

# Grilles and Registers

## Application Guidelines

### Introduction

#### Overview

It is the intent of this section to give some basic application guidelines for the use of supply and return grilles and registers in a simple non-technical manner. The information presented here is based on Price's laboratory results, as well as commonly accepted industry practices supported by ASHRAE (American Society of Heating, Refrigeration and Air Conditioning Engineers). These application guidelines are designed to enhance your ability to use the performance data in this catalog to select an air outlet that will create an air pattern in the occupied space conducive to the comfort of the occupant.

#### Single Deflection Supply

A grille or register consisting of a single set of adjustable blades that controls the air pattern in only one direction, depending on blade orientation. Horizontal blades control rise and drop of the air stream. This orientation would be used, for example, to prevent unwanted drop in a free space (no ceiling) application or to blow warm air down in a high sidewall application. Vertically oriented blades control the spread of the air pattern and would be used where throw, not drop, is a prime concern. These would be the most economical type of outlet. See **Figure 1**. Example — Model 510 or 21.

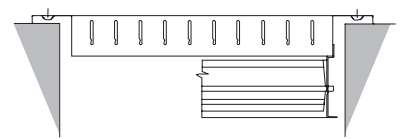
#### Double Deflection Supply

A grille or register consisting of two sets of adjustable blades oriented perpendicular to each other to allow control of the air pattern in both horizontal and vertical planes. While both sets of blades have an affect on the air pattern, the front or outward most set has the most influence. The front blades should be horizontal if control of rise and drop is primary (i.e. free space or high sidewall) and vertical if spread and throw are the largest concerns. Double deflection outlets are the most flexible type of grille or register. See **Figure 2**. Example — Model 520 or 22.

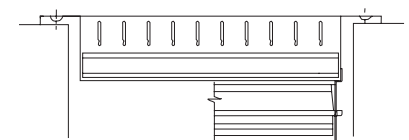
#### Eggcrate Return

A grille or register with a cubical grid core to be used for return or exhaust where maximum free area is desired and see-through is not a concern. Typically used in ceiling applications where see-through sight lines are minimized to directly below the grille. See **Figure 3**. Example — Model 80 Series.

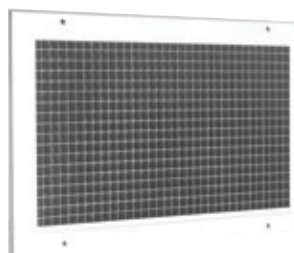
**Figure 1:** Model 510 Single Deflection Supply



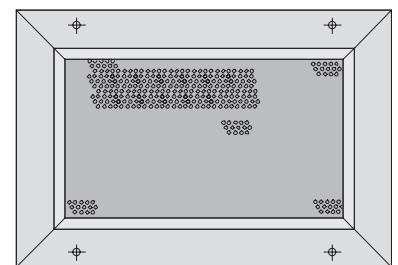
**Figure 2:** Model 520 Double Deflection Supply



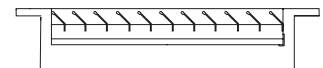
**Figure 3:** 80 Series Aluminum Eggcrate Return



**Figure 4:** 10 Series Perforated Return



**Figure 5:** Model 530 Louvered Return



#### Perforated Return

This grille utilizes a symmetrically perforated sheet metal core for free areas of approximately 50%. It is typically used in ceiling applications where see-through and blending with the mounting surface are of prime concerns. See **Figure 4**. Example — Model 10 Series.

#### Louvered Returns

These grilles and registers utilize a core of parallel fixed blades set at a deflection, usually 45 degrees from horizontal, to provide a return or exhaust unit with minimum see-through. The most common application is sidewall with blade deflection upward in high applications and downward in lower applications. This type of outlet usually has a slightly higher sound and pressure drop than either the eggcrate or perforated. See **Figure 5**. Example — Model 530 or 630.

## Industrial Supply Grilles and Registers

Similar to commercial models, the grille or register has adjustable louvers in single or double deflection, however the louvers are deeper (up to 3 in.) and spaced wider. The deeper louver is stronger and more effective for pattern deflection. Construction is generally extruded aluminum louvers, with heavy duty aluminum or steel frame. The heavy duty construction of the industrial supply grilles and registers withstands frequent adjustment, high velocity, high air volumes, turbulent supply air and contaminants in the air stream. Options include gang operators, quick-release trunk latch frame and heavy duty balancing damper. See **Figure 6**. Example – Model 300.

## Industrial Return Grilles or Registers

Grilles or registers have fixed blades of various deflections and blade spacings, and are constructed of heavy gauge steel or extruded aluminum with a welded frame. Options include stainless steel construction and heavy duty balancing damper. See **Figure 7**. Example – Model 97.

## Drum Louver

Drum louvers consist of adjustable vanes mounted in a rotating drum that is adjustable up or down to provide directional control of the air pattern. The deep adjustable vanes can be used to achieve a varying amount of spread pattern. The depth of the drum and the vanes produce a long air projection and high degree of directional control. Construction can be heavy gauge steel or extruded aluminum. Options include pole operator bracket, motorized drum and heavy duty balancing damper. See **Figure 8**. Example – Model HCD.

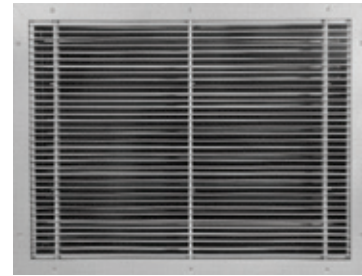
## Nozzles

Similar to the drum louver, the nozzle achieves a very long air projection due to its depth and geometry. Generally round in shape, nozzles are available in a variety of models including adjustable versions, which allow directional control of the air pattern. Construction can be steel or aluminum.

