		Throw	42	25	44	26	45	27	46	28	49	29	50	30	51	31	54	32
		NC	38	41	40	43	41	44	43	46	46	49	47	50	48	51	50	53
		PT	.19	.28	.22	.31	.24	.35	.27	.39	.34	.48	.37	.53	.41	.58	.48	.68
18	18x16 30x10 22x14 32x10 24x12 40x8 26x12 56x6	Duct Velocity	750		800		850		900		1000		1050		1100		1200	
		Throw	42	25	43	26	45	27	46	28	49	29	50	30	51	31	54	32
		NC	35	38	37	40	39	42	40	43	43	46	44	47	45	48	48	51
		PT	.15	.22	.17	.25	.19	.28	.22	.31	.27	.38	.29	.42	.32	.46	.38	.54
19	18x18 28x12 44x8 20x16 30x12 60x6 22x16 34x10 24x14 36x10	Duct Velocity	666		711		755		800		888		933		977		1066	
		Throw	42	25	43	26	45	27	46	28	49	29	50	30	51	31	54	32
		NC	33	36	34	37	36	39	37	40	40	43	41	44	42	45	45	48
		PT	.12	.18	.14	.20	.15	.22	.17	.25	.21	.30	.23	.33	.26	.37	.30	.43
20	20x18 28x14 22x18 32x12 24x16 40x10 26x14 48x8	Duct Velocity	600		640		680		720		800		840		880		960	
		Throw	42	25	43	26	45	27	46	28	49	29	50	30	51	31	53	32
		NC	30	33	32	35	33	36	35	38	38	41	39	42	40	43	42	45
		PT	.10	.14	.11	.16	.12	.18	.14	.20	.17	.25	.19	.27	.21	.30	.25	.35
21	20x20 30x14 44x10 22x20 32x14 56x8 24x18 34x12 26x16 36x12	Duct Velocity	540		576		612		648		720		756		792		864	
		Throw	40	24	43	26	45	27	46	28	49	29	50	30	51	31	53	32
		NC	28	31	29	32	31	34	32	35	35	38	36	39	38	41	40	43
		PT	.08	.12	.09	.13	.10	.15	.11	.17	.14	.20	.15	.22	.17	.24	.20	.29
22	22x22 30x16 60x8 24x20 34x14 64x8 26x18 40x12 28x16 48x10	Duct Velocity	446		476		505		535		595		624		654		714	
		Throw	36	22	39	23	41	25	44	26	48	29	50	30	51	30	53	32
		NC	23	26	25	28	27	30	28	31	31	34	32	34	33	36	35	38
		PT	.05	.08	.06	.09	.07	.10	.08	.12	.10	.14	.11	.15	.12	.17	.14	.20
23	24x22 32x16 56x10 26x20 34x16 72x8 28x18 36x14 30x18 44x12	Duct Velocity	409		436		463		490		545		572		600		654	
		Throw	35	21	37	22	39	24	42	25	46	28	49	29	51	30	53	32
		NC	21	24	23	26	25	28	26	29	29	32	30	33	31	34	34	37
		PT	.05	.07	.05	.08	.06	.09	.07	.10	.08	.12	.09	.13	.10	.14	.12	.17
24	24x24 30x20 40x14 64x10 26x22 32x18 44x14 78x8 26x24 34x18 48x12 28x20 36x16 60x10	Duct Velocity	375		400		425		450		500		525		550		600	
		Throw	33	20	35	21	38	23	40	24	44	27	46	28	49	29	53	32
		NC	L	22	21	24	23	26	24	27	27	30	28	31	29	32	32	35
		PT	.04	.06	.04	.07	.05	.07	.06	.08	.07	.10	.07	.11	.08	.12	.10	.14
25	26x26 32x20 48x14 28x22 34x20 56x12 28x24 36x18 72x10 30x22 40x16	Duct Velocity	319		340		362		383		426		477		468		511	
		Throw	30	18	32	19	34	21	37	22	41	24	43	26	45	27	49	29
		NC	L	L	L	20	L	22	20	23	23	26	24	27	26	29	28	31
		PT	.03	.04	.03	.05	.04	.05	.04	.06	.05	.07	.05	.08	.06	.09	.07	.11
26	28x26 34x22 48x16 78x10 30x24 36x20 56x14 32x22 40x18 60x12 32x24 44x16 64x12	Duct Velocity	296		316		336		356		395		415		435		474	
		Throw	29	18	31	19	33	20	35	21	39	23	41	25	43	26	47	28
		NC	L	L	L	L	L	20	L	22	21	24	23	26	24	27	26	29
		PT	.02	.04	.03	.04	.03	.05	.03	.05	.04	.06	.05	.07	.05	.08	.06	.09
27	28x28 34x24 48x18 64x14 30x26 36x22 44x20 72x12 30x28 36x24 48x18 84x10 32x26 40x20 60x14 90x10	Duct Velocity	275		293		312		330		367		385		404		440	
		Throw	28	17	30	18	32	19	34	20	38	23	39	24	41	25	45	27
		NC	L	L	L	L	L	L	L	20	20	23	21	24	22	25	24	27
		PT	.02	.03	.02	.04	.03	.04	.03	.05	.04	.06	.04	.06	.04	.07	.05	.08
28	30x30 34x28 44x22 78x12 32x38 36x26 48x20 84x12 32x30 40x22 56x16 96x10 34x26 40x24 60x16	Duct Velocity	240		256		272		288		320		336		352		384	
		Throw	26	16	28	17	30	18	31	19	35	21	37	22	38	23	42	25
		NC	L	L	L	L	L	L	L	L	L	20	L	21	L	22	21	24
		PT	.02	.02	.02	.03	.02	.03	.02	.04	.03	.04	.03	.05	.03	.05	.04	.06
29	32x32 36x30 56x18 78x14 34x30 40x26 60x18 90x12 34x32 44x24 64x16 36x28 48x22 72x14	Duct Velocity	210		225		239		253		281		295		309		337	
		Throw	23	14	26	16	28	17	29	18	33	20	34	21	36	22	39	24
		NCL	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	21
		PT	.01	.02	.01	.02	.02	.02	.02	.03	.02	.03	.02	.04	.03	.04	.03	.05
30	34x34 40x30 56x22 78x16 102x12 36x32 44x26 60x20 84x14 36x34 48x24 64x18 90x14 40x28 56x20 72x16 96x12	Duct Velocity					211		224		249		261		274		298	
		Throw					24	15	28	17	31	18	32	19	34	20	37	22
		NC					L	L	L	L	L	L	L	L	L	L	L	L
		PT					.01	.02	.01	.02	.02	.03	.02	.03	.02	.03	.02	.04

