



Residential
Grilles, Registers & Diffusers
Edition 11



- Contact your customer service representative or territory sales manager for pricing and availability.
- Free freight when your total spend is a minimum of \$2600.*

Thousands of HVAC products ready to ship.



heatfab.



Residential Vent & Chimney

Vent:

Standard efficiency b-vent, high efficiency polypropylene, special gas vent for condensing, near-condensing, and non-condensing vent systems. Stock residential diameters and system components available in 3" – 14". Additional sizes available up to 30". Direct vent systems also available. Premium quality materials and designs backed by UL standards.

Chimney:

All fuel chimney systems for venting wood, coal, oil, or gas. Available in residential diameters 4" – 8". Additional sizes available up to 24". Pellet venting systems for gas, wood pellet, and bio-fuels. Stainless steel inner and outer materials. Variety of installer friendly components backed by UL standards.

Chimney Liner:

Aluminum and stainless steel. Lengths available up to 50'. Standard diameters available up to 8". Variety of installer friendly components backed by UL standards.



Grilles, Registers, & Diffusers

A full line for residential and commercial applications. Offered in steel, aluminum and plastic. Many sizes in stock for quick shipment.



Flexible Air Duct

Flexible air duct systems UL Greenguard Gold certified for residential and commercial applications. Complete line of R-4.2, R-6.0, and R-8.0 available in many outer jacket and core combinations from 3" - 24" diameters and 25' - 50' lengths. Flexible aluminum, duct, duct sleeves and uninsulated flex duct also available.

MILCOR.

Interior Access Doors

Access Doors – High quality and affordable interior access doors for all types of requirements. In stock or custom.



Roof Top Products

New construction and retrofit drain systems, flashings, expansion joint covers, equipment rails and curbs, duct supports and pipe mounting pedestals. In stock, or made to order.

WARD[®]

Duct Components

Components and accessories for the residential and commercial HVAC and sheet metal industries including flange, rail, corners, hangers & strapping, and duct access doors.



Filters

A complete line of Multi-Pleat or Commercial & Industrial Disposable panel filters, available in fiberglass and polyester.

*Some restrictions may apply.

RESIDENTIAL

| | Product Information | Engineering Data |
|--|--------------------------------|-----------------------------|
| RESIDENTIAL CONSTRUCTION FEATURES | 5 | |
| FLOOR REGISTERS & GRILLES | | |
| 210 Steel (Floor) Register | 6 | 35 |
| 265 Steel (Floor) Return Grille | 6 | 35 |
| 411 Steel (Floor) Diffuser | 6 | 35 |
| 420 Steel Toe-Space Grille | 7 | 36 |
| 421 Steel (Floor) Diffuser Enamel | 7 | 36 |
| 350 Steel (Floor) Diffuser Powder Coat | 7 | 36 |
| 531 Aluminum (Floor) Diffuser | 7 | 36 |
| RZ-Floor Rezzin™ Two-Way Floor Diffuser | 8 | 36 |
| BASEBOARD REGISTERS & GRILLES | | |
| 406 Steel (Baseboard) Diffuser, 15" or 18" | 9 | 37 |
| 407 Steel (Baseboard) Return Grille | 9 | |
| 462 Steel (Baseboard) Diffuser | 9 | 37 |
| 464 Steel (Baseboard) Diffuser | 9 | 37 |
| 654 Steel (Baseboard) Register | 10 | 37 |
| 655 Steel (Baseboard) Register | 10 | 37 |
| 657 Steel (Baseboard) Return Grille | 10 | 37 |
| 658 Steel (Baseboard) Return Grille | 11 | 37 |
| 664 Steel (Baseboard) Register | 11 | 37 |
| 674 Steel (Baseboard) Return Grille | 11 | 42 |
| SIDEWALL/CEILING REGISTERS & GRILLES | | |
| 301 (A301) Steel (Stamped Aluminum) Curved Blade One-Way | 12 | 38 |
| 302 (A302) Steel (Stamped Aluminum) Curved Blade Two-Way | 12-13 | 38 |
| 303 (A303) Steel (Stamped Aluminum) Curved Blade Three-Way | 13 | 38 |
| 304 (A304) Steel (Stamped Aluminum) Curved Blade Four-Way | 14 | 38 |
| 300M Series Stamped Curved-Blade Register with Multi-Louver Damper | 15 | 38 |
| A611 Stamped Aluminum Curved Blade Register One-Way, MS/OB | 16 | 39 |
| A612 Stamped Aluminum Curved Blade Register Two-Way, MS/OB | 16 | 39 |
| A613 Stamped Aluminum Curved Blade Register Three-Way, MS/OB | 16 | 30 |
| A614 Stamped Aluminum Curved Blade Register Four-Way, MS/OB | 17 | 39 |
| A618 Stamped Aluminum Straight Blade Register, MS/OB | 17 | 40 |
| 631 Stamped Steel Three-Way Register | 18 | 41 |
| 650 (A650) Stamped Steel/Aluminum Return Grille | 18 | 41 |
| 651 Stamped Steel Register | 19 | 41 |
| 659 Stamped Steel Filter Grille | 19 | 41 |
| 661 (A661) Stamped Steel/Aluminum Two-Way Register | 20 | 42 |
| 672 Stamped Steel Return Grille | 21 | 42 |
| 673 Stamped Steel Filter Grille | 21 | 42 |
| 681 (A681) Stamped Steel One-Way Register | 21 | 43 |
| 682 (A682) Stamped Steel Two-Way Register | 22 | 43 |
| 683 (A683) Stamped Steel Three-Way Register | 22 | 43 |
| 684 (A684) Stamped Steel Four-Way Register | 22 | 43 |
| 680-OB Series Stamped Faced Opposed Blade Damper Register | 23 | |
| 680M Series Stamped Lanced-Blade Register with Multi-Louver Damper | 24 | 43 |

RESIDENTIAL

| | | Product Information | Engineering Data |
|--|--|------------------------|---------------------|
| A711 | Stamped Aluminum One-Way, Sidewall/Ceiling Register MS | 25 | |
| A712 | Stamped Aluminum Two-Way, Sidewall/Ceiling Register MS | 25 | |
| A713 | Stamped Aluminum Three-Way, Sidewall/Ceiling Register MS | 25 | |
| A714 | Stamped Aluminum Four-Way, Sidewall/Ceiling Register MS | 25 | |
| A718 | Stamped Aluminum Straight Blade Register, MS | 25 | |
| REZZIN™ REGISTERS & DIFFUSERS | | | |
| 2-WAY | Rezzin™ Sidewall/Ceiling Register, Double Deflection | 26 | 44 |
| 3-WAY | Rezzin™ Sidewall/Ceiling Register, Three-Way Deflection | 26 | 44 |
| 4-WAY | Rezzin™ Sidewall/Ceiling Diffuser | 26 | 44 |
| Doors | | | |
| HCAD | Access Door | | 27 |
| CEILING DIFFUSERS | | | |
| 11 | Steel Duct Ring | 28 | |
| 12 | Steel Butterfly Damper with Ring | 28 | |
| 16 | Steel Round (Ceiling) Diffuser | 28 | 45 |
| 24 | Steel Square (Ceiling) Diffuser | 29 | 45 |
| 21 | Steel Square Mounting Frame | 29 | |
| 22 | Steel Butterfly Damper with Mounting Frame | 29 | |
| 23 | Steel Opposed Blade Damper | 30 | |
| A501 | Aluminum Square Diffuser One-Way, MS/OB | 30 | 46 |
| A502 | Aluminum Square Diffuser Two-Way, MS/OB | 30 | 46 |
| A503 | Aluminum Square Diffuser Three-Way, MS/OB | 31 | 46 |
| A504 | Aluminum Square Diffuser Four-Way, MS/OB | 31 | 46 |
| A505 | Aluminum Square Diffuser Four-Way Corner, MS/OB | 31 | 46 |
| RZ-Square | Rezzin™ Square Ceiling Diffuser | 32 | 47 |
| RZ-Round | Rezzin™ Round Ceiling Diffuser | 32 | 47 |
| | Rezzin™ Rough-In Plates | 32 | |

ENGINEERING DATA

| | |
|-----------------------------------|----|
| Engineering Data | 33 |
| Using the Engineering Data | 33 |
| Recommended Noise Criteria | 33 |
| Glossary of Terms | 48 |
| Alpha-Numeric Product Index | 49 |

Residential Grilles, Registers & Diffusers

No one satisfies the demands for air distribution solutions better than *Hart & Cooley, Inc.* Our wide selection of grilles, registers, diffusers and accessories includes a variety of shapes and sizes to meet any application and budget requirement.

Our products are offered in steel, aluminum or plastic construction, and are designed for installation ease. They are made with an attention to detail that contributes to unmatched performance.

For example: an electro-deposition paint finish creates a flawless appearance; stamped face margins eliminate mitered corners and rough edges; each product is identified with a unique bar code label; and shrink-wrap packaging makes sure products are delivered in perfect condition. The wide variety of fin spacings, air patterns, and damper controls assures an appropriate solution for each application.

A nationwide distribution network provides for consistent product availability and timely delivery.

HAVE ADDITIONAL QUESTIONS?

We invite you to call us for more information on how our products can provide you with winning, comprehensive and confident solutions that save you time and money. 1-800-433-6341

Floor Registers & Grilles

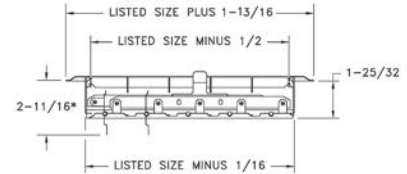


210 Floor Register

- All-steel construction
- Provides firm, smooth surface
- Extremely rigid
- Free area averages over 75%
- Toe-operated valve control
- Golden Sand enamel finish

| 210 Standard Sizes (in.) | | | | | | |
|--------------------------|--------|---|---|---|---|---|
| W | HEIGHT | | | | | |
| | 4 | | X | X | X | X |
| 6 | X | X | X | X | X | X |
| 8 | | X | X | X | X | |
| 9 | | | | X | | |
| 10 | | | X | X | X | |
| 12 | | | | X | X | |

End View Showing Depth with Valve Open:



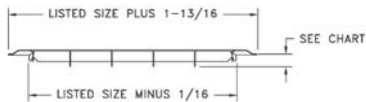
*3-9/16 FOR SIZES OVER 14 x 20



265 Floor Return Air Grille

- All-steel construction
- Provides firm, smooth surface
- Extremely rigid
- Free area averages over 75%
- Golden Sand enamel finish

| 265 Standard Sizes (in.) | | | | | | | | | | | |
|--------------------------|--------|---|---|---|---|---|---|---|---|---|---|
| W | HEIGHT | | | | | | | | | | |
| | 4 | X | X | X | X | | X | | X | | X |
| 6 | | X | X | X | X | X | X | | X | X | X |
| 8 | X | X | X | X | X | X | X | | X | | |
| 9 | | | X | | | | | | | | |
| 10 | | X | X | X | X | X | X | | X | | |
| 12 | | | X | X | X | X | X | | X | | |
| 14 | | | | X | X | | X | X | | X | |
| 16 | | | | | X | | X | X | | X | |
| 18 | | | | | | X | | X | | X | |
| 20 | | | | | | | X | X | X | X | |
| 24 | | | | | | | | X | | X | X |



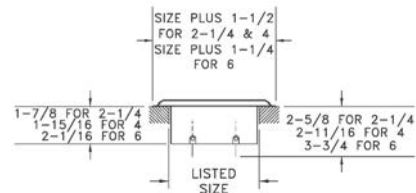
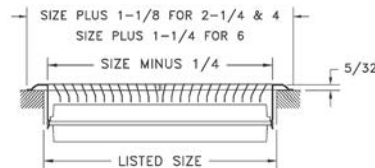
SEE CHART



411 Deluxe Floor Diffuser

- All-steel construction
- Heavy-gauge individually welded diffusion vanes
- Multi-angle fin setting
- Foot-operated dial control
- Can be used in high traffic areas
- Golden Sand or Bright White enamel finish

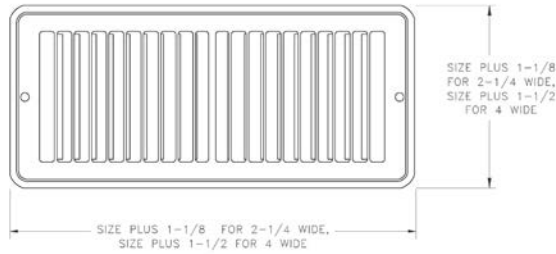
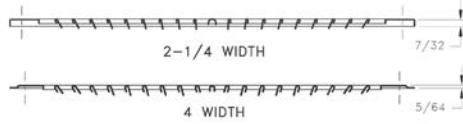
| 411 Available Sizes (in.) | |
|---------------------------|-------------------|
| Size | Free Area Sq. In. |
| 2 x 10 | 15 |
| 2 x 12 | 19 |
| 2 x 14 | 22 |
| 4 x 10 | 29 |
| 4 x 12 | 35 |
| 4 x 14 | 40 |
| 6 x 10 | 44 |
| 6 x 12 | 53 |
| 6 x 14 | 60 |



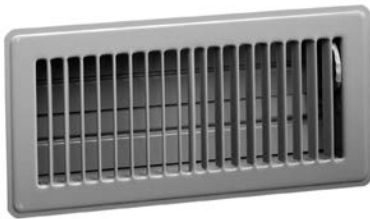


420 Toe-Space Grille

- All-steel construction
- Heavy-gauge stamped face
- Multi-angle fins
- Golden Sand or Bright White enamel finish



| 420 Available Sizes (in.) | |
|---------------------------|-------------------|
| Size | Free Area Sq. In. |
| 10 x 2 | 15 |
| 12 x 2 | 17 |
| 14 x 2 | 20 |
| 10 x 4 | 27 |
| 12 x 4 | 32 |
| 14 x 4 | 37 |

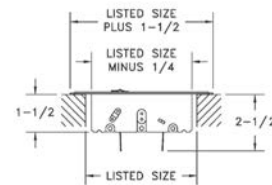
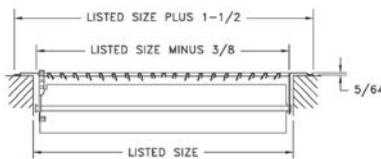


421 Floor Diffuser—Enamel

350 Floor Diffuser—Powder Coat

- All-steel construction
- Multi-angle fin setting
- Rolled fin for strength and safety
- Welded construction
- Heavy-gauge stamped face
- 421 available colors: Golden Sand or Bright White
- 350 available colors: Golden Sand, Bright White, Hickory Dark Java or Silver Maple Grey

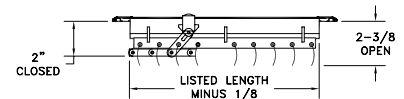
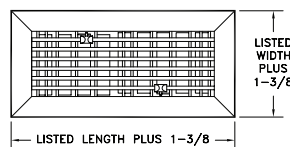
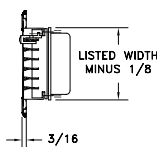
| 421/350 Available Sizes (in.) | |
|-------------------------------|-------------------|
| Size | Free Area Sq. In. |
| 2 x 10 | 15 |
| 2 x 12 | 17 |
| 2 x 14 | 20 |
| 4 x 8 | 22 |
| 4 x 10 | 27 |
| 4 x 12 | 32 |
| 4 x 14 | 37 |
| 6 x 10 | 39 |
| 6 x 12 | 48 |
| 6 x 14 | 56 |



531 Royalaire® Floor Diffuser

- Extruded aluminum construction
- Corrosion-resistant, high strength
- Heavy cross-bracing at strategic intervals
- Dual multi-shutter valves for adjustable air pattern
- Nylon slide valve operators
- Satin-anodized finish

| 531 Available Sizes (in.) | |
|---------------------------|-------------------|
| Size | Free Area Sq. In. |
| 2.25 x 10 | 10 |
| 2.25 x 12 | 12 |
| 2.25 x 14 | 14 |
| 4 x 10 | 19 |
| 4 x 12 | 23 |
| 4 x 14 | 27 |
| 6 x 10 | 31 |
| 6 x 12 | 37 |
| 6 x 14 | 44 |



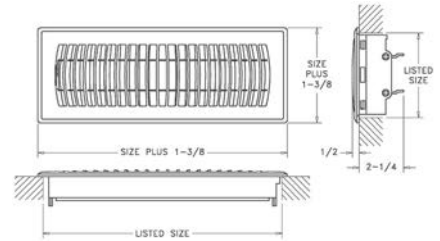
Floor Registers & Grilles



Rezzin Plastic Floor Diffuser

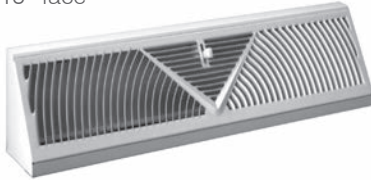
- Solid ABS construction for floor use
- Multi-angled fins for fan pattern of air distribution
- Foot-operated, opposed-blade damper
- Bright White or Brown finish

| Available Sizes (in.) | | |
|-----------------------|-------|----|
| HT | WIDTH | |
| | 2 | 10 |
| 4 | X | X |





15" face

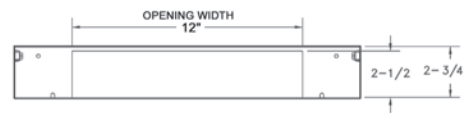
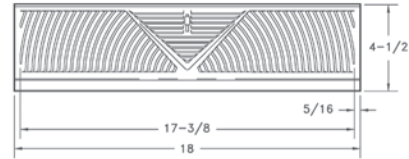


18" face

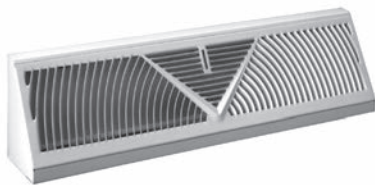
406 Baseboard Diffuser

- All-steel construction
- Blankets wall or window area
- Golden Sand or Bright White enamel finish

| Model Number | Size | Free Area Sq. In. | Overall Length | Height | Base Projection | Opening Width |
|--------------|------|-------------------|----------------|--------|-----------------|---------------|
| 406 | 15" | 32 | 15 | 4 1/2 | 2 3/4 | 12 |
| 406 | 18" | 38 | 18 | 4 1/2 | 2 13/16 | 12 |
| 407 | 18" | 38 | 18 | 4 1/2 | 2 13/16 | 12 |



406 18" Shown



407 Matching Return Air Grille

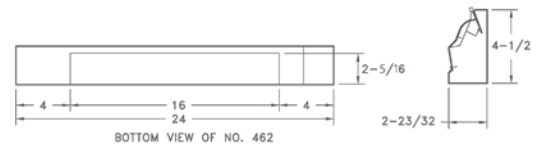
- All-steel construction
- Complementary return air grille for Model 406 supply
- Golden Sand or Bright White enamel finish



462 Baseboard Diffuser

- All-steel construction
- Two-foot length
- Airfoil valves reduce resistance
- Equal air distribution over the length of the diffuser
- Face can be easily removed
- Golden Sand or Bright White enamel finish

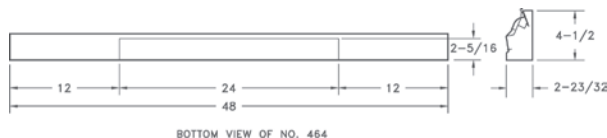
| Model Number | Size | Free Area Sq. In. | Overall Length | Height | Base Projection | Bottom Opening |
|--------------|------|-------------------|----------------|--------|-----------------|----------------|
| 462 | 2' | 27 | 24 | 4 1/2 | 2 23/32 | 2 5/16 X 16 |



464 Baseboard Diffuser

- All-steel construction
- Four-foot length
- Airfoil valves reduce resistance
- Equal air distribution over the length of the diffuser
- Dual valves
- Face can be easily removed
- Golden Sand or Bright White enamel finish

| Model Number | Size | Free Area Sq. In. | Overall Length | Height | Base Projection | Bottom Opening |
|--------------|------|-------------------|----------------|--------|-----------------|----------------|
| 464 | 4' | 54 | 48 | 4 1/2 | 2 23/32 | 2 5/16 X 24 |

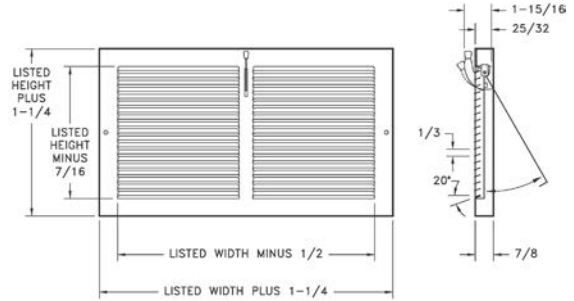


Baseboard Registers & Grilles



654 Baseboard Register with Damper

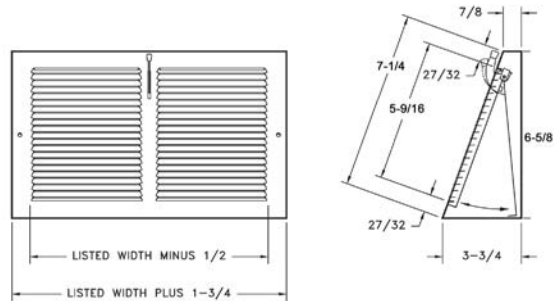
- One-piece steel construction
- 1/3" spaced fins set at 20 degrees
- 7/8" margin turnback
- Exceptional free area
- Positive volume-control damper
- Bright White enamel finish



655 Baseboard Register with Damper

- All-steel construction
- 1/3" spaced fins set at 20 degrees
- Volume-control damper
- Bright White enamel finish

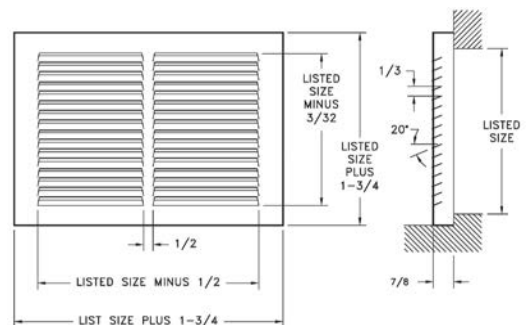
| 655 Available Sizes (in.) | | | | |
|---------------------------|-------|---|---|---|
| HT | WIDTH | | | |
| | 6 | X | X | X |

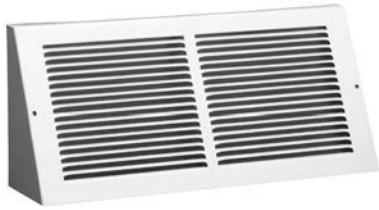


657 Baseboard Return Air Grille

- One-piece steel construction
- 1/3" spaced fins set at 20 degrees
- 7/8" margin turnback
- Exceptional free area
- Install with fins upward or downward for best duct concealment
- Complementary return air grille for Model 654 or 664 supply
- Golden Sand or Bright White enamel finish

| 657 Standard Sizes (in.) | | | | | | | | |
|--------------------------|-------|---|---|---|---|---|---|---|
| HT | WIDTH | | | | | | | |
| | 4 | | | X | | | | |
| 6 | X | X | X | X | X | X | X | X |
| 8 | X | X | X | X | X | X | X | X |
| 10 | | | X | | X | X | X | |
| 12 | | | X | | | X | X | |

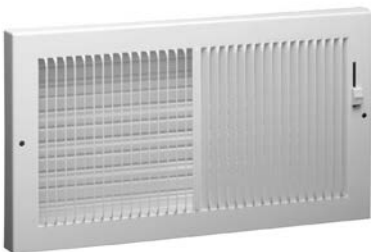
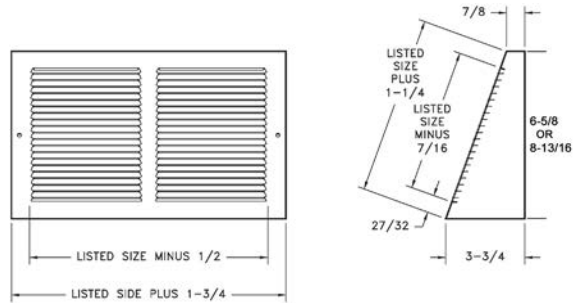




658 Baseboard Return Air Grille

- All-steel construction
- 1/3" spaced fins set at 20 degrees
- Complementary return air grille for Model 655 supply
- Bright White enamel finish

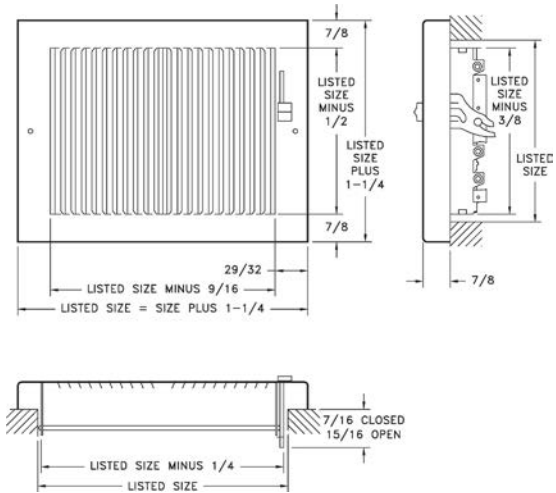
| 658 Available Sizes (in.) | | | | | |
|---------------------------|-------|----|----|----|----|
| HT | WIDTH | | | | |
| | | 10 | 12 | 14 | 24 |
| 6 | X | X | X | X | X |
| 8 | | | X | X | X |



664 Baseboard Register

- All-steel construction
- 1/3"-spaced fins set at 20 degrees
- 7/8" margin turnback
- 1-5/8" depth when fully opened
- Exceptional free area
- Ideal for shallow duct installations
- Multi-shutter valve
- Bright White enamel finish

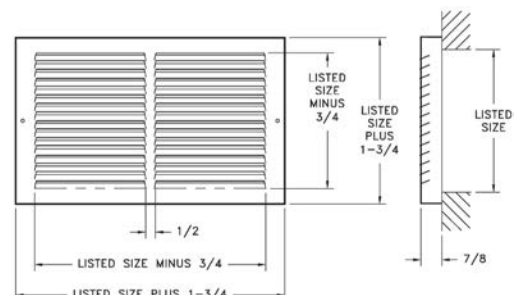
| 664 Available Sizes (in.) | | | | |
|---------------------------|-------|---|----|----|
| HT | WIDTH | | | |
| | | 8 | 10 | 12 |
| 6 | X | X | X | X |
| 8 | | | X | |



674 Return Air Grille

- One-piece steel construction
- 1/2"-spaced fins set at 40 degrees
- 7/8" margin turnback
- Complementary return air grille for 1/2"-spaced products
- Bright White enamel finish

| 674 Available Sizes (in.) | | | |
|---------------------------|-------|----|----|
| HT | WIDTH | | |
| | | 14 | 24 |
| 6 | X | X | X |
| 8 | X | X | X |



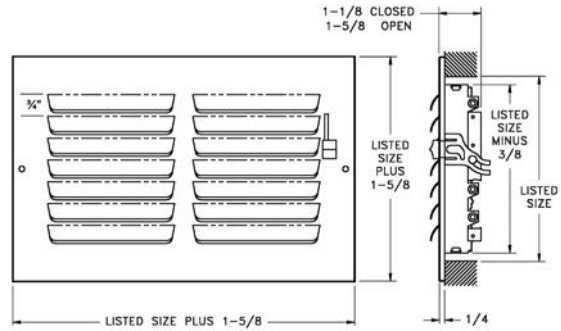
Sidewall Registers & Grilles



301 Register

- All-steel one-piece stamped-face curved-blade construction
- One-way deflection
- One-way air pattern
- For sidewall or ceiling application
- Multi-shutter valve
- Listed heights 10" and larger require double valves
- Bright White enamel finish

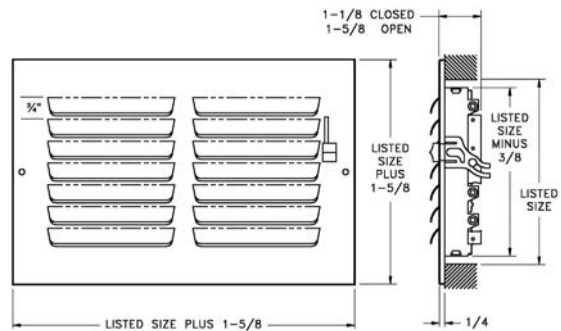
| 301 Available Sizes (in.) | | | | | |
|---------------------------|-------|---|----|----|----|
| HT | WIDTH | | | | |
| | 6 | 8 | 10 | 12 | 14 |
| 4 | | X | X | X | X |
| 6 | X | X | X | X | X |
| 8 | | X | X | X | X |
| 10 | | | X | | |
| 12 | | | | X | |



A301 Register

- Aluminum one-piece stamped-face curved-blade construction
- For sidewall or ceiling application
- One-way deflection
- One-way air pattern
- Galvanized multi-shutter valve
- Listed heights 10" and larger require double valves
- Bright White enamel finish

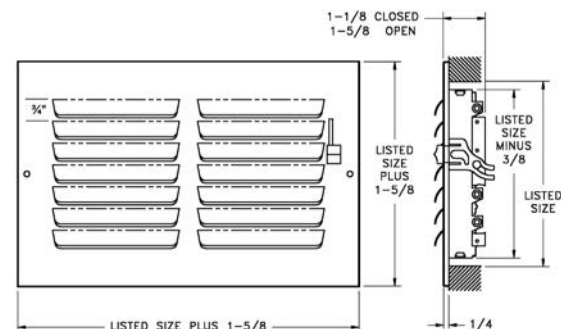
| A301 Available Sizes (in.) | | | | | |
|----------------------------|-------|---|----|----|----|
| HT | WIDTH | | | | |
| | 6 | 8 | 10 | 12 | 14 |
| 4 | | X | X | X | |
| 6 | X | X | X | X | X |
| 8 | | X | X | X | X |
| 10 | | | X | | |



