

**GENERAL PRODUCT OVERVIEW**

**Ceiling Diffusers**

Quality Assured Products, unobtrusive clean lines for appearance, careful engineering and professional workmanship with the backing of an industry leader - these add up to true value; prime reasons for specifying Nailor Ceiling Diffusers.

Architectural excellence and engineering selections demand high quality products and shipping schedules demand service, all part of the package.

**SQUARE AND RECTANGULAR PATTERN**

Nailor's pattern diffusers are typically used in applications where considerable volumes of air are required while maintaining relatively low noise levels and pressure drops. A full range of models are available and consist of a choice of corrosion-resistant steel or aluminum construction, fixed and adjustable patterns, as well as extra high capacity models. Induction vanes are also available for those jobs that require quick equalization of cool and warm air such as in VAV systems with high cooling loads. The louvered cores are removable and are available in an assortment of patterns.

**Steel High Capacity Construction – Fiberglass Plenum**

Fixed Pattern Model 6500FP **Page D18**

**Steel Construction –**

Fixed Pattern Model 6500 **Page D14**

Adjustable Pattern Model 6550 **Page D14**

Induction Vane Model 6500IV **Page D39**

Suffix '-O' adds a steel OBD

**Aluminum Construction –**

Fixed Pattern Model 6200 **Page D14**

Adjustable Pattern Model 6250 **Page D14**

Induction Vane Model 6200IV **Page D39**

Suffix '-O' adds a steel OBD

Suffix '-OA' adds an aluminum OBD

**Aluminum High Capacity Construction –**

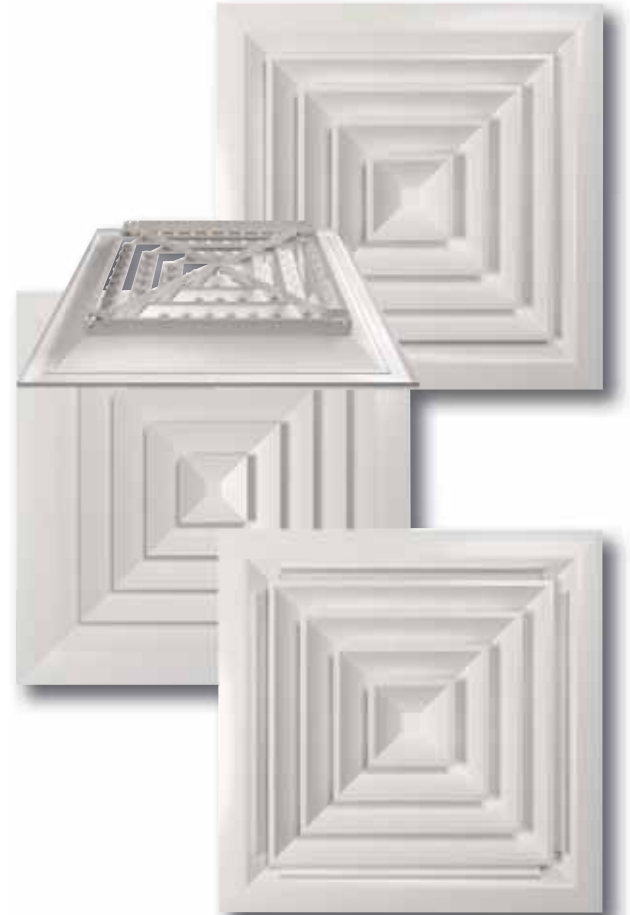
100% Aluminum Model 6200-MRI **Page D20**

Fixed Pattern Model 6400 **Page D46**

Induction Vane Model 6400IV **Page D65**

Suffix '-O' adds a steel OBD

Suffix '-OA' adds an aluminum OBD



Models 6500, 6500IV, 6400, 6550

D

CEILING DIFFUSERS



Models RNS, ARNSA, RNS2

**STAMPED SQUARE**

These diffusers are a very popular choice for general air distribution applications. The diffusers are designed to provide high performance at a cost effective price. The stamped one-piece cones and die-formed clean curves supply a 360° diffusion pattern and provide the high performance necessary in VAV systems. Integral round necks provide a secure connection for flexible duct applications. Nailor's "classic" four-cone, removable core design is available in most ceiling module sizes, a choice of corrosion-resistant steel or aluminum, and an option of fixed or adjustable patterns. A two and three cone fixed pattern diffuser also accompanies this series.

**Steel Construction –**

Fixed Pattern Model RNS **Page D87**

Adjustable Pattern Model RNSA **Page D91**

Fixed Pattern 3 Cone Model RNS3 **Page D95**

Fixed Pattern 2 Cone Model RNS2 **Page D98**

**Aluminum Construction –**

Fixed Pattern Model ARNS **Page D87**

Adjustable Pattern Model ARNSA **Page D91**

Fixed Pattern 3 Cone Model ARNS3 **Page D95**

## EXCLUSIVE WARRANTY FOR NAILOR STEEL GRILLES, REGISTERS AND DIFFUSERS

**LIMITED WARRANTY – SERIES 61C, 6100, 61EC, 61F, RNS, RNS2,  
UNI, 4300, 6500, 7500 AND 61CC**

Nailor Industries Inc. ('Nailor') warrants to the original and each subsequent owner of a new Nailor Series Grille, Register or Ceiling Air Diffuser in the model series titled above, constructed of corrosion-resistant steel that should rust become visible on the exposed portion of any individual product covered by this agreement Nailor will replace the rusted unit. Any diffuser affected by chemicals or misuse, including, without limitation, the failure to perform reasonable and necessary maintenance, will not be covered by this warranty. This warranty is for sixty (60) months from the date of the shipment by Nailor.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

The rusted unit will be shipped by the owner at its cost to Nailor for replacement. The cost of the replacement, including the cost of shipment to the owner, but excluding any costs for either the removal or preparation for shipment of the rusted unit and the re-installation of the replacement unit, will be borne by Nailor. A reasonable time should be allowed after shipment to Nailor for the replacement of the rusted unit.

***This is the only warranty given with the purchase. Any warranties implied by law are limited to sixty (60) months from the date of shipment by Nailor. Nailor neither assumes nor authorizes any person to assume for it any other liability in connection with any diffuser covered by this agreement.***

***No payment or other compensation will be made for indirect or consequential damage such as, damage or injury to person or property or loss of revenue or profit which might be paid, incurred or sustained by reason of the use or inability to use a Nailor product listed above, even if such loss or damage could have been foreseen by Nailor.***

Some states do not allow the exclusion of limitation of incidental or consequential damages or limitation on how long an implied warranty lasts, so the above may not apply to you.

## STAMPED SQUARE CEILING DIFFUSERS

- FIXED AIR PATTERN
- HIGH PERFORMANCE
- SQUARE FACE
- ROUND NECK
- 4 CONE

### Models:

- RNS Steel  
ARNS Aluminum



Model RNS

Model Series RNS Square Ceiling Air Diffusers have been specially designed to provide an extremely cost effective, value engineered product. They offer both the unobtrusive appearance required for architectural excellence and the 360° diffusion pattern at minimum NC levels required for high engineering performance. For these reasons the RNS Series diffuser is the most popular choice for general applications.

The stamped one-piece cones eliminate mitered corners and the die-formed curves provide consistent quality and performance. The stepped down core design increases capacity and minimizes streaking and smudging of the ceiling.

The diffusers provide stable diffusion and mixing patterns under constant and changing load conditions and are particularly suitable for variable air volume systems.

The diffusers are available with various frame/border designs to suit many ceiling systems including surface mount, T-Bar lay-in, and panel applications. Standard finish is a high quality baked enamel for long life and easy cleaning. A variety of neck sizes are available to suit your system design. The collar is a full 1 1/4" (32) in height for easy, secure connection.

### STANDARD FEATURES:

- Spring loaded core is securely held in position and is removable without the use of tools.
- Engineered air diffusion patterns.
- Steel stamped shapes for uniformity.
- High neck collars for solid connection.
- All 12" x 12" (300 x 300) and 24" x 24" (600 x 600) modules feature four cones in all neck sizes, providing a uniform and balanced appearance. The 20" x 20" (500 x 500) module has three cones.
- Screwdriver adjustment of the optional balancing damper is achieved through the inner cone assembly.

### CONSTRUCTION MATERIAL:

Heavy gauge, corrosion-resistant steel or aluminum with miscellaneous steel components.

### FINISH OPTIONS:

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

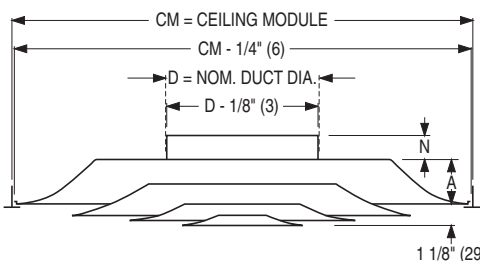
### OPTIONS & ACCESSORIES:

- 4250 Radial Sliding Blade Damper  
6" – 14" (152 – 356).
- 4275 Radial Opposed Blade Damper  
5" – 15" (127 – 381).
- 4675 Butterfly Damper  
6" – 14" (152 – 356).

- QB Quadrant Blanks for 1, 2 and 3-way blow. (See page D267).
  - EX External Foil-Back Insulation (installed) – R-4.2.
  - EXB External Foil-Back Insulation (loose) – R-4.2.
  - MIB Molded Insulation Blanket – R-6.0.
  - EIC Extended Inlet Collar (2 1/4" [57]) with bead (Model RNS only).
  - EQT Earthquake Tabs
- For more options and accessories, see page D255.

### Type L Lay-in, T-Bar Frame

12 x 12 (300 x 300) and  
24 x 24 (600 x 600) modules



### Dimensional Data

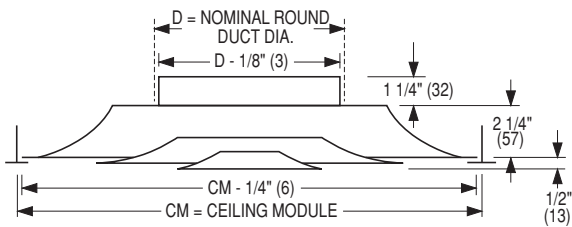
Ceiling Module CM		Imperial Units (inches)					Metric Units (mm)				
Imperial Modules	Metric Modules	Duct Size D	N	A	B	F	Duct Size D	N	A	B	F
12 x 12	300 x 300	4*	3 1/4	1	11	13	102*	83	25	279	330
		5, 6, 7, 8	1 1/4				127, 152, 178, 203	32			
24 x 24	600 x 600	6, 8, 10, 12, 14, 15	1 1/4	2 5/16	22	24 3/4	152, 203, 254, 305, 356, 381	32	59	559	629

\* Supplied with a reducer.

