

Technical Data Sheet



AirQon Synergies

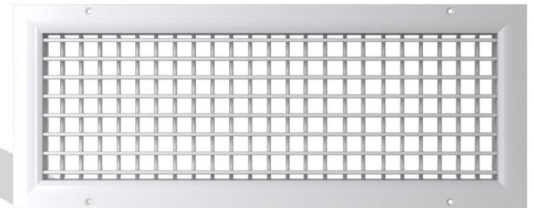
G42 Supply Air Grille (Double deflection)

Introduction

Double deflection supply air grilles with adjustable blades can be angled to control the direction and amount of air flow into a room. The double deflection design allows for two directional adjustments, vertically and horizontally.

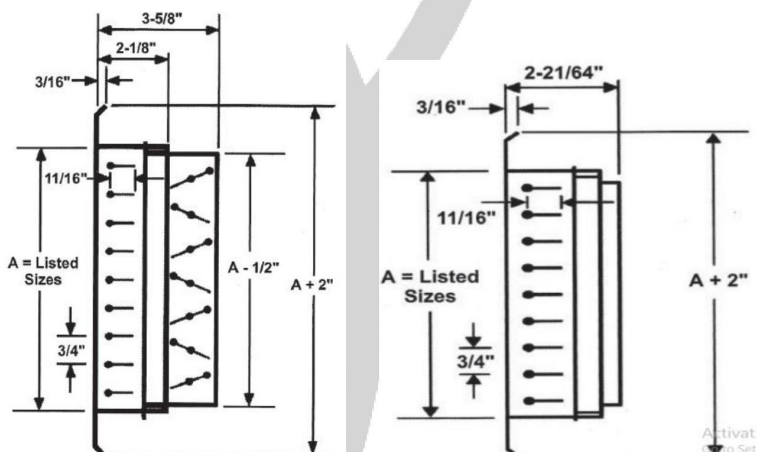
Product Description

- Both frame and blades are extruded aluminum alloy and are coated with polyester powder with different color finish (as per demand).
- Blades used have ball-plate design and have a gap of 3/4" between them and can be adjusted separately.
- Highest quality polyester powder is used which has increase the quality.
- Free area of 80% is available when blades are set at 0° with minimum noise level. On the other, wider deflection could also be achieved while setting blades to either 22.5° or 45° but that will cause a modest increase in pressure drop and noise level.
- Deflection blades are hand adjustable.
- Opposed Blade damper is fastened with rivets with grille collar
- Opposed blade damper is easily adjusted through face with screw driver
- Opposed blade Dampers are used for controlling Air Volume



Applications

- Suitable for high sidewall, soffit or duct mounting for heating, cooling or ventilation use.
- Commercial HVAC systems
- Office buildings and other facilities
- Retail stores and shopping centers
- Hospitals and healthcare facilities
- Schools and universities
- Industrial and manufacturing facilities
- Data centers and server rooms.



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G41 Supply Air grille (single deflection)

Introduction

Single deflection supply air grilles have adjustable blades that can be angled to control the direction and amount of air flow into a room. The single deflection design allows for only one directional adjustment, horizontally.

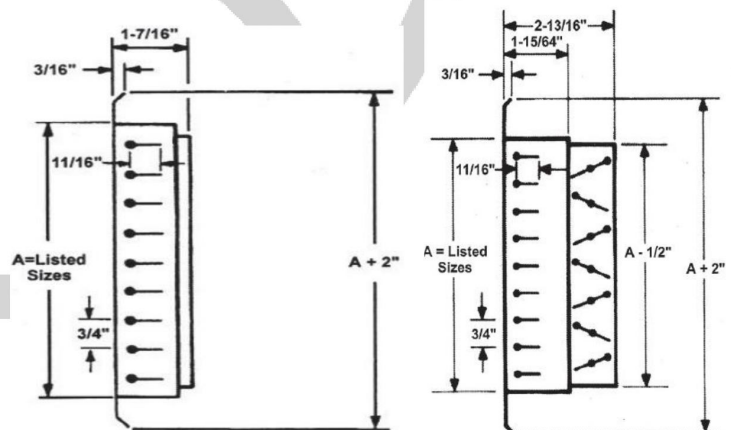
Product Description

- Both frame and blades are extruded aluminum alloy and are coated with polyester powder with multiple color finish (as demanded).
- The frame is separated from the blades with PVC bushings and has a wall thickness of 1/16". This ensures no corrosion and vibration.
- Blades used have airfoil design and have a gap of 3/4" between them and can be adjusted separately.
- Highest quality polyester powder is used which has increase the quality.
- Free area of 80% is available when blades are set at 0° with minimum noise level. On the other, wider deflection could also be achieved while setting blades to either 22.5° or 45° which will cause a modest increase in pressure drop and noise level.
- Deflection blades are hand adjustable.
- Opposed Blade damper is fastened with rivets with grille collar
- Opposed blade damper is easily adjusted through face with screw driver
- Opposed blade Dampers are used for controlling Air Volume



Applications

- Suitable for high sidewall, soffit or duct mounting for heating, cooling or ventilation use.
- Commercial HVAC systems
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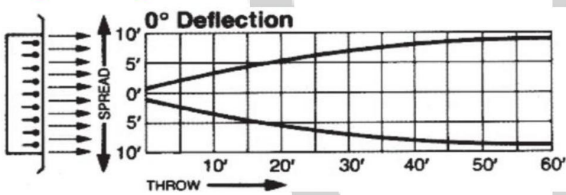
Available sizes