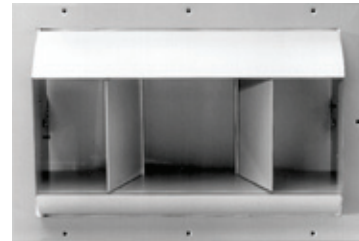
**Figure 6:** Model 302D Register c/w Steel Damper



**Figure 7:** Model 97 Register w/ Steel Damper



**Figure 8:** Model HCD1 High Capacity Drum Louver



## Security Grilles

Security grilles are grilles that have been designed in response to various security requirements for different air distribution applications. These grilles decrease the risk of injury to inmates, as well as reduce the likelihood of unwanted access to the ductwork. There are many applications where security grilles can be used; typically in spaces where supervision is minimal and vandalism or misuse is a risk. Such areas include correctional facilities, psychiatric hospitals, rest stops, park facilities, schools and sports venues. There are three different levels of security grilles offered.

### Minimum Security

Minimum security grilles have lattice faces, which provide minimal risk of disassembly and damage. Models are available with or without sleeves and have various mounting options, depending on how secure they need to be. Grilles are made of lighter gauge material for an economical solution in lower security risk areas. Applications that commonly use minimum security grilles include common areas in secured institutions, cafeterias, corridors and other public areas. See **Figure 10**. Example – Model MSLG.

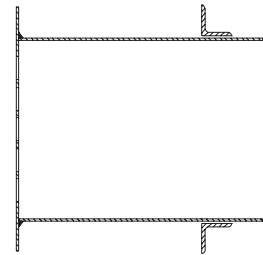
### Medium Security

Medium security grilles should be used in areas where increased duct security is a concern. Units in this category are constructed of heavier duty construction and include more security measures, including wire meshes and barrier bars on some models. Common applications for these grilles include exercise facilities, corridors, holding cells, psychiatric facilities and schools. See **Figure 11**. Example – Model MSSG.

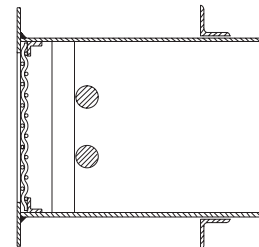
### Maximum Security

Maximum security grilles should be used in high risk areas, and are most commonly used in inmate cells, isolation areas and psychiatric hospitals. These grilles are constructed of heavy duty materials with faceplates that are designed to impede insertion of items into the duct, work as well as prevent outside damage to the grille. Models in this category also include risk resistant grilles that are designed to inhibit the threading of hanging devices by an inmate. Risk resistant maximum security grilles should be used every time there is concern that the grille could be used to facilitate harm to the inmate or to others. See **Figure 12**. Example – Model MSPG.

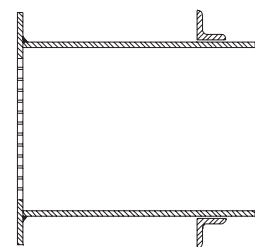
**Figure 10: MSL**



**Figure 11: MSSG**



**Figure 12: MSPG**



## Performance Data Interpretation

The grilles and registers, as stated in the corresponding performance notes, have been tested to ASHRAE 70-2006 "Method of Testing for Rating the Performance of Air Outlets and Inlets". The following is an explanation of the conditions under which the performance data is derived and some suggestions on how to apply the data to different conditions.

### Throw

The throw data indicated in the grilles and registers section is the maximum distance in feet from a supply grille that a predetermined air velocity (terminal velocity) can be measured under the conditions outlined by the test codes. These conditions are:

- Grille is to be sidewall mounted 9 in. below the ceiling to generate surface effect. See Air Distribution Engineering Guide, Section EG.

The supply register throw data in this section is to terminal velocities of 150 fpm, 100 fpm and 50 fpm for air patterns of 0, 22½ and 45 degree horizontal spread (see **Figure 3**).

The isovel diagrams shown in **Figure 3** are based on actual test results. They illustrate the relationship of horizontal spread to throw for a typical selection of a high sidewall supply outlet.

Typical isovels to terminal velocities of 150 fpm ( $V_T = 150$ ), 100 fpm ( $V_T = 100$ ) and 50 fpm ( $V_T = 50$ ) are illustrated, with a variety of horizontal spread settings. Note that the outer envelope represents the  $V_T = 100$  isovel, and the dark colored area represents the  $V_T = 150$  isovel.

