

SQUARE AND RECTANGULAR PATTERN CEILING DIFFUSERS

- INDUCTION VANES
- LOUVERED FACE
- HIGH CAPACITY
- SQUARE, RECTANGULAR OR ROUND NECKS

Steel Model:
6500IV Fixed Pattern
Aluminum Model:
6200IV Fixed Pattern

- Suffix '-O' adds a steel opposed blade damper
- Suffix '-OA' adds an aluminum opposed blade damper (available on aluminum models only)



Model 6500IV ~ front and back view

The **Nailor Model Series 6500IV and 6200IV Pattern Ceiling Diffusers** have been specially designed to provide a high capacity, high induction, louvered face directional diffuser that can supply large volumes of air at relatively low sound levels and pressure drops. An engineered blade design with a 1/4" (6) horizontal lip on all angular discharge louvers creates a stable horizontal air pattern that is tight to the ceiling.

Induction vanes mounted behind the louvers create counter-flowing jets of primary air that promote rapid mixing of the cool primary air with the warm room air. This high induction characteristic is ideal for VAV applications involving high cooling loads as it quickly equalizes the air temperature, reduces the throw and minimizes the potential for uncomfortable drafts.

Available in a wide variety of core styles and neck sizes, a combination can be selected to suit a specified air pattern and deliver the desired volume of air to suit any particular requirement. Many frame types are also available to suit almost any mounting condition including surface mount (flat, beveled or deep drop face) and T-Bar panel types (Standard 1" (25), Fineline®, Spline, Tegular or Metal Pan Snap-in). These models therefore offer a great degree of design flexibility.

FEATURES:

- Spring loaded core. Removable without the use of tools.
- High neck collars for solid connection.
- Secure core attachment.
- A wide variety of frame styles to suit most ceiling applications.
- Optional extended panels to suit modular ceiling systems.
- Engineered air diffusion patterns for 1, 2, 3 or 4-way blow in a wide selection of square and rectangular neck sizes (see page D36).
- Clean lines with no unsightly visible screws.
- Square-to-round transition adaptors are available (SR option).
- Optional opposed blade damper with screwdriver slot operator.

Material: **6500IV Series** – Corrosion-resistant steel. **6200IV Series** – Heavy-gauge aluminum extrusions.

Finish: AW Appliance White baked enamel finish is standard. Other finishes are available.

AVAILABLE SIZES:

Unit Size is determined by duct dimensions. Diffuser necks are undersized to suit ductwork.

Duct Sizes are available in 3" (76) increments.

Minimum size:

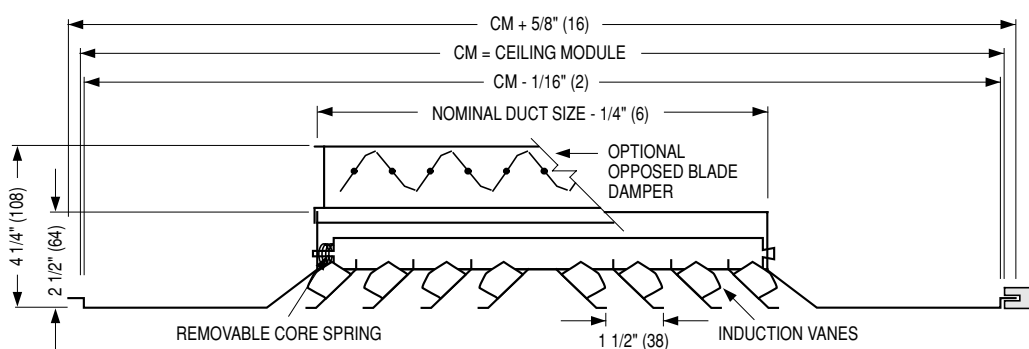
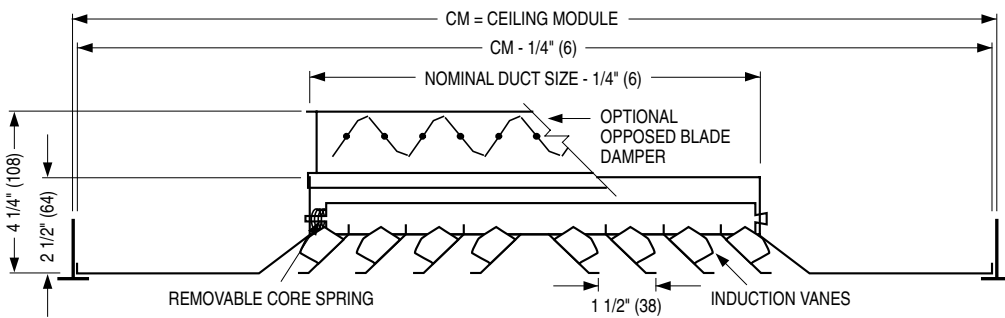
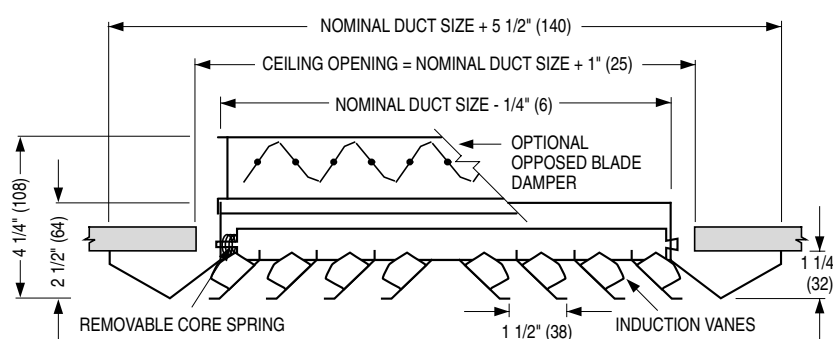
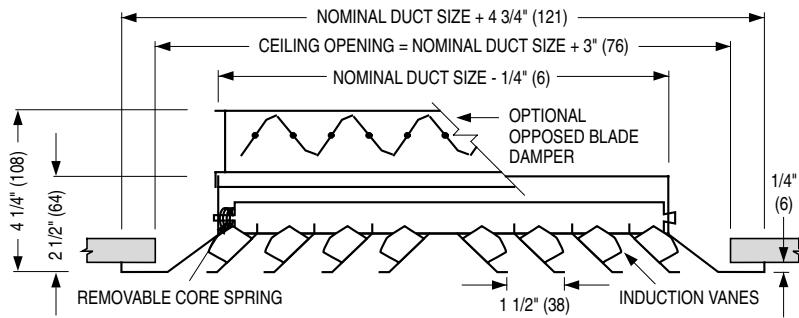
6" x 6" (152 x 152) square neck. 9" x 6" (229 x 152) rectangular neck (most core styles).

Maximum size:

Types S, B and D: 36" x 36" (914 x 914).

Types L, SP, TL, M and F: see page D34.

Dimensional Data and Frame Types Model Series 6500IV and 6200IV



SPLINE TYPE DIFFUSER FOR ONE-DIRECTIONAL EXPOSED T-BAR LAY-IN GRID OR FOR CONCEALED T-BAR GRID.
(SPLINES ON TWO OPPOSITE SIDES. STEEL LIFT BRACKETS ON THE OTHER TWO SIDES.)

