

## FIRE RATED DUCTLESS RETURN FILTER GRILLES

Model Series 4100 Ductless Return Air Filter Grilles have been designed to compliment the Nailor range of fire rated supply diffusers. These grilles are manufactured to accommodate a throw away filter by others. The grilles have been tested and classified for use without the requirement of duct work or supplementary support, they simply lay in place. The filter grilles are available in two styles, a louvered face or an eggcrate face.

### Louvered Face –

Models 4121, 4122, 4123

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### Eggcrate Face –

Models 4124, 4125, 4126

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Model 4123



Model 4129

## FIRE RATED DUCTLESS RETURN CEILING DAMPERS FOR OPTIONAL GRILLE

A unique Nailor product that features a raised ceiling radiation damper mounted on an extended support frame above the ceiling line. It will accommodate any type of return air grille, filter grille or register manufactured from steel or aluminum. This allows the design engineer greater flexibility.

### Optional Grilles –

Models 4127, 4128, 4129

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## FIRE RATED OPEN FACE PLENUM DIFFUSERS

Nailor 5200 Series Fire Rated Plenums are designed for lay-in T-Bar. They can accommodate steel or aluminum grilles, registers or linear type slot diffusers and bar grilles. A turned in leg design is available to suit lay-in type cores and a hemmed leg design is available to accommodate concealed mounting angles.

### Turned In Leg –

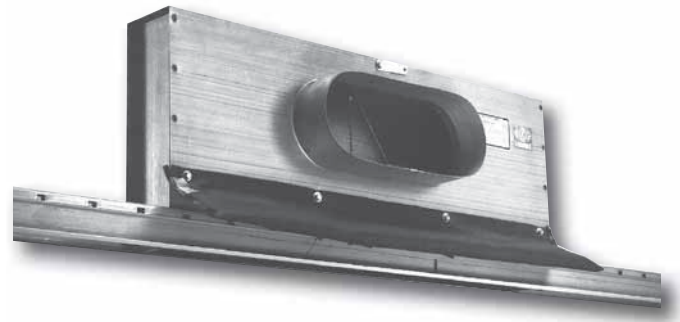
Model 5200 Type L

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### Hemmed Leg –

Model 5200 Type S

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Model 5200

## FIRE RATED PLENUM SLOT DIFFUSERS

Nailor 5500 Series Plenum Slot Diffusers are designed for lay-in T-Bar. They are available for supply and return air. The supply air models feature pattern controllers that are available in three performance styles, four slot widths, and up to four parallel slots. The return models are designed to match the look of the supply air models.

### 'Wiper Blade' Pattern Controller –

Models 5550WB, 5575WB, 5510WB, 5515WB

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### 'Ice Tong' Pattern Controller –

Models 5550T, 5575T, 5510T

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### 'Flip Flop' Pattern Controller –

Model 5575

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### Return Air –

Models 5550R, 5575R, 5510R, 5515R

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Models 5575, 5575R

## FIRE RATED DUCTLESS RETURN FILTER GRILLES

- RAISED TYPE
- VOLUME CONTROL OPTION
- 3 HOUR RATING
- LAY-IN



CATEGORY  
BZZU



CATEGORY  
CABS & CABS7



Model 4123

### Models:

#### Louvered Face:

4121, 4122, 4123

#### Eggcrate Face:

4124, 4125, 4126

Model Series 4100 are UL Classified Fire Rated Ceiling Diffuser assemblies listed in Underwriters Laboratories Fire Resistance Directory under categories "Ceiling Diffusers", "Ceiling Dampers" and "Ceiling Fire Stop Flaps Assemblies Certified for Canada". This design meets UL time-vs-temperature test criteria and NFPA 90A requirements.

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

These models have been designed to compliment the Nailor range of fire rated supply diffusers. Successfully tested and classified for use without the requirement of duct work or supplementary support, they simply lay in place. They enable the ceiling plenum to be utilized as a ductless return air system and so provide an extremely economical means of fire protection in return air applications.

### STANDARD FEATURES:

- Tested in accordance with ANSI/UL Standard 263, "Fire Tests of Building Construction and Materials", UL Standard 555C "Ceiling Dampers" and ULC S112.2 "Fire Stop Flap Assemblies".
- Available in both popular louvered face and eggcrate face styles.
- Filter grille frames are constructed of corrosion-resistant steel and feature a hinged core secured by 1/4 turn fasteners. 1" (25) filter by others.
- Louvered face models feature fixed 45° deflection blades on 3/4" (19) centers.
- Eggcrate models feature a 1/2 x 1/2 x 1/2 (13 x 13 x 13) aluminum grid core.
- 212°F (100°C) fusible link is standard (165°F [74°C] is optional).
- All models must be installed in accordance with installation instructions for UL/ULC Classification.
- The fixed ceiling radiation damper is standard. An adjustable version for balancing is optional (see page E48).

### CONSTRUCTION MATERIAL:

- Galvanized steel frame and blades. Non-asbestos UL Classified insulation.

### FINISH OPTIONS:

- AW Appliance White finish is standard to match supply models.
- Other finishes are available.

### PERFORMANCE DATA:

- See non-fire rated models. Louvered Face Model 61FB45. Eggcrate Model 61FE.

### Available Sizes and Dimensional Data

Model No.	Filter Grille	Ceiling Module		Opened Height A	1" (25) Filter Size
		Imperial (inches)	Metric (mm)		
4121	Louvered Face	12 x 12	300 x 300	10 (254)	8 x 8 (203 x 203)
4122		24 x 12	600 x 300	10 (254)	20 x 8 (508 x 203)
4123		24 x 24	600 x 600	16 (406)	20 x 20 (508 x 508)
4124	Eggcrate Face	12 x 12	300 x 300	10 (254)	8 x 8 (203 x 203)
4125		24 x 12	600 x 300	10 (254)	20 x 8 (508 x 203)
4126		24 x 24	600 x 600	16 (406)	20 x 20 (508 x 508)

Dimensions are in inches (mm).

