



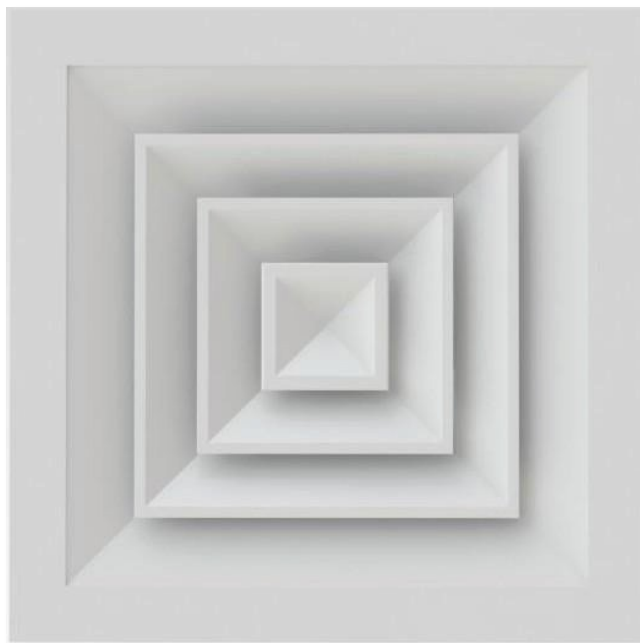
شركة مصنع عالم الناصريه المحدودة
AL NASSERIAH WORLD FACTORY COMPANY LTD

CEILING DIFFUSERS



ANA Ceiling Diffusers :

Is designed for supplying or returning air, commonly used in Ceiling air distribution applications. Basically constructed from a frame, a fully removable core and a flower in the middle of the core.



ANA CD Construction

Frame :

Constructed from extruded Aluminum alloy **6063** Profiles, with a thickness of **(1.2 mm)** and a flange width of **(73 mm)**.

Core :

Constructed from extruded Aluminum alloy **6063** Profiles fixed to the frame using mullion bars and arranged with **(35 mm)** distances between each two blades necks. Blades are available in one, two, three or four way air discharge.

Dampers:

Can be added if required. Opposed blade damper (OBD) type easily attached to the top side of the grille by locking clips, constructed from extrude Aluminum alloy **6063** with black color for the damper **(RAL 9005)**.

Extension :

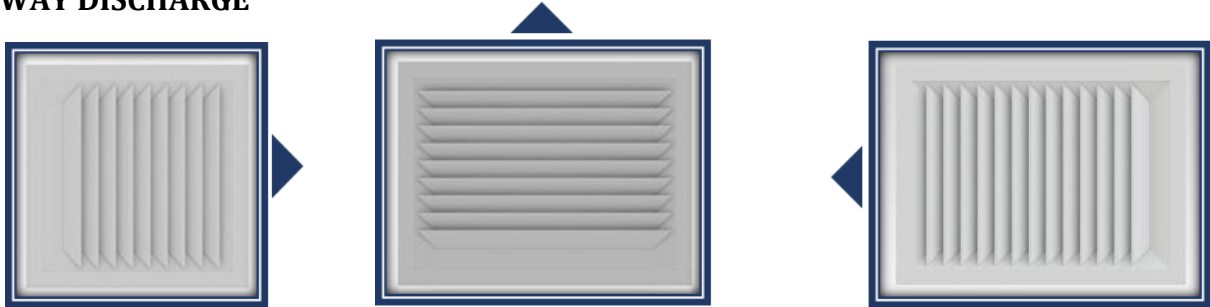
For size difference between the neck and the frame (more than **146 mm**), T-bar is used as an extension and constructed from aluminum sheet **6063**.

Finish :

Electrostatic powder coating is used for CD with standard white color for the Frame and the blades **(RAL 9016)** and black color for the damper **(RAL 9005)** and other colors are available upon request.

ANA Ceiling Diffuser Models & Patterns

1 WAY DISCHARGE

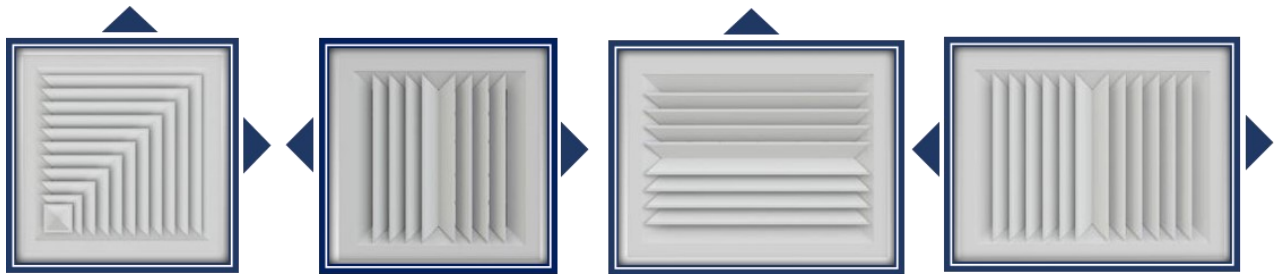


SQUARE (NCDSX-1)

RECTANGULAR VERTICAL (NCDSX-1V)

RECTANGULAR HORIZONTAL (NCDSX-1H)

2 WAY DISCHARGE



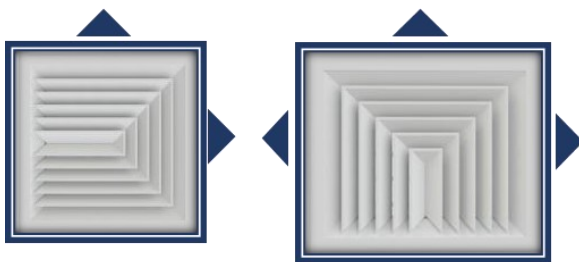
CORNER (NCDSX-2C)

SQUARE (NCDSX-2)

RECTANGULAR VERTICAL (NCDRX-2V)

RECTANGULAR HORIZONTAL (NCDRX-2H)

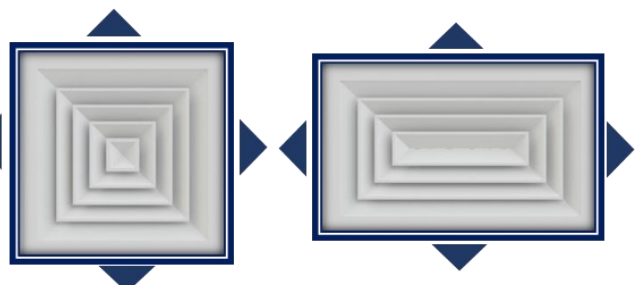
3 WAY DISCHARGE



SQUARE (NCDSX-3)

RECTANGULAR (NCDRX-3)

4 WAY DISCHARGE



SQUARE (NCDSX-4)

RECTANGULAR (NCDRX-4)

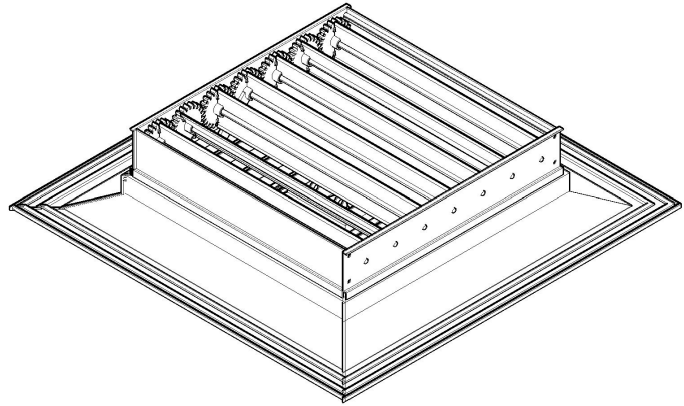
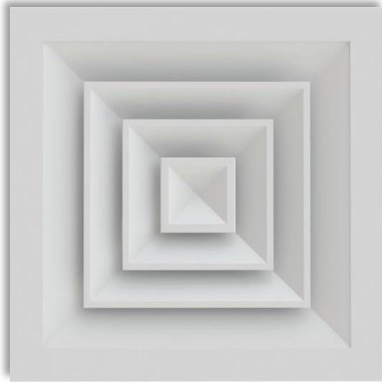
X:

