**Application**
Radial Diffusers are used in applications that call for higher air flows than normal, with much shorter throws than normal. The most common application is the laboratory room that has exhaust hoods present. Labs tend to be smaller than normal, with higher air flows due to the processes taking place, and the air distribution plan has to avoid entraining air from the lab hoods into the occupied space.

**Standard Features**
- Available in steel, stainless steel (Type 304) or aluminum construction.
- Fits 15/16” T-bar as standard. Units to fit 1-1/2” T-bar area available on request.
- Perforated Face is 51% free area round hole pattern.
- Deflector assembly is attached to face, and can be field adjusted between 90° and 180° discharge pattern.
- Face assembly is held in with tools-free latches and is removable for cleaning.
- Safety chain is standard.
- Pressure baffle assembly is removable for cleaning.
- Seismic tabs on each corner are standard.
- Standard finish is electrocoat acrylic baked enamel.
- Standard color is #11 bright white.
- Nominal face sizes are 24” x 24” and 24” x 48”.
- Face of diffuser is flush to face of ceiling.

**Recommended Accessories**
- Recommended balancing damper is model KXMB (p. A429).
- To mount diffuser in plaster ceiling use auxiliary frame model KXFA (p. A447).

---

**Model Numbering System**

```
1 2 3 4 5 6 7 8 9 10 11 12
D R S C T 2 2 0 8 1 1 2
```

- **D**: Diffuser
- **R**: Radial Flow
- **S**: Steel
- **C**: Type 304 Stainless Steel
- **T**: Aluminum
- **MOUNTING**: T-bar
- **INLET SIZE**:
  - 06 - 6”
  - 07 - 7”
  - 08 - 8”
  - 10 - 10”
  - 12 - 12”
- **DISCHARGE PATTERN**
  - 2 - 180° Discharge Pattern (Default)
  - 1 - 90° Discharge Pattern
- **FINISH**: 11 - Bright White
- **NOMINAL FACE SIZE**
  - 22 - 24” x 24”
  - 24 - 24” x 48”
Notes:

1. Inlet is undersized by 1/8" (3) to fit inside duct.
2. Perforated face free area is approximately 51%.
3. Two Safety Chains are provided as standard feature.
4. Seismic tabs are integral to the construction of each corner.
5. Deflectors are field adjustable between 180° and 90° discharge pattern, as well as between long (standard) and short discharge pattern. The 180° long pattern is shown above.
6. Face assembly and baffle assembly are removable for cleaning. They remove as two pieces as standard. One piece construction of baffle and face assemblies is available on request.
7. This is sized to fit 15/16" and 9/16" flat-face T-bar.
8. Sizing to fit 1-1/2" T-bar is available on request.
9. To surface mount this product, use Auxiliary Frame KXFA. (p. A417)
## Performance Data

### Laminar & Radial Flow Diffuser

**www.carnes.com**

**A-233**

### Performance Data | Radial Flow Diffuser (DRSC, DRAC, DRTC)

- **24” x 24” Nominal Face**
- **180° Discharge Pattern**

<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>
<th>1400</th>
</tr>
</thead>
<tbody>
<tr>
<td>Static Pressure (w.g.)</td>
<td>0.007</td>
<td>0.012</td>
<td>0.018</td>
<td>0.024</td>
<td>0.032</td>
<td>0.040</td>
<td>0.049</td>
<td>0.058</td>
<td>0.081</td>
<td>0.105</td>
</tr>
<tr>
<td>Total Pressure (w.g.)</td>
<td>0.013</td>
<td>0.022</td>
<td>0.034</td>
<td>0.046</td>
<td>0.063</td>
<td>0.080</td>
<td>0.100</td>
<td>0.120</td>
<td>0.171</td>
<td>0.227</td>
</tr>
</tbody>
</table>

