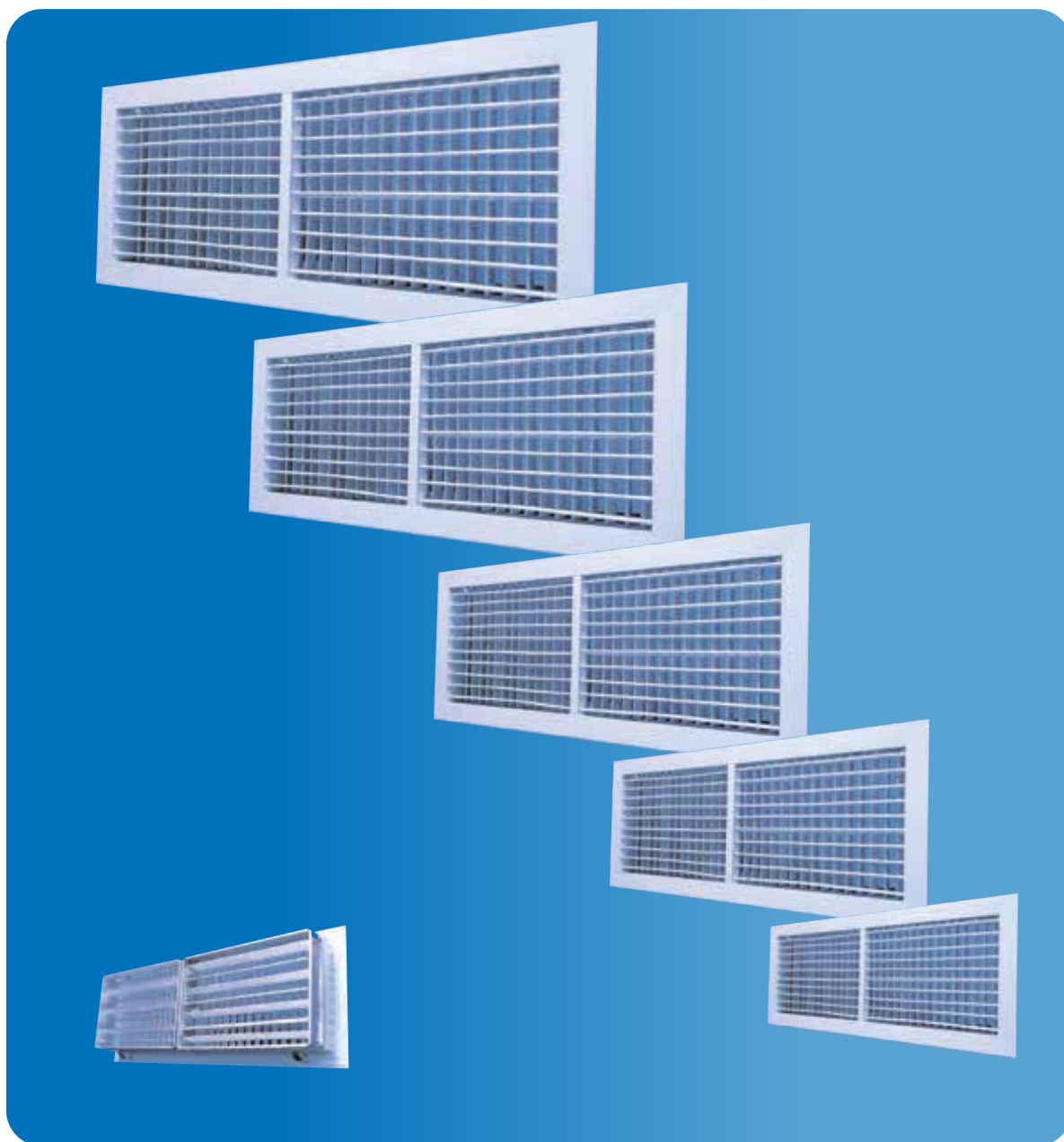


RIGID

GRILLES & REGISTERS



BRAVO MIDDLE EAST FZC

A **grille** is an air terminal device with multiple passages of airflow.

A **register** is a combination of grille and damper assembly.

SALIENT FEATURES OF RIGID GRILLES AND REGISTERS

Material and construction:

Outer frame is extruded aluminium section(6063 alloy-T6 temper)cut to length and joined at corners.

Blades are made of extruded aluminium section(6063 alloy-T6 temper) with aerofoil cross section to minimise air turbulence.

The vertical and horizontal blades are provided with nylon bushes for rattle free operation. Registers have opposed blade volume control dampers to ensure controlled and uniform airflow.

Types of Grilles

AIR GRILLE - DOUBLE DEFLECTION

A double deflection air grille may have front horizontal and rear vertical aerofoil blades. All the aerofoil blades are individually adjustable to suit the design application.

