

Spiral Duct Grilles

(RD_M)

The Carnes RD series of spiral duct grilles and diffusers offer a clean, unobtrusive look with easy installation. These units mount flush to the duct eliminating any need for stand offs. The extruded aluminum frames are welded on the corners and the end caps are curved to match the spiral duct radius. These are available in single deflection, double deflection, perforated or a linear slot diffuser configuration.

All Carnes RD models have the following features:

- Radiused end caps for flush mounting.
- Extruded aluminum construction.
- Countersunk mounting screws standard.
- All units are available with white or natural anodized finish.
- Air scoop dampers are available on all models.
- Thick foam gasketing provided as standard.
- 3/4" blade spacing on single and double deflection models.



Application

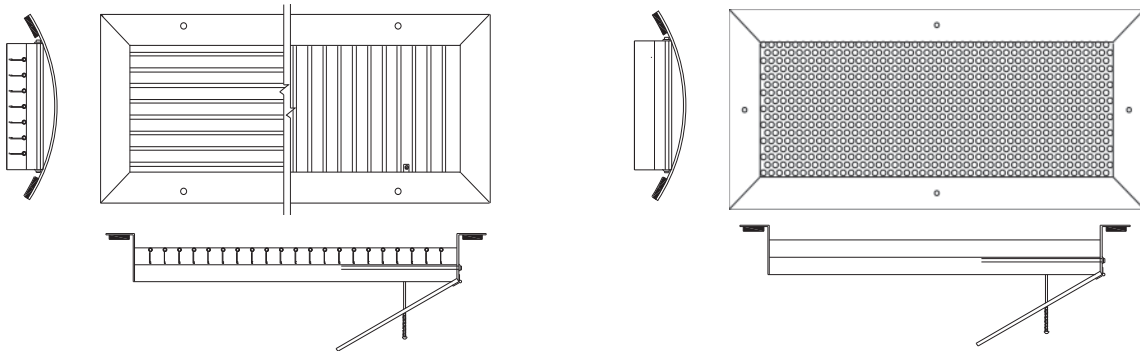
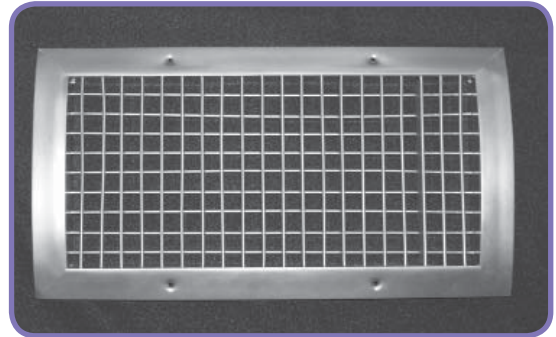
The Carnes Model RD is a curved grille designed to fit flush to the spiral duct without any stand offs necessary. Available models include single deflection, double deflection, perforated and linear slot. These grilles offer a clean, subtle look that performs well and is easy to install.

Standard Features

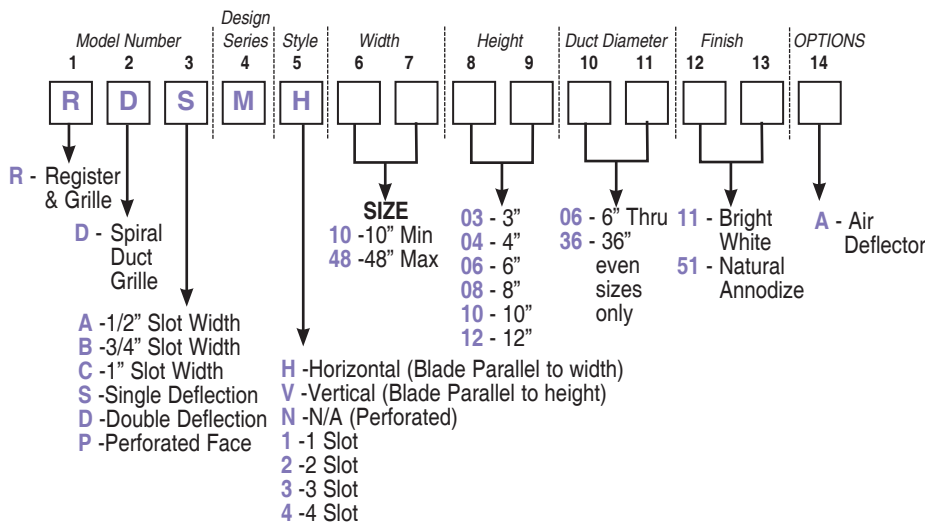
- Single and deflections models feature teardrop blades on 3/4" spacing. Vertical front blades are standard.
- All models have thick foam gasketing on the back of the frame.
- Countersunk screws used for mounting.
- All blades are individually adjustable.
- All mitered corners are welded.
- White or anodized colors are available as standard.