### 6” (152) Inlet

<table>
<thead>
<tr>
<th>Air Flow (cfm)</th>
<th>59</th>
<th>79</th>
<th>98</th>
<th>118</th>
<th>138</th>
<th>157</th>
<th>177</th>
<th>196</th>
<th>236</th>
<th>275</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sound (NC/RC)</td>
<td>14/-</td>
<td>15/11H</td>
<td>16/13H</td>
<td>16/15H</td>
<td>17/17H</td>
<td>18/18H</td>
<td>18/19H</td>
<td>19/20H</td>
<td>20/22N</td>
<td>22/23N</td>
</tr>
<tr>
<td>Horizontal Throw (ft)</td>
<td>0-0-1</td>
<td>0-1-2</td>
<td>0-1-2</td>
<td>1-1-2</td>
<td>1-2-2</td>
<td>1-2-3</td>
<td>1-2-3</td>
<td>1-2-3</td>
<td>2-2-3</td>
<td>2-2-3</td>
</tr>
<tr>
<td>Vertical Throw (ft)</td>
<td>0-0-1</td>
<td>0-0-1</td>
<td>0-0-1</td>
<td>0-1-1</td>
<td>0-1-2</td>
<td>1-1-2</td>
<td>1-1-2</td>
<td>1-1-2</td>
<td>1-1-2</td>
<td>1-2-3</td>
</tr>
</tbody>
</table>

### 8” (203) Inlet

<table>
<thead>
<tr>
<th>Air Flow (cfm)</th>
<th>105</th>
<th>140</th>
<th>175</th>
<th>210</th>
<th>244</th>
<th>279</th>
<th>314</th>
<th>349</th>
<th>419</th>
<th>489</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sound (NC/RC)</td>
<td>14/-</td>
<td>15/11H</td>
<td>16/13H</td>
<td>16/15H</td>
<td>17/17H</td>
<td>18/18H</td>
<td>18/19H</td>
<td>19/20H</td>
<td>21/22N</td>
<td>22/23N</td>
</tr>
<tr>
<td>Horizontal Throw (ft)</td>
<td>1-1-2</td>
<td>1-2-2</td>
<td>1-2-3</td>
<td>2-2-3</td>
<td>2-3-4</td>
<td>3-3-4</td>
<td>3-3-5</td>
<td>3-3-5</td>
<td>3-4-5</td>
<td>3-4-6</td>
</tr>
<tr>
<td>Vertical Throw (ft)</td>
<td>0-1-1</td>
<td>0-1-2</td>
<td>1-1-2</td>
<td>1-1-2</td>
<td>1-2-2</td>
<td>1-2-3</td>
<td>1-2-3</td>
<td>1-2-3</td>
<td>1-2-3</td>
<td>2-2-3</td>
</tr>
</tbody>
</table>

### 10” (254) Inlet

<table>
<thead>
<tr>
<th>Air Flow (cfm)</th>
<th>164</th>
<th>218</th>
<th>273</th>
<th>327</th>
<th>382</th>
<th>437</th>
<th>491</th>
<th>546</th>
<th>654</th>
<th>764</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sound (NC/RC)</td>
<td>14/-</td>
<td>15/11H</td>
<td>16/13H</td>
<td>16/15H</td>
<td>17/17H</td>
<td>18/18H</td>
<td>18/19H</td>
<td>19/20H</td>
<td>24/24N</td>
<td>26/27N</td>
</tr>
<tr>
<td>Horizontal Throw (ft)</td>
<td>1-2-3</td>
<td>1-2-3</td>
<td>1-2-3</td>
<td>2-2-3</td>
<td>2-3-4</td>
<td>3-3-4</td>
<td>3-3-5</td>
<td>3-3-5</td>
<td>3-4-5</td>
<td>3-4-6</td>
</tr>
<tr>
<td>Vertical Throw (ft)</td>
<td>1-1-2</td>
<td>1-2-2</td>
<td>1-2-3</td>
<td>1-2-3</td>
<td>2-2-3</td>
<td>2-2-3</td>
<td>2-2-3</td>
<td>2-2-3</td>
<td>2-2-3</td>
<td>2-3-4</td>
</tr>
</tbody>
</table>

### Notes on Performance Data

1. Performance data is based on tests conducted according to ANSI/ASHRAE Standard 70-1991. Actual performance in the field may vary.
2. Testing was conducted in isothermal conditions. Performance in 5°ΔT cooling conditions is the same.
3. NC and RC levels are based on a room absorption of 10dB re 10^{-12} watts.
4. Throw values are given for terminal velocities of 150, 100 and 50 fpm, respectively.
5. A " - - " indicates an NC or RC level less than 10.

### Units of Measure Used

- Air flow is given in cubic feet per minute (cfm).
- Pressure is given in inches of water (w.g.).
- Velocity is given in feet per minute (fpm).
- Sound levels are given in both NC (Noise Criteria) and RC (Room Criteria). NC is the first with RC second, separated by a slash.
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