1RA PERFORMANCE DATA

Face Velocity			300	400	500	600	700
Sizes	Free area(sq.in)						
06X04		CFM	35	47	57	67	72
Ak 0.111	17	Ps	0.010	0.018	0.030	0.041	0.056
06X06		CFM	51	68	87	102	119
Ak 0.167	24	Ps	0.010	0.018	0.030	0.041	0.056
08x04		CFM	45	60	75	90	105
Ak 0.148	22	Ps	0.010	0.018	0.030	0.041	0.056
08x06		CFM	69	89	113	135	157
Ak 0.223	33	Ps	0.010	0.018	0.030	0.041	0.056
08x08		CFM	91	120	152	180	210
Ak 0.299	45	Ps	0.010	0.018	0.029	0.041	0.056
10x04		CFM	57	75	95	112	132
Ak 0.185	28	Ps	0.010	0.018	0.030	0.041	0.056
10x06		CFM	86	114	142	170	198
Ak 0.28	44.000	Ps	0.010	0.018	0.030	0.041	0.056
10x08		CFM	115	155	189	227	264
Ak 0.375	58	Ps	0.010	0.018	0.029	0.041	0.056
10x10		CFM	143	190	238	284	332
Ak 0.470	74	Ps	0.010	0.018	0.030	0.041	0.056
12x06		CFM	103	139	171	205	239
0.337	52	Ps	0.010	0.018	0.030	0.041	0.056
12x08		CFM	137	182	228	275	318
Ak 0.451	70	Ps	0.010	0.018	0.029	0.041	0.056
12x10		CFM	172	228	285	342	398
Ak 0.566	90	Ps	0.010	0.018	0.030	0.041	0.056
12x12		CFM	200	274	342	410	478
Ak 0.681	108	Ps	0.010	0.018	0.030	0.041	0.056
14x06		CFM	120	160	200	238	278
Ak0.394	62	Ps	0.010	0.018	0.030	0.041	0.056
14x08		CFM	160	213	268	318	361
Ak 0.527	84	Ps	0.010	0.018	0.030	0.041	0.056
14x10		CFM	200	268	333	401	465
Ak 0.661	106	Ps	0.010	0.018	0.030	0.041	0.056
14x14		CFM	282	375	468	560	654
Ak 0.93	148	Ps	0.010	0.018	0.030	0.041	0.056
16x06		CFM	138	184	230	275	318
Ak 0.451	72	Ps	0.010	0.018	0.030	0.041	0.056
16x08		CFM	184	245	305	365	425
Ak 0.604	98	Ps	0.010	0.018	0.030	0.041	0.056
16x10		CFM	230	307	382	458	534
Ak 0.757	122	Ps	0.010	0.018	0.030	0.041	0.056
16x12		CFM	275	370	458	550	641
Ak 0.911	146	Ps	0.010	0.018	0.029	0.041	0.056
16x16		CFM	368	490	612	734	856
Ak 1.219	196	Ps	0.010	0.018	0.030	0.041	0.056
18x06		CFM	155	205	256	308	359
Ak 0.508	78	Ps	0.010	0.018	0.030	0.041	0.057
18x18		CFM	470	623	778	932	1086
Ak 1.548	244	Ps	0.010	0.018	0.030	0.041	0.057