Optional Features

- Air scoop dampers available on all models.
- Colors other than standard are available upon request.
- Sizes other than standard are available upon request.



Model Numbering System



Correction Factors for Grille Performance

- **Total Pressure (Pt)** - Use table data unchanged.
- **Throw** - Use table data unchanged for 0° setting. Multiply the table data by the following factor for different blade angle settings.

Blade Angle Setting	22-1/2°	45°
Factor	0.89	0.60

Sound Level

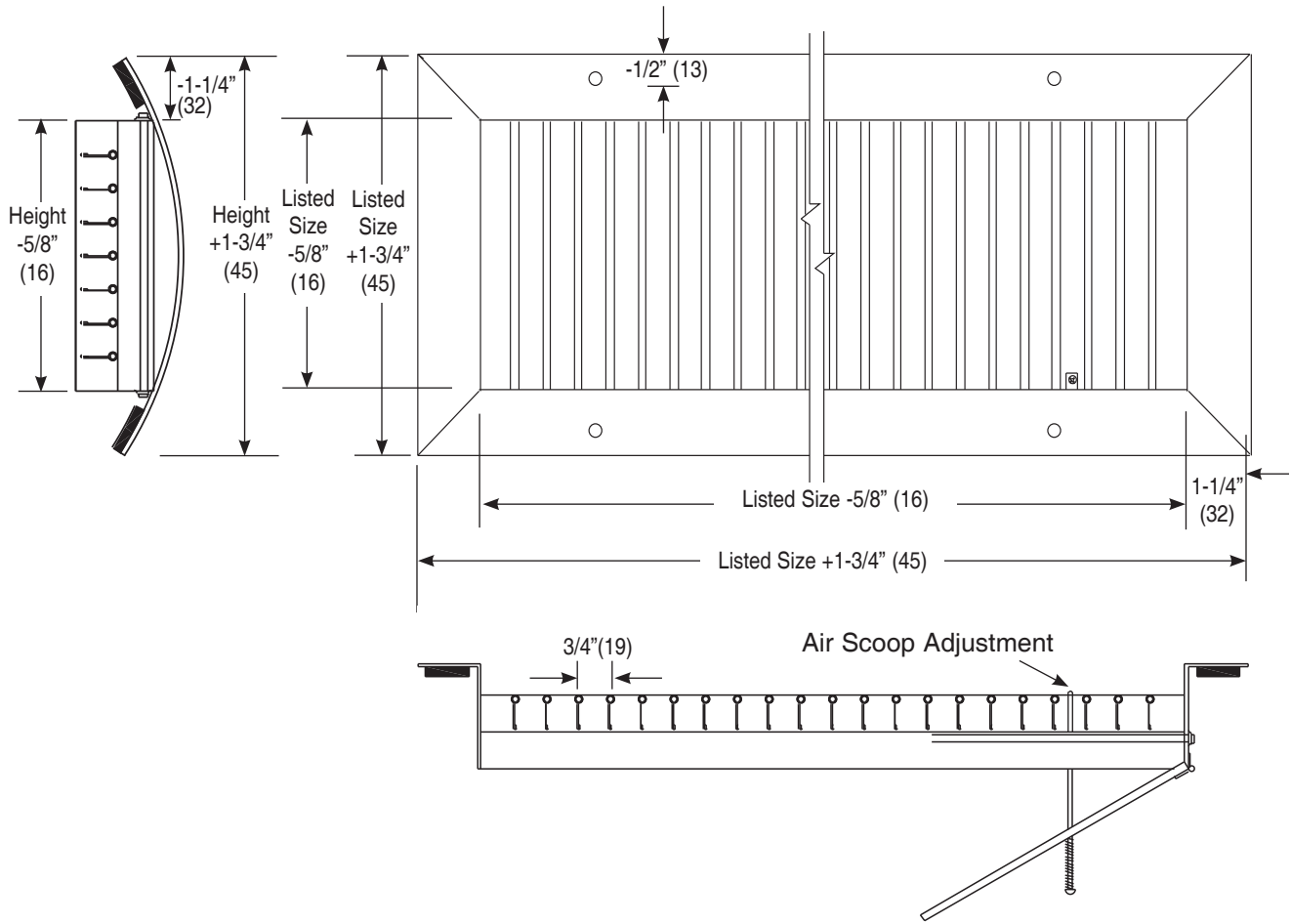
Use table data unchanged for 0° setting. Add the following to arrive at NC values for different blade angle settings.

Duct Velocity (fpm)	300	400	500	600	700	800	900	1000	1200
45° Blade Setting	6	6	6	6	5	5	5	5	5

Correction Factors for Grilles with Air Scoop Damper

- **Total Pressure - V_{se}**
- **Total Pressure** - Multiply cataloged data by 0.5
- All other data remains the same.