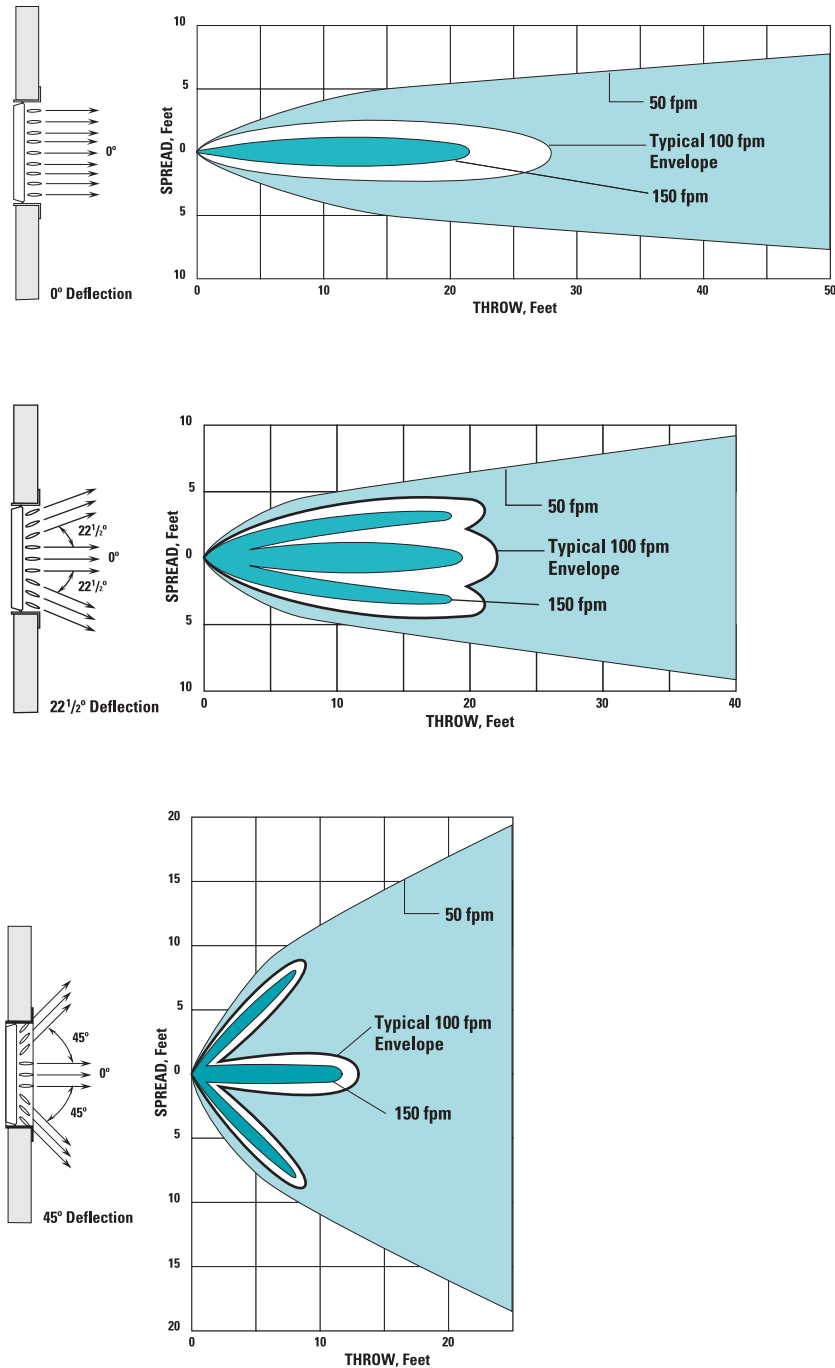
### Corrections for Location

In the event that a supply outlet is mounted in a location where its throw will not be affected by surface effect (i.e. more than 2 ft [610] from a wall or ceiling parallel to the air flow), a good approximation is to multiply the catalog throw by 0.70.

This is due to the fact that the air flow without surface effect is exposed to room air on its complete boundary. It tends to lose momentum faster and drop sooner for this reason.

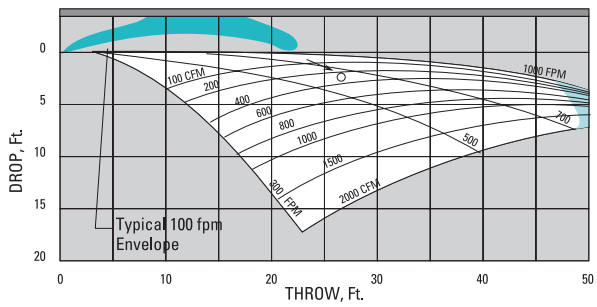
To combat the potential draft problems caused by premature drop, it is advisable to put an upward deflection of 15-20 degrees on supply units without the benefit of surface effect (i.e. free space). Spreading the air pattern horizontally also has the effect of reducing undesired drop. Figures 4 through 6 show the effect that mounting location and blade deflection have on a typical grille. You will also note that for a given cfm, the lower the core velocity, the more resulting drop.