## DIMENSIONAL DATA AND FRAME TYPES:

### MODELS RNS AND ARNS

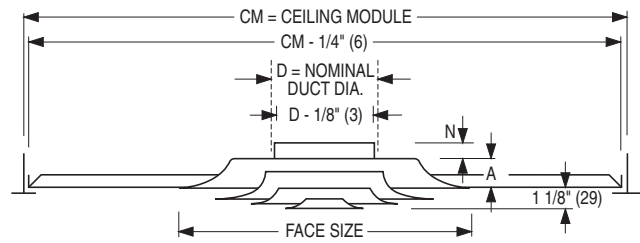
**Type L Lay-in T-Bar**  
20" x 20" (500 x 500) module



Ceiling Module CM		Imperial Units (inches)		Metric Units (mm)	
Imperial Modules	Metric Modules	Duct Size D	B	Duct Size D	B
20 x 20	500 x 500	6, 8, 10	18 1/2	152, 203, 254	470

The 20 x 20 (500 x 500) module is only available in this frame style.

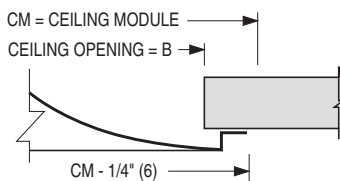
**Type PL Panel Mounted Lay-in T-Bar**



Ceiling Module CM		Imperial Units (inches)				Metric Units (mm)			
Imperial Modules	Metric Modules	Face Size	Duct Size D	N	A	Face Size	Duct Size D	N	A
24 x 24	600 x 600	12	4*	3 1/4	1	300	102,	83	25
24 x 12	600 x 300	x	5, 6,			x	127, 152,		
20 x 20	500 x 500	12	7, 8			300	178, 203,		
30 x 30	750	24	6, 8,	1 1/4	2 5/16	600	152, 203,	32	59
	x	x	10, 12,			x	254, 305,		
48 x 24	750	24	14, 15	1 1/4	2 5/16	600	356, 381	32	59
	x	x	6, 8,			x	152, 203,		
600	600	24	10, 12,	1 1/4	2 5/16	600	254, 305,	32	59
	600	24	14, 15			600	356, 381		

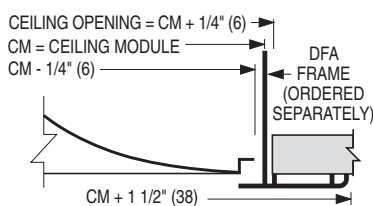
\* Supplied with a reducer. Panel mount is available with Model RNS only.

**Type L Surface Mount**



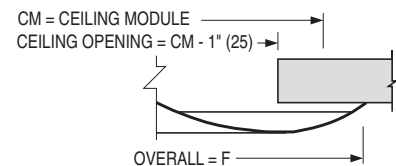
Hard duct connection recommended.

**Type L Surface Mount with DFA**



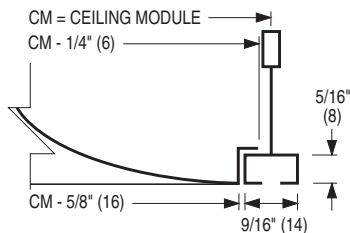
Drywall/Plaster Frame. Recommended for flexible duct and ceiling access.

**Type S Surface Mount**

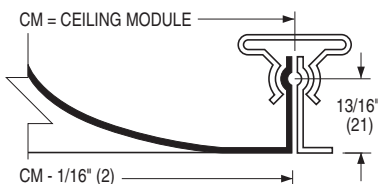


Hard duct connection recommended.

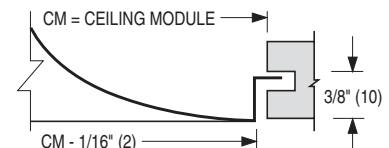
**Type F Fineline®**



**Type M Metal Pan (Snap-in)**



**Type SP Spline**



For one directional exposed T-bar or fully concealed grid. One spline on two opposite sides, steel lift bracket on others.

**Note:** Model ARNS is available only in frame types L and F.

Fineline® is a registered trademark of USG Interiors Inc.

## 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:

- Throws are given at 150, 100 and 50 fpm terminal velocities, under isothermal conditions.
- All pressures are in inches w.g..
- 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.

- Noise Criteria (NC) are based on a room absorption of 10 dB, re 10<sup>-12</sup> watts. Dash (—) in space denotes an Noise Criteria level less than 10.
- 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<sup>-12</sup> 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

## STAMPED SQUARE CEILING DIFFUSERS

- FIXED AIR PATTERN
- SQUARE FACE
- ROUND NECK
- 3 CONE

### Models:

**RNS3** Steel

**ARNS3** Aluminum



Model RNS3

Model Series RNS3 and ARNS3 Square Ceiling Air Diffusers have been specially designed to provide an extremely cost effective, value engineered product. They offer both the unobtrusive appearance required for architectural excellence and the 360° diffusion pattern at minimum NC levels required for high engineering performance. For these reasons the RNS3 Series diffuser is the most popular choice for general applications.

The stamped one-piece cones eliminate mitered corners and the die-formed curves provide consistent quality and performance. The stepped down core design increases capacity and minimizes streaking and smudging of the ceiling.

The diffusers provide stable diffusion and mixing patterns under constant and changing load conditions and are particularly suitable for variable air volume systems.

The diffusers are available with a frame/border design to suit a lay-in T-bar ceiling and can also be surface mounted using the optional drywall diffuser frame. Standard finish is a high quality baked enamel for long life and easy cleaning. A variety of neck sizes are available to suit your system design. The collar is a full 1 1/4" (32) in height for easy, secure connection.

### STANDARD FEATURES:

- Features 3 cones in all neck sizes, providing a uniform and balanced appearance.
- Engineered air diffusion patterns.
- Steel stamped shapes for uniformity.
- High neck collars for solid connection.
- Non-removable core.
- Screwdriver adjustment of the optional balancing damper is achieved through the inner cone assembly.

### CONSTRUCTION MATERIAL:

Heavy gauge, corrosion-resistant steel or aluminum with miscellaneous steel components.

### FINISH OPTIONS:

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

### OPTIONS & ACCESSORIES:

- 4250 Radial Sliding Blade Damper  
6" – 14" (152 – 356).
- 4275 Radial Opposed Blade Damper  
5" – 24" (127 – 610).
- 4675 Butterfly Damper  
6" – 14" (152 – 356).
- QB Quadrant Blanks for 1, 2 and 3-way blow. (See page D266).
- EX External Foil-Back Insulation (installed) -R-4.2.
- EXB External Foil-Back Insulation (loose) -R-4.2.
- MIB Molded Insulation Blanket – R-6.0.
- EIC Extended Inlet Collar (2 1/4" [57]) with bead (Model RNS3 only).
- EQT Earthquake Tabs

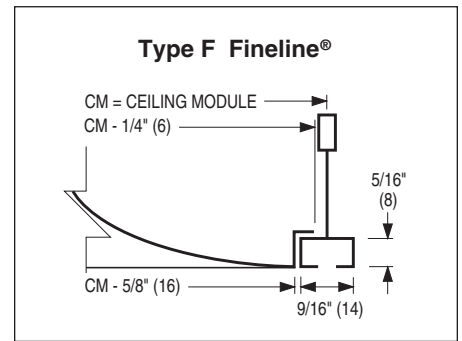
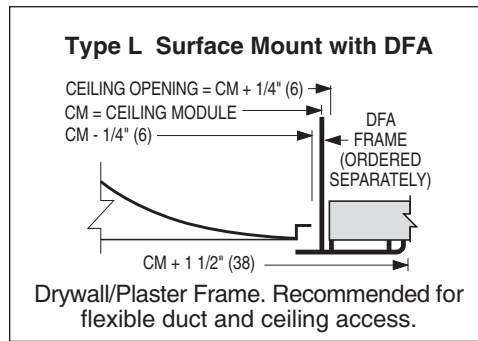
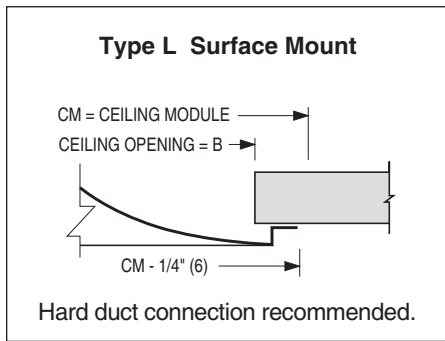
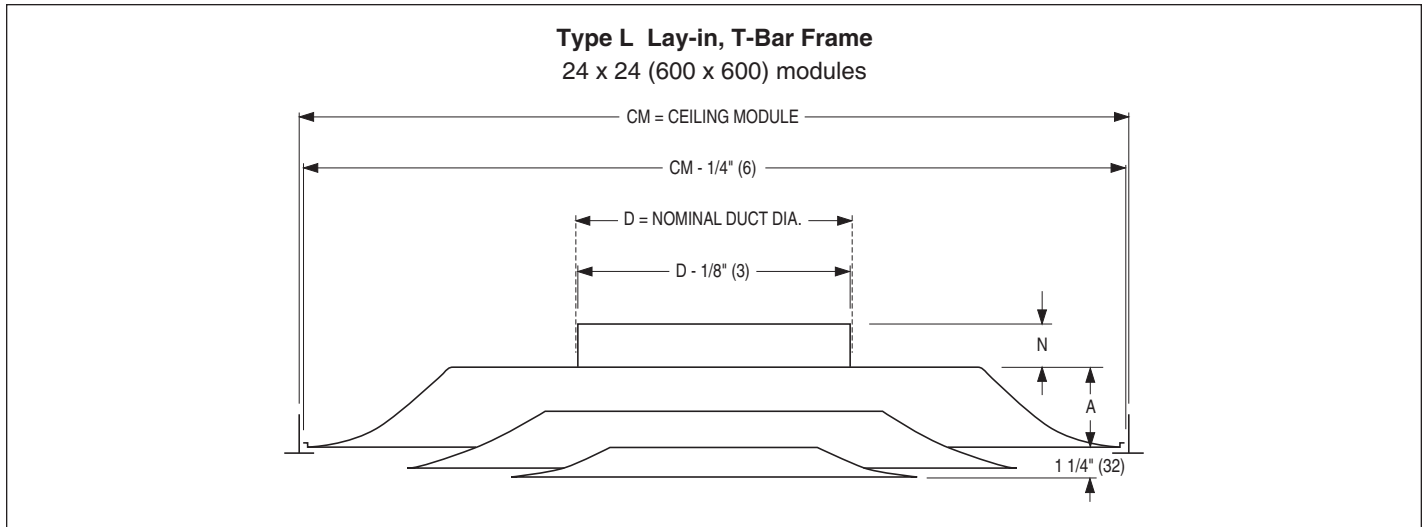
For additional options and accessories; see page D255.

