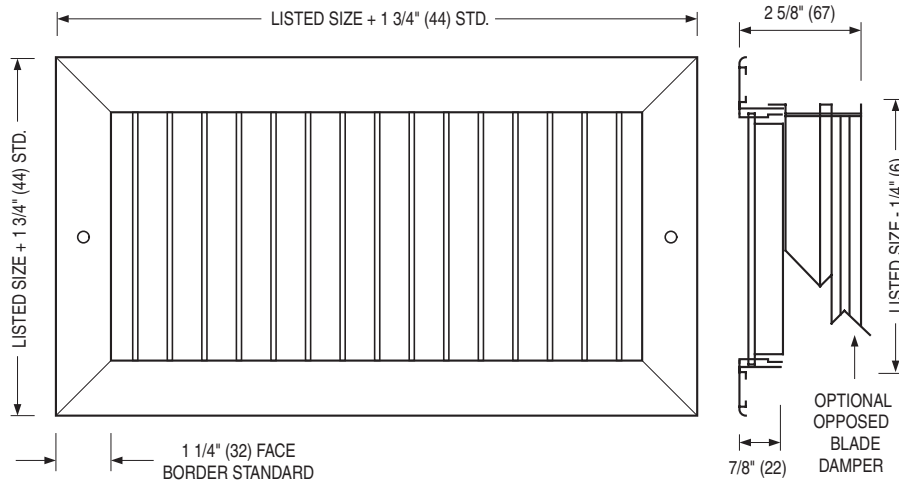




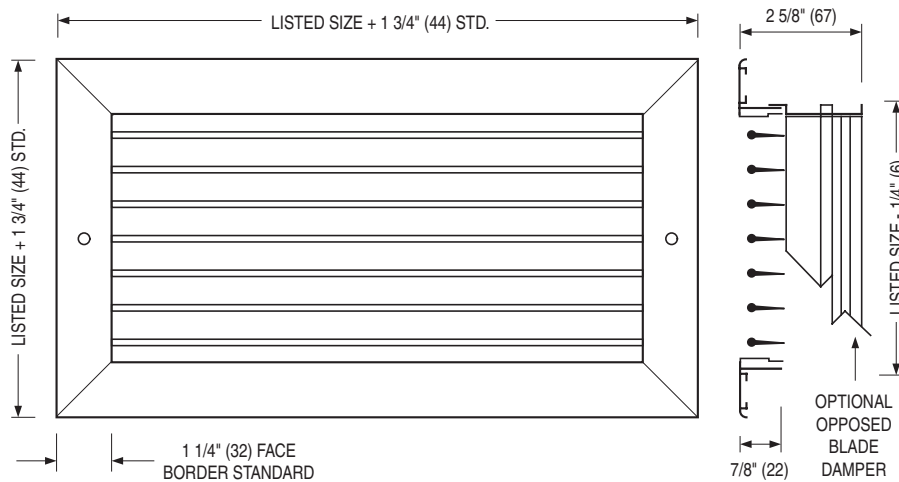
**ALUMINUM SUPPLY GRILLES & REGISTERS**  
**SINGLE DEFLECTION • ADJUSTABLE**  
**MODELS: 51SV(-O) AND 51SH(-O)**



**Frame/Border Type S:**  
Surface Mount

**Model 51SV**  
Single Deflection Grille  
Vertical Front Blades

**Model 51SV-O**  
Single Deflection Register  
Vertical Front Blades  
(Includes O. B. Damper)



**Frame/Border Type S:**  
Surface Mount

**Model 51SH**  
Single Deflection Grille  
Horizontal Front Blades

**Model 51SH-O**  
Single Deflection Register  
Horizontal Front Blades  
(Includes O. B. Damper)

**DESCRIPTION:**

1. Construction: Extruded aluminum heavy gauge frame mechanically interlocked with hairline mitered corners for strength. A single set of extruded aluminum 'teardrop' blades on 3/4" (19) centers provide air control in a single plane. Blades are individually pivoted to ensure positive positioning when adjusted to desired deflection setting.
2. Optional roll-formed steel opposed blade damper has a screw driver slot operator accessible through face of register.
3. Minimum size is 4" x 4" (102 x 102).  
Maximum size one piece construction is 48" x 48" (1219 x 1219).
4. Type S Surface Mount standard frame has a 1 1/4" (32) face border and a 1" (25) overlap margin. Available in multiple sections with mullions - see submittal OG-1-A.
5. Standard fastening is Type A countersunk screw holes.
6. Standard finish is AW Appliance White.

**OPTIONS:**

1. Finish:
  - SA Satin (clear) anodized (Type S and NF only)
  - SP Special \_\_\_\_\_.
2. Fastening (Type S):
  - Type C Concealed mounting straps
  - Type D Concealed screw holes in neck
  - Type N None.
3.  OA Aluminum opposed blade damper.
4.  Type NF Narrow frame with 1" (25) face border and a 3/4" (19) overlap margin. O.A. flange to flange dim. = listed size + 1 1/4" (32).
5.  PF Plaster sub-frame
6.  IS Insect screen
7.  Other \_\_\_\_\_.

**SCHEDULE TYPE:**

**PROJECT:**

**ENGINEER:**

**CONTRACTOR:**

Page 1 of 2  
Dimensions are in inches (mm).

DATE	B SERIES	SUPERSEDES	DRAWING NO.
9 - 1 - 20	5100	9 - 24 - 19	5100-1

**Panel Mounted/Ceiling Modules**

**Border Type PLS: Steel Lay-in Panel**

**Border Type PLA: Aluminum Lay-in Panel**

The grille or register is mounted in an extended panel to suit standard T-Bar Lay-in type ceilings.

**Border Type FPS: Steel Fineline® Panel**

**Border Type FPA: Aluminum Fineline® Panel**

The grille or register is mounted in an extended panel that will fit a 9/16" (14) narrow regressed (bolt slot) T-Bar ceiling grid or 9/16" (14) Flat T-Bar with tegular ceiling tile.

**Border Type SPS: Steel Spline Panel**

**Border Type SPA: Aluminum Spline Panel**

The grille or register is mounted in an extended panel to suit spline type ceiling modules. CM 24" x 24" (600 x 600) only.

**Border Type MPS: Steel Metal Pan Panel**

**Border Type MPA: Aluminum Metal Pan Panel**

The grille or register is mounted in an extended panel to suit metal pan ceilings that have snap-in type ceiling modules. CM 24" x 24" (600 x 600) only.

**Border Type TPS: Steel Tegular Panel**

**Border Type TPA: Aluminum Tegular Panel**

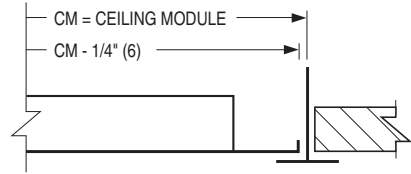
The grille or register is mounted in a panel that will extend below a 15/16" (24) Flat T-Bar ceiling grid.

**Available Border Type PL, FP and TP Ceiling Module Sizes**

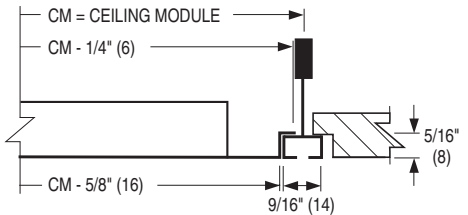
Ceiling Module	
Imperial Units (in.)	Metric Units (mm)
12 x 12	300 x 300
24 x 12	600 x 300
36 x 12	900 x 300
48 x 12	1200 x 300
20 x 20	500 x 500
24 x 24	600 x 600
36 x 24	900 x 600
48 x 24	1200 x 600

Maximum grille neck size is CM Ceiling Module – 3" (76).

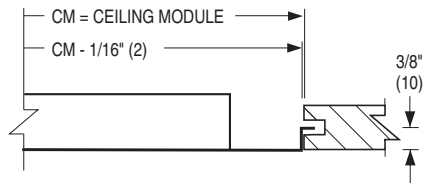
**Type PL (S or A) Lay-in Panel**



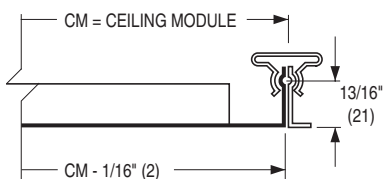
**Type FP (S or A) Fineline® Panel**



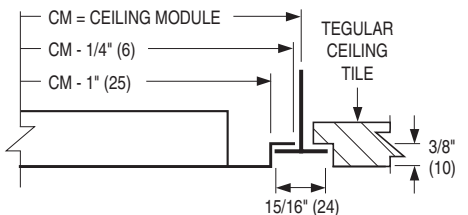
**Type SP (S or A) Spline Panel**



**Type MP (S or A) Metal Pan Panel**



**Type TP (S or A) Tegular Panel**



**SCHEDULE TYPE:**

**PROJECT:**

**ENGINEER:**

**CONTRACTOR:**

Page 2 of 2  
 Dimensions are in inches (mm).

**DATE**

**B SERIES**

**SUPERSEDES**

**DRAWING NO.**

9 - 1 - 20

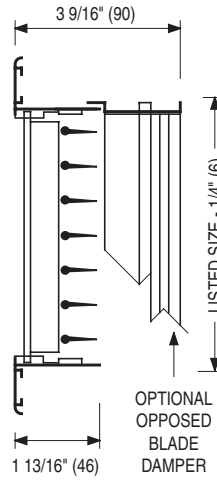
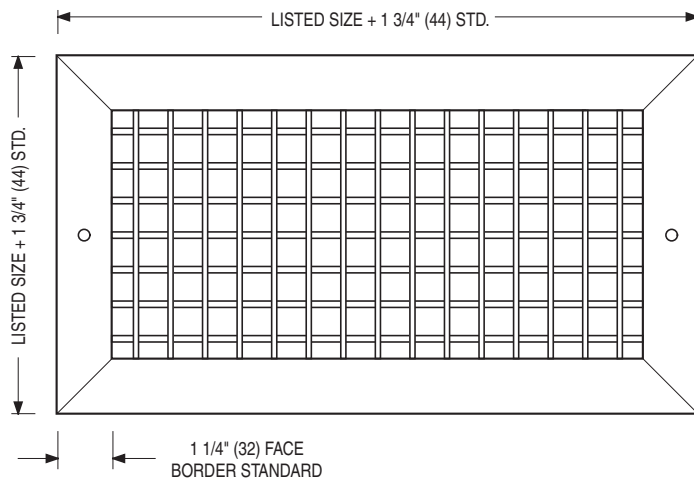
5100

9 - 24 - 19

5100-1



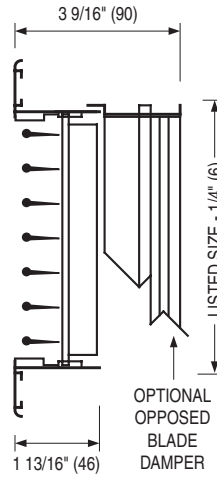
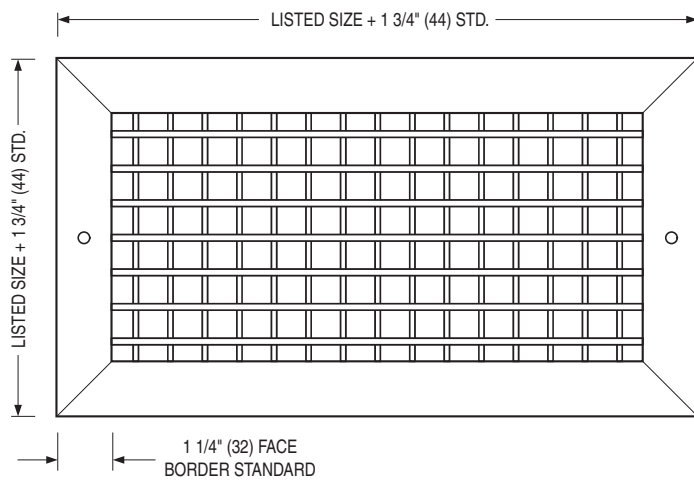
**ALUMINUM SUPPLY GRILLES & REGISTERS**  
**DOUBLE DEFLECTION • ADJUSTABLE**  
**MODELS: 51DV(-O) AND 51DH(-O)**



**Frame/Border Type S:**  
Surface Mount

**Model 51DV**  
Double Deflection Grille  
Vertical Front Blades

**Model 51DV-O**  
Double Deflection Register  
Vertical Front Blades  
(Includes O. B. Damper)



**Frame/Border Type S:**  
Surface Mount

**Model 51DH**  
Double Deflection Grille  
Horizontal Front Blades

**Model 51DH-O**  
Double Deflection Register  
Horizontal Front Blades  
(Includes O. B. Damper)

**DESCRIPTION:**

1. Construction: Extruded aluminum heavy gauge frame mechanically interlocked with hairline mitered corners for strength. Two sets of perpendicular extruded aluminum 'teardrop' blades on 3/4" (19) centers provide air pattern control in two planes. Blades are individually pivoted to ensure positive positioning when adjusted to desired deflection setting.
2. Optional roll-formed steel opposed blade damper has a screw driver slot operator accessible through face of register.
3. Minimum size is 4" x 4" (102 x 102).  
Maximum size one piece construction is 48" x 48" (1219 x 1219).
4. Type S Surface Mount standard frame has a 1 1/4" (32) face border and a 1" (25) overlap margin. Available in multiple sections with mullions - see submittal OG-1-A.
5. Standard fastening is Type A countersunk screw holes.
6. Standard finish is AW Appliance White.

