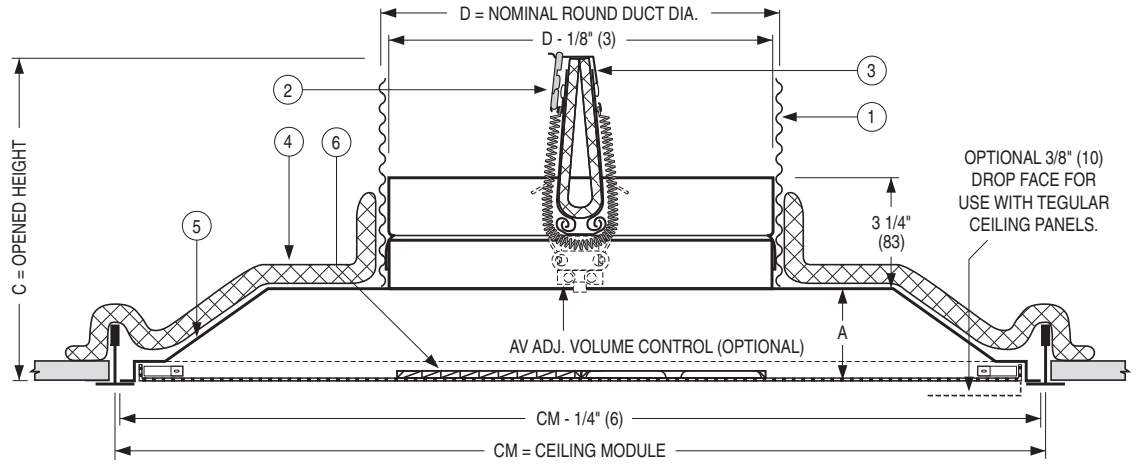
FIRE RATED CEILING DIFFUSER

1, 2, 3, OR 4-WAY ADJUSTABLE PATTERN • PERFORATED FACE • STEEL • ROUND NECK

MODELS: 4070, 4075, 4080 AND 4085



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 7/8	6 3/8	152	48	162	152	48	162
8	8		7 3/8	203		187	203		187
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 3/8	6 7/8	152	60	175	152	60	175
8	8		7 7/8	203		200	203		200
10	10		8 7/8	254		225	254		225
12	12		9 7/8	305		251	305		251
14	14		10 7/8	356		276	356		276

- ❑ **MODEL 4070 FLUSH FACE**
- ❑ **MODEL 4075 DROP FACE**

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

- ❑ **MODEL 4080 FLUSH FACE**
- ❑ **MODEL 4085 DROP FACE**

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.
6. Adjustable pattern controllers.

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 discharge pattern is 1, 2, 3, or 4-way horizontal and is adjusted by dropping the perforated face and rotating the pattern deflectors. Removable face has concealed latches for easy access to the damper.
3. Excellent for VAV systems.
4. The perforated face has 3/16" (5) dia. holes on 1/4" (6) staggered centres.
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
   - ❑ BA Black back pan and deflectors with an appliance white face.
   - ❑ BW Black back pan and deflectors with an off-white face.

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

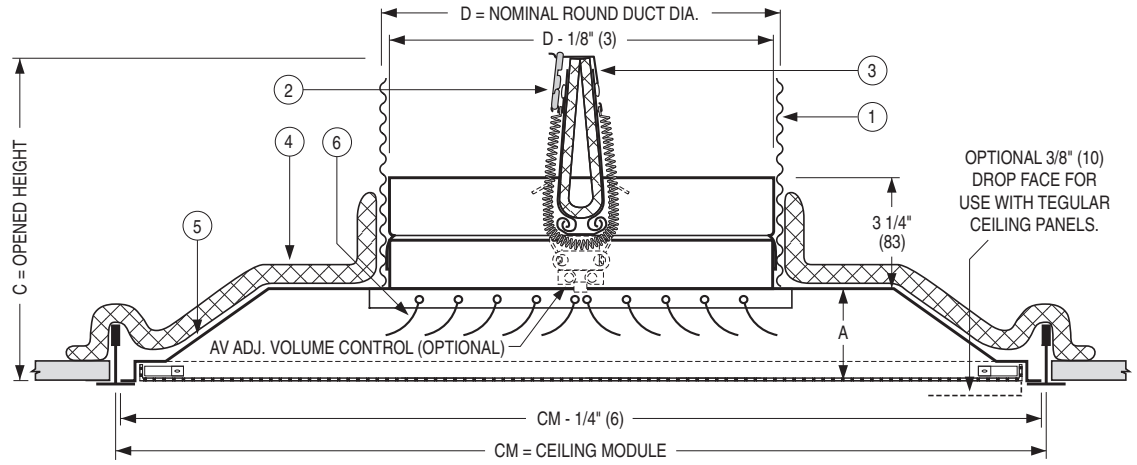
Dimensions are in inches (mm).

SCHEDULE TYPE:				
PROJECT:				
ENGINEER:	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR:	**11 - 24 - 16**	**4000**	**5 - 11 - 15**	**4000-6A**

Nailor Industries Inc. reserves the right to change any information concerning product or pricing without notice.

FIRE RATED CEILING DIFFUSER
4-WAY ADJUSTABLE PATTERN • CURVED BLADES • PERFORATED FACE • STEEL • ROUND NECK
MODELS: 4070CB, 4075CB, 4080CB & 4085CB

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 = 12 x 12			CM = 305 x 305			CM = 300 x 300		
	D	A	C	D	A	C	D	A	C
6	6	1 7/8	6 3/8	152	48	162	152	48	162
8	8		7 3/8	203		187	203		187
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 3/8	6 7/8	152	60	175	152	60	175
8	8		7 7/8	203		200	203		200
10	10		8 7/8	254		225	254		225
12	12		9 7/8	305		251	305		251
14	14		10 7/8	356		276	356		276

- ❑ **MODEL 4070CB FLUSH FACE**
- ❑ **MODEL 4075CB DROP FACE**

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

- ❑ **MODEL 4080CB FLUSH FACE**
- ❑ **MODEL 4085CB DROP FACE**

  24 x 24 (600 x 600) module
  Adjustable Curved Blades
  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.
6. Individually adjustable curved blade deflectors.

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 pattern deflectors can vary the discharge pattern from full horizontal to vertical, and can be used to damper the air volume or close off one or more discharge directions. They may be adjusted by dropping the perforated face and moving the deflectors before or after installation. Removable face has concealed latches for easy access.
3. Excellent for VAV systems.
4. The perforated face has 3/16" (5) dia. holes on 1/4" (6) staggered centres.
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
   - ❑ BA Black back pan and deflectors with an appliance white face.
   - ❑ BW Black back pan and deflectors with an off-white face.

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

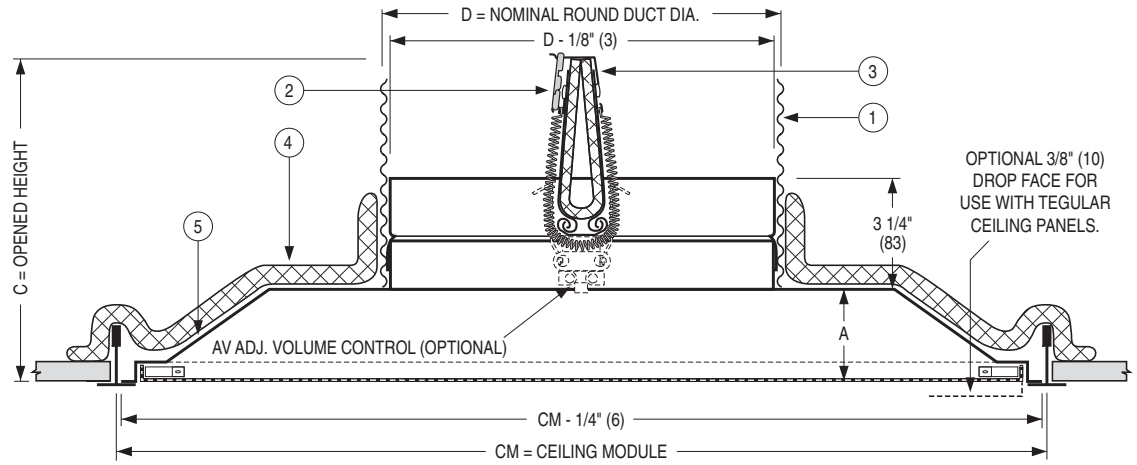
Dimensions are in inches (mm).