## DIMENSIONAL DATA AND FRAME TYPES:

### MODELS RNS3 AND ARNS3

D

CEILING DIFFUSERS



### Dimensional Data

Ceiling Module CM		Imperial Units (inches)				Metric Units (mm)			
Imperial Modules	Metric Modules	Duct Size D	N	A	B	Duct Size D	N	A	B
24 x 24	600 x 600	6, 8, 10, 12, 14, 15	1 1/4	2 5/16	22	152, 203, 254, 305, 356, 381	32	59	559



## PERFORMANCE DATA:

### Models RNS3 and ARNS3 • 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	.017	.027	.038	.052	.068	.086	.106	.153	.208	.272
	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	—	—	—	—	16	19	23	29	34	37
8" Dia.	Total Pressure	.019	.029	.042	.057	.075	.095	.117	.169	.230	.300
	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	—	—	—	15	19	22	26	32	37	40
10" Dia.	Total Pressure	.021	.032	.046	.063	.083	.104	.129	.186	.253	.330
	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	—	—	—	17	22	25	29	35	39	43
12" Dia.	Total Pressure	.023	.036	.052	.071	.093	.118	.146	.210	.286	.373
	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	—	—	15	20	25	28	31	37	41	44
14" Dia.	Total Pressure	.027	.042	.060	.082	.107	.136	.168	.241	.328	.429
	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	—	—	19	24	27	31	34	39	43	47
15" Dia.	Total Pressure	.029	.045	.065	.089	.116	.147	.182	.262	.356	.465
	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	21	25	28	32	35	40	44	48

#### Performance Notes:

- Throws are given at 150, 100 and 50 fpm terminal velocities under isothermal conditions.
- If the diffuser is mounted on an exposed duct, multiply throw values by x 0.70.
- All pressures are in inches w.g.. To obtain static pressure, subtract the velocity pressure from the total pressure.
- 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.

- Noise Criteria (NC) values are based upon 10dB room absorption, re 10<sup>-12</sup> watts. Dash (—) in space indicates an Noise Criteria of less than 15.
- 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	24 x 24	0.16
8	24 x 24	0.26
10	24 x 24	0.37
12	24 x 24	0.49
14	24 x 24	0.62
15	24 x 24	0.68

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

## STAMPED SQUARE CEILING DIFFUSERS

- HIGH PERFORMANCE
- SQUARE FACE
- ROUND NECK
- STEEL

### Models:

RNS2 Steel



Model RNS2

Model Series RNS2 Square Ceiling Air Diffuser has been specially designed to provide the mechanical engineer with the most cost effective engineered diffuser currently available in the industry. It combines the high performance expected from a louvered face type ceiling diffuser with a cost as low as any lesser performing commercial diffuser currently available. The RNS2 has a 360° diffusion pattern at minimum NC levels required for high engineering performance. The diffuser provides stable diffusion and mixing patterns under constant and changing load conditions and is eminently suitable for variable air volume systems. It can accommodate a turn down of 80% without losing the ceiling coanda effect and dumping. The stamped one-piece cones eliminate mitered corners and the die-formed curves provide consistent quality and performance.

Model RNS2 diffusers are available to suit many situations including surface mount, T-Bar lay-in and panel applications. Standard finish is a high quality, baked enamel for long life and easy cleaning. A variety of neck sizes are available to suit your system design. The collar is a full 1 1/4" (32) in height for easy, secure connection.

### STANDARD FEATURES:

- Engineered air diffusion patterns.
- Steel stamped shapes for uniformity.
- High neck collars for solid connection.
- With 2 cones in all sizes, the diffusers provide a uniform appearance.
- Screwdriver adjustment of the optional balancing damper is achieved through the inner cone assembly.

### CONSTRUCTION MATERIAL:

Heavy gauge, corrosion-resistant steel.

### FINISH OPTIONS:

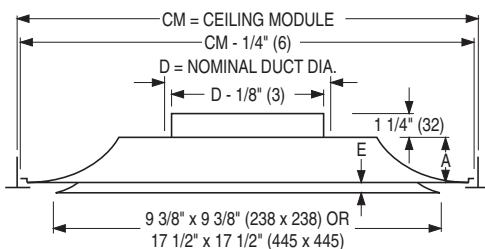
AW Appliance White finish is standard. Other finishes are available.

### OPTIONS & ACCESSORIES:

- 4250 Radial Sliding Blade Damper  
6" – 14" (152 – 356).
- 4275 Radial Opposed Blade Damper  
5" – 24" (127 – 610).
- 4675 Butterfly Damper  
6" – 14" (152 – 356).

- QB Quadrant Blanks for 1, 2 and 3-way blow. (See page D267).
  - EX External Foil-Back Insulation (installed) – R-4.2.
  - EXB External Foil-Back Insulation (loose) – R-4.2.
  - MIB Molded Insulation Blanket – R-6.0.
  - EQT Earthquake Tabs
- For additional options and accessories; see page D255.

### Type L Lay-in, T-Bar Frame



### Dimensional Data

Ceiling Module CM		Imperial Units (inches)					Metric Units (mm)				
Imperial Modules	Metric Modules	Duct Size D	A	B	E	F	Duct Size D	A	B	E	F
12 x 12	300 x 300	6, 8	1	11	1 5/16	13	152, 203	25	279	33	330
24 x 24	600 x 600	6, 8, 10, 12, 14, 15	2 5/16	22	15/16	24 3/4	152, 203, 254, 305, 356, 381	59	559	24	629

## DIMENSIONAL DATA AND FRAME TYPES:

### MODEL RNS2

**Type PL Panel Mounted Lay-in T-Bar**

**Dimensional Data**

Ceiling Module CM		Imperial Units (inches)			Metric Units (mm)				
Imperial Modules	Metric Modules	Face Size	Duct Size D	A	E	Face Size	Duct Size D	A	E
24 x 24	600 x 600	12	6, 8	1	1 5/16	300	152, 203	25	33
24 x 12	600 x 300	x				x			
20 x 20	500 x 500	12				x			

**Type L Surface Mount**

Hard duct connection recommended.

**Type L Surface Mount with DFA**

Drywall/Plaster Frame. Recommended for flexible duct and ceiling access.

**Type S Surface Mount**

Hard duct connection recommended.

**Type F Fineline®**

**Type M Metal Pan (Snap-in)**

**Type SP Spline**

For one directional exposed T-bar or fully concealed grid. One spline on two opposite sides, steel lift bracket on others.

**D**  
CEILING DIFFUSERS

Fineline® is a registered trademark of USG Interiors Inc.

## 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 velocity pressure from the total pressure.

3. Noise Criteria (NC) values are based upon 10dB room absorption, re 10<sup>-12</sup> 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

## HOW TO ORDER

### STAMPED SQUARE CEILING DIFFUSERS

#### MODEL SERIES RNS, ARNS, UNI, AUNI AND TWR

EXAMPLE: RNS - 08 - 24 x 24 - L - AW - -

**1. Models**

**Louvered Face**

- RNS Steel, Fixed, 4 Cone
- RNS3 Steel, Fixed, 3 Cone
- RNS2 Steel, Fixed, 2 Cone
- RNSA1 Steel, Adjustable, Sliding Type
- RNSA2 Steel, Adjustable, Rotating Type

- ARNS Aluminum, Fixed
- ARNS3 Aluminum, Fixed, 3 Cone, Non-removable
- ARNSA Aluminum, Adjustable

**Architectural**

- UNI Steel, Concealed Bracketry
- UNI2 Steel, Corner Posts
- UNI-RP Steel, Round Plaque
- AUNI Aluminum, Concealed Bracketry
- AUNI2 Aluminum, Four Corner Posts

**Downblast**

- UNI-AD Adjustable
- UNI-PD Fixed, Perforated

**High Induction**

- TWR Twister

**2. Neck Size (inches)**

- 04, 05, 06, 07, 08, 10, 12, 14, 15

**3. Ceiling Module Size**

**Imperial (inches)**

- 12 x 12, 20 x 20, 24 x 12, 24 x 24 (default), 30 x 30, 48 x 24

**Metric (mm)**

- 300 x 300, 500 x 500, 600 x 300, 600 x 600, 750 x 750, 1200 x 600

**4. Frame Type**

- L Lay-in T-Bar/Surface Mount
- S Surface Mount
- PL Panel Lay-in T-Bar
- SP Spline
- M Metal Pan
- F Fineline®
- TL Tegular Lay-in

**5. Finish**

- AW Appliance White (default)
- AL Aluminum
- BK Black
- BW British White
- MI Mill
- PC Prime Coat Paint
- PPA Paint Prepared Aluminum
- SP Special Custom Color

**OPTIONS & ACCESSORIES:**

(Default is none unless noted otherwise)

**6. MRI Option (AUNI2 only)\***

- MRI MRI Compatible (100% Aluminum)

**7. Damper**

- 4250 Radial Sliding, 6" - 14"
- 4275 Radial Opposed Blade, 5" - 24"
- 4675 Butterfly, 6" - 14"

**8. Quadrant Blanks**

- QB3 3-way blow
- QB2 2-way opposite blow
- QC2 2-way corner blow
- QB1 1-way blow

**9. External Insulation**

- EX Foil-back (installed), R-4.2
- EXB Foil-back (loose), R-4.2
- MIB Molded Insulation Blanket R-6.0

