

# PERFORMANCE DATA

Size	Core Velocity (fpm)	NC 20						NC 30			NC 40		
		300	400	500	600	700	800	1000	1200	1400	1600	1800	
Size	Velocity Pressure (in. w.g.)	0.006	0.010	0.016	0.022	0.030	0.040	0.062	0.090	0.122	0.159	0.202	
	Total Pressure (in. w.g.)	0°	0.010	0.017	0.028	0.038	0.052	0.069	0.107	0.156	0.211	0.275	0.349
		22.5°	0.011	0.019	0.031	0.043	0.058	0.078	0.120	0.175	0.237	0.308	0.392
		45°	0.016	0.029	0.047	0.064	0.088	0.117	0.181	0.263	0.356	0.464	0.590
Ac = 0.15 ft <sup>2</sup> 7 x 4 6 x 5	Flow Rate (cfm)	45	60	75	90	105	120	150	180	210	240	270	
	Sound (NC)	-	-	-	-	-	17	23	29	34	38	41	
	Throw (ft)	0°	4-6-12	5-8-14	7-10-16	8-12-17	9-13-19	11-14-20	13-16-22	14-17-24	15-19-26	16-20-28	17-22-30
		22.5°	3-5-10	4-6-11	6-8-13	6-10-14	7-10-15	9-11-16	10-13-18	11-14-19	12-15-21	13-16-22	14-18-24
45°		2-3-6	3-4-7	3-5-8	4-6-9	5-7-9	5-7-10	6-8-11	7-9-12	8-9-13	8-10-14	9-11-15	
Ac = 0.18 ft <sup>2</sup> 8 x 4 7 x 5 6 x 6	Flow Rate (cfm)	55	70	90	110	125	145	180	215	250	290	325	
	Sound (NC)	-	-	-	-	15	19	25	31	36	40	43	
	Throw (ft)	0°	4-7-13	6-8-15	7-11-17	9-13-19	10-15-20	11-16-22	14-17-24	15-19-26	17-21-29	18-22-31	19-24-33
		22.5°	3-6-10	5-6-12	6-9-14	7-10-15	8-12-16	9-13-18	11-14-19	12-15-21	14-17-23	14-18-25	15-19-26
45°		2-3-7	3-4-8	4-5-9	4-7-10	5-7-10	6-8-11	7-9-12	8-10-13	8-10-14	9-11-15	10-12-16	
Ac = 0.22 ft <sup>2</sup> 10 x 4 8 x 5 7 x 6	Flow Rate (cfm)	65	90	110	130	155	175	220	265	310	350	395	
	Sound (NC)	-	-	-	-	15	19	25	31	36	40	43	
	Throw (ft)	0°	4-7-14	7-10-17	8-12-19	9-15-21	11-16-23	13-17-24	16-19-27	17-21-29	19-23-32	20-25-34	21-26-36
		22.5°	3-6-11	6-8-14	6-10-15	7-12-17	9-13-18	10-14-19	13-15-22	14-17-23	15-18-26	16-20-27	17-21-29
45°		2-4-7	3-5-9	4-6-10	5-7-10	6-6-11	6-9-12	8-10-13	9-11-15	9-12-16	10-12-17	11-13-18	
