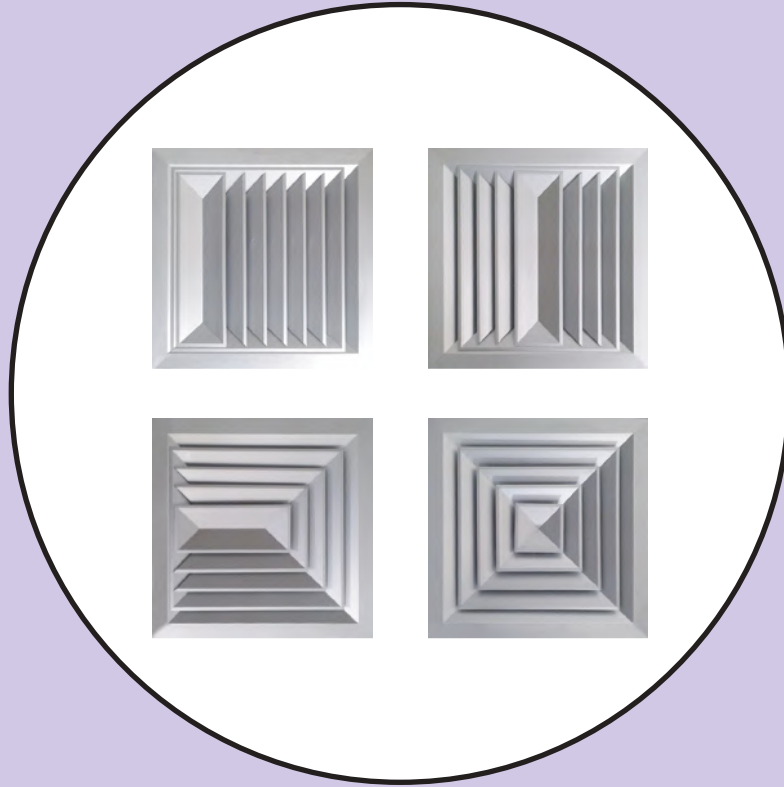


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شركة الخليج لفتحات التكييف المركزي

GULF GRILLES CO.



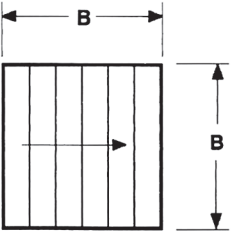
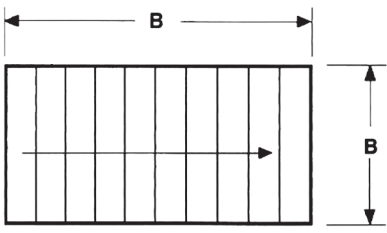
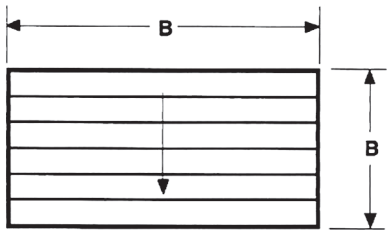
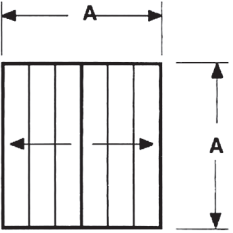
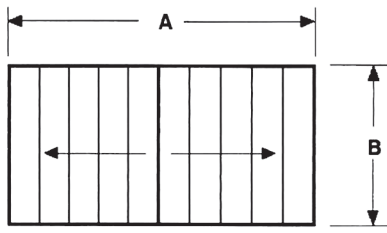
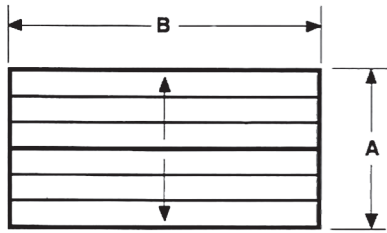
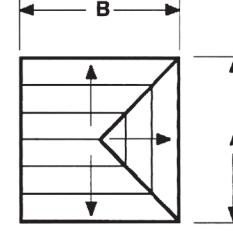
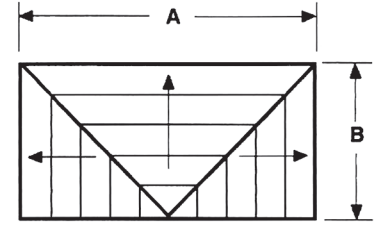
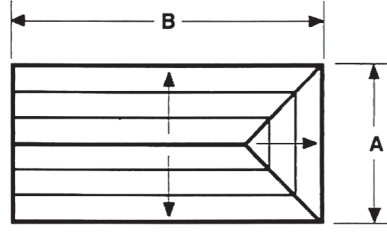
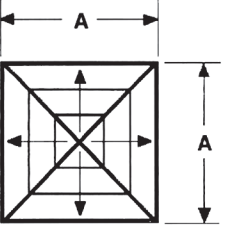
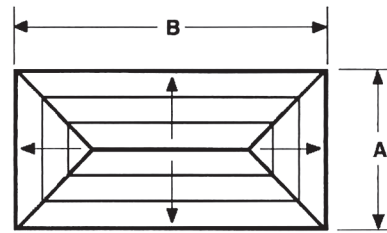
CEILING DIFFUSERS

A03

CEILING
DIFFUSERS

CD9 CORE STYLES AND AIR FLOW PATTERN SELECTOR

CORE PATTERN PLAN VIEW

<p>1-WAY</p>	 <p>CD9-1S</p>	 <p>CD9-1R</p>	 <p>CD9-1R</p>
<p>2-WAY</p>	 <p>CD9-2S</p>	 <p>CD9-2R</p>	 <p>CD9-2R</p>
<p>3-WAY</p>	 <p>CD9-3S</p>	 <p>CD9-3R</p>	 <p>CD9-3R</p>
<p>4-WAY</p>	 <p>CD9-4S</p>	 <p>CD9-4R</p>	<p>A = INCREMENTS OF 3" B = INCREMENTS OF 3"</p>

SQUARE SUPPLY CEILING DIFFUSERS
SQUARE CEILING DIFFUSER WITH MULTIPLE AIR FLOW
PATTERN AND VOLUME CONTROL DAMPERS.



CD9-1S 1-way air flow



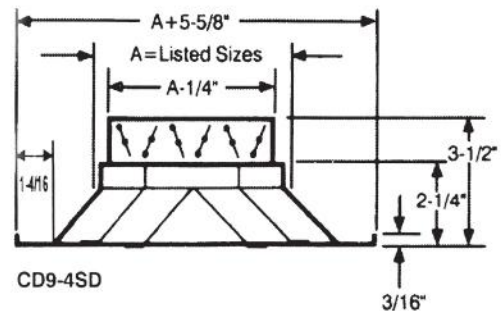
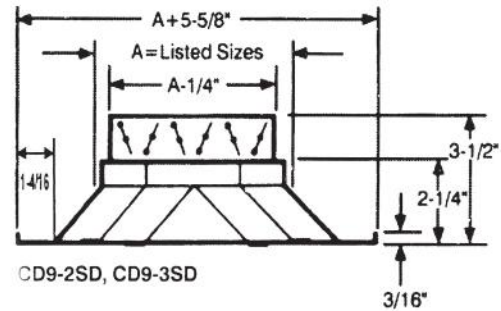
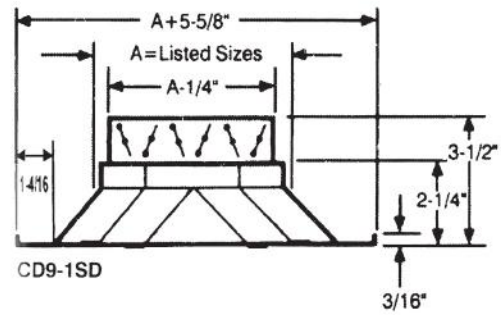
CD9-2S 2-way air flow



CD9-3S 3-way air flow



CD9-4S 4-way air flow



PRODUCT DESCRIPTION

A Square Ceiling Diffuser with multiple air flow patterns and with volume control damper.

- The frame and blades are extruded aluminium alloy and are polyester powder coated with a white finish.
- The frame and blades have a typical wall thickness of 1/16".
- The inner core of the diffuser is fully removable for easy installation. It is held in place with four machine screws and two spring steel clips which together centre the core in the frame.
- The ceiling diffuser projects 3/16" from the mounting surface.
- The unit size increases in 3 inches increments beginning with 6 in. x 6 in. as the smallest available.

- The opposed blade damper section connects to the frame with screws and is lever operated from the face of the unit.
- The frame of the damper housing is separated from the blades with PVC bushings. This method of assembly eliminates corrosion and vibration.
- Standard finish white for frame and blades. Damper in black color. Painted under electrostatic polyester powder coated system. Other colors available on request. The polyester powder of highest quality are used to enhance the appearance of the units.
- Equalizing grid is provided as an option.

Listed Sizes

Size	Horizontal		Vertical		CFM Range
	in.	(mm)	in.	(mm)	
6 x 6	6	(152.4)	6	(152.4)	50 - 225
9 x 9	9	(228.6)	9	(228.6)	100 - 500
12 x 12	12	(304.8)	12	(304.8)	200 - 900
15 x 15	15	(381.0)	15	(381.0)	300 - 1400
18 x 18	18	(457.2)	18	(457.2)	450 - 2000
21 x 21	21	(533.4)	21	(533.4)	600 - 2750
24 x 24	24	(609.6)	24	(609.6)	800 - 3600



CD9-1S 1-way air flow



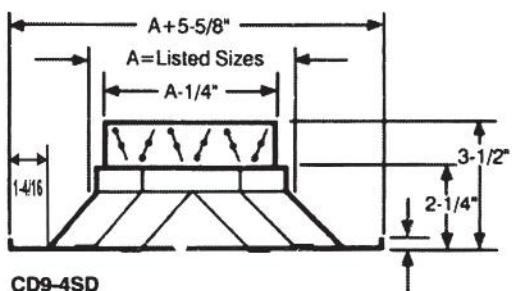
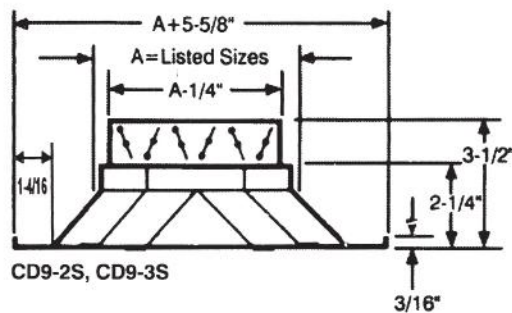
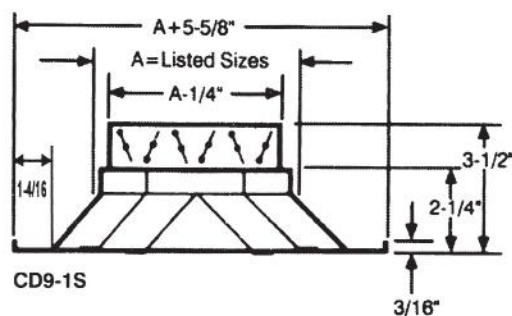
CD9-2S 2-way air flow



CD9-3S 3-way air flow



CD9-4S 4-way air flow



PRODUCT DESCRIPTION

A Square Ceiling Diffuser with multiple air flow patterns but with no volume control damper.

- The frame and blades are extruded aluminium alloy and are polyester powder coated with a white finish.
- The frame and blades have a typical wall thickness of 1/16".
- The inner core of the diffuser is fully removable for easy installation. It is held in place with four machine screws and two spring steel clips which together centre the core in the frame.

- The ceiling diffuser projects 3/16" from the mounting surface.
- The unit size increases in 3 inches increments beginning with 6 in. x 6 in. as the smallest available.
- Standard finish white for frame and blades. Painted under electrostatic polyester powder coated system. Other colors available on request. The polyester powder of highest quality are used to enhance the appearance of the units.

Listed Sizes

Size	Horizontal		Vertical		CFM Range
	in.	(mm)	in.	(mm)	
6 x 6	6	(152.4)	6	(152.4)	50 - 225
9 x 9	9	(228.6)	9	(228.6)	100 - 500
12 x 12	12	(304.8)	12	(304.8)	200 - 900
15 x 15	15	(381.0)	15	(381.0)	300 - 1400
18 x 18	18	(457.2)	18	(457.2)	450 - 2000
21 x 21	21	(533.4)	21	(533.4)	600 - 2750
24 x 24	24	(609.6)	24	(609.6)	800 - 3600

CEILING DIFFUSERS ENGINEERING DATA

Throw :

The horizontal distance in feet where the highest sustained velocity has been reduced to 50 feet per minute. The throw values shown are for the diffuser mounted flush to the ceiling. Throw values shown are based on isothermal air.

