ALANDALOSIA

FOR AIR OUTLET

CATALOGUE NO 8

REGISTER

Air Outlet Andalosia

WWW.ANDALOSIA.COM

OUR PRODUCTS

SELECTION GUIDE

1- SQUARE CEILING DIFFUSER
2- ROUND CEILING DIFFUSER
3- SWIRL DIFFUSER
4- PERFORATED CEILING DIFFUSER
5- LINEAR SLOT DIFFUSER
6- LINEAR CEILING DIFFUSER
7- LINEAR BAR GRILL
8- REGISTER
9- FLOOR & PERFPRATED FLOOR GRILL
10- TRANSFER GRILL
11- ACCESS PANEL
12- LOUVER
13- SAND TRAP LOUVER
14- JET NOZZLE
15- BALL JET NOZZLE
16- DRUM JET NOZZLE
17- DISC VALVE
18- NON RETURN DAMPER(SHUTTER)
19- VOLUME DAMPER
20- FIRE DAMPER
21- SMOKE DAMPER
22- DUCT ACCESS DOOR

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Air Outlet Andalosia

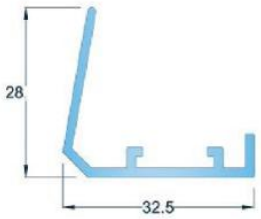
INTERTEK

SINGLE
DEFLECTION REGISTER

A fully adjustable register suitable for supply or extract application.
Single deflection register have one bank of fully adjustable blades,which are held in place by high tensile spring wire. With maximum free area of around 80%,and air dynamic tear drop shaped blades.
Single deflection registers are effective extract register creating minimum noise and pressure drop.
For supply , aim the blade in one direction for a target throw or spread then for a wide , gentle diffusion.
It's suitable for high side wall , soffit or duct mounting.
It's used for heating , ventilation and cooling application

SPECIFICATION

FRAME
Extruded aluminum

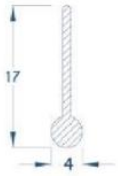


Single deflection frame

BLADE
Extruded aluminum - solid section

BLADE FEPTH 17 mm

SIZE
Socked in many standard sizes
Other sizes , enquire.

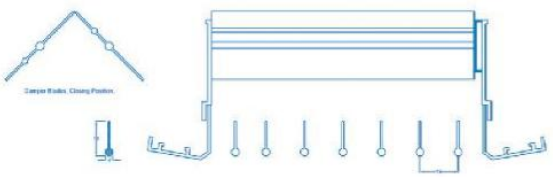


Single deflection blade

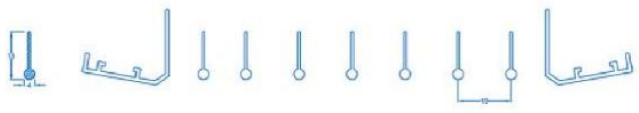
FINISH
Standard mill finish or powder coated

ACCORDING TO APPLICATION

a) supply register with damper


Single deflection ,0°

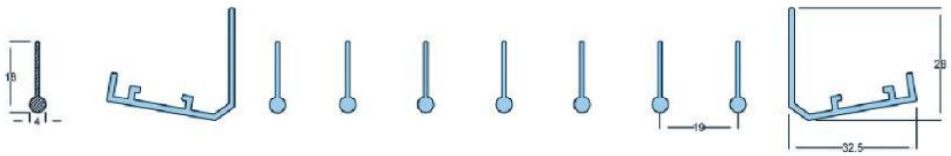
b) returen without damper


Single deflection ,0°

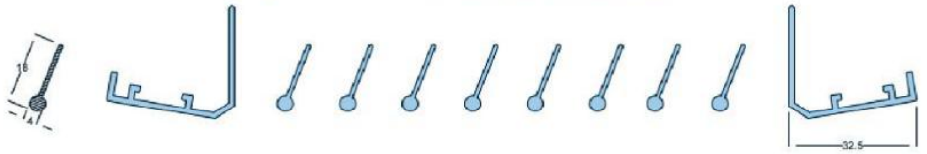
TYPE OF DEFLECTION

The blades deflection uponwhich the performance data is based are optained by the individual adjustment in our supplay register ,in order to satesfy air disrubution requrment.
To optain long throw and narrow air pattern used zero degree and 22.5 degree deflection for shorter throw and wide air paterren used 45 degree deflection

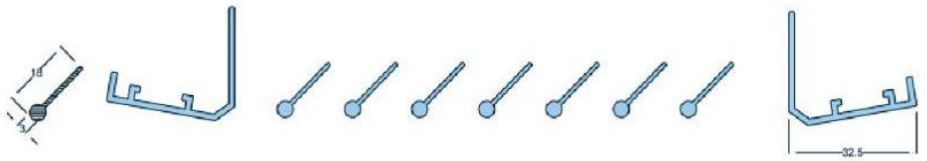
(1) 0° DEFLECTION



(2) 22.5° DEFLECTION



(3) 45° DEFLECTION

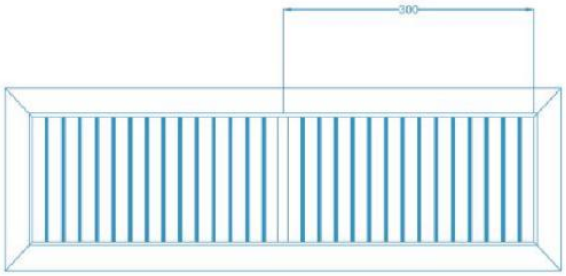


TYPE OF DEFLECTION

according to the air ditrubution direction ,single deflection rejister may be divided into the following two types

A) VERTICAL

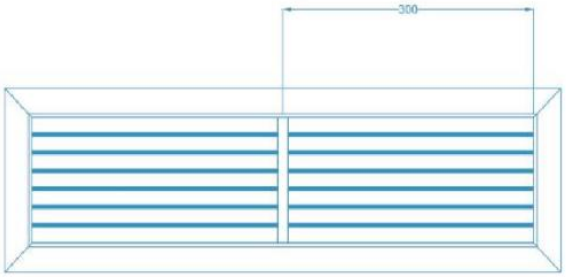
consisting of one bank of individual adjusted blades aligned with the verical diminsion



Single Deflection Register,0° Vertical type. 300 mm Divider space

B) HORIZONTAL

consisting of one bank of individual adjusted blades aligned with the horizontal diminsion



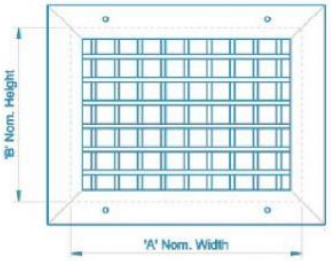
Single Deflection Register,0° Horizontal type. 300 mm Divider space

DOUBLE
DEFLECTION REGISTER

With two banks of individually adjustable blades, Series DD double deflection grilles allow further control over throw than Series SD single deflections.