Ac = 0.26 ft <sup>2</sup> 12 x 4 10 x 5 8 x 6	Flow Rate (cfm)	80	105	130	155	180	210	260	310	365	415	470	
	Sound (NC)	-	-	-	-	16	20	26	32	37	41	44	
	Throw (ft)	0°	5-8-16	7-11-19	9-13-21	10-16-23	12-17-24	14-19-26	17-21-29	19-23-32	20-25-35	22-26-37	23-27-40
		22.5°	4-6-13	6-9-15	7-10-17	8-13-18	10-14-19	11-15-21	14-17-23	15-18-26	16-20-28	18-21-30	18-22-32
45°		3-4-8	4-5-9	4-7-10	5-8-11	6-9-12	7-9-13	8-11-15	9-12-16	10-13-17	11-13-18	12-14-20	
Ac = 0.30 ft <sup>2</sup> 14 x 4	Flow Rate (cfm)	90	120	150	180	210	240	300	360	420	480	540	
	Sound (NC)	-	-	-	-	16	20	26	32	37	41	44	
	Throw (ft)	0°	5-9-17	8-11-20	9-14-22	11-17-24	13-19-26	15-20-28	18-23-31	20-25-34	22-27-37	24-29-40	25-30-42
		22.5°	4-7-14	6-9-16	7-11-18	9-14-19	10-15-21	12-16-22	14-18-25	16-20-27	18-22-30	19-23-32	20-24-34
45°		3-4-8	4-6-10	5-7-11	6-8-12	7-9-13	8-10-14	9-11-16	10-12-17	11-13-19	12-14-20	12-15-21	
Ac = 0.34 ft <sup>2</sup> 16 x 4 12 x 5 10 x 6	Flow Rate (cfm)	100	135	170	205	240	270	340	410	475	545	610	
	Sound (NC)	-	-	-	-	17	21	27	33	38	42	45	
	Throw (ft)	0°	5-9-18	8-12-21	10-15-24	12-19-26	14-20-28	16-22-30	20-24-33	22-26-37	23-28-40	25-30-42	26-32-45
		22.5°	4-7-14	6-10-17	8-12-19	10-15-21	11-16-22	13-18-24	16-19-26	18-21-30	18-22-32	20-24-34	21-26-36
45°		3-4-9	4-6-11	5-8-12	6-9-13	7-10-14	8-11-15	10-12-17	11-13-18	12-14-20	12-15-21	13-16-22	
Ac = 0.39 ft <sup>2</sup> 18 x 4 14 x 5 12 x 6 8 x 8	Flow Rate (cfm)	115	155	195	235	275	310	390	470	545	625	700	
	Sound (NC)	-	-	-	-	18	22	28	34	39	43	46	
	Throw (ft)	0°	6-9-19	9-13-23	11-16-25	13-19-28	15-22-30	17-23-32	21-26-36	23-27-40	25-30-42	27-33-45	28-35-48
		22.5°	5-7-15	7-10-18	9-13-20	10-15-22	12-18-24	14-18-26	17-21-29	18-22-32	20-24-34	22-26-36	22-28-38
45°		3-5-10	4-6-11	5-8-13	7-10-14	8-11-15	9-12-16	11-13-18	12-14-20	12-15-21	13-16-23	14-17-24	