302 Register

- All-steel one-piece stamped-face curved-blade construction
- Two-way deflection
- Two-way air pattern
- For sidewall or ceiling application
- Multi-shutter valve
- Listed heights 10" and larger require double valves
- Bright White enamel finish

| 302 Available Sizes (in.) | | | | |
|---------------------------|-------|----|----|----|
| HT | WIDTH | | | |
| | 8 | 10 | 12 | 14 |
| 4 | X | | | |
| 6 | | X | X | X |
| 8 | X | X | X | X |



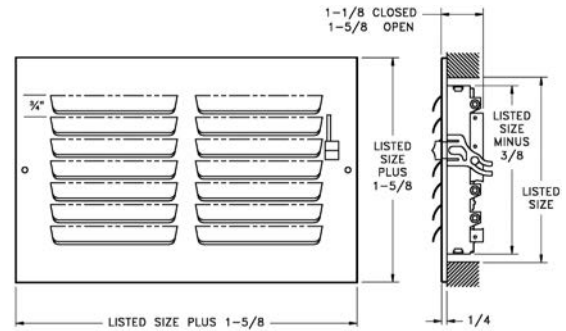
Sidewall Registers & Grilles



A302 Register

- Aluminum one-piece stamped-face curved-blade construction
- For sidewall or ceiling application
- Two-way deflection
- Two-way air pattern
- Galvanized multi-shutter valve
- Listed heights 10" and larger require double valves
- Bright White enamel finish

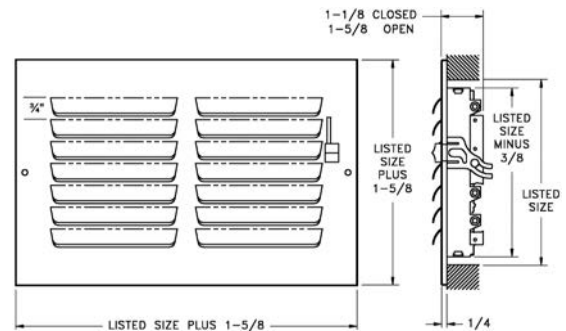
| A302 Available Sizes (in.) | | |
|----------------------------|-------|----|
| HT | WIDTH | |
| | | 10 |
| 6 | X | X |
| 8 | | X |
| 10 | X | |



303 Register

- All-steel one-piece stamped-face curved-blade construction
- Three-way deflection
- Three-way air pattern
- For sidewall or ceiling application
- Multi-shutter valve
- Listed heights 10" and larger require double valves
- Bright White enamel finish

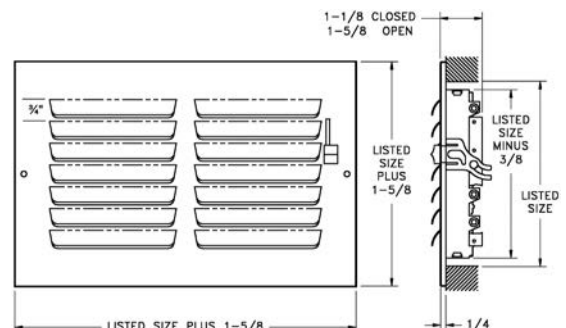
| 303 Available Sizes (in.) | | | | | | |
|---------------------------|-------|---|---|----|----|----|
| HT | WIDTH | | | | | |
| | | 6 | 8 | 10 | 12 | 14 |
| 4 | | X | X | | X | |
| 6 | X | X | X | X | X | X |
| 8 | | X | X | X | X | |
| 10 | | | X | | | |
| 12 | | | | X | | |



A303 Register

- Aluminum one-piece stamped-face curved-blade construction
- For sidewall or ceiling application
- Three-way deflection
- Three-way air pattern
- Galvanized multi-shutter valve
- Listed heights 10" and larger require double valves
- Bright White enamel finish

| A303 Available Sizes (in.) | | | | |
|----------------------------|-------|---|---|----|
| HT | WIDTH | | | |
| | | 6 | 8 | 10 |
| 4 | | X | | |
| 6 | X | | X | X |
| 8 | | X | X | X |
| 10 | | | X | |
| 12 | | | | X |



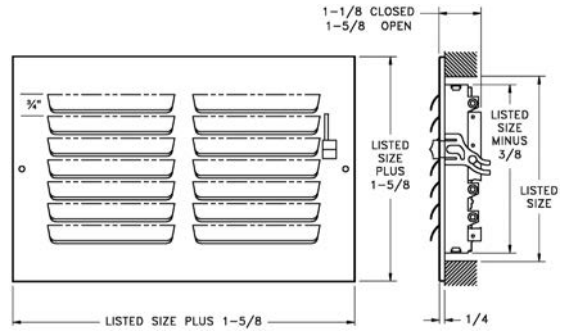
Sidewall Registers & Grilles



304 Register

- All-steel one-piece stamped-face curved-blade construction
- Four-way deflection
- Four-way air pattern
- For sidewall or ceiling application
- Multi-shutter valve
- Listed heights 10" and larger require double valves
- Bright White enamel finish

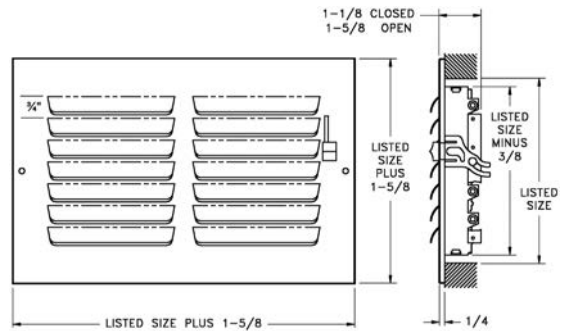
| 304 Available Sizes (in.) | | | | | |
|---------------------------|-------|---|---|----|----|
| HT | WIDTH | | | | |
| | | 6 | 8 | 10 | 12 |
| 6 | X | | | | |
| 8 | | X | | | |
| 10 | | | X | | |
| 12 | | | | X | |
| 14 | | | | | X |



A304 Register

- Aluminum one-piece stamped-face curved-blade construction
- For sidewall or ceiling application
- Four-way deflection
- Four-way air pattern
- Galvanized multi-shutter valve
- Listed heights 10" and larger require double valves
- Bright White enamel finish

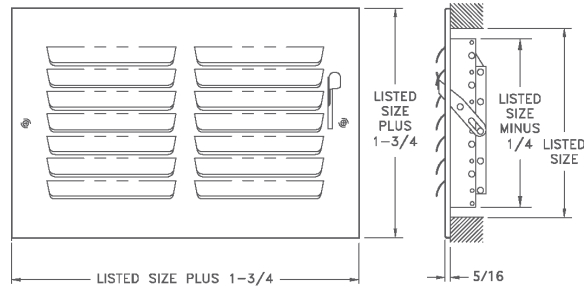
| A304 Available Sizes (in.) | | | | |
|----------------------------|-------|---|---|----|
| HT | WIDTH | | | |
| | | 6 | 8 | 10 |
| 6 | X | | | |
| 8 | | X | | |
| 10 | | | X | |
| 12 | | | | X |





300M Series Register

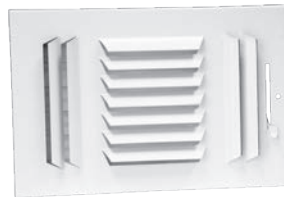
- All-steel construction with metal handle
- Stamped curved-blade supply register with multi-louver damper for ceiling or sidewall installation
- Stamped, one-piece face with multi-louver damper for volume control
- Available in 1-way, 2-way, 3-way and 4-way airflow patterns
- Bright White finish



| 301M Available Sizes (in.) | | | | | |
|----------------------------|-------|---|----|----|----|
| HT | WIDTH | | | | |
| | 6 | 8 | 10 | 12 | 14 |
| 4 | | X | | X | |
| 6 | X | X | X | X | X |
| 8 | | X | X | X | X |
| 10 | | | X | | X |
| 12 | | | | X | |



| 302M Available Sizes (in.) | | |
|----------------------------|-------|----|
| HT | WIDTH | |
| | 10 | 12 |
| 6 | X | X |
| 8 | X | X |
| 10 | X | |
| 12 | | X |

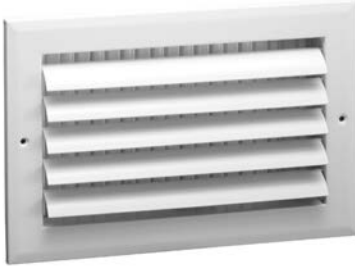


| 303M Available Sizes (in.) | | | | | |
|----------------------------|-------|---|----|----|----|
| HT | WIDTH | | | | |
| | 6 | 8 | 10 | 12 | 14 |
| 4 | | X | | | |
| 6 | X | X | X | X | X |
| 8 | | X | X | X | X |
| 10 | | | X | | X |
| 12 | | | | X | |



| 304M Available Sizes (in.) | | | | | |
|----------------------------|-------|---|----|----|----|
| HT | WIDTH | | | | |
| | 6 | 8 | 10 | 12 | 14 |
| 6 | X | | | | |
| 8 | | X | | | |
| 10 | | | X | | |
| 12 | | | | X | |
| 14 | | | | | X |

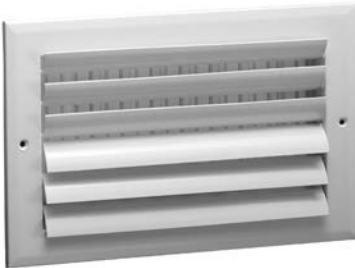
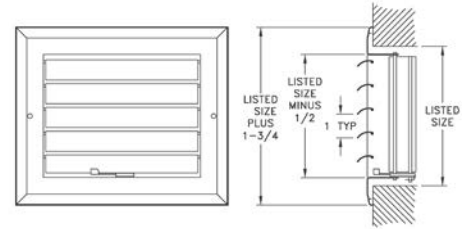
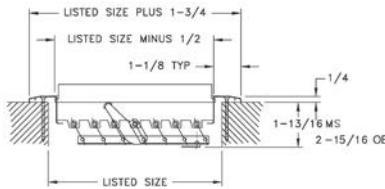
Sidewall Registers & Grilles



A611MS/A611OB Register

- Aluminum face/fin construction
- For sidewall or ceiling application
- One-way deflection
- Adjustable curved blades increase deflection control
- Galvanized multi-shutter valve or opposed-blade damper
- Bright White finish

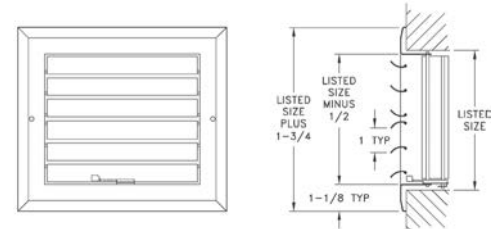
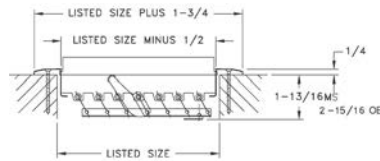
| A611 Available Sizes (in.) | | | | | |
|----------------------------|-------|---|----|----|----|
| HT | WIDTH | | | | |
| | 6 | 8 | 10 | 12 | 14 |
| 4 | | X | X | X | |
| 6 | X | | X | X | X |
| 8 | | X | X | X | X |
| 10 | | | X | | |
| 12 | | | | X | |



A612MS/A612OB Register

- Aluminum face/fin construction
- For sidewall or ceiling application
- Two-way deflection
- Adjustable curved blades increase deflection control
- Galvanized multi-shutter valve or opposed-blade damper
- Bright White finish

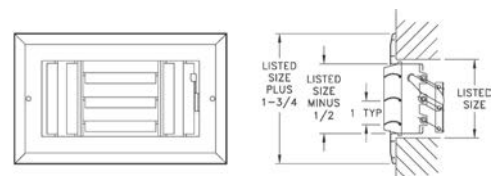
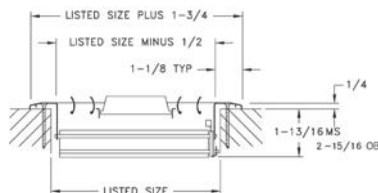
| A612 Available Sizes (in.) | | | | |
|----------------------------|-------|----|----|----|
| HT | WIDTH | | | |
| | 8 | 10 | 12 | 14 |
| 6 | | X | X | X |
| 8 | X | | X | X |
| 10 | | X | | |
| 12 | | | X | |



A613MS/A613OB Register

- Aluminum face/fin construction
- For sidewall or ceiling application
- Three-way deflection
- Adjustable curved blades increase deflection control
- Galvanized multi-shutter valve or opposed-blade damper
- Bright White finish

| A613 Available Sizes (in.) | | | | | |
|----------------------------|-------|---|----|----|----|
| HT | WIDTH | | | | |
| | 6 | 8 | 10 | 12 | 14 |
| 4 | | X | X | | |
| 6 | X | | X | X | X |
| 8 | | X | | X | X |
| 10 | | | X | | |
| 12 | | | | X | |
| 14 | | | | | X |

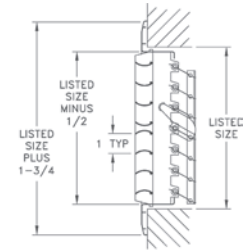
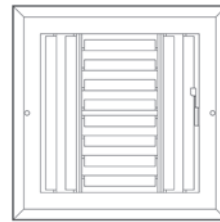
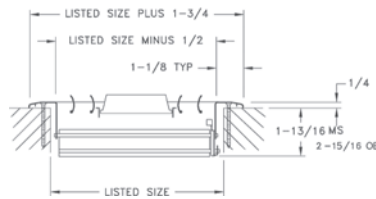




A614MS/A614OB Register

- Aluminum face/fin construction
- For sidewall or ceiling application
- Four-way deflection
- Adjustable curved blades increase deflection control
- Galvanized multi-shutter valve or opposed-blade damper
- Bright White finish

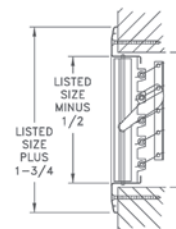
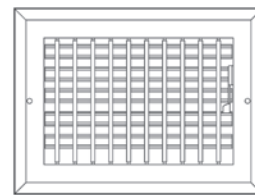
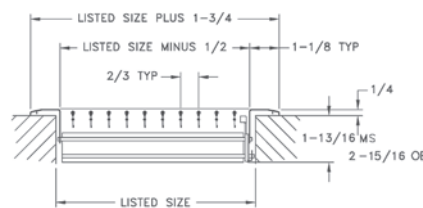
| A614 Available Sizes (in.) | | | | | |
|----------------------------|-------|---|----|----|----|
| HT | WIDTH | | | | |
| | 6 | 8 | 10 | 12 | 14 |
| 6 | X | | | | |
| 8 | | X | | | |
| 10 | | | X | | |
| 12 | | | | X | |
| 14 | | | | | X |



A618MS/A618OB Register

- Aluminum face/fin construction
- Adjustable straight fins provides individual deflection control
- Stamped face margins eliminate mitered corners and rough edges
- Galvanized multi-shutter valve or opposed-blade damper
- Bright White finish

| A618 Available Sizes (in.) | | | | | |
|----------------------------|-------|---|----|----|----|
| HT | WIDTH | | | | |
| | 6 | 8 | 10 | 12 | 14 |
| 4 | | X | X | X | X |
| 6 | X | X | X | X | X |
| 8 | | X | X | X | X |
| 10 | | | X | | |
| 12 | | | | X | |
| 14 | | | | | X |



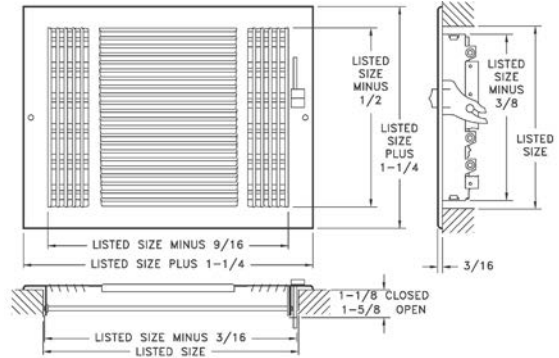
Sidewall Registers & Grilles



631 Register

- All-steel construction
- Ideal for shallow duct installations
- Used for ceiling or sidewall installations
- For heating or cooling
- Three-way deflection
- 1/3" spaced fins set at 20 degrees
- Multi-shutter valve
- 1-5/8" depth when fully opened
- Interlocking valve louvers for positive shut-off
- Bright White finish

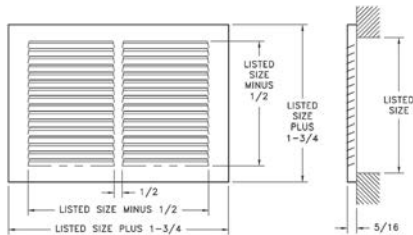
| 631 Available Sizes (in.) | | | | | |
|---------------------------|-------|----|----|----|----|
| HT | WIDTH | | | | |
| | 8 | 10 | 12 | 14 | 16 |
| 4 | X | X | X | X | |
| 6 | X | X | X | X | X |
| 8 | | X | X | X | |



650 Return Air Grille

- All-steel construction
- 1/3" spaced fins set at 20 degrees
- Exceptional free area
- 5/16" Margin Turnback
- Bright White finish

| 650 Available Sizes (in.) | | | | | | | | | | | |
|---------------------------|-------|---|----|----|----|----|----|----|----|----|----|
| HT | WIDTH | | | | | | | | | | |
| | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 24 | 30 | 36 |
| 4 | X | X | X | X | X | X | | X | X | X | |
| 6 | X | X | X | X | X | X | X | X | X | X | X |
| 8 | | X | X | X | X | X | X | X | X | X | X |
| 10 | X | | X | X | X | X | X | X | X | X | X |
| 12 | | | X | X | X | X | X | X | X | X | X |
| 14 | X | X | X | X | X | X | X | X | X | X | |
| 16 | | | | X | X | X | X | X | X | X | |
| 18 | | | | | X | X | | X | X | X | |
| 20 | | | X | X | X | X | | X | X | X | |
| 24 | X | | X | X | X | X | X | X | X | X | |
| 25 | | | | | | | | X | | | |
| 30 | | | | | | X | | X | X | X | |



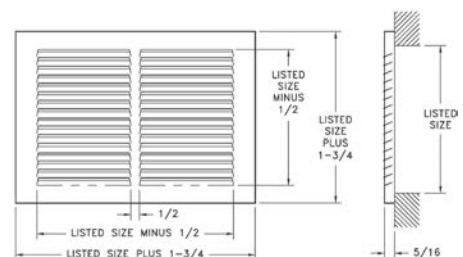
Note: When ordering, specify horizontal dimension first.



A650 Return Air Grille

- Aluminum construction
- 1/3" spaced fins set at 20 degrees
- Exceptional free area
- 5/16" Margin Turnback
- Bright White finish

| A650 Available Sizes (in.) | | | | | |
|----------------------------|-------|----|----|----|----|
| HT | WIDTH | | | | |
| | 6 | 10 | 12 | 14 | 18 |
| 6 | X | | X | | |
| 8 | | | | X | |
| 10 | | X | | | |
| 12 | | | X | | X |
| 14 | | | | X | |



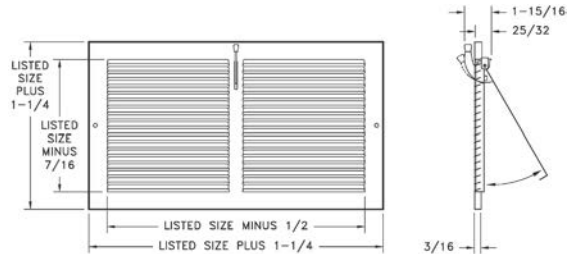
Sidewall Registers & Grilles



651 Register

- All-steel construction
- 1/3" spaced fins set at 20 degrees
- Volume-control damper
- Bright White finish

| 651 Available Sizes (in.) | | | | |
|---------------------------|-------|----|----|----|
| HT | WIDTH | | | |
| | 8 | 10 | 12 | 14 |
| 4 | X | X | X | |
| 6 | X | X | X | X |

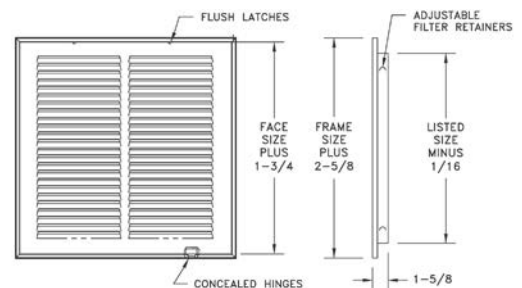


659 Return Air Filter Grille

- All-steel construction
- 1/3" spaced fins set at 20 degrees
- Effectively conceals filter
- Use standard 1" thick disposable filters (not included)
- Removable face for easy installation and cleaning
- Equipped with adjustable filter retainers
- Bright White finish

| 659 Standard Sizes (in.) | | | | | | | | | | |
|--------------------------|-------|----|----|----|----|----|----|----|----|----|
| HT | WIDTH | | | | | | | | | |
| | 10 | 12 | 14 | 16 | 18 | 20 | 24 | 25 | 30 | 36 |
| 6 | | X | X | | | | X | | X | |
| 8 | | | | | | | X | | X | |
| 10 | X | | | | | X | X | | X | |
| 12 | | X | | | X | X | X | | X | |
| 14 | | | X | | | X | X | X | X | X |
| 16 | | | | X | | X | X | X | X | |
| 18 | | | | | X | | X | | X | |
| 20 | X | X | X | X | | X | X | X | X | |
| 24 | | X | X | | X | X | X | | X | |
| 25 | | | X | X | | X | | X | | |
| 30 | | | X | X | | X | X | | X | |
| 36 | | | | | | | X | | | |

Note: When ordering, specify horizontal dimension first.



Sidewall Registers & Grilles



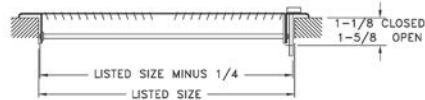
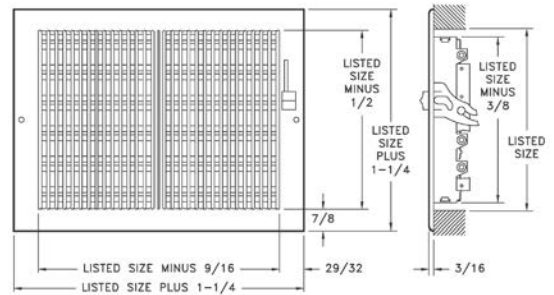
661 Register

- All-steel construction
- Used for ceiling or sidewall installations
- For heating or cooling
- Ideal for shallow duct installations
- Two-way deflection
- 1/3" spaced fins set at 20 degrees
- Galvanized multi-shutter valve
- 1-5/8" depth when fully opened
- Interlocking valve louvers for positive shut-off
- Bright White finish

Available with fusible link option, limited sizes (not UL-listed or fire-rated)

| 661 Standard Sizes (in.) | | | | | | | | | | |
|--------------------------|-------|---|----|----|----|----|----|----|----|----|
| HT | WIDTH | | | | | | | | | |
| | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 24 | 30 |
| 4 | X | X | X | X | X | X | | | X | |
| 5 | | X | X | X | X | | | | | |
| 6 | X | X | X | X | X | X | X | X | X | X |
| 8 | | X | X | X | X | X | X | X | X | X |
| 10 | | | X | X | | | | | | |
| 12 | | | | X | | | | | | |

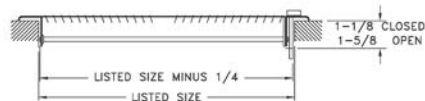
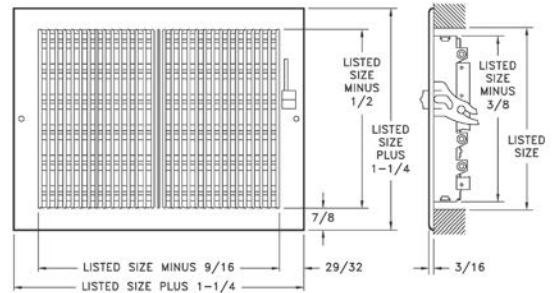
Note: When ordering sidewall products, specify horizontal (width) dimension first.



A661 Register

- Stamped aluminum construction
- Used for ceiling or sidewall installations
- For heating or cooling
- Ideal for shallow duct installations
- Two-way deflection
- 1/3" spaced fins set at 20 degrees
- Galvanized multi-shutter valve
- 1-5/8" depth when fully opened
- Interlocking valve louvers for positive shut-off
- Bright White finish

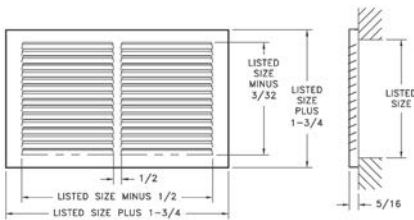
| A661 Available Sizes (in.) | | | | |
|----------------------------|-------|----|----|----|
| HT | WIDTH | | | |
| | 8 | 10 | 12 | 14 |
| 4 | X | X | X | |
| 6 | | X | X | X |





672 Return Air Grille

- All-steel construction
- 1/2" spaced fins set at 40 degrees
- Exceptional free area
- 5/16" Margin Turnback
- Bright White finish

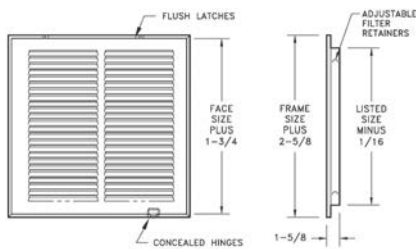


| 672 Available Sizes (in.) | | | | | | | | | | | | |
|---------------------------|-------|---|----|----|----|----|----|----|----|----|----|----|
| HT | WIDTH | | | | | | | | | | | |
| | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 24 | 25 | 30 | 36 |
| 4 | X | X | X | X | X | | X | | X | | X | |
| 6 | X | X | X | X | X | X | X | X | X | | X | |
| 8 | | X | X | X | X | X | X | X | X | | X | X |
| 10 | | | X | X | X | X | X | X | X | | X | X |
| 12 | X | | X | X | X | X | X | X | X | | X | X |
| 14 | | X | X | X | X | X | X | X | X | | X | X |
| 16 | | | | X | X | X | X | X | X | X | | |
| 18 | | | | X | X | | X | X | X | | X | |
| 20 | | | X | X | X | X | | X | X | X | X | |
| 24 | | | X | X | X | X | X | X | X | | X | |
| 25 | | | | | X | X | | X | | X | | |
| 30 | | | | | X | X | | X | X | | X | |



673 Return Air Filter Grille

- All-steel construction
- 1/2" spaced fins set at 40 degrees
- Effectively conceals filter
- Use standard 1" thick disposable filters (not included)
- Removable face for easy installation and cleaning
- Equipped with adjustable filter retainers
- Bright White finish



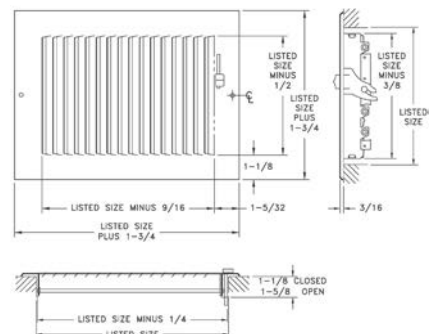
| 673 Standard Sizes (in.) | | | | | | | | | | | | |
|--------------------------|-------|----|----|----|----|----|----|----|----|----|----|----|
| HT | WIDTH | | | | | | | | | | | |
| | 10 | 12 | 14 | 16 | 18 | 20 | 24 | 25 | 30 | 32 | 36 | 40 |
| 6 | X | | X | | | | X | | X | | | |
| 8 | | | X | | | X | | | X | | | |
| 10 | X | | | | | X | X | | X | | | |
| 12 | | X | | | X | X | X | | X | | X | |
| 14 | | | X | | | X | X | X | X | | X | |
| 16 | | | X | X | | X | X | X | X | | X | |
| 18 | | X | | | X | X | X | | X | | | |
| 20 | X | X | X | X | X | X | X | X | X | | | X |
| 24 | | X | X | X | X | X | X | | X | | X | |
| 25 | | | X | X | | X | | X | | X | | |
| 30 | | X | X | X | | X | X | X | X | | | |
| 32 | | | | X | | X | | X | | | | |
| 36 | | X | | X | | X | X | | | | | |
| 40 | | | | | | X | | | | | | |



681/A681 Register

- All-steel construction
- Aluminum face steel damper (A681)
- Used for ceiling or sidewall installations
- Ideal for shallow duct installations
- One-way deflection
- 1/2" spaced fins set at 40 degrees
- Multi-shutter valve
- 1-5/8" depth when fully opened
- Interlocking valve louvers for positive shut-off
- Bright White finish

| 681 Available Sizes (in.) | | | | | | | |
|---------------------------|-------|----|----|----|----|----|----|
| HT | WIDTH | | | | | | |
| | 8 | 10 | 12 | 14 | 16 | 18 | 20 |
| 4 | X | | | | | | |
| 6 | X | X | X | X | X | X | X |



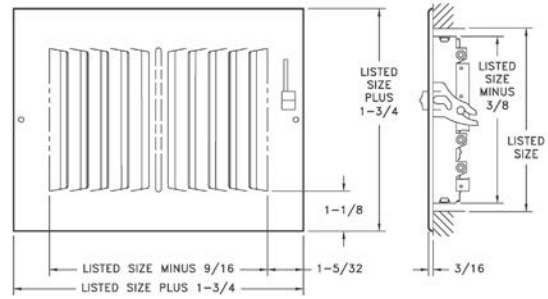
Sidewall Registers & Grilles



682/A682 Register

- All-steel construction
- Aluminum face steel damper (A682)
- Used for ceiling or sidewall installations
- Ideal for shallow duct installations
- Two-way deflection
- 1/2" spaced fins set at 40 degrees
- Multi-shutter valve
- 1-5/8" depth when fully opened
- Interlocking valve louvers for positive shut-off
- Bright White finish

| 682 Available Sizes (in.) | | | | | | | | | |
|---------------------------|-------|---|----|----|----|----|----|----|----|
| HT | WIDTH | | | | | | | | |
| | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 24 |
| 4 | X | X | X | X | X | | | | |
| 5 | | | X | X | | | | | |
| 6 | X | X | X | X | X | X | X | X | X |
| 8 | | X | X | X | X | X | X | X | X |
| 10 | | | X | | | | | | |
| 12 | | | | X | | | | | |