Blades are secured with high tensile spring wire, which provides enough force to keep them in their assigned position, while also allowing easy manual adjustment.

The maximum free area of 80% is identical to that of single deflection grilles, however noise generation and pressure drops are slightly higher, making Series DD double deflection grilles more suitable for supply applications.

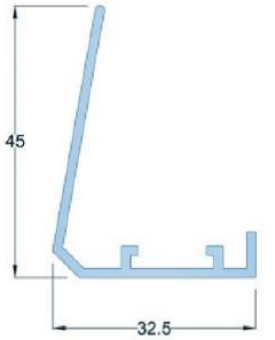


SPECIFICATION

FRAME
Extruded aluminum

BLADE
Extruded aluminum - solid section

BLADE FEPTH
17 mm



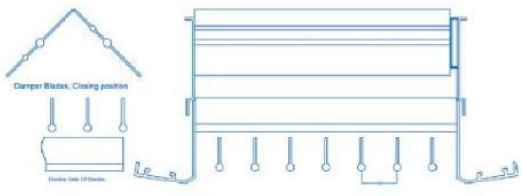
Double deflection frame

SIZE
Socked in many standard sizes
Other sizes , enquire.

FINISH
Standard mill finish or powder coated

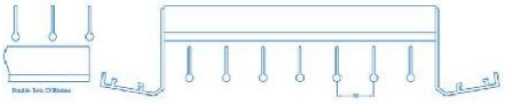
ACCORDING TO APPLICATION

a) supply register with damper



Double deflection ,0°

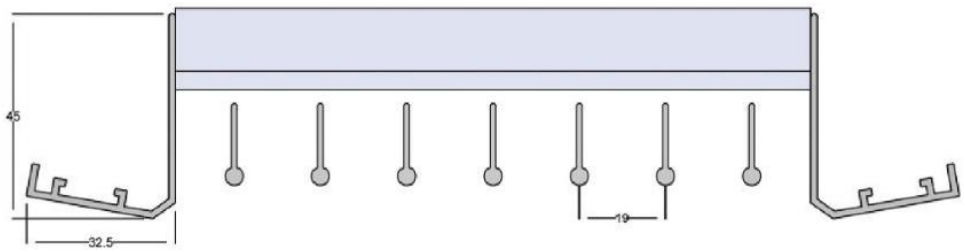
b) returen without damper


Double deflection ,0°

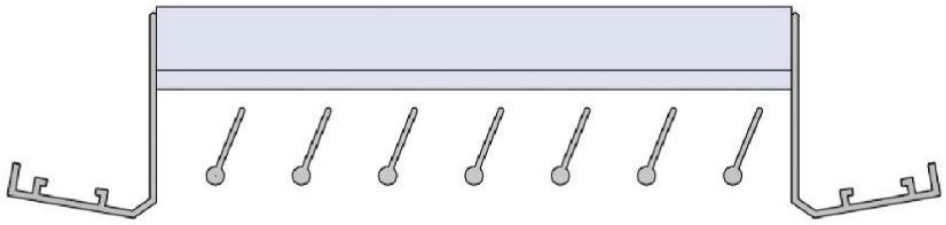
TYPE OF DEFLECTION

The front blades deflection uponwhich the performance data is based are optained by the individual adjustment in our supplay register ,in order to satesfy air disrubution requrment.
To optain long throw and narrow air pattern used zero degree and 22.5 degree deflection for shorter throw and wide air paterren used 45 degree deflection

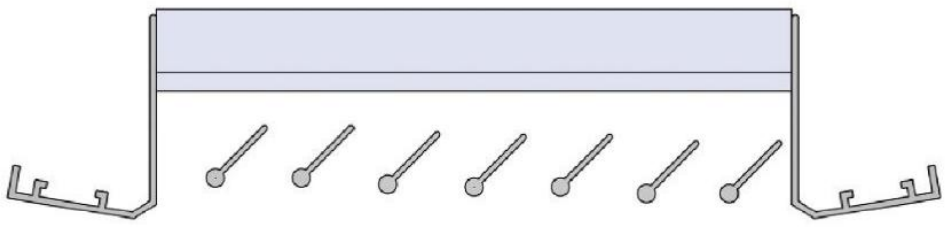
A) 0° DOUBLE SET DEFLECTION



B) 22.5° DOUBLE SET DEFLECTION



C) 45° DOUBLE SET DEFLECTION

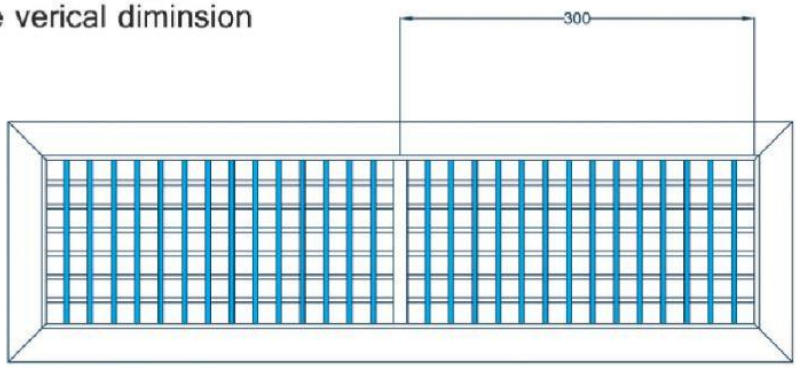


TYPE OF DEFLECTION

according to the air ditrubution direction ,double deflection rejister may be divided into the following two types

A) VERTICAL

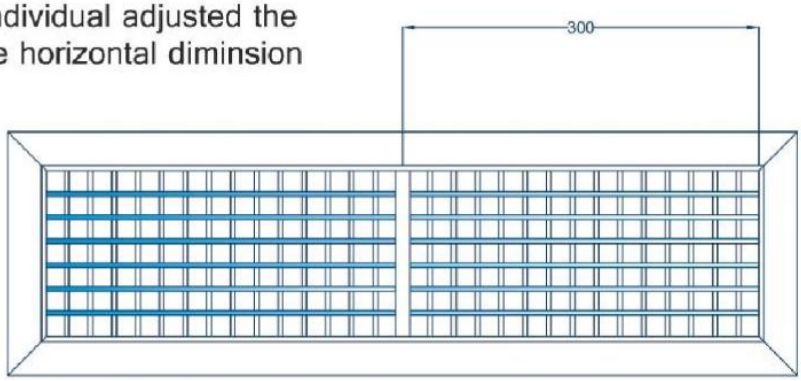
consisting of two bank of individual adjusted the front blades alignd with the verical diminsion



Double Deflection
Register,0°
Vertical type.
300 mm Divider
space

B) HORIZONTAL

consisting of two bank of individual adjusted the front blades alignd with the horizontal diminsion



Double Deflection
Register,0°
Horizontal type.
300 mm Divider
space

SUPPLY AIR REGISTER

ENGINEERING DATA

The most important thing in any air conditioning system is that the selection of a suitable register or grilleto ensure satisfactory performance. In making selections, sound engineering judgment is essential for the permissible drops and noise levels can change greatly with the usage of space, locations of obstacles and available clear mounting heights. So, before selection give close attention to the following considerations.

