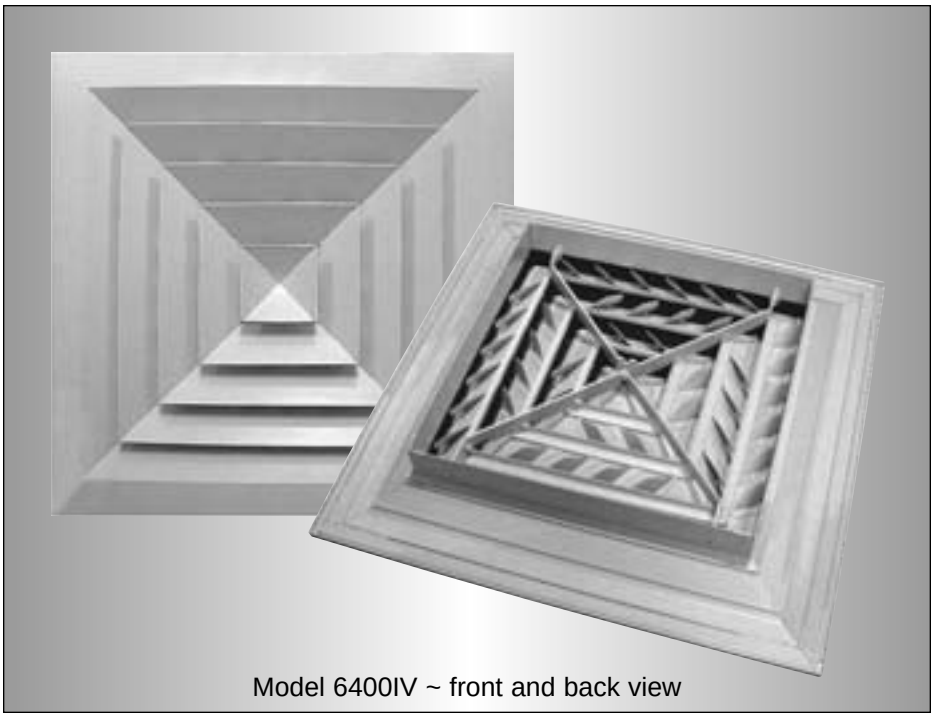
SQUARE AND RECTANGULAR INDUCTION VANE CEILING DIFFUSERS

- LOUVERED FACE
- EXTRA HIGH CAPACITY
- 1,2,3 or 4-WAY BLOW PATTERN
- SQUARE, RECTANGULAR OR ROUND NECKS
- EXTRUDED ALUMINUM



Model 6400IV ~ front and back view

Model:
6400IV Fixed Pattern

- **Suffix '-O' adds a steel opposed blade damper**
- **Suffix '-OA' adds an aluminum opposed blade damper**

The **Nailor 6400IV Induction Vane Pattern Ceiling Diffuser** has been specially designed for optimum performance in both heating and cooling applications. The 6400IV is a high capacity, high induction, louvered face directional diffuser that can supply large volumes of air at relatively low sound levels and pressure drops.

The diffuser features aerodynamically designed straight angled louvers on 1 1/2" (38) centers. The induction vanes, mounted on the back of each louver are also spaced on 1 1/2" (38) centers and angled at 45 degrees. Vane sets on adjacent parallel louvers run in opposite directions and cause primary air to emerge from each louver at alternating angles. The induction vanes create counter-flowing jets of turbulent discharge air that promote high induction rates and rapid temperature equalization. This high induction characteristic is ideal for VAV applications involving both high cooling and heating loads, producing superior room air mixing while minimizing the potential for uncomfortable drafts in the occupied space.

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.

STANDARD 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 horizontal blow in a wide selection of square and rectangular neck sizes. (See page D64).
- Clean lines with no unsightly visible screws.
- Square-to-round transition collars are available (SR option).
- Optional opposed blade damper with screwdriver slot operator for square and rectangular necks. Radial opposed blade dampers are also available for round necks.

Material: Extruded aluminum.

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:

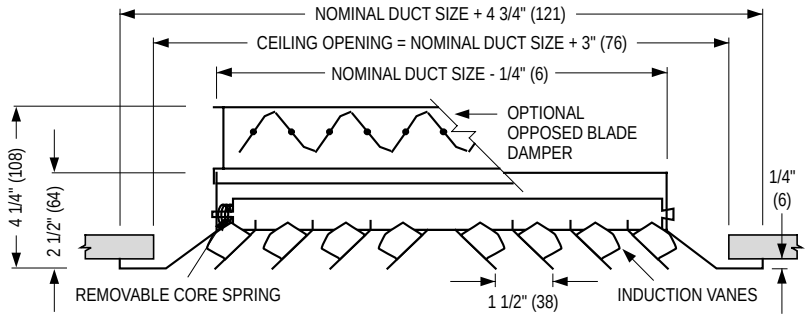
Types S, B and D: 36" x 36" (914 x 914).

Types L, SP, TL, M and F: see page D62.

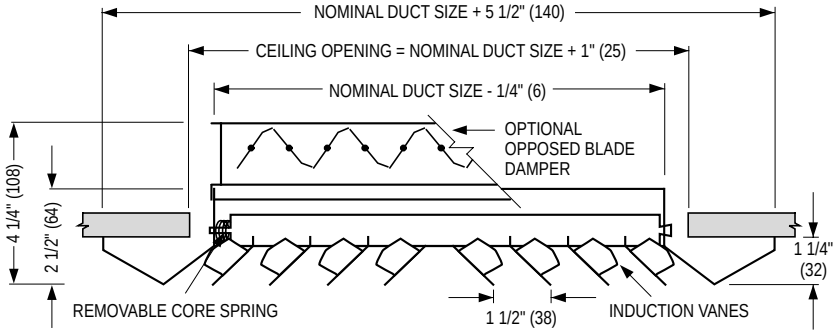
Dimensional Data and Frame Types

Model Series 6400IV

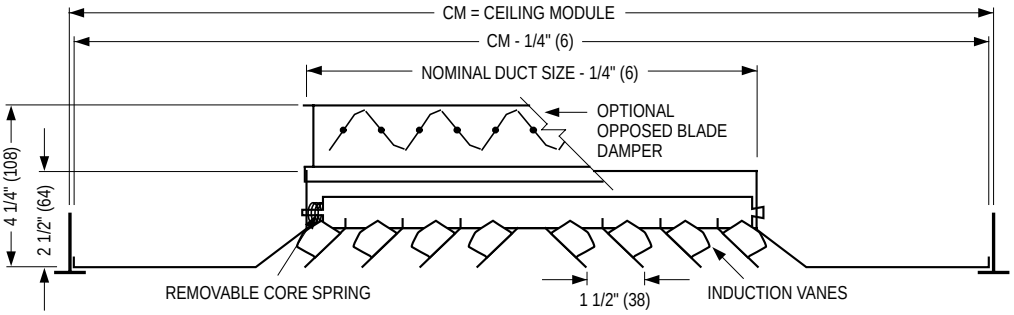
Type S
Surface Mount
Frame



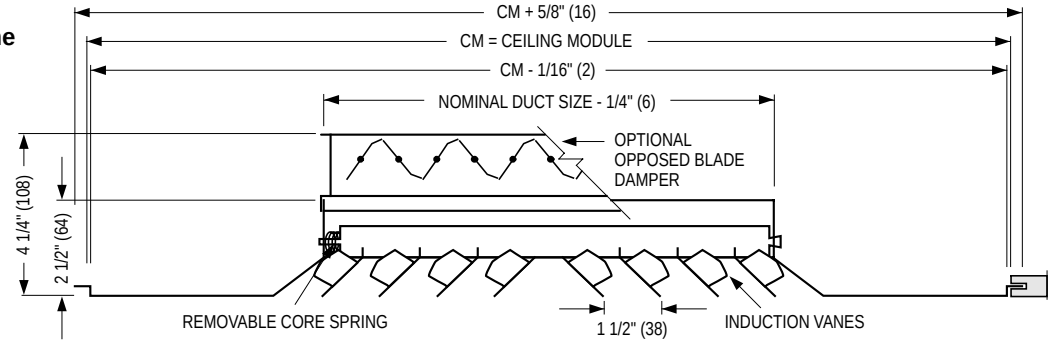
Type B
Beveled Drop
Face Frame



Type L
Lay-In
T-Bar Frame



Type SP
Spline Frame



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).

Extended Panel Diffusers
Frame Types L, SP, M, TL 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.

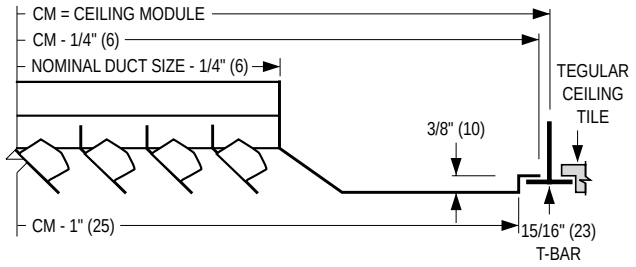
See the table at right for the maximum duct size for each module size.

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)	–

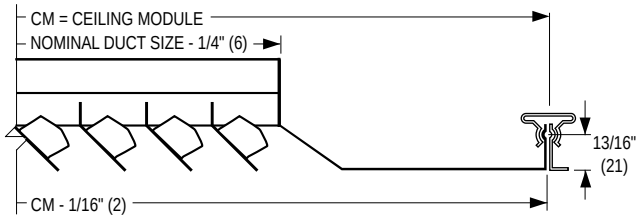
Dimensions are in inches (mm).