Size (inches)	CFM (Range)	Size (inches)	CFM (Range)	Size (inches)	CFM (Range)	Size (inches)	CFM (Range)
8 × 4	50-150	10 × 6	100-200	30 × 6	300-800	20 × 8	200-500
10 × 4	50-200	12 × 6	100-250	32 × 6	300-800	24 × 8	300-800
14 × 4	100-200	16 × 6	100-250	36 × 6	400-800	28 × 8	400-800
18 × 4	100-250	18 × 6	100-300	10 × 8	100-250	30 × 8	500-800
20 × 4	100-250	20 × 6	150-400	12 × 8	100-250	32 × 8	500-800
24 × 4	100-250	24 × 6	150-400	16 × 8	150-300	36 × 8	500-1000
8 × 6	50-200	28 × 6	200-500	18 × 8	150-400	12 × 10	100-300

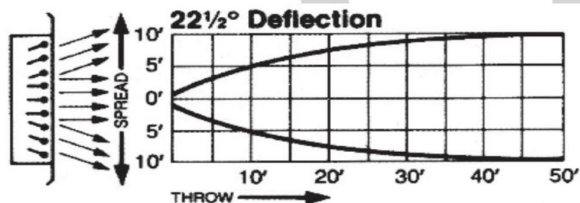
Size (inches)	CFM (range)	Size (inches)	CFM (range)	Size (inches)	CFM (range)	Size (inches)	CFM (range)
14 × 10	150-400	32 × 10	500-1200	24 × 12	500-1000	18 × 14	500-800
16 × 10	200-500	35 × 10	500-1300	28 × 12	500-1200	24 × 14	500-1200
18 × 10	300-800	12 × 12	150-400	30 × 12	500-1300	30 × 14	800-1400
20 × 10	300-800	14 × 12	200-500	32 × 12	500-1300	16 × 16	500-800
24 × 10	500-800	16 × 12	300-500	36 × 12	800-1400	20 × 16	500-1200
28 × 10	500-1000	18 × 12	400-800	14 × 14	300-800	24 × 16	500-1300
30 × 10	500-1000	20 × 12	500-800	16 × 14	400-800	30 × 16	800-1400

Note: Customized Sizes are available on demand

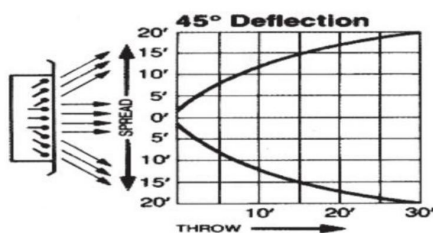
Engineering data



When the deflection is set at 0°, we will have maximum through and minimum noise as observed from the diagram.



Here, the deflection is increased to 22.5° which resulted in decreased throw and a slight increase in noise



It should be noted now that at 45° deflection, the grilles have relatively minimal throw while maximum noise.

Core Velocity (fpm)	Velocity Pressure (in wg)
250	0.004
300	0.006
350	0.008
400	0.010
450	0.013
500	0.016
550	0.019
600	0.022
650	0.026
700	0.031
750	0.035
800	0.040

Velocity Pressure Conversion Chart

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AirQon Synergies

Performance Charts

CFM	Sizes (inches) (wide × High)	5 × 6			8 × 5		
		8 × 4	6 × 6		10 × 4	8 × 6	12 × 4
	Deflection	0	22.5	45	0	22.5	45
	Ak	.16	.14	.13	.20	.18	.19
50	Velocity	315	355	385	250	280	295
	Total Pressure	.008	.012	.013	.005	.006	.007
	Throw	7-10	4-6	3-6	7-10	3-6	3-5
	NC	<20	<20	<20	<20	<20	<20
75	Velocity	470	535	575	375	415	440
	Total Pressure	.018	.027	.029	.011	.014	.015
	Throw	9-12	5-8	5-7	9-12	4-8	4-7
	NC	<20	<20	<20	<20	<20	<20
100	Velocity	625	715	770	500	555	590
	Total Pressure	.033	.048	.052	.020	.025	.027
	Throw	10-14	6-9	6-8	10-14	6-9	6-8
	NC	<20	<20	<20	<20	<20	<20
125	Velocity	780	892	960	625	695	735
	Total Pressure	.051	.075	.067	.031	.039	.042
	Throw	11-16	7-11	7-9	11-16	7-10	7-9
	NC	<20	<20	<20	<20	<20	<20
150	Velocity	940	1070	1155	750	835	882
	Total Pressure	.074	.109	.118	.045	.057	.061
	Throw	12-17	8-11	7-10	12-17	8-11	7-10
	NC	<20	<20	<20	<20	<20	<20
175	Velocity				875	972	1029
	Total Pressure				.066	.077	.083
	Throw				13-18	9-12	8-11
	NC				<20	<20	<20
200	Velocity				875	972	1029
	Total Pressure				.066	.077	.083
	Throw				13-18	9-12	8-11
	NC				<20	<20	<20