## DIMENSIONAL DATA:

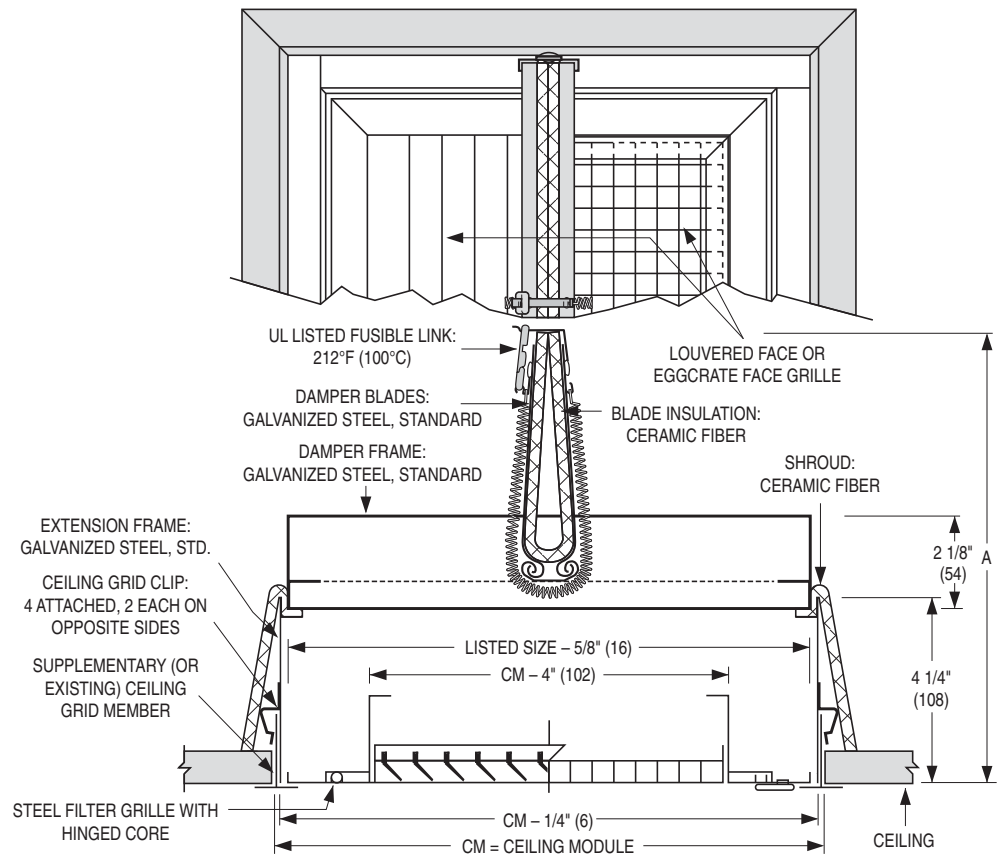
### MODELS 4121 TO 4126 • LOUVERED OR EGGCRATE FACE

#### Louvered Grille Models:

4121, 4122, 4123

#### Eggcrate Grille Models:

4124, 4125, 4126



### MODELS 4121 TO 4126 • LOUVERED OR EGGCRATE FACE • WITH AV OPTION

#### Louvered Grille Models with Adjustable Volume Control:

4121 AV, 4122 AV, 4123 AV

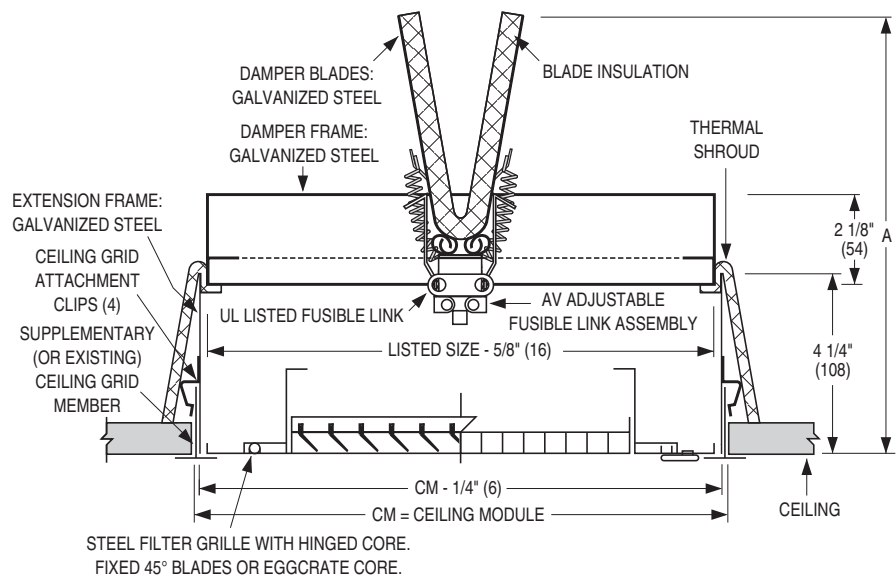
#### Eggcrate Grille Models with Adjustable Volume Control:

4124 AV, 4125 AV, 4126 AV

#### AV Adjustable Volume Control Option.

This UL Listed option allows the damper to be used as a balancing damper for volume control.

The blades are adjusted with a 3/16" (5) hex key (by others) and perform like a butterfly damper.



## HOW TO ORDER OR TO SPECIFY

### FIRE RATED DUCTLESS RETURN FILTER GRILLES

#### MODELS 4121, 4122, 4123, 4124, 4125, 4126

EXAMPLE: 4121 - 12" x 12" - AW - 212 - AV

1. **Models**

- 4121 12" x 12" or 300 mm x 300 mm, Louvered Face
- 4122 24" x 12" or 600 mm x 300 mm, Louvered Face
- 4123 24" x 24" or 600 mm x 600 mm, Louvered Face
- 4124 12" x 12" or 300 mm x 300 mm, Eggcrate Face
- 4125 24" x 12" or 600 mm x 300 mm, Eggcrate Face
- 4126 24" x 24" or 600 mm x 600 mm, Eggcrate Face

2. **Ceiling Module Size**

**Imperial**

- 12" x 12"
- 24" x 12"
- 24" x 24"

**Metric**

- 300 mm x 300 mm
- 600 mm x 300 mm
- 600 mm x 600 mm

3. **Finish**

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

4. **Fusible Link Temperature**

- 212 212°F (100°C) (default)
- 165 165°F (74°C)

5. **Volume Control**

- None (default)
- AV Adjustable Volume Control

**Note:**

- 1. Consult individual model as to limitations of module sizes.