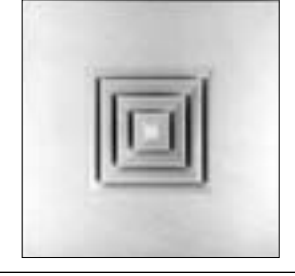
Type S - Surface Mount Frame



Type B - Beveled Drop Face Frame



Type L - Lay-In T-Bar Frame



Type SP - Spline Frame



D
CEILING DIFFUSERS

Extended Panel Diffusers Frame Types L, SP, TL, M and F

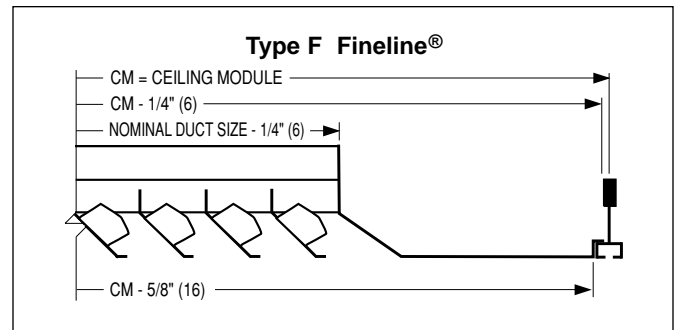
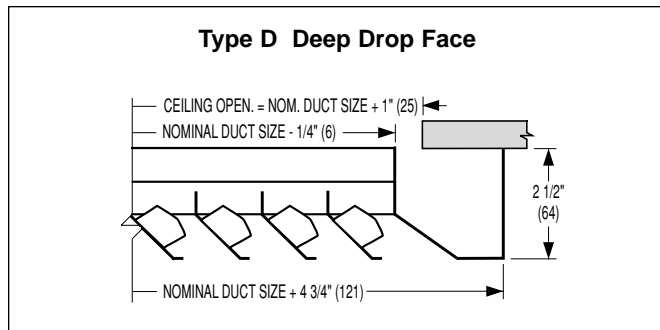
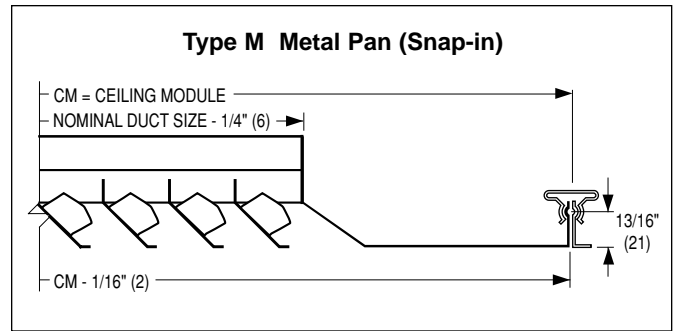
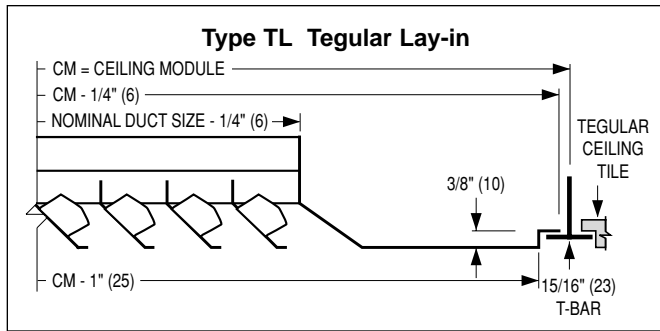
If the ceiling module is more than 3" (76) larger than the neck size of the diffuser in either or both dimensions, a module-sized extended panel will be added.

See the table at right for the maximum duct size for each module size.

Ceiling Module Size	Maximum Duct Size Frames L, SP and M	Maximum Duct Size Frames TL and F
12 x 12 (305 x 305)	9 x 9 (229 x 229)	6 x 6 (152 x 152)
20 x 20 (508 x 508)	15 x 15 (381 x 381)	-
24 x 12 (610 x 305)	21 x 9 (533 x 229)	18 x 6 (457 x 152)
24 x 24 (610 x 610)	21 x 21 (533 x 533)	18 x 18 (457 x 457)
48 x 24 (1219 x 610)	45 x 21 (1143 x 533)	-

Dimensions are in inches (mm).

Dimensional Data and Frame Types Model Series 6500IV and 6200IV

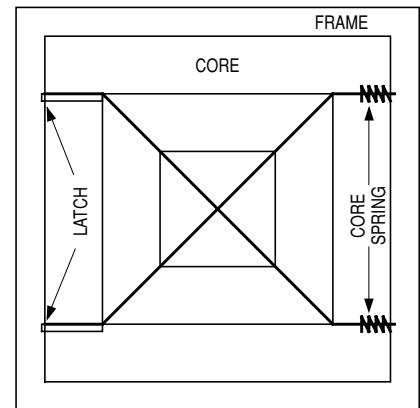


REMOVABLE CORE

- Standard feature of **Models 6500IV and 6200IV.**
- Engineered design allows easy removal without the need for tools, yet remains securely in place.

HOW TO REMOVE "REMOVABLE" CORE

To remove diffuser core, lift the complete core assembly to disengage the latch, push the core against the core spring, pull down the core slightly and remove. Reverse procedure to re-install.