**Figure 3**

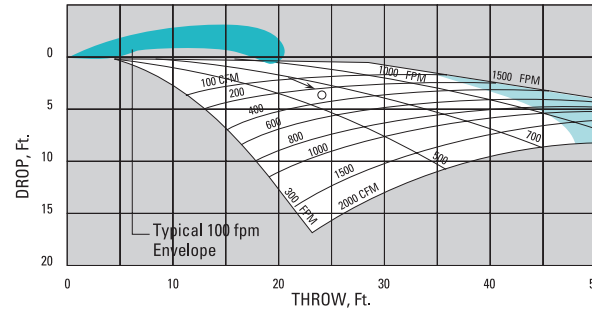


## Throw and Drop from Sidewall Outlets

**Figure 4:** Deflection: Vertical – 20° Up, Horizontal – 0°

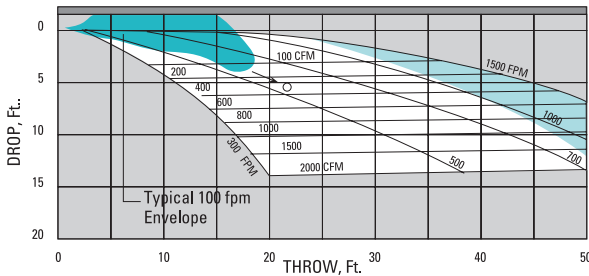


Mounted 2 – 4 ft below Ceiling

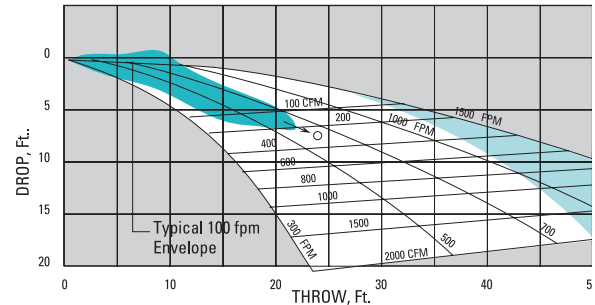


No Ceiling

**Figure 5:** Deflection: Vertical – 0°, Horizontal – 0°

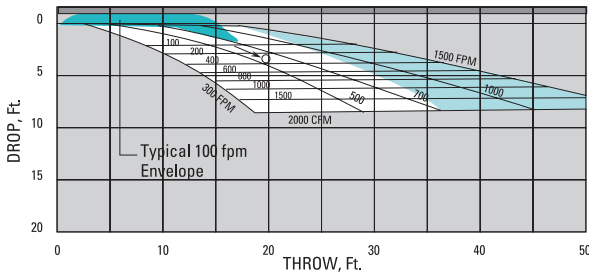


Mounted Within 1 ft of Ceiling

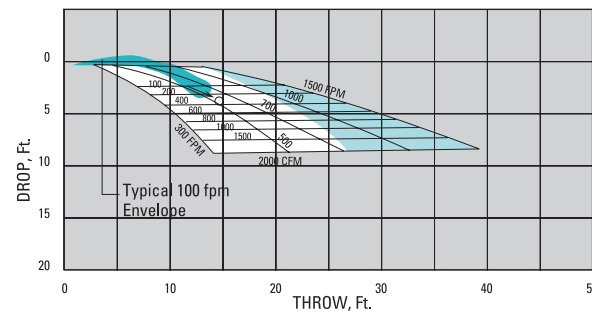


No Ceiling

**Figure 6:** Deflection: Vertical – 0°, Horizontal – 45°



Mounted Within 1.5 ft of Ceiling



No Ceiling

**Notes**

1. Throw and drop values are based on 50 fpm terminal velocity.
2. Data is based on tests with 20°F cooling temperature differential in space with no boundary walls.
3. Data is based on Model Z1 and Z2 cores.
4. Small circle in white area of each chart shows comparative performances of one size of grille at 300 cfm and 600 fpm outlet velocity.
5. Deflection settings and resulting patterns are shown in Product Catalog.
6. Shaded area to right of each chart indicates noise level above 30 NC.

## Throw (continued), Sound

### Supply Air Temperature

Buoyancy's influence on throw must also be considered. Cold supply air (approximately 20° F ΔT) has the effect of reducing horizontal throw by 20% while increasing vertical downward throw by 20% from catalog data. Warm supply air (approximately 20° F ΔT) will increase horizontal throw by approximately 20% while reducing vertical downward throw by 20%.

For further discussion on installation conditions and their effect on throw and air pattern, see Air Distribution Engineering Guide, Section EG.

### Summary of Throw Guidelines

1. Multiply catalog throw by 0.70 for free space installation.
2. The lower the core velocity for a given cfm, the more resulting drop (core velocity > 300 fpm recommended).
3. Supply air / room air temperature differential: For every 1 °F difference between the supply and room air temperatures, there will be a 1% change in the cataloged throw distance. For example, 20° F ΔT cooling - multiply horizontal throw by 0.80 and vertical down throw by 1.20.  
20° F ΔT heating - multiply horizontal throw by 1.20 and vertical down throw by 0.80.

### Sound

The NC data presented is derived from ASHRAE and ISO Test Standards. In all cases the rating is for a single outlet with accessories as indicated in the performance notes (i.e. in most cases outlets are tested with dampers). When tested with integral dampers, the dampers are in the 100% open position. Supply units with adjustable vanes are rated at zero degree deflection with corrections for 22½ and 45 degrees.

NOTE: For typical application design NC levels see Air Distribution Engineering Guide, Section EG.

### NC Corrections

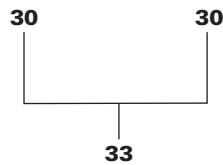
#### Multiple Outlets

In the event that more than one outlet is serving areas of 400 to 600 sq ft or less, the additive effects of the multiple sound sources must be considered. For example, if two outlets of equal NC are within close proximity, the result is an increase of 3 to the NC level (see example). If the outlets have different NC levels, the increase to the higher NC is inverted to the difference between the two NCs (see example) so that a difference of 10 dB results in no correction (i.e. use the higher NC). See **Figure 7** for the appropriate correction based on the NC differential of outlets.

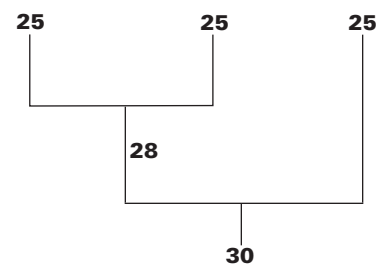
#### Example 1:

Two 12 x 6 520 Series registers, supplying 390 cfm each in a space < 600 ft<sup>2</sup>

Rated NC = 30 each



#### Example 3:



### Oversized Outlets NC

In the event that an outlet that exceeds the sizes and capacities of the catalog performance data is selected, NC levels may be approximated by treating the unit as multiple outlets of equal size and capacities. In this way, the NC levels of these smaller multiple outlets may be attained from the catalog data and used to derive the oversized unit's sound level.