SCHEDULE TYPE:				
PROJECT:				
ENGINEER:	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR:	**11 - 24 - 16**	**4000**	**5 - 11 - 15**	**4000-6B**

Nailor Industries Inc. reserves the right to change any information concerning product or pricing without notice.

FIRE RATED CEILING DIFFUSER
RETURN • PERFORATED FACE •
STEEL • ROUND NECK
MODELS: 4070R, 4075R, 4080R AND 4085R

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 = 12 x 12			CM = 305 x 305			CM = 300 x 300		
	D	A	C	D	A	C	D	A	C
6	6	1 7/8	6 3/8	152	48	162	152	48	162
8	8		7 3/8	203		187	203		187
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 3/8	6 7/8	152	60	175	152	60	175
8	8		7 7/8	203		200	203		200
10	10		8 7/8	254		225	254		225
12	12		9 7/8	305		251	305		251
14	14		10 7/8	356		276	356		276

- ❑ **MODEL 4070R FLUSH FACE**
- ❑ **MODEL 4075R DROP FACE**

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

- ❑ **MODEL 4080R FLUSH FACE**
- ❑ **MODEL 4085R DROP FACE**

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 concealed latches for easy access to the damper through the removable face.
3. Designed as a matching return to compliment supply units. Perforated face has 3/16" (5) dia. holes on 1/4" (6) staggered centers.
4. The perforated face has 3/16" (5) dia. holes on 1/4" (6) staggered centres.
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
   - ❑ BA Black back pan with an appliance white face.
   - ❑ BW Black back pan with an off-white face.

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**	**4000-6C**

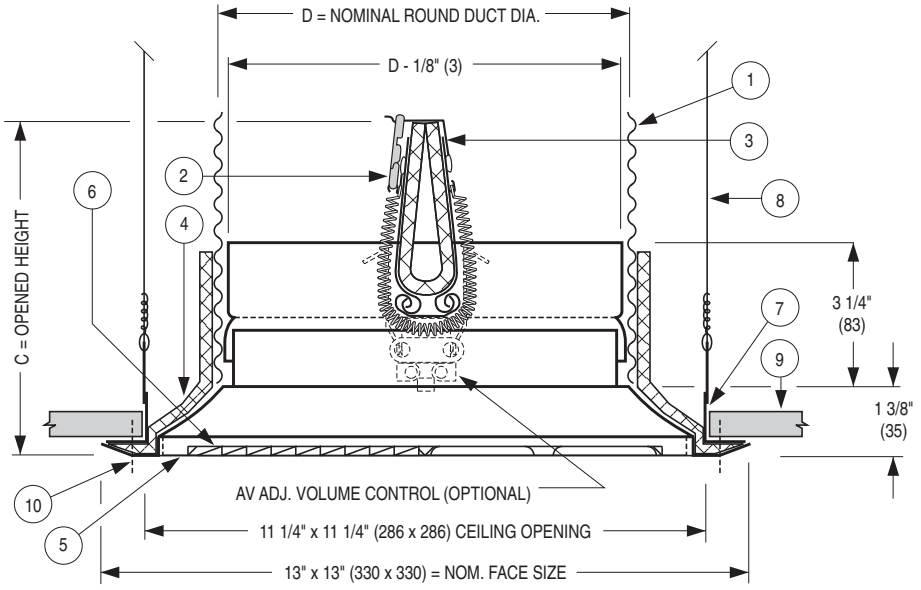
Nailor Industries Inc. reserves the right to change any information concerning product or pricing without notice.

FIRE RATED CEILING DIFFUSER
PERFORATED FACE • SURFACE MOUNT • STEEL • ROUND NECK
MODELS: 4070 AND 4070R 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 7/8	152	149	152	149
8	8	6 7/8	203	175	203	175

❑ MODEL 4070 (SUPPLY)
12 x 12 (300 x 300) module
Type S Surface Mount Frame

❑ MODEL 4070R (RETURN)
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. Adjustable pattern controllers (supply models only).
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. The discharge pattern on the supply model is 1, 2, 3, or 4-way horizontal and is adjusted by dropping the perforated face and rotating the pattern deflectors. The return model is furnished without pattern controllers. Removable face has spring clips for easy access to the damper.
3. Excellent for VAV systems.
4. The perforated face has 3/16" (5) dia. holes on 1/4" (6) staggered centers.
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	4000-9

Nailor Industries Inc. reserves the right to change any information concerning product or pricing without notice.

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.

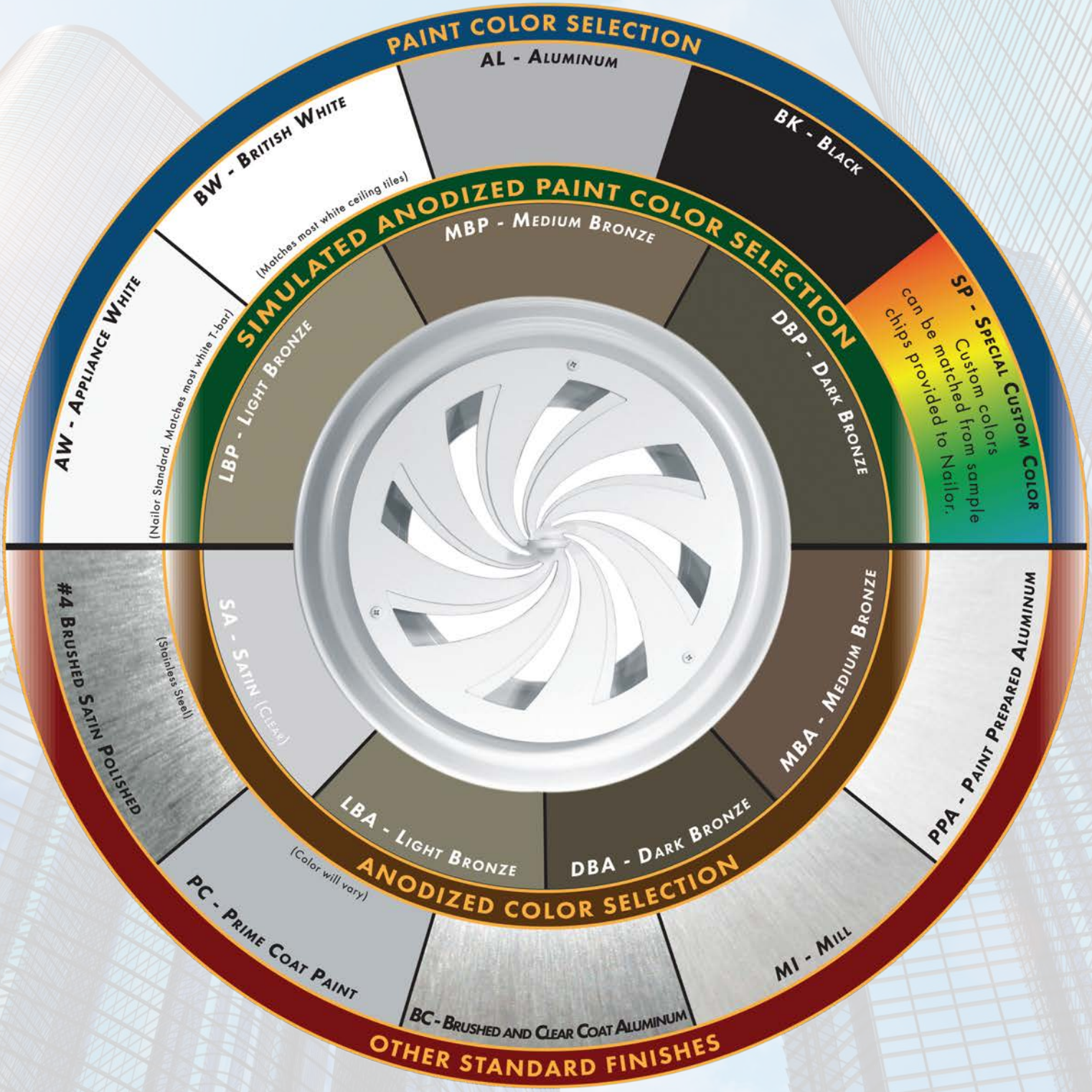
MILL FINISH

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 4360, 4360A, 4360AA • Flush Face • Return Module
4365, 4365A, 4365AA • Drop Face • Return Module

