

FIRE RATED PERFORATED DIFFUSERS

The fire rated diffusers in this series are the most popular choices of Nailor's 4300 series perforated diffusers. Models included are the adjustable pattern controller design for ultimate performance flexibility. Available in both supply and return air styles with a choice of a flush or drop face.

Supply Air Adjustable Pattern Deflectors – Round Neck

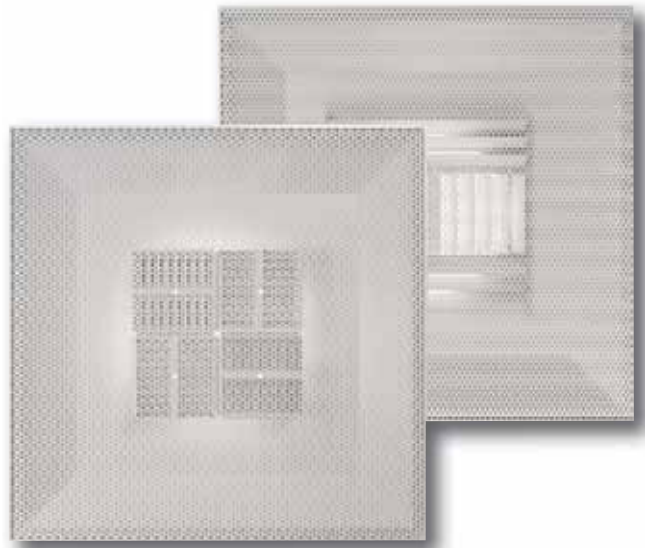
Flush Face	Models 4070, 4080	Page E31
Drop Face	Models 4075, 4085	Page E31
Surface Mount	Model 4070 Type S (ULC only)	Page E34

Return Air – Round Neck

Flush Face	Models 4070R, 4080R	Page E31
Drop Face	Models 4075R, 4085R	Page E31
Surface Mount	Models 4070R Type S (ULC only)	Page E34

Supply Air Curved Blade Pattern Controllers – Round Neck

Flush Face	Models 4070CB, 4080CB	Page E37
Drop Face	Models 4075CB, 4085CB	Page E37



Models 4080, 4080CB



Model 7500FRD

FIRE RATED MODULAR CORE DIFFUSERS

Nailor 7500 Series Modular Core Diffusers feature four individual spring-loaded 'modular' pattern controllers mounted in the neck. They can be adjusted before or after installation, to provide a 1, 2, 3 or 4-way discharge pattern. The diffuser maintains a horizontal ceiling pattern from maximum to minimum flow.

Square Neck –
Model 7500FRD

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Round Neck –
Model 7505FRD

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FIRE RATED DUCTLESS RETURN GRILLES

Model Series 4100 Ductless Return Grilles have been designed to compliment the Nailor range of fire rated supply diffusers. The grilles have been tested and classified for use without the requirement of duct work or supplementary support, they simply lay in place. The grilles are available in three styles, a perforated face, an eggcrate face or an open face model that can accommodate a grille by others.

Perforated Face –

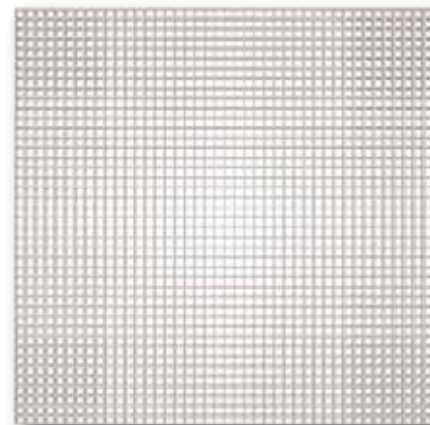
Models 4111, 4112, 4113 **Page E44**

Eggcrate Face –

Models 4114, 4115, 4116 **Page E44**

Open Face (grille by others) –

Models 4117, 4118, 4119 **Page E44**



Model 4116

FIRE RATED SQUARE MODULAR CORE CEILING DIFFUSERS

- 1, 2, 3 OR 4-WAY ADJUSTABLE DISCHARGE PATTERN
- ROUND OR SQUARE NECK
- 3 HOUR RATING
- LAY-IN

Square Neck Models:

7500FRD

Round Neck Models:

7505FRD



CATEGORY
CABS & CABS7



Model 7500FRD

Model 7500FRD is a UL Classified Fire Rated Ceiling Diffuser Component Assembly. The ceiling damper and thermal blanket accessory are listed in Underwriters Laboratories Fire Resistance Directory under categories, "Ceiling Dampers" and "Ceiling Fire Stop Flap Assemblies Certified for Canada." This design meets UL time-vs-temperature test criteria and NFPA 90A requirements.