In general, the occupant should not be subjected to velocities above **50 FPM** for an extruded period of time as the air velocities below **15 FPM** leave a feeling of stagnation and velocities above **65 FPM** create drafts are based on a terminal velocity of **50 FPM** in determining throw. it is assured that longer throws will be required larger drops are probably satisfactory. In more exacting applications outlets should be sized with shorter throws, smaller drops and lower noise levels.

Up to **800 FPM** voltmeter velocity, the noise caused by the grille itself is negligible. The engineer should consider acoustical insulation, vibration etc. because the vibration through duct work or fan noise may be transmitted to the zone of occupancy.

Considerable caution must be exercised in selection and positioning the grille to determine that the air will not drop into the occupied zone. However, it should be also kept in mind that the other extreme of overthrow can cause objectionable down drafts of air along any wall or surface.

Generally, prescribed rule is to select a grille that will have a throw of approximately ¾ of the distance to the opposite wall with its termination at approximately six feet above the floor level as shown in the fig. 1 below.

SUPPLY AIR REGISTER

ENGINEERING DATA

Throw requirement:

The basis performance data will show two Throw values. The maximum throw is the Distance of air travel to a point having air Velocity of 50 FPM and the minimum throw Is the distance of air travel to a point having Air velocity of 100 FPM

Generally,

the throw distance requirement is determined from the supply air terminal to the opposed wall or to the intersection of its air stream with air being delivered from another supply air terminal.

Drop:

Drop is a vertical distance between the lowest horizontal plane having 50 FPM of air down stream and the center of the core.

Velocity:

The average face velocity on the grille's surface as measured with an ANLOR voltmeter with tip No. 2220A minimum of four readings should be taken at random over the face of the grille and averaged.

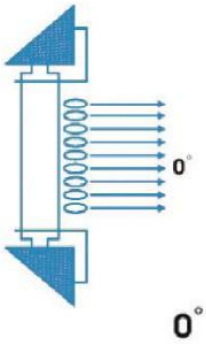
Total pressure:

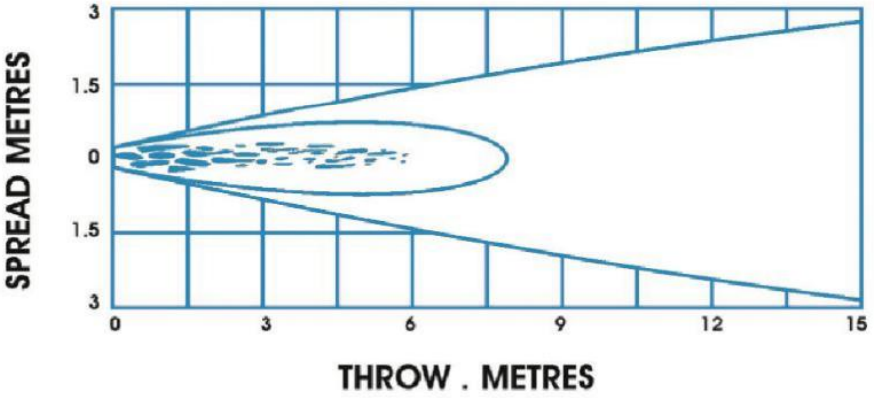
Total pressure is measured in inches of water gauge (w.g). If static pressure drop is required calculate the CORE AREA= (Nominal length-¼) x (Nominal Width-¼) and divide the CFM by this area to determine the CORE VELOCITY. Using this velocity, enter table 1 to find the velocity pressure subtracting velocity pressure from total pressure gives static pressure drop across the grille.

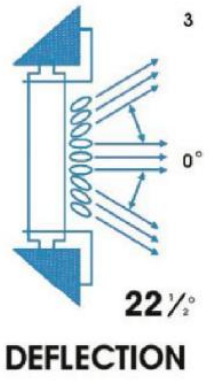
Total pressure = Static pressure + Velocity pressure