Velocity :

The average feet per minute at the diffuser surface as measured with an ALNOR Velometer with tip no. 2220A. A minimum of four readings should be taken at random over the face of the diffuser and averaged.

Total Pressure :

Measured in inches of water gage(in. w.g.). If static pressure drop is required, calculate the core area. The core area equals the nominal length minus 1/4 inch. Divide the CFM by the core area to determine the core velocity. Using this velocity, enter Table 1 to find the velocity pressure. Subtract velocity pressure from total pressure to get the static pressure drop across the diffuser.

CORE VELOCITY (FPM)	VELOCITY PRESSURE (INCHES W.G.)
250	0.004
300	0.006
350	0.008
400	0.010
450	0.013
500	0.016
550	0.019
600	0.022
650	0.026
700	0.031
750	0.035
800	0.040

TABLE 1 - Velocity Pressure Conversion Chart.

APPLICATIONS:

SPACE	AVERAGE
Residence (suburbia)	25
Residence (urban)	30
Apt. bldgs., hotel rooms	35
Hotels, banquet halls	35
Hotel public spaces	40
Kitchens, laundries, garages	45
Hospital rooms	30
Hospital Operating rooms, wards	35
Hospital public spaces	40
Offices board rooms	25
Offices conference rooms	30
Offices executive	35
Office private	35
Office general	40
Office computer	50
Music Auditoriums	22
Radio and TV broadcasting	22
Theaters	27
Assembly halls	32
Mosques	25
Libraries and schools	35
Laboratories	40
Recreation halls	40
Public libraries, museums	35
Banks, post offices	40
Restaurants	40
Cafeterias	45
Department stores (Upper floors)	40
Clothing stores	40
Department stores (Main floors)	45
Supermarket, retail stores	45
Sports coliseums	35
Bowling alleys	40
Swimming pools	50
Factories-Supt. offices	45
Light manufacturing	60
Heavy manufacturing	65

The NC values shown in the Performance Data are based upon a room absorption of 10dB, re 10⁻¹² Watts.

TABLE2 - Recommended Sound Levels

N.C. Level :

The permissible sound level in each space may be specified by the owner or the architect, or it may be determined as an engineering design goal fig. contains an abbreviated list of design goals for air-conditioning sound control in common occupancies.

Pattern Requirement :

The pattern requirement is determined by the shape of the space to be conditioned, the number of diffusers in it, and the type and location of lighting fixtures or other devices mounting on the ceiling. For example; a two way opposite pattern CD9-2R, CD9-2S might be used in a corridor. A larger area can often be divided into squares and or rectangles of nearly equal size, and, if a diffuser can be located in the centre of each of these areas, a pattern CD9-4S or CD9-4R could be used for fourway delivery.

Ceiling Height (ft)	Maximum Temperature Diff.* (°F)	Max. CFM One Direction
8	22	225
9	25	400
10	26	500
12	28	900
14	30	1400
16	30	1900

TABLE 3 - *Difference between incoming air and room air.

Diffuser Selection Guide Lines :

Before selecting the diffuser pattern and size for a conditioned area, it will be necessary to obtain the following.

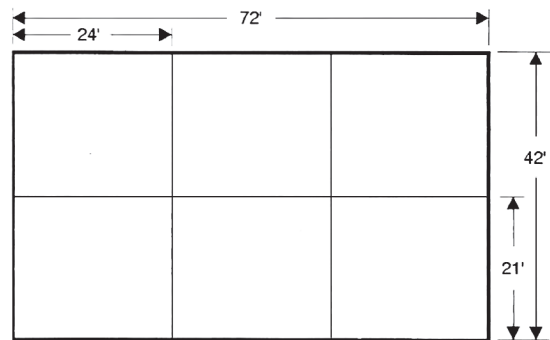
1. CFM for each diffuser.
2. Location of diffusers.
3. Ceiling height.
4. Type of occupancy.

The following is a suggested method for the selection of diffusers.

1. Divide the total air supply for the area by the number of diffusers you wish to install, to find the flow for each diffuser.
2. Consult Table 3 for maximum CFM based on ceiling height and temperature differential.
3. From the performance data tables, select the type of diffuser required to suit your air distribution needs.
4. Based upon diffuser type and flow, select the size of diffuser in the selection tables for the required throw.
5. Consult sound level Table 2 to check that the NC level is suitable for the type of occupancy.

Illustrative Problem:

An office area measuring 42 x 72 feet with a 9 foot high ceiling with the total air supply being 3600 CFM.



Assume that you divide the space into six zones of equal area 24 ft. x 21ft. Since the spaces are almost square, you would select 4-way throw square diffuser. The flow rate for each diffuser is calculated by dividing the total CFM by the number of divided spaces:

$$\frac{3600}{6} = 600\text{CFM/diffuser}(150\text{CFM each way})$$

Check that flow, mounting height and temperature are within the values shown in Table 3. In the selection table for type CD9 -4SD diffusers, find one that has a 12 to 15 foot throw at 600 CFM. Select a 15 inch x 15 inch diffuser which satisfies the requirements

- Q = 625 CFM
- Throw = 12 to 17 ft.
- NC = 21

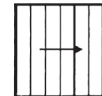
SUPPLY AIR SQUARE CEILING DIFFUSERS PERFORMANCE DATA

CD9 Supply Square Ceiling Diffusers with Damper

CD9 - 1SD (One Way)

Size (inches)	Area Factor(Ak) Neck Area (Sq. ft.)	Neck Velocity (fpm)										
		Velocity Pressure (in. w.g.)										
		Total Pressure (in. w.g.)										
			200	250	300	350	400	500	600	700	800	900
			.003	.004	.006	.008	.010	.016	.023	.031	.040	.051
			.015	.024	.034	.046	.060	.094	.136	.184	.240	.305
6 x 6	Ak = .085 0.250	CFM	50	63	75	88	100	125	150	175	200	225
		THROW	7-10	8-12	10-15	12-17	14-19	17-21	19-23	20-24	22-26	23-27
		NC	<20	<20	<20	<20	<20	<20	23	27	31	35
9 x 9	Ak = .177 0.562	CFM	110	140	170	195	225	280	335	395	450	505
		THROW	9-13	11-16	14-18	16-19	17-21	19-23	21-25	22-27	24-29	26-30
		NC	<20	<20	<20	<20	<20	21	27	31	35	39
12 x 12	Ak = .306 1.000	CFM	200	250	300	350	400	500	600	700	800	900
		THROW	11-16	14-18	16-19	17-21	18-22	20-25	22-27	24-29	26-31	27-33
		NC	<20	<20	<20	<20	<20	23	30	34	38	42
15 x 15	Ak = .472 1.56	CFM	310	390	470	545	625	780	940	1090	1250	1405
		THROW	13-17	15-19	17-20	18-22	19-23	22-26	24-28	25-30	27-32	29-34
		NC	<20	<20	<20	<20	21	26	32	36	40	44
18 x 18	Ak = .674 2.25	CFM	450	560	675	785	900	1125	1350	1575	1800	2025
		THROW	14-18	16-19	17-21	19-23	20-24	23-27	25-30	27-32	29-34	30-36
		NC	<20	<20	<20	21	23	28	34	38	42	45
21 x 21	Ak = .914 3.06	CFM	610	765	920	1070	1225	1530	1835	2140	2450	2755
		THROW	15-18	17-20	18-22	20-24	21-25	24-28	26-31	28-33	30-35	32-37
		NC	<20	<20	<20	22	23	30	36	40	44	49
24 x 24	Ak = 1.22 4.00	CFM	800	1000	1200	1400	1600	2000	2400	2800	3200	3600
		THROW	15-19	17-21	19-23	20-25	22-26	24-29	27-32	29-34	31-37	33-39
		NC	<20	<20	20	23	24	31	37	41	45	50

Throw data in feet, based on isothermal air at 100 and 50 FPM terminal velocity.

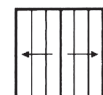


CD9 Supply Square Ceiling Diffusers with Damper

CD9 - 2SD (Two Way)

Size (inches)	Area Factor(Ak) Neck Area (Sq. ft.)	Neck Velocity (fpm)										
		Velocity Pressure (in. w.g.)										
		Total Pressure (in. w.g.)										
			200	250	300	350	400	500	600	700	800	900
			.003	.004	.006	.008	.010	.016	.023	.031	.040	.051
			.014	.022	.032	.043	.057	.088	.128	.174	.226	.286
6 x 6	Ak = .085 0.250	CFM	50	63	75	88	100	125	150	175	200	225
		THROW	5-8	6-9	8-11	9-13	10-14	12-17	15-21	18-23	20-25	22-27
		NC	<20	<20	<20	<20	<20	<20	23	27	31	35
9 x 9	Ak = .177 0.562	CFM	110	140	170	195	225	280	335	395	450	505
		THROW	7-10	8-12	10-15	12-16	14-19	17-22	20-24	21-26	23-27	24-29
		NC	<20	<20	<20	<20	<20	21	27	31	35	39
12 x 12	Ak = .306 1.000	CFM	200	250	300	350	400	500	600	700	800	900
		THROW	9-12	11-15	13-18	15-20	17-21	20-24	22-26	23-28	25-30	26-32
		NC	<20	<20	<20	<20	<20	23	30	34	38	42
15 x 15	Ak = .472 1.56	CFM	310	390	470	545	625	780	940	1090	1250	1405
		THROW	10-14	12-18	15-20	17-21	19-22	21-25	23-27	25-29	26-31	28-33
		NC	<20	<20	<20	<20	21	26	32	36	40	44
18 x 18	Ak = .674 2.25	CFM	450	560	675	785	900	1125	1350	1575	1800	2025
		THROW	12-16	14-19	17-21	18-22	20-24	22-26	24-29	26-31	28-33	29-35
		NC	<20	<20	<20	21	23	28	34	38	42	45
21 x 21	Ak = .914 3.06	CFM	610	765	920	1070	1225	1530	1835	2140	2450	2755
		THROW	13-18	16-20	18-21	19-23	20-25	23-27	25-30	27-32	29-34	31-36
		NC	<20	<20	<20	22	23	30	36	40	44	49
24 x 24	Ak = 1.22 4.00	CFM	800	1000	1200	1400	1600	2000	2400	2800	3200	3600
		THROW	14-18	17-20	18-22	20-24	21-25	24-28	26-31	28-33	30-36	32-38
		NC	<20	<20	20	23	24	31	37	41	45	50

Throw data in feet, based on isothermal air at 100 and 50 FPM terminal velocity.



SUPPLY AIR SQUARE CEILING DIFFUSERS

PERFORMANCE DATA

CD9 Supply Square Ceiling Diffusers with Damper

CD9 - 3SD (Three Way)

Size (inches)	Area Factor(Ak) Neck Area (Sq. ft.)	Neck Velocity (fpm)										
		Velocity Pressure (in. w.g.)										
		Total Pressure (in. w.g.)										
6 x 6	Ak = .085 0.250	CFM	50	63	75	88	100	125	150	175	200	225
		THROW	3-5	4-6	4-7	5-8	6-9	8-11	9-13	10-15	12-17	14-19
		NC	<20	<20	<20	<20	<20	<20	23	27	31	35
9 x 9	Ak = .177 0.562	CFM	110	140	170	195	225	280	335	395	450	505
		THROW	4-7	5-8	6-9	7-11	8-12	10-15	13-18	15-21	17-22	19-23
		NC	<20	<20	<20	<20	<20	21	27	31	35	39
12 x 12	Ak = .306 1.000	CFM	200	250	300	350	400	500	600	700	800	900
		THROW	5-8	6-10	8-11	9-13	10-15	13-19	16-21	18-22	20-24	21-25
		NC	<20	<20	<20	<20	<20	23	30	34	38	42
15 x 15	Ak = .472 1.56	CFM	310	390	470	545	625	780	940	1090	1250	1405
		THROW	6-9	8-11	9-13	11-15	12-17	16-20	18-22	20-24	21-26	22-27
		NC	<20	<20	<20	<20	21	26	32	36	40	44
18 x 18	Ak = .674 2.25	CFM	450	560	675	785	900	1125	1350	1575	1800	2025
		THROW	7-11	9-13	11-15	13-18	14-19	18-22	20-24	21-25	23-27	24-29
		NC	<20	<20	<20	21	23	28	34	38	42	45
21 x 21	Ak = .914 3.06	CFM	610	765	920	1070	1225	1530	1835	2140	2450	2755
		THROW	8-12	10-14	12-17	14-19	16-20	19-23	21-25	22-27	24-28	25-30
		NC	<20	<20	<20	22	23	30	36	40	44	49
24 x 24	Ak = 1.22 4.00	CFM	800	1000	1200	1400	1600	2000	2400	2800	3200	3600
		THROW	9-13	11-16	13-18	15-20	17-21	19-23	21-25	23-27	25-29	26-31
		NC	<20	<20	20	23	24	31	37	41	45	50

Throw data in feet, based on isothermal air at 100 and 50 FPM terminal velocity.