Dimensional Data and Frame Types
Model Series 6400IV

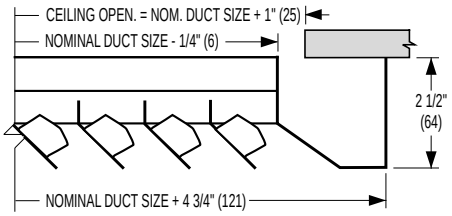
Type TL Tegular Lay-in



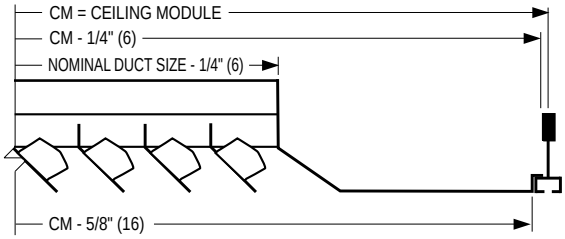
Type M Metal Pan (Snap-in)



Type D Deep Drop Face

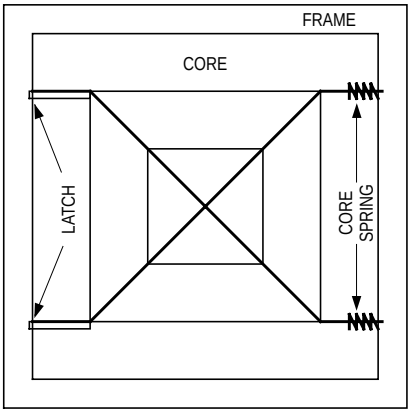


Type F Fineline®



SPRING LOADED REMOVABLE CORE

- Standard feature.
- Engineered design permits fast and easy removal for speedy "through the neck" installation in hard duct drops and for access to optional air balancing devices.
- No tools required.
- No unsightly, retaining screws visible to spoil smooth aesthetic lines.
- Latching mechanism ensures core remains securely in place.



HOW TO REMOVE CORE

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

Standard Core Styles

Model 6400IV

Type 1S

Type 2S

Type 2G

Type 3A

Type 4A

Contact factory for special core configurations.

	SQUARE	RECTANGULAR	CORE	SIZES AVAILABLE MINIMUM	SIZES AVAILABLE MAXIMUM
1-WAY	1S	1A, 1B	1S 1A 1B	6 x 6 (152 x 152) 9 x 6 (229 x 152) 9 x 6 (229 x 152)	36 x 36 (914 x 914) 36 x 33 (914 x 838) 36 x 33 (914 x 838)
2-WAY	2S	2A, 2B	2S 2A 2B	6 x 6 (152 x 152) 9 x 6 (229 x 152) 9 x 6 (229 x 152)	36 x 36 (914 x 914) 36 x 33 (914 x 838) 36 x 33 (914 x 838)
2-WAY CORNER	2G	2C, 2D, 2E, 2F	2G 2C 2D 2E 2F	6 x 6 (152 x 152) 9 x 6 (229 x 152) 9 x 6 (229 x 152) 9 x 6 (229 x 152) 9 x 6 (229 x 152)	36 x 36 (914 x 914) 36 x 33 (914 x 838) 36 x 33 (914 x 838) 36 x 33 (914 x 838) 36 x 33 (914 x 838)
3-WAY	3A, 3H	3A1 (A is greater than B), 3A2 (B is less than A but greater than A/2), 3B (B is equal to A/2), 3C, 3E (B is less than A/2)	3A 3A1 3A2 3B 3C 3E 3H	6 x 6 (152 x 152) 9 x 6 (229 x 152) 9 x 6 (229 x 152) 12 x 6 (305 x 152) 9 x 6 (229 x 152) 15 x 6 (381 x 152) 6 x 6 (152 x 152)	36 x 36 (914 x 914) 36 x 33 (914 x 838) 36 x 33 (914 x 838) 36 x 18 (914 x 457) 36 x 33 (914 x 838) 36 x 15 (914 x 381) 36 x 36 (914 x 914)
4-WAY	4A	4B, 4C, 4E	4A 4B 4C 4E	6 x 6 (152 x 152) 9 x 6 (229 x 152) 12 x 6 (305 x 152) 15 x 6 (381 x 152)	36 x 36 (914 x 914) 36 x 33 (914 x 838) 36 x 30 (914 x 762) 36 x 27 (914 x 686)

Dimensions are in inches (mm).

Notes:

1. Duct sizes are available in 3" (76) increments.
2. Specify the "x" dimension for 3C and 4E patterns.
   These are non-standard, custom fabrication core styles.
3. Patterns are shown in plan view (looking down into inlet).

HOW TO SPECIFY OR TO ORDER

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

High Capacity Induction Vane Pattern Ceiling Diffusers – Model 6400IV

6400IV - O - 9 x 9 - 24 x 24 - L - AW - 4A - SR08

MODEL
- Aluminum Fixed Pattern 6400IV

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
- Fineline®	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 page D64).

FINISH

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

Note:

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

SUGGESTED SPECIFICATION:

Furnish and install **Nailor Model 6400IV High Capacity Induction Vane Pattern Ceiling Diffusers** of the size and type shown on the plans and air distribution schedules. Diffusers shall be designed for optimum performance in both heating and cooling applications. Diffuser shall be of extruded aluminum construction with miscellaneous steel components. Blades and frame shall have reinforced staked mitered corners for high quality appearance and function. Diffusers shall consist of an outer frame assembly to suit the application shown, which includes an integral collar for connection to the square or rectangular duct size indicated. A square to round transition collar shall be supplied where indicated to facilitate attachment of round duct.

An inner core assembly consisting of fixed deflection louvers on 1 1/2" (38) centers, capable of producing either a 1, 2, 3 or 4-way horizontal airflow discharge pattern as indicated on the plans shall be securely held in place by a spring loaded mechanism without the need for visible screws. The deflection angle of each louver shall be constant (diffuser designs with a horizontal lip at the point of discharge are not acceptable). Aluminum induction vanes on 1 1/2" (38) centers shall be mounted in extrusion slots and welded to the rear of each louver of the inner core. The vanes shall be orientated at 45° in opposite direction on alternating louvers to promote rapid temperature equalization and ensure high induction and rapid mixing of the primary and room air. The core shall be fully removable in the field without tools for the purpose of installation, cleaning or damper adjustment. Diffuser 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.

ADPI - Air Diffusion Performance Index Analysis - Room Temperature/Velocity Traverse

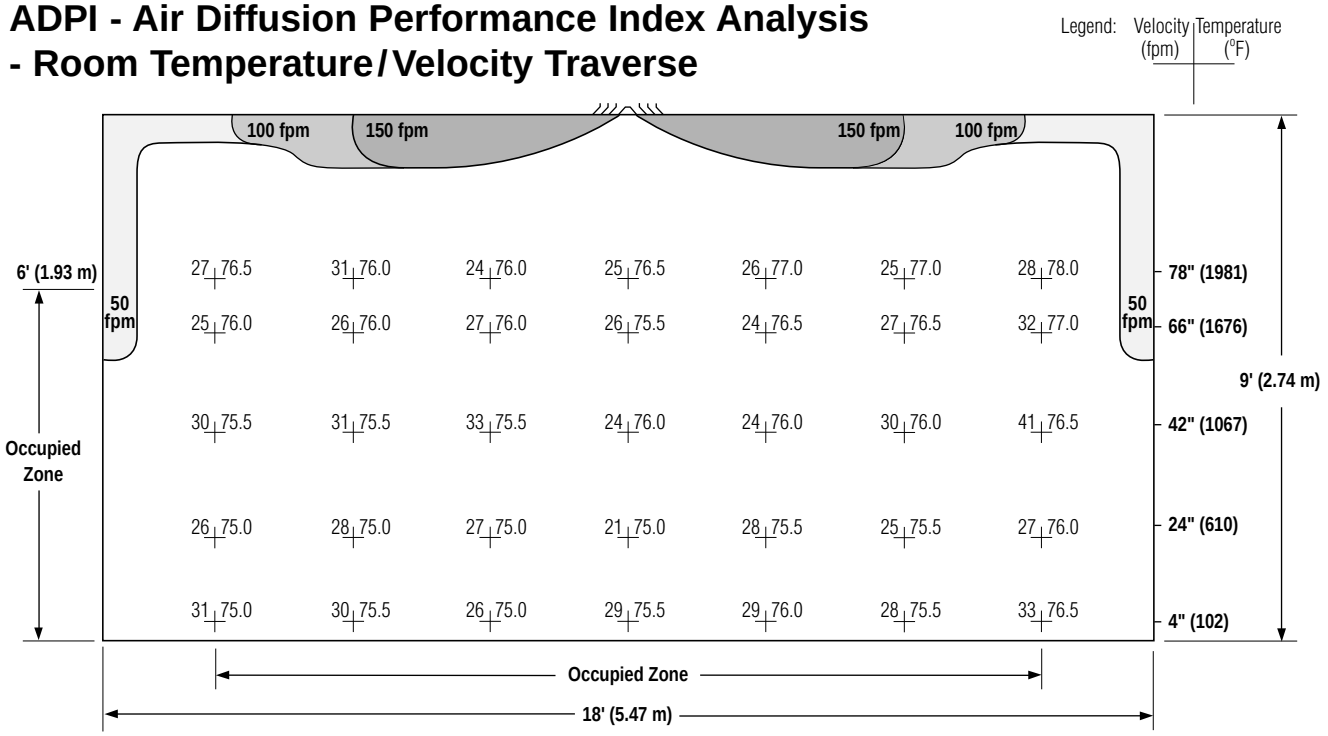


Figure 1. ADPI Analysis.