**10. Extended Inlet Collar \*\***

- EIC Extended Inlet Collar (2.25") with bead

**11. Earthquake Tabs**

- EQT Earthquake Tabs

**OTHER OPTIONS & ACCESSORIES:**

**Ceiling Tile Option:**

- (UNI, AUNI only)
- RC Retaining Channel only
- RCCF Retaining Channel + Tile Cut & Fitted

**Air Balancing Devices**

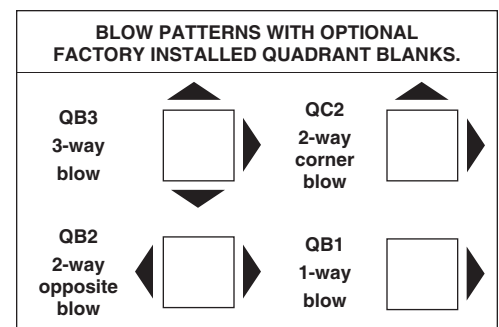
- (order separately)
- EGR Equalizing Grid
- DEGR Damper/Equalizing Grid

**Notes:**

1. Consult price pages as to limitations of module, frame type, neck size and accessories combinations.
2. Face size 20" x 20" (500 x 500) is available only in Frame Type L.
3. MIB Molded Insulation Blanket is not available on Models RNSA1, RNSA2, and ARNSA.
4. Butterfly damper (4675) is not compatible with Model RNSA.
5. PPA Finish is available on Aluminum models only.
6. \*Dampers are not available on Model AUNI2 when MRI option is selected.
7. \*\*Extended Inlet Collar is available for steel models RNS, RNS3, UNI and UNI2 only.

D  
CEILING DIFFUSERS

NOMINAL ROUND NECK (DUCT) SIZE	FACE SIZE	CEILING MODULE
4, 5, 6, 7, 8	12 x 12	12 x 12 20 x 20 24 x 12 24 x 24
6, 8, 10	20 x 20	20 x 20
6, 8, 10, 12, 14, 15	24 x 24	24 x 24 30 x 30 48 x 24



## HOW TO SPECIFY

### SUGGESTED SPECIFICATION:

#### RNS – Steel Construction

Furnish and install **Nailor Model RNS Stamped Square Ceiling Diffusers** of the sizes and capacities as shown on the plans and air distribution schedules. The diffuser shall be manufactured from corrosion-resistant steel and have four concentric cones in all sizes, except the 20" x 20" (500 x 500) module size which will consist of three cones. The inner cone assembly is to be removable using a spring clip arrangement that permits quick, easy installation and removal. The diffuser shall have a removable plug for screwdriver adjustment of the optional damper without removing the inner core. The finish shall be AW Appliance White (optional finishes are available).

The manufacturer shall provide published performance data for the diffuser, which shall be tested in accordance with ANSI/ASHRAE Standard 70-2006.

#### ARNS – Aluminum Construction

Furnish and install **Nailor Model ARNS Stamped Square Ceiling Diffusers** of the sizes and capacities as shown on the plans and air distribution schedules. The diffuser shall have four die-formed aluminum concentric cones in all sizes, except the 20" x 20" (500 x 500) module size which will consist of three cones. The inner cone assembly is to be removable using a spring clip arrangement that permits quick, easy installation and removal. The diffuser shall have a removable plug for screwdriver adjustment of the optional damper without removing the inner core. The finish shall be AW Appliance White (optional finishes are available).

The manufacturer shall provide published performance data for the diffuser, which shall be tested in accordance with ANSI/ASHRAE Standard 70-2006.

### SUGGESTED SPECIFICATION:

#### RNSA1, RNSA2 – Steel Construction

Furnish and install **Nailor Model (select one) RNSA1 or RNSA2 Adjustable Stamped Square Ceiling Diffusers** of the sizes and capacities as shown on the plans and air distribution schedules. The diffuser shall be manufactured from corrosion-resistant steel and have four concentric cones in all sizes, except the 20" x 20" (500 x 500) module size which will consist of three cones. Model RNSA1 shall have an adjustable sliding type inner cone assembly that is securely retained by a spring loaded friction arrangement. Model RNSA2 shall have an adjustable rotating type inner cone assembly that is adjusted by rotating the center cone. The inner cone assembly is to be removable using a spring clip arrangement that permits quick, easy installation and removal. The diffuser shall have a removable plug for screwdriver adjustment of the optional damper without removing the inner core. The finish shall be AW Appliance White (optional finishes are available).

The manufacturer shall provide published performance data for the diffuser, which shall be tested in accordance with ANSI/ASHRAE Standard 70-2006.

#### ARNSA – Aluminum Construction

Furnish and install **Nailor Model ARNSA Adjustable Stamped Square Ceiling Diffusers** of the sizes and capacities as shown on the plans and air distribution schedules. The diffuser shall have four die-formed aluminum concentric cones in all sizes, except the 20" x 20" (500 x 500) module size which will consist of three cones. The diffuser shall have an adjustable sliding type inner cone assembly that is securely retained by a spring loaded friction arrangement. The inner cone assembly is to be removable using a spring clip arrangement that permits quick, easy installation and removal. The diffuser shall have a removable plug for screwdriver adjustment of the optional damper without removing the inner core. The finish shall be AW Appliance White (optional finishes are available).

The manufacturer shall provide published performance data for the diffuser, which shall be tested in accordance with ANSI/ASHRAE Standard 70-2006.

## HOW TO SPECIFY

### SUGGESTED SPECIFICATION:

#### RNS3 and ARNS3 – Steel or Aluminum Construction

Furnish and install **Nailor Model** (select one) **RNS3** (steel) or **ARNS3** (aluminum) **Stamped Square Ceiling Diffusers** of the sizes and capacities as shown on the plans and air distribution schedules. Model RNS3 shall be manufactured from corrosion-resistant steel and have three die-formed concentric cones in all sizes. Model ARNS3 shall be manufactured from aluminum with corrosion-resistant steel bracketry. The inner cone assembly is to be non-removable. The diffuser shall have a removable plug for screwdriver adjustment of the optional damper without removing the inner core. The finish shall be AW Appliance White (optional finishes are available).

The manufacturer shall provide published performance data for the diffuser, which shall be tested in accordance with ANSI/ASHRAE Standard 70-2006.

### SUGGESTED SPECIFICATION:

#### RNS2 – Steel Construction

Furnish and install **Nailor Model RNS2 Stamped Square Ceiling Diffusers** of the sizes and capacities as shown on the plans and air distribution schedules. The diffuser shall be manufactured from corrosion-resistant steel and incorporate two die-formed concentric cones. The diffuser shall have a removable plug for screwdriver adjustment of the optional damper without removing the inner core. The finish shall be AW Appliance White (optional finishes are available).

The manufacturer shall provide published performance data for the diffuser, which shall be tested in accordance with ANSI/ASHRAE Standard 70-2006.

### SUGGESTED SPECIFICATION:

#### TWR 'Twister' – Steel Construction

Furnish and install **Nailor Model TWR 'Twister' Ceiling Swirl Diffusers** of the sizes and capacities as shown on the plans and air distribution schedules. The diffuser shall be manufactured from heavy gauge corrosion-resistant steel. Radial induction vanes shall be one-piece stamped construction. The diffuser is to be sizes to suit a 24" x 24" (600 x 600) ceiling suspension system. The round duct connection collar shall be an integral part of the diffuser assembly and be not less than 1 1/4" (32) high. The diffuser shall have a removable plug for screwdriver adjustment of the optional damper without removing the inner core. The finish shall be AW Appliance White (optional finishes are available).

The manufacturer shall provide published performance data for the diffuser, which shall be tested in accordance with ANSI/ASHRAE Standard 70-2006.

### SUGGESTED SPECIFICATION:

#### UNI – Steel Construction

Furnish and install **Nailor Model UNI Square Architectural Ceiling Diffusers** of the sizes and capacities as shown on the plans and air distribution schedules. The diffuser shall have a corrosion-resistant steel, stamped outer cone. The inner core shall have a plaque style face. The face shall be double skinned with a hemmed edge. The inner core assembly is to be removable using a spring clip arrangement that permits quick, easy installation and removal. The finish shall be AW Appliance White (optional finishes are available).

The manufacturer shall provide published performance data for the diffuser, which shall be tested in accordance with ANSI/ASHRAE Standard 70-2006.

#### AUNI – Aluminum Construction

Furnish and install **Nailor Model AUNI Square Architectural Ceiling Diffusers** of the sizes and capacities as shown on the plans and air distribution schedules. The diffuser shall have a heavy gauge aluminum, stamped outer cone. The inner core shall have a plaque style face. The face shall be double skinned with a hemmed edge. The inner core assembly is to be removable using a spring clip arrangement that permits quick, easy installation and removal. The finish shall be AW Appliance White (optional finishes are available).

The manufacturer shall provide published performance data for the diffuser, which shall be tested in accordance with ANSI/ASHRAE Standard 70-2006.

## PRODUCT OVERVIEW OPTIONS AND ACCESSORIES FOR CEILING DIFFUSERS

### MOUNTING FRAMES

- Surface mount adapter frames for plaster and sheet rock ceilings are available in steel and aluminum. They simplify installation, save time and allow ceiling plenum access.

### OPTIONS

- A selection of optional items that are available on ceiling diffusers.

### FINISHES

- Selection of standard and non-standard finishes to choose from.
- Baked enamel paint in custom colors to suit architect.

### AIR BALANCING DEVICES

- Dampers for round and square necks.
- Equalizing grids.
- Volume extractors.

Effective air balancing of an HVAC System requires the correct selection, specification and installation of the right product to suit the system design.

Nailor offers a comprehensive range of models and options to cover all applications.

Nailor balancing devices are:

- Easy to select and specify. Many items can be ordered or specified as diffuser accessories.
- Designed to offer a smooth, accurate and predictable response during adjustment for precise air metering.
- Designed to provide quick access and adjustment.
- Engineered with attention to optimizing airflow, in order to minimize noise, turbulence and pressure drop.