S - Supply (with OBD)

R - Return (without OBD)

ANA Supply Square Ceiling Diffuser

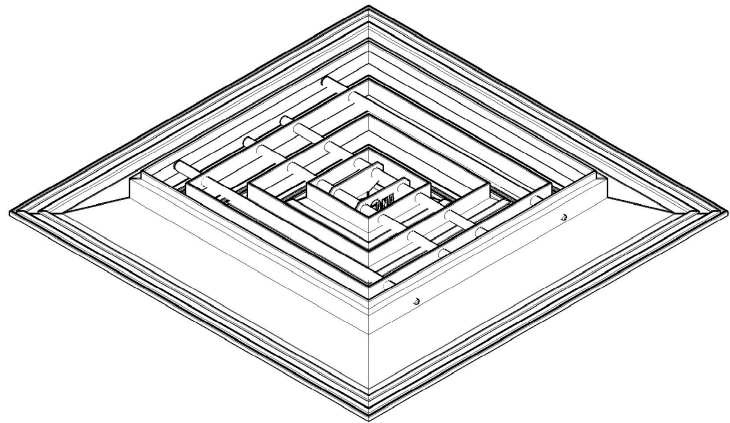
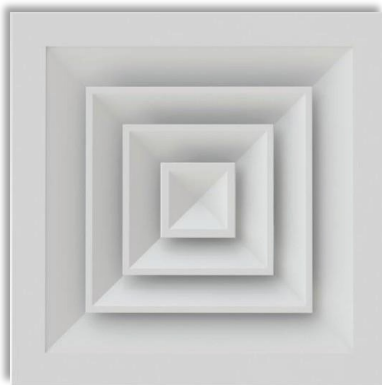
Model : NCDSS-X



- Four types of air discharge patterns are available : one, two, three or four way of discharge
- The core is available from extruded aluminum profiles **6063**.
- Volume damper (OBD) is attached to the neck with locking clips and it is lever operated.

ANA Return Square Ceiling Diffuser

Model : NCDSR-X



- Four types of air discharge patterns are available : one, two, three or four way of discharge
- The core is available from extruded aluminum profiles **6063**.

X: 4 Way, 3Way, 2Way

ANA Supply Rectangular Ceiling Diffuser

Model : NCDRS-X



- Four types of air discharge patterns are available : one (Horizontal or Vertical) , two (Horizontal or Vertical), three or four way of discharge.
- The core is available from extruded aluminum profiles **6063**.
- Volume damper (OBD) is attached to the neck with locking clips and it is lever operated.

ANA Return Rectangular Ceiling Diffuser

Model : NCDRR-X

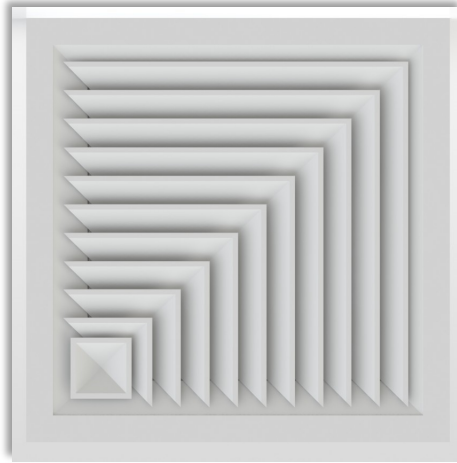


- Four types of air discharge patterns are available : one, two, three or four way of discharge.
- The core is available from extruded aluminum profiles **6063**.

X: 4 Way, 3Way, 2Way

ANA Supply Corner Ceiling Diffuser

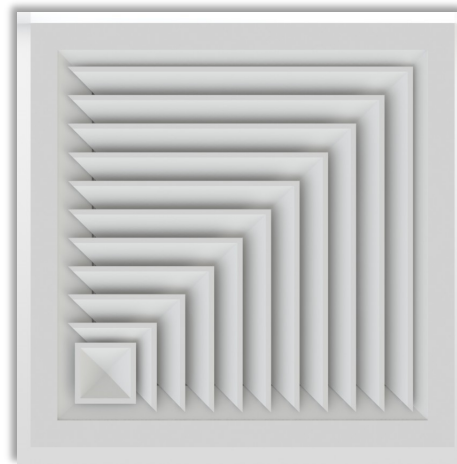
Model : NCDSS-2C



- Only available in two way air discharge.
- The core is available from extruded aluminum profiles **6063**.
- Volume damper (OBD) is attached to the neck with locking clips and it is lever operated.

ANA Return Corner Ceiling Diffuser

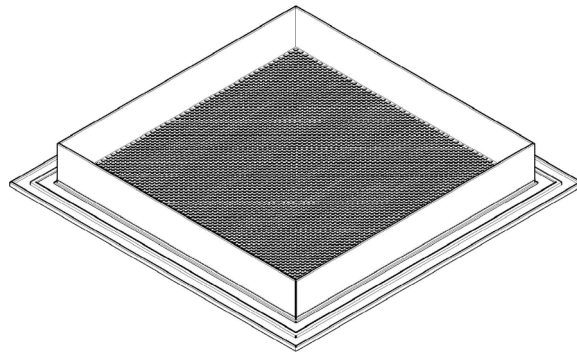
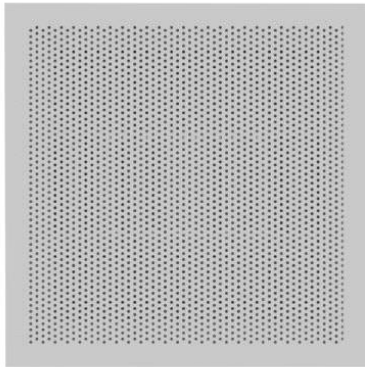
Model : NCDSR-2C



- Only available in two way air discharge.
- The core is available as pressed from aluminum sheet, or from extruded aluminum profiles **6063**.

ANA Perforated Ceiling Diffuser

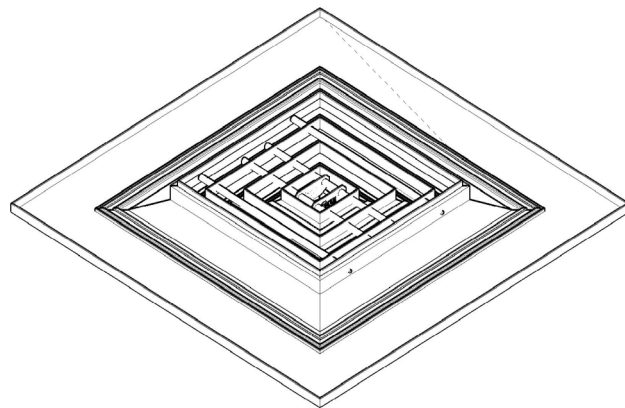
Model : NCDP-X



- The frame is available from extruded aluminum profiles **6063 (1.2mm)** with perforated galvanized steel sheet **G90**. Stainless Steel option are available upon request.
- Removable Perforated sheet with lock is added to the frame or with a full constructed ceiling diffuser to provide a laminar air flow which helps to fix the air temperatures in comfort zones.
- The diameter of the perforation is 3mm and at a 5mm pitch with 45° staggered pattern.
- Can be used in Supply and Return applications (Opposed Blade Damper can be added).

