Steel Single Deflection Supply Grille, Register (RSSB, RTSB)

**Application:**
Single Deflection Supply R&G provide a discharge directly away from the wall or ceiling and either vertical or horizontal adjustment of the air stream.

**Standard Features:**
- Steel construction is durable and inexpensive.
- Blades are 3/4" deep, on 2/3" centers.
- Individually adjustable teardrop blades.
- Blades can be aligned horizontally or vertically.
- Mounts in most wall or ceiling styles.
- Foam gasket around edge of frame is standard.
- Register uses model RXEA opposed blade damper (p. A437).
- Minimum panel size is 4" x 4".
- Maximum panel size is 36" x 36". Panels can be joined for larger sizes (p. A311).
- Standard finish is electrocoat acrylic baked enamel.
- Standard color is #11 bright white.

**Optional Features:**
- UL listed fusible link (p. A343).
- Tamper-proof screws (p. A342).
- Concealed hangers (p. A343).
- Pull cord and lever damper operators (p. A343).
- Debris screen (p. A343).

**Model Numbering System**
- **R** - Register or Grille
- **S** - Steel Grille
- **T** - Steel Register
- **H** - Horizontal (Blades Parallel to Width)
- **V** - Vertical (Blades Parallel to Height)
- **004** - 4’ Minimum
- **04** - 4’ Minimum
- **11** - Bright White (Default)
- **01** - Off-White
- **04** - Gray
- **G** - Gasket (Default)
- **F** - Fusible Link
- **Q** - Gasket & Fusible Link
- **1** - Debris Screen
- **2** - Gasket & Debris Screen
- **3** - Gasket, Debris Screen & Fusible Link
- **4** - Fusible Link & Debris Screen
- **Y** - Std. Screws (Default)
- **N** - No Screw Holes
- **S** - Sheared Frame for T-bar
- **B** - Tamper-proof Screws
- **U** - W-clips for Snap-in Ceiling
- **C** - Concealed Hangers
- **Z** - Z-clips for Spline Ceiling
- **T** - Panel: 24”x24” T-bar Ceiling

**Quick Select Chart**

<table>
<thead>
<tr>
<th>CFM</th>
<th>Size</th>
<th>Area</th>
<th>Listed Size</th>
<th>Listed Size +2”</th>
<th>Listed Size -1/2”</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>8 x 4</td>
<td>0.22</td>
<td>(75-275)</td>
<td>(85-295)</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>10 x 4</td>
<td>0.28</td>
<td>(100-340)</td>
<td>(130-440)</td>
<td></td>
</tr>
<tr>
<td>100</td>
<td>8 x 6</td>
<td>0.33</td>
<td>(150-475)</td>
<td>(210-620)</td>
<td></td>
</tr>
<tr>
<td>150</td>
<td>10 x 6</td>
<td>0.42</td>
<td>(250-695)</td>
<td>(410-1050)</td>
<td></td>
</tr>
<tr>
<td>200</td>
<td>12 x 6</td>
<td>0.50</td>
<td></td>
<td></td>
<td>(470-1165)</td>
</tr>
<tr>
<td>250</td>
<td>16 x 6</td>
<td>0.67</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>300</td>
<td>20 x 6</td>
<td>0.83</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>350</td>
<td>24 x 6</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>400</td>
<td>24 x 8</td>
<td>1.33</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>450</td>
<td>24 x 10</td>
<td>1.67</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>500</td>
<td>24 x 10</td>
<td>1.67</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This shows grilles with:
- A maximum NC of 35.
- A minimum duct velocity of 300 FPM.
Application:
Single Deflection Supply R&G provide a discharge directly away from the wall or ceiling and either vertical or horizontal adjustment of the air stream.

Standard Features:
• Stainless steel (type 304) construction is highly corrosion resistant.
• Blades are 3/4” deep, on 2/3” centers.
• Individually adjustable teardrop blades.
• Blades can be aligned horizontally or vertically.
• Mounts in most wall or ceiling styles.
• Foam gasket around edge of frame is standard.
• Register RMSB uses opposed blade damper RXEA (p. A437).
• Register RKSB uses opposed blade damper RXTA (p. A437).
• Minimum panel size is 4” x 4”.
• Maximum panel size is 36” x 36”. Panels can be joined for larger sizes (p. A311).
• Standard finish is #22 satin polish with one coat of clear lacquer.

Optional Features:
• Tamper-proof screws (p. A342).
• Concealed hangers (p. A343).
• Pull cord and lever damper operators (p. A343).
• Debris screen (p. A343).