**OPTIONS:**

1. Finish:
  - SA Satin (clear) anodized (Type S and NF only)
  - SP Special \_\_\_\_\_
2. Fastening (Type S):
  - Type C Concealed mounting straps
  - Type D Concealed screw holes in neck
  - Type N None.
3.  OA Aluminum opposed blade damper.
4.  Type NF Narrow frame with 1" (25) face border and a 3/4" (19) overlap margin. O.A. flange to flange dim. = listed size + 1 1/4" (32).
5.  PF Plaster sub-frame
6.  IS Insect screen
7.  Other \_\_\_\_\_

**SCHEDULE TYPE:**

**PROJECT:**

**ENGINEER:**

**CONTRACTOR:**

Page 1 of 2  
Dimensions are in inches (mm).

DATE	B SERIES	SUPERSEDES	DRAWING NO.
9 - 1 - 20	5100	9 - 24 - 19	5100-2

**Panel Mounted/Ceiling Modules**

- Border Type PLS: Steel Lay-in Panel**
- Border Type PLA: Aluminum Lay-in Panel**

The grille or register is mounted in an extended panel to suit standard T-Bar Lay-in type ceilings.

- Border Type FPS: Steel Finline<sup>®</sup> Panel**
- Border Type FPA: Aluminum Finline<sup>®</sup> Panel**

The grille or register is mounted in an extended panel that will fit a 9/16" (14) narrow regressed (bolt slot) T-Bar ceiling grid or 9/16" (14) Flat T-Bar with tegular ceiling tile.

- Border Type SPS: Steel Spline Panel**
- Border Type SPA: Aluminum Spline Panel**

The grille or register is mounted in an extended panel to suit spline type ceiling modules. CM 24" x 24" (600 x 600) only.

- Border Type MPS: Steel Metal Pan Panel**
- Border Type MPA: Aluminum Metal Pan Panel**

The grille or register is mounted in an extended panel to suit metal pan ceilings that have snap-in type ceiling modules. CM 24" x 24" (600 x 600) only.

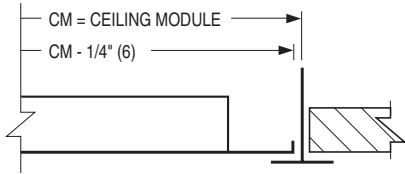
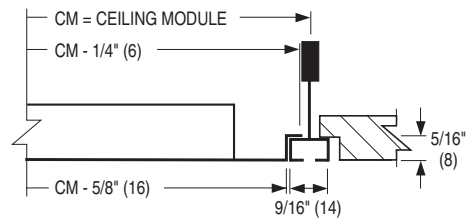
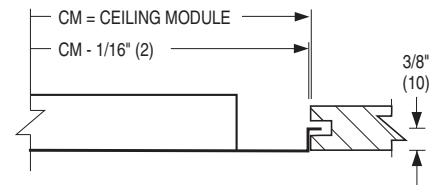
- Border Type TPS: Steel Tegular Panel**
- Border Type TPA: Aluminum Tegular Panel**

The grille or register is mounted in a panel that will extend below a 15/16" (24) Flat T-Bar ceiling grid.

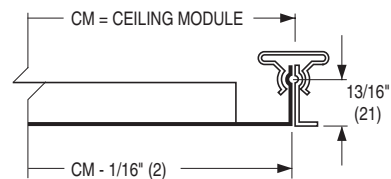
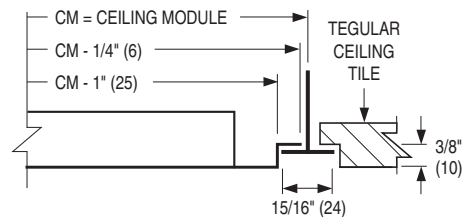
**Available Border Type PL, FP and TP Ceiling Module Sizes**

Ceiling Module	
Imperial Units (in.)	Metric Units (mm)
12 x 12	300 x 300
24 x 12	600 x 300
36 x 12	900 x 300
48 x 12	1200 x 300
20 x 20	500 x 500
24 x 24	600 x 600
36 x 24	900 x 600
48 x 24	1200 x 600

Maximum grille neck size is CM Ceiling Module – 3" (76).

**Type PL (S or A) Lay-in Panel**

**Type FP (S or A) Finline<sup>®</sup> Panel**

**Type SP (S or A) Spline Panel**


Note: Splines on two opposite sides.

**Type MP (S or A) Metal Pan Panel**

**Type TP (S or A) Tegular Panel**

**SCHEDULE TYPE:**
**PROJECT:**
**ENGINEER:**
**CONTRACTOR:**

Page 2 of 2  
 Dimensions are in inches (mm).

**DATE**
**B SERIES**
**SUPERSEDES**
**DRAWING NO.**

9 - 1 - 20

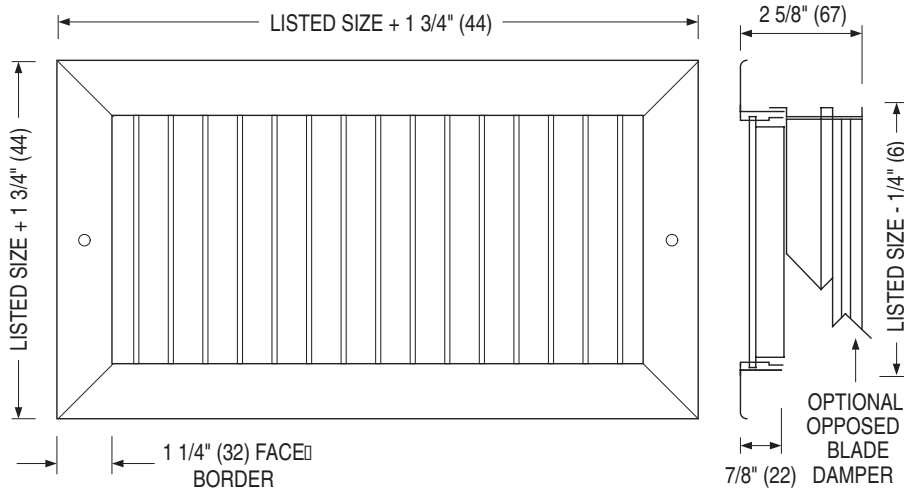
5100

9 - 24 - 19

5100-2



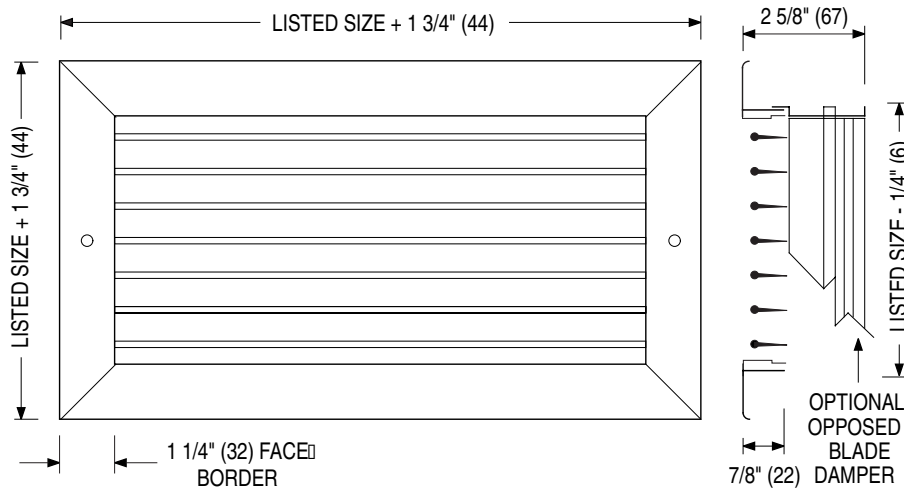
**STEEL SUPPLY GRILLES & REGISTERS**  
**SINGLE DEFLECTION • ADJUSTABLE**  
**MODELS: 61SV(-O) AND 61SH(-O)**



**Frame/Border Type S:**  
Surface Mount

**Model 61SV**  
Single Deflection Grille  
Vertical Front Blades

**Model 61SV-O**  
Single Deflection Register  
Vertical Front Blades  
(Includes O. B. Damper)



**Frame/Border Type S:**  
Surface Mount

**Model 61SH**  
Single Deflection Grille  
Horizontal Front Blades

**Model 61SH-O**  
Single Deflection Register  
Horizontal Front Blades  
(Includes O. B. Damper)

**DESCRIPTION:**

1. Construction: Corrosion resistant steel. Roll-formed frame mechanically interlocked with mitered corners for strength. A single set of roll-formed 'teardrop' blades on 3/4" (19) centers provide air control in a single plane. Blades are individually pivoted to ensure positive positioning when adjusted to desired deflection setting.
2. Optional roll-formed steel opposed blade damper has a screw driver slot operator accessible through face of register.
3. Minimum size is 4" x 4" (102 x 102).  
Maximum size is 48" x 36" (1219 x 914).
4. Type S Surface mount frame has a 1 1/4" (32) face border and a 1" (25) overlap margin.
5. Standard fastening is Type A countersunk screw holes.
6. Standard finish is AW Appliance White.

**OPTIONS:**

1. Finish:
  - SP Special \_\_\_\_\_.
2. Fastening (Type S):
  - Type C Concealed mounting straps
  - Type D Concealed screw holes in neck
  - Type N None.
3.  PF Plaster sub-frame
4.  IS Insect screen
5.  Other \_\_\_\_\_.

**SCHEDULE TYPE:**

**PROJECT:**

**ENGINEER:**

**CONTRACTOR:**

Page 1 of 2  
Dimensions are in inches (mm).

DATE	B SERIES	SUPERSEDES	DRAWING NO.
9-24-19	6100	2-1-11	6100-1

### Panel Mounted/Ceiling Modules

**Border Type PLS: Steel Lay-in Panel**

The grille or register is mounted in an extended panel to suit standard T-Bar Lay-in type ceilings.

**Border Type FPS: Steel Finline<sup>®</sup> Panel**

The grille or register is mounted in an extended panel that will fit a 9/16" (14) narrow regressed (bolt slot) T-Bar ceiling grid or 9/16" (14) Flat T-Bar with tegular ceiling tile.

**Border Type SPS: Steel Spline Panel**

The grille or register is mounted in an extended panel to suit spline type ceiling modules. CM 24" x 24" (600 x 600) only.

**Border Type MPS: Steel Metal Pan Panel**

The grille or register is mounted in an extended panel to suit metal pan ceilings that have snap-in type ceiling modules. CM 24" x 24" (600 x 600) only.

