

# AND/ANR/ANF

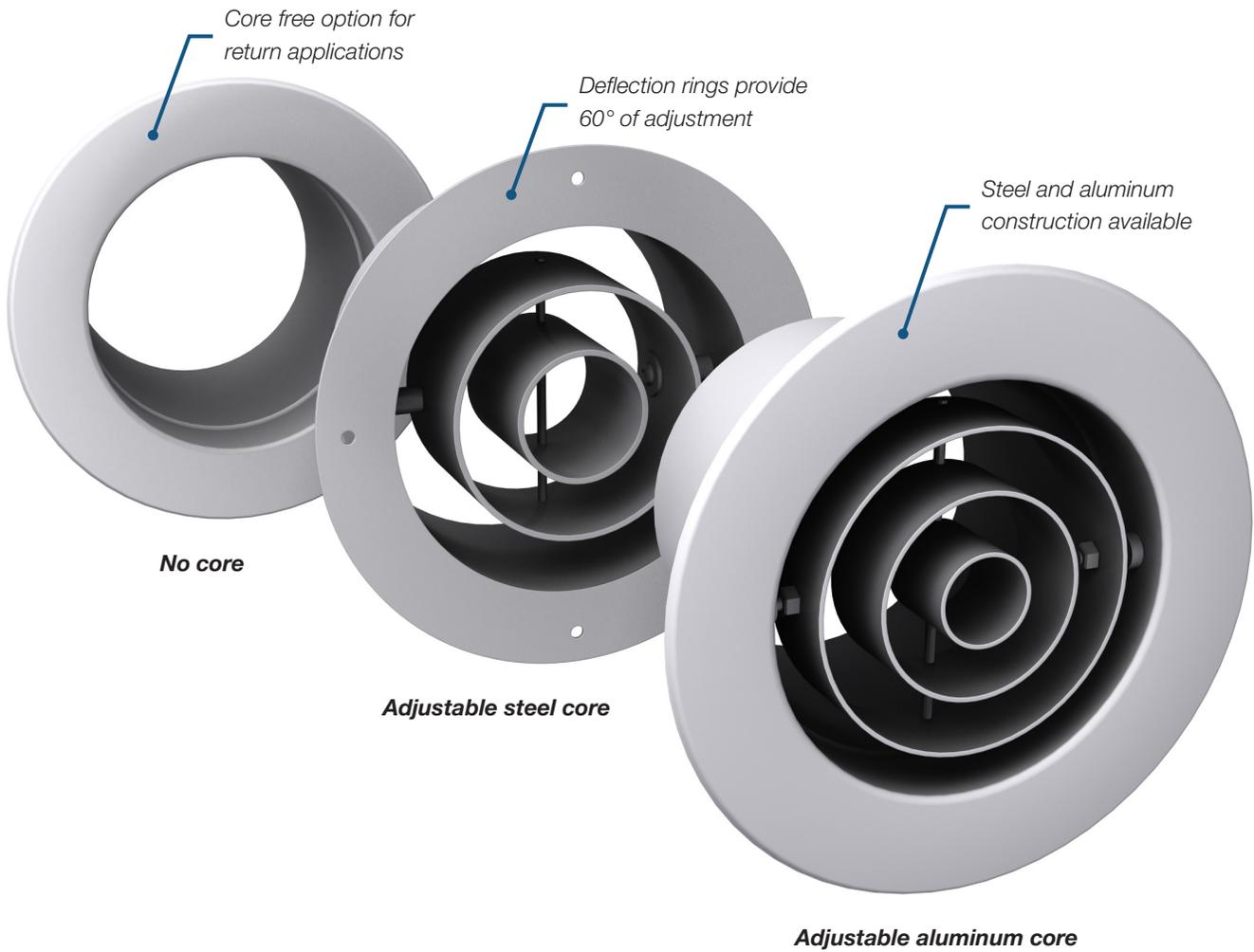
CONCENTRIC RING NOZZLE DIFFUSER



# AND/ANR/ANF

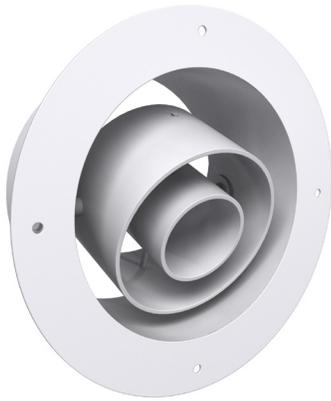
## Concentric Ring Nozzle Diffuser

Available in a variety of sizes and core styles, air nozzles are well suited to architectural applications that require long throws. Deep concentric deflection rings in each supply nozzle assembly can be adjusted to provide horizontal or vertical directional control throughout a 60° arc. The highly versatile nozzle diffusers are ideal for new or retrofit construction and can be used in supply or return/exhaust applications in ceilings, sidewalls or directly ducted.