Air Diffusion Performance Index (ADPI) is a single number rating of air diffuser performance when in cooling mode. ADPI relates the space conditions of local traverse temperatures and velocities to occupants' thermal comfort.

Extensive studies have determined relationships between local temperatures, velocities and comfort reaction. On the basis of the temperature and velocity at a specific point, an effective draft temperature can be calculated for that location.

Equation for Effective Draft Temperature:

$$ø = (t_x - t_c) - 0.07\ (V_x - 30)$$

where: ø = effective draft temperature

t_x = local air temperature (°F).

t_c = ambient temperature (setpoint, °F).

V_x = local air velocity (fpm).

Research has shown that a high percentage of people are comfortable when the effective draft temperature is between -3 and +2 at a velocity less than 70 fpm. ADPI is defined as the percentage of locations in the occupied space, which meet this comfort criteria and therefore represents the overall comfort level of an occupied space. The higher the ADPI number, the higher the comfort level in the space. For most commercial applications including offices, ADPI values of 80 or higher are desired.

ADPI values vary as the ratio of the throw (T) to the characteristic length (L) vary, for a particular diffuser and flow rate. Throw values (T) at 50 fpm terminal velocity are used for diffusers in most commercial and institutional buildings. Length (L) is measured from the center of the diffuser to the closest wall, or to the meeting point with the throw of another diffuser.

Ranges of T/L to yield desired values of the ADPI for various types of supply air outlet are provided in the Space Air Diffusion Chapter in the ASHRAE Fundamentals Handbook. Using louvered ceiling diffusers, for an ADPI greater than 80, the suggested range of T_{50}/L is 1.0 – 3.4.

These T/L guideline values were developed from testing a particular air outlets' ADPI at several cooling room loads via the method reported in ANSI/ASHRAE Standard 113 1990, "Method of Testing for Room Air Diffusion." The ADPI T/L technique uses isothermal throw data as cataloged and determined under ANSI/ASHRAE Standard 70 "Method of Testing for Rating the Performance of Air Outlets and Inlets."

Figure 1 is an example in a single plane of a temperature and velocity traverse to determine the ADPI for a space, based upon the method prescribed in ANSI/ASHRAE Standard 113.

Notes on Figure 1.

Test Room Size: 18' x 24' x 9'

Diffuser: 6400IV, 12" x 12" neck, 4-way pattern.

Supply Air: 400 cfm @ 56°F

Setpoint: 76°F (Δt = 20°F)

Cooling Load: 20.1 Btuh/sq.ft.

Throw: 13 ft. (@50 fpm terminal velocity)

T_{50}/L = 1.45

ADPI = 100

Application and Air Pattern Guidelines

The use of overhead ceiling diffusers is currently far and away the most popular and economical way to introduce conditioned air into an occupied space. Commercial buildings require cooling a predominant amount of the time and overhead cooling is a well understood science. Most ceiling diffusers perform extremely well, even in variable volume applications during the cooling mode.

Ceiling diffusers take advantage of a phenomenon known as the coanda or ceiling effect. A low pressure zone is developed at the ceiling and the air projection tends to stick to or hug the ceiling as its travels away from the diffuser. This characteristic of non-free air jets usually enables the ventilation of conditioned spaces without undesirable cold air drafts dropping into the occupied zone during the cooling mode. High levels of occupant comfort and satisfaction can therefore be achieved.

Conversely, overhead heating which may be required intermittently, particularly in the perimeter of a building is usually more of a compromise. The natural buoyancy of warm heating air tends to keep the air pattern up at or near the ceiling. If the air is too warm, stratification and short circuiting may result, where the air does not have an opportunity to mix well with the room air and the warmth therefore does not reach the occupied space. ASHRAE recommends a maximum temperature differential of 15°F ΔT for comfort heating.

Figure 2 illustrates a traditional pattern diffuser (e.g. Nailor Model 6400) with angled louvers, developed for high capacity at low sound levels. A distinct directional (4-way) air pattern is produced with a partial downblow component, but at low flows as typically encountered in VAV systems, the air may fall away from the ceiling or dump, producing drafts in the occupied space during cooling. Air emanates from this diffuser design at an angle of approximately 20 degrees down from the ceiling. It is therefore not recommended for ceiling heights below 10' 6" due to the possibility of excessive velocities in the occupied space. Figure 3 illustrates the currently popular pattern diffuser, which features the addition of a horizontal lip on the leading edge of the louvers (e.g. Nailor Models 6200 and 6500). This feature was added by most manufacturers to help maintain good ceiling effect at low flows during cooling when VAV systems became predominant. However this design increases the risk of stratification and short circuiting during the heating mode.

The Nailor 6400IV Induction Vane Diffuser has been designed to optimize performance in both heating and cooling applications. Figure 4 illustrates a typical isovel envelope for the Nailor 6400IV diffuser. The depth of the envelope is somewhere between the aforementioned diffuser designs. Induction vanes increase turbulence as the conditioned air enters the space, resulting in an increase in room air induction and more rapid temperature equalization. Notice that the induction vanes also produce an increase in the spread of the air stream. This produces a more evenly distributed air pattern with shorter throws. Diffuser placement flexibility is therefore increased and the potential for opposing diffuser air streams colliding and entering the occupied space is reduced.

The Nailor 6400IV diffuser is therefore the perfect choice for commercial applications where comfort cooling and heating is desired.

6400IV Diffuser Air Pattern Smoke Test

The photo in Figure 5 illustrates how the induction vanes on a 4-way blow pattern generate turbulence and increase room air induction at the point of discharge. Rapid mixing of primary and room air and temperature equalization is achieved; resulting in gentle, draftless air movement in the occupied space, ensuring a high degree of occupant comfort.

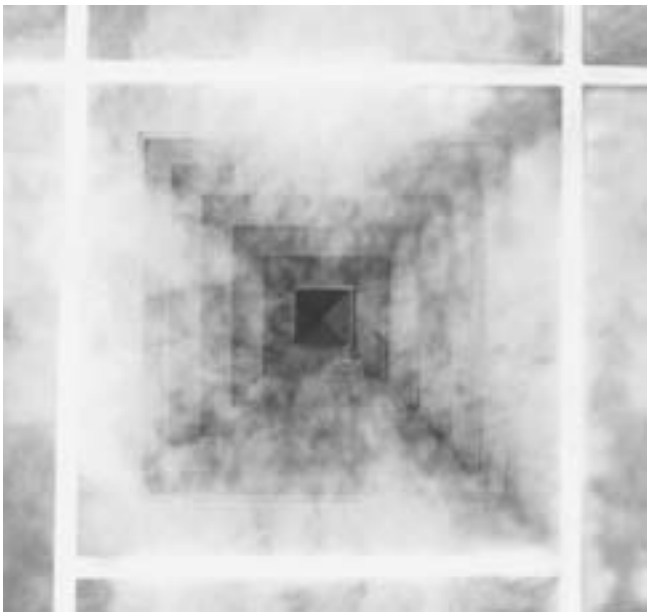


Figure 5. Laboratory Smoke Test.
6400IV Induction Vane Diffuser, 4-way Blow Pattern.

Figure 2.
Traditional Pattern Diffuser.

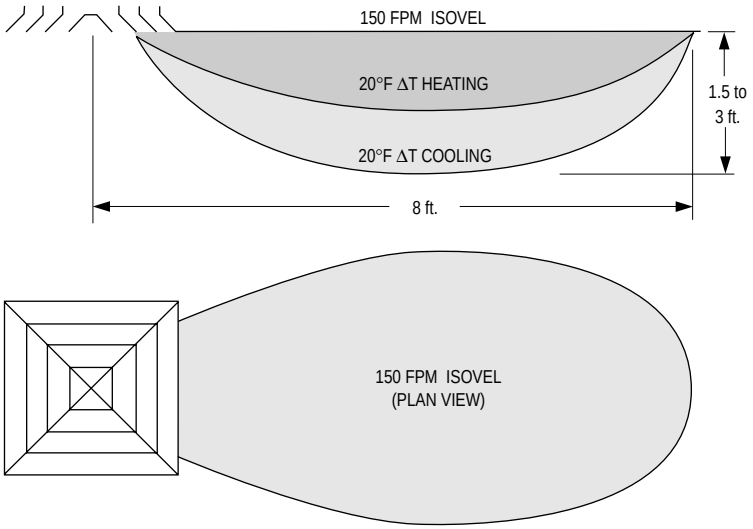


Figure 3.
Pattern Diffuser with Horizontal Lip on Louvers.

