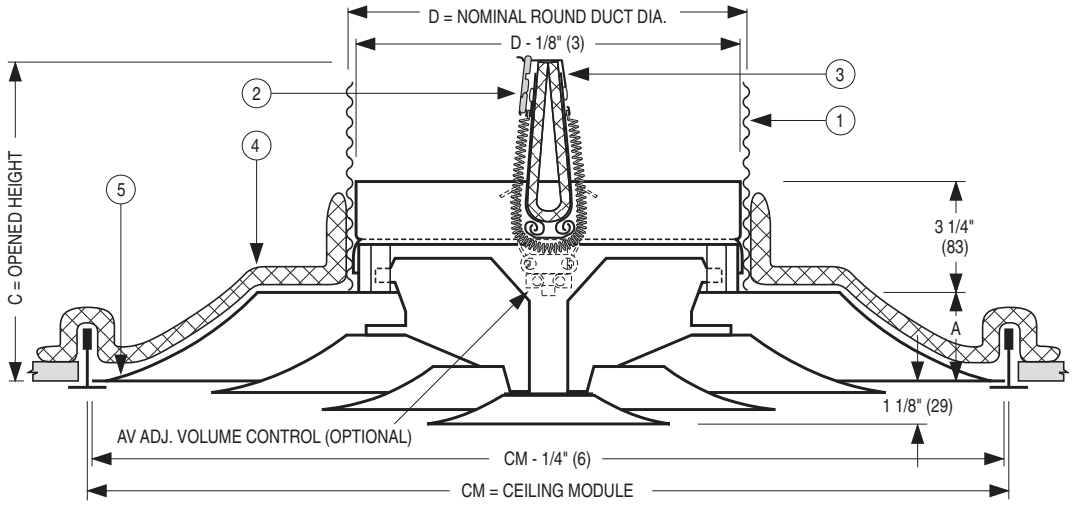
FIRE RATED CEILING DIFFUSER

FIXED PATTERN • LOUVERED FACE • STEEL • ROUND NECK • 4 CONE

MODELS: 4010 AND 4020



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

	Imperial Modules						Metric Modules		
	Imperial Units (inches)			SI Units (mm)			SI Units (mm)		
Listed Neck Size	CM = 12 x 12			CM = 305 x 305			CM = 300 x 300		
	D	A	C	D	A	C	D	A	C
6	6	1	5 1/2	152	25	140	152	25	140
8	8		6 1/2	203		165	203		165
Listed Neck Size	CM = 24 x 24			CM = 610 x 610			CM = 600 x 600		
	D	A	C	D	A	C	D	A	C
6	6	2 5/16	6 13/16	152	59	173	152	59	173
8	8		7 13/16	203		198	203		198
10	10		8 13/16	254		224	254		224
12	12		9 13/16	305		249	305		249
14	14		10 13/16	356		275	356		275

❑ MODEL 4010

12 x 12 (300 x 300) module
Type L Lay-in Frame

❑ MODEL 4020

24 x 24 (600 x 600) module
Type L Lay-in Frame

ITEMS:

1. Flexible air duct (UL/ULC Class 0 or 1) connector or steel duct.
2. U.L. Listed fusible link. 212°F (100°C) standard.
3. Ceiling radiation damper/fire stop flap.
4. Ceramic fibre thermal blanket.
5. Corrosion resistant steel diffuser.

DESCRIPTION:

1. All models 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.
2. A spring clip arrangement permits quick, easy installation and removal of the inner cone assembly.
3. The diffuser delivered air in a true 360° streamline pattern. Excellent for VAV systems.
4. The diffuser consists of four die-formed concentric cones in all sizes which eliminate mitered corners and provide uniform appearance in all neck sizes.
5. Standard finish is AW Appliance White.

OPTIONS:

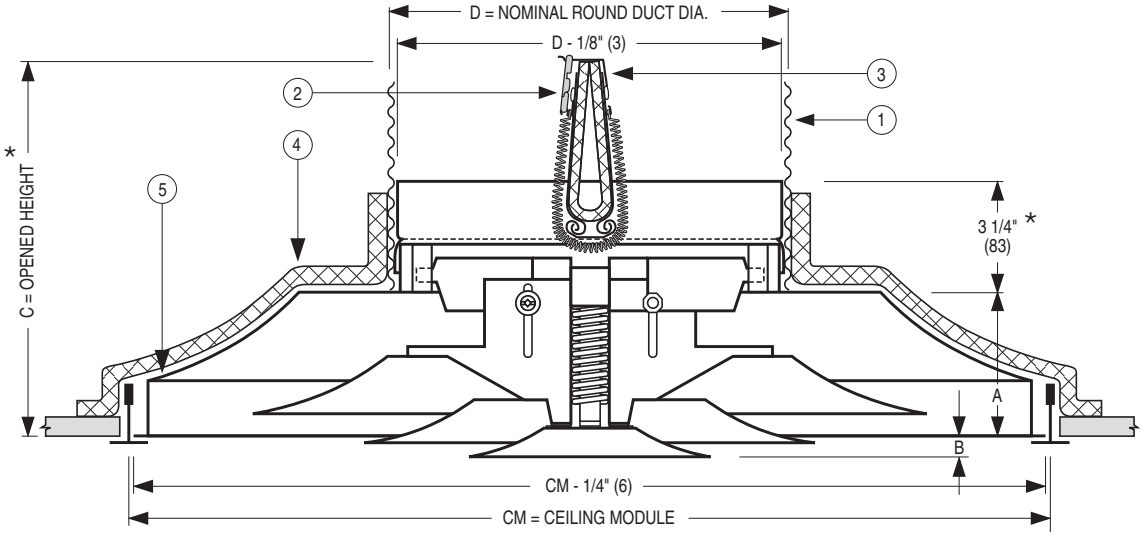
1. ❑ AV Fusible link adjustable volume control (Model 0722A damper)
2. Non-standard temperature U.L. Listed fusible link.
   ❑ 165°F (74°C)
3. Finish:
   ❑ SP Special

For installation instructions, see IOM-FRDSINST or IOM-FRDFINST.

Dimensions are in inches (mm).

SCHEDULE TYPE:				
PROJECT:				
ENGINEER:	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR:	**11 - 24 - 16**	**4000**	**11 - 11 - 15**	**4000-3A**

FIRE RATED CEILING DIFFUSER
ADJUSTABLE PATTERN • LOUVERED FACE
STEEL • ROUND NECK • 4 CONE
MODELS: 4010-1 AND 4020-1



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

	Imperial Modules								Metric Modules			
	Imperial Units (inches)				SI Units (mm)				SI Units (mm)			
Listed Neck Size	CM = 12 x 12				CM = 305 x 305				CM = 300 x 300			
	D	A	B	C *	D	A	B	C *	D	A	B	C *
6	6	2 1/4	0 to 1/2	6 3/4	152	57	0 to 13	171	152	57	0 to 13	171
8	8			7 3/4	203			197	203			197
Listed Neck Size	CM = 24 x 24				CM = 610 x 610				CM = 600 x 600			
	D	A	B	C *	D	A	B	C *	D	A	B	C *
6	6	3 3/4	0 to 3/8	8 1/4	152	95	0 to 10	210	152	95	0 to 10	210
8	8			9 1/4	203			235	203			235
10	10			10 1/4	254			260	254			260
12	12			11 1/4	305			286	305			286
14	14			12 1/4	356			311	356			311

* Plus 1 1/2" (38) with AV option.

❑ **MODEL 4010-1**
12 x 12 (300 x 300) module
Type L Lay-in Frame

❑ **MODEL 4020-1**
24 x 24 (600 x 600) module
Type L Lay-in Frame

ITEMS:
1. Flexible air duct (UL/ULC Class 0 or 1) connector or steel duct.
2. U.L. Listed fusible link. 212°F (100°C) standard.
3. Ceiling radiation damper/fire stop flap.
4. Ceramic fibre thermal blanket.
5. Corrosion resistant steel diffuser.

DESCRIPTION:
1. All models 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.
2. The diffuser has a unique screw-type arrangement for quick and simple adjustment which can vary the air discharge pattern from horizontal to vertical by rotating the center cone and so moving the inner cone assembly up or down. A spring clip arrangement allows removal of the inner cone assembly.
3. The diffuser delivered air in a true 360° streamline pattern. Excellent for VAV systems.
4. The diffuser consists of four die-formed concentric cones in all sizes which eliminate mitered corners and provide uniform appearance in all neck sizes.
5. Standard finish is AW Appliance White.