*NOTES: Performance data in **purple bold** type is outside the recommended operating range.*

Notes on Performance Data

- Performance data is based on tests conducted in accordance with ANSI/ASHRAE Standard 70-1991.
- Actual performance in the field may vary.
- Tests were conducted in isothermal conditions.
- Sound levels are based on a room absorption of 10 db re 10^{-12} watts.

Notes on Units of Measure Used

- Air flow is given in cubic feet per minute (CFM).
- Static and Total Pressure is given in inches of water (w.g.).
- Sound data is given in NC.
- L indicates an NC of less than 20.

Table 7 - **2600 to 4000 CFM**

Group	Sizes					CFM	2600		2800		3000		3200		3400		3600		3800		4000	
						Blade Set	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°
19	18x18	28x12	44x8			Duct Velocity	1155		1244		1333		1422									
	20x16	30x12	60x6			Throw	56	34	58	35	60	36	62	37								
	22x16	34x10				NC	47	50	49	52	51	54	52	55								
	24x14	36x10				PT	.36	.50	.41	.58	.47	.66	.54	.75								
20	20x18	28x14				Duct Velocity	1040		1120		1200		1280		1360		1440					
	22x18	32x12				Throw	56	33	58	35	60	36	62	37	64	38	66	40				
	24x16	40x10				NC	44	47	46	49	48	51	50	53	51	54	53	56				
	26x14	48x8				PT	.29	.41	.33	.48	.38	.54	.43	.61	.49	.69	.55	.77				
21	20x30	30x14	44x10			Duct Velocity	936		1008		1080		1152		1224		1296		1368		1400	
	22x20	32x14	56x8			Throw	56	33	58	35	60	36	62	37	64	38	66	40	68	41	70	42
	24x18	34x12				NC	42	45	44	47	46	49	47	50	49	52	50	53	52	55	53	56
	26x16	36x12				PT	.23	.34	.27	.39	.31	.44	.35	.50	.40	.56	.45	.63	.50	.70	.55	.77
22	22x22	30x16	60x8			Duct Velocity	773		833		892		952		1011		1071		1130		1190	
	24x20	34x14	64x8			Throw	55	33	58	35	60	36	62	37	64	38	66	39	67	40	69	42
	26x18	40x12				NC	38	41	40	43	41	44	43	46	45	48	46	49	47	50	49	52
	28x16	48x10				PT	.16	.23	.19	.27	.21	.31	.24	.35	.27	.39	.31	.44	.34	.48	.38	.53
23	24x22	32x16	56x10			Duct Velocity	709		763		818		872		927		981		1036		1090	
	26x20	34x16	72x8			Throw	55	33	57	34	60	36	62	37	64	38	64	39	67	40	69	42
	28x18	36x14				NC	36	39	38	41	39	42	41	44	42	46	44	47	45	48	47	50
	30x18	44x12				PT	.14	.20	.16	.23	.18	.26	.20	.29	.23	.33	.26	.37	.29	.41	.32	.45
24	24x24	30x20	40x14	64x10		Duct Velocity	650		700		750		800		850		900		950		1000	
	26x22	32x18	44x14	78x8		Throw	55	35	57	34	59	36	61	37	63	38	65	39	67	40	69	41
	26x24	34x18	48x12			NC	34	37	36	39	37	40	39	42	41	44	42	45	43	46	45	48
	28x20	36x16	60x10			PT	.11	.07	.13	.19	.15	.22	.17	.25	.19	.28	.22	.31	.24	.35	.27	.38
25	26x26	32x20	48x14			Duct Velocity	553		596		639		681		724		766		809		852	
	28x22	34x20	56x12			Throw	53	32	57	34	59	36	61	37	63	38	64	39	67	40	69	41
	28x24	36x18	72x10			NC	30	33	32	35	34	37	35	38	37	40	38	41	40	43	41	44
	30x22	40x16				PT	.08	.12	.10	.14	.11	.16	.13	.18	.14	.21	.16	.23	.18	.25	.19	.28
26	28x26	34x22	48x16	78x10		Duct Velocity	514		553		593		632		672		712		751		791	
	30x24	36x20	56x14			Throw	51	31	55	33	59	35	61	37	63	38	65	39	67	40	69	41