20x06		CFM	174	230	294	342	400
Ak 0.566	86	Ps	0.010	0.018	0.030	0.041	0.056
20x10		CFM	289	384	479	574	669
Ak 0.949	146	Ps	0.010	0.018	0.030	0.041	0.056
20x12		CFM	346	460	574	670	804
Ak 1.142	176	Ps	0.010	0.018	0.030	0.041	0.056
20x14		CFM	404	538	672	805	940
Ak 1.335	206	Ps	0.010	0.018	0.030	0.041	0.056
20x20		CFM	579	771	964	1154	1648
Ak 1.917	296	Ps	0.010	0.018	0.030	0.041	0.057
20x24		CFM	694	925	1157	1386	1618
Ak 2.307	356	Ps	0.010	0.018	0.030	0.041	0.057
20x25		CFM	726	968	1206	1442	1688
Ak 2.404	372	Ps	0.010	0.018	0.030	0.041	0.057
24x04		CFM	139	184	230	275	320
Ak .451	68	Ps	0.010	0.018	0.030	0.041	0.057
24x06		CFM	206	274	344	412	480
Ak .681	104	Ps	0.010	0.018	0.030	0.041	0.056
24x08		CFM	275	370	459	551	642
Ak .911	142	Ps	0.010	0.018	0.030	0.041	0.056
24x10		CFM	345	460	574	689	804
Ak 1.142	178	Ps	0.010	0.018	0.030	0.041	0.056
24x12		CFM	416	554	691	829	966
Ak 1.374	214	Ps	0.010	0.018	0.030	0.041	0.056
24x14		CFM	484	646	805	970	1129
Ak 1.607	252	Ps	0.010	0.018	0.030	0.041	0.056
24x24		CFM	834	1115	1391	1670	1946
Ak 2.775	434	Ps	0.010	0.018	0.030	0.041	0.056
30x04		CFM	174	230	291	341	400
Ak 0.566	84	Ps	0.010	0.018	0.030	0.041	0.056
30x06		CFM	260	345	431	516	601
Ak 0.853	130	Ps	0.010	0.018	0.030	0.041	0.057
30x08		CFM	345	461	576	689	804
Ak 1.142	176	Ps	0.010	0.018	0.030	0.041	0.056
30x10		CFM	435	581	720	864	1008
Ak 1.432	224	Ps	0.010	0.018	0.030	0.041	0.056
30x12		CFM	522	693	866	1038	1210
Ak 1.723	268	Ps	0.010	0.018	0.030	0.041	0.056
30x14		CFM	610	810	1010	1212	1414
Ak 2.015	314	Ps	0.010	0.018	0.030	0.041	0.056
30x20		CFM	870	1162	1450	1740	2029
Ak 2.892	452	Ps	0.010	0.018	0.030	0.041	0.057
30x24		CFM	1050	1398	1746	2092	2440
Ak 3.479	544	Ps	0.010	0.018	0.030	0.041	0.057
30x30		CFM	1314	1749	2185	2622	3060
Ak 4.363	680	Ps	0.010	0.018	0.030	0.041	0.057
36x06		CFM	312	414	517	620	722
Ak 1.1027	156	Ps	0.010	0.018	0.030	0.041	0.057
30x08		CFM	415	554	694	829	968
Ak1.374	212	Ps	0.010	0.018	0.030	0.041	0.056

LINEAR BAR GRILLE (in) PERFORMANCE DATA
(0° AND 15° DEFLECTION)

Listed Width (in inches)	Outlet Velocity (Vk)	500	700	900	1000	1100	1200	1300
	Total Pressure (Pt)	.016	.031	.051	.062	.076	.090	.105
	Static Pressure (Ps)	.012	.024	.040	.050	.060	.072	.084
	NC	-	15	20	23	26	29	31
1 1/2 .062	Flow CFM / FT	31	43	56	62	68	74	81
	Throw Sill or Floor	6-9	9-13	10-14	11-16	13-18	13-19	14-20
	Throw Side Wall	8-11	11-16	13-18	14-20	15-22	17-24	17-25
2 .086	Flow CFM / FT	45	60	77	87	95	103	113
	Throw Sill or Floor	5-8	8-12	10-14	11-16	13-18	13-19	14-20
	Throw Side Wall	7-10	10-15	13-18	14-20	15-22	17-24	17-25
2 1/2 .110	Flow CFM / FT	55	78	99	111	121	132	143
	Throw Sill or Floor	6-9	9-13	11-16	13-18	13-19	15-21	15-22
	Throw Side Wall	8-11	11-16	14-20	16-23	17-24	18-26	20-28
3 .130	Flow CFM / FT	65	91	117	130	143	156	169
	Throw Sill or Floor	7-10	10-15	13-18	15-21	15-22	17-24	18-26
	Throw Side Wall	8-12	13-18	15-22	17-25	18-26	20-28	21-30
3 1/2 .152	Flow CFM / FT	76	106	137	152	167	182	198
	Throw Sill or Floor	7-10	10-15	13-18	15-21	15-22	17-24	18-26
	Throw Side Wall	9-13	13-18	16-23	18-26	20-26	21-30	21-30
4 .176	Flow CFM / FT	88	123	159	176	194	211	229
	Throw Sill or Floor	8-11	12-16	14-20	16-23	18-26	19-27	20-29
	Throw Side Wall	10-14	15-22	17-25	20-29	22-32	24-34	25-36
5 .220	Flow CFM / FT	110	154	199	220	242	264	286
	Throw Sill or Floor	8-12	13-18	15-21	17-24	18-26	19-27	21-30
	Throw Side Wall	10-15	15-22	19-27	22-31	23-33	24-35	27-38
6 .265	Flow CFM / FT	133	186	239	265	292	318	345
	Throw Sill or Floor	8-12	13-18	15-22	17-25	18-26	20-28	21-30
	Throw Side Wall	10-15	15-22	19-27	22-31	23-33	24-35	27-38
8 .356	Flow CFM / FT	179	249	320	356	392		
	Throw Sill or Floor	10-14	13-19	15-22	18-26	19-27		
	Throw Side Wall	12-17	17-24	20-28	23-33	24-34		
10 .446	Flow CFM / FT	223	312	401	446			
	Throw Sill or Floor	10-15	15-22	18-26	21-30			
	Throw Side Wall	13-19	20-28	23-33	26-37			
12 .536	Flow CFM / FT	268	375	483				
	Throw Sill or Floor	12-17	22-31	21-33				
	Throw Side Wall	15-21	24-35	27-38				