Ceiling Module	Neck Size	Neck Velocity, FPM	300	400	500	600	700	800	1000	1200	1400
		Negative Static Pressure	.024	.042	.067	.096	.130	.170	.266	.383	.522
		Velocity Pressure	.006	.010	.016	.022	.031	.040	.062	.090	.122
12 x 12	6" Dia.	Airflow, CFM	59	78	98	118	137	157	196	236	275
		Noise Criteria	—	—	—	10	14	18	27	32	38
	8 x 8	Airflow, CFM	75	100	125	150	175	200	250	300	350
		Noise Criteria	—	—	—	12	17	21	30	35	41
	8" Dia.	Airflow, CFM	105	140	175	209	244	279	349	419	489
		Noise Criteria	—	—	10	16	21	25	32	39	44
	8 x 8	Airflow, CFM	133	178	222	267	311	356	444	533	622
		Noise Criteria	—	—	11	17	22	26	33	40	45
	10 x 10	Airflow, CFM	208	278	347	416	486	556	694	833	972
		Noise Criteria	—	—	18	24	29	33	40	47	52
20 x 20	18 x 18	Airflow, CFM	675	900	1125	1350	1575	1800	2250	2700	3150
		Noise Criteria	—	17	24	30	35	39	46	53	58
24 x 12	6" Dia.	Airflow, CFM	75	100	125	150	175	200	250	300	350
		Noise Criteria	—	—	—	13	18	22	29	36	41
	8" Dia.	Airflow, CFM	105	140	175	209	244	279	349	419	489
		Noise Criteria	—	—	—	15	20	24	31	38	43
	8 x 8	Airflow, CFM	133	178	222	267	311	356	444	533	622
		Noise Criteria	—	—	10	16	21	25	32	39	44
	18 x 6	Airflow, CFM	225	300	375	450	525	600	750	900	1050
		Noise Criteria	—	—	14	20	25	28	35	42	47
	22 x 10	Airflow, CFM	458	611	764	917	1069	1222	1528	1833	2139
		Noise Criteria	—	15	21	27	34	37	44	51	56
24 x 24	6" Dia.	Airflow, CFM	59	79	98	118	137	157	196	236	275
		Noise Criteria	—	—	—	10	15	19	26	33	38
	6 x 6	Airflow, CFM	75	100	125	150	175	200	250	300	350
		Noise Criteria	—	—	—	12	17	21	28	35	41
	8" Dia.	Airflow, CFM	105	140	175	209	244	279	349	419	489
		Noise Criteria	—	—	—	14	19	23	30	37	42
	8 x 8	Airflow, CFM	133	178	222	267	311	356	444	533	622
		Noise Criteria	—	—	—	15	20	24	31	38	43
	10" Dia.	Airflow, CFM	164	218	273	327	382	436	545	655	764
		Noise Criteria	—	—	10	16	21	25	32	39	44
	10 x 10	Airflow, CFM	208	278	347	417	486	556	694	833	972
		Noise Criteria	—	—	11	17	22	26	33	40	45
	12" Dia.	Airflow, CFM	236	314	393	471	550	628	785	942	1100
		Noise Criteria	—	—	13	19	24	28	35	42	47
	12 x 12	Airflow, CFM	300	400	500	600	700	800	1000	1200	1400
		Noise Criteria	—	—	14	20	25	29	36	43	48
	14" Dia.	Airflow, CFM	321	428	535	641	748	855	1069	1283	1497
		Noise Criteria	—	—	15	21	26	30	37	44	49
	14 x 14	Airflow, CFM	408	544	681	817	953	1089	1361	1633	1906
		Noise Criteria	—	10	17	23	28	32	39	46	51
	15 x 15	Airflow, CFM	469	625	781	938	1094	1250	1563	1875	2188
		Noise Criteria	—	12	19	25	30	34	41	48	53
	16" Dia.	Airflow, CFM	419	559	698	838	977	1117	1396	1676	1955
		Noise Criteria	—	10	17	23	28	32	39	46	51
	18" Dia.	Airflow, CFM	530	707	884	1060	1237	1414	1767	2121	2474
		Noise Criteria	—	12	19	25	30	32	39	46	51
	18 x 18	Airflow, CFM	675	900	1125	1350	1575	1800	2250	2700	3150
		Noise Criteria	—	16	23	29	34	38	45	52	57
	22 x 22	Airflow, CFM	1008	1344	1681	2017	2353	2689	3361	4033	4706
		Noise Criteria	—	18	25	31	36	40	47	51	59
48 x 24	46 x 22	Airflow, CFM	2108	2811	3514	4217	4919	5622	7028	8433	9839
		Noise Criteria	11	20	27	34	38	43	50	57	62

Performance Notes:

1. All pressures are in inches w.g..
2. Noise Criteria (NC) values are based upon 10 dB room absorption, re 10^{-12} watts. Dash (—) in space indicates an Noise Criteria of less than 10.
3. Data derived from tests conducted in accordance with ANSI/ASHRAE Standard 70 – 2006.

PERFORMANCE DATA:

Models 4320, 4320A, 4320AA • Flush Face • 12 x 12 (300 x 300) Module Size

Nominal Neck Size	Neck Velocity, FPM		300	400	500	600	700	800	1000	1200
	Velocity Pressure		.006	.010	.016	.023	.031	.040	.063	.090
6" Dia.	Total Pressure		.012	.020	.032	.046	.063	.082	.128	.185
	Flow Rate, CFM		58	78	98	117	137	156	196	235
	Throw	4-Way	1-1-1	1-1-1	1-1-3	1-1-4	1-1-4	1-1-5	1-3-6	1-4-8
		3-Way	1-1-2	1-1-4	1-1-5	1-2-6	1-3-7	1-4-8	2-5-11	4-6-13
		2-Way	1-1-3	1-1-6	1-2-7	1-3-9	2-4-10	2-6-12	4-7-15	6-9-16
		1-Way	1-1-4	1-2-7	1-3-9	2-4-11	2-6-13	3-7-14	6-9-17	7-11-19
	Noise Criteria		—	—	—	19	24	28	35	41
8" Dia.	Total Pressure		.014	.022	.035	.049	.065	.086	.132	.194
	Flow Rate, CFM		105	140	175	210	245	280	350	420
	Throw	4-Way	1-1-1	1-1-1	1-1-3	1-1-4	1-1-4	1-1-5	1-3-6	1-4-8
		3-Way	1-1-2	1-1-4	1-1-5	1-2-6	1-3-7	1-4-8	2-5-11	4-6-13
		2-Way	1-1-3	1-1-6	1-2-7	1-3-9	2-4-10	2-6-12	4-7-15	6-9-16
		1-Way	1-1-4	1-2-7	1-3-9	2-4-11	2-6-13	3-7-14	6-9-17	7-11-19
	Noise Criteria		—	—	16	22	27	31	38	44
6 x 6	Total Pressure		.013	.022	.036	.052	.074	.092	.143	.206
	Flow Rate, CFM		75	100	125	150	175	200	250	300
	Throw	4-Way	1-1-1	1-1-2	1-1-3	1-1-4	1-1-5	1-2-6	1-3-8	2-4-9
		3-Way	1-1-3	1-1-5	1-2-6	1-3-8	1-4-9	2-5-10	3-6-13	5-8-16
		2-Way	1-1-4	1-2-7	1-3-9	2-4-10	2-6-12	3-7-14	5-9-18	7-10-19
		1-Way	1-1-6	1-2-8	2-4-11	2-6-13	3-7-15	5-8-17	7-11-20	8-13-22
	Noise Criteria		—	—	16	22	27	31	38	44
8 x 8	Total Pressure		.015	.026	.041	.059	.080	.104	.162	.234
	Flow Rate, CFM		135	175	220	265	310	355	440	530
	Throw	4-Way	1-1-1	1-1-2	1-1-3	1-1-4	1-1-5	1-2-6	1-3-8	2-4-9
		3-Way	1-1-3	1-1-5	1-2-6	1-3-8	1-4-9	2-5-10	3-6-13	5-8-16
		2-Way	1-1-4	1-2-7	1-3-9	2-4-10	2-6-12	3-7-14	5-9-18	7-10-19
		1-Way	1-1-6	1-2-8	2-4-11	2-6-13	3-7-15	5-8-17	7-11-20	8-13-22
	Noise Criteria		—	12	19	25	30	34	41	47