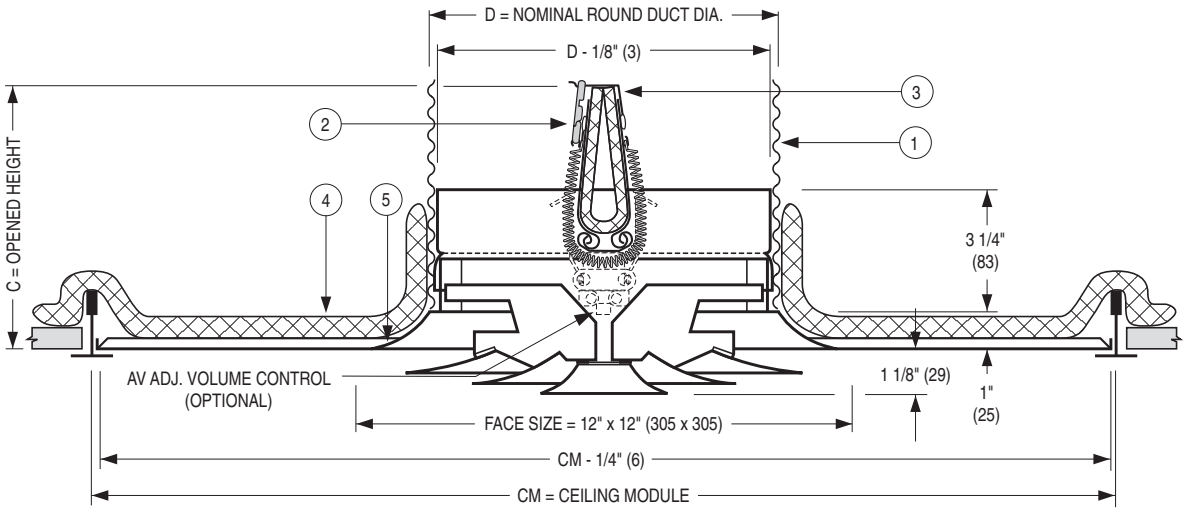
OPTIONS:
1. ❑ AV Fusible link adjustable volume control (Model 0722A damper)
2. Non-standard temperature U.L. Listed fusible link.
   ❑ 165°F (74°C)
3. Finish:
   ❑ SP Special

For installation instructions, see IOM-FRDSINST or IOM-FRDFINST.

Dimensions are in inches (mm).

SCHEDULE TYPE:				
PROJECT:				
ENGINEER:	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR:	**11 - 24 - 16**	**4000**	**5 - 11 - 15**	**4000-3B**

FIRE RATED CEILING DIFFUSER
FIXED PATTERN • LOUVERED FACE
PANEL TYPE • STEEL • ROUND NECK • 4 CONE
MODELS: 4030 AND 4040



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

	Imperial Modules				Metric Modules	
	Imperial Units (inches)		SI Units (mm)		SI Units (mm)	
Listed Neck Size	CM = 24 x 12		CM = 610 x 305		CM = 600 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
Listed Neck Size	CM = 24 x 24		CM = 610 x 610		CM = 600 x 600	
	D	C	D	C	D	C
6	6	5 1/2	152	140	152	140
8	8	6 1/2	203	165	203	165

❑ MODEL 4030
24 x 12 (600 x 300) module
Type PL Panel Lay-in Frame

❑ MODEL 4040
24 x 24 (600 x 600) module
Type PL Panel Lay-in Frame

ITEMS:
1. Flexible air duct (UL/ULC Class 0 or 1) connector or steel duct.
2. U.L. Listed fusible link. 212°F (100°C) standard.
3. Ceiling radiation damper/fire stop flap.
4. Ceramic fibre thermal blanket.
5. Corrosion resistant steel panel diffuser.

DESCRIPTION:
1. All models 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.
2. A spring clip arrangement permits quick, easy installation and removal of the inner cone assembly.
3. The diffuser delivered air in a true 360° streamline pattern. Excellent for VAV systems.
4. The diffuser consists of four die-formed concentric cones in all sizes which eliminate mitered corners and provide uniform appearance in all neck sizes set in a panel.
5. Standard finish is AW Appliance White.

OPTIONS:
1. ❑ AV Fusible link adjustable volume control (Model 0722A damper)
2. Non-standard temperature U.L. Listed fusible link.
   - ❑ 165°F (74°C)
3. Finish:
   - ❑ SP Special

For installation instructions, see IOM-FRDSINST or IOM-FRDFINST.

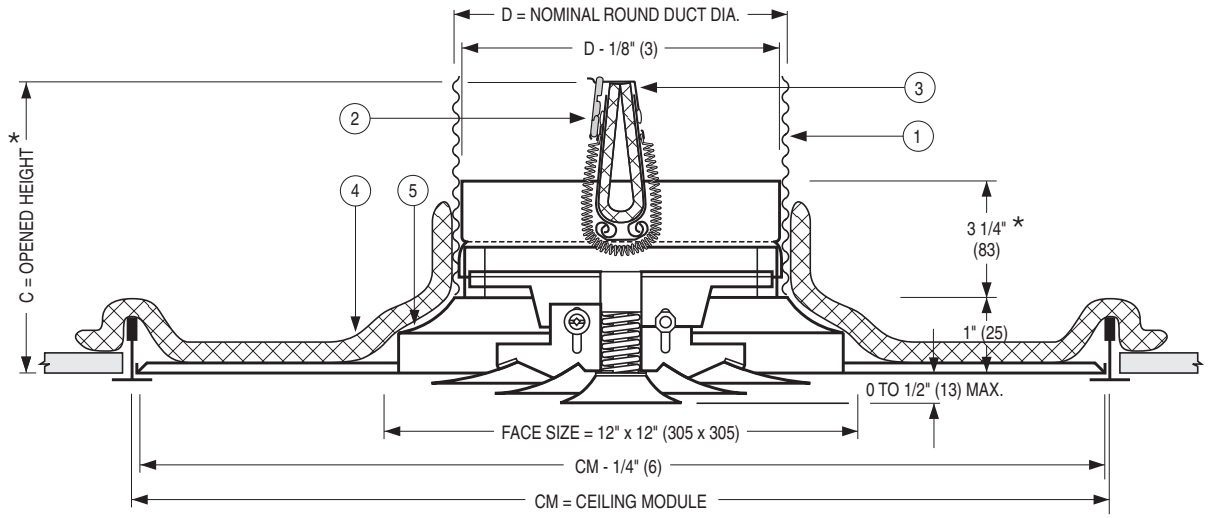
Dimensions are in inches (mm).

SCHEDULE TYPE:				
PROJECT:				
ENGINEER:	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR:	**11 - 24 - 16**	**4000**	**11 - 11 - 15**	**4000-4A**

FIRE RATED CEILING DIFFUSER

ADJUSTABLE PATTERN • LOUVERED FACE
PANEL TYPE • STEEL • ROUND NECK • 4 CONE

MODELS: 4030-1 AND 4040-1



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

	Imperial Modules				Metric Modules	
	Imperial Units (inches)		SI Units (mm)		SI Units (mm)	
Listed Neck Size	CM = 24 x 12		CM = 610 x 305		CM = 600 x 300	
	D	C *	D	C *	D	C *
6	6	6 3/4	152	171	152	171
8	8	7 3/4	203	197	203	197
Listed Neck Size	CM = 24 x 24		CM = 610 x 610		CM = 600 x 600	
	D	C *	D	C *	D	C *
6	6	6 3/4	152	171	152	171
8	8	7 3/4	203	187	203	197

* Plus 1 1/2" (38) with AV option.

❑ **MODEL 4030-1**
24 x 12 (600 x 300) module
Type PL Panel Lay-in Frame

❑ **MODEL 4040-1**
24 x 24 (600 x 600) module
Type PL Panel Lay-in Frame

ITEMS:

1. Flexible air duct (UL/ULC Class 0 or 1) connector or steel duct.
2. U.L. Listed fusible link. 212°F (100°C) standard.
3. Ceiling radiation damper/fire stop flap.
4. Ceramic fibre thermal blanket.
5. Corrosion resistant steel panel diffuser.

DESCRIPTION:

1. All models 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.
2. The diffuser has a unique screw-type arrangement for quick and simple adjustment which can vary the air discharge pattern from horizontal to vertical by rotating the center cone and so moving the inner cone assembly up or down. A spring clip arrangement allows removal of the inner cone assembly.
3. The diffuser delivered air in a true 360° streamline pattern. Excellent for VAV systems.
4. The diffuser consists of four die-formed concentric cones in all sizes which eliminate mitered corners and provide uniform appearance in all neck sizes set in a panel.
5. Standard finish is AW Appliance White.

OPTIONS:

1. ❑ AV Fusible link adjustable volume control (Model 0722A damper)
2. Non-standard temperature U.L. Listed fusible link.
   ❑ 165°F (74°C)
3. Finish:
   ❑ SP Special

For installation instructions, see IOM-FRDSINST or IOM-FRDFINST.

Dimensions are in inches (mm).

SCHEDULE TYPE:				
PROJECT:				
ENGINEER:	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR:	**11 - 24 - 16**	**4000**	**5 - 11 - 15**	**4000-4B**

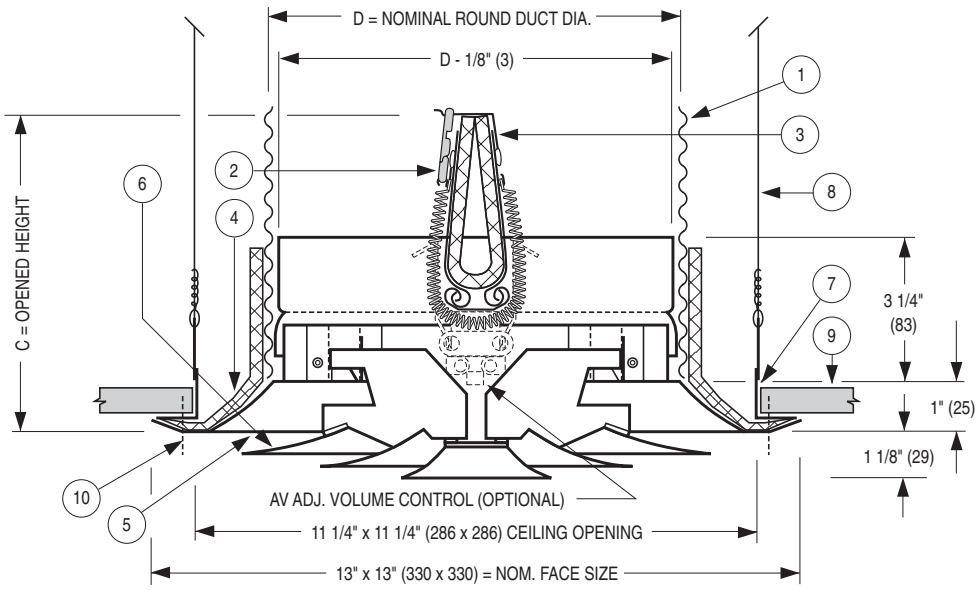
Nailor® Industries Inc.

