GENERAL PRODUCT OVERVIEW

Fire Rated Products

Nailor offers a wide variety of fire rated products that are designed to provide the unobtrusive appearance required for architectural excellence and the high engineering performance required for use in heating and cooling applications. Ceiling diffusers, plenum slot diffusers and even ductless return air grilles are some of the many styles that are available.

Nailor's selection of fire rated products are 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.

FIRE RATED PATTERN CEILING DIFFUSERS

Nailor pattern ceiling diffusers are a high capacity louvered face directional diffuser that can supply large volumes of air at relatively low sound levels and pressure drops. Available in a 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 particular requirements.

Square Neck –		
Fixed Pattern	Model 6500FRD	**Page E7**
Adjustable Pattern	Model 6550FRD	**Page E7**
Induction Vanes	Model 6500IVFRD	**Page E7**
Round Neck –		
Fixed Pattern	Model 6505FRD	**Page E10**
Adjustable Pattern	Model 6555FRD	**Page E10**
Induction Vanes	Model 6505IVFRD	**Page E10**

Model 6500FRD

Models 4010, 4010-1, 4420

FIRE RATED STAMPED SQUARE CEILING DIFFUSERS

Nailor 4000 and 4400 series models are a fire rated version of the popular RNS series. They have been specially designed to provide an extremely cost effective, value engineered product. They offer both the unobtrusive appearance required for architectural excellence and the 360° diffusion pattern at minimum NC levels required for high engineering performance.

Fixed Air Pattern – Round Neck		
Full Face	Models 4010, 4020	**Page E13**
Panel Type	Models 4030, 4040	**Page E13**
Surface Mount	Model 4010 Type S (ULC only)	**Page E16**
Adjustable Pattern – Round Neck		
Full Face	Models 4010-1, 4020-1	**Page E19**
Panel Type	Models 4030-1, 4040-1	**Page E19**
Fixed Pattern 2-Cone – Round Neck		
Full Face	Models 4410, 4420	**Page E22**
Panel Type	Models 4430, 4440	**Page E22**

FIRE RATED ARCHITECTURAL CEILING DIFFUSERS

These Nailor models are a fire rated version of the popular UNI series. Designed with the architect in mind, the diffusers in this series are fashioned to blend in with most ceiling types to create the ultimate aesthetic look. Nailor has made available the standard UNI with a fixed 360° air diffusion pattern.

Flat Panel – Round Neck		
Full Face	Models 4410-UNI, 4420-UNI	**Page E25**
Panel Type	Models 4430-UNI, 4440-UNI	**Page E25**
Surface Mount	Models 4410-UNI Type S (ULC only)	**Page E28**

Model 4410-UNI

FIRE RATED STAMPED SQUARE CEILING DIFFUSERS

- 2 CONE
- FIXED AIR PATTERN
- HIGH PERFORMANCE
- ROUND NECK
- 3 HOUR RATING
- LAY-IN

CATEGORY BZZU

CATEGORY BZGUC

Full Face Models:
4410, 4420

Panel Type Models:
4430, 4440

Model 4420

Model Series 4400 are UL/ULC Classified Fire Rated Ceiling Diffuser/Air Terminal Unit assemblies listed in Underwriters Laboratories Fire Resistance Directory. This design meets UL time-vs-temperature test criteria and NFPA 90A requirements.

All diffusers are 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.

These models are a fire rated version of the economical RNS2 Series. They have been specially designed to provide an extremely cost effective, value engineered product. They offer both the unobtrusive appearance required for architectural excellence and the 360° diffusion pattern at minimum NC levels required for high engineering performance.

The stamped one-piece cones eliminate mitered corners and the die-formed curves provide consistent quality and performance. The stepped down core design increases capacity and the diffusers provide stable diffusion and mixing patterns under constant and changing load conditions. They can accommodate a turn down of 80% without losing the ceiling coanda effect and dumping, making them particularly suitable for variable air volume systems.

STANDARD FEATURES:

- Factory assembled, 'packaged' product ensures compliance with fire code, simplifies specification and minimizes field labor.
- Tested in accordance with ANSI/UL Standard 263, "Fire Tests of Building Construction and Materials" and CAN/ULC Standard S101 "Fire Endurance Tests of Building Construction and Materials."
- Approved for use with flexible duct. Eliminates steel branch duct and drop. No costly independent hangers and supports are required.
- The inner cone assembly is fixed and non-removable, providing additional security and safety.
- Engineered air diffusion pattern.
- Steel stamped cones for uniformity.
- All 12 x 12 (300 x 300) and 24 x 24 (600 x 600) modules feature two cones in all neck sizes, providing a uniform appearance where different sizes are installed in the same area.
- The fixed ceiling radiation damper is standard. An adjustable version for balancing is optional (see page E23).
- Quick, easy access to the AV balancing option is achieved from the face of the diffuser by removing the center plug.
- 212°F (100°C) fusible link is standard (165°F [74°C] is optional).
- All models must be installed in accordance with the installation instructions for UL/ULC Classification.

CONSTRUCTION MATERIAL:

- Heavy gauge corrosion-resistant steel.

FINISH OPTIONS:

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

PERFORMANCE DATA:

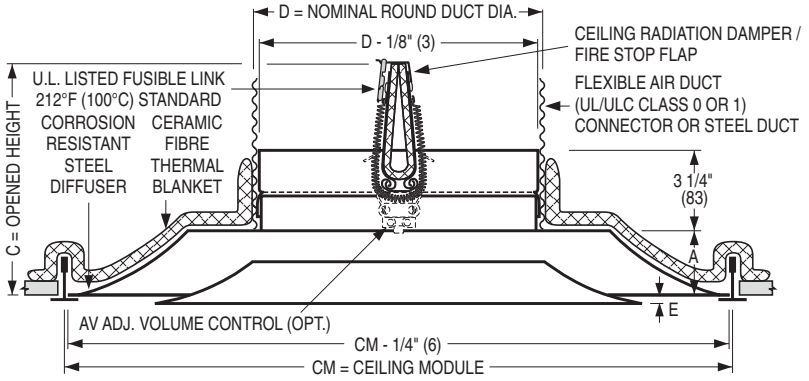
- See non-fire rated Model RNS2.