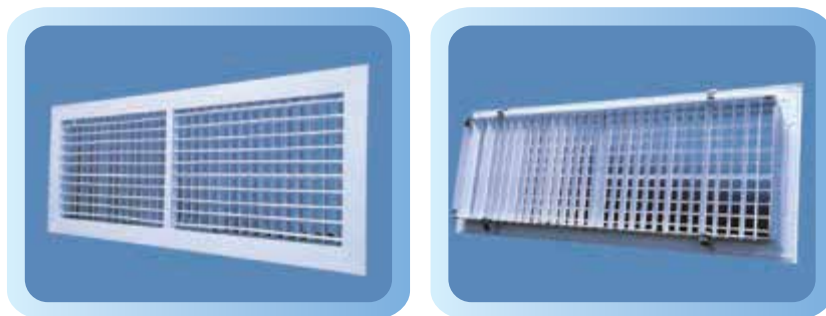


Fig. 9-1

Do - Outer Dimension of Grille in mm or inches

Dn - Neck Dimension of Grille in mm or inches

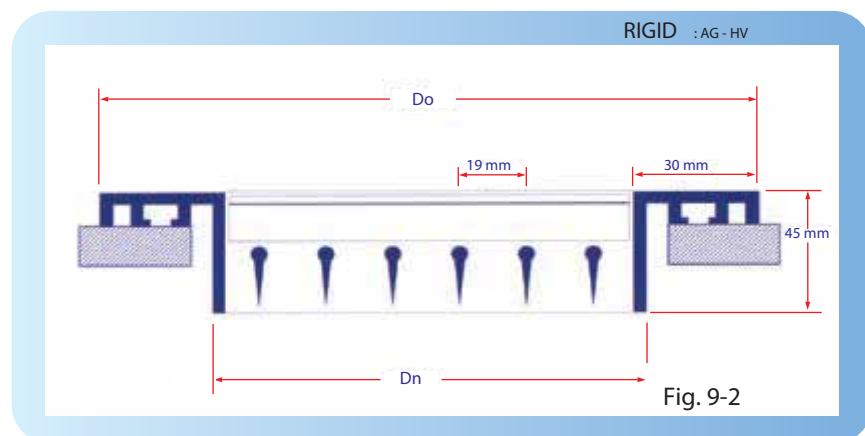


Fig. 9-2

A double deflection air grille may have front vertical and rear horizontal aerofoil blades. All the aerofoil blades are individually adjustable to suit the design application.

AIR REGISTER - DOUBLE DEFLECTION

A Double Deflection Air Register is same AIR GRILLE AG - HV supplied with opposed blade Volume Control Damper.

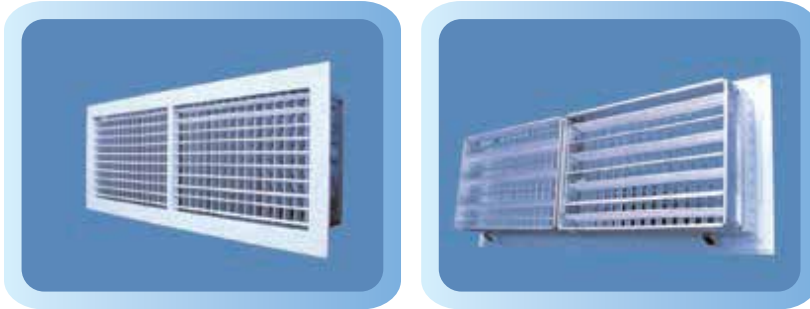
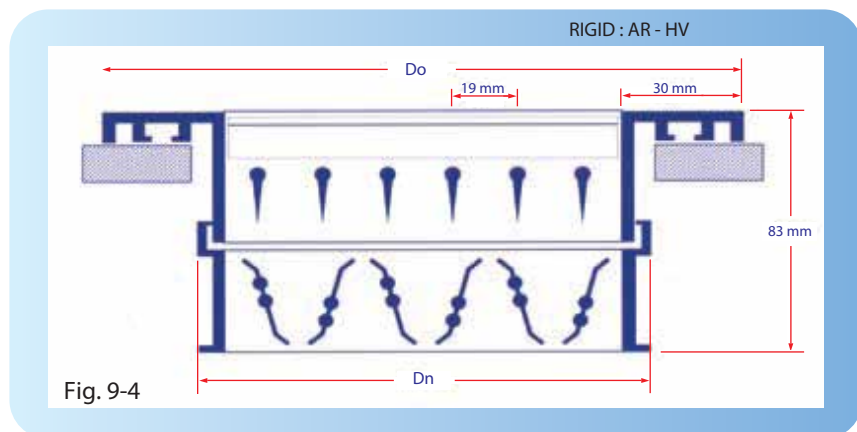


Fig. 9-3



All the above 4 models of air grilles and air registers may be used in supply airstream or return air stream

If the air grille / air register is used in supply air stream it is called as supply air grille or supply air register. It is normal practice to use supply air register in supply air stream.

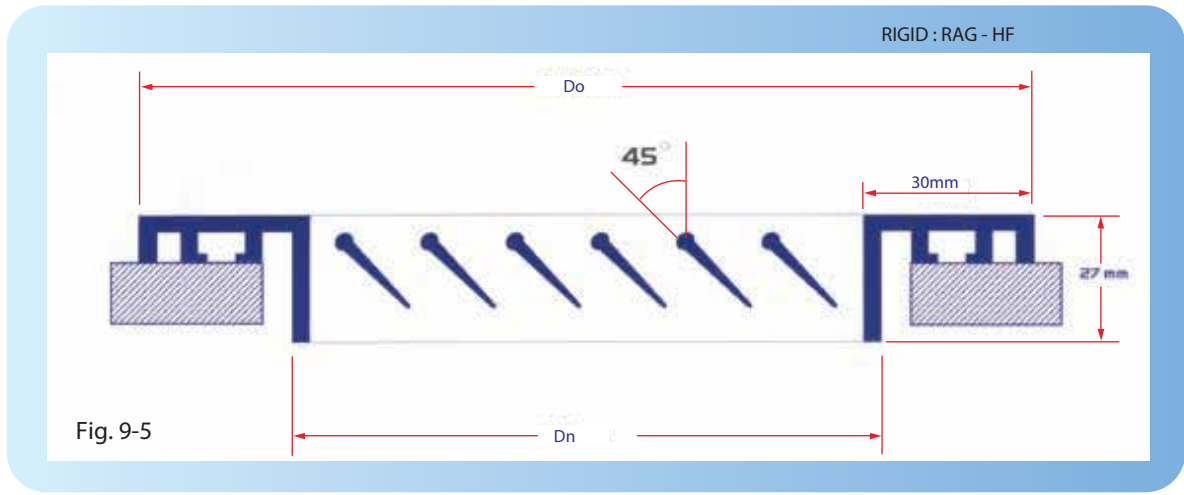
If the air grille / air register is used in return air stream it is called as return air grille or return air register. It is normal practice to use return air register in return air stream.

It is normal practice to use air register in supply air stream called as SUPPLY AIR REGISTER and air grille in return air stream called as RETURN AIR GRILLE.

RIGID RETURN AIR GRILLES WITH SPECIFIC APPLICATION

Two different types of single deflection air grilles are available on customer's request.

(a) Return air grilles with fixed horizontal aerofoil blades with 45 deg angle.