FIRE RATED CEILING DIFFUSER
LOUVERED FACE • SURFACE MOUNT • STEEL • ROUND NECK • FIXED PATTERN
MODEL: 4010 TYPE S

12 x 12 (300 x 300) SURFACE MOUNT MODULE FOR HARD CEILINGS.

CLASSIFIED C UL

CATEGORY BZGUC



	Imperial Modules				Metric Modules	
	Imperial Units (inches)		SI Units (mm)		SI Units (mm)	
Listed Neck Size	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

❑ MODEL 4010
12 x 12 (300 x 300) module
Type S Surface Mount Frame

ITEMS:
1. Flexible air duct (UL/ULC Class 0 or 1) connector or steel duct.
2. U.L. Listed fusible link. 212°F (100°C) standard.
3. Ceiling radiation damper/fire stop flap.
4. Ceramic fibre thermal blanket.
5. Corrosion resistant steel diffuser.
6. Louvered deflector cones.
7. Mounting support frame.
8. Hanger wires (by others).
9. Ceiling membrane.
10. Mounting screws.

DESCRIPTION:
1. 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.
2. A spring clip arrangement permits quick, easy installation and removal of the inner cone assembly.
3. The diffuser delivered air in a true 360° streamline pattern. Excellent for VAV systems.
4. The diffuser consists of four die-formed concentric cones in all sizes which eliminate mitered corners and provide uniform appearance in all neck sizes.
5. Standard finish is AW Appliance White.

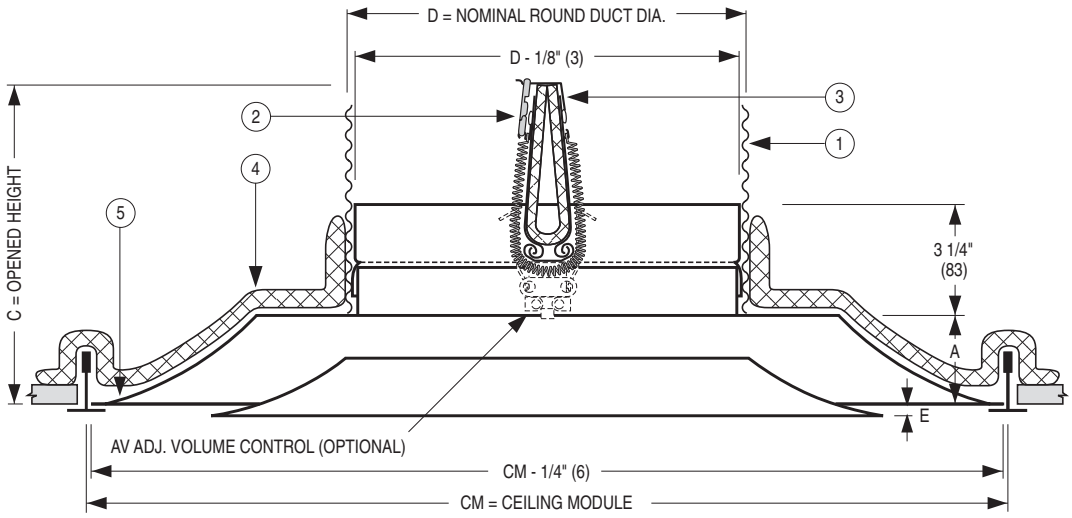
OPTIONS:
1. ❑ AV Fusible link adjustable volume control (Model 0722A damper).
2. Non-standard temperature U.L. Listed fusible link.
   ❑ 165°F (74°C)
3. Finish:
   ❑ SP Special

For installation instructions, see IOM-FRDSMINST.

Dimensions are in inches (mm).

SCHEDULE TYPE:				
PROJECT:				
ENGINEER:	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR:	**11 - 11 - 15**	**4000**	**5 - 11 - 15**	**4000-8**

FIRE RATED CEILING DIFFUSER
STAMPED SQUARE •
STEEL • ROUND NECK • 2 CONE
MODELS: 4410 AND 4420



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

	Imperial Modules								Metric Modules			
	Imperial Units (inches)				SI Units (mm)				SI Units (mm)			
Listed Neck Size	CM = 12 x 12				CM = 305 x 305				CM = 300 x 300			
	D	A	C	E	D	A	C	E	D	A	C	E
6	6	1	5 1/2	1-1/4	152	25	140	32	152	25	140	32
8	8		6 1/2		203		165		203		165	
Listed Neck Size	CM = 24 x 24				CM = 610 x 610				CM = 600 x 600			
	D	A	C	E	D	A	C	E	D	A	C	E
6	6	2 5/16	6 13/16	7/8	152	59	173	22	152	59	173	22
8	8		7 13/16		203		198		203		198	
10	10		8 13/16		254		224		254		224	
12	12		9 13/16		305		249		305		249	
14	14		10 13/16		356		275		356		275	

❑ **MODEL 4410**
12 x 12 (300 x 300) module
Type L Lay-in Frame

❑ **MODEL 4420**
24 x 24 (600 x 600) module
Type L Lay-in Frame

ITEMS:
1. Flexible air duct (UL/ULC Class 0 or 1) connector or steel duct.
2. U.L. Listed fusible link. 212°F (100°C) standard.
3. Ceiling radiation damper/fire stop flap.
4. Ceramic fibre thermal blanket.
5. Corrosion resistant steel diffuser.

DESCRIPTION:
1. All models 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.
2. The inner core assembly is fixed and has a removable button for access to the ceiling radiation damper when the option AV is specified.
3. The diffuser delivers air in a true 360° streamline pattern. Excellent for VAV systems.
4. The diffuser consists of two die-formed concentric cones which eliminate mitered corners and provide uniform appearance in all neck sizes.
5. Standard finish is AW Appliance White.

OPTIONS:
1. ❑ AV Fusible link adjustable volume control (Model 0722A damper)
2. Non-standard temperature U.L. Listed fusible link.
   ❑ 165°F (74°C)
3. Finish:
   ❑ SP Special _____ .

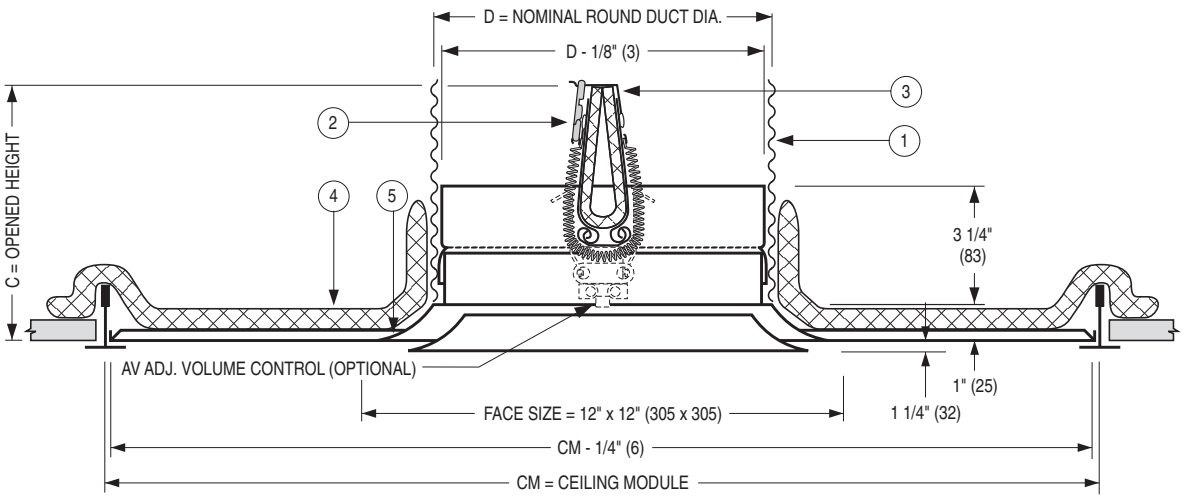
For installation instructions, see IOM-FRDSINST or IOM-FRDFINST.

Dimensions are in inches (mm).

SCHEDULE TYPE:				
PROJECT:				
ENGINEER:	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR:	**11 - 24 - 16**	**4400**	**5 - 11 - 15**	**4400-1**

FIRE RATED CEILING DIFFUSER
FIXED PATTERN • LOUVERED FACE
PANEL TYPE • STEEL • ROUND NECK • 4 CONE
MODELS: 4430 AND 4440

Nailor Industries Inc.