CD9 Supply Square Ceiling Diffusers with Damper

CD9 - 4SD (Four Way)

Size (inches)	Area Factor(Ak) Neck Area (Sq. ft.)	Neck Velocity (fpm)										
		Velocity Pressure (in. w.g.)										
		Total Pressure (in. w.g.)										
6 x 6	Ak = .085 0.250	CFM	50	63	75	88	100	125	150	175	200	225
		THROW	2-4	3-6	4-7	5-8	6-9	7-11	8-12	10-14	11-16	13-18
		NC	<20	<20	<20	<20	<20	<20	23	27	31	35
9 x 9	Ak = .177 0.562	CFM	110	140	170	195	225	280	335	395	450	505
		THROW	4-6	5-7	6-9	7-10	8-11	10-13	11-16	13-19	15-20	17-21
		NC	<20	<20	<20	<20	<20	21	27	31	35	39
12 x 12	Ak = .306 1.000	CFM	200	250	300	350	400	500	600	700	800	900
		THROW	5-7	6-9	7-11	8-12	10-14	12-17	14-20	17-21	18-23	20-24
		NC	<20	<20	<20	<20	<20	23	30	34	38	42
15 x 15	Ak = .472 1.56	CFM	310	390	470	545	625	780	940	1090	1250	1405
		THROW	6-9	7-11	9-13	10-15	12-17	14-19	17-21	18-22	20-24	21-25
		NC	<20	<20	<20	<20	21	26	32	36	40	44
18 x 18	Ak = .674 2.25	CFM	450	560	675	785	900	1125	1350	1575	1800	2025
		THROW	7-10	8-12	10-14	12-16	13-18	16-20	18-22	20-24	21-26	22-27
		NC	<20	<20	<20	21	23	28	34	38	42	45
21 x 21	Ak = .914 3.06	CFM	610	765	920	1070	1225	1530	1835	2140	2450	2755
		THROW	7-11	9-13	11-16	13-18	15-19	18-22	20-24	21-25	23-27	24-29
		NC	<20	<20	<20	22	23	30	36	40	44	49
24 x 24	Ak = 1.22 4.00	CFM	800	1000	1200	1400	1600	2000	2400	2800	3200	3600
		THROW	8-12	10-15	12-18	14-19	16-20	19-23	20-25	22-26	23-28	25-30
		NC	<20	<20	20	23	24	31	37	41	45	50

Throw data in feet, based on isothermal air at 100 and 50 FPM terminal velocity.



RETURN AIR SQUARE CEILING DIFFUSERS PERFORMANCE DATA

CD9 Return Square Ceiling Diffusers

CD9 - 1S (One Way)

Size (inches)	Neck Area (Sq. ft.)	Neck Velocity (fpm)	200	250	300	350	400	500	600	700	800	900
		Velocity Pressure (in. w.g.)	.003	.004	.006	.008	.010	.016	.023	.031	.040	.051
		Negative Static Pressure (in. w.g.)	.037	.058	.083	.112	.148	.230	.332	.450	.590	.752
6 x 6	0.250	CFM	50	63	75	88	100	125	150	175	200	225
		NC	<20	<20	<20	<20	<20	<20	22	26	30	34
9 x 9	0.562	CFM	110	140	170	195	225	280	335	395	450	505
		NC	<20	<20	<20	<20	<20	20	26	30	34	38
12 x 12	1.00	CFM	200	250	300	350	400	500	600	700	800	900
		NC	<20	<20	<20	<20	<20	22	29	33	37	41
15 x 15	1.56	CFM	310	390	470	545	625	780	940	1090	1250	1405
		NC	<20	<20	<20	<20	20	25	31	35	39	43
18 x 18	2.25	CFM	450	560	675	785	900	1125	1350	1575	1800	2025
		NC	<20	<20	<20	20	22	27	33	37	41	44
21 x 21	3.06	CFM	610	765	920	1070	1225	1530	1835	2140	2450	2755
		NC	<20	<20	<20	21	22	29	35	39	43	48
24 x 24	4.00	CFM	800	1000	1200	1400	1600	2000	2400	2800	3200	3600
		NC	<20	<20	<20	22	23	30	36	40	44	49



CD9 Return Square Ceiling Diffusers

CD9 - 2S (Two Way)

Size (inches)	Neck Area (Sq. ft.)	Neck Velocity (fpm)	200	250	300	350	400	500	600	700	800	900
		Velocity Pressure (in. w.g.)	.003	.004	.006	.008	.010	.016	.023	.031	.040	.051
		Negative Static Pressure (in. w.g.)	.042	.066	.096	.130	.170	.265	.381	.518	.680	.852
6 x 6	0.250	CFM	50	63	75	88	100	125	150	175	200	225
		NC	<20	<20	<20	<20	<20	<20	22	26	30	34
9 x 9	0.562	CFM	110	140	170	195	225	280	335	395	450	505
		NC	<20	<20	<20	<20	<20	20	26	30	34	38
12 x 12	1.00	CFM	200	250	300	350	400	500	600	700	800	900
		NC	<20	<20	<20	<20	<20	22	29	33	37	41
15 x 15	1.56	CFM	310	390	470	545	625	780	940	1090	1250	1405
		NC	<20	<20	<20	<20	20	25	31	35	39	43
18 x 18	2.25	CFM	450	560	675	785	900	1125	1350	1575	1800	2025
		NC	<20	<20	<20	20	22	27	33	37	41	44
21 x 21	3.06	CFM	610	765	920	1070	1225	1530	1835	2140	2450	2755
		NC	<20	<20	<20	21	22	29	35	39	43	48
24 x 24	4.00	CFM	800	1000	1200	1400	1600	2000	2400	2800	3200	3600
		NC	<20	<20	<20	22	23	30	36	40	44	49

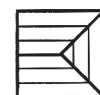


RETURN AIR SQUARE CEILING DIFFUSERS PERFORMANCE DATA

CD9 Return Square Ceiling Diffusers

CD9 - 3S (Three Way)

Size (inches)	Neck Area (Sq. ft.)	Neck Velocity (fpm)	200	250	300	350	400	500	600	700	800	900
		Velocity Pressure (in. w.g.)	.003	.004	.006	.008	.010	.016	.023	.031	.040	.051
		Negative Static Pressure (in. w.g.)	.038	.059	.085	.107	.154	.235	.336	.460	.600	.757
6 x 6	0.250	CFM	50	63	75	88	100	125	150	175	200	225
		NC	<20	<20	<20	<20	<20	<20	22	26	30	34
9 x 9	0.562	CFM	110	140	170	195	225	280	335	395	450	505
		NC	<20	<20	<20	<20	<20	20	26	30	34	38
12 x 12	1.00	CFM	200	250	300	350	400	500	600	700	800	900
		NC	<20	<20	<20	<20	<20	22	29	33	37	41
15 x 15	1.56	CFM	310	390	470	545	625	780	940	1090	1250	1405
		NC	<20	<20	<20	<20	20	25	31	35	39	43
18 x 18	2.25	CFM	450	560	675	785	900	1125	1350	1575	1800	2025
		NC	<20	<20	<20	20	22	27	33	37	41	44
21 x 21	3.06	CFM	610	765	920	1070	1225	1530	1835	2140	2450	2755
		NC	<20	<20	<20	21	22	29	35	39	43	48
24 x 24	4.00	CFM	800	1000	1200	1400	1600	2000	2400	2800	3200	3600
		NC	<20	<20	<20	22	23	30	36	40	44	49



CD9 Return Square Ceiling Diffusers

CD9 - 4S (Four Way)

Size (inches)	Neck Area (Sq. ft.)	Neck Velocity (fpm)	200	250	300	350	400	500	600	700	800	900
		Velocity Pressure (in.w.g.)	.003	.004	.006	.008	.010	.016	.023	.031	.040	.051
		Negative Static Pressure (in. w.g.)	.043	.067	.097	.132	.172	.269	.388	.525	.690	.864
6 x 6	0.250	CFM	50	63	75	88	100	125	150	175	200	225
		NC	<20	<20	<20	<20	<20	<20	22	26	30	34
9 x 9	0.562	CFM	110	140	170	195	225	280	335	395	450	505
		NC	<20	<20	<20	<20	<20	20	26	30	34	38
12 x 12	1.00	CFM	200	250	300	350	400	500	600	700	800	900
		NC	<20	<20	<20	<20	<20	22	29	33	37	41
15 x 15	1.56	CFM	310	390	470	545	625	780	940	1090	1250	1405
		NC	<20	<20	<20	<20	20	25	31	35	39	43
18 x 18	2.25	CFM	450	560	675	785	900	1125	1350	1575	1800	2025
		NC	<20	<20	<20	20	22	27	33	37	41	44
21 x 21	3.06	CFM	610	765	920	1070	1225	1530	1835	2140	2450	2755
		NC	<20	<20	<20	21	22	29	35	39	43	48
24 x 24	4.00	CFM	800	1000	1200	1400	1600	2000	2400	2800	3200	3600
		NC	<20	<20	<20	22	23	30	36	40	44	49

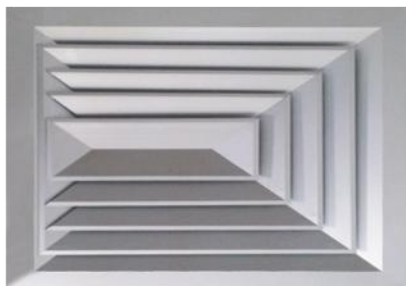




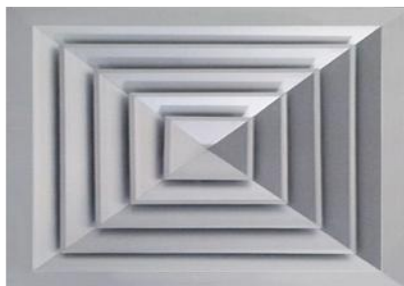
CD9-1RD 1-way air flow



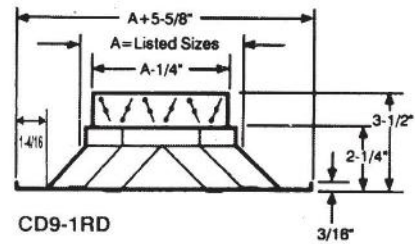
CD9-2RD 2-way air flow



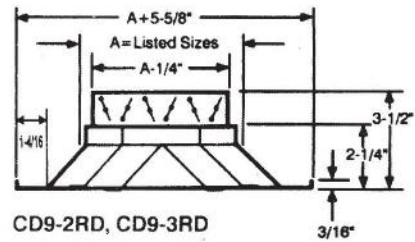
CD9-3RD 3-way air flow



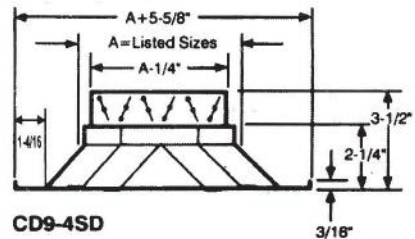
CD9-4RD 4-way air flow



CD9-1RD



CD9-2RD, CD9-3RD



CD9-4SD

PRODUCT DESCRIPTION

A Rectangular Ceiling Diffuser with multiple air flow patterns and with volume control damper.