LINEAR BAR GRILLE (in) PERFORMANCE DATA
(30° DEFLECTION)

Listed Width (in inches)	Outlet Velocity (Vk)	500	700	900	1000	1100	1200	1300
	Total Pressure (Pt)	.020	.040	.067	.081	.100	.119	.139
	Static Pressure (Ps)	.017	.034	.056	.070	.084	.100	.118
	NC	15	20	25	28	31	34	36
1 1/2 .062	Flow CFM / FT	36	51	63	71	78	85	92
	Throw Sill or Floor	5-8	8-12	10-14	11-16	13-18	13-19	14-20
	Throw Side Wall	7-9	10-14	12-16	14-20	15-22	17-24	17-25
2 .086	Flow CFM / FT	49	68	88	98	108	118	128
	Throw Sill or Floor	6-9	9-13	10-14	11-16	13-18	13-19	14-20
	Throw Side Wall	8-10	10-15	13-18	15-21	16-23	17-27	18-26
2 1/2 .110	Flow CFM / FT	63	88	114	126	138	151	163
	Throw Sill or Floor	6-9	9-13	11-16	13-18	13-19	15-21	15-22
	Throw Side Wall	8-11	11-16	14-60	16-23	17-24	18-26	20-28
3 .130	Flow CFM / FT	74	104	133	148	163	178	193
	Throw Sill or Floor	7-10	10-14	13-18	15-21	15-22	17-24	18-26
	Throw Side Wall	8-12	13-18	15-22	17-25	18-26	20-28	21-30
3 1/2 .152	Flow CFM / FT	87	121	156	173	191	208	226
	Throw Sill or Floor	7-10	10-15	13-18	14-20	15-21	15-22	17-24
	Throw Side Wall	8-12	13-19	16-23	18-26	20-28	21-30	22-32
4 .176	Flow CFM / FT	100	141	180	201	221	241	261
	Throw Sill or Floor	8-11	13-18	15-21	17-24	18-26	19-27	21-30
	Throw Side Wall	10-14	15-22	17-25	20-29	22-32	24-34	25-36
5 .220	Flow CFM / FT	126	176	226	251	276	301	326
	Throw Sill or Floor	8-12	13-18	15-22	17-25	18-26	20-28	21-30
	Throw Side Wall	10-15	15-22	19-27	22-31	23-33	24-35	27-38
6 .265	Flow CFM / FT	151	212	272	302	333	363	393
	Throw Sill or Floor	9-13	13-18	15-22	17-25	18-26	20-28	21-30
	Throw Side Wall	10-15	15-22	19-27	22-31	23-33	24-35	27-38
8 .356	Flow CFM / FT	203	284	366	406	447		
	Throw Sill or Floor	10-14	13-19	15-22	18-26	19-27		
	Throw Side Wall	12-17	17-24	20-28	23-33	24-34		
10 .446	Flow CFM / FT	254	356	458	509			
	Throw Sill or Floor	10-15	15-22	18-26	21-30			
	Throw Side Wall	13-19	20-28	23-33	26-37			
12 .536	Flow CFM / FT	306	428	550				
	Throw Sill or Floor	12-17	22-31	21-30				
	Throw Side Wall	15-21	24-35	27-38				