ANA Ceiling Diffuser T-Bar Option

Model : NCDT-X



- T-Bar option is used when the required face is bigger than the neck with over **(146 mm)**.
- The core is available from extruded aluminum profiles **6063**, the T-Bar is made from aluminum sheet **6063**.
- Can be used in Supply and Return applications (Opposed Blade Damper can be added).
- Please provide us with the Face and Neck sizes.

CEILING DIFFUSERS

Quick Selection

Dimensions of Square CD					
Size	Neck size		Face size		CFM
	In.	mm	In.	mm	
6x6	6.1	152.5	11.9	298.5	50-250
9x9	9.1	228.6	15.0	374.6	100-500
12x12	12.2	304.8	18.0	450.8	200-900
15x15	15.2	381	21.1	527	300-1400
18x18	18.3	457.2	24.1	603.2	450-2000
21x21	21.3	533.4	27.2	679.4	600-2800
24x24	24.4	609.6	30.2	755.6	800-3600

Dimensions of Rectangular CD								
Neck size (In.)		Neck size (mm)		Face size (In.)		Face size (mm)		CFM
W	H	W	H	W	H	W	H	
9.0	6.0	228.6	152.4	14.7	11.7	374.6	298.4	75-340
12.0	6.0	304.8	152.4	17.7	11.7	450.8	298.4	100-450
12.0	9.0	304.8	228.6	17.7	14.7	450.8	374.6	150-680
15.0	6.0	381.0	152.4	20.7	11.7	527.0	298.4	155-560
15.0	9.0	381.0	228.6	20.7	14.7	527.0	374.6	190-850
15.0	12.0	381.0	304.8	20.7	17.7	527.0	450.8	130-250
18.0	6.0	457.2	152.4	23.7	11.7	603.2	298.4	150-680
18.0	9.0	457.2	228.6	23.7	14.7	603.2	374.6	230-1000
18.0	12.0	457.2	304.8	23.7	17.7	603.2	450.8	300-1350
21.0	6.0	533.4	152.4	26.7	11.7	679.4	298.4	180-785
21.0	9.0	533.4	228.6	26.7	14.7	679.4	374.6	260-1180
24.0	6.0	609.6	152.4	29.7	11.7	755.6	298.4	200-900
24.0	9.0	609.6	228.6	29.7	14.7	755.6	374.6	300-1350
24.0	12.0	609.6	304.8	29.7	17.7	755.6	450.8	400-1800

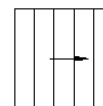
For selections please use technical data table or use the quick selection table to determine the suitable CD size :

1. Calculate the value of the air flow per.
2. Use the Data sheet to determine the suitable size according to the required throw and NC.
3. Face size = Neck size + **146 mm**

Neck Velocity (FPM)	Pressure (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

CEILING DIFFUSERS

ANA Supply Square Ceiling Diffuser 1-Way Technical Data Model :NCDSS-1



Size (inches)	Area Factor(A _k) Neck Area (sq.ft.)	Neck Velocity (fpm)	200	250	390	350	400	500	600	700	800	900
		Velocity Pressure (in. w.g.)	.003	.004	.006	.008	.010	.016	.023	.031	.040	.051
		Total Pressure (in. w.g.)	.015	.024	0.34	.046	.060	.094	.136	.184	.240	.305
6 x 6	Ak = .085	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
	0.250	NC	<20	<20	<20	<20	<20	<20	23	27	31	35
9 x 9	Ak = .177	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
	0.562	NC	<20	<20	<20	<20	<20	21	27	31	35	39
12 x 12	Ak = .306	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
	1.000	NC	<20	<20	<20	<20	<20	23	30	34	38	42
15 x 15	Ak = .472	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
	1.56	NC	<20	<20	<20	<20	21	26	32	36	40	44
18 x 18	Ak = .674	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
	2.25	NC	<20	<20	<20	21	23	28	34	38	42	45
21 x 21	Ak = .914	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
	3.06	NC	<20	<20	<20	22	23	30	36	40	44	49
24 x 24	Ak = 1.22	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
	4.00	NC	<20	<20	20	23	24	31	37	41	45	50

ANA Return Square Ceiling Diffuser 1-Way Technical Data

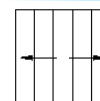
Size (inches)	Neck Area (Sq. ft.)	Neck Velocity (fpm)	200	250	390	350	400	500	600	700	800	900
		Velocity Pressure (in. w.g.)	.003	.004	.006	.008	.010	.016	.023	.031	.040	.051
		Negative Static Pressure (in. w.g.)	.037	.058	.083	.112	.148	.230	.332	.450	.590	.752
6 x 6	0.250	CFM	50	63	75	88	100	125	150	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

Data Key :

- Air Flow : (CFM) ,Velocity : Feet per Minute (FPM) ,Throw : Feet (ft.) ,Pressure drop : Inch Water Gauge (in.w.g)
- CFM : Cubic Feet per Minute (CFM)

CEILING DIFFUSERS

ANA Supply Square Ceiling Diffuser 2-Way Technical Data Model :NCDSS-2



Size (inch es)	Area Factor(A _k) Neck Area (sq.ft.)	Neck Velocity (fpm)	200	250	390	350	400	500	600	700	800	900
		Velocity Pressure (in. w.g.)	.003	.004	.006	.008	.010	.016	.023	.031	.040	.051
		Total Pressure (in. w.g.)	.014	.022	.032	.043	.057	.088	.128	.174	.228	.286
6 x 6	Ak = .085	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
	0.250	NC	<20	<20	<20	<20	<20	<20	23	27	31	35
9 x 9	Ak = .177	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
	0.562	NC	<20	<20	<20	<20	<20	21	27	31	35	39
12 x 12	Ak = .306	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
	1.000	NC	<20	<20	<20	<20	<20	23	30	34	38	42
15 x 15	Ak = .472	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
	1.56	NC	<20	<20	<20	<20	21	26	32	36	40	44
18 x 18	Ak = .674	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
	2.25	NC	<20	<20	<20	21	23	28	34	38	42	45
21 x 21	Ak = 914	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
	3.06	NC	<20	<20	<20	22	23	30	36	40	44	49
24 x 24	Ak = 1.22	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
	4.00	NC	<20	<20	<20	22	23	30	36	40	44	49

ANA Return Square Ceiling Diffuser 2-Way Technical Data

Model :NCDSR-2

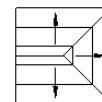
Size (inch es)	Neck Area (Sq. ft.)	Neck Velocity (fpm)	200	250	390	350	400	500	600	700	800	900
		Velocity Pressure (in. w.g.)	.003	.004	.006	.008	.010	.016	.023	.031	.040	.051
		Negative Static Pressure (in. w.g.)	.042	.066	.096	.130	.170	.265	.381	.518	.680	.852
6 x 6	0.250	CFM	50	63	75	88	100	125	150	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

Data Key :

- Air Flow : (CFM) ,Velocity : Feet per Minute (FPM) ,Throw : Feet (ft.) ,Pressure drop : Inch Water Gauge (in.w.g)
- CFM : Cubic Feet per Minute (CFM)
- NC : Noise Criteria at 10db attenuation.
- Ar : Area Factor (Square Feet).