Models 4320, 4320A, 4320AA • Flush Face • 24 x 12 (600 x 300) Module Size

Nominal Neck Size	Neck Velocity, FPM		300	400	500	600	700	800	1000	1200
	Velocity Pressure		.006	.010	.016	.023	.031	.040	.063	.090
6" Dia.	Total Pressure		.012	.020	.032	.046	.063	.082	.128	.185
	Flow Rate, CFM		58	78	98	117	137	156	196	235
	Throw	4-Way	1-1-1	1-1-1	1-1-3	1-1-4	1-1-4	1-1-5	1-3-6	1-4-8
		3-Way	1-1-2	1-1-4	1-1-5	1-2-6	1-3-7	1-4-8	2-5-11	4-6-13
		2-Way	1-1-3	1-1-6	1-2-7	1-3-9	2-4-10	2-6-12	4-7-15	6-9-16
		1-Way	1-1-4	1-2-7	1-3-9	2-4-11	2-6-13	3-7-14	6-9-17	7-11-19
	Noise Criteria		—	—	—	19	24	28	35	41
8" Dia.	Total Pressure		.014	.022	.035	.049	.065	.086	.132	.194
	Flow Rate, CFM		105	140	175	210	245	280	350	420
	Throw	4-Way	1-1-1	1-1-1	1-1-3	1-1-4	1-1-4	1-1-5	1-3-6	1-4-8
		3-Way	1-1-2	1-1-4	1-1-5	1-2-6	1-3-7	1-4-8	2-5-11	4-6-13
		2-Way	1-1-3	1-1-6	1-2-7	1-3-9	2-4-10	2-6-12	4-7-15	6-9-16
		1-Way	1-1-4	1-2-7	1-3-9	2-4-11	2-6-13	3-7-14	6-9-17	7-11-19
	Noise Criteria		—	—	16	22	27	31	38	44
6 x 6	Total Pressure		.013	.022	.036	.052	.074	.092	.143	.206
	Flow Rate, CFM		75	100	125	150	175	200	250	300
	Throw	4-Way	1-1-1	1-1-2	1-1-3	1-1-4	1-1-5	1-2-6	1-3-8	2-4-9
		3-Way	1-1-3	1-1-5	1-2-6	1-3-8	1-4-9	2-5-10	3-6-13	5-8-16
		2-Way	1-1-4	1-2-7	1-3-9	2-4-10	2-6-12	3-7-14	5-9-18	7-10-19
		1-Way	1-1-6	1-2-8	2-4-11	2-6-13	3-7-15	5-8-17	7-11-20	8-13-22
	Noise Criteria		—	—	16	22	27	31	38	44
8 x 8	Total Pressure		.015	.026	.041	.059	.080	.104	.162	.234
	Flow Rate, CFM		135	175	220	265	310	355	440	530
	Throw	4-Way	1-1-1	1-1-2	1-1-3	1-1-4	1-1-5	1-2-6	1-3-8	2-4-9
		3-Way	1-1-3	1-1-5	1-2-6	1-3-8	1-4-9	2-5-10	3-6-13	5-8-16
		2-Way	1-1-4	1-2-7	1-3-9	2-4-10	2-6-12	3-7-14	5-9-18	7-10-19
		1-Way	1-1-6	1-2-8	2-4-11	2-6-13	3-7-15	5-8-17	7-11-20	8-13-22
	Noise Criteria		—	12	19	25	30	34	41	47

For performance notes, see page D160.

PERFORMANCE DATA:

Models 4320, 4320A, 4320AA • Flush Face • 24 x 24 (600 x 600) and 48 x 24 (1200 x 600) Module Size • Round Neck

Nominal Neck Size	Neck Velocity, FPM		300	400	500	600	700	800	1000	1200
	Velocity Pressure		.006	.010	.016	.023	.031	.040	.063	.090
6" Dia.	Total Pressure		.012	.020	.032	.046	.062	.082	.128	.185
	Flow Rate, CFM		58	78	98	117	137	156	196	235
	Throw	4-Way	1-1-1	1-1-1	1-1-3	1-1-4	1-1-4	1-1-5	1-3-6	1-4-8
		3-Way	1-1-2	1-1-4	1-1-5	1-2-6	1-3-7	1-4-8	2-5-11	4-6-13
		2-Way	1-1-3	1-1-6	1-2-7	1-3-9	2-4-10	2-6-12	4-7-15	6-9-16
		1-Way	1-1-4	1-2-7	1-3-9	2-4-11	2-6-13	3-7-14	6-9-17	7-11-19
	Noise Criteria		—	—	10	18	21	25	32	38
8" Dia.	Total Pressure		.015	.026	.042	.060	.082	.107	.167	.241
	Flow Rate, CFM		104	139	174	209	244	279	349	418
	Throw	4-Way	1-1-2	1-1-3	1-1-5	1-2-6	1-2-7	1-3-8	2-5-10	3-6-12
		3-Way	1-1-4	1-2-6	1-3-8	2-4-10	2-5-11	3-6-13	5-8-17	6-10-20
		2-Way	1-1-6	1-3-9	2-4-11	3-6-13	4-8-16	5-9-18	7-11-22	9-13-24
		1-Way	1-2-8	1-4-11	2-6-14	4-8-16	5-9-19	7-11-22	9-14-26	11-16-29
	Noise Criteria		—	11	16	22	27	31	38	44
10" Dia.	Total Pressure		.019	.033	.053	.075	.102	.135	.210	.302
	Flow Rate, CFM		163	218	272	327	381	436	545	654
	Throw	4-Way	1-1-3	1-1-5	1-2-7	1-3-8	2-4-10	2-5-11	4-7-14	5-8-17
		3-Way	1-1-7	1-3-9	2-5-11	3-7-14	4-8-16	5-9-18	7-11-23	9-14-27
		2-Way	1-2-9	2-5-12	3-7-15	5-9-19	7-11-22	8-12-26	10-15-32	12-19-34
		1-Way	1-3-11	3-7-15	4-9-19	7-11-23	9-13-28	10-15-31	12-19-36	15-23-39
	Noise Criteria		—	16	21	27	32	36	43	49
12" Dia.	Total Pressure		.022	.040	.063	.091	.124	.162	.253	.364
	Flow Rate, CFM		235	314	392	471	549	628	785	942
	Throw	4-Way	1-1-5	1-2-7	1-3-9	2-5-11	3-6-13	4-7-14	6-9-18	7-11-22
		3-Way	1-2-9	2-5-12	3-7-15	5-9-18	6-10-21	8-12-24	10-15-31	12-18-36
		2-Way	1-4-12	3-7-16	5-10-20	7-12-24	9-14-29	10-16-33	13-20-41	16-24-44
		1-Way	2-6-14	4-9-19	7-12-24	9-14-30	11-17-35	13-19-40	16-24-46	19-30-50
	Noise Criteria		—	19	25	31	36	40	47	53
14" Dia.	Total Pressure		.026	.047	.073	.105	.143	.187	.292	.420
	Flow Rate, CFM		318	424	530	636	742	848	1060	1272
	Throw	4-Way	1-1-6	1-3-9	2-5-11	3-6-13	4-8-16	5-9-18	7-11-23	9-13-28
		3-Way	1-4-11	3-7-14	4-9-18	7-11-22	8-13-27	9-14-30	12-18-38	14-22-44
		2-Way	2-6-15	4-10-20	7-12-26	10-15-31	11-17-36	13-20-41	16-26-50	20-31-54
		1-Way	3-8-18	6-12-24	10-15-31	12-18-38	14-21-44	16-24-50	20-30-57	24-38-62
	Noise Criteria		13	23	29	35	40	44	51	57
15" Dia.	Total Pressure		.029	.052	.081	.117	.159	.208	.324	.467
	Flow Rate, CFM		370	490	615	740	860	985	1225	1475
	Throw	4-Way	1-1-6	1-3-9	2-5-11	3-6-13	4-8-16	5-9-18	7-11-23	9-13-28
		3-Way	1-4-11	3-7-14	4-9-18	7-11-22	8-13-27	9-14-30	12-18-38	14-22-44
		2-Way	2-6-15	4-10-20	7-12-26	10-15-31	11-17-36	13-20-41	16-26-50	20-31-54
		1-Way	3-8-18	6-12-24	10-15-31	12-18-38	14-21-44	16-24-50	20-30-57	24-38-62
	Noise Criteria		15	25	31	37	42	46	53	59
16" Dia.	Total Pressure		.032	.058	.090	.129	.175	.229	.359	.517
	Flow Rate, CFM		418	558	698	837	977	1116	1396	1675
	Throw	4-Way	1-3-10	2-5-13	3-8-15	5-10-16	7-12-77	9-13-19	12-15-21	13-16-23
		3-Way	3-5-9	5-7-10	6-8-11	7-9-12	8-9-13	8-10-14	9-11-16	10-12-18
		2-Way	2-5-11	4-8-13	6-10-14	8-11-16	9-12-17	10-13-18	12-14-20	13-16-22
		1-Way	7-12-21	11-17-24	14-29-28	17-21-31	18-23-33	20-24-36	22-28-40	24-31-43
	Noise Criteria		16	26	32	38	43	47	54	60

For performance notes, see page D160.