**SUGGESTED SPECIFICATION:**

Furnish and install **Nailor Model** (select one or more) **4121, 4122, 4123 (Louvered Face)** or **4124, 4125, 4126 (Eggcrate Face)** **Fire Rated Ductless Return Filter Grilles** of the sizes and capacities as shown on the plans and air distribution schedules. Grilles shall include a raised type factory mounted ceiling damper and thermal shroud. Filter grilles shall be constructed of corrosion-resistant steel and feature a hinged core secured by 1/4 turn fasteners. The grilles shall be tested and classified for use without the requirement of duct work or supplementary support and enable the ceiling plenum to be utilized as a ductless return air system. (Optional: ceiling damper shall be supplied with AV adjustable volume control option for field balancing). The finish shall be AW Appliance White to match supply models (optional finishes are available). Diffusers shall be UL/ULC Classified fire rated ceiling diffuser assemblies as listed in the UL/ULC Fire Resistance (Certifications) Directory. Diffusers shall be tested in accordance with UL Standard 263 (field assembled diffusers with ceiling dampers tested to UL Standard 555C are not acceptable) and meet all of the requirements of NFPA 90A. Diffusers shall be classified for use in restrained or unrestrained floor/ceiling and or roof/ceiling assemblies which incorporate an exposed grid suspended ceiling with up to a 3 hour rating.

## FIRE RATED DUCTLESS RETURN CEILING DAMPERS

- FOR OPTIONAL GRILLE (BY NAILOR OR OTHERS)
- RAISED TYPE
- 3 HOUR RATING
- LAY-IN

### Models:

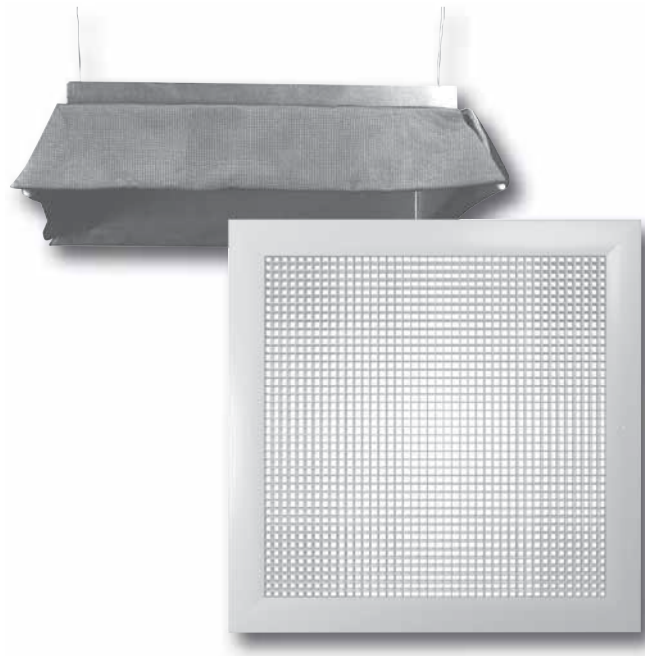
4127, 4128, 4129



CATEGORY  
BZZU



CATEGORY  
CABS & CABS7



Model 4129 [\*Grille Ordered Separately]

Model Series 4100 are UL/ULC Classified Fire Rated Ceiling Diffuser Assemblies listed in Underwriters Laboratories Fire Resistance Directory under categories "Ceiling Diffusers", "Ceiling Dampers" and "Ceiling Fire Stop Flaps Assemblies Certified for Canada". This design meets UL time-vs-temperature test criteria and NFPA 90A requirements.

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

This unique Nailor product features a raised ceiling radiation damper mounted on an extended support frame above the ceiling line. The integrity of the ceiling membrane protection is maintained by the addition of a peripheral, thermally retardant, shroud. The fire rated protected cavity allows the design engineer great flexibility. As the fire protection and integrity are supplied solely by the damper assembly, any type of return air grille, filter grille or register of steel or aluminum construction may be selected and installed in the fire rated ceiling. One such example is when a return air register with opposed blade damper is required.

### STANDARD FEATURES:

- Tested in accordance with ANSI/UL Standard 263, "Fire Tests of Building Construction and Materials", UL Standard 555C "Ceiling Dampers" and ULC S112.2 "Fire Stop Flap Assemblies".
- 212°F (100°C) fusible link is standard (165°F [74°C] is optional).
- Permits selection of any Nailor 6100 Series steel or 5100 Series aluminum return grille, which is manufactured to suit.

- All models must be installed in accordance with installation instructions for UL/ULC Classification.
- AV Adjustable Volume Control. Permits field balancing. The ceiling damper blades are adjusted with a hex key and perform like a butterfly damper. This option would be specified when the selected return grille has no damper and volume control is still desired (see page E51).

### CONSTRUCTION MATERIAL:

- Galvanized steel frame and blades. Non-asbestos UL Classified insulation.

### PERFORMANCE DATA:

- Refer to relevant performance tables in catalog for grille or register selected.

### Available Sizes and Dimensional Data

Model No.	Ceiling Module		Opened Height A	1" (25) Filter Size
	Imperial (inches)	Metric (mm)		
4127	12 x 12	300 x 300	10 (254)	8 x 8 (203 x 203)
4128	24 x 12	600 x 300	10 (254)	20 x 8 (508 x 203)
4129	24 x 24	600 x 600	16 (406)	20 x 20 (508 x 508)

Dimensions are in inches (mm).