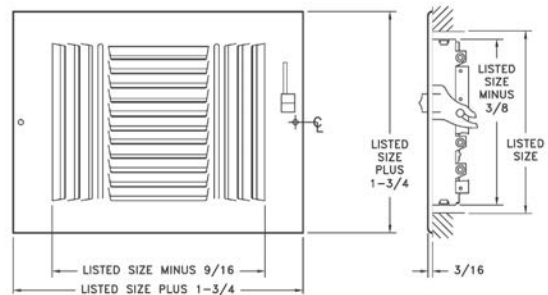
Available with fusible link option, limited sizes (not UL-listed or fire-rated)



683/A683 Register

- All-steel construction
- Aluminum face steel damper (A683)
- Used for ceiling or sidewall installations
- Ideal for shallow duct installations
- Three-way deflection
- 1/2" spaced fins set at 40 degrees
- Multi-shutter valve
- 1-5/8" depth when fully opened
- Interlocking valve louvers for positive shut-off
- Bright White finish

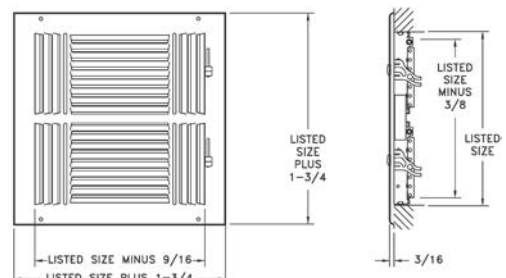
| 683 Available Sizes (in.) | | | | | | |
|---------------------------|-------|---|----|----|----|----|
| HT | WIDTH | | | | | |
| | 6 | 8 | 10 | 12 | 14 | 16 |
| 4 | | X | X | X | X | |
| 6 | X | X | X | X | X | X |
| 8 | | X | X | X | X | X |
| 10 | | | X | | | |
| 12 | | | | X | | |
| 14 | | | | | X | |
| 16 | | | | | | X |



684/A684 Register

- All-steel construction
- Aluminum face steel damper (A684)
- Used for ceiling or sidewall installations
- Ideal for shallow duct installations
- Four-way deflection
- 1/2" spaced fins set at 40 degrees
- Multi-shutter valve
- 1-5/8" depth when fully opened
- Interlocking valve louvers for positive shut-off
- Listed heights 10" and larger require double valves
- Bright White finish

| 684 Available Sizes (in.) | | | | | | |
|---------------------------|-------|---|----|----|----|----|
| HT | WIDTH | | | | | |
| | 6 | 8 | 10 | 12 | 14 | 16 |
| 6 | X | | | | | |
| 8 | | X | | | | |
| 10 | | | X | | | |
| 12 | | | | X | | |
| 14 | | | | | X | |
| 16 | | | | | | X |

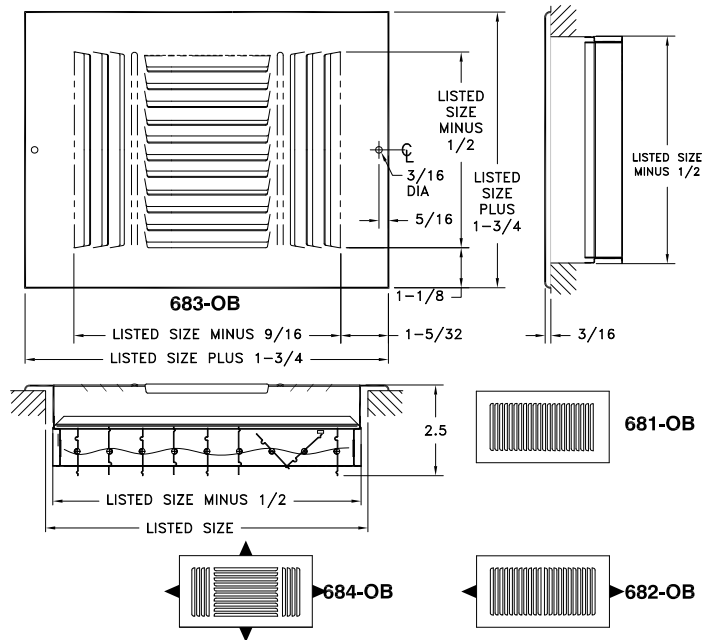




680-OB Series Register

- Fits in a 3-1/2" deep ceiling radiation damper
- Ideal for Multi-Family projects
- Tamper resistant controls
- Equipped with an Opposed Blade Damper
- Available in one, two, three or four way deflection
- All steel construction
- 1/2" spaced fins set at 40 degrees

| 681-OB | | | | | | | | | | |
|--------|---|---|----|----|----|----|----|----|----|----|
| | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 |
| 4 | X | X | X | X | | | | | | |
| 6 | X | X | X | X | | | | | | |
| 8 | X | X | X | X | | | | | | |
| 10 | | X | | | | | | | | |
| 12 | | | X | | | | | | | |
| 14 | | | | | | | | | | |
| 16 | | | | | | | | | | |



| 682-OB | | | | | | | | | | |
|--------|---|---|----|----|----|----|----|----|----|----|
| | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 |
| 4 | X | X | X | X | X | X | | | | |
| 6 | X | X | X | X | X | X | X | X | | X |
| 8 | X | X | X | X | | X | X | X | | X |
| 10 | | X | | X | X | X | | | | |
| 12 | | | | X | X | X | | | | |
| 14 | | | | | | | | | | |
| 16 | | | | | | | | | | |

| 683-OB | | | | | | | | | | |
|--------|---|---|----|----|----|----|----|----|----|----|
| | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 |
| 4 | X | X | X | X | X | X | | | | |
| 6 | X | X | X | X | X | X | X | X | | X |
| 8 | X | X | X | X | X | X | X | X | | X |
| 10 | | X | | X | X | X | | | | |
| 12 | | | | X | X | X | X | | | |
| 14 | | | | | | | | | | |
| 16 | | | | | | | | | | |

| 684-OB | | | | | | | | | | |
|--------|---|---|----|----|----|----|----|----|----|----|
| | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 |
| 4 | | | | | | | | | | |
| 6 | X | | | | | | | | | |
| 8 | | X | | | | | | | | |
| 10 | | | X | | | | | | | |
| 12 | | | | X | | | | | | |
| 14 | | | | | X | | | | | |
| 16 | | | | | | X | | | | |

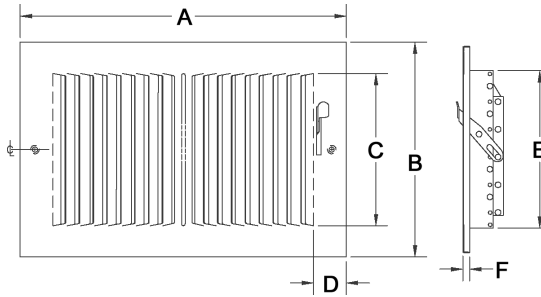
Sidewall Registers & Grilles



680M Series Register

- All-steel construction with metal handle
- Stamped, straight-blade supply register with multi-louver damper for ceiling or sidewall installation
- Stamped, one-piece face with multi-louver damper for volume control
- Fins spaced on 1/2" centers at 40 degrees
- Available in 1-way, 2-way, 3-way and 4-way airflow patterns
- Bright White finish

| 681M Available Sizes (in.) | | | | | | | |
|----------------------------|-------|----|----|----|----|----|----|
| HT | WIDTH | | | | | | |
| | 8 | 10 | 12 | 14 | 16 | 18 | 20 |
| 4 | X | | | | | | |
| 6 | | X | X | X | X | | X |
| 8 | | | X | | | | |



| A | B | C | D | E | F |
|-------------------------|-------------------------|------------------------|---------|------------------------|-------|
| LISTED SIZE PLUS 1-3/4" | LISTED SIZE PLUS 1-3/4" | LISTED SIZE MINUS 5/8" | 1-3/16" | LISTED SIZE MINUS 1/4" | 5/16" |



| 682M Available Sizes (in.) | | | | | | | |
|----------------------------|-------|---|----|----|----|----|---|
| HT | WIDTH | | | | | | |
| | 6 | 8 | 10 | 12 | 14 | 16 | |
| 4 | X | X | X | X | X | X | |
| 6 | X | X | X | X | X | X | X |
| 8 | | X | X | X | X | X | X |
| 10 | | | X | | X | | |



| 683M Available Sizes (in.) | | | | | | | |
|----------------------------|-------|---|----|----|----|----|---|
| HT | WIDTH | | | | | | |
| | 6 | 8 | 10 | 12 | 14 | 16 | |
| 4 | | X | X | X | X | X | |
| 6 | X | X | X | X | X | X | X |
| 8 | | X | X | X | X | X | |
| 10 | | | X | | X | | |
| 12 | | | | X | | | |



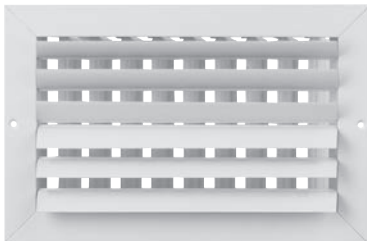
| 684M Available Sizes (in.) | | | | | |
|----------------------------|-------|---|----|----|----|
| HT | WIDTH | | | | |
| | 6 | 8 | 10 | 12 | 14 |
| 6 | X | | | | |
| 8 | | X | | | |
| 10 | | | X | | |
| 12 | | | | X | |
| 14 | | | | | X |



A711MS Register

- Aluminum construction
- Used for ceiling or sidewall installations
- One-way deflection
- One-way air pattern
- Adjustable curved blades increase deflection control
- Multi-shutter valve
- Bright White finish

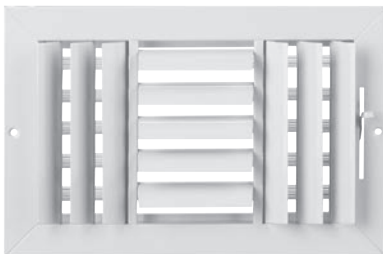
| A711 Available Sizes (inches) | | | | | |
|-------------------------------|-------|---|----|----|----|
| Height | Width | | | | |
| | 6 | 8 | 10 | 12 | 14 |
| 4 | | X | X | | |
| 6 | X | | X | X | X |
| 8 | | X | X | X | X |
| 10 | | | X | | |
| 12 | | | | X | |



A712MS Register

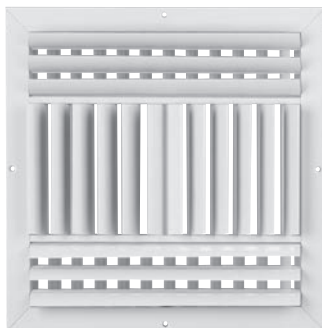
- Aluminum construction
- Used for ceiling or sidewall installations
- Two-way deflection
- Two-way air pattern
- Adjustable curved blades increase deflection control
- Multi-shutter valve
- Bright White finish

| A712 Available Sizes (inches) | | |
|-------------------------------|-------|----|
| Height | Width | |
| | 10 | 12 |
| 6 | X | X |
| 8 | | X |
| 10 | X | |
| 12 | | X |



A713MS Register

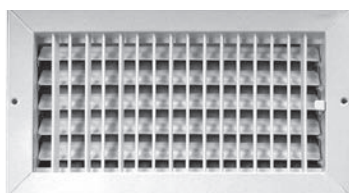
- Available in a 10" x 10" size
- Aluminum construction
- Used for ceiling or sidewall installations
- Three-way deflection
- Three-way air pattern
- Adjustable curved blades increase deflection control
- Multi-shutter valve
- Bright White finish



A714MS Register

- Aluminum construction
- Used for ceiling or sidewall installations
- Four-way deflection
- Four-way air pattern
- Adjustable curved blades increase deflection control
- Multi-shutter valve
- Bright White finish

| A714 Available Sizes (inches) | | | | | |
|-------------------------------|-------|---|----|----|----|
| Height | Width | | | | |
| | 6 | 8 | 10 | 12 | 14 |
| 6 | X | | | | |
| 8 | | X | | | |
| 10 | | | X | | |
| 12 | | | | X | |
| 14 | | | | | X |



A718MS Register

- Aluminum construction
- Adjustable straight fins provides individual deflection control
- Stamped face margins eliminate mitered corners and rough edges
- Multi-shutter valve
- Bright White finish

| A718 Available Sizes (inches) | | | | |
|-------------------------------|-------|----|----|----|
| Height | Width | | | |
| | 8 | 10 | 12 | 14 |
| 4 | X | X | X | X |
| 6 | | X | X | X |
| 8 | | X | X | X |
| 10 | | | | |
| 12 | | | | |

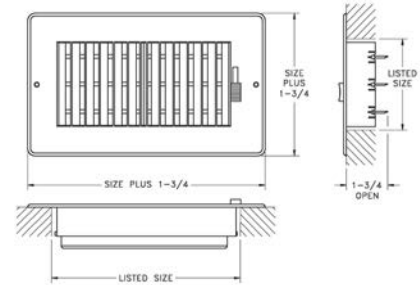
Rezzin™ Registers & Diffusers



2-Way Plastic Sidewall/ Ceiling Register

- Engineered polymer construction
- Two-way deflection
- Traditional styling
- Integral multi-shutter damper with easy-to-use damper handle
- For heating or cooling applications
- Bright White finish

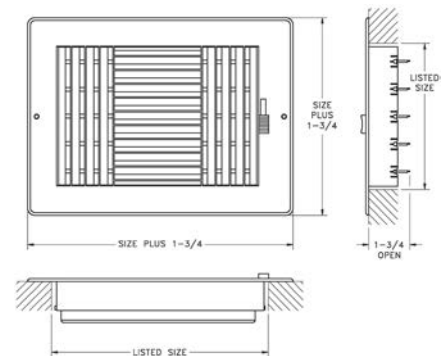
| 2-Way Available Sizes (in.) | | | | |
|-----------------------------|-------|---|----|----|
| HT | WIDTH | | | |
| | 4 | 8 | 10 | 12 |
| 6 | X | X | X | X |
| 8 | | X | | X |



3-Way Plastic Sidewall/ Ceiling Register

- Engineered polymer construction
- Three-way deflection
- Traditional styling
- Integral multi-shutter damper with easy-to-use damper handle
- For heating or cooling applications
- Bright White finish

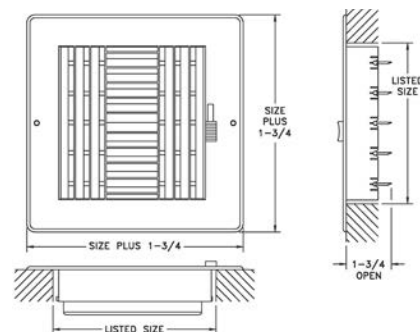
| 3-Way Available Sizes (in.) | | | | |
|-----------------------------|-------|---|----|----|
| HT | WIDTH | | | |
| | 4 | 8 | 10 | 12 |
| 6 | X | X | X | X |
| 8 | | X | | X |



4-Way Plastic Sidewall/Ceiling Register

- Engineered polymer construction
- Four-way deflection
- Traditional styling
- Integral multi-shutter damper with easy-to-use damper handle
- For heating or cooling applications
- Bright White finish

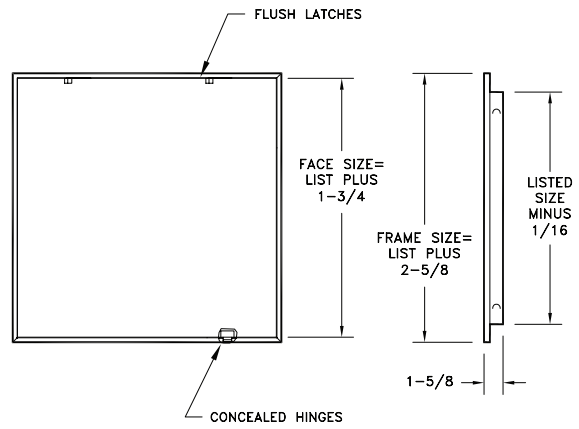
| 4-Way Available Sizes (in.) | | | | |
|-----------------------------|-------|---|---|----|
| HT | WIDTH | | | |
| | 6 | 6 | 8 | 10 |
| 8 | X | X | | |
| 10 | | | X | |
| 12 | | | | X |





Access Door (HCAD)

- All Steel Construction
- Flush, removable face with concealed latches and Hinges
- 22 gauge face, 24 gauge frame
- Available in bright white finish
- Available in sizes: 6x6, 8x8, 10x10, 12x12, 14x14, 16x16, 24x24



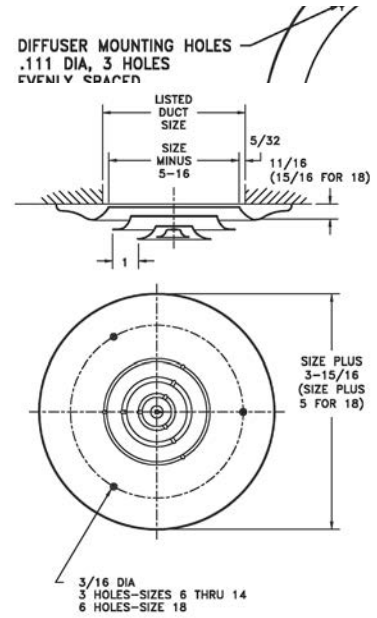
Ceiling Diffusers



16 Ceiling Diffuser

- All-steel construction
- Step-down diffuser rings deflect air stream 360 degrees
- Bright White finish

Only available in sizes shown.



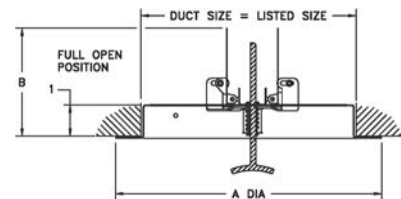
12 Butterfly Damper

- All-steel construction
- Controls air volume evenly over entire #16 diffuser
- Removable knob operator for adjustment from closed to fully open
- Golden Sand enamel finish

Note: Knob permits diffuser to be held in position while attaching face screws.

Only available in sizes shown.

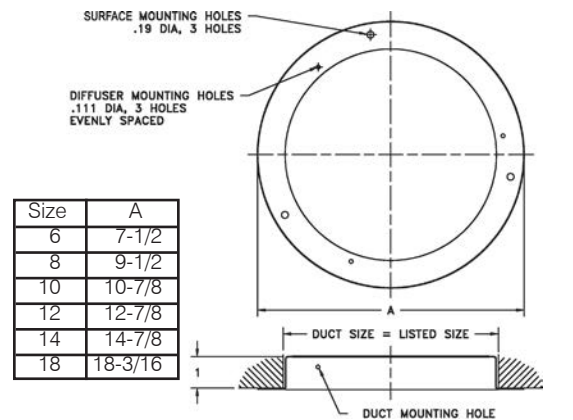
| 12 Available Sizes (in.) | | |
|--------------------------|---------------------------------|---------------------------------|
| Size | A | B |
| 6 | 7 ¹ / ₂ | 3 ¹¹ / ₁₆ |
| 8 | 9 ¹ / ₂ | 4 ¹¹ / ₁₆ |
| 10 | 10 ⁷ / ₈ | 5 ¹¹ / ₁₆ |
| 12 | 12 ⁷ / ₈ | 6 ¹¹ / ₁₆ |
| 14 | 14 ⁷ / ₈ | 7 ¹¹ / ₁₆ |
| 18 | 18 ³ / ₁₆ | 9 ¹¹ / ₁₆ |



11 Duct Ring

- All-steel construction
- For installation of #16 diffuser when not using a damper
- Golden Sand enamel finish

SURFACE MOUNTING HOLES
.19 DIA, 3 HOLES



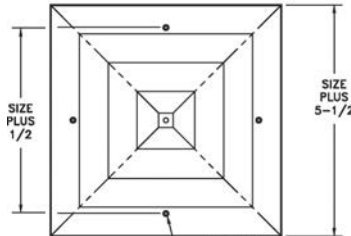
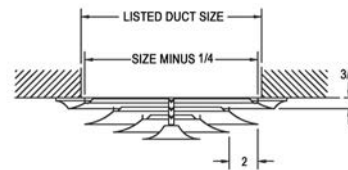
| Size | A |
|------|---------|
| 6 | 7-1/2 |
| 8 | 9-1/2 |
| 10 | 10-7/8 |
| 12 | 12-7/8 |
| 14 | 14-7/8 |
| 18 | 18-3/16 |



24 Square Ceiling Diffuser

- All-steel construction
- Step-down face deflects air stream 360 degrees
- Bright White finish

Only available in sizes shown.



7/32 DIA
2 SCREW HOLES FOR
6 TO 8 INCH SIZES
4 SCREW HOLES FOR
10, 12 AND 14 INCH SIZES

| 24 Ceiling Diffuser (in.) | | |
|---------------------------|----------------------|--------------|
| Size | Free Area Sq. Inches | No. of Cones |
| 6 | 41 | 3 |
| 8 | 65 | 3 |
| 10 | 84 | 3 |
| 12 | 123 | 4 |
| 14 | 152 | 4 |
| 16 | 199 | 5 |
| 18 | 236 | 5 |
| 20 | 293 | 6 |
| 22 | 338 | 6 |
| 24 | 404 | 7 |



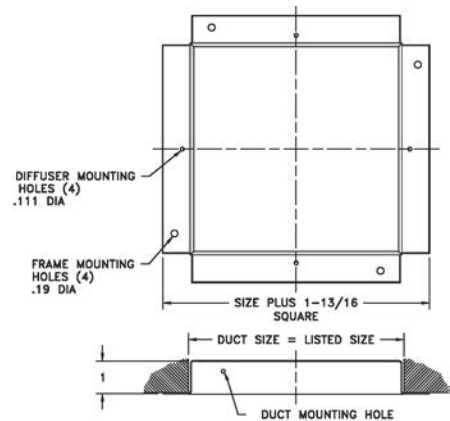
21 Installation Frame

- All-steel construction
- Golden Sand enamel finish
- Used but not furnished with #24 ceiling diffusers.

Not required when using 22 Butterfly Damper or 23 Opposed Blade Damper.

Cannot be used with SD and SDD.

| 21 Available Sizes (in.) | |
|--------------------------------------|--|
| 6, 8, 10, 12, 14, 16, 18, 20, 22, 24 | |

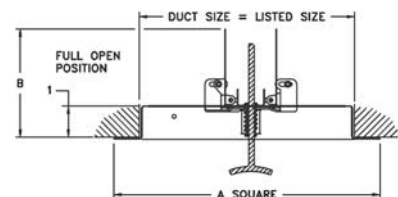


22 Butterfly Damper

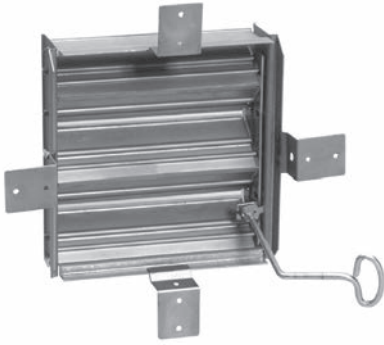
- All-steel construction
- Used with #24 Ceiling Diffuser
- Knob control for quick adjustment (removable)
- Installation flange included
- Golden Sand enamel finish

Only available in sizes shown.

| 22 Available Sizes (in.) | | |
|--------------------------|---------------------------------|---------------------------------|
| Size | A | B |
| 6 | 6 ³ / ₁₆ | 3 ¹¹ / ₁₆ |
| 8 | 8 ³ / ₁₆ | 4 ¹¹ / ₁₆ |
| 10 | 10 ³ / ₁₆ | 5 ¹¹ / ₁₆ |
| 12 | 12 ³ / ₁₆ | 6 ¹¹ / ₁₆ |
| 14 | 14 ³ / ₁₆ | 7 ¹¹ / ₁₆ |



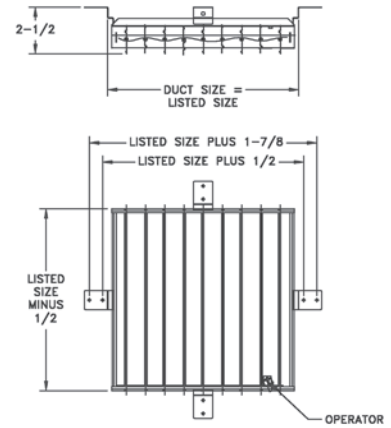
Ceiling Diffusers



23 Opposed-Blade Damper

- All-steel construction
- Used with #24 Ceiling Diffuser
- Controls air volume over entire diffuser
- Key operated
- Mill finish

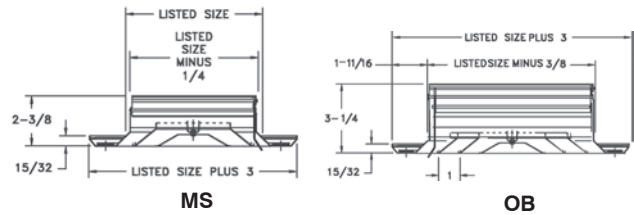
| 23 Available Sizes (in.) | |
|--------------------------|-----------------------------------|
| 6 | 8, 10, 12, 14, 16, 18, 20, 22, 24 |



A501MS/A501OB Square Ceiling Diffuser

- Extruded aluminum construction
- Cores flush with margin
- One-way air diffusion
- Face mount for easy installation
- For sidewall or ceiling application
- Multi-shutter or opposed-blade dampers - aluminum
- Inconspicuous fingertip lever for air volume control
- Bright White finish

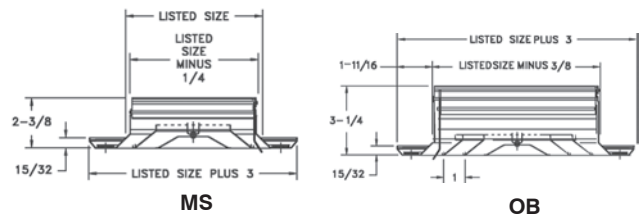
| A501MS/A501OB (in.) | | | | | |
|---------------------|-------|---|---|----|----|
| HT | WIDTH | | | | |
| | | 6 | 8 | 10 | 12 |
| 6 | X | | | | |
| 8 | | X | | | |
| 10 | | | X | | |
| 12 | | | | X | |
| 14 | | | | | X |



A502MS/A502OB Square Ceiling Diffuser

- Extruded aluminum construction
- Cores flush with margin
- Two-way air diffusion
- Face mount for easy installation
- For sidewall or ceiling application
- Multi-shutter or opposed-blade dampers - aluminum
- Inconspicuous fingertip lever for air volume control
- Bright White

| A502MS/A502OB (in.) | | | | | |
|---------------------|-------|---|---|----|----|
| HT | WIDTH | | | | |
| | | 6 | 8 | 10 | 12 |
| 6 | X | | | | |
| 8 | | X | | | |
| 10 | | | X | | |
| 12 | | | | X | |
| 14 | | | | | X |

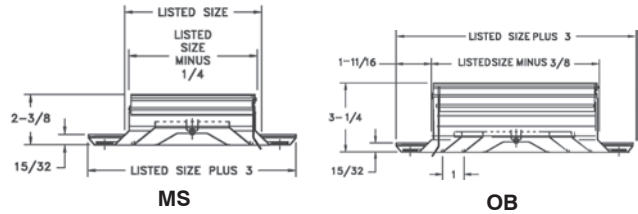




A503MS/A503OB Square Ceiling Diffuser

- Extruded aluminum construction
- Cores flush with margin
- Three-way air diffusion
- Face mount for easy installation
- For sidewall or ceiling application
- Multi-shutter or opposed-blade dampers - aluminum
- Inconspicuous fingertip lever for air volume control
- Bright White finish

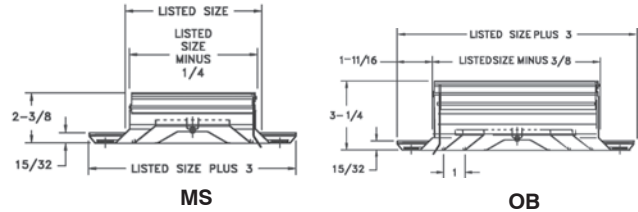
| A503MS/A503OB (in.) | | | | | |
|---------------------|-------|---|----|----|----|
| HT | WIDTH | | | | |
| | 6 | 8 | 10 | 12 | 14 |
| 6 | X | | | | |
| 8 | | X | | | |
| 10 | | | X | | |
| 12 | | | | X | |
| 14 | | | | | X |



A504MS/A504OB Square Ceiling Diffuser

- Extruded aluminum construction
- Cores flush with margin
- Four-way air diffusion
- Face mount for easy installation
- For sidewall or ceiling application
- Multi-shutter or opposed-blade dampers - aluminum
- Inconspicuous fingertip lever for air volume control
- Bright White finish

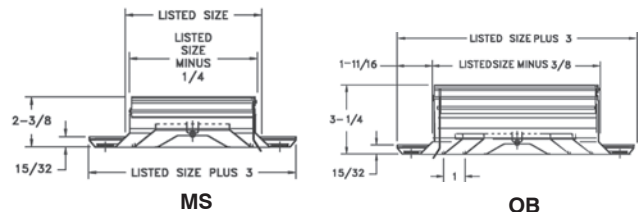
| A504MS/A504OB (in.) | | | | | |
|---------------------|-------|---|----|----|----|
| HT | WIDTH | | | | |
| | 6 | 8 | 10 | 12 | 14 |
| 6 | X | | | | |
| 8 | | X | | | |
| 10 | | | X | | |
| 12 | | | | X | |
| 14 | | | | | X |



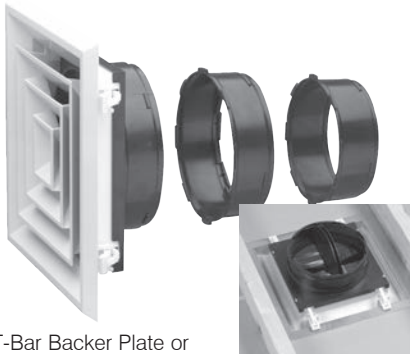
A505MS/A505OB Square Ceiling Diffuser

- Extruded aluminum construction
- Cores flush with margin
- Two-way corner air diffusion
- Face mount for easy installation
- For sidewall or ceiling application
- Multi-shutter or opposed-blade dampers - aluminum
- Inconspicuous fingertip lever for air volume control
- Bright White finish

| A505MS/A505OB (in.) | | | | | |
|---------------------|-------|---|----|----|----|
| HT | WIDTH | | | | |
| | 6 | 8 | 10 | 12 | 14 |
| 6 | X | | | | |
| 8 | | X | | | |
| 10 | | | X | | |
| 12 | | | | X | |
| 14 | | | | | X |



Rezzin™ Registers & Diffusers

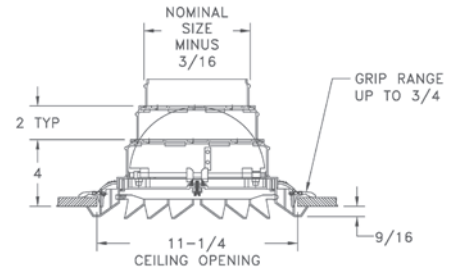


T-Bar Backer Plate or Rafter Rough-In Plate Available

Rezzin Square Ceiling Diffuser

- Engineered polymer construction
- 12"x12" face
- 6", 7" and 8" collars included
- Ratcheting cam lock—install without screws
- Removable core and integral damper
- Available in 4-way, 3-way and 2-way corner
- Bright White finish
- Contains metal parts

| |
|--|
| Sq Ceiling Available Size (in.) |
| 12 x 12 |



4-WAY



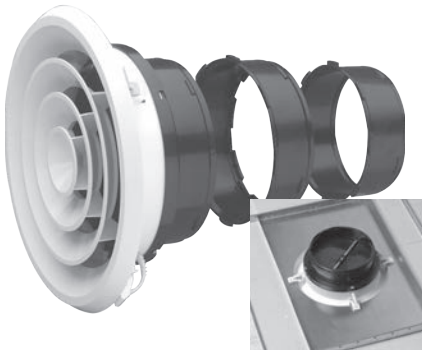
3-Way



4-Way



2-Way Corner

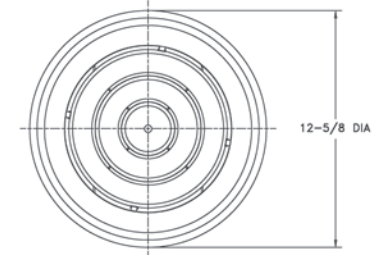
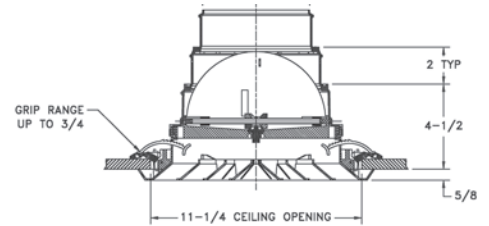


T-Bar Backer Plate or Rafter Rough-In Plate Available

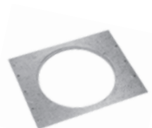
Rezzin Round Ceiling Diffuser

- Engineered polymer construction
- 12" round face
- 6", 7" and 8" collars included
- Ratcheting cam lock—install without screws
- Removable core and integral damper
- Bright White finish
- Contains metal parts

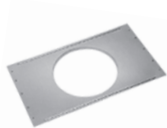
| |
|--|
| Rd Ceiling Available Size (in.) |
| 12 |



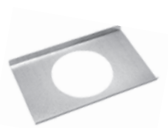
Rezzin Rough-In Plates



16" O.C.