**Border Type TPS: Steel Tegular Panel**

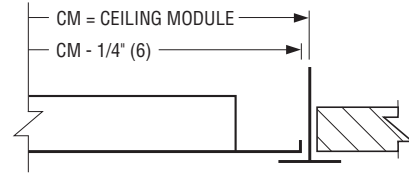
The grille or register is mounted in a panel that will extend below a 15/16" (24) Flat T-Bar ceiling grid.

**Available Border Type PLS, FPS and TPS Ceiling Module Sizes**

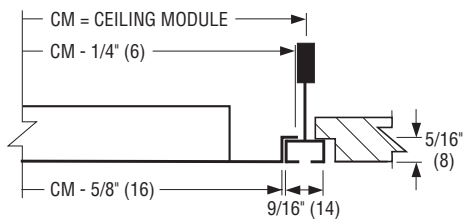
Ceiling Module	
Imperial Units (in.)	Metric Units (mm)
12 x 12	300 x 300
24 x 12	600 x 300
36 x 12	900 x 300
48 x 12	1200 x 300
20 x 20	500 x 500
24 x 24	600 x 600
36 x 24	900 x 600
48 x 24	1200 x 600

Maximum grille neck size is CM Ceiling Module – 3" (76).

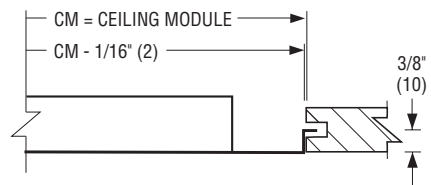
**Type PLS Lay-in Panel**



**Type FPS Finline<sup>®</sup> Panel**

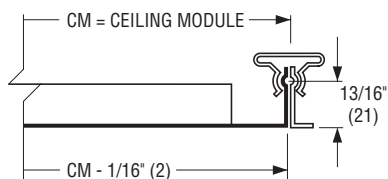


**Type SPS Spline Panel**

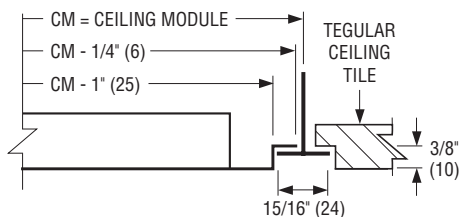


Note: Splines on two opposite sides.

**Type MPS Metal Pan Panel**



**Type TPS Tegular Panel**



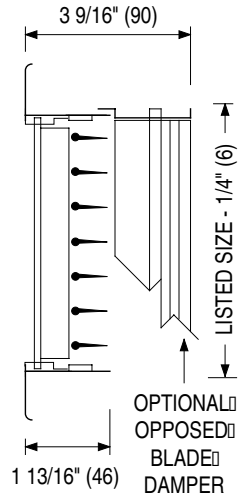
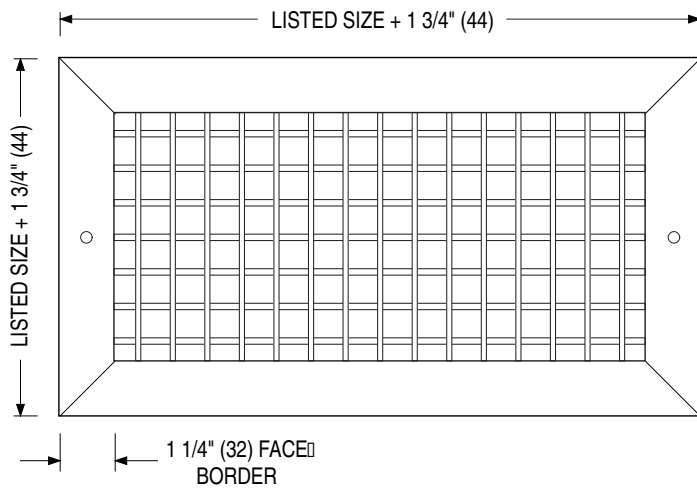
<b>SCHEDULE TYPE:</b>
<b>PROJECT:</b>
<b>ENGINEER:</b>
<b>CONTRACTOR:</b>

Page 2 of 2  
 Dimensions are in inches (mm).

<b>DATE</b>	<b>B SERIES</b>	<b>SUPERSEDES</b>	<b>DRAWING NO.</b>
9-24-19	6100	2-1-11	6100-1



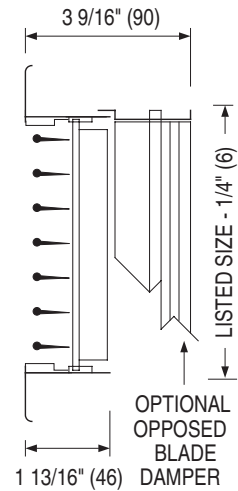
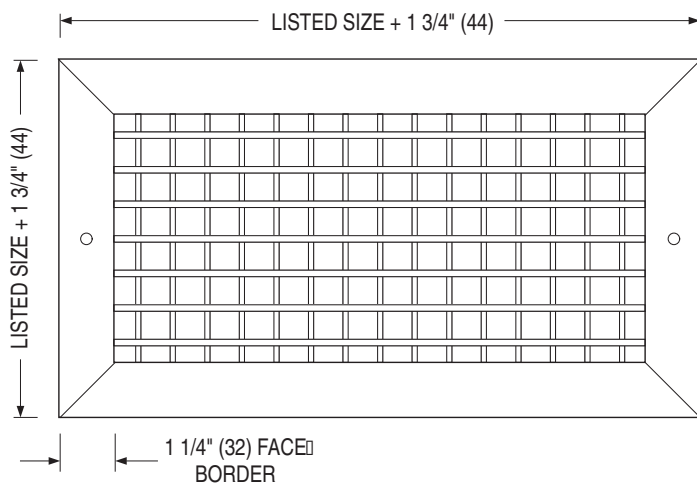
**STEEL SUPPLY GRILLES & REGISTERS**  
**DOUBLE DEFLECTION • ADJUSTABLE**  
**MODELS: 61DV(-O) AND 61DH(-O)**



**Frame/Border Type S:**  
Surface Mount

**Model 61DV**  
Double Deflection Grille  
Vertical Front Blades

**Model 61DV-O**  
Double Deflection Register  
Vertical Front Blades  
(Includes O. B. Damper)



**Frame/Border Type S:**  
Surface Mount

**Model 61DH**  
Double Deflection Grille  
Horizontal Front Blades

**Model 61DH-O**  
Double Deflection Register  
Horizontal Front Blades  
(Includes O. B. Damper)

**DESCRIPTION:**

1. Construction: Corrosion-resistant steel. Roll-formed frame mechanically interlocked with mitered corners for strength. Two sets of perpendicular roll-formed 'teardrop' blades on 3/4" (19) centers provide air pattern control in two planes. Blades are individually pivoted to ensure positive positioning when adjusted to desired deflection setting.
2. Optional roll-formed steel opposed blade damper has a screw driver slot operator accessible through face of register.
3. Minimum size is 4" x 4" (102 x 102).  
Maximum size is 48" x 36" (1219 x 914).
4. Type S Surface mount frame has a 1 1/4" (32) face border and a 1" (25) overlap margin.
5. Standard fastening is Type A countersunk screw holes.
6. Standard finish is AW Appliance White.

**OPTIONS:**

1. Finish:
  - SP Special \_\_\_\_\_ .
2. Fastening (Type S):
  - Type C Concealed mounting straps
  - Type D Concealed screw holes in neck
  - Type N None.
3.  PF Plaster sub-frame
4.  IS Insect screen
5.  Other \_\_\_\_\_ .

**SCHEDULE TYPE:**

**PROJECT:**

**ENGINEER:**

**CONTRACTOR:**

Page 1 of 2  
Dimensions are in inches (mm).

DATE	B SERIES	SUPERSEDES	DRAWING NO.
9-24-19	6100	2-1-11	6100-2

**Panel Mounted/Ceiling Modules**

**Border Type PLS: Steel Lay-in Panel**

The grille or register is mounted in an extended panel to suit standard T-Bar Lay-in type ceilings.

**Border Type FPS: Steel Finline® Panel**

The grille or register is mounted in an extended panel that will fit a 9/16" (14) narrow regressed (bolt slot) T-Bar ceiling grid or 9/16" (14) Flat T-Bar with tegular ceiling tile.

**Border Type SPS: Steel Spline Panel**

The grille or register is mounted in an extended panel to suit spline type ceiling modules. CM 24" x 24" (600 x 600) only.

**Border Type MPS: Steel Metal Pan Panel**

The grille or register is mounted in an extended panel to suit metal pan ceilings that have snap-in type ceiling modules. CM 24" x 24" (600 x 600) only.

**Border Type TPS: Steel Tegular Panel**

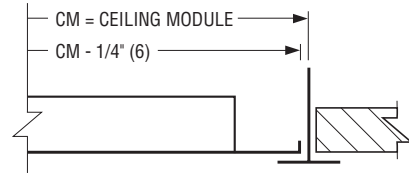
The grille or register is mounted in a panel that will extend below a 15/16" (24) Flat T-Bar ceiling grid.

**Available Border Type PLS, FPS and TPS Ceiling Module Sizes**

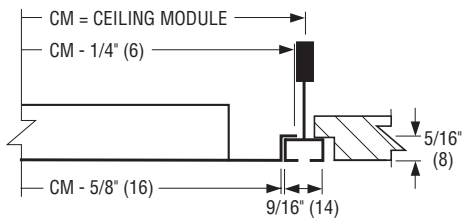
Ceiling Module	
Imperial Units (in.)	Metric Units (mm)
12 x 12	300 x 300
24 x 12	600 x 300
36 x 12	900 x 300
48 x 12	1200 x 300
20 x 20	500 x 500
24 x 24	600 x 600
36 x 24	900 x 600
48 x 24	1200 x 600

Maximum grille neck size is CM Ceiling Module – 3" (76).

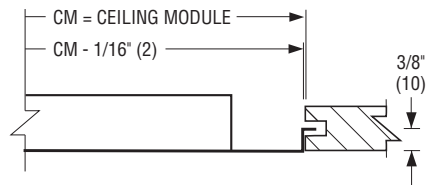
**Type PLS Lay-in Panel**



**Type FPS Finline® Panel**

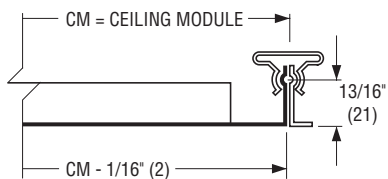


**Type SPS Spline Panel**

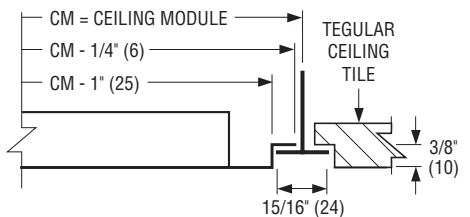


Note: Splines on two opposite sides.

**Type MPS Metal Pan Panel**



**Type TPS Tegular Panel**



**SCHEDULE TYPE:**

**PROJECT:**

**ENGINEER:**

**CONTRACTOR:**

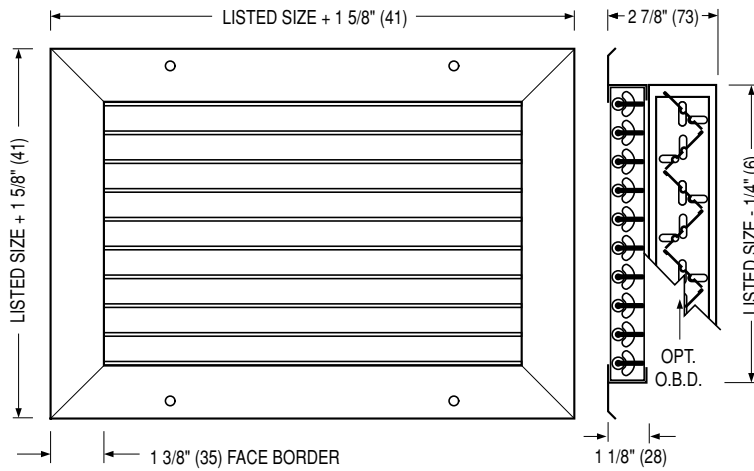
Page 2 of 2  
 Dimensions are in inches (mm).