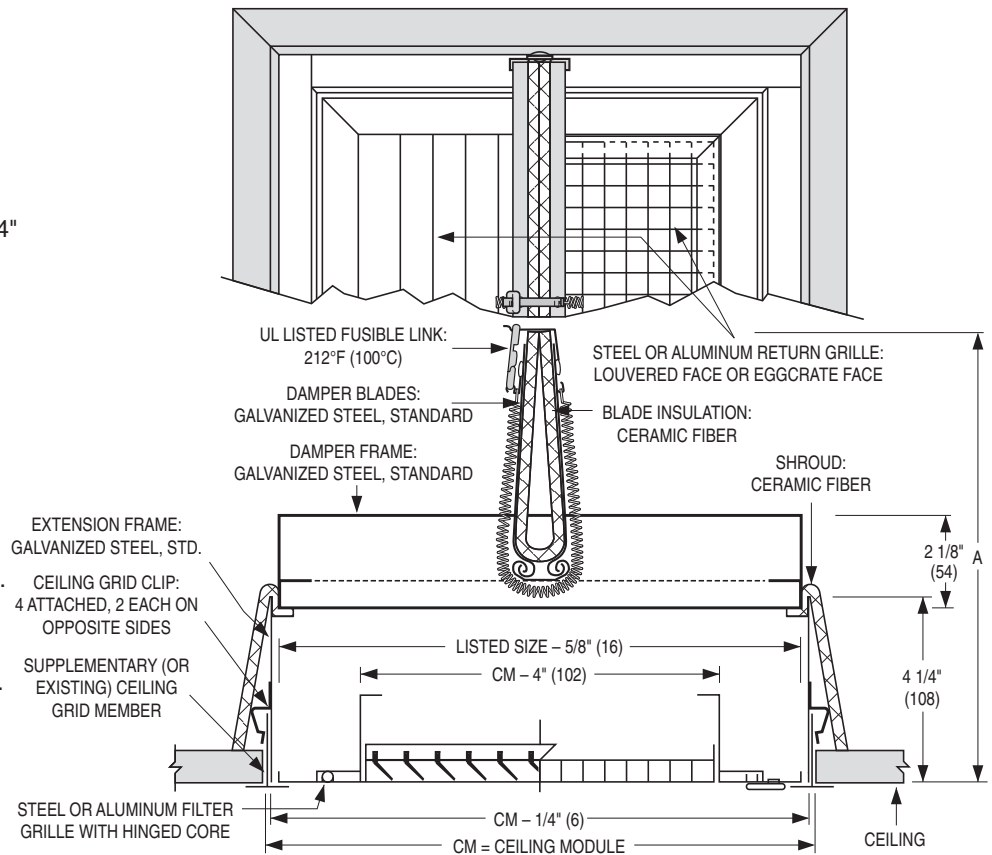
## DIMENSIONAL DATA:

### MODELS 4127, 4128 AND 4129

#### Some Commonly Selected Grille and Register Options:

- **61EC (-O) Type L**  
Steel Return Air Eggcrate Grille (Register).
- **6145H (-O)**  
Steel Return Air Grille (Register). Fixed 45° Deflection blades on 3/4" (19) centers.
- **5145H (-O)**  
Aluminum Return Air Grille (Register). Fixed 45° Deflection blades on 3/4" (19) centers.
- **7145H (-O)**  
Premium Airfoil Blade Aluminum Return Air Grille (Register).
- **61FP**  
Steel Perforated Face Filter Grille.

**Note:** Maximum grille depth capacity for this model is 4" (102).

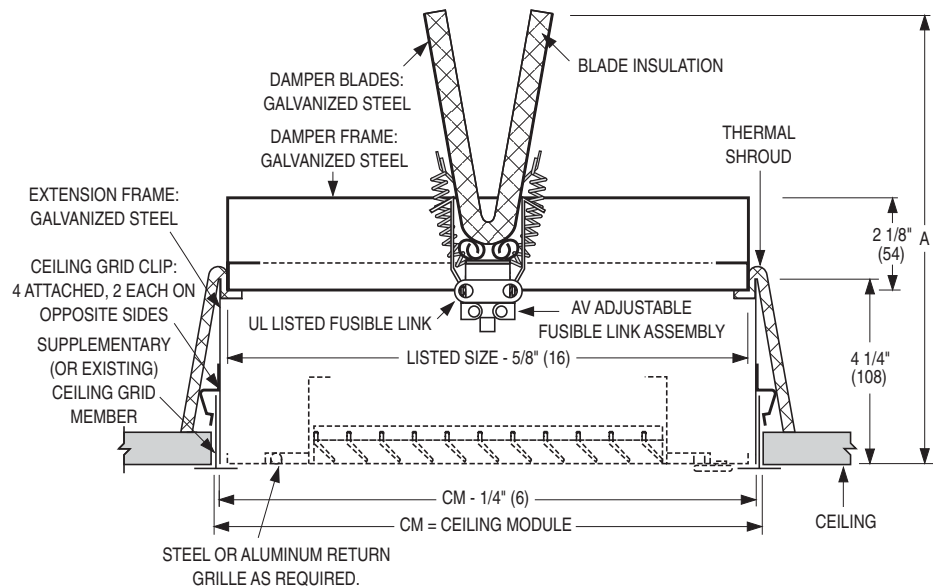


### MODELS 4127, 4128 AND 4129 • WITH AV OPTION

#### Some Commonly Selected Grille Options:

- **6145H**  
Steel Return Air Grille. Fixed 45° Deflection blades on 3/4" (19) centers.
- **5145H**  
Aluminum Return Air Grille. Fixed 45° Deflection blades on 3/4" (19) centers.
- **61FP**  
Steel Perforated Face Filter Grille.