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

	Imperial Modules				Metric Modules	
	Imperial Units (inches)		SI Units (mm)		SI Units (mm)	
Listed Neck Size	CM = 24 x 12		CM = 610 x 305		CM = 600 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
Listed Neck Size	CM = 24 x 24		CM = 610 x 610		CM = 600 x 600	
	D	C	D	C	D	C
6	6	5 1/2	152	140	152	140
8	8	6 1/2	203	165	203	165

❑ **MODEL 4430**
24 x 12 (600 x 300) module
Type PL Panel Lay-in Frame

❑ **MODEL 4440**
24 x 24 (600 x 600) module
Type PL Panel Lay-in Frame

ITEMS:
1. Flexible air duct (UL/ULC Class 0 or 1) connector or steel duct.
2. U.L. Listed fusible link. 212°F (100°C) standard.
3. Ceiling radiation damper/fire stop flap.
4. Ceramic fibre thermal blanket.
5. Corrosion resistant steel panel diffuser.

DESCRIPTION:
1. All models 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.
2. The inner core assembly is fixed and has a removable button for access to the ceiling radiation damper when the option AV is specified.
3. The diffuser delivers air in a true 360° streamline pattern. Excellent for VAV systems.
4. The diffuser consists of two die-formed concentric cones in all sizes which eliminate mitered corners and provide uniform appearance in all neck sizes set in a panel.
5. Standard finish is AW Appliance White.

OPTIONS:
1. ❑ AV Fusible link adjustable volume control (Model 0722A damper)
2. Non-standard temperature U.L. Listed fusible link.
   ❑ 165°F (74°C)
3. Finish:
   ❑ SP Special _____ .

For installation instructions, see IOM-FRDSINST or IOM-FRDFINST.

SCHEDULE TYPE:	Dimensions are in inches (mm).			
PROJECT:				
ENGINEER:	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR:	**11 - 24 - 16**	**4400**	**5 - 11 - 15**	**4400-2**

Nailor Industries Inc.

Standard and Optional Finishes For Grilles and Diffusers

Nailor offers a selection of standard colors and finishes available on our grilles, registers and diffusers. For painted finishes, our state-of-the-art paint systems provide environmentally friendly finishing solutions with uniform coverage and coating thickness. The result is an exceptionally durable finish that resists scratching, corrosion and general wear. Additional facilities for special requirements, as well as a selection of anodized or brushed finishes, complete our ability to provide unmatched beauty and durability for any application.

NAILOR POWDER COAT PROPERTIES

FILM THICKNESS	2.0 to 3.0 mils
HARDNESS	2 H
IMPACT RESISTANCE	Direct: 160 inch - lbs. Reverse 160 inch - lbs.
SALT SPRAY	1000 hours

ELECTROCOATING PROPERTIES

FILM THICKNESS	.8 to 1.2 mils
HARDNESS	HB TO H
IMPACT RESISTANCE	80 inch - lbs
SALT SPRAY	100 hours

POWDER COAT

Nailor's powder coat is a high-tech thermosetting polyester powder coating with superior physical properties that provide excellent color and gloss retention. The finish offers extreme durability and hardness that resists scratching, chipping and general wear. Surface preparation includes degreasing and a chemical cleaning followed by a clean rinse before a final powder coat finish is applied and baked. The environmentally friendly Nailor powder coat system assures uniform coverage and color consistency resulting in a long lasting superior finish. Colors, including simulated anodizing, which is far more economical than color anodizing, can be selected from Nailor's standard color chart or non-standard colors and can be matched from sample chips provided to Nailor.

ELECTROCOATING

E-Coat is an environmentally friendly coating that provides complete coverage and a wide range of performance properties, formulated to meet corrosion, durability and other performance specifications. Electrocoating is a highly automated process in which paint is electrically deposited onto a metal foundation. Film build thickness is uniform and overall application efficiencies are in excess of 90%. Paint is consistent on all part-to-part surfaces, preventing sags, runs or drips. E-Coat offers flexibility, better first yield pass and quicker production times compared to other forms of paint applications. Electrocoating is an excellent solution that offers superior properties and uniform finish.

CLEAR ANODIZING (Aluminum products only)

Clear anodizing is a clear oxide coating that exemplifies an aluminum surface's natural oxide coating producing a hard, scratch resistant surface that is resistant to general wear and mild chemicals. The process provides a natural looking, virtually maintenance free finish that will endure for many years.

COLOR ANODIZING (Aluminum products only)

Color anodizing is an electrolytic process where, after standard anodizing procedures, colored metallic pigments penetrate the oxide surface pores producing a corrosion resistant, colorfast finish. The process results in a natural metallic appearance that requires little maintenance.

BRUSHED AND CLEAR COAT

Available on specific aluminum products (consult applicable product page for availability). Surface is brushed to achieve a scratch finish texture before being degreased and chemically cleaned. A clear lacquer coating is then applied to provide a durable protective finish.

#4 BRUSHED SATIN POLISHED (Stainless Steel products only)

Surface is polished to ASTM A480 #4 standard to achieve a bright durable finish that is resistant to mild chemicals and corrosion. A final coating is not required due to the inherent anti-corrosion properties of the stainless steel.

PRIME COAT

Prime coat provides a stable base for painting in the field. Surface pretreatment includes degreasing and a chemical cleaning before an alkyd prime coat is applied. After a thorough cleaning for dust, etc. that can contaminate the final finish and cause premature flaking or peeling, finish coat should be field applied as soon as possible.

PAINT PREPARED ALUMINUM (Aluminum products only)

Allows for field applied paint. Surface preparation includes degreasing and a chemical cleaning followed by a clean rinse. Finish coat should be field applied as soon as possible.

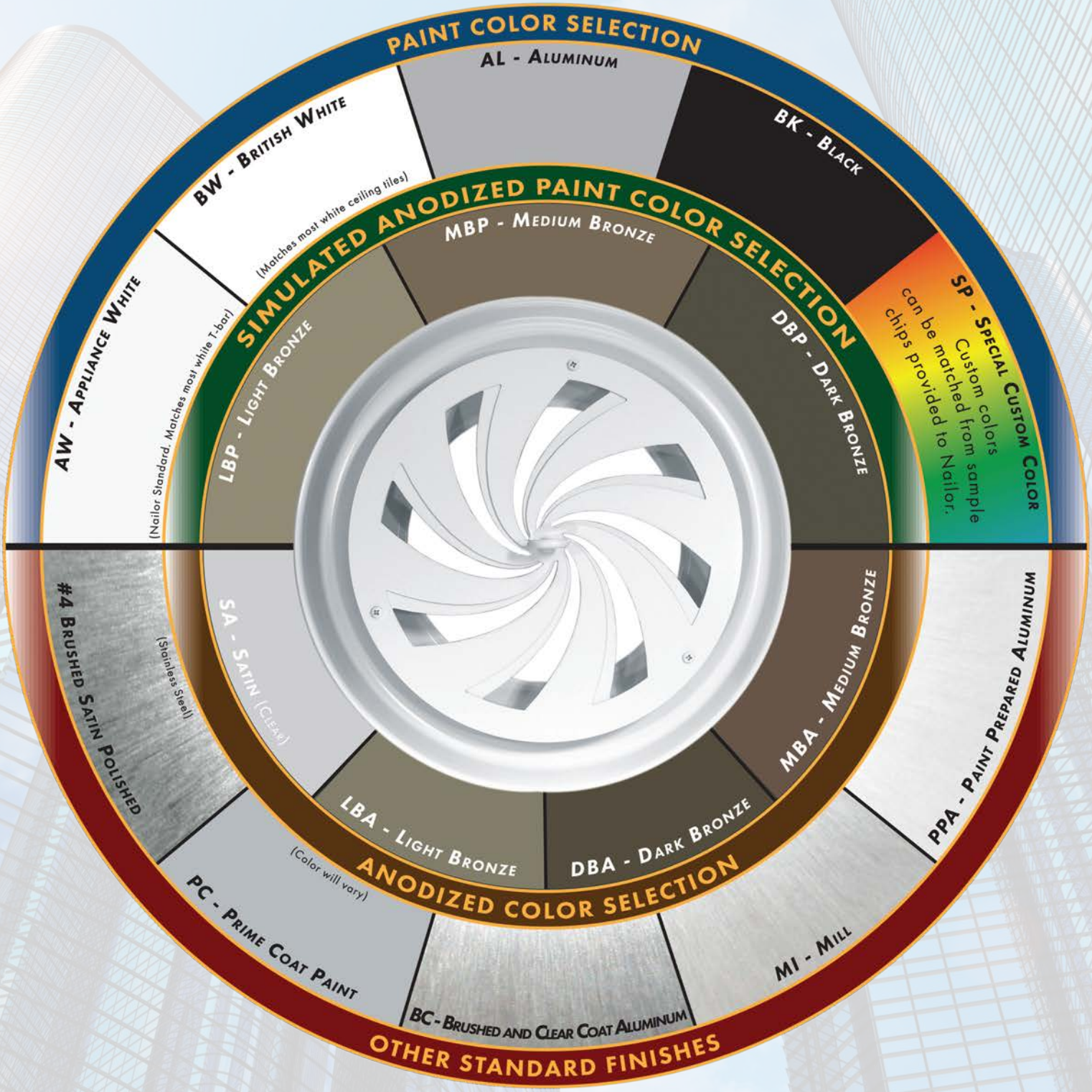
MILL FINISH

Surface is left untreated and requires cleaning, degreasing, etc. in the field before final finish can be applied if required.

Nailor® Industries Inc.

Standard and Optional Finishes For Grilles and Diffusers

The following standard colors and finishes are available on applicable Nailor air distribution products. Consult individual product pages for availability



The pictured finishes have been represented as best as possible within printing limitations. However, actual finish may vary. Contact your Nailor representative for a color chip sample on the material specified for a more accurate representation.

DBK - Black (for registers ordered with factory mounted dampers) - ***BA*** - Perforated Diffusers (4300 series only) Appliance White (AW) face with black back pan and pattern controllers.