Quick Select Chart
This shows grilles with:
• A maximum NC of 35.
• A minimum duct velocity of 300 FPM.

| CFM | 0 | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 700 | 750 | 800 | 850 | 900 | 950 | 1000 | 1050 | 1100 | 1150 | 1200 | 1250 | 1300 | 1350 | 1400 | 1450 | 1500 | 1550 | 1600 | 1650 |
|-----|---|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Size | Area | 8 x 4 | 0.22 | 10 x 4 | 0.28 | 8 x 6 | 0.33 | 10 x 6 | 0.42 | 12 x 6 | 0.50 | 16 x 6 | 0.67 | 20 x 6 | 0.83 | 24 x 6 | 1.00 | 24 x 8 | 1.33 | 24 x 10 | 1.67 |

Model Numbering System

- **R** - Register or Grille
- **L** - Stainless Steel Grille
- **M** - Stainless Steel Register w/Steel Damper
- **K** - Stainless Steel Register w/Stainless Steel Damper
- **S** - Single Deflection, Supply
- **H** - Horizontal (Blades Parallel to Width)
- **V** - Vertical (Blades Parallel to Height)
- **004 - 4” Minimum**
- **FACATIONAL SIZE**
  - 0 - 0”
  - 1 - 1/8”
  - 2 - 1/4”
  - 3 - 3/8”
  - 4 - 1/2”
  - 5 - 5/8”
  - 6 - 3/4”
  - 7 - 7/8”
- **FINISH**
  - 22 - Satin Polish with One Coat Clear Lacquer (Default)
  - 21 - Bright White
- **OPTIONS**
  - 1 - Debris Screen
  - 2 - Gasket & Debris Screen
  - 3 - Gasket, Debris Screen & Fusible Link
  - 4 - Fusible Link & Debris Screen
- **DAMPER OPERATOR**
  - X - Std. Operator (Default)
  - P - Pull Cord Ceiling
  - A - Pull Cord Wall
  - V - Lever
- **MOUNTING**
  - Y - Std. Screws (Default)
  - N - No Screw Holes
  - S - Sheared Frame for T-bar
  - B - Tamper-proof Screws
  - U - W-clips for Snap-in Ceiling
  - C - Concealed Hangers
  - Z - Z-clips for Spline Ceiling
  - T - Panel: 24”x24” T-bar Ceiling

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### Correction Factors for Grille Performance

- **Total Pressure** (Pt)
  - Use table data unchanged.
- **Throw**
  - Use table data unchanged for 0° setting. Multiply the table data by the following factor for different blade angle settings.

<table>
<thead>
<tr>
<th>Blade Angle Setting</th>
<th>22-1/2°</th>
<th>45°</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor</td>
<td>0.89</td>
<td>0.60</td>
</tr>
</tbody>
</table>

- **Sound Level**
  - Use table data unchanged for 0° setting. Add the following to arrive at NC values for different blade angle settings.

<table>
<thead>
<tr>
<th>Duct Velocity (fpm)</th>
<th>300</th>
<th>400</th>
<th>500</th>
<th>600</th>
<th>700</th>
<th>800</th>
<th>900</th>
<th>1000</th>
<th>1200</th>
</tr>
</thead>
<tbody>
<tr>
<td>45° Blade Setting</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

### Correction Factors for Register Performance

- **Total Pressure** (Pt)
  - Use table data unchanged for 0° setting. Multiply the table data for Total Pressure by the following factor for different blade angle settings.

<table>
<thead>
<tr>
<th>Blade Angle Setting</th>
<th>0°</th>
<th>22-1/2°</th>
<th>45°</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor</td>
<td>1.80</td>
<td>1.65</td>
<td>1.10</td>
</tr>
</tbody>
</table>

- **Throw**
  - Use table data unchanged for 0° setting. Multiply the table data by the following factor for different blade angle settings.

<table>
<thead>
<tr>
<th>Blade Angle Setting</th>
<th>22-1/2°</th>
<th>45°</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor</td>
<td>0.89</td>
<td>0.60</td>
</tr>
</tbody>
</table>

- **Sound Level**
  - Use table data unchanged for 0° setting. Add the following to arrive at NC values for different blade angle settings.