DIMENSIONAL DATA:

MODELS 4410 AND 4420 • FULL FACE

Model 4410 12 x 12 or 300 x 300
Model 4420 24 x 24 or 600 x 600

	Imperial Modules (inches)				Metric Modules (mm)			
Listed Neck Size	CM = 12 x 12				CM = 300 x 300			
	D	A	C	E	D	A	C	E
6 8	6 8	1	5 1/2 6 1/2	1 1/4	152 203	25	140 165	32
Listed Neck Size	CM = 24 x 24				CM = 600 x 600			
	D	A	C	E	D	A	C	E
6 8 10 12 14	6 8 10 12 14	2 5/16	6 13/16 7 13/16 8 13/16 9 13/16 10 13/16	7/8	152 203 254 305 356	59	173 198 224 249 275	22

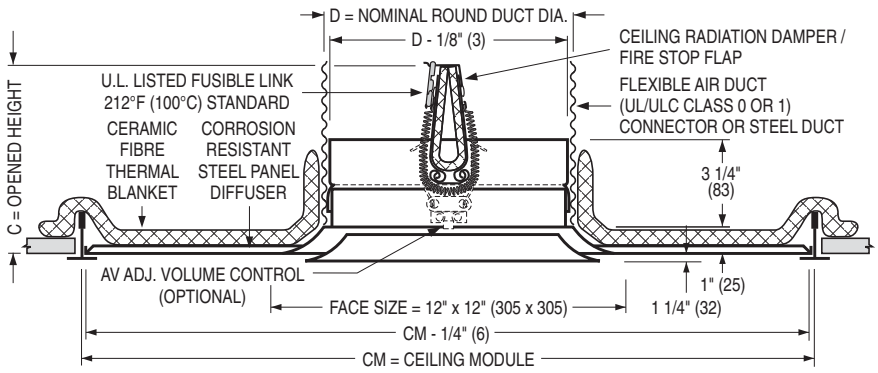


Type L Lay-in T-Bar Frame

MODELS 4430 AND 4440 • PANEL TYPE

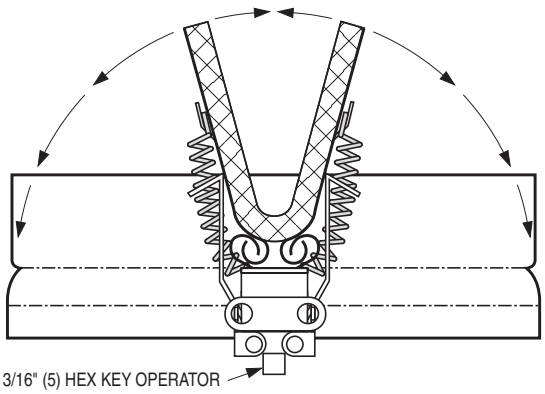
Model 4430 24 x 12 or 600 x 300
Model 4440 24 x 24 or 600 x 600

	Imperial Modules (inches)		Metric Modules (mm)	
Listed Neck Size	CM = 24 x 12		CM = 600 x 300	
	D	C	D	C
6 8	6 8	5 1/2 6 1/2	152 203	140 165
Listed Neck Size	CM = 24 x 24		CM = 600 x 600	
	D	C	D	C
6 8	6 8	5 1/2 6 1/2	152 203	140 165



Type PL Panel Lay-in T-Bar Frame

AV Adjustable Volume Control Option.
This UL Listed ceiling radiation damper control **(Model 0722A)** option allows the ceiling radiation damper to be used as a balancing damper for volume control.
The ceiling damper blades are adjusted with a hex key and perform like a butterfly damper.



HOW TO ORDER OR TO SPECIFY

FIRE RATED STAMPED SQUARE CEILING DIFFUSERS – 2 CONE
MODELS 4410, 4420, 4430, 4440

EXAMPLE: 4420 - 12 - 24" x 24" - L - AW - 212 - AV

1. **Models**
   - 4410 12" x 12" or 300 mm x 300 mm, Full Face
   - 4420 24" x 24" or 600 mm x 600 mm, Full Face
   - 4430 24" x 12" or 600 mm x 300 mm, Panel Type
   - 4440 24" x 24" or 600 mm x 600 mm, Panel Type
2. **Round Neck Size**
   Imperial
   - 06 6"(152) Round
   - 08 8"(203) Round
   - 10 10"(254) Round
   - 12 12"(305) Round
   - 14 14"(356) Round

   Only available on Model 4420
3. **Ceiling Module Size**
   Imperial
   - 12" x 12" (Model 4410)
   - 24" x 12" (Model 4430)
   - 24" x 24" (Models 4420 and 4440)

   Metric
   - 300 mm x 300 mm (Model 4410)
   - 600 mm x 300 mm (Model 4430)
   - 600 mm x 600 mm (Models 4420 and 4440)
4. **Frame Type**
   - L Lay-in T-Bar (Models 4410 and 4420)
   - PL Panel Lay-in T-Bar (Models 4430 and 4440)
   - S Surface Mount (Model 4410)
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)
7. **Volume Control**
   - — None (default)
   - AV Adjustable Volume Control

Notes:

1. Consult individual model as to limitations of module and neck size combination.
2. Model 4410 (Frame Type S) is ULC Classified only.

SUGGESTED SPECIFICATION:

Furnish and install **Nailor** (select one or more) **Model 4410, 4420, 4430** or **4440 Steel Fire Rated Stamped Square Ceiling Diffusers** of the sizes and capacities as shown on the plans and air distribution schedules. The diffusers shall be manufactured from corrosion-resistant steel and consist of two die-formed concentric cones which eliminate mitered corners and provide uniform appearance in all neck sizes. The inner core assembly is removable by using a spring clip arrangement that permits quick, easy installation and removal. The diffuser shall have a removable plug for screwdriver adjustment of the optional adjustable volume controller without removing the inner core. (Optional: ceiling damper shall be supplied with AV adjustable volume control option for field balancing). The finish shall be AW Appliance White (optional finishes are available). Diffusers shall be UL/ULC Classified fire rated ceiling diffuser assemblies as listed in the UL/ULC Fire Resistance (Certifications) Directory. Diffusers shall be tested in accordance with UL Standard 263 (field assembled diffusers with ceiling dampers tested to UL Standard 555C are not acceptable) and meet all of the requirements of NFPA 90A. Diffusers shall be 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.

FIRE RATED ARCHITECTURAL SQUARE CEILING DIFFUSERS

- SQUARE PLAQUE
- HIGH PERFORMANCE
- ROUND NECK
- 3 HOUR RATING
- LAY-IN

Full Face Models:

4410-UNI, 4420-UNI

Panel Type Models:

4430-UNI, 4440-UNI

CLASSIFIED UL

CATEGORY BZZU

CLASSIFIED C UL

CATEGORY BZGUC

AIR DIFFUSER FIRE RATED LISTING STATE OF CALIFORNIA STATE FIRE MARSHAL SERVICE LISTING NO. 3161-0935:0104

Model 4420-UNI

Model Series 4400 are UL/ULC Classified Fire Rated Ceiling Diffuser / Air Terminal Unit assemblies listed in Underwriters Laboratories Fire Resistance Directory. This design meets UL time-vs-temperature test criteria and NFPA 90A requirements.