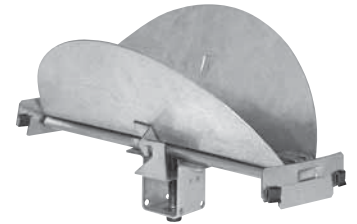
**Model DFA**  
Drywall/Plaster Frame  
Surface Mount  
Ceiling Adapter



**Model 4275**  
Radial Opposed  
Blade Damper



**Model 4250**  
Radial Sliding Blade Damper



**Model 4675**  
Butterfly Damper



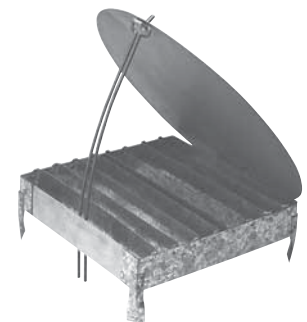
**Model OBD**  
Opposed Blade Damper  
Steel, Neck Mount



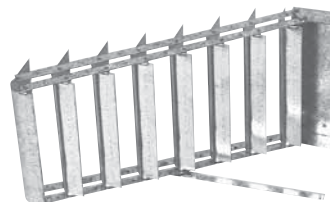
**Model OBDD**  
Opposed Blade Damper  
Steel, Duct Mount



**Model EGR**  
Equalizing Grid



**Model DEGR**  
Damper with Equalizing Grid



**Model EX-1**  
Volume Extractor



## Mounting Frames

### DFS (Steel), DFA (Aluminum) Drywall/Plaster Frame

The DF Series are for mounting in finished drywall or plaster ceilings to accept any standard lay-in type grille, register, diffuser or other ceiling component. Installation of the air outlet is as simple as inserting them in a standard lay-in T-Bar type ceiling system.

The DF Series simplifies and reduces installation time compared with surface mount type diffusers. This is especially true where flexible duct is utilized.

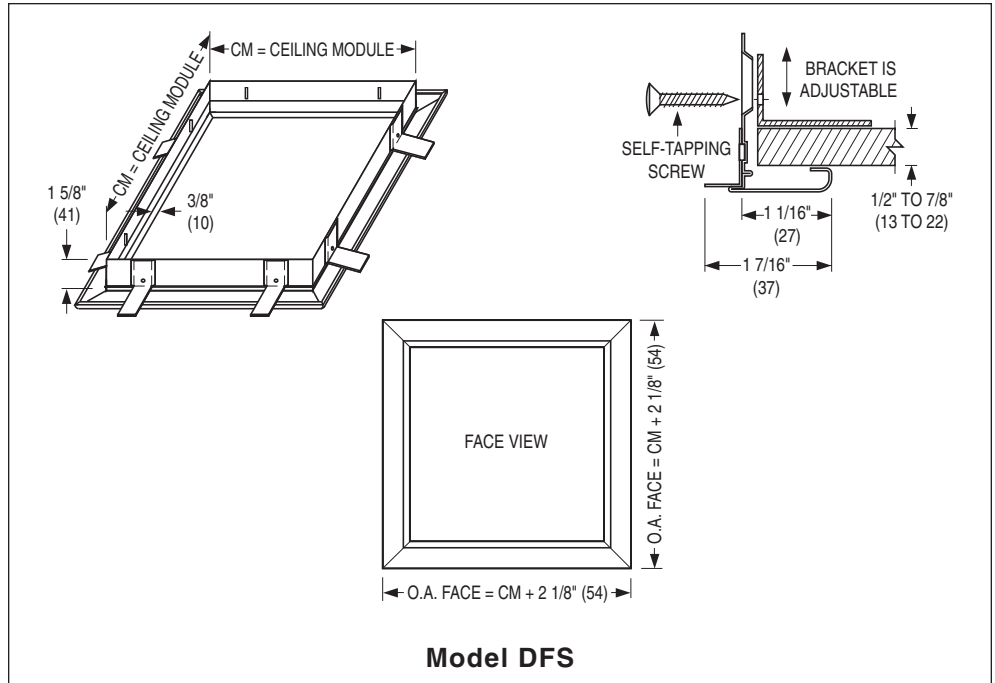
A major benefit is that the DF Series allows access to the ceiling plenum space above for maintenance purposes without the need for separate access doors. The finished appearance is professional and aesthetically pleasing.

**Standard Finish:** AW Appliance White. Other finishes are available.

**Model DFS** is installed quickly and easily using adjustable fastening angle brackets which adapt to various ceiling thicknesses. Frames are roll-formed corrosion-resistant steel with staked and mitered corners.

IMPERIAL MODULES		METRIC MODULES
Imperial Units (inches)	S.I. Units (mm)	S.I. Units (mm)
12 x 12	305 x 305	300 x 300
16 x 16	406 x 406	400 x 400
20 x 20	508 x 508	500 x 500
24 x 12	610 x 305	600 x 300
24 x 24	610 x 610	600 x 600

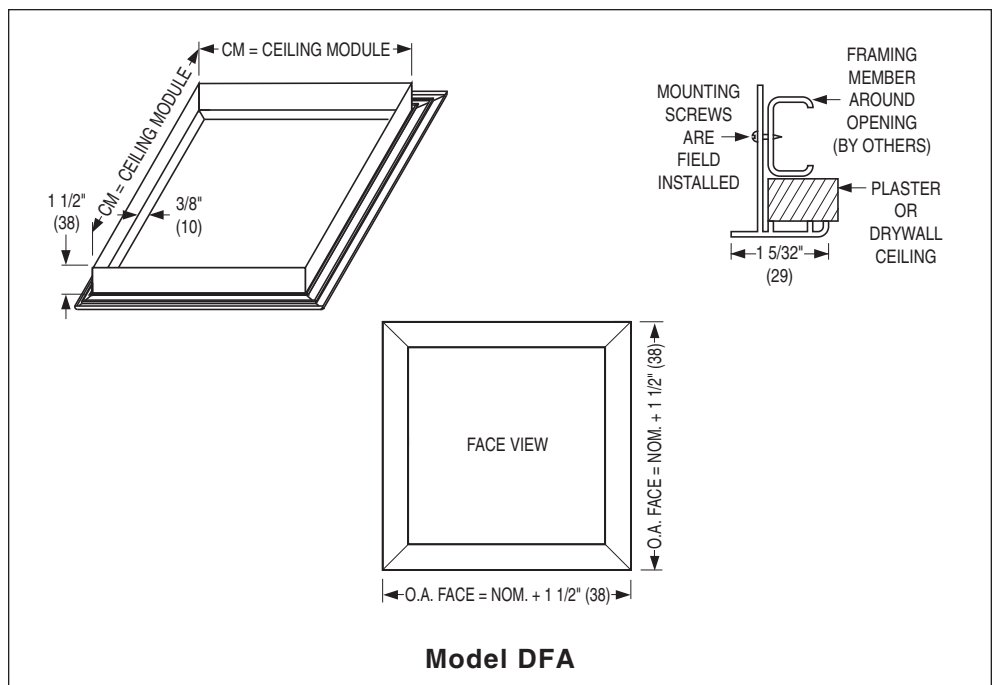
Ceiling opening = CM + 1/4" (6)



**Model DFA** requires framing of the ceiling opening with 'C' channel or wood studs for attachment with mounting screws (by others).

IMPERIAL MODULES		METRIC MODULES
Imperial Units (inches)	S.I. Units (mm)	S.I. Units (mm)
12 x 12	305 x 305	300 x 300
16 x 16	406 x 406	400 x 400
20 x 20	508 x 508	500 x 500
24 x 12	610 x 305	600 x 300
24 x 24	610 x 610	600 x 600
36 x 24	914 x 610	900 x 600
48 x 12	1219 x 305	1200 x 300
48 x 24	1219 x 1219	1200 x 600
60 x 12	1524 x 305	1500 x 300

Ceiling opening = CM + 1/4" (6)



## Options and Finishes

### OPTIONS:

#### EQT Earthquake Tabs

Earthquake (seismic) retaining safety tabs are available; factory installed on diffusers when required by local building code that units be independently restrained and safety wired to supporting structure.

#### SC Safety Chain

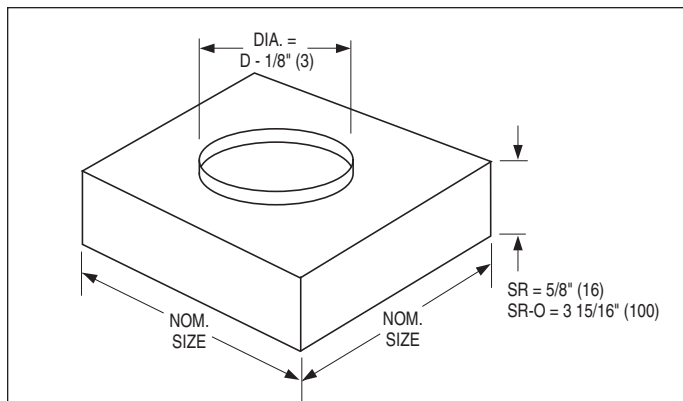
An optional safety chain is available on all of Nailor's round ceiling diffusers.

#### GK Foam Gaskets

Foam gasket is available on a selection of surface mount diffusers.

#### SR Square to Round Transition Collar

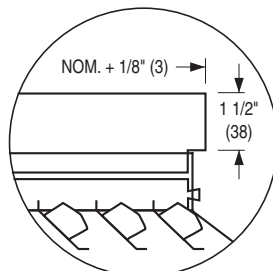
Transition collars are for use on Nailor square neck diffusers where a round duct connection is required. Round necks are sized for flexible or hard duct connection. SR's are shipped loose for field installation and are supplied with barbed S clips.



Square Neck Size (inches)	Round Neck Size D (inches)
6 x 6	4, 5, 6
8 x 8	4, 5, 6, 7, 8
9 x 9	6, 7, 8, 9
10 x 10	6, 7, 8, 9, 10
12 x 12	6, 8, 9, 10, 12
14 x 14	6, 8, 9, 10, 12, 14
15 x 15	6, 8, 10, 12, 14, 15
16 x 16	6, 8, 10, 12, 14, 15, 16
18 x 18	6, 8, 10, 12, 14, 15, 16, 18
20 x 20	6, 8, 10, 12, 14, 15, 16, 18, 20
21 x 21	6, 8, 10, 12, 14, 15, 16, 18, 20
22 x 22	6, 8, 10, 12, 14, 16, 18, 20
24 x 24	6, 8, 10, 12, 14, 15, 16, 18, 20, 24

#### ONA Offset Neck Adaptor

Fits outside duct (if a damper is required; order separately for remote mount. See Model OBDD).