(b) Return air grilles with individually adjustable horizontal aerofoil blades.

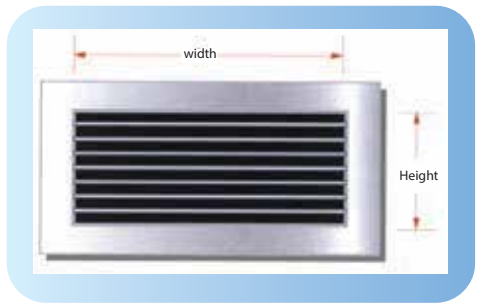
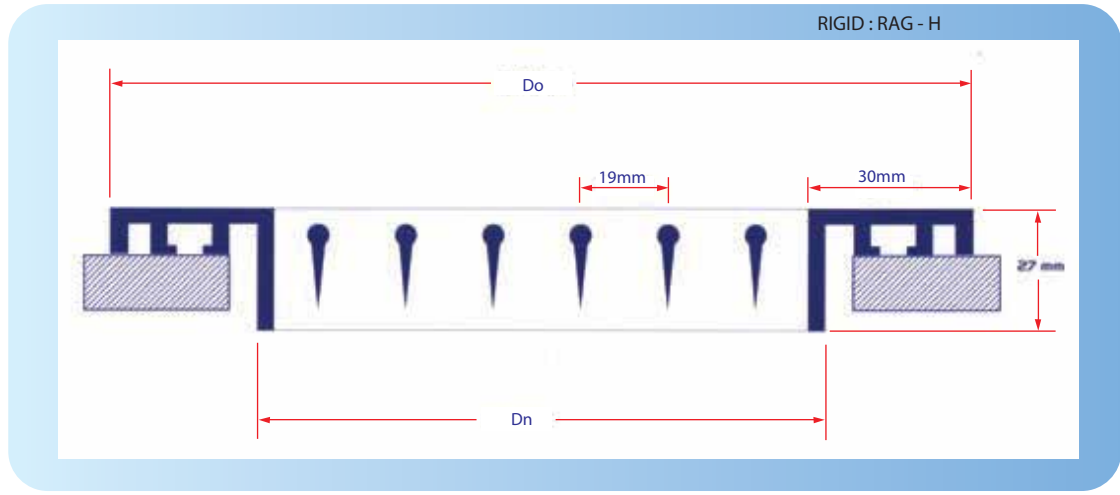


Fig. 9-6

- Do - Outer Dimension of Grille in mm or inches
- Dn - Neck Dimension of Grille in mm or inches



SINGLE DEFLECTION RETURN AIR REGISTERS.

Return air register with fixed horizontal aerofoil blades at 45 ° angle



Return air register with individually adjustable horizontal aerofoil blades .



FRESH AIR GRILL AND REGISTER

FRESH AIR GRILLE is same as RIGID RAG - HF but supplied with 12mm thick filter

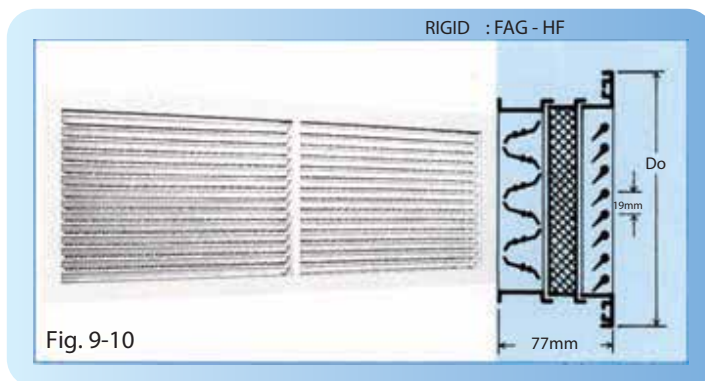


TABLE RIGID 4a SELECTION TABLES FOR AIR GRILLES / REGISTERS

GRILLE SIZE	Air volume		for 0° blades deflection						for 45° blades deflection						Noise criteria		
			effective area	Total pressure		Throw at terminal velocity of		Noise criteria	effective area	Total pressure		Throw at terminal velocity of					
				m ²	Pascals	mm of water	m			m/s	m	m/s	0.75 m/s	0.25 m/s		m	m/s
mm	LPS	CFM	m ²	Pascals	mm of water	m	m/s	m	m/s	m	m/s	0.75 m/s	0.25 m/s	m	m/s	m	m/s
300 x 150 (12" x 6")	94	199	0.023	11	1.1	3.4	4.0	6.1	16	0.019	18	1.80	1.8	2.7	4.3	22	
	118	250		18	1.8	3.7	4.9	6.7	23		28	2.87	2.1	3.6	4.9	29	
	142	301		26	2.6	4.3	5.2	7.3	29		41	4.17	2.7	4.0	5.2	35	
	165	350		35	3.6	4.6	5.8	7.9	34		55	5.64	3.0	4.3	5.8	40	
	189	400		45	4.6	4.9	6.1	8.5	38		72	7.32	3.7	4.6	6.1	45	
	212	449		56	5.7	5.2	6.4	8.8	42		90	9.19	4.0	5.2	6.7	48	
	94	199	0.033	5	0.5	2.8	3.4	5.8	<15	0.028	7	0.70	1.2	2.1	3.7	<15	
	118	250		7	0.7	3.7	4.3	6.4	<15		11	1.10	2.1	3.4	4.9	<15	
	142	301		10	1.0	4.0	4.9	7.0	<15		15	1.55	2.4	3.7	5.2	20	
	165	350		15	1.5	4.3	5.5	7.6	19		22	2.26	2.7	4.0	5.5	25	
450 x 150 (18" x 6")	189	400		18	1.8	4.6	5.8	7.2	23		27	2.79	3.4	4.3	5.8	29	
	212	449		24	2.4	4.9	6.1	8.5	27		36	3.66	3.7	4.9	6.4	33	
	236	500		26	2.7	5.5	6.7	9.4	30		43	4.34	4.0	5.2	6.4	37	
	260	551		33	3.4	5.8	7.0	9.8	33		53	5.36	4.3	5.5	7.0	40	
	283	600		43	4.4	6.1	7.3	10.1	36		63	6.43	4.6	5.5	7.3	42	
	330	699		53	5.4	6.4	7.6	10.4	41		84	8.56	4.9	6.1	7.6	47	
	94	199	0.036	2	0.23	2.5	3.1	5.2	<15	0.030	3	0.35	0.9	1.8	3.4	<15	
	118	250		3	0.35	3.6	4.2	6.4	<15		5	0.54	2.0	3.1	4.6	<15	
	142	301		5	0.46	3.8	4.7	6.8	<15		7	0.74	2.2	3.5	5.0	<15	
	165	350		10	1.00	4.3	5.5	7.6	16		16	1.65	2.7	4.0	5.2	22	
300 x 250 (12" x 10")	189	400		15	1.50	4.6	5.8	7.9	20		23	2.31	3.1	4.3	5.8	26	
	212	449		18	1.80	4.9	6.1	8.5	24		27	2.79	3.4	4.6	6.1	30	
	236	500		23	2.30	5.2	6.4	9.1	27		35	3.58	3.9	4.3	6.2	33	
	260	551		25	2.60	5.5	6.7	9.8	30		41	4.19	4.3	5.2	6.7	36	
	283	600		32	3.25	5.8	7.0	10.1	33		50	5.08	4.6	5.5	7.0	39	
	330	699		45	4.62	6.4	7.3	10.1	38		67	6.81	4.9	5.8	7.3	44	
	378	801		54	5.50	6.4	7.6	10.7	42		86	8.76	5.2	6.1	7.9	48	

