



## Fixed Pattern - Horizontal Pattern

### 12x12 Module

Neck Velocity	300	400	500	600	700	800	900	1000	1200	1400
Velocity Pressure	0.006	0.010	0.016	0.022	0.031	0.040	0.051	0.062	0.090	0.122

6" Ak = 0.16	Airflow (CFM)	60	80	100	120	135	155	175	195	235	275
	Total Pressure	0.009	0.016	0.025	0.036	0.045	0.060	0.076	0.095	0.137	0.188
	Horizontal Throw	1-2-4	2-3-6	2-3-7	3-4-8	3-5-9	4-5-11	4-6-12	4-7-13	5-8-16	6-9-19
	Noise Criteria	<15	<15	<15	<15	<15	20	23	26	33	37

8" Ak = 0.22	Airflow (CFM)	105	140	175	210	245	280	315	350	420	490
	Total Pressure	0.014	0.024	0.038	0.054	0.074	0.096	0.122	0.150	0.217	0.295
	Horizontal Throw	2-3-6	2-4-8	3-5-10	3-6-12	4-7-14	4-8-16	5-9-18	5-10-21	6-12-25	8-14-29
	Noise Criteria	<15	<15	<15	<15	21	26	30	32	37	40

### 24x24 Module

6" Ak = 0.16	Airflow (CFM)	60	80	100	120	140	160	180	200	240	270
	Total Pressure	0.009	0.016	0.025	0.036	0.048	0.063	0.080	0.099	0.142	0.180
	Horizontal Throw	1-1-3	1-2-3	1-2-4	2-3-5	2-3-6	2-3-7	3-4-8	3-4-9	3-5-10	4-6-12
	Noise Criteria	<15	<15	<15	<15	<15	17	21	25	33	37

8" Ak = 0.26	Airflow (CFM)	105	140	175	210	245	280	315	350	420	490
	Total Pressure	0.010	0.018	0.028	0.041	0.056	0.073	0.092	0.114	0.164	0.223
	Horizontal Throw	1-2-4	2-3-6	2-4-7	3-4-8	3-5-10	4-6-11	4-6-13	5-7-14	6-8-17	7-10-20
	Noise Criteria	<15	<15	<15	<15	17	22	28	30	36	39

10" Ak = 0.37	Airflow (CFM)	165	220	275	325	380	435	490	545	655	765
	Total Pressure	0.012	0.022	0.034	0.048	0.065	0.086	0.109	0.134	0.194	0.265
	Horizontal Throw	2-4-7	3-5-10	4-6-12	5-7-15	6-8-17	6-10-19	7-11-22	8-12-24	10-15-29	11-17-34
	Noise Criteria	<15	<15	<15	15	20	26	28	31	36	42

12" Ak = 0.51	Airflow (CFM)	235	315	395	470	550	630	705	785	940	1100
	Total Pressure	0.013	0.024	0.038	0.053	0.073	0.096	0.120	0.149	0.213	0.292
	Horizontal Throw	3-4-9	4-6-12	5-8-15	6-9-18	7-10-21	8-12-24	9-13-27	10-15-30	12-18-36	14-21-42
	Noise Criteria	<15	<15	<15	20	24	28	31	34	41	45

14" Ak = 0.62	Airflow (CFM)	320	430	535	640	750	855	960	1070	1285	1495
	Total Pressure	0.015	0.026	0.041	0.058	0.080	0.104	0.131	0.163	0.235	0.318
	Horizontal Throw	4-6-12	5-8-16	7-10-20	8-12-24	10-14-29	11-16-33	12-18-37	14-20-41	16-24-49	19-28-57
	Noise Criteria	<15	<15	18	22	24	28	33	36	43	47

16" Ak = 0.78	Airflow (CFM)	420	560	700	840	980	1120	1260	1400	1680	1950
	Total Pressure	0.018	0.032	0.050	0.072	0.098	0.128	0.162	0.200	0.288	0.388
	Horizontal Throw	5-8-16	7-11-22	9-13-27	11-16-32	13-19-33	14-22-43	16-24-48	18-27-54	22-32-65	25-37-75
	Noise Criteria	<15	15	22	22	30	34	39	41	47	51

See page 55 for notes on performance testing.