PERFORMANCE DATA:

Models RNS and ARNS • 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
4" Dia.	Total Pressure	.014	.022	.032	.043	.056	.071	.088	.126	.172	.224
	Airflow, CFM	35	44	52	61	70	79	87	105	122	140
	Throw	1-2-4	2-2-5	2-3-5	2-3-6	2-4-7	3-4-7	3-5-7	4-5-8	4-6-9	5-7-9
	Noise Criteria	—	—	—	—	—	11	19	25	30	35
5" Dia.	Total Pressure	.017	.026	.038	.051	.067	.085	.105	.151	.206	.269
	Airflow, CFM	55	68	82	95	109	123	136	164	191	218
	Throw	2-2-5	2-3-6	2-4-6	2-4-7	2-5-8	3-6-9	4-6-9	5-7-10	5-8-11	6-8-11
	Noise Criteria	—	—	—	—	—	14	22	28	33	38
6" Dia.	Total Pressure	.018	.029	.043	.060	.079	.100	.128	.175	.250	.325
	Airflow, CFM	80	100	120	140	160	180	200	235	275	315
	Throw	1-2-4	1-2-5	1-3-6	2-3-6	2-4-8	3-4-8	3-4-10	4-5-10	4-6-14	5-8-14
	Noise Criteria	—	—	11	16	20	22	24	31	38	41
7" Dia.	Total Pressure	.022	.035	.050	.068	.089	.112	.138	.199	.271	.354
	Airflow, CFM	107	134	160	187	214	241	267	321	374	428
	Throw	2-4-8	3-5-9	4-6-10	4-7-11	5-8-12	5-9-13	6-10-14	7-10-14	9-11-15	10-12-16
	Noise Criteria	—	—	12	17	20	24	27	33	39	42
8" Dia.	Total Pressure	.031	.047	.065	.087	.110	.140	.168	.235	.310	.395
	Airflow, CFM	140	175	210	245	280	315	350	420	490	560
	Throw	3-5-9	4-5-11	5-7-13	5-8-14	6-9-14	6-10-15	7-11-16	8-12-17	10-13-18	11-14-18
	Noise Criteria	—	—	13	18	22	26	29	35	40	44

Models RNS and ARNS • 20 x 20 (500 x 500) 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	.015	.023	.033	.045	.058	.074	.091	.130	.176	.230
	Airflow, CFM	80	100	120	140	160	180	200	235	275	315
	Throw	1-1-3	1-2-4	1-2-4	1-3-5	2-3-6	2-3-6	2-4-7	3-5-8	3-5-8	4-6-9
	Noise Criteria	—	—	14	18	21	26	29	34	38	41
8" Dia.	Total Pressure	.018	.028	.041	.055	.072	.091	.112	.161	.219	.286
	Airflow, CFM	140	175	210	245	280	315	350	420	490	560
	Throw	1-2-5	2-3-6	2-4-6	3-4-7	3-5-7	4-5-8	4-6-8	5-6-9	6-7-10	6-8-11
	Noise Criteria	—	11	16	20	23	28	31	36	40	43
10" Dia.	Total Pressure	.023	.036	.052	.071	.092	.117	.144	.207	.281	.367
	Airflow, CFM	220	270	330	380	435	490	545	655	765	870
	Throw	2-4-6	3-4-7	4-5-8	4-6-9	5-6-9	5-7-10	6-7-10	6-8-11	7-9-12	8-9-13
	Noise Criteria	—	13	18	22	25	30	33	38	42	45

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..
3. The addition of quadrant blanks reduces the effective area and for a given air volume, increases the discharge velocity. This will result in an increase in throw, pressure drop and sound level. To determine throw, select the diffuser as if it were supplying a larger volume of air. The table shows the percentage increase required to determine selection of diffuser size and throw. To correct pressure drop and Noise Criteria, use correction factors as shown for 4-way blow values.
4. Noise Criteria (NC) are based on a room absorption of 10 dB, re 10^{-12} watts. Dash (—) in space denotes an Noise Criteria level less than 10.
5. Data derived from independent 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	.131
8	12 x 12	.202
6	24 x 24	.180
8	24 x 24	.227
10	24 x 24	.331
12	24 x 24	.450
14	24 x 24	.511
15	24 x 24	.625

Quadrant Blanks (Blow)	% Increase in Air Volume for Throw Determination	% Increase in Static Pressure Drop	NC Sound Level Increase
1 (3-way)	35	125	8
2 (2-way)	100	450	19

PERFORMANCE DATA:

Models RNS and ARNS • 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**	.015	.023	.035	.045	.060	.076	.095	.135	.186	.240
	Airflow, CFM	**80**	**100**	**120**	**140**	**160**	**180**	**200**	**235**	**275**	**315**
	Throw	1-1-4	1-2-5	1-2-6	1-3-7	2-4-9	2-5-9	3-6-11	3-6-12	4-7-14	6-8-15
	Noise Criteria	—	—	—	13	17	21	24	27	32	36
8" Dia.	**Total Pressure**	.021	.033	.047	.063	.082	.105	.128	.183	.245	.325
	Airflow, CFM	**140**	**175**	**210**	**245**	**280**	**315**	**350**	**420**	**490**	**560**
	Throw	1-1-5	1-2-6	1-3-8	2-4-8	3-5-10	3-6-10	4-6-13	5-8-13	6-8-16	7-10-17
	Noise Criteria	—	—	13	17	20	25	28	33	37	40
10" Dia.	**Total Pressure**	.024	.037	.047	.074	.097	.123	.150	.215	.293	.372
	Airflow, CFM	**220**	**270**	**330**	**380**	**435**	**490**	**545**	**655**	**765**	**870**
	Throw	1-3-6	2-4-8	3-5-9	4-6-12	5-6-12	5-7-14	6-9-15	6-10-15	8-13-17	9-13-18
	Noise Criteria	—	11	16	20	23	28	31	36	40	43
12" Dia.	**Total Pressure**	.026	.039	.057	.075	.097	.127	.150	.245	.310	.410
	Airflow, CFM	**315**	**390**	**470**	**550**	**630**	**705**	**785**	**990**	**1100**	**1255**
	Throw	2-3-7	3-4-9	3-5-10	4-6-13	5-7-13	5-8-15	5-8-16	7-9-18	9-11-18	10-12-19
	Noise Criteria	—	13	18	21	24	29	32	37	41	44
14" Dia.	**Total Pressure**	.030	.050	.070	.100	.110	.160	.200	.240	.390	.490
	Airflow, CFM	**425**	**530**	**635**	**745**	**850**	**955**	**1060**	**1270**	**1490**	**1695**
	Throw	3-4-9	4-5-11	4-7-13	5-7-16	6-9-16	7-11-16	7-11-19	9-13-19	11-16-19	11-16-27
	Noise Criteria	—	14	19	22	25	29	32	37	42	45
15" Dia.	**Total Pressure**	.033	.054	.072	.100	.127	.163	.204	.280	.395	.500
	Airflow, CFM	**490**	**615**	**735**	**860**	**985**	**1110**	**1230**	**1470**	**1720**	**1970**
	Throw	5-7-10	6-8-11	7-9-14	8-10-17	8-13-18	10-15-19	11-16-22	12-18-27	13-20-32	15-22-34
	Noise Criteria	—	15	20	23	26	30	33	38	43	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..
3. The addition of quadrant blanks reduces the effective area and for a given air volume, increases the discharge velocity. This will result in an increase in throw, pressure drop and sound level. To determine throw, select the diffuser as if it were supplying a larger volume of air. The table shows the percentage increase required to determine selection of diffuser size and throw. To correct pressure drop and Noise Criteria, use correction factors as shown for 4-way blow values.
4. Noise Criteria (NC) are based on a room absorption of 10 dB, re 10^{-12} watts. Dash (—) in space denotes an Noise Criteria level less than 10.
5. Data derived from independent 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	0.131
8	12 x 12	0.202
6	24 x 24	0.180
8	24 x 24	0.227
10	24 x 24	0.331
12	24 x 24	0.450
14	24 x 24	0.511
15	24 x 24	0.625

Quadrant Blanks (Blow)	% Increase in Air Volume for Throw Determination	% Increase in Static Pressure Drop	NC Sound Level Increase
1 (3-way)	35	125	8
2 (2-way)	100	450	19

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 RNSA and ARNSA • 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	Horizontal	.019	.028	.039	.057	.074	.093	.121	.150	.192	.247
		Vertical	.023	.034	.057	.086	.110	.146	.168	.246	.316	.415
	Airflow, CFM		80	100	120	140	160	180	200	235	275	315
	Throw	Horizontal	1-2-4	2-3-6	2-3-6	3-4-7	3-5-7	4-5-8	4-6-10	6-7-11	6-8-11	6-9-12
		Vertical	1-1-2	2-2-5	2-2-6	2-3-5	2-3-5	3-5-6	3-4-7	4-5-8	5-6-9	5-7-10
	Noise Criteria	Horizontal	—	—	12	17	21	23	24	32	38	41
		Vertical	—	—	16	21	25	27	28	36	42	45
8" Dia.	Total Pressure	Horizontal	.020	.031	.043	.059	.071	.090	.110	.150	.200	.259
		Vertical	.032	.052	.063	.096	.12	.159	.186	.258	.342	.443
	Airflow, CFM		140	175	210	245	280	315	350	420	490	560
	Throw	Horizontal	2-3-6	3-5-8	4-5-8	4-7-10	5-7-12	6-9-14	8-9-15	8-10-16	10-12-18	11-14-20
		Vertical	2-2-3	3-4-7	3-5-6	4-6-9	4-6-9	5-7-10	6-8-11	7-9-12	8-9-13	9-10-14
	Noise Criteria	Horizontal	—	11	17	22	25	27	29	36	44	47
		Vertical	—	—	21	26	29	31	33	40	48	51