### EXTERNAL FOIL BACK INSULATION

#### EX External Insulation Blanket - Factory Installed

An optional 1 1/2" thick foil back insulation is available installed on a majority of Nailor ceiling diffusers. The insulation has an R value of 4.2.

#### EXB External Insulation Blanket - Ships Loose

This insulation is the same as above but is shipped loose for field installation.

#### MIB Molded Insulation Blanket - Factory Installed

The molded insulation is available as an option on various 24" x 24" square diffusers. The insulation has an R value of 6.0.

### FINISHES:

#### AW Appliance White (standard)

A white finish that is currently the industry standard. Closely matches standard finishes supplied by the majority of T-Bar ceiling system manufacturers. (No additional cost).

#### AL Aluminum

Contains suspended metal particles to give the appearance of a silver grey metallic or anodized finish. (No additional cost).

#### BW British White

Matches most white ceiling tiles. (No additional cost)

#### BK Black

This black has a matte finish. (Additional cost)

#### BA Black Interior/Appliance White Face

Optional on perforated diffusers. AW Appliance White is applied on the perforated face and BK Black is applied on the interior of the backpan for a discreet appearance. (No additional cost)

#### SP Special

The Nailor range of diffusers are available in any color for special architectural consideration. Custom colors are individually mixed to match customer supplied samples. (Additional cost)

### ALSO AVAILABLE:

#### MI Mill Finish

(No additional cost).

#### PPA Paint Prepared Aluminum (Washed only)

Aluminum models only. (No additional cost).

#### PC Prime Coat Paint

(Additional cost).

**Air Balancing Devices**

**Radial Opposed Blade Damper**

A unique method of controlling volume through a diffuser providing premium design quality and performance. The multi-blade perimeter design offers true radial flow at any setting.

A screwdriver slot, accessible through the diffuser, requires only a half turn to adjust from fully closed to fully open. The damper is designed to fit directly on the neck of the diffuser. Simple, convenient and accurate installation and operation.

Available with an optional operator arm. **Model 4275-OA** allows damper adjustment on the **UNI Diffusers** without removing the inner cone assembly.

**Model 4275**

	Nominal size (inches)							Nominal Size (mm)								
	5	6	8	10	12	14	15	16	127	152	203	254	305	356	381	406
<b>A</b>	4 7/8	5 7/8	7 7/8	9 7/8	11 7/8	13 7/8	14 7/8	15 7/8	124	149	200	251	302	352	378	403
<b>B</b>	1 1/8	1 5/8	2 1/2	2 1/4	2 7/8	3 3/8	3 3/4	4 3/8	29	41	64	57	73	86	95	111
<b>C</b>	1 5/8			2 1/2				41				64				

**D**

**CEILING DIFFUSERS**

**Radial Sliding Blade Damper**

The **Model 4250** is a neck mounted radial sliding blade damper used in round neck diffuser applications to provide fine volume control. Gang operated radial blades slide at right angles to the duct with minimal protrusion above the diffuser neck; allowing the damper to work effectively in flexible duct applications.

Available in sizes 6", 8", 10", 12" and 14" (152, 203, 254, 305 and 356).

**Model 4250**

**Butterfly Damper**

The **Model 4675 Butterfly Damper** is an economical damper for volume balancing in round neck diffusers. Adjustable friction pivots hold the blades at the required setting. Adjusted from the face of the diffuser.

Not recommended for use with flexible duct.

**Model 4675**

	Nominal Size (inches)					Nominal size (mm)				
	6	8	10	12	14	152	203	254	305	356
<b>A</b>	5 7/8	7 7/8	9 7/8	11 7/8	13 7/8	149	200	251	302	352
<b>B</b>	2 1/2	3 1/2	4 1/2	5 1/2	6 1/2	64	89	114	140	165

**Air Balancing Devices**

**OPPOSED BLADE DAMPERS**

**Nailor** Opposed Blade Dampers feature heavy gauge, roll-formed, corrosion-resistant steel or extruded aluminum blades and frame with miscellaneous steel components. Mill finish.

The gang operated multi-blade design with blades closing at 45 degrees permits fine volume control for accurate balancing with minimum disturbance to the airflow pattern. Blades are individually pivoted on 1" (25) centers.

**DIFFUSER MOUNT MODELS:**

**OBD Steel**

**OBD-A Aluminum**

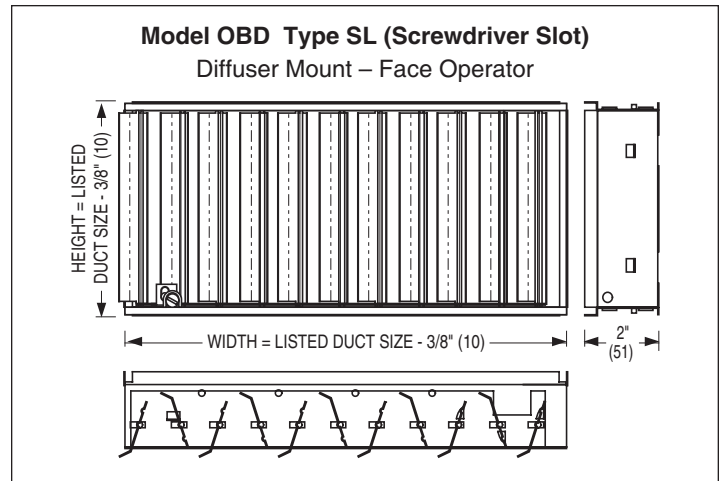
This style of damper mounts directly on the neck and are sized to suit most **Nailor** diffusers. Uses steel barbed S-clips for easy field mounting or removal when ordered separately. Supplied as standard with a screwdriver slot operator (Type SL).

Can be specified as an integral part of the diffuser model by adding a - O (steel) or - OA (aluminum) suffix to the diffuser model.

Available with Type DL Lever Operator for use with 6200, 6400 and 6500 Series Pattern Diffusers and 6600 Series Plaque Diffusers. Permits balancing without removing the diffuser inner core assembly.

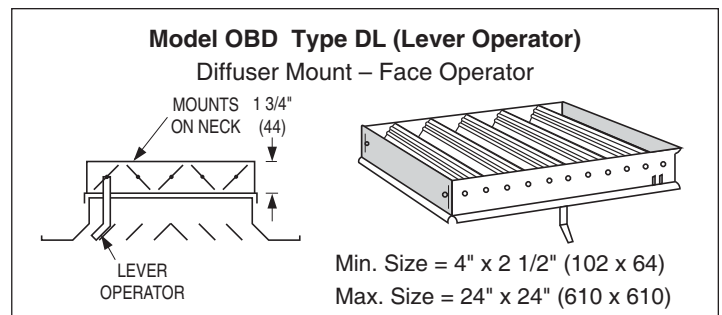
**Type SL Operator**

The SL Operator incorporates a screwdriver slot, which adjusts from the face of the diffuser. This operator is the standard supplied when ordered separately.



**Type DL Operator**

The DL Operator incorporates a lever that adjusts without the use of tools. The lever operator extends through the diffuser face.



**CEILING DIFFUSERS**

## Air Balancing Devices

### DUCT MOUNT MODELS:

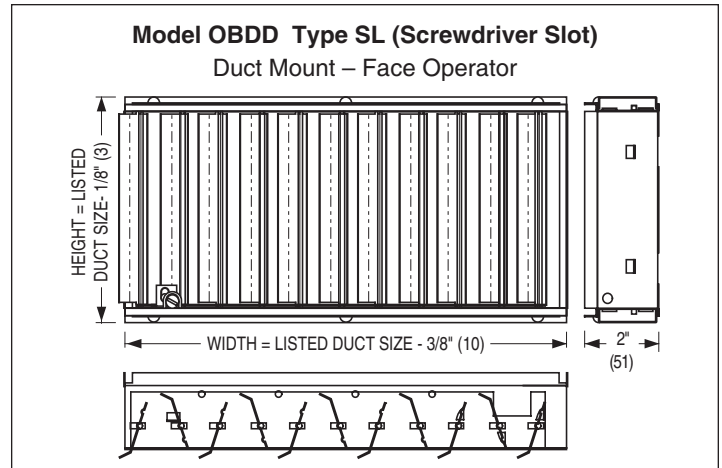
**OBDD Steel**

**OBDD-A Aluminum**

Designed to be field mounted independently in the duct, separate from and behind the diffuser. They are sized to suit and offer a friction fit in nominally sized ducts. They are secured with 1/2" (13) long sheet metal screws (by others) through the double walled sub-frame. Min. Size = 4" x 2 1/2" (102 x 64). Max. Size = 24" x 24" (610 x 610).

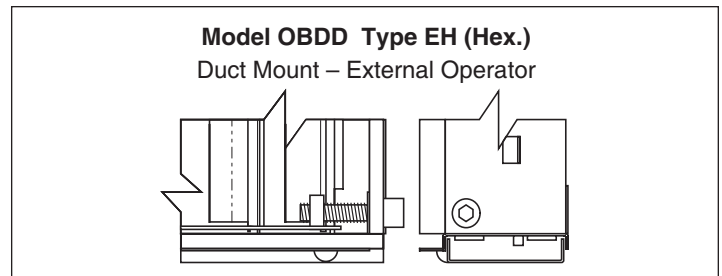
### Type SL Operator

These models are supplied with a screwdriver slot face operator that is accessed from inside the duct by removing the diffuser.



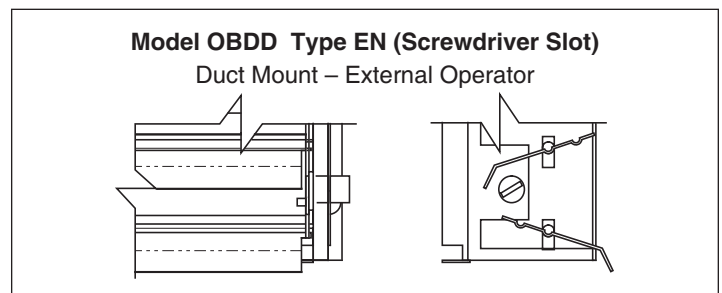
### Type EH Operator

These duct mount models feature an external 3/16" (5) hex operator accessible from outside the duct; from the side of the duct when blades run vertically and from underneath the duct when blades run horizontally.