# ENGINEERING DATA

Model SA

## Adjustable Pattern - Horizontal Pattern

### 12x12 Module

Neck Velocity	300	400	500	600	700	800	900	1000	1200	1400
Velocity Pressure	0.006	0.010	0.016	0.022	0.031	0.040	0.051	0.062	0.090	0.122

6" Ak = 0.18	Airflow (CFM)	60	80	100	120	135	155	175	195	235	275
	Total Pressure	0.007	0.012	0.019	0.027	0.034	0.045	0.058	0.072	0.104	0.143
	Horizontal Throw	1-1-3	1-2-4	2-2-5	2-3-5	2-3-6	2-3-7	3-4-8	3-4-9	4-5-11	4-6-12
	Noise Criteria	<15	<15	<15	<15	<15	21	24	27	35	38

8" Ak = 0.28	Airflow (CFM)	105	140	175	210	245	280	315	350	420	490
	Total Pressure	0.009	0.016	0.025	0.036	0.049	0.064	0.081	0.100	0.144	0.196
	Horizontal Throw	2-3-6	3-4-8	3-5-10	4-6-12	5-7-14	5-8-16	6-9-19	7-10-21	8-12-25	10-14-29
	Noise Criteria	<15	<15	<15	<15	15	20	26	28	33	37

### 24x24 Module

6" Ak = 0.18	Airflow (CFM)	60	80	100	120	140	160	180	200	240	270
	Total Pressure	0.007	0.012	0.019	0.028	0.038	0.049	0.063	0.077	0.111	0.141
	Horizontal Throw	1-1-3	1-2-3	1-2-4	2-3-4	2-3-6	2-3-7	3-4-8	3-4-9	3-5-10	4-6-12
	Noise Criteria	<15	<15	<15	<15	<15	16	21	25	31	34

8" Ak = 0.31	Airflow (CFM)	105	140	175	210	245	280	315	350	420	490
	Total Pressure	0.007	0.013	0.020	0.029	0.039	0.051	0.065	0.080	0.115	0.157
	Horizontal Throw	1-2-4	2-3-5	2-3-7	3-4-8	3-5-9	4-5-11	4-6-12	4-7-13	5-8-16	6-9-19
	Noise Criteria	<15	<15	<15	<15	<15	20	25	27	33	37

10" Ak = 0.47	Airflow (CFM)	165	220	275	325	380	435	490	545	655	765
	Total Pressure	0.008	0.014	0.022	0.030	0.041	0.054	0.069	0.085	0.123	0.168
	Horizontal Throw	2-3-6	3-4-8	3-5-10	4-6-12	5-7-14	5-8-16	6-9-18	7-10-20	8-12-24	9-14-28
	Noise Criteria	<15	<15	<15	<15	<15	18	24	27	33	38

12" Ak = 0.66	Airflow (CFM)	235	315	395	470	550	630	705	785	940	1100
	Total Pressure	0.008	0.014	0.023	0.032	0.044	0.057	0.072	0.089	0.127	0.175
	Horizontal Throw	2-3-7	3-5-9	4-6-12	5-7-14	5-8-16	6-9-19	7-10-21	8-12-23	9-14-28	11-16-33
	Noise Criteria	<15	<15	<15	<15	20	21	25	31	36	43

14" Ak = 0.82	Airflow (CFM)	320	430	535	640	750	855	960	1070	1285	1495
	Total Pressure	0.010	0.017	0.027	0.038	0.052	0.068	0.086	0.107	0.154	0.209
	Horizontal Throw	3-5-10	4-7-13	6-8-17	7-10-20	8-12-23	9-13-27	10-15-30	11-17-33	13-20-40	16-23-47
	Noise Criteria	<15	<15	<15	20	22	24	30	33	40	45

16" Ak = 1.03	Airflow (CFM)	420	560	700	840	980	1120	1260	1400	1680	1950
	Total Pressure	0.010	0.018	0.029	0.041	0.056	0.073	0.093	0.114	0.164	0.222
	Horizontal Throw	5-7-15	7-10-20	8-12-25	10-15-30	12-17-35	13-20-39	15-22-44	16-25-49	20-30-59	23-34-69
	Noise Criteria	<15	<15	17	20	21	26	33	35	35	46

See page 55 for notes on performance testing.