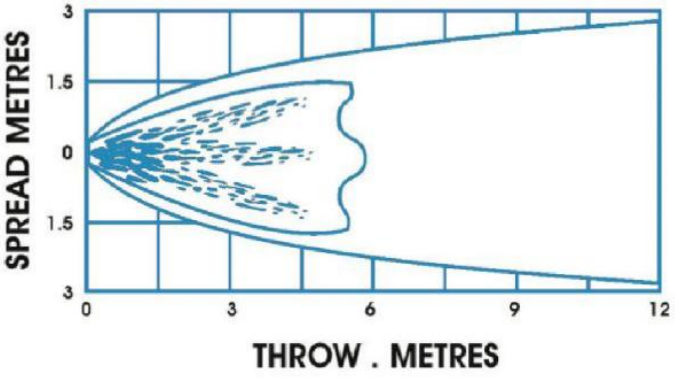
PERFORMANCE DATA

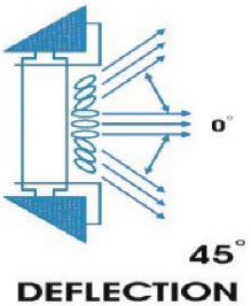
SPREAD CHARACTERISTICS WITH THREE DEFLECTION SETTING

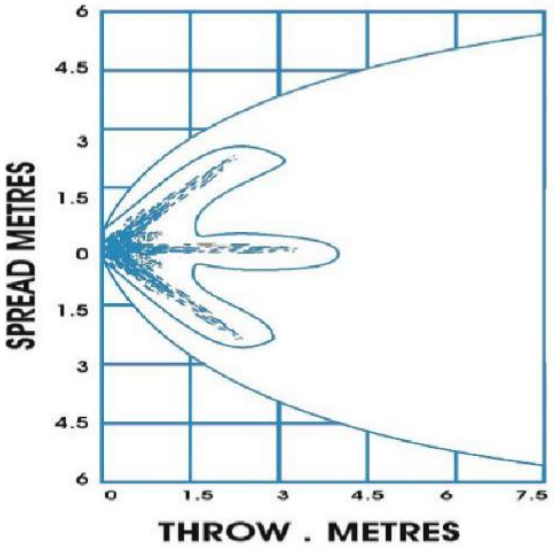












PERFORMANCE DATA

Listed Duct Size (inches)	Alternate Size (inches)	Core Area (sq. ft.)	Ak Factor	Core Velocity		300	400	500	600	700	800	1000	1200	1400
				VP		.006	.010	.016	.022	.031	.040	.062	.090	.122
				TP	0°	.015	.026	.041	.059	.081	.106	.165	.238	.324
					22 1/2°	.017	.030	.047	.068	.093	.122	.190	.274	.373
					45°	.026	.046	.072	.103	.142	.186	.289	.417	.567
6 x 6	8 x 4 10 x 4	0.20		CFM		60	80	100	120	140	160	200	240	280
				NC		—	—	—	14	19	23	29	35	40
			.14	T	0°	5-7-13	7-9-16	8-12-18	10-14-20	11-15-21	12-16-23	15-18-25	16-20-27	17-21-30
			.12		22 1/2°	4-6-10	6-7-13	6-10-14	8-11-16	9-12-17	10-13-18	12-14-20	13-16-22	14-17-24
			.10		45°	3-4-7	4-5-8	4-6-9	5-7-10	6-8-11	6-8-12	8-9-13	8-10-14	9-11-15
8 x 6	10 x 5 12 x 4	0.27		CFM		81	108	135	162	189	216	270	324	378
				NC		—	—	10	15	20	24	30	36	41
			.18	T	0°	5-8-15	8-12-18	10-14-20	11-16-23	13-18-25	15-19-27	17-21-30	18-23-32	19-24-35
			.16		22 1/2°	4-6-12	6-10-14	8-11-16	9-13-18	10-14-20	12-15-22	14-17-24	14-18-26	15-19-28
			.14		45°	3-4-8	4-6-9	5-7-10	6-8-12	7-9-13	8-10-14	9-11-15	9-12-16	10-12-18
10 x 6	12 x 5 16 x 4	0.35		CFM		105	140	175	210	245	280	350	420	490
				NC		—	—	11	16	21	25	31	37	42
			.24	T	0°	6-9-18	9-13-21	10-16-24	12-19-26	15-20-28	17-21-30	20-23-33	21-25-36	22-27-39
			.21		22 1/2°	5-7-14	7-10-17	8-13-19	10-15-21	12-16-22	14-17-24	16-18-26	17-20-29	18-22-31
			.18		45°	3-5-9	5-7-11	5-8-12	6-10-13	8-10-14	9-11-15	10-12-17	11-13-18	11-14-20
8 x 8	14 x 5	0.38		CFM		114	152	190	228	266	304	380	456	532
				NC		—	—	12	17	22	26	32	38	43
			.26	T	0°	6-9-19	9-14-22	11-16-25	13-19-27	16-21-29	18-22-32	19-24-34	21-26-37	23-28-40
			.22		22 1/2°	5-7-15	7-11-18	9-13-20	10-15-22	13-17-23	14-18-26	15-19-27	17-21-30	18-22-32
			.20		45°	3-5-10	5-7-11	6-8-13	7-10-14	8-11-15	9-11-16	10-12-17	11-13-19	12-14-20
12 x 6	18 x 4	0.42		CFM		126	168	210	252	294	336	420	504	588
				NC		—	—	12	17	22	26	32	38	43
			.29	T	0°	6-9-19	9-14-22	11-16-25	13-19-27	16-21-30	18-22-32	19-24-34	21-28-38	23-29-41
			.25		22 1/2°	5-7-15	7-11-18	9-13-20	10-15-22	13-17-24	14-18-26	15-19-27	17-22-30	18-23-33
			.22		45°	3-5-10	5-7-11	6-8-13	7-10-14	8-11-15	9-11-16	10-12-17	11-14-19	12-15-21
14 x 6	10 x 8	0.50		CFM		150	200	250	300	350	400	500	600	700
				NC		—	—	13	18	23	27	33	39	44
			.34	T	0°	6-11-20	10-15-23	12-18-25	15-20-28	16-22-31	19-23-33	21-25-36	23-28-40	25-31-43
			.30		22 1/2°	5-9-16	8-12-18	10-14-20	12-16-22	13-18-25	15-18-26	17-20-29	18-22-32	20-25-34
			.26		45°	3-6-10	5-8-12	6-9-13	8-10-14	8-11-16	10-12-17	11-13-18	12-14-20	13-16-22
12 x 8	16 x 6 24 x 4	0.58		CFM		174	232	290	348	406	464	580	696	812
				NC		—	—	14	19	24	28	34	40	45
			.39	T	0°	7-11-21	10-15-24	12-19-27	15-21-30	17-23-32	20-24-34	22-27-38	24-30-42	26-32-45
			.34		22 1/2°	6-9-17	8-12-19	10-15-22	12-17-24	14-18-26	16-19-27	18-22-30	19-24-34	21-26-36
			.30		45°	4-6-11	5-8-12	6-10-14	8-11-15	9-12-16	10-12-17	11-14-19	12-15-21	13-16-23
10 x 10	14 x 7 26 x 4	0.61		CFM		183	244	305	366	427	488	610	732	854
				NC		—	—	14	19	24	28	34	40	45
			.41	T	0°	7-11-21	10-16-24	13-19-28	16-21-30	17-23-32	20-24-35	23-28-39	24-30-43	27-32-46
			.36		22 1/2°	6-9-17	8-13-19	10-15-22	13-17-24	14-18-26	16-19-28	18-22-31	19-24-34	22-26-37
			.31		45°	4-6-11	5-8-12	7-10-14	8-11-15	9-12-16	10-12-18	12-14-20	12-15-22	14-16-23
18 x 6	14 x 8 28 x 4 30 x 4	0.65		CFM		195	260	325	390	455	520	650	780	910
				NC		—	—	15	20	25	29	35	41	46
			.44	T	0°	7-12-22	11-16-25	13-20-29	16-22-32	18-24-34	21-25-36	24-29-40	25-32-45	28-34-48
			.38		22 1/2°	6-10-18	9-13-20	10-16-23	13-18-26	14-19-27	17-20-29	19-23-32	20-26-36	22-27-38
			.33		45°	4-6-11	6-8-13	7-10-15	8-11-16	9-12-17	11-13-18	12-15-20	13-16-23	14-17-24
12 x 10	20 x 6 24 x 5	0.74		CFM		222	296	370	444	518	592	740	888	1036
				NC		—	—	15	20	25	29	35	41	46
			.50	T	0°	8-13-24	11-17-27	14-21-31	17-24-33	20-26-36	22-27-39	25-31-43	27-33-48	30-36-51
			.44		22 1/2°	6-10-19	9-14-22	11-17-25	14-19-26	16-21-29	18-22-31	20-25-34	22-26-38	24-29-41
			.38		45°	4-7-12	6-9-14	7-11-16	9-12-17	10-13-18	11-14-20	13-16-22	14-17-24	15-18-26
22 x 6	16 x 8 28 x 5 36 x 4	0.80		CFM		240	320	400	480	560	640	800	960	1120
				NC		—	—	16	21	26	30	36	42	47
			.54	T	0°	8-13-25	11-18-28	15-22-32	18-25-35	20-27-38	23-28-41	26-32-45	28-35-50	31-38-53
			.47		22 1/2°	6-10-20	9-14-22	12-18-26	14-20-28	16-22-30	18-22-33	21-26-36	22-28-40	25-30-42
			.41		45°	4-7-13	6-9-14	8-11-16	9-13-18	10-14-19	12-14-21	13-16-23	14-18-25	16-19-27
12 x 12	14 x 10 18 x 8 24 x 6 38 x 4	0.90		CFM		270	360	450	540	630	720	900	1080	1260
				NC		—	—	16	21	26	30	36	42	47
			.61	T	0°	9-14-26	12-18-29	15-23-33	18-26-36	21-27-39	24-29-42	27-33-47	29-36-51	32-39-56
			.53		22 1/2°	7-11-21	10-14-23	12-18-26	14-21-29	17-22-31	19-23-34	22-26-38	23-29-41	26-31-45
			.46		45°	5-7-13	6-9-15	8-12-17	9-13-18	11-14-20	12-15-21	14-17-24	15-18-26	16-20-28
18 x 10	30 x 6	1.13		CFM		339	452	565	678	791	904	1130	1356	1582
				NC		—	10	17	22	27	31	37	43	48
			.77	T	0°	9-15-29	14-20-33	17-25-36	20-29-40	24-30-43	27-33-46	30-36-51	33-40-57	35-43-61
			.67		22 1/2°	7-12-23	11-16-26	14-20-29	16-23-32	19-24-34	22-26-37	24-29-41	26-32-46	28-34-49
			.58		45°	5-8-15	7-10-17	9-13-18	10-15-20	12-15-22	14-17-23	15-18-26	17-20-29	18-22-31