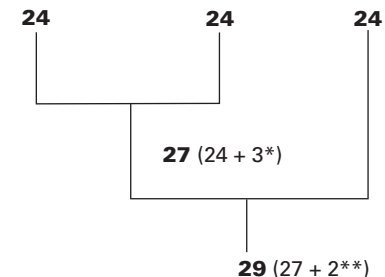
#### Example 3:

A series 22 supply register size 60 in. x 48 in. supplying 11,250 cfm. Treat this as three 60 in. x 16 in. units, each delivering 3750 cfm at an NC level of 25, as per the previously discussed multiple outlet corrections.

#### Example 2:

Three 12 x 4 530 Series registers, exhausting 130 cfm each in a space < 600 ft<sup>2</sup>

Rated NC = 24 each

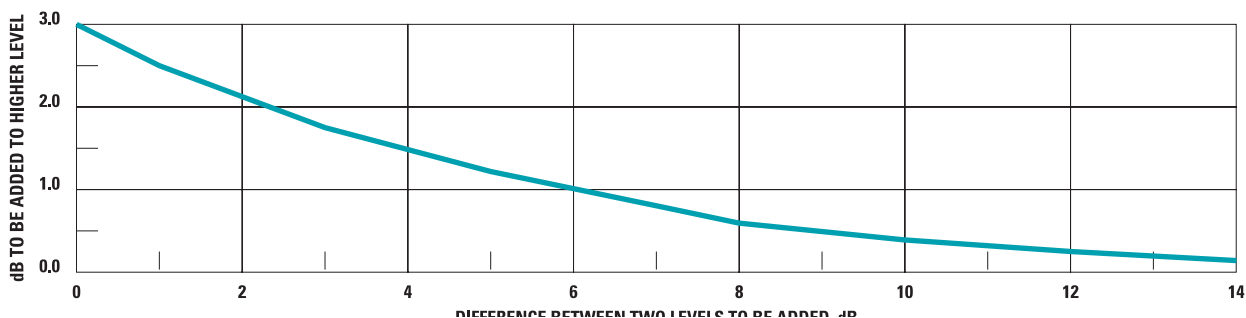


\* Equal sound sources.

\*\*Resulting adder for 3 dB difference between sound sources.

(Ref. **Figure 7**)

Figure 7





# Eggcrate Face Return 85 Series

## Product Information

### Models

Models

Grille **85**

- High capacity return or exhaust outlet with high free area, low sound, and low pressure drop.
- 45 degree angled core eliminates the line of sight through the grille into ductwork or ceiling without a light shield accessory or plenum.
- Ideal for pressurized ceiling return or size restricted exhaust applications.

### Construction

- Aluminum grid core.
- Extruded aluminum borders and frames

### Mounting / Finish Options

#### Border Style

Surface Mount

- 1 1/4 in. [32mm] Flat (Standard) **F**
- 1 1/4 in. [32mm] Curved **C**
- 1 in. [25mm] Narrow **N**

Lay-in

- 1 1/4 in. [32mm] Flat **F**
- 9/16 in. [14mm] Fineline **17**
- 25/32 in. [20mm] Narrow **NF**
- 5/16 in. [8mm] Channel **CH**
- Core Only **CORE**

#### Panel Mounted

- For 1 in. Flat Tee Bar, Steel Panel **3P**
- For 1 in. Flat Tee Bar, Aluminum Panel **3PA**
- For 9/16 in. Flat Tee Bar, Steel Panel **9I6P**
- For 9/16 in. Flat Tee Bar, Aluminum Panel **9I6PA**
- For Fineline Ceiling, Steel Panel **17P**
- For Fineline Ceiling, Aluminum Panel **17PA**

#### Fastening

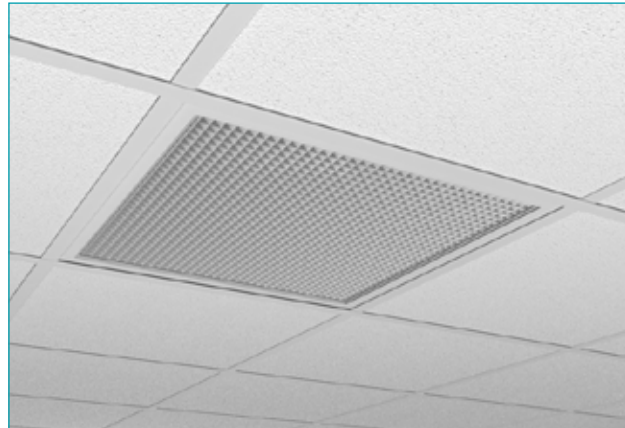
- Countersunk screwholes **A**
- No screwholes **Ø**

#### Finish

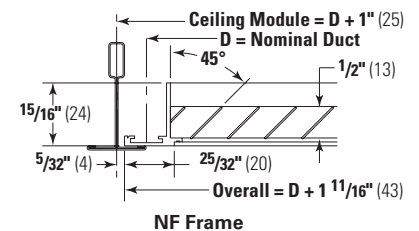
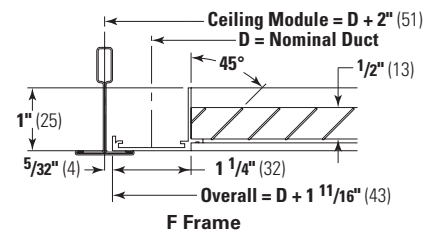
White Powder Coat **B12**

For optional and special finishes see color matrix.