Models RNSA and ARNSA • 20 x 20 (500 x 500) 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	Horizontal	.017	.026	.038	.051	.067	.085	.105	.149	.202	.264
		Vertical	.023	.036	.052	.070	.091	.116	.143	.201	.274	.359
	Airflow, CFM		80	100	120	140	160	180	200	235	275	315
	Throw	Horizontal	1-2-4	2-2-5	2-3-6	2-4-6	3-5-6	4-5-7	4-5-7	4-6-8	5-6-8	5-7-9
		Vertical	1-1-2	2-2-3	2-2-4	2-3-5	2-4-5	3-5-6	3-5-7	4-5-8	4-6-9	5-7-10
	Noise Criteria	Horizontal	—	12	17	22	25	29	32	37	41	45
		Vertical	—	17	22	26	29	32	35	40	44	48
8" Dia.	Total Pressure	Horizontal	.019	.031	.044	.059	.077	.098	.120	.173	.235	.307
		Vertical	.031	.049	.070	.094	.122	.155	.192	.275	.373	.489
	Airflow, CFM		140	175	210	245	280	315	350	420	490	560
	Throw	Horizontal	2-3-5	2-3-7	3-4-8	3-5-8	3-5-9	4-6-9	4-7-10	5-8-11	6-8-12	7-9-12
		Vertical	1-1-4	1-2-5	2-3-6	3-4-6	3-4-8	4-5-8	4-6-9	4-7-10	5-7-10	6-8-12
	Noise Criteria	Horizontal	—	—	15	20	24	28	31	38	43	47
		Vertical	14	19	24	29	32	35	38	44	48	52
10" Dia.	Total Pressure	Horizontal	.024	.039	.056	.076	.098	.125	.153	.220	.299	.391
		Vertical	.041	.065	.094	.127	.165	.209	.258	.370	.502	.657
	Airflow, CFM		220	270	330	380	435	490	545	655	765	875
	Throws	Horizontal	2-4-7	3-5-8	4-6-9	4-7-10	5-7-10	6-8-11	6-8-12	7-9-13	8-10-14	9-11-15
		Vertical	1-2-4	1-3-6	3-5-7	3-5-8	4-5-9	4-6-10	5-6-10	5-7-11	6-8-12	7-9-12
	Noise Criteria	Horizontal	—	—	16	21	26	30	33	39	45	49
		Vertical	—	20	25	29	33	36	39	44	48	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..
3. Horizontal throws are with ceiling coanda effect. For exposed duct mounting, multiply table values by x 0.7. Vertical throw is a free jet.
4. Noise Criteria (NC) are based on a room absorption of 10 dB, re 10^{-12} watts. Dash (—) in space denotes an Noise Criteria level less than 10.
5. Data derived from independent tests conducted in accordance with ANSI/ ASHRAE Standard 70-2006.

PERFORMANCE DATA:

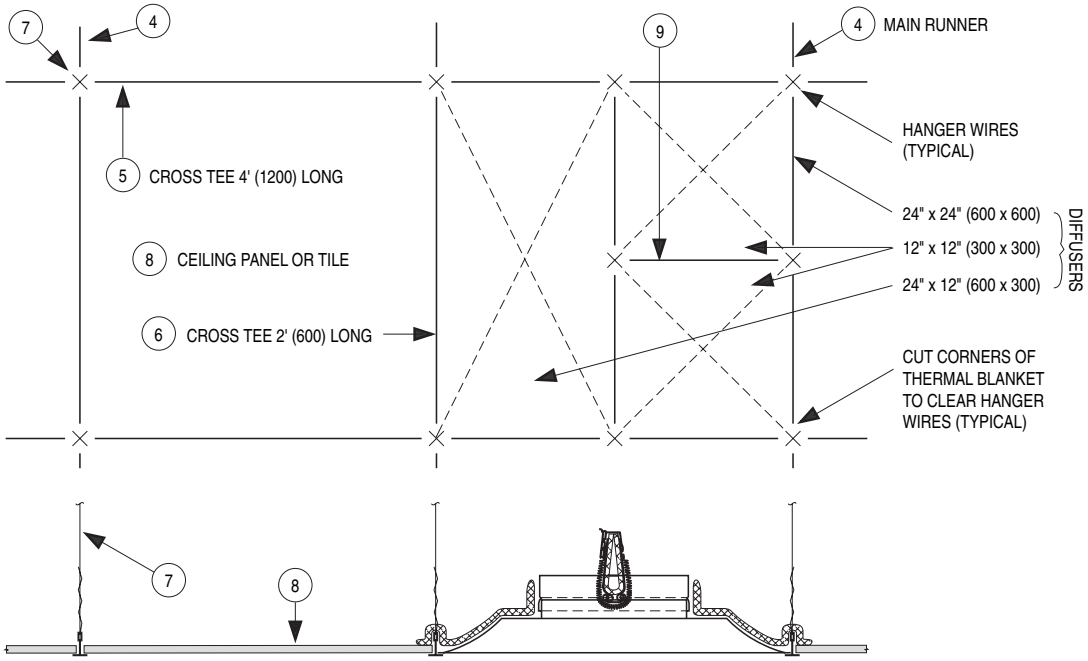
Models RNSA and ARNSA • 24 x 24 (600 x 600) Face Size

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	Horizontal	.016	.024	.034	.047	.061	.078	.098	.129	.182	.240
		Vertical	.020	.031	.052	.080	.097	.124	.151	.218	.289	.390
	Airflow, CFM		80	100	120	140	160	180	200	235	275	315
	Throw	Horizontal	1-2-5	2-3-5	2-3-6	3-4-7	3-5-8	4-5-8	4-6-9	6-8-10	6-10-11	7-10-12
		Vertical	1-1-2	2-2-3	2-2-4	2-3-5	2-4-5	3-5-6	3-5-7	4-5-8	4-6-9	5-7-10
	Noise Criteria	Horizontal	—	—	—	13	17	20	22	28	32	36
		Vertical	—	—	—	15	19	22	24	30	34	38
8" Dia.	Total Pressure	Horizontal	.017	.026	.037	.049	.062	.08	.102	.131	.185	.243
		Vertical	.025	.04	.057	.077	.1	.126	.153	.221	.297	.393
	Airflow, CFM		140	175	210	245	280	315	350	420	490	560
	Throw	Horizontal	1-2-5	2-4-6	3-5-7	3-5-8	4-6-9	4-7-10	4-7-11	5-8-12	6-9-13	7-10-14
		Vertical	1-1-4	1-2-5	2-3-6	3-4-6	3-4-8	4-5-8	4-6-9	5-7-10	5-7-11	6-8-12
	Noise Criteria	Horizontal	—	—	13	18	21	22	26	32	38	42
		Vertical	—	—	17	20	25	26	30	36	42	46
10" Dia.	Total Pressure	Horizontal	.014	.021	.030	.039	.052	.065	.080	.112	.152	.194
		Vertical	.030	.048	.070	.092	.120	.161	.196	.264	.360	.450
	Airflow, CFM		220	270	330	380	435	490	545	655	765	870
	Throw	Horizontal	1-4-6	3-5-9	3-6-9	4-7-10	5-7-11	5-9-13	6-10-14	7-11-15	8-11-16	9-12-17
		Vertical	1-2-4	1-3-6	3-5-7	3-5-8	4-5-9	4-6-10	5-6-10	5-7-11	6-8-12	7-9-12
	Noise Criteria	Horizontal	—	10	15	21	26	30	33	38	43	45
		Vertical	—	14	19	25	31	34	37	42	47	49
12" Dia.	Total Pressure	Horizontal	.016	.025	.032	.043	.056	.072	.085	.129	.163	.216
		Vertical	.045	.069	.088	.120	.155	.204	.240	.360	.455	.585
	Airflow, CFM		315	390	470	550	630	705	785	950	1100	1255
	Throw	Horizontal	2-3-7	3-6-9	4-7-10	5-8-12	6-9-14	6-10-15	7-10-16	8-11-17	9-12-18	10-14-19
		Vertical	2-3-5	2-4-6	3-6-7	5-6-9	5-7-10	5-7-10	6-7-12	7-8-12	8-10-14	8-9-15
	Noise Criteria	Horizontal	—	15	22	25	30	33	36	43	45	48
		Vertical	12	18	25	28	33	36	39	46	48	51
14" Dia.	Total Pressure	Horizontal	.022	.037	.049	.057	.073	.092	.115	.147	.208	.262
		Vertical	.063	.101	.135	.160	.203	.261	.326	.411	.583	.640
	Airflow, CFM		425	530	635	745	855	960	1070	1285	1500	1710
	Throw	Horizontal	2-4-8	4-5-8	5-6-10	6-8-12	7-10-14	8-10-16	9-11-17	10-11-18	11-12-20	12-14-21
		Vertical	2-3-5	4-4-6	4-5-9	5-7-10	6-9-12	7-9-13	8-9-14	9-10-15	10-11-16	10-13-18
	Noise Criteria	Horizontal	—	16	22	25	29	33	36	40	42	48
		Vertical	11	19	25	28	32	36	39	43	45	51
15" Dia.	Total Pressure	Horizontal	.030	.041	.054	.062	.080	.100	.128	.155	.224	.308
		Vertical	.068	.110	.143	.165	.210	.271	.330	.425	.590	.660
	Airflow, CFM		490	615	735	860	985	1110	1230	1470	1720	1965
	Throw	Horizontal	5-6-8	5-8-9	8-9-11	9-10-12	10-10-13	11-12-15	12-12-16	12-14-18	14-15-20	15-17-23
		Vertical	3-4-6	3-4-7	5-6-8	6-7-9	6-8-10	8-9-11	10-11-12	11-12-14	11-14-16	12-16-18
	Noise Criteria	Horizontal	10	18	24	30	34	37	40	42	48	51
		Vertical	13	21	27	33	37	40	43	45	51	54

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..
3. Horizontal throws are with ceiling coanda effect. For exposed duct mounting, multiply table values by x 0.7. Vertical throw is a free jet.
4. Noise Criteria (NC) are based on a room absorption of 10 dB, re 10^{-12} watts. Dash (—) in space denotes an Noise Criteria level less than 10.
5. Data derived from independent tests conducted in accordance with ANSI/ ASHRAE Standard 70-2006.