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AirQon Synergies

CFM	Sizes (inches) (wide × High)	14 × 4			14 × 5			14 × 6			24 × 4		
		10 × 6	12 × 5	16 × 4	18 × 4	12 × 6	20 × 4	16 × 5	10 × 8	16 × 6	12 × 8	20 × 5	10 × 10
	Deflection	0	22.5	45	0	22.5	45	0	22.5	45	0	22.5	45
	Ak	.27	.25	.23	.32	.30	.28	.36	.34	.31	.41	.40	.37
50	Velocity Total Pressure Throw NC												
75	Velocity Total Pressure Throw NC												
100	Velocity Total Pressure Throw NC	370	400	435	315	330	355	280	295	325	245	250	270
		.009	.013	.014	.006	.008	.008	.005	.006	.007	.004	.004	.004
		10-14	5-9	5-8	10-14	5-9	4-8	10-14	5-9	4-8	9-15	5-8	4-7
		<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
125	Velocity Total Pressure Throw NC	463	500	545	390	415	445	345	370	406	305	315	340
		.014	.020	.022	.009	.012	.013	.008	.009	.011	.006	.006	.006
		11-16	6-9	6-8	11-16	6-9	5-8	11-16	6-9	5-8	11-16	6-10	5-8
		<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
150	Velocity Total Pressure Throw NC	555	600	650	480	500	535	415	440	485	365	375	405
		.021	.028	.031	.014	.018	.019	0.11	0.13	.015	.008	.009	.010
		12-17	8-11	7-10	12-18	7-11	7-10	12-18	7-11	7-10	12-17	6-11	6-10
		<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
175	Velocity Total Pressure Throw NC	650	700	760	545	585	625	490	515	565	425	435	470
		.028	.038	.047	.020	.025	.026	.015	.018	.020	.011	.012	.014
		13-18	9-12	8-11	13-19	8-12	8-11	13-19	8-12	8-12	13-19	7-12	7-11
		<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
200	Velocity Total Pressure Throw NC	740	800	870	635	660	715	555	590	645	490	500	540
		.037	.052	.055	.025	.032	.034	.019	.023	.027	.014	.016	.017
		14-20	9-13	8-11	14-20	9-12	8-11	14-20	9-12	8-12	14-20	8-12	7-12
		<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
225	Velocity Total Pressure Throw NC				705	750	805	625	660	725	550	565	610
					.031	.041	.043	.024	.029	.034	.018	.020	.021
					15-12	10-14	9-12	15-22	10-13	9-12	15-22	9-13	8-12
					<20	<20	<20	<20	<20	<20	<20	<20	<20
250	Velocity Total Pressure Throw NC				780	835	895	695	735	805	615	625	675
					.039	.050	.053	.030	.036	.042	.022	.025	.027
					16-23	11-14	10-12	16-23	11-14	10-12	16-23	10-14	9-12
					<20	<20	<20	<20	<20	<20	<20	<20	<20

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CFM	Sizes (inches) (Wide × High)	18 × 6			20 × 6		
		26 × 4	22 × 5	28 × 4	12 × 10	30 × 4	24 × 5
		14 × 8					
	Deflection	0°	22.5°	45°	0°	22.5°	45°
	Ak	.48	.44	.40	.52	.49	.44
100	Velocity	220	225	250	190	205	225
	Total Pressure	.002	.003	.002	.002	.002	.003
	Throw	9-15	4-8	4-7	8-14	3-8	3-7
	NC	<20	<20	<20	<20	<20	<20
125	Velocity	260	265	315	240	255	285
	Total Pressure	.004	.005	.006	.003	.003	.005
	Throw	11-16	5-10	6-9	10-16	4-9	4-9
	NC	<20	<20	<20	<20	<20	<20
150	Velocity	315	340	375	290	305	340
	Total Pressure	.005	.007	.008	.006	.006	.006
	Throw	12-17	6-11	6-10	12-17	6-11	5-10
	NC	<20	<20	<20	<20	<20	<20
175	Velocity	365	400	440	335	360	400
	Total Pressure	.007	.010	.011	.005	.008	.008
	Throw	13-19	7-12	7-11	13-19	7-12	6-11
	NC	<20	<20	<20	<20	<20	<20
200	Velocity	415	455	540	385	410	455
	Total Pressure	.010	.013	.014	.008	.010	.011
	Throw	14-20	8-12	7-11	14-20	8-13	7-11
	NC	<20	<20	<20	<20	<20	<20
225	Velocity	470	510	560	432	460	510
	Total Pressure	.013	.016	.018	.010	.013	.014
	Throw	15-22	9-13	8-12	15-22	9-13	8-12
	NC	<20	<20	<20	<20	<20	<20
250	Velocity	520	570	625	480	550	570
	Total Pressure	.015	.020	.022	.012	.015	.018
	Throw	16-23	10-14	9-12	16-23	10-14	9-12
	NC	<20	<20	<20	<20	<20	<20
275	Velocity				530	560	625
	Total Pressure				.017	.017	.022
	Throw				17-25	10-14	9-13
	NC				<20	<20	<20
300	Velocity				570	610	680
	Total Pressure				.017	.022	.025
	Throw				17-25	11-25	10-13
	NC				<20	<20	<20