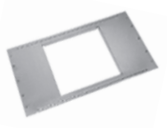
24" O.C.



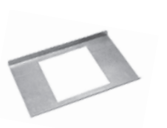
T-Bar



16" O.C.



24" O.C.



T-Bar

Using the Engineering Data

For most of the models & sizes we've done the calculations for you.

421

| Face Velocity | | 300 | 400 | 500 | 600 | 700 | 800 |
|--------------------|--------|------|------|------|------|------|------|
| Pressure Loss | | .006 | .010 | .016 | .022 | .031 | .040 |
| 4x10 Ak .170 | CFM | 50 | 70 | 85 | 100 | 120 | 135 |
| | Spread | 4.5 | 5.0 | 6.5 | 7.5 | 9.0 | 10.0 |
| | Throw | 4.0 | 6.0 | 8.0 | 10.0 | 11.0 | 12.5 |

Terminal velocity of 50 fpm

821-defl A

| Face Velocity | | 400 | 500 | 600 | 700 | 800 |
|-----------------------|-------|------|------|------|------|------|
| Pressure Loss | | .010 | .016 | .022 | .031 | .040 |
| 24 x 8 Ak 1.045 | CFM | 420 | 525 | 625 | 730 | 835 |
| | Throw | 17.0 | 21.0 | 25.0 | 29.0 | 33.0 |

Terminal velocity is 75 fpm

CFM = volume of air flow in cubic feet per minute

Face Velocity = speed of air at the face of diffuser in feet per minute (FPM)

Ak = net area in square feet. This is the lab measured area across the face when air is mechanically forced through the opening.

Free Area (if given) = daylight area (in²) of blade openings. Free area is typically only required on natural / gravity movement of air, non-mechanically forced, as in free area needed for combustion air requirements on heating equipment. Use the Ak value (*144 to get to in²) if the free area has not been calculated, but is needed for a given size/model grille requiring free area for combustion.

Equation of Airflow: CFM = Ak (ft²) x Face Velocity (fpm)

Example from 421 table above: 100 = .17 x 600 _ numbers are often rounded

Sizing a Supply

Determine the amount of CFM (air volume) needed for each supply outlet. This should be done by room heating and cooling load requirements from various design manuals (ACCA Man J, ASHRAE Fundamentals Hndbk) and then followed by the duct design and layout.

Face Velocity - H&C recommends sizing a supply outlet in the range of 500 to 800 fpm face velocity (700 being a common target). The upper end of this range will create better mixing of room air and longer throws, which is what the typical forced air system is intended to do. However, the Pressure resistance and Noise must be taken into consideration depending upon the applica-

tion. In some instances, greater face velocity is allowed because the pressure and noise can be accommodated.

Pressure Loss (inches of w.c.) – the selection of the face velocity must consider the associated pressure loss that deals with each relative model. An increase in face velocity creates more pressure resistance against the blower's delivery of air volume. The velocity ranges given previously, in most cases, will have minor effect on the blower's overall performance given the entire duct system losses that it will encounter.

Noise – an increase in face velocity will create more noise. The tables below show NC design guidelines and also face velocity ranges if NC values have not been tabulated.

| Application | Recommended Face Velocities |
|---------------------------------------|-----------------------------|
| Broadcasting Studios | <500 FPM |
| Residences | 500 to 750 FPM |
| Apartments | 500 to 750 FPM |
| Churches | 500 to 750 FPM |
| Hotel Guestrooms | 500 to 750 FPM |
| Legitimate Theaters | 500 to 1000 FPM |
| Private Offices, acoustically treated | 500 to 1000 FPM |
| Private Offices, not treated | 1000 to 1250 FPM |
| Motion Picture Theaters | 1000 to 1250 FPM |
| General Offices | 1250 to 1500 FPM |
| Stores, upper floors | 1500 FPM |
| Stores, main floors | 1500 FPM |
| Industrial Buildings | 1500 to 2000 FPM |

| | Communication Environment | Typical Occupancy |
|---------|--|--|
| < NC 25 | Extremely quiet environment; suppressed speech is quite audible; suitable for acute pickup of all sounds. | Broadcasting studios, concert halls, music rooms. |
| NC 30 | Very quiet office; suitable for large conferences; telephone use satisfactory. | Residences, theaters, libraries, executive offices, directors rooms. |
| NC 35 | Quiet office; satisfactory for conference at a 15-foot table; normal voice 10 to 30 feet; telephone use satisfactory. | Private offices, schools, hotel guestrooms, courtrooms, churches, hospital rooms. |
| NC 40 | Satisfactory for conferences at a 6- to 8-foot table; normal voice 6 to 12 feet; telephone use satisfactory. | General office, labs, dining rooms. |
| NC 45 | Satisfactory for conferences at a 4- to 5-foot table; normal voice 3 to 6 feet; raised voice 6 to 12 feet; telephone use occasionally difficult. | Retail stores, cafeterias, lobby areas, large drafting and engineering offices, reception areas. |
| > NC 50 | Unsatisfactory for conference of more than two or three persons; normal voice 1 to 2 feet; raised voice 3 to 6 feet; telephone use slightly difficult. | Computer rooms, stenographic pools, print machine rooms, process areas. |

Sizing a Return

Air volume going back to the air handler (fan) must equal what is supplied from the air handler. Therefore the total CFM capacity of the return grilles must equal

Engineering Data

or exceed the total CFM capacity of all the supply diffusers.

Keeping face velocity low

- Returns should be at 400-600 fpm maximum
- Filter Returns should be at 450 fpm maximum
- *ACCA recommends 300 max for filter grilles and 500 max for non-filter grilles.
- The rule of thumb is 2 cfm per square inch of filter size. See table below.
- Low velocity reduces noise, especially on stamped face grilles (672/673); fixed-bar grilles can handle more velocity without noise (94A/96AFB/RH45/RHF45/RCB).
- You really can't oversize a single point return like you can with a supply. The system will not be affected adversely, only improved. *This does not apply to multiple return locations where balancing is more critical to pull in relevant amounts from each room.
- Static pressure is also reduced. Pressure works

| Filter Size | Area (in ²) | Ton (cfm) | Filter Size | Area (in ²) | Ton (cfm) | | |
|-------------|-------------------------|-----------|-------------|-------------------------|-----------|------|------------|
| 12 | 12 | 144 | n/a | 20 | 20 | 400 | 2 (800) |
| 12 | 20 | 240 | 1 (400) | 20 | 25 | 500 | 2.5 (1000) |
| 12 | 24 | 288 | 1.5 (600) | 20 | 30 | 600 | 3 (1200) |
| 12 | 30 | 360 | 1.5 (600) | 20 | 36 | 720 | 3 (1200) |
| 14 | 14 | 196 | 1 (400) | 24 | 24 | 576 | 3 (1200) |
| 14 | 20 | 280 | 1.5 (600) | 24 | 30 | 720 | 3 (1200) |
| 14 | 24 | 336 | 1.5 (600) | 24 | 36 | 864 | 4 (1600) |
| 14 | 30 | 420 | 2 (800) | 25 | 25 | 625 | 3 (1200) |
| 16 | 20 | 320 | 1.5 (600) | 30 | 30 | 900 | 4 (1600) |
| 16 | 24 | 384 | 2 (800) | 30 | 36 | 1080 | 5 (2000) |

against & reduces blower delivery volume (cfm)

- No one expects noise from a return.

Location

- Returns should be put in stagnant air locations that need to be reconditioned.
 - High for cooling mode (hot air rises)
 - Low for heating mode (cold air falls)
 - Both modes, choose a primary season
- Returns should not be near a supply register's throw range. If at all possible place the return at an opposite corner of the room.

Room Air Movement

- Returns do NOT have much effect on a room's air movement, regardless of face velocity. They only grab air about a duct diameter away from the face. Most of the room air movement is done by the supplies.

Unlisted Sizes—Engineering Data

When a size is not listed there are a couple ways to do an engineered estimate. Airflow principles permit you to utilize existing sizes to determine sizes not shown.

Method 1: Use nearest nominal size table entry. If a 14x14 is not given, but a 20x10 is, since these two

sizes have an approximate equal core area (196 and 200) the table entry for a 20x10 can be used to approximate what the 14x14 grille would perform to.

Method 2: A more exact method would be to do interpolation process between two listed sizes. If 14x14 is not given, but 18x10 and 20x10 are, then this equation will get more exact 14x14 data. $Y = Y1 + \frac{(X - X1) * (Y2 - Y1)}{(X2 - X1)}$ where:

Y = unknown CFM or throw that is being computed for 14x14

Y1 = CFM or throw of listed 18x10 (for ex 600 cfm)

Y2 = CFM or throw of listed 20x10 (for ex 640 cfm)

X = 196 in² (nominal area of 14x14)

X1 = 180 in² (nominal area of 18x10)

X2 = 200 in² (nominal area of 20x10)

Using equation above computes $Y = 600 + \frac{(196 - 180) * (640 - 600)}{(200 - 180)} =$

$600 + \frac{(16 * 40)}{20} = 600 + 32 = 632$ cfm for Y

Method 3: Sizes beyond the table (smaller or larger) can have their CFM or Throw determined by using listed sizes by the following:

| | | |
|--------|--------|----|
| 24 | | |
| 12 x 6 | 12 x 6 | 12 |
| 12 x 6 | 12 x 6 | |

CFM for larger sizes:

If looking for 24x6 or 24x12 cfm that is not listed, using the listed 12x6 cfm and doubling it or quadrupling it will give the answer for the 24x6 and 24x12, respectively.

CFM for smaller sizes:

If looking for a 6x6 cfm that is not listed, using the listed 12x6 cfm and halving it will give the answer for a 6x6.

Throw:

Double the size and CFM, multiply the throw by 1.5

Quadruple the size and CFM, multiply the throw by 2

Half the size and CFM, multiply the throw by .67

One quarter the size and CFM, multiply the throw by .5

*Pressure loss, face velocity and noise criteria will all remain the same relative to the listed size used to determine the larger or smaller sizes not shown.

210 Floor Register (Page 6)

| Face Velocity | | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 |
|---------------------|-------|------|------|------|------|------|------|------|------|
| Pressure Loss | | .006 | .010 | .016 | .022 | .031 | .040 | .050 | .062 |
| 4 x 10 | CFM | 60 | 80 | 100 | 120 | 140 | 160 | 180 | 200 |
| Ak .20 | Throw | 8 | 11 | 13 | 16 | 19 | 22 | 24 | 26 |
| 4 x 12 and 6 x 8 | CFM | 75 | 100 | 125 | 150 | 175 | 200 | 225 | 250 |
| Ak .25 | Throw | 9 | 12 | 15 | 18 | 21 | 25 | 28 | 31 |
| 4 x 14 | CFM | 85 | 110 | 140 | 170 | 195 | 225 | 250 | 280 |
| Ak .28 | Throw | 6 | 10 | 15 | 19 | 22 | 25 | 28 | 32 |
| 6 x 10 and 8 x 8 | CFM | 95 | 130 | 160 | 190 | 225 | 255 | 290 | 320 |
| Ak .32 | Throw | 10 | 14 | 17 | 21 | 24 | 27 | 31 | 34 |
| 6 x 12 | CFM | 115 | 150 | 190 | 230 | 265 | 305 | 340 | 380 |
| Ak .38 | Throw | 12 | 15 | 19 | 23 | 26 | 30 | 34 | 38 |
| 8 x 10 | CFM | 125 | 170 | 210 | 250 | 295 | 335 | 380 | 420 |
| Ak .42 | Throw | 12 | 15 | 18 | 24 | 28 | 32 | 37 | 41 |
| 6 x 14 | CFM | 130 | 175 | 220 | 265 | 310 | 350 | 395 | 440 |
| Ak .44 | Throw | 13 | 16 | 20 | 24 | 28 | 32 | 36 | 41 |
| 6 x 16 | CFM | 145 | 195 | 245 | 295 | 345 | 390 | 440 | 490 |
| Ak .49 | Throw | 11 | 16 | 21 | 25 | 30 | 35 | 39 | 44 |
| 8 x 12 and 10 x 10 | CFM | 160 | 210 | 265 | 320 | 370 | 425 | 475 | 530 |
| Ak .53 | Throw | 12 | 17 | 21 | 26 | 32 | 37 | 43 | 48 |
| 9 x 12 and 8 x 14 | CFM | 180 | 240 | 300 | 360 | 420 | 480 | 540 | 600 |
| Ak .60 | Throw | 14 | 20 | 24 | 29 | 34 | 39 | 44 | 50 |
| 10 x 12 | CFM | 195 | 260 | 325 | 390 | 455 | 520 | 585 | 650 |
| Ak .65 | Throw | 14 | 18 | 24 | 30 | 35 | 41 | 46 | 51 |
| 8 x 16 and 9 x 14 | CFM | 205 | 275 | 345 | 415 | 485 | 550 | 620 | 690 |
| Ak .69 | Throw | 15 | 21 | 27 | 32 | 37 | 42 | 48 | 53 |
| 10 x 14 and 12 x 12 | CFM | 235 | 310 | 390 | 470 | 545 | 625 | 700 | 780 |
| Ak .78 | Throw | 14 | 21 | 28 | 34 | 40 | 46 | 51 | 56 |
| 10 x 16 | CFM | 265 | 350 | 440 | 530 | 615 | 705 | 790 | 880 |
| Ak .88 | Throw | 17 | 23 | 30 | 36 | 41 | 48 | 53 | 60 |
| 12 x 14 | CFM | 280 | 370 | 465 | 560 | 650 | 745 | 835 | 930 |
| Ak .93 | Throw | 18 | 24 | 30 | 37 | 43 | 50 | 56 | 62 |
| 12 x 16 and 14 x 14 | CFM | 320 | 430 | 535 | 640 | 750 | 855 | 965 | 1070 |
| Ak 1.07 | Throw | 20 | 26 | 32 | 39 | 46 | 53 | 59 | 64 |
| 12 x 18 and 14 x 16 | CFM | 365 | 490 | 610 | 730 | 855 | 975 | 1100 | 1220 |
| Ak 1.22 | Throw | 21 | 28 | 34 | 42 | 49 | 56 | 62 | 68 |
| 14 x 18 | CFM | 425 | 570 | 710 | 850 | 995 | 1135 | 1280 | 1420 |
| Ak 1.42 | Throw | 22 | 30 | 37 | 45 | 52 | 58 | 63 | 68 |
| 12 x 24 and 14 x 20 | CFM | 475 | 635 | 795 | 955 | 1115 | 1270 | 1430 | 1590 |
| Ak 1.59 | Throw | 23 | 31 | 39 | 46 | 52 | 59 | 65 | 71 |

Terminal Velocity of 50 FPM

411 Floor Diffuser (Page 6)

| Face Velocity | | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 |
|---------------|-------|------|------|------|------|------|------|------|------|
| Pressure Loss | | .006 | .010 | .016 | .022 | .031 | .040 | .050 | .062 |
| 2 1/4 x 10 | CFM | 25 | 35 | 45 | 55 | 60 | 70 | 80 | 90 |
| | Throw | 2.0 | 2.5 | 3.0 | 4.0 | 4.5 | 5.0 | 6.0 | 6.5 |
| 2 1/4 x 12 | CFM | 35 | 45 | 55 | 65 | 75 | 90 | 100 | 110 |
| | Throw | 2.0 | 3.0 | 3.5 | 4.0 | 5.0 | 6.0 | 6.5 | 7.0 |
| 2 1/4 x 14 | CFM | 40 | 50 | 65 | 80 | 90 | 105 | 115 | 130 |
| | Throw | 2.5 | 3.0 | 4.0 | 4.5 | 5.5 | 6.5 | 7.0 | 8.0 |
| 4 x 10 | CFM | 50 | 70 | 85 | 100 | 120 | 135 | 155 | 170 |
| | Throw | 3.0 | 3.5 | 4.5 | 5.5 | 6.5 | 7.0 | 8.0 | 9.0 |
| 4 x 12 | CFM | 65 | 85 | 105 | 125 | 145 | 170 | 190 | 210 |
| | Throw | 3.0 | 4.0 | 5.0 | 6.0 | 7.0 | 8.0 | 9.0 | 10.0 |
| 4 x 14 | CFM | 75 | 100 | 125 | 150 | 175 | 200 | 225 | 250 |
| | Throw | 3.5 | 4.5 | 5.5 | 6.5 | 7.5 | 9.0 | 10.0 | 11.0 |
| 6 x 10 | CFM | 80 | 110 | 135 | 160 | 190 | 215 | 245 | 270 |
| | Throw | 3.5 | 4.5 | 6.0 | 7.0 | 8.0 | 9.0 | 10.5 | 11.5 |
| 6 x 12 | CFM | 100 | 130 | 165 | 200 | 230 | 265 | 295 | 330 |
| | Throw | 4.0 | 5.0 | 6.5 | 7.5 | 9.0 | 10.0 | 11.5 | 12.5 |
| 6 x 14 | CFM | 115 | 155 | 195 | 235 | 275 | 310 | 350 | 390 |
| | Throw | 4.5 | 5.5 | 7.0 | 8.5 | 10.0 | 11.0 | 12.5 | 14.0 |

Terminal Velocity of 50 FPM

265 Return Air Grille (Page 6)

| Average Face Velocity* | | 400 | 500 | 600 | 700 | 800 | 900 | 1000 |
|------------------------|-----|------|------|------|------|------|------|------|
| 4 x 12 | CFM | 120 | 150 | 175 | 205 | 235 | 265 | 295 |
| | Pt | .011 | .017 | .024 | .033 | .043 | .054 | .065 |
| 4 x 14 | CFM | 135 | 170 | 200 | 235 | 270 | 300 | 335 |
| | Pt | .011 | .016 | .023 | .032 | .042 | .052 | .064 |
| 6 x 10 | CFM | 150 | 185 | 220 | 260 | 295 | 335 | 370 |
| | Pt | .010 | .016 | .022 | .031 | .041 | .051 | .063 |
| 6 x 12 | CFM | 180 | 225 | 265 | 310 | 355 | 400 | 445 |
| | Pt | .010 | .015 | .021 | .030 | .039 | .049 | .060 |
| 8 x 10 | CFM | 195 | 245 | 295 | 345 | 390 | 440 | 490 |
| | Pt | .010 | .015 | .021 | .029 | .038 | .047 | .059 |
| 6 x 14 | CFM | 205 | 255 | 305 | 355 | 410 | 460 | 510 |
| | Pt | .010 | .015 | .020 | .029 | .038 | .047 | .058 |
| 8 x 12 | CFM | 235 | 295 | 350 | 410 | 470 | 525 | 585 |
| | Pt | .009 | .014 | .020 | .028 | .036 | .046 | .057 |
| 8 x 14 | CFM | 270 | 340 | 410 | 475 | 545 | 610 | 680 |
| | Pt | .009 | .010 | .019 | .027 | .035 | .044 | .055 |
| 10 x 12 | CFM | 290 | 360 | 430 | 505 | 575 | 650 | 720 |
| | Pt | .009 | .014 | .019 | .027 | .035 | .043 | .054 |
| 12 x 12 and 6 x 24 | CFM | 340 | 425 | 510 | 595 | 680 | 765 | 850 |
| | Pt | .009 | .013 | .019 | .026 | .033 | .042 | .053 |
| 6 x 30 | CFM | 410 | 515 | 620 | 720 | 825 | 925 | 1030 |
| | Pt | .008 | .012 | .018 | .024 | .032 | .040 | .049 |
| 8 x 24 | CFM | 445 | 555 | 665 | 775 | 890 | 1000 | 1110 |
| | Pt | .008 | .012 | .018 | .024 | .031 | .039 | .048 |
| 14 x 14 | CFM | 460 | 575 | 690 | 805 | 920 | 1035 | 1150 |
| | Pt | .008 | .012 | .018 | .024 | .031 | .039 | .048 |
| 8 x 30 | CFM | 540 | 675 | 810 | 945 | 1080 | 1215 | 1350 |
| | Pt | .008 | .012 | .017 | .023 | .030 | .037 | .046 |
| 14 x 20 | CFM | 630 | 790 | 950 | 1105 | 1265 | 1420 | 1580 |
| | Pt | .007 | .011 | .016 | .022 | .029 | .036 | .045 |
| 12 x 24 | CFM | 655 | 820 | 985 | 1150 | 1310 | 1475 | 1690 |
| | Pt | .007 | .011 | .016 | .022 | .029 | .036 | .044 |
| 10 x 30 | CFM | 670 | 840 | 1010 | 1175 | 1345 | 1510 | 1680 |
| | Pt | .007 | .011 | .016 | .022 | .029 | .036 | .044 |
| 18 x 18 | CFM | 720 | 900 | 1080 | 1260 | 1440 | 1620 | 1800 |
| | Pt | .007 | .011 | .015 | .021 | .028 | .035 | .043 |
| 14 x 24 | CFM | 750 | 935 | 1120 | 1310 | 1495 | 1685 | 1870 |
| | Pt | .007 | .011 | .015 | .021 | .028 | .035 | .043 |
| 12 x 30 | CFM | 800 | 1000 | 1200 | 1400 | 1600 | 1800 | 2000 |
| | Pt | .007 | .011 | .015 | .021 | .027 | .034 | .042 |
| 14 x 30 | CFM | 940 | 1175 | 1410 | 1645 | 1880 | 2115 | 2350 |
| | Pt | .007 | .010 | .015 | .020 | .026 | .033 | .040 |
| 24 x 24 | CFM | 1240 | 1550 | 1860 | 2170 | 2480 | 2790 | 3100 |
| | Pt | .006 | .010 | .014 | .019 | .024 | .031 | .038 |

For sizes not listed and sizing tips see page(s) 35

*Velocity measured 1" from face

420/421 Floor Diffuser (Page 7)

| Face Velocity | | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 |
|-------------------|--------|------|------|------|------|------|------|------|------|
| Pressure Loss | | .006 | .010 | .016 | .022 | .031 | .040 | .050 | .062 |
| 2 x 10 Ak .085 | CFM | | 35 | 45 | 50 | 60 | 70 | 75 | 85 |
| | Spread | | 3.0 | 5.0 | 5.0 | 6.0 | 7.0 | 8.0 | 9.0 |
| | Throw | | 4.0 | 4.5 | 6.0 | 7.0 | 8.0 | 9.0 | 10.0 |
| 2 x 12 Ak .100 | CFM | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
| | Spread | 3.0 | 4.0 | 4.5 | 5.5 | 6.5 | 7.0 | 8.0 | 9.0 |
| | Throw | 3.5 | 4.5 | 5.5 | 7.0 | 8.0 | 9.0 | 10.0 | 11.0 |
| 2 x 14 Ak .115 | CFM | 35 | 45 | 60 | 70 | 80 | 90 | 105 | 115 |
| | Spread | 3.5 | 4.0 | 5.0 | 7.0 | 7.0 | 8.0 | 9.0 | 10.0 |
| | Throw | 3.5 | 4.5 | 6.0 | 8.0 | 8.0 | 9.5 | 10.5 | 12.0 |
| 4 x 8 Ak .130 | CFM | 40 | 50 | 65 | 80 | 90 | 105 | 115 | 130 |
| | Spread | 3.0 | 4.0 | 5.0 | 6.5 | 7.5 | 8.5 | 9.5 | 11.0 |
| | Throw | 4.0 | 4.5 | 6.0 | 7.5 | 8.5 | 10.0 | 11.0 | 13.0 |
| 4 x 10 Ak .170 | CFM | 50 | 70 | 85 | 100 | 120 | 135 | 155 | 170 |
| | Spread | 4.5 | 5.0 | 6.5 | 7.5 | 9.0 | 10.0 | 11.5 | 13.0 |
| | Throw | 4.0 | 6.0 | 8.0 | 10.0 | 11.0 | 12.5 | 14.0 | 15.5 |
| 4 x 12 Ak .195 | CFM | 60 | 80 | 100 | 120 | 140 | 160 | 175 | 195 |
| | Spread | 5.0 | 6.5 | 8.0 | 9.5 | 11.5 | 13.0 | 14.5 | 16.0 |
| | Throw | 4.0 | 5.5 | 7.0 | 8.0 | 9.5 | 11.0 | 12.0 | 13.0 |
| 4 x 14 Ak .230 | CFM | 70 | 90 | 115 | 140 | 160 | 185 | 205 | 230 |
| | Spread | 5.5 | 7.0 | 8.5 | 10.0 | 12.0 | 13.5 | 15.5 | 17.0 |
| | Throw | 4.5 | 5.5 | 7.0 | 8.5 | 10.0 | 11.5 | 12.5 | 14.0 |
| 6 x 10 Ak .240 | CFM | 70 | 95 | 120 | 145 | 170 | 190 | 215 | 240 |
| | Spread | 5.5 | 7.0 | 8.0 | 10.0 | 12.0 | 14.0 | 15.0 | 17.0 |
| | Throw | 4.0 | 5.5 | 7.0 | 8.5 | 10.0 | 11.0 | 12.5 | 14.0 |
| 6 x 12 Ak .285 | CFM | 85 | 115 | 140 | 170 | 200 | 230 | 255 | 285 |
| | Spread | 6.0 | 7.5 | 9.0 | 11.0 | 13.0 | 15.0 | 17.0 | 19.0 |
| | Throw | 4.5 | 6.0 | 7.5 | 9.0 | 10.0 | 12.0 | 14.0 | 16.0 |
| 6 x 14 Ak .330 | CFM | 100 | 130 | 165 | 200 | 230 | 265 | 300 | 330 |
| | Spread | 6.5 | 8.0 | 9.0 | 12.0 | 14.0 | 16.5 | 18.0 | 20.0 |
| | Throw | 4.5 | 6.5 | 8.0 | 9.5 | 11.0 | 13.0 | 15.0 | 17.0 |