All diffusers are 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.

These models are a fire rated version of the popular UNI Series. They have been specially designed to provide the unobtrusive appearance required for architectural excellence and the 360° diffusion pattern at minimum NC levels required for high engineering performance. The stamped one-piece outer cone eliminates mitered corners and the die-formed curves provide consistent quality and performance.

The UNI diffuser compliments any decor, blending beautifully with virtually any architectural style or requirement. The UNI diffuser provides a stable, tight to the ceiling, horizontal air diffusion and mixing pattern under constant and changing load conditions throughout the cataloged range of air volumes, and is particularly suitable for variable air volume applications.

STANDARD FEATURES:

- Factory assembled, 'packaged' product ensures compliance with fire code, simplifies specification and minimizes field labor.
- Tested in accordance with ANSI/UL Standard 263, "Fire Tests of Building Construction and Materials" and CAN/ULC Standard S101 "Fire Endurance Tests of Building Construction and Materials."
- Approved for use with flexible duct. Eliminates steel branch duct and drop. No costly independent hangers and supports are required.
- Spring-loaded core is securely held in position and is removable without the use of tools.
- Engineered air diffusion pattern.
- Steel stamped cones for uniformity.
- Face panel is virtually flush with the ceiling line and is double skinned for rigidity and strength. Features a hemmed edge for a professional finish.
- With two cones in all sizes, the diffusers provide a uniform appearance where different neck sizes are installed in the same area.
- RC Retaining Channels are available for ceiling tile installation on the face of the inner cone assembly.
- Unique, concealed neck bracketry is virtually invisible from most angles.
- The fixed ceiling radiation damper is standard. An adjustable version for balancing is optional.
- Access to the AV balancing option is achieved by removing the inner cone assembly.
- 212°F (100°C) fusible link is standard (165°F [74°C] is optional).
- All models must be installed in accordance with the installation instructions for UL/ULC Classification.

CONSTRUCTION MATERIAL:

- Heavy gauge corrosion-resistant steel.

FINISH OPTIONS:

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

PERFORMANCE DATA:

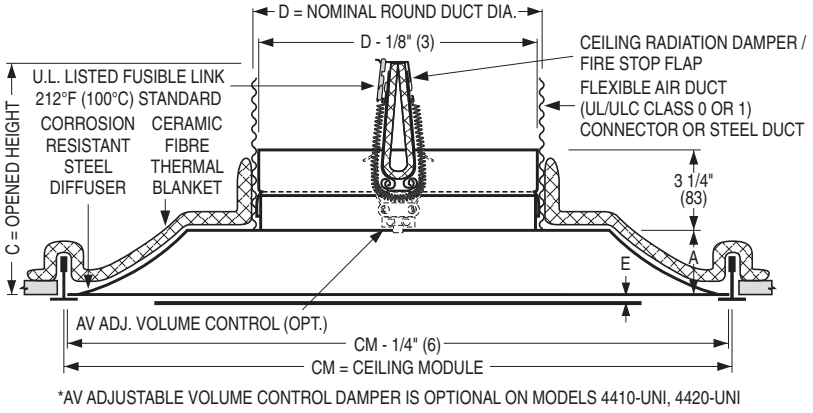
- See non-fire rated Model UNI.

DIMENSIONAL DATA:

MODELS 4410-UNI AND 4420-UNI • FULL FACE

Model 4410-UNI 12 x 12 or 300 x 300
Model 4420-UNI 24 x 24 or 600 x 600

	Imperial Modules (inches)				Metric Modules (mm)			
Listed Neck Size	CM = 12 x 12				CM = 300 x 300			
	D	A	C	E	D	A	C	E
6	6	1	5 1/2	5/8	152	25	140	16
8	8		6 1/2		203		165	
Listed Neck Size	CM = 24 x 24				CM = 600 x 600			
	D	A	C	E	D	A	C	E
6	6	2 5/16	6 13/16	3/8	152	59	173	10
8	8		7 13/16		203		198	
10	10		8 13/16		254		224	
12	12		9 13/16		305		249	
14	14		10 13/16		356		275	



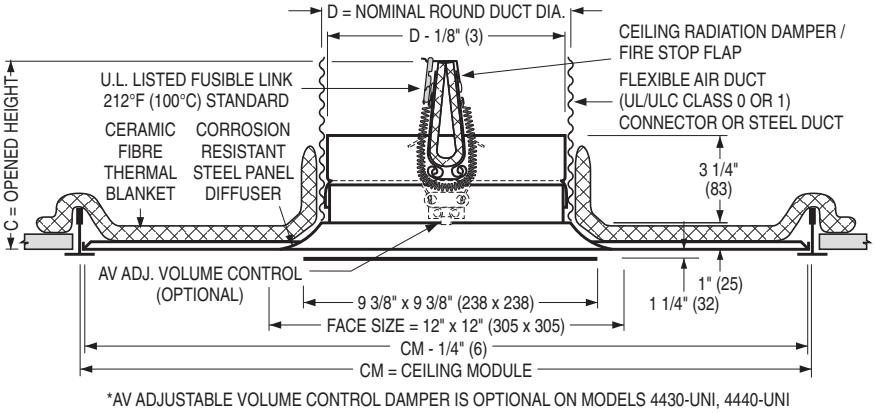
*AV ADJUSTABLE VOLUME CONTROL DAMPER IS OPTIONAL ON MODELS 4410-UNI, 4420-UNI

Type L Lay-in T-Bar Frame

MODELS 4430-UNI AND 4440-UNI • PANEL TYPE

Model 4430-UNI 24 x 12 or 600 x 300
Model 4440-UNI 24 x 24 or 600 x 600

	Imperial Modules (inches)		Metric Modules (mm)	
Listed Neck Size	CM = 24 x 12		CM = 600 x 300	
	D	C	D	C
6	6	5 1/2	152	140
8	8	6 1/2	203	165
Listed Neck Size	CM = 24 x 24		CM = 600 x 600	
	D	C	D	C
6	6	5 1/2	152	140
8	8	6 1/2	203	165



*AV ADJUSTABLE VOLUME CONTROL DAMPER IS OPTIONAL ON MODELS 4430-UNI, 4440-UNI

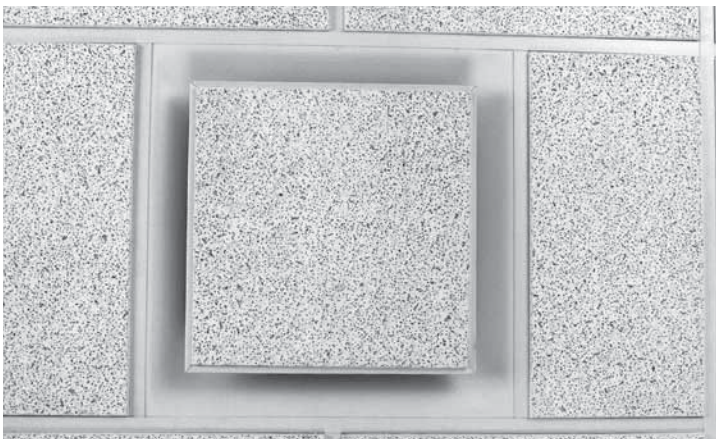
Type PL Panel Lay-in T-Bar Frame

Architectural Option
Model 4420-UNI

Model 4420-UNI Diffuser with optional RC Retaining Channel compliments any decor blending beautifully with virtually any architectural style or requirement for a unique 'custom' appearance.