**Note:** Maximum grille depth capacity for this model is 2 1/4" (57).



## HOW TO ORDER OR TO SPECIFY

### FIRE RATED DUCTLESS RETURN CEILING DAMPERS

#### MODELS 4127, 4128, 4129

EXAMPLE: 4127 - 12" x 12" - 212 - AV

1. **Models**

- 4127 12" x 12" or 300 mm x 300 mm
- 4128 24" x 12" or 600 mm x 300 mm
- 4129 24" x 24" or 600 mm x 600 mm

2. **Ceiling Module Size**

**Imperial**

- 1212 12" x 12"
- 2412 24" x 12"
- 2424 24" x 24"

**Metric**

- 3030 300 mm x 300 mm
- 6030 600 mm x 300 mm
- 6060 600 mm x 600 mm

3. **Fusible Link Temperature**

- 212 212°F (100°C) (default)
- 165 165°F (74°C)

4. **Volume Control**

- None (default)
- AV Adjustable Volume Control

FIRE RATED PRODUCTS

**SUGGESTED SPECIFICATION:**

Furnish and install **Nailor Model** (select one or more) **4127, 4128, 4129 Fire Rated Ductless Return Ceiling Dampers (Open Face for compatible aluminum or steel grille by Nailor)** of the sizes and capacities as shown on the plans and air distribution schedules. Dampers shall include a raised type factory mounted ceiling damper and thermal shroud. The dampers shall be successfully tested and classified for use without the requirement of ductwork or supplementary support and enable the ceiling plenum to be utilized as a ductless return air system. (Optional: ceiling damper shall be supplied with AV adjustable volume control option for field balancing). Diffusers shall be UL/ULC Classified fire rated ceiling diffuser assemblies as listed in the UL/ULC Fire Resistance (Certifications) Directory. Diffusers shall be tested in accordance with UL Standard 263 (field assembled diffusers with ceiling dampers tested to UL Standard 555C are not acceptable) and meet all of the requirements of NFPA 90A. Diffusers shall be classified for use in restrained or unrestrained floor/ceiling and or roof/ceiling assemblies which incorporate an exposed grid suspended ceiling with up to a 3 hour rating.

## PERFORMANCE DATA:

### FIXED BLADE RETURN GRILLES AND REGISTERS • 5100, 6100 AND 6700 SERIES

#### MODELS: 5145H, 6145H, 6745H, 5145V, 6145V, 6745V, 51FB45, 61FB45, 67FB45

Listed Duct Size (inches)	Alternate Sizes (inches)	Core Area (sq. ft.)	Ak Factor	Core Velocity Velocity Pressure Neg. Static Pressure	100	200	300	400	500	600	700	800	900	1000
					.001 .003	.002 .014	.006 .031	.010 .055	.016 .086	.022 .124	.031 .168	.040 .220	.050 .278	.062 .344
6 x 6	8 x 4 10 x 4	0.20	0.23	CFM Noise Criteria	20 -	40 -	60 -	80 -	100 -	120 19	140 24	160 28	180 32	200 36
8 x 6	10 x 5 12 x 4	0.28	0.30	CFM Noise Criteria	28 -	56 -	84 -	112 -	140 15	168 20	196 25	224 29	252 33	280 37
10 x 6	12 x 5 16 x 4	0.35	0.37	CFM Noise Criteria	35 -	70 -	105 -	140 -	175 16	210 21	245 26	280 30	315 34	350 38
8 x 8	14 x 5	0.38	0.40	CFM Noise Criteria	38 -	76 -	114 -	152 -	190 17	228 22	266 27	304 31	342 35	380 39
12 x 6	18 x 4	0.42	0.45	CFM Noise Criteria	42 -	84 -	126 -	168 -	210 18	252 23	294 27	336 32	378 36	420 40
12 x 8	16 x 6 24 x 4	0.58	0.59	CFM Noise Criteria	58 -	116 -	174 -	232 -	290 19	348 24	406 28	464 33	522 37	580 41
10 x 10	14 x 7 26 x 4	0.61	0.62	CFM Noise Criteria	61 -	122 -	183 -	244 -	305 19	366 24	427 29	488 34	549 37	610 41
18 x 6	14 x 8    30 x 4 28 x 4	0.65	0.67	CFM Noise Criteria	65 -	130 -	195 -	260 15	325 20	390 25	455 30	520 34	585 38	650 41
12 x 10	16 x 8    20 x 6 24 x 5	0.74	0.74	CFM Noise Criteria	74 -	148 -	222 -	296 15	370 20	444 25	518 30	592 35	666 39	740 42
12 x 12	14 x 10    24 x 6 18 x 8    38 x 4	0.90	0.89	CFM Noise Criteria	90 -	180 -	270 -	360 16	450 21	540 26	630 31	720 36	810 39	900 42
14 x 14	16 x 12    24 x 8 20 x 10    34 x 6	1.24	1.22	CFM Noise Criteria	124 -	248 -	372 -	496 16	620 21	744 26	868 31	992 36	1116 40	1240 43
18 x 12	16 x 14    28 x 8 22 x 10    38 x 6	1.37	1.34	CFM Noise Criteria	137 -	274 -	411 -	548 17	685 22	822 27	959 32	1096 37	1233 40	1370 43
24 x 10	20 x 12    30 x 8	1.52	1.49	CFM Noise Criteria	152 -	304 -	456 -	608 17	760 22	912 27	1064 32	1216 38	1368 41	1520 44
16 x 16	18 x 14    30 x 8 22 x 12	1.64	1.58	CFM Noise Criteria	164 -	328 -	492 -	656 18	820 23	984 28	1148 33	1312 38	1476 41	1640 44
24 x 12	18 x 16    30 x 10 20 x 14    36 x 8	1.85	1.78	CFM Noise Criteria	185 -	370 -	555 -	740 18	925 23	1110 28	1295 33	1480 38	1665 41	1850 45
18 x 18	20 x 16    28 x 12 24 x 14    32 x 10	2.10	2.01	CFM Noise Criteria	210 -	420 -	630 -	840 18	1050 23	1260 29	1470 34	1680 39	1890 42	2100 45
30 x 12	20 x 18    26 x 14 22 x 16    36 x 10	2.32	2.23	CFM Noise Criteria	232 -	464 -	696 -	928 19	1160 24	1392 29	1624 34	1856 39	2088 42	2320 46
20 x 20	24 x 18    30 x 14 26 x 16    36 x 12	2.61	2.48	CFM Noise Criteria	261 -	522 -	783 -	1044 19	1305 24	1566 30	1827 35	2088 40	2349 43	2610 46
22 x 22	24 x 20    30 x 16 26 x 18    36 x 14	3.17	3.00	CFM Noise Criteria	317 -	634 -	951 -	1268 20	1585 25	1902 31	2219 35	2536 40	2853 43	3170 47
30 x 18	24 x 22    40 x 14 34 x 16	3.54	3.34	CFM Noise Criteria	354 -	708 -	1062 -	1416 20	1770 25	2124 31	2478 36	2832 41	3186 44	3540 48
24 x 24	26 x 22    32 x 18 28 x 20    36 x 16	3.79	3.56	CFM Noise Criteria	379 -	758 -	1137 -	1516 20	1895 25	2274 31	2653 36	3032 41	3411 44	3790 48
36 x 18	32 x 20    46 x 14 40 x 16	4.27	4.01	CFM Noise Criteria	427 -	854 -	1281 -	1708 21	2135 26	2562 32	2989 37	3416 42	3843 45	4270 49
26 x 26	28 x 24    48 x 14	4.47	4.19	CFM Noise Criteria	447 -	894 -	1341 -	1788 21	2235 26	2682 32	3129 37	3576 42	4023 45	4470 49
30 x 24	28 x 26    36 x 20 32 x 22    40 x 18	4.77	4.46	CFM Noise Criteria	477 -	954 -	1431 15	1908 22	2385 27	2862 33	3339 38	3816 42	4293 46	4770 50
28 x 28	30 x 26    40 x 20 36 x 22	5.20	4.85	CFM Noise Criteria	520 -	1040 -	1560 15	2080 22	2600 27	3120 33	3640 38	4160 43	4680 46	5200 50
36 x 24	30 x 28    44 x 20 40 x 22	5.74	5.35	CFM Noise Criteria	574 -	1148 -	1722 15	2296 22	2870 28	3444 34	4018 38	4592 43	5166 47	5740 51
30 x 30	34 x 26    48 x 20 38 x 24	5.99	5.57	CFM Noise Criteria	599 -	1198 -	1797 15	2396 22	2995 28	3594 34	4193 39	4792 43	5391 47	5990 51