CEILING DIFFUSERS

ANA Supply Square Ceiling Diffuser 3-Way Technical Data Model :NCDSS-3



Size (inches)	Area Factor (A_k) Neck Area (sq.ft.)	Neck Velocity (fpm)	200	250	390	350	400	500	600	700	800	900
		Velocity Pressure (in. w.g.)	.003	.004	.006	.008	.010	.016	.023	.031	.040	.051
		Total Pressure (in. w.g.)	.012	.019	.027	.036	.048	.074	.107	.146	.190	.240
6 x 6	$A_k = .085$	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
	0.250	NC	<20	<20	<20	<20	<20	<20	23	27	31	35
9 x 9	$A_k = .177$	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
	0.562	NC	<20	<20	<20	<20	<20	21	27	31	35	39
12 x 12	$A_k = .306$	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
	1.000	NC	<20	<20	<20	<20	<20	23	30	34	38	42
15 x 15	$A_k = .472$	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
	1.56	NC	<20	<20	<20	<20	21	26	32	36	40	44
18 x 18	$A_k = .674$	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
	2.25	NC	<20	<20	<20	21	23	28	34	38	42	45
21 x 21	$A_k = 914$	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
	3.06	NC	<20	<20	<20	22	23	30	36	40	44	49
24 x 24	$A_k = 1.22$	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
	4.00	NC	<20	<20	20	23	24	31	37	41	45	50

ANA Return Square Ceiling Diffuser 3-Way Technical Data

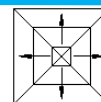
Size (inches)	Neck Area (Sq. ft.)	Neck Velocity (fpm)	200	250	390	350	400	500	600	700	800	900
		Velocity Pressure (in. w.g.)	.003	.004	.006	.008	.010	.016	.023	.031	.040	.051
		Negative Static Pressure (in. w.g.)	.038	.059	.085	.107	.154	.235	.336	.460	.600	.757
6 x 6	0.250	CFM	50	63	75	88	100	125	150	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

Data Key :

- Air Flow : (CFM) ,Velocity : Feet per Minute (FPM) ,Throw : Feet (ft.) ,Pressure drop : Inch Water Gauge (in.w.g)
- CFM : Cubic Feet per Minute (CFM)
- NC : Noise Criteria at 10db attenuation.
- Ar : Area Factor (Square Feet).

CEILING DIFFUSERS

ANA Supply Square Ceiling Diffuser 4-Way Technical Data Model :NCDSS-4



Size (inches)	Area Factor(A _k) Neck Area (sq.ft.)	Neck Velocity (fpm)	200	250	390	350	400	500	600	700	800	900
		Velocity Pressure (in. w.g.)	.003	.004	.006	.008	.010	.016	.023	.031	.040	.051
		Total Pressure (in. w.g.)	.011	.017	.024	.032	.042	.066	.096	.130	.170	.245
6 x 6	Ak = .085	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
	0.250	NC	<20	<20	<20	<20	<20	<20	23	27	31	35
9 x 9	Ak = .177	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
	0.562	NC	<20	<20	<20	<20	<20	21	27	31	35	39
12 x 12	Ak = .306	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
	1.000	NC	<20	<20	<20	<20	<20	23	30	34	38	42
15 x 15	Ak = .472	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
	1.56	NC	<20	<20	<20	<20	21	26	32	36	40	44
18 x 18	Ak = .674	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
	2.25	NC	<20	<20	<20	21	23	28	34	38	42	45
21 x 21	Ak = 914	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
	3.06	NC	<20	<20	<20	22	23	30	36	40	44	49
24 x 24	Ak = 1.22	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
	4.00	NC	<20	<20	20	23	24	31	37	41	45	50

ANA Return Square Ceiling Diffuser 4-Way Technical Data Model :NCDSR-4

Size (inches)	Neck Area (Sq. ft.)	Neck Velocity (fpm)	200	250	390	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

Data Key :

- Air Flow : (CFM) ,Velocity : Feet per Minute (FPM) ,Throw : Feet (ft.) ,Pressure drop : Inch Water Gauge (in.w.g)
- CFM : Cubic Feet per Minute (CFM)
- NC : Noise Criteria at 10db attenuation.
- Ar : Area Factor (Square Feet).

CEILING DIFFUSERS

ANA Supply Rectangular Ceiling Diffuser 1-Way Vertical Technical Data Model :NCDRS-1V



Size (inches)	Area Factor (A_k) 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	
		Slide	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
9 x 6	Ak = .122	CFM TOTAL	75		110		150		190		225		265		300		337	
		THROW / SIDE	10-14	-	12-17	-	14-20	-	16-23	-	17-25	-	18-26	-	20-28	-	21-30	-
	0.375	NC	<20		<20		<20		<20		25		29		33		37	
12 x 6	Ak = .158	CFM TOTAL	100		150		200		250		300		350		400		450	
		THROW / SIDE	10-15	-	12-17	-	14-20	-	16-23	-	17-25	-	18-26	-	20-28	-	21-30	-
	0.500	NC	<20		<20		<20		20		27		30		34		38	
12 x 9	Ak = .232	CFM TOTAL	150		225		300		3275		450		525		600		675	
		THROW / SIDE	13-19	-	15-21	-	17-24	-	19-271	-	21-30	-	22-32	-	24-34	-	26-36	-
	0.750	NC	<20		<20		<20		22		28		32		36		40	
15 x 6	Ak = .195	CFM TOTAL	125		188		250		313		375		438		500		565	
		THROW / SIDE	12-17	-	14-19	-	16-23	-	18-25	-	20-27	-	21-29	-	23-31	-	24-33	-
	0.625	NC	<20		<20		<20		21		27		31		35		39	
15 x 9	Ak = .287	CFM TOTAL	188		281		375		469		563		656		750		845	
		THROW / SIDE	14-19	-	16-23	-	18-26	-	21-30	-	22-32	-	24-34	-	25-37	-	27-39	-
	0.938	NC	<20		<20		<20		21		27		31		35		39	
15 x 12	Ak = .380	CFM TOTAL	250		375		500		625		750		875		1000		1125	
		THROW / SIDE	15-21	-	17-24	-	20-28	-	23-32	-	25-34	-	26-37	-	28-40	-	30-42	-
	1.25	NC	<20		<20		<20		25		31		35		39		43	
18 x 6	Ak = .232	CFM TOTAL	150		225		300		375		450		525		600		675	
		THROW / SIDE	13-19	-	15-21	-	17-24	-	19-27	-	21-30	-	22-32	-	24-34	-	26-36	-
	0.750	NC	<20		<20		<20		22		28		32		36		40	
18 x 9	Ak = 343	CFM TOTAL	225		338		450		563		675		788		900		1012	
		THROW / SIDE	14-19	-	16-23	-	18-26	-	21-30	-	22-32	-	24-34	-	25-37	-	27-39	-
	1.125	NC	<20		<20		<20		24		30		34		38		42	
18 x 12	Ak = .453	CFM TOTAL	300		450		600		750		900		1050		1200		1350	
		THROW / SIDE	14-20	-	17-24	-	20-28	-	23-32	-	25-34	-	26-37	-	28-40	-	30-42	-
	0.875	NC	<20		<20		<20		26		32		36		40		44	
21 x 6	Ak .269	CFM TOTAL	175		263		350		438		525		613		700		787	
		THROW / SIDE	13-19	-	15-21	-	17-24	-	19-27	-	21-30	-	22-32	-	24-34	-	26-36	-
	0.875	NC	<20		<20		<20		22		28		32		36		40	
21 x 9	Ak = .398	CFM TOTAL	263		394		525		656		788		919		1050		1181	
		THROW / SIDE	15-21	-	17-24	-	20-28	-	23-32	-	25-34	-	26-37	-	28-40	-	30-42	-
	1.313	NC	<20		<20		<20		24		30		34		38		42	
21 x 12	Ak = .523	CFM TOTAL	350		525		700		875		1050		1125		1400		1575	
		THROW / SIDE	15-22	-	18-26	-	21-30	-	24-34	-	26-37	-	28-40	-	30-42	-	32-45	-
	1.75	NC	<20		<20		<20		26		32		36		40		44	
24 x 6	Ak = .306	CFM TOTAL	200		300		400		500		600		700		800		900	
		THROW / SIDE	14-20	-	16-23	-	18-26	-	21-30	-	22-32	-	24-34	-	25-37	-	27-39	-
	1.00	NC	<20		<20		<20		23		29		33		37		41	
24 x 9	Ak = .453	CFM TOTAL	300		450		600		750		900		1050		1200		1350	
		THROW / SIDE	14-20	-	17-24	-	20-28	-	23-32	-	25-34	-	26-37	-	28-40	-	30-42	-
	1.50	NC	<20		<20		<20		25		31		35		39		43	
24 x 12	Ak = .601	CFM TOTAL	400		600		800		1000		1200		1400		1600		1800	
		THROW / SIDE	17-24	-	20-28	-	23-32	-	26-37	-	28-39	-	30-42	-	33-45	-	35-48	-
	2.00	NC	<20		<20		20		27		33		37		41		45	

Data Key :

- Air Flow : (CFM) ,Velocity : Feet per Minute (FPM) ,Throw : Feet (ft.) ,Pressure drop : Inch Water Gauge (in.w.g)
- CFM : Cubic Feet per Minute (CFM)
- NC : Noise Criteria at 10db attenuation.
- Ar : Area Factor (Square Feet).