Terminal Velocity of 50 FPM

Rezzin Floor Diffuser (Page 8)

| Face Velocity | | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 |
|-------------------|-------|-----|-----|-----|-----|-----|-----|-----|------|
| 2 x 12 Ak .084 | CFM | 25 | 34 | 42 | 50 | 59 | 67 | 76 | 84 |
| | Ps | .01 | .02 | .03 | .05 | .06 | .08 | .10 | .12 |
| | Throw | 2.0 | 2.5 | 3.5 | 4.0 | 4.5 | 5.5 | 6.0 | 6.5 |
| 4 x 10 Ak .141 | CFM | 42 | 56 | 71 | 85 | 99 | 113 | 127 | 141 |
| | Ps | .02 | .02 | .03 | .04 | .06 | .07 | .09 | .11 |
| | Throw | 2.0 | 2.5 | 3.0 | 3.5 | 4.5 | 5.0 | 5.5 | 6.0 |
| 4 x 12 Ak .157 | CFM | 47 | 63 | 79 | 94 | 110 | 126 | 141 | 157 |
| | Ps | .02 | .03 | .04 | .05 | .07 | .09 | .11 | .13 |
| | Throw | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 | 4.5 | 5.0 |

Terminal Velocity of 50 FPM

531 Royale® Floor Register (Page 7)

| Face Velocity | | 300 | | 400 | | 500 | | 600 | | 700 | | 800 | | 900 | | 1000 | |
|--|--------|------|-----|------|-----|------|------|------|------|------|------|------|------|------|------|------|------|
| Pressure Loss | | .006 | | .010 | | .016 | | .022 | | .031 | | .040 | | .050 | | .062 | |
| | | H | C | H | C | H | C | H | C | H | C | H | C | H | C | H | C |
| 2 x 10 Ak .055 Heating Ak .060 Cooling | CFM | | | | | | | 35 | 35 | 40 | 40 | 45 | 50 | 55 | 55 | 60 | 60 |
| | Spread | | | | | | | 3.5 | 4.5 | 5.0 | 5.0 | 5.5 | 6.0 | 6.5 | 7.0 | 7.0 | 7.0 |
| | Throw | | | | | | | 4.0 | 6.0 | 5.5 | 7.5 | 8.5 | 9.0 | 9.0 | 10.0 | 10.0 | 10.0 |
| 2 x 12 Ak .067 Heating Ak .074 Cooling | CFM | | | | | 35 | 35 | 40 | 45 | 45 | 50 | 55 | 60 | 60 | 65 | 65 | 75 |
| | Spread | | | | | 3.5 | 4.0 | 4.0 | 4.5 | 5.0 | 5.5 | 6.0* | 6.0* | 6.0* | 6.0* | 6.0* | 7.0 |
| | Throw | | | | | 4.0 | 6.0 | 5.0 | 6.5 | 5.5 | 7.5 | 6.0 | 9.0 | 7.0 | 10.0 | 8.0 | 11.0 |
| 2 x 14 Ak .079 Heating Ak .087 Cooling | CFM | | | 30 | 35 | 40 | 45 | 45 | 50 | 55 | 60 | 65 | 70 | 80 | 80 | 85 | 85 |
| | Spread | | | 3.0 | 4.0 | 4.0 | 4.5 | 5.0 | 5.0 | 5.5 | 6.0* | 6.0* | 6.0* | 6.0* | 6.0* | 6.0* | 6.0* |
| | Throw | | | 3.5 | 4.5 | 5.0 | 6.0 | 5.5 | 7.0 | 6.5 | 8.5 | 7.5 | 10.0 | 8.0 | 11.5 | 8.5 | 12.5 |
| 4 x 10 Ak .115 Heating Ak .125 Cooling | CFM | 35 | 40 | 45 | 50 | 55 | 65 | 70 | 75 | 80 | 90 | 90 | 100 | 105 | 115 | 115 | 125 |
| | Spread | 3.0 | 4.5 | 4.0 | 6.0 | 5.5 | 7.5 | 6.5 | 9.5 | 7.5 | 10.5 | 8.5 | 11.5 | 9.5 | 13.5 | 11.5 | 15.0 |
| | Throw | 3.0 | 4.5 | 4.0 | 6.0 | 5.5 | 7.5 | 6.5 | 9.5 | 7.5 | 10.5 | 8.5 | 11.5 | 9.5 | 13.5 | 11.5 | 15.0 |
| 4 x 12 Ak .140 Heating Ak .160 Cooling | CFM | 40 | 50 | 55 | 65 | 70 | 80 | 85 | 95 | 100 | 110 | 115 | 130 | 125 | 145 | 140 | 160 |
| | Spread | 3.0 | 5.0 | 4.0 | 6.5 | 5.0 | 8.5 | 5.5 | 10.0 | 6.0* | 11.0 | 6.0* | 13.0 | 6.0* | 15.0 | 6.0* | 17.0 |
| | Throw | 3.5 | 5.0 | 4.5 | 6.5 | 6.0 | 8.5 | 7.5 | 10.0 | 11.0 | 11.5 | 11.0 | 13.0 | 11.0 | 15.0 | 12.0 | 17.0 |
| 4 x 14 Ak .165 Heating Ak .180 Cooling | CFM | 50 | 55 | 65 | 70 | 80 | 90 | 100 | 110 | 115 | 125 | 130 | 145 | 150 | 160 | 165 | 180 |
| | Spread | 3.5 | 4.5 | 5.0 | 7.0 | 5.0 | 9.5 | 6.0* | 11.0 | 6.0* | 12.5 | 6.0* | 14.0 | 6.0* | 15.5 | 6.0* | 17.5 |
| | Throw | 4.0 | 5.5 | 5.5 | 7.0 | 6.5 | 9.5 | 8.0 | 11.0 | 10.0 | 12.5 | 11.0 | 14.0 | 12.0 | 15.5 | 13.5 | 17.5 |
| 6 x 10 Ak .190 Heating Ak .205 Cooling | CFM | 60 | 60 | 75 | 80 | 95 | 105 | 115 | 125 | 135 | 145 | 150 | 165 | 170 | 185 | 190 | 205 |
| | Spread | 3.5 | 4.5 | 5.5 | 7.5 | 5.5 | 9.5 | 6.0* | 11.0 | 6.0* | 12.5 | 6.0* | 14.0 | 6.0* | 15.5 | 6.0* | 18.5 |
| | Throw | 4.5 | 6.0 | 5.5 | 7.5 | 7.0 | 9.5 | 8.5 | 11.0 | 10.0 | 13.0 | 11.0 | 15.0 | 12.5 | 16.5 | 14.0 | 18.5 |
| 6 x 12 Ak .225 Heating Ak .250 Cooling | CFM | 70 | 75 | 90 | 100 | 115 | 125 | 135 | 150 | 160 | 175 | 180 | 200 | 205 | 225 | 225 | 250 |
| | Spread | 4.0 | 5.0 | 6.0 | 8.5 | 6.0* | 10.5 | 6.0* | 12.0 | 6.0* | 13.5 | 6.0* | 15.0 | 6.0* | 16.5 | 6.0* | 19.0 |
| | Throw | 5.0 | 6.5 | 6.0 | 8.5 | 8.0 | 10.5 | 9.0 | 12.0 | 11.0 | 15.0 | 12.5 | 16.5 | 14.0 | 18.5 | 16.0 | 21.0 |
| 6 x 14 Ak .265 Heating Ak .300 Cooling | CFM | 80 | 90 | 105 | 120 | 135 | 150 | 160 | 180 | 185 | 210 | 210 | 240 | 240 | 270 | 265 | 300 |
| | Spread | 4.5 | 5.0 | 6.0 | 9.5 | 6.0* | 11.0 | 6.0* | 13.5 | 6.0* | 15.0 | 6.0* | 17.0 | 6.0* | 18.5 | 6.0* | 21.0 |
| | Throw | 5.0 | 7.0 | 7.0 | 9.5 | 8.5 | 11.5 | 10.0 | 13.5 | 12.0 | 16.0 | 13.5 | 18.0 | 16.0 | 20.5 | 17.5 | 23.5 |

The spread shown for the heating mode is for a valve setting of 22° left deflection. *The maximum value given for spread for heating is that which occurs at the ceiling height (8 feet). The cooling spread is a straight vertical column of air and is not shown. Throw and spread values are based on a terminal velocity of 50 FPM.

406 18" Baseboard Diffuser (Page 9)

| Face Velocity | | 300 | 400 | 500 | 600 | 700 | 800 |
|---------------|--------|------|------|------|------|------|------|
| Pressure Loss | | .013 | .022 | .035 | .048 | .067 | .088 |
| Ak .260 | CFM | 80 | 105 | 130 | 155 | 180 | 210 |
| | Spread | 4.5 | 6.5 | 7.5 | 8.5 | 9.5 | 11.0 |
| | Throw | 5.0 | 7.0 | 8.0 | 9.0 | 10.0 | 11.0 |

Terminal Velocity of 50 FPM

406 15" Baseboard Diffuser (Page 9)

| Face Velocity | | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 |
|---------------|-----|------|------|------|------|------|------|------|------|
| 15" | CFM | 48 | 63 | 79 | 95 | 111 | 127 | 143 | 159 |
| | Ps | .005 | .009 | .014 | .020 | .027 | .035 | .044 | .053 |
| Throw | 50 | 5.5 | 7.5 | 9.0 | 11.0 | 13.0 | 14.5 | 16.5 | 18.5 |
| Spread | FPM | 5.5 | 7.5 | 7.5 | 11.5 | 13.5 | 15.0 | 17.0 | 19.0 |
| Throw | 100 | 3.0 | 3.5 | 4.5 | 5.5 | 6.5 | 7.5 | 8.5 | 9.0 |
| Spread | FPM | 3.0 | 3.5 | 4.5 | 5.5 | 6.5 | 7.5 | 9.0 | 9.5 |
| Throw | 150 | 2.0 | 2.5 | 3.0 | 3.5 | 4.5 | 5.0 | 5.5 | 6.0 |
| Spread | FPM | 2.0 | 2.5 | 3.0 | 3.5 | 4.5 | 5.0 | 5.5 | 6.0 |

462 & 464 Baseboard Diffusers (Page 9)

| Airflow (CFM) | | 300 | 400 | 500 | 600 | 700 | 800 |
|---------------------------------|--------|------|------|------|------|------|------|
| 2 feet 27 sq. in. Ak .187 | CFM | 55 | 75 | 95 | 110 | 130 | 150 |
| | Spread | 6.5 | 7.5 | 8.0 | 8.5 | 9.0 | 11.0 |
| | Throw | 7.0 | 8.0 | 9.5 | 10.5 | 12.0 | 13.0 |
| Pressure Loss | | .009 | .017 | .029 | .038 | .054 | .072 |
| 4 feet 54 sq. in. Ak .375 | CFM | 110 | 150 | 185 | 225 | 260 | 300 |
| | Spread | 12.0 | 15.0 | 17.5 | 19.0 | 20.0 | 21.0 |
| | Throw | 7.5 | 9.0 | 10.0 | 11.5 | 12.5 | 13.5 |
| Pressure Loss | | .031 | .058 | .090 | .124 | .178 | .224 |

Terminal Velocity of 50 FPM

654, 655 Baseboard/Sidewall Registers (Page 10)

| Face Velocity | | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 |
|-------------------|-------|------|------|------|------|------|------|------|------|
| Pressure Loss | | .006 | .010 | .016 | .022 | .031 | .040 | .050 | .062 |
| 8 x 6 Ak .180 | CFM | 55 | 72 | 90 | 108 | 125 | 145 | 162 | 180 |
| | Throw | 7.5 | 10.0 | 12.5 | 15.0 | 17.5 | 20.5 | 23.0 | 25.0 |
| 10 x 6 Ak .230 | CFM | 70 | 92 | 115 | 140 | 160 | 185 | 205 | 230 |
| | Throw | 9.0 | 11.5 | 14.5 | 17.5 | 20.0 | 23.0 | 25.5 | 29.0 |
| 12 x 6 Ak .290 | CFM | 85 | 115 | 145 | 175 | 205 | 230 | 260 | 290 |
| | Throw | 10.0 | 13.0 | 17.0 | 20.0 | 23.5 | 26.5 | 30.0 | 33.0 |
| 14 x 6 Ak .340 | CFM | 102 | 135 | 170 | 205 | 240 | 270 | 305 | 340 |
| | Throw | 11.0 | 14.5 | 18.0 | 22.0 | 25.5 | 29.0 | 32.5 | 36.0 |

Terminal Velocity of 75 FPM

664 Baseboard Register (Page 11)

| Face Velocity | | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 |
|------------------------------|-------|------|------|------|------|------|------|------|------|
| Pressure Loss | | .006 | .010 | .016 | .022 | .031 | .040 | .050 | .062 |
| 8 x 6 Ak .180 | CFM | 55 | 70 | 90 | 110 | 125 | 145 | 160 | 180 |
| | Throw | 5.5 | 7.0 | 9.0 | 10.5 | 12.5 | 14.0 | 16.0 | 18.0 |
| 10 x 6 and 12 x 5 Ak .245 | CFM | 75 | 100 | 125 | 145 | 170 | 195 | 220 | 245 |
| | Throw | 6.0 | 8.0 | 10.0 | 12.0 | 14.0 | 16.0 | 18.0 | 20.0 |
| 14 x 6 Ak .360 | CFM | 110 | 145 | 180 | 215 | 252 | 290 | 325 | 360 |
| | Throw | 7.0 | 9.5 | 12.0 | 14.0 | 16.5 | 19.0 | 21.5 | 24.0 |
| 12 x 8 Ak .425 | CFM | 130 | 170 | 215 | 255 | 300 | 340 | 385 | 425 |
| | Throw | 7.5 | 10.0 | 12.5 | 15.0 | 18.0 | 20.5 | 23.0 | 25.5 |

Terminal Velocity of 75 FPM

657/658 Baseboard Return Grille (Page 10, 11)

| Average Face Velocity* | | 300 | 400 | 500 | 600 | 700 |
|-------------------------------|-----|------|------|------|------|------|
| 10 x 6 Ak .38 | CFM | 115 | 150 | 190 | 225 | 265 |
| | Pt | .013 | .023 | .037 | .052 | .072 |
| 12 x 6 Ak .46 | CFM | 135 | 180 | 230 | 280 | 320 |
| | Pt | .013 | .022 | .035 | .051 | .070 |
| 10 x 8 Ak .51 | CFM | 150 | 205 | 255 | 305 | 355 |
| | Pt | .012 | .022 | .035 | .050 | .068 |
| 14 x 6 Ak .53 | CFM | 160 | 210 | 265 | 320 | 370 |
| | Pt | .012 | .022 | .035 | .050 | .068 |
| 12 x 8 Ak .61 | CFM | 180 | 245 | 305 | 365 | 430 |
| | Pt | .012 | .022 | .034 | .049 | .066 |
| 14 x 8 Ak .72 | CFM | 215 | 288 | 360 | 430 | 505 |
| | Pt | .012 | .021 | .033 | .047 | .065 |
| 20 x 6 Ak .75 | CFM | 225 | 300 | 375 | 450 | 525 |
| | Pt | .012 | .021 | .033 | .047 | .064 |
| 16 x 8 Ak .83 | CFM | 250 | 330 | 415 | 500 | 580 |
| | Pt | .012 | .021 | .033 | .046 | .063 |
| 14 x 10 and 24 x 6 Ak .92 | CFM | 275 | 365 | 460 | 550 | 640 |
| | Pt | .011 | .020 | .032 | .045 | .062 |
| 14 x 12 Ak 1.08 | CFM | 320 | 430 | 540 | 650 | 755 |
| | Pt | .011 | .020 | .031 | .045 | .060 |
| 30 x 6 Ak 1.12 | CFM | 335 | 445 | 560 | 670 | 780 |
| | Pt | .011 | .020 | .031 | .044 | .060 |
| 24 x 8 Ak 1.21 | CFM | 365 | 485 | 605 | 730 | 850 |
| | Pt | .011 | .020 | .031 | .044 | .059 |
| 20 x 10 Ak 1.25 | CFM | 375 | 500 | 630 | 750 | 880 |
| | Pt | .011 | .019 | .030 | .043 | .059 |
| 24 x 10 and 30 x 8 Ak 1.50 | CFM | 450 | 600 | 750 | 890 | 1040 |
| | Pt | .011 | .019 | .030 | .042 | .057 |
| 24 x 12 Ak 1.82 | CFM | 550 | 730 | 910 | 1100 | 1270 |
| | Pt | .010 | .018 | .029 | .041 | .056 |
| 30 x 10 Ak 1.91 | CFM | 575 | 760 | 960 | 1150 | 1330 |
| | Pt | .010 | .018 | .029 | .041 | .055 |
| 30 x 12 Ak 2.25 | CFM | 680 | 900 | 1130 | 1350 | 1570 |
| | Pt | .010 | .018 | .028 | .040 | .054 |

*Velocity measured 1" from face

301 Curved-Blade Register (Page 12)

Table with columns: Face Velocity, 300, 400, 500, 600, 700, 800, 900, 1000. Rows include various register sizes (e.g., 6x6, 8x4, 10x4) and face velocities (e.g., 6, 8, 10, 12, 14, 16, 18, 19, 20, 21, 22, 23, 24, 27, 30).

Terminal Velocity of 75 FPM

302 Curved-Blade Register (Page 12)

Table with columns: Face Velocity, 300, 400, 500, 600, 700, 800, 900, 1000. Rows include various register sizes (e.g., 8x4, 8x6, 10x6, 10x8, 12x6, 12x8, 14x6, 14x8) and face velocities (e.g., 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30).

Terminal Velocity of 75 FPM

303 Curved-Blade Register (Page 13)

Table with columns: Face Velocity, 300, 400, 500, 600, 700, 800, 900, 1000. Rows include various register sizes (e.g., 6x6, 8x4, 10x4, 10x6, 10x8, 12x6, 12x8, 14x4, 14x6, 14x8, 16x6) and face velocities (e.g., 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30).

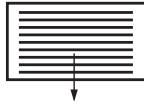
Terminal Velocity of 75 FPM

304 Curved-Blade Register (Page 14)

Table with columns: Face Velocity, 300, 400, 500, 600, 700, 800, 900, 1000. Rows include various register sizes (e.g., 6x6, 8x8, 10x10, 12x12, 14x14) and face velocities (e.g., 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30).

Terminal Velocity of 75 FPM

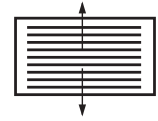
A611 1-Way Adjustable Curved-Blade Register (Page 16)



| Face Velocity | | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 |
|----------------------|-------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Pressure Loss | | .006 | .010 | .016 | .022 | .031 | .040 | .050 | .062 | .075 | .090 |
| 8 x 4 | CFM | 30 | 45 | 55 | 65 | 75 | 85 | 95 | 105 | 120 | 130 |
| Ak .107 | Throw | 3.5 | 5.5 | 6.5 | 7.5 | 9.0 | 10.0 | 11.5 | 12.5 | 14.0 | 15.5 |
| 10 x 4 | CFM | 40 | 55 | 65 | 80 | 90 | 105 | 120 | 130 | 145 | 160 |
| Ak .132 | Throw | 4.0 | 6.0 | 7.0 | 8.5 | 9.5 | 11.0 | 12.5 | 13.5 | 15.5 | 17.0 |
| 10 x 6 | CFM | 60 | 80 | 100 | 120 | 140 | 160 | 180 | 200 | 220 | 240 |
| Ak .200 | Throw | 5.0 | 6.5 | 8.5 | 10.0 | 11.5 | 13.5 | 15.0 | 16.0 | 18.0 | 20.0 |
| 12 x 6 | CFM | 70 | 95 | 120 | 140 | 165 | 190 | 210 | 235 | 260 | 280 |
| Ak .235 | Throw | 5.5 | 7.0 | 9.0 | 10.5 | 12.5 | 14.5 | 16.0 | 18.0 | 20.0 | 22.0 |
| 10 x 8 | CFM | 80 | 105 | 130 | 160 | 185 | 210 | 240 | 265 | 290 | 315 |
| Ak .264 | Throw | 5.5 | 7.5 | 9.5 | 11.5 | 13.0 | 15.0 | 17.0 | 19.0 | 21.0 | 23.0 |
| 12 x 8 | CFM | 95 | 130 | 160 | 190 | 225 | 255 | 290 | 320 | 350 | 385 |
| Ak .320 | Throw | 6.0 | 8.5 | 10.5 | 12.5 | 14.5 | 16.5 | 19.0 | 21.0 | 23.0 | 25.0 |
| 14 x 8 | CFM | 110 | 145 | 180 | 220 | 255 | 290 | 330 | 365 | 400 | 435 |
| Ak .364 | Throw | 6.5 | 8.5 | 11.0 | 13.0 | 15.5 | 17.5 | 20.0 | 22.0 | 24.0 | 26.0 |

For sizes not listed and sizing tips see page 40
Terminal Velocity of 75 FPM

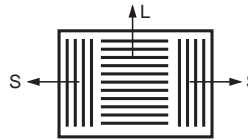
A612 2-Way Adjustable Curved-Blade Register (Page 16)



| Face Velocity | | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 |
|----------------------|-------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Pressure Loss | | .006 | .010 | .016 | .022 | .031 | .040 | .050 | .062 | .075 | .090 |
| 10 x 6 | CFM | 60 | 80 | 100 | 120 | 140 | 160 | 180 | 200 | 220 | 240 |
| Ak .200 | Throw | 3.5 | 4.5 | 6.0 | 7.0 | 8.5 | 9.5 | 10.5 | 12.0 | 13.0 | 14.0 |
| 12 x 6 | CFM | 70 | 95 | 120 | 140 | 165 | 190 | 210 | 235 | 260 | 280 |
| Ak .235 | Throw | 4.0 | 5.0 | 6.5 | 7.5 | 9.0 | 10.0 | 11.5 | 12.5 | 14.0 | 15.0 |
| 12 x 8 | CFM | 95 | 130 | 160 | 190 | 225 | 255 | 290 | 320 | 350 | 385 |
| Ak .320 | Throw | 4.5 | 6.0 | 7.5 | 8.5 | 10.5 | 11.5 | 13.5 | 14.5 | 16.0 | 18.0 |
| 14 x 8 | CFM | 110 | 145 | 180 | 220 | 255 | 290 | 330 | 365 | 400 | 435 |
| Ak .364 | Throw | 4.5 | 6.0 | 7.5 | 9.5 | 11.0 | 12.5 | 14.0 | 15.5 | 17.0 | 19.0 |

For sizes not listed and sizing tips see page 40
Terminal Velocity of 75 FPM

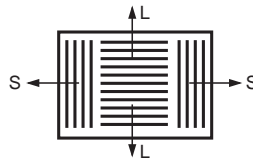
A613 3-Way Adjustable Curved-Blade Register (Page 16)



| Face Velocity | | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 |
|----------------------|-----------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Pressure Loss | | .006 | .010 | .016 | .022 | .031 | .040 | .050 | .062 | .075 | .090 |
| 10 x 6 | Total CFM | 60 | 80 | 100 | 120 | 140 | 160 | 180 | 200 | 220 | 240 |
| Ak .200 | CFM L/S | 22/19 | 29/26 | 36/32 | 43/38 | 50/45 | 58/51 | 65/58 | 72/64 | 79/70 | 86/77 |
| | Throw L/S | 3.0/2.0 | 4.0/4.0 | 5.0/4.5 | 6.0/5.0 | 7.0/6.5 | 8.0/7.5 | 9.0/8.5 | 10.0/9.5 | 11.0/10.5 | 12.0/11.5 |
| 8 x 8 | Total CFM | 65 | 85 | 110 | 130 | 150 | 170 | 195 | 215 | 235 | 260 |
| Ak .215 | CFM L/S | 30/18 | 39/23 | 50/30 | 60/35 | 68/41 | 78/46 | 89/53 | 98/58 | 108/64 | 119/70 |
| | Throw L/S | 3.5/3.0 | 4.5/3.5 | 6.0/4.5 | 7.0/5.5 | 8.0/6.5 | 9.5/7.0 | 10.5/8.0 | 11.5/9.0 | 13.0/10.0 | 14.0/11.0 |
| 12 x 6 | Total CFM | 70 | 95 | 120 | 140 | 165 | 190 | 210 | 235 | 260 | 280 |
| Ak .235 | CFM L/S | 21/25 | 28/33 | 36/42 | 42/49 | 49/58 | 57/67 | 63/74 | 70/82 | 77/91 | 83/98 |
| | Throw L/S | 3.0/3.0 | 4.0/4.0 | 5.0/5.5 | 6.0/6.5 | 7.0/7.5 | 8.0/8.5 | 9.0/9.5 | 9.5/10.5 | 10.5/11.5 | 11.5/12.5 |
| 10 x 10 | Total CFM | 100 | 130 | 165 | 200 | 230 | 265 | 295 | 330 | 365 | 395 |
| Ak .330 | CFM L/S | 36/32 | 47/42 | 59/63 | 72/64 | 83/74 | 95/85 | 106/94 | 119/106 | 131/117 | 142/126 |
| | Throw L/S | 4.0/3.5 | 5.0/4.5 | 6.5/6.0 | 7.5/7.0 | 9.0/8.5 | 10.0/9.5 | 11.0/10.5 | 12.5/12.0 | 14.0/13.0 | 15.0/14.0 |

For sizes not listed or sizing tips see page 35
Terminal Velocity of 75 FPM

A614 4-Way Adjustable Curved-Blade Register (Page 17)

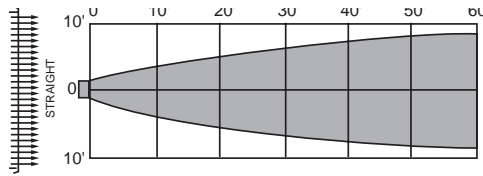


| Face Velocity | | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 |
|----------------------|-----------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Pressure Loss | | .006 | .010 | .016 | .022 | .031 | .040 | .050 | .062 | .075 | .090 |
| 8 x 8 | Total CFM | 65 | 85 | 110 | 130 | 150 | 170 | 195 | 215 | 235 | 260 |
| Ak .215 | CFM L/S | 15/18 | 20/23 | 25/30 | 30/35 | 35/41 | 39/46 | 45/53 | 49/58 | 54/64 | 60/70 |
| | Throw L/S | 2.5/3.0 | 3.5/3.5 | 4.0/4.5 | 5.0/5.5 | 6.0/6.5 | 6.5/7.0 | 7.5/8.0 | 8.0/9.0 | 9.0/10.0 | 10.0/11.0 |
| 10 x 10 | Total CFM | 100 | 130 | 165 | 200 | 230 | 265 | 295 | 330 | 365 | 395 |
| Ak .330 | CFM L/S | 18/32 | 24/42 | 30/53 | 36/64 | 42/74 | 48/85 | 53/94 | 60/106 | 66/117 | 71/126 |
| | Throw L/S | 2.5/3.5 | 3.5/4.5 | 4.5/6.0 | 5.5/7.0 | 6.5/8.5 | 7.0/9.5 | 8.0/10.5 | 9.0/12.0 | 10.0/13.0 | 10.5/14.0 |
| 12 x 12 | Total CFM | 135 | 180 | 225 | 270 | 315 | 360 | 405 | 450 | 495 | 540 |
| Ak .452 | CFM L/S | 20/47 | 27/63 | 34/79 | 40/95 | 47/111 | 54/126 | 61/142 | 67/158 | 74/174 | 81/190 |
| | Throw L/S | 2.5/4.0 | 3.5/5.5 | 4.5/7.0 | 5.5/8.5 | 6.5/10.0 | 7.5/11.0 | 8.5/12.5 | 9.0/14.0 | 10.0/15.5 | 11.0/17.0 |

For sizes not listed or sizing tips see page 35
Terminal Velocity of 75 FPM

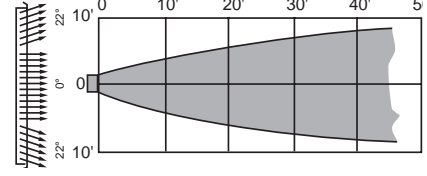
A618 Adjustable Fin Register

(Page 17)
Deflection A



A618 Adjustable Fin Register

(Page 17)
Deflection C



| Face Velocity | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 |
|----------------------|------|------|------|------|------|------|------|------|------|------|
| Pressure Loss | .006 | .010 | .016 | .022 | .031 | .040 | .050 | .062 | .075 | .090 |
| 8 x 4 CFM | 45 | 60 | 80 | 95 | 110 | 125 | 140 | 155 | 170 | 185 |
| Ak_156 Throw | 5.0 | 6.5 | 8.5 | 10.0 | 12.0 | 13.0 | 15.0 | 16.0 | 18.0 | 19.0 |
| 10 x 4 CFM | 60 | 80 | 100 | 120 | 140 | 160 | 180 | 200 | 220 | 240 |
| Ak_198 Throw | 6.0 | 7.5 | 9.5 | 12.0 | 13.0 | 15.0 | 17.0 | 19.0 | 20.0 | 22.0 |
| 12 x 4 CFM | 70 | 95 | 120 | 145 | 170 | 190 | 215 | 240 | 265 | 290 |
| Ak_240 Throw | 6.0 | 8.0 | 10.0 | 12.0 | 14.0 | 16.0 | 18.0 | 20.0 | 22.0 | 25.0 |
| 10 x 6 CFM | 95 | 125 | 155 | 190 | 220 | 250 | 280 | 315 | 345 | 375 |
| Ak_313 Throw | 7.0 | 9.0 | 12.0 | 14.0 | 16.0 | 19.0 | 21.0 | 23.0 | 26.0 | 28.0 |
| 12 x 6 CFM | 115 | 150 | 190 | 225 | 265 | 305 | 340 | 380 | 415 | 455 |
| Ak_379 Throw | 8.0 | 10.0 | 13.0 | 15.0 | 18.0 | 21.0 | 23.0 | 26.0 | 28.0 | 31.0 |
| 10 x 8 CFM | 130 | 170 | 215 | 255 | 300 | 340 | 385 | 425 | 470 | 510 |
| Ak_425 Throw | 8.0 | 11.0 | 14.0 | 16.0 | 19.0 | 21.0 | 24.0 | 27.0 | 30.0 | 32.0 |
| 14 x 6 CFM | 135 | 180 | 225 | 270 | 310 | 355 | 400 | 445 | 490 | 545 |
| Ak_446 Throw | 8.0 | 11.0 | 14.0 | 17.0 | 19.0 | 22.0 | 25.0 | 28.0 | 30.0 | 33.0 |
| 12 x 8 CFM | 160 | 200 | 265 | 320 | 370 | 425 | 475 | 530 | 585 | 635 |
| Ak_530 Throw | 9.0 | 11.0 | 15.0 | 18.0 | 21.0 | 24.0 | 27.0 | 30.0 | 33.0 | 36.0 |
| 14 x 8 CFM | 185 | 250 | 310 | 370 | 435 | 495 | 560 | 620 | 680 | 745 |
| Ak_620 Throw | 10.0 | 13.0 | 16.0 | 20.0 | 23.0 | 26.0 | 30.0 | 33.0 | 36.0 | 39.0 |