The retaining channel is shipped separately for field installation of a ceiling tile that has been cut to size and installs directly on the face of the inner cone assembly.

The result is a high performance, fire rated diffuser that blends harmoniously with the specified architectural ceiling design.



HOW TO ORDER OR TO SPECIFY

FIRE RATED ARCHITECTURAL CEILING DIFFUSERS – SQUARE PLAQUE
MODELS 4410-UNI, 4420-UNI, 4430-UNI, 4440-UNI

EXAMPLE: 4420-UNI - 08 - 24" x 24" - L - AW - 212 - AV

1. **Models**
   - 4410-UNI 12" x 12" or 300 mm x 300 mm, Full Face
   - 4420-UNI 24" x 24" or 600 mm x 600 mm, Full Face
   - 4430-UNI 24" x 12" or 600 mm x 300 mm, Panel Type
   - 4440-UNI 24" x 24" or 600 mm x 600 mm, Panel Type
2. **Round Neck Size**

   Imperial
   - 06 6" (152) Round
   - 08 8" (203) Round
   - 10 10" (254) Round
   - 12 12" (305) Round
   - 14 14" (356) Round

   Only available on Model 4420-UNI
3. **Ceiling Module Size**

   Imperial
   - 12" x 12" (Model 4410-UNI)
   - 24" x 12" (Model 4430-UNI)
   - 24" x 24" (Models 4420-UNI and 4440-UNI)

   Metric
   - 3030 300 mm x 300 mm (Model 4410-UNI)
   - 6030 600 mm x 300 mm (Model 4430-UNI)
   - 6060 600 mm x 600 mm (Models 4420-UNI and 4440-UNI)
4. **Frame Type**
   - L Lay-in T-Bar (Models 4410-UNI and 4420-UNI)
   - PL Panel Lay-in T-Bar (Models 4430-UNI and 4440-UNI)
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)
7. **Volume Control**
   - — None (default)
   - AV Adjustable Volume Control

Note:

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

SUGGESTED SPECIFICATION:

Furnish and install **Nailor** (select one or more) **Model 4410-UNI, 4420-UNI, 4430-UNI** or **4440-UNI Steel Fire Rated Architectural Ceiling Diffusers** of the sizes and capacities as shown on the plans and air distribution schedules. The diffusers shall be manufactured from corrosion-resistant steel and consist of stamped one-piece outer-cone which eliminates mitered corners and a double-skinned inner face panel with a hemmed edge for strength and a clean appearance. The inner core assembly is to be removable by using a spring clip arrangement that permits quick, easy installation and removal. (Optional: ceiling damper shall be supplied with AV adjustable volume control option for field balancing). The finish shall be AW Appliance White (optional finishes are available). Diffusers shall be UL/ULC Classified fire rated ceiling diffuser assemblies as listed in the UL/ULC Fire Resistance (Certifications) Directory. Diffusers shall be tested in accordance with UL Standard 263 (field assembled diffusers with ceiling dampers tested to UL Standard 555C are not acceptable) and meet all of the requirements of NFPA 90A. Diffusers shall be 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.

FIRE RATED ARCHITECTURAL SQUARE CEILING DIFFUSERS

- SQUARE PLAQUE
- ROUND NECK
- 3 HOUR RATING
- SURFACE MOUNT MODULE FOR HARD CEILINGS

CLASSIFIED C UL

CATEGORY BZGUC

Model:

4410-UNI 12 x 12 or 300 x 300 Type S Surface Mount

Model 4410-UNI

Classified by Underwriters' Laboratories of Canada (ULC) for use in ULC restrained or unrestrained floor/ceiling and or roof/ceiling assemblies which incorporate air ducts and a hard (gypsum board) ceiling membrane with up to a 3 hour rating. For details of fire rated assemblies, see the current ULC Fire Resistance Directory. The use of this product in fire rated ceilings with ceiling membrane protection and/or UL Classified assemblies in the U.S.A. requires local approval by the authority having jurisdiction.
The diffuser delivered air in a true 360° streamline pattern. Excellent for VAV systems. Removable face has spring clips for easy access to the damper.

STANDARD FEATURES:

- Tested in accordance with CAN/ULC Standard S101 "Fire Endurance Tests of Building Construction and Materials."
- The diffuser consists of a stamped one piece outer cone and a plaque inner face panel with a hemmed edge for strength and a clean appearance.
- The fixed ceiling radiation damper is standard. An adjustable version for balancing is optional (see page E29).
- Non-standard temperature UL Listed fusible link (165°F [74°C]).

CONSTRUCTION MATERIAL:

- Corrosion-resistant steel diffuser.

FINISH OPTIONS:

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

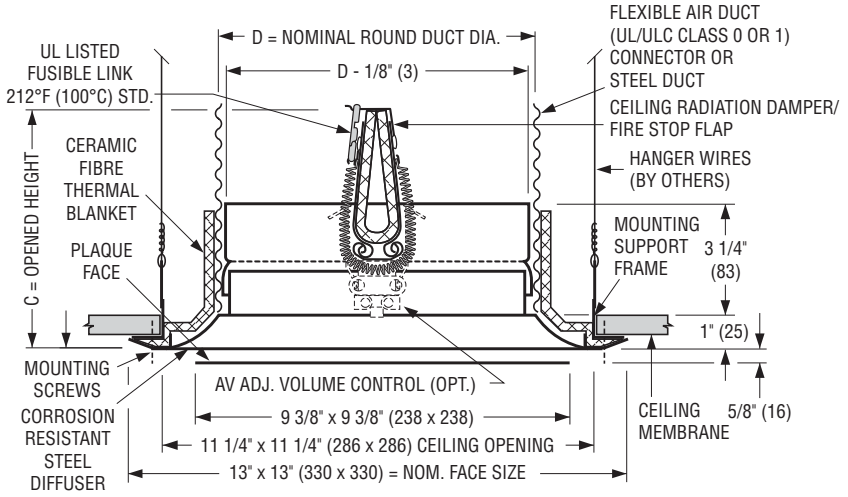
PERFORMANCE DATA:

- See non-fire rated Model UNI.

