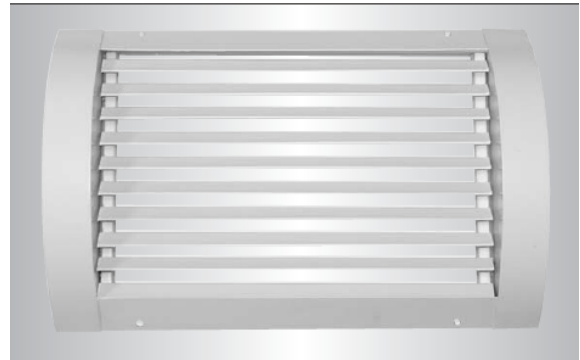


INTRODUCTION

SINGLE DEFLECTION CURVED DUCT GRILLES



Model: CDG-HF

Model: CDG-HA

COSMOS single deflection curved duct grilles and registers are recommended for applications requiring pattern adjustment in a single horizontal or vertical plane.

The innovative design incorporates a unique frame rolled to match the required duct radius. The grille frame mounts flush with the spiral/curved duct.

COSMOS make model CDG-HF is a curved duct grille with fixed horizontal bar blades and model CDG-HA is a single deflection curved duct grille with horizontal adjustable blades. Horizontal blades will control the rise and drop of the air pattern, typically cool air upwards along the ceiling. Model CDG-HF is horizontal fixed blade type curved duct grille.

Spacing between the blades is 20mm, thus maintains high effective area, which minimize outlet velocity, reduce pressure drop and assures quiet operation.

COSMOS models CDG-HF-D and CDG-HA-D are curved duct grilles with integral volume control damper. Dampers are opposed blade design with screwdriver slot operator

FEATURES

- High quality, extruded aluminum construction.
- 27mm and 16mm rolled form flange to match required duct radius.
- Rigid, heavy gauge extruded frame with reinforced mitered corners.
- A single set of individually adjustable and friction pivoted.
- Extruded blades on 20mm centers. Blades positively hold deflection setting under all conditions of velocity and pressure.
- Aluminum integral dampers are opposed blade design with screwdriver slot operator.
- Adjustable air pattern – Blades are friction pivoted and easily adjusted to provide desired spread or deflection.

FINISH

- Standard RAL 9016 powder coated. Collar damper in matt black shade. Other finishes available on request.

DOUBLE DEFLECTION CURVED DUCT GRILLES



Model CDG-HVA

COSMOS double deflection curved duct grilles and registers are recommended for applications in systems requiring maximum flexibility.

The innovative design incorporates a unique frame rolled to match the required duct radius. The grille frame mounts flush with the spiral/curved duct. Front set of blades has the greatest effect on the air pattern and therefore should be selected based on particular requirements.

Model CDG-HVA is also a double deflection curved duct grille with front horizontal adjustable blades and rear vertical blades. Horizontal blades will control the rise and drop of the air pattern, typically cool air upwards along the ceiling.

Spacing between the blades is 20mm, thus maintains high effective area, which minimize outlet velocity, reduce pressure drop and assures quiet operation.

COSMOS model CDG-HVA-D is double deflection curved duct grilles with integral volume control damper. Dampers are opposed blade design with screwdriver slot operator.

FEATURES

- High quality, extruded aluminum construction.
- 27mm and 16mm rolled form flange to match required duct radius.
- Rigid, heavy gauge extruded frame with reinforced mitered corners.
- A dual set of individually adjustable and friction pivoted.
- Extruded blades on 20mm centers. Blades positively hold deflection setting under all conditions of velocity and pressure.
- Aluminum integral dampers are opposed blade design with screwdriver slot operator.
- Adjustable air pattern – Blades are friction pivoted and easily adjusted to provide desired spread or deflection.

FINISH

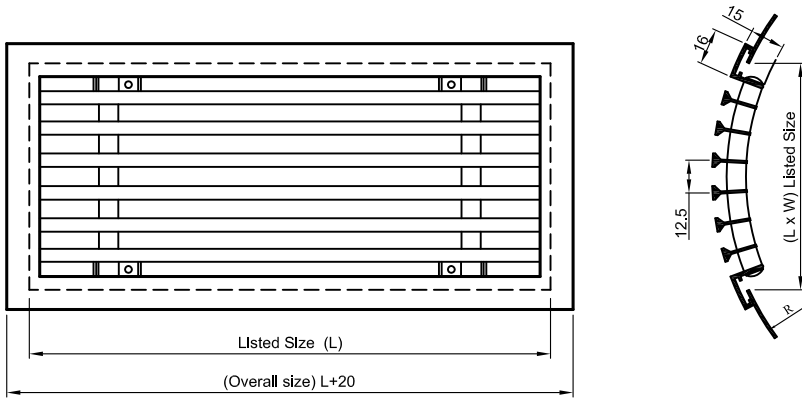
- Standard RAL 9016 powder coated. Collar damper in matt black shade. Other finishes available on request.

DUCT DIAMETER AND NOMINAL GRILL WIDTH

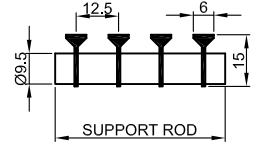
Duct Dia	Nominal Width (mm)					
mm	75	100	150	200	250	300
150	✓	✓				
200	✓	✓	✓			
250	✓	✓	✓	✓		
300	✓	✓	✓	✓	✓	
350	✓	✓	✓	✓	✓	✓
400	✓	✓	✓	✓	✓	✓
450	✓	✓	✓	✓	✓	✓
500	✓	✓	✓	✓	✓	✓
550	✓	✓	✓	✓	✓	✓
600	✓	✓	✓	✓	✓	✓
650	✓	✓	✓	✓	✓	✓
700	✓	✓	✓	✓	✓	✓
750	✓	✓	✓	✓	✓	✓
800	✓	✓	✓	✓	✓	✓
900	✓	✓	✓	✓	✓	✓

Dimensional data
CURVED DUCT GRILLE

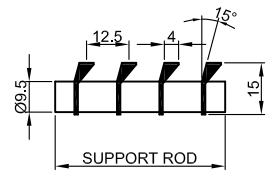
Horizontal fixed bar



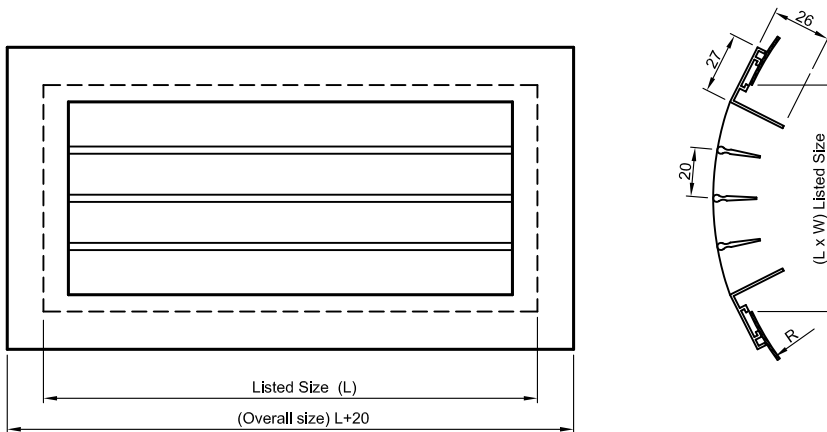
0° Deflection bar



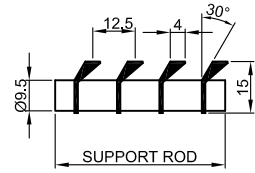
15° Deflection bar



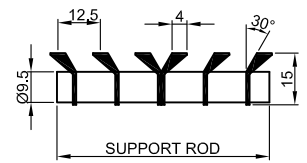
Horizontal adjustable bar



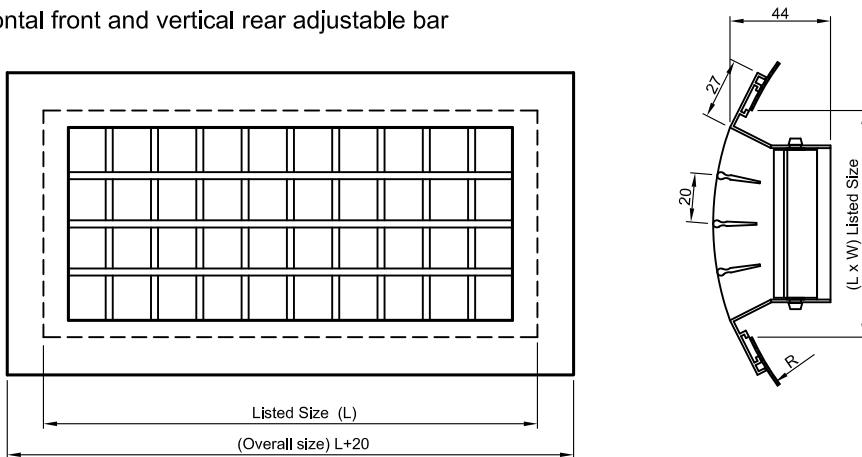
30° Deflection bar



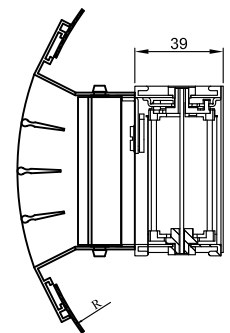
30° Two Way Deflection bar



Horizontal front and vertical rear adjustable bar



With attached opposed blade damper



Performance Data:

Curved Duct Grille - Fixed Blade Data

Model: CDG-HF

Free area Square Feet Per Lineal Foot	Nominal duct width (Inches)	SP (Inch w.g.)	0.01	0.022	0.039	0.062	0.087	0.119	0.156	0.198	0.245
0.069	2	CFM per Foot	27	41	55	69	82	96	110	124	138
		NC	-	-	14	20	26	31	35	38	42
		T, Sill or Floor	2-2-2	6-6-6	8-8-9	11-12-13	13-14-16	15-17-19	18-20-22	21-22-23	22-23-24
		Side Wall	4-6-9	6-9-12	8-12-17	11-16-22	13-19-25	15-21-28	18-25-32	21-28-36	22-30-39
0.085	2.5	CFM per Foot	32	51	68	85	101	118	136	153	170
		NC	-	-	15	21	27	32	36	39	42
		T, Sill or Floor	2-2-2	7-7-7	10-10-11	12-13-15	15-16-18	18-19-21	20-22-24	24-24-25	26-26-27
		Side Wall	5-7-10	7-11-15	10-14-19	12-17-23	15-21-27	18-24-31	20-27-34	24-31-39	26-34-41
0.105	3	CFM per Foot	41	63	83	105	126	146	168	188	210
		NC	-	-	16	22	28	33	37	40	43
		T, Sill or Floor	3-3-3	8-8-8	12-12-12	15-15-16	18-19-20	20-21-22	23-24-25	25-26-27	29-29-29
		Side Wall	5-7-10	9-12-16	12-16-20	15-20-25	18-23-28	20-26-32	23-29-36	25-32-39	29-36-43
0.121	3.5	CFM per Foot	47	72	95	121	145	163	193	216	242
		NC	-	-	16	22	28	33	37	40	43
		T Sill or Floor	3-3-3	8-8-8	12-12-12	15-15-16	18-19-20	20-21-22	23-24-25	25-26-27	29-29-29
		Side Wall	5-7-10	9-12-16	12-16-20	15-20-25	18-23-28	20-26-32	23-29-36	25-32-39	29-36-43
0.141	4	CFM per Foot	55	84	111	141	169	195	225	252	282
		NC	-	-	17	23	29	34	38	41	44
		T, Sill or Floor	3-3-3	9-9-9	13-13-13	16-16-17	20-20-21	22-23-24	24-25-26	28-28-28	31-31-31
		Side Wall	6-8-11	10-13-17	13-17-21	16-21-26	20-25-31	22-28-34	24-30-37	28-35-41	31-38-45
0.177	5	CFM per Foot	71	106	142	177	212	248	283	318	354
		NC	-	10	18	24	30	35	39	42	45
		T, Sill or Floor	4-4-4	10-10-10	15-15-15	18-18-18	22-22-23	25-25-25	27-27-28	30-30-30	34-34-34
		Side Wall	8-10-13	11-14-18	15-19-23	18-22-27	22-27-32	25-31-37	27-33-39	30-37-43	34-41-47
0.213	6	CFM per Foot	85	127	170	212	254	293	339	382	425
		NC	-	11	20	25	31	36	40	43	46
		T, Sill or Floor	5-5-5	10-10-10	15-15-15	18-18-18	22-22-22	24-24-24	28-28-28	30-30-30	35-35-35
		Side Wall	8-10-13	12-15-19	16-19-24	19-23-28	23-28-34	27-32-38	29-34-39	33-39-44	34-42-47
0.286	8	CFM per Foot	115	171	229	286	342	400	457	513	571
		NC	-	12	21	26	31	36	41	44	47
		T, Sill or Floor	6-6-6	11-11-11	16-16-16	19-19-19	23-23-24	25-25-25	29-29-29	31-31-31	36-36-37
		Side Wall	9-11-14	13-16-20	16-20-24	19-24-29	23-29-35	26-33-39	29-35-40	33-39-45	37-43-48

CFM: Cubic feet per minute
 FPM: Feet per minute
 TP: Total pressure (inch w. g.)
 T: Throw in feet

Performance Notes:

- Throws are given at 150, 100 and 50 feet per minute terminal velocity
- Noise criteria values based on 10dB room absorption, re 10⁻¹² watt

Performance Data:

Curved Duct Grille - Single and Double Deflection Supply Data

Model: **CDG-HA, CDG-HVA**

Grille Size (Inch)		Minimum Duct Diameter Required	Grille Core Area (ft 2)	Vel Press, Pv (Inch w.g.)		0.01	0.01	0.02	0.02	0.03	0.04	0.05	0.06																	
Nom Width W	Nom Height H			Core Velocity (fpm)		300	400	500	600	700	800	900	1000																	
				PT (Inch w.g.)	0°		0.02		0.03		0.04		0.05																	
					0.02		0.06		0.12		0.16		0.2																	
					0.03		0.09		0.18		0.23		0.29																	
				45°		0.06		0.13		0.23		0.36																		
12	3	6" ø	0.18	CFM		50	70	90	110	130	150	160	180																	
				NC		<20	<20	<20	23	28	32	35	38	40																
				Throw	0°		4	5	10	5	7	12	6	9	13	7	11	15	8	11	16	10	12	17	10	13	18	11	13	19
					22.5°		3	4	7	4	5	9	5	7	10	5	8	11	6	8	12	7	9	12	7	9	13	8	10	14
45°		2	3		5	3	4	7	3	5	7	4	6	8	5	6	9	5	7	9	5	7	10	6	7	10				

Throw
 The numbers shown are throw distances, in feet, measured along the jet trajectory axis relating to terminal velocities of 150,100,& 50 fpm.
 Terminal velocity is the air speed, in feet per minute, measured in the supplyair stream.

Pressure
 Pt, represents total pressure for the grille. Total pressure can be calculated as
 $P_t = P_s + P_v$
 Pv, is the air velocity pressure in the duct and is calculated as $P_v = (Velocity/4005)^2$
 All pressures are stated and calculated in inches of water

Noise
 NC shown is for 0°blade angle setting and is noise criteria curve that will not be exceeded at the operating point.
 For 22.5°blade anglesetting, add 2 NC to the tabulated value shown. For for 45°blade anglesetting, add 6 NC to the tabulated value shown.

Performance Data:

Curved Duct Grille - Single and Double Deflection Supply Data

Model: CDG-HA, CDG-HVA

Grille Size (Inch)		Minimum Duct Diameter Required	Grille Core Area (ft ²)	Vel Press, Pv (Inch w.g.)		0.01		0.01		0.02		0.02		0.03		0.04		0.05		0.06										
Nom Width W	Nom Height H			Core Velocity (fpm)		300		400		500		600		700		800		900		1000										
				PT (Inch w.g.)	0°		0.02		0.04		0.06		0.09		0.12		0.16		0.2		0.25									
					22.5°		0.03		0.05		0.08		0.11		0.15		0.19		0.24		0.3									
					45°		0.03		0.06		0.09		0.13		0.18		0.23		0.29		0.36									
36	4	8" ø	0.81	CFM		240		320		410		490		570		650		730		810										
				NC		<20		<20		25		30		34		38		42		45										
				Throw	0°		8	11	22	10	15	25	13	19	28	15	22	31	18	23	33	20	25	35	22	27	37	23	28	39
					22.5°		6	8	16	7	11	18	9	14	20	11	16	22	13	17	24	15	18	25	16	19	27	17	20	28
45°		4	6		12	5	8	13	7	10	15	8	12	17	10	13	18	11	14	19	12	15	20	13	15	22				
24	6	10" ø	0.86	CFM		260		340		430		520		600		690		770		860										
				NC		<20		<20		25		30		35		38		42		45										
				Throw	0°		8	12	22	11	15	26	13	20	29	16	22	32	18	24	34	21	26	36	22	27	39	24	29	41
					22.5°		6	9	16	8	11	19	10	14	21	12	16	23	13	17	24	15	19	26	16	20	28	17	21	29
45°		4	7		12	6	8	14	7	11	16	9	12	17	10	13	18	12	14	20	12	15	21	13	16	22				
18	8	14" ø	0.88	CFM		260		350		440		530		620		700		790		880										
				NC		<20		<20		25		30		35		39		42		45										
				Throw	0°		8	12	22	11	16	26	13	20	29	16	22	32	19	25	34	21	26	36	22	27	39	24	29	41
					22.5°		6	9	16	8	12	19	10	14	21	12	16	23	14	18	25	15	19	26	16	20	28	17	21	30
45°		4	7		12	6	9	14	7	11	16	9	12	17	10	13	18	12	14	20	12	15	21	13	16	23				
12	12	20" ø	0.89	CFM		270		360		440		530		620		710		800		890										
				NC		<20		<20		25		30		35		39		42		45										
				Throw	0°		8	12	23	11	16	27	13	20	29	16	22	32	19	25	34	21	26	37	22	28	39	24	29	41
					22.5°		6	9	17	8	12	19	10	14	21	12	16	23	14	18	25	15	19	27	16	20	28	17	21	30
45°		5	7		13	6	9	15	7	11	16	9	12	18	10	13	19	12	14	20	12	15	22	13	16	23				
18	10	16" ø	1.12	CFM		340		450		560		670		780		900		1010		1120										
				NC		<20		20		26		31		36		40		43		46										
				Throw	0°		9	13	26	12	18	29	15	22	33	18	25	36	21	27	39	24	29	41	25	31	44	27	33	46
					22.5°		7	10	19	9	13	21	11	16	24	13	18	26	15	20	28	17	21	30	18	22	32	19	24	33
45°		5	7		14	7	10	16	8	12	18	10	14	20	12	15	21	13	16	23	14	17	24	15	18	25				
24	8	14" ø	1.18	CFM		360		470		590		710		830		950		1070		1180										
				NC		<20		20		26		32		36		40		43		46										
				Throw	0°		9	14	27	12	18	30	15	23	34	18	26	37	22	28	40	25	30	43	26	32	46	27	34	48
					22.5°		7	10	19	9	13	22	11	17	24	13	19	27	16	20	29	18	22	31	19	23	33	20	24	34
45°		5	8		15	7	10	17	8	13	18	10	14	20	12	15	22	13	17	23	14	18	25	15	18	26				
36	6	10" ø	1.30	CFM		390		520		650		780		910		1040		1170		1300										
				NC		<20		20		27		32		36		40		44		47										
				Throw	0°		10	15	27	13	20	32	16	24	35	20	27	39	22	29	42	26	32	45	27	34	48	29	35	50
					22.5°		7	11	20	9	14	23	12	17	25	14	20	28	16	21	30	19	23	32	20	24	34	21	25	36
45°		5	8		15	7	11	17	9	13	19	11	15	21	12	16	23	14	17	23	15	18	26	16	19	27				
18	12	20" ø	1.36	CFM		410		540		680		820		950		1090		1220		1360										
				NC		<20		20		27		32		37		40		44		47										
				Throw	0°		10	15	28	13	20	32	16	25	36	20	28	40	23	30	43	27	32	46	28	34	48	29	36	51
					22.5°		7	11	20	10	14	23	12	18	26	14	20	29	17	22	31	19	23	33	20	25	35	21	26	37
45°		5	8		15	7	11	18	9	13	20	11	15	22	13	17	23	15	18	25	15	19	27	16	20	28				
24	10	16" ø	1.51	CFM		450		600		750		900		1060		1210		1360		1510										
				NC		<20		21		27		33		37		41		44		47										
				Throw	0°		11	15	29	14	21	34	18	26	38	21	29	41	25	32	45	28	34	48	29	36	51	31	38	54
					22.5°		8	11	21	10	15	24	13	19	27	15	21	30	18	23	32	20	25	35	21	26	37	22	27	39
45°		6	8		16	8	12	18	10	14	21	12	16	23	13	18	25	15	19	27	16	20	28	17	21	30				
36	8	14" ø	1.79	CFM		540		720		900		1080		1260		1430		1610		1790										
				NC		<20		22		28		33		38		42		45		48										
				Throw	0°		11	17	32	15	22	37	19	29	41	22	32	46	27	35	49	30	37	53	32	39	55	34	41	59
					22.5°		8	12	23	11	16	27	14	21	30	16	23	33	19	25	35	22	27	38	23	28	40	24	30	42
45°		6	9		18	8	12	20	10	16	23	12	18	25	15	19	27	17	20	29	18	22	30	18	23	32				
24	12	20" ø	1.83	CFM		550		730		920		1100		1280		1470		1650		1830										
				NC		<20		22		28		33		38		42		45		48										
				Throw	0°		11	18	32	15	23	37	19	29	42	23	32	46	27	35	50	31	38	53	32	40	56	34	42	60
					22.5°		8	13	23	11	17	27	14	21	30	17	23	33	19	25	36	22	27	38	23	29	40	25	30	43
45°		6	10		18	8	13	20	10	16	23	13	18	25	15	19	27	17	21	29	18	22	31	19	23	33				
36	10	16" ø	2.28	CFM		690		910		1140		1370		1600		1830		2060		2280										
				NC		<20		23		29		34		39		43		46		49										
				Throw	0°		13	20	36	17	25	42	21	32	47	26	36	51	30	39	55	34	42	60	36	45	63	39	47	67
					22.5°		9	14	26	12	18	30	15	23	34	19	26	37	22	28	40	25	30	43	26	32	45	28	34	48
45°		7	11		20	9	14	23	12	18	26	14	20	28	17	22	30	19	23	33	20	25	35	21	26	37				
36	12	20" ø	2.77	CFM		830		1110		1390		1660		1940		2220		2500		2770										
				NC		<20		24		30		35		40		44		47		50										
				Throw	0°		14	21	40	19	28	46	24	35	52	28	40	57	33	43	61	38	46	65	40	49	69	42	52	73
					22.5°		10	15	29	14	20	33	17	25	37	20	29	41	24	31	44	27	33	47	29	35	50	30	37	52
45°		8	12		22	10	15	25	13	19	28	15	22	31	18	24	33	21	25	36	22	27	38	23	28	40				

Throw

The numbers shown are throw distances, in feet, measured along the jet trajectory axis relating to terminal velocities of 150,100,& 50 fpm.

Terminal velocity is the air speed, in feet per minute, measured in the supplyair stream.

Pressure

Pt, represents total pressure for the grille. Total pressure can be calculated as Pt=

Ps+ Pv

Pv, is the air velocity pressure in the duct and is calculated as Pv=

(Velocity/4005)²

All pressures are stated and calculated in inches of water

Noise

NC

Performance Data:

Curved Duct Grille - Return Air Data

Model: **CDG-HF, CDG-HA, CDG-HVA**

Nominal Size (inch)		Core Area (ft2)	Core Velocity (fpm)	400	500	600	700	800	900	1000	1100
W Width	H Height		Ps (Inch w. g.)	-0.03	-0.05	-0.07	-0.1	-0.13	-0.17	-0.21	-0.25
6	3	0.07	CFM	30	30	40	50	60	60	70	80
			NC	<20	<20	<20	<20	<20	21	23	26
12	3	0.15	CFM	60	80	90	110	120	140	150	170
			NC	<20	<20	<20	<20	21	24	27	29
18	3	0.24	CFM	90	120	140	170	190	210	240	260
			NC	<20	<20	<20	<20	23	26	29	31
24	3	0.32	CFM	130	160	190	220	260	290	320	350
			NC	<20	<20	<20	20	24	27	30	33
30	3	0.40	CFM	160	200	240	280	320	360	400	440
			NC	<20	<20	<20	21	25	28	31	34
6	4	0.10	CFM	40	50	60	70	80	90	100	110
			NC	<20	<20	<20	<20	<20	22	25	28
12	4	0.23	CFM	90	110	140	160	180	210	230	250
			NC	<20	<20	<20	<20	22	26	29	31
18	4	0.35	CFM	140	180	210	250	280	320	350	390
			NC	<20	<20	<20	21	24	28	30	33
24	4	0.48	CFM	190	240	290	340	380	430	480	530
			NC	<20	<20	<20	22	26	29	32	34
30	4	0.60	CFM	240	300	360	420	480	540	600	660
			NC	<20	<20	<20	23	27	30	33	35
6	6	0.17	CFM	70	90	100	120	140	160	170	190
			NC	<20	<20	<20	<20	21	24	27	30
12	6	0.38	CFM	150	190	230	270	310	340	380	420
			NC	<20	<20	<20	21	25	28	31	33
18	6	0.59	CFM	240	300	350	410	470	530	590	650
			NC	<20	<20	<20	23	27	30	33	35
24	6	0.80	CFM	320	400	480	560	640	720	800	880
			NC	<20	<20	20	24	28	31	34	37
30	6	1.01	CFM	400	500	600	700	810	910	1010	1110
			NC	<20	<20	21	25	29	32	35	38
12	8	0.53	CFM	210	270	320	370	430	480	530	590
			NC	<20	<20	<20	22	26	29	32	35
18	8	0.83	CFM	330	410	500	580	660	740	830	910
			NC	<20	<20	20	24	28	31	34	37
24	8	1.12	CFM	450	560	670	780	890	1010	1120	1230
			NC	<20	<20	21	26	29	33	35	38
30	8	1.41	CFM	560	700	850	990	1130	1270	1410	1550
			NC	<20	<20	22	27	30	34	36	39
12	10	0.69	CFM	280	340	410	480	550	620	690	760
			NC	<20	<20	<20	24	27	30	33	36
18	10	1.06	CFM	430	530	640	740	850	960	1060	1170
			NC	<20	<20	21	25	29	32	35	38
24	10	1.44	CFM	580	720	860	1010	1150	1290	1440	1580
			NC	<20	<20	23	27	30	34	37	39
30	10	1.81	CFM	730	910	1090	1270	1450	1630	1810	1990
			NC	<20	<20	24	28	31	35	38	40
12	12	0.84	CFM	340	420	500	590	670	760	840	920
			NC	<20	<20	20	24	28	31	34	37
18	12	1.30	CFM	520	650	780	910	1040	1170	1300	1430
			NC	<20	<20	22	26	30	33	36	39
24	12	1.76	CFM	700	880	1050	1230	1410	1580	1760	1930
			NC	<20	<20	23	28	31	35	37	40
30	12	2.22	CFM	890	1110	1330	1550	1770	1990	2220	2440
			NC	<20	<20	24	29	32	36	38	41

Pressure

Ps, represents static pressure requirement. Total pressure can be calculated as $P_t = P_v + P_s$

Pv, is the air velocity pressure in the duct and is calculated as $P_v = (Velocity/4005)^2$

All pressures are stated and calculated in inches of water.

Noise

NC is noise criteria curve that will not be exceeded at the operating point. This is determined by assuming a 10dB (ref: 10-12watts) room attenuation that is subtracted from the power levels in each of the 2nd thru 7th octave bands