### MULTIPLE CORE STYLES

- + Nozzle diffusers are available with two different core styles to accommodate the unique throw and directional needs of different applications.
  - **60° adjustable core** – Deep concentric deflection rings can be easily adjusted to provide horizontal or vertical directional control for precise spot heating and cooling throughout the 60° arc.



60°  
Adjustable core

- **No core** – With no air pattern control, this model is suitable for return applications and maximizes free area for superior sound performance.

### OPTIONAL PANEL MOUNTING

- + Nozzle diffusers can be specified as stand-alone or mounted with up to 4 diffusers per panel. Both acoustic and steel panels are available with a variety of panel sizes and mounting styles.



Panel mounted  
nozzle diffusers

### TYPICAL APPLICATIONS

Air nozzles are high capacity diffusers with jet-type airflow, well suited to large spaces and high ceiling applications that require long throws for full mixing, or spot cooling and heating conditions. Ideal applications include: convention centers, meeting halls, airports, shopping malls, and auditoriums.

### CONSTRUCTION

- + Application
  - Supply (AND/ANR)
  - Return (ANF)
- + Material
  - Steel (AND)
  - Aluminum (ANF/ANR)
- + Core Style
  - 60° adjustable concentric ring core (AND/ANR)
  - Without core (ANF)

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## Concentric Ring Nozzle Diffuser

# PERFORMANCE DATA

## AND

Size	Duct Velocity (fpm) Velocity Pressure, in. wg.	300 0.006	400 0.010	500 0.016	600 0.022	700 0.031	80 0.040	900 0.050	1000 0.062	1100 0.075	1200 0.090
5	Total Pressure (in. w.g.)	0.016	0.029	0.045	0.065	0.089	0.116	0.147	0.182	0.220	0.262
	Flow Rate (cfm)	41	55	68	82	95	109	123	136	150	164
	Sound (NC)	-	-	-	-	-	-	-	-	17	20
	Throw (ft.)	2-4-8	4-5-10	4-7-11	5-8-2	6-9-13	7-10-13	8-10-14	9-11-15	9-11-16	10-12-16
6	Total Pressure (in. w.g.)	0.017	0.030	0.047	0.068	0.093	0.121	0.153	0.189	0.229	0.273
	Flow Rate (cfm)	59	79	98	118	137	157	177	196	216	236
	Sound (NC)	-	-	-	-	-	-	18	22	26	29
	Throw (ft.)	3-5-10	4-6-11	5-8-13	6-10-14	7-11-15	9-11-16	10-12-17	10-13-18	11-13-19	11-14-20
8	Total Pressure (in. w.g.)	0.018	0.032	0.050	0.073	0.099	0.129	0.163	0.201	0.244	0.290
	Flow Rate (cfm)	105	140	174	209	244	279	314	349	384	419
	Sound (NC)	-	-	-	-	18	23	27	31	35	38
	Throw (ft.)	4-6-13	6-9-15	7-11-17	9-13-19	10-14-20	11-15-21	13-16-23	14-17-24	15-18-25	15-19-26
10	Total Pressure (in. w.g.)	0.019	0.034	0.053	0.076	0.103	0.135	0.171	0.211	0.255	0.304
	Flow Rate (cfm)	164	218	273	327	382	436	491	545	600	654
	Sound (NC)	-	-	-	16	21	26	31	35	38	42
	Throw (ft.)	5-8-16	7-11-19	9-13-21	11-16-23	12-18-25	14-19-27	16-20-29	17-21-30	18-22-32	19-23-33
12	Total Pressure (in. w.g.)	0.020	0.035	0.055	0.079	0.107	0.140	0.177	0.218	0.264	0.315
	Flow Rate (cfm)	236	314	393	471	550	628	707	785	864	942
	Sound (NC)	-	-	-	16	22	27	31	35	39	42
	Throw (ft.)	6-10-19	9-13-23	11-16-26	13-19-28	15-21-30	17-23-32	19-24-34	21-25-36	22-27-38	23-28-39
14	Total Pressure (in. w.g.)	0.020	0.036	0.056	0.081	0.110	0.144	0.182	0.225	0.272	0.324
	Flow Rate (cfm)	321	427	534	641	748	855	962	1068	1175	1282
	Sound (NC)	-	-	-	15	21	26	31	35	38	41
	Throw (ft.)	7-11-22	10-15-27	12-19-30	15-22-33	17-25-35	20-27-38	22-28-40	24-30-42	25-31-44	27-33-46
15	Total Pressure (in. w.g.)	0.020	0.036	0.057	0.082	0.112	0.146	0.184	0.228	0.276	0.328
	Flow Rate (cfm)	368	491	613	736	859	981	1104	1227	1349	1472
	Sound (NC)	-	-	-	-	20	25	30	34	37	41
	Throw (ft.)	7-12-24	11-16-29	13-20-32	16-24-35	19-27-38	21-29-40	24-30-43	26-32-45	27-33-47	29-35-49
16	Total Pressure (in. w.g.)	0.021	0.037	0.058	0.083	0.113	0.147	0.187	0.230	0.279	0.332
	Flow Rate (cfm)	419	558	698	837	977	1116	1256	1396	1535	1675
	Sound (NC)	-	-	-	-	19	24	29	33	36	40
	Throw (ft.)	8-13-26	11-17-30	14-21-34	17-26-37	20-28-40	23-30-43	26-32-46	28-34-48	29-36-50	30-37-53