- The frame and blades are extruded aluminum alloy and are polyester powder coated with a white finish.
- The frame and blades have a typical wall thickness of 1/16".
- The inner core of the diffuser is fully removable for easy installation. It is held in place with four machine screws and two spring steel clips which together centre the core in the frame.
- The Ceiling diffuser projects 3/16" from the mounting surface.

- The unit size increases in 3 inches increments beginning with 9 in. x 6 in. as the smallest available.
- The opposed blade damper section connects to the frame with screws and is lever operated from the face of the unit.
- The frame of the damper housing is separated from the blades with PVC bushings. This method of assembly eliminates corrosion and vibration.
- Standard finish white for frame and blades, Damper in black color. Painted under electrostatic polyester powder coated system. Other colors available on request. The polyester powder of highest quality are used to enhance the appearance of the units.
- Equalizing grid is provided as an option.

Listed Sizes

Dimensions			
Size W x H	Horizontal in (mm)	Vertical in (mm)	CFM Range
9 x 6	9 (228.6)	6 (152.4)	75 - 335
12 x 6	12 (304.8)	6 (152.4)	100 - 450
12 x 9	12 (304.8)	9 (228.6)	150 - 675
15 x 6	15 (381.0)	6 (152.4)	152 - 560
15 x 9	15 (381.0)	9 (228.6)	190 - 845
15 x 12	15 (381.0)	12 (304.8)	250 - 1125
18 x 6	18 (457.2)	6 (152.4)	150 - 675

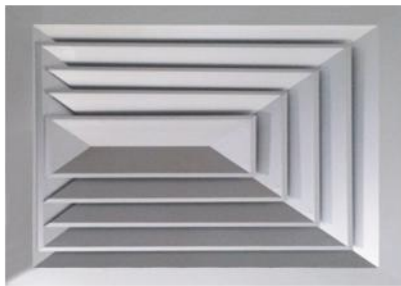
Dimensions			
Size W x H	Horizontal in (mm)	Vertical in (mm)	CFM Range
18 x 9	18 (457.2)	9 (228.6)	225 - 1010
18 x 12	18 (457.2)	12 (304.8)	300 - 1350
21 x 6	21 (533.4)	6 (152.4)	175 - 785
21 x 9	21 (533.4)	9 (228.6)	260 - 1180
24 x 6	24 (609.6)	6 (152.4)	200 - 900
24 x 9	24 (609.6)	9 (228.6)	300 - 1350
24 x 12	24 (609.6)	12 (304.8)	400 - 1800



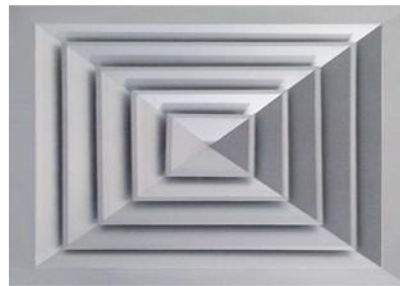
CD9-1R 1-way air flow



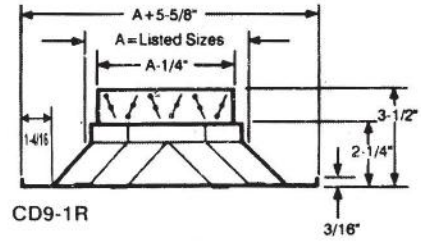
CD9-2R 2-way air flow



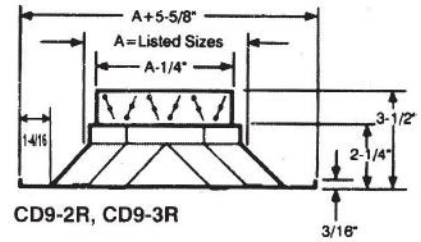
CD9-3R 3-way air flow



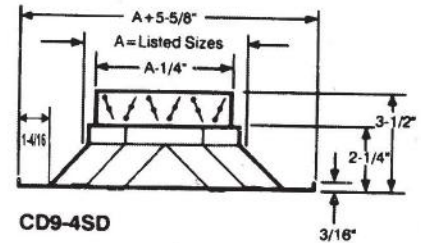
CD9-4R 4-way air flow



CD9-1R



CD9-2R, CD9-3R



CD9-4SD

PRODUCT DESCRIPTION

A Rectangular Ceiling Diffuser with multiple air flow patterns but with no volume control damper.

- The frame and blades are extruded aluminum alloy and are polyester powder coated with a white finish.
- The frame and blades have a typical wall thickness of 1/16"
- The inner core of the diffuser is fully removable for easy installation. It is held in place with four machine screws and two spring steel clips which together centre the core in the frame.

- The Ceiling diffuser projects 3/16" from the mounting surface.
- The unit size increases in 3 inches increments beginning with 9 in. x 6 in. as the smallest available.
- Standard finish white for frame and blades. Painted under electrostatic polyester powder coated system. Other colors available on request. The polyester powder of highest quality are used to enhance the appearance of the units.

Listed Sizes

Dimensions			
Size W x H	Horizontal in (mm)	Vertical in (mm)	CFM Range
9 x 6	9 (228.6)	6 (152.4)	75 - 335
12 x 6	12 (304.8)	6 (152.4)	100 - 450
12 x 9	12 (304.8)	9 (228.6)	150 - 675
15 x 6	15 (381.0)	6 (152.4)	152 - 560
15 x 9	15 (381.0)	9 (228.6)	190 - 845
15 x 12	15 (381.0)	12 (304.8)	250 - 1125
18 x 6	18 (457.2)	6 (152.4)	150 - 675

Dimensions			
Size W x H	Horizontal in (mm)	Vertical in (mm)	CFM Range
18 x 9	18 (457.2)	9 (228.6)	225-1010
18 x 12	18 (457.2)	12 (304.8)	300-1350
21 x 6	21 (533.4)	6 (152.4)	175- 785
21 x 9	21 (533.4)	9 (228.6)	260-1180
24 x 6	24 (609.6)	6 (152.4)	200- 900
24 x 9	24 (609.6)	9 (228.6)	300-1350
24 x 12	24 (609.6)	12 (304.8)	400-1800

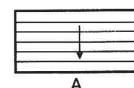
SUPPLY AIR RECTANGULAR CEILING DIFFUSERS PERFORMANCE DATA

CD9 Supply Rectangular Ceiling Diffusers with Damper

CD9 - 1RD (One Way)

Size (inches)	Area Factor (Ak)	Neck Area (Sq. ft.)	Neck Velocity (fpm)		200		300		400		500		600		700		800		900	
			Velocity Pressure (in. w.g.)		.003		.006		.010		.016		.023		.031		.040		.051	
			Total Pressure (in. w.g.)		.021		.046		.081		.130		.180		.250		.320		.390	
Side			A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
9 x 6	Ak = .122 0.375	CFM TOTAL CFM / SIDE THROW / SIDE NC	75		110		150		190		225		265		300		337			
			75	-	110	-	150	-	190	-	225	-	265	-	300	-	337	-		
			10-14	-	12-17	-	14-20	-	16-23	-	17-25	-	18-26	-	20-28	-	21-30	-		
			<20		<20		<20		<20		25		29		33		37			
12 x 6	Ak = .158 0.500	CFM TOTAL CFM / SIDE THROW / SIDE NC	100		150		200		250		300		350		400		450			
			100	-	150	-	200	-	250	-	300	-	350	-	400	-	450	-		
			10-15	-	12-17	-	14-20	-	16-23	-	17-25	-	18-26	-	20-28	-	21-30	-		
			<20		<20		<20		20		27		30		34		38			
12 x 9	Ak = .232 0.750	CFM TOTAL CFM / SIDE THROW / SIDE NC	150		225		300		375		450		525		600		675			
			150	-	225	-	300	-	375	-	450	-	525	-	600	-	675	-		
			13-19	-	15-21	-	17-24	-	19-27	-	21-30	-	22-32	-	24-34	-	26-36	-		
			<20		<20		<20		22		28		32		36		40			
15 x 6	Ak = .195 0.625	CFM TOTAL CFM / SIDE THROW / SIDE NC	125		188		250		313		375		438		500		565			
			125	-	188	-	250	-	313	-	375	-	438	-	500	-	565	-		
			12-17	-	14-19	-	16-23	-	18-25	-	20-27	-	21-29	-	23-31	-	24-33	-		
			<20		<20		<20		21		27		31		35		39			
15 x 9	Ak = .287 0.938	CFM TOTAL CFM / SIDE THROW / SIDE NC	188		281		375		469		563		656		750		845			
			188	-	281	-	375	-	469	-	563	-	656	-	750	-	845	-		
			14-19	-	16-23	-	18-26	-	21-30	-	22-32	-	24-34	-	25-37	-	27-39	-		
			<20		<20		<20		23		29		33		37		41			
15 x 12	Ak = .380 1.25	CFM TOTAL CFM / SIDE THROW / SIDE NC	250		375		500		625		750		875		1000		1125			
			250	-	375	-	500	-	625	-	750	-	875	-	1000	-	1125	-		
			15-21	-	17-24	-	20-28	-	23-32	-	25-34	-	26-37	-	28-40	-	30-42	-		
			<20		<20		<20		25		31		35		39		43			
18 x 6	Ak = .232 0.750	CFM TOTAL CFM / SIDE THROW / SIDE NC	150		225		300		375		450		525		600		675			
			150	-	225	-	300	-	375	-	450	-	525	-	600	-	675	-		
			13-19	-	15-21	-	17-24	-	19-27	-	21-30	-	22-32	-	24-34	-	26-36	-		
			<20		<20		<20		22		28		32		36		40			
18 x 9	Ak = .343 1.125	CFM TOTAL CFM / SIDE THROW / SIDE NC	225		338		450		563		675		788		900		1012			
			225	-	338	-	450	-	563	-	675	-	788	-	900	-	1012	-		
			14-19	-	16-23	-	18-26	-	21-30	-	22-32	-	24-34	-	25-37	-	27-39	-		
			<20		<20		<20		24		30		34		38		42			
18 x 12	Ak = .453 1.50	CFM TOTAL CFM / SIDE THROW / SIDE NC	300		450		600		750		900		1050		1200		1350			
			300	-	450	-	600	-	750	-	900	-	1050	-	1200	-	1350	-		
			14-20	-	17-24	-	20-28	-	23-32	-	25-34	-	26-37	-	28-40	-	30-42	-		
			<20		<20		<20		26		32		36		40		44			
21 x 6	Ak = .269 0.875	CFM TOTAL CFM / SIDE THROW / SIDE NC	175		263		350		438		525		613		700		787			
			175	-	263	-	350	-	438	-	525	-	613	-	700	-	787	-		
			13-19	-	15-21	-	17-24	-	19-27	-	21-30	-	22-32	-	24-34	-	26-36	-		
			<20		<20		<20		22		28		32		36		40			
21 x 9	Ak = .398 1.313	CFM TOTAL CFM / SIDE THROW / SIDE NC	263		394		525		656		788		919		1050		1181			
			263	-	394	-	525	-	656	-	788	-	919	-	1050	-	1181	-		
			15-21	-	17-24	-	20-28	-	23-32	-	25-34	-	26-37	-	28-40	-	30-42	-		
			<20		<20		<20		24		30		34		38		42			
21 x 12	Ak = .523 1.75	CFM TOTAL CFM / SIDE THROW / SIDE NC	350		525		700		875		1050		1225		1400		1575			
			350	-	525	-	700	-	875	-	1050	-	1225	-	1400	-	1575	-		
			15-22	-	18-26	-	21-30	-	24-34	-	26-37	-	28-40	-	30-42	-	32-45	-		
			<20		<20		<20		26		32		36		40		44			
24 x 6	Ak = .306 1.00	CFM TOTAL CFM / SIDE THROW / SIDE NC	200		300		400		500		600		700		800		900			
			200	-	300	-	400	-	500	-	600	-	700	-	800	-	900	-		
			14-20	-	16-23	-	18-26	-	21-30	-	22-32	-	24-34	-	25-37	-	27-39	-		
			<20		<20		<20		23		29		33		37		41			
24 x 9	Ak = .453 1.50	CFM TOTAL CFM / SIDE THROW / SIDE NC	300		450		600		750		900		1050		1200		1350			
			300	-	450	-	600	-	750	-	900	-	1050	-	1200	-	1350	-		
			14-20	-	17-24	-	20-28	-	23-32	-	25-34	-	26-37	-	28-40	-	30-42	-		
			<20		<20		<20		25		31		35		39		43			
24 x 12	Ak = .601 2.00	CFM TOTAL CFM / SIDE THROW / SIDE NC	400		600		800		1000		1200		1400		1600		1800			
			400	-	600	-	800	-	1000	-	1200	-	1400	-	1600	-	1800	-		
			17-24	-	20-28	-	23-32	-	26-37	-	28-39	-	30-42	-	33-45	-	35-48	-		
			<20		<20		20		27		33		37		41		45			

Throw data in feet, based on isothermal air at 100 and 50 FPM terminal velocity.