PERFORMANCE DATA:

Models 4320, 4320A, 4320AA • Flush Face • 24 x 24 (600 x 600) and 48 x 24 (1200 x 600) Module Size • Square Neck

Nominal Neck Size	Neck Velocity, FPM		300	400	500	600	700	800	1000	1200
	Velocity Pressure		.006	.010	.016	.023	.031	.040	.063	.090
6 x 6	Total Pressure		.013	.022	.036	.052	.070	.092	.143	.206
	Flow Rate, CFM		75	100	125	150	175	200	250	300
	Throw	4-Way	1-1-1	1-1-2	1-1-3	1-1-4	1-1-5	1-2-6	1-3-8	2-4-9
		3-Way	1-1-3	1-1-5	1-2-6	1-3-8	1-4-9	2-5-10	3-6-13	5-8-16
		2-Way	1-1-4	1-2-7	1-3-9	2-4-10	2-6-12	3-7-14	5-9-18	7-10-19
		1-Way	1-1-6	1-2-8	2-4-11	2-6-13	3-7-15	5-8-17	7-11-20	8-13-22
	Noise Criteria		—	—	12	20	23	27	34	40
8 x 8	Total Pressure		.018	.030	.048	.069	.094	.123	.191	.276
	Flow Rate, CFM		133	177	222	266	310	355	444	532
	Throw	4-Way	1-1-2	1-1-4	1-1-6	1-2-7	1-3-8	2-4-9	3-6-12	4-7-14
		3-Way	1-1-5	1-2-8	1-4-10	2-5-12	3-7-14	4-8-16	6-10-20	8-12-24
		2-Way	1-2-8	1-4-10	2-6-13	4-8-16	5-9-19	7-10-21	9-13-27	10-16-30
		1-Way	1-3-9	2-5-13	3-8-16	5-9-19	7-11-23	8-13-27	11-16-31	13-19-34
	Noise Criteria		—	14	19	25	30	34	41	47
10 x 10	Total Pressure		.021	.038	.059	.086	.116	.152	.237	.341
	Flow Rate, CFM		208	277	347	416	485	555	694	832
	Throw	4-Way	1-1-4	1-2-6	1-3-8	2-4-10	2-5-11	3-6-13	5-8-16	6-10-20
		3-Way	1-2-8	1-4-11	3-6-13	4-8-16	5-9-19	7-11-22	9-13-28	11-16-33
		2-Way	1-3-11	3-6-14	4-9-18	6-11-22	8-13-27	9-14-30	12-18-37	14-22-40
		1-Way	2-5-13	4-9-18	6-11-22	9-13-28	10-16-33	12-18-37	15-22-42	18-28-46
	Noise Criteria		—	17	24	30	35	39	45	52
12 x 12	Total Pressure		.025	.046	.071	.103	.140	.183	.286	.411
	Flow Rate, CFM		300	400	500	600	700	800	1000	1200
	Throw	4-Way	1-1-6	1-3-8	2-4-11	3-6-13	4-7-15	5-8-17	7-11-22	8-13-27
		3-Way	1-3-10	2-6-14	4-9-18	6-10-21	8-12-26	9-14-29	11-18-37	14-21-42
		2-Way	2-5-14	4-9-19	7-12-24	9-14-30	11-17-35	13-19-40	16-24-47	19-30-52
		1-Way	3-8-17	6-11-23	9-14-30	11-17-36	13-20-42	15-23-48	19-30-54	23-36-59
	Noise Criteria		12	21	28	34	39	43	49	56
14 x 14	Total Pressure		.031	.055	.086	.124	.169	.221	.345	.497
	Flow Rate, CFM		410	545	680	815	955	1090	1360	1635
	Throw	4-Way	1-1-6	1-3-8	2-4-11	3-6-13	4-7-15	5-8-17	7-11-22	8-13-27
		3-Way	1-3-10	2-6-14	4-9-18	6-10-21	8-12-26	9-14-29	11-18-37	14-21-42
		2-Way	2-5-14	4-9-19	7-12-24	9-14-30	11-17-35	13-19-40	16-24-47	19-30-52
		1-Way	3-8-17	6-11-23	9-14-30	11-17-36	13-20-42	15-23-48	19-30-54	23-36-59
	Noise Criteria		15	24	31	37	42	46	52	59

Performance Notes:

1. All pressures are in inches w.g..
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 10.
4. Data derived from tests conducted in accordance with ANSI/ASHRAE Standard 70 – 2006.

Neck Size Square in Inches	Nominal Overall Face Size	Ak Factor
6 x 6	12 x 12	.2345
8 x 8	12 x 12	.3461
6 x 6	24 x 24	.6932
8 x 8	24 x 24	.7620
10 x 10	24 x 24	.7995
12 x 12	24 x 24	.8465
14 x 14	24 x 24	.8993

Neck Size Diameter in Inches	Nominal Overall Face Size	Ak Factor
6	12 x 12	.2289
8	12 x 12	.3461
6	24 x 24	.6010
8	24 x 24	.6854
10	24 x 24	.7283
12	24 x 24	.7651
14	24 x 24	.8102
15	24 x 24	.8389

PERFORMANCE DATA:

Models 4325, 4325A, 4325AA • Drop Face • 12 x 12 (300 x 300) Module Size

Nominal Neck Size	Neck Velocity, FPM		300	400	500	600	700	800	1000	1200
	Velocity Pressure		.006	.010	.016	.023	.031	.040	.063	.090
6" Dia.	Total Pressure		.009	.016	.025	.036	.049	.063	.099	.143
	Flow Rate, CFM		58	78	98	117	137	156	196	235
	Throw	4-Way	1-1-1	1-1-2	1-1-3	1-1-3	1-2-4	1-2-4	2-3-6	2-3-6
		3-Way	1-1-2	1-1-3	1-2-4	1-2-5	1-3-6	2-3-7	3-4-9	3-5-9
		2-Way	1-1-3	1-1-4	1-2-5	1-3-6	2-3-7	2-4-8	3-5-11	4-6-12
		1-Way	1-1-4	1-2-6	1-3-7	2-4-9	3-5-10	4-6-12	5-7-15	6-9-16
	Noise Criteria		—	—	—	16	21	25	32	38
8" Dia.	Total Pressure		.010	.017	.026	.037	.051	.067	.104	.150
	Flow Rate, CFM		105	140	175	210	245	280	350	420
	Throw	4-Way	1-1-1	1-1-1	1-1-3	1-1-4	1-1-4	1-1-5	1-3-6	1-4-8
		3-Way	1-1-2	1-1-4	1-1-5	1-2-6	1-3-7	1-4-8	2-5-11	4-6-13
		2-Way	1-1-3	1-1-6	1-2-7	1-3-9	2-4-10	2-6-12	4-7-15	6-9-16
		1-Way	1-1-4	1-2-7	1-3-9	2-4-11	2-6-13	3-7-14	6-9-17	7-11-19
	Noise Criteria		—	—	14	20	25	29	36	42
6 x 6	Total Pressure		.010	.019	.028	.041	.056	.072	.113	.163
	Flow Rate, CFM		75	100	125	150	175	200	250	300
	Throw	4-Way	1-1-2	1-1-3	1-1-3	1-2-4	1-2-5	2-3-6	2-3-7	3-4-7
		3-Way	1-1-3	1-1-4	1-2-5	1-3-6	2-4-8	3-4-9	3-5-10	4-6-11
		2-Way	1-1-4	1-2-5	1-3-7	2-4-8	3-4-9	3-5-11	4-7-13	5-8-14
		1-Way	1-1-5	1-3-7	2-4-9	3-5-11	4-6-13	5-7-15	6-9-17	7-11-19
	Noise Criteria		—	—	13	19	24	28	35	41
8 x 8	Total Pressure		.012	.021	.032	.046	.063	.082	.128	.185
	Flow Rate, CFM		135	175	220	265	310	355	440	530
	Throw	4-Way	1-1-1	1-1-2	1-1-3	1-1-4	1-1-5	1-2-6	1-3-8	2-4-9
		3-Way	1-1-3	1-1-5	1-2-6	1-3-8	1-4-9	2-5-10	3-6-13	5-8-16
		2-Way	1-1-4	1-2-7	1-3-9	2-4-10	2-6-12	3-7-14	5-9-18	7-10-19
		1-Way	1-1-6	1-2-8	2-4-11	2-6-13	3-7-15	5-8-17	7-11-20	8-13-22
	Noise Criteria		—	10	17	23	28	32	39	45