FIRE RATED CEILING AIR DIFFUSERS
INSTALLATION INSTRUCTIONS
FLEXIBLE AIR DUCT
MODEL SERIES: 4000 & 4400

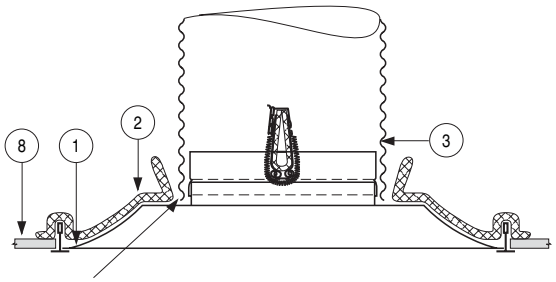


CATEGORY
BZZU

CATEGORY
40U18.1-1/2A

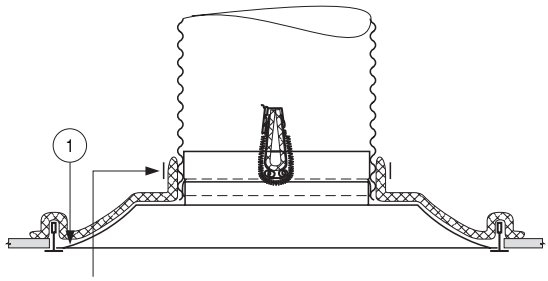
Refer to the UL/ULC Classification marking the product

STEP 1: CEILING GRID LAYOUT



FOLD BACK NECK FLAPS OF THERMAL BLANKET. SLIP FLEXIBLE DUCT OVER THE NECK OF THE DIFFUSER.

STEP 2: FLEXIBLE DUCT



REPLACE THE NECK FLAPS OF THERMAL BLANKET OVER DUCT AND FASTEN DUCT TO NECK OVER BLANKET USING 18 SWG MIN. STEEL WIRE OR STEEL CLAMP IN ACCORDANCE WITH DUCT MANUFACTURER'S INSTALLATION INSTRUCTIONS. DO NOT USE BOLTS, SCREWS OR RIVETS.

STEP 3: THERMAL BLANKET INSTALLATION

1. Series 4000 or 4400 Diffuser
2. Ceramic fiber thermal blanket*
3. Flexible duct
4. Main T-Bar runner
5. 4'-0" (1200) cross T-Bar
6. 2'-0" (600) cross T-Bar
7. Hanger wires
8. Ceiling panel or tile
9. 1'-0 (300) cross T-Bar. See note 9.

*Caution: Replace thermal blanket if it is damaged during shipping or installation.

Dimensions are in inches (mm).

1. Follow carefully steps 1, 2 and 3.
2. Before installing, open damper blades and install link between spring loaded wire clips. Do not bend or deform clips after assembly. If dampers are provided with link tabs instead of wire clips, install link and bend tabs to secure link in position
3. The Flexible Air Duct Connector shall be Class 0 or Class 1 bearing the UL/ULC Classification marking. See the UL "Gas and Oil Equipment Directory" or ULC "List of Equipment and Materials". The maximum length of the flexible duct shall not exceed 14'-0" (4267) in length. No portion of the duct shall rest on the back surface of the ceiling panels or tiles and a minimum of 4" (102) clearance must be maintained. Where the flexible duct must be supported, use steel straps and 12 swg steel hanger wires.
4. The end tabs of the 2'-0" (600) Cross T-bar shall be bent back against the web of the 4'-0" (1200) Cross T-bar. The 4'-0" (1200) Cross T-bars must have slots in the web for connection of the 2'-0" (600) Cross T-bar.
5. Use 12 swg galvanized steel hanger wires to independently support the ceiling T-bars to the structural members of the floor or roof above at the four corners of the diffuser. Ensure hanger wires are plumb and straight.
6. Maximum neck size of Series 4000 and 4400 Ceiling Air Diffuser is 14" (356) diameter.
7. Caution should be observed so that the Flexible Air Duct Connector does not interfere with the operation of the Integral Classified Ceiling Damper of the Ceiling Air Diffuser Assembly.
8. No diffusers shall be located in an adjacent 24" x 48" (600 x 1200) ceiling grid module.
9. Series 4000 and 4400 Ceiling Air Diffuser Assemblies are for use in lieu of the hinged blade, sheet metal damper in steel ducts with steel diffusers or grilles as specified in the "Design Information Section - General" and in the individual floor and roof ceiling design(s) being used, as illustrated and described in the current U.L. "Fire Resistance Directory" or ULC "List of Equipment and Materials".
10. Fire resistive designs must cover UL/ULC Classified Ceiling Grid Members with appropriate cross tee sizes and slots in cross tees.

    The following manufacturers currently supply 1'-0" (300) long cross tees that are UL and/or ULC Classified:
    - Armstrong World Industries Inc.
    - CGC Interiors, Division of CGC Inc.
    - Chicago Metallic Corp.
    - USG Interiors Inc.

    Cartons of Grid Members shall be of the same type and bear the UL and/or ULC Classification marking.

Dimensions are in inches (mm).

Nailor Industries Inc.

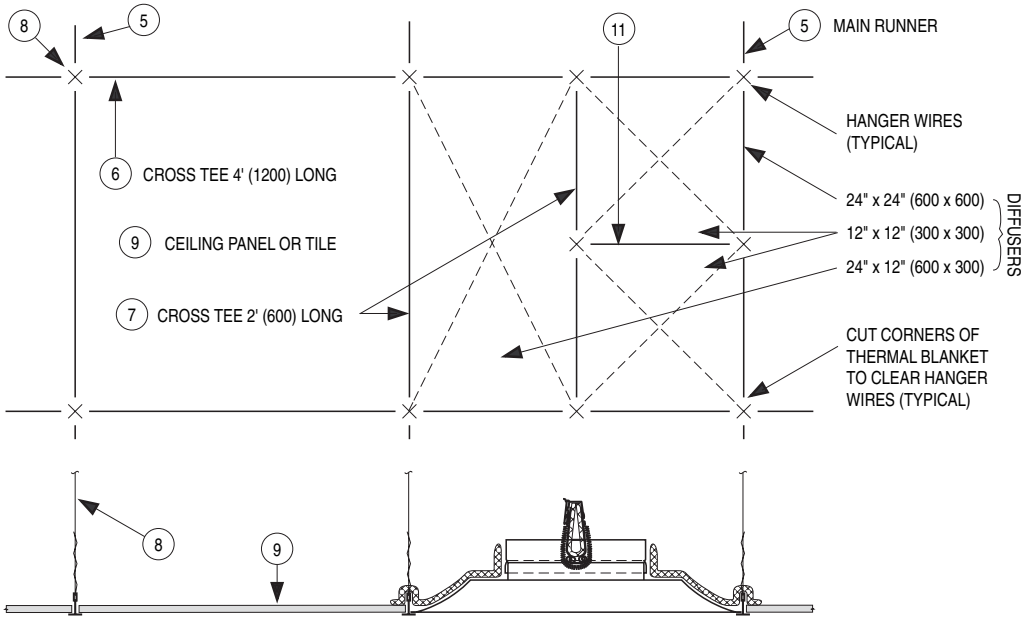
Houston, Texas
Tel: 281-590-1172
Fax: 281-590-3086

Las Vegas, Nevada
Tel: 702-648-5400
Fax: 702-638-0400

Toronto, Canada
Tel: 416-744-3300
Fax: 416-744-3360

Calgary, Canada
Tel: 403-279-8619
Fax: 403-279-5035

FIRE RATED CEILING AIR DIFFUSERS
INSTALLATION INSTRUCTIONS
STEEL AIR DUCT
MODEL SERIES: 4000 & 4400

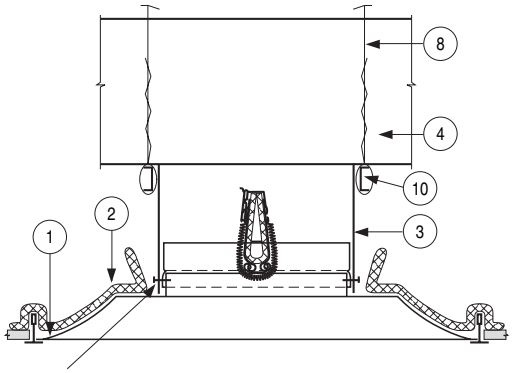


CATEGORY
BZZU

CATEGORY
40U18.1-1/2A

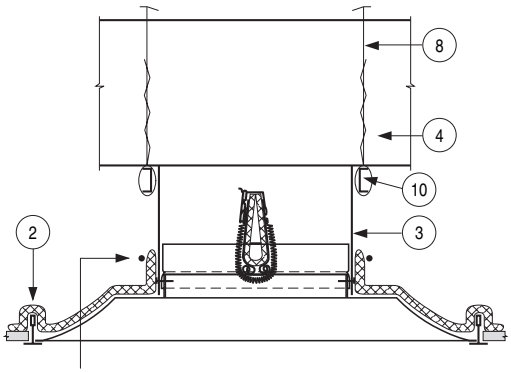
Refer to the
UL/ULC Classification
marking the product

STEP 1: CEILING GRID LAYOUT



FOLD BACK NECK FLAPS OF THERMAL BLANKET, SLIP ON STEEL DUCT DROP AND FASTEN TO DIFFUSER NECK WITH FOUR #8 SHEET METAL SCREWS. SCREWS MUST NOT INTERFERE WITH THE CLOSING OF THE INTEGRAL DAMPER BLADES.