For sizes not listed or sizing tips see page 35

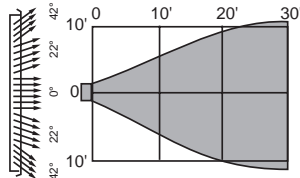
Terminal Velocity of 75 FPM

| Face Velocity | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 |
|----------------------|------|------|------|------|------|------|------|------|------|------|
| Pressure Loss | .006 | .010 | .016 | .022 | .031 | .040 | .050 | .062 | .075 | .090 |
| 8 x 4 CFM | 40 | 55 | 70 | 85 | 100 | 115 | 125 | 140 | 155 | 170 |
| Ak_141 Throw | 3.5 | 5.0 | 6.5 | 7.5 | 9.0 | 10.0 | 11.0 | 13.0 | 14.0 | 15.0 |
| 10 x 4 CFM | 55 | 70 | 90 | 105 | 125 | 140 | 160 | 180 | 195 | 215 |
| Ak_178 Throw | 4.0 | 5.5 | 7.0 | 8.5 | 10.0 | 11.0 | 13.0 | 14.0 | 16.0 | 17.0 |
| 12 x 4 CFM | 65 | 85 | 110 | 130 | 150 | 175 | 195 | 215 | 240 | 260 |
| Ak_216 Throw | 4.5 | 6.0 | 8.0 | 9.5 | 11.0 | 13.0 | 14.0 | 16.0 | 18.0 | 19.0 |
| 10 x 6 CFM | 85 | 115 | 140 | 170 | 195 | 225 | 255 | 280 | 310 | 340 |
| Ak_282 Throw | 5.5 | 7.5 | 9.0 | 11.0 | 12.0 | 14.0 | 16.0 | 18.0 | 20.0 | 22.0 |
| 12 x 6 CFM | 105 | 135 | 170 | 205 | 240 | 275 | 310 | 340 | 375 | 410 |
| Ak_342 Throw | 6.0 | 8.0 | 10.0 | 12.0 | 14.0 | 16.0 | 18.0 | 20.0 | 22.0 | 24.0 |
| 10 x 8 CFM | 115 | 155 | 195 | 235 | 275 | 310 | 350 | 390 | 430 | 470 |
| Ak_390 Throw | 6.0 | 8.0 | 11.0 | 13.0 | 15.0 | 17.0 | 19.0 | 21.0 | 23.0 | 26.0 |
| 14 x 6 CFM | 125 | 165 | 205 | 245 | 290 | 330 | 370 | 410 | 455 | 495 |
| Ak_412 Throw | 7.0 | 9.0 | 11.0 | 13.0 | 16.0 | 18.0 | 20.0 | 22.0 | 24.0 | 27.0 |
| 12 x 8 CFM | 140 | 190 | 235 | 280 | 330 | 375 | 425 | 470 | 515 | 565 |
| Ak_470 Throw | 7.0 | 9.0 | 12.0 | 14.0 | 16.0 | 19.0 | 21.0 | 23.0 | 25.0 | 28.0 |
| 14 x 8 CFM | 165 | 220 | 275 | 330 | 385 | 440 | 495 | 550 | 605 | 660 |
| Ak_550 Throw | 8.0 | 10.0 | 13.0 | 15.0 | 18.0 | 20.0 | 23.0 | 25.0 | 28.0 | 30.0 |

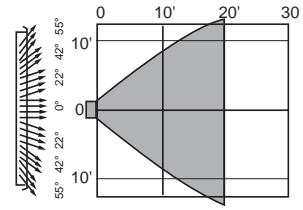
For sizes not listed or sizing tips see page 35

Terminal Velocity of 75 FPM

A618 Adjustable Fin Register
(Page 17)
Deflection E



A618 Adjustable Fin Register
(Page 17)
Deflection G



| Face Velocity | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 |
|----------------------|------|------|------|------|------|------|------|------|------|------|
| Pressure Loss | .006 | .010 | .016 | .022 | .031 | .040 | .050 | .062 | .075 | .090 |
| 8 x 4 CFM | 40 | 50 | 65 | 75 | 90 | 100 | 115 | 125 | 140 | 150 |
| Ak_127 Throw | 3.0 | 4.0 | 5.0 | 5.5 | 7.0 | 7.5 | 8.5 | 9.5 | 11.0 | 11.5 |
| 10 x 4 CFM | 50 | 65 | 80 | 95 | 115 | 130 | 145 | 160 | 180 | 195 |
| Ak_162 Throw | 3.0 | 4.5 | 5.5 | 6.5 | 7.5 | 8.5 | 9.5 | 11.0 | 12.0 | 13.0 |
| 12 x 4 CFM | 60 | 80 | 100 | 120 | 140 | 160 | 175 | 195 | 215 | 235 |
| Ak_197 Throw | 4.0 | 4.5 | 6.0 | 7.5 | 8.5 | 10.0 | 11.0 | 12.0 | 13.0 | 14.0 |
| 10 x 6 CFM | 75 | 105 | 130 | 155 | 180 | 205 | 230 | 255 | 285 | 310 |
| Ak_257 Throw | 4.0 | 5.5 | 7.5 | 8.5 | 9.5 | 11.0 | 12.0 | 14.0 | 15.0 | 17.0 |
| 12 x 6 CFM | 95 | 125 | 155 | 185 | 220 | 250 | 280 | 310 | 340 | 375 |
| Ak_311 Throw | 4.5 | 6.0 | 7.5 | 9.0 | 11.0 | 12.0 | 14.0 | 15.0 | 17.0 | 18.0 |
| 10 x 8 CFM | 105 | 140 | 175 | 210 | 245 | 280 | 315 | 350 | 385 | 420 |
| Ak_350 Throw | 5.0 | 6.0 | 8.0 | 10.0 | 11.0 | 13.0 | 14.0 | 16.0 | 18.0 | 19.0 |
| 14 x 6 CFM | 110 | 145 | 185 | 220 | 255 | 290 | 330 | 365 | 400 | 440 |
| Ak_365 Throw | 5.5 | 6.5 | 8.5 | 10.0 | 11.0 | 13.0 | 15.0 | 16.0 | 18.0 | 20.0 |
| 12 x 8 CFM | 130 | 175 | 220 | 260 | 305 | 350 | 390 | 435 | 480 | 520 |
| Ak_435 Throw | 5.0 | 7.0 | 9.0 | 11.0 | 13.0 | 15.0 | 16.0 | 18.0 | 20.0 | 22.0 |
| 14 x 8 CFM | 155 | 205 | 255 | 305 | 355 | 410 | 460 | 510 | 560 | 610 |
| Ak_510 Throw | 6.0 | 8.0 | 10.0 | 12.0 | 14.0 | 16.0 | 18.0 | 20.0 | 22.0 | 23.0 |

For sizes not listed or sizing tips see page 35

Terminal Velocity of 75 FPM

| Face Velocity | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 |
|----------------------|------|------|------|------|------|------|------|------|------|------|
| Pressure Loss | .006 | .010 | .016 | .022 | .031 | .040 | .050 | .062 | .075 | .090 |
| 8 x 4 CFM | 35 | 45 | 60 | 70 | 85 | 95 | 105 | 120 | 130 | 140 |
| Ak_118 Throw | 2.0 | 2.5 | 3.5 | 4.0 | 5.0 | 5.5 | 6.0 | 6.5 | 7.5 | 8.0 |
| 10 x 4 CFM | 45 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 165 | 180 |
| Ak_149 Throw | 2.0 | 3.0 | 3.5 | 4.5 | 5.0 | 6.0 | 6.5 | 7.5 | 8.0 | 9.0 |
| 12 x 4 CFM | 55 | 70 | 90 | 110 | 125 | 145 | 165 | 180 | 200 | 215 |
| Ak_181 Throw | 2.5 | 3.0 | 4.0 | 5.0 | 5.5 | 6.5 | 7.5 | 8.0 | 9.0 | 10.0 |
| 10 x 6 CFM | 70 | 95 | 120 | 140 | 165 | 190 | 210 | 235 | 260 | 285 |
| Ak_236 Throw | 3.0 | 4.0 | 5.0 | 5.5 | 6.5 | 7.5 | 8.5 | 9.5 | 10.0 | 11.0 |
| 12 x 6 CFM | 85 | 115 | 145 | 170 | 200 | 230 | 255 | 285 | 315 | 345 |
| Ak_286 Throw | 3.0 | 4.0 | 5.0 | 6.0 | 7.0 | 8.5 | 9.0 | 10.0 | 11.0 | 12.0 |
| 10 x 8 CFM | 95 | 130 | 160 | 190 | 225 | 255 | 290 | 320 | 350 | 385 |
| Ak_320 Throw | 3.0 | 4.5 | 5.5 | 6.5 | 7.5 | 8.5 | 10.0 | 11.0 | 12.0 | 13.0 |
| 14 x 6 CFM | 100 | 135 | 170 | 200 | 235 | 270 | 300 | 335 | 370 | 405 |
| Ak_336 Throw | 3.5 | 4.5 | 5.5 | 6.5 | 8.0 | 9.0 | 10.0 | 11.0 | 12.0 | 13.0 |
| 12 x 8 CFM | 120 | 160 | 200 | 235 | 275 | 315 | 355 | 395 | 435 | 475 |
| Ak_395 Throw | 3.5 | 5.0 | 6.0 | 7.0 | 8.0 | 10.0 | 11.0 | 12.0 | 13.0 | 15.0 |
| 14 x 8 CFM | 140 | 185 | 230 | 275 | 320 | 370 | 415 | 460 | 505 | 550 |
| Ak_460 Throw | 4.0 | 5.5 | 6.5 | 8.0 | 9.0 | 10.5 | 11.5 | 13.0 | 14.5 | 15.5 |

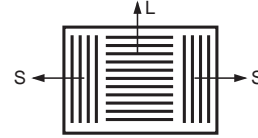
For sizes not listed or sizing tips see page 35

Terminal Velocity of 75 FPM

631 Register (Page 18)

| Face Velocity | | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 |
|---------------|-----------|----------|----------|----------|----------|-----------|-----------|-----------|-----------|
| Pressure Loss | | .006 | .010 | .016 | .022 | .031 | .040 | .050 | .062 |
| 10 x 6 | CFM | 85 | 110 | 140 | 170 | 195 | 225 | 250 | 280 |
| Ak .18 | Throw L/S | 4.0/8.0 | 5.5/10.0 | 7.0/13.0 | 8.5/16.0 | 9.5/19.0 | 11.0/21.0 | 13.0/24.0 | 15.0/26.0 |
| 12 x 6 | CFM | 100 | 135 | 170 | 205 | 240 | 275 | 305 | 340 |
| Ak .34 | Throw L/S | 4.0/8.0 | 5.0/10.0 | 6.0/13.0 | 7.5/16.0 | 9.0/20.0 | 10.0/22.0 | 11.5/24.0 | 13.0/28.0 |
| 10 x 8 | CFM | 115 | 150 | 190 | 230 | 265 | 305 | 340 | 380 |
| Ak .38 | Throw L/S | 3.5/9.5 | 5.0/13.0 | 6.0/16.0 | 7.0/18.0 | 8.0/21.0 | 9.0/24.0 | 10.5/29.0 | 11.5/32.0 |
| 14 x 6 | CFM | 120 | 160 | 200 | 240 | 280 | 320 | 360 | 400 |
| Ak .40 | Throw L/S | 4.0/10.0 | 5.0/12.0 | 6.5/16.0 | 8.0/19.0 | 9.0/22.0 | 10.0/24.0 | 11.0/27.0 | 12.5/30.0 |
| 12 x 8 | CFM | 140 | 190 | 235 | 280 | 330 | 375 | 425 | 470 |
| Ak .47 | Throw L/S | 4.5/10.0 | 6.0/13.0 | 7.5/15.0 | 9.0/18.0 | 10.0/21.0 | 11.5/25.0 | 13.0/28.0 | 14.5/31.0 |
| 14 x 8 | CFM | 165 | 220 | 275 | 330 | 385 | 440 | 495 | 550 |
| Ak .55 | Throw L/S | 4.0/10.0 | 5.5/13.5 | 7.5/18.0 | 8.5/22.0 | 10.0/25.0 | 11.5/29.0 | 13.0/33.0 | 15.0/36.0 |

Terminal Velocity of 75 FPM



650 & A650 Return Air Grille (Page 18)

659 Return Air Filter Grille (Page 19)

| Face Velocity* | | 300 | 400 | 500 | 600 |
|----------------|-----|------|------|------|------|
| 6 x 4 | CFM | 33 | 44 | 55 | 66 |
| Ak .111 | Ps | .010 | .018 | .029 | .041 |
| 6 x 6 | CFM | 50 | 67 | 83 | 100 |
| Ak .167 | Ps | .010 | .018 | .029 | .041 |
| 8 x 4 | CFM | 44 | 59 | 74 | 89 |
| Ak .148 | Ps | .010 | .018 | .029 | .041 |
| 8 x 6 | CFM | 67 | 89 | 112 | 134 |
| Ak .223 | Ps | .010 | .018 | .029 | .041 |
| 8 x 8 | CFM | 90 | 120 | 150 | 179 |
| Ak .299 | Ps | .010 | .018 | .029 | .041 |
| 10 x 4 | CFM | 56 | 74 | 93 | 111 |
| Ak .186 | Ps | .010 | .018 | .029 | .041 |
| 10 x 6 | CFM | 84 | 112 | 140 | 168 |
| Ak .280 | Ps | .010 | .018 | .029 | .041 |
| 10 x 8 | CFM | 112 | 150 | 187 | 225 |
| Ak .375 | Ps | .010 | .018 | .029 | .041 |
| 10 x 10 | CFM | 141 | 188 | 235 | 282 |
| Ak .470 | Ps | .010 | .018 | .029 | .041 |
| 12 x 6 | CFM | 101 | 135 | 168 | 202 |
| Ak .337 | Ps | .010 | .018 | .029 | .041 |
| 12 x 8 | CFM | 135 | 180 | 226 | 271 |
| Ak .451 | Ps | .010 | .018 | .029 | .041 |
| 12 x 10 | CFM | 170 | 226 | 283 | 339 |
| Ak .566 | Ps | .010 | .018 | .029 | .041 |
| 12 x 12 | CFM | 204 | 272 | 340 | 408 |
| Ak .681 | Ps | .010 | .018 | .029 | .041 |
| 12 x 18 | CFM | 308 | 411 | 513 | 616 |
| Ak 1.027 | Ps | .010 | .018 | .029 | .041 |
| 14 x 6 | CFM | 118 | 158 | 197 | 236 |
| Ak .394 | Ps | .010 | .018 | .029 | .041 |
| 14 x 8 | CFM | 158 | 211 | 264 | 316 |
| Ak .527 | Ps | .010 | .018 | .029 | .041 |
| 14 x 10 | CFM | 198 | 265 | 331 | 397 |
| Ak .661 | Ps | .010 | .018 | .029 | .041 |
| 14 x 12 | CFM | 239 | 318 | 398 | 477 |
| Ak .796 | Ps | .010 | .018 | .029 | .041 |
| 14 x 14 | CFM | 279 | 372 | 465 | 558 |
| Ak .930 | Ps | .010 | .018 | .029 | .041 |
| 14 x 18 | CFM | 360 | 480 | 600 | 720 |
| Ak 1.200 | Ps | .010 | .018 | .029 | .041 |

| Face Velocity* | | 300 | 400 | 500 | 600 |
|----------------|-----|------|------|------|------|
| 16 x 6 | CFM | 135 | 180 | 226 | 271 |
| Ak .451 | Ps | .010 | .018 | .029 | .041 |
| 16 x 8 | CFM | 181 | 242 | 302 | 362 |
| Ak .604 | Ps | .010 | .018 | .029 | .041 |
| 16 x 10 | CFM | 227 | 303 | 379 | 454 |
| Ak .757 | Ps | .010 | .018 | .029 | .041 |
| 16 x 12 | CFM | 273 | 364 | 455 | 547 |
| Ak .911 | Ps | .010 | .018 | .029 | .041 |
| 16 x 14 | CFM | 320 | 426 | 533 | 639 |
| Ak 1.065 | Ps | .010 | .018 | .029 | .041 |
| 16 x 16 | CFM | 366 | 488 | 610 | 732 |
| Ak 1.219 | Ps | .010 | .018 | .029 | .041 |
| 16 x 24 | CFM | 552 | 736 | 920 | 1104 |
| Ak 1.840 | Ps | .010 | .018 | .029 | .041 |
| 18 x 6 | CFM | 153 | 203 | 254 | 305 |
| Ak .508 | Ps | .010 | .018 | .029 | .041 |
| 18 x 18 | CFM | 465 | 619 | 774 | 929 |
| Ak 1.548 | Ps | .010 | .018 | .029 | .041 |
| 20 x 6 | CFM | 170 | 226 | 283 | 339 |
| Ak .566 | Ps | .010 | .018 | .029 | .041 |
| 20 x 10 | CFM | 285 | 380 | 475 | 570 |
| Ak .949 | Ps | .010 | .018 | .029 | .041 |
| 20 x 12 | CFM | 343 | 457 | 571 | 685 |
| Ak 1.142 | Ps | .010 | .018 | .029 | .041 |
| 20 x 14 | CFM | 401 | 534 | 668 | 801 |
| Ak 1.335 | Ps | .010 | .018 | .029 | .041 |
| 20 x 20 | CFM | 575 | 767 | 959 | 1150 |
| Ak 1.917 | Ps | .010 | .018 | .029 | .041 |
| 20 x 24 | CFM | 692 | 923 | 1153 | 1384 |
| Ak 2.307 | Ps | .010 | .019 | .029 | .042 |
| 20 x 25 | CFM | 721 | 962 | 1202 | 1442 |
| Ak 2.404 | Ps | .010 | .019 | .029 | .042 |

For sizes not listed and sizing tips see page 35

| Face Velocity* | | 300 | 400 | 500 | 600 |
|----------------|-----|------|------|------|------|
| 24 x 4 | CFM | 135 | 180 | 226 | 271 |
| Ak .451 | Ps | .010 | .018 | .029 | .041 |
| 24 x 6 | CFM | 204 | 272 | 340 | 408 |
| Ak .681 | Ps | .010 | .018 | .029 | .041 |
| 24 x 8 | CFM | 273 | 364 | 455 | 547 |
| Ak .911 | Ps | .010 | .018 | .029 | .041 |
| 24 x 10 | CFM | 343 | 457 | 571 | 685 |
| Ak 1.142 | Ps | .010 | .018 | .029 | .041 |
| 24 x 12 | CFM | 412 | 550 | 687 | 825 |
| Ak 1.374 | Ps | .010 | .018 | .029 | .041 |
| 24 x 14 | CFM | 482 | 643 | 803 | 964 |
| Ak 1.607 | Ps | .010 | .018 | .029 | .041 |
| 24 x 24 | CFM | 832 | 1110 | 1387 | 1665 |
| Ak 2.775 | Ps | .010 | .019 | .029 | .042 |
| 30 x 4 | CFM | 170 | 226 | 283 | 339 |
| Ak .566 | Ps | .010 | .018 | .029 | .041 |
| 30 x 6 | CFM | 256 | 341 | 427 | 512 |
| Ak .853 | Ps | .010 | .018 | .029 | .041 |
| 30 x 8 | CFM | 343 | 457 | 571 | 685 |
| Ak 1.142 | Ps | .010 | .018 | .029 | .041 |
| 30 x 10 | CFM | 430 | 573 | 716 | 859 |
| Ak 1.432 | Ps | .010 | .018 | .029 | .041 |
| 30 x 12 | CFM | 517 | 689 | 862 | 1034 |
| Ak 1.723 | Ps | .010 | .018 | .029 | .041 |
| 30 x 14 | CFM | 604 | 806 | 1007 | 1209 |
| Ak 2.015 | Ps | .010 | .018 | .029 | .042 |
| 30 x 18 | CFM | 780 | 1040 | 1300 | 1560 |
| Ak 2.599 | Ps | .010 | .019 | .029 | .042 |
| 30 x 20 | CFM | 868 | 1157 | 1446 | 1735 |
| Ak 2.892 | Ps | .010 | .019 | .029 | .042 |
| 30 x 24 | CFM | 1044 | 1392 | 1740 | 2088 |
| Ak 3.479 | Ps | .010 | .019 | .029 | .042 |
| 30 x 30 | CFM | 1309 | 1745 | 2181 | 2618 |
| Ak 4.363 | Ps | .010 | .019 | .029 | .042 |
| 36 x 6 | CFM | 308 | 411 | 513 | 616 |
| Ak 1.027 | Ps | .010 | .018 | .029 | .041 |
| 36 x 8 | CFM | 412 | 550 | 687 | 825 |
| Ak 1.374 | Ps | .010 | .018 | .029 | .041 |

*Filter grilles: Tested without filters. Typical capacity is 2 CFM per square inch of nominal filter area. Recommended face velocity is 300-450 FPM. Velocities higher will decrease filter performance, increase flow resistance, and possibly be of noise concern. Velocity measured 1" from face.

651 Baseboard Register (Page 19)

| Face Velocity | | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 |
|------------------|-------|------|------|------|------|------|------|------|------|
| Pressure Loss | | .006 | .010 | .016 | .022 | .031 | .040 | .050 | .062 |
| 8 x 4 | CFM | 33 | 44 | 55 | 66 | 77 | 88 | 100 | 110 |
| Ak .110 | Throw | 6.0 | 8.0 | 10.0 | 12.0 | 14.0 | 16.0 | 18.0 | 20.0 |
| 10 x 4 | CFM | 40 | 54 | 67 | 80 | 95 | 110 | 120 | 135 |
| Ak .135 | Throw | 6.5 | 8.5 | 10.5 | 12.5 | 15.0 | 17.5 | 19.0 | 21.0 |
| 12 x 4 and 8 x 6 | CFM | 55 | 72 | 90 | 108 | 125 | 145 | 162 | 180 |
| Ak .180 | Throw | 7.5 | 10.0 | 12.5 | 15.0 | 17.5 | 20.5 | 23.0 | 25.0 |
| 10 x 6 | CFM | 70 | 92 | 115 | 140 | 160 | 185 | 205 | 230 |
| Ak .230 | Throw | 9.0 | 11.5 | 14.5 | 17.5 | 20.0 | 23.0 | 25.5 | 29.0 |
| 12 x 6 | CFM | 85 | 115 | 145 | 175 | 205 | 230 | 260 | 290 |
| Ak .290 | Throw | 10.0 | 13.0 | 17.0 | 20.0 | 23.5 | 26.5 | 30.0 | 33.0 |
| 14 x 6 | CFM | 102 | 135 | 170 | 205 | 240 | 270 | 305 | 340 |
| Ak .340 | Throw | 11.0 | 14.5 | 18.0 | 22.0 | 25.5 | 29.0 | 32.5 | 36.0 |

Terminal Velocity of 75 FPM

672/674 Return Air Grille (Page 21, 11) 673 Return Air Filter Grille (Page 21)

| Face Velocity* | | 300 | 400 | 500 | 600 |
|----------------|-----|------|------|------|------|
| 6 x 4 | CFM | 34 | 45 | 56 | 68 |
| Ak .110 | Ps | .020 | .035 | .054 | .079 |
| 6 x 6 | CFM | 50 | 67 | 84 | 101 |
| Ak .170 | Ps | .019 | .035 | .054 | .079 |
| 8 x 4 | CFM | 45 | 60 | 75 | 90 |
| Ak .150 | Ps | .019 | .035 | .054 | .079 |
| 8 x 6 | CFM | 67 | 89 | 111 | 134 |
| Ak .220 | Ps | .019 | .035 | .054 | .079 |
| 8 x 8 | CFM | 89 | 118 | 148 | 178 |
| Ak .300 | Ps | .019 | .035 | .054 | .078 |
| 10 x 4 | CFM | 56 | 74 | 93 | 112 |
| Ak .190 | Ps | .019 | .035 | .054 | .079 |
| 10 x 6 | CFM | 83 | 111 | 139 | 167 |
| Ak .280 | Ps | .019 | .035 | .054 | .078 |
| 10 x 8 | CFM | 111 | 147 | 184 | 221 |
| Ak .370 | Ps | .019 | .034 | .054 | .078 |
| 10 x 10 | CFM | 138 | 184 | 230 | 276 |
| Ak .460 | Ps | .019 | .034 | .054 | .078 |
| 12 x 6 | CFM | 100 | 133 | 166 | 199 |
| Ak .330 | Ps | .019 | .034 | .054 | .078 |
| 12 x 8 | CFM | 132 | 177 | 221 | 265 |
| Ak .440 | Ps | .019 | .034 | .054 | .078 |
| 12 x 10 | CFM | 165 | 220 | 275 | 330 |
| Ak .550 | Ps | .019 | .034 | .053 | .077 |
| 12 x 12 | CFM | 197 | 263 | 329 | 395 |
| Ak .660 | Ps | .019 | .034 | .053 | .077 |
| 12 x 18 | CFM | 294 | 392 | 491 | 589 |
| Ak .980 | Ps | .019 | .034 | .053 | .075 |
| 14 x 6 | CFM | 116 | 155 | 193 | 232 |
| Ak .390 | Ps | .019 | .034 | .054 | .078 |
| 14 x 8 | CFM | 154 | 205 | 257 | 308 |
| Ak .510 | Ps | .019 | .034 | .053 | .077 |
| 14 x 10 | CFM | 192 | 256 | 320 | 384 |
| Ak .640 | Ps | .019 | .034 | .053 | .077 |
| 14 x 12 | CFM | 230 | 306 | 383 | 460 |
| Ak .770 | Ps | .019 | .034 | .053 | .076 |
| 14 x 14 | CFM | 267 | 357 | 446 | 535 |
| Ak .890 | Ps | .019 | .034 | .053 | .075 |
| 14 x 18 | CFM | 343 | 457 | 571 | 685 |
| Ak 1.140 | Ps | .019 | .033 | .052 | .074 |

| Face Velocity* | | 300 | 400 | 500 | 600 |
|----------------|-----|------|------|------|------|
| 16 x 6 | CFM | 132 | 177 | 221 | 265 |
| Ak .440 | Ps | .019 | .034 | .054 | .078 |
| 16 x 8 | CFM | 176 | 234 | 293 | 352 |
| Ak .590 | Ps | .019 | .034 | .053 | .077 |
| 16 x 10 | CFM | 219 | 292 | 365 | 438 |
| Ak .730 | Ps | .019 | .034 | .053 | .076 |
| 16 x 12 | CFM | 262 | 349 | 437 | 524 |
| Ak .870 | Ps | .019 | .034 | .053 | .076 |
| 16 x 14 | CFM | 305 | 407 | 509 | 610 |
| Ak 1.020 | Ps | .019 | .034 | .052 | .075 |
| 16 x 16 | CFM | 348 | 464 | 580 | 696 |
| Ak 1.160 | Ps | .019 | .033 | .052 | .074 |
| 16 x 24 | CFM | 519 | 692 | 865 | 1038 |
| Ak 1.730 | Ps | .018 | .033 | .051 | .071 |
| 16 x 25 | CFM | 540 | 720 | 900 | 1081 |
| Ak 1.800 | Ps | .018 | .033 | .051 | .071 |
| 18 x 6 | CFM | 149 | 198 | 248 | 297 |
| Ak .500 | Ps | .019 | .034 | .054 | .077 |
| 18 x 18 | CFM | 439 | 585 | 732 | 878 |
| Ak 1.460 | Ps | .019 | .033 | .052 | .073 |
| 18 x 24 | CFM | 583 | 777 | 971 | 1166 |
| Ak 1.940 | Ps | .018 | .032 | .051 | .070 |
| 20 x 6 | CFM | 165 | 220 | 275 | 330 |
| Ak .550 | Ps | .019 | .034 | .053 | .077 |
| 20 x 10 | CFM | 273 | 364 | 455 | 546 |
| Ak .910 | Ps | .019 | .034 | .053 | .075 |
| 20 x 12 | CFM | 327 | 435 | 544 | 653 |
| Ak 1.090 | Ps | .019 | .033 | .052 | .074 |
| 20 x 14 | CFM | 380 | 507 | 634 | 760 |
| Ak 1.270 | Ps | .019 | .033 | .052 | .074 |
| 20 x 20 | CFM | 540 | 720 | 900 | 1081 |
| Ak 1.800 | Ps | .018 | .033 | .051 | .071 |
| 20 x 24 | CFM | 647 | 862 | 1078 | 1293 |
| Ak 2.160 | Ps | .018 | .032 | .050 | .069 |
| 20 x 25 | CFM | 673 | 898 | 1122 | 1346 |
| Ak 2.240 | Ps | .018 | .032 | .050 | .069 |

| Face Velocity* | | 300 | 400 | 500 | 600 |
|----------------|-----|------|------|------|------|
| 24 x 4 | CFM | 132 | 177 | 221 | 265 |
| Ak .440 | Ps | .019 | .034 | .054 | .078 |
| 24 x 6 | CFM | 197 | 263 | 329 | 395 |
| Ak .660 | Ps | .019 | .034 | .053 | .077 |
| 24 x 8 | CFM | 262 | 349 | 437 | 524 |
| Ak .870 | Ps | .019 | .034 | .053 | .076 |
| 24 x 10 | CFM | 327 | 435 | 544 | 653 |
| Ak 1.090 | Ps | .019 | .033 | .052 | .074 |
| 24 x 12 | CFM | 391 | 521 | 651 | 782 |
| Ak 1.300 | Ps | .019 | .033 | .052 | .073 |
| 24 x 14 | CFM | 455 | 607 | 758 | 910 |
| Ak 1.520 | Ps | .019 | .033 | .051 | .072 |
| 24 x 24 | CFM | 774 | 1032 | 1290 | 1548 |
| Ak 2.580 | Ps | .018 | .032 | .049 | .067 |
| 30 x 4 | CFM | 165 | 220 | 275 | 330 |
| Ak .550 | Ps | .019 | .034 | .053 | .077 |
| 30 x 6 | CFM | 246 | 328 | 410 | 492 |
| Ak .820 | Ps | .019 | .034 | .053 | .076 |
| 30 x 8 | CFM | 327 | 435 | 544 | 653 |
| Ak 1.090 | Ps | .019 | .033 | .052 | .074 |
| 30 x 10 | CFM | 407 | 543 | 678 | 814 |
| Ak 1.360 | Ps | .019 | .033 | .052 | .073 |
| 30 x 12 | CFM | 487 | 649 | 812 | 974 |
| Ak 1.620 | Ps | .018 | .033 | .051 | .072 |
| 30 x 14 | CFM | 567 | 756 | 945 | 1134 |
| Ak 1.890 | Ps | .018 | .032 | .051 | .071 |
| 30 x 18 | CFM | 726 | 968 | 1210 | 1452 |
| Ak 2.420 | Ps | .018 | .032 | .050 | .068 |
| 30 x 20 | CFM | 806 | 1074 | 1343 | 1611 |
| Ak 2.690 | Ps | .018 | .031 | .049 | .067 |
| 30 x 24 | CFM | 964 | 1286 | 1607 | 1928 |
| Ak 3.210 | Ps | .017 | .031 | .048 | .064 |
| 30 x 30 | CFM | 1201 | 1602 | 2002 | 2403 |
| Ak 4.000 | Ps | .017 | .030 | .046 | .060 |
| 36 x 8 | CFM | 391 | 521 | 651 | 782 |
| Ak 1.300 | Ps | .019 | .033 | .052 | .073 |

For sizes not listed and sizing tips see page 35

*Filter grilles: Tested without filters. Typical capacity is 2 CFM per square inch of nominal filter area. Recommended face velocity is 300-450 FPM. Velocities higher will decrease filter performance, increase flow resistance, and possibly be of noise concern. Velocity measured 1" from face.