DATE	B SERIES	SUPERSEDES	DRAWING NO.
9 - 24 - 19	6100	2 - 1 - 11	6100-2



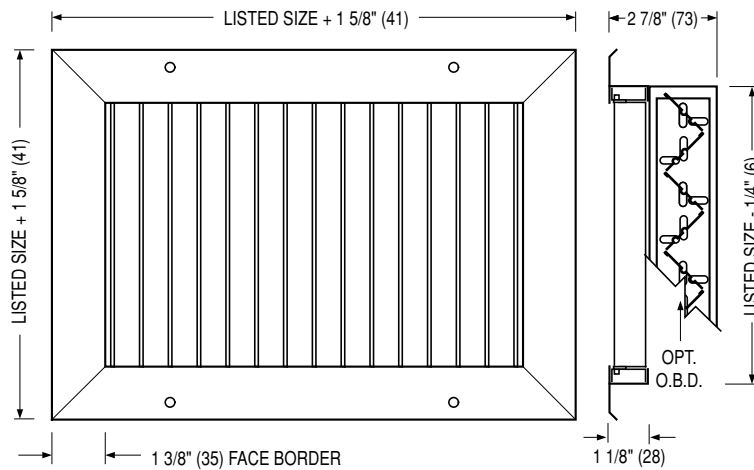


**STAINLESS STEEL SUPPLY GRILLES & REGISTERS**  
**SINGLE DEFLECTION • ADJUSTABLE**  
**MODELS: 67SH(-O) AND 67SV(-O) TYPE S**



**MODEL 67SH**  
 Single Deflection Grille  
 Horizontal Blades

**MODEL 67SH-O**  
 Single Deflection Register  
 Horizontal Blades  
 (Includes O. B. Damper)



**MODEL 67SV**  
 Single Deflection Grille  
 Vertical Blades

**MODEL 67SV-O**  
 Single Deflection Register  
 Vertical Blades  
 (Includes O. B. Damper)

**DESCRIPTION:**

1. Construction: Type 304 stainless steel welded and reinforced frame features hairline mitered corners. A single set of streamlined shaped grille blades on 3/4" (19) centers provide air control in a single plane. Blades are individually pivoted to ensure positive positioning when adjusted to desired deflection setting.
2. Optional roll-formed Type 304 stainless steel opposed blade damper has a screw driver operator accessible through face of register.
3. Minimum size is 4" x 4" (102 x 102).  
Maximum size is 60" x 48" (1524 x 1219).
4. Type S Surface mount standard frame has a 1 3/8" (35) face border.
5. Standard fastening is Type A countersunk screw holes.
6. Standard finish is #4 Brushed Satin Polished.

**OPTIONS:**

1. Construction:
  - 316 Type 316 stainless steel.
2. Finish:
  - AW Appliance White.
  - SP Special \_\_\_\_\_ .
3.  PFS Stainless Steel Plaster frame
4.  Other \_\_\_\_\_ .

**SCHEDULE TYPE:**

**PROJECT:**

**ENGINEER:**

**CONTRACTOR:**

Dimensions are in inches (mm).

**DATE**

**B SERIES**

**SUPERSEDES**

**DRAWING NO.**

5 - 11 - 15

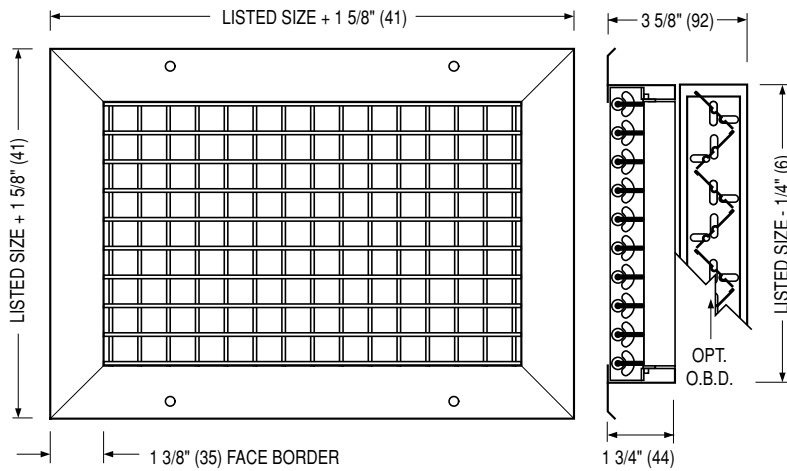
6700

9 - 22 - 11

6700-1

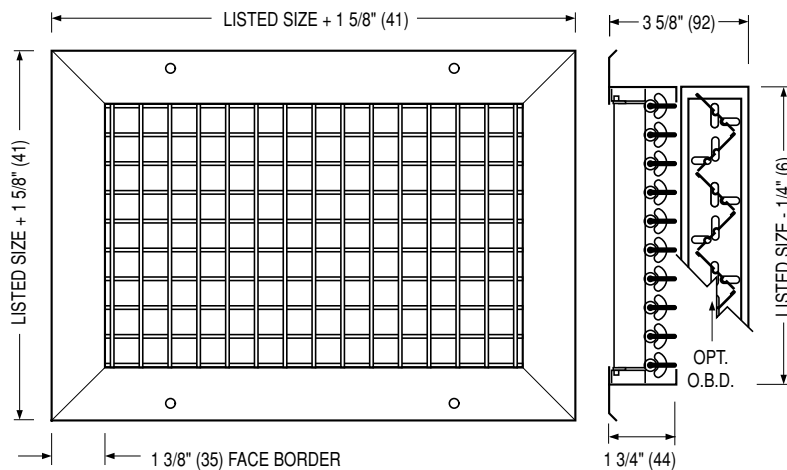


**STAINLESS STEEL SUPPLY GRILLES & REGISTERS**  
**DOUBLE DEFLECTION • ADJUSTABLE**  
**MODELS: 67DH(-O) AND 67DV(-O) TYPE S**



**MODEL 67DH**  
 Double Deflection Grille  
 Horizontal Front Blades

**MODEL 67DH-O**  
 Double Deflection Register  
 Horizontal Front Blades  
 (Includes O. B. Damper)



**MODEL 67DV**  
 Double Deflection Grille  
 Vertical Front Blades

**MODEL 67DV-O**  
 Double Deflection Register  
 Vertical Front Blades  
 (Includes O. B. Damper)

**DESCRIPTION:**

1. Construction: Type 304 stainless steel welded and reinforced frame features hairline mitered corners. Two sets of perpendicular streamlined shaped grille blades on 3/4" (19) centers provide air control in two planes. Blades are individually pivoted to ensure positive positioning when adjusted to desired deflection setting.
2. Optional roll-formed Type 304 stainless steel opposed blade damper has a screw driver operator accessible through face of register.
3. Minimum size is 4" x 4" (102 x 102).  
Maximum size is 48" x 48" (1219 x 1219).
4. Type S Surface mount standard frame has a 1 3/8" (35) face border.
5. Standard fastening is Type A countersunk screw holes.
6. Standard finish is #4 Brushed Satin Polished.

**OPTIONS:**

1. Construction:
  - 316 Type 316 stainless steel.
2. Finish:
  - AW Appliance White.
  - SP Special \_\_\_\_\_.
3.  PFS Stainless Steel Plaster frame
4.  Other \_\_\_\_\_.

**SCHEDULE TYPE:**

**PROJECT:**

**ENGINEER:**

**CONTRACTOR:**

Dimensions are in inches (mm).

**DATE**

**B SERIES**

**SUPERSEDES**

**DRAWING NO.**

5 - 11 - 15

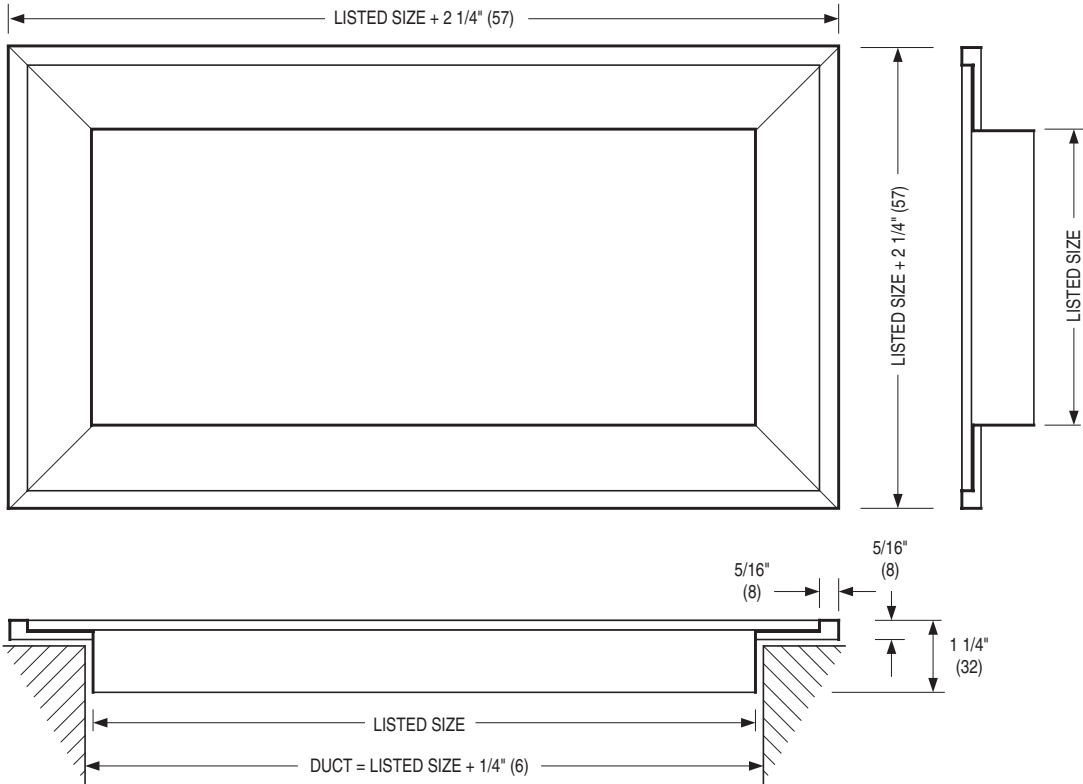
6700

9 - 22 - 11

6700-2

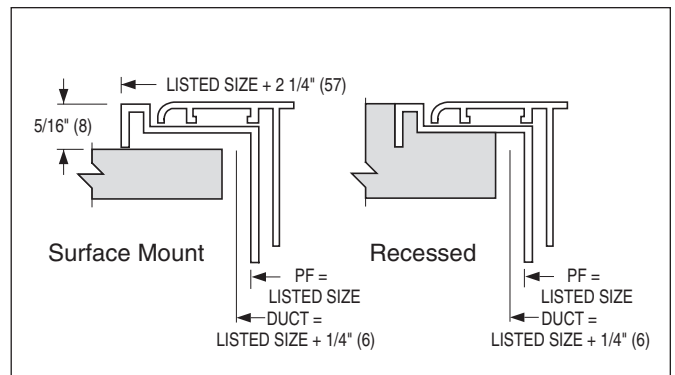


**GRILLES AND REGISTERS ACCESSORY  
PLASTER/MOUNTING FRAME**  
(FOR USE WITH MODEL SERIES 5100, 6100, AND 7100)  
**MODEL: PF**



**DESCRIPTION:**

1. Construction: Extruded aluminum frame with staked and mitered mitered corners for strength.
2. Model PF Plaster frame provides a convenient and professional method for finishing off a grille or register opening. It provides a stable anchor for attachment, while enabling the grille or register to be readily removed and replaced without disturbing the finished surface of the wall or ceiling.
3. Frames can be installed before plastering and installed in a recessed fashion or surface mounted afterwards on plaster or other material.
4. Duct openings should be 1/4" (6) larger than nominal listed size to accommodate frame.
5. Finish: Baked enamel finish to match grille or register.