Models 4325, 4325A, 4325AA • Drop Face • 24 x 12 (600 x 300) Module Size

Nominal Neck Size	Neck Velocity, FPM		300	400	500	600	700	800	1000	1200
	Velocity Pressure		.006	.010	.016	.023	.031	.040	.063	.090
6" Dia.	Total Pressure		.009	.016	.025	.036	.049	.063	.099	.143
	Flow Rate, CFM		58	78	98	117	137	156	196	235
	Throw	4-Way	1-1-1	1-1-2	1-1-3	1-1-3	1-2-4	1-2-4	2-3-6	2-3-6
		3-Way	1-1-2	1-1-3	1-2-4	1-2-5	1-3-6	2-3-7	3-4-9	3-5-9
		2-Way	1-1-3	1-1-4	1-2-5	1-3-6	2-3-7	2-4-8	3-5-11	4-6-12
		1-Way	1-1-4	1-2-6	1-3-7	2-4-9	3-5-10	4-6-12	5-7-15	6-9-16
	Noise Criteria		—	—	—	16	21	25	32	38
8" Dia.	Total Pressure		.010	.017	.026	.037	.051	.067	.104	.150
	Flow Rate, CFM		105	140	175	210	245	280	350	420
	Throw	4-Way	1-1-1	1-1-1	1-1-3	1-1-4	1-1-4	1-1-5	1-3-6	1-4-8
		3-Way	1-1-2	1-1-4	1-1-5	1-2-6	1-3-7	1-4-8	2-5-11	4-6-13
		2-Way	1-1-3	1-1-6	1-2-7	1-3-9	2-4-10	2-6-12	4-7-15	6-9-16
		1-Way	1-1-4	1-2-7	1-3-9	2-4-11	2-6-13	3-7-14	6-9-17	7-11-19
	Noise Criteria		—	—	14	20	25	29	36	42
6 x 6	Total Pressure		.013	.022	.036	.052	.074	.092	.143	.206
	Flow Rate, CFM		75	100	125	150	175	200	250	300
	Throw	4-Way	1-1-1	1-1-2	1-1-3	1-1-4	1-1-5	1-2-6	1-3-8	2-4-9
		3-Way	1-1-3	1-1-5	1-2-6	1-3-8	1-4-9	2-5-10	3-6-13	5-8-16
		2-Way	1-1-4	1-2-7	1-3-9	2-4-10	2-6-12	3-7-14	5-9-18	7-10-19
		1-Way	1-1-6	1-2-8	2-4-11	2-6-13	3-7-15	5-8-17	7-11-20	8-13-22
	Noise Criteria		—	—	13	19	24	28	35	41
8 x 8	Total Pressure		.012	.021	.032	.046	.063	.082	.128	.185
	Flow Rate, CFM		135	175	220	265	310	355	440	530
	Throw	4-Way	1-1-1	1-1-2	1-1-3	1-1-4	1-1-5	1-2-6	1-3-8	2-4-9
		3-Way	1-1-3	1-1-5	1-2-6	1-3-8	1-4-9	2-5-10	3-6-13	5-8-16
		2-Way	1-1-4	1-2-7	1-3-9	2-4-10	2-6-12	3-7-14	5-9-18	7-10-19
		1-Way	1-1-6	1-2-8	2-4-11	2-6-13	3-7-15	5-8-17	7-11-20	8-13-22
	Noise Criteria		—	10	17	23	28	32	39	45

For performance notes, see page D163.

PERFORMANCE DATA:

Models 4325, 4325A, 4325AA • Drop Face • 24 x 24 (600 x 600) Module Size • Round Neck

Nominal Neck Size	Neck Velocity, FPM		300	400	500	600	700	800	1000	1200
	Velocity Pressure		.006	.010	.016	.023	.031	.040	.063	.090
6" Dia.	Total Pressure		.009	.016	.025	.036	.049	.063	.099	.143
	Flow Rate, CFM		58	78	98	117	137	156	196	235
	Throw	4-Way	1-1-1	1-1-2	1-1-3	1-1-3	1-2-4	1-2-4	2-3-6	2-3-6
		3-Way	1-1-2	1-1-3	1-2-4	1-2-5	1-3-6	2-3-7	3-4-9	3-5-9
		2-Way	1-1-3	1-1-4	1-2-5	1-3-6	2-3-7	2-4-8	3-5-11	4-6-12
		1-Way	1-1-4	1-2-6	1-3-7	2-4-9	3-5-10	4-6-12	5-7-15	6-9-16
	Noise Criteria		—	—	—	15	18	22	29	35
8" Dia.	Total Pressure		.013	.021	.034	.049	.066	.087	.136	.195
	Flow Rate, CFM		104	139	174	209	244	279	349	418
	Throw	4-Way	1-1-3	1-1-4	1-2-5	1-3-6	2-3-7	2-4-8	3-5-8	4-6-9
		3-Way	1-1-4	1-2-6	2-3-7	2-4-9	3-5-11	4-6-12	5-7-13	6-9-14
		2-Way	1-2-5	1-3-7	2-4-9	3-5-11	4-6-13	5-7-15	6-9-16	7-11-18
		1-Way	1-2-7	2-4-10	3-6-12	4-7-15	6-9-18	6-10-19	8-12-21	10-15-23
	Noise Criteria		—	—	13	18	24	28	35	41
10" Dia.	Total Pressure		.016	.027	.043	.061	.084	.109	.171	.245
	Flow Rate, CFM		163	218	272	327	381	436	545	654
	Throw	4-Way	1-1-4	1-3-6	2-3-7	3-4-9	3-5-10	4-6-10	5-7-12	6-9-13
		3-Way	1-2-7	2-4-9	3-6-12	4-7-14	5-8-15	6-9-16	8-12-18	9-14-20
		2-Way	1-3-8	2-5-11	4-7-14	5-8-17	6-10-19	7-11-20	9-14-22	11-17-26
		1-Way	2-4-11	3-7-15	6-9-19	7-11-23	9-13-26	10-15-28	13-19-31	15-23-34
	Noise Criteria		—	13	18	24	29	33	40	46
12" Dia.	Total Pressure		.019	.033	.052	.074	.101	.132	.207	.297
	Flow Rate, CFM		235	314	392	471	549	628	785	942
	Throw	4-Way	1-3-6	2-4-9	3-5-11	4-6-12	5-7-13	6-9-14	7-11-15	9-12-17
		3-Way	2-4-10	3-6-13	5-8-16	6-10-18	7-11-19	9-13-20	11-16-23	13-18-26
		2-Way	2-5-12	4-8-16	6-10-20	8-12-22	9-14-24	11-16-22	13-20-30	16-22-33
		1-Way	3-7-16	6-11-22	9-14-28	11-16-30	13-19-33	14-22-35	18-28-39	22-30-43
	Noise Criteria		—	17	23	29	34	38	45	51
14" Dia.	Total Pressure		.021	.038	.059	.086	.117	.153	.239	.344
	Flow Rate, CFM		318	424	530	636	742	848	1060	1272
	Throw	4-Way	2-4-8	3-5-11	4-7-13	5-8-14	6-10-16	7-11-17	9-13-19	11-14-21
		3-Way	3-6-13	5-9-18	7-11-20	9-13-22	10-15-24	12-18-26	15-20-29	18-23-32
		2-Way	3-8-16	6-11-22	9-13-26	11-16-28	12-19-31	14-22-33	18-27-36	22-28-40
		1-Way	5-11-22	9-14-30	12-18-35	14-22-38	17-27-41	19-30-44	24-35-49	30-38-51
	Noise Criteria		10	20	28	32	37	41	48	54
15" Dia.	Total Pressure		.022	.040	.062	.091	.127	.171	.265	.366
	Flow Rate, CFM		370	490	615	740	860	985	1225	1475
	Throw	4-Way	2-4-7	3-5-10	4-7-12	5-8-14	6-9-15	7-10-17	9-12-19	10-13-21
		3-Way	3-6-13	5-9-19	7-10-19	9-12-22	10-15-23	12-18-26	14-19-29	18-22-32
		2-Way	3-8-15	6-11-21	8-12-26	11-15-28	11-19-30	13-21-32	18-27-35	21-27-40
		1-Way	5-10-21	8-14-29	11-17-34	13-21-36	17-26-40	18-29-42	24-34-47	28-36-50
	Noise Criteria		12	22	28	34	39	43	50	56
16" Dia.	Total Pressure		.025	.045	.070	.100	.137	.179	.280	.403
	Flow Rate, CFM		418	558	698	837	977	1116	1396	1675
	Throw	4-Way	3-5-11	5-7-15	6-9-17	7-11-18	8-13-20	10-15-21	12-17-24	15-18-27
		3-Way	2-6-13	4-9-17	7-11-19	9-13-21	10-16-22	12-17-24	15-19-28	17-21-30
		2-Way	2-6-13	4-9-17	7-11-19	9-13-21	10-16-22	12-17-24	15-19-28	17-21-30
		1-Way	7-12-23	12-17-27	15-21-31	18-23-34	20-26-36	22-27-39	24-31-43	26-34-47
	Noise Criteria		13	23	29	35	40	44	51	57