Model RDSM

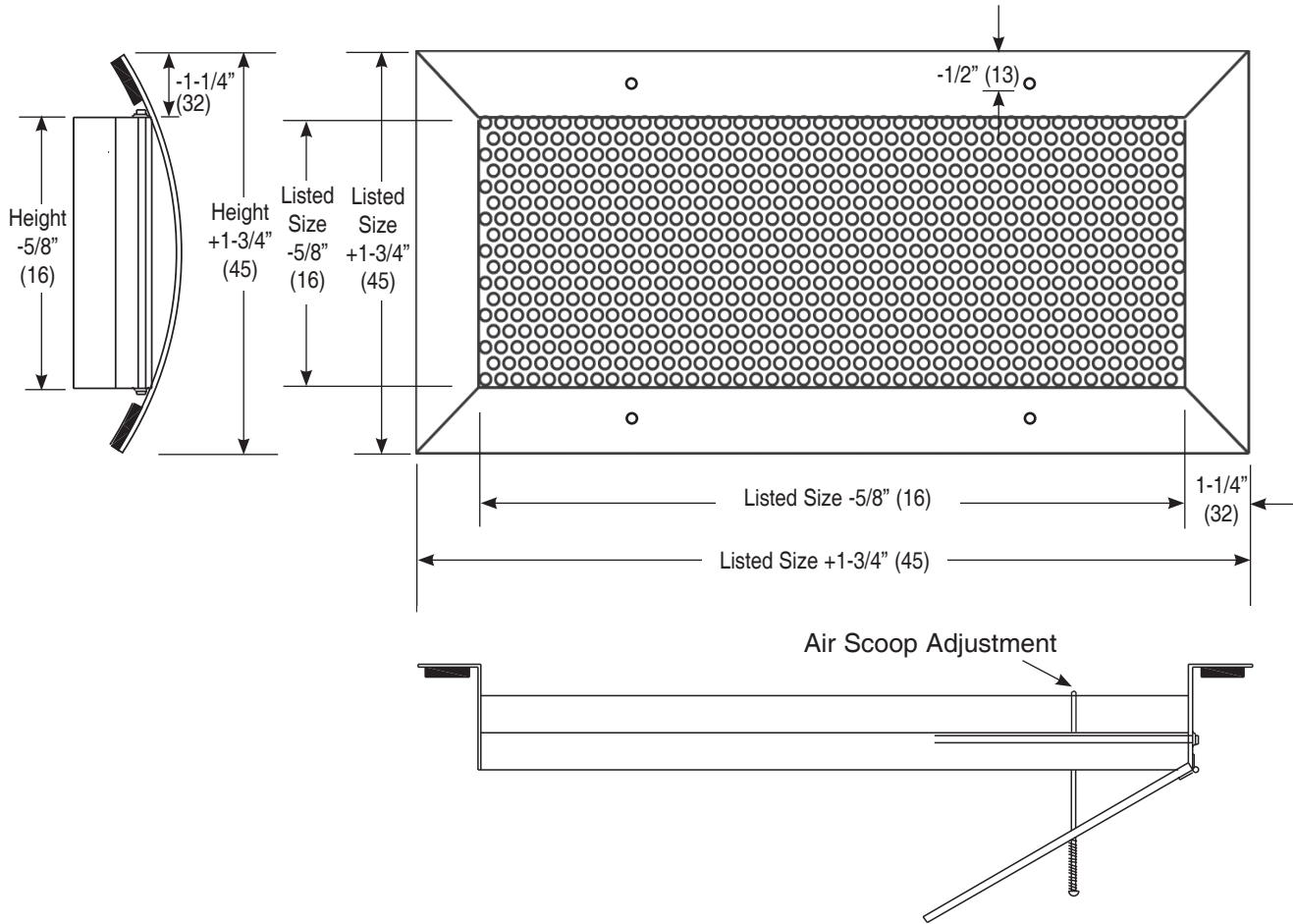


NOTES:

- Standard screws are #6 x 1 1/4" (32) phillips countersunk screws.
- Standard color is Carnes bright white. Other colors are available on request.
- Blades can be aligned either horizontally or vertically, and are individually adjustable.
- Standard sizing is in even inch increments in both dimensions.
- The standard operator on the damper takes a medium size screwdriver.
- Metric dimensions are given in millimeters.
- Optional air scoop damper available.
- Thick foam gasket standard.
- Blades are individually adjustable.
- Larger sizes available upon request.
- Gasketing on frame is standard.
- Max 36" length in one piece.