### Notes on Performance Data:
- Throw data is based on wall mounting height of 8-10 feet.
- Throw values are given in feet to a terminal velocity of 50 fpm.
- Testing was conducted under 20°ΔT cooling conditions.
- NC values are based on a room absorption of 10db re 10-12 watts.
- Actual performance in the field may vary.
### PERFORMANCE DATA

#### Single Deflection Supply R&G

- **Steel** (RSSB, RTSB)
- **Stainless Steel** (RLSB, RMSB, RKSB)

<table>
<thead>
<tr>
<th>Nominal Size</th>
<th>Duct Velocity</th>
<th>Duct Area Press. 22-1/2&quot; (ft²)</th>
<th>Press. 45&quot; (Pt)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow (CFM)</td>
<td>300</td>
<td>400</td>
<td>500</td>
</tr>
<tr>
<td>Throw</td>
<td>200</td>
<td>240</td>
<td>270</td>
</tr>
<tr>
<td>Sound (NC)</td>
<td>&lt;20</td>
<td>&lt;20</td>
<td>&lt;20</td>
</tr>
</tbody>
</table>

#### Notes on Performance Data:

- **Throw** data is based on wall mounting height of 8-10 feet.
- **Throw** values are given in feet to a terminal velocity of 50 fpm.
- **Testing** was conducted under 20°ΔT cooling conditions.
- **NC** values are based on a room absorption of 10db re 10⁻¹² watts.
- **Actual performance** in the field may vary.
## Multi-Panel Construction for the following Registers & Grilles

<table>
<thead>
<tr>
<th>Steel</th>
<th>Stainless Steel</th>
<th>Aluminum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Deflection</td>
<td>RSSB, RTSB</td>
<td>RLSB, RMSB, RKSB</td>
</tr>
<tr>
<td>Double Deflection</td>
<td>RSDB, RTDB</td>
<td>RLDB, RMDB, RKDB</td>
</tr>
<tr>
<td>0° Fixed Return</td>
<td>RSRB, RTRB</td>
<td>RLRB, RMRB, RKRB</td>
</tr>
<tr>
<td>45° Fixed Return</td>
<td>RSAB, RTAB</td>
<td>RLAB, RMAB, RKAB</td>
</tr>
</tbody>
</table>

### In-line Construction

- **W**: Over 72"  
- **H**: Up to 36"  
- Height: Up to 36"  
- Width: Over 72"  
- Three or More sections  
- Any blade alignment.

### Notes:
1. Maximum single panel width and height is 36" listed size regardless of blade alignment.
2. Panels are made in even inch increments unless specified otherwise.
3. Front blade alignment is as pictured.
4. Grille height & width dimensions shown are listed size dimensions.
5. Panel flanges are sheared and aligned with joining strips.

### Ganged Construction

- **W**: 38" - 72"  
- **H**: Up to 36"  
- Height: 38-72"  
- Width: Up to 36"  
- Two Sections  
- Any blade alignment

### Notes:
1. Maximum single panel width is 36" listed size.
2. Maximum single panel height is 36" listed size.
3. Panels will be made in even inch increments unless specified otherwise.
4. Front blade alignment is always parallel to center support.
5. Either the vertical or horizontal joint can be sheared down, but not both.
6. The center support can be aligned vertically or horizontally, depending on blade alignment desired. It is shown here mounted horizontally.
7. Grille height and width dimensions shown are listed size dimensions.
8. Metric dimensions are shown in millimeters.

---

**Joining Strips**

- 1/2" (13)  
- 1/4" (6)  

---

**Center Support Attachment to Wall Opening**

- Duct Height
- Duct Width
- W: 38" - 72"
- H: 38" - 72"
- 1/2" (13)
- 1-1/4" (32)
- 2" (51)
- 2-1/2" (64)

---

**Cross-Sectional View of Center Support with Grilles Attached**

- Center Support installs flush with wall
- Wall Angle
- Wall Opening
- 2-3/8" (60)
- 2-1/2" (64)
- 1-1/4" (32)
- 2" (51)
Multi-Panel Construction for the following Registers & Grilles

<table>
<thead>
<tr>
<th>Steel</th>
<th>Louvered Return</th>
<th>RSLA, RTLA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Perforated Return</td>
<td>RSFA, RTFA</td>
</tr>
</tbody>
</table>

**In-Line Construction**

- Height: Up to 36"
- Width: Over 96"
- Horizontal Blade Alignment
- Three or More Sections

- Height: Over 72"
- Width: Up to 48"
- Vertical Blade Alignment
- Three or More Sections

- Height: 38-72"
- Width: Up to 48"
- Horizontal Blade Alignment
- Two Sections

- Height: Over 72"
- Width: Up to 48"
- Vertical Blade Alignment
- Two Sections

**Ganged Construction**

**Notes:**
1. Either the vertical or horizontal joint can be sheared down, but not both.
2. Maximum single panel width is 48" listed size.
3. Maximum blade length on louvered face models is listed size 48".
4. Maximum single panel height is 36" listed size.
5. Panels are made in even inch increments unless specified otherwise.
6. Blade alignment is always parallel to center support.
7. The center support can be aligned vertically or horizontally, depending on the blade alignment desired. It is shown here mounted horizontally.
8. Grille dimensions shown are listed size dimensions.