Listed Duct Size (inches)	Alternate Size (inches)	Core Area (sq. ft.)	Ak Factor	Core Velocity VP		300 .006	400 .010	500 .016	600 .022	700 .031	800 .040	1000 .062	1200 .090	1400 .122
				TP	0°	.015	.026	.041	.059	.081	.106	.165	.238	.324
					22 1/2°	.017	.030	.047	.068	.093	.122	.190	.274	.373
					45°	.026	.046	.072	.103	.142	.186	.289	.417	.567
14 x 14	16 x 12 20 x 10 24 x 8 34 x 6	1.24		CFM		372	496	620	744	868	992	1240	1488	1736
				NC		—	10	17	22	27	31	37	43	48
			.84	T	0°	11-18-33	16-25-39	20-29-42	24-33-47	27-36-51	31-39-54	35-42-60	39-47-66	41-51-71
			.73		22-1/2°	9-14-26	13-20-31	16-23-34	19-26-38	22-29-41	25-31-43	28-34-48	31-38-53	33-41-57
			.64		45°	6-9-17	8-13-20	10-15-21	12-17-24	14-18-26	16-20-27	18-21-30	20-24-33	21-26-36
18 x 12	16 x 14 22 x 10 28 x 8 38 x 6	1.37		CFM		411	548	685	822	959	1096	1370	1644	1918
				NC		—	11	18	23	28	32	38	44	49
			.93	T	0°	11-18-33	16-25-39	20-30-43	24-33-47	28-36-51	32-39-54	35-43-61	39-47-67	41-51-72
			.81		22 1/2°	9-14-26	13-20-31	16-24-34	19-26-38	22-29-41	26-31-43	28-34-49	31-38-54	33-41-58
			.71		45°	6-9-17	8-13-20	10-15-22	12-17-24	14-18-26	16-20-27	18-22-31	20-24-34	21-26-36
24 x 10	20 x 12 30 x 8	1.52		CFM		456	608	760	912	1064	1216	1520	1824	2128
				NC		—	11	18	23	28	32	38	44	49
			1.03	T	0°	12-19-35	16-25-41	21-32-45	25-35-50	29-38-53	34-41-57	37-45-64	41-50-70	43-53-76
			.90		22 1/2°	10-15-28	13-20-33	17-26-36	20-28-40	23-30-42	27-33-46	30-36-51	33-40-56	34-42-61
			.78		45°	6-10-18	8-13-21	11-16-23	13-18-25	15-19-27	17-21-29	19-23-32	21-25-35	22-27-38
16 x 16	18 x 14 22 x 12 30 x 8	1.64		CFM		492	656	820	984	1148	1312	1640	1968	2296
				NC		—	11	18	23	28	32	38	44	49
			1.12	T	0°	12-20-37	17-26-42	22-32-47	26-37-51	31-40-56	35-42-59	39-47-67	42-51-73	46-56-79
			.97		22 1/2°	10-16-30	14-21-34	18-26-38	21-30-41	25-32-45	28-34-47	31-38-54	34-41-58	37-45-63
			.84		45°	6-10-19	9-13-21	11-16-24	13-19-26	16-20-28	18-21-30	20-24-34	21-26-37	23-28-40
24 x 12	18 x 16 20 x 14 30 x 10 36 x 8	1.85		CFM		555	740	925	1110	1295	1480	1850	2220	2590
				NC		—	12	19	24	29	33	39	45	50
			1.26	T	0°	12-20-38	18-27-44	22-33-48	27-38-54	32-40-58	36-44-62	40-48-69	44-54-76	48-58-82
			1.09		22 1/2°	10-16-30	14-22-35	18-26-38	22-30-43	26-32-46	29-35-50	32-38-55	35-43-61	38-46-66
			.95		45°	6-10-19	9-14-22	11-17-24	14-19-27	16-20-29	18-22-31	20-24-35	22-27-38	24-29-41
18 x 18	20 x 16 24 x 14 28 x 12 32 x 10	2.10		CFM		630	840	1050	1260	1470	1680	2100	2520	2940
				NC		—	12	19	24	29	33	39	45	50
			1.43	T	0°	13-21-40	19-29-47	24-36-52	29-40-57	33-43-62	38-47-66	42-52-74	47-57-81	50-62-87
			1.24		22 1/2°	10-17-32	15-23-38	19-29-42	23-32-46	26-34-50	30-38-53	34-42-59	38-46-65	40-50-70
			1.08		45°	7-11-20	10-15-24	12-18-26	15-20-29	17-22-31	19-24-33	21-26-37	24-29-41	25-31-44
30 x 12	20 X 18 22 x 16 26 x 14 36 X 10	2.32		CFM		696	928	1160	1392	1624	1856	2320	2784	3248
				NC		—	13	20	25	30	34	40	46	51
			1.58	T	0°	14-23-43	21-31-50	26-39-56	31-43-61	36-47-67	41-50-71	46-56-79	50-61-86	54-67-94
			1.37		22 1/2°	11-18-34	17-25-40	21-31-45	25-34-49	29-38-54	33-40-57	32-45-63	40-49-69	43-54-75
			1.19		45°	7-12-22	11-16-25	13-20-28	16-22-31	18-24-34	21-25-36	23-28-40	25-31-43	27-34-47
24 x 16	32 x 12	2.50		CFM		750	1000	1250	1500	1750	2000	2500	3000	3500
				NC		—	13	20	25	30	34	40	46	51
			1.70	T	0°	14-24-45	22-32-52	27-40-58	32-45-64	37-49-68	43-52-74	48-58-82	52-64-90	56-68-97
			1.48		22 1/2°	11-19-36	18-26-42	22-32-46	26-36-51	30-39-54	34-42-59	38-46-66	42-51-72	45-54-78
			1.29		45°	7-12-23	11-16-26	14-20-29	16-23-32	19-25-34	22-26-37	24-29-41	26-32-45	28-34-49
20 x 20	22 x 18	2.61		CFM		783	1044	1305	1566	1827	2088	2610	3132	3654
				NC		—	13	20	25	30	34	40	46	51
			1.77	T	0°	15-24-46	22-32-53	27-41-59	32-46-65	38-50-70	44-53-75	49-59-84	53-65-92	58-70-99
			1.54		22 1/2°	12-19-37	18-26-42	22-33-47	26-37-52	30-40-56	35-42-60	39-47-67	42-52-74	46-56-79
			1.34		45°	8-12-23	11-16-27	14-21-30	16-23-33	19-25-35	22-27-38	25-30-42	27-33-46	29-35-50
36 x 12	22 x 20 24 x 18 26 x 16 30 x 14	2.79		CFM		837	1116	1395	1674	1953	2232	2790	3348	3906
				NC		—	13	20	25	30	34	40	46	51
			1.90	T	0°	15-25-48	23-34-55	28-42-61	34-48-68	4-51-73	45-55-77	50-61-86	55-68-95	59-73-103
			1.65		22 1/2°	12-20-38	18-27-44	22-34-49	27-38-54	32-41-58	36-44-62	40-49-69	44-54-76	47-58-82
			1.44		45°	8-13-24	12-17-28	14-21-31	17-24-34	20-26-37	23-28-39	25-31-43	28-34-48	30-37-52
22 x 22	24 x 20 26 x 18 30 x 16 40 x 12	3.17		CFM		951	1268	1585	1902	2219	2536	3170	3804	4438
				NC		—	14	21	26	31	35	41	47	52
			2.16	T	0°	17-27-50	24-36-58	29-45-65	36-50-71	42-54-77	47-58-82	53-65-92	58-71-101	62-77-109
			1.87		22 1/2°	14-22-40	19-29-46	23-36-52	29-40-57	34-43-62	38-46-66	42-52-74	46-57-81	50-62-87
			1.63		45°	9-14-25	12-18-29	15-23-33	18-25-36	21-27-39	24-29-41	27-33-46	29-36-51	31-39-55
42 x 12	36 x 14	3.27		CFM		981	1308	1635	1962	2289	2616	3270	3924	4578
				NC		—	14	21	26	31	35	41	47	52
			2.22	T	0°	17-27-51	24-36-59	30-45-66	36-51-72	42-55-77	48-59-83	53-66-93	59-72-101	63-77-109
			1.93		22 1/2°	14-22-41	19-29-47	24-36-53	29-41-58	34-44-62	38-47-66	42-53-74	47-58-81	50-62-87
			1.68		45°	9-14-26	12-18-30	15-23-33	18-26-36	21-28-39	24-30-42	27-33-47	3-36-51	32-39-55
30 x 18	24 x 22 34 x 16 40 x 14	3.54		CFM		1062	1416	1770	2124	2478	2832	3540	4248	4956
				NC		—	14	21	26	31	35	41	47	52
			2.41	T	0°	18-28-53	25-37-61	31-47-69	37-53-75	44-57-81	50-61-86	56-69-97	61-75-106	66-81-115
			2.09		22 1/2°	14-22-42	20-30-49	25-38-55	30-42-60	35-46-65	40-49-69	45-55-78	49-60-85	53-65-92
			1.82		45°	9-14-27	13-19-31	16-24-35	19-27-38	22-29-41	25-31-43	28-35-49	31-38-53	33-41-58