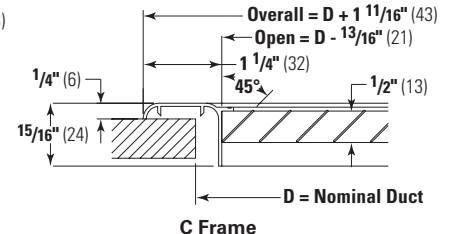
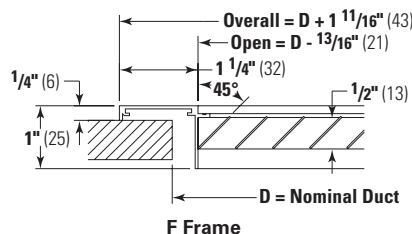
### Eggcrate Face Return



#### Tee Bar Lay-in



#### Surface Mount



See submittal for additional frame styles.

#### Available Sizes

	Minimum (Short & Long Pattern)	Maximum (Short Pattern)	Maximum (Long Pattern)
<b>Imperial (in.)</b>	6 in. x 4 in.	24 in. x 24 in.	48 in. x 24 in.
<b>Metric (mm)</b>	152 x 102	610 x 610	1219 x 610

### ✓ Product Selection Checklist

- 1] Select Unit Size based on desired performance characteristics.
- 2] Select Application and Border Style according installation requirements.
- 3] Select Sight Resistance Pattern: Parallel to SHORT or LONG
- 4] Select Panel Size if Panel Mounted border is selected.
- 5] Select Fastening Method (A is standard for Surface Mount, Ø is standard for Lay-In)
- 6] Select Finish

**Example: 85 / 20 in. x 20 in. / Lay-In  
3P / Long / 24 in. x 24 in. / Ø / B12**

**Application Recommendations:**  
Surface Mount – **F** Border, **A** Fastening.

Tee Bar Lay-in – **F** Border or Panel, **Ø** Fastening

# Eggcrate Face Return 85 Series



## Performance Data - Imperial Units

Core Area Sq. ft	Nominal Size	Core Velocity Velocity Pressure Negative s.p.	NC20						30	
			100 0.001 0.010	200 0.002 0.034	300 0.006 0.068	400 0.010 0.112	500 0.016 0.166	600 0.022 0.228	700 0.031 0.298	
0.15	7x4	cfm	15	30	45	60	75	90	105	
	6x5	NC	—	—	—	15	21	26	30	
0.18	8x4 6x6	cfm	18	36	54	72	90	108	126	
	7x5	NC	—	—	—	16	22	27	31	
0.22	10x4 7x6	cfm	22	44	66	88	110	132	154	
	8x5	NC	—	—	—	16	22	27	32	
0.26	12x4 8x6	cfm	26	52	78	104	130	156	182	
	10x5	NC	—	—	—	17	23	28	32	
0.3	14x4	cfm	30	60	90	120	150	180	210	
		NC	—	—	—	18	24	28	33	
0.34	16x4 10x6	cfm	34	68	102	136	170	204	238	
	12x5	NC	—	—	—	18	24	29	33	
0.39	18x4 12x6	cfm	39	78	117	156	195	234	273	
	14x5 8x8	NC	—	—	—	18	24	29	34	
0.46	20x4 14x6	cfm	46	92	138	184	230	276	322	
	16x5 10x8	NC	—	—	—	19	25	30	34	
0.52	24x4 16x6	cfm	52	104	156	208	260	312	364	
	18x5	NC	—	—	—	19	26	30	35	
0.6	28x4 18x6 10x10	cfm	60	120	180	240	300	360	420	
	20x5 12x8	NC	—	—	—	20	26	31	35	
0.69	30x4 20x6 12x10	cfm	69	138	207	276	345	414	483	
	24x5 14x8	NC	—	—	—	20	27	31	36	
0.81	36x4 22x6 14x10	cfm	81	162	243	324	405	486	567	
	28x5 16x8	NC	—	—	—	21	27	32	36	
0.9	40x4 26x6 16x10	cfm	90	180	270	360	450	540	630	
	30x5 18x8 12x12	NC	—	—	—	21	27	32	37	
1.07	48x4 30x6 14x12	cfm	107	214	321	428	535	642	749	
	36x5 18x10	NC	—	—	—	22	28	33	37	
1.18	34x6 20x10 14x14	cfm	118	236	354	472	590	708	826	
	24x8 16x12	NC	—	—	—	22	28	33	38	
1.34	60x4 36x6 18x12	cfm	134	268	402	536	670	804	938	
	48x5 22x10 16x14	NC	—	—	15	23	29	34	38	
1.6	72x4 24x10 18x14	cfm	160	320	480	640	800	960	1120	
	30x8 22x12 16x16	NC	—	—	16	23	30	34	39	
1.8	60x5 36x8 24x12 18x16	cfm	180	360	540	720	900	1080	1260	
	48x6 30x10 20x14	NC	—	—	16	24	30	35	39	
2.08	72x5 40x8 30x12 20x16	cfm	208	416	624	832	1040	1248	1456	
	60x6 36x10 24x14 18x18	NC	—	—	17	24	30	35	40	
2.45	72x6 32x12 24x16	cfm	245	490	735	980	1225	1470	1715	
	48x8 26x14 20x18	NC	—	—	17	25	31	36	40	
2.78	36x12 26x16 22x20	cfm	278	556	834	1112	1390	1668	1946	
	30x14 24x18	NC	—	—	18	25	32	36	41	
3.11	60x8 40x12 30x16 22x22	cfm	311	622	933	1244	1555	1866	2177	
	48x10 36x14 26x18	NC	—	—	18	26	32	37	41	
3.61	72x8 48x12 30x18	cfm	361	722	1083	1444	1805	2166	2527	
	60x10 36x16 24x24	NC	—	—	19	26	32	37	42	
4.29	48x14 32x20	cfm	429	858	1287	1716	2145	2574	3003	
	36x18 28x24	NC	—	—	19	27	33	38	42	
4.65	72x10 36x20	cfm	465	930	1395	1860	2325	2790	3255	
	48x16 30x24	NC	—	—	20	27	33	38	42	
5.58	72x12 48x18	cfm	558	1116	1674	2232	2790	3348	3906	
	60x14 36x24	NC	—	—	20	28	34	39	43	
6.25	72x14 48x20	cfm	625	1250	1875	2500	3125	3750	4375	
	60x16 30x30	NC	—	—	21	28	34	39	44	