661 & A661 2-Way Supply Register (Page 20)

| Face Velocity | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 |
|-------------------|------|------|------|------|------|------|------|------|
| Pressure Loss | .006 | .010 | .016 | .022 | .031 | .040 | .050 | .062 |
| 6 x 4 | 25 | 30 | 40 | 50 | 55 | 65 | 70 | 80 |
| Ak .080 | 4.0 | 4.5 | 6.0 | 7.0 | 8.5 | 10.0 | 11.0 | 12.5 |
| 8 x 4 | 35 | 45 | 55 | 65 | 75 | 90 | 100 | 110 |
| Ak .110 | 4.5 | 5.5 | 7.0 | 8.5 | 10.0 | 11.5 | 13.0 | 14.5 |
| 10 x 4 and 8 x 5 | 45 | 60 | 75 | 85 | 100 | 115 | 130 | 145 |
| Ak .145 | 5.0 | 6.5 | 8.0 | 9.5 | 11.5 | 13.0 | 14.5 | 16.0 |
| 12 x 4 and 8 x 6 | 55 | 70 | 90 | 110 | 125 | 145 | 160 | 180 |
| Ak .180 | 5.5 | 7.0 | 9.0 | 10.5 | 12.5 | 14.0 | 16.0 | 18.0 |
| 14 x 4 | 65 | 85 | 110 | 130 | 150 | 170 | 195 | 215 |
| Ak .215 | 6.0 | 7.5 | 9.5 | 11.5 | 13.5 | 15.5 | 17.0 | 19.0 |
| 10 x 6 and 12 x 5 | 75 | 100 | 125 | 145 | 170 | 195 | 220 | 245 |
| Ak .245 | 6.0 | 8.0 | 10.0 | 12.0 | 14.0 | 16.0 | 18.0 | 20.0 |
| 12 x 6 and 14 x 5 | 90 | 120 | 150 | 175 | 205 | 235 | 265 | 295 |
| Ak .295 | 6.5 | 8.5 | 11.0 | 13.0 | 15.5 | 17.5 | 19.5 | 22.0 |
| 10 x 8 | 105 | 140 | 175 | 205 | 240 | 275 | 310 | 345 |
| Ak .345 | 7.0 | 9.0 | 11.5 | 13.5 | 16.5 | 18.5 | 21.0 | 23.5 |
| 14 x 6 | 110 | 145 | 180 | 215 | 250 | 290 | 325 | 360 |
| Ak .360 | 7.0 | 9.5 | 12.0 | 14.0 | 16.5 | 19.0 | 21.5 | 24.0 |

Terminal Velocity of 75 FPM

| Face Velocity | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 |
|-------------------|------|------|------|------|------|------|------|------|
| Pressure Loss | .006 | .010 | .016 | .022 | .031 | .040 | .050 | .062 |
| 16 x 6 and 12 x 8 | 130 | 170 | 215 | 255 | 300 | 340 | 385 | 425 |
| Ak .425 | 7.5 | 10.0 | 12.5 | 15.0 | 18.0 | 20.5 | 23.0 | 25.5 |
| 14 x 8 | 155 | 205 | 260 | 310 | 360 | 410 | 465 | 515 |
| Ak .515 | 8.0 | 10.5 | 14.0 | 16.0 | 19.5 | 22.0 | 25.0 | 28.0 |
| 20 x 6 | 165 | 220 | 275 | 330 | 385 | 440 | 495 | 550 |
| Ak .550 | 8.5 | 11.0 | 14.5 | 17.0 | 20.0 | 23.0 | 25.5 | 29.0 |
| 16 x 8 | 180 | 240 | 300 | 360 | 420 | 480 | 540 | 600 |
| Ak .600 | 8.5 | 11.0 | 14.5 | 17.0 | 20.0 | 23.0 | 25.5 | 29.0 |
| 24 x 6 and 18 x 8 | 205 | 270 | 340 | 410 | 475 | 545 | 610 | 680 |
| Ak .680 | 9.5 | 12.0 | 15.5 | 18.5 | 22.0 | 25.0 | 28.0 | 31.5 |
| 20 x 8 | 230 | 305 | 380 | 455 | 530 | 610 | 685 | 760 |
| Ak .760 | 10.0 | 13.0 | 16.5 | 19.0 | 23.0 | 26.0 | 28.5 | 33.0 |
| 30 x 6 | 265 | 350 | 440 | 530 | 615 | 705 | 790 | 880 |
| Ak .880 | 10.5 | 14.0 | 17.5 | 20.5 | 24.5 | 28.0 | 31.5 | 35.0 |
| 24 x 8 | 295 | 390 | 490 | 590 | 685 | 785 | 880 | 980 |
| Ak .980 | 11.0 | 14.0 | 18.0 | 21.5 | 25.5 | 29.0 | 33.0 | 37.0 |
| 30 x 8 | 375 | 500 | 625 | 750 | 875 | 1000 | 1125 | 1250 |
| Ak 1.250 | 12.0 | 16.0 | 20.0 | 24.0 | 28.5 | 32.0 | 37.0 | 41.0 |

681 One-Way Sidewall/Ceiling Register (Page 21)

681M One-Way Sidewall/Ceiling Register (Page 23)

| Face Velocity | | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 |
|---------------|-------|------|------|------|------|------|------|------|------|
| Pressure Loss | | .006 | .010 | .016 | .022 | .031 | .040 | .050 | .062 |
| 8 x 6 | CFM | 40 | 55 | 70 | 90 | 100 | 110 | 125 | 140 |
| Ak .140 | Throw | 5.0 | 6.0 | 8.0 | 9.0 | 11.0 | 12.0 | 14.0 | 15.0 |
| 10 x 6 | CFM | 55 | 80 | 95 | 110 | 130 | 150 | 165 | 185 |
| Ak .185 | Throw | 5.0 | 7.0 | 10.0 | 11.0 | 13.0 | 14.0 | 16.0 | 18.0 |
| 12 x 6 | CFM | 70 | 90 | 115 | 135 | 160 | 180 | 205 | 225 |
| Ak .225 | Throw | 6.0 | 8.0 | 12.0 | 12.0 | 14.0 | 16.0 | 18.0 | 20.0 |
| 14 x 6 | CFM | 85 | 115 | 145 | 175 | 205 | 230 | 260 | 290 |
| Ak .290 | Throw | 7.0 | 9.0 | 16.0 | 14.0 | 17.0 | 19.0 | 21.0 | 24.0 |
| 16 x 6 | CFM | 100 | 130 | 165 | 200 | 230 | 265 | 295 | 330 |
| Ak .330 | Throw | 8.0 | 10.0 | 18.0 | 15.0 | 18.0 | 20.0 | 23.0 | 25.0 |
| 18 x 6 | CFM | 115 | 155 | 195 | 235 | 275 | 310 | 350 | 390 |
| Ak .390 | Throw | 8.0 | 11.0 | 21.0 | 17.0 | 20.0 | 22.0 | 25.0 | 28.0 |
| 20 x 6 | CFM | 130 | 175 | 220 | 265 | 310 | 360 | 395 | 440 |
| Ak .440 | Throw | 5.0 | 12.0 | 24.0 | 18.0 | 21.0 | 24.0 | 27.0 | 30.0 |

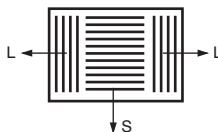
Terminal Velocity of 75 FPM

683 Three-Way Sidewall/Ceiling Register (Page 22)

683M Three-Way Sidewall/Ceiling Register (Page 23)

| Face Velocity | | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 |
|---------------|-----------|----------|----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Pressure Loss | | .006 | .010 | .016 | .022 | .031 | .040 | .050 | .062 |
| 8 x 4 | Total CFM | 25 | 35 | 45 | 55 | 65 | 70 | 80 | 90 |
| Ak .090 | CFM L/S | 13/6 | 17/9 | 24/11 | 29/13 | 34/16 | 37/17 | 42/19 | 48/22 |
| | Throw L/S | 3.0/2.5 | 4.0/3.0 | 5.0/3.5 | 6.0/4.0 | 7.0/5.0 | 7.5/5.5 | 8.5/6.0 | 10.0/6.5 |
| 6 x 6 | Total CFM | 30 | 40 | 50 | 65 | 75 | 85 | 95 | 105 |
| Ak .105 | CFM L/S | 10/10 | 13/14 | 16/17 | 21/22 | 24/26 | 27/29 | 30/32 | 34/36 |
| | Throw L/S | 3.0/3.0 | 3.5/3.5 | 4.0/4.0 | 5.5/5.5 | 6.0/6.0 | 7.0/7.0 | 8.0/8.0 | 9.0/9.0 |
| 10 x 4 | Total CFM | 35 | 45 | 60 | 70 | 80 | 90 | 105 | 115 |
| Ak .115 | CFM L/S | 21/7 | 29/8 | 38/11 | 45/13 | 51/14 | 58/16 | 67/19 | 74/21 |
| | Throw L/S | 4.0/2.0 | 5.0/2.5 | 6.0/3.5 | 7.5/4.0 | 8.5/4.5 | 9.5/5.0 | 11.0/6.0 | 12.0/6.5 |
| 12 x 4 | Total CFM | 40 | 55 | 70 | 85 | 100 | 110 | 125 | 140 |
| Ak .140 | CFM L/S | 21/10 | 29/13 | 36/17 | 44/20 | 52/24 | 57/26 | 66/30 | 73/34 |
| | Throw L/S | 3.5/2.5 | 5.0/3.0 | 6.0/4.0 | 7.5/5.0 | 8.5/5.5 | 10.5/7.0 | 12.0/8.0 | |
| 10 x 6 | Total CFM | 55 | 75 | 95 | 110 | 130 | 150 | 165 | 185 |
| Ak .185 | CFM L/S | 35/10 | 48/14 | 61/17 | 70/20 | 83/23 | 96/27 | 106/30 | 118/33 |
| | Throw L/S | 4.5/2.5 | 6.5/3.5 | 8.0/4.0 | 9.0/5.0 | 11.0/5.5 | 12.5/6.5 | 14.0/7.5 | 15.5/8.0 |
| 8 x 8 | Total CFM | 60 | 80 | 100 | 120 | 140 | 160 | 180 | 200 |
| Ak .200 | CFM L/S | 31/14 | 42/19 | 52/24 | 62/29 | 73/34 | 83/38 | 94/43 | 104/48 |
| | Throw L/S | 4.5/3.0 | 6.0/4.0 | 7.5/5.0 | 8.5/6.0 | 10.5/7.0 | 11.5/8.0 | 13.0/9.0 | 14.5/10.0 |
| 12 x 6 | Total CFM | 70 | 90 | 115 | 135 | 160 | 180 | 205 | 225 |
| Ak .225 | CFM L/S | 36/17 | 47/22 | 60/28 | 70/32 | 83/38 | 94/43 | 107/49 | 117/54 |
| | Throw L/S | 4.5/3.5 | 6.0/4.0 | 8.0/5.5 | 9.0/6.0 | 11.0/7.5 | 12.5/8.0 | 14.0/9.5 | 15.5/10.5 |
| 14 x 6 | Total CFM | 85 | 115 | 145 | 175 | 205 | 230 | 260 | 290 |
| Ak .290 | CFM L/S | 51/17 | 69/23 | 87/29 | 105/35 | 123/41 | 138/46 | 156/52 | 174/58 |
| | Throw L/S | 5.5/3.5 | 7.5/4.5 | 10.0/5.5 | 12.0/6.5 | 14.0/8.0 | 15.5/9.0 | 18.0/10.0 | 20.0/11.0 |
| 10 x 10 | Total CFM | 95 | 125 | 155 | 185 | 215 | 250 | 280 | 310 |
| Ak .310 | CFM L/S | 61/17 | 80/23 | 99/28 | 118/33 | 138/39 | 160/45 | 179/50 | 198/56 |
| | Throw L/S | 6.0/3.5 | 8.0/4.5 | 10.0/5.5 | 12.0/6.5 | 14.0/7.5 | 16.5/9.0 | 18.0/9.5 | 20.0/10.5 |
| 12 x 8 | Total CFM | 95 | 130 | 160 | 190 | 225 | 255 | 290 | 320 |
| Ak .320 | CFM L/S | 49/23 | 68/31 | 83/38 | 99/46 | 117/54 | 133/61 | 151/70 | 166/77 |
| | Throw L/S | 5.5/4.0 | 7.5/5.0 | 9.5/6.0 | 11.0/7.5 | 13.0/9.0 | 15.0/10.0 | 17.0/11.5 | 19.0/12.5 |
| 14 x 8 | Total CFM | 115 | 155 | 195 | 235 | 275 | 310 | 350 | 390 |
| Ak .390 | CFM L/S | 69/23 | 93/31 | 117/39 | 141/47 | 165/55 | 186/62 | 210/70 | 234/78 |
| | Throw L/S | 6.5/4.0 | 9.0/5.0 | 11.0/6.0 | 13.5/7.5 | 16.0/9.0 | 18.0/10.0 | 20.0/11.5 | 22.0/12.5 |
| 12 x 12 | Total CFM | 140 | 190 | 235 | 280 | 330 | 375 | 425 | 470 |
| Ak .470 | CFM L/S | 73/34 | 99/46 | 122/56 | 146/67 | 172/79 | 195/90 | 221/102 | 244/113 |
| | Throw L/S | 7.0/4.5 | 9.0/6.0 | 11.5/7.5 | 13.5/9.0 | 16.0/10.5 | 18.0/12.0 | 20.0/14.0 | 23.0/15.5 |
| 14 x 14 | Total CFM | 195 | 260 | 325 | 390 | 455 | 520 | 585 | 650 |
| Ak .650 | CFM L/S | 117/39 | 156/52 | 195/65 | 234/78 | 273/91 | 312/104 | 351/117 | 390/130 |
| | Throw L/S | 8.5/5.0 | 11.5/6.5 | 14.0/8.0 | 17.0/9.5 | 20.0/11.5 | 23.0/13.0 | 26.0/14.5 | 28.0/16.0 |
| 16 x 16 | Total CFM | 280 | 370 | 465 | 560 | 650 | 745 | 835 | 930 |
| Ak .930 | CFM L/S | 164/67 | 192/89 | 242/112 | 291/134 | 338/156 | 387/179 | 434/200 | 484/223 |
| | Throw L/S | 10.0/6.5 | 13.0/9.0 | 16.5/11.0 | 20.0/13.0 | 23.0/15.5 | 26.0/17.0 | 29.0/20.0 | 33.0/22.0 |

Terminal Velocity of 75 FPM



682 Two-Way Sidewall/Ceiling Register (Page 22)

682M Two-Way Sidewall/Ceiling Register (Page 23)

| Face Velocity | | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 |
|---------------|-------|------|------|------|------|------|------|------|------|
| Pressure Loss | | .006 | .010 | .016 | .022 | .031 | .040 | .050 | .062 |
| 8 x 4 | CFM | 25 | 35 | 45 | 55 | 65 | 70 | 80 | 90 |
| Ak .090 | Throw | 2.0 | 3.5 | 4.5 | 5.5 | 6.5 | 7.0 | 8.0 | 9.0 |
| 6 x 6 | CFM | 30 | 40 | 50 | 65 | 75 | 85 | 95 | 105 |
| Ak .105 | Throw | 3.0 | 3.5 | 4.5 | 6.0 | 7.0 | 8.0 | 9.0 | 10.0 |
| 10 x 4 | CFM | 35 | 45 | 60 | 70 | 80 | 90 | 105 | 115 |
| Ak .115 | Throw | 3.5 | 4.0 | 5.0 | 6.0 | 7.0 | 8.0 | 9.0 | 10.0 |
| 12 x 4 | CFM | 40 | 55 | 70 | 85 | 100 | 110 | 125 | 140 |
| Ak .140 | Throw | 3.5 | 4.5 | 5.5 | 6.5 | 8.0 | 9.0 | 10.0 | 11.5 |
| 10 x 6 | CFM | 55 | 75 | 95 | 110 | 130 | 150 | 165 | 185 |
| Ak .185 | Throw | 4.0 | 5.0 | 6.5 | 8.0 | 9.0 | 10.5 | 12.0 | 13.0 |
| 8 x 8 | CFM | 60 | 80 | 100 | 120 | 140 | 160 | 180 | 200 |
| Ak .200 | Throw | 4.0 | 5.5 | 7.0 | 8.0 | 9.5 | 11.0 | 12.5 | 13.5 |
| 12 x 6 | CFM | 70 | 90 | 115 | 135 | 160 | 180 | 205 | 225 |
| Ak .225 | Throw | 4.5 | 6.0 | 7.5 | 8.5 | 10.5 | 12.0 | 13.0 | 14.5 |
| 14 x 6 | CFM | 85 | 115 | 145 | 175 | 205 | 230 | 260 | 290 |
| Ak .290 | Throw | 5.0 | 6.5 | 8.5 | 10.0 | 11.5 | 13.5 | 15.0 | 17.0 |
| 10 x 10 | CFM | 95 | 125 | 155 | 185 | 215 | 250 | 280 | 310 |
| Ak .310 | Throw | 5.0 | 7.0 | 8.5 | 10.0 | 12.0 | 14.0 | 15.5 | 17.0 |
| 12 x 8 | CFM | 95 | 130 | 160 | 190 | 225 | 255 | 290 | 320 |
| Ak .320 | Throw | 5.5 | 7.0 | 9.0 | 10.5 | 12.5 | 14.0 | 16.0 | 18.0 |
| 14 x 8 | CFM | 115 | 155 | 195 | 235 | 275 | 310 | 350 | 390 |
| Ak .390 | Throw | 6.0 | 8.0 | 10.0 | 12.0 | 14.0 | 16.0 | 18.0 | 20.0 |
| 12 x 12 | CFM | 140 | 190 | 235 | 280 | 330 | 375 | 425 | 470 |
| Ak .470 | Throw | 6.5 | 8.5 | 10.5 | 12.5 | 15.0 | 17.0 | 19.0 | 21.0 |

Terminal Velocity of 75 FPM

684 Four-Way Sidewall/Ceiling Register (Page 22)

684 Four-Way Sidewall/Ceiling Register (Page 23)

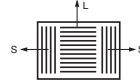
| Face Velocity | | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 |
|---------------|-----------|---------|---------|-----------|-----------|-----------|-----------|-----------|-----------|
| Pressure Loss | | .006 | .010 | .016 | .022 | .031 | .040 | .050 | .062 |
| 6 x 6 | Total CFM | 30 | 40 | 50 | 65 | 75 | 85 | 95 | 105 |
| Ak .105 | CFM L/S | 4/11 | 6/14 | 8/17 | 10/22 | 12/26 | 14/29 | 15/32 | 17/36 |
| | Throw L/S | 2.0/3.0 | 2.0/3.5 | 3.0/4.0 | 3.5/5.5 | 4.5/6.5 | 5.0/7.0 | 5.5/8.0 | 6.0/9.0 |
| 8 x 8 | Total CFM | 60 | 80 | 100 | 120 | 140 | 160 | 180 | 200 |
| Ak .200 | CFM L/S | 16/14 | 21/19 | 26/24 | 31/29 | 37/34 | 42/38 | 47/43 | 52/48 |
| | Throw L/S | 3.0/3.0 | 4.0/4.0 | 5.0/5.0 | 6.0/6.0 | 7.5/7.0 | 8.5/8.0 | 9.5/9.0 | 10.5/10.0 |
| 10 x 10 | Total CFM | 95 | 125 | 155 | 185 | 215 | 250 | 280 | 310 |
| Ak .310 | CFM L/S | 31/17 | 40/23 | 50/28 | 59/33 | 69/39 | 80/45 | 90/50 | 99/56 |
| | Throw L/S | 4.5/3.5 | 6.0/4.5 | 7.0/5.5 | 8.5/6.5 | 10.0/7.5 | 11.0/9.0 | 13.0/9.5 | 14.5/10.5 |
| 12 x 12 | Total CFM | 140 | 190 | 235 | 280 | 330 | 375 | 425 | 470 |
| Ak .470 | CFM L/S | 37/34 | 50/46 | 61/56 | 73/67 | 86/79 | 98/90 | 111/102 | 122/113 |
| | Throw L/S | 5.0/4.5 | 6.5/6.0 | 8.0/7.5 | 9.5/9.0 | 11.5/10.5 | 13.0/12.0 | 14.5/14.0 | 16.0/15.5 |
| 14 x 14 | Total CFM | 195 | 260 | 325 | 390 | 455 | 520 | 585 | 650 |
| Ak .650 | CFM L/S | 59/39 | 78/52 | 98/65 | 117/78 | 137/91 | 156/104 | 176/117 | 195/130 |
| | Throw L/S | 6.0/5.0 | 8.0/6.5 | 10.0/8.0 | 12.0/9.5 | 14.0/11.5 | 16.0/13.0 | 18.0/14.5 | 20.0/16.0 |
| 16 x 16 | Total CFM | 280 | 370 | 465 | 560 | 650 | 745 | 835 | 930 |
| Ak .930 | CFM L/S | 73/67 | 96/89 | 121/112 | 146/134 | 169/156 | 194/179 | 217/200 | 242/223 |
| | Throw L/S | 7.0/6.5 | 9.0/9.0 | 11.5/11.0 | 14.0/13.0 | 16.0/15.5 | 19.0/17.0 | 21.0/20.0 | 23.0/2 |

Rezzin 2-Way Register (Page 26)

| Face Velocity | | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 |
|-------------------|-------|-----|-----|-----|------|------|------|------|------|
| 8 x 4 Ak .095 | CFM | 28 | 38 | 47 | 57 | 66 | 76 | 85 | 95 |
| | Ps | .02 | .02 | .02 | .03 | .04 | .05 | .06 | .07 |
| | Throw | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 | 4.5 | 5.0 |
| 10 x 4 Ak .117 | CFM | 35 | 47 | 59 | 70 | 82 | 94 | 105 | 117 |
| | Ps | .01 | .01 | .02 | .02 | .03 | .04 | .05 | .06 |
| | Throw | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 | 4.5 | 5.0 |
| 10 x 6 Ak .193 | CFM | 58 | 77 | 97 | 116 | 135 | 154 | 174 | 193 |
| | Ps | .01 | .01 | .02 | .02 | .03 | .04 | .05 | .06 |
| | Throw | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 | 4.5 | 5.0 | 5.5 |
| 12 x 6 Ak .238 | CFM | 71 | 95 | 119 | 143 | 167 | 190 | 214 | 238 |
| | Ps | .01 | .01 | .01 | .02 | .03 | .04 | .05 | .06 |
| | Throw | 5.5 | 7.0 | 9.0 | 10.5 | 12.5 | 14.0 | 16.0 | 17.5 |
| 14 x 6 Ak .291 | CFM | 87 | 116 | 145 | 174 | 204 | 233 | 262 | 291 |
| | Ps | .01 | .01 | .02 | .02 | .03 | .04 | .05 | .06 |
| | Throw | NA | NA | NA | NA | NA | NA | NA | NA |
| 14 x 8 Ak .395 | CFM | 119 | 158 | 198 | 237 | 277 | 316 | 356 | 395 |
| | Ps | .01 | .01 | .01 | .02 | .03 | .04 | .05 | .06 |
| | Throw | NA | NA | NA | NA | NA | NA | NA | NA |

Terminal Velocity of 75 FPM

NA = Not Available



Rezzin 3-Way Register (Page 26)

| Face Velocity | | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 |
|-------------------|-------------|-----|-----|-----|-----|-----|-----|-----|------|
| 8 x 4 Ak .108 | CFM | 32 | 43 | 54 | 65 | 75 | 86 | 97 | 108 |
| | Ps | .01 | .01 | .02 | .03 | .04 | .05 | .07 | .08 |
| | Throw Short | NA | NA | NA | NA | NA | NA | NA | NA |
| | Throw Long | NA | NA | NA | NA | NA | NA | NA | NA |
| 10 x 6 Ak .193 | CFM | 58 | 77 | 97 | 116 | 135 | 154 | 174 | 193 |
| | Ps | .01 | .01 | .02 | .03 | .03 | .04 | .05 | .06 |
| | Throw Short | 2.0 | 3.0 | 3.5 | 4.0 | 5.0 | 5.5 | 6.5 | 7.0 |
| | Throw Long | 1.0 | 1.5 | 2.0 | 2.5 | 2.5 | 3.0 | 3.5 | 4.0 |
| 10 x 8 Ak .246 | CFM | 74 | 98 | 123 | 148 | 172 | 197 | 221 | 246 |
| | Ps | .01 | .01 | .01 | .02 | .03 | .03 | .04 | .05 |
| | Throw Short | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 | 4.5 | 5.0 |
| | Throw Long | 2.5 | 3.5 | 4.5 | 5.0 | 6.0 | 7.0 | 7.5 | 8.5 |
| 12 x 6 Ak .238 | CFM | 71 | 95 | 119 | 143 | 167 | 190 | 214 | 238 |
| | Ps | .01 | .01 | .02 | .02 | .03 | .04 | .05 | .07 |
| | Throw Short | 2.5 | 3.5 | 4.5 | 5.0 | 6.0 | 7.0 | 7.5 | 8.5 |
| | Throw Long | 2.5 | 3.5 | 4.5 | 5.0 | 6.0 | 7.0 | 7.5 | 8.5 |
| 14 x 6 Ak .297 | CFM | 89 | 119 | 148 | 178 | 208 | 237 | 267 | 297 |
| | Ps | .01 | .01 | .02 | .03 | .03 | .04 | .06 | .07 |
| | Throw Short | NA | NA | NA | NA | NA | NA | NA | NA |
| | Throw Long | NA | NA | NA | NA | NA | NA | NA | NA |
| 14 x 8 Ak .399 | CFM | 120 | 160 | 199 | 239 | 279 | 319 | 359 | 399 |
| | Ps | .01 | .01 | .01 | .02 | .03 | .04 | .05 | .06 |
| | Throw Short | NA | NA | NA | NA | NA | NA | NA | NA |
| | Throw Long | NA | NA | NA | NA | NA | NA | NA | NA |

Terminal Velocity of 75 FPM

NA = Not Available

Rezzin 4-Way Register (Page 26)

| Face Velocity | | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 |
|--------------------|-------|-----|-----|-----|-----|-----|-----|-----|------|
| 6 x 6 Ak .124 | CFM | 37 | 49 | 62 | 74 | 87 | 99 | 111 | 124 |
| | Ps | .01 | .01 | .02 | .03 | .03 | .05 | .06 | .07 |
| | Throw | NA | NA | NA | NA | NA | NA | NA | NA |
| 8 x 8 Ak .231 | CFM | 69 | 92 | 115 | 139 | 162 | 185 | 208 | 231 |
| | Ps | .00 | .01 | .01 | .02 | .02 | .03 | .04 | .04 |
| | Throw | NA | NA | NA | NA | NA | NA | NA | NA |
| 10 x 10 Ak .347 | CFM | 104 | 139 | 173 | 208 | 243 | 277 | 312 | 347 |
| | Ps | .01 | .01 | .02 | .02 | .03 | .04 | .05 | .07 |
| | Throw | NA | NA | NA | NA | NA | NA | NA | NA |
| 12 x 12 Ak .510 | CFM | 153 | 204 | 255 | 306 | 357 | 408 | 459 | 510 |
| | Ps | .01 | .01 | .02 | .02 | .03 | .04 | .05 | .07 |
| | Throw | NA | NA | NA | NA | NA | NA | NA | NA |