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AirQon Synergies

CFM	Sizes (inches) (Wide ×High)	16 × 8			24 × 6 18 × 8 14 × 10 12 × 12 28 × 5 22 × 6			36 × 4 30 × 5		
		Deflection	0°	22.5°	45°	0°	22.5°	45°	0°	22.5°
	Ak	.56	.52	.48	.66	.59	.52			
150	Velocity	270	290	315	240	260	285			
	Total Pressure	.004	.004	.005	.003	.004	.004			
	Throw	12-17	6-11	5-9	12-17	5-11	5-9			
	NC	<20	<20	<20	<20	<20	<20			
175	Velocity	315	335	365	265	295	335			
	Total Pressure	.005	.007	.007	.004	.006	.005			
	Throw	13-19	7-12	6-10	13-19	6-12	6-10			
	NC	<20	<20	<20	<20	<20	<20			
200	Velocity	355	385	415	315	345	375			
	Total Pressure	.007	.008	.009	.006	.006	.007			
	Throw	14-20	8-12	7-11	4-20	7-11	6-12			
	NC	<20	<20	<20	<20	<20	<20			
225	Velocity	400	430	470	340	380	430			
	Total Pressure	.009	.010	.011	.007	.007	.009			
	Throw	16-22	9-13	8-12	15-21	8-13	7-12			
	NC	<20	<20	<20	<20	<20	<20			
250	Velocity	445	480	520	395	430	470			
	Total Pressure	.010	.013	.014	.009	.010	.012			
	Throw	16-23	10-14	9-12	16-22	9-14	8-12			
	NC	<20	<20	<20	<20	<20	<20			
275	Velocity	490	530	575	415	465	530			
	Total Pressure	.012	.015	.017	.010	.012	.016			
	Throw	17-25	11-15	10-13	17-23	10-15	9-13			
	NC	<20	<20	<20	<20	<20	<20			
300	Velocity	535	575	625	475	530	575			
	Total Pressure	.015	.019	.020	.012	.014	.017			
	Throw	17-25	13-13	10-13	17-25	11-16	10-14			
	NC	<20	<20	<20	<20	<20	<20			
325	Velocity				490	550	625			
	Total Pressure				.013	0.19	.020			
	Throw				18-26	11-17	10-15			
	NC				<20	<20	<20			
350	Velocity				555	615	675			
	Total Pressure				.017	.020	.023			
	Throw				19-27	12-17	10-15			
	NC				<20	<20	<20			
375	Velocity				570	635	720			
	Total Pressure				.019	.022	.026			
	Throw				19-28	12-17	11-16			
	NC				<20	<20	<20			
400	Velocity				635	700	770			
	Total Pressure				.022	.026	.030			
	Throw				20-29	13-18	11-16			
	NC				<20	<20	<20			

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CFM	Sizes (inches) (Wide x High)	20 x 8			24 x 8		
		16 x 10	28 x 6	14 x 12	36 x 5	30 x 6	18 x 10
		48 x 4	32 x 6				
	Deflection	0°	22.5°	45°	0°	22.5°	45°
	Ak	.69	.65	.59	.85	.72	.63
200	Velocity	290	310	340			
	Total Pressure	.004	.005	.006			
	Throw	13-20	7-13	6-11			
	NC	<20	<20	<20			
225	Velocity	325	345	380			
	Total Pressure	.005	.006	.008			
	Throw	14-22	8-14	7-12			
	NC	<20	<20	<20			
250	Velocity	360	385	430			
	Total Pressure	.006	.007	.009			
	Throw	16-23	8-14	8-13			
	NC	<20	<20	<20			
275	Velocity	400	425	465			
	Total Pressure	.007	.008	.011			
	Throw	17-25	9-15	8-14			
	NC	<20	<20	<20	<20	<20	<20
300	Velocity	435	460	500	350	415	475
	Total Pressure	.009	.011	.013	.007	.009	.010
	Throw	17-26	10-15	9-14	17-24	9-16	9-14
	NC	<20	<20	<20	<20	<20	<20
325	Velocity	470	500	550	380	450	515
	Total Pressure	.011	.013	.014	.008	.011	.012
	Throw	18-27	11-16	10-14	18-26	10-17	10-15
	NC	<20	<20	<20	<20	<20	<20
350	Velocity	505	540	605	410	485	555
	Total Pressure	.012	.015	.018	.010	.012	.013
	Throw	19-27	11-17	10-15	19-27	11-17	10-15
	NC	<20	<20	<20	<20	<20	<20
375	Velocity	545	575	635	440	520	595
	Total Pressure	.014	.017	.020	.011	.014	.015
	Throw	20-29	12-18	10-16	20-29	12-18	11-16
	NC	<20	<20	<20	<20	<20	<20
400	Velocity	480	615	685	470	555	535
	Total Pressure	.016	.019	.023	.013	.016	.019
	Throw	22-29	13-18	11-16	20-29	13-18	11-16
	NC	<20	<20	<20	<20	<20	<20
425	Velocity	615	655	720	500	590	675
	Total Pressure	.018	.021	.026	.015	.018	.021
	Throw	21-30	14-19	12-17	21-30	14-19	12-17
	NC	<20	<20	<20	<20	<20	<20
450	Velocity	650	690	770	530	625	715
	Total Pressure	.020	.025	.030	.016	.020	.023
	Throw	21-31	15-20	12-18	21-30	14-19	12-17
	NC	<20	<20	<20	<20	<20	<20
475	Velocity	690	730	805	560	660	755
	Total Pressure	.022	.028	.033	.018	.022	.026
	Throw	22-23	16-21	12-19	22-32	14-20	12-18
	NC	<20	<20	<20	<20	<20	<20
500	Velocity	725	770	845	590	695	795
	Total Pressure	.025	.030	.037	.020	.025	.027
	Throw	22-23	16-21	13-19	23-32	14-20	12-18

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	NC	<20	<20	<20	<20	<20	<20
550	Velocity				650	765	875
	Total Pressure				.024	.030	.035
	Throw				24-34	15-21	13-18
	NC				<20	<20	<20