Dimensions Listed In Inches						
Height	3	4	6	8	10	12
Duct Diameter (Min/Max)	6 / 36	8 / 36	10 / 36	12 / 36	14 / 36	16 / 36
Width (Min/Max)	10 / 36			14 / 36	16 / 36	18 / 36

Model RDPM

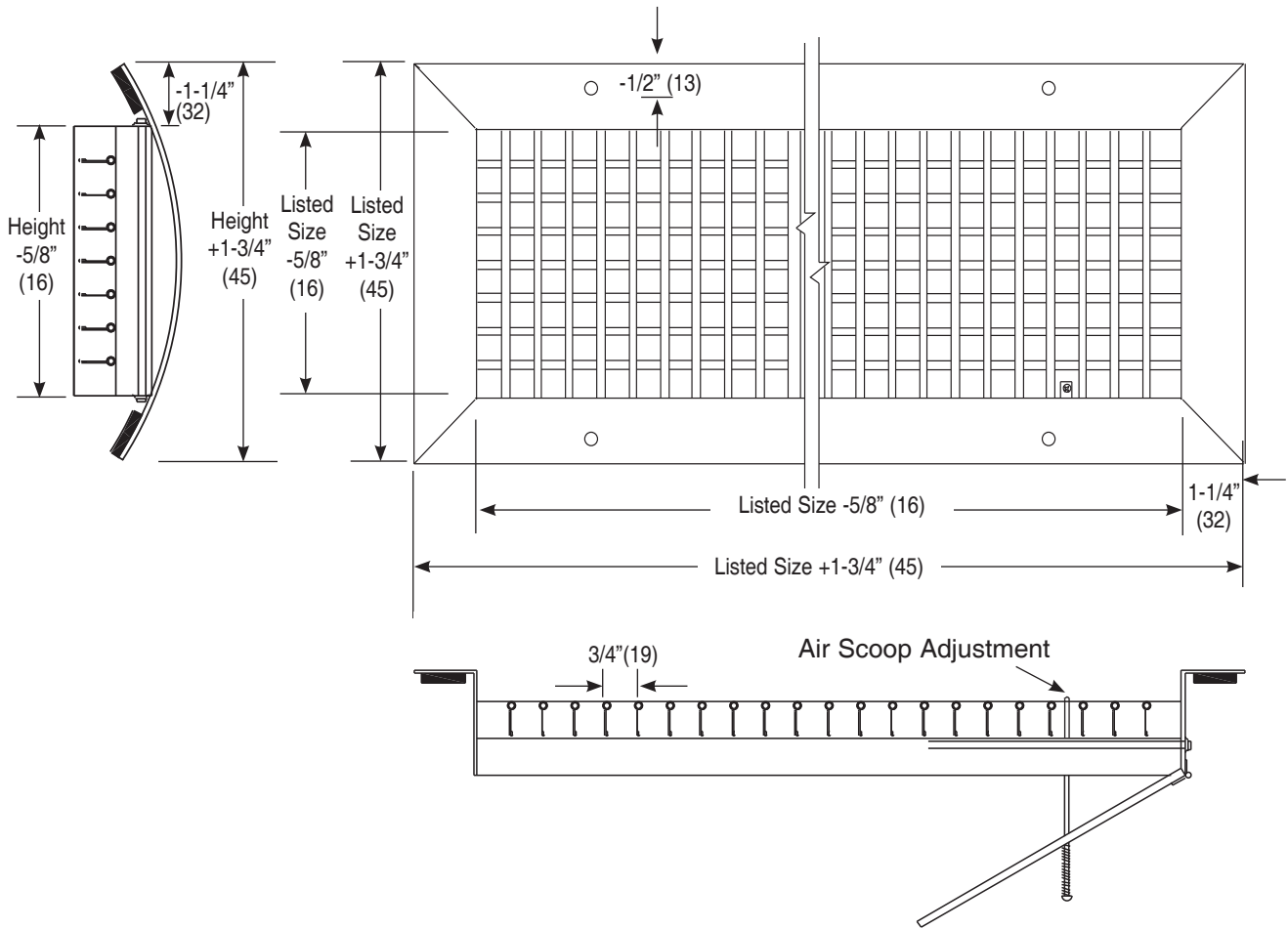


NOTES:

1. Standard screws are #6 x 1 1/4" (32) phillips countersunk screws.
2. Standard color is Carnes bright white. Other colors are available on request.
3. Perforated material has a 51% free area.
4. Standard sizing is in even inch increments in both dimensions.
5. The standard operator on the damper takes a medium size screwdriver.
6. Metric dimensions are given in millimeters.
7. Optional air scoop damper available.
8. Thick foam gasket standard.
9. Larger sizes available upon request.
10. Gasketing on frame is standard.
11. Max 36" length in one piece.