DEFINITION OF UNITS

CFM	*Cubic Feet per Minute (air)*
VK	*Outlet Velocity*
Pt	*Total pressure (inches of water column)*
Ps	*Static pressure = Pt–Pv (inches of water column)*
NC	*Noise criterion, sound pressure level NC ratings are based on sound power level (Lw) re: 10^{-12} watts minus a 10dB room attenuation in all octave bands*
Throw	*Total distance (in feet) covered by an airstream before its maximum velocity falls to a preselected terminal level (Vt) of 150fpm and 50fpm respectively.*

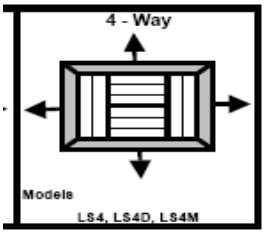
All data is tested in accordance with ANSI/ASHRAE 70-2006.

MODEL CRG4

Model CRG4

Adjustable Curved Blade Supply (4 Way)

Size Area	Inlet Velocity	100	200	300	400	500	600	700	800	900	1000
Ak	Ps	.003	.011	.026	.045	.075	.108	.145	.185	.236	.290
6x4	CFM	17	34	51	68	85	102	119	136	153	170
.17	Throw	10-9-7-6	11-9-8-7	12-9-8-8	16-13-11-10	18-14-13-11	19-15-13-12	23-18-16-15	26-20-18-17	34-27-24-22	37-29-26-24
.11	NC	<15	<15	<15	15	20	24	28	32	35	42
6x6	CFM	25	50	75	100	125	150	175	200	225	250
.25	Throw	10-8-7-6	12-9-8-7	14-11-10-9	18-14-13-11	22-17-16-14	24-19-17-15	26-20-18-17	34-27-24-20	38-30-27-23	42-33-30-25
.16	NC	<15	<15	<15	16	21	26	32	33	37	41
8x4	CFM	22	44	66	88	110	132	154	176	198	220
.22	Throw	11-9-8-7	12-9-8-7	13-10-9-8	17-13-12-10	21-17-15-13	22-17-16-13	25-20-18-15	32-25-23-19	36-28-25-22	40-31-28-24
.14	NC	<15	<15	<15	15	21	26	29	33	35	39
8x6	CFM	33	66	99	132	165	198	231	264	297	330
.33	Throw	6-5-4-4	8-6-6-5	11-9-8-7	15-12-11-9	20-16-14-12	24-19-17-14	32-25-23-19	37-29-26-22	41-32-29-25	45-35-32-27
.21	NC	<15	<15	15	17	23	28	32	35	38	41
8x8	CFM	44	88	132	176	220	264	308	352	396	440
.44	Throw	7-6-5-4	9-7-6-5	12-9-8-7	17-13-12-10	21-21-19-18	26-20-18-16	35-28-25-21	40-31-28-24	44-35-31-26	49-39-35-29
.28	NC	<15	<15	15	18	24	29	33	37	38	41
10x6	CFM	42	84	126	168	210	252	294	336	378	420
.42	Throw	7-6-5-4	9-7-6-5	12-9-8-7	17-13-12-10	21-21-19-18	26-20-18-16	35-28-25-21	40-31-28-24	44-35-31-26	49-39-35-29
.27	NC	<15	<15	15	18	24	29	33	37	38	41
10x8	CFM	56	112	168	224	280	336	392	448	504	560
.56	Throw	9-7-6-5	11-9-8-7	17-13-12-10	22-17-16-13	23-18-16-14	32-25-23-19	37-29-26-22	42-33-30-25	47-37-33-28	53-42-37-32
.36	NC	<15	<15	16	19	26	30	34	38	41	44
10x10	CFM	69	138	207	276	345	414	483	552	621	690
.69	Throw	6-5-4-4	12-9-8-7	18-14-13-11	20-16-14-12	30-24-21-18	35-28-25-21	41-34-31-24	46-38-34-28	51-40-36-31	57-45-40-34