STEP 2: DUCT DROP INSTALLATION



FASTEN NECK FLAPS OF THERMAL BLANKET USING 18 SWG STEEL WIRE.

STEP 3: THERMAL BLANKET INSTALLATION

1. Series 4000 or 4400 Diffuser
2. Ceramic fiber thermal blanket*
3. Steel duct drop
4. Steel duct
5. Main T-Bar runner

*Caution: Replace thermal blanket if it is damaged during shipping or installation.

6. 4'-0" (1200) cross T-Bar
7. 2'-0" (600) cross T-Bar
8. Hanger wires
9. Ceiling panel or tile
10. Support channels
11. 1'-0 (300) cross T-Bar. See note 9.

Dimensions are in inches (mm).

1. Follow carefully steps 1, 2 and 3.
2. Before installing, open damper blades and install link between spring loaded wire clips. Do not bend or deform clips after assembly. If dampers are provided with link tabs instead of wire clips, install link and bend tabs to secure link in position
3. Use 12 swg galvanized steel hanger wires to independently support the T-bar grid members and the support channels to the structural members of the floor or roof above at the four corners of the diffuser. Ensure hanger wires are plumb and straight.
4. When installing the Ceiling Air Diffuser in duct drop, use #8 by 1/2" (13) long sheet metal screws - 4 per diffuser. The screws shall not interfere with the closing of the Integral Classified Ceiling Damper of the Ceiling Air Diffuser Assembly.
5. Support the duct with 2 - 16 gauge cold rolled steel support channels, 1 1/2" (38) deep with 1/2" (13) flanges. Place the support channels at the bottom of the duct adjacent to both sides of the duct drop.
6. Maximum neck size of Series 4000 and 4400 Ceiling Air Diffuser is 14" (356) diameter.
7. The clearance between the Ceiling Air Diffuser neck and the duct drop shall be 1/8" (3) maximum.
8. No diffusers shall be located in an adjacent 24" x 48" (600 x 1200) ceiling grid module.
9. Series 4000 and 4400 Ceiling Air Diffuser Assemblies are for use in lieu of the hinged blade, sheet metal damper in steel ducts with steel diffusers or grilles as specified in the "Design Information Section - General" and in the individual floor and roof ceiling design(s) being used, as illustrated and described in the current UL "Fire Resistance Directory" or ULC "List of Equipment and Materials".
10. Fire resistive designs must cover UL/ULC Classified Ceiling Grid Members with appropriate cross tee sizes and slots in cross tees.

    The following manufacturers currently supply 1'- 0" (300) long cross tees that are UL and/or ULC Classified:
    - Armstrong World Industries Inc.
    - CGC Interiors, Division of CGC Inc.
    - Chicago Metallic Corp.
    - USG Interiors Inc.

    Cartons of Grid Members shall be of the same type and bear the UL and/or ULC Classification marking.

Dimensions are in inches (mm).

Nailor Industries Inc.

Houston, Texas
Tel: 281-590-1172
Fax: 281-590-3086

Las Vegas, Nevada
Tel: 702-648-5400
Fax: 702-638-0400

Toronto, Canada
Tel: 416-744-3300
Fax: 416-744-3360

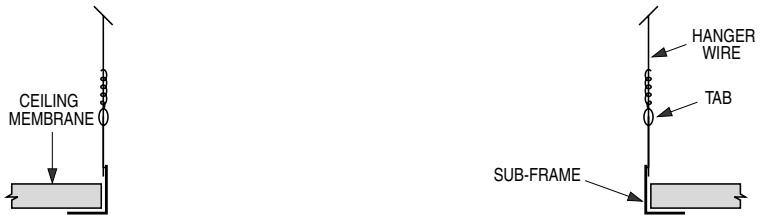
Calgary, Canada
Tel: 403-279-8619
Fax: 403-279-5035

FIRE RATED CEILING DIFFUSER INSTALLATION INSTRUCTIONS
SURFACE MOUNTED
MODELS: 4010-SM, 4410-SM & 4070-SM

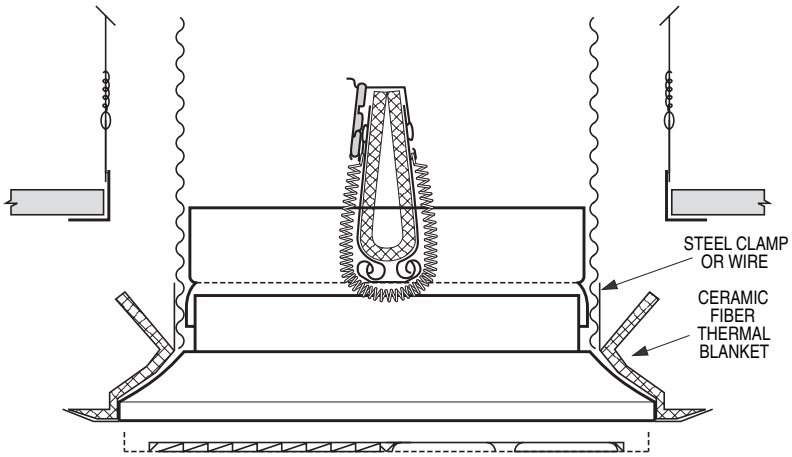
CATEGORY 40U18.1-1/2A

(Model 4070-SM shown in example).

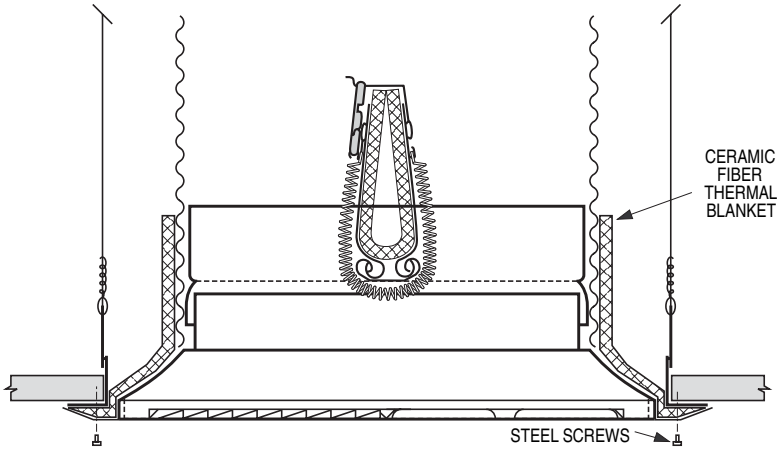
STEP 1:
Cut hole in ceiling membrane 11 1/4" x 11 1/4" (286 x 286). Insert sub-frame through hole and using four tabs provided, hang sub-frame to structural members of the floor or roof above using #12 SWG galvanized steel hanger wire.



STEP 2:
With radiation damper in an open position and thermal blanket installed over back face of the diffuser, fold back neck tabs of thermal blanket and install flexible duct to neck of diffuser using steel clamps or wire. Do not use bolts, screws or rivets. Push neck flaps of thermal blanket back up neck of diffuser and secure in place with steel wire.



STEP 3:
Carefully push flexible air duct back into ceiling cavity making sure that it does not distort and foul radiation damper blades. The thermal blanket should be sandwiched between the sub-frame and the flange of the diffuser as shown.
Install screws provided through diffuser and sub-frame holes to complete the assembly.



1. Follow carefully steps 1, 2 and 3.

2. Before installing, open damper blades and install link between spring loaded wire clips. Do not bend or deform clips after assembly. If dampers are provided with link tabs instead of wire clips, install link and bend tabs to secure link in position.

3. The flexible duct shall be Class 0 or Class 1 bearing the UL Classification marking. See the UL “Gas and Oil Equipment Directory” or see ULC “List of Equipment and Materials”. The maximum length of the duct shall not exceed 14'-0" (4267) in length. No portion of the connector shall rest on the back surface of the ceiling panels or tiles and a minimum of 4" (102) clearance must be maintained. Where the duct must be supported, use steel straps and 12 SWG steel hanger wires.

4. Maximum neck size of Series 4010-SM, 4410-SM or 4070-SM Ceiling Air Diffusers is 8" (203) diameter.

5. Caution should be observed so that the flexible duct does not interfere with the operation of the Integral Classified Ceiling Damper of the Ceiling Air Diffuser Assembly.

Dimensions are in inches (mm).