ANA Return Rectangular Ceiling Diffuser 1-Way Vertical Technical Data Model :NCDRR-1V



Size (inches)	Neck Area (Sq. ft.)	Neck Velocity (fpm)	200	300	400	500	600	700	800	900
		Velocity Pressure (in. w.g.)	.003	.004	.006	.016	.023	.031	.040	.051
		Negative Static Pressure (in. w.g.)	.051	.113	.119	.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

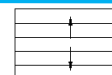
Data Key :

- Air Flow : (CFM) ,Velocity : Feet per Minute (FPM) ,Throw : Feet (ft.) ,Pressure drop : Inch Water Gauge (in.w.g)
- CFM : Cubic Feet per Minute (CFM)
- NC : Noise Criteria at 10db attenuation.
- Ar : Area Factor (Square Feet).

CEILING DIFFUSERS

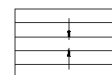
ANA Supply Rectangular Ceiling Diffuser 2-Way Vertical Technical Data

Model :NCDRS-2V



Size (inches)	Area Factor (A _k) 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	
		Slide		A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
9 x 6	Ak = .122	CFM TOTAL		75		113		150		188		225		263		300		338	
		CFM / SIDE		37	-	56	-	75	-	94	-	112	-	131	-	150	-	169	-
		THROW / SIDE		8-11	-	10-13	-	11-15	-	13-17	-	14-18	-	15-20	-	16-21	-	17-23	-
	0.375	NC		<20		<20		<20		<20		25		29		33		37	
12 x 6	Ak = .158	CFM TOTAL		100		150		200		250		300		350		400		450	
		CFM / SIDE		50	-	75	-	100	-	125	-	150	-	175	-	200	-	225	-
		THROW / SIDE		9-12	-	10-14	-	11-16	-	13-18	-	14-20	-	15-21	-	16-23	-	17-24	-
	0.500	NC		<20		<20		<20		20		27		30		34		38	
12 x 9	Ak = .232	CFM TOTAL		150		225		300		375		450		525		600		675	
		CFM / SIDE		75	-	112	-	150	-	187	-	225	-	262	-	300	-	337	-
		THROW / SIDE		10-14	-	12-17	-	14-20	-	16-23	-	17-25	-	18-26	-	20-28	-	21-30	-
	0.750	NC		<20		<20		<20		22		28		32		36		40	
15 x 6	Ak = .195	CFM TOTAL		125		188		250		313		375		438		500		563	
		CFM / SIDE		62	-	94	-	125	-	156	-	187	-	219	-	250	-	281	-
		THROW / SIDE		9-14	-	11-16	-	13-18	-	15-21	-	16-22	-	17-24	-	18-25	-	20-27	-
	0.625	NC		<20		<20		<20		21		27		31		35		39	
15 x 9	Ak = .287	CFM TOTAL		188		281		375		469		563		656		750		844	
		CFM / SIDE		94	-	140	-	187	-	235	-	281	-	328	-	375	-	422	-
		THROW / SIDE		10-14	-	12-17	-	14-20	-	16-23	-	17-25	-	18-26	-	20-28	-	21-30	-
	0.938	NC		<20		<20		<20		23		29		33		37		41	
15 x 12	Ak = .380	CFM TOTAL		250		375		500		625		750		875		1000		1125	
		CFM / SIDE		125	-	187	-	250	-	312	-	375	-	437	-	500	-	562	-
		THROW / SIDE		12-16	-	14-19	-	16-22	-	18-25	-	20-27	-	21-29	-	23-31	-	24-33	-
	1.25	NC		<20		<20		<20		25		31		35		39		43	
18 x 6	Ak = .232	CFM TOTAL		150		225		300		375		450		525		600		675	
		CFM / SIDE		75	-	112	-	150	-	187	-	225	-	262	-	300	-	337	-
		THROW / SIDE		9-14	-	12-17	-	14-20	-	16-23	-	17-25	-	18-26	-	20-28	-	21-30	-
	0.750	NC		<20		<20		<20		22		28		32		36		40	
18 x 9	Ak = .343	CFM TOTAL		225		338		450		563		675		788		900		1012	
		CFM / SIDE		112	-	169	-	225	-	281	-	337	-	394	-	450	-	506	-
		THROW / SIDE		12-16	-	14-19	-	16-22	-	18-25	-	20-27	-	21-29	-	23-31	-	24-33	-
	1.125	NC		<20		<20		<20		24		30		34		38		42	
18 x 12	Ak = .453	CFM TOTAL		300		450		600		750		900		1050		1200		1350	
		CFM / SIDE		150	-	225	-	300	-	375	-	450	-	525	-	600	-	675	-
		THROW / SIDE		12-18	-	15-21	-	17-24	-	19-27	-	21-30	-	22-32	-	24-34	-	26-36	-
	0.875	NC		<20		<20		<20		26		32		36		40		44	
21 x 6	Ak = .269	CFM TOTAL		175		263		350		438		525		613		700		787	
		CFM / SIDE		87	-	131	-	175	-	219	-	262	-	306	-	350	-	393	-
		THROW / SIDE		10-14	-	12-17	-	14-20	-	16-23	-	17-25	-	18-26	-	20-28	-	21-30	-
	0.875	NC		<20		<20		<20		22		28		32		36		40	
21 x 9	Ak = .398	CFM TOTAL		263		394		525		656		788		919		1050		1181	
		CFM / SIDE		131	-	197	-	262	-	328	-	394	-	459	-	525	-	590	-
		THROW / SIDE		12-16	-	14-19	-	16-22	-	18-25	-	20-27	-	21-29	-	23-31	-	24-33	-
	1.313	NC		<20		<20		<20		24		30		34		38		42	
21 x 12	Ak = .523	CFM TOTAL		350		525		700		875		1050		1225		1400		1575	
		CFM / SIDE		175	-	262	-	350	-	437	-	525	-	612	-	700	-	787	-
		THROW / SIDE		13-18	-	15-21	-	17-24	-	19-27	-	21-30	-	22-32	-	24-34	-	26-36	-
	1.75	NC		<20		<20		<20		26		32		36		40		44	
24 x 6	Ak = .306	CFM TOTAL		200		300		400		500		600		700		800		900	
		CFM / SIDE		100	-	150	-	200	-	250	-	300	-	350	-	400	-	450	-
		THROW / SIDE		10-14	-	12-17	-	14-20	-	16-23	-	17-25	-	18-26	-	20-28	-	21-30	-
	1.00	NC		<20		<20		<20		23		29		33		37		41	
24 x 9	Ak = .453	CFM TOTAL		300		450		600		750		900		1050		1200		1350	
		CFM / SIDE		150	-	225	-	300	-	375	-	450	-	525	-	600	-	675	-
		THROW / SIDE		13-18	-	15-21	-	17-24	-	19-27	-	21-30	-	22-32	-	24-34	-	26-36	-
	1.50	NC		<20		<20		<20		25		31		35		39		43	
24 x 12	Ak = .601	CFM TOTAL		400		600		800		1000		1200		1400		1600		1800	
		CFM / SIDE		200	-	300	-	400	-	500	-	600	-	700	-	800	-	900	-
		THROW / SIDE		14-20	-	16-23	-	18-26	-	21-30	-	22-32	-	24-34	-	25-37	-	27-39	-
	2.00	NC		<20		<20		<20		27		33		37		41		45	

ANA Return Rectangular Ceiling Diffuser 2-Way Vertical Technical Data Model :NCDRR-2V



Size (inches)	Neck Area (Sq. ft.)	Neck Velocity (fpm)	200	300	400	500	600	700	800	900
		Velocity Pressure (in. w.g.)	.003	.004	.006	.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

Data Key :

- Air Flow : (CFM) ,Velocity : Feet per Minute (FPM) ,Throw : Feet (ft.) ,Pressure drop : Inch Water Gauge (in.w.g)
- CFM : Cubic Feet per Minute (CFM)
- NC : Noise Criteria at 10db attenuation.
- Ar : Area Factor (Square Feet).