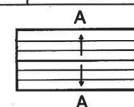
SUPPLY AIR RECTANGULAR CEILING DIFFUSERS PERFORMANCE DATA

CD9 Supply rectangular Ceiling Diffusers with Damper

CD9 - 2RD (Two Way)

Size (inches)	Area Factor (Ak)	Neck Area (Sq. ft.)	Neck Velocity (fpm)	200		300		400		500		600		700		800		900			
				Velocity Pressure (in. w.g.)		.003		.006		.010		.016		.023		.031		.040		.051	
				Total Pressure (in. w.g.)		.016		.036		.064		.100		.140		.200		.260		.320	
Side				A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B		
9 x 6	Ak = .122	0.375	CFM TOTAL	75		113		150		188		225		263		300		338			
			CFM / SIDE THROW / SIDE	37	-	56	-	75	-	94	-	112	-	131	-	150	-	169	-		
	NC	<20		<20		<20		<20		25		29		33		37					
	NC	<20		<20		<20		20		27		30		34		38					
12 x 6	Ak = .158	0.500	CFM TOTAL	100		150		200		250		300		350		400		450			
			CFM / SIDE THROW / SIDE	50	-	75	-	100	-	125	-	150	-	175	-	200	-	225	-		
	NC	<20		<20		<20		20		27		30		34		38					
	NC	<20		<20		<20		20		27		30		34		38					
12 x 9	Ak = .232	0.750	CFM TOTAL	150		225		300		375		450		525		600		675			
			CFM / SIDE THROW / SIDE	75	-	112	-	150	-	187	-	225	-	262	-	300	-	337	-		
	NC	<20		<20		<20		22		28		32		36		40					
	NC	<20		<20		<20		22		28		32		36		40					
15 x 6	Ak = .195	0.625	CFM TOTAL	125		188		250		313		375		438		500		563			
			CFM / SIDE THROW / SIDE	62	-	94	-	125	-	156	-	187	-	219	-	250	-	281	-		
	NC	<20		<20		<20		21		27		31		35		39					
	NC	<20		<20		<20		21		27		31		35		39					
15 x 9	Ak = .287	0.938	CFM TOTAL	188		281		375		469		563		656		750		844			
			CFM / SIDE THROW / SIDE	94	-	140	-	187	-	235	-	281	-	328	-	375	-	422	-		
	NC	<20		<20		<20		23		29		33		37		41					
	NC	<20		<20		<20		23		29		33		37		41					
15 x 12	Ak = .380	1.25	CFM TOTAL	250		375		500		625		750		875		1000		1125			
			CFM / SIDE THROW / SIDE	125	-	187	-	250	-	312	-	375	-	437	-	500	-	562	-		
	NC	<20		<20		<20		25		31		35		39		43					
	NC	<20		<20		<20		25		31		35		39		43					
18 x 6	Ak = .232	0.750	CFM TOTAL	150		225		300		375		450		525		600		675			
			CFM / SIDE THROW / SIDE	75	-	112	-	150	-	187	-	225	-	262	-	300	-	337	-		
	NC	<20		<20		<20		22		28		32		36		40					
	NC	<20		<20		<20		22		28		32		36		40					
18 x 9	Ak = .343	1.125	CFM TOTAL	225		338		450		563		675		788		900		1012			
			CFM / SIDE THROW / SIDE	112	-	169	-	225	-	281	-	337	-	394	-	450	-	506	-		
	NC	<20		<20		<20		24		30		34		38		42					
	NC	<20		<20		<20		24		30		34		38		42					
18 x 12	Ak = .453	1.50	CFM TOTAL	300		450		600		750		900		1050		1200		1350			
			CFM / SIDE THROW / SIDE	150	-	225	-	300	-	375	-	450	-	525	-	600	-	675	-		
	NC	<20		<20		<20		26		32		36		40		44					
	NC	<20		<20		<20		26		32		36		40		44					
21 x 6	Ak = .269	0.875	CFM TOTAL	175		263		350		438		525		613		700		787			
			CFM / SIDE THROW / SIDE	87	-	131	-	175	-	219	-	262	-	306	-	350	-	393	-		
	NC	<20		<20		<20		22		28		32		36		40					
	NC	<20		<20		<20		22		28		32		36		40					
21 x 9	Ak = .398	1.3125	CFM TOTAL	263		394		525		656		788		919		1050		1181			
			CFM / SIDE THROW / SIDE	131	-	197	-	262	-	328	-	394	-	459	-	525	-	590	-		
	NC	<20		<20		<20		24		30		34		38		42					
	NC	<20		<20		<20		24		30		34		38		42					
21 x 12	Ak = .523	1.75	CFM TOTAL	350		525		700		875		1050		1225		1400		1575			
			CFM / SIDE THROW / SIDE	175	-	262	-	350	-	437	-	525	-	612	-	700	-	787	-		
	NC	<20		<20		<20		26		32		36		40		44					
	NC	<20		<20		<20		26		32		36		40		44					
24 x 6	Ak = .306	1.00	CFM TOTAL	200		300		400		500		600		700		800		900			
			CFM / SIDE THROW / SIDE	100	-	150	-	200	-	250	-	300	-	350	-	400	-	450	-		
	NC	<20		<20		<20		23		29		33		37		41					
	NC	<20		<20		<20		23		29		33		37		41					
24 x 9	Ak = .453	1.50	CFM TOTAL	300		450		600		750		900		1050		1200		1350			
			CFM / SIDE THROW / SIDE	150	-	225	-	300	-	375	-	450	-	525	-	600	-	675	-		
	NC	<20		<20		<20		25		31		35		39		43					
	NC	<20		<20		<20		25		31		35		39		43					
24 x 12	Ak = .601	2.00	CFM TOTAL	400		600		800		1000		1200		1400		1600		1800			
			CFM / SIDE THROW / SIDE	200	-	300	-	400	-	500	-	600	-	700	-	800	-	900	-		
	NC	<20		<20		<20		20		27		33		37		41		45			
	NC	<20		<20		<20		20		27		33		37		41		45			

Throw data in feet, based on isothermal air at 100 and 50 FPM terminal velocity.



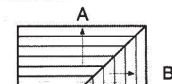
SUPPLY AIR RECTANGULAR CEILING DIFFUSERS PERFORMANCE DATA

CD9 Supply rectangular Ceiling Diffusers with Damper

CD9 - R90D (Two Way)

Size (inches)	Area Factor (Ak) Neck Area (Sq. ft.)	Neck Velocity (fpm)		200	300	400	500	600	700	800	900	
		Velocity Pressure (in. w.g.)		.003	.006	.010	.016	.023	.031	.040	.051	
		Total Pressure (in. w.g.)		.016	.036	.064	.100	.140	.200	.260	.319	
Side		A	B	A	B	A	B	A	B	A	B	
9 x 6	Ak = .122	CFM TOTAL	75		113		150		188		225	
		CFM / SIDE	50	25	75	38	100	50	125	63	150	75
	THROW / SIDE	8-12	7-9	10-14	8-10	11-16	9-12	13-18	10-14	14-20	11-15	15-21
	NC	<20		<20		<20		<20		25		29
0.375	Ak = .158	CFM TOTAL	100		150		200		250		300	
		CFM / SIDE	75	25	112	38	150	50	188	62	225	75
	THROW / SIDE	10-14	7-9	12-17	8-10	14-20	9-12	16-23	10-14	17-25	11-15	18-26
	NC	<20		<20		<20		20		27		30
12 x 6	Ak = .232	CFM TOTAL	150		225		300		375		450	
		CFM / SIDE	94	56	141	84	188	112	235	140	282	168
	THROW / SIDE	10-14	8-11	12-17	10-13	14-20	11-15	16-23	13-17	17-25	14-18	18-26
	NC	<20		<20		<20		22		28		32
12 x 9	Ak = .195	CFM TOTAL	125		188		250		313		375	
		CFM / SIDE	100	25	150	37	200	50	250	62	300	75
	THROW / SIDE	10-14	7-9	12-17	8-10	14-20	9-12	16-23	10-14	17-25	11-15	18-26
	NC	<20		<20		<20		21		27		31
15 x 6	Ak = .287	CFM TOTAL	188		281		375		469		563	
		CFM / SIDE	131	56	197	84	263	112	329	141	394	169
	THROW / SIDE	12-16	8-11	14-19	10-13	16-22	11-15	18-25	13-17	20-27	14-18	21-28
	NC	<20		<20		<20		23		29		33
15 x 9	Ak = .380	CFM TOTAL	250		375		500		625		750	
		CFM / SIDE	150	100	225	150	300	200	375	250	450	300
	THROW / SIDE	13-18	9-14	15-21	11-16	17-24	13-18	19-27	15-21	21-30	16-22	22-32
	NC	<20		<20		<20		25		31		35
18 x 6	Ak = .232	CFM TOTAL	150		225		300		375		450	
		CFM / SIDE	124	26	186	39	248	52	310	65	372	78
	THROW / SIDE	12-16	7-9	14-19	8-10	16-22	9-12	18-25	10-14	20-27	11-15	21-29
	NC	<20		<20		<20		22		28		32
18 x 9	Ak = .343	CFM TOTAL	225		338		450		563		675	
		CFM / SIDE	169	56	254	84	338	112	422	141	506	169
	THROW / SIDE	13-18	9-11	15-21	10-13	17-24	11-15	19-27	13-17	21-30	14-18	22-32
	NC	<20		<20		<20		24		30		34
18 x 12	Ak = .453	CFM TOTAL	300		450		600		750		900	
		CFM / SIDE	200	100	300	150	400	200	500	250	600	300
	THROW / SIDE	14-20	9-14	16-23	11-16	18-26	13-18	21-30	15-21	22-32	16-22	24-34
	NC	<20		<20		<20		26		32		36
21 x 6	Ak = .269	CFM TOTAL	175		263		350		438		525	
		CFM / SIDE	150	25	225	38	300	50	375	63	450	75
	THROW / SIDE	14-18	7-9	15-21	8-10	17-24	9-12	19-27	10-14	21-30	11-15	22-32
	NC	<20		<20		<20		22		28		32
21 x 9	Ak = .398	CFM TOTAL	263		394		525		656		788	
		CFM / SIDE	206	57	308	85	412	113	514	142	618	170
	THROW / SIDE	14-20	9-11	16-23	10-13	18-26	11-15	21-30	13-17	22-32	14-18	24-34
	NC	<20		<20		<20		24		30		34
21 x 12	Ak = .523	CFM TOTAL	350		525		700		875		1050	
		CFM / SIDE	250	100	375	150	500	200	625	250	750	300
	THROW / SIDE	14-20	9-14	17-24	11-16	20-28	13-18	23-32	15-21	25-34	16-22	26-37
	NC	<20		<20		<20		26		32		36
24 x 6	Ak = .306	CFM TOTAL	200		300		400		500		600	
		CFM / SIDE	175	25	263	37	350	50	438	62	525	75
	THROW / SIDE	13-18	7-9	15-21	8-10	17-24	9-12	19-27	10-14	21-30	11-15	22-32
	NC	<20		<20		<20		23		29		33
24 x 9	Ak = .453	CFM TOTAL	300		450		600		750		900	
		CFM / SIDE	244	56	366	84	488	112	609	141	731	169
	THROW / SIDE	14-20	9-11	17-24	10-13	20-28	11-15	23-32	13-17	25-34	14-18	26-37
	NC	<20		<20		<20		25		31		35
24 x 12	Ak = .601	CFM TOTAL	400		600		800		1000		1200	
		CFM / SIDE	300	100	450	150	600	200	750	250	900	300
	THROW / SIDE	14-20	9-14	17-24	11-16	20-28	13-18	23-32	15-21	25-34	16-22	26-37
	NC	<20		<20		20		27		33		37

Throw data in feet, based on isothermal air at 100 and 50 FPM terminal velocity.