Terminal Velocity of 75 FPM

NA = Not Available

16 Round Ceiling Diffuser (Page 28)

| Face Velocity | | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 |
|---------------|-------|------|------|------|------|------|------|------|------|
| Pressure Loss | | .006 | .010 | .016 | .022 | .031 | .040 | .050 | .062 |
| Neck Size 6" | CFM | | 55 | 65 | 80 | 95 | 105 | 120 | 135 |
| Ak .135 | Throw | | 2.5 | 3.0 | 3.5 | 4.0 | 4.5 | 5.0 | 5.5 |
| Neck Size 8" | CFM | 70 | 90 | 115 | 135 | 160 | 180 | 200 | 225 |
| Ak .225 | Throw | 2.0 | 3.0 | 3.5 | 4.5 | 5.0 | 5.5 | 6.5 | 7.0 |
| Neck Size 10" | CFM | 105 | 140 | 175 | 210 | 240 | 275 | 310 | 345 |
| Ak .345 | Throw | 2.5 | 3.5 | 4.5 | 5.0 | 6.0 | 7.0 | 8.0 | 8.5 |
| Neck Size 12" | CFM | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 |
| Ak .500 | Throw | 3.0 | 4.0 | 5.0 | 6.0 | 7.5 | 8.5 | 9.0 | 10.5 |
| Neck Size 14" | CFM | 190 | 250 | 315 | 375 | 440 | 500 | 565 | 625 |
| Ak .625 | Throw | 3.5 | 4.5 | 5.5 | 6.5 | 8.0 | 9.0 | 10.0 | 11.0 |
| Neck Size 18" | CFM | 310 | 415 | 520 | 625 | 730 | 830 | 935 | 1040 |
| Ak 1.040 | Throw | 4.5 | 6.0 | 7.0 | 8.5 | 10.0 | 11.5 | 13.0 | 14.5 |

Terminal Velocity of 50 FPM

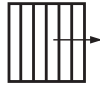
24 Square Ceiling Diffuser (Page 29)

| Face Velocity | | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 |
|---------------|-------|------|------|------|------|------|------|------|------|
| Pressure Loss | | .006 | .010 | .016 | .022 | .031 | .040 | .050 | .062 |
| Neck Size 6" | CFM | 50 | 65 | 85 | 100 | 115 | 130 | 150 | 165 |
| Ak .165 | Throw | 3.5 | 4.5 | 5.5 | 6.5 | 8.0 | 9.0 | 10.0 | 11.0 |
| Neck Size 8" | CFM | 85 | 110 | 140 | 170 | 195 | 225 | 250 | 280 |
| Ak .280 | Throw | 4.5 | 5.5 | 7.0 | 8.5 | 10.0 | 11.0 | 12.0 | 14.0 |
| Neck Size 10" | CFM | 125 | 170 | 210 | 250 | 295 | 335 | 380 | 420 |
| Ak .420 | Throw | 5.0 | 6.5 | 8.0 | 9.5 | 11.5 | 13.0 | 15.0 | 16.0 |
| Neck Size 12" | CFM | 180 | 240 | 300 | 355 | 415 | 475 | 535 | 595 |
| Ak .595 | Throw | 6.0 | 8.0 | 10.0 | 11.5 | 13.5 | 15.5 | 17.5 | 19.0 |
| Neck Size 14" | CFM | 245 | 330 | 410 | 490 | 575 | 655 | 740 | 820 |
| Ak .820 | Throw | 7.0 | 9.0 | 11.5 | 13.5 | 16.0 | 18.0 | 20.0 | 22.5 |
| Neck Size 16" | CFM | 310 | 410 | 515 | 620 | 720 | 825 | 925 | 1030 |
| Ak 1.030 | Throw | 7.5 | 10.0 | 12.5 | 15.0 | 18.0 | 20.0 | 22.0 | 25.0 |
| Neck Size 18" | CFM | 400 | 530 | 665 | 800 | 930 | 1065 | 1200 | 1330 |
| Ak 1.330 | Throw | 8.5 | 11.0 | 14.0 | 17.0 | 20.0 | 23.0 | 26.0 | 28.0 |
| Neck Size 20" | CFM | 480 | 640 | 800 | 960 | 1120 | 1280 | 1440 | 1600 |
| Ak 1.600 | Throw | 9.5 | 12.0 | 16.0 | 18.0 | 22.0 | 25.0 | 28.0 | 31.0 |
| Neck Size 22" | CFM | 570 | 760 | 950 | 1140 | 1330 | 1520 | 1710 | 1900 |
| Ak 1.900 | Throw | 10.5 | 13.5 | 17.0 | 19.0 | 24.0 | 27.0 | 30.0 | 33.0 |
| Neck Size 24" | CFM | 690 | 920 | 1150 | 1380 | 1610 | 1840 | 2070 | 2300 |
| Ak 2.300 | Throw | 11.0 | 14.5 | 18.5 | 22.0 | 26.0 | 30.0 | 33.0 | 36.0 |

Terminal Velocity of 50 FPM

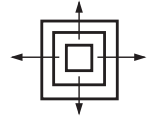
A500 Series (Page 30, 31)

A501MS/A501OB One-Way Diffuser



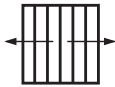
| Face Velocity | | 400 | 500 | 600 | 700 | 900 | 1100 | 1500 |
|---------------|-------|------|------|------|------|------|------|------|
| Pressure Loss | | .010 | .016 | .022 | .031 | .050 | .075 | .140 |
| 6 x 6 | CFM | 55 | 65 | 75 | 90 | 120 | 140 | 195 |
| Ak .13 | Throw | 5.0 | 6.0 | 7.0 | 8.0 | 10.0 | 12.0 | 15.0 |
| 8 x 8 | CFM | 75 | 90 | 105 | 120 | 150 | 180 | 240 |
| Ak .20 | Throw | 6.0 | 7.0 | 8.0 | 10.0 | 12.0 | 15.0 | 18.0 |
| 10 x 10 | CFM | 115 | 135 | 155 | 175 | 235 | 290 | 395 |
| Ak .29 | Throw | 7.0 | 8.0 | 10.0 | 12.0 | 15.0 | 19.0 | 24.0 |
| 12 x 12 | CFM | 170 | 210 | 255 | 300 | 380 | 470 | 610 |
| Ak .42 | Throw | 8.0 | 10.0 | 12.0 | 15.0 | 19.0 | 24.0 | 29.0 |
| 14 x 14 | CFM | 250 | 305 | 360 | 410 | 505 | 610 | 800 |
| Ak .59 | Throw | 11.0 | 13.0 | 15.0 | 18.0 | 24.0 | 30.0 | 35.0 |

A504MS/A504OB Four-Way Diffuser



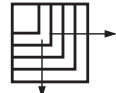
| Face Velocity | | 400 | 500 | 600 | 700 | 900 | 1100 | 1500 |
|---------------|-------|------|------|------|------|------|------|------|
| Pressure Loss | | .010 | .016 | .022 | .031 | .050 | .075 | .140 |
| 6 x 6 | CFM | 55 | 65 | 75 | 90 | 120 | 140 | 195 |
| Ak .13 | Throw | 2.0 | 3.0 | 4.0 | 5.0 | 6.0 | 7.0 | 9.0 |
| 8 x 8 | CFM | 75 | 90 | 105 | 120 | 150 | 180 | 240 |
| Ak .20 | Throw | 3.0 | 4.0 | 5.0 | 6.0 | 8.0 | 10.0 | 13.0 |
| 10 x 10 | CFM | 115 | 135 | 155 | 175 | 235 | 290 | 395 |
| Ak .29 | Throw | 4.0 | 5.0 | 6.0 | 7.0 | 9.0 | 12.0 | 14.0 |
| 12 x 12 | CFM | 170 | 210 | 255 | 300 | 380 | 470 | 610 |
| Ak .42 | Throw | 5.0 | 6.0 | 7.0 | 8.0 | 10.0 | 12.0 | 15.0 |
| 14 x 14 | CFM | 250 | 305 | 360 | 410 | 505 | 610 | 800 |
| Ak .59 | Throw | 6.0 | 7.0 | 8.0 | 9.0 | 11.0 | 14.0 | 18.0 |

A502MS/A502OB Two-Way Diffuser



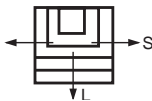
| Face Velocity | | 400 | 500 | 600 | 700 | 900 | 1100 | 1500 |
|---------------|-------|------|------|------|------|------|------|------|
| Pressure Loss | | .010 | .016 | .022 | .031 | .050 | .075 | .140 |
| 6 x 6 | CFM | 55 | 65 | 75 | 90 | 120 | 140 | 195 |
| Ak .13 | Throw | 3.0 | 4.0 | 5.0 | 6.0 | 7.0 | 9.0 | 12.0 |
| 8 x 8 | CFM | 75 | 90 | 105 | 120 | 150 | 180 | 240 |
| Ak .20 | Throw | 4.0 | 5.0 | 6.0 | 7.0 | 9.0 | 12.0 | 16.0 |
| 10 x 10 | CFM | 115 | 135 | 155 | 175 | 235 | 290 | 395 |
| Ak .29 | Throw | 5.0 | 6.0 | 7.0 | 8.0 | 10.0 | 14.0 | 20.0 |
| 12 x 12 | CFM | 170 | 210 | 255 | 300 | 380 | 470 | 610 |
| Ak .42 | Throw | 6.0 | 7.0 | 8.0 | 10.0 | 13.0 | 17.0 | 23.0 |
| 14 x 14 | CFM | 250 | 305 | 360 | 410 | 505 | 610 | 800 |
| Ak .59 | Throw | 7.0 | 9.0 | 11.0 | 13.0 | 16.0 | 19.0 | 27.0 |

A505MS/A505OB Two-Way Corner Diffuser



| Face Velocity | | 400 | 500 | 600 | 700 | 900 | 1100 | 1500 |
|---------------|-------|------|------|------|------|------|------|------|
| Pressure Loss | | .010 | .016 | .022 | .031 | .050 | .075 | .140 |
| 6 x 6 | CFM | 55 | 65 | 75 | 90 | 120 | 140 | 195 |
| Ak .13 | Throw | 3.0 | 4.0 | 5.0 | 6.0 | 7.0 | 9.0 | 12.0 |
| 8 x 8 | CFM | 75 | 90 | 105 | 120 | 150 | 180 | 240 |
| Ak .20 | Throw | 4.0 | 5.0 | 6.0 | 7.0 | 9.0 | 12.0 | 16.0 |
| 10 x 10 | CFM | 115 | 135 | 155 | 175 | 235 | 290 | 395 |
| Ak .29 | Throw | 5.0 | 6.0 | 7.0 | 8.0 | 10.0 | 14.0 | 20.0 |
| 12 x 12 | CFM | 170 | 210 | 255 | 300 | 380 | 470 | 610 |
| Ak .42 | Throw | 6.0 | 7.0 | 8.0 | 10.0 | 13.0 | 17.0 | 23.0 |
| 14 x 14 | CFM | 250 | 305 | 360 | 410 | 505 | 610 | 800 |
| Ak .59 | Throw | 7.0 | 9.0 | 11.0 | 13.0 | 16.0 | 19.0 | 27.0 |

A503MS/A503OB Three-Way Diffuser



| Face Velocity | | 400 | 500 | 600 | 700 | 900 | 1100 | 1500 |
|---------------|-----------|---------|----------|----------|----------|----------|-----------|-----------|
| Pressure Loss | | .010 | .016 | .022 | .031 | .050 | .075 | .140 |
| 6 x 6 | CFM | 55 | 65 | 75 | 90 | 120 | 140 | 195 |
| Ak .13 | Throw L/S | 3.5/2.5 | 4.0/3.0 | 5.0/3.5 | 5.5/4.0 | 7.0/5.0 | 9.0/6.0 | 12.0/9.0 |
| 8 x 8 | CFM | 75 | 90 | 105 | 120 | 150 | 180 | 240 |
| Ak .20 | Throw L/S | 4.0/2.0 | 5.0/2.5 | 6.0/3.5 | 7.0/4.0 | 8.0/4.5 | 10.0/5.5 | 12.0/7.0 |
| 10 x 10 | CFM | 115 | 135 | 155 | 175 | 235 | 290 | 395 |
| Ak .29 | Throw L/S | 5.0/3.0 | 7.0/4.0 | 8.0/4.5 | 10.0/5.5 | 12.0/7.0 | 14.0/8.5 | 18.0/10.5 |
| 12 x 12 | CFM | 170 | 210 | 255 | 300 | 380 | 470 | 610 |
| Ak .42 | Throw L/S | 7.0/4.0 | 8.5/4.5 | 10.0/5.5 | 12.0/6.5 | 15.0/8.5 | 18.0/10.0 | 23.0/14.0 |
| 14 x 14 | CFM | 250 | 305 | 360 | 410 | 505 | 610 | 800 |
| Ak .59 | Throw L/S | 8.0/5.5 | 10.0/6.0 | 11.5/7.0 | 13.0/7.5 | 15.5/9.0 | 20.0/11.0 | 27.0/16.0 |

| | | | |
|--------|----------|----------|----------|
| | | | |
| <NC 20 | NC 20-30 | NC 30-35 | NC 35-40 |

Terminal velocity of FPM
 NC Noise criteria rating. NC is based on 10db room absorption (ref. 10⁻¹² watts).
 Tested in accordance with ASHRAE 36-72, ADC 1062: GRD84 and ISO 3741.

Rezzin Round Ceiling Diffuser (Page 32)

| Face Velocity | | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 |
|-------------------------|-------|------|------|------|------|------|------|------|------|
| Neck Size 6" Ak .224 | CFM | 67 | 89 | 112 | 134 | 157 | 179 | 201 | 224 |
| | Ps | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 |
| | Throw | 1.50 | 2.00 | 2.50 | 3.00 | 3.50 | 4.00 | 4.50 | 5.00 |
| Neck Size 7" Ak .229 | CFM | 69 | 92 | 115 | 137 | 160 | 183 | 206 | 229 |
| | Ps | 0.05 | 0.09 | 0.13 | 0.19 | 0.26 | 0.34 | 0.43 | 0.53 |
| | Throw | 1.75 | 2.25 | 2.75 | 3.25 | 3.75 | 4.25 | 5.00 | 5.50 |
| Neck Size 8" Ak .235 | CFM | 70 | 94 | 117 | 141 | 164 | 188 | 211 | 235 |
| | Ps | 0.10 | 0.17 | 0.26 | 0.38 | 0.52 | 0.67 | 0.85 | 1.05 |
| | Throw | 2.00 | 2.50 | 3.00 | 3.50 | 4.00 | 4.50 | 5.50 | 6.00 |

Terminal Velocity of 50 FPM

Rezzin Square Ceiling Diffuser (Page 32)

Rezzin (two-way corner)

| Neck Velocity | | 300 | 400 | 500 | 600 | 700 |
|--------------------------|------------|---------|---------|---------|----------|----------|
| Neck Size 6" Ak 0.284 | CFM | 60 | 80 | 100 | 120 | 135 |
| | Ps | 0.002 | 0.004 | 0.006 | 0.008 | 0.011 |
| | Vt 75 | 2.5 | 3.5 | 4.0 | 5.0 | 6.0 |
| | Vt 100 | 2.5 | 3.0 | 4.0 | 4.5 | 5.5 |
| Neck size 7" Ak 0.267 | CFM | 82 | 109 | 136 | 164 | 191 |
| | Ps | 0.009 | 0.016 | 0.025 | 0.037 | 0.050 |
| | Vt 75 | 4.0 | 5.0 | 6.0 | 7.5 | 8.5 |
| | Vt 100 | 3.5 | 4.5 | 5.5 | 7.0 | 8.0 |
| Neck size 8" Ak 0.251 | CFM | 105 | 140 | 175 | 209 | 244 |
| | Ps | 0.016 | 0.029 | 0.045 | 0.065 | 0.088 |
| | Vt 75 | 5.0 | 6.5 | 8.0 | 9.5 | 11.0 |
| | Vt 100 | 4.5 | 6.0 | 7.5 | 9.0 | 10.5 |
| Neck size 8" Ak 0.239 | CFM | 105 | 140 | 175 | 210 | 245 |
| | Ps | 0.016 | 0.029 | 0.046 | 0.066 | 0.090 |
| | Vt 75 S/L | 3.0 5.5 | 4.0 7.5 | 5.0 9.0 | 6.0 11.0 | 7.0 13.0 |
| | Vt 100 S/L | 3.0 5.0 | 3.5 7.0 | 4.5 8.5 | 5.5 10.5 | 6.5 12.0 |
| Neck size 8" Ak 0.239 | CFM | 105 | 140 | 175 | 210 | 245 |
| | Ps | 0.016 | 0.029 | 0.046 | 0.066 | 0.090 |
| | Vt 75 S/L | 3.0 5.5 | 4.0 7.5 | 5.0 9.0 | 6.0 11.0 | 7.0 13.0 |
| | Vt 100 S/L | 3.0 5.0 | 3.5 7.0 | 4.5 8.5 | 5.5 10.5 | 6.5 12.0 |
| Neck size 8" Ak 0.239 | CFM | 105 | 140 | 175 | 210 | 245 |
| | Ps | 0.016 | 0.029 | 0.046 | 0.066 | 0.090 |
| | Vt 75 S/L | 3.0 5.5 | 4.0 7.5 | 5.0 9.0 | 6.0 11.0 | 7.0 13.0 |
| | Vt 100 S/L | 3.0 5.0 | 3.5 7.0 | 4.5 8.5 | 5.5 10.5 | 6.5 12.0 |

Rezzin (three-way)

| Neck Velocity | | 300 | 400 | 500 | 600 | 700 |
|--------------------------|------------|---------|---------|---------|----------|----------|
| Neck Size 6" Ak 0.247 | CFM | 60 | 80 | 100 | 120 | 135 |
| | Ps | 0.002 | 0.004 | 0.006 | 0.008 | 0.011 |
| | Vt 75 S/L | 2.0 2.5 | 3.0 3.5 | 3.5 4.5 | 4.5 5.5 | 5.0 6.0 |
| | Vt 100 S/L | 2.0 2.5 | 3.0 3.5 | 3.5 4.0 | 4.0 5.0 | 5.0 6.0 |
| Neck Size 7" Ak 0.243 | CFM | 80 | 110 | 135 | 165 | 190 |
| | Ps | 0.009 | 0.016 | 0.026 | 0.037 | 0.050 |
| | Vt 75 S/L | 2.5 4.0 | 3.5 5.5 | 4.5 7.0 | 5.5 8.5 | 6.0 9.5 |
| | Vt 100 S/L | 2.5 3.5 | 3.5 5.3 | 4.0 6.3 | 5.0 7.5 | 5.5 9.0 |
| Neck Size 8" Ak 0.239 | CFM | 105 | 140 | 175 | 210 | 245 |
| | Ps | 0.016 | 0.029 | 0.046 | 0.066 | 0.090 |
| | Vt 75 S/L | 3.0 5.5 | 4.0 7.5 | 5.0 9.0 | 6.0 11.0 | 7.0 13.0 |
| | Vt 100 S/L | 3.0 5.0 | 3.5 7.0 | 4.5 8.5 | 5.5 10.5 | 6.5 12.0 |
| Neck Size 8" Ak 0.239 | CFM | 105 | 140 | 175 | 210 | 245 |
| | Ps | 0.016 | 0.029 | 0.046 | 0.066 | 0.090 |
| | Vt 75 S/L | 3.0 5.5 | 4.0 7.5 | 5.0 9.0 | 6.0 11.0 | 7.0 13.0 |
| | Vt 100 S/L | 3.0 5.0 | 3.5 7.0 | 4.5 8.5 | 5.5 10.5 | 6.5 12.0 |

Rezzin (four-way)

| Neck Velocity | | 300 | 400 | 500 | 600 | 700 |
|--------------------------|--------|-------|-------|-------|-------|-------|
| Neck Size 6" Ak 0.210 | CFM | 60 | 80 | 100 | 120 | 135 |
| | Ps | 0.001 | 0.002 | 0.003 | 0.005 | 0.006 |
| | Vt 75 | 3.0 | 3.5 | 4.5 | 5.5 | 6.5 |
| | Vt 100 | 3.0 | 3.5 | 4.5 | 5.0 | 6.0 |
| Neck Size 7" Ak 0.209 | CFM | 80 | 110 | 135 | 165 | 190 |
| | Ps | 0.003 | 0.005 | 0.008 | 0.011 | 0.015 |
| | Vt 75 | 3.5 | 4.5 | 5.5 | 7.0 | 8.0 |
| | Vt 100 | 3.5 | 4.5 | 5.5 | 7.0 | 8.0 |
| Neck Size 8" Ak 0.209 | CFM | 105 | 140 | 175 | 210 | 245 |
| | Ps | 0.005 | 0.008 | 0.013 | 0.018 | 0.025 |
| | Vt 75 | 4.5 | 6.0 | 7.5 | 9.0 | 10.5 |
| | Vt 100 | 4.0 | 5.5 | 7.0 | 8.5 | 10.0 |
| Neck Size 8" Ak 0.209 | CFM | 105 | 140 | 175 | 210 | 245 |
| | Ps | 0.005 | 0.008 | 0.013 | 0.018 | 0.025 |
| | Vt 75 | 4.5 | 6.0 | 7.5 | 9.0 | 10.5 |
| | Vt 100 | 4.0 | 5.5 | 7.0 | 8.5 | 10.0 |

Ceiling or Wall Effect

The tendency of an air stream moving along a wall or ceiling surface to remain in contact with that surface.

Core Area

The total plane area of that portion of a grille, face, or register bounded by a line tangent to the outer opening through which air can pass. The core area is less than the register size. Example, a 14-in. x 8-in. register may have a core that is 1 in. less than the listed size; so, the core area is 13in. x 7in. – 91 sq. in.

Diffuser

An outlet discharging supply air in a spreading pattern.

Diffusion

Distribution of air within a space by an outlet discharging supply air in a spreading pattern.

Drop

The vertical distance between the base of the outlet and the bottom of the air stream at the end of the horizontal throw.

Effective Area, Ak (Sq. Ft.)

The calculated area of an outlet based on the average measured velocity between the fins.

Envelope

The outer boundary of an air stream moving at a specific velocity (for example, a 50 fpm envelope).

Free Area

The total minimum area of the openings in the air outlet or inlet through which air can pass.

Grille

A louvered covering for an opening through which air passes.

Induction

The process of drawing room air into the projected air stream due to the velocity of the projected air stream (sometimes called aspiration).

Jet Velocity, Fpm (Face Velocity)

The average measured velocity of air passing between the fins.

Natural Convection Currents

Air currents created by a buoyancy effect caused by the difference in temperature between the room air and the air in contact with a warm or cold surface.

Outlet

Any opening through which air is delivered to condition a space.

Outlet Velocity, Fpm

The average velocity of the supply air, measured as it passes through the plane of the opening in the supply outlet.

Pressure Loss, WG

Indicates how much total pressure is required to move air through a register.

Primary Air

The mixture of supply air from the outlet and room air within the 1 50 fpm envelope.

Radius of Diffusion, Ft.

The horizontal distance (throw) from a ceiling diffuser to the point of terminal velocity.

Register

A grille which is equipped with a damper or control valve, and which directs air in a nonspreading jet.

Return

Any opening through which air is removed from a conditioned space.

Spread, Ft.

The maximum width of the total air stream at the point of terminal velocity.

Static Pressure, PS

The outward force of air within a duct measured in inches of water.

Stratification Boundary

The boundary between room air currents moving faster than 1 5 fpm and the stratification zone.

Stratified Zone

A region in which room air velocity is less than 1 5 fpm.

Temperature Differential

The temperature difference between the primary and the room air.

Temperature Variation (ΔT)

The temperature difference between points within the same space.

Terminal Velocity, Fpm

When the velocity of total air drops to 50 or 75 fpm, depending on the particular application, it reaches terminal velocity. Terminal velocity is not sharply defined for all applications.

Throw (Blow), Ft.

The horizontal distance an air stream travels after leaving a horizontal sidewall outlet before maximum velocity is reduced to terminal velocity. For a perimeter outlet, throw is the vertical distance the air stream travels before maximum velocity is reduced to terminal velocity.

Total Air

The mixture of projected air and room air set in motion by the supply air.

Total Pressure, Pt

The sum of the velocity and static pressures measured in inches of water.

Vane Ratio

The ratio showing depth of vane to minimum width between two adjacent vanes.

Velocity Pressure, Pv

The forward-moving force of air within a duct measured in inches of water.

NC Noise Criteria

A single number noise rating system that indicates what Broad Band, continuous sounds are reasonably acceptable.

| | | | |
|-------------|---|----|----|
| A301 | Steel (Stamped Aluminum) Curved Blade One-Way | 12 | 39 |
| A302 | Steel (Stamped Aluminum) Curved Blade Two-Way | 13 | 39 |
| A303 | Steel (Stamped Aluminum) Curved Blade Three-Way | 13 | 39 |
| A304 | Steel (Stamped Aluminum) Curved Blade Four-Way | 14 | 39 |
| A501 | Aluminum Square Diffuser One-Way, MS/OB | 30 | 46 |
| A502 | Aluminum Square Diffuser Two-Way, MS/OB | 30 | 46 |
| A503 | Aluminum Square Diffuser Three-Way, MS/OB | 31 | 47 |
| A504 | Aluminum Square Diffuser Four-Way, MS/OB | 31 | 47 |
| A505 | Aluminum Square Diffuser Four-Way Corner, MS/OB | 31 | 47 |
| A611 | Stamped Aluminum Curved Blade Register One-Way, MS/OB | 16 | 40 |
| A612 | Stamped Aluminum Curved Blade Register Two-Way, MS/OB | 16 | 40 |
| A613 | Stamped Aluminum Curved Blade Register Three-Way, MS/OB | 16 | 40 |
| A614 | Stamped Aluminum Curved Blade Register Four-Way, MS/OB | 17 | 40 |
| A618 | Stamped Aluminum Straight Blade Register, MS/OB | 17 | 40 |
| A650 | Stamped Steel/Aluminum Return Grille | 18 | 42 |
| A661 | Stamped Steel/Aluminum Two-Way Register | 20 | 43 |
| A711 | Stamped Aluminum One-Way, Sidewall/Ceiling Register MS | 25 | |
| A712 | Stamped Aluminum Two-Way, Sidewall/Ceiling Register MS | 25 | |
| A713 | Stamped Aluminum Three-Way, Sidewall/Ceiling Register MS | 25 | |
| A714 | Stamped Aluminum Four-Way, Sidewall/Ceiling Register MS | 25 | |
| A718 | Stamped Aluminum Straight Blade Register, MS | 25 | |
| HCAD | Access Door | 27 | |
| RZ-Round | Rezzin™ Plastic Round Ceiling Diffuser | 32 | 48 |
| RZ-Floor | Rezzin™ Plastic Two-Way Floor Diffuser | 8 | 36 |
| RZ-Square | Rezzin™ Plastic Square Ceiling Diffuser | 32 | 48 |
| RZ 2-Way | Rezzin™ Plastic Sidewall/Ceiling Register, Double Deflection | 26 | 45 |
| RZ 3-Way | Rezzin™ Plastic Sidewall/Ceiling Register, Three-Way Deflection | 26 | 45 |
| RZ 4-Way | Rezzin™ Plastic Sidewall/Ceiling Diffuser | 26 | 45 |
| 11 | Steel Duct Ring | 28 | |
| 12 | Steel Butterfly Damper with Ring | 28 | |
| 16 | Steel Round (Ceiling) Diffuser | 28 | 46 |
| 21 | Steel Square Mounting Frame | 39 | |
| 210 | Steel (Floor) Register | 6 | 35 |
| 22 | Steel Butterfly Damper with Mounting Frame | 29 | |
| 23 | Steel Opposed Blade Damper | 30 | |
| 24 | Steel Square (Ceiling) Diffuser | 29 | 45 |
| 265 | Steel (Floor) Return Grille | 6 | 35 |
| 300M Series | Stamped Curved-Blade Register with Multi-Louver Damper | 15 | 38 |
| 301 | Steel (Stamped Aluminum) Curved Blade One-Way | 12 | 38 |
| 302 | Steel (Stamped Aluminum) Curved Blade Two-Way | 12 | 38 |
| 303 | Steel (Stamped Aluminum) Curved Blade Three-Way | 13 | 38 |
| 304 | Steel (Stamped Aluminum) Curved Blade Four-Way | 14 | 38 |
| 350 | Steel (Floor) Diffuser Powder Coat | 7 | 36 |
| 406 | Steel (Baseboard) Diffuser, 15" or 18" | 9 | 37 |
| 407 | Steel (Baseboard) Return Grille | 9 | |
| 411 | Steel (Floor) Diffuser | 6 | 35 |
| 420 | Steel Toe-Space Grille | 7 | 36 |
| 421 | Steel (Floor) Diffuser | 7 | 36 |
| 462 | Steel (Baseboard) Diffuser | 9 | 37 |
| 464 | Steel (Baseboard) Diffuser | 9 | 37 |
| 531 | Aluminum (Floor) Diffuser | 7 | 36 |
| 631 | Stamped Steel Three-Way Register | 18 | 41 |
| 650 | Stamped Steel/Aluminum Return Grille | 18 | 41 |
| 651 | Stamped Steel Register | 19 | 41 |
| 654 | Steel (Baseboard) Register | 10 | 37 |

| | | | |
|---------------|--|----|----|
| 655 | Steel (Baseboard) Register | 10 | 37 |
| 657 | Steel (Baseboard) Return Grille | 10 | 37 |
| 658 | Steel (Baseboard) Return Grille | 11 | 37 |
| 659 | Stamped Steel Filter Grille | 19 | 41 |
| 661 | Stamped Steel/Aluminum Two-Way Register | 20 | 42 |
| 664 | Steel (Baseboard) Register | 11 | 37 |
| 672 | Stamped Steel Return Grille | 21 | 42 |
| 673 | Stamped Steel Filter Grille | 21 | 42 |
| 674 | Steel (Baseboard) Return Grille | 11 | 37 |
| 680M Series | Stamped Lanced-Blade Register with Multi-Louver Damper | 24 | 43 |
| 681 (A681) | Stamped Steel One-Way Register | 21 | 42 |
| 682 (A682) | Stamped Steel Two-Way Register | 22 | 43 |
| 683 (A683) | Stamped Steel Three-Way Register | 22 | 43 |
| 684 (A684) | Stamped Steel Four-Way Register | 22 | 43 |
| 680-OB Series | Stamped Faced Opposed Blade Damper Registers | 23 | |



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