### Performance Notes:

- Performance data is based on extrapolation of existing data. Testing must be done to confirm the above data.
- Air flow is in cubic feet per minute, CFM.
- All pressures are in inches of water.
- Throw values are given in feet to terminal velocities of 150 fpm (minimum), 100 fpm (middle) and 50 fpm (maximum.)
- Throw data is based on supply air and room air at isothermal conditions.
- The NC values, sound pressure level, are based on a room absorption of 10 dB, re 10-12 watts and one diffuser.
- Blanks "-" indicate an NC value less than 15.

### Correction Factors

Deflection	0°	15°	30°
NC	-	+2	+4
Throw	-	-	-
Total Pressure	-	x 1.08	x1.12

# AND/ANR/ANF

## Concentric Ring Nozzle Diffuser

# PERFORMANCE DATA

## ANF/ANR

Size	Model	Duct Velocity (fpm)	400	600	800	1000	1200	1400	1600
		Velocity Pressure (in. w.g.)	0.01	0.022	0.04	0.062	0.090	0.122	0.160
3	ANF	Flow Rate (cfm)	20	29	39	49	59	69	79
		Total Pressure (in. w.g.)	0.012	0.026	0.047	0.074	0.106	0.144	0.188
		Sound (NC)	-	-	-	-	17	21	25
	ANR	Total Pressure (in. w.g.)	0.016	0.036	0.064	0.100	0.144	0.196	0.256
		Sound (NC)	-	-	-	16	21	25	29
		Throw (ft.)	1-3-7	2-5-10	3-7-12	5-9-13	6-10-14	6-11-16	7-12-17
4	ANF	Flow Rate (cfm)	35	52	70	87	105	122	140
		Total Pressure (in. w.g.)	0.012	0.026	0.047	0.076	0.106	0.144	0.188
		Sound (NC)	-	-	-	19	23	27	31
	ANR	Total Pressure (in. w.g.)	0.016	0.036	0.064	0.100	0.144	0.196	0.256
		Sound (NC)	-	-	16	22	28	32	36
		Throw (ft.)	2-4-10	3-7-14	4-10-16	6-12-18	7-14-19	9-15-21	10-13-18
5	ANF	Flow Rate (cfm)	55	82	109	136	164	191	218
		Total Pressure (in. w.g.)	0.012	0.026	0.047	0.074	0.106	0.144	0.188
		Sound (NC)	-	-	16	22	27	31	35
	ANR	Total Pressure (in. w.g.)	0.016	0.036	0.064	0.100	0.144	0.196	0.256
		Sound (NC)	-	-	21	28	33	37	41
		Throw (ft.)	2-5-11	3-6-15	5-10-20	8-13-22	8-15-24	11-18-26	12-16-23
6	ANF	Flow Rate (cfm)	79	118	157	196	236	275	314
		Total Pressure (in. w.g.)	0.012	0.026	0.047	0.074	0.106	0.144	0.188
		Sound (NC)	-	-	20	26	31	35	39
	ANR	Total Pressure (in. w.g.)	0.016	0.036	0.064	0.100	0.144	0.196	0.256
		Sound (NC)	-	17	25	32	37	42	46
		Throw (ft.)	4-8-15	5-11-20	6-15-24	9-18-26	11-20-29	13-22-31	15-24-33
8	ANF	Flow Rate (cfm)	140	210	280	350	420	490	560
		Total Pressure (in. w.g.)	0.012	0.029	0.052	0.08	0.116	0.158	0.207
		Sound (NC)	-	-	-	15	20	25	29
