Industrial Round Diffuser (SSDB)

Application
High capacity unit with low sound levels, for spaces that require frequent adjustment between horizontal and vertical discharge.

Standard Features
- Heavy gauge steel construction.
- Core is easily removed for installation or maintenance.
- Neck sizes 10" - 24".
- Neck is sized to fit over duct for minimum air leakage.
- Discharge adjusts from horizontal to vertical by twisting handle on face, with hand or slotted pole approximately 45°.
- The standard finish is Carnes electrocoat acrylic baked enamel. Other finishes are available upon request.
- The standard color is #11 bright white. Other colors are available upon request.

Optional Features
- Safety chain (Option S) prevents damage or injury when removing core by connecting the core to the form.
- Gasket (Option G) minimizes air leaks around edge of diffuser.
- Sizes 14" and smaller can be set in a 24" x 24" T-bar panel (Option T) for easier installation (p. A21).

Accessories
- When specifying damper, use opposed blade round damper model KXRA (p. A427).

Quick Select Chart
This shows units with horizontal performance of:
- A Maximum NC of 32.
- A minimum face velocity of 400 FPM.

<table>
<thead>
<tr>
<th>Neck Size</th>
<th>CFM</th>
</tr>
</thead>
<tbody>
<tr>
<td>10&quot;</td>
<td>(218-400)</td>
</tr>
<tr>
<td>12&quot;</td>
<td>(314-575)</td>
</tr>
<tr>
<td>14&quot;</td>
<td>(428-775)</td>
</tr>
<tr>
<td>16&quot;</td>
<td>(559-1000)</td>
</tr>
<tr>
<td>18&quot;</td>
<td>(707-1250)</td>
</tr>
<tr>
<td>20&quot;</td>
<td>(873-1527)</td>
</tr>
<tr>
<td>24&quot;</td>
<td>(1257-1875)</td>
</tr>
</tbody>
</table>

Model Numbering System

S - Diffuser
D - Construction
S - Steel
R - Ceiling Form Only
T - Core Only
B - Design Series
4 - Form 4
1 - Finish
11 - Bright White (Default)
10 - White
01 - Gray
G - Gasket
T - Set In 24x24 T-bar Panel
S - Safety Chain

This shows units with horizontal performance of:
- A Maximum NC of 32.
- A minimum face velocity of 400 FPM.
DIMENSIONAL DATA | Industrial Round Diffuser (SSDB)

### Nominal Neck Size

<table>
<thead>
<tr>
<th>Dim Description</th>
<th>10</th>
<th>12</th>
<th>14</th>
<th>16</th>
<th>18</th>
<th>20</th>
<th>24</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neck I.D.</td>
<td>10-1/16</td>
<td>12-1/16</td>
<td>14-1/16</td>
<td>16-1/16</td>
<td>18-1/16</td>
<td>20-1/16</td>
<td>24-1/16</td>
</tr>
<tr>
<td>Face O.D.</td>
<td>19-13/16</td>
<td>22-1/16</td>
<td>24-1/16</td>
<td>28-13/16</td>
<td>32-1/16</td>
<td>33-9/16</td>
<td>39-5/16</td>
</tr>
<tr>
<td>Form Projection</td>
<td>1-3/8</td>
<td>1-3/8</td>
<td>1-1/2</td>
<td>2-1/8</td>
<td>2-1/8</td>
<td>2-1/4</td>
<td>2-5/8</td>
</tr>
<tr>
<td>Overall Projection</td>
<td>2-1/16</td>
<td>2-3/16</td>
<td>2-5/16</td>
<td>2-15/32</td>
<td>2-19/32</td>
<td>2-23/32</td>
<td>2-31/32</td>
</tr>
</tbody>
</table>

### Installation and Operation Data

1. The neck is oversized to fit over the duct.
2. The recommended ceiling opening is somewhat larger to allow the attachment locking clips to operate without interference.
3. Adjustment from Horizontal to Vertical Discharge. This is accomplished by rotating the operator handle approximately 45°. This can be done by grasping it with your hand or via a pole with a slot cut in the end.
4. Installation and removal of the core is done by disengaging the locking clip and rotating the struts in the core into or out of the slots in the ceiling form.
5. The core can be permanently installed in the form by running sheet metal screws through the struts where they attach to the form.
### PERFORMANCE DATA  |  Industrial Round Diffuser (SSDB)

#### Duct Velocity (fpm)
- 400  
- 500  
- 600  
- 700  
- 800  
- 900  
- 1000  
- 1200  
- 1400  
- 1600  

#### Velocity Pressure (w.g.)
- 0.010  
- 0.016  
- 0.022  
- 0.031  
- 0.040  
- 0.051  
- 0.062  
- 0.090  
- 0.122  
- 0.160  

<table>
<thead>
<tr>
<th>Diameter (in)</th>
<th>Flow (CFM)</th>
<th>10&quot;</th>
<th>Horiz. Ttl. Press. (w.g.)</th>
<th>Sound (NC/RC)</th>
<th>Vertical Projection (ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Velocity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Pressure</td>
<td></td>
<td></td>
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<tr>
<td>10&quot;</td>
<td>218</td>
<td>273</td>
<td>0.116</td>
<td>3-4-9</td>
<td>10-14-19</td>
</tr>
<tr>
<td>Flow (CFM)</td>
<td>273</td>
<td>327</td>
<td>0.178</td>
<td>4-5-11</td>
<td>12-15-19</td>
</tr>
<tr>
<td>Radius of diffusion (ft.)</td>
<td>382</td>
<td>436</td>
<td>0.257</td>
<td>5-8-14</td>
<td>14-17-20</td>
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<tr>
<td>Vertical</td>
<td>436</td>
<td>491</td>
<td>0.349</td>
<td>6-9-15</td>
<td>16-19-21</td>
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<tr>
<td>Projection</td>
<td>491</td>
<td>545</td>
<td>0.458</td>
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<td>18-21-22</td>
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<tr>
<td>(ft.)</td>
<td>545</td>
<td>654</td>
<td>0.578</td>
<td>7-10-16</td>
<td>20-23-22</td>
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<tr>
<td></td>
<td>654</td>
<td>764</td>
<td>0.713</td>
<td>7-10-16</td>
<td>22-25-23</td>
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<tr>
<td></td>
<td>764</td>
<td>873</td>
<td>1.035</td>
<td>7-10-16</td>
<td>24-26-24</td>
</tr>
</tbody>
</table>

#### Sound (NC/RC)
- 19/19N   
- 26/26N   
- 33/33H   
- 41/41H   
- 19/19H   
- 26/26H   
- 33/33N   
- 41/41N   

#### Vertical Projection (ft.)
- 10-14-19  
- 12-15-20  
- 14-16-21  
- 16-17-22  
- 18-19-23  
- 20-21-24  
- 22-23-25  
- 24-25-26  
- 26-27-27  
- 28-29-28  

#### Units of Measurement:
- The duct velocity is given in feet per minute (FPM).
- The sound level is given in NC and RC (Room Criteria) is given in inches of water (w.g.).
- The radius of diffusion and vertical projection values are given in feet for terminal velocities of 150, 100, and 50 FPM.
- Sound data is given in both NC (Noise Criteria) and RC (Room Criteria). NC is first with RC second, separated by a slash.

Notes on Performance Data:
- Performance data is based on tests conducted according to ANSI/ASHRAE Standard 70-1991.
- Actual performance in the field may vary.