Listed Duct Size (inches)	Alternate Size (inches)	Core Area (sq. ft.)	Ak Factor	Core Velocity VP		300 .006	400 .010	500 .016	600 .022	700 .031	800 .040	1000 .062	1200 .090	1400 .122
				TP	0° 22 1/2° 45°	.015 .017 .026	.026 .030 .046	.041 .047 .072	.059 .068 .103	.081 .093 .142	.106 .122 .186	.165 .190 .289	.238 .274 .417	.324 .373 .567
24 x 24	26 x 22 28 x 20 32 x 18 36 x 16	3.79		CFM NC		1137 —	1516 14	1895 21	2274 26	2653 31	3032 35	3790 41	4548 47	5306 52
			2.58 2.24 1.95	T	0° 22-1/2° 45°	18-29-55 14-23-44 9-15-28	26-39-62 21-31-50 13-20-31	33-48-70 26-38-56 17-24-35	39-55-77 31-44-62 20-28-39	45-59-83 36-47-66 23-30-42	51-62-89 41-50-71 26-31-45	57-70-99 46-56-79 29-35-50	62-77-108 50-62-86 31-39-54	68-83-117 54-66-94 34-42-59
36 x 18	32 x 20 40 x 16 46 x 14	4.29		CFM NC		1287 —	1716 15	2145 22	2574 27	3003 32	3432 36	4290 42	5148 48	6006 53
			2.92 2.53 2.21	T	0° 22 1/2° 45°	19-31-58 15-25-46 10-16-29	28-42-68 22-34-54 14-21-34	35-52-75 28-42-60 18-26-38	42-58-83 34-46-66 21-29-42	48-63-89 38-50-71 24-32-45	55-68-95 44-54-76 28-34-48	61-75-106 49-60-85 31-38-53	68-83-117 54-66-94 34-42-59	73-89-125 58-71-100 37-45-63
26 x 26	28 x 24 48 x 14	4.47		CFM NC		1341 —	1788 15	2235 22	2682 27	3129 32	3576 36	4470 42	5364 48	6258 53
			3.04 2.64 2.30	T	0° 22 1/2° 45°	19-32-59 15-26-47 10-16-30	28-43-69 22-34-55 14-22-35	35-53-77 28-42-62 18-27-32	43-59-85 34-47-68 22-30-43	49-65-91 39-52-73 25-33-46	56-69-98 45-55-78 28-35-49	63-77-109 50-62-87 32-39-55	69-85-120 55-68-96 35-43-60	75-91-129 60-73-103 38-46-65
30 x 24	32 x 22 36 x 20 40 x 18	4.77		CFM NC		1431 —	1908 15	2385 22	2862 27	3339 32	3816 36	4770 42	5724 48	6678 53
			3.24 2.81 2.46	T	0° 22 1/2° 45°	20-33-61 16-26-49 10-17-31	29-44-71 23-35-57 15-22-36	36-54-79 29-43-63 18-27-40	44-61-87 35-49-70 22-31-44	51-67-94 41-54-75 26-34-47	58-71-101 46-57-81 29-36-51	65-79-112 52-63-90 33-40-56	71-87-123 57-70-98 36-44-62	77-94-133 62-75-106 39-47-67
42 x 18	28 x 26	4.99		CFM NC		1497 —	1996 16	2495 23	2994 28	3493 33	3992 37	4990 43	5988 49	6986 54
			3.39 2.94 2.57	T	0° 22 1/2° 45°	20-33-62 16-26-50 10-17-31	30-44-72 24-35-58 15-22-36	37-55-80 30-44-64 19-28-40	44-62-88 35-50-70 22-31-44	52-67-95 42-54-76 26-34-48	59-72-102 47-58-82 30-36-51	66-80-114 53-64-91 33-40-57	72-88-125 58-70-100 36-44-63	77-95-135 62-76-108 39-48-68
28 x 28	30 x 26 36 x 22 40 x 20	5.20		CFM NC		1560 —	2080 16	2600 23	3120 28	3640 33	4160 37	5200 43	6240 49	7280 54
			3.54 3.07 2.68	T	0° 22 1/2° 45°	21-34-63 17-27-50 11-17-32	30-45-74 24-36-59 15-23-37	38-56-82 30-45-66 19-28-41	45-63-90 36-50-72 23-32-45	53-69-97 42-55-78 27-35-49	60-74-104 48-59-83 30-37-52	67-82-116 54-66-93 34-41-58	74-90-128 59-72-102 37-45-64	79-97-137 63-78-110 40-49-69
42 x 20	30 x 28	5.57		CFM NC		1671 —	2228 16	2785 23	3342 28	3899 33	4456 37	5570 43	6684 49	7798 54
			3.79 3.29 2.87	T	0° 22 1/2° 45°	22-35-66 18-28-53 11-18-33	31-47-76 25-38-61 16-24-38	39-58-84 31-46-67 20-29-42	47-66-93 38-53-74 24-33-47	55-71-100 44-57-80 28-36-50	62-76-107 50-61-86 31-38-54	70-84-120 56-67-96 35-42-60	76-93-131 61-74-105 38-47-66	82-100-142 66-80-114 41-50-71
36 x 24	40 x 22 44 x 20	5.74		CFM NC		1722 —	2296 16	2870 23	3444 28	4018 33	4592 37	5740 43	6888 49	8036 54
			3.90 3.39 2.96	T	0° 22 1/2° 45°	23-36-68 18-29-54 12-18-34	32-49-78 26-39-62 16-25-39	41-60-88 33-48-70 21-30-44	49-68-96 39-54-77 25-34-48	57-74-104 46-59-83 29-37-52	64-78-112 51-62-90 32-39-56	72-88-124 58-70-99 36-44-62	78-96-137 62-77-110 39-48-69	85-104-148 68-83-118 43-52-74
30 x 30	34 x 26 38 x 24 48 x 20	5.99		CFM NC		1797 —	2396 16	2995 23	3594 28	4193 33	4792 37	5990 43	7188 49	8386 54
			4.07 3.53 3.08	T	0° 22 1/2° 45°	23-36-69 18-29-55 12-18-35	33-49-80 26-39-64 17-25-40	41-61-89 33-49-71 21-31-45	49-69-98 39-55-78 25-35-49	57-75-106 45-60-85 29-38-53	65-80-113 52-64-90 33-40-57	73-89-126 58-71-101 37-45-63	80-98-138 64-78-110 40-49-69	86-106-150 69-85-120 43-53-75
42 x 24	36 x 28 42 x 24 46 x 22	6.72		CFM NC		2016 —	2688 17	3360 24	4032 29	4704 34	5376 38	6720 44	8064 50	9408 55
			4.57 3.96 3.46	T	0° 22 1/2° 45°	24-39-72 19-31-58 12-20-36	34-51-84 27-41-67 17-26-42	43-64-93 34-51-74 22-32-47	51-72-102 41-58-82 26-36-51	60-78-111 48-62-89 30-39-56	68-84-118 54-67-94 34-42-59	77-93-132 62-74-106 39-47-66	84-102-144 67-82-115 42-51-72	90-111-157 72-89-126 45-56-79
32 x 32	40 x 26	6.84		CFM NC		2052 —	2736 17	3420 24	4104 29	4788 34	5472 38	6840 44	8208 50	9576 55
			4.65 4.04 3.52	T	0° 22 1/2° 45°	24-39-73 19-31-58 12-20-37	34-52-84 27-42-67 17-26-42	43-65-94 34-52-75 22-33-47	52-73-103 42-58-82 26-37-52	61-79-112 49-63-90 31-40-56	69-84-119 55-67-95 35-42-60	77-94-133 62-75-106 39-47-67	84-103-146 67-82-117 42-52-73	91-112-158 73-90-126 46-56-79
36 x 30	38 x 28	7.22		CFM NC		2166 —	2888 17	3610 24	4332 29	5054 34	5776 38	7220 44	8664 50	10108 55
			4.91 4.26 3.72	T	0° 22 1/2° 45°	25-40-76 20-32-61 13-20-38	36-54-87 29-43-70 18-27-44	45-68-98 36-54-78 23-34-49	54-76-108 43-61-86 27-38-54	63-82-116 50-66-93 32-41-58	71-87-124 57-70-99 36-44-62	80-98-139 64-78-111 40-49-70	87-108-151 70-86-121 44-54-76	94-116-164 75-93-131 47-58-82
48 x 24	34 x 34 36 x 32 38 x 30 42 x 28	7.69		CFM NC		2307 —	3076 18	3845 25	4614 30	5383 35	6152 39	7690 45	9228 51	10766 56
			5.23 4.54 3.96	T	0° 22 1/2° 45°	26-41-77 21-33-62 13-22-39	37-55-90 30-44-72 19-28-45	46-69-100 37-55-80 23-45-50	55-77-109 44-62-87 28-39-55	64-84-118 51-67-94 32-42-59	73-90-127 58-72-102 37-45-64	82-100-142 66-80-114 41-50-71	90-109-155 72-87-124 45-55-78	97-118-167 78-94-134 49-59-84