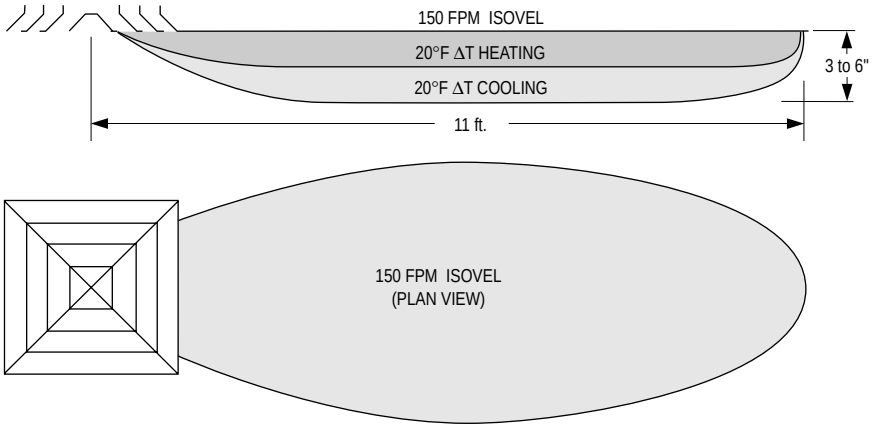
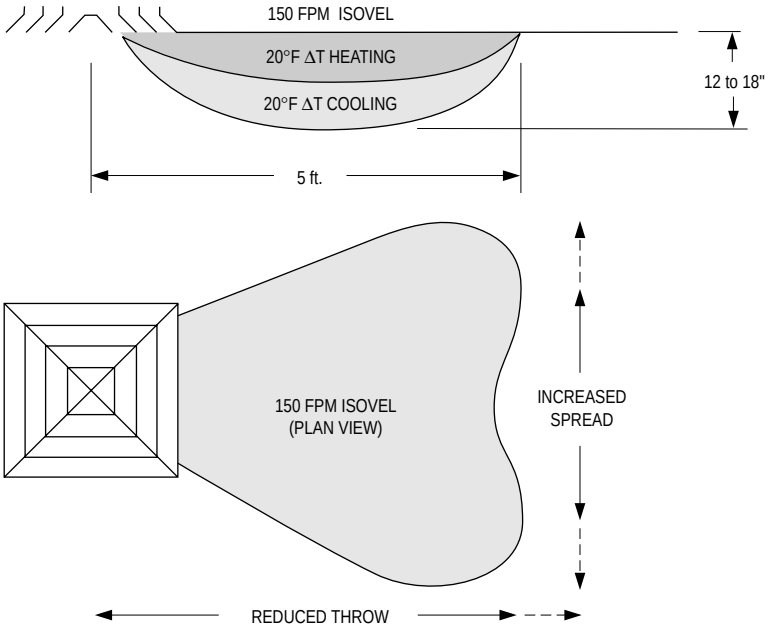


Figure 4.
6400IV Series
Induction Vane Diffuser



Note:
These illustrations are provided for guidance purposes in order to illustrate the relative difference between pattern ceiling diffusers with and without induction vanes. The 150 fpm throw isovel for a 12" x 12" neck @ 400 cfm is illustrated. A 4-way diffuser is shown, but the airstream projection is only shown in one direction for reasons of space and is the same for the other three sides.

Performance Data

Model 6400IV • Square Neck

Core Style 4A • 4-way blow pattern

Nominal Neck Size	Neck Velocity, fpm	100	200	300	400	500	600	700
	Velocity Pressure	0.001	0.002	0.006	0.010	0.016	0.022	0.031
	Total Pressure	0.003	0.012	0.026	0.046	0.072	0.103	0.140
6 x 6	Airflow, cfm	25	50	75	100	125	150	175
	Throw	1-2-2	2-2-4	2-3-5	3-5-7	3-6-8	4-6-10	4-7-12
	NC	–	–	–	–	15	21	26
9 x 9	Airflow, cfm	56	113	169	225	281	338	394
	Throw	2-2-3	2-3-5	3-5-7	4-5-9	4-6-11	5-8-13	6-9-16
	NC	–	–	–	–	18	24	29
12 x 12	Airflow, cfm	100	200	300	400	500	600	700
	Throw	2-2-4	3-4-7	4-5-10	5-7-13	6-8-16	7-10-19	8-11-22
	NC	–	–	–	13	20	27	32
15 x 15	Airflow, cfm	156	313	469	625	781	938	1094
	Throw	2-3-5	3-5-8	4-6-12	6-8-15	7-10-19	8-12-23	9-14-26
	NC	–	–	–	15	22	29	34
18 x 18	Airflow, cfm	225	450	675	900	1125	1350	1575
	Throw	3-3-6	4-6-10	6-8-15	7-10-19	9-12-24	10-15-28	12-17-33
	NC	–	–	–	16	23	30	35
21 x 21	Airflow, cfm	306	613	919	1225	1531	1838	2144
	Throw	3-4-6	4-6-11	6-9-17	8-11-22	10-14-27	11-17-32	13-19-37
	NC	–	–	–	18	25	31	36
24 x 24	Airflow, cfm	400	800	1200	1600	2000	2400	2800
	Throw	3-4-7	5-7-12	7-10-18	9-12-24	10-15-29	12-18-35	14-21-41
	NC	–	–	12	19	26	32	37

For performance notes, see page D76.

Performance Data

Model 6400IV • Square Neck

Core Style 3A • 3-way blow pattern

Nominal Neck Size	Neck Velocity, fpm	100	200	300	400	500	600	700
	Velocity Pressure	**0.001**	**0.002**	**0.006**	**0.010**	**0.016**	**0.022**	**0.031**
	Total Pressure	**0.003**	**0.012**	**0.026**	**0.046**	**0.072**	**0.103**	**0.140**
6 x 6	**Total Airflow, cfm**	**25**	**50**	**75**	**100**	**125**	**150**	**175**
	Throw (cfm) Side A	1-1-2 (6)	2-2-4 (13)	2-3-5 (19)	3-4-7 (25)	3-5-8 (31)	4-5-10 (37)	4-6-11 (44)
	Throw (cfm) Side B	2-2-3 (9)	2-3-5 (19)	3-4-6 (28)	3-5-8 (38)	4-5-10 (47)	5-6-12 (56)	5-7-14 (66)
	NC	–	–	–	–	15	21	26
9 x 9	**Total Airflow, cfm**	**56**	**113**	**169**	**225**	**281**	**338**	**394**
	Throw (cfm) Side A	2-2-3 (14)	2-3-5 (28)	3-4-7 (42)	4-5-9 (56)	4-6-11(70)	5-7-13 (84)	6-8-15 (99)
	Throw (cfm) Side B	2-2-4 (21)	3-4-7 (43)	4-5-9 (64)	5-7-12 (84)	6-8-15 (105)	7-9-18 (127)	8-11-21 (148)
	NC	–	–	–	–	18	24	29
12 x 12	**Total Airflow, cfm**	**100**	**200**	**300**	**400**	**500**	**600**	**700**
	Throw (cfm) Side A	2-2-4 (25)	3-4-7 (50)	4-5-10 (75)	5-7-13 (100)	6-8-16 (125)	7-10-19 (150)	8-11-22 (175)
	Throw (cfm) Side B	2-3-5 (38)	3-5-8 (75)	5-6-12 (113)	6-8-16 (150)	7-10-19 (188)	8-12-23 (225)	10-14-27 (263)
	NC	–	–	–	13	20	27	32
15 x 15	**Total Airflow, cfm**	**156**	**313**	**469**	**625**	**781**	**938**	**1094**
	Throw (cfm) Side A	2-3-5 (39)	3-5-8 (78)	4-6-12 (117)	6-8-15 (156)	7-10-19 (195)	8-12-23 (235)	9-14-26 (273)
	Throw (cfm) Side B	3-3-6 (59)	4-6-10 (117)	6-8-15 (176)	7-10-20 (234)	9-13-24 (293)	10-15-29 (352)	12-17-34 (410)
	NC	–	–	–	15	22	29	34
18 x 18	**Total Airflow, cfm**	**225**	**450**	**675**	**900**	**1125**	**1350**	**1575**
	Throw (cfm) Side A	3-3-6 (56)	4-6-10 (113)	6-8-15 (169)	7-10-19 (225)	9-12-24 (281)	10-15-28 (338)	12-17-33 (394)
	Throw (cfm) Side B	3-4-6 (84)	5-6-12 (169)	6-9-17 (253)	8-12-22 (338)	10-14-28 (422)	12-17-33 (506)	13-20-38 (591)
	NC	–	–	–	16	23	30	35

Core Style 2S • 2-way opposite blow pattern

Nominal Neck Size	Neck Velocity, fpm	100	200	300	400	500	600	700
	Velocity Pressure	**0.001**	**0.002**	**0.006**	**0.010**	**0.016**	**0.022**	**0.031**
	Total Pressure	**0.003**	**0.014**	**0.031**	**0.056**	**0.087**	**0.126**	**0.171**
6 x 6	**Airflow, cfm**	**25**	**50**	**75**	**100**	**125**	**150**	**175**
	Throw	2-2-3	2-3-5	3-4-7	4-5-10	5-6-12	5-7-14	6-9-16
	NC	–	–	–	–	17	23	28
9 x 9	**Airflow, cfm**	**56**	**113**	**169**	**225**	**281**	**338**	**394**
	Throw	2-3-4	3-4-7	4-6-11	5-7-14	6-9-17	7-11-20	8-12-23
	NC	–	–	–	13	20	27	32
12 x 12	**Airflow, cfm**	**100**	**200**	**300**	**400**	**500**	**600**	**700**
	Throw	2-3-5	4-5-9	5-7-13	6-9-16	7-11-20	9-13-24	10-14-28
	NC	–	–	–	15	22	29	34
15 x 15	**Airflow, cfm**	**156**	**313**	**469**	**625**	**781**	**938**	**1094**
	Throw	3-3-6	4-6-10	6-8-15	7-10-20	9-13-24	10-15-29	12-17-33
	NC	–	–	–	17	24	31	36
18 x 18	**Airflow, cfm**	**225**	**450**	**675**	**900**	**1125**	**1350**	**1575**
	Throw	3-4-6	4-6-11	6-9-17	8-11-22	10-14-27	11-17-32	13-19-37
	NC	–	–	–	18	25	32	37
21 x 21	**Airflow, cfm**	**306**	**613**	**919**	**1225**	**1531**	**1838**	**2144**
	Throw	3-4-7	5-7-13	7-10-18	9-13-24	11-15-30	13-18-36	15-21-42
	NC	–	–	13	20	27	33	38
24 x 24	**Airflow, cfm**	**400**	**800**	**1200**	**1600**	**2000**	**2400**	**2800**
	Throw	3-4-7	5-7-13	7-10-20	9-13-26	11-16-32	13-20-38	15-23-44
	NC	–	–	14	21	28	34	39

For performance notes, see page D76.