For performance notes, see page D163.

PERFORMANCE DATA:

Models 4325, 4325A, 4325AA • Drop Face • 24 x 24 (600 x 600) Module Size • Square Neck

Nominal Neck Size	Neck Velocity, FPM		300	400	500	600	700	800	1000	1200
	Velocity Pressure		.006	.010	.016	.023	.031	.040	.063	.090
6 x 6	Total Pressure		.010	.019	.028	.041	.056	.072	.113	.163
	Flow Rate, CFM		75	100	125	150	175	200	250	300
	Throw	4-Way	1-1-2	1-1-3	1-1-3	1-2-4	1-2-5	2-3-6	2-3-7	3-4-7
		3-Way	1-1-3	1-1-4	1-2-5	1-3-6	2-4-8	3-4-9	3-5-10	4-6-11
		2-Way	1-1-4	1-2-5	1-3-7	2-4-8	3-4-9	3-5-11	4-7-13	5-8-14
		1-Way	1-1-5	1-3-7	2-4-9	3-5-11	4-6-13	5-7-15	6-9-17	7-11-19
	Noise Criteria		—	—	—	17	20	24	31	37
8 x 8	Total Pressure		.014	.024	.038	.056	.075	.098	.153	.220
	Flow Rate, CFM		133	177	222	266	310	355	444	532
	Throw	4-Way	1-1-3	1-2-5	1-3-6	2-3-7	3-4-8	3-5-9	4-6-10	5-7-11
		3-Way	1-2-5	1-3-7	2-4-9	3-5-11	4-6-13	5-7-14	6-9-15	7-11-17
		2-Way	1-2-7	2-4-9	3-6-12	4-7-14	5-8-16	6-9-17	8-12-19	9-14-21
		1-Way	1-3-9	3-6-13	4-8-16	6-9-19	7-11-21	8-13-23	10-16-27	13-19-29
	Noise Criteria		—	11	16	22	27	31	38	44
10 x 10	Total Pressure		.018	.031	.049	.069	.095	.124	.193	.278
	Flow Rate, CFM		208	277	347	416	485	555	694	832
	Throw	4-Way	1-2-5	2-3-7	3-4-9	3-5-11	4-6-12	5-7-12	6-9-14	7-11-15
		3-Way	1-4-8	3-5-11	4-7-14	5-8-16	6-10-18	7-11-19	9-14-21	11-16-23
		2-Way	2-5-11	4-7-14	6-9-18	7-11-20	8-13-22	9-14-24	12-18-28	14-20-30
		1-Way	3-6-14	5-9-19	8-12-24	9-14-28	11-17-30	13-19-32	16-24-36	19-28-39
	Noise Criteria		—	14	21	27	32	36	42	49
12 x 12	Total Pressure		.02	.037	.058	.084	.114	.149	.233	.335
	Flow Rate, CFM		300	400	500	600	700	800	1000	1200
	Throw	4-Way	1-4-8	3-5-11	4-7-13	5-8-14	6-9-15	7-11-16	9-13-18	11-14-20
		3-Way	2-6-12	5-8-17	7-10-19	8-12-21	10-15-23	11-17-24	14-19-28	17-21-31
		2-Way	3-7-15	6-10-21	8-13-24	10-15-27	12-18-29	14-21-32	17-24-35	21-27-38
		1-Way	4-10-21	8-14-29	11-17-33	14-21-36	16-24-39	18-29-42	23-33-46	28-36-51
	Noise Criteria		—	18	25	31	36	40	46	53
14 x 14	Total Pressure		.025	.046	.071	.103	.140	.183	.286	.411
	Flow Rate, CFM		408	544	681	817	953	1089	1361	1633
	Throw	4-Way	1-1-6	1-3-8	2-4-11	3-6-13	4-7-15	5-8-17	7-11-22	8-13-27
		3-Way	1-3-10	2-6-14	4-9-18	6-10-21	8-12-26	9-14-29	11-18-37	14-21-42
		2-Way	2-5-14	4-9-19	7-12-24	9-14-30	11-17-35	13-19-40	16-24-47	19-30-52
		1-Way	3-8-17	6-11-23	9-14-30	11-17-36	13-20-42	15-23-48	19-30-54	23-36-59
	Noise Criteria		12	21	28	34	39	43	49	56

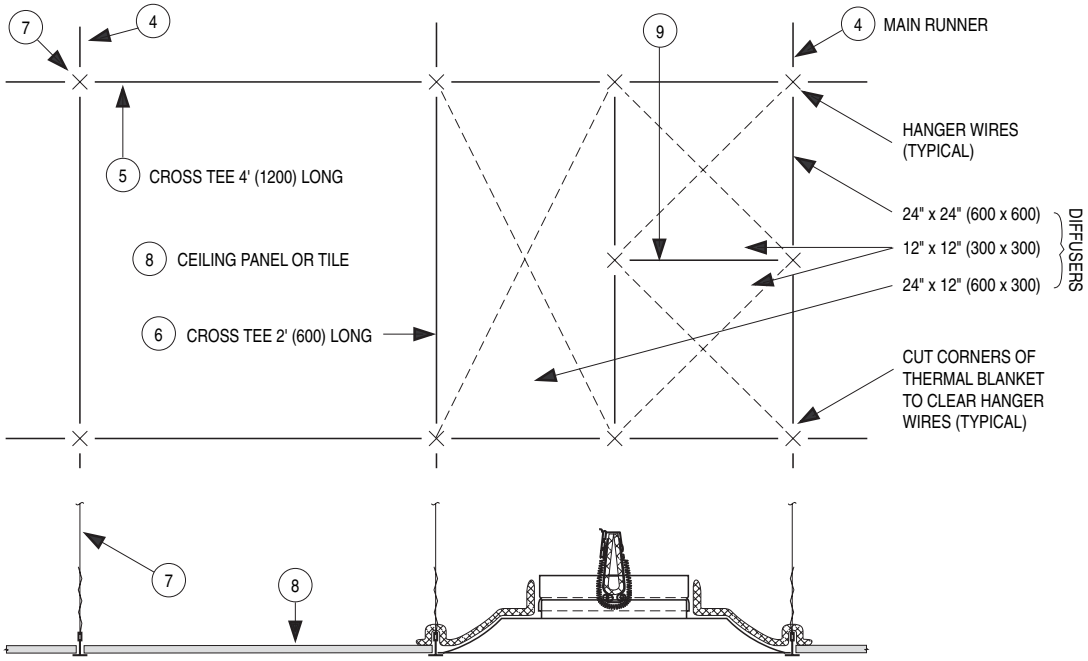
Performance Notes:

1. All pressures are in inches w.g..
2. Throws are given at 150, 100 and 50 fpm terminal velocities under isothermal conditions.
3. Noise Criteria (NC) values are based upon 10 dB 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.

Balancing:

It is recommended that a commercially available 'Flow Hood' is used for field balancing. The airflow meter directly reads average flow rate with great accuracy at all volumes. It is a much faster and more accurate alternative to time consuming multiple velocity readings, eliminating the use of Ak factors and the calculations required to convert the average velocity into airflow.