.44	NC	<15	<15	15	20	26	31	36	39	42	45
12x6	CFM	50	100	150	200	250	300	350	400	450	500
.50	Throw	8-6-6-5	9-7-6-5	12-9-8-7	18-14-13-11	22-17-16-13	31-24-22-19	36-28-25-22	41-32-2-25	46-36-33-28	51-40-36-31
.32	NC	<15	<15	15	18	22	31	36	41	46	51
12x8	CFM	67	134	201	268	335	402	469	536	603	670
.67	Throw	6-5-4-4	12-9-8-7	18-14-13-11	20-16-14-12	30-24-21-18	35-28-25-21	41-34-31-24	46-38-34-28	51-40-36-31	57-45-40-34
.43	NC	<15	<15	15	20	26	31	36	39	42	45
12x12	CFM	100	200	300	400	500	600	700	800	900	1000
1.00	Throw	7-6-5-4	14-11-10-8	20-16-14-12	22-17-16-13	32-25-23-19	39-31-28-23	45-35-32-27	50-39-35-30	56-44-40-34	63-50-45-38
.64	NC	<15	<15	15	22	28	33	37	40	43	46
14x6	CFM	58	116	174	232	290	348	406	464	522	580
.58	Throw	9-7-6-5	11-9-8-7	17-13-12-10	22-17-16-13	23-18-16-14	32-25-23-19	37-29-26-22	42-33-30-25	47-37-33-28	53-42-37-32
.37	NC	<15	<15	16	19	26	30	34	38	41	44
14x10	CFM	97	194	291	388	485	582	679	776	873	970
.97	Throw	7-6-5-4	13-10-9-8	20-16-14-12	22-17-16-13	32-25-23-19	38-30-27-23	44-35-31-26	49-39-35-29	55-43-39-33	62-49-44-37
.62	NC	<15	<15	15	22	28	33	37	40	43	46
14x14	CFM	136	272	408	544	680	816	952	1088	1224	1360
1.36	Throw	8-6-6-5	11-9-8-7	18-14-13-11	25-20-18-15	35-28-25-21	42-33-30-25	48-38-34-29	55-43-39-33	62-49-44-37	69-54-49-41
.87	NC	<15	<15	16	24	29	34	40	43	46	49
16x6	CFM	67	134	201	268	335	402	469	536	603	670
.67	Throw	6-5-4-4	12-9-8-7	18-14-13-11	20-16-14-12	30-24-21-18	35-28-25-21	41-34-31-24	46-38-34-28	51-40-36-31	57-45-40-34
.43	NC	<15	<15	15	20	26	31	36	39	42	45
16x8	CFM	89	178	267	356	445	534	623	712	801	890
.89	Throw	7-6-5-4	13-10-9-8	20-16-14-12	22-17-16-13	32-25-23-19	38-30-27-23	44-35-31-26	49-39-35-29	55-43-39-33	62-49-44-37
.57	NC	<15	<15	15	22	28	33	37	40	43	46
20x10	CFM	139	278	417	556	695	834	973	1112	1251	1390
1.39	Throw	8-6-6-5	11-9-8-7	18-14-13-11	25-20-18-15	35-28-25-21	42-33-30-25	48-38-34-29	55-43-39-33	62-49-44-37	69-54-49-41
.89	NC	<15	<15	16	24	29	34	40	43	46	49
22x10	CFM	153	306	459	612	765	918	1071	1224	1377	1530
1.53	Throw	8-6-6-5	11-9-8-7	19-15-13-11	25-20-18-15	36-28-25-22	43-34-30-26	50-39-35-30	56-44-40-34	63-50-45-38	70-55-50-42
.98	NC	<15	<15	17	24	30	35	39	42	45	48



Notes

All Units have been tested in accordance with ANSI / ASHRAE 70-2006. Data in table is derived from such testing

Ps - Static pressure required to obtain listed cfm, units of inches water gauge (in. wg.)