## Adjustable Pattern - Vertical Pattern 12x12 Module

Neck Velocity	300	400	500	600	700	800	900	1000	1200	1400
Velocity Pressure	0.006	0.010	0.016	0.022	0.031	0.040	0.051	0.062	0.090	0.122

6" Ak = 0.13	Airflow (CFM)	60	80	100	120	135	155	175	195	235	275
	Total Pressure	0.013	0.022	0.035	0.050	0.064	0.084	0.107	0.133	0.193	0.265
	Horizontal Throw	2-3-5	2-3-7	3-4-8	3-5-10	4-6-11	4-7-13	5-7-15	5-8-16	7-10-20	8-12-23
	Noise Criteria	<15	<15	<15	<15	20	24	30	34	36	39

8" Ak = 0.19	Airflow (CFM)	105	140	175	210	245	280	315	350	420	490
	Total Pressure	0.019	0.007	0.011	0.015	0.021	0.027	0.035	0.043	0.062	0.084
	Horizontal Throw	4-5-11	5-7-14	6-9-18	7-11-22	3-13-25	10-14-29	11-16-32	12-18-36	14-22-43	17-25-50
	Noise Criteria	<15	<15	<15	24	27	32	34	35	38	42

## 24x24 Module

6" Ak = 0.14	Airflow (CFM)	60	80	100	120	140	160	180	200	240	270
	Total Pressure	0.011	0.019	0.030	0.044	0.060	0.078	0.099	0.122	0.175	0.222
	Horizontal Throw	1-1-2	1-1-2	1-1-3	1-2-3	1-2-4	1-2-4	2-2-5	2-3-5	2-3-6	2-4-7
	Noise Criteria	<15	<15	<15	<15	<15	18	23	27	33	37

8" Ak = 0.23	Airflow (CFM)	105	140	175	210	245	280	315	350	420	490
	Total Pressure	0.013	0.024	0.037	0.053	0.072	0.094	0.119	0.147	0.212	0.288
	Horizontal Throw	1-2-3	1-2-4	2-3-5	2-3-6	2-4-7	3-4-8	3-5-9	4-5-11	4-6-13	5-7-15
	Noise Criteria	<15	<15	<15	15	21	25	30	32	35	40

10" Ak = 0.31	Airflow (CFM)	165	220	275	325	380	435	490	545	655	765
	Total Pressure	0.017	0.031	0.048	0.067	0.092	0.121	0.153	0.190	0.274	0.374
	Horizontal Throw	2-4-7	3-5-10	4-6-12	5-7-14	6-8-17	6-10-19	7-11-22	8-12-24	10-14-29	11-17-34
	Noise Criteria	<15	<15	<15	22	25	28	31	33	38	43

12" Ak = 0.42	Airflow (CFM)	235	315	395	470	550	630	705	785	940	1100
	Total Pressure	0.019	0.035	0.055	0.077	0.106	0.139	0.174	0.216	0.309	0.424
	Horizontal Throw	3-4-8	4-5-11	4-7-13	5-8-16	6-9-19	7-11-21	8-12-24	9-13-27	11-16-32	12-19-37
	Noise Criteria	<15	<15	21	23	26	28	32	35	42	48

14" Ak = 0.54	Airflow (CFM)	320	430	535	640	750	855	960	1070	1285	1495
	Total Pressure	0.022	0.040	0.062	0.088	0.121	0.158	0.199	0.247	0.356	0.482
	Horizontal Throw	4-6-12	6-8-17	7-10-21	8-12-25	10-15-29	11-17-33	12-19-37	14-21-41	17-25-50	19-29-58
	Noise Criteria	<15	20	22	24	28	31	35	39	46	49

16" Ak = 0.63	Airflow (CFM)	420	560	700	840	980	1120	1260	1400	1680	1950
	Total Pressure	0.027	0.049	0.076	0.109	0.149	0.195	0.246	0.304	0.438	0.590
	Horizontal Throw	5-7-14	6-9-18	8-11-23	9-14-27	11-16-32	12-18-37	14-21-41	15-23-46	18-27-55	21-32-64
	Noise Criteria	15	21	21	27	31	36	39	41	49	54

### Notes:

1. Tests conducted in accordance with ANSI/ASHRAE 70-1991 at isothermal conditions.
2. Tests conducted with a straight rigid inlet condition. Other inlet conditions may alter performance.
3. Units: Neck Velocity = fpm; Total Pressure = in. wc; Ak = ft.<sup>2</sup>; Velocity Pressure = in. wc; Effective Area (Ak) = ft.<sup>2</sup>.
4. Throw = feet at 150 fpm, 100 fpm and 50 fpm terminal velocities.
5. NC is based upon 10dB room absorption (Re: 10<sup>-12</sup> watts) evaluated at 125 thru 4000 Hz octave bands.
6. Flow hoods are recommended for system balancing.