TABLE RIGID 4c SELECTION TABLES FOR AIR GRILLES / REGISTERS

GRILLE SIZE	Air volume		for 0° blades deflection						for 45° blades deflection						Noise criteria		
			effective area	Total pressure		Throw at terminal velocity of		Noise criteria	effective area	Total pressure		Throw at terminal velocity of		Noise criteria			
				m ²	Pascals	mm of water	m			m/s	m	m/s	m			m/s	m
mm	LPS	CFM	m ²	Pascals	mm of water	m	m/s	m	m/s	m	m/s	m	m/s	m	m/s	m	m/s
600 x 200 (24" x 8")	94	199	0.073	1	0.06	2.0	2.6	4.6	<15	0.061	1	0.077	0.6	1.3	2.9	<15	
	118	250		1	0.08	2.9	3.7	6.2	<15		1	0.119	1.5	2.8	4.1	<15	
	142	301		1	0.09	3.4	4.3	6.3	<15	1	0.115	1.8	3.1	4.6	<15		
	165	350		2	0.18	4.0	5.2	7.3	<15	3	0.270	2.4	3.7	4.9	<15		
	189	400		2	0.20	4.3	5.5	7.6	<15	3	0.296	2.8	4.0	5.5	<15		
	212	449		1	0.08	4.5	5.7	8.3	<15	1	0.126	2.9	4.3	5.8	<15		
	236	500		2	0.18	4.5	6.1	8.8	<15	2	0.240	3.6	4.4	6.0	<15		
	260	551		0	0.05	4.9	6.3	9.2	<15	1	0.074	3.9	5.0	6.4	<15		
	283	600		0	0.04	5.4	6.6	9.4	<15	1	0.056	4.2	5.3	6.8	<15		
	330	699		10	1.07	5.5	6.7	9.7	<15	15	1.520	4.6	5.5	7.0	17		
	378	801		12	1.24	5.8	7.3	10.0	15	18	1.830	4.9	5.8	7.3	22		
	425	900		17	1.70	6.4	7.6	11.0	19	24	2.440	5.2	6.1	7.8	25		
	472	1000		21	2.10	7.0	8.5	11.6	23	30	3.100	5.5	6.4	7.9	29		
	566	1199		31	3.18	7.9	9.4	12.8	28	44	4.520	5.8	7.0	8.2	35		
	661	1400		42	4.30	9.1	11.0	14.9	33	60	6.120	6.4	7.6	9.1	40		
	755	1600		54	5.50	9.8	11.9	15.5	37	77	7.870	6.7	8.2	9.4	44		
850	1801		66	6.70	10.4	12.8	16.5	41	97	9.870	7.3	8.1	10.4	48			
750 x 200 (30" x 8")	260	551	0.097	0	0.01	4.6	6.0	9.0	<15	0.081	0	0.016	3.9	4.9	6.2	<15	
600 x 250 (24" x 10")	283	600		0	0.01	5.2	6.4	9.1	<15		0	0.011	4.1	5.2	6.7	<15	
	330	699		2	0.17	5.2	6.3	9.3	<15	2	0.205	4.4	5.3	6.9	<15		
	378	801		3	0.26	5.5	6.7	9.3	<15	3	0.332	4.6	5.6	7.0	<15		
	425	900		10	0.99	6.1	7.0	10.7	<15	13	1.370	4.9	6.1	7.3	<15		
	472	1000		11	1.12	6.7	7.9	11.3	<15	15	1.570	5.2	6.4	7.9	18		
500 x 300 (20" x 12")	566	1199		18	1.88	7.6	8.8	12.2	18	25	2.540	5.5	6.7	8.2	24		
	661	1400		24	2.44	8.8	10.1	13.4	23	33	3.350	5.8	7.0	8.5	29		
	755	1600		30	3.05	9.4	11.6	15.2	27	42	4.240	6.4	7.6	8.8	33		
	850	1801		39	3.96	10.1	12.2	15.8	31	54	5.460	7.0	8.2	9.4	37		
	944	2000		37	3.78	10.7	12.8	16.8	34	66	6.780	7.5	8.5	9.8	40		
	1133	2400		60	6.10	11.3	14.0	18.0	40	95	9.680	8.5	9.8	11.0	46		