CFM	Sizes (inches) (Wide xHigh)	14 × 14 20 × 10 34 × 6			36 × 6 18 × 12 22 × 10 28 × 8 16 × 14		
		0°	22.5°	45°	0°	22.5°	45°
	Deflection	0°	22.5°	45°	0°	22.5°	45°
	Ak	.82	.76	.69	.94	.88	.79
300	Velocity	365	395	435			
	Total Pressure	.005	.007	.008			
	Throw	17-24	9-16	9-14			
	NC	<20	<20	<20			
325	Velocity	395	430	470			
	Total Pressure	.006	.008	.009			
	Throw	18-26	10-17	10-15			
	NC	<20	<20	<20			
350	Velocity	425	460	505			
	Total Pressure	.007	.010	.012			
	Throw	19-27	11-17	10-15			
	NC	<20	<20	<20			
375	Velocity	455	495	540			
	Total Pressure	.008	.011	.012			
	Throw	20-28	12-18	11-16			
	NC	<20	<20	<20			
400	Velocity	490	525	580	425	455	505
	Total Pressure	.009	.013	.015	.008	.009	.011
	Throw	20-29	12-18	11-16	20-29	12-18	11-16
	NC	<20	<20	<20	<20	<20	<20
425	Velocity	520	560	615	452	485	540
	Total Pressure	.010	.015	.017	.009	.010	.012
	Throw	21-30	13-19	12-16	21-30	13-19	12-17
	NC	<20	<20	<20	<20	<20	<20
450	Velocity	550	590	660	480	510	570
	Total Pressure	.011	.016	.019	.010	.012	.014
	Throw	21-30	13-19	12-16	21-30	13-19	12-17
	NC	<20	<20	<20	<20	<20	<20
475	Velocity	580	625	688	505	540	600
	Total Pressure	.012	.018	.021	.011	.013	.016
	Throw	22-31	14-20	12-17	22-31	14-20	12-17
	NC	<20	<20	<20	<20	<20	<20
500	Velocity	610	680	725	530	570	635
	Total Pressure	.013	.019	.023	.012	.014	.017
	Throw	23-32	14-20	12-17	23-32	14-20	12-18
	NC	<20	<20	<20	<20	<20	<20
550	Velocity	670	725	795	585	625	695
	Total Pressure	.016	.024	.029	.015	.017	.021
	Throw	24-34	15-21	13-18	24-34	15-21	13-18
	NC	<20	<20	<20	<20	<20	<20

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CFM	Sizes (inches) (Wide ×High)	30 × 8 24 × 10 18 × 14 48 × 5 20 × 12 32 × 8	16 × 16			28 × 10 20 × 14 48 × 6 36 × 8 24 × 12 30 × 10	
	Deflection	0°	22.5°	45°	0°	22.5°	45°
500	Ak	1.06	.98	.90	1.22	1.14	1.03
	Velocity	470	510	555	400	430	490
	Total Pressure	.010	.011	.014	.006	.007	.009
	Throw	23-32	14-20	12-18	22-32	12-20	12-18
	NC	<20	<20	<20	<20	<20	<20
550	Velocity	520	560	610	430	460	515
	Total Pressure	.012	.014	.017	.007	.008	.010
	Throw	23-34	15-21	13-18	23-33	13-20	13-18
	NC	<20	<20	<20	<20	<20	<20

CFM	Sizes (inches) (Wide ×High)	32 × 10 20 × 16 40 × 8 18 × 18 28 × 12 24 × 14				36 × 10 30 × 10 20 × 18 48 × 8 32 × 12 24 × 16	
	Deflection	0°	22.5°	45°	0°	22.5°	45°
500	Ak	1.38	1.29	1.16	1.51	1.42	1.28
	Velocity	360	390	430	330	350	380
	Total Pressure	.005	.006	.007	.004	.005	.006
	Throw	22-32	12-20	11-18	22-31	12-20	11-18
	NC	<20	<20	<20	<20	<20	<20
550	Velocity	400	425	475	365	385	430
	Total Pressure	.006	.007	.008	.005	.006	.007
	Throw	23-33	13-20	12-18	23-33	13-20	12-18
	NC	<20	<20	<20	<20	<20	<20

Technical Data Sheet



AirQon Synergies

CFM	Sizes (inches) (Wide ×High)	22 × 18 36 × 5 30 × 6 18 × 10	48 × 4 32 × 6 24 × 8 16 × 12	14 × 14 20 × 10 34 × 6			
	Deflection	0°	22.5°	45°	0°	22.5°	45°
	Ak	.82	.72	.63	.85	.76	.69
600	Velocity	720	835	950	705	790	870
	Total Pressure	.028	.036	.042	.019	.028	.034
	Throw	25-35	12-22	14-19	25-35	16-22	14-19
	NC	<22	<23	<23	<21	<22	<22
650	Velocity	785	900	1030	765	855	940
	Total Pressure	.031	.042	.051	.022	.033	.039
	Throw	25-36	16-23	15-21	26-37	17-24	15-20
	NC	<24	<26	<27	<24	<25	<25
700	Velocity	845	970	1110	825	920	1015
	Total Pressure	.039	.049	.053	.026	.037	.045
	Throw	26-38	17-24	15-21	27-38	17-24	15-21
	NC	<20	<20	<20	<20	<20	<20
750	Velocity	905	1040	1190	880	985	1090
	Total Pressure	.045	.060	.061	.029	.042	.052
	Throw	28-40	18-25	16-22	28-40	18-26	16-22
	NC	<29	<30	<32	<29	<29	<31
800	Velocity	965	1110	1230	940	1055	1160
	Total Pressure	.051	.064	.069	.034	.048	.058
	Throw	29-43	18-25	16-22	29-43	18-25	16-22
	NC	<20	<20	<20	<20	<20	<20
CFM	Sizes (inches) (Wide ×High)	36 × 10 18 × 12 22 × 10 18 × 8	16 × 14	30 × 8 24 × 10 18 × 14 48 × 5			20 × 12 32 × 8 16 × 16
	Deflection	0°	22.5°	45°	0°	22.5°	45°
	Ak	.94	.88	.79	1.06	.98	.90
600	Velocity	640	680	760	565	610	665
	Total Pressure	.018	.021	.025	.014	.016	.021
	Throw	25-35	15-22	14-19	24-34	15-22	14-19
	NC	<20	<20	<20	<20	<20	<20
650	Velocity	690	740	825	615	665	720
	Total Pressure	.021	.025	.029	.016	.019	.025
	Throw	26-37	16-23	15-20	26-37	16-23	15-20
	NC	<23	<23	<23	<22	<23	<23
700	Velocity	745	795	885	660	715	780
	Total Pressure	.024	.028	.034	.019	.021	.028
	Throw	27-38	17-24	15-21	26-38	17-23	15-20
	NC	<25	<25	<26	<24	<24	<24
750	Velocity	800	855	950	710	765	830
	Total Pressure	.027	.032	.039	.022	.024	.032
	Throw	28-40	18-25	16-22	28-40	18-24	16-21
	NC	<28	<28	<29	<27	<27	<28
800	Velocity	850	910	1015	755	815	890
	Total Pressure	.032	.036	.044	.025	.028	.037
	Throw	28-42	18-25	16-22	28-40	18-24	16-21
	NC	<29	<30	<30	<28	<28	<28