GRILLES AND REGISTERS

F

For performance data notes, see F42.



## PERFORMANCE DATA:

### FIXED BLADE RETURN GRILLES AND REGISTERS • 5100, 6100 AND 6700 SERIES

### MODELS: 5145H, 6145H, 6745H, 5145V, 6145V, 6745V, 51FB45, 61FB45, 67FB45

Listed Duct Size (inches)	Alternate Sizes (inches)	Core Area (sq. ft.)	Ak Factor	Core Velocity Velocity Pressure Neg. Static Pressure	100	200	300	400	500	600	700	800	900	1000
					.001 .003	.002 .014	.006 .031	.010 .055	.016 .086	.022 .124	.031 .168	.040 .220	.050 .278	.062 .344
32 x 32	36 x 30 46 x 22 38 x 28	6.84	6.34	CFM	684	1368	2052	2736	3420	4104	4788	5472	6156	6840
				Noise Criteria	-	-	16	23	29	35	39	44	48	52
48 x 24	34 x 34 38 x 30 36 x 32 48 x 28	7.69	7.13	CFM	769	1538	2307	3076	3845	4614	5383	6152	6921	7690
				Noise Criteria	-	-	17	23	29	35	40	44	48	52
36 x 36	38 x 34 46 x 28 42 x 30 48 x 26	8.69	8.02	CFM	869	1738	2607	3476	4345	5214	6083	6952	7821	8690
				Noise Criteria	-	-	17	24	29	36	41	45	49	53
38 x 38	42 x 34 48 x 30 44 x 34	9.70	8.94	CFM	970	1940	2910	3880	4850	5820	6790	7760	8730	9700
				Noise Criteria	-	-	18	24	30	36	41	45	49	53
40 x 40	42 x 36 48 x 32 46 x 34	10.77	9.90	CFM	1077	2154	3231	4308	5385	6462	7539	8616	9693	10770
				Noise Criteria	-	-	18	24	30	36	42	45	50	54
42 x 42	46 x 42	11.89	10.92	CFM	1189	2378	3567	4756	5945	7134	8323	9512	10701	11890
				Noise Criteria	-	-	19	25	31	37	42	46	50	54
44 x 44		13.07	11.98	CFM	1307	2614	3921	5228	6535	7842	9149	10456	11763	13070
				Noise Criteria	-	-	19	25	31	37	42	46	50	54
46 x 46		14.30	13.10	CFM	1430	2860	4290	5720	7150	8580	10010	11440	12870	14300
				Noise Criteria	-	-	20	26	32	38	43	47	51	55
48 x 48		15.59	14.26	CFM	1559	3118	4677	6236	7795	9354	10913	12472	14031	15590
				Noise Criteria	-	-	20	26	32	38	43	47	51	55

#### Performance Notes:

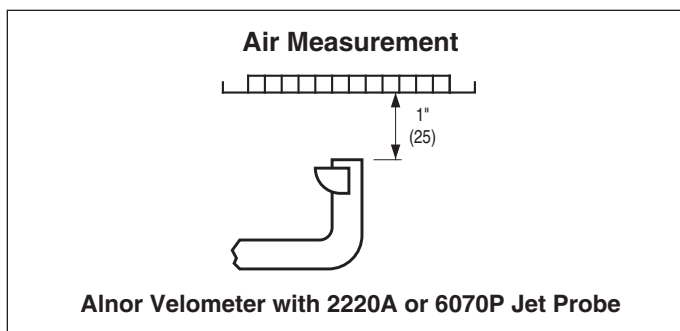
- All pressures are in inches w.g..
- Core Velocity is in feet per minute.
- Performance data is for grille with opposed blade damper. Apply the following correction factors for grille without damper.