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CEILING DIFFUSERS

Standard Core Styles Model Series 6500IV and 6200IV

Contact factory for special core configurations.

SIZES AVAILABLE

	SQUARE	RECTANGULAR	CORE	MINIMUM	MAXIMUM
 1-WAY	 1S	 1A	 1B	6 x 6 (152 x 152)	36 x 36 (914 x 914)
				9 x 6 (229 x 152)	36 x 33 (914 x 838)
				9 x 6 (229 x 152)	36 x 33 (914 x 838)
 2-WAY	 2S	 2A	 2B	6 x 6 (152 x 152)	36 x 36 (914 x 914)
				9 x 6 (229 x 152)	36 x 33 (914 x 838)
				9 x 6 (229 x 152)	36 x 33 (914 x 838)
 2-WAY CORNER	 2G	 2E	 2F	6 x 6 (152 x 152)	36 x 36 (914 x 914)
				9 x 6 (229 x 152)	36 x 33 (914 x 838)
				9 x 6 (229 x 152)	36 x 33 (914 x 838)
 3-WAY	 3A	 3A1	 3A2	6 x 6 (152 x 152)	36 x 36 (914 x 914)
		(A is greater than B)	(B is less than A but greater than A/2)	9 x 6 (229 x 152)	36 x 33 (914 x 838)
		 3A1A		9 x 6 (229 x 152)	36 x 33 (914 x 838)
		 3B	(B is equal to A/2)	12 x 6 (305 x 152)	36 x 18 (914 x 457)
		 3E	(B is less than A/2)	15 x 6 (381 x 152)	36 x 15 (914 x 381)
		 3H		6 x 6 (152 x 152)	36 x 36 (914 x 914)
 4-WAY	 4A	 4B	 4C	6 x 6 (152 x 152)	36 x 36 (914 x 914)
				9 x 6 (229 x 152)	36 x 33 (914 x 838)
				12 x 6 (305 x 152)	36 x 30 (914 x 762)

Dimensions are in inches (mm).

Notes:

1. Duct sizes are available in 3" (76) increments.
2. Patterns are shown in plan view (looking down into inlet).

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CEILING DIFFUSERS

HOW TO SPECIFY OR TO ORDER

(Show complete Model Number and Size, unless "Default" is desired).

Induction Vane Pattern Ceiling Diffusers – Model Series 6500IV and 6200IV

6500IV - O - 9 x 9 - 24 x 24 - L - AW - 4A - SR08

MODEL

- Steel Fixed Pattern 6500IV
- Aluminum Fixed Pattern 6200IV

DAMPER

- No Damper (default) —
- Opposed Blade (steel) O
- Opposed Blade (alum.) OA

NECK SIZE (W x H)

PANEL SIZE (TYPES L, SP, M, TL AND F ONLY)

Imperial (inches)	Metric (mm)
- 12 x 12	300 x 300
- 20 x 20	500 x 500
- 24 x 12	600 x 300
- 24 x 24	600 x 600
- 48 x 24	1200 x 600

FRAME TYPE

- Surface Mount Flat S
- T-Bar Lay-In L
- Spline SP
- Surface Mount Beveled B
- Metal Pan M
- Tegular (Drop Face) TL
- Finline® F
- Surface Mount (Deep Drop) D

ACCESSORIES

- None (default) —
- Square to Round Transition Collar (04 thru 20 specify) SR
- Earthquake Tabs EQT

AIR BALANCING DEVICES

- Rectangular Neck:**
- Equalizing Grid (long) EGL
 - Equalizing Grid (short) EGS
 - Damper/Equal. Grid (long) DEGL
 - Damper/Equal. Grid (short) DEGS

Round Neck:

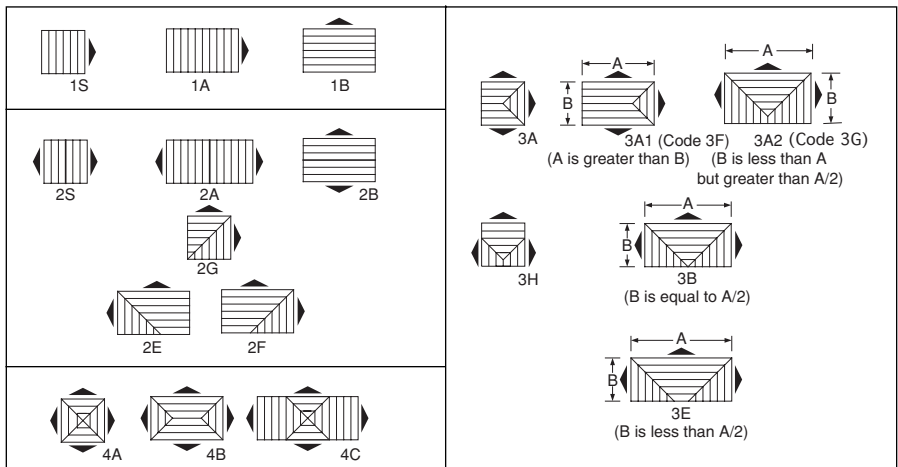
- Radial Sliding Blade Damper 4250
- Radial Opposed Blade Damper 4275
- Butterfly Damper 4675
- Equalizing Grid EGR
- Damper/Equalizing Grid DEGR

CORE STYLE (See Below).

FINISH

- Appliance White (default) AW
- Aluminum AL
- Special Custom Color SP

CORE STYLE CHART



Note:

- Consult text as to limitations of panel, neck size and core style combinations.

SUGGESTED SPECIFICATION:

Furnish and install **Nailor Model** (select one) **6500IV** (steel) or **6200IV** (aluminum) **Induction Vane Pattern Ceiling Diffusers** of the sizes and capacities as shown on the plans and air distribution schedules. The core assembly shall have a fixed pattern for horizontal throw and shall include induction vanes for rapid mixing of supply air with room air. The entire core assembly shall be removable without the use of tools. The directional pattern shall be supplied as a 4, 3, 2, or 1-way discharge pattern as specified. The core is to be interchangeable with all other frame styles of equal size. The square or rectangular duct connection collar shall be an integral part of the frame assembly. The finish shall be AW Appliance White baked enamel (optional finishes are available).

(Optional) An opposed blade damper constructed of heavy gauge corrosion-resistant steel (aluminum is optional) shall be provided with all units.

The manufacturer shall provide published performance data for the diffuser, which shall be tested in accordance with ANSI/ASHRAE Standard 70 – 1991.