	32x22	40x18	60x12			NC	28	31	30	33	32	35	34	37	35	38	37	40	38	41	39	42
	32x24	44x16	64x12			PT	.07	.11	.08	.12	.10	.14	.11	.16	.12	.18	.14	.20	.15	.22	.17	.24
27	28x28	34x24	44x18	64x14		Duct Velocity	477		514		551		587		624		661		697		734	
	30x26	36x22	44x20	72x12		Throw	49	29	53	32	57	34	60	36	63	38	65	39	67	40	69	41
	30x28	36x24	48x18	84x10		NC	27	30	29	32	30	33	32	35	34	37	35	38	36	39	38	41
	32x36	40x20	60x14	90x10		PT	.06	.09	.07	.11	.08	.12	.09	.14	.11	.15	.12	.17	.13	.19	.15	.21
28	30x30	34x28	44x22	78x12		Duct Velocity	416		448		480		512		544		576		608		640	
	32x28	36x26	48x20	84x12		Throw	46	27	49	29	53	32	56	34	60	36	63	38	67	40	68	41
	32x30	40x22	56x16	96x10		NC	23	26	25	28	27	30	29	32	30	33	32	35	33	36	35	38
	34x26	40x24	60x16			PT	.05	.07	.05	.08	.06	.09	.07	.11	.08	.12	.09	.13	.10	.15	.11	.16
29	32x32	36x30	50x18	78x14		Duct Velocity	365		393		421		450		478		506		534		562	
	34x30	40x26	60x18	90x12		Throw	43	26	46	28	49	30	52	31	56	33	59	35	62	37	66	39
	34x32	44x24	64x16	96x10		NC	21	24	22	25	24	27	26	29	28	31	29	32	30	33	32	35
	36x28	48x22	72x14			PT	.04	.06	.04	.06	.05	.07	.06	.08	.06	.09	.07	.10	.08	.11	.09	.13
30	34x34	40x30	56x22	78x16	102x12	Duct Velocity	323		348		373		398		423		448		473		498	
	36x32	44x26	60x20	84x14		Throw	40	24	43	26	46	28	49	30	52	31	55	33	59	35	62	37
	36x34	48x24	64x18	90x14		NC	L	21	20	23	22	25	23	26	25	28	26	29	28	31	29	32
	40x28	56x20	72x16	96x12		PT	.03	.04	.03	.05	.04	.06	.04	.07	.05	.07	.05	.08	.06	.09	.07	.10
31	36x36	44x30	60x22	96x14		Duct Velocity	288		311		333		355		377		400		422		444	
	40x32	48x26	64x20	108x12		Throw	38	23	41	24	43	26	46	28	49	30	52	31	55	33	58	35
	40x34	48x28	72x18	114x12		NC	L	L	L	20	L	22	21	24	22	25	24	27	25	28	26	29
	44x28	56x24	84x16	120x12		PT	.02	.04	.03	.04	.03	.05	.03	.05	.04	.06	.04	.07	.05	.07	.05	.08
32	40x36	56x26	72x20	96x16		Duct Velocity	260		280		300		320		340		360		380		400	
	44x32	60x24	78x18	102x14		Throw	36	21	38	23	41	25	44	26	47	28	49	30	52	31	55	33
	44x34	64x22	84x18	108x14		NC	L	L	L	L	L	20	L	21	20	32	21	24	23	26	24	27
	48x30	64x24	90x16			PT	.02	.03	.02	.03	.02	.04	.03	.04	.03	.05	.04	.05	.04	.06	.04	.07
33	40x40	56x30	72x24	96x18	126x14	Duct Velocity	234		252		270		288		306		324		342		360	
	44x36	60x26	78x20	102x16		Throw	34	20	36	22	39	23	41	25	44	26	47	28	49	30	52	31
	48x32	60x28	78x22	108x16		NCL	L	L	L	L	L	L	L	L	L	21	L	22	20	23	22	25
	48x34	64x26	84x20	114x14		PT	.02	.02	.02	.03	.02	.03	.02	.04	.03	.04	.03	.04	.03	.05	.04	.05
	56x28	72x22	90x18	120x14																		
34	40x44	56x32	64x30	96x20	132x14	Duct Velocity	212		229		245		261		278		294		310		327	
	40x48	56x34	72x26	102x18	138x14	Throw	30	18	34	21	37	22	39	24	42	25	44	27	47	28	49	30
	44x40	60x30	78x24	108x18		NC	L	L	L	L	L	L	L	L	L	L	L	20	L	21	20	23
	48x36	60x32	84x22	114x16		PT	.01	.02	.01	.02	.02	.03	.02	.03	.02	.03	.02	.04	.03	.04	.03	.04
	48x40	64x28	90x20	120x16																		

NOTES: Performance data in ***purple bold*** *type is outside the recommended operating range.*