DIMENSIONAL DATA:

MODEL 4410-UNI • SQUARE FACE

12 x 12 or 300 x 300 TYPE S SURFACE MOUNT MODULE FOR HARD CEILINGS



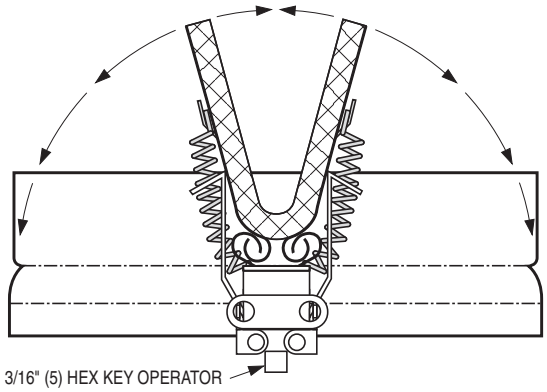
Type S Surface Mount

Available Sizes and Dimensional Data

Model 4410-UNI - 12 x 12 or 300 x 300 module

Listed Neck Size	Imperial Modules				Metric Modules	
	Imperial Units (in.)		SI Units (mm)		SI Units (mm)	
	CM = 12 x 12		CM = 305 x 305		CM = 300 x 300	
	D	C	D	C	D	C
6	6	5 1/2	152	140	152	140
8	8	6 1/2	203	165	203	165

AV Adjustable Volume Control Option.
This UL Listed ceiling radiation damper control **(Model 0722A)** option allows the ceiling radiation damper to be used as a balancing damper for volume control.
The ceiling damper blades are adjusted with a hex key and perform like a butterfly damper.



HOW TO ORDER OR TO SPECIFY

FIRE RATED ARCHITECTURAL CEILING DIFFUSERS – SQUARE PLAQUE – SURFACE MOUNT MODEL 4410-UNI

EXAMPLE: 4410-UNI - 08 - 12" x 12" - S - AW - 212 - AV

1. **Models**
   4410-UNI 12" x 12" or 300 mm x 300 mm, Full Face
2. **Round Neck Size**
   Imperial
   06 6" (152) Round
   08 8" (203) Round
3. **Ceiling Module Size**
   Imperial
   12" x 12"
   Metric
   300 mm x 300 mm
4. **Frame Type**
   S Surface Mount for Hard Ceilings
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)
7. **Volume Control**
   — None (default)
   AV Adjustable Volume Control

Notes:

1. Consult individual model as to limitations of module and neck size combination.
2. Model 4410-UNI (Frame Type S) is ULC Classified only.

SUGGESTED SPECIFICATION:

Furnish and install **Nailor Model 4410-UNI Type S** Surface Mount (round neck) **Steel Fire Rated Architectural Ceiling Diffusers** of the sizes and capacities as shown on the plans and air distribution schedules. The diffuser shall be manufactured from corrosion-resistant steel and consist of a stamped one-piece outer-cone and a double-skinned inner face panel with a hemmed edge for strength and a clean appearance. The inner core assembly is to be removable by using a spring clip arrangement that permits quick, easy installation and removal. The diffuser shall have a removable plug for screwdriver adjustment of the optional adjustable volume controller without removing the inner core. (Optional: ceiling damper shall be supplied with AV adjustable volume control option for field balancing). The finish shall be AW Appliance White (optional finishes are available). Diffusers shall be ULC Classified fire rated ceiling diffuser assemblies as listed in the ULC Fire Resistance (Certifications) Directory. Diffusers shall be tested in accordance with CAN/ULC Standard S101 (field assembled diffusers with ceiling dampers tested to UL Standard 555C are not acceptable) and meet all of the requirements of NFPA 90A. Diffusers shall be classified for use in restrained or unrestrained floor/ceiling and or roof/ceiling assemblies which incorporate air ducts and a hard gypsum board ceiling membrane with up to a 3 hour rating. The use of this product in UL Classified Ceiling Assemblies requires approval from the local authorities having jurisdiction.

PERFORMANCE DATA:

Model RNS2 • 12 x 12 (300 x 300) Face Size

Nominal Neck Size	Neck Velocity, FPM	400	500	600	700	800	900	1000	1200	1400	1600
	Velocity Pressure	.010	.016	.023	.031	.040	.051	.063	.090	.122	.160
6" Dia.	Total Pressure	.021	.032	.045	.060	.080	.100	.120	.167	.220	.290
	Airflow, CFM	80	100	120	140	160	180	200	235	275	315
	Throw	1-2-6	2-3-8	2-4-10	3-5-11	3-6-12	4-7-13	5-9-14	7-10-15	8-11-17	9-13-18
	Noise Criteria	—	—	—	—	—	—	—	14	24	34
8" Dia.	Total Pressure	.025	.037	.052	.070	.091	.113	.138	.195	.260	.340
	Airflow, CFM	140	175	210	245	280	315	350	420	490	560
	Throw	2-4-10	3-6-13	4-8-15	5-9-16	7-11-17	8-12-19	9-14-20	11-16-22	13-17-23	15-18-26
	Noise Criteria	—	—	—	—	—	—	10	19	27	34