### Type EN Operator

These duct mount models feature an external glass-filled nylon screwdriver slot operator accessible from outside the duct; from underneath the duct when blades run vertically, and from the side of the duct when blades run horizontally.



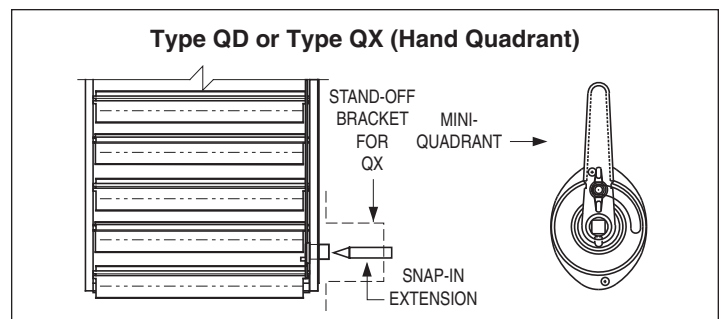
### Type QD Operator \*

A snap-in shaft extension with 'mini' hand locking quadrant is available as an optional accessory.

### Type QX Operator \*

A snap-in shaft extension with 'mini' hand locking quadrant and 2" (51) stand-off bracket for externally insulated ducts. Order damper with blades parallel to horizontal duct dimension to ensure quadrant is located on vertical side of the duct.

\*Not available on Model OBDD-A

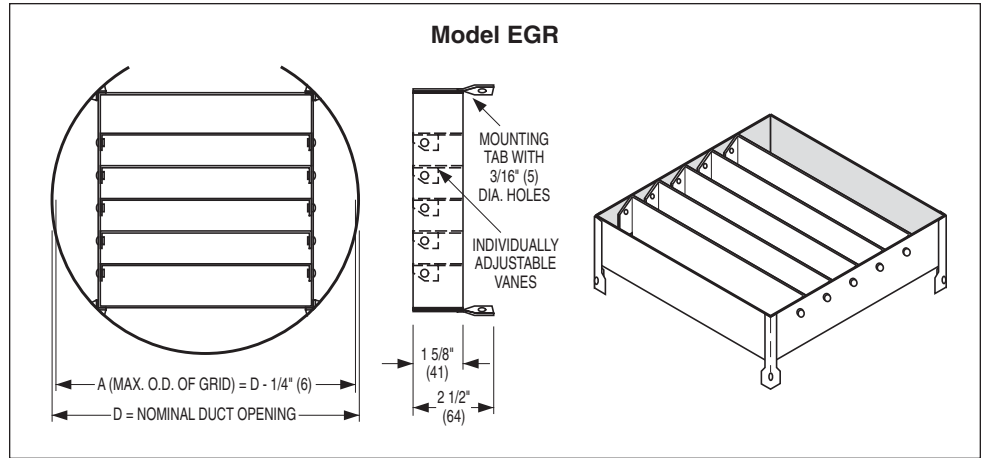


**Air Balancing and Directional Control Devices**

**Equalizing Grid for Round Necks**

The **Model EGR** is a duct mounted grid that equalizes the airflow into the branch duct or diffuser neck and provides directional control. They are shipped loose for field installation. The individually adjusted vanes are friction pivoted to hold the desired setting.

Recommended method of installation is flush with the take-off collar and with the vanes perpendicular to the direction of the approaching airflow.

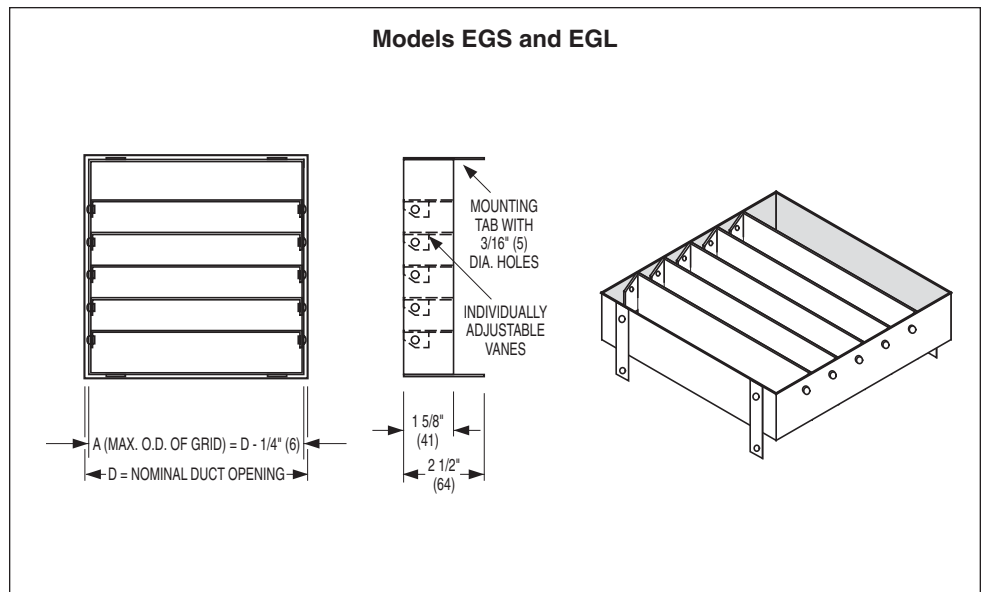


**Equalizing Grid for Square and Rectangular Necks**

The **Models EGS and EGL** are duct mounted grids that equalize the airflow into the branch duct or diffuser neck and provide directional control. They are shipped loose for field installation. The individually adjusted vanes are friction pivoted to hold the desired setting.

Recommended method of installation is flush with the take-off collar and with the vanes perpendicular to the direction of the approaching airflow.

The suffix 'S' or 'L' indicates blades are parallel to the short or long dimension.



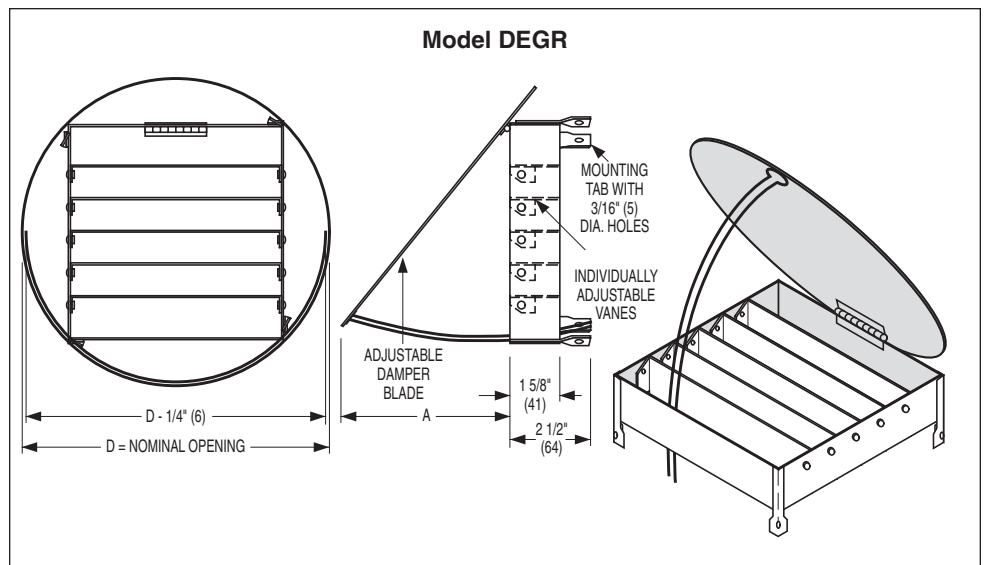
**Damper with Equalizing Grid for Round Necks**

The **Model DEGR** is a duct mounted combination damper with equalizing grid.

It performs as a volume extractor with dampering to near shut-off as well as equalizing the airflow into the branch duct or diffuser neck and providing directional control.

The individual adjustable vanes are friction pivoted to hold the desired setting.

Damper blade may be adjusted to any angle and locked in position with adjusting wires under screw heads.



**Air Balancing and Directional Control Devices**

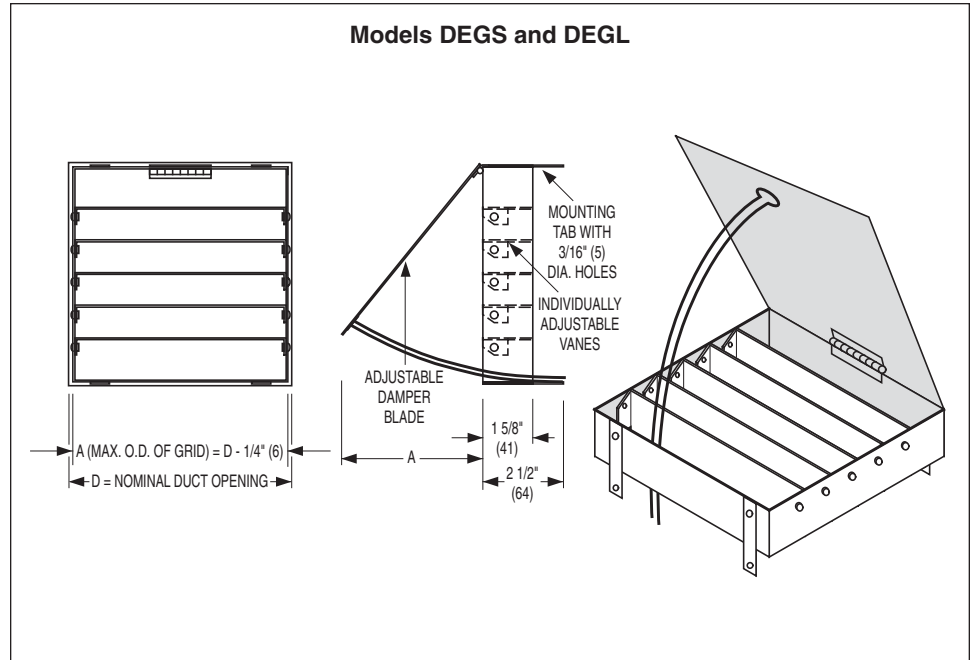
**Damper with Equalizing Grid for Square and Rectangular Necks**

The **Models DEGS** and **DEGL** are duct mounted combination dampers with equalizing grids. They perform as a volume extractor with dampering to near shut-off as well as equalizing the airflow into the branch duct or diffuser neck and providing directional control.