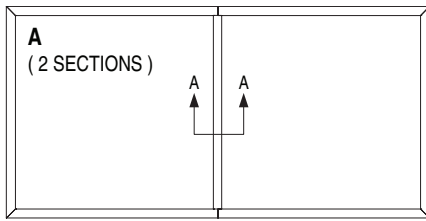
<b>SCHEDULE TYPE:</b>	
<b>PROJECT:</b>	
<b>ENGINEER:</b>	
<b>CONTRACTOR:</b>	

Dimensions are in inches (mm).

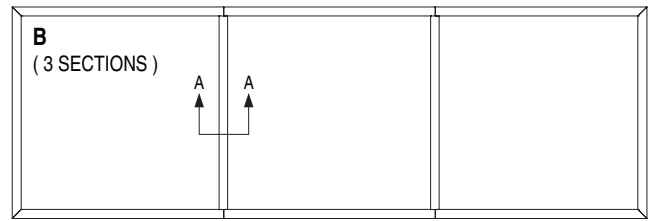
DATE	B SERIES	SUPERSEDES	DRAWING NO.
10 - 24 - 01	ACC-GR	5100-11	ACC-PF



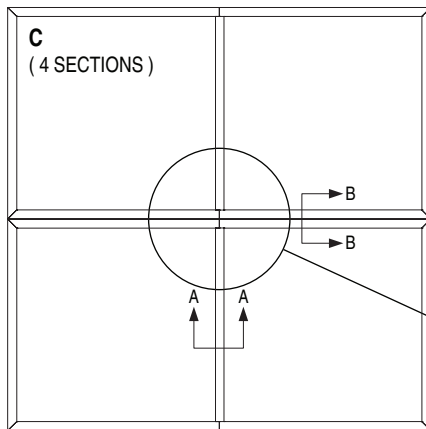
**OVERSIZED GRILLE CONSTRUCTION**  
**ALUMINUM SUPPLY AND RETURN GRILLES**  
**FOR DUCTS OR OPENINGS LARGER THAN 48" (1219)**  
**MODEL SERIES: 5100 AND 7100**



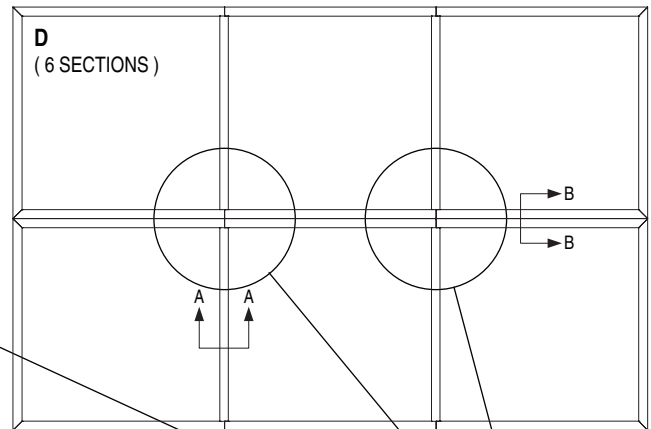
OVER 48" (1219) IN WIDTH UP TO 96" x 48" (2438 x 1219)



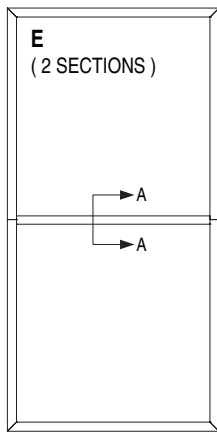
OVER 96" (2438) IN WIDTH UP TO 144" x 48" (3658 x 1219)



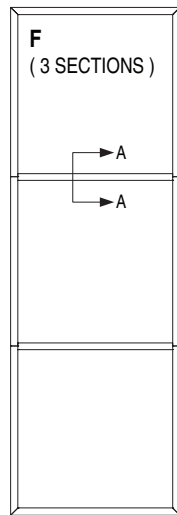
OVER 48" (1219) IN WIDTH AND HEIGHT UP TO 96" x 96" (2438 x 2438)



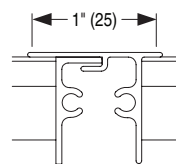
OVER 96" x 48" (2438 x 1219) UP TO 144" x 96" (3658 x 2438)



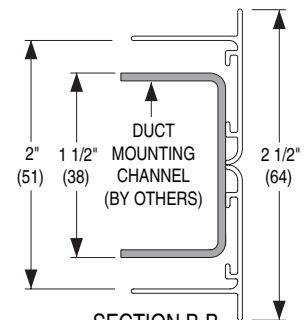
UP TO 48" (1219) IN WIDTH AND UP TO 96" (2438) IN HEIGHT



UP TO 48" (1219) IN WIDTH AND UP TO 144" (3658) IN HEIGHT



**SECTION A-A**  
FACE MULLION WITH ALIGNMENT TAB OVERLAP DETAIL



**SECTION B-B**  
DOUBLE FRAME / BORDER DETAIL

**NOTES:**

- Maximum single section size is 48" x 48" (1219 x 1219).
- Detail A-A frame joints are sheared and butted together. Alignment tabs interlock and keep the face surfaces parallel.
- Detail B-B shows two separate grille frames butted together.
- Mounting countersunk screw holes are located per the standard screw hole chart on grille frames, but not on face mullion.
- Sections ship loose for field installation.
- Additional structural support (Duct mounting support channels by others) is required for diagrams C and D.
- This detail applies to Type S Surface Mount Frame/Border only.

<b>SCHEDULE TYPE:</b>				
<b>PROJECT:</b>				
<b>ENGINEER:</b>	<b>DATE</b>	<b>B SERIES</b>	<b>SUPERSEDES</b>	<b>DRAWING NO.</b>
<b>CONTRACTOR:</b>	4 - 27 - 20	GR	NEW	OG-1-A

Dimensions are in inches (mm)

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

**NAILOR POWDER COAT PROPERTIES**

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

**ELECTROCOATING PROPERTIES**

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


**POWDER COAT**

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

**ELECTROCOATING**

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

**CLEAR ANODIZING** (Aluminum products only)

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

**COLOR ANODIZING** (Aluminum products only)

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

**BRUSHED AND CLEAR COAT**

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

**#4 BRUSHED SATIN POLISHED** (Stainless Steel products only)

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

**PRIME COAT**

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

**PAINT PREPARED ALUMINUM** (Aluminum products only)

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

**MILL FINISH**

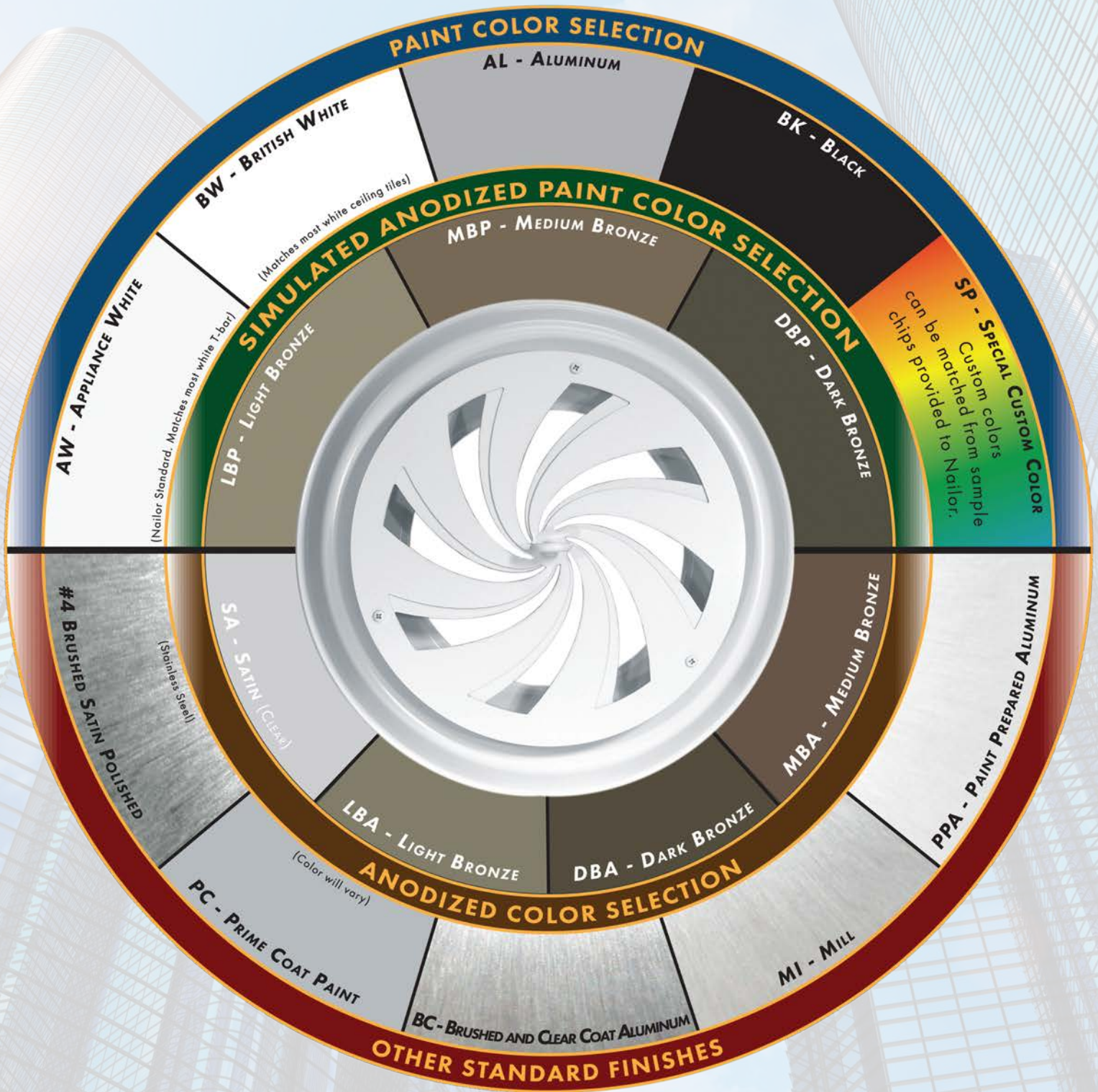
Surface is left untreated and requires cleaning, degreasing, etc. in the field before final finish can be applied if required.



**Nailor**<sup>®</sup>  
Industries Inc.

## STANDARD AND OPTIONAL FINISHES FOR GRILLES AND DIFFUSERS

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



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

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

"Complete Air Control and Distribution Solutions."

WGDSOF2015

[www.nailor.com](http://www.nailor.com)

## PERFORMANCE NOTES FOR SUPPLY GRILLES AND REGISTERS:

### MODEL SERIES: 5100, 6100 AND 6700

#### Throw, Spread and Drop

The isovel diagrams shown below, illustrate in plan view, the relationship of horizontal spread to throw for three standard vertical blade deflections and represent a typical high side wall supply outlet. The isovels (throw values) are for the cataloged terminal velocities of 150, 100 and 50 fpm.