TABLE RIGID 4a SELECTION TABLES FOR AIR GRILLES / REGISTERS

GRILLE SIZE	Air volume		for 0° blades deflection						for 45° blades deflection						Noise criteria		
			effective area	Total pressure		Throw at terminal velocity of		Noise criteria	effective area	Total pressure		Throw at terminal velocity of		Noise criteria			
				m ²	Pascals	mm of water	m			m/s	0.75 m/s	0.25 m/s	m			m/s	0.75 m/s
300 x 150 (12" x 6")	LPS	CFM	m ²	Pascals	mm of water	m	m/s	0.75 m/s	0.25 m/s	m	m/s	0.75 m/s	0.25 m/s	m	m/s	0.75 m/s	0.25 m/s
	94	199	0.023	11	1.1	3.4	4.0	6.1	16	0.019	18	1.80	1.8	2.7	4.3	22	
	118	250		18	1.8	3.7	4.9	6.7	23		28	2.87	2.1	3.6	4.9	29	
	142	301		26	2.6	4.3	5.2	7.3	29		41	4.17	2.7	4.0	5.2	35	
	165	350		35	3.6	4.6	5.8	7.9	34		55	5.64	3.0	4.3	5.8	40	
	189	400		45	4.6	4.9	6.1	8.5	38		72	7.32	3.7	4.6	6.1	45	
	212	449		56	5.7	5.2	6.4	8.8	42		90	9.19	4.0	5.2	6.7	48	
	94	199	0.033	5	0.5	2.8	3.4	5.8	<15	0.028	7	0.70	1.2	2.1	3.7	<15	
	118	250		7	0.7	3.7	4.3	6.4	<15		11	1.10	2.1	3.4	4.9	<15	
	142	301		10	1.0	4.0	4.9	7.0	<15		15	1.55	2.4	3.7	5.2	20	
450 x 150 (18" x 6")	165	350		15	1.5	4.3	5.5	7.6	19		22	2.26	2.7	4.0	5.5	25	
	189	400		18	1.8	4.6	5.8	7.2	23		27	2.79	3.4	4.3	5.8	29	
	212	449		24	2.4	4.9	6.1	8.5	27		36	3.66	3.7	4.9	6.4	33	
	236	500		26	2.7	5.5	6.7	9.4	30		43	4.34	4.0	5.2	6.4	37	
	260	551		33	3.4	5.8	7.0	9.8	33		53	5.36	4.3	5.5	7.0	40	
	283	600		43	4.4	6.1	7.3	10.1	36		63	6.43	4.6	5.5	7.3	42	
	330	699		53	5.4	6.4	7.6	10.4	41		84	8.56	4.9	6.1	7.6	47	
	94	199	0.036	2	0.23	2.5	3.1	5.2	<15	0.030	3	0.35	0.9	1.8	3.4	<15	
	118	250		3	0.35	3.6	4.2	6.4	<15		5	0.54	2.0	3.1	4.6	<15	
	142	301		5	0.46	3.8	4.7	6.8	<15		7	0.74	2.2	3.5	5.0	<15	
500 x 150 (20" x 6")	165	350		10	1.00	4.3	5.5	7.6	16		16	1.65	2.7	4.0	5.2	22	
	189	400		15	1.50	4.6	5.8	7.9	20		23	2.31	3.1	4.3	5.8	26	
	212	449		18	1.80	4.9	6.1	8.5	24		27	2.79	3.4	4.6	6.1	30	
	236	500		23	2.30	5.2	6.4	9.1	27		35	3.58	3.9	4.3	6.2	33	
	260	551		25	2.60	5.5	6.7	9.8	30		41	4.19	4.3	5.2	6.7	36	
	283	600		32	3.25	5.8	7.0	10.1	33		50	5.08	4.6	5.5	7.0	39	
	330	699		45	4.62	6.4	7.3	10.1	38		67	6.81	4.9	5.8	7.3	44	
	378	801		54	5.50	6.4	7.6	10.7	42		86	8.76	5.2	6.1	7.9	48	
	300 x 250 (12" x 10")	94	199		2	0.23	2.5	3.1	5.2	<15		3	0.35	0.9	1.8	3.4	<15
		118	250		3	0.35	3.6	4.2	6.4	<15		5	0.54	2.0	3.1	4.6	<15
142		301		5	0.46	3.8	4.7	6.8	<15		7	0.74	2.2	3.5	5.0	<15	
165		350		10	1.00	4.3	5.5	7.6	16		16	1.65	2.7	4.0	5.2	22	
189		400		15	1.50	4.6	5.8	7.9	20		23	2.31	3.1	4.3	5.8	26	
212		449		18	1.80	4.9	6.1	8.5	24		27	2.79	3.4	4.6	6.1	30	
236		500		23	2.30	5.2	6.4	9.1	27		35	3.58	3.9	4.3	6.2	33	
260		551		25	2.60	5.5	6.7	9.8	30		41	4.19	4.3	5.2	6.7	36	
283		600		32	3.25	5.8	7.0	10.1	33		50	5.08	4.6	5.5	7.0	39	
330		699		45	4.62	6.4	7.3	10.1	38		67	6.81	4.9	5.8	7.3	44	