This model is classified for use in UL/ULC restrained or unrestrained floor/ceiling and or roof/ceiling assemblies which incorporate an exposed grid suspended ceiling (lay-in T-Bar) with up to a 3 hour rating. For details of fire rated assemblies, see the current UL or ULC Fire Resistance Directory.

Modular Core Diffusers provide a versatile 'modular core' design that is available in a comprehensive range of sizes and air capacities, providing optimum simplicity and flexibility for field adjustment of the discharge air pattern. They maintain a tight horizontal ceiling pattern from maximum to minimum flow and make an excellent choice for use in variable air volume systems.

These diffusers consist of four spring-loaded modular cores that may be simply adjusted by rotating each module after installation to provide a 1, 2, 3 or 4-way blow pattern in a few seconds.

STANDARD FEATURES:

- Tested in accordance with UL Standard 555C "Ceiling Dampers" and ULC S112.2 "Fire Stop Flap Assemblies."
- Each diffuser has 4 separate individually adjustable spring-loaded modular cores.
- Simple adjustment for a 1, 2, 3 or 4-way horizontal discharge pattern without the use of tools.
- Square neck Model 7500FRD has ample collar depth and allows a solid duct connection.
- The fixed ceiling radiation damper is standard. The AV adjustable option is not available on this model as the core assembly restricts access. Balancing should be performed by installing a remote damper in the duct take-off.
- Round neck Model 7505FRD permits use of flexible duct.
- 212°F (100°C) fusible link is standard (165°F [74°C] is optional).
- Must be installed in accordance with the installation instructions for UL/ULC Classification.

CONSTRUCTION MATERIAL:

- Corrosion-resistant steel.

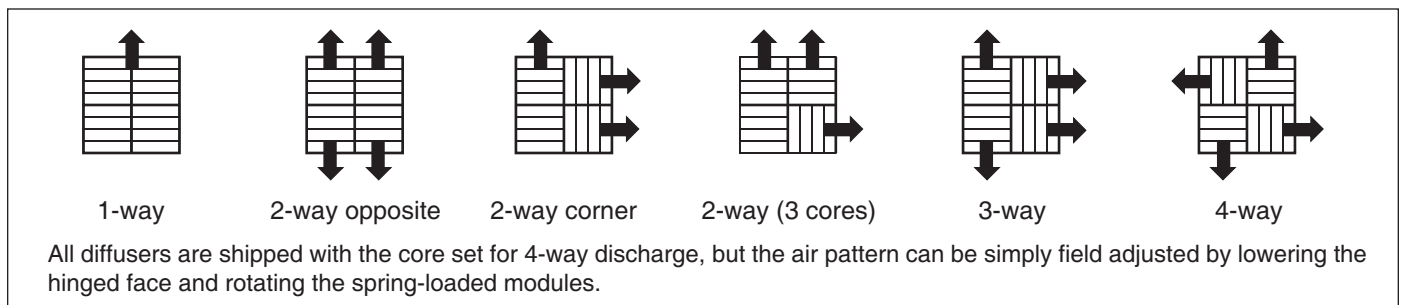
FINISH OPTIONS:

- AW Appliance White finish is standard.
- Other finishes are available.

PERFORMANCE DATA:

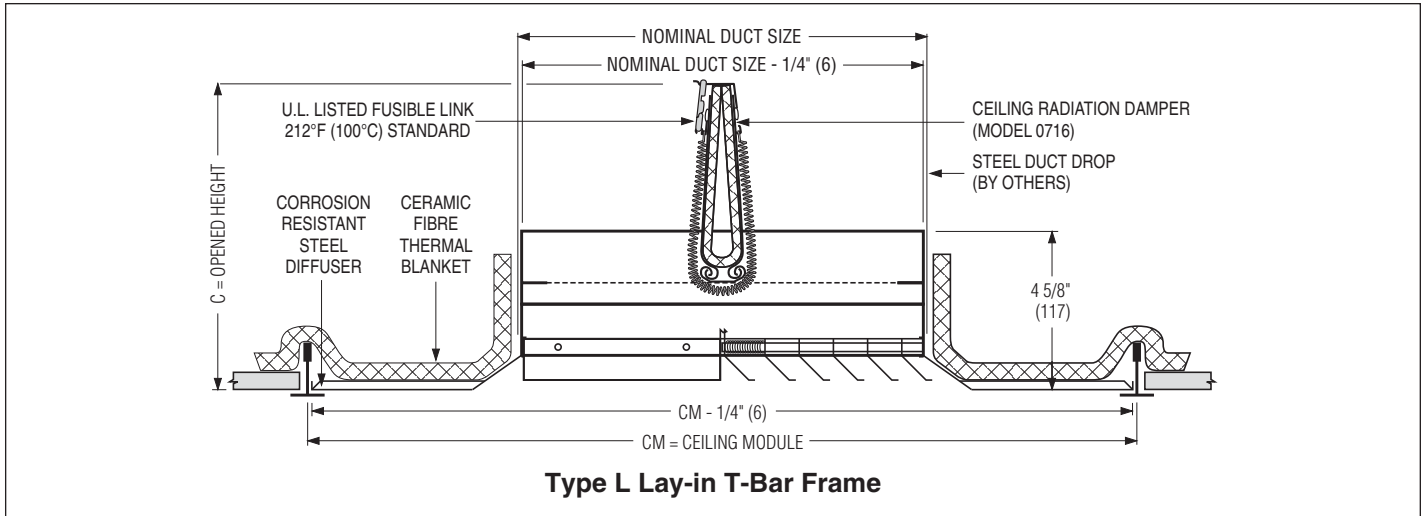
- See non-fire rated Model 7500.

Modular Core Adjustments

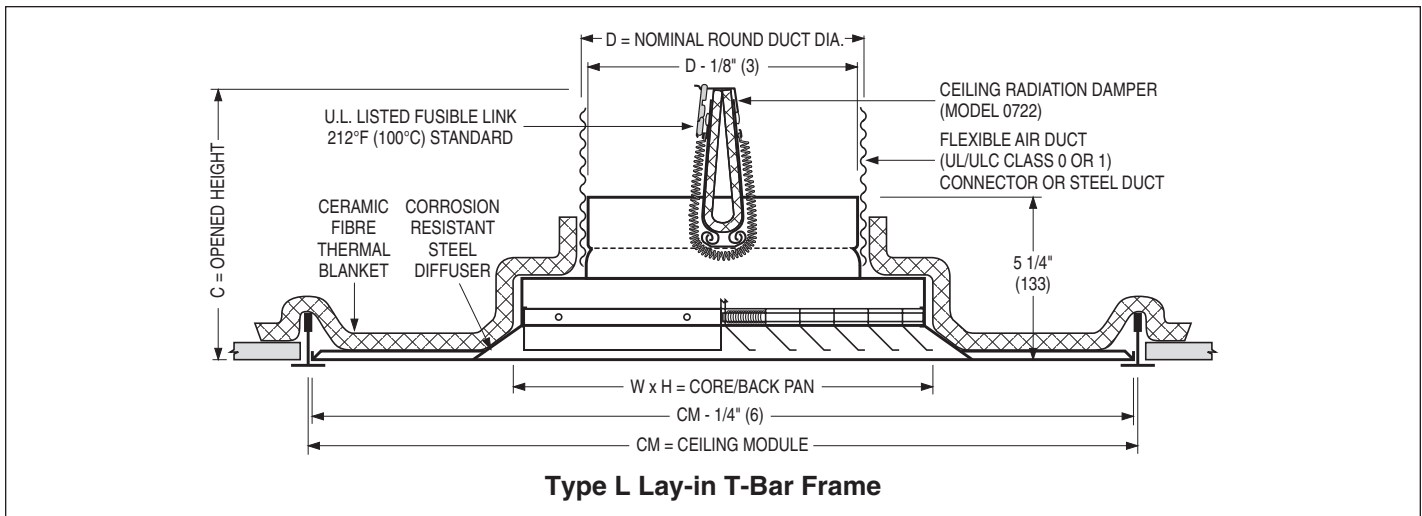


DIMENSIONAL DATA:

MODEL 7500FRD • SQUARE NECK



MODEL 7505FRD • ROUND NECK



Available Sizes and Dimensional Data:

Model 7500FRD

Ceiling Module	Nominal Duct Size	Opening Height C
CM	(square)	Standard
12 x 12	6 x 6	5 3/4
	8 x 8	6 3/4
	9 x 9	7 1/4
24 x 24	6 x 6	5 3/4
	8 x 8	6 3/4
	9 x 9	7 1/4
	10 x 10	7 3/4
	12 x 12	9
	14 x 14	9 3/4
	15 x 15	10 1/4
	16 x 16	10 3/4
18 x 18	11 3/4	
	20 x 20	12 3/4

Model 7505FRD

Ceiling Module	Core/Back Pan	Round Neck	Opening Height	
CM	W x H	D	C	
12 x 12	9 x 9	6	6 1/2	
		8	7 1/2	
24 x 24	9 x 9	6	6 1/2	
		8	7 1/2	
	10 x 10	6	6 1/2	
		8	7 1/2	
	12 x 12	8	7 1/2	
		10	8 1/2	
	15 x 15	10	10	8 1/2
			12	9 1/2
		14	12	10 1/2
			14	10 1/2
18 x 18	12	12	9 1/2	
		14	10 1/2	

Note: If the square ceiling module is more than 3" (76) larger than the square neck (core/back pan), a module sized extended panel is utilized.

HOW TO ORDER OR TO SPECIFY

FIRE RATED MODULAR CORE DIFFUSERS • SQUARE NECK – MODEL 7500FRD

EXAMPLE: 7500FRD - 0606 - 12" x 12" - L - AW - 212

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. Model
7500FRD Square Neck 2. Neck Size
Imperial
0606 06" x 06" (152 x 152) Square
0808 08" x 08" (203 x 203) Square
0909 09" x 09" (229 x 229) Square
1010 10" x 10" (254 x 254) Square
1212 12" x 12" (305 x 305) Square
1414 14" x 14" (356 x 356) Square
1515 15" x 15" (381 x 381) Square
1616 16" x 16" (406 x 406) Square
1818 18" x 18" (457 x 457) Square
2020 20" x 20" (508 x 508) Square 3. Ceiling Module Size
Imperial
12" x 12"
24" x 24"
Metric
300 mm x 300 mm
600 mm x 600 mm | <ol style="list-style-type: none"> 4. Frame Type
L Lay-in T-Bar 5. Finish
AW Appliance White (default)
AL Aluminum
BK Black
BW British White
PC Prime Coat
SP Special Custom Color 6. Fusible Link Temperature
212 212°F (100°C) (default)
165 165°F (74°C) |
|---|---|
- Only available on
24" x 24" or
600 mm x 600 mm
ceiling modules

Note:

1. Consult individual model as to limitations of module and neck size combination.



SUGGESTED SPECIFICATION:

Furnish and install **Nailor Model 7500FRD** (Square Neck) **Steel Fire Rated Modular Core Ceiling Diffusers** of the sizes and capacities as shown on the plans and air distribution schedules. The diffusers shall consist of four spring-loaded modular cores that can be adjusted by lowering the hinged face and rotating each module after installation to provide a 1, 2, 3 or 4-way horizontal throw pattern without the use of tools. Diffusers shall include a factory mounted ceiling damper and thermal blanket. The finish shall be AW Appliance White (optional finishes are available). Diffusers shall be factory assembled UL/ULC fire rated diffuser component assemblies and classified for use in restrained or unrestrained floor/ceiling and or roof/ceiling assemblies which incorporate an exposed grid suspended ceiling with up to a 3 hour rating. Ceiling damper and thermal blanket accessory shall be listed in UL/ULC Fire Resistance (Certifications) Directory and meet all NFPA 90A requirements.