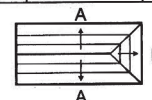
SUPPLY AIR RECTANGULAR CEILING DIFFUSERS PERFORMANCE DATA

CD9 Supply Rectangular Ceiling Diffusers with Damper

CD9 - 3RD (Three Way)

Size (inches)	Area Factor (Ak)	Neck Area (Sq. ft.)	Neck Velocity (fpm)		200		300		400		500		600		700		800		900	
			Velocity Pressure (in. w.g.)		.003		.006		.010		.016		.023		.031		.040		.051	
			Total Pressure (in. w.g.)		.013		.029		.052		.080		.120		.160		.210		.255	
			Side		A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
9 x 6	Ak = .122 0.375	CFM TOTAL CFM / SIDE THROW / SIDE NC	75		113		150		188		225		263		300		337			
			31	13	47	19	62	26	78	32	93	39	109	45	124	52	140	59		
			7-9	4-6	8-11	5-7	9-13	6-8	10-15	7-9	11-16	7-10	12-17	8-11	13-18	8-11	14-20	9-12		
			<20		<20		<20		<20		25		29		33		37			
12 x 6	Ak = .158 0.500	CFM TOTAL CFM / SIDE THROW / SIDE NC	100		150		200		250		300		350		400		450			
			43	14	65	20	86	28	108	34	129	42	151	48	172	56	194	52		
			9-12	4-6	10-14	5-7	11-16	6-8	13-18	7-9	14-20	7-10	15-21	8-11	16-23	8-11	17-24	9-12		
			<20		<20		<20		20		27		30		34		38			
12 x 9	Ak = .232 0.750	CFM TOTAL CFM / SIDE THROW / SIDE NC	150		225		300		375		450		525		600		675			
			61	28	92	41	122	56	153	69	183	84	213	98	244	112	275	125		
			9-14	5-8	11-16	6-9	13-18	7-10	15-21	8-11	16-22	9-12	17-24	9-13	18-26	10-14	20-27	11-15		
			<20		<20		<20		22		28		32		36		40			
15 x 6	Ak = .195 0.625	CFM TOTAL CFM / SIDE THROW / SIDE NC	125		188		250		313		375		438		500		563			
			56	13	84	20	112	26	140	33	169	37	197	44	225	50	253	58		
			8-13	4-6	10-15	5-7	12-17	6-8	14-19	7-9	15-21	7-10	16-22	8-11	17-24	8-11	18-26	9-12		
			<20		<20		<20		21		27		31		35		39			
15 x 9	Ak = .287 0.938	CFM TOTAL CFM / SIDE THROW / SIDE NC	188		281		375		469		563		656		750		845			
			80	28	120	42	159	56	200	70	240	84	279	98	319	112	359	126		
			10-14	5-8	12-17	6-9	14-20	7-10	16-23	8-11	17-25	9-12	18-26	9-13	20-28	10-14	21-30	11-16		
			<20		<20		<20		23		29		33		37		41			
15 x 12	Ak = .380 1.25	CFM TOTAL CFM / SIDE THROW / SIDE NC	250		375		500		625		750		875		1000		1125			
			100	50	150	75	200	100	250	125	300	150	350	175	400	200	450	225		
			10-14	7-9	12-17	8-10	14-20	9-12	16-23	10-14	17-25	11-15	18-26	12-16	20-28	13-17	21-30	14-18		
			<20		<20		<20		25		31		35		39		43			
18 x 6	Ak = .232 0.750	CFM TOTAL CFM / SIDE THROW / SIDE NC	150		225		300		375		450		525		600		675			
			69	12	103	18	138	24	172	31	207	36	241	43	275	50	310	55		
			9-14	4-6	11-16	5-7	13-18	6-8	15-21	7-9	16-22	7-10	17-24	8-11	18-25	8-11	20-27	9-12		
			<20		<20		<20		22		28		32		36		40			
18 x 9	Ak = .343 1.125	CFM TOTAL CFM / SIDE THROW / SIDE NC	225		338		450		563		675		788		900		1012			
			98	29	147	43	196	58	246	70	294	87	345	98	394	112	441	130		
			10-14	5-7	12-17	6-9	14-20	7-10	16-23	8-11	17-25	9-12	18-26	9-13	20-28	10-14	21-30	11-15		
			<20		<20		<20		24		30		34		38		42			
18 x 12	Ak = .453 1.50	CFM TOTAL CFM / SIDE THROW / SIDE NC	300		450		600		750		900		1050		1200		1350			
			125	50	187	75	250	100	312	125	375	150	437	175	500	200	562	225		
			12-16	7-9	14-19	8-10	16-22	9-12	18-25	10-14	20-27	11-15	21-29	12-16	23-31	13-17	24-33	14-18		
			<20		<20		<20		26		32		36		40		44			
21 x 6	Ak = .269 0.875	CFM TOTAL CFM / SIDE THROW / SIDE NC	175		263		350		438		525		613		700		787			
			81	13	122	19	162	26	203	32	244	37	284	45	324	52	364	58		
			10-14	4-6	12-17	5-7	14-20	6-8	16-23	7-9	17-25	7-10	18-26	8-11	20-28	8-11	21-30	9-12		
			<20		<20		<20		22		28		32		36		40			
21 x 9	Ak = .398 1.31	CFM TOTAL CFM / SIDE THROW / SIDE NC	263		394		525		656		788		919		1050		1181			
			117	29	175	43	234	57	292	72	351	86	409	101	467	115	527	126		
			12-16	5-8	14-19	6-9	16-22	7-10	18-25	8-11	20-27	9-12	21-29	9-13	23-31	10-14	24-33	11-15		
			<20		<20		<20		24		30		34		38		42			
21 x 12	Ak = .523 1.75	CFM TOTAL CFM / SIDE THROW / SIDE NC	350		525		700		875		1050		1225		1400		1575			
			150	50	225	75	300	100	375	125	450	150	525	175	600	200	670	225		
			13-18	7-9	15-21	8-10	17-24	9-12	19-27	10-14	21-30	11-15	22-32	12-16	24-34	13-17	26-36	14-18		
			<20		<20		<20		26		32		36		40		44			
24 x 6	Ak = .306 1.00	CFM TOTAL CFM / SIDE THROW / SIDE NC	200		300		400		500		600		700		800		900			
			93	14	141	18	187	25	234	31	279	42	325	50	372	56	422	56		
			10-14	4-6	12-17	5-7	14-20	6-8	16-23	7-9	17-25	7-10	18-26	8-11	20-28	8-11	21-30	9-12		
			<20		<20		<20		23		29		33		37		41			
24 x 9	Ak = .453 1.50	CFM TOTAL CFM / SIDE THROW / SIDE NC	300		450		600		750		900		1050		1200		1350			
			136	28	204	42	272	56	340	70	408	84	476	98	544	112	612	126		
			12-16	5-7	14-19	6-9	16-22	7-10	18-25	8-11	20-27	9-12	21-29	9-13	23-31	10-14	24-33	11-15		
			<20		<20		<20		25		31		35		39		43			
24 x 12	Ak = .601 2.00	CFM TOTAL CFM / SIDE THROW / SIDE NC	400		600		800		1000		1200		1400		1600		1800			
			175	50	262	75	350	100	437	125	525	150	612	175	700	200	787	225		
			13-18	7-9	15-21	8-10	17-24	9-12	19-24	10-14	21-30	11-15	22-32	12-16	24-34	13-17	26-36	14-18		
			<20		<20		20		27		33		37		41		45			

Throw data in feet, based on isothermal air at 100 and 50 FPM terminal velocity.



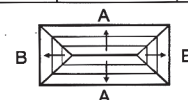
SUPPLY AIR RECTANGULAR CEILING DIFFUSERS PERFORMANCE DATA

CD9 Supply Rectangular Ceiling Diffusers with Damper

CD9 - 4RD (Four Way)

Size (inches)	Area Factor (AK)	Neck Velocity (fpm)	200		300		400		500		600		700		800		900			
			Velocity Pressure (in. w.g.)		.003		.006		.010		.016		.023		.031		.040		.051	
			Total Pressure (in. w.g.)		.015		.033		.058		.091		.130		.180		.230		.310	
			Side		A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
9 x 6	Ak = .122 0.375	CFM TOTAL	75		113		150		188		225		263		300		337			
		CFM / SIDE	25	12	38	18	50	25	63	31	75	37	87	44	100	50	112	56		
		THROW / SIDE	7-9	4-6	8-10	5-7	9-12	6-8	10-14	7-9	11-15	7-10	12-16	8-11	13-17	8-11	14-18	9-12		
		NC	<20		<20		<20		<20		25		29		33		37			
12 x 6	Ak = .158 0.500	CFM TOTAL	100		150		200		250		300		350		400		450			
		CFM / SIDE	38	12	57	18	76	24	94	31	113	37	133	42	152	48	171	54		
		THROW / SIDE	9-11	4-6	10-13	5-7	11-15	7-8	13-17	7-9	14-18	7-10	15-20	8-11	16-21	8-11	17-23	8-12		
		NC	<20		<20		<20		20		27		30		34		38			
12 x 9	Ak = .232 0.750	CFM TOTAL	150		225		300		375		450		525		600		675			
		CFM / SIDE	47	28	70	42	94	56	117	70	141	84	164	98	188	112	211	126		
		THROW / SIDE	8-10	5-8	9-12	6-9	10-14	7-10	11-16	8-11	12-17	9-12	13-18	9-13	14-20	10-14	15-21	11-15		
		NC	<20		<20		<20		22		28		32		36		40			
15 x 6	Ak = .195 0.625	CFM TOTAL	125		188		250		313		375		438		500		563			
		CFM / SIDE	50	12	75	18	100	25	125	31	150	37	175	44	200	50	225	56		
		THROW / SIDE	9-12	4-6	10-14	5-7	11-16	6-8	13-18	7-9	14-20	7-10	15-21	8-11	16-23	9-11	17-24	9-12		
		NC	<20		<20		<20		21		27		31		35		39			
15 x 9	Ak = .287 0.938	CFM TOTAL	188		281		375		469		563		656		750		845			
		CFM / SIDE	66	28	99	42	132	56	165	70	198	84	230	98	263	112	296	126		
		THROW / SIDE	9-14	5-8	11-16	6-9	13-18	7-10	15-21	8-11	16-22	9-12	17-24	9-13	18-25	10-14	20-27	11-15		
		NC	<20		<20		<20		23		29		33		37		41			
15 x 12	Ak = .380 1.25	CFM TOTAL	250		375		500		625		750		875		1000		1125			
		CFM / SIDE	75	50	112	75	150	100	187	125	225	150	262	175	300	200	337	225		
		THROW / SIDE	9-12	7-8	10-14	8-10	11-16	9-12	13-18	10-14	14-20	11-15	15-21	12-16	16-23	13-17	17-24	14-18		
		NC	<20		<20		<20		25		31		35		39		43			
18 x 6	Ak = .232 0.750	CFM TOTAL	150		225		300		375		450		525		600		675			
		CFM / SIDE	63	12	94	18	125	25	158	31	188	37	220	42	250	50	283	54		
		THROW / SIDE	9-14	4-6	11-16	5-7	13-18	6-8	15-21	7-9	18-22	7-10	17-24	8-11	18-25	8-11	20-27	9-12		
		NC	<20		<20		<20		22		28		32		36		40			
18 x 9	Ak = .343 1.125	CFM TOTAL	225		338		450		563		675		788		900		1012			
		CFM / SIDE	85	28	126	42	169	56	211	70	254	84	296	98	338	112	380	126		
		THROW / SIDE	10-14	5-8	12-17	6-9	14-20	7-10	16-23	8-11	17-25	9-12	18-26	9-13	20-28	10-14	21-30	11-15		
		NC	<20		<20		<20		24		30		34		38		42			
18 x 12	Ak = .453 1.50	CFM TOTAL	300		450		600		750		900		1050		1200		1350			
		CFM / SIDE	100	50	150	75	200	100	250	125	300	150	350	175	400	200	450	225		
		THROW / SIDE	10-14	7-8	12-17	8-10	14-20	9-12	16-23	10-14	17-25	11-15	18-26	12-16	20-28	13-17	21-30	14-18		
		NC	<20		<20		<20		26		32		36		40		44			
21 x 6	Ak = .269 0.875	CFM TOTAL	175		263		350		438		525		613		700		787			
		CFM / SIDE	75	12	113	18	150	25	188	31	225	37	262	44	300	50	337	56		
		THROW / SIDE	10-14	4-6	12-17	5-7	14-20	6-8	16-23	7-9	17-25	7-10	18-26	8-11	20-28	8-11	21-30	9-12		
		NC	<20		<20		<20		22		28		32		36		40			
21 x 9	Ak = .398 1.31	CFM TOTAL	263		394		525		656		788		919		1050		1181			
		CFM / SIDE	103	28	154	42	206	56	258	70	309	84	360	98	413	112	464	126		
		THROW / SIDE	12-16	5-8	14-19	6-9	16-22	7-10	18-25	8-11	20-27	8-12	21-29	9-13	23-31	10-14	24-33	11-15		
		NC	<20		<20		<20		24		30		34		38		42			
21 x 12	Ak = .523 1.75	CFM TOTAL	350		525		700		875		1050		1225		1400		1575			
		CFM / SIDE	125	50	187	75	250	100	312	125	375	150	437	175	500	200	562	225		
		THROW / SIDE	12-16	7-8	14-19	8-10	16-22	9-12	18-25	10-14	20-27	11-15	21-29	12-16	22-31	13-17	24-33	14-18		
		NC	<20		<20		<20		26		32		36		40		44			
24 x 6	Ak = .306 1.00	CFM TOTAL	200		300		400		500		600		700		800		900			
		CFM / SIDE	87	12	131	18	175	25	219	31	262	37	306	44	350	50	394	56		
		THROW / SIDE	10-14	4-6	12-17	5-7	14-20	6-8	16-23	7-9	17-25	7-10	18-26	8-11	20-28	8-11	21-30	9-12		
		NC	<20		<20		<20		23		29		33		37		41			
24 x 9	Ak = .453 1.50	CFM TOTAL	300		450		600		750		900		1050		1200		1350			
		CFM / SIDE	122	28	183	42	244	56	305	70	366	84	427	98	488	112	549	126		
		THROW / SIDE	12-16	5-8	14-19	6-9	16-22	7-10	18-25	8-11	20-27	9-12	21-29	9-13	23-31	10-14	24-33	11-15		
		NC	<20		<20		<20		25		31		35		39		43			
24 x 12	Ak = .601 2.00	CFM TOTAL	400		600		800		1000		1200		1400		1600		1800			
		CFM / SIDE	150	50	225	75	300	100	375	125	450	150	525	175	600	200	675	225		
		THROW / SIDE	13-18	7-9	15-21	8-10	17-24	9-12	18-27	10-14	21-30	11-15	22-32	12-16	24-34	13-17	23-36	14-18		
		NC	<20		<20		<20		27		33		37		41		45			