CEILING DIFFUSERS

ANA Supply Rectangular Ceiling Diffuser 2-Way Corner Technical Data Model :NCDRS-2C

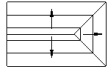


Size (inches)	Area Factor (A _k) Neck Area (Sq.ft)	Neck Velocity (fpm)	200		300		400		500		600		700		800		900	
		Velocity Pressure (in. w.g.)	.003		.006		.010		.016		.023		.031		.040		.051	
		Total Pressure (in. w.g.)	.016		.036		.064		.100		.140		.200		.260		.319	
		Slide	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
9 x 6	Ak = .122	CFM TOTAL	75		113		150		188		225		263		300		337	
		CFM / SIDE	50	25	75	38	100	50	125	63	150	75	175	88	200	100	225	112
		THROW / SIDE	8-12	7-9	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
	0.375	NC	<20		<20		<20		20		25		29		33		37	
12 x 6	Ak = .158	CFM TOTAL	100		150		200		250		300		350		400		450	
		CFM / SIDE	75	25	112	38	150	50	188	62	225	75	263	87	300	100	338	112
		THROW / SIDE	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
	0.500	NC	<20		<20		<20		20		27		30		34		38	
12 x 9	Ak = .232	CFM TOTAL	150		225		300		375		450		525		600		675	
		CFM / SIDE	94	56	141	84	188	112	235	140	282	168	329	196	375	225	423	252
		THROW / SIDE	10-14	8-11	12-17	10-13	14-20	11-15	16-23	13-17	17-25	14-18	18-26	15-20	20-28	16-21	21-30	17-23
	0.750	NC	<20		<20		<20		22		28		32		36		40	
15 x 6	Ak = .195	CFM TOTAL	125		188		250		313		375		438		500		563	
		CFM / SIDE	100	25	150	37	200	50	250	62	300	75	350	87	400	100	450	112
		THROW / SIDE	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
	0.625	NC	<20		<20		<20		21		27		31		35		39	
15 x 9	Ak = .287	CFM TOTAL	188		281		375		469		563		656		750		845	
		CFM / SIDE	131	56	197	84	263	112	329	141	394	169	459	197	525	225	592	253
		THROW / SIDE	12-16	8-11	14-19	10-13	16-22	11-15	18-25	13-17	20-27	14-18	21-28	15-20	23-31	16-21	24-33	17-23
	0.938	NC	<20		<20		<20		23		29		33		37		41	
15 x 12	Ak = .380	CFM TOTAL	250		375		500		625		750		875		1000		1125	
		CFM / SIDE	150	100	225	150	300	200	375	250	450	300	525	350	600	400	675	450
		THROW / SIDE	13-18	9-14	15-21	11-16	17-24	13-18	19-27	15-21	21-30	16-22	22-32	17-24	24-34	18-25	26-36	20-27
	1.25	NC	<20		<20		<20		25		31		35		39		43	
18 x 6	Ak = .232	CFM TOTAL	150		225		300		375		450		525		600		675	
		CFM / SIDE	124	26	186	39	248	52	310	65	372	78	434	91	496	104	558	117
		THROW / SIDE	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
	0.750	NC	<20		<20		<20		22		28		32		36		40	
18 x 9	Ak = 343	CFM TOTAL	225		338		450		563		675		788		900		1012	
		CFM / SIDE	169	56	254	84	338	112	422	141	506	169	591	197	675	225	759	253
		THROW / SIDE	13-18	9-11	15-21	10-13	17-24	11-15	19-27	13-17	21-30	14-18	22-32	15-20	24-34	16-21	26-36	17-23
	1.125	NC	<20		<20		<20		24		30		34		38		42	
18 x 12	Ak = .453	CFM TOTAL	300		450		600		750		900		1050		1200		1350	
		CFM / SIDE	200	100	300	150	400	200	500	250	600	300	700	350	800	400	900	450
		THROW / SIDE	14-20	9-14	16-23	11-16	18-26	13-18	21-30	15-21	22-32	16-22	24-34	17-24	25-37	18-25	27-39	20-27
	0.875	NC	<20		<20		<20		26		32		36		40		44	
21 x 6	Ak .269	CFM TOTAL	175		263		350		438		525		613		700		787	
		CFM / SIDE	150	25	225	38	300	50	375	63	450	75	525	87	600	100	675	112
		THROW / SIDE	14-18	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
	0.875	NC	<20		<20		<20		22		28		32		36		40	
21 x 9	Ak = .398	CFM TOTAL	263		394		525		656		788		919		1050		1181	
		CFM / SIDE	206	57	308	85	412	113	514	142	618	170	720	199	825	225	927	253
		THROW / SIDE	14-20	9-11	16-23	10-13	18-26	11-15	21-0	13-17	22-32	14-18	24-34	15-20	25-37	16-21	27-39	17-23
	1.313	NC	<20		<20		<20		24		30		34		38		42	
21 x 12	Ak = .523	CFM TOTAL	350		525		700		875		1050		1225		1400		1575	
		CFM / SIDE	250	100	375	150	500	200	625	250	750	300	875	350	1000	400	1125	450
		THROW / SIDE	14-20	9-14	17-24	11-16	20-28	13-18	23-32	15-21	25-34	16-22	26-37	17-24	28-40	18-25	30-42	20-27
	1.75	NC	<20		<20		<20		26		32		36		40		44	
24 x 6	Ak = .306	CFM TOTAL	200		300		400		500		600		700		800		900	
		CFM / SIDE	175	25	263	37	350	50	438	62	525	75	613	87	700	100	788	112
		THROW / SIDE	13-19	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
	1.00	NC	<20		<20		<20		23		29		33		37		41	
24 x 9	Ak = .453	CFM TOTAL	300		450		600		750		900		1050		1200		1350	
		CFM / SIDE	244	56	366	84	488	112	609	141	731	169	853	197	975	225	1097	253
		THROW / SIDE	14-20	9-11	17-24	10-13	20-28	11-15	23-32	13-17	25-34	14-18	26-37	15-20	28-40	16-21	30-42	17-23
	1.50	NC	<20		<20		<20		25		31		35		39		43	
24 x 12	Ak = .601	CFM TOTAL	400		600		800		1000		1200		1400		1600		1800	
		CFM / SIDE	300	100	450	150	600	200	750	250	900	300	1050	350	1200	400	1350	450
		THROW / SIDE	14-20	9-14	17-24	11-16	20-28	13-18	23-32	15-21	25-34	16-22	26-37	17-24	28-40	18-25	30-42	20-27
	2.00	NC	<20		<20		20		27		33		37		41		45	