Listed Duct Size (inches)	Alternate Size (inches)	Core Area (sq. ft.)	Ak Factor	Core Velocity VP	300 .006	400 .010	500 .016	600 .022	700 .031	800 .040	1000 .062	1200 .090	1400 .122
				TP 0°	.015	.026	.041	.059	.081	.106	.165	.238	.324
				22 1/2°	.017	.030	.047	.068	.093	.122	.190	.274	.373
				45°	.026	.046	.072	.103	.142	.186	.289	.417	.567
36 x 34	38 x 32 40 x 30 48 x 26	8.20		CFM	2460	3280	4100	4920	5740	6560	8200	9840	11480
				NC	—	18	25	30	35	39	45	51	56
			5.58	T 0°	26-42-79	37-57-91	47-70-102	57-79-111	65-85-121	75-91-129	84-102-144	91-111-158	98-121-171
			4.84	22-1/2°	21-34-63	30-46-73	38-56-82	46-63-89	52-68-97	60-73-103	67-82-115	73-89-126	78-97-137
			4.22	45°	13-21-40	19-29-46	24-35-51	29-40-56	33-43-61	38-46-65	42-51-72	46-56-79	49-61-86
36 x 36	38 x 34 42 x 30 46 x 28	8.69		CFM	2607	3476	4345	5214	6083	6952	8690	10428	12166
				NC	—	18	25	30	35	39	45	51	56
			5.91	T 0°	28-45-84	39-60-96	49-74-108	60-84-117	69-90-127	78-96-136	88-108-152	96-117-166	104-127-180
			5.13	22 1/2°	22-36-67	31-48-77	39-59-86	48-67-94	55-72-102	62-77-109	70-86-122	77-94-133	83-102-144
			4.48	45°	14-23-42	20-30-48	25-37-54	30-42-59	35-45-64	39-48-68	44-54-76	48-59-83	52-64-90
38 x 38	42 x 34	9.70		CFM	2910	3880	4850	5820	6790	7760	9700	11640	13580
				NC	10	19	26	31	36	40	46	52	57
			6.60	T 0°	28-47-88	42-62-101	53-78-114	62-88-125	73-95-134	83-101-143	93-114-161	101-125-176	109-134-190
			5.72	22 1/2°	22-38-70	34-50-81	42-62-91	50-70-100	58-76-107	66-81-114	74-91-129	81-100-141	87-107-152
			5.00	45°	14-24-44	21-31-51	27-39-57	31-44-63	37-48-67	42-51-72	47-57-81	5[illegible]-63-88	55-67-95
42 x 36	44 x 34 48 x 30	10.16		CFM	3048	4064	5080	6096	7112	8128	10160	12192	14224
				NC	10	19	26	31	36	40	46	52	57
			6.91	T 0°	29-48-90	43-64-104	53-80-117	64-90-127	75-97-138	85-104-147	95-117-165	104-127-180	112-138-195
			5.99	22-1/2°	23-38-72	34-51-83	42-64-94	51-72-102	60-78-110	68-83-118	76-94-132	83-102-144	90-110-156
			5.23	45°	15-24-45	22-32-52	27-40-59	32-45-64	38-49-69	43-52-74	48-59-83	52-64-90	56-69-98
40 x 40	42 x 38 46 x 34 48 x 32	10.77		CFM	3231	4308	5385	6462	7539	8616	10770	12924	15078
				NC	10	19	26	31	36	40	46	52	57
			7.32	T 0°	31-50-94	44-67-108	56-84-121	67-94-132	77-102-143	88-108-153	99-121-171	108-132-187	117-143-203
			6.35	22 1/2°	25-40-75	35-54-86	45-67-97	54-75-106	62-82-114	70-86-122	79-97-137	86-106-150	94-114-162
			5.55	45°	16-25-47	22-34-54	28-42-61	34-47-66	39-51-72	44-54-77	50-61-86	54-66-94	59-72-102
42 x 42	44 x 40 46 x 38 48 x 36	11.89		CFM	3567	4756	5945	7134	8323	9512	11890	14268	16646
				NC	11	20	27	32	37	41	47	53	58
			8.09	T 0°	32-52-97	46-69-112	58-86-125	69-97-138	81-105-149	92-112-159	102-125-178	112-138-195	122-149-210
			7.02	22 1/2°	26-42-78	37-55-90	46-69-100	55-78-110	65-84-119	74-90-127	82-100-142	90-110-156	98-119-168
			6.12	45°	16-26-49	23-35-56	29-43-63	35-49-69	41-53-75	46-56-80	51-63-89	56-69-98	61-75-105
44 x 44	46 x 42	13.07		CFM	3921	5228	6535	7842	9149	10456	13070	15684	18298
				NC	11	20	27	32	37	41	47	53	58
			8.89	T 0°	34-55-104	49-74-120	61-92-133	74-104-146	86-112-158	97-120-168	109-133-189	120-146-207	129-158-223
			7.71	22 1/2°	27-44-83	39-59-96	49-74-106	59-83-117	69-90-126	78-96-134	87-106-151	96-117-166	103-126-178
			6.73	45°	17-28-52	25-37-60	31-46-67	37-52-73	43-56-79	49-60-84	55-67-95	60-73-104	65-79-112
46 x 46		14.30		CFM	4290	5720	7150	8580	10010	11440	14300	17160	20020
				NC	11	20	27	32	37	41	47	53	58
			9.72	T 0°	35-57-107	51-76-124	63-95-138	76-107-151	89-116-163	101-124-174	113-138-195	124-151-214	134-163-231
			8.44	22 1/2°	28-46-86	41-61-99	50-76-110	61-86-121	71-93-130	81-99-139	90-110-156	99-121-171	107-130-185
			7.36	45°	18-29-54	26-38-62	32-48-69	38-54-76	45-58-82	51-62-87	57-69-98	62-76-107	62-82-116
48 x 48		15.59		CFM	4677	6236	7795	9354	10913	12472	15590	18708	21826
				NC	12	21	28	33	38	42	48	54	59
			10.60	T 0°	37-60-113	53-80-131	67-100-146	80-113-159	94-122-173	106-131-185	119-146-206	131-159-226	140-173-244
			9.20	22 1/2°	30-48-90	42-64-105	54-80-117	64-90-127	75-98-138	85-105-148	95-117-165	105-127-181	112-138-195
			8.03	45°	19-30-57	27-40-66	34-50-73	40-57-80	47-61-87	53-66-93	60-73-103	62-80-113	70-87-122