Table 8 - **4000 to 7500 CFM**

Group	Sizes	CFM	4000		4500		5000		5500		6000		6500		7000		7500	
		Blade Set	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°
24	24x24 30x20 40x14 64x10 26x22 32x18 44x14 78x8 26x24 34x18 48x12 28x20 36x16 60x10	Duct Velocity	1000		1125		1250		1375		1500							
		Throw	69	41	73	44	78	47	82	49	85	51						
		NC	45	48	48	51	51	54	53	56	55	58						
		PT	.27	.38	.34	.48	.42	.59	.50	.70	.60	.83						
25	26x26 32x20 48x14 28x22 34x20 56x12 28x24 36x18 72x10 30x22 40x16	Duct Velocity	852		958		1065		1171		1278		1384		1491			
		Throw	69	41	73	44	77	46	81	49	85	51	89	53	92	55		
		NC	41	44	44	47	47	50	49	52	52	55	54	57	56	59		
		PT	.19	.28	.25	.35	.30	.43	.37	.52	.43	.61	.51	.71	.59	.82		
26	28x26 34x22 44x18 78x10 30x24 36x20 56x14 32x22 40x18 60x12 32x24 44x16 64x12	Duct Velocity	791		890		989		1087		1186		1285		1384		1483	
		Throw	69	41	73	44	77	46	81	49	85	51	88	53	92	55	95	57
		NC	39	42	43	46	45	48	48	51	50	53	52	55	54	57	56	59
		PT	.17	.24	.21	.31	.26	.37	.32	.45	.37	.53	.44	.62	.51	.71	.58	.82
27	28x28 34x24 44x18 64x14 30x26 36x22 44x20 72x12 30x28 36x24 48x18 84x10 32x26 40x20 60x14 90x10	Duct Velocity	734		826		918		1010		1102		1193		1285		1377	
		Throw	69	41	73	44	77	46	81	49	85	51	88	53	92	55	95	57
		NC	38	41	41	44	44	47	46	49	48	51	50	53	52	55	54	57
		PT	.15	.21	.18	.27	.23	.32	.27	.39	.32	.46	.38	.54	.44	.62	.50	.71
28	30x30 34x28 44x22 78x12 32x28 36x26 48x20 84x12 32x30 40x22 56x16 96x10 34x26 40x24 60x16	Duct Velocity	640		720		800		880		960		1040		1120		1200	
		Throw	68	41	73	44	77	46	81	48	84	51	88	53	92	55	95	57
		NC	35	38	38	41	40	43	43	46	45	48	47	50	49	52	51	54
		PT	.11	.16	.14	.20	.17	.25	.21	.30	.25	.35	.29	.41	.33	.48	.38	.54
29	32x32 36x30 56x18 78x14 34x30 40x26 60x18 90x12 34x32 44x24 64x16 36x28 48x22 72x14	Duct Velocity	562		632		703		773		843		914		984		1054	
		Throw	66	39	73	44	77	46	81	48	84	51	88	53	91	55	95	57
		NC	32	35	35	38	38	41	40	43	42	45	44	47	46	49	48	51
		PT	.09	.13	.11	.16	.13	.19	.16	.23	.19	.28	.22	.32	.26	.37	.30	.42
30	34x34 40x30 56x22 78x16 102x12 36x32 44x26 60x20 84x14 36x34 48x24 64x18 90x14 40x28 56x20 72x16 96x12	Duct Velocity	498		560		622		685		747		809		871		934	
		Throw	62	37	69	42	76	46	80	48	84	50	88	53	91	55	94	57
		NC	29	32	32	35	35	38	37	40	40	43	42	45	44	47	45	48
		PT	.07	.10	.08	.13	.10	.15	.13	.18	.15	.22	.18	.25	.20	.29	.23	.34
31	36x36 40x30 60x22 96x14 40x32 48x26 64x20 108x12 40x34 48x28 72x18 114x12 44x28 56x24 84x16 120x12	Duct Velocity	444		500		555		611		666		722		777		833	
		Throw	58	35	65	39	73	44	80	48	84	50	87	52	91	54	94	56
		NC	26	29	30	33	32	35	35	38	37	40	39	42	41	44	43	46
		PT	.05	.08	.07	.10	.08	.12	.10	.15	.12	.18	.14	.20	.16	.24	.19	.27
32	40x36 56x26 72x20 96x16 44x32 60x24 78x18 102x14 44x34 64x22 84x18 108x14 48x30 64x24 90x16	Duct Velocity	400		450		500		550		600		650		700		750	
		Throw	55	33	62	37	69	41	76	45	83	50	87	52	91	54	94	56
		NC	24	27	27	30	30	33	32	35	35	38	37	40	39	42	40	43
		PT	.04	.07	.06	.08	.07	.10	.08	.12	.10	.14	.11	.17	.13	.19	.15	.22
33	40x40 56x30 72x24 96x18 126x14 44x36 60x26 78x20 102x16 48x32 60x28 78x22 108x16 48x34 64x26 84x20 114x14 56x28 72x22 90x18 120x14	Duct Velocity	360		405		450		495		540		585		630		675	
		Throw	52	31	59	35	65	39	72	43	78	47	85	51	90	54	94	56
		NC	22	25	25	28	28	31	30	33	32	35	34	37	36	39	38	41
		PT	.04	.05	.04	.07	.06	.08	.07	.10	.08	.12	.09	.14	.11	.16	.12	.18
34	40x44 56x32 64x30 96x20 132x14 40x48 56x34 72x26 102x18 138x14 44x40 60x30 78x24 108x18 48x36 60x32 84x22 114x16 48x40 64x28 90x20 120x16	Duct Velocity	327		368		409		450		490		531		572		613	
		Throw	49	30	56	33	62	37	68	41	74	45	81	48	87	52	93	56
		NC	20	23	23	26	25	28	28	31	30	33	32	35	34	37	36	39
		PT	.03	.04	.04	.06	.05	.07	.06	.08	.07	.10	.08	.11	.09	.13	.10	.15
35	44x44 60x34 84x24 102x20 126x16 44x48 64x32 90x22 108x20 132x16 48x44 72x28 90x24 114x18 56x36 72x30 96x22 120x18	Duct Velocity	297		334		371		409		446		483		520		557	
		Throw	47	28	53	32	59	35	65	39	71	42	77	46	83	50	89	53
		NC	L	20	21	24	23	26	26	29	28	31	30	33	32	35	34	37
		PT	.02	.04	.03	.05	.04	.06	.05	.07	.05	.08	.06	.09	.07	.11	.08	.12
36	40x54 72x32 102x22 138x16 44x54 60x36 108x22 144x16 48x48 64x34 126x18 64x36 96x24 132x18	Duct Velocity	266		300		333		366		400		433		466		500	
		Throw	44	27	50	30	56	33	61	37	67	40	72	43	78	47	84	50
		NC	L	L	L	21	21	24	23	26	26	29	28	31	30	33	31	34
		PT	.02	.03	.02	.04	.03	.05	.04	.06	.04	.07	.05	.08	.06	.09	.07	.10
37	48x54 108x24 72x34 138x18 72x36 144x18 102x24	Duct Velocity	222		250		277		305		333		361		388		416	
		Throw	39	23	45	27	50	30	56	33	61	36	66	39	71	43	76	46
		NC	L	L	L	L	L	20	L	22	22	25	24	27	26	29	27	30
		PT	.01	.02	.02	.03	.02	.03	.03	.04	.03	.05	.04	.05	.04	.06	.05	.07