D CEILING DIFFUSERS

Performance Data

Models 6500IV and 6200IV • Square Neck • Induction Vanes

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CEILING DIFFUSERS

NOMINAL NECK SIZE	BLOW PATTERNS	NECK VELOCITY TP	300 .035		400 .062		500 .097		600 .140		700 .191		800 .249		900 .316															
			CFM NC	A	B	A	B	A	B	A	B	A	B	A	B	A	B													
6 x 6 .25 SQ. FT.	RETURN FACTORS	—SP=1.1 TP NC + 1	75	—		100	14		125	21		150	26		175	30		200	35		225	39								
	4A	CFM/SIDE THROW, FT.	19	3-4-6		25	3-5-8		31	5-6-8		37	5-6-9		44	6-7-10		50	6-7-10		56	7-8-10								
	3A	CFM/SIDE THROW, FT.	19	28	3-4-6	4-6-9	25	38	3-5-8	5-7-10	31	47	5-6-8	6-8-11	37	56	5-6-9	6-9-12	44	66	6-7-10	7-10-13	50	75	6-7-10	7-10-14	56	85	7-8-10	8-10-14
	2S	2G	CFM/SIDE THROW, FT.	37	6-7-10		50	7-8-11		62	8-9-13		75	9-10-14		88	10-10-14		100	10-10-15		113	10-11-16							
	1S	CFM/SIDE THROW, FT.	75	7-9-12		100	8-10-14		125	9-11-15		150	10-12-18		175	10-13-18		200	11-14-19		225	12-14-20								
9 x 9 .56 SQ. FT.	RETURN FACTORS	—SP=1.2 TP NC + 2	170	—		225	18		280	24		340	30		395	35		450	39		505	42								
	4A	CFM/SIDE THROW, FT.	42	5-6-10		56	6-8-11		70	8-9-12		84	8-10-13		98	9-10-14		112	9-11-15		126	10-12-16								
	3A	CFM/SIDE THROW, FT.	42	63	5-6-10	7-9-11	56	85	6-8-11	8-10-14	70	106	8-9-12	9-10-15	84	127	8-10-13	10-11-16	98	148	9-10-14	10-12-17	112	169	9-11-15	10-13-18	126	190	10-12-16	11-14-19
	2S	2G	CFM/SIDE THROW, FT.	84	7-8-12		112	9-10-14		141	10-12-16		169	10-13-18		197	11-14-18		225	12-14-20		253	13-15-22							
	1S	CFM/SIDE THROW, FT.	169	10-12-16		225	11-14-18		282	13-15-21		338	14-18-23		394	14-18-25		450	15-19-26		507	18-20-28								
12 x 12 1.0 SQ. FT.	RETURN FACTORS	—SP=1.3 TP NC + 4	300	14		400	21		500	27		600	32		700	37		800	40		900	43								
	4A	CFM/SIDE THROW, FT.	75	6-10-12		100	9-11-14		125	10-12-17		150	11-14-18		175	11-14-19		200	12-16-20		225	14-17-22								
	3A	CFM/SIDE THROW, FT.	75	112	6-10-12	9-11-15	100	150	9-11-14	11-13-17	125	187	10-12-17	11-14-19	150	225	11-14-18	12-15-21	175	262	11-14-19	13-16-22	200	300	12-16-20	14-17-24	225	338	14-17-22	15-18-25
	2S	2G	CFM/SIDE THROW, FT.	150	10-12-16		200	12-14-20		250	14-15-22		300	14-16-23		350	15-17-25		400	16-20-27		450	17-20-29							
	1S	CFM/SIDE THROW, FT.	300	13-16-22		400	14-18-26		500	17-20-30		600	18-21-31		700	18-22-33		800	20-23-33		900	22-26-38								
15 x 15 1.56 SQ. FT.	RETURN FACTORS	—SP=1.8 TP NC + 4	465	14		625	23		780	29		935	34		1090	37		1250	43		1400	45								
	4A	CFM/SIDE THROW, FT.	117	10-13-17		156	11-14-19		195	13-15-22		234	14-17-23		273	15-18-24		312	16-19-26		350	17-21-28								
	3A	CFM/SIDE THROW, FT.	117	175	10-13-17	11-14-18	156	234	11-14-19	14-18-23	195	292	13-15-22	15-18-25	234	351	14-17-23	17-18-27	273	409	15-18-24	18-20-29	312	468	16-19-26	18-23-31	350	527	17-21-28	20-23-34
	2S	2G	CFM/SIDE THROW, FT.	234	13-16-22		312	15-18-25		390	17-20-29		468	18-22-32		546	19-23-34		625	22-25-36		700	22-28-38							
	1S	CFM/SIDE THROW, FT.	467	17-20-29		625	18-23-34		780	21-26-38		935	23-29-41		1090	24-31-44		1250	26-34-46		1400	29-35-49								
18 x 18 2.25 SQ. FT.	RETURN FACTORS	—SP=2.1 TP NC + 6	675	16		900	25		1125	31		1350	35		1575	40		1800	43		2025	46								
	4A	CFM/SIDE THROW, FT.	168	12-15-20		225	14-16-23		281	15-19-26		337	16-20-29		394	18-22-30		450	19-23-33		506	20-25-34								
	3A	CFM/SIDE THROW, FT.	168	253	12-15-20	14-18-23	225	338	14-16-23	16-20-26	281	422	15-19-26	18-22-30	337	506	16-20-29	20-26-34	394	590	18-22-30	21-26-36	450	675	19-23-33	22-28-38	506	760	20-25-34	26-29-41
	2S	2G	CFM/SIDE THROW, FT.	337	15-18-26		450	18-21-30		562	19-24-34		675	21-25-37		787	24-27-39		900	24-28-42		1012	26-31-44							
	1S	CFM/SIDE THROW, FT.	675	20-26-36		900	24-29-41		1125	27-34-46		1350	29-36-49		1575	31-38-53		1800	34-42-56		2025	37-44-60								

For performance notes, see next page.