MODEL KPM

Model KPM

Cube Core Return Air Grille

Size	Area Ak	Inlet Velocity	200	300	400	500	600	700	800	900	1000
		PS	.004	.008	.014	.022	.032	.044	.057	.072	.089
6x6	.25	CFM	51	75	100	125	150	175	200	225	250
	.25	NC	<15	<15	<15	<15	<15	<15	<15	16	19
8x6	.33	CFM	68	101	134	167	200	233	267	300	333
	.33	NC	<15	<15	<15	<15	<15	<15	<15	17	20
8x8	.44	CFM	89	133	178	222	267	311	356	400	444
	.44	NC	<15	<15	<15	<15	<15	<15	15	18	21
10x6	.42	CFM	83	125	167	208	250	292	334	375	417
	.41	NC	<15	<15	<15	<15	<15	<15	15	18	21
10x8	.56	CFM	111	167	222	278	333	389	444	500	556
	.54	NC	<15	<15	<15	<15	<15	<15	16	19	22
10x10	.69	CFM	139	208	278	347	417	486	556	625	694
	.68	NC	<15	<15	<15	<15	<15	<15	17	20	23
12x6	.50	CFM	100	150	200	250	300	350	400	450	500
	.49	NC	<15	<15	<15	<15	<15	<15	16	19	22
12x8	.67	CFM	133	200	267	333	400	467	533	600	667
	.65	NC	<15	<15	<15	<15	<15	<15	16	19	22
12x10	.83	CFM	167	250	333	417	500	583	667	750	833
	.82	NC	<15	<15	<15	<15	<15	15	18	21	24
12x12	1.00	CFM	200	300	400	500	600	700	800	900	1000
	.98	NC	<15	<15	<15	<15	<15	16	19	22	25
14x6	.58	CFM	117	175	234	292	350	408	467	525	583
	.57	NC	<15	<15	<15	<15	<15	<15	17	19	22
14x8	.78	CFM	156	233	311	389	467	544	622	700	778
	.76	NC	<15	<15	<15	<15	<15	15	18	21	24
14x14	1.36	CFM	272	408	544	681	817	983	1089	1225	1361
	1.33	NC	<15	<15	<15	<15	<15	17	20	23	26
16x16	1.78	CFM	356	533	711	889	1067	1244	1422	1600	1778
	1.74	NC	<15	<15	<15	<15	16	19	21	24	27
18x18	2.25	CFM	450	675	900	1125	1350	1575	1800	2025	2250
	2.21	NC	<15	<15	<15	<15	17	20	22	25	28
20x12	1.67	CFM	333	500	667	833	1000	1167	1333	1500	1667
	1.62	NC	<15	<15	<15	<15	16	18	21	24	27
20x20	2.78	CFM	556	833	1112	1389	1667	1944	2222	2500	2778
	2.72	NC	<15	<15	<15	15	18	21	23	26	29
22x22	3.36	CFM	673	1008	1334	1681	2017	2353	2689	3025	3361
	3.29	NC	<15	<15	<15	16	19	21	24	27	30
24x12	2.00	CFM	400	600	800	1000	1200	1400	1600	1800	2000
	1.96	NC	<15	<15	<15	<15	16	19	22	25	28
24x14	2.33	CFM	467	700	933	1167	1400	1633	1867	2100	2333
	2.29	NC	<15	<15	<15	<15	17	20	23	26	28
24x24	4.00	CFM	800	1200	1600	2000	2400	2800	3200	3600	4000
	3.96	NC	<15	<15	<15	17	19	22	25	28	31
26x4	.72	CFM	144	217	289	361	433	506	578	650	722
	1.06	NC	<15	<15	<15	<15	<15	<15	18	20	23
48x24	8.00	CFM	1600	2400	3200	4000	4800	5600	6400	7200	8000
	7.84	NC	<15	<15	17	20	22	25	28	31	34
		Throw	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Notes

All Units have been tested in accordance with ANSI / ASHRAE 70-2006. Data in table is derived from such testing

Ps - Static pressure required to obtain listed cfm, units of inches water gauge (in. wg.)

NC- Calculated noise criteria using 10 dB per octave room attenuation (dimensionless).