For performance notes, see end of section.

# PERFORMANCE DATA

Size	Core Velocity (fpm)	NC 20					NC 30			NC 40		
		300	400	500	600	700	800	1000	1200	1400	1600	1800
		Velocity Pressure (in. w.g.)	0.006	0.01	0.016	0.022	0.03	0.04	0.062	0.09	0.122	0.159
	Total Pressure (in. w.g.)	0.01	0.017	0.028	0.038	0.052	0.069	0.107	0.156	0.211	0.275	0.349
	0°	0.011	0.019	0.031	0.043	0.058	0.078	0.12	0.175	0.237	0.308	0.392
	22.5°	0.016	0.029	0.047	0.064	0.088	0.117	0.181	0.263	0.356	0.464	0.59
	45°											
Ac = 0.46 ft <sup>2</sup> 20 x 4 16 x 5 14 x 6 10 x 8	Flow Rate (cfm)	140	185	230	275	320	370	460	550	645	735	830
	Sound (NC)	-	-	-	-	18	22	28	34	39	43	46
	Throw (ft)	7-10-22	9-14-25	12-17-27	14-22-30	16-23-32	19-25-35	23-27-39	25-31-43	27-33-46	29-35-49	31-38-52
	0°	6-8-18	7-11-20	10-14-22	11-18-24	13-18-26	15-20-28	18-22-31	20-25-34	22-26-37	23-28-39	25-30-42
Ac = 0.52 ft <sup>2</sup> 24 x 4 18 x 5 16 x 6	Flow Rate (cfm)	155	210	260	310	365	415	520	625	730	830	935
	Sound (NC)	-	-	-	-	19	23	29	35	40	44	47
	Throw (ft)	7-11-23	10-15-26	13-19-29	15-22-32	18-25-35	20-26-37	24-30-41	27-33-45	29-35-49	31-38-52	32-40-55
	0°	6-9-18	8-12-21	10-15-23	12-18-26	14-20-28	16-21-30	19-24-33	22-26-36	23-28-39	25-30-42	26-32-44
Ac = 0.60 ft <sup>2</sup> 28 x 4 20 x 5 18 x 6 12 x 8 10 x 10	Flow Rate (cfm)	180	240	300	360	420	480	600	720	840	960	1080
	Sound (NC)	-	-	-	15	20	24	30	36	41	45	48
	Throw (ft)	7-12-24	11-16-28	14-20-31	16-24-34	19-27-37	22-29-40	26-32-45	29-35-48	31-38-52	23-40-56	35-43-59
	0°	6-10-19	9-13-22	11-16-25	13-19-27	15-22-30	18-23-32	21-26-36	23-26-38	25-30-42	26-32-45	28-34-47
Ac = 0.69 ft <sup>2</sup> 30 x 4 24 x 5 20 x 6 14 x 8 12 x 10	Flow Rate (cfm)	205	275	345	415	485	550	690	830	965	1100	1240
	Sound (NC)	-	-	-	15	20	24	30	36	41	45	48
	Throw (ft)	8-13-26	12-17-30	15-22-34	18-26-37	21-29-40	24-31-43	28-34-47	30-38-52	33-40-56	35-43-60	37-45-63
	0°	6-10-21	10-14-24	12-18-27	14-21-30	17-23-32	19-25-34	22-27-38	24-30-42	26-32-45	28-34-48	30-36-50
Ac = 0.81 ft <sup>2</sup> 36 x 4 28 x 5 22 x 6 16 x 8 14 x 10	Flow Rate (cfm)	245	325	405	485	565	650	810	970	1130	1300	1460
	Sound (NC)	-	-	-	16	21	25	31	37	42	46	49
	Throw (ft)	8-14-28	13-19-33	16-23-37	19-28-40	23-31-43	26-33-46	30-37-51	33-41-56	36-44-60	38-45-64	40-49-68
	0°	6-11-22	10-15-26	13-18-30	15-22-32	18-25-34	21-26-37	24-30-41	26-33-45	29-35-48	30-37-51	32-39-54
Ac = 0.90 ft <sup>2</sup> 40 x 4 30 x 5 26 x 6 18 x 8 16 x 10 12 x 12	Flow Rate (cfm)	270	360	450	540	630	720	900	1080	1260	1440	1620
	Sound (NC)	-	-	-	16	21	25	31	37	42	46	49
	Throw (ft)	9-15-30	14-20-34	17-25-39	21-30-42	24-33-45	27-35-48	32-39-55	35-43-59	37-46-63	40-49-68	42-52-72
	0°	7-12-24	11-16-27	14-20-31	17-24-34	19-26-36	22-28-38	26-31-44	28-34-47	30-37-50	32-39-54	34-42-58
Ac = 1.07 ft <sup>2</sup> 48 x 4 36 x 5 30 x 6 18 x 10 14 x 12	Flow Rate (cfm)	320	430	535	640	750	855	1070	1280	1500	1710	1930
	Sound (NC)	-	-	-	16	21	25	31	37	42	46	49
	Throw (ft)	10-16-32	15-22-38	18-28-42	22-33-46	26-36-49	29-38-53	35-43-59	38-46-64	41-50-69	43-53-74	46-57-79
	0°	8-13-26	12-18-30	14-22-34	18-26-37	21-29-39	23-30-42	28-34-47	30-37-51	33-40-55	34-42-59	37-46-63
	Flow Rate (cfm)	320	430	535	640	750	855	1070	1280	1500	1710	1930
	Sound (NC)	-	-	-	16	21	25	31	37	42	46	49
	Throw (ft)	5-8-16	7-11-19	9-14-21	11-17-23	13-18-25	14-19-26	17-21-29	19-23-32	20-25-35	22-27-37	23-28-40
	0°											

For performance notes, see end of section.