Performance Data

Models 6500IV and 6200IV • Square Neck • Induction Vanes

NOMINAL NECK SIZE	BLOW PATTERNS	NECK VELOCITY TP	300 .035	400 .062	500 .097	600 .140	700 .191	800 .249	900 .316
21 x 21 3.06 SQ. FT.	RETURN FACTORS —SP=2.6 TP NC + 8	CFM NC	915 18	1225 26	1530 32	1835 36	2140 41	2450 44	2750 47
	4A	CFM/SIDE THROW, FT.	230 14-17-24	306 15-20-27	382 17-22-31	460 18-24-33	535 20-27-35	612 21-27-37	688 22-31-41
	3A	CFM/SIDE THROW, FT.	230 345 12-15-21 16-20-27	306 460 14-18-23 18-22-31	382 573 15-20-27 21-25-36	460 688 16-21-29 22-27-40	535 802 18-22-31 23-29-42	612 918 18-23-32 27-31-45	688 1030 20-27-36 27-34-47
	2S 2G	CFM/SIDE THROW, FT.	458 18-22-31	612 20-25-36	765 22-28-40	917 25-31-44	1070 27-34-47	1225 27-36-50	1375 31-38-48
1S	CFM/SIDE THROW, FT.	917 23-30-41	1225 27-34-47	1530 31-40-54	1835 34-42-57	2140 37-45-62	2450 40-48-66	2750 42-51-70	
24 x 24 4.0 SQ. FT.	RETURN FACTORS —SP=2.7 TP NC + 8	CFM NC	1200 19	1600 27	2000 33	2400 37	2800 41	3200 45	3600 48
	4A	CFM/SIDE THROW, FT.	300 16-19-26	400 19-22-32	500 22-25-35	600 23-26-38	700 25-28-41	800 26-32-44	900 28-32-46
	3A	CFM/SIDE THROW, FT.	300 450 16-19-26 18-22-31	400 600 19-22-32 19-25-37	500 750 22-25-35 23-29-42	600 900 23-26-38 25-30-45	700 1050 25-28-41 29-33-47	800 1200 26-32-44 29-34-51	900 1350 28-32-46 31-38-54
	2S 2G	CFM/SIDE THROW, FT.	600 20-26-36	800 24-29-41	1000 27-34-46	1200 29-36-49	1400 31-38-53	1600 34-42-56	1800 37-44-60
1S	CFM/SIDE THROW, FT.	1200 28-32-47	1600 30-38-54	2000 36-43-62	2400 38-46-66	2800 41-50-72	3200 43-54-74	3600 47-56-81	
30 x 30 6.25 SQ. FT.	RETURN FACTORS —SP=3.1 TP NC + 8	CFM NC	1875 20	2500 28	3125 34	3750 39	4375 43	5000 46	5625 50
	4A	CFM/SIDE THROW, FT.	469 20-25-34	625 23-29-38	782 27-32-44	937 29-35-49	1093 30-37-52	1250 32-40-55	1406 37-42-58
	3A	CFM/SIDE THROW, FT.	469 703 20-25-34 22-27-39	625 938 23-29-38 26-31-46	782 1172 27-32-44 28-35-51	937 1405 29-35-49 31-39-55	1093 1640 30-37-52 33-39-59	1250 1875 32-40-55 35-46-62	1406 2110 37-42-58 39-48-66
	2S 2G	CFM/SIDE THROW, FT.	937 26-32-44	1250 30-38-50	1562 34-42-58	1875 38-46-62	2187 40-48-66	2500 42-52-70	2812 46-54-76
1S	CFM/SIDE THROW, FT.	1875 34-42-58	2500 39-48-66	3125 45-55-74	3750 48-58-82	4375 50-62-87	5000 55-66-117	5625 58-70-98	
36 x 36 9.0 SQ. FT.	RETURN FACTORS —SP=3.6 TP NC + 9	CFM NC	2700 22	3600 29	4500 35	5400 40	6300 44	7200 48	8100 52
	4A	CFM/SIDE THROW, FT.	675 24-30-41	900 27-33-46	1125 31-37-54	1350 33-41-59	1575 35-42-62	1800 41-46-66	2025 41-51-70
	3A	CFM/SIDE THROW, FT.	675 1010 24-30-41 27-35-46	900 1350 27-33-46 32-38-54	1125 1687 31-37-54 37-45-62	1350 2025 33-41-59 38-48-66	1575 2362 35-42-62 42-51-70	1800 2700 41-46-66 46-56-75	2025 3038 41-51-70 50-59-80
	2S 2G	CFM/SIDE THROW, FT.	1350 32-36-54	1800 34-43-61	2250 40-49-69	2700 43-52-74	3150 46-56-81	3600 49-61-83	4050 54-63-90
1S	CFM/SIDE THROW, FT.	2700 39-49-68	3600 47-56-79	4500 53-64-91	5400 58-68-98	6300 61-73-105	7200 66-78-114	8100 70-85-120	

