

Performance Data

Model: RDB Round Downblast Diffuser

Nominal Neck	Neck Velocity, FPM	400	500	600	700	800	900	1000	1200	1400	1600
	Velocity Pressure	0.010	0.016	0.022	0.031	0.040	0.050	0.062	0.090	0.122	0.160
8" Dia.	Airflow, CFM	140	175	209	244	279	314	349	419	489	559
	Total Pressure Horiz.	0.027	0.042	0.062	0.073	0.115	0.140	0.175	0.258	0.335	0.421
	Total Pressure Vert.	0.014	0.024	0.035	0.049	0.053	0.071	0.088	0.122	0.176	0.235
	NC Horiz.	—	—	—	21	23	25	31	33	37	39
	NC Vert.	—	—	—	—	—	—	20	22	28	31
	Throw Horiz. Throw Vert.	0-1-2 8	1-2-4 10	1-2-5 16	1-2-7 19	1-3-9 24	2-4-10 31	2-4-11 34	3-5-12 37	4-6-13 43	6-7-15 48
10" Dia.	Airflow, CFM	218	273	327	382	436	491	545	654	764	873
	Total Pressure Horiz.	0.036	0.056	0.082	0.111	0.145	0.185	0.230	0.335	0.462	0.570
	Total Pressure Vert.	0.016	0.026	0.037	0.051	0.066	0.083	0.103	0.149	0.204	0.265
	NC Horiz.	—	—	—	—	21	23	27	33	39	41
	NC Vert.	—	—	—	—	—	—	20	25	32	35
	Throw Horiz. Throw Vert.	0-1-3 12	1-2-5 13	1-2-7 22	1-3-8 26	2-4-10 29	2-4-11 34	3-5-12 37	4-7-13 40	6-8-15 48	7-10-16 50
12" Dia.	Airflow, CFM	314	393	471	550	628	707	785	942	1100	1257
	Total Pressure Horiz.	0.047	0.073	0.107	0.149	0.195	0.245	0.307	0.445	0.612	0.800
	Total Pressure Vert.	0.018	0.029	0.042	0.058	0.076	0.095	0.118	0.170	0.232	0.305
	NC Horiz.	—	—	—	33	27	31	35	39	43	46
	NC Vert.	—	—	—	—	—	22	25	28	33	37
	Throw Horiz. Throw Vert.	3-6-11 15	4-7-13 17	5-8-15 28	6-10-17 36	7-11-18 46	8-12-19 50	9-13-20 55	12-16-22 60	15-18-23 67	18-20-25 75
14" Dia.	Airflow, CFM	428	535	641	748	855	962	1069	1283	1497	1710
	Total Pressure Horiz.	0.039	0.062	0.090	0.127	0.165	0.209	0.262	0.380	0.542	0.700
	Total Pressure Vert.	0.016	0.027	0.038	0.054	0.070	0.088	0.111	0.162	0.224	0.295
	NC Horiz.	—	—	—	—	22	25	29	37	46	52
	NC Vert.	—	—	—	—	—	—	22	29	35	38
	Throw Horiz. Throw Vert.	1-6-12 21	2-7-14 25	3-8-16 31	4-10-17 39	5-11-18 48	7-12-19 53	8-13-20 57	11-16-22 63	15-18-23 70	19-21-25 89
16" Dia.	Airflow, CFM	559	698	838	977	1117	1257	1396	1676	1955	2234
	Total Pressure Horiz.	0.053	0.069	0.110	0.181	0.232	0.292	0.367	0.535	0.737	0.965
	Total Pressure Vert.	0.020	0.032	0.045	0.061	0.083	0.104	0.132	0.189	0.261	0.342
	NC Horiz.	—	—	—	22	25	31	37	42	46	52
	NC Vert.	—	—	—	—	—	22	27	35	39	41
	Throw Horiz. Throw Vert.	6-10-18 25	7-11-20 27	7-13-21 34	8-16-22 41	9-17-24 50	11-19-25 55	13-20-26 59	14-21-27 67	15-22-28 85	16-23-29 94
18" Dia.	Airflow, CFM	707	884	1060	1237	1414	1590	1767	2121	2474	2827
	Total Pressure Horiz.	0.071	0.114	0.162	0.226	0.300	0.375	0.472	0.690	0.942	1.230
	Total Pressure Vert.	0.023	0.037	0.053	0.073	0.096	0.120	0.150	0.217	0.298	0.390
	NC Horiz.	—	—	22	34	37	41	44	52	57	62
	NC Vert.	—	—	—	—	—	24	27	33	37	41
	Throw Horiz. Throw Vert.	8-13-21 29	10-14-22 34	11-16-23 39	12-17-24 44	14-18-25 55	15-19-26 57	16-20-27 63	18-22-28 74	21-23-29 85	23-25-30 100
20" Dia.	Airflow, CFM	873	1091	1309	1527	1745	1963	2182	2618	3054	3491
	Total Pressure Horiz.	0.074	0.116	0.162	0.221	0.289	0.365	0.442	0.630	0.862	1.120
	Total Pressure Vert.	0.022	0.035	0.050	0.069	0.090	0.115	0.142	0.206	0.284	0.373
	NC Horiz.	—	25	31	34	38	42	45	53	58	62
	NC Vert.	—	—	—	—	23	27	31	36	42	46
	Throw Horiz. Throw Vert.	10-14-20 36	12-16-23 42	14-19-26 48	16-21-29 53	18-23-31 58	20-25-32 63	22-27-34 69	25-30-37 81	29-34-39 90	32-37-41 105
24" Dia.	Airflow, CFM	1257	1571	1885	2199	2513	2827	3142	3770	4398	5027
	Total Pressure Horiz.	0.047	0.073	0.104	0.141	0.182	0.229	0.281	0.400	0.540	0.700
	Total Pressure Vert.	0.010	0.016	0.022	0.030	0.040	0.050	0.062	0.090	0.122	0.159
	NC Horiz.	25	30	34	36	42	47	53	62	70	73
	NC Vert.	—	—	—	24	27	33	38	44	47	51
	Throw Horiz. Throw Vert.	12-16-22 43	14-19-26 47	17-21-30 50	18-23-32 58	20-25-33 64	23-27-36 69	25-31-37 87	29-35-40 95	33-38-42 99	34-40-47 113

Performance Notes:

- All pressures are in inches w.g.. To obtain static pressure, subtract the velocity pressure from the total pressure.
- Horizontal throws are given at 150,100 and 50 fpm terminal velocities under isothermal conditions with the face fully closed.
- Vertical throw (projection) is given at 50 fpm terminal velocity under isothermal

conditions with the face fully open. For non-isothermal conditions, use the following correction factors:

ΔT Temp. Differential	Correction Factor
20°F Cooling	x 1.40
Isothermal	x 1.00
10°F Heating	x 0.83
20°F Heating	x 0.58
30°F Heating	x 0.53
40°F Heating	x 0.43

4. NC (Noise Criteria) values are based upon 10 dB room absorption, re 10⁻¹² watts. Dash (-) in space indicates an NC of less than 20. Values shown are for the horizontal discharge pattern (center closed) and vertical discharge pattern (center fully open).

5. Derived from tests conducted in accordance with ANSI / ASHRAE Standard 70-1991.

Nominal Neck Size	Ak Factors
8	0.13
10	0.25
12	0.51
14	0.56
16	1.08
18	1.36
20	1.60