**Negative Static Pressure** Listed Value x 0.91.

**Noise Criteria** Listed value - 4.

4. Noise Criteria (NC) values are based upon 10dB room absorption, re 10<sup>-12</sup> watts. Dash (-) in space indicates a Noise Criteria of less than 15.

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



#### Airflow Measurements:

- Balancing factors are applicable with or without dampers, providing uniform airflow exists into grille or register.
- Take velocity readings at a number of locations on the inlet face (a minimum of 4), while positioning probe as shown above, one inch out from the face.
- Total the various velocity readings and divide by the number of readings taken to arrive at an average inlet velocity (V<sub>k</sub> in FPM).
- Calculate the airflow (CFM) by multiplying the average velocity by the appropriate Ak factor.  
Airflow (CFM) = Average velocity (V<sub>k</sub>) x Ak.

## PERFORMANCE DATA:

### EGGCRATE RETURN AND EXHAUST GRILLES AND REGISTERS • 5100, 6100 & 6700 SERIES

#### MODELS: 51EC, 61EC, 67EC, 51FE, 61FE

Listed Duct Size (inches)	Alternate Sizes (inches)	Core Area (sq. ft.)	Ak Factor	Core Velocity Velocity Pressure Neg. Static Pressure	300	400	500	600	700	800	900	1000	1200	1400
					.006 .012	.010 .021	.016 .033	.022 .048	.031 .065	.040 .085	.050 .107	.062 .132	.090 .190	.122 .259
6 x 6	8 x 4 10 x 4	0.20	0.25	CFM Noise Criteria	60 -	80 -	100 -	120 -	140 -	160 15	180 20	200 23	240 29	280 34
8 x 6	10 x 5 12 x 4	0.27	0.33	CFM Noise Criteria	81 -	108 -	135 -	162 -	189 -	216 17	243 21	270 24	324 30	378 35
10 x 6	12 x 5 16 x 4	0.35	0.41	CFM Noise Criteria	105 -	140 -	175 -	210 -	245 -	280 18	315 22	350 25	420 31	490 36
8 x 8	14 x 5	0.38	0.44	CFM Noise Criteria	114 -	152 -	190 -	228 -	266 15	304 18	342 23	380 26	456 32	532 37
12 x 6	18 x 4	0.42	0.50	CFM Noise Criteria	126 -	168 -	210 -	252 -	294 15	336 19	378 23	420 26	504 32	588 37
12 x 8	16 x 6 24 x 4	0.58	0.66	CFM Noise Criteria	174 -	232 -	290 -	348 -	406 17	464 20	522 24	580 27	696 33	812 38
10 x 10	14 x 7 26 x 4	0.61	0.69	CFM Noise Criteria	183 -	244 -	305 -	366 -	427 17	488 20	549 25	610 28	732 34	854 39
18 x 6	14 x 8 30 x 4 28 x 4	0.65	0.74	CFM Noise Criteria	195 -	260 -	325 -	390 -	455 17	520 21	585 25	650 28	780 34	910 39
12 x 10	16 x 8 20 x 6 24 x 5	0.74	0.82	CFM Noise Criteria	222 -	296 -	370 -	444 -	518 18	592 21	666 25	740 29	888 35	1036 40
12 x 12	14 x 10 24 x 6 18 x 8 38 x 4	0.90	0.99	CFM Noise Criteria	270 -	360 -	450 -	540 -	630 18	720 22	810 26	900 30	1080 36	1260 41
14 x 14	16 x 12 24 x 8 20 x 10 34 x 6	1.24	1.35	CFM Noise Criteria	372 -	496 -	620 -	744 -	868 19	992 23	1116 27	1240 31	1488 37	1736 42
18 x 12	16 x 14 28 x 8 20 x 10 38 x 6	1.37	1.49	CFM Noise Criteria	411 -	548 -	685 -	822 -	959 20	1096 24	1233 27	1370 31	1644 37	1918 42
24 x 10	20 x 12 30 x 8	1.52	1.65	CFM Noise Criteria	456 -	608 -	760 -	912 15	1064 20	1216 24	1368 28	1520 32	1824 38	420 43
16 x 16	18 x 14 30 x 8 22 x 12	1.64	1.76	CFM Noise Criteria	492 -	656 -	820 -	984 15	1148 20	1312 24	1476 28	1640 32	1968 38	2296 43
24 x 12	18 x 16 30 x 10 20 x 14 36 x 8	1.85	1.98	CFM Noise Criteria	555 -	740 -	925 -	1110 15	1295 20	1480 24	1665 28	1850 32	2220 38	2590 43
18 x 18	20 x 16 28 x 12 24 x 14 32 x 10	2.10	2.23	CFM Noise Criteria	630 -	840 -	1050 -	1260 15	1470 20	1680 25	1890 28	2100 32	2520 38	2940 43
30 x 12	20 x 18 26 x 14 22 x 16 36 x 10	2.32	2.48	CFM Noise Criteria	696 -	928 -	1160 -	1392 16	1624 20	1856 26	2088 29	2320 33	2784 39	3248 44
20 x 20	24 x 18 30 x 14 26 x 16 36 x 12	2.61	2.75	CFM Noise Criteria	783 -	1044 -	1305 -	1566 16	1827 20	2088 26	2349 29	2610 33	3132 39	3654 44
22 x 22	24 x 20 30 x 16 26 x 18 36 x 14	3.17	3.33	CFM Noise Criteria	951 -	1268 -	1585 -	1902 17	2219 21	2536 26	2853 30	3170 34	3804 40	4438 45
30 x 18	24 x 22 40 x 14 34 x 16	3.54	3.71	CFM Noise Criteria	1062 -	1416 -	1770 -	2124 17	2478 22	2832 26	3186 30	3540 34	4248 40	4956 45
24 x 24	26 x 22 32 x 18 28 x 20 36 x 16	3.79	3.96	CFM Noise Criteria	1137 -	1516 -	1895 -	2274 18	2653 23	3032 27	3411 31	3790 35	4548 41	5306 46
36 x 18	32 x 20 46 x 14 40 x 16	4.29	4.46	CFM Noise Criteria	1287 -	1716 -	2145 -	2574 18	3003 23	3432 27	3861 31	4290 35	5148 41	6006 46
26 x 26	28 x 24 48 x 14	4.47	4.65	CFM Noise Criteria	1341 -	1788 -	2235 -	2682 19	3129 24	3576 28	4023 32	4470 36	5364 42	6258 47
30 x 24	28 x 26 36 x 20 32 x 22 40 x 18	4.77	4.95	CFM Noise Criteria	1431 -	1908 -	2385 15	2862 19	3339 24	3816 29	4293 32	4770 36	5724 42	6678 47
28 x 28	30 x 26 40 x 20 36 x 22	5.20	5.39	CFM Noise Criteria	1560 -	2080 -	2600 -	3120 19	3640 24	4160 29	4680 32	5200 36	6240 41	7280 46
36 x 24	30 x 28 44 x 20 40 x 22	5.74	5.94	CFM Noise Criteria	1722 -	2296 -	2870 -	3444 20	4018 25	4592 29	5166 33	5740 37	6888 43	8036 48
30 x 30	34 x 26 48 x 20 38 x 24	5.99	6.19	CFM Noise Criteria	1797 -	2396 -	2995 -	3594 20	4193 25	4792 29	5391 33	5990 37	7188 43	8386 48