Dimensions Listed In Inches						
Height	3	4	6	8	10	12
Duct Diameter (Min/Max)	6 / 36	8 / 36	10 / 36	12 / 36	14 / 36	16 / 36
Width (Min/Max)	10 / 36			14 / 36	16 / 36	18 / 36

Model RDDM



NOTES:

1. Standard screws are #6 x 1 1/4" (32) phillips countersunk screws.
2. Standard color is Carnes bright white. Other colors are available on request.
3. Blades can be aligned either horizontally or vertically, and are individually adjustable.
4. Standard sizing is in even inch increments in both dimensions.
5. The standard operator on the damper takes a medium size screwdriver.
6. Metric dimensions are given in millimeters.
7. Optional air scoop damper available.
8. Thick foam gasket standard.
9. Blades are individually adjustable.
10. Larger sizes available upon request.
11. Gasketing on frame is standard.
12. Max 36" length in one piece.

Dimensions Listed In Inches						
Height	3	4	6	8	10	12
Duct Diameter (Min/Max)	6 / 36	8 / 36	10 / 36	12 / 36	14 / 36	16 / 36
Width (Min/Max)	10 / 36			14 / 36	16 / 36	18 / 36

Core Area	Core Velocity (FPM)		300	400	500	600	700	800	1000	1200
	Velocity Pressure		0.006	0.01	0.016	0.022	0.031	0.04	0.062	0.09
	Total Pressure	0°	0.017	0.031	0.048	0.069	0.094	0.123	0.192	0.277
		22.5°	0.022	0.039	0.061	0.088	0.119	0.156	0.244	0.351
45°		0.033	0.06	0.093	0.134	0.182	0.238	0.372	0.536	
10 x 3	CFM		42	56	70	84	98	112	140	168
	NC		-	-	-	14	18	24	28	41
	Throw (ft)	0°	3 - 6 - 8	4 - 7 - 10	5 - 8 - 11	6 - 8 - 12	7 - 9 - 12	8 - 10 - 13	9 - 10 - 14	10 - 12 - 17
		22.5°	2 - 5 - 6	3 - 5 - 7	4 - 6 - 8	5 - 6 - 9	5 - 7 - 10	6 - 7 - 11	7 - 8 - 12	8 - 10 - 14
45°		1 - 3 - 4	2 - 3 - 4	2 - 3 - 5	3 - 4 - 5	3 - 4 - 6	4 - 4 - 6	4 - 5 - 7	5 - 6 - 8	
12 x 3	CFM		54	72	90	108	126	144	180	252
	NC		-	-	-	15	19	25	30	42
	Throw (ft)	0°	5 - 7 - 9	6 - 8 - 11	7 - 9 - 12	8 - 9 - 13	8 - 10 - 13	9 - 11 - 14	10 - 12 - 16	12 - 14 - 19
		22.5°	4 - 5 - 7	5 - 6 - 8	5 - 7 - 9	6 - 7 - 10	6 - 8 - 11	7 - 8 - 12	8 - 9 - 13	9 - 11 - 16
45°		2 - 3 - 4	3 - 3 - 5	3 - 4 - 5	3 - 4 - 6	4 - 5 - 7	4 - 5 - 7	4 - 5 - 8	5 - 7 - 9	
14 x 3 10 x 4	CFM		63	84	105	126	147	168	210	294
	NC		-	-	-	16	20	26	30	42
	Throw (ft)	0°	5 - 7 - 10	7 - 8 - 12	8 - 9 - 13	8 - 10 - 14	9 - 11 - 15	10 - 12 - 16	11 - 13 - 18	13 - 16 - 21
		22.5°	4 - 6 - 8	5 - 6 - 9	6 - 7 - 10	6 - 8 - 11	7 - 9 - 12	7 - 9 - 13	8 - 10 - 14	10 - 12 - 17
45°		2 - 3 - 5	3 - 4 - 5	3 - 4 - 6	4 - 5 - 7	4 - 5 - 7	4 - 5 - 8	5 - 6 - 8	6 - 7 - 10	
16 x 3 12 x 4 10 x 5	CFM		75	100	125	150	175	200	250	350
	NC		-	-	11	17	20	26	31	43
	Throw (ft)	0°	5 - 8 - 11	7 - 9 - 13	8 - 10 - 14	9 - 11 - 16	10 - 12 - 16	11 - 13 - 17	12 - 14 - 19	14 - 17 - 23
		22.5°	4 - 6 - 9	6 - 7 - 10	6 - 8 - 11	7 - 9 - 12	9 - 9 - 13	8 - 10 - 14	9 - 11 - 16	11 - 13 - 19