Technical Data Sheet



AirQon Synergies

CFM	Sizes (inches) (Wide ×High)						
		28 × 10 20 × 14 48 × 6	36 × 8 24 × 12 30 × 10	32 × 10 20 × 16 40 × 8	18 × 18 28 × 12 24 × 14		
	Deflection	0°	22.5°	45°	0°	22.5°	45°
	Ak	1.22	1.14	1.03	1.38	1.29	1.16
600	Velocity	460	515	590	435	465	515
	Total Pressure	.009	.010	.012	.007	.008	.010
	Throw	24-34	15-22	14-19	24-34	15-22	14-19
	NC	<20	<20	<20	<20	<20	<20
650	Velocity	510	585	650	470	505	560
	Total Pressure	.010	.011	.015	.008	.009	.012
	Throw	25-35	16-23	14-20	25-35	16-23	14-20
	NC	<20	<20	<20	<20	<20	<20
700	Velocity	595	635	690	505	545	605
	Total Pressure	.010	.011	.015	.008	.009	.012
	Throw	25-35	16-23	14-20	25-35	16-23	14-20
	NC	<20	<20	<20	<20	<20	<20
750	Velocity	615	660	730	545	580	645
	Total Pressure	.013	.014	.019	.010	.012	.016
	Throw	28-40	18-25	16-22	29-40	18-25	16-22
	NC	<25	<25	<26	<23	<22	<22
800	Velocity	690	720	780	580	620	690
	Total Pressure	.016	.017	.022	.012	.014	.018
	Throw	29-41	18-26	16-22	29-41	18-28	16-22
	NC	<27	<27	<27	<24	<25	<25
900	Velocity	740	795	865	650	700	775
	Total Pressure	.020	.022	.028	.015	.017	.022
	Throw	30-43	19-27	17-23	30-43	19-28	17-23
	NC	<30	<30	<30	<26	<29	<29
1000	Velocity	830	880	965	725	775	860
	Total Pressure	.025	.027	.034	.018	.021	.028
	Throw	32-46	20-28	17-25	32-46	20-28	18-25
	NC	<34	<34	<34	<32	<32	<32
1100	Velocity				795	855	950
	Total Pressure				.022	.026	.033
	Throw				33-47	21-30	18-26
	NC				<35	<35	<36
1200	Velocity				870	930	1035
	Total Pressure				.026	.030	.040
	Throw				35-49	22-31	19-27
	NC				<20	<20	<20

Technical Data Sheet



AirQon Synergies

CFM	Sizes (inches) (Wide xHigh)						
		36 × 10 30 × 12 20 × 18	48 × 8 32 × 12 24 × 16	28 × 14 22 × 18 20 × 20	40 × 10 34 × 12		
	Deflection	0°	22.5°	45°	0°	22.5°	45°
	Ak	1.51	1.42	1.28	1.75	1.64	1.47
600	Velocity	395	425	470			
	Total Pressure	.006	.007	.008			
	Throw	25-34	13-22	13-19			
	NC	<20	<20	<20			
650	Velocity	430	460	510			
	Total Pressure	.007	.008	.009			
	Throw	26-38	15-22	14-20			
	NC	<20	<20	<20			
700	Velocity	465	495	545	400	425	475
	Total Pressure	.008	.009	.011	.006	.007	.008
	Throw	26-40	16-24	15-21	26-38	17-24	14-24
	NC	<20	<20	<20	<20	<20	<20
750	Velocity	495	530	585	430	455	510
	Total Pressure	.009	.010	.013	.007	.008	.009
	Throw	28-41	17-25	16-21	26-39	17-25	14-21
	NC	<21	<21	<22	<20	<20	<21
800	Velocity	530	565	625	460	485	545
	Total Pressure	0.10	.012	.014	.008	.009	.010
	Throw	29-41	18-25	16-22	28-40	18-26	15-22
	NC	<23	<24	<24	<22	<23	<23
900	Velocity	595	635	705	515	550	610
	Total Pressure	.012	.015	.018	.010	.011	.013
	Throw	30-43	19-27	17-23	30-43	19-27	16-24
	NC	<27	<28	<28	<26	<27	<27
1000	Velocity	660	705	780	570	610	680
	Total Pressure	.015	.018	.022	.012	.013	.016
	Throw	32-45	20-28	18-25	32-45	20-29	18-25
	NC	<31	<31	<31	<30	<30	<30
1100	Velocity	730	775	860	630	670	750
	Total Pressure	.019	.022	.027	.015	.016	.019
	Throw	33-48	21-29	19-26	33-47	21-30	18-26
	NC	<34	<34	<34	<33	<33	<33