HOW TO ORDER OR TO SPECIFY

FIRE RATED MODULAR CORE DIFFUSERS • ROUND NECK – MODEL 7505FRD

EXAMPLE: 7505FRD - 1212 - 10 - 24" x 24" - L - AW - 212

- | | | |
|---|---|--|
| <p>1. Model
7505FRD Round Neck</p> <p>2. Core/Backpan Size
Imperial
0909 09" x 09" (229 x 229)
1212 12" x 12" (305 x 305)
1515 15" x 15" (381 x 381)
1818 18" x 18" (457 x 457)</p> <p>3. Neck Size
Imperial
06 6" (152) Round
08 8" (203) Round
10 10" (254) Round
12 12" (305) Round
14 14" (356) Round</p> <p>4. Ceiling Module Size
Imperial
12" x 12"
24" x 24"
Metric
300 mm x 300 mm
600 mm x 600 mm</p> | <p>Only available on
24" x 24" or
600 mm x 600 mm
ceiling modules</p> | <p>5. Frame Type
L Lay-in T-Bar</p> <p>6. Finish
AW Appliance White (default)
AL Aluminum
BK Black
BW British White
PC Prime Coat
SP Special Custom Color</p> <p>7. Fusible Link Temperature
212 212°F (100°C) (default)
165 165°F (74°C)</p> |
|---|---|--|

Note:
1. Consult individual model as to limitations of module and neck size combination.

SUGGESTED SPECIFICATION:

Furnish and install **Nailor Model 7505FRD (Round Neck) Steel Fire Rated Modular Core Ceiling Diffusers** of the sizes and capacities as shown on the plans and air distribution schedules. The diffusers shall consist of four spring-loaded modular cores that can be adjusted by lowering the hinged face and rotating each module after installation to provide a 1, 2, 3 or 4-way horizontal throw pattern without the use of tools. Diffusers shall include a factory mounted ceiling damper and thermal blanket. The finish shall be AW Appliance White (optional finishes are available). Diffusers shall be factory assembled UL/ULC fire rated diffuser component assemblies and classified for use in restrained or unrestrained floor/ceiling and or roof/ceiling assemblies which incorporate an exposed grid suspended ceiling with up to a 3 hour rating. Ceiling damper and thermal blanket accessory shall be listed in UL/ULC Fire Resistance (Certifications) Directory and meet all NFPA 90A requirements.

PERFORMANCE DATA:

Models 7500 and 7200 • Square Neck

Nominal Neck Size (inches)	Neck Velocity, FPM	200	300	400	500	600	700	800	900	1000	
	Velocity Pressure	.003	.006	.010	.016	.022	.031	.040	.051	.062	
6 x 6	Total Pressure	.008	.018	.033	.051	.073	.100	.131	.165	.204	
	Airflow, CFM	50	75	100	125	150	175	200	225	250	
	Throw	4-Way (1 core)	1-2-3	2-2-5	2-3-6	2-4-7	3-4-8	3-5-8	4-6-8	5-6-9	5-6-10
		3-Way (2 cores)	2-2-5	3-4-8	4-6-9	4-7-10	5-8-11	6-9-12	7-10-13	8-11-14	9-11-15
		2-Way (3 cores)	2-3-6	3-5-10	4-7-11	5-8-12	6-9-13	7-10-14	8-11-16	9-12-17	11-13-18
1-Way (4 cores)		2-4-8	4-6-11	5-8-13	7-10-15	8-11-16	9-12-18	10-13-19	11-14-20	12-15-22	
Noise Criteria	—	—	—	16	22	26	29	32	35		
8 x 8	Total Pressure	.006	.013	.022	.035	.050	.069	.090	.113	.140	
	Airflow, CFM	88	133	177	222	266	310	355	399	444	
	Throw	4-Way (1 core)	1-2-4	2-3-6	2-4-8	3-5-9	4-6-10	4-7-11	5-8-11	6-8-12	6-9-13
		3-Way (2 cores)	2-3-7	3-5-11	5-7-13	6-9-14	7-11-15	8-12-17	10-13-18	11-14-19	12-14-20
		2-Way (3 cores)	3-4-9	4-7-13	6-9-16	8-11-17	9-13-19	10-14-21	12-16-22	13-17-23	14-17-25
1-Way (4 cores)		3-5-11	5-8-15	7-11-18	9-13-20	11-15-22	12-16-24	14-18-26	15-19-27	16-20-29	
Noise Criteria	—	—	—	17	25	29	32	35	38		
10 x 10	Total Pressure	.007	.015	.027	.042	.060	.082	.108	.136	.168	
	Airflow, CFM	138	208	277	347	416	485	555	624	694	
	Throw	4-Way (1 core)	2-3-7	3-5-9	4-7-10	6-8-11	7-9-12	8-9-14	8-10-14	9-11-14	9-11-17
		3-Way (2 cores)	4-6-12	6-10-14	9-12-16	11-13-18	12-14-20	13-15-22	14-16-23	14-19-25	14-20-26
		2-Way (3 cores)	5-8-14	8-12-17	11-14-20	13-16-22	14-17-24	15-18-27	16-20-28	17-22-30	18-23-32
1-Way (4 cores)		6-9-16	9-14-20	13-16-23	14-18-26	16-20-28	17-21-31	18-23-33	20-24-35	21-26-37	
Noise Criteria	—	—	15	18	24	30	34	37	40		
12 x 12	Total Pressure	.007	.016	.029	.046	.066	.089	.116	.147	.182	
	Airflow, CFM	200	300	400	500	600	700	800	900	1000	
	Throw	4-Way (1 core)	2-4-8	4-6-11	5-8-12	7-10-14	8-11-14	9-11-15	10-12-17	11-13-18	11-14-19
		3-Way (2 cores)	5-8-14	8-12-17	10-14-20	13-15-22	14-17-24	15-18-26	16-20-28	17-21-30	18-22-32
		2-Way (3 cores)	6-10-17	10-14-21	12-17-24	15-19-27	17-21-29	18-22-32	19-24-34	21-26-36	22-27-39
1-Way (4 cores)		7-11-19	11-16-24	14-19-28	17-22-31	19-24-34	21-26-37	22-28-40	24-30-42	25-31-45	
Noise Criteria	—	—	17	21	27	32	36	40	43		
14 x 14	Total Pressure	.009	.020	.035	.055	.080	.108	.141	.179	.221	
	Airflow, CFM	272	408	544	680	816	952	1088	1224	1361	
	Throw	4-Way (1 core)	3-5-10	5-7-12	6-10-14	8-11-15	10-12-19	11-13-18	12-14-19	12-14-21	13-15-22
		3-Way (2 cores)	6-9-16	9-14-20	12-16-23	14-18-26	16-20-29	17-21-31	19-23-33	20-25-35	21-26-37
		2-Way (3 cores)	8-11-20	11-17-24	15-20-28	18-22-32	20-24-35	21-26-38	23-28-40	24-30-42	26-32-44
1-Way (4 cores)		9-13-23	13-19-28	17-23-33	21-25-37	23-28-40	25-30-44	26-33-47	28-35-49	30-37-51	
Noise Criteria	—	—	19	23	29	34	38	42	45		
16 x 16	Total Pressure	.011	.024	.043	.067	.096	.131	.172	.217	.268	
	Airflow, CFM	355	533	711	889	1066	1244	1422	1600	1778	
	Throw	4-Way (1 core)	3-5-11	5-8-14	7-11-15	9-13-17	11-14-19	12-14-21	13-15-23	14-17-24	14-17-25
		3-Way (2 cores)	7-10-18	10-15-23	14-18-27	17-21-30	18-23-33	20-25-36	21-27-38	23-28-41	24-30-43
		2-Way (3 cores)	9-12-22	12-19-29	17-22-33	21-25-36	22-28-40	24-30-43	26-33-46	28-34-49	29-36-51
1-Way (4 cores)		10-14-26	14-22-32	20-26-38	24-29-42	26-32-46	28-35-49	30-38-53	32-40-56	34-42-59	
Noise Criteria	—	—	21	25	31	36	40	44	47		

Performance Notes:

- All pressures are in inches w.g.. To obtain static pressure, subtract the velocity pressure from the total pressure.
- Throws are given at 150, 100 and 50 fpm terminal velocities, under isothermal conditions.

- Noise Criteria (NC) values are based on 10 dB room absorption, re 10⁻¹² watts. Dash (—) in spaces indicates an Noise Criteria level of less than 15.
- Data derived from tests conducted in accordance with ANSI/ASHRAE Standard 70 – 2006.