Performance Data

Model 6400IV • Square Neck

Core Style 2G • 2-way corner blow pattern

Nominal Neck Size	Neck Velocity, fpm	100	200	300	400	500	600	700
	Velocity Pressure	0.001	0.002	0.006	0.010	0.016	0.022	0.031
	Total Pressure	0.003	0.014	0.031	0.056	0.087	0.126	0.171
6 x 6	Total Airflow, cfm	25	50	75	100	125	150	175
	Throw	2-2-3	2-3-5	3-5-7	4-5-10	5-6-12	5-7-14	4-9-16
	NC	–	–	–	–	17	23	28
9 x 9	Total Airflow, cfm	56	113	169	225	281	338	394
	Throw	2-3-4	3-4-7	4-6-11	5-7-14	6-9-17	7-11-20	8-12-23
	NC	–	–	–	13	20	27	32
12 x 12	Total Airflow, cfm	100	200	300	400	500	600	700
	Throw	2-3-5	4-5-9	5-7-13	6-9-16	7-11-20	9-13-24	10-14-28
	NC	–	–	–	15	22	29	34
15 x 15	Total Airflow, cfm	156	313	469	625	781	938	1094
	Throw	3-3-6	4-6-10	6-8-15	7-10-20	9-13-24	10-15-29	12-17-33
	NC	–	–	–	17	24	31	36
18 x 18	Total Airflow, cfm	225	450	675	900	1125	1350	1575
	Throw	3-4-6	4-6-11	6-9-17	8-11-22	10-14-27	11-17-32	13-19-37
	NC	–	–	–	18	25	32	37

Core Style 1S • 1-way blow pattern

Nominal Neck Size	Neck Velocity, fpm	100	200	300	400	500	600	700
	Velocity Pressure	0.001	0.002	0.006	0.010	0.016	0.022	0.031
	Total Pressure	0.003	0.014	0.031	0.056	0.087	0.126	0.171
6 x 6	Airflow, cfm	25	50	75	100	125	150	175
	Throw	2-3-4	3-4-7	4-6-10	5-7-13	6-9-18	7-10-20	5-12-23
	NC	–	–	–	–	17	23	28
9 x 9	Airflow, cfm	56	113	169	225	281	338	394
	Throw	2-3-5	4-5-9	5-7-13	6-9-17	8-11-21	9-13-25	10-15-29
	NC	–	–	–	13	20	27	32
12 x 12	Airflow, cfm	100	200	300	400	500	600	700
	Throw	2-3-5	4-5-10	5-8-13	7-10-19	8-12-23	10-14-28	11-17-32
	NC	–	–	–	15	22	29	34
15 x 15	Airflow, cfm	156	313	469	625	781	938	1094
	Throw	3-3-6	4-6-11	6-8-16	8-11-21	9-13-26	11-16-31	13-18-36
	NC	–	–	–	17	24	31	36
18 x 18	Airflow, cfm	225	450	675	900	1125	1350	1575
	Throw	3-4-6	5-6-12	6-9-17	8-12-23	10-15-28	12-17-33	14-20-39
	NC	–	–	–	18	25	32	37
21 x 21	Airflow, cfm	306	613	919	1225	1531	1838	2144
	Throw	3-4-7	5-7-13	7-10-19	9-13-25	11-16-31	13-19-38	15-22-44
	NC	–	–	13	20	27	33	38
24 x 24	Airflow, cfm	400	800	1200	1600	2000	2400	2800
	Throw	3-4-7	5-7-14	7-11-20	10-14-27	12-17-33	14-20-40	16-24-46
	NC	–	–	14	21	28	34	39

For performance notes, see page D76.

Performance Data

Model 6400IV • Rectangular Neck

Core Style 4B • 4-way blow pattern

Nominal Neck Size	Neck Velocity, fpm	100	200	300	400	500	600	700
	Velocity Pressure	0.001	0.002	0.006	0.010	0.016	0.022	0.031
	Total Pressure	0.003	0.012	0.026	0.046	0.072	0.103	0.140
9 x 6	Total Airflow, cfm	38	75	113	150	188	225	263
	Throw (cfm) Side A	2-2-3 (13)	2-3-5 (25)	3-4-7 (38)	4-5-10 (50)	5-6-12 (63)	5-7-14 (75)	6-9-16 (88)
	Throw (cfm) Side B	1-2-2 (6)	2-2-4 (12)	2-3-5 (18)	3-4-7 (25)	3-5-8 (31)	4-8-10 (37)	4-6-11 (43)
	NC	–	–	–	11	22	26	29
12 x 6	Total Airflow, cfm	50	100	150	200	250	300	350
	Throw (cfm) Side A	2-3-4 (19)	2-4-7 (37)	4-5-10 (56)	5-7-12 (75)	6-8-15 (94)	7-10-18 (113)	8-11-21 (131)
	Throw (cfm) Side B	1-2-2 (6)	2-2-4 (13)	2-3-5 (18)	3-4-7 (25)	3-5-8 (31)	4-5-10 (37)	4-6-11 (44)
	NC	–	–	–	12	19	26	30
12 x 9	Total Airflow, cfm	75	150	225	300	375	450	525
	Throw (cfm) Side A	2-3-4 (24)	3-4-7 (47)	4-6-11 (70)	5-7-14 (94)	6-9-17 (117)	7-11-20 (141)	8-12-23 (164)
	Throw (cfm) Side B	2-2-3 (14)	2-3-5 (28)	3-4-7 (42)	4-5-9 (56)	4-6-11 (70)	5-7-13 (84)	6-8-15 (98)
	NC	–	–	–	13	20	27	32
15 x 9	Total Airflow, cfm	94	188	281	375	469	563	656
	Throw (cfm) Side A	2-3-4 (33)	3-4-8 (65)	4-6-11 (98)	6-8-15 (131)	7-10-18 (165)	8-11-20 (198)	9-13-25 (230)
	Throw (cfm) Side B	2-2-3 (14)	2-3-5 (28)	3-4-7 (48)	4-5-9 (56)	4-6-11 (70)	5-7-13 (84)	6-8-15 (98)
	NC	–	–	–	14	21	28	32
18 x 9	Total Airflow, cfm	113	225	338	450	563	675	788
	Throw (cfm) Side A	2-3-5 (42)	3-5-8 (85)	5-7-12 (126)	6-8-16 (169)	7-10-19 (211)	8-12-23 (254)	10-14-27 (296)
	Throw (cfm) Side B	2-2-3 (14)	2-3-5 (28)	3-4-7 (42)	4-5-9 (56)	4-6-11 (70)	5-7-13 (84)	6-8-15 (98)
	NC	–	–	–	15	22	29	33
21 x 9	Total Airflow, cfm	131	263	394	525	656	788	919
	Throw (cfm) Side A	2-3-4 (51)	4-5-9 (103)	5-7-13 (154)	6-9-17 (206)	8-11-21 (258)	9-13-25 (309)	10-15-29 (360)
	Throw (cfm) Side B	2-2-3 (14)	2-3-5 (28)	3-4-7 (42)	4-5-9 (56)	4-6-11 (70)	5-7-13 (84)	6-8-15 (98)
	NC	–	–	–	16	23	30	34
15 x 12	Total Airflow, cfm	125	250	375	500	625	750	875
	Throw (cfm) Side A	2-3-5 (38)	4-5-9 (75)	5-7-12 (112)	6-9-16 (150)	7-11-20 (187)	9-12-24 (225)	10-14-28 (262)
	Throw (cfm) Side B	2-2-4 (25)	3-4-7 (50)	4-5-10 (75)	5-7-13 (100)	6-8-16 (125)	7-10-19 (150)	8-11-22 (175)
	NC	–	–	–	15	22	29	34
18 x 12	Total Airflow, cfm	150	300	450	600	750	900	1050
	Throw (cfm) Side A	2-3-5 (50)	4-5-9 (100)	5-7-13 (150)	6-9-17 (200)	8-11-21 (250)	9-13-25 (300)	10-15-28 (351)
	Throw (cfm) Side B	2-2-4 (25)	3-4-7 (50)	3-5-10 (74)	5-7-13 (99)	6-8-16 (124)	7-10-19 (149)	8-11-22 (173)
	NC	–	–	–	16	23	30	35
21 x 12	Total Airflow, cfm	175	350	525	700	875	1050	1225
	Throw (cfm) Side A	2-3-5 (53)	4-5-9 (125)	5-7-13 (187)	7-9-18 (250)	8-11-22 (312)	9-13-26 (375)	11-15-30 (437)
	Throw (cfm) Side B	2-2-4 (35)	3-4-7 (50)	4-5-10 (75)	5-7-13 (100)	6-8-16 (125)	7-10-19 (150)	8-11-22 (175)
	NC	–	16	–	16	23	31	36
24 x 12	Total Airflow, cfm	200	400	600	800	1000	1200	1400
	Throw (cfm) Side A	3-3-6 (75)	4-6-10 (150)	6-8-15 (225)	7-10-19 (300)	9-12-24 (375)	10-15-28 (450)	12-17-33 (525)
	Throw (cfm) Side B	2-2-4 (25)	3-4-7 (50)	4-5-10 (75)	5-7-13 (100)	6-8-16 (125)	7-10-19 (150)	8-11-22 (175)
	NC	–	17	–	17	24	31	36
18 x 15	Total Airflow, cfm	186	375	563	750	938	1125	1313
	Throw (cfm) Side A	2-3-5 (54)	4-5-9 (110)	5-7-12 (164)	6-9-16 (219)	7-10-19 (273)	9-12-24 (328)	10-14-28 (383)
	Throw (cfm) Side B	2-3-5 (39)	3-5-8 (78)	5-6-12 (117)	6-8-15 (156)	7-11-20 (195)	8-12-22 (234)	9-14-26 (273)
	NC	–	16	–	17	24	31	37
21 x 18	Total Airflow, cfm	263	525	785	1050	1310	1575	1840
	Throw (cfm) Side A	3-3-6 (76)	4-6-10 (200)	6-8-15 (225)	7-10-19 (300)	9-12-24 (375)	10-15-28 (450)	12-17-33 (526)
	Throw (cfm) Side B	3-3-6 (56)	4-6-10 (112)	6-8-15 (169)	7-10-19 (225)	9-12-24 (280)	10-15-28 (337)	12-17-33 (394)
	NC	–	18	13	19	26	33	38
24 x 18	Total Airflow, cfm	300	600	900	1200	1500	1800	2100
	Throw (cfm) Side A	3-4-6 (94)	4-6-11 (187)	6-9-16 (281)	8-11-21 (375)	9-14-26 (469)	11-16-32 (563)	13-19-37 (656)
	Throw (cfm) Side B	3-3-6 (56)	4-6-10 (112)	6-8-15 (169)	7-10-19 (225)	9-10-24 (280)	10-15-28 (337)	12-17-33 (394)
	NC	–	–	14	20	27	34	39