# PERFORMANCE DATA

Size	Core Velocity (fpm)	NC 20				NC 30		NC 40		NC 50			
		300	400	500	600	700	800	1000	1200	1400	1600	1800	
		Velocity Pressure (in. w.g.)	0.006	0.01	0.016	0.022	0.03	0.04	0.062	0.09	0.122	0.159	0.202
Ac = 1.18 ft <sup>2</sup> 34 x 6 24 x 8 20 x 10 16 x 12 14 x 14	Total Pressure (in. w.g.)	0°	0.01	0.017	0.028	0.038	0.052	0.069	0.107	0.156	0.211	0.275	0.349
	22.5°	0.011	0.019	0.031	0.043	0.058	0.078	0.129	0.175	0.237	0.308	0.392	
	45°	0.016	0.029	0.047	0.064	0.088	0.117	0.181	0.263	0.356	0.464	0.590	
Ac = 1.34 ft <sup>2</sup> 60 x 4 48 x 5 36 x 6 18 x 12 16 x 14	Flow Rate (cfm)	355	470	590	710	825	945	1180	1420	1650	1890	2120	
	Sound (NC)	-	-	-	17	22	26	32	38	43	47	50	
	Throw (ft)	0°	10-17-34	15-23-40	19-28-44	23-35-48	27-38-52	31-40-56	36-45-62	40-48-67	43-52-73	45-56-78	48-59-83
Ac = 1.60 ft <sup>2</sup> 72 x 4 30 x 8 24 x 10 22 x 12 18 x 14	22.5°	8-14-27	12-18-32	15-22-35	18-28-38	22-30-42	25-32-45	29-36-50	32-38-54	34-42-58	36-45-62	38-47-66	
	45°	5-8-17	8-11-20	10-14-22	12-17-24	13-19-26	15-20-28	18-22-31	20-24-34	21-26-36	22-28-39	24-30-41	
	Flow Rate (cfm)	400	535	570	805	940	1070	1340	1610	1880	2140	2410	
Ac = 1.80 ft <sup>2</sup> 60 x 5 48 x 6 36 x 8 30 x 10 24 x 12	Sound (NC)	-	-	-	18	23	27	33	39	44	48	51	
	Throw (ft)	0°	11-18-36	16-24-42	20-30-47	24-37-51	28-40-56	32-43-59	39-47-65	42-52-72	45-56-78	48-60-83	51-63-89
	22.5°	9-14-29	13-19-34	16-24-38	19-30-41	22-32-45	26-34-47	31-38-52	34-42-58	36-45-62	38-48-66	41-50-71	
Ac = 2.08 ft <sup>2</sup> 72 x 5 60 x 6 40 x 8 36 x 10 30 x 12	45°	6-9-18	8-12-21	10-15-23	12-18-25	14-20-28	16-21-29	19-23-33	21-26-36	23-28-39	24-30-42	26-32-44	
	Flow Rate (cfm)	480	640	800	960	1120	1280	1600	1920	2240	2560	2880	
	Sound (NC)	-	-	-	18	23	27	33	39	44	48	51	
Ac = 2.45 ft <sup>2</sup> 72 x 6 48 x 8 32 x 12 26 x 14 24 x 16	Throw (ft)	0°	13-20-40	18-26-46	22-32-51	27-39-56	31-43-60	35-46-64	42-51-72	46-56-79	49-61-85	53-65-91	56-69-97
	22.5°	10-16-32	14-21-37	18-26-41	22-31-45	25-34-48	28-37-51	34-41-58	37-45-63	39-49-68	42-52-73	45-55-78	
	45°	6-10-20	9-13-23	11-16-25	13-20-28	15-22-30	17-23-32	21-26-36	23-28-39	25-30-43	26-32-46	28-35-48	