	ANR	Total Pressure (in. w.g.)	0.017	0.039	0.07	0.109	0.157	0.214	0.28
		Sound (NC)	-	-	15	20	25	30	34
		Throw (ft.)	5-11-23	8-17-28	11-23-32	14-25-36	17-28-39	20-30-42	23-32-45
10	ANF	Flow Rate (cfm)	218	327	436	545	654	763	872
		Total Pressure (in. w.g.)	0.012	0.029	0.052	0.08	0.116	0.158	0.207
		Sound (NC)	-	-	-	17	22	27	31
	ANR	Total Pressure (in. w.g.)	0.017	0.039	0.07	0.109	0.157	0.214	0.28
		Sound (NC)	-	-	17	22	27	32	36
		Throw (ft.)	7-14-28	11-21-34	14-28-40	18-31-44	21-34-49	25-37-53	28-40-56
12	ANF	Flow Rate (cfm)	314	471	628	785	942	1100	1256
		Total Pressure (in. w.g.)	0.012	0.029	0.052	0.08	0.116	0.159	0.207
		Sound (NC)	-	-	-	17	23	27	32
	ANR	Total Pressure (in. w.g.)	0.017	0.039	0.07	0.109	0.157	0.215	0.28
		Sound (NC)	-	-	19	23	29	33	38
		Throw (ft.)	8-7-34	13-25-41	17-34-48	21-38-53	25-41-58	30-45-63	38-54-76
14	ANF	Flow Rate (cfm)	428	641	855	1069	1283	1497	1710
		Total Pressure (in. w.g.)	0.012	0.029	0.052	0.08	0.117	0.158	0.207
		Sound (NC)	-	-	-	19	24	29	33
	ANR	Total Pressure (in. w.g.)	0.017	0.039	0.07	0.109	0.158	0.214	0.28
		Sound (NC)	-	15	20	25	30	35	39
		Throw (ft.)	9-20-39	15-30-48	20-39-56	25-44-62	30-48-68	35-52-74	39-56-79
16	ANF	Flow Rate (cfm)	558	838	1117	1396	1675	1954	2234
		Total Pressure (in. w.g.)	0.012	0.029	0.052	0.08	0.117	0.158	0.207
		Sound (NC)	-	-	-	19	25	30	34
	ANR	Total Pressure (in. w.g.)	0.017	0.039	0.07	0.109	0.158	0.214	0.28
		Sound (NC)	-	15	20	25	31	36	40
		Throw (ft.)	11-23-45	17-34-55	23-45-64	28-50-71	34-55-78	39-60-84	45-64-90

### Performance Notes:

- Tested in accordance with ASHRAE Standard 70-2023 "Method of Testing for Rating the Performance of Air Outlets and Inlets."
- Air flow cfm: Standard air density and isothermal conditions.
- Noise Criteria: Noise criteria [NC] curve which is not exceeded with a Room Attenuation of 10db and based on Sound Power LevelRe: 10-12 watts.
- Static Pressure: in. w.g. required.
- Projection: Projection distance [THROW] in feet from the Nozzle discharge at which the maximum velocity has been reduced to specified terminal velocity [Vt].
- Nozzle Velocity: Nozzle Discharge Velocity in feet per minute [fpm].
- Terminal Velocity: Maximum velocity [Vt] in feet per minute at the specified distance from the outlet face [THROW] 200 fpm, 100 fpm, and 50 fpm respectively.







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