TABLE RIGID 4d SELECTION TABLES FOR AIR GRILLES / REGISTERS

GRILLE SIZE	Air volume		for 0° blades deflection						for 45° blades deflection						Noise criteria		
			effective area	Total pressure		Throw at terminal velocity of		Noise criteria	effective area	Total pressure	Throw at terminal velocity of		Noise criteria				
				Pascals	mm of water	m	m				0.75 m/s	0.25 m/s		m		m	0.75 m/s
mm	LPS	CFM	m ²	Pascals	mm of water	m	m	m ²	Pascals	mm of water	m	m	m ²	Pascals	mm of water	m	m
600 x 150 (24"x6")	94	199	0.049	1	0.13	2.3	2.9	5.0	<15	0.040	2	0.19	0.8	1.7	3.2	<15	
	118	250		2	0.20	3.4	4.0	6.3	<15		3	0.30	1.9	3.0	4.4	<15	
	142	301		2	0.25	3.6	4.5	6.6	<15		4	0.40	2.0	3.3	4.8	<15	
	165	350		4	0.44	4.2	5.4	7.5	<15		6	0.65	2.5	3.8	5.2	19	
450 x 200 (18" x 8")	189	400		5	0.49	4.5	5.7	7.9	<15		7	0.75	3.0	4.1	5.7	16	
	212	449		8	0.84	4.6	5.8	8.5	<15		13	1.32	3.1	0.6	6.1	18	
	236	500		12	1.24	4.9	6.4	9.1	16		18	1.83	3.7	4.9	6.4	22	
	260	551		14	1.40	5.2	6.7	9.5	19		21	2.11	4.0	5.2	6.7	25	
300 x 300 (12" x 12")	283	600		18	1.80	5.8	7.0	9.8	22		26	2.67	4.3	5.5	7.0	28	
	330	699		24	2.44	10.1	7.3	6.1	26		35	3.61	4.6	5.8	7.3	33	
	378	801		31	3.15	6.4	7.6	10.7	31		46	4.65	5.2	6.1	7.6	37	
	425	900		38	3.89	7.0	8.2	11.6	34		57	5.82	5.5	6.7	8.2	41	
750 x 150 (30" x 6")	472	1000		46	4.70	7.6	9.2	12.5	38		69	7.06	5.8	7.0	8.5	44	
	566	1199		66	6.73	8.2	11.3	14.0	43		98	10.00	6.4	7.6	9.2	50	
	142	301	0.067	1	0.12	3.4	4.3	6.4	<15	0.056	2	0.19	1.9	3.1	4.6	<15	
	165	350		2	0.23	4.1	5.3	7.4	<15		3	0.33	2.4	3.7	4.9	<15	
450 x 250 (18" x 10")	189	400		2	0.24	4.4	5.6	7.6	<15		4	0.37	2.8	4.0	5.6	<15	
	212	449		1	0.11	4.5	5.7	8.3	<15		2	0.17	2.9	4.4	5.9	<15	
	236	500		2	0.24	4.6	6.2	8.9	<15		3	0.34	3.6	4.4	6.1	<15	
	260	551		1	0.09	5.0	6.3	9.3	<15		1	0.12	3.9	5.1	6.5	<15	
450 x 250 (18" x 10")	283	600		10	1.02	5.5	6.7	9.4	<15		14	1.42	4.3	5.3	7.0	16	
	330	699		12	1.20	5.8	7.0	9.7	<15		17	1.75	4.6	5.5	7.3	21	
	378	801		16	1.68	6.1	7.3	10.0	19		23	2.39	4.9	5.8	7.3	25	
	425	900		21	2.16	6.7	7.9	11.3	22		30	3.10	5.2	6.1	7.9	29	
450 x 250 (18" x 10")	472	1000		26	2.67	7.3	8.8	11.9	26		38	3.84	5.5	6.4	8.2	32	
	566	1199		35	3.56	8.2	9.8	13.4	32		51	5.21	5.8	7.0	8.5	38	
	661	1400		47	4.80	9.4	11.3	14.6	36		69	7.04	6.4	7.6	9.1	43	
	755	1600		63	6.40	9.8	11.9	15.8	41		92	9.35	6.7	8.2	9.8	47	

TABLE RIGID 4e SELECTION TABLES FOR AIR GRILLES / REGISTERS

GRILLE SIZE	Air volume		for 0° blades deflection						for 45° blades deflection						Noise criteria	
			effective area	Total pressure		Throw at terminal velocity of		Noise criteria	effective area	Total pressure		Throw at terminal velocity of		Noise criteria		
				m ²	Pascals	mm of water	m			m/s	m	m	0.75 m/s			0.25 m/s
mm	LPS	CFM	m ²	Pascals	mm of water	m	m	m	Pascals	mm of water	m	m	m	m	m	m
300 x 200 (12" x 8")	94	199	0.03	6	0.6	3.1	3.7	5.8	<15	0.025	10	0.97	1.5	2.4	4.0	<15
	118	250		9	0.9	3.7	4.6	6.7	<15	14	1.47	2.1	3.0	4.9	19	19
	142	301		15	1.5	4.3	4.9	7.3	19	22	2.26	2.4	3.7	5.5	25	25
	165	350		18	1.8	4.6	5.8	7.9	24	28	2.90	2.7	4.0	5.8	30	30
	189	400		25	2.5	4.9	6.1	8.5	28	38	3.90	3.4	4.3	6.1	34	34
	212	449		29	3.0	5.2	6.4	8.8	31	46	4.72	3.7	4.9	6.4	38	38
	236	500		36	3.7	5.5	6.7	9.4	35	58	5.89	4.0	5.2	6.7	41	41
	260	551		44	4.5	5.8	7.0	10.1	38	70	7.16	4.3	5.5	7.3	44	44
	94	199	0.057	1	0.06	2.2	2.8	4.9	<15	0.048	1	0.14	0.7	1.5	3.1	<15
	118	250		1	0.14	3.2	3.9	6.3	<15	2	0.21	1.8	2.9	4.3	<15	<15
500 x 200 (20" x 8")	142	301		2	0.17	3.5	4.4	6.5	<15	3	0.28	2.0	3.2	4.7	<15	<15
	165	350		3	0.32	4.1	5.3	7.4	<15	5	0.47	2.5	3.8	5.1	<15	<15
	189	400		3	0.35	4.4	5.6	7.8	<15	5	0.53	2.9	4.1	5.6	<15	<15
	212	449		2	0.19	4.6	5.8	8.4	<15	3	0.28	3.1	4.5	6.0	<15	<15
	236	500		4	0.40	4.8	6.3	9.0	<15	6	0.57	3.7	4.5	6.2	<15	<15
	260	551		11	1.12	5.2	6.4	9.5	<15	16	1.63	4.0	5.2	6.7	19	19
	283	600		12	1.24	5.5	6.7	9.8	16	18	1.83	4.3	5.5	7.0	22	22
	330	699		17	1.75	5.8	7.0	10.1	20	25	2.57	4.6	5.8	7.3	27	27
	378	801		23	2.31	6.1	7.3	10.4	25	33	3.38	4.9	6.1	7.6	31	31
	425	900		29	2.92	7.0	8.2	11.3	28	42	4.27	5.2	6.4	7.9	35	35
472	1000		35	3.56	7.6	9.2	12.2	32	51	5.21	5.8	6.7	8.2	38	38	
566	1199		49	4.95	8.2	10.1	13.7	36	72	7.34	6.4	7.3	8.9	44	44	
661	1400		63	6.40	9.8	11.9	15.8	41	98	10.03	7.0	7.9	9.4	49	49	