*NOTES: Performance data in **purple bold** type is outside the recommended operating range.*

Notes on Performance Data

- Performance data is based on tests conducted in accordance with ANSI/ASHRAE Standard 70-1991.
- Actual performance in the field may vary.
- Tests were conducted in isothermal conditions.
- Sound levels are based on a room absorption of 10 db re 10^{-12} watts.

Notes on Units of Measure Used

- Air flow is given in cubic feet per minute (CFM).
- Static and Total Pressure is given in inches of water (w.g.).
- Sound data is given in NC.
- L indicates an NC of less than 20.

Table 9 - **8000 to 12000 CFM**

Group	Sizes					CFM	8000		8500		9000		9500		10000		10500		11000		12000	
						Blade Set	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°
29	32x32	36x30	56x18	78x14		Duct Velocity	1125		1195		1265		1335		1406		1476					
	34x30	40x26	60x18	90x12		Throw	98	59	101	61	104	62	107	64	110	64	113	68				
	34x32	44x24	64x16			NC	50	53	51	54	53	56	54	57	56	59	57	60				
	36x28	48x22	72x14			PT	.34	.48	.38	.54	.43	.60	.47	.67	.52	.74	.58	.81				
30	34x34	40x30	56x22	78x16	102x12	Duct Velocity	996		1058		1121		1183		1245		1307		1370		1494	
	36x32	44x26	60x20	84x14		Throw	98	59	101	60	104	62	107	64	110	66	112	67	115	69	121	72
	36x34	48x24	64x18	90x14		NC	47	50	49	52	50	53	52	55	53	56	54	57	55	58	58	61
	40x28	56x20	72x16	96x12		PT	.27	.38	.30	.43	.33	.48	.37	.53	.41	.58	.45	.64	.50	.70	.59	.83
31	36x36	44x30	60x22	96x14		Duct Velocity	888		944		1000		1055		1111		1166		1222		1333	
	40x32	48x26	64x20	108x12		Throw	97	58	100	60	104	62	106	64	109	66	112	67	115	69	120	72
	40x34	48x28	72x18	114x12		NC	45	48	46	49	48	51	49	52	50	53	52	55	53	56	55	58
	44x28	56x24	84x16	120x12		PT	.21	.30	.24	.34	.27	.38	.30	.42	.33	.47	.36	.51	.40	.56	.47	.66
32	40x36	56x26	72x20	96x16		Duct Velocity	800		850		900		950		1000		1050		1100		1200	
	44x32	60x24	78x18	102x14		Throw	97	58	100	60	103	62	106	64	109	65	112	67	115	69	120	72
	44x34	64x22	84x18	108x14		NC	42	45	44	47	45	48	47	50	48	51	49	52	50	53	53	56
	48x30	64x24	90x16			PT	.17	.25	.19	.28	.22	.31	.24	.35	.27	.38	.29	.42	.32	.46	.38	.54
33	40x40	56x30	72x24	96x18	126x14	Duct Velocity	720		765		810		855		900		945		990		1080	
	44x36	60x26	78x20	102x16		Throw	97	58	100	60	103	62	106	64	109	65	112	67	114	69	120	72
	48x32	60x28	78x22	108x16		NC	40	43	41	44	43	46	44	47	46	49	47	50	48	51	50	53
	48x34	64x26	84x20	114x14		PT	.14	.20	.16	.23	.18	.26	.20	.28	.22	.31	.24	.34	.26	.37	.31	.44
	56x28	72x22	90x18	120x14																		
34	40x44	56x32	64x30	96x20	132x14	Duct Velocity	654		695		736		777		818		859		900		981	
	40x48	56x34	72x26	102x18	138x14	Throw	97	58	100	60	103	62	106	63	109	65	111	67	114	69	119	72
	44x40	60x30	78x24	108x18		NC	38	41	39	42	41	44	42	45	43	46	45	48	46	49	48	51
	48x36	60x32	84x22	114x16		PT	.12	.17	.13	.19	.15	.21	.16	.24	.18	.26	.20	.29	.22	.31	.26	.37
	48x40	64x28	90x20	120x16																		
35	44x44	60x34	84x24	102x20	126x16	Duct Velocity	595		632		669		706		743		780		818		892	
	44x48	64x32	90x22	108x22	132x16	Throw	95	57	100	60	103	62	106	63	108	65	111	67	114	68	119	72
	48x44	72x28	90x24	114x18		NC	36	39	37	40	39	42	40	43	41	44	43	46	44	47	46	49
	56x36	72x30	96x22	120x18		PT	.10	.14	.11	.16	.12	.18	.13	.20	.15	.22	.16	.24	.18	.26	.21	.31
36	40x54	72x32	102x22	138x16		Duct Velocity	533		566		600		633		666		700		733		800	
	44x54	60x36	108x22	144x16		Throw	89	54	95	57	101	60	105	63	108	65	111	67	114	68	119	71
	48x48	64x34	126x18			NC	33	36	35	38	36	39	38	41	39	42	40	43	41	44	44	47
	64x36	96x24	132x18			PT	.08	.11	.09	.13	.10	.14	.11	.16	.12	.18	.13	.19	.14	.21	.17	.25
37	48x54	108x24				Duct Velocity	444		472		500		527		555		583		611		666	
	72x34	138x18				Throw	81	49	86	52	91	55	97	58	102	61	107	64	112	67	118	71
	72x36	144x18				NC	29	32	31	34	32	35	34	37	35	38	36	39	37	40	40	43
	102x24					PT	.05	.08	.06	.09	.07	.10	.08	.11	.08	.12	.09	.14	.10	.15	.12	.18