Model RNS2 • 24 x 24 (600 x 600) Face Size

Nominal Neck Size	Neck Velocity, FPM	400	500	600	700	800	900	1000	1200	1400	1600
	Velocity Pressure	.010	.016	.023	.031	.040	.051	.063	.090	.122	.160
6" Dia.	Total Pressure	.026	.040	.058	.080	.104	.131	.190	.262	.350	.500
	Airflow, CFM	80	100	120	140	160	180	200	235	275	315
	Throw	1-2-4	1-2-5	2-2-6	2-3-7	2-4-8	2-4-9	3-5-9	4-6-10	5-7-12	6-8-13
	Noise Criteria	—	—	—	11	14	18	21	27	33	38
8" Dia.	Total Pressure	.043	.065	.092	.125	.165	.210	.257	.400	.540	.740
	Airflow, CFM	140	175	210	245	280	315	350	420	490	560
	Throw	1-3-5	2-3-6	2-4-7	3-4-8	3-5-9	4-5-10	5-6-11	6-7-13	6-8-14	7-9-15
	Noise Criteria	—	11	16	20	23	27	30	37	42	47
10" Dia.	Total Pressure	.045	.069	.098	.137	.176	.225	.274	.421	.568	.774
	Airflow, CFM	220	270	330	380	435	490	545	655	765	870
	Throw	1-3-6	2-3-7	2-4-8	3-4-10	4-5-11	5-6-12	5-7-13	6-8-14	7-9-15	8-10-16
	Noise Criteria	10	15	20	24	28	32	35	40	45	50
12" Dia.	Total Pressure	.046	.070	.100	.140	.180	.230	.280	.430	.580	.790
	Airflow, CFM	315	390	470	550	630	705	785	990	1100	1255
	Throw	3-4-7	4-5-9	4-6-10	5-7-11	6-8-12	7-9-13	7-10-14	8-11-15	9-12-16	10-13-17
	Noise Criteria	11	16	21	25	29	33	36	41	46	51
14" Dia.	Total Pressure	.047	.072	.104	.145	.185	.240	.285	.440	.590	.805
	Airflow, CFM	425	530	635	745	850	955	1060	1270	1490	1695
	Throw	3-4-7	4-5-9	4-6-10	5-7-11	6-8-12	7-9-13	7-10-14	8-11-15	9-12-16	10-13-17
	Noise Criteria	13	18	23	27	31	34	37	43	53	57
15" Dia.	Total Pressure	.048	.075	.110	.150	.195	.250	.300	.455	.610	.825
	Airflow, CFM	490	615	735	860	985	1110	1230	1470	1720	1970
	Throw	4-5-8	4-6-10	5-7-11	6-8-12	6-9-13	7-10-14	8-10-15	9-12-16	10-13-17	11-14-18
	Noise Criteria	14	19	24	29	32	36	39	45	56	60

Performance Notes:

1. Throws are given at 150, 100 and 50 fpm terminal velocities under isothermal conditions.

2. All pressures are in inches w.g.. To obtain static pressure, subtract the velocitiy pressure from the total pressure.

3. Noise Criteria (NC) values are based upon 10dB room absorption, re 10^{-12} watts. Dash (—) in space indicates an Noise Criteria of less than 15.

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

Neck Size Diameter in Inches	Nominal Overall Face Size	Ak Factor
6	12 x 12	.157
8	12 x 12	.232
6	24 x 24	.185
8	24 x 24	.226
10	24 x 24	.285
12	24 x 24	.382
14	24 x 24	.505
15	24 x 24	.577

PERFORMANCE DATA:

Models UNI and AUNI • 12 x 12 (300 x 300) Face Size • 4-way Blow (360° Pattern)

Nominal Neck Size	Neck Velocity, FPM	400	500	600	700	800	900	1000	1200	1400	1600
	Velocity Pressure	.010	.016	.023	.031	.040	.051	.063	.090	.122	.160
4" Dia.	Total Pressure	.023	.036	.051	.07	.091	.115	.142	.205	.279	.364
	Airflow, CFM	35	45	50	60	70	80	85	105	120	140
	Throw	1-2-3	1-2-4	2-2-5	2-3-6	2-3-6	2-4-7	3-4-7	3-5-7	4-6-7	5-7-8
	Noise Criteria	—	—	—	13.000	17	21	24	30	35	40
5" Dia.	Total Pressure	0	0	0	0	0	0	0	0	0	0
	Airflow, CFM	55	70	80	95	110	125	135	165	190	220
	Throw	2-2-4	2-3-5	2-3-6	3-4-7	3-5-8	4-6-9	4-7-9	4-8-10	5-8-10	6-9-11
	Noise Criteria	—	—	—	14	18	22	25	31	36	41
6" Dia.	Total Pressure	.033	.052	.074	.101	.131	.166	.205	.295	.402	.525
	Airflow, CFM	80	100	120	140	160	180	200	235	275	315
	Throw	2-3-5	3-4-6	3-5-7	4-5-8	5-6-9	5-7-10	5-8-10	6-9-11	7-10-12	7-10-13
	Noise Criteria	—	—	1.000	15	19	23	26	32	37	42
7" Dia.	Total Pressure	.056	.089	.127	.172	.225	.285	.352	.506	.689	.900
	Airflow, CFM	105	135	160	190	215	240	265	320	375	430
	Throw	3-4-6	3-5-7	4-6-9	4-7-10	5-8-10	6-8-11	6-9-12	7-10-13	8-11-14	9-12-15
	Noise Criteria	—	—	11	16	20	24	27	33	38	43
8" Dia.	Total Pressure	.067	.105	.160	.205	.268	.340	.418	.600	.821	1.070
	Airflow, CFM	140	175	210	245	280	315	350	420	490	560
	Throw	3-5-7	4-6-9	5-7-10	6-8-11	6-9-12	7-9-13	7-10-14	8-11-15	9-12-16	9-12-17
	Noise Criteria	—	—	12	17	21	25	28	34	39	44

Models UNI and AUNI • 20 x 20 (500 x 500) Face Size • 4-way Blow (360° Pattern)

Nominal Neck Size	Neck Velocity, FPM	400	500	600	700	800	900	1000	1200	1400	1600
	Velocity Pressure	.010	.016	.023	.031	.040	.051	.063	.090	.122	.160
6" Dia.	Total Pressure	.014	.021	.031	.042	.055	.070	.086	.124	.168	.220
	Airflow, CFM	80	100	120	140	160	180	200	235	275	315
	Throw	1-3-5	2-3-4	2-4-5	2-4-6	2-5-6	3-4-7	3-5-8	4-6-9	4-6-10	5-6-10
	Noise Criteria	—	—	—	—	14	18	22	28	34	39
8" Dia.	Total Pressure	0	0	0	0	0	0	0	0	0	0
	Airflow, CFM	140	175	210	245	280	315	350	420	490	560
	Throw	2-2-4	2-3-5	2-3-7	3-4-8	3-5-9	4-6-9	5-7-10	6-8-11	7-9-12	8-10-13
	Noise Criteria	—	—	—	13	18	22	26	32	38	43
10" Dia.	Total Pressure	. 031	.049	.071	.096	.126	.159	.196	.283	.385	.503
	Airflow, CFM	220	270	330	380	435	490	545	655	765	875
	Throw	3-4-7	3-5-9	3-5-10	4-6-12	5-7-13	6-8-12	7-9-14	8-11-15	10-12-17	11-13-18
	Noise Criteria	—	—	10	16	21	25	29	35	41	46

Performance Notes:

1. Throws are given at 150, 100 and 50 fpm terminal velocities under isothermal conditions.

2. All pressures are in inches w.g.. To obtain static pressure, subtract the velocitiy pressure from the total pressure.

3. Return Applications:

Use the following correction factors with the supply data.

Noise Criteria = + 3 Noise Criteria (NC)

Negative Static Pressure = Total Pressure x .45

4. Noise Criteria (NC) values are based upon 10dB room absorption, re 10^{-12} watts. Dash (—) in space indicates an Noise Criteria of less than 10.