45°		2 - 4 - 5	3 - 4 - 6	4 - 5 - 6	4 - 5 - 7	4 - 5 - 8	5 - 6 - 8	5 - 6 - 9	6 - 8 - 11	
18 x 3 14 x 4	CFM		81	108	135	162	189	216	270	378
	NC		-	-	12	17	21	27	31	43
	Throw (ft)	0°	6 - 8 - 12	8 - 9 - 13	9 - 11 - 15	9 - 12 - 16	10 - 13 - 17	11 - 13 - 18	12 - 15 - 20	14 - 17 - 24
		22.5°	4 - 6 - 9	6 - 7 - 10	7 - 8 - 12	7 - 9 - 13	8 - 10 - 14	8 - 10 - 15	9 - 12 - 16	11 - 14 - 19
45°		2 - 4 - 5	3 - 4 - 6	4 - 5 - 7	4 - 5 - 7	5 - 6 - 8	5 - 6 - 9	5 - 7 - 10	7 - 8 - 11	
20 x 3 10 x 6	CFM		90	120	150	180	210	240	300	420
	NC		-	-	12	17	21	27	32	44
	Throw (ft)	0°	6 - 9 - 12	8 - 10 - 14	9 - 11 - 16	10 - 12 - 17	11 - 13 - 18	12 - 14 - 19	13 - 16 - 21	15 - 19 - 25
		22.5°	5 - 7 - 9	6 - 8 - 11	7 - 9 - 12	8 - 9 - 13	8 - 10 - 14	9 - 11 - 15	10 - 12 - 17	12 - 14 - 20
45°		3 - 4 - 5	4 - 4 - 6	4 - 5 - 7	4 - 5 - 8	5 - 6 - 8	5 - 6 - 9	6 - 7 - 10	7 - 8 - 12	
22 x 3 16 x 4 12 x 5 10 x 6	CFM		102	136	170	204	238	272	340	476
	NC		-	-	12	18	22	28	32	44
	Throw (ft)	0°	6 - 9 - 13	9 - 11 - 15	10 - 12 - 17	11 - 13 - 18	11 - 14 - 19	12 - 15 - 20	14 - 17 - 23	16 - 20 - 27
		22.5°	5 - 7 - 10	7 - 8 - 12	8 - 9 - 13	8 - 10 - 14	9 - 11 - 15	9 - 12 - 16	11 - 13 - 18	13 - 15 - 22
45°		3 - 4 - 6	4 - 5 - 7	4 - 5 - 8	5 - 6 - 8	5 - 6 - 9	6 - 7 - 10	6 - 8 - 11	7 - 9 - 13	
24 x 3 18 x 4 14 x 5 12 x 6	CFM		117	156	195	234	273	312	390	546
	NC		-	-	13	18	22	28	33	45
	Throw (ft)	0°	7 - 10 - 14	9 - 11 - 16	10 - 13 - 18	11 - 14 - 20	12 - 15 - 20	13 - 16 - 22	15 - 18 - 24	17 - 21 - 29
		22.5°	5 - 8 - 11	7 - 9 - 12	8 - 10 - 14	9 - 11 - 15	10 - 12 - 16	10 - 12 - 18	11 - 14 - 20	13 - 16 - 23
45°		3 - 4 - 6	4 - 5 - 7	5 - 6 - 8	5 - 6 - 9	6 - 7 - 10	6 - 7 - 10	7 - 8 - 11	8 - 10 - 14	
28 x 3 20 x 4 16 x 5 14 x 6 10 x 8	CFM		129	172	215	258	301	344	430	602
	NC		-	-	13	19	23	28	33	45
	Throw (ft)	0°	7 - 12 - 15	10 - 12 - 17	11 - 13 - 19	12 - 15 - 21	13 - 16 - 21	14 - 17 - 23	15 - 19 - 26	18 - 22 - 31
		22.5°	5 - 8 - 11	8 - 9 - 13	8 - 10 - 15	9 - 11 - 16	10 - 12 - 17	11 - 13 - 18	12 - 15 - 21	14 - 17 - 24
45°		3 - 5 - 7	4 - 5 - 8	5 - 6 - 8	5 - 7 - 9	6 - 7 - 10	6 - 8 - 11	7 - 8 - 12	8 - 10 - 14	
22 x 4 30 x 3	CFM		144	192	240	288	336	384	480	672
	NC		-	-	14	19	23	29	34	46
	Throw (ft)	0°	7 - 11 - 15	10 - 13 - 18	12 - 14 - 20	13 - 15 - 22	14 - 17 - 23	15 - 18 - 24	16 - 20 - 27	19 - 24 - 32
		22.5°	6 - 8 - 12	8 - 10 - 14	9 - 11 - 15	10 - 12 - 17	11 - 13 - 18	11 - 14 - 20	13 - 15 - 22	15 - 18 - 26
45°		3 - 5 - 7	5 - 6 - 8	5 - 6 - 9	6 - 7 - 10	6 - 8 - 11	7 - 8 - 11	7 - 9 - 13	9 - 11 - 15	

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 Pressure is given in inches of water (w.g.).
- Sound data is given in NC.
- Throws are given in feet to terminal velocity of 150, 100 and 50 fpm, respectively.