*NOTES: Performance data in **purple bold** type is outside the recommended operating range.*

Notes on Performance Data

- Performance data is based on tests conducted in accordance with ANSI/ASHRAE Standard 70-1991.
- Actual performance in the field may vary.
- Tests were conducted in isothermal conditions.
- Sound levels are based on a room absorption of 10 db re 10^{-12} watts.

Notes on Units of Measure Used

- Air flow is given in cubic feet per minute (CFM).
- Static and Total Pressure is given in inches of water (w.g.).
- Sound data is given in NC.
- L indicates an NC of less than 20.

NOTES:

Table 10 - **Groups 1 to 18**

Group	Sizes		Duct Velocity - FPM												
			200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400
1	8x4	CFM	44	66	88	110	132	154	176	198	220	242	264	266	308
		NC	L	L	20	26	31	35	38	41	44	47	49	51	53
		PT	.02	.04	.06	.09	.12	.17	.22	.27	.32	.39	.46	.53	.62
2	8x5 10x4	CFM	54	81	108	135	162	189	216	243	270	297	324	351	378
		NC	L	L	L	L	24	28	31	34	37	40	42	44	46
		PT	.01	.03	.05	.07	.10	.14	.17	.22	.26	.32	.37	.43	.49
3	8x6 10x5 12x4	CFM	66	99	132	165	198	231	264	297	330	363	396	429	462
		NC	L	L	L	20	26	30	33	36	38	42	44	46	48
		PT	.01	.03	.06	.08	.10	.14	.17	.20	.25	.30	.34	.40	.46
4	14x4	CFM	76	114	152	190	228	266	304	342	380	418	456	464	502
		NC	L	L	L	22	27	31	34	37	40	43	45	47	49
		PT	.01	.03	.05	.07	.10	.12	.17	.22	.26	.31	.37	.45	.52
5	8x8 16x4 10x6 12x5	CFM	88	132	176	220	264	308	352	396	440	484	528	572	616
		NC	L	L	L	20	26	30	33	36	38	42	44	46	48
		PT	.01	.02	.04	.06	.08	.11	.14	.18	.22	.26	.30	.35	.40
6	12x6 20x4 14x5 18x4	CFM	100	150	200	250	300	350	400	450	500	550	600	650	700
		NC	L	L	L	21	27	31	34	37	39	43	45	47	49
		PT	.01	.02	.04	.06	.08	.11	.14	.18	.22	.26	.30	.35	.40
7	10x8 22x4 14x6 16x5	CFM	110	165	220	275	330	385	440	495	550	605	660	715	770
		NC	L	L	L	21	27	31	34	37	39	43	45	47	49
		PT	.01	.02	.04	.05	.07	.10	.13	.16	.19	.23	.26	.31	.35
8	18x5 24x4 26x4	CFM	124	186	248	310	372	434	496	558	620	682	744	806	868
		NC	L	L	L	22	27	31	34	37	40	43	45	47	49
		PT	.01	.02	.04	.06	.08	.11	.14	.18	.22	.26	.30	.35	.40
9	10x10 18x6 28x4 12x8 20x5 30x4 16x6 22x5	CFM	138	207	276	345	414	483	552	621	690	759	828	887	956
		NC	L	L	L	21	27	32	34	37	40	43	45	47	49
		PT	.01	.02	.03	.05	.07	.10	.12	.15	.18	.21	.25	.29	.33
10	12x10 24x5 34x4 14x8 26x5 20x6 32x4	CFM	166	249	332	415	498	581	664	747	830	913	996	1079	1162
		NC	L	L	L	21	27	31	34	37	40	43	45	47	49
		PT	.01	.02	.04	.05	.07	.09	.10	.14	.17	.21	.25	.29	.33
11	16x8 28x5 40x4 22x6 30x5 24x6 36x4	CFM	176	264	352	440	528	616	704	792	880	968	1056	1144	1232
		NC	L	L	L	21	27	31	34	37	40	43	45	47	49
		PT	.01	.02	.03	.05	.07	.09	.11	.14	.17	.21	.24	.28	.32
12	12x12 26x6 14x10 32x5 18x8 34x5	CFM	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400
		NC	L	L	L	21	27	31	34	37	40	43	45	47	49
		PT	.01	.02	.03	.05	.06	.08	.10	.13	.16	.19	.22	.26	.30
13	14x12 22x8 36x5 16x10 28x6 20x8 30x6	CFM	232	348	464	580	696	812	928	1044	1160	1276	1392	1508	1624
		NC	L	L	L	21	27	31	34	37	40	43	45	47	49
		PT	.01	.02	.03	.04	.06	.08	.10	.13	.15	.18	.21	.24	.28
14	14x14 20x10 34x6 16x12 32x6 40x5 18x10 32x6 44x5	CFM	272	408	544	680	816	952	1088	1124	1360	1496	1632	1768	1904
		NC	L	L	L	22	28	32	36	38	41	44	46	48	50
		PT	.01	.02	.03	.04	.06	.08	.10	.13	.15	.18	.21	.24	.28
15	18x12 28x8 48x5 22x10 36x6 26x8 40x6	CFM	300	450	600	750	900	1050	1200	1350	1500	1650	1800	1950	2100
		NC	L	L	L	22	28	32	36	38	41	44	46	48	50
		PT	.01	.02	.03	.04	.06	.08	.10	.12	.15	.18	.21	.24	.28
16	16x14 30x8 20x12 32x8 24x10 44x6	CFM	310	465	620	775	930	1085	1240	1395	1550	1705	1860	2015	2170
		NC	L	L	L	22	28	32	36	38	41	44	46	48	50
		PT	.01	.02	.03	.04	.06	.08	.09	.12	.14	.17	.20	.23	.26
17	16x16 22x12 34x8 18x14 26x10 36x8 20x14 28x10 48x6	CFM	354	531	708	885	1062	1239	1416	1593	1770	1947	2124	2301	2478
		NC	L	L	L	22	28	32	36	38	41	44	46	48	50
		PT	.01	.02	.03	.05	.06	.07	.09	.12	.14	.16	.19	.22	.26
18	18x16 26x12 40x8 22x14 30x10 56x6 24x12 32x10	CFM	400	600	800	1000	1200	1400	1600	1800	2000	2200	2400	2600	2800
		NC	L	L	L	22	28	32	36	38	41	44	46	48	50
		PT	.01	.02	.03	.04	.06	.07	.09	.11	.14	.16	.19	.22	.25