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

Neck Size Diameter in Inches	Nominal Overall Face Size	Ak Factor
6	12 x 12	.105
8	12 x 12	.129
6	24 x 24	.206
8	24 x 24	.248
10	24 x 24	.315
12	24 x 24	.384
14	24 x 24	.437
15	24 x 24	.485

PERFORMANCE DATA:

Models UNI and AUNI • 24 x 24 (600 x 600) Face Size • 4-way Blow (360° Pattern)

Nominal Neck Size	Neck Velocity, FPM	400	500	600	700	800	900	1000	1200	1400	1600
	Velocity Pressure	.010	.016	.023	.031	.040	.051	.063	.090	.122	.160
6" Dia.	Total Pressure	.01	.02	.03	.041	.053	.068	.084	.12	.164	.214
	Airflow, CFM	80	100	120	140	160	180	200	235	275	315
	Throw	1-3-4	1-3-4	2-4-5	2-4-6	2-5-6	3-4-7	3-5-8	4-6-9	4-6-10	5-6-10
	Noise Criteria	—	—	—	—	14	18	22	28	34	39
8" Dia.	Total Pressure	0	0	0	0	0	0	0	0	0	0
	Airflow, CFM	140	175	210	245	280	315	350	420	490	560
	Throw	2-2-4	2-3-5	2-3-7	3-4-8	3-5-9	4-6-9	5-7-10	6-8-11	7-9-12	8-10-13
	Noise Criteria	—	—	—	13	18	22	26	32	38	43
10" Dia.	Total Pressure	.031	.048	.069	.093	.122	.155	.191	.275	.375	.489
	Airflow, CFM	220	270	330	380	435	490	545	655	765	870
	Throw	3-4-7	3-5-9	3-5-10	4-6-12	5-7-13	5-8-12	7-9-14	8-11-15	10-12-17	11-13-18
	Noise Criteria	—	—	1.000	16	21	25	29	35	41	46
12" Dia.	Total Pressure	.04	.063	.09	.123	.161	.203	.251	.361	.492	.643
	Airflow, CFM	315	390	470	550	630	705	785	940	1100	1255
	Throw	4-5-10	4-7-13	5-8-14	7-9-16	8-11-17	8-12-17	10-14-19	11-15-20	14-17-23	16-18-25
	Noise Criteria	—	—	13	19	24	28	32	38	44	49
14" Dia.	Total Pressure	.054	.083	.12	.163	.214	.27	.334	.481	.655	.855
	Airflow, CFM	425	530	635	745	850	955	1060	1270	1490	1695
	Throw	5-7-14	6-9-16	43292	44117	45245	45247	14-19-26	16-21-28	19-22-31	20-24-33
	Noise Criteria	—	—	15	21	26	30	34	40	46	51
15" Dia.	Total Pressure	.065	.102	.147	.2	.26	.33	.408	.588	.799	1.044
	Airflow, CFM	490	615	735	860	985	1110	1230	1470	1720	1970
	Throw	6-9-17	7-11-19	9-13-21	11-16-24	14-19-26	14-20-27	16-21-30	19-24-33	23-26-35	23-27-38
	Noise Criteria	—	—	16	22	27	31	35	41	47	52

Performance Notes:

1. Throws are given at 150, 100 and 50 fpm terminal velocities under isothermal conditions.

2. All pressures are in inches w.g.. To obtain static pressure, subtract the velocitiy pressure from the total pressure.

3. Return Applications:

Use the following correction factors with the supply data.

Noise Criteria = + 3 Noise Criteria (NC)

Negative Static Pressure = Total Pressure x .45

4. Noise Criteria (NC) values are based upon 10dB room absorption, re 10^{-12} watts. Dash (—) in space indicates an Noise Criteria of less than 10.

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

Neck Size Diameter in Inches	Nominal Overall Face Size	Ak Factor
6	12 x 12	.105
8	12 x 12	.129
6	24 x 24	.206
8	24 x 24	.248
10	24 x 24	.315
12	24 x 24	.384
14	24 x 24	.437
15	24 x 24	.485

PERFORMANCE DATA:

Models UNI and AUNI • 12 x 12 (300 x 300) Face Size • 3-way Blow

Nominal Neck Size	Neck Velocity, FPM	300	400	500	600	700	800	900	1000	1200	1400
	Velocity Pressure	.006	.010	.016	.023	.031	.040	.051	.063	.090	.122
6" Dia.	Total Pressure	.035	.061	.096	.138	.188	.245	.311	.383	.529	.725
	Airflow, CFM	60	80	100	120	140	160	180	200	235	275
	Throw	2-4-6	3-6-9	5-7-9	5-8-10	6-9-12	7-9-13	7-10-14	8-11-15	8-12-16	9-13-17
	Noise Criteria	—	—	12	18	23	27	31	34	40	45
8" Dia.	Total Pressure	.076	.135	.211	.304	.414	.540	.684	.844	1.215	1.654
	Airflow, CFM	105	140	175	210	245	280	315	350	420	490
	Throw	3-5-7	5-7-10	5-8-11	6-9-12	7-10-13	7-10-14	8-11-15	9-12-16	9-12-17	10-13-18
	Noise Criteria	—	—	14	20	25	29	33	36	42	47

Models UNI and AUNI • 24 x 24 (600 x 600) Face Size • 3-Way Blow

Nominal Neck Size	Neck Velocity, FPM	300	400	500	600	700	800	900	1000	1200	1400
	Velocity Pressure	.006	.010	.016	.023	.031	.040	.051	.063	.090	.122
6" Dia.	Total Pressure	.010	.018	.028	.041	.055	.072	.091	.113	.155	.213
	Airflow, CFM	60	80	100	120	140	160	180	200	235	275
	Throw	1-3-4	1-3-4	2-4-5	2-5-6	3-4-7	4-5-8	4-6-9	4-6-10	5-6-10	6-7-11
	Noise Criteria	—	—	—	11	17	22	26	30	36	42
8" Dia.	Total Pressure	.016	.028	.043	.062	.085	.111	.140	.173	.249	.339
	Airflow, CFM	105	140	175	210	245	280	315	350	420	490
	Throw	2-2-4	2-3-6	3-4-8	3-5-8	4-6-9	5-7-10	6-8-11	7-9-12	8-10-13	9-11-14
	Noise Criteria	—	—	—	15	21	26	30	34	40	46
10" Dia.	Total Pressure	.032	.057	.085	.127	.169	.221	.281	.347	.501	.684
	Airflow, CFM	165	220	270	330	380	435	490	545	655	765
	Throw	3-4-7	3-5-9	4-6-10	5-7-11	5-8-12	7-10-13	8-11-15	9-12-16	11-13-18	12-14-19
	Noise Criteria	—	—	—	18	24	29	33	37	43	49
12" Dia.	Total Pressure	.043	.077	.118	.171	.235	.308	.386	.478	.686	.939
	Airflow, CFM	235	315	390	470	550	630	705	785	940	1100
	Throw	4-5-10	5-7-13	6-9-15	8-11-17	9-13-18	10-14-19	11-15-20	13-16-22	16-18-25	18-21-28
	Noise Criteria	—	—	12	21	27	32	36	40	46	52
14" Dia.	Total Pressure	.060	.106	.165	.237	.326	.425	.536	.661	.949	1.306
	Airflow, CFM	320	425	530	635	745	850	955	1060	1270	1490
	Throw	5-7-14	6-9-16	9-12-19	11-15-23	12-18-24	14-19-26	16-21-28	19-21-30	20-24-33	21-26-35
	Noise Criteria	—	—	14	23	29	34	38	42	48	54
15" Dia.	Total Pressure	.074	.130	.205	.293	.401	.526	.668	.820	1.172	1.604
	Airflow, CFM	370	490	615	735	860	985	1110	1230	1470	1720
	Throw	6-9-17	8-12-20	11-16-24	14-19-26	14-20-27	17-22-31	19-24-33	22-25-35	23-27-38	24-29-40
	Noise Criteria	—	—	15	24	30	35	39	43	49	55