CEILING DIFFUSERS

ANA Supply Rectangular Ceiling Diffuser 3-Way Technical Data

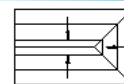
Model :NCDRS-3



Size (inches)	Area Fac- tor (A_k) 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	
		Slide	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
9 x 6	Ak = .122	CFM TOTAL	75		113		150		188		225		263		300		337	
		CFM / SIDE	31	13	47	19	62	26	78	32	93	39	109	45	124	52	140	59
		THROW / SIDE	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
	0.375	NC	<20		<20		<20		<20		25		29		33		37	
12 x 6	Ak = .158	CFM TOTAL	100		150		200		250		300		350		400		450	
		CFM / SIDE	43	14	65	20	86	28	108	34	129	42	151	48	172	56	194	52
		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	8-11	17-24	9-12
	0.500	NC	<20		<20		<20		20		27		30		34		38	
12 x 9	Ak = .232	CFM TOTAL	150		225		300		375		450		525		600		675	
		CFM / SIDE	61	28	92	41	122	56	153	69	183	84	213	98	244	112	275	125
		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	18-26	10-14	20-27	11-15
	0.750	NC	<20		<20		<20		22		28		32		36		40	
15 x 6	Ak = .195	CFM TOTAL	125		188		250		313		375		438		500		563	
		CFM / SIDE	56	13	84	20	112	26	140	33	169	37	197	44	225	50	253	58
		THROW / SIDE	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
	0.625	NC	<20		<20		<20		21		27		31		35		39	
15 x 9	Ak = .287	CFM TOTAL	188		281		375		469		563		656		750		845	
		CFM / SIDE	80	28	120	42	159	56	200	70	240	84	279	98	319	112	359	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	11-16
	0.938	NC	<20		<20		<20		23		29		33		37		41	
15 x 12	Ak = .380	CFM TOTAL	250		375		500		625		750		875		1000		1125	
		CFM / SIDE	100	50	150	75	200	100	250	125	300	150	350	175	400	200	450	225
		THROW / SIDE	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
	1.25	NC	<20		<20		<20		25		31		35		39		43	
18 x 6	Ak = .232	CFM TOTAL	150		225		300		375		450		525		600		675	
		CFM / SIDE	69	12	103	18	138	24	172	31	207	36	241	43	275	50	310	55
		THROW / SIDE	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
	0.750	NC	<20		<20		<20		22		28		32		36		40	
18 x 9	Ak = .343	CFM TOTAL	225		338		450		563		675		788		900		1012	
		CFM / SIDE	98	29	147	43	196	58	246	70	294	87	345	98	394	112	441	130
		THROW / SIDE	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
	1.125	NC	<20		<20		<20		24		30		34		38		42	
18 x 12	Ak = .453	CFM TOTAL	300		450		600		750		900		1050		1200		1350	
		CFM / SIDE	125	50	187	75	250	100	312	125	375	150	437	175	500	200	562	225
		THROW / SIDE	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	14-16
	0.875	NC	<20		<20		<20		26		32		36		40		44	
21 x 12	Ak = .523	CFM TOTAL	350		525		700		875		1050		1225		1400		1575	
		CFM / SIDE	150	50	225	75	300	100	375	125	450	150	525	175	600	200	670	225
		THROW / SIDE	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
	1.75	NC	<20		<20		<20		26		32		36		40		44	
24 x 6	Ak = .306	CFM TOTAL	200		300		400		500		600		700		800		900	
		CFM / SIDE	93	14	141	18	187	25	234	31	279	42	325	50	372	56	422	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
	1.00	NC	<20		<20		<20		23		29		33		37		41	
24 x 9	Ak = .453	CFM TOTAL	300		450		600		750		900		1050		1200		1350	
		CFM / SIDE	136	28	204	42	272	56	340	70	408	84	476	98	544	112	612	126
		THROW / SIDE	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
	1.50	NC	<20		<20		<20		25		31		35		39		43	
24 x 12	Ak = .601	CFM TOTAL	400		600		800		1000		1200		1400		1600		1800	
		CFM / SIDE	175	50	262	75	350	100	437	125	525	150	612	175	700	200	787	225
		THROW / SIDE	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
	2.00	NC	<20		<20		20		27		33		37		41		45	

CEILING DIFFUSERS

ANA Return Rectangular Ceiling Diffuser 3-Way Technical Data Model :NCDRR-3



Size (inches)	Neck Area (Sq. ft.)	Neck Velocity (fpm)	200	300	400	500	600	700	800	900
		Velocity Pressure (in. w.g.)	.003	.004	.006	.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

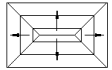
Data Key :

- Air Flow : (CFM) ,Velocity : Feet per Minute (FPM) ,Throw : Feet (ft.) ,Pressure drop : Inch Water Gauge (in.w.g)
- CFM : Cubic Feet per Minute (CFM)
- NC : Noise Criteria at 10db attenuation.
- Ar : Area Factor (Square Feet).

CEILING DIFFUSERS

ANA Supply Rectangular Ceiling Diffuser 4-Way Technical Data

Model :NCDRS-4

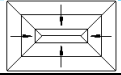


Size (inches)	Area Factor (A_k) Neck Area (Sq.ft)	Neck Velocity (fpm)	200		300		400		500		600		700		800		900	
		Velocity Pressure (in. w.g.)	.003		.006		.010		.016		.023		.031		.040		.051	
		Total Pressure (in. w.g.)	.015		.033		.058		.091		.130		.180		.230		.310	
		Slide	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
9 x 6	Ak = .122	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
	0.375	NC	<20		<20		<20		<20		25		29		33		37	
12 x 6	Ak = .158	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
	0.500	NC	<20		<20		<20		20		27		30		34		38	
12 x 9	Ak = .232	CFM TOTAL	150		225		300		375		450		525		600		675	
		CFM / SIDE	47	28	70	42	94	56	117	70	141	84	164	98	138	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
	0.750	NC	<20		<20		<20		22		28		32		36		40	
15 x 6	Ak = .195	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
	0.625	NC	<20		<20		<20		21		27		31		35		39	
15 x 9	Ak = .287	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
	0.938	NC	<20		<20		<20		23		29		33		37		41	
15 x 12	Ak = .380	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
	1.25	NC	<20		<20		<20		25		31		35		39		43	
18 x 6	Ak = .232	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
	0.750	NC	<20		<20		<20		22		28		32		36		40	
18 x 9	Ak = .343	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
	1.125	NC	<20		<20		<20		24		30		34		38		42	
18 x 12	Ak = .453	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
	0.875	NC	<20		<20		<20		26		32		36		40		44	
21 x 12	Ak = .523	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
	1.75	NC	<20		<20		<20		26		32		36		40		44	
24 x 6	Ak = .306	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
	1.00	NC	<20		<20		<20		23		29		33		37		41	
24 x 9	Ak = .453	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
	1.50	NC	<20		<20		<20		25		31		35		39		43	
24 x 12	Ak = .601	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	875	225
		THROW / SIDE	13-18	7-9	15-21	8-10	17-24	9-12	18-27	10-14	21-31	11-15	22-32	12-16	24-34	13-17	23-36	14-18
	2.00	NC	<20		<20		<20		27		33		37		41		45	

CEILING DIFFUSERS

ANA Return Rectangular Ceiling Diffuser 4-Way Technical Data

Model :NCDRR-4



Size (inches)	Neck Area (Sq. ft.)	Neck Velocity (fpm)	200	300	400	500	600	700	800	900
		Velocity Pressure (in. w.g.)	.003	.004	.006	.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

Data Key :

- Air Flow : (CFM) ,Velocity : Feet per Minute (FPM) ,Throw : Feet (ft.) ,Pressure drop : Inch Water Gauge (in.w.g)
- CFM : Cubic Feet per Minute (CFM)
- NC : Noise Criteria at 10db attenuation.
- Ar : Area Factor (Square Feet).