### Performance Notes

1. Tested in accordance with ASHRAE Standard 70-2006 "Method of Testing for Rating the Performance of Air Outlets and Inlets."
2. Airflow is in cfm.
3. All pressures are in in. w.g.
4. NC values are based on room absorption of 10 dB re 10<sup>-12</sup> Watts and one grille.
5. Blanks (—) indicate an NC level below 15.



# Eggcrate Face Return 85 Series



## Performance Data - Metric Units

Core Area Sq. M.	Nominal Size (mm)		Core Velocity (m/s) Velocity Pressure (Pa) Negative SP (Pa)	NC20									
				0.5	1.0	1.5	2.0	2.5	3.0	3.5			
				0	1	1	2	4	6	8			
			2	8	17	28	41	57	74				
0.014	178 x 102		L/s	7	14	21	28	35	42	50			
	152 x 127		NC	-	-	-	15	21	26	30			
0.017	203 x 102	152 x 152	L/s	8	17	25	34	42	51	59			
	178 x 102		NC	-	-	-	16	22	27	31			
0.02	254 x 102	178 x 152	L/s	10	21	31	42	52	62	73			
	203 x 127		NC	-	-	-	16	22	27	32			
0.024	305 x 102	203 x 152	L/s	12	25	37	49	61	74	86			
	254 x 127		NC	-	-	-	17	23	28	32			
0.028	356 x 102		L/s	14	28	42	57	71	85	99			
			NC	-	-	-	18	24	28	33			
0.032	406 x 102	254 x 152	L/s	16	32	48	64	80	96	112			
	305 x 127		NC	-	-	-	18	24	29	33			
0.036	457 x 102	305 x 152	L/s	18	37	55	74	92	110	129			
	356 x 127	203 x 203	NC	-	-	-	18	24	29	34			
0.043	508 x 102	356 x 152	L/s	22	43	65	87	109	130	152			
	406 x 127	254 x 203	NC	-	-	-	19	25	30	34			
0.048	610 x 102	406 x 152	L/s	25	49	74	98	123	147	172			
	457 x 127		NC	-	-	-	19	26	30	35			
0.056	711 x 102	457 x 152	254 x 254	L/s	28	57	85	113	142	170	198		
	508 x 127	305 x 203		NC	-	-	-	20	26	31	35		
0.064	762 x 102	508 x 152	305 x 254	L/s	33	65	98	130	163	195	228		
	610 x 127	356 x 203		NC	-	-	-	20	27	31	36		
0.075	914 x 102	559 x 152	356 x 254	L/s	38	76	115	153	191	229	268		
	711 x 127	406 x 203		NC	-	-	-	21	27	32	36		
0.084	1016 x 102	660 x 152	406 x 254	L/s	42	85	127	170	212	255	297		
	762 x 127	457 x 203	305 x 305	NC	-	-	-	21	27	32	37		
0.099	1219 x 102	762 x 152	356 x 305	L/s	51	101	152	202	253	303	354		
	914 x 127	457 x 254		NC	-	-	-	22	28	33	37		
0.11	864 x 152	508 x 254	356 x 356	L/s	56	111	167	223	278	334	390		
	610 x 203	406 x 305		NC	-	-	-	22	28	33	38		
0.124	1524 x 102	914 x 152	457 x 305	L/s	63	126	190	253	316	379	443		
	1219 x 127	559 x 254	406 x 356	NC	-	-	15	23	29	34	38		
0.149	1829 x 102	610 x 254	457 x 356	L/s	76	151	227	302	378	453	529		
	762 x 203	559 x 305	406 x 406	NC	-	-	16	23	30	34	39		
0.167	1524 x 127	914 x 203	610 x 305	457 x 406	L/s	85	170	255	340	425	510	595	
	1219 x 152	762 x 254	508 x 356		NC	-	-	16	24	30	35	39	
0.193	1829 x 127	1016 x 203	762 x 305	508 x 406	L/s	98	196	295	393	491	589	687	
	1524 x 152	914 x 254	610 x 356	457 x 457	NC	-	-	17	24	30	35	40	
0.228	1829 x 152	813 x 305	610 x 406		L/s	116	231	347	463	578	694	809	
	1219 x 203	660 x 356	508 x 457		NC	-	-	17	25	31	36	40	
0.258	914 x 305	660 x 406	559 x 508		L/s	131	262	394	525	656	787	919	
	762 x 356	610 x 457			NC	-	-	18	25	32	36	41	
0.289	1524 x 203	1016 x 305	762 x 406	559 x 559	L/s	147	294	440	587	734	881	1,028	
	1219 x 254	914 x 356	660 x 457		NC	-	-	18	26	32	37	41	
0.335	1829 x 203	1219 x 305	762 x 457		L/s	170	341	511	682	852	1,022	1,193	
	1524 x 254	914 x 406	610 x 610		NC	-	-	19	26	32	37	42	
0.399	1219 x 356	813 x 508			L/s	202	405	607	810	1,012	1,215	1,417	
	914 x 457	711 x 610			NC	-	-	19	27	33	38	42	
0.432	1829 x 254	914 x 508			L/s	219	439	658	878	1,097	1,317	1,536	
	1219 x 406	762 x 610			NC	-	-	20	27	33	38	42	
0.518	1829 x 305	1219 x 457			L/s	263	527	790	1,054	1,317	1,580	1,844	
	1524 x 356	914 x 610			NC	-	-	20	28	34	39	43	
0.581	1829 x 356	1219 x 508			L/s	295	590	885	1,180	1,475	1,770	2,065	
	1524 x 406	762 x 762			NC	-	-	21	28	34	39	44	