Ac = 2.78 ft <sup>2</sup> 36 x 12 30 x 14 26 x 16 24 x 18 22 x 20	Flow Rate (cfm)	540	720	900	1080	1260	1440	1800	2160	2520	2880	3240	
	Sound (NC)	-	-	-	19	24	28	34	40	45	49	52	
	Throw (ft)	0°	13-21-42	19-28-48	24-35-55	29-43-59	32-46-63	37-49-68	45-55-76	48-60-84	52-65-90	56-69-97	60-73-103
Ac = 2.08 ft <sup>2</sup> 72 x 5 60 x 6 40 x 8 36 x 10 30 x 12	22.5°	10-17-34	15-22-38	19-28-44	23-34-47	26-37-50	30-39-54	36-44-61	38-48-67	42-52-72	45-55-78	48-58-82	
	45°	7-11-21	9-14-24	12-17-27	14-21-29	16-23-32	19-24-34	22-27-38	24-30-42	26-32-45	28-35-48	30-37-51	
	Flow Rate (cfm)	625	830	1040	1250	1460	1660	2080	2500	2910	3330	3740	
Ac = 2.45 ft <sup>2</sup> 72 x 6 48 x 8 32 x 12 26 x 14 24 x 16	Sound (NC)	-	-	-	19	24	28	34	40	45	49	52	
	Throw (ft)	0°	14-23-45	20-30-52	26-38-58	30-44-63	35-49-68	40-53-73	48-59-82	52-64-90	56-69-97	60-75-104	64-79-110
	22.5°	11-18-36	16-24-42	21-30-46	24-35-50	28-39-54	32-42-58	38-47-66	42-51-72	45-55-78	48-60-83	51-63-88	
Ac = 2.78 ft <sup>2</sup> 36 x 12 30 x 14 26 x 16 24 x 18 22 x 20	45°	7-11-23	10-15-26	13-19-29	15-22-32	17-25-34	20-36-37	24-29-41	26-32-45	28-35-48	30-37-52	32-40-55	
	Flow Rate (cfm)	735	980	1220	1470	1720	1960	2450	2940	3430	3920	4410	
	Sound (NC)	-	-	15	20	25	29	35	41	46	50	53	
Ac = 2.78 ft <sup>2</sup> 36 x 12 30 x 14 26 x 16 24 x 18 22 x 20	Throw (ft)	0°	15-25-49	22-35-57	27-40-62	32-48-68	38-54-74	48-57-80	52-64-89	57-70-97	61-76-106	65-81-113	70-87-120
	22.5°	12-20-39	18-26-46	22-32-50	26-38-54	30-43-59	34-46-64	42-51-71	46-56-78	49-61-85	52-65-90	56-70-96	
	45°	7-12-24	11-16-28	14-20-31	16-24-34	19-27-37	22-28-40	26-32-45	28-35-49	32-38-53	33-42-55	21-26-36	
Ac = 2.78 ft <sup>2</sup> 36 x 12 30 x 14 26 x 16 24 x 18 22 x 20	Flow Rate (cfm)	835	1110	1390	1670	1950	2220	2780	3340	3890	4450	5000	
	Sound (NC)	-	-	16	21	26	30	36	42	47	51	54	
	Throw (ft)	0°	16-26-52	23-34-60	29-42-67	34-50-73	40-57-79	45-61-85	55-68-95	60-75-104	65-81-112	70-87-122	74-93-128
Ac = 2.78 ft <sup>2</sup> 36 x 12 30 x 14 26 x 16 24 x 18 22 x 20	22.5°	13-21-42	18-27-48	23-34-54	28-40-58	32-46-63	36-49-68	44-54-76	48-60-83	52-65-90	56-70-98	59-74-102	
	45°	8-13-26	12-17-30	14-21-33	17-25-37	20-28-40	23-30-42	28-34-47	30-37-52	33-40-56	35-43-61	37-46-64	