CFM	-	cubic feet per minute
TP	-	total pressure - inches w.g.
VP	-	velocity pressure - inches w.g.
T	-	throw in feet
NC	-	Noise Criteria (values) based on 10 dB room absorption, re 10^{-12} watts @ 0° deflection.

Core velocity is in feet per minute.

Performance Notes:

1. Performance data is based on double deflection grille with opposed blade damper (register).

2. 0°, 22 1/2° and 45° represent vertical blade deflection angles and horizontal spread.

3. Throw values are given for terminal velocities of 150, 100 and 50 fpm under isothermal conditions.

Performance Test Certificate

Issued To

AL ANDALOSIA FOR AIR OUTLETS
KAMEL YOUNES PIECE NO. 30 ST. TRANSFORMERS
INDUSTRIAL ZONE KILO 26 ALEXANDRIA DESERT ROAD
ABU RAWASH , CAIRO , EGYPT

Intertek has tested a representative sample of
Al Andalosia For Air Outlets
Supply Grille

A Supply Grille MODEL AND-GI-SG1- 40" BY 6"was tested
in accordance with the standards listed below and was found
to perform in a manner appropriate to the dictates of the standards.

STANDARDS

ASHRAE 70-2006 "Method of Testing for Rating
the Performance of Air Outlets and Inlets"

ADC 1062: GRD-84 "Test Code for Grilles, Registers and Diffusers"

SCOPE OF TESTING

The grille was tested for the following performance characteristics:
"Reference Intertek Report Number 100710113CRT-001c April 30, 2012"

A) Sound Power Level ((NC)
B) Air Velocity versus Static Pressure
C) Area Factor
D) Throw Pattern

Date: April 30, 2012

James R. Kline

James R. Kline
Intertek
Engineer / Quality Supervisor