The individual adjustable vanes are friction pivoted to hold the desired setting.

Damper blade may be adjusted to any angle and locked in position with adjusting wires under screw heads.

The suffix 'S' or 'L' indicates blades are parallel to the short or long dimension.



**D**  
**CEILING DIFFUSERS**

## Volume Extractors

### MODEL SERIES

**EX** Blades on 2" centers

**EXD** Blades on 1" centers

The **Model Series EX Volume Extractors** uniformly divert air from the main duct into the branch take-off and across the face of a grille or diffuser. Gang-operated parallel blades available on 2" (51) or 1" (25) centers pivot from full open to full closed with blades overlapping for shut-off. The curved blade design improves airflow by reducing turbulence, thereby reducing noise and pressure drop.

Specify or order: Length x Width. (Length is first dimension. Blades are parallel to width, second dimension).

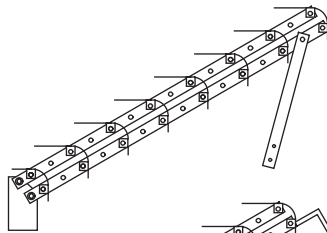
### FEATURES:

- Material: Galvanized steel.
- Minimum size: 6" x 4" (152 x 102).
- Maximum size: 36" x 36" (914 x 914).

### Operator Types

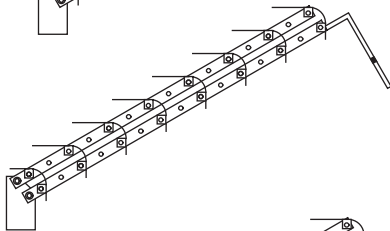
#### EX/EXD-1

Standard unit with adjusting strap.



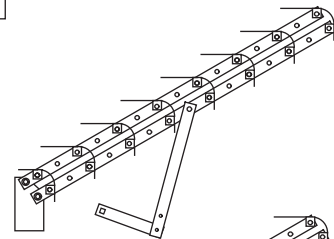
#### EX/EXD-1-R

Rod operator for external operation.



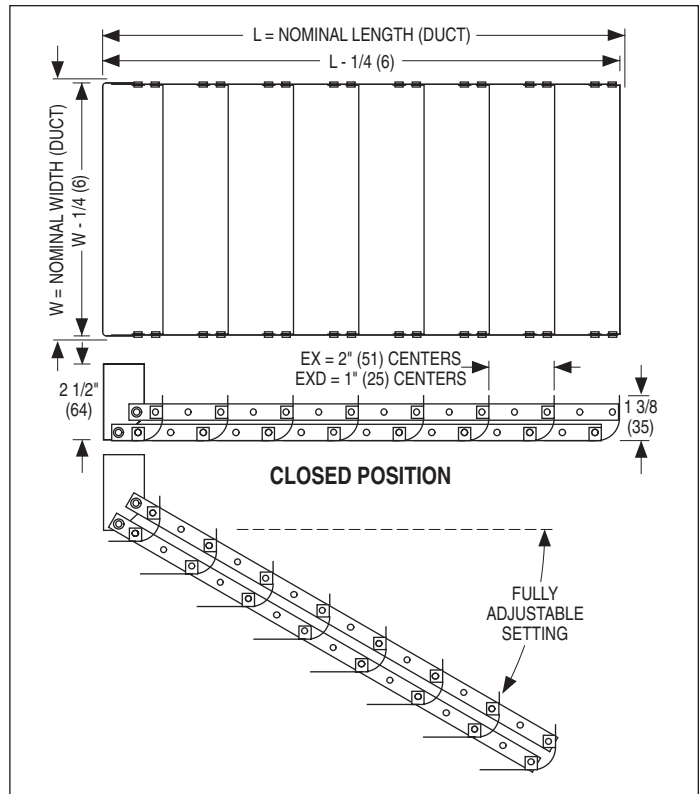
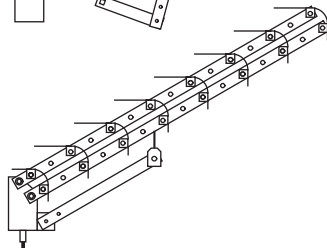
#### EX/EXD-2

Linkage with 7/16" (11) square hole (2 per unit). Remote operator (eg. Young Regulator #1) by others.



#### EX/EXD-3

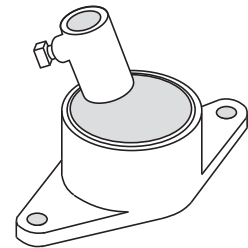
Screw gear operator. Adjusts with 3/16" (5) wrench (by others).



### Optional Accessories

#### RLD

Locking device for Models **EX/EXD-1-R**.

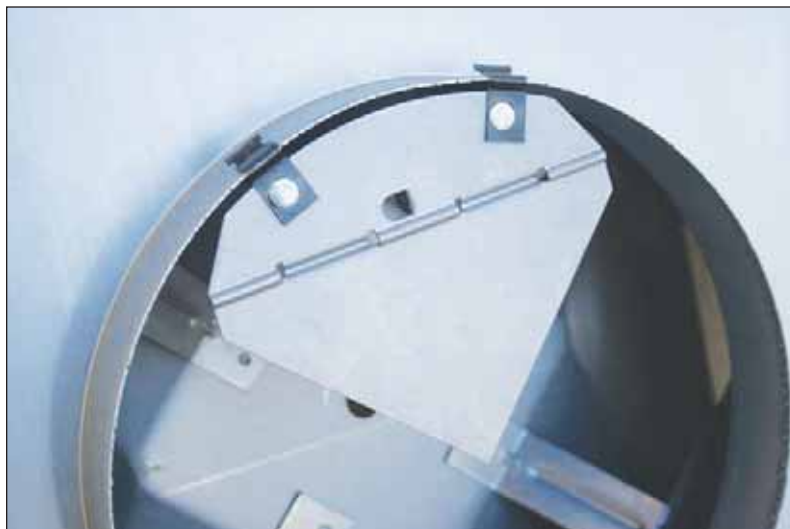




**Quadrant Blanks for Models RNS3 and ARNS3 Round Neck Diffusers**

**D**

**CEILING DIFFUSERS**



**Quadrant Blanks**  
4293 QB for Models RNS3,  
ARNS3 Round Neck Diffusers

- QB3 3-Way Blow
- QB2 2-Way Blow
- QC2 2-Way Corner Blow
- QB1 1-Way Blow

**Model/Accessory: 4293/QB**

Model 4293 Quadrant Blanks are designed specifically for use with the RNS3 Series Square Ceiling Diffusers. The Quadrant Blanks are constructed of steel with S-Clip brackets attached to the pie-shaped piece for insertion onto the diffuser neck collar in order to provide 1, 2, or 3-way discharge as required. Quadrant Blanks are available for all neck sizes, (to blank-off areas greater than 90° [3-way blow], multiple quantities must be ordered. 2-way blow requires a quantity of two and 1-way blow requires a quantity of three, per diffuser. Quadrant Blanks are shipped loose from the factory for trouble-free installation in the field [by others]).

**\*\*Nailor recommends that ALL Quadrant Blanks are affixed prior to installation of the diffuser\*\***

**Required Items**

1. Protective eyewear or safety glasses
2. Pair of work gloves

**Installation Instructions**

1. The steel, pie-shaped Quadrant Blanks with S-Clips are shipped loose from the factory and shall be installed in the field (by others).
2. Prior to installation, properly position the QB in the neck of the diffuser for desired directional blow. The round edge of the QB shall face the outside of the inlet, while the knife edge shall face the center of the inlet.
3. The S-Clips connected to the QB shall be securely pressed onto the neck of the diffuser. Once in place, the Quadrant Blank shall be held horizontally in place at the desired location.
4. For additional Quadrant Blank installation, please repeat steps 1 – 3.

**Quadrant Blanks for Model Series RNS and RNSA Round Neck Diffusers**



**Model/Accessory: 4295/QB**

Model 4295 Quadrant Blanks are designed specifically for use with the RNS Series Stamped Square Ceiling Diffusers. The Quadrant Blanks are constructed of steel, featuring a pie-shaped piece with a hinge pin that is pre-installed through pre-set holes for insertion into the riveted neck bracketry located in the diffuser, providing 1, 2, or 3-way discharge as required. Quadrant Blanks are available in all neck sizes, (to blank-off areas greater than 90° [3-way blow], multiple quantities must be ordered. 2-way blow requires a quantity of two and 1-way blow requires a quantity of three, per diffuser. Quadrant Blanks are shipped loose from the factory for trouble-free installation in the field [by others]).

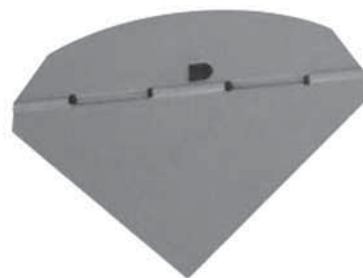
**\*\*Nailor recommends that ALL Quadrant Blanks are affixed prior to installation of the diffuser\*\***

**Required Items**

1. Protective eyewear or safety glasses
2. Pair of work gloves

**Installation Instructions**

1. The steel, pie-shaped Quadrant Blank is shipped loose with a hinge pin pre-installed through pre-set holes, to provide trouble-free installation, in the field (by others).
2. Prior to installation, properly position the QB around the neck of the diffuser for desired directional blow. The elevated eyehole located above the hinged pin on the quadrant blank, shall be facing in the upright position before the piece is installed in the diffuser. The round edge of the QB shall face the outside of the inlet collar, while the knife edge shall face the center of the inlet.
3. The hinge pins on the QB shall slide securely into the pre-set holes of the riveted neck bracketry located in the diffuser inlet collar. Once in place, the knife edge of the QB shall rest on top of the concealed neck bracketry.
4. For additional Quadrant Blank installation, repeat steps 1 – 3.



**Quadrant Blanks**

4295 QB for Models RNS, ARNS, RNS2, RNSA1, RNSA2, ARNSA Round Neck Diffusers

- QB3 3-Way Blow
- QB2 2-Way Blow
- QC2 2-Way Corner Blow
- QB1 1-Way Blow