Core Area	Core Velocity (FPM)		300	400	500	600	700	800	1000	1200
	Velocity Pressure		0.006	0.01	0.016	0.022	0.031	0.04	0.062	0.09
	Total Pressure	0°	0.017	0.031	0.048	0.069	0.094	0.123	0.192	0.277
		22.5°	0.022	0.039	0.061	0.088	0.119	0.156	0.244	0.351
45°		0.033	0.06	0.093	0.134	0.182	0.238	0.372	0.536	
26 x 4 20 x 5 18 x 6 12 x 8	CFM		177	236	295	354	413	472	590	826
	NC		-	-	15	20	24	30	34	47
	Throw (ft)	0°	8 - 12 - 17	11 - 14 - 20	13 - 16 - 22	14 - 17 - 24	15 - 18 - 25	16 - 20 - 27	18 - 22 - 30	21 - 26 - 36
		22.5°	6 - 9 - 13	9 - 11 - 15	10 - 12 - 17	11 - 13 - 19	12 - 14 - 20	13 - 15 - 22	14 - 17 - 24	17 - 20 - 29
45°		4 - 5 - 8	5 - 6 - 9	6 - 7 - 10	6 - 8 - 11	7 - 8 - 12	7 - 9 - 13	8 - 10 - 14	10 - 12 - 17	
36 x 3 28 x 4 18 x 6	CFM		189	252	315	378	441	504	630	882
	NC		-	-	15	20	24	28	35	47
	Throw (ft)	0°	8 - 13 - 18	12 - 14 - 20	13 - 16 - 23	14 - 18 - 25	16 - 19 - 26	17 - 20 - 28	19 - 23 - 31	22 - 27 - 37
		22.5°	7 - 10 - 14	9 - 11 - 16	10 - 13 - 18	11 - 14 - 19	12 - 15 - 21	13 - 16 - 22	14 - 18 - 25	17 - 21 - 30
45°		4 - 6 - 8	5 - 7 - 9	6 - 7 - 10	7 - 8 - 11	7 - 9 - 12	8 - 9 - 13	8 - 10 - 15	10 - 12 - 17	
30 x 4 24 x 5 20 x 6 14 x 8 12 x 10	CFM		198	264	330	396	462	528	660	924
	NC		-	-	15	21	24	30	35	47
	Throw (ft)	0°	9 - 13 - 18	12 - 15 - 21	13 - 17 - 23	15 - 18 - 26	16 - 20 - 27	17 - 21 - 29	19 - 23 - 32	23 - 28 - 38
		22.5°	7 - 10 - 14	9 - 11 - 16	10 - 13 - 18	11 - 14 - 20	12 - 15 - 21	13 - 16 - 23	15 - 18 - 26	18 - 21 - 30
45°		4 - 6 - 8	5 - 7 - 9	6 - 7 - 11	7 - 8 - 12	7 - 9 - 12	8 - 9 - 13	9 - 11 - 15	10 - 12 - 18	
32 x 4 16 x 8	CFM		213	284	355	426	497	568	710	994
	NC		-	-	16	21	25	31	35	47
	Throw (ft)	0°	9 - 13 - 19	13 - 15 - 22	14 - 17 - 24	15 - 19 - 27	17 - 20 - 28	18 - 22 - 30	20 - 24 - 33	23 - 29 - 40
		22.5°	7 - 10 - 15	10 - 12 - 17	11 - 13 - 19	12 - 15 - 21	13 - 16 - 22	14 - 17 - 24	15 - 19 - 27	18 - 22 - 31
45°		4 - 6 - 8	6 - 7 - 10	6 - 8 - 11	7 - 8 - 12	7 - 9 - 13	8 - 10 - 14	9 - 11 - 15	11 - 13 - 18	
36 x 4 24 x 6 18 x 8 16 x 10 12 x 12	CFM		264	352	440	528	616	704	880	1232
	NC		-	-	16	22	25	31	36	48
	Throw (ft)	0°	10 - 15 - 21	14 - 17 - 24	16 - 19 - 27	17 - 21 - 30	18 - 23 - 31	20 - 24 - 33	22 - 27 - 37	26 - 32 - 44
		22.5°	8 - 11 - 13	11 - 13 - 19	12 - 15 - 21	13 - 16 - 23	14 - 18 - 25	15 - 19 - 26	17 - 21 - 30	20 - 25 - 35
45°		4 - 7 - 9	6 - 8 - 11	7 - 9 - 12	8 - 9 - 13	8 - 10 - 14	9 - 11 - 15	10 - 12 - 17	14 - 14 - 20	
36 x 5 30 x 6 22 x 8 18 x 10 14 x 12	CFM		333	444	555	666	777	888	1110	1554
	NC		-	11	17	23	26	30	37	49
	Throw (ft)	0°	11 - 17 - 23	16 - 19 - 27	18 - 21 - 30	19 - 23 - 33	21 - 25 - 35	22 - 27 - 37	25 - 30 - 42	29 - 36 - 50
		22.5°	9 - 13 - 18	12 - 15 - 21	14 - 17 - 23	15 - 18 - 26	16 - 20 - 28	17 - 21 - 30	19 - 23 - 33	23 - 28 - 39
45°		5 - 7 - 11	7 - 9 - 12	8 - 10 - 14	9 - 11 - 15	9 - 11 - 16	10 - 12 - 17	11 - 14 - 19	13 - 16 - 23	
36 x 6 28 x 8 25 x 9 22 x 10 18 x 12	CFM		405	540	675	810	945	1080	1350	1890
	NC		-	12	18	24	27	33	38	50
	Throw (ft)	0°	12 - 18 - 26	17 - 21 - 30	19 - 24 - 33	21 - 26 - 37	23 - 28 - 39	24 - 30 - 41	27 - 33 - 47	32 - 40 - 56
		22.5°	10 - 14 - 20	13 - 16 - 23	15 - 18 - 26	16 - 20 - 28	18 - 22 - 31	19 - 23 - 33	21 - 26 - 37	25 - 31 - 43
45°		6 - 8 - 12	8 - 10 - 13	9 - 11 - 15	10 - 12 - 16	10 - 13 - 18	11 - 13 - 19	12 - 15 - 21	15 - 18 - 25	
30 x 8 24 x 10	CFM		447	596	745	894	1043	1192	1490	2086
	NC		-	12	19	24	28	34	38	50
	Throw (ft)	0°	13 - 19 - 27	18 - 22 - 31	20 - 25 - 35	22 - 27 - 38	24 - 29 - 41	26 - 31 - 43	29 - 35 - 49	34 - 42 - 58
		22.5°	10 - 15 - 21	14 - 17 - 24	16 - 19 - 27	17 - 21 - 30	19 - 23 - 32	20 - 24 - 34	22 - 27 - 38	26 - 32 - 46
45°		6 - 9 - 12	8 - 10 - 14	9 - 11 - 16	10 - 12 - 17	11 - 13 - 19	12 - 14 - 20	13 - 16 - 22	15 - 19 - 26	
36 x 8 28 x 10 24 x 12	CFM		546	728	910	1092	1274	1456	1820	2548
	NC		-	13	19	25	29	35	41	51
	Throw (ft)	0°	14 - 21 - 30	20 - 25 - 35	22 - 27 - 39	25 - 30 - 43	27 - 32 - 45	28 - 35 - 48	32 - 39 - 54	38 - 46 - 64
		22.5°	11 - 16 - 23	16 - 19 - 27	17 - 21 - 30	19 - 23 - 33	21 - 25 - 36	22 - 27 - 38	25 - 30 - 43	29 - 36 - 50
45°		6 - 10 - 14	9 - 11 - 16	10 - 12 - 17	11 - 14 - 19	12 - 15 - 21	13 - 16 - 22	14 - 17 - 25	17 - 21 - 29	
36 x 10 30 x 12 41 x 9	CFM		687	916	1145	1374	1603	1832	2290	3206
	NC		-	14	20	26	29	35	42	52
	Throw (ft)	0°	16 - 24 - 34	22 - 28 - 35	25 - 31 - 44	27 - 34 - 48	30 - 36 - 51	32 - 39 - 54	36 - 44 - 61	42 - 52 - 71
		22.5°	12 - 18 - 26	17 - 21 - 30	19 - 24 - 34	21 - 26 - 37	23 - 28 - 40	25 - 30 - 43	28 - 34 - 48	33 - 40 - 56
45°		7 - 11 - 15	10 - 12 - 18	11 - 14 - 20	12 - 15 - 21	13 - 16 - 23	14 - 18 - 25	16 - 20 - 28	19 - 23 - 33	
36 x 12	CFM		825	1100	1375	1650	1925	2200	2750	3850
	NC		-	15	21	27	30	36	43	53
	Throw (ft)	0°	18 - 26 - 37	25 - 30 - 43	28 - 34 - 48	30 - 37 - 52	33 - 40 - 54	35 - 43 - 58	39 - 48 - 66	46 - 56 - 78
		22.5°	14 - 20 - 29	19 - 23 - 33	21 - 26 - 37	23 - 29 - 41	25 - 31 - 44	27 - 33 - 47	30 - 37 - 52	36 - 44 - 62
45°		8 - 12 - 17	11 - 14 - 19	12 - 15 - 21	14 - 17 - 24	15 - 18 - 25	16 - 19 - 27	18 - 21 - 30	21 - 25 - 36	

Notes on Performance Data

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