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

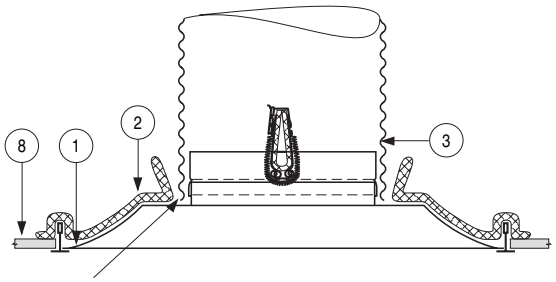


CATEGORY
BZZU

CATEGORY
40U18.1-1/2A

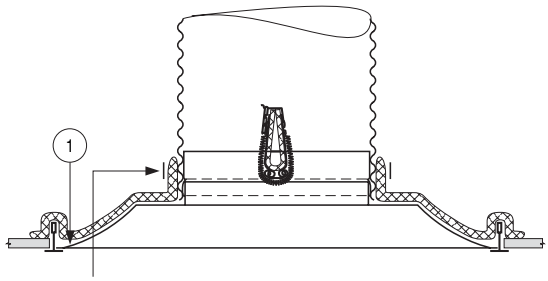
Refer to the UL/ULC Classification marking the product

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).

Nailor Industries Inc. reserves the right to change any information concerning product or specification without notice or obligation.

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.

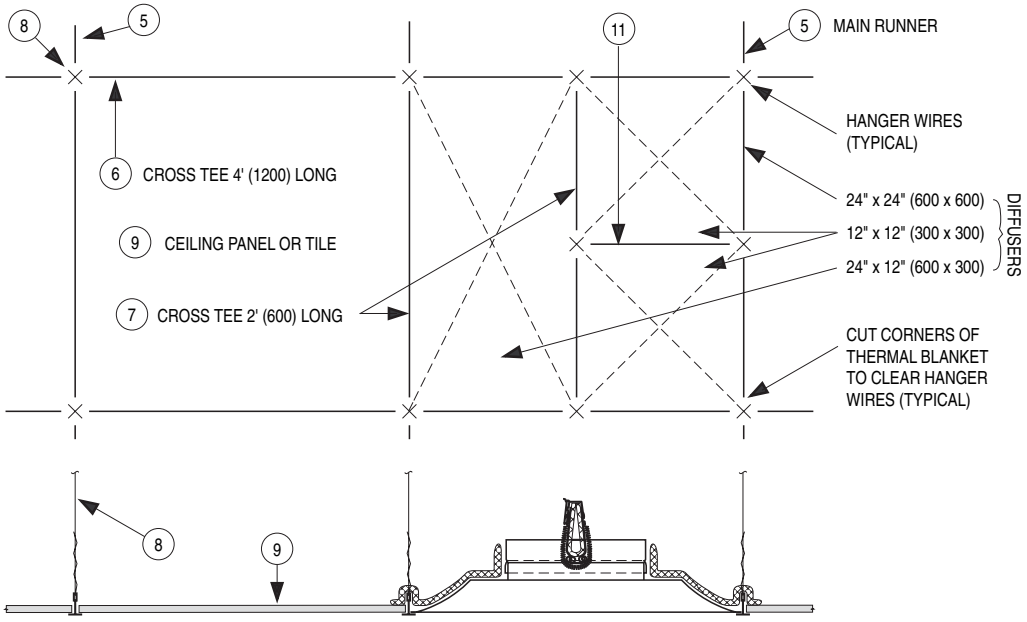
Houston, Texas
Tel: 281-590-1172
Fax: 281-590-3086

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

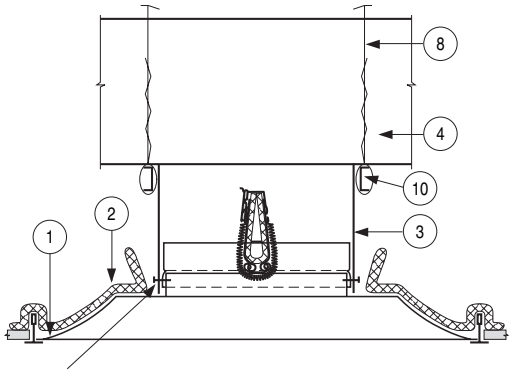


CATEGORY
BZZU

CATEGORY
40U18.1-1/2A

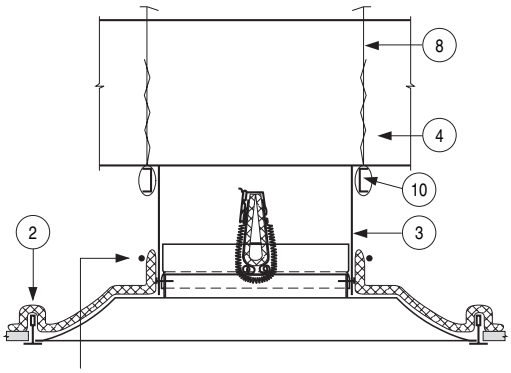
Refer to the
UL/ULC Classification
marking the product

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).

Nailor Industries Inc. reserves the right to change any information concerning product or specification without notice or obligation.

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).

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Calgary, Canada
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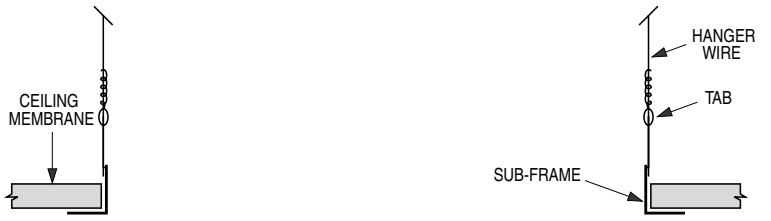
Fax: 403-279-5035

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

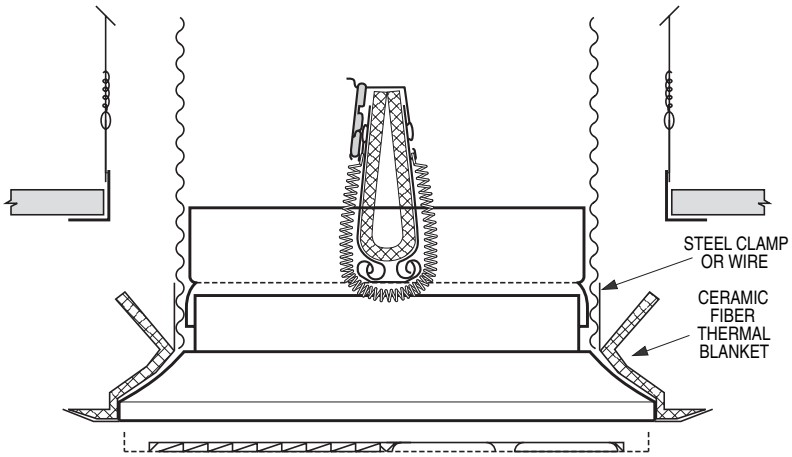
CATEGORY 40U18.1-1/2A

(Model 4070-SM shown in example).

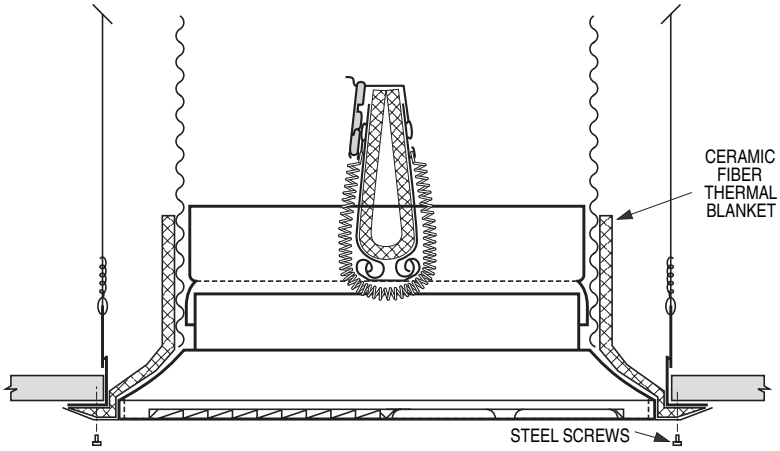
STEP 1:
Cut hole in ceiling membrane 11 1/4" x 11 1/4" (286 x 286). Insert sub-frame through hole and using four tabs provided, hang sub-frame to structural members of the floor or roof above using #12 SWG galvanized steel hanger wire.



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).

Nailor Industries Inc. reserves the right to change any information concerning product or specification without notice or obligation.