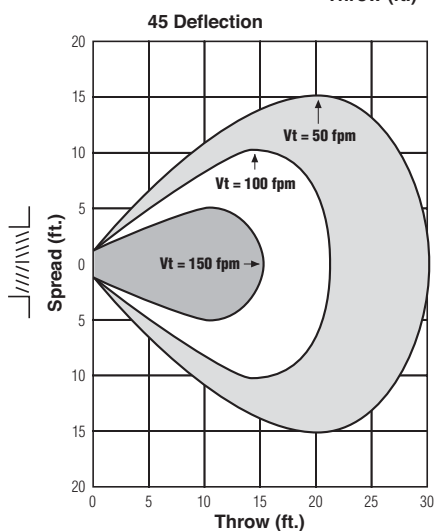
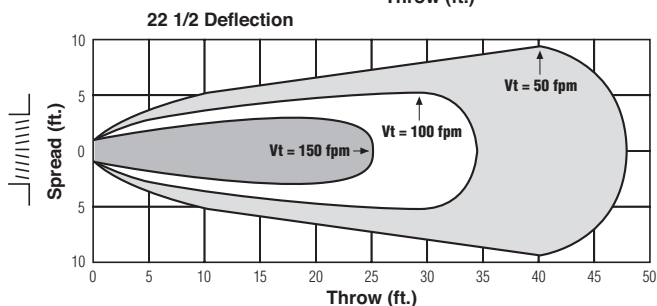
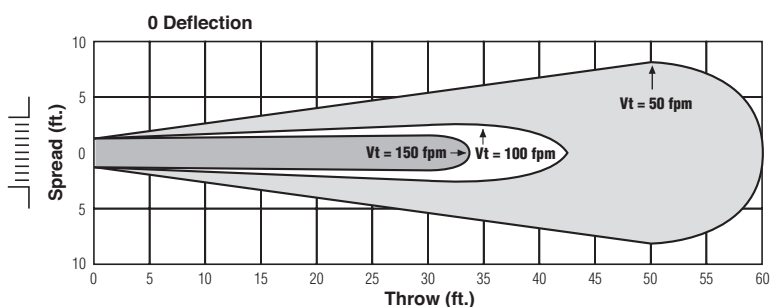
Cataloged data, in accordance with the test code, is with the grille mounted 9" (229) below the ceiling and benefiting from the ceiling coanda effect under isothermal conditions. Throw values without ceiling effect (greater than 24" (610) from a surface parallel to the airflow) may be approximated by multiplying the cataloged throw by x 0.7.

In order to offset potential draft problems caused by premature drop, it is recommended to set the blades with an upward deflection setting of 15 – 20° in free space conditions. The angle of spread and temperature differential between the supply air and room air ( $\Delta T$ ) also effects the drop of the airstream.

Under constant conditions of temperature, volume and core velocity, the wider the spread, the smaller the drop. Typical cold supply air (20°F  $\Delta T$ ) reduces horizontal throw by approximately 30%. Warm air will increase throw by approximately 30% and reduce drop.

For a full explanation of the effects of spread, throw, temperature and drop, refer to the engineering guide at the back of the catalog.

#### SPREAD CHARACTERISTICS WITH THREE DEFLECTION SETTINGS



#### NC Corrections for Blade Deflection (add)

Model Type	Damper	Blade Deflection		
		0°	22 1/2°	45°
Double Deflection	With	0	+ 2	+ 7
	Without	- 4	- 2	+ 3
Single Deflection	With	- 4	- 1	+ 4
	Without	- 8	- 6	+ 1

Note: Damper corrections are for wide open damper.

#### TP Correction Factors for Grilles Without Damper (multiply)

Blade Deflection	0°	22 1/2°	45°
Double Deflection Factor	x .80	x .83	x .89
Single Deflection Factor	x .73	x .76	x .85

#### NC Corrections for Throttling Damper (add)

Additional Pressure Drop (in. w.g.)	.05"	.15"	.25"
Approx. Damper Opening	75%	67%	50%
NC add	+ 6	+ 11	+ 18

## PERFORMANCE DATA: SUPPLY GRILLES AND REGISTERS • 5100, 6100 AND 6700 SERIES MODELS: 51DV, 51DH, 51SV, 51SH, 61DV, 61DH, 61SV, 61SH, 67DV, 67DH, 67SV, 67SH

Listed Duct Size (inches)	Alternate Sizes (inches)	Core Area (sq. ft.)	Ak Factor	Core Velocity		300	400	500	600	700	800	1000	1200	1400
				Velocity	Pressure	.006	.010	.016	.022	.031	.040	.062	.090	.122
6 x 6	8 x 4 10 x 4	0.20		CFM		60	80	100	120	140	160	200	240	280
				Noise Criteria		-	-	-	-	19	23	29	35	40
				Throw	0°	5-7-13	7-9-16	8-12-18	10-14-20	11-15-21	12-16-23	15-18-25	16-20-27	17-21-30
22 1/2°	4-6-10	6-7-13	6-10-14		8-11-16	9-12-17	10-13-18	12-14-20	13-16-22	14-17-24				
8 x 6	10 x 5 12 x 4	0.27		CFM		81	108	135	162	189	216	270	324	378
				Noise Criteria		-	-	-	15	20	24	30	36	41
				Throw	0°	5-8-15	8-12-18	10-14-20	11-16-23	13-18-25	15-19-27	17-21-30	18-23-32	19-24-35
22 1/2°	4-6-12	6-10-14	8-11-16		9-13-18	10-14-20	12-15-22	14-17-24	14-18-26	15-19-28				
10 x 6	12 x 5 16 x 4	0.35		CFM		105	140	175	210	245	280	350	420	490
				Noise Criteria		-	-	-	16	21	25	31	37	42
				Throw	0°	6-9-18	9-13-21	10-16-24	12-19-26	15-20-28	17-21-30	20-23-33	21-25-36	22-27-39
22 1/2°	5-7-14	7-10-17	8-13-19		10-15-21	12-16-22	14-17-24	16-18-26	17-20-29	18-22-31				
8 x 8	14 x 5	0.38		CFM		114	152	190	228	266	304	380	456	532
				Noise Criteria		-	-	-	17	22	26	32	38	43
				Throw	0°	6-9-19	9-14-22	11-16-25	13-19-27	16-21-29	18-22-32	19-24-34	21-26-37	23-28-40
22 1/2°	5-7-15	7-11-18	9-13-20		10-15-22	13-17-23	14-18-26	15-19-27	17-21-30	18-22-32				
12 x 6	18 x 4	0.42		CFM		126	168	210	252	294	336	420	504	588
				Noise Criteria		-	-	-	17	22	26	32	38	43
				Throw	0°	6-9-19	9-14-22	11-16-25	13-19-27	16-21-29	18-22-32	19-24-34	21-26-37	23-28-40
22 1/2°	5-7-15	7-11-18	9-13-20		10-15-22	13-17-23	14-18-26	15-19-27	17-21-30	18-22-32				
14 x 6	10 x 8	0.50		CFM		150	200	250	300	350	400	500	600	700
				Noise Criteria		-	-	-	18	23	27	33	39	44
				Throw	0°	6-11-20	10-15-23	12-18-25	15-20-28	16-22-31	19-23-33	21-25-36	23-28-40	25-31-43
22 1/2°	5-9-16	8-12-18	10-14-20		12-16-22	13-18-25	15-18-26	17-20-29	18-22-32	20-25-34				
12 x 8	16 x 6 24 x 4	0.58		CFM		174	232	290	348	406	464	580	696	812
				Noise Criteria		-	-	-	19	24	28	34	40	45
				Throw	0°	7-11-21	10-15-24	12-19-27	15-21-30	17-23-32	20-24-34	22-27-38	24-30-42	26-32-45
22 1/2°	6-9-17	8-12-19	10-15-22		12-17-24	14-18-26	16-19-27	18-22-30	19-24-34	21-26-36				
10 x 10	14 x 7 26 x 4	0.61		CFM		183	244	305	366	427	488	610	732	854
				Noise Criteria		-	-	-	19	24	28	34	40	45
				Throw	0°	7-11-21	10-16-24	13-19-28	16-21-30	17-23-32	20-24-35	23-28-39	24-30-42	27-32-46
22 1/2°	6-9-17	8-13-19	10-15-22		13-17-24	14-18-26	16-19-28	18-22-31	19-24-34	22-26-37				
18 x 6	14 x 8 28 x 4 30 x 4	0.65		CFM		195	260	325	390	455	520	650	780	910
				Noise Criteria		-	-	15	20	25	29	35	41	46
				Throw	0°	7-12-22	11-16-25	13-20-29	16-22-32	18-24-34	21-25-36	24-29-40	25-32-45	28-34-48
22 1/2°	6-10-18	9-13-20	10-16-23		13-18-26	14-19-27	17-20-29	19-23-32	20-26-36	22-27-38				
12 x 10	20 x 6 24 x 5	0.74		CFM		222	296	370	444	518	592	740	888	1036
				Noise Criteria		-	-	15	20	25	29	35	41	46
				Throw	0°	8-13-24	11-17-27	14-21-31	17-24-33	20-26-36	22-27-39	25-31-43	27-33-48	30-36-51
22 1/2°	6-10-19	9-14-22	11-17-25		14-19-26	16-21-29	18-22-31	20-25-34	22-26-38	24-29-41				
22 x 6	16 x 8 28 x 5 36 x 4	0.80		CFM		240	320	400	480	560	640	800	960	1120
				Noise Criteria		-	-	16	21	26	30	36	42	47
				Throw	0°	8-13-25	11-18-28	15-22-32	18-25-35	20-27-38	23-28-41	26-32-45	28-35-50	31-38-53
22 1/2°	6-10-20	9-14-22	12-18-26		14-20-28	16-22-30	18-22-33	21-26-36	22-28-40	25-30-42				
12 x 12	14 x 10 18 x 8 24 x 6 38 x 4	0.90		CFM		270	360	450	540	630	720	900	1080	1260
				Noise Criteria		-	-	16	21	26	30	36	42	47
				Throw	0°	9-14-26	12-18-29	15-23-33	18-26-36	21-27-39	24-29-42	27-33-47	29-36-51	32-39-56
22 1/2°	7-11-21	10-14-23	12-18-26		14-21-29	17-22-31	19-23-34	22-26-38	23-29-41	26-31-45				
18 x 10	30 x 6	1.13		CFM		339	452	565	678	791	904	1130	1356	1582
				Noise Criteria		-	-	17	22	27	31	37	43	48
				Throw	0°	9-15-29	14-20-33	17-25-36	20-29-40	24-30-43	27-33-46	30-36-51	33-40-57	35-43-61
22 1/2°	7-12-23	11-16-26	14-20-29		16-23-32	19-24-34	22-26-37	24-29-41	26-32-46	28-34-49				

GRILLES AND REGISTERS

F

For performance data notes, see F24.



## PERFORMANCE DATA: SUPPLY GRILLES AND REGISTERS • 5100, 6100 AND 6700 SERIES MODELS: 51DV, 51DH, 51SV, 51SH, 61DV, 61DH, 61SV, 61SH, 67DV, 67DH, 67SV, 67SH