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CEILING DIFFUSERS

CFM - cubic feet per minute
Neck Velocity - feet per minute

TP - total pressure - inches w.g.
NC - Noise Criteria (values) based on 10 dB room absorption, re 10⁻¹² watts.

Performance Notes:

1. Throw values are given for terminal velocities of 150, 100 and 50 fpm under isothermal conditions. Data applies to ceiling mounted units when the maximum coanda effect applies. When no ceiling is present (exposed

duct), throws are reduced by approximately 25%.

2. Sound levels in performance tables are for steel construction – **Model 6500IV**. Apply the following corrections for aluminum construction – **Model 6200IV**.

TP = Listed value x 1.25.
NC = Listed value + 4.

3. Performance data as tabulated is for supply air conditions. Correction factors for return air application - see next page.

4. Correction factors for round inlets - see next page.

5. Data derived from tests conducted in accordance with ANSI/ASHRAE Standard 70 – 1991.

Performance Data Corrections

Model Series 6500IV and 6200IV

CORRECTION FACTORS FOR RETURN INLET

If the unit is used as a return inlet, the performance data is obtained by applying the return corrections, as follows:

- Add the NC correction at the left side of the table to the NC value listed in the performance table.
- Multiply the listed SP factor at the left side of the table by the total pressure (TP) listed at the top of the table.

Example:

12" x 12" unit handling 600 cfm of return air. (Page D38).

- Return NC = 32 + 4 = 36.
- Return negative SP = 1.3 x (-.14) = -.182.

CORRECTION FACTORS WITH SQUARE TO ROUND INLET ADAPTOR

- Add the NC correction factor from Table 2 and the NC value listed in the performance tables.
- Multiply the correction factor from Table 2 by the listed total pressure in the performance tables.
- Multiply the correction factor from Table 2 by the listed throws in the performance tables.

Example:

12" x 12" unit with 10" round adaptor handling 500 cfm supply air. (Page D38).

- NC = 27 + 7 = 34
- Total Pressure = .097 x 1.65 = 0.160
- Throw = 17 x 1.15 = 19.55 feet @ 50 fpm terminal velocity.

TABLE 2 Correction Factors for SR Adaptors

SQUARE INLET	ROUND INLET	NC (add)	TP (multiply)	THROW (multiply)		
				150	100	50
6 x 6	5	7	1.65	1.10	1.10	1.15
9 x 9	6	17	3.50	1.15	1.15	1.20
9 x 9	8	4	1.40	1.10	1.10	1.10
12 x 12	8	17	3.50	1.15	1.15	1.20
12 x 12	10	7	1.65	1.10	1.10	1.15
15 x 15	10	17	3.50	1.15	1.15	1.20
15 x 15	12	9	1.90	1.10	1.10	1.15
15 x 15	14	3	1.25	1.05	1.05	1.10
18 x 18	12	17	3.50	1.15	1.15	1.20
18 x 18	14	10	2.00	1.10	1.10	1.15
18 x 18	16	5	1.45	1.10	1.10	1.10
21 x 21	14	17	3.70	1.15	1.15	1.20
21 x 21	16	11	2.25	1.10	1.10	1.15
21 x 21	18	6	1.60	1.10	1.10	1.10
21 x 21	20	3	1.20	1.05	1.05	1.10
24 x 24	16	17	3.50	1.15	1.15	1.20
24 x 24	18	12	2.35	1.10	1.10	1.15
24 x 24	20	7	1.65	1.10	1.10	1.15
24 x 24	22	4	1.33	1.05	1.05	1.10