CEILING DIFFUSERS

ANA Supply Perforated Ceiling Diffuser Technical Data

Model :NCDP-S

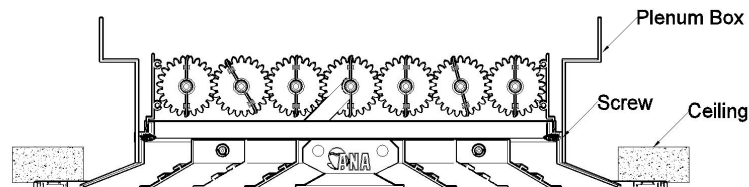
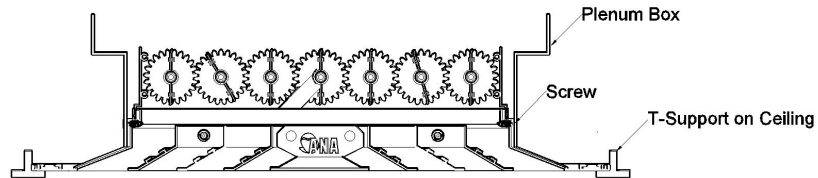
Neck Size (Inches)	Neck Area (Sq.ft.)	Neck Velocity, FPM	300	400	500	600	700	800	1000	1200	1400
		Velocity Pressure, in. W.G.	.006	.010	.016	.023	.031	.040	.063	.090	.123
6 X 6	0.25	Total Pressure, in. W.G.	.013	.023	.037	.053	.072	.094	.147	.211	.287
		Flow Rate, CFM	74	98	123	148	173	200	250	300	350
		NC	<20	<20	<20	24	27	28	36	42	47
		Throw, Feet	4 - way	1-1	1-2	1-3	1-4	1-5	2-6	3-8	4-9
			3 - way	1-3	1-5	2-6	3-8	4-9	5-10	6-13	8-16
			2 - way	1-4	2-7	3-9	4-10	6-12	7-14	9-18	10-19
			1 - way	1-6	2-8	4-11	6-13	7-15	8-17	11-20	13-22
8 X 8	0.44	Total Pressure, in. W.G.	.018	.031	.049	.071	.096	.126	.196	.283	.385
		Flow Rate, CFM	132	176	221	265	309	355	445	532	621
		NC	<20	<20	24	26	32	35	43	49	>50
		Throw, Feet	4 - way	1-2	1-4	1-6	2-7	3-8	4-9	6-12	7-14
			3 - way	1-5	2-8	4-10	5-12	7-14	8-16	10-20	12-24
			2 - way	2-8	4-10	6-13	8-16	9-19	10-21	13-26	16-29
			1 - way	3-9	5-13	8-16	9-19	11-23	13-26	16-30	19-33
10 X 10	0.69	Total Pressure, in. W.G.	.022	.039	.061	.088	.119	.156	.243	.350	.477
		Flow Rate, CFM	209	276	346	415	484	556	693	831	972
		NC	<20	23	26	30	34	41	47	>50	>50
		Throw, Feet	4 - way	1-4	2-6	3-8	4-10	5-11	6-13	8-16	10-20
			3 - way	2-8	4-11	6-13	8-16	9-19	11-22	13-27	16-32
			2 - way	3-11	6-14	9-18	11-22	13-26	14-29	18-36	22-39
			1 - way	5-13	9-18	11-22	13-27	16-32	18-36	22-41	27-45
12 X 12	1.00	Total Pressure, in. W.G.	.026	.047	.073	.105	.144	.188	.293	.422	.574
		Flow Rate, CFM	301	401	501	601	701	801	1001	1202	1403
		NC	<20	26	31	35	40	42	>50	>50	>50
		Throw, Feet	4 - way	1-6	3-8	4-11	6-13	7-15	8-17	11-22	13-26
			3 - way	3-10	6-14	9-18	10-21	12-25	14-28	18-36	21-42
			2 - way	5-14	9-19	12-24	14-29	17-34	19-39	24-46	29-51
			1 - way	8-17	11-23	14-29	17-35	20-41	23-47	29-53	35-58
14 X 14	1.36	Total Pressure, in. W.G.	.030	.055	.085	.122	.169	.220	.343	.494	.671
		Flow Rate, CFM	409	543	681	815	951	1089	1361	1633	1905
		NC	<20	28	33	35	42	47	>50	>50	>50
		Throw, Feet	4 - way	1-8	4-10	5-13	8-16	9-19	10-22	14-28	16-32
			3 - way	4-12	8-17	12-23	13-26	15-31	17-34	23-45	26-52
			2 - way	7-17	12-24	15-30	17-36	22-42	24-49	30-56	36-62
			1 - way	11-21	14-28	17-36	21-43	24-50	28-58	36-65	44-67
16 X 16	1.78	Total Pressure, in. W.G.	.034	.063	.097	.139	.194	.252	.393	.566	.768
		Flow Rate, CFM	534	712	890	1068	1246	1424	1780	2136	2492
		NC	22	29	34	39	44	>50	>50	>50	>50
		Throw, Feet	4 - way	1-10	5-12	6-15	10-19	11-23	12-27	17-34	19-38
			3 - way	5-14	10-20	14-28	16-31	18-37	20-40	28-54	31-62
			2 - way	9-20	15-29	18-36	20-43	27-50	29-59	36-66	43-73
			1 - way	14-25	17-33	20-43	25-51	28-59	33-69	43-77	53-84
18 X 18 w/o adaptor	2.25	Total Pressure, in. W.G.	.036	.071	.109	.156	.209	.284	.443	.638	.865
		Flow Rate, CFM	675	900	1125	1350	1575	1800	2250	2700	3150
		NC	23	31	36	42	>50	>50	>50	>50	>50
		Throw, Feet	4 - way	1-12	6-14	7-17	12-22	13-27	14-32	20-40	22-44
			3 - way	6-16	12-23	16-32	18-36	21-43	23-46	33-63	36-72
			2 - way	11-23	18-34	21-42	23-50	32-58	34-69	42-77	50-84
			1 - way	17-29	20-38	23-50	29-59	32-68	38-80	50-89	62-97
Return 18x18	2.25	Negative SP, in. W.G.	.024	.043	.068	.098	.133	.174	.271	.391	.532
		Flow Rate, CFM	1008	1344	1680	2016	2352	2688	3360	4032	4704
		NC	<20	<20	<20	<20	22	26	34	40	46

Data Key :

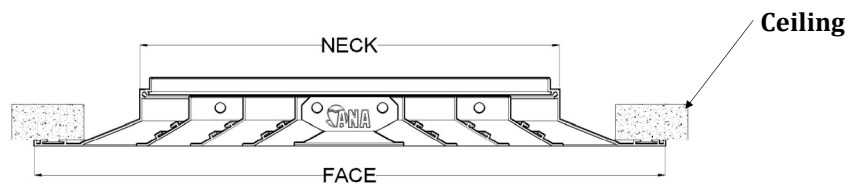
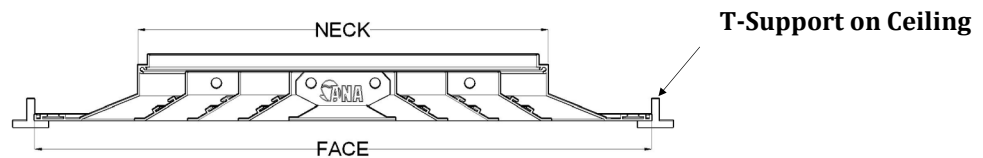
- Air Flow : (CFM) ,Velocity : Feet per Minute (FPM) ,Throw : Feet (ft.) ,Pressure drop : Inch Water Gauge (in.w.g)
- CFM : Cubic Feet per Minute (CFM)
- NC : Noise Criteria at 10db attenuation.
- Ar : Area Factor (Square Feet).

ANA Ceiling Diffuser Installation:

Supply



Return



This image shows a full page of blank white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page, providing a template for writing or drawing. There are no margins, text, or other markings present.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.