**Center Support Attachment to Wall Opening**

- Center Support install flush with wall
- Duct Height: 2-3/8" (60)
- Duct Width
- W: 50-96"
- H: 38"-74"

**Cross-Sectional View of Center Support with Grilles Attached**

- Wall Angle
- Wall
- 2-1/2" (64)
- 1/2 (13)
- 1-1/4" (32)
- 2" (51)
**Multi-Panel In-Line Construction**

**Notes:**
1. Maximum single panel width and height is 48" nominal size, regardless of blade alignment.
2. Panels are made in even inch increments unless specified otherwise.
3. Front blade alignment is as pictured.
4. Grille dimensions shown are nominal dimensions.
5. Panel flanges are sheared and aligned with joining strips.

**Multi-Panel Ganged Construction**

**Notes:**
1. Maximum single panel width and height is 48" nominal size, regardless of blade alignment.
2. Panels are made in even inch increments unless specified otherwise.
3. Front blade alignment is always parallel to center support.
4. Either the vertical or horizontal joint can be sheared down, but not both.
5. The center support can be aligned vertically or horizontally, depending on blade alignment desired.
6. Grille dimensions shown are nominal dimensions.

---

**Cross-Sectional View of Center Support**

- **Height:** Up to 48"
- **Width:** Up to 48"
- (Two Sections)
- Any Blade Alignment

---

**Dimensions:**
- **Width:** 50" - 96"
- **Height:** Over 96"
- Three or more Sections
- Any Blade Alignment

---

**Dimensions:**
- **Width:** Over 96"
- **Height:** Over 96"
- Three or more Sections
- Any Blade Alignment

---

**Dimensions:**
- **Width:** Up to 48"
- **Height:** Over 96"
- Three or more Sections
- Any Blade Alignment

---

**Dimensions:**
- **Width:** Up to 48"
- **Height:** 50" - 96"
- (Two Sections)
- Any Blade Alignment

---

**Dimensions:**
- **Width:** Up to 48"
- **Height:** 50" - 96"
- Any Blade Alignment

---

**Dimensions:**
- **Width:** Over 96"
- **Height:** Over 96"
- Three or more Sections
- Any Blade Alignment
All Sections of Butted Grilles or Registers will be made in Listed Sizes as Standard.

STANDARD REGISTERS AND GRILLES
Applies to all models except louvered return air registers and grilles and door partition grilles. Registers and grilles over 36" x 36" butting two or more grilles together.

NOTES:
Extruded aluminum supporting members with mounting angles, are furnished where required.
Center support may run vertically or horizontally, depending upon combination of grilles used.
Combination of panels will be furnished to fit duct opening with satisfactory clearance.
Screw Hole Locations for the following Registers & Grilles

<table>
<thead>
<tr>
<th>Steel</th>
<th>Aluminum</th>
<th>Stainless Steel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Deflection</td>
<td>RSSB, RTSB</td>
<td>RASM, RNSM</td>
</tr>
<tr>
<td>Double Deflection</td>
<td>RSDB, RTDB</td>
<td>RADM, RNDM</td>
</tr>
<tr>
<td>0° Fixed Return</td>
<td>RSRB, RTRB</td>
<td>RARM, RNRM</td>
</tr>
<tr>
<td>45° Fixed Return</td>
<td>RSAB, RTAB</td>
<td>RAAM, RNAM</td>
</tr>
<tr>
<td>Louvered Return</td>
<td>RSLA, RTLA</td>
<td>—</td>
</tr>
<tr>
<td>Perforated Return</td>
<td>RSFA, RTFA</td>
<td>RAFM, RNFM</td>
</tr>
</tbody>
</table>

Notes:
- Screw holes on the face are standard on Registers and Grilles.
- Steel R&G can be ordered without screw holes, for use with concealed hangers (Opt. N).
- The screw holes is 5/32” in diameter.
- Each Register or Grille is provided with the appropriate number of screws as standard.
- The standard screw is #8 x 1-1/4” pan head screw, with a flat blade head.
- Tamper-proof screws are available as an option (Opt. B).

One Screw hole per Side
Nominal Size Range 4” through 18”.

Two Screw holes per Side
Nominal Size Range 19” through 31”.

Three Screw holes per Side
Nominal Size Range 32” through 48”.