Technical Data Sheet



AirQon Synergies

CFM	Sizes (inches) (Wide xHigh)	30 × 14			30 × 16		
		24 × 18	24 × 18	24 × 18	40 × 12	48 × 10	60 × 8
	Deflection	0°	22.5°	45°	0°	22.5°	45°
	Ak	1.81	1.70	1.52	2.00	1.88	1.69
800	Velocity	440	470	525	400	425	475
	Total Pressure	.008	.007	.009	.005	.006	.007
	Throw	29-41	17-25	15-22	28-40	16-25	15-22
	NC	<21	<22	<22	<20	<20	<20
900	Velocity	495	530	590	450	480	535
	Total Pressure	.008	.009	.012	.006	.007	.009
	Throw	30-43	18-27	17-23	30-42	18-27	17-23
	NC	<25	<25	<25	<24	<24	<24
1000	Velocity	550	590	670	500	530	590
	Total Pressure	.010	.011	.014	.008	.009	.011
	Throw	32-45	20-28	18-25	32-45	19-28	18-26
	NC	<28	<29	<29	<27	<27	<27
1100	Velocity	610	645	725	550	585	650
	Total Pressure	.012	.014	.017	.010	.011	.013
	Throw	34-48	21-29	19-26	33-47	20-29	19-27
	NC	<32	<32	<32	<30	<31	<31

CFM	Sizes (inches) (Wide xHigh)	50 × 10		28 × 18		24 × 24		72 × 8	
		42 × 12	42 × 12	32 × 16	32 × 16	36 × 16	48 × 12	58 × 10	60 × 10
	Deflection	0°	22.5°	45°	0°	22.5°	45°	0°	45°
	Ak	2.12	2.00	1.79	2.48	2.34	2.10		
900	Velocity	425	450	500					
	Total Pressure	.005	.006	.008	.006	.007	.009		
	Throw	30-42	18-27	16-23	30-42	18-27	17-23		
	NC	<23	<23	<23	<24	<24	<24		
1000	Velocity	470	500	560	500	530	590		
	Total Pressure	.006	.007	.010	.008	.009	.011		
	Throw	32-45	20-29	18-25	32-45	19-28	18-26		
	NC	<25	<25	<25	<27	<27	<27		
1100	Velocity	520	550	615	445	470	525		
	Total Pressure	.007	.008	.012	.005	.006	.009		
	Throw	33-47	21-30	18-26	33-47	21-30	18-26		
	NC	<28	<29	<29	<24	<25	<25		

Technical Data Sheet



AirQon Synergies

CFM	Sizes (inches) (Wide ×High)	36 × 10			48 × 8		28 × 14		40 × 10	
		30 × 12	30 × 12	20 × 18	32 × 12	24 × 16	22 × 18	20 × 20	22 × 18	34 × 12
	Deflection	0°	22.5°	45°	0°	22.5°	45°	0°	22.5°	45°
	Ak	1.5	1.42	1.28	1.75	1.64	1.47	1.75	1.64	1.47
1200	Velocity	795	845	940	685	730	815	685	730	815
	Total Pressure	.022	.026	.032	.018	.019	.022	.018	.019	.022
	Throw	36-50	22-31	19-27	35-49	22-31	19-27	35-49	22-31	19-27
	NC	<37	<37	<37	<36	<36	<36	<36	<36	<36
1300	Velocity	860	915	1015	740	790	885	740	790	885
	Total Pressure	.026	.031	.038	.021	.022	.026	.021	.022	.026
	Throw	37-51	23-32	20-28	36-51	23-32	20-28	36-51	23-32	20-28
	NC	<39	<39	<40	<38	<38	<38	<38	<38	<38

CFM	Sizes (inches) (Wide ×High)	36 × 14			30 × 16		60 × 8			
		24 × 18	24 × 18	36 × 12	40 × 12	48 × 10	40 × 12	48 × 10		
	Deflection	0°	22.5°	45°	0°	22.5°	45°	0°	22.5°	45°
	Ak	1.8	1.70	1.52	2.00	1.88	1.69	2.00	1.88	1.69
1200	Velocity	665	705	790	600	640	710	600	640	710
	Total Pressure	.014	.016	.020	.011	.013	.016	.011	.013	.016
	Throw	35-50	22-31	16-27	35-49	22-31	19-28	35-49	22-31	19-28
	NC	<35	<35	<35	<34	<34	<34	<34	<34	<34
1300	Velocity	720	765	855	650	690	770	650	690	770
	Total Pressure	.017	.019	.024	.013	.015	.019	.013	.015	.019
	Throw	36-51	23-32	20-28	36-54	23-32	20-29	36-54	23-32	20-29
	NC	<37	<37	<37	<36	<36	<36	<36	<36	<36
.019	Velocity	775	825	920	700	745	830	700	745	830
	Total Pressure	.019	.022	.027	.016	.018	.022	.016	.018	.022
	Throw	38-53	24-33	21-29	37-53	24-33	21-30	37-53	24-33	21-30
	NC	<40	<40	<40	<39	<38	<38	<39	<38	<38