For performance notes, see end of section.

# PERFORMANCE DATA

Size	Core Velocity (fpm)	NC 20				NC 30			NC 40		NC 50	
		300	400	500	600	700	800	1000	1200	1400	1600	1800
		0.006	0.010	0.016	0.022	0.030	0.040	0.062	0.090	0.122	0.159	0.202
60 x 8 30 x 16 48 x 10 26 x 18 40 x 12	Velocity Pressure (in. w.g.)	0.010	0.017	0.028	0.038	0.052	0.069	0.107	0.156	0.211	0.275	0.349
	Total Pressure (in. w.g.)	0.011	0.019	0.031	0.043	0.058	0.078	0.129	0.175	0.237	0.308	0.392
	45°	0.016	0.029	0.047	0.064	0.088	0.117	0.181	0.263	0.356	0.464	0.590
Ac = 3.11 ft <sup>2</sup> 60 x 8 30 x 16 48 x 10 26 x 18 40 x 12	Flow Rate (cfm)	935	1240	1560	1870	2180	2490	3110	3730	4350	4980	5600
	Sound (NC)	-	-	16	21	26	30	36	42	47	51	54
	Throw (ft)	0°	17-27-55	24-36-63	34-45-71	41-53-78	47-60-84	48-64-90	58-72-100	64-79-110	69-86-118	74-92-128
Ac = 3.61 ft <sup>2</sup> 72 x 8 60 x 10 48 x 12 36 x 16 30 x 18	Flow Rate (cfm)	1080	1440	1800	2170	2530	2890	3610	4330	5050	5780	6500
	Sound (NC)	-	-	17	22	27	31	37	43	48	52	55
	Throw (ft)	0°	18-29-59	26-38-63	32-47-76	35-56-84	44-65-90	51-69-97	53-78-108	69-86-118	75-91-128	80-99-137
Ac = 4.29 ft <sup>2</sup> 48 x 14 36 x 18 32 x 20 28 x 24	Flow Rate (cfm)	1290	1720	2140	2570	3000	3430	4290	5150	6010	6860	7720
	Sound (NC)	-	-	18	23	28	32	38	44	49	53	56
	Throw (ft)	0°	19-31-64	28-41-74	35-50-83	42-60-91	49-71-98	56-76-106	69-85-118	76-93-130	82-102-140	88-108-149
Ac = 4.65 ft <sup>2</sup> 72 x 10 48 x 16 36 x 20 30 x 24	Flow Rate (cfm)	1400	1860	2320	2790	3260	3720	4650	5580	6510	7440	8370
	Sound (NC)	-	-	18	23	28	32	38	44	49	53	56
	Throw (ft)	0°	20-33-67	29-43-78	36-54-87	44-65-95	51-74-103	58-79-110	72-89-123	79-97-135	86-105-146	91-113-156
Ac = 5.58 ft <sup>2</sup> 72 x 12 60 x 14 48 x 18 36 x 24	Flow Rate (cfm)	1670	2230	2790	3350	3910	4460	5580	6700	7810	8930	10,000
	Sound (NC)	-	-	19	24	29	33	39	45	50	54	57
	Throw (ft)	0°	22-36-73	31-47-85	40-59-95	47-72-104	55-81-113	63-87-122	79-97-135	87-107-148	93-116-160	100-125-171
Ac = 6.25 ft <sup>2</sup> 72 x 14 60 x 16 48 x 20 30 x 30	Flow Rate (cfm)	1880	2500	3120	3750	4380	5000	6250	7500	8750	10,000	11,200
	Sound (NC)	-	-	20	25	30	34	40	46	51	55	58
	Throw (ft)	0°	23-37-78	33-49-90	42-62-100	50-75-103	58-85-119	67-93-128	84-104-143	92-113-156	98-123-169	106-132-180

**Performance Notes:**

- Tested in accordance with ASHRAE Standard 70 – 2006 *Method of Testing for Rating the Performance of Air Outlets and Inlets*.
- Airflow is in cubic feet per minute [cfm].
- NC, sound pressure levels, are based on a room absorption of 10 dB re 10<sup>-12</sup> Watts, and a single diffuser/grille.
- Blanks "-" indicate an NC level below 15.
- All pressures are in inches of water column [in. w.g.].
- Pressures not listed can be calculated using the following formula:  

$$P_{total} = P_{static} + P_{velocity}$$
- Throw data is based on supply air and room air being at isothermal conditions<sup>1</sup>.
- Throw data is given in feet [ft] to terminal velocities of:  
 150 fpm (minimum)  
 100 fpm (middle)  
 50 fpm (maximum)

- Deflection** - The listed deflection settings refer to horizontal deflection. For a 20° upward deflection, use the room throw rating for a 0° setting and the total pressure for a 22 1/2° horizontal setting. The performance tables are based on registers with core style 22 with an opposed blade damper. The performance of other core styles, with or without dampers, can be obtained by the application of correction factors to the tabulated performance data. The table of correction factors is included on this page.
- The performance tables are based on registers with Fborder. For ED border, the correction factors on this page must be applied due to the reduced core area for this border.

**Corrections for Various Core Styles**

Core Style	AK/AC	Multiply		Add NC
		Throw	Total Pressure	
21 & 22 With Damper	0.78	1.0	1.0	0
21 & 22 No Damper	0.83	0.97	0.88	-4
31 & 32 With Damper	0.68	1.07	1.32	0
31 & 32 No Damper	0.72	1.04	1.17	-2

  

Listed Core Area	Multiply		Add NC
	Throw	Total Pressure	
0.15-0.30	1.30	2.6	+15
0.34-0.90	1.14	1.7	+10
1.07-1.80	1.08	1.5	+5
2.08-6.25	1.04	1.2	+2