For performance notes, see page D76.

Performance Data

Model 6400IV • Rectangular Neck

Core Style 3B • 3-way blow pattern

Nominal Neck Size	Neck Velocity, fpm	100	200	300	400	500	600	700
	Velocity Pressure	0.001	0.002	0.006	0.010	0.016	0.022	0.031
	Total Pressure	0.003	0.012	0.026	0.046	0.072	0.103	0.140
12 x 6	Total Airflow, cfm	50	100	150	200	250	300	350
	Throw (cfm) Side A	2-2-4 (25)	3-4-7 (50)	4-5-10 (75)	5-7-13 (100)	6-8-16 (125)	7-10-19 (150)	8-12-22 (175)
	Throw (cfm) Side B	2-2-3 (13)	2-3-5 (25)	3-4-7 (38)	4-5-10 (50)	5-6-12 (63)	5-7-14 (75)	6-8-15 (88)
	NC	–	–	–	12	19	27	30
18 x 9	Total Airflow, cfm	113	225	338	450	563	675	788
	Throw (cfm) Side A	3-3-6 (57)	3-6-10 (113)	6-8-15 (169)	7-10-19 (225)	9-12-24 (282)	10-15-28 (338)	12-17-33 (394)
	Throw (cfm) Side B	2-3-4 (28)	3-4-7 (56)	4-6-11 (84)	5-7-14 (113)	6-9-17 (141)	7-11-20 (169)	8-12-23 (199)
	NC	–	–	–	15	22	29	33
24 x 12	Total Airflow, cfm	200	400	600	800	1000	1200	1400
	Throw (cfm) Side A	3-4-6 (100)	4-6-11 (200)	6-9-17 (300)	8-11-22 (400)	10-14-27 (500)	11-17-32 (600)	13-19-37 (700)
	Throw (cfm) Side B	2-3-5 (50)	4-5-9 (100)	5-7-13 (150)	6-9-16 (200)	7-11-20 (250)	9-13-24 (300)	10-14-28 (350)
	NC	–	–	–	17	24	31	36

Core Style 3A2 • 3-way blow pattern

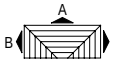
Nominal Neck Size	Neck Velocity, fpm	100	200	300	400	500	600	700
	Velocity Pressure	0.001	0.002	0.006	0.010	0.016	0.022	0.031
	Total Pressure	0.003	0.012	0.026	0.046	0.072	0.103	0.140
9 x 6	Total Airflow, cfm	38	75	113	150	188	225	263
	Throw (cfm) Side A	2-2-3 (15)	2-3-5 (28)	3-4-7 (42)	4-5-10 (56)	5-6-12 (70)	5-7-14 (84)	6-9-16 (98)
	Throw (cfm) Side B	2-2-3 (12)	2-3-5 (23)	3-4-7 (35)	4-5-9 (47)	4-6-11 (58)	5-7-13 (70)	6-8-15 (82)
	NC	–	–	–	11	22	26	29
12 x 9	Total Airflow, cfm	75	150	225	300	375	450	525
	Throw (cfm) Side A	2-3-4 (25)	3-4-6 (50)	4-5-10 (75)	5-7-13 (100)	6-9-16 (125)	7-10-19 (150)	8-12-23 (175)
	Throw (cfm) Side B	2-2-4 (25)	3-4-7 (50)	4-6-10 (75)	5-7-13 (100)	6-8-16 (125)	7-10-20 (150)	8-11-22 (175)
	NC	–	–	–	13	20	27	32
15 x 9	Total Airflow, cfm	94	188	281	375	469	563	656
	Throw (cfm) Side A	2-3-5 (39)	3-5-8 (78)	5-6-12 (117)	6-8-15 (156)	7-10-19 (196)	8-12-22 (235)	9-14-26 (274)
	Throw (cfm) Side B	2-3-4 (27)	3-4-7 (55)	4-6-11 (82)	5-7-14 (109)	6-9-17 (137)	7-11-20 (164)	8-12-23 (191)
	NC	–	–	–	14	21	28	32
15 x 12	Total Airflow, cfm	125	250	375	500	625	750	875
	Throw (cfm) Side A	2-3-5 (39)	3-5-8 (78)	5-6-12 (117)	6-8-15 (156)	7-10-19 (195)	8-12-23 (234)	9-14-26 (273)
	Throw (cfm) Side B	2-3-5 (43)	3-5-8 (86)	5-6-12 (129)	6-8-15 (172)	7-10-19 (215)	8-12-23 (258)	9-14-26 (301)
	NC	–	–	–	15	22	29	34
18 x 15	Total Airflow, cfm	188	375	563	750	938	1125	1313
	Throw (cfm) Side A	3-3-6 (56)	4-6-10 (113)	6-8-15 (168)	7-10-19 (225)	9-12-24 (281)	10-15-28 (338)	12-17-33 (394)
	Throw (cfm) Side B	4-4-7 (66)	5-7-12 (131)	7-9-17 (197)	8-11-21 (262)	10-13-26 (328)	11-16-30 (394)	13-18-35 (459)
	NC	–	–	–	17	24	31	37

For performance notes, see page D76.

Performance Data

Model 6400IV • Rectangular Neck

Core Style 3E • 3-way blow pattern



Nominal Neck Size	Neck Velocity, fpm	100	200	300	400	500	600	700
	Velocity Pressure	0.001	0.002	0.006	0.010	0.016	0.022	0.031
	Total Pressure	0.003	0.012	0.026	0.046	0.072	0.103	0.140
15 x 6	Total Airflow, cfm	63	125	188	250	313	375	438
	Throw (cfm) Side A	2-3-5 (38)	4-5-9 (75)	5-7-12 (113)	6-9-16 (150)	7-11-20 (188)	9-12-24 (225)	10-14-28 (263)
	Throw (cfm) Side B	2-2-3 (13)	2-3-5 (25)	3-4-7 (38)	4-5-10 (50)	5-6-12 (63)	5-7-14 (75)	6-9-16 (88)
	NC	–	–	–	12	19	26	31
21 x 9	Total Airflow, cfm	131	263	394	525	656	788	919
	Throw (cfm) Side A	2-3-5 (75)	4-5-9 (150)	5-7-13 (225)	6-9-17 (300)	8-11-21 (375)	9-13-25 (450)	10-15-29 (525)
	Throw (cfm) Side B	2-3-4 (28)	3-4-7 (56)	4-6-11 (84)	5-7-14 (113)	6-9-17 (141)	7-11-20 (169)	8-12-23 (197)
	NC	–	–	–	16	23	30	34
24 x 9	Total Airflow, cfm	150	300	450	600	750	900	1050
	Throw (cfm) Side A	2-3-5 (94)	4-5-10 (188)	5-8-14 (281)	7-10-19 (375)	8-12-23 (469)	10-14-28 (563)	11-17-32 (656)
	Throw (cfm) Side B	2-3-4 (28)	3-4-7 (56)	4-6-11 (84)	5-7-14 (113)	6-9-17 (141)	7-11-20 (169)	8-12-23 (197)
	NC	–	–	–	17	24	31	36