TABLE RIGID 4f SELECTION TABLES FOR AIR GRILLES / REGISTERS

GRILLE SIZE	Air volume		for 0° blades deflection						for 45° blades deflection						Noise criteria		
			effective area		Total pressure		Throw at terminal velocity of		Noise criteria	effective area	Total pressure	Throw at terminal velocity of					
			LPS	CFM	m ²	Pascals	mm of water	m				m	0.75 m/s	0.5 m/s		0.25 m/s	0.75 m/s
500 x 250 (20" x 10")	165	350	0.077	2	0.16	4.0	5.2	7.3	<15	0.064	2	0.234	2.4	3.7	4.8	<15	
	189	400		2	0.17	4.3	5.5	7.5	<15		3	0.255	2.7	4.0	5.5	<15	
	212	449		1	0.07	4.4	5.6	8.3	<15		1	0.103	2.8	4.3	5.8	<15	
	236	500		1	0.15	4.4	6.1	8.8	<15		2	0.200	3.5	4.3	6.0	<15	
	260	551		0	0.04	4.9	6.2	9.2	<15		1	0.054	3.8	5.0	6.4	<15	
	283	600		0	0.03	5.4	6.6	9.4	<15		0	0.040	4.2	5.3	6.8	<15	
	330	699		10	1.02	5.5	6.4	9.4	<15		14	1.420	4.6	5.5	7.0	15	
	378	801		11	1.17	5.8	7.0	9.7	<15		16	1.680	4.9	5.8	7.3	20	
	425	900		15	1.57	6.4	7.3	11.0	17		22	2.260	5.2	6.1	7.6	23	
	472	1000		20	2.03	7.0	8.2	11.6	21		28	2.870	5.2	6.4	7.9	27	
	566	1199		27	2.74	7.9	9.1	12.5	26		38	3.910	5.5	7.0	8.2	33	
	661	1400		37	3.76	9.1	10.7	14.0	31		53	5.380	6.1	7.6	8.8	38	
	755	1600		50	5.13	9.4	11.6	15.2	35		71	7.260	6.7	7.9	9.1	42	
	850	1801		62	6.35	10.1	12.8	16.2	39		88	9.020	7.3	8.2	9.4	46	
	944	2000		77	7.87	10.7	13.4	17.1	43		110	11.180	7.9	8.8	10.1	49	
	750 x 250 (30" x 10")	330	699	0.126	1	0.07	4.9	6.0	9.0	<15	0.105	1	0.08	4.3	5.1	6.7	<15
		378	801		1	0.10	5.2	6.5	8.9	<15		1	0.12	4.4	5.5	6.7	<15
425		900		1	0.14	5.5	6.5	10.3	<15		2	0.18	4.5	5.7	7.0	<15	
472		1000		1	0.13	6.1	7.4	10.6	<15		2	0.16	4.9	5.9	7.4	<15	
566		1199		10	0.97	7.0	8.5	11.6	<15		13	1.35	5.2	6.1	7.3	<15	
661		1400		14	1.40	8.2	9.8	12.8	<15		19	1.91	5.5	6.7	7.9	19	
755		1600		18	1.83	8.8	11.0	14.3	17		25	2.51	6.1	7.3	8.5	23	
850		1801		23	2.31	9.5	11.9	15.5	20		31	3.15	6.4	7.6	9.1	27	
944		2000		27	2.80	10.1	12.5	16.5	24		38	3.86	7.0	8.2	9.4	30	
1133		2400		42	4.27	10.7	13.7	17.4	30		55	5.64	7.6	8.8	10.1	36	
1322		2801		30	3.02	11.6	14.6	18.0	34		75	7.62	8.5	9.8	11.0	41	
1511		3201		72	7.34	12.2	15.5	18.9	39		98	10.03	9.1	10.7	11.9	45	
1699		3600		63	6.45	12.8	16.5	19.8	42		121	12.37	10.1	11.6	12.8	49	