**GRILLES AND REGISTERS**
**F**

Listed Duct Size (inches)	Alternate Sizes (inches)	Core Area (sq. ft.)	Ak Factor	Core Velocity	300	400	500	600	700	800	1000	1200	1400	
				Velocity Pressure	.006	.010	.016	.022	.031	.040	.062	.090	.122	
				0°	.015	.026	.041	.059	.081	.106	.165	.238	.324	
14 x 14	16 x 12 20 x 10 24 x 8 34 x 6	1.24		Total Pressure	22 1/2°	.017	.030	.047	.068	.093	.122	.190	.274	.373
				45°	.026	.046	.072	.103	.142	.186	.289	.417	.567	
				CFM	372	496	620	744	868	992	1240	1488	1736	
18 x 12	16 x 14 22 x 10 28 x 8 38 x 6	1.37		Noise Criteria		—	—	17	22	27	31	37	43	48
				Throw	0°	11-18-33	16-25-39	20-29-42	24-33-47	27-36-51	31-39-54	35-42-60	39-47-66	41-51-71
				22 1/2°	9-14-26	13-20-31	16-23-34	19-26-38	22-29-41	25-31-43	28-34-48	31-38-53	33-41-57	
24 x 10	20 x 12 30 x 8	1.52		45°	6-9-17	8-13-20	10-15-21	12-17-24	14-18-26	16-20-27	18-21-30	20-24-33	21-26-36	
				CFM	411	548	685	822	959	1096	1370	1644	1918	
				Noise Criteria	—	—	18	23	28	32	38	44	49	
16 x 16	18 x 14 22 x 12 30 x 8	1.64		0°	11-18-33	16-25-39	20-30-43	24-33-47	28-36-51	32-39-54	35-43-61	39-47-67	41-51-72	
				22 1/2°	9-14-26	13-20-31	16-24-34	19-26-38	22-29-41	26-31-43	28-34-49	31-38-54	33-41-58	
				45°	6-9-17	8-13-20	10-15-22	12-17-24	14-18-26	16-20-27	18-22-31	20-24-34	21-26-36	
24 x 12	18 x 16 20 x 14 30 x 10 36 x 8	1.85		CFM	456	608	760	912	1064	1216	1520	1824	2128	
				Noise Criteria	—	—	18	23	28	32	38	44	49	
				Throw	0°	12-19-35	16-25-41	21-32-45	25-35-50	29-38-53	34-41-57	37-45-65	41-50-70	43-53-76
18 x 18	20 x 16 24 x 14 28 x 12 32 x 10	2.10		22 1/2°	10-15-28	13-20-33	17-26-36	20-28-40	23-30-42	27-33-46	30-36-51	33-40-56	34-42-61	
				45°	6-10-18	8-13-21	11-16-23	13-18-25	15-19-27	17-21-29	19-23-32	21-25-35	22-27-38	
				CFM	492	656	820	984	1148	1312	1640	1968	2296	
24 x 12	18 x 16 20 x 14 30 x 10 36 x 8	1.85		0°	12-20-37	17-26-42	22-32-47	26-37-51	31-40-56	35-42-59	39-47-67	42-51-73	46-56-79	
				22 1/2°	10-16-30	14-21-34	18-26-38	21-30-41	25-32-45	28-34-47	31-38-54	34-41-58	37-45-63	
				45°	6-10-19	9-13-21	11-16-24	13-19-26	16-20-28	18-21-30	20-24-34	21-26-37	23-28-40	
30 x 12	20 x 18 22 x 16 26 x 14 36 x 10	2.32		CFM	555	740	925	1110	1295	1480	1850	2220	2590	
				Noise Criteria	—	—	19	24	29	33	39	45	50	
				Throw	0°	12-20-38	18-27-44	22-33-48	27-38-54	32-40-58	36-44-62	40-48-69	44-54-76	48-58-82
24 x 16	32 x 12	2.50		22 1/2°	10-16-30	14-22-35	18-26-38	22-30-43	26-32-46	29-35-50	32-38-55	35-43-61	38-46-66	
				45°	6-10-19	9-14-22	11-16-24	14-19-27	16-20-29	18-22-31	20-24-35	22-27-38	24-29-41	
				CFM	630	840	1050	1260	1470	1680	2100	2520	2940	
20 x 20	22 x 18	2.61		0°	13-21-40	19-29-47	24-36-52	29-40-57	33-43-62	38-47-66	42-52-74	47-57-81	50-62-87	
				22 1/2°	10-17-32	15-23-38	19-29-42	23-32-46	26-34-50	30-38-53	34-42-59	38-46-65	40-50-70	
				45°	7-11-20	10-15-24	12-18-26	15-20-29	17-22-31	19-24-33	21-26-37	24-29-41	25-31-44	
30 x 12	20 x 18 22 x 16 26 x 14 36 x 10	2.32		CFM	696	928	1160	1392	1624	1856	2320	2784	3248	
				Noise Criteria	—	—	20	25	30	34	40	46	51	
				Throw	0°	14-23-43	21-31-50	26-39-56	31-43-61	36-47-67	41-50-71	46-56-79	50-61-86	54-67-94
24 x 16	32 x 12	2.50		22 1/2°	11-18-34	17-25-40	21-31-45	25-34-49	29-38-54	33-40-57	37-45-63	40-49-69	43-54-75	
				45°	7-12-22	11-16-25	13-20-28	16-22-31	18-24-34	21-25-36	23-28-40	25-31-43	27-34-47	
				CFM	750	1000	1250	1500	1750	2000	2500	3000	3500	
20 x 20	22 x 18	2.61		Noise Criteria	—	—	20	25	30	34	40	46	51	
				Throw	0°	14-24-45	22-32-52	27-40-58	32-45-64	37-49-68	43-52-74	48-58-82	52-64-90	56-68-97
				22 1/2°	11-19-36	18-26-42	22-32-46	26-36-51	30-39-54	34-42-59	38-46-66	42-51-72	45-54-78	
36 x 12	22 x 20 24 x 18 26 x 16 30 x 14	2.79		45°	7-12-23	11-16-26	14-20-29	16-23-32	19-25-34	22-26-37	24-29-41	26-32-45	28-34-49	
				CFM	783	1044	1305	1566	1827	2088	2610	3132	3654	
				Noise Criteria	—	—	20	25	30	34	40	46	51	
22 x 22	24 x 20 26 x 18 30 x 16 40 x 12	3.17		0°	15-24-46	22-32-53	27-41-59	32-46-65	38-50-70	44-53-75	49-59-84	53-65-92	58-70-99	
				22 1/2°	12-19-37	18-26-42	22-33-47	26-37-52	30-40-56	35-42-60	39-47-67	42-52-74	46-56-79	
				45°	8-12-23	11-16-27	14-21-30	16-23-33	19-25-35	22-27-38	25-30-42	27-33-46	29-35-50	
42 x 12	36 x 14	3.27		CFM	837	1116	1395	1674	1953	2232	2790	3348	3906	
				Noise Criteria	—	—	20	25	30	34	40	46	51	
				Throw	0°	15-25-48	23-34-55	28-42-61	34-48-68	40-51-73	45-55-77	50-61-86	55-68-95	59-73-103
30 x 18	24 x 22 34 x 16 40 x 14	3.54		22 1/2°	12-20-38	18-27-44	22-34-49	27-38-54	32-41-58	36-44-62	40-49-69	44-54-76	47-58-82	
				45°	8-13-24	12-17-28	14-21-31	17-24-34	20-26-37	23-28-39	25-31-43	28-34-48	30-37-52	
				CFM	951	1268	1585	1902	2219	2536	3170	3804	4438	
42 x 12	36 x 14	3.27		Noise Criteria	—	—	21	26	31	35	41	47	52	
				Throw	0°	17-27-50	24-36-58	29-45-65	36-50-71	42-54-77	47-58-82	53-65-92	58-71-101	62-77-109
				22 1/2°	14-22-40	19-29-46	23-36-52	29-40-57	34-43-62	38-46-66	42-52-74	46-57-81	50-62-87	
30 x 18	24 x 22 34 x 16 40 x 14	3.54		45°	9-14-25	12-18-29	15-23-33	18-25-36	21-27-39	24-29-41	27-33-46	29-36-51	31-39-55	
				CFM	981	1308	1635	1962	2289	2616	3270	3924	4578	
				Noise Criteria	—	—	21	26	31	35	41	47	52	
30 x 18	24 x 22 34 x 16 40 x 14	3.54		0°	17-27-51	24-36-59	30-45-66	36-51-72	42-55-77	48-59-83	53-66-93	59-72-101	63-77-109	
				22 1/2°	14-22-41	19-29-47	24-36-53	29-41-58	34-44-62	38-47-66	42-53-74	47-58-81	50-62-87	
				45°	9-14-26	12-18-30	15-23-33	18-26-38	21-28-39	24-30-42	27-33-47	30-36-51	32-39-55	
30 x 18	24 x 22 34 x 16 40 x 14	3.54		CFM	1062	1416	1770	2124	2478	2832	3540	4248	4956	
				Noise Criteria	—	—	21	26	31	35	41	47	52	
				Throw	0°	18-28-53	25-37-61	31-47-69	37-53-75	44-57-81	50-61-86	56-69-97	61-75-106	66-81-115
30 x 18	24 x 22 34 x 16 40 x 14	3.54		22 1/2°	14-22-42	20-30-49	25-38-55	30-42-60	35-46-65	40-49-69	45-55-78	49-60-85	53-65-92	
				45°	9-14-27	13-19-31	16-24-35	19-27-38	22-29-41	25-31-43	28-35-49	31-38-53	33-41-58	
				CFM	1062	1416	1770	2124	2478	2832	3540	4248	4956	

For performance data notes, see F24.

## PERFORMANCE DATA: SUPPLY GRILLES AND REGISTERS • 5100, 6100 AND 6700 SERIES MODELS: 51DV, 51DH, 51SV, 51SH, 61DV, 61DH, 61SV, 61SH, 67DV, 67DH, 67SV, 67SH