Performance Notes:

1. Throws are given at 150, 100 and 50 fpm terminal velocities under isothermal conditions.

2. All pressures are in inches w.g.. To obtain static pressure, subtract the velocitiy pressure from the total pressure.

3. Noise Criteria (NC) values are based upon 10dB room absorption, re 10^{-12} watts. Dash (—) in space indicates an Noise Criteria of less than 10.

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

Neck Size Diameter in Inches	Nominal Overall Face Size	Ak Factor
6	12 x 12	.079
8	12 x 12	.098
6	24 x 24	.155
8	24 x 24	.186
10	24 x 24	.236
12	24 x 24	.288
14	24 x 24	.328
15	24 x 24	.364

PERFORMANCE DATA:

Models UNI and AUNI • 12 x 12 (300 x 300) Face Size • 2-way Blow

Nominal Neck Size	Neck Velocity, FPM	200	300	400	500	600	700	800	900	1000	1200
	Velocity Pressure	.003	.006	.010	.016	.023	.031	.040	.051	.063	.090
6" Dia.	Total Pressure	.032	.071	.126	.198	.284	.387	.506	.640	.790	1.091
	Airflow, CFM	40	60	80	100	120	140	160	180	200	235
	Throw	2-4-6	4-6-9	5-8-10	6-9-12	7-9-13	8-11-15	8-12-16	9-12-17	9-13-18	10-13-19
	Noise Criteria	—	—	16	22	25	30	34	38	41	47
8" Dia.	Total Pressure	.074	.166	.294	.460	.662	.902	1.178	1.491	1.840	2.650
	Airflow, CFM	70	105	140	175	210	245	280	315	350	420
	Throw	3-5-7	5-7-10	6-9-12	7-10-14	8-11-15	9-12-16	9-12-17	10-12-18	10-13-19	11-14-20
	Noise Criteria	—	11	18	24	27	32	36	40	43	49

Models UNI and AUNI • 24 x 24 (600 x 600) Face Size • 2-Way Blow

Nominal Neck Size	Neck Velocity, FPM	300	400	500	600	700	800	900	1000	1200	1400
	Velocity Pressure	.006	.010	.016	.023	.031	.040	.051	.063	.090	.122
6" Dia.	Total Pressure	.007	.016	.028	.043	.063	.085	.111	.141	.174	.240
	Airflow, CFM	40	60	80	100	120	140	160	180	200	235
	Throw	1-3-4	2-4-5	2-5-6	3-4-7	4-6-9	4-6-10	5-6-10	6-7-11	6-8-12	7-9-13
	Noise Criteria	—	—	—	12	18	24	29	33	37	43
8" Dia.	Total Pressure	.013	.028	.050	.078	.113	.153	.200	.253	.313	.450
	Airflow, CFM	70	105	140	175	210	245	280	315	350	420
	Throw	2-2-4	2-3-7	3-5-9	5-7-9	6-8-11	7-9-12	8-10-13	9-11-14	10-12-15	11-13-17
	Noise Criteria	—	—	—	16	22	28	33	37	41	47
10" Dia.	Total Pressure	.029	.065	.115	.174	.259	.344	.451	.572	.707	1.022
	Airflow, CFM	110	165	220	270	330	380	435	490	545	655
	Throw	3-4-7	3-5-10	5-7-13	7-9-14	8-11-15	10-12-17	11-13-18	11-14-18	12-15-19	13-17-22
	Noise Criteria	—	—	12	19	25	31	36	41	44	50
12" Dia.	Total Pressure	.042	.09	.162	.248	.36	.493	.647	.811	1.005	1.441
	Airflow, CFM	160	235	315	390	470	550	630	705	785	940
	Throw	4-5-10	5-8-14	8-11-17	10-14-19	11-15-20	14-17-23	16-18-25	16-19-25	18-21-27	19-22-29
	Noise Criteria	—	—	15	22	28	34	39	43	47	53
14" Dia.	Total Pressure	.056	.130	.229	.356	.511	.704	.916	1.156	1.425	2.045
	Airflow, CFM	210	320	425	530	635	745	850	955	1060	1270
	Throw	5-7-14	7-11-18	11-15-23	14-19-26	16-21-28	19-22-31	20-24-33	20-26-33	23-28-36	25-30-38
	Noise Criteria	—	—	17	24	30	36	41	45	49	55
15" Dia.	Total Pressure	.071	.161	.283	.446	.637	.872	1.144	1.453	1.784	2.548
	Airflow, CFM	245	370	490	615	735	860	985	1110	1230	1470
	Throw	6-9-17	9-13-21	14-19-26	16-21-30	19-24-33	23-26-35	23-27-38	23-28-39	25-29-42	28-31-42
	Noise Criteria	—	10	18	25	31	37	42	46	50	56

Performance Notes:

1. Throws are given at 150, 100 and 50 fpm terminal velocities under isothermal conditions.

2. All pressures are in inches w.g.. To obtain static pressure, subtract the velocitiy pressure from the total pressure.

3. Noise Criteria (NC) values are based upon 10dB room absorption, re 10^{-12} watts. Dash (—) in space indicates an Noise Criteria of less than 10.

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

Neck Size Diameter in Inches	Nominal Overall Face Size	Ak Factor
6	12 x 12	.053
8	12 x 12	.065
6	24 x 24	.103
8	24 x 24	.124
10	24 x 24	.158
12	24 x 24	.192
14	24 x 24	.219
15	24 x 24	.243