TABLE RIGID 4g SELECTION TABLES FOR AIR GRILLES / REGISTERS

GRILLE SIZE	Air volume		for 0° blades deflection				for 45° blades deflection				Noise criteria					
			effective area	Total pressure	Throw at terminal velocity of		effective area	Total pressure	Throw at terminal velocity of							
					0.75 m/s	0.5 m/s			0.75 m/s	0.5 m/s						
mm	LPS	CFM	m ²	Pascals	mm of water	m	m	m	m	Pascals	mm of water	m	m	m		
900 x 200 (36" x 8")	330	699	0.121	1	0.08	5.0	6.1	9.1	<15	0.100	1	0.093	4.3	5.1	6.8	<15
	378	801		1	0.12	5.2	6.5	8.9	<15		1	0.145	4.4	5.5	6.8	<15
	425	900		2	0.17	5.6	6.6	10.4	<15		2	0.213	4.6	5.7	7.1	<15
	472	1000		8	0.86	6.1	7.6	10.7	<15		11	1.170	4.9	5.8	7.3	<15
	566	1199		10	1.02	7.3	8.5	11.6	<15		14	1.450	5.2	6.1	7.6	<15
600 x 300 (24" x 12")	661	1400		14	1.47	8.2	9.8	13.1	<15		20	2.060	5.8	6.7	7.9	20
	755	1600		19	1.93	8.8	11.0	14.6	18		26	2.690	6.1	7.3	8.5	25
	850	1801		26	2.70	9.8	11.9	15.5	22		36	3.660	6.7	7.9	9.1	29
	944	2000		32	3.23	10.4	12.5	16.5	26		43	4.390	7.3	8.2	9.4	32
	1133	2400		42	4.32	11.0	13.7	17.4	31		62	6.32	7.9	9.1	10.4	38
1050 x 200 (42" x 8")	1322	2801		58	5.87	11.6	14.6	18.0	36		80	8.180	8.8	10.4	11.3	43
	1511	3201		79	8.03	12.2	15.5	18.9	40		108	11.0	9.8	11.0	12.2	47
	330	699	0.144	0	0.05	4.8	5.9	8.9	<15	0.120	0	0.05	4.2	5.0	6.7	<15
	378	801		1	0.06	5.0	6.3	8.7	<15		1	0.07	4.3	5.4	6.6	<15
	425	900		1	0.09	5.3	6.3	10.1	<15		1	0.11	4.4	5.5	6.9	<15
900 x 300 (36" x 12")	472	1000		1	0.08	5.9	7.2	10.4	<15		1	0.10	4.7	5.7	7.2	<15
	566	1199		9	0.90	7.0	8.2	11.3	<15		11	1.14	5.2	6.1	7.3	<15
	661	1400		10	1.00	7.9	9.4	12.5	<15		13	1.37	5.2	6.4	7.6	<15
	755	1600		13	1.37	8.5	10.7	14.3	<15		18	1.88	5.8	7.0	8.2	18
	850	1801		18	1.80	9.4	11.6	15.2	15		24	2.44	6.4	7.3	8.8	22
900 x 300 (36" x 12")	944	2000		22	2.24	10.1	12.5	16.5	19		30	3.02	7.0	7.9	9.1	25
	1133	2400		34	3.45	10.1	13.7	17.4	25		42	4.29	7.6	8.4	10.1	31
	1322	2801		44	4.45	11.6	14.3	18.0	29		59	5.97	8.2	9.5	11.0	35
	1511	3201		54	5.51	11.9	15.2	18.6	34		74	7.54	9.1	10.4	11.9	40
	1699	3600		73	7.44	12.5	16.2	19.5	37		98	10.01	10.1	11.3	12.5	44

TABLE RIGID 4h SELECTION TABLES FOR AIR GRILLES / REGISTERS

GRILLE SIZE	Air volume		for 0° blades deflection						for 45° blades deflection						Noise criteria		
			effective area	Total pressure		Throw at terminal velocity of		Noise criteria	effective area	Total pressure		Throw at terminal velocity of		Noise criteria			
				Pascals	mm of water	m	m			m/s	m/s	m	m			Pascals	mm of water
mm	LPS	CFM	m ²	Pascals	mm of water	m	m	m/s	m/s	m	m	Pascals	mm of water	m	m	m/s	m/s
900 x 250 (36"x10")	378	801	0.156	0	0.05	4.9	6.2	8.5	<15	0.13	1	0.05	4.3	5.4	6.5	<15	<15
	425	900		1	0.06	5.2	6.1	10.0	<15		1	0.07	4.3	5.5	6.7	<15	<15
	472	1000		1	0.05	5.7	7.0	10.2	<15		1	0.06	4.7	5.6	7.1	<15	<15
750 x 300 (30" x 12")	566	1199		1	0.06	6.8	7.8	10.9	<15		1	0.08	4.9	5.8	7.1	<15	<15
	661	1400		9	0.91	7.9	9.4	12.5	<15		12	1.22	5.2	6.1	7.6	<15	<15
	755	1600		12	1.27	8.5	10.7	14.0	<15		17	1.70	5.8	7.0	8.2	15	15
1050 x 250 (42" x 10")	850	1801		16	1.68	9.1	11.6	15.2	<15		22	2.21	6.4	7.3	8.5	19	19
	944	2000		20	2.08	9.8	12.2	15.2	16		27	2.74	6.7	7.9	8.8	22	22
	1133	2400		26	2.69	10.4	13.4	17.1	22		36	3.63	7.3	8.5	9.8	28	28
900 x 300 (36" x 12")	1322	2801		35	3.61	11.3	14.0	17.7	26		48	4.90	8.2	9.2	11.0	33	33
	1511	3201		48	4.85	11.9	14.9	18.3	31		64	6.55	9.1	10.1	11.8	37	37
	1699	3600		60	6.17	12.5	15.8	19.2	34		81	8.31	9.7	11.0	12.5	41	41
1050 x 250 (42" x 10")	378	801	0.190	0	0.03	4.9	6.2	8.4	<15	0.16	0	0.04	4.2	5.4	6.4	<15	<15
	425	900		0	0.05	5.1	6.0	9.9	<15		1	0.06	4.3	5.4	6.7	<15	<15
	472	1000		0	0.04	5.6	6.9	10.0	<15		0	0.05	4.6	5.6	7.0	<15	<15
900 x 300 (36" x 12")	566	1199		0	0.05	6.7	7.6	10.7	<15		1	0.06	4.8	5.7	6.9	<15	<15
	661	1400		1	0.09	7.8	9.0	11.9	<15		1	0.11	5.0	6.1	7.3	<15	<15
	755	1600		1	0.07	8.3	10.5	13.9	<15		1	0.09	5.7	6.8	8.0	<15	<15
900 x 300 (36" x 12")	850	1801		9	0.94	9.1	11.3	14.9	<15		13	1.30	5.8	7.3	8.2	<15	<15
	944	2000		13	1.30	9.8	12.2	15.8	<15		17	1.73	6.4	7.8	8.5	<15	<15
	1133	2400		17	1.78	10.4	13.1	17.1	<15		24	2.41	7.3	8.2	9.5	20	20
1050 x 250 (42" x 10")	1322	2801		25	2.57	11.3	14.0	17.7	19		33	3.40	7.9	9.1	10.7	25	25
	1511	3201		33	3.40	11.9	14.9	18.3	23		44	4.50	8.8	10.1	11.6	30	30
	1699	3600		42	4.27	12.5	15.5	18.9	27		55	5.66	9.4	11.0	12.2	33	33

Noise criteria is based on 10dB room attenuation
 Damper is fully open condition
 Throw values are with ceiling effect (Throw values may be reduced by 15 to 20% for air flow without ceiling effect)