Core Style 3A1 • 3-way blow pattern

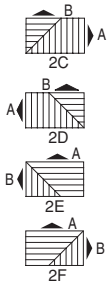
Nominal Neck Size	Neck Velocity, fpm	100	200	300	400	500	600	700
	Velocity Pressure	0.001	0.002	0.006	0.010	0.016	0.022	0.031
	Total Pressure	0.003	0.012	0.026	0.046	0.072	0.103	0.140
9 x 6	Total Airflow, cfm	38	75	113	150	188	225	263
	Throw (cfm) Side A	2-2-3 (16)	3-3-6 (31)	3-5-8 (47)	4-6-10 (62)	5-7-13 (78)	6-8-15 (93)	7-9-18 (109)
	Throw (cfm) Side B	1-2-2 (6)	2-2-4 (12)	2-3-5 (19)	3-4-7 (25)	3-5-8 (31)	4-5-10 (37)	4-6-11(44)
	NC	–	–	–	11	22	26	29
12 x 6	Total Airflow, cfm	50	100	150	200	250	300	350
	Throw (cfm) Side A	2-2-4 (22)	3-4-6 (44)	4-5-9 (66)	5-6-12 (88)	6-8-15 (109)	6-9-17 (131)	7-11-20 (153)
	Throw (cfm) Side B	1-2-2 (6)	2-2-4 (13)	2-3-5 (19)	3-4-7 (25)	3-5-8 (32)	4-5-10 (38)	4-6-11 (44)
	NC	–	–	–	12	19	26	30
12 x 9	Total Airflow, cfm	75	150	225	300	375	450	525
	Throw (cfm) Side A	2-3-4 (30)	3-4-7 (61)	4-6-11 (91)	5-7-14 (122)	6-9-17 (152)	7-11-20 (183)	8-12-23 (213)
	Throw (cfm) Side B	2-2-3 (14)	2-3-5 (28)	3-4-7 (42)	4-5-9 (56)	4-6-11 (70)	5-7-13 (84)	6-8-15 (98)
	NC	–	–	–	13	20	27	32
15 x 9	Total Airflow, cfm	94	188	281	375	469	563	656
	Throw (cfm) Side A	2-3-5 (40)	3-5-8 (80)	5-7-12 (119)	6-8-16 (159)	7-10-19 (199)	8-12-23 (239)	10-14-27 (279)
	Throw (cfm) Side B	2-2-3 (14)	2-3-5 (28)	3-4-7 (42)	4-5-9 (56)	4-6-11 (70)	5-7-13 (84)	6-8-15 (98)
	NC	–	–	–	14	21	28	32
15 x 12	Total Airflow, cfm	125	250	375	500	625	750	875
	Throw (cfm) Side A	2-3-5 (50)	4-5-9 (100)	5-7-13 (150)	6-9-17 (200)	8-11-21 (250)	9-13-25 (300)	10-15-29 (350)
	Throw (cfm) Side B	2-2-4 (25)	3-4-7 (50)	4-5-10 (75)	5-7-12 (100)	6-8-15 (125)	7-10-18 (150)	8-11-21 (175)
	NC	–	–	–	15	22	29	34
18 x 12	Total Airflow, cfm	150	300	450	600	750	900	1050
	Throw (cfm) Side A	2-3-5 (63)	4-5-9 (125)	5-7-13 (188)	7-9-18 (250)	8-11-22 (313)	9-13-26 (375)	11-15-30 (437)
	Throw (cfm) Side B	2-2-4 (25)	3-4-7 (50)	4-5-10 (75)	5-7-12 (100)	6-8-15 (125)	7-10-18 (150)	8-11-21 (175)
	NC	–	–	–	16	23	30	35
18 x 15	Total Airflow, cfm	186	375	563	750	938	1125	1313
	Throw (cfm) Side A	3-3-6 (74)	4-6-10 (149)	6-8-15 (223)	8-12-24 (297)	9-12-24 (371)	10-15-28 (445)	12-17-33 (520)
	Throw (cfm) Side B	2-3-5 (39)	3-5-8 (78)	5-6-12 (117)	6-8-15 (156)	7-10-19 (195)	8-12-22 (234)	9-14-26 (273)
	NC	–	–	–	17	24	31	37

For performance notes, see page D76.

Performance Data

Model 6400IV • Rectangular Neck

Core Styles 2C, 2D, 2E and 2F • 2-way corner blow pattern



Nominal Neck Size	Neck Velocity, fpm	100	200	300	400	500	600	700
	Velocity Pressure	**0.001**	**0.002**	**0.006**	**0.010**	**0.016**	**0.022**	**0.031**
	Total Pressure	**0.003**	**0.014**	**0.031**	**0.056**	**0.087**	**0.126**	**0.171**
9 x 6	**Total Airflow, cfm**	**38**	**75**	**113**	**150**	**188**	**225**	**263**
	Throw (cfm) Side A	2-3-4 (25)	3-4-7 (50)	4-6-10 (75)	5-7-14 (100)	6-9-17 (125)	7-10-20 (150)	8-12-23 (175)
	Throw (cfm) Side B	2-2-3 (13)	2-3-5 (25)	3-4-7 (38)	4-5-10 (50)	5-6-12 (63)	5-7-14 (75)	6-9-16 (88)
	NC	–	–	–	11	18	25	29
12 x 6	**Total Airflow, cfm**	**50**	**100**	**150**	**200**	**250**	**300**	**350**
	Throw (cfm) Side A	2-3-5 (38)	4-5-9 (75)	5-7-12 (113)	6-9-16 (150)	7-11-20 (188)	9-12-24 (225)	10-14-28 (263)
	Throw (cfm) Side B	2-2-3 (13)	2-3-5 (25)	3-4-7 (38)	4-5-10 (50)	5-6-12 (63)	5-7-14 (75)	6-9-16 (88)
	NC	–	–	–	12	19	26	30
12 x 9	**Total Airflow, cfm**	**75**	**150**	**225**	**300**	**375**	**450**	**525**
	Throw (cfm) Side A	2-3-5 (47)	4-5-9 (94)	5-7-13 (140)	6-9-17 (188)	8-11-21 (234)	9-13-25 (281)	10-15-29 (328)
	Throw (cfm) Side B	2-3-4 (28)	3-4-7 (56)	4-6-11 (84)	5-7-14 (112)	6-9-17 (140)	7-11-20 (169)	8-12-23 (197)
	NC	–	–	–	13	20	27	32
15 x 9	**Total Airflow, cfm**	**94**	**188**	**281**	**375**	**469**	**563**	**656**
	Throw (cfm) Side A	2-3-5 (66)	4-5-9 (132)	5-7-13 (197)	7-9-18 (262)	8-11-22 (328)	9-13-26 (394)	11-15-30 (459)
	Throw (cfm) Side B	2-3-4 (28)	3-4-7 (56)	4-6-11 (84)	5-7-14 (113)	6-9-17 (141)	7-11-20 (169)	8-12-23 (197)
	NC	–	–	–	14	21	28	32
18 x 9	**Total Airflow, cfm**	**113**	**225**	**338**	**450**	**563**	**675**	**788**
	Throw (cfm) Side A	2-3-5 (85)	4-5-10 (169)	5-8-14 (254)	7-10-19 (338)	8-12-23 (421)	10-14-27 (506)	11-16-32 (591)
	Throw (cfm) Side B	2-3-4 (28)	3-4-7 (56)	4-6-11 (85)	5-7-14 (113)	6-9-17 (141)	7-11-20 (169)	8-12-23 (197)
	NC	–	–	–	15	22	29	33
15 x 12	**Total Airflow, cfm**	**125**	**250**	**375**	**500**	**625**	**750**	**875**
	Throw (cfm) Side A	2-3-5 (75)	4-5-9 (150)	5-7-13 (225)	6-9-17 (300)	8-11-21 (375)	9-13-25 (450)	9-15-29 (525)
	Throw (cfm) Side B	2-3-5 (50)	4-5-9 (100)	5-7-13 (150)	6-9-17 (200)	8-11-21 (250)	9-13-25 (300)	10-15-29 (350)
	NC	–	–	–	15	22	29	34
18 x 12	**Total Airflow, cfm**	**150**	**300**	**450**	**600**	**750**	**900**	**1050**
	Throw (cfm) Side A	2-3-5 (100)	4-5-10 (200)	5-8-14 (300)	7-10-19 (400)	8-12-23 (500)	10-14-29 (600)	11-17-32 (700)
	Throw (cfm) Side B	2-3-5 (50)	4-5-9 (100)	5-9-13 (150)	6-9-17 (200)	8-11-21 (250)	9-13-25 (300)	10-15-29 (350)
	NC	–	–	–	18	25	31	36