Neck Size Square in Inches	Ak Factor
6 x 6	.1134
8 x 8	.1932
9 x 9	.2551
10 x 10	.3024
12 x 12	.4526
14 x 14	.5883
15 x 15	.6804
16 x 16	.7728

PERFORMANCE DATA:

Models 7500 and 7200 • Square Neck

Nominal Neck Size (inches)	Neck Velocity, FPM	200	300	400	500	600	700	800	900	1000	
	Velocity Pressure	.003	.006	.010	.016	.022	.031	.040	.051	.062	
18 x 18	Total Pressure	.013	.029	.051	.080	.115	.157	.205	.259	.320	
	Airflow, CFM	450	675	900	1125	1350	1575	1800	2025	2250	
	Throw	4-Way (1 core)	4-6-13	6-10-15	8-13-18	11-14-20	13-15-22	14-16-24	14-18-26	15-19-27	16-20-29
		3-Way (2 cores)	8-12-21	12-17-26	15-21-30	19-23-34	21-26-37	23-28-40	24-30-43	26-32-46	27-34-48
		2-Way (3 cores)	10-14-26	14-21-32	19-26-36	23-28-41	26-32-44	28-34-48	29-36-52	31-39-55	33-41-58
		1-Way (4 cores)	11-16-30	16-25-37	22-30-42	27-33-48	30-37-51	32-40-56	34-42-60	36-45-63	39-48-67
Noise Criteria	—	15	22	26	32	37	42	45	48		
20 x 20	Total Pressure	.015	.034	.061	.095	.136	.186	.243	.307	.379	
	Airflow, CFM	555	835	1110	1390	1665	1945	2220	2500	2775	
	Throw	4-Way (1 core)	4-7-14	7-11-17	9-14-20	12-15-22	14-17-24	15-18-27	16-20-29	17-21-30	18-22-32
		3-Way (2 cores)	9-13-23	13-19-29	17-23-34	21-26-38	23-29-41	25-31-45	27-34-48	29-36-50	30-38-53
		2-Way (3 cores)	11-16-28	16-24-36	21-28-41	25-32-45	28-35-49	31-38-54	33-41-58	35-43-61	37-45-64
		1-Way (4 cores)	13-18-33	18-28-43	25-33-47	30-37-52	33-41-57	36-44-62	38-47-67	41-49-71	43-52-75
Noise Criteria	—	17	24	28	34	39	44	47	50		
22 x 22	Total Pressure	.018	.040	.071	.111	.159	.217	.284	.359	.443	
	Airflow, CFM	675	1000	1345	1680	2015	2350	2690	3025	3360	
	Throw	4-Way (1 core)	5-8-15	8-12-19	10-15-22	13-17-25	15-19-27	16-20-29	18-22-31	19-23-34	20-25-35
		3-Way (2 cores)	10-14-26	14-21-32	19-26-37	23-29-42	26-32-46	28-35-48	30-37-52	32-39-55	34-41-58
		2-Way (3 cores)	12-17-31	17-26-39	24-31-44	28-35-50	31-39-55	34-42-58	36-44-63	39-47-67	41-50-70
		1-Way (4 cores)	14-20-36	20-31-45	28-36-51	33-41-58	36-45-63	39-48-68	41-51-73	45-54-78	47-58-81
Noise Criteria	—	19	26	30	36	41	46	49	52		
24 x 24	Total Pressure	.021	.046	.082	.129	.185	.252	.329	.416	.514	
	Airflow, CFM	800	1200	1600	2000	2400	2800	3200	3600	4000	
	Throw	4-Way (1 core)	5-8-16	8-13-21	11-16-24	14-19-27	16-21-30	18-22-32	19-24-35	21-26-37	22-27-39
		3-Way (2 cores)	10-15-28	15-23-35	20-28-41	26-32-45	28-35-49	31-38-53	33-41-57	35-43-61	37-45-64
		2-Way (3 cores)	12-19-34	19-29-42	25-34-49	31-39-54	34-42-59	37-45-64	39-49-68	42-52-73	44-54-77
		1-Way (4 cores)	14-22-40	22-34-48	30-40-56	36-45-63	40-48-69	43-52-75	45-56-79	48-60-84	51-63-89
Noise Criteria	—	21	28	32	34	43	48	51	54		

Performance Notes:

1. All pressures are in inches w.g.. To obtain static pressure, subtract the velocity pressure from the total pressure.
2. Throws are given at 150, 100 and 50 fpm terminal velocities, under isothermal conditions.

3. Noise Criteria (NC) values are based on 10 dB room absorption, re 10⁻¹² watts. Dash (—) in spaces indicates an Noise Criteria level of less than 15.

4. Data derived from tests conducted in accordance with ANSI/ASHRAE Standard 70 – 2006.

Neck Size Square in Inches	Ak Factor
18 x 18	0.9541
20 x 20	1.2096
22 x 22	1.4636
24 x 24	1.7304