For performance data notes, see F107.

## PERFORMANCE DATA:

### EGGCRATE RETURN AND EXHAUST GRILLES AND REGISTERS • 5100, 6100 & 6700 SERIES

#### MODELS: 51EC, 61EC, 67EC, 51FE, 61FE

Listed Duct Size (inches)	Alternate Sizes (inches)	Core Area (sq. ft.)	Ak Factor	Core Velocity Velocity Pressure Neg. Static Pressure	300	400	500	600	700	800	900	1000	1200	1400
					.006 .012	.010 .021	.016 .033	.022 .048	.031 .065	.040 .085	.050 .107	.062 .132	.090 .190	.122 .259
32 x 32	36 x 30 46 x 22 38 x 28	6.84	7.0	CFM	2052	2736	3420	4104	4788	5472	6156	6840	6156	6840
				Noise Criteria	—	—	15	20	26	30	34	37	34	37
48 x 24	34 x 34 38 x 30 36 x 32 48 x 28	7.69	7.92	CFM	2307	3076	3845	4614	5383	6152	6921	7690	6921	7690
				Noise Criteria	—	—	16	21	26	30	35	38	35	38
36 x 36	38 x 34 46 x 28 42 x 30 48 x 26	8.69	8.91	CFM	2607	3476	4345	5214	6083	6952	7821	8690	10428	12166
				Noise Criteria	—	—	16	22	27	31	35	38	44	49
38 x 38	42 x 34 48 x 30 44 x 34	9.70	9.93	CFM	2910	3880	4850	5820	6790	7760	8730	9700	11640	13580
				Noise Criteria	—	—	16	22	27	31	36	39	45	50
40 x 40	42 x 36 48 x 32 46 x 34	10.77	11.00	CFM	3231	4308	5385	6462	7539	8616	9693	10770	12924	15078
				Noise Criteria	—	—	16	22	28	32	37	40	46	51
42 x 42	44 x 40 48 x 36 46 x 38	11.89	12.13	CFM	3567	4756	5945	7134	8323	9512	10701	11890	6921	7690
				Noise Criteria	—	—	17	23	28	32	37	40	46	51
44 x 44	46 x 42	13.07	13.31	CFM	3921	5228	6535	7842	9149	10456	11763	13070	15684	18298
				Noise Criteria	—	—	17	23	28	33	37	40	46	51
46 x 46		14.30	14.55	CFM	4290	5720	7150	8580	10010	11440	12870	14300	17160	20020
				Noise Criteria	—	—	18	24	29	33	37	40	46	52
48 x 48		15.59	15.84	CFM	4677	6236	7795	9354	10913	12472	14031	15590	18708	21826
				Noise Criteria	—	—	18	24	29	33	37	40	46	52

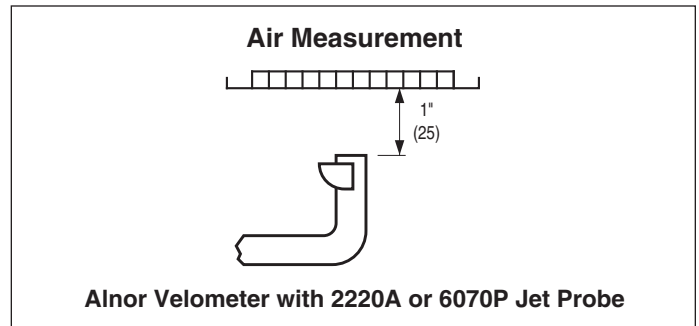
#### Performance Notes:

1. All pressures are in inches w.g..
2. Core Velocity is in feet per minute.
3. Performance data is for grille tested without damper. Apply the following correction factors for addition of opposed blade damper to grille.

**Neg. Static Pressure** Listed Value x 1.25.

**Noise Criteria** Add + 6 to listed value.

4. Noise Criteria (NC) values are based on a room absorption of 10 dB, re 10<sup>-12</sup> watts. Dash (—) in space denotes a Noise Criteria level of less than 15.
5. Data derived from tests conducted in accordance with ANSI/ASHRAE Standard 70 – 2006.



#### Airflow Measurements

1. Balancing factors are applicable with or without dampers, providing uniform airflow exists into grille or register.
2. Take velocity readings at a number of locations on the inlet face (a minimum of 4), while positioning probe as shown above, one inch out from the face.
3. Total the various velocity readings and divide by the number of readings taken to arrive at an average inlet velocity (V<sub>k</sub> in FPM).
4. Calculate the airflow (CFM) by multiplying the average velocity by the appropriate Ak factor.

$$\text{Airflow (CFM)} = \text{Average velocity (V}_k\text{)} \times \text{Ak}$$