Throw data in feet, based on isothermal air at 100 and 50 FPM terminal velocity.

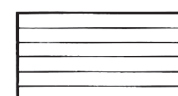


RETURN AIR RECTANGULAR CEILING DIFFUSERS PERFORMANCE DATA

CD9 Return Rectangular Ceiling Diffusers

CD9 - 1R (One Way)

Size (inches)	Neck Area (Sq. ft.)	Neck Velocity (fpm)	200	300	400	500	600	700	800	900
		Velocity Pressure (in. w.g.)	.003	.006	.010	.016	.023	.031	.040	.051
		Negative Static Pressure (in. w.g.)	.051	.113	.199	.320	.444	.617	.789	.962
9 x 6	0.375	CFM	75	113	150	188	225	263	300	337
		NC	<20	<20	<20	<20	23	27	31	36
12 x 6	0.500	CFM	100	150	200	250	300	350	400	450
		NC	<20	<20	<20	<20	25	28	32	37
12 x 9	0.750	CFM	150	225	300	375	450	525	600	675
		NC	<20	<20	<20	20	26	30	34	39
15 x 6	0.625	CFM	125	188	250	313	375	438	500	563
		NC	<20	<20	<20	<20	25	29	33	38
15 x 9	0.938	CFM	188	281	375	469	563	656	750	845
		NC	<20	<20	<20	21	27	31	35	40
15 x 12	1.25	CFM	250	375	500	625	750	875	1000	1125
		NC	<20	<20	<20	23	29	33	37	42
18 x 6	0.750	CFM	150	225	300	375	450	525	600	675
		NC	<20	<20	<20	20	26	30	34	39
18 x 9	1.125	CFM	225	338	450	563	675	788	900	1012
		NC	<20	<20	<20	22	28	32	36	41
18 x 12	1.50	CFM	300	450	600	750	900	1050	1200	1350
		NC	<20	<20	<20	24	30	34	38	43
21 x 6	0.875	CFM	175	263	350	438	525	613	700	787
		NC	<20	<20	<20	20	26	30	34	39
21 x 9	1.31	CFM	263	394	525	656	788	919	1050	1181
		NC	<20	<20	<20	22	28	32	36	41
21 x 12	1.75	CFM	350	525	700	875	1050	1225	1400	1575
		NC	<20	<20	<20	24	30	34	38	43
24 x 6	1.00	CFM	200	300	400	500	600	700	800	900
		NC	<20	<20	<20	21	27	31	35	40
24 x 9	1.50	CFM	300	450	600	750	900	1050	1200	1350
		NC	<20	<20	<20	23	29	33	37	42
24 x 12	2.00	CFM	400	600	800	1000	1200	1400	1600	1800
		NC	<20	<20	<20	25	31	35	39	44

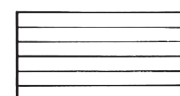


RETURN AIR RECTANGULAR CEILING DIFFUSERS PERFORMANCE DATA

CD9 Return Rectangular Ceiling Diffusers

CD9 - 2R (Two Way)

Size (inches)	Neck Area (Sq. ft.)	Neck Velocity (fpm)	200	300	400	500	600	700	800	900
		Velocity Pressure (in. w.g.)	.003	.006	.010	.016	.023	.031	.040	.051
		Negative Static Pressure (in. w.g.)	.048	.108	.192	.300	.420	.600	.780	.960
9 x 6	0.375	CFM	75	113	150	188	225	263	300	337
		NC	<20	<20	<20	<20	23	27	31	36
12 x 6	0.500	CFM	100	150	200	250	300	350	400	450
		NC	<20	<20	<20	<20	25	28	32	37
12 x 9	0.750	CFM	150	225	300	375	450	525	600	675
		NC	<20	<20	<20	20	26	30	34	39
15 x 6	0.625	CFM	125	188	250	313	375	438	500	563
		NC	<20	<20	<20	<20	25	29	33	38
15 x 9	0.938	CFM	188	281	375	469	563	656	750	845
		NC	<20	<20	<20	21	27	31	35	40
15 x 12	1.25	CFM	250	375	500	625	750	875	1000	1125
		NC	<20	<20	<20	23	29	33	37	42
18 x 6	0.750	CFM	150	225	300	375	450	525	600	675
		NC	<20	<20	<20	20	26	30	34	39
18 x 9	1.125	CFM	225	338	450	563	675	788	900	1012
		NC	<20	<20	<20	22	28	32	36	41
18 x 12	1.50	CFM	300	450	600	750	900	1050	1200	1350
		NC	<20	<20	<20	24	30	34	38	43
21 x 6	0.875	CFM	175	263	350	438	525	613	700	787
		NC	<20	<20	<20	20	26	30	34	39
21 x 9	1.31	CFM	263	394	525	656	788	919	1050	1181
		NC	<20	<20	<20	22	28	32	36	41
21 x 12	1.75	CFM	350	525	700	875	1050	1225	1400	1575
		NC	<20	<20	<20	24	30	34	38	43
24 x 6	1.00	CFM	200	300	400	500	600	700	800	900
		NC	<20	<20	<20	21	27	31	35	40
24 x 9	1.50	CFM	300	450	600	750	900	1050	1200	1350
		NC	<20	<20	<20	23	29	33	37	42
24 x 12	2.00	CFM	400	600	800	1000	1200	1400	1600	1800
		NC	<20	<20	<20	25	31	35	39	44



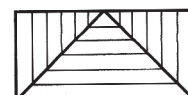
RETURN AIR RECTANGULAR CEILING DIFFUSERS

PERFORMANCE DATA

CD9 Return Rectangular Ceiling Diffusers

CD9 - 3R (Three Way)

Size (inches)	Neck Area (Sq. ft.)	Neck Velocity (fpm)	200	300	400	500	600	700	800	900
		Velocity Pressure (in. w.g.)	.003	.006	.010	.016	.023	.031	.040	.051
		Negative Static Pressure (in. w.g.)	.041	.092	.165	.253	.380	.507	.665	.808
9 x 6	0.375	CFM	75	113	150	188	225	263	300	337
		NC	<20	<20	<20	<20	23	27	31	36
12 x 6	0.500	CFM	100	150	200	250	300	350	400	450
		NC	<20	<20	<20	<20	25	28	32	37
12 x 9	0.750	CFM	150	225	300	375	450	525	600	675
		NC	<20	<20	<20	20	26	30	34	39
15 x 6	0.625	CFM	125	188	250	313	375	438	500	563
		NC	<20	<20	<20	<20	25	29	33	38
15 x 9	0.938	CFM	188	281	375	469	563	656	750	845
		NC	<20	<20	<20	21	27	31	35	40
15 x 12	1.25	CFM	250	375	500	625	750	875	1000	1125
		NC	<20	<20	<20	23	29	33	37	42
18 x 6	0.750	CFM	150	225	300	375	450	525	600	675
		NC	<20	<20	<20	20	26	30	34	39
18 x 9	1.125	CFM	225	338	450	563	675	788	900	1012
		NC	<20	<20	<20	22	28	32	36	41
18 x 12	1.50	CFM	300	450	600	750	900	1050	1200	1350
		NC	<20	<20	<20	24	30	34	38	43
21 x 6	0.875	CFM	175	263	350	438	525	613	700	787
		NC	<20	<20	<20	20	26	30	34	39
21 x 9	1.31	CFM	263	394	525	656	788	919	1050	1181
		NC	<20	<20	<20	22	28	32	36	41
21 x 12	1.75	CFM	350	525	700	875	1050	1225	1400	1575
		NC	<20	<20	<20	24	30	34	38	43
24 x 6	1.00	CFM	200	300	400	500	600	700	800	900
		NC	<20	<20	<20	21	27	31	35	40
24 x 9	1.50	CFM	300	450	600	750	900	1050	1200	1350
		NC	<20	<20	<20	23	29	33	37	42
24 x 12	2.00	CFM	400	600	800	1000	1200	1400	1600	1800
		NC	<20	<20	<20	25	31	35	39	44

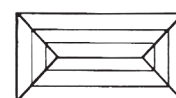


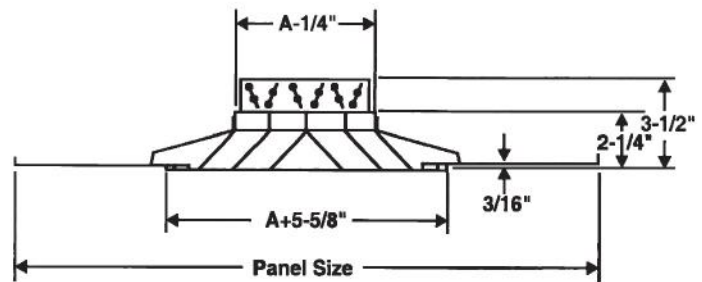
RETURN AIR RECTANGULAR CEILING DIFFUSERS PERFORMANCE DATA

CD9 Return Rectangular Ceiling Diffusers

CD9 - 4R (Four Way)