### Performance Notes

- Tested in accordance with ASHRAE Standard 70-2006 "Method of Testing for Rating the Performance of Air Outlets and Inlets".
- All pressures are in Pascals (Pa).
- NC values are based on a room absorption of 10 dB re 10<sup>-12</sup> watts.
- Blanks (-) indicate an NC level below 15.
- Grille tested without damper. Corrections for grille with damper:  
Add 6 dB to the listed NC.  
Multiply listed Negative Static Pressure by 1.3.
- The performance tables are based on grilles with F border. For ED border the following correction factors must be applied due to the reduced core area of this border:
- Does not include pressure drop through filter on FF, FH models.

## Eggcrate Face / Perforated Face / Filter Grilles

### Eggcrate Face 80 – Return Grille

Furnish and install Price model 80 return grilles of the sizes and mounting types indicated on the plans and outlet schedule. Grilles shall be of aluminum construction, consisting of aluminum 1/2 in. x 1/2 in. x 1/2 in. [13 x 13 x 13] grid (eggcrate core) and an extruded aluminum border. The grille shall be finished in (B12 White Powder Coat / B15 Aluminum Powder Coat). Paint finish shall pass 500 hours of salt spray exposure with no measurable creep in accordance with ASTM D1654 and 1000 hours with no rusting or blistering as per ASTM D610 and ASTM D714.

#### Options

- The integral volume control damper shall be of the opposed blade type and shall be constructed of coated steel / aluminum.

### 81 – Return Grille

Furnish and install Price model 81 return grilles of the sizes and mounting types indicated on the plans and outlet schedule. Grilles shall be of aluminum construction, consisting of two aluminum 1/2 in. x 1/2 in. x 1/2 in. [13 x 13 x 13] grids (eggcrate core), stacked to make a 1/2 in. x 1/2 in. x 1 in. [13 x 13 x 25] core and an extruded aluminum border. The grille shall be finished in (B12 White Powder Coat / B15 Aluminum Powder Coat). Paint finish shall pass 500 hours of salt spray exposure with no measurable creep in accordance with ASTM D1654 and 1000 hours with no rusting or blistering as per ASTM D610 and ASTM D714.

#### Options

- Optional core—one-piece 1/2 in. x 1/2 in. x 1 in. [13 x 13 x 25] aluminum grid (eggcrate).
- The integral volume control damper shall be of the opposed blade type and shall be constructed of coated steel / aluminum.

### 82 – Return Grille

Furnish and install Price model 82 return grilles of the sizes and mounting types indicated on the plans and outlet schedule. Grilles shall be of aluminum construction, consisting of aluminum 1 in. x 1 in. x 1 in. [25 x 25 x 25] grid (eggcrate core) and an extruded aluminum border. The grille shall be finished in (B12 White Powder Coat / B15 Aluminum Powder Coat). Paint finish shall pass 500 hours of salt spray exposure with no measurable creep in accordance with ASTM D1654 and 1000 hours with no rusting or blistering as per ASTM D610 and ASTM D714.

#### Options

- The integral volume control damper shall be of the opposed blade type and shall be constructed of coated steel / aluminum.

### 85 – Return Grille

Furnish and install Price model 85 return grilles of the sizes and mounting types indicated on the plans and outlet schedule. Grilles shall be aluminum construction, consisting of aluminum grid (eggcrate core) and an extruded aluminum border. The grille shall be finished in B12 White Powder Coat. Paint finish shall pass 500 hours of salt spray exposure with no measurable creep in accordance with ASTM D1654 and 1000 hours with no rusting or blistering as per ASTM D610 and ASTM D714.

### Perforated Face 10 – Return Grille

Furnish and install Price model (10 steel/ 10A aluminum) return grilles of the sizes and mounting types indicated on the plans and outlet schedule. Grilles shall consist of a perforated core with 3/16 in. [5] holes on 1/4 in. [6] centers staggered 60 degrees and an extruded aluminum border. The grille shall be finished in (B12 White Powder Coat / B15 Aluminum Powder Coat). Paint finish shall pass 500 hours of salt spray exposure with no measurable creep in accordance with ASTM D1654 and 1000 hours with no rusting or blistering as per ASTM D610 and ASTM D714.

### Filter Grilles - Louvered 530FF / 630FF / 730FF – Filter Return Grille

Furnish and install Price model (530FF steel / 630FF aluminum) filter return grilles of the sizes and mounting types indicated on the plans and outlet schedule. Grilles shall be 45 degree deflection fixed louver type with blades spaced 3/4 in. [19] on center. The blades shall run parallel to the (long / short) dimension of the grille. The border shall be mounted to the filter frame with 1/4 turn quick-release fasteners. The mounting frame shall accept a standard 1 in. [25] filter media. The grille shall be finished in (B12 White Powder Coat / B15 Aluminum Powder Coat). Paint finish shall pass 500 hours of salt spray exposure with no measurable creep in accordance with ASTM D1654 and 1000 hours with no rusting or blistering as per ASTM D610 and ASTM D714.