Listed Duct Size (inches)	Alternate Sizes (inches)	Core Area (sq. ft.)	Ak Factor	Core Velocity		300	400	500	600	700	800	1000	1200	1400
				Velocity Pressure		.006	.010	.016	.022	.031	.040	.062	.090	.122
				Total Pressure	0°	.015	.026	.041	.059	.081	.106	.165	.238	.324
24 x 24	26 x 22 28 x 20 32 x 18 36 x 16	3.79		CFM		1137	1516	1895	2274	2653	3032	3790	4548	5306
				Noise Criteria		—	—	21	26	31	35	41	47	52
				Throw	0°	18-29-55	29-36-62	33-48-70	39-55-77	45-59-83	51-62-89	57-70-99	62-77-108	68-83-117
					22 1/2°	14-23-44	21-31-50	26-38-56	31-44-62	36-47-66	41-50-71	46-56-79	50-62-86	54-66-94
				45°	9-15-28	13-20-31	17-24-35	20-28-39	23-30-42	26-31-45	29-35-50	31-39-54	34-42-59	
36 x 18	32 x 20 40 x 16 46 x 14	4.29		CFM		1287	1716	2145	2574	3003	3432	4290	5148	6006
				Noise Criteria		—	15	22	27	32	36	42	48	53
				Throw	0°	19-31-58	28-42-68	35-52-75	42-58-83	48-63-89	55-68-95	61-75-106	68-83-117	73-89-125
					22 1/2°	15-25-46	22-34-54	28-42-60	34-46-66	38-50-71	44-54-76	49-60-85	54-66-94	58-71-100
				45°	10-16-29	14-21-34	18-26-38	21-29-42	24-32-45	28-34-48	31-38-53	34-42-59	37-45-63	
26 x 26	28 x 24 48 x 14	4.47		CFM		1341	1788	2235	2682	3129	3576	4470	5364	6258
				Noise Criteria		—	15	22	27	32	36	42	48	53
				Throw	0°	19-32-59	28-43-69	35-53-77	43-59-85	49-65-91	56-69-98	63-77-109	69-85-120	75-91-129
					22 1/2°	15-26-47	22-34-55	28-42-62	34-47-68	39-52-73	45-55-78	50-62-87	55-68-96	60-73-103
				45°	10-16-30	14-22-35	18-27-32	22-30-43	25-33-46	29-36-51	32-39-55	35-43-60	38-46-65	
30 x 24	32 x 22 36 x 20 40 x 18	4.77		CFM		1431	1908	2385	2862	3339	3816	4770	5724	6678
				Noise Criteria		—	15	22	27	32	36	42	48	53
				Throw	0°	20-33-61	29-44-71	36-54-79	44-61-87	51-67-94	58-71-101	65-79-112	71-87-123	77-94-133
					22 1/2°	16-26-49	23-35-57	29-43-63	35-49-70	41-54-75	46-57-81	52-63-90	57-70-98	62-75-106
				45°	10-17-31	15-22-36	18-27-40	22-31-44	25-34-47	28-34-48	32-39-55	36-44-62	39-47-67	
42 x 18	28 x 26	4.99		CFM		1497	1997	2495	2994	3493	3992	4990	5988	6986
				Noise Criteria		—	16	23	28	33	37	43	49	54
				Throw	0°	20-33-62	30-44-72	37-55-80	44-62-88	52-67-95	59-72-102	66-80-114	72-88-125	77-95-135
					22 1/2°	16-26-50	24-35-58	30-44-64	35-50-70	42-54-76	47-58-82	53-64-91	58-70-100	62-76-108
				45°	10-17-31	15-22-36	19-28-40	22-31-44	26-34-48	30-36-51	33-40-57	36-44-63	39-48-68	
28 x 28	30 x 26 36 x 22 40 x 20	5.20		CFM		1560	2080	2600	3120	3640	4160	5200	6240	7280
				Noise Criteria		—	16	23	28	33	37	43	49	54
				Throw	0°	21-34-63	30-45-74	38-56-82	45-63-90	53-69-97	60-74-104	67-82-116	74-90-128	79-97-137
					22 1/2°	17-27-50	24-36-59	30-45-66	36-50-72	42-55-78	48-59-83	54-66-93	59-72-102	63-78-110
				45°	11-17-32	15-23-37	19-28-41	23-32-45	27-35-49	30-37-52	34-41-58	37-45-64	40-49-69	
42 x 20	30 x 28	5.57		CFM		1671	2228	2785	3342	3899	4456	5570	6684	7798
				Noise Criteria		—	16	23	28	33	37	43	49	54
				Throw	0°	22-35-66	31-47-76	39-58-84	47-66-93	55-71-101	62-76-107	70-84-120	76-93-131	82-100-142
					22 1/2°	18-28-53	25-38-61	31-46-67	38-53-74	44-57-80	50-61-86	56-67-96	61-74-105	66-80-114
				45°	11-18-33	16-24-38	20-29-42	24-33-47	28-36-50	31-38-54	35-42-60	38-47-66	41-50-71	
36 x 24	40 x 22 44 x 20	5.74		CFM		1722	2296	2870	3444	4018	4592	5740	6888	8036
				Noise Criteria		—	16	23	28	33	37	43	49	54
				Throw	0°	23-36-68	32-49-78	41-60-88	49-68-96	57-74-104	64-78-112	72-88-124	78-96-137	85-104-148
					22 1/2°	18-29-54	26-39-62	33-48-70	39-54-77	46-59-83	51-62-90	58-70-99	62-77-110	68-83-118
				45°	12-18-34	16-25-39	21-30-44	25-34-48	29-37-52	32-39-56	36-44-62	39-48-69	43-52-74	
30 x 30	34 x 26 38 x 24 48 x 20	5.99		CFM		1797	2396	2995	3594	4193	4792	5990	7188	8386
				Noise Criteria		—	16	23	28	33	37	43	49	54
				Throw	0°	23-36-69	33-49-80	41-61-89	49-69-98	57-75-106	65-80-113	73-89-126	80-98-138	86-106-150
					22 1/2°	18-29-55	26-39-64	33-49-71	39-55-78	46-60-85	52-64-90	58-71-101	64-78-110	69-85-120
				45°	12-18-35	17-25-40	21-31-45	25-35-49	29-38-53	33-40-57	37-45-63	40-49-69	43-53-75	
42 x 24	36 x 28 42 x 24 46 x 22	6.72		CFM		2016	2688	3360	4032	4704	5376	6720	8064	9408
				Noise Criteria		—	17	24	29	34	38	44	50	55
				Throw	0°	24-39-72	34-51-84	43-64-93	51-72-102	60-78-111	68-84-118	77-93-132	84-102-144	90-111-157
					22 1/2°	19-31-58	27-41-67	34-51-74	41-58-82	48-62-89	54-67-94	62-74-106	67-82-115	72-89-126
				45°	12-20-36	17-26-42	22-32-47	26-36-51	30-39-56	34-42-59	39-47-66	42-51-72	45-56-79	
32 x 32	40 x 26	6.84		CFM		2052	2736	3420	4104	4788	5472	6840	8208	9576
				Noise Criteria		—	17	24	29	34	38	44	50	55
				Throw	0°	24-39-73	34-52-84	43-65-94	52-73-103	61-79-112	69-84-119	77-94-133	84-103-146	91-112-158
					22 1/2°	19-31-58	27-42-67	34-52-75	42-58-82	49-63-90	55-67-95	62-75-106	67-82-117	73-90-126
				45°	12-20-37	17-26-42	22-33-47	26-37-52	31-40-56	35-42-60	39-47-67	42-52-73	46-56-79	
36 x 30	38 x 28	7.22		CFM		2166	2888	3610	4332	5054	5776	7220	8664	10108
				Noise Criteria		—	17	24	29	34	38	44	50	55
				Throw	0°	25-40-76	36-54-87	45-68-98	54-76-108	63-82-116	71-87-124	80-98-139	87-108-151	94-116-164
					22 1/2°	20-32-61	29-43-70	36-54-78	43-61-86	50-66-93	57-70-99	64-78-111	70-86-121	75-93-131
				45°	13-20-38	18-27-44	23-34-49	27-38-54	32-41-58	36-44-62	40-49-70	44-54-76	47-58-82	
48 x 24	34 x 34 36 x 32 38 x 30 42 x 28	7.69		CFM		2307	3076	3845	4614	5383	6152	7690	9228	10766
				Noise Criteria		—	18	25	30	35	39	45	51	56
				Throw	0°	26-41-77	37-55-90	46-69-100	55-77-109	64-84-118	73-90-127	82-100-142	90-109-155	97-118-167
					22 1/2°	21-33-62	30-44-72	37-55-80	44-62-87	51-67-94	58-72-102	66-80-114	72-87-124	78-94-134
				45°	13-22-39	19-28-45	23-45-50	28-39-55	32-42-59	37-45-64	41-50-71	45-55-78	49-59-84	

For performance data notes, see F24.

## PERFORMANCE DATA: SUPPLY GRILLES AND REGISTERS • 5100, 6100 AND 6700 SERIES MODELS: 51DV, 51DH, 51SV, 51SH, 61DV, 61DH, 61SV, 61SH, 67DV, 67DH, 67SV, 67SH

Listed Duct Size (inches)	Alternate Sizes (inches)	Core Area (sq. ft.)	Ak Factor	Core Velocity	300	400	500	600	700	800	1000	1200	1400
				Velocity Pressure	.006	.010	.016	.022	.031	.040	.062	.090	.122
				Total Pressure	0°	22 1/2°	45°	0°	22 1/2°	45°	0°	22 1/2°	45°
36 x 34	38 x 32 40 x 30 48 x 26	8.20		CFM	2460	3280	4100	4920	5740	6560	8200	9840	11480
				Noise Criteria	–	18	25	30	35	39	45	51	56
				Throw	0°	26-42-79	37-57-91	47-70-102	57-79-111	65-85-121	75-91-129	84-102-144	91-111-158
				22 1/2°	21-34-63	30-46-73	38-56-82	46-63-89	52-68-97	60-73-103	67-82-115	73-89-126	78-97-137
				45°	13-21-40	19-29-	24-35-51	29-40-56	33-43-61	38-46-65	42-51-72	46-56-79	49-61-86
36 x 36	38 x 34 42 x 30 46 x 28	8.69		CFM	2607	3476	4345	5214	6083	6952	8690	10428	12166
				Noise Criteria	–	18	25	30	35	39	45	51	56
				Throw	0°	28-45-84	36-60-96	49-74-108	60-84-117	69-90-127	78-96-136	88-108-152	96-117-166
				22 1/2°	22-36-67	31-48-77	39-59-86	48-67-94	55-72-102	62-77-109	70-86-122	77-94-133	83-102-144
				45°	14-23-42	20-30-48	25-37-54	30-42-59	35-45-64	39-48-68	44-54-76	48-59-83	52-64-90
38 x 38	42 x 34	9.70		CFM	2910	3880	4850	5820	6790	7760	9700	11640	13580
				Noise Criteria	–	19	26	31	36	40	46	52	57
				Throw	0°	28-47-88	42-62-101	53-78-114	62-88-125	73-95-134	83-101-143	93-114-161	101-125-176
				22 1/2°	22-38-70	34-50-81	42-62-91	50-70-100	58-76-107	66-81-114	74-91-129	81-100-141	87-107-152
				45°	14-24-44	21-31-51	27-39-57	31-44-63	37-48-67	42-51-72	47-57-81	51-63-88	55-67-95
42 x 36	44 x 34 48 x 30	10.16		CFM	3048	4064	5080	6096	7112	8128	10160	12192	14224
				Noise Criteria	–	19	26	31	36	40	46	52	57
				Throw	0°	29-48-90	43-64-104	53-80-117	64-90-127	75-97-138	85-104-147	95-117-165	104-127-180
				22 1/2°	23-38-72	34-51-83	42-64-94	51-72-102	60-78-110	68-83-118	76-94-132	83-102-144	90-110-156
				45°	15-24-45	22-32-52	27-40-59	32-45-64	38-49-69	43-52-74	48-59-83	52-64-90	56-69-98
40 x 40	42 x 38 46 x 34 48 x 32	10.77		CFM	3231	4308	5385	6462	7539	8616	10770	12924	15078
				Noise Criteria	–	19	26	31	36	40	46	52	57
				Throw	0°	31-50-94	44-67-108	56-84-121	67-94-132	77-102-143	88-108-153	99-121-171	108-132-187
				22 1/2°	25-40-75	35-54-86	45-67-97	54-75-106	62-82-114	70-86-122	79-97-137	86-106-150	94-114-162
				45°	16-25-47	22-34-54	28-42-61	34-47-66	39-51-72	44-54-77	50-61-86	54-66-94	59-72-102
42 x 42	44 x 40 46 x 38 48 x 36	11.89		CFM	3567	4756	5945	7134	8323	9512	11890	14268	16646
				Noise Criteria	–	20	27	32	37	41	47	53	58
				Throw	0°	32-52-97	46-69-112	58-86-125	69-97-138	81-105-149	92-112-159	102-125-178	112-138-195
				22 1/2°	26-42-78	37-55-90	46-69-100	55-78-110	65-84-119	74-90-127	82-100-142	90-110-156	98-119-168
				45°	16-26-49	23-35-56	29-43-63	35-49-69	41-53-75	46-56-80	51-63-89	56-69-98	61-75-105
44 x 44	46 x 42	13.07		CFM	3921	5228	6535	7842	9149	10456	13070	15684	18298
				Noise Criteria	–	20	27	32	37	41	47	53	58
				Throw	0°	34-55-104	49-74-120	61-92-133	74-104-146	86-112-158	97-120-168	109-133-189	120-146-207
				22 1/2°	27-44-83	39-59-96	49-74-106	59-83-117	69-90-126	78-96-134	87-106-151	96-117-166	103-126-178
				45°	17-28-52	25-37-60	31-46-67	37-52-73	43-56-79	49-60-84	55-67-95	60-73-104	65-79-112
46 x 46		14.30		CFM	4290	5720	7150	8580	10010	11440	14300	17160	20020
				Noise Criteria	–	20	27	32	37	41	47	53	58
				Throw	0°	35-57-107	51-76-124	63-95-138	76-107-151	89-116-163	101-124-174	113-138-195	124-151-214
				22 1/2°	28-46-86	41-61-99	50-76-110	61-86-121	71-93-130	81-99-139	90-110-156	99-121-171	107-130-185
				45°	18-29-54	26-38-62	32-48-69	38-54-76	45-58-82	51-62-87	57-69-98	62-76-107	62-82-116
48 x 48		15.59		CFM	4677	6236	7795	9354	10913	12472	15590	18708	21826
				Noise Criteria	–	21	28	33	38	42	48	54	59
				Throw	0°	37-60-113	53-80-131	67-100-146	80-113-159	94-122-173	106-131-185	119-146-206	131-159-226
				22 1/2°	30-48-90	42-64-105	54-80-117	64-90-127	75-98-138	85-105-148	95-117-165	105-127-181	112-138-195
				45°	19-30-57	27-40-66	34-50-73	40-57-80	47-61-87	53-66-93	60-73-103	62-80-113	70-87-122

### Performance Notes:

- All pressures are in inches w.g..
- Core Velocity is in feet per minute.
- Performance data is based on double deflection grille with opposed blade damper (register).
- 0°, 22 1/2° and 45° represent vertical blade deflection angles and horizontal spread.
- Throw values are given for terminal velocities of 150, 100 and 50 fpm under isothermal conditions.
- Additional performance notes and correction factors for various models and settings may be found on page F20.
- Noise Criteria (NC) values are based upon 10dB room absorption, re 10<sup>-12</sup> watts @ 0° deflection. Dash (–) in space indicates a Noise Criteria of less than 15.
- Data derived from tests conducted in accordance with ANSI/ASHRAE Standard 70 – 2006.