Technical Data Sheet



AirQon Synergies

CFM	Sizes (inches) (Wide x High)	28 x 18			24 x 24		
		50 x 10 42 x 12 36 x 14	32 x 16		36 x 16 48 x 12		72 x 8 58 x 10 60 x 10
	Deflection	0°	22.5°	45°	0°	22.5°	45°
	Ak	2.12	2.00	1.79	2.48	2.34	2.10
1200	Velocity	565	600	670	485	510	570
	Total Pressure	.008	.009	.014	.006	.007	.011
	Throw	35-49	22-31	19-27	35-49	22-31	19-27
	NC	<31	<32	<32	<26	<27	<27
1300	Velocity	615	650	725	525	555	620
	Total Pressure	.009	.011	.016	.007	.008	.013
	Throw	36-51	23-33	20-28	36-51	23-33	20-28
	NC	<34	<34	<34	<28	<29	<29
1400	Velocity	660	700	80	565	600	665
	Total Pressure	.010	.013	.018	.008	.009	.015
	Throw	38-53	24-33	20-30	37-53	24-33	20-29
	NC	<36	<37	<37	<30	<31	<31
1500	Velocity	705	750	835	605	640	715
	Total Pressure	.011	.015	.021	.009	.010	.017
	Throw	39-55	25-35	21-30	39-55	25-35	21-30
	NC	<38	<40	<40	<32	<33	<33
1600	Velocity	755	800	895	645	685	760
	Total Pressure	.013	.017	.024	.010	.011	.019
	Throw	40-57	26-36	22-31	40-57	26-36	22-31
	NC	<41	<43	<43	<34	<35	<35
1700	Velocity	800	850	950	685	725	810
	Total Pressure	.015	.019	.027	.011	.012	.021
	Throw	41-54	27-38	23-32	41-58	26-37	22-32
	NC	<44	<46	<46	<36	<37	<37
1800	Velocity	850	900	1005	725	770	855
	Total Pressure	.017	.021	.030	.012	.013	.023
	Throw	42-60	27-38	23-33	42-60	27-38	23-33
	NC	<47	<49	<49	<38	<39	<39
1900	Velocity				765	810	905
	Total Pressure				.013	.014	.026
	Throw				44-62	28-40	24-34
	NC				<40	<41	<41
2000	Velocity				805	855	950
	Total Pressure				.014	.015	.029
	Throw				45-63	29-40	25-35
	NC				<42	<43	<43
2400	Velocity				965	1025	1140
	Total Pressure				.020	.022	.042
	Throw				49-69	31-44	27-38
	NC				<50	>50	>50
2800	Velocity				1130	1195	1335
	Total Pressure				.027	.030	.057
	Throw				53-75	34-48	29-41
	NC				>50	>50	>50
3200	Velocity				1290	1365	1525
	Total Pressure				.035	.039	.074
	Throw				67-80	36-51	31-44
	NC				>50	>50	>50

Note: Ak is area factor. Throw data is based upon isothermal air at 100 and 50 FPM terminal velocity.

Technical Data Sheet



AirQon Synergies

Sound level

Maximum noise criteria (NC) of some common places are considered before manufacturing the grilles. Also sound level of any grilles is directly proportional to the velocity of the air at face.

Type of area	Average
Private home (rural and suburban)	25
Private home (Urban)	30
Apartment House	35
Individual rooms	35
Hall, corridors, lobbies	40
Garages	45
Kitchen and laundries	45
Private rooms	30
Operating rooms	35
Wards and corridors	35
Laboratories	35
Lobbies, waiting rooms	40
Washroom, toilets	45
Board rooms	25
Conference rooms	30
Executive offices	35
General offices	35
Reception rooms	35
General office rooms	40
Drafting rooms	40
Tabulation and computation areas	45
Concert opera halls	20
Sound records studios	20
Legitimate theaters	30
Multi-purpose halls	35
Ticket sales office	35
Lounges and waiting rooms	40

Type of area	Average
Movie theaters	35
TV audience studios	35
Lecture halls	35
Planetariums	35
Lobbies	40
Mosques	25
Libraries	35
Schools and class rooms	35
Laboratories	40
Recreation halls	40
Corridors and halls	40
Libraries, museums	35
Courtrooms	35
Post offices, Lobbies	40
General banking areas	40
Washroom, toilets	45
Restaurants	40
Cafeterias	45
Clothing store	40
Department stores (upper)	40
Department stores (main)	40
Small retail store	45
Supermarkets	45
Coliseums	40
Bowling alleys	40
Gymnasiums	40
Swimming pools	45

Technical Data Sheet



AirQon Synergies

Static pressure could be calculated as:

$$\begin{aligned}\text{Core area} &= \frac{(\text{Nominal length} - \frac{1}{4})(\text{Nominal Width} - \frac{1}{4})}{144} \\ &= \frac{(20 - \frac{1}{4})(8 - \frac{1}{4})}{144} \\ &= 1.06 \text{ sq. ft}\end{aligned}$$

$$\text{Core Velocity} = \frac{\text{CFM}}{\text{Core area}} = \frac{300 \text{ CFM}}{1.06 \text{ sq.ft}} = 283 \text{ FPM.}$$

From table, Velocity pressure at 283 FPM = 0.006.

$$\begin{aligned}\text{Static pressure drop} &= \text{Total pressure} - \text{Velocity pressure} \\ &= 0.011 - 0.006 \\ &= 0.005'' \text{ wg}\end{aligned}$$

This grille has the following specifications:

- Airflow rate= 300 CFM
- Static pressure drop=0.005'' wg
- Throw = 15ft
- NC= less than 20
- Drop= Adjustable.