Core Style 2A • 2-way opposite blow pattern

Nominal Neck Size	Neck Velocity, fpm	100	200	300	400	500	600	700
	Velocity Pressure	**0.001**	**0.002**	**0.006**	**0.010**	**0.016**	**0.022**	**0.031**
	Total Pressure	**0.003**	**0.014**	**0.031**	**0.056**	**0.087**	**0.126**	**0.171**
15 x 9	**Airflow, cfm**	**94**	**188**	**281**	**375**	**469**	**563**	**656**
	Throw (cfm / side)	2-3-5 (47)	3-5-8 (94)	5-6-12 (141)	6-8-15 (188)	7-10-19 (234)	8-12-23 (282)	9-14-26 (328)
	NC	–	–	–	14	21	28	32
18 x 9	**Airflow, cfm**	**113**	**225**	**338**	**450**	**563**	**675**	**788**
	Throw (cfm / side)	2-3-5 (57)	4-5-9 (113)	5-7-12 (169)	6-9-16 (225)	7-11-20 (282)	9-12-24 (338)	10-14-28 (394)
	NC	–	–	–	15	22	29	33
21 x 9	**Airflow, cfm**	**131**	**263**	**394**	**525**	**656**	**788**	**919**
	Throw (cfm / side)	2-3-5 (66)	3-5-9 (132)	5-7-13 (197)	6-9-17 (263)	8-11-21 (328)	9-13-26 (394)	11-15-30 (460)
	NC	–	–	–	15	23	30	34
15 x 12	**Airflow, cfm**	**125**	**250**	**375**	**500**	**625**	**750**	**875**
	Throw (cfm / side)	2-3-5 (63)	4-5-10 (125)	5-7-14 (188)	7-10-18 (250)	8-12-23 (313)	10-14-27 (375)	11-16-31 (438)
	NC	–	–	–	15	22	29	34
18 x 12	**Airflow, cfm**	**150**	**300**	**450**	**600**	**750**	**900**	**1050**
	Throw (cfm / side)	3-3-6 (75)	4-6-10 (150)	6-8-15 (225)	7-10-20 (300)	9-13-24 (375)	10-15-29 (450)	12-17-33 (525)
	NC	–	–	–	16	23	30	35
21 x 12	**Airflow, cfm**	**175**	**350**	**525**	**700**	**875**	**1050**	**1225**
	Throw (cfm / side)	3-3-6 (88)	4-6-11 (175)	6-8-16 (263)	8-11-21 (350)	9-13-25 (438)	11-16-30 (525)	12-18-35 (613)
	NC	–	16	–	17	24	31	36
24 x 12	**Airflow, cfm**	**200**	**400**	**600**	**800**	**1000**	**1200**	**1400**
	Throw (cfm / side)	3-4-6 (100)	4-6-11 (200)	6-9-17 (300)	8-11-22 (400)	10-14-27 (500)	11-17-32 (600)	13-19-37 (700)
	NC	–	–	–	18	25	31	36

For performance notes, see page D76.

Performance Data

Model 6400IV • Rectangular Neck

Core Style 2B • 2-way opposite blow pattern

Nominal Neck Size	Neck Velocity, fpm	100	200	300	400	500	600	700
	Velocity Pressure	0.001	0.002	0.006	0.010	0.016	0.022	0.031
	Total Pressure	0.003	0.014	0.031	0.056	0.087	0.126	0.171
9 x 6	Airflow, cfm	38	75	113	150	188	225	263
	Throw (cfm / side)	2-2-4 (19)	3-4-7 (38)	4-5-10 (57)	5-7-12 (75)	6-8-15 (94)	7-10-18 (113)	8-11-21 (132)
	NC	–	–	–	11	18	26	29
12 x 6	Airflow, cfm	50	100	150	200	250	300	350
	Throw (cfm / side)	2-3-4 (25)	3-4-7 (50)	4-6-11 (75)	5-7-14 (100)	6-9-17 (125)	7-11-20 (150)	8-12-23 (175)
	NC	–	–	–	12	19	26	30
12 x 9	Airflow, cfm	75	150	225	300	375	450	525
	Throw (cfm / side)	2-3-4 (38)	3-4-8 (75)	4-6-11 (113)	6-8-15 (150)	7-10-18 (188)	8-11-21 (225)	9-13-25 (263)
	NC	–	–	–	15	23	30	34

Core Styles 1A and 1B • 1-way blow pattern


1A


1B

Nominal Neck Size	Neck Velocity, fpm	100	200	300	400	500	600	700
	Velocity Pressure	0.001	0.002	0.006	0.010	0.016	0.022	0.031
	Total Pressure	0.003	0.014	0.031	0.056	0.087	0.126	0.171
9 x 6	Airflow, cfm	38	75	113	150	188	225	263
	Throw	2-3-4	4-5-9	5-7-12	6-9-16	7-11-20	9-12-24	10-14-28
	NC	–	–	–	11	18	26	29
12 x 6	Airflow, cfm	50	100	150	200	250	300	350
	Throw	2-3-5	4-5-9	5-7-13	6-9-17	8-11-21	9-13-25	10-15-29
	NC	–	–	–	13	20	27	32
15 x 6	Airflow, cfm	63	125	188	250	313	375	438
	Throw	2-3-5	4-5-9	5-7-13	6-9-17	8-11-21	9-13-25	10-15-29
	NC	–	–	–	12	19	26	31
18 x 6	Airflow, cfm	75	150	225	300	375	450	525
	Throw	2-3-5	4-5-9	5-7-13	6-9-17	8-11-21	9-13-26	11-15-30
	NC	–	–	–	12	20	27	32
21 x 6	Airflow, cfm	88	175	263	350	438	525	613
	Throw	2-3-5	4-5-10	5-7-14	7-10-18	8-12-22	10-14-27	11-16-31
	NC	–	–	–	13	21	28	33
24 x 6	Airflow, cfm	100	200	300	400	500	600	700
	Throw	2-3-5	4-5-10	5-8-14	7-10-19	8-12-23	10-14-28	11-20-32
	NC	–	–	–	15	22	28	33
21 x 9	Airflow, cfm	131	263	394	525	656	788	919
	Throw	3-3-6	4-6-10	6-8-15	7-10-20	9-13-25	10-15-29	12-18-34
	NC	–	–	–	16	23	30	35
24 x 9	Airflow, cfm	150	300	450	600	750	900	1050
	Throw	3-4-6	4-6-11	6-9-16	8-11-21	9-14-26	11-16-31	13-19-36
	NC	–	–	–	17	24	31	36

Performance Notes:

1. All pressure are in inches w.g..

2. 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%.

3. NC (Noise Criteria) values are based on 10 dB room absorption, re 10^{-12} watts.

4. Tests conducted on diffuser only without damper using ideal straight rigid inlet condition. Other inlet conditions may affect performance.
Correction factors for addition of a neck mounted opposed blade damper (fully open):
Total Pressure: Multiply catalog value by x 1.20.
NC: Add +4 to catalog value.

5. Correction factor for round inlets, see next page.

6. Data derived from tests conducted in accordance with ANSI/ASHRAE Standard 70-1991.

Performance Data Corrections

Model 6400IV

Correction Factors For Round Necks (Square to Round Inlet Adaptors).

- Add the NC correction factor from Table 1 and the NC value listed in the performance tables.
- Multiply the correction factor from Table 1 by the listed total pressure in the performance tables.
- Multiply the correction factor from Table 1 by the listed throws in the performance tables.

Example:

12" x 12" unit with 10" round adaptor handling 500 cfm supply air. (Page D69).

- NC = 20 + 7 = 27
- Total Pressure = .072 x 1.65 = 0.119
- Throw = 16 x 1.15 = 18.40 feet @ 50 fpm terminal velocity.

TABLE 1 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
	8	4	1.40	1.10	1.10	1.10
12 x 12	**8**	17	3.50	1.15	1.15	1.20
	10	7	1.65	1.10	1.10	1.15
15 x 15	**10**	17	3.50	1.15	1.15	1.20
	12	9	1.90	1.10	1.10	1.15
	14	3	1.25	1.05	1.05	1.10
18 x 18	**12**	17	3.50	1.15	1.15	1.20
	14	10	2.00	1.10	1.10	1.15
	16	5	1.45	1.10	1.10	1.10
21 x 21	**14**	17	3.70	1.15	1.15	1.20
	16	11	2.25	1.10	1.10	1.15
	18	6	1.60	1.10	1.10	1.10
	20	3	1.20	1.05	1.05	1.10
24 x 24	**16**	17	3.50	1.15	1.15	1.20
	18	12	2.35	1.10	1.10	1.15
	20	7	1.65	1.10	1.10	1.15

Recommended Maximum Airflow

Diffuser mounting height and air temperature differential (ΔT) are both to be considered when selecting diffusers. As air travels from a diffuser, room air is entrained into the supply air stream and the delivery pattern thickens. If the volume or throw requirement is too great, the lower part of the supply air stream can intrude into the occupied zone causing objectionable drafts. Consult Table 2 to verify selection.

TABLE 2 Maximum Recommended Airflow

CEILING HEIGHT (ft.)	MAXIMUM AIRFLOW PER DIFFUSER (CFM)				MAX. REC. COOLING TEMP. DIFFERENTIAL ΔT
	4-way	3-way	2-way (2A, 2B)	1-way & 2S	
7	400	300	200	100	15°F
8	600	450	300	150	20°F
9	1200	900	600	300	25°F
10	1800	1350	900	450	25°F
12	3200	2400	1600	800	30°F
14	4800	3600	2400	1200	30°F
16	6000	4500	3000	1500	30°F