Notes on Performance Data

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- Actual performance in the field may vary.
- Tests were conducted in isothermal conditions.
- Sound levels are based on a room absorption of 10 db re 10^{-12} watts.

Notes on Units of Measure Used

- Air flow is given in cubic feet per minute (CFM).
- Static and Total Pressure is given in inches of water (w.g.).
- Sound data is given in NC.
- L indicates an NC of less than 20.

Table 11 - **Groups 19 to 37**

Group	Sizes							Duct Velocity - FPM												
								200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400
19	18x18	24x14	34x10	60x6				CFM	450	675	900	1125	1350	1575	1800	2025	2250	2475	2700	2925	3150
	20x16	28x12	36x10					NC	L	L	L	24	29	33	36	39	42	45	47	49	51
	22x16	30x12	44x8					PT	.01	.02	.03	.04	.05	.07	.09	.11	.13	.16	.18	.21	.24
20	20x18	26x14	40x10					CFM	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	3250	3500
	22x18	28x14	48x8					NC	L	L	L	24	29	33	36	39	42	45	47	49	51
	24x16	32x12						PT	.01	.02	.03	.04	.05	.07	.09	.11	.13	.15	.18	.21	.24
21	20x20	26x16	34x12	56x8				CFM	554	831	1108	1305	1662	1939	2216	2493	2770	3047	3325	3601	3878
	22x20	30x14	36x12					NC	L	L	L	25	30	34	37	40	43	46	48	50	52
	24x18	32x14	44x10					PT	.01	.02	.03	.04	.05	.07	.08	.11	.13	.15	.18	.21	.24
22	22x22	28x16	40x12	64x8				CFM	672	1008	1344	1680	2016	2352	2688	3024	3360	3696	4032	4368	4704
	24x20	30x16	48x10					NC	L	L	L	25	30	34	37	40	43	46	48	50	52
	26x18	34x14	60x8					PT	.01	.01	.02	.04	.05	.07	.08	.10	.12	.15	.17	.20	.23
23	24x22	30x18	36x14	72x8				CFM	732	1098	1464	1830	2196	2562	2928	3294	3660	4026	4392	4758	5124
	26x20	32x16	44x12					NC	L	L	L	25	30	34	37	40	43	46	48	50	52
	28x18	34x16	56x10					PT	.01	.01	.02	.04	.05	.07	.08	.10	.12	.15	.17	.20	.23
24	24x24	28x20	34x18	44x14	64x10			CFM	800	1200	1600	2000	2400	2800	3200	3600	4000	4400	4800	5200	5600
	26x22	30x20	36x16	48x12	78x8			NC	L	L	20	26	31	35	38	41	44	47	49	51	53
	26x24	32x18	40x14	60x10				PT	.01	.01	.02	.03	.05	.06	.08	.10	.12	.14	.16	.19	.22
25	26x26	30x22	36x18	56x12				CFM	940	1310	1880	2350	2820	3290	3760	4230	4700	5170	5640	6110	6580
	28x22	32x30	40x16	72x10				NC	L	L	20	26	31	35	38	41	44	47	49	51	53
	28x24	34x20	48x14					PT	.01	.01	.02	.03	.05	.06	.08	.10	.12	.14	.16	.19	.22
26	28x26	32x24	40x18	56x14	78x10			CFM	1010	1515	2020	2525	3030	3535	4040	4545	5050	5555	6060	6565	7070
	30x24	34x22	44x16	60x12				NC	L	L	20	26	31	35	38	41	44	47	49	51	53
	32x22	36x20	48x16	64x12				PT	.01	.01	.02	.03	.05	.06	.08	.10	.12	.14	.16	.19	.22
27	28x28	32x36	36x24	44x20	64x14	90x10		CFM	1088	1632	2176	2720	3264	3808	4352	4896	5440	5984	6528	7072	7616
	30x26	34x24	40x20	48x18	72x12			NC	L	L	21	27	32	36	39	42	45	48	50	52	54
	30x28	36x22	44x18	60x14	84x10			PT	.01	.01	.02	.03	.05	.06	.08	.10	.11	.14	.16	.18	.21
28	30x30	34x26	40x22	48x20	78x12			CFM	1250	1875	2500	3125	3750	4375	5000	5625	6250	6875	7500	8125	8750
	32x28	34x28	40x24	56x16	84x12			NC	L	L	21	27	32	36	39	42	45	48	50	52	54
	32x30	36x26	44x22	60x16	96x10			PT	.01	.01	.02	.03	.05	.06	.08	.10	.11	.14	.16	.18	.21
29	32x32	36x28	44x24	60x18	78x14			CFM	1422	2133	2844	3555	4266	4977	5688	6399	7110	7821	8532	9243	9954
	34x30	36x30	48x22	64x16	90x12			NC	L	L	22	28	33	37	40	43	46	49	51	53	55
	34x32	40x26	56x18	72x14				PT	.01	.01	.02	.03	.04	.06	.07	.10	.11	.14	.16	.18	.21
30	34x34	40x28	48x24	60x20	78x16	96x12		CFM	1604	2406	3208	4010	4812	5614	6416	7218	8020	8822	9624	10426	11228
	36x32	40x30	56x20	64x18	84x14	102x12		NC	L	L	22	28	33	37	40	43	46	49	51	53	55
	36x34	44x26	56x22	72x16	90x14			PT	.01	.01	.02	.03	.04	.06	.07	.09	.11	.13	.16	.18	.21
31	36x36	44x28	48x28	64x20	96x14	120x12		CFM	1800	2700	3600	4500	5400	6300	7200	8100	9000	9900	10800	11700	12600
	40x32	44x30	56x24	72x18	108x12			NC	L	L	22	28	33	37	40	43	46	49	51	53	55
	40x34	48x26	60x22	84x16	114x12			PT	.01	.01	.02	.03	.04	.06	.07	.09	.11	.13	.16	.18	.21
32	40x36	48x30	64x22	78x18	96x16			CFM	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000
	44x32	56x26	64x24	84x18	102x14			NC	L	L	23	29	34	38	41	44	47	50	52	54	56
	44x34	60x24	72x20	90x16	108x14			PT	.01	.01	.02	.03	.04	.06	.07	.09	.11	.13	.15	.18	.20
33	40x40	56x28	64x26	78x22	102x16	126x14		CFM	2222	3333	4444	5555	6666	7777	8888	9999	11110	12221	13332	14443	15554
	44x36	56x30	72x22	84x20	108x16																
	48x32	60x26	72x24	90x18	114x14			NC	L	L	23	29	34	38	41	44	47	50	52	54	56
	48x34	60x28	78x20	96x18	120x14			PT	.01	.01	.02	.03	.04	.06	.07	.09	.11	.13	.15	.17	.20
34	40x44	48x40	60x32	78x24	102x18	132x14		CFM	2444	3666	4888	6110	7332	8554	9776	10998	12220	13442	14664	15886	17108
	40x48	56x32	64x28	84x22	108x18	138x14		NC	L	L	24	30	35	39	42	45	48	51	53	55	57
	44x40	56x34	64x30	90x20	114x16			PT	.01	.01	.02	.03	.04	.06	.07	.09	.11	.13	.15	.17	.20
35	44x44	56x36	72x28	90x22	102x20	120x18		CFM	2688	4032	5376	6720	8864	9408	10752	12096	13440	14784	16128	17470	18816
	44x48	60x34	72x30	90x24	108x20	126x16		NC	L	L	24	30	35	39	42	45	48	51	53	55	57
	48x44	64x32	84x24	96x22	114x18	132x16		PT	.01	.01	.02	.03	.04	.06	.07	.09	.11	.13	.15	.17	.20
36	40x54	60x36	72x32	108x22	138x16			CFM	3000	4500	6000	7500	9000	10500	12000	13500	15000	16500	18000	19500	21000
	44x45	64x34	96x24	126x18	144x16			NC	L	L	24	30	35	39	42	45	48	51	53	55	57
	48x48	64x36	102x22	132x18				PT	.01	.01	.02	.03	.04	.06	.07	.09	.11	.13	.15	.17	.20
37	48x54	102x24	144x18					CFM	3600	5400	7200	9000	10800	12600	14400	16200	18000	19800	21600	23400	25200
	72x34	108x24						NC	L	L	25	31	36	40	43	46	49	52	54	56	58
	72x36	138x18						PT	.01	.01	.02	.03	.04	.06	.07	.09	.10	.12	.14	.17	.19

Notes on Performance Data

- Performance data is based on tests conducted in accordance with ANSI/ASHRAE Standard 70-1991.
- Actual performance in the field may vary.
- Tests were conducted in isothermal conditions.
- Sound levels are based on a room absorption of 10 db re 10^{-12} watts.

Notes on Units of Measure Used

- Air flow is given in cubic feet per minute (CFM).
- Static and Total Pressure is given in inches of water (w.g.).
- Sound data is given in NC.
- L indicates an NC of less than 20.