Size (inches)	Neck Area (Sq. ft.)	Neck Velocity (fpm)	200	300	400	500	600	700	800	900
		Velocity Pressure (in. w.g.)	.003	.006	.010	.016	.023	.031	.040	.051
		Negative Static Pressure (in. w.g.)	.048	.105	.186	.292	.417	.578	.738	.995
9 x 6	0.375	CFM	75	113	150	188	225	263	300	337
		NC	<20	<20	<20	<20	23	27	31	36
12 x 6	0.500	CFM	100	150	200	250	300	350	400	450
		NC	<20	<20	<20	<20	25	28	32	37
12 x 9	0.750	CFM	150	225	300	375	450	525	600	675
		NC	<20	<20	<20	20	26	30	34	39
15 x 6	0.625	CFM	125	188	250	313	375	438	500	563
		NC	<20	<20	<20	<20	25	29	33	38
15 x 9	0.938	CFM	188	281	375	469	563	656	750	845
		NC	<20	<20	<20	21	27	31	35	40
15 x 12	1.25	CFM	250	375	500	625	750	875	1000	1125
		NC	<20	<20	<20	23	29	33	37	42
18 x 6	0.750	CFM	150	225	300	375	450	525	600	675
		NC	<20	<20	<20	20	26	30	34	39
18 x 9	1.125	CFM	225	338	450	563	675	788	900	1012
		NC	<20	<20	<20	22	28	32	36	41
18 x 12	1.50	CFM	300	450	600	750	900	1050	1200	1350
		NC	<20	<20	<20	24	30	34	38	43
21 x 6	0.875	CFM	175	263	350	438	525	613	700	787
		NC	<20	<20	<20	20	26	30	34	39
21 x 9	1.31	CFM	263	394	525	656	788	919	1050	1180
		NC	<20	<20	<20	22	28	32	36	41
21 x 12	1.75	CFM	350	525	700	875	1050	1225	1400	1575
		NC	<20	<20	<20	24	30	34	38	43
24 x 6	1.00	CFM	200	300	400	500	600	700	800	900
		NC	<20	<20	<20	21	27	31	35	40
24 x 9	1.50	CFM	300	450	600	750	900	1050	1200	1350
		NC	<20	<20	<20	23	29	33	37	42
24 x 12	2.00	CFM	400	600	800	1000	1200	1400	1600	1800
		NC	<20	<20	<20	25	31	35	39	44





Model - CD9-4SD60

A = Listed Sizes

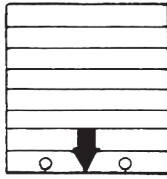
PRODUCT DESCRIPTION

- This Model is available with multiple air flow patterns and with a volume control damper.
- This Model is assembled in a two part system. One is the ceiling diffuser (CD9), the other is the panel into which the diffuser is mounted.
 - The aluminum panel is 1/16" in thickness.
 - The frame and blades are extruded aluminum alloy and are polyester powder coated with a white finish.
 - The frame and blades have a typical wall thickness of 1/16".
 - The inner core of the diffuser is fully removable for easy installation. It is held in place with four machine screws and two spring steel clips which together centre the core in the frame.
 - The ceiling diffuser projects 3/16" from the mounting surface.
 - The unit size increases in 3 inches increments beginning with 6 in. x 6 in. as the smallest available.
 - The opposed blade damper section connects to the frame with screws and lever operated from the face of the unit.
 - The frame of the damper housing is separated from the blades with PVC bushings. This method of assembly eliminates corrosion and vibration.
 - Standard finish white for frame blades and panel. Damper in black color. Painted under electrostatic polyester powder coated system. Other colors available on request. Polyester powder of highest quality are used to enhance the appearance of the units.

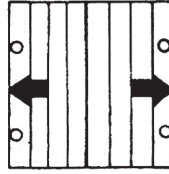
Listed Sizes:

CEILING MODULES		
20" x 20"	24" x 24"	24" x 48"
6" x 6"	6" x 6"	6" x 6"
9" x 9"	9" x 9"	9" x 9"
12" x 12"	12" x 12"	12" x 12"
		15" x 15"

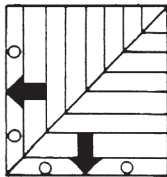
SQUARE AND RECTANGULAR CEILING DIFFUSERS BALANCING DATA



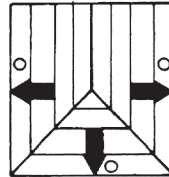
CD9-1S



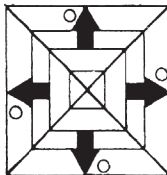
CD9-2S



CD9-S90

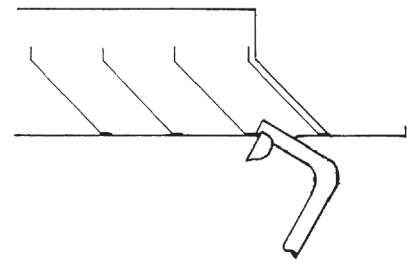


CD9-3S



CD9-4S

Figure (1)



Alnor 2220A Probe

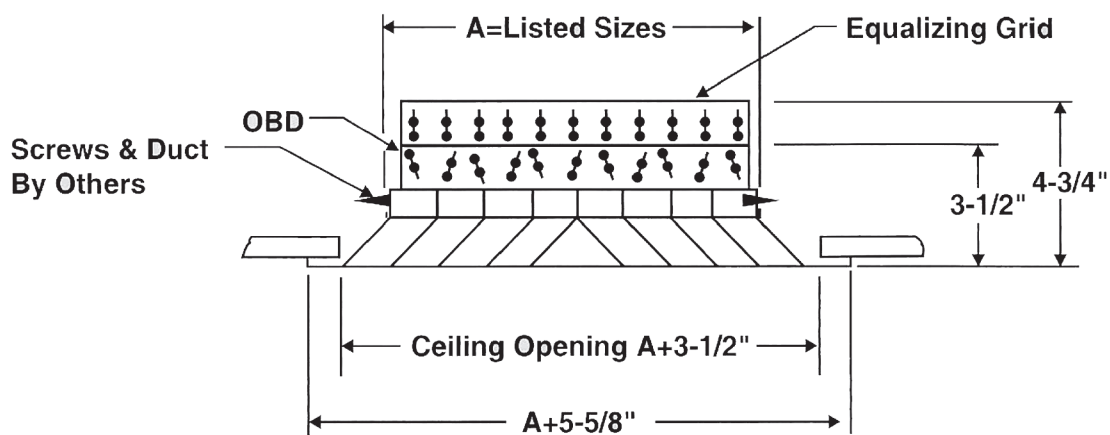
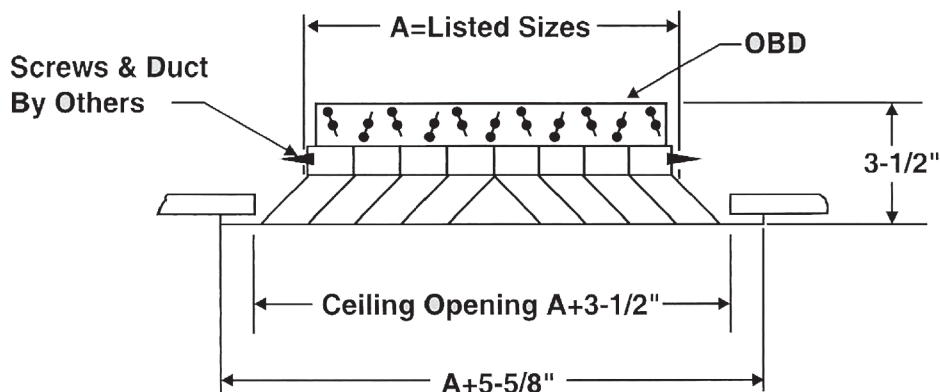
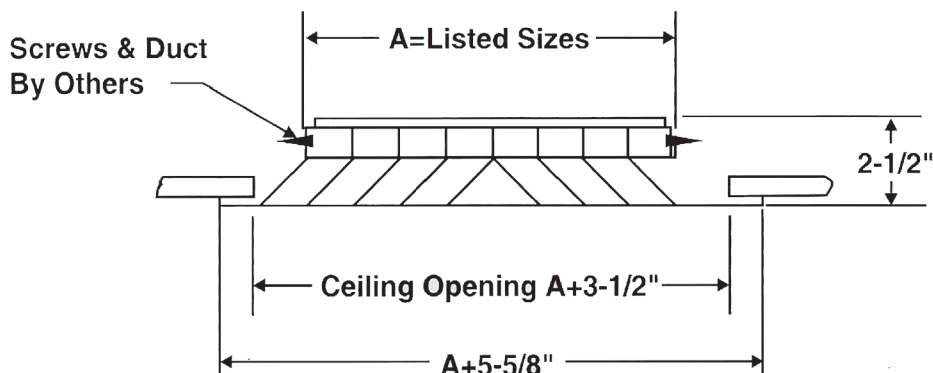
Figure (2)

Circles in the figure (1) denote suggested probe locations :-

1. Take several readings by an Alnor Velometer with tip no. 2220 A positioned at locations shown in the figure (1) and (2).
2. Select proper Ak factor from performance table by diffuser type and size.
3. Determine the flow by the following equation.

$$\text{CFM} = \text{Ak} \times \text{Average Velocity.}$$

INSTALLATION DETAILS



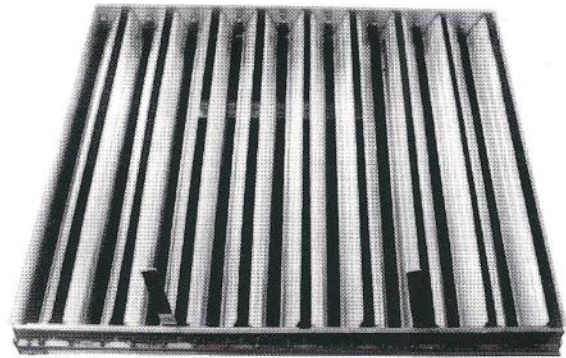
OPPOSED BLADE DAMPERS

Application :

O.B.D. for Volume Control.

Features and Installation :

Opposed blade assures precision control of air volume with a minimum of noise. The opposed blade damper section connects to the frame with a screw and is lever operating from the face of the unit.



Material and Finish :

Extruded aluminium construction, with powder coated black finish.

EQUALIZING GRID

Application :

Equalizing grid for equalization of air flow, directional control and minor adjustments of air flow.

Features and Installation :

The Equalizing Grid is available as an accessory above the diffuser to provide uniform air flow over the surface of the diffuser face. The blades are individually adjustable to allow additional control when needed. The blades spaced on 3/4" centres, help to control the air flow in a linear manner, reducing pressure losses enabling the over all system to run more efficiently.



Material and Finish :

Extruded aluminium construction, with powder coated black finish.

DIFFUSER ACCESSORIES

SQUARE TO ROUND NECK ADAPTORS:**Application :**

Square to round adaptor that is field-installed to allow the use of flexible or round rigid duct.

Features and Installation :

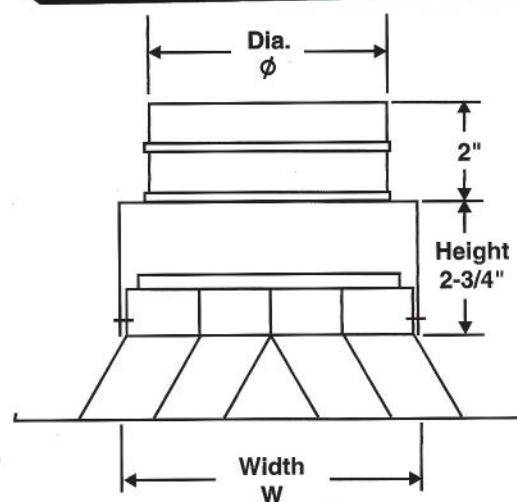
Square to round neck adaptors are available on all type diffusers, designed to provide for an economical transition from square to round necks on those projects using flexible or round rigid duct connections.

Material and Finish :

Constructed of 24 G.A. galvanized steel, with powder coated black finish.

SIZES

Sizes (in.)	Diameter (in.)	Width (in.)
6 x 6	5	6.28
9 x 9	6,8	9.28
12 x 12	8,10	12.28
15 x 15	10,12,14	15.28
18 x 18	12,14,16	18.28
21 x 21	14,16,18,20	21.28
24 x 24	16,18,20,22	24.28

**SQUARE TO SQUARE NECK ADAPTORS:****Application :**

Square to square adaptor that is field-installed to allow the use of square duct.

Features and Installation :

Square to square neck adaptors are available on all type diffusers, designed to provide from square to square neck on those projects using square duct connections.

Material and Finish :

Constructed of 24 G.A. galvanized steel, with powder coated black finish.

SIZES

Sizes (in.)	A (in.)	Width (in.)
6 x 6	5x5	6.28
9 x 9	6x6, 8x8	9.28
12 x 12	8x8, 10x10	12.28
15 x 15	10x10, 12x12, 14x14	15.28
18 x 18	12x12, 14x14, 16x16	18.28
21 x 21	14x14, 16x16, 18x18, 20x20	21.28
24 x 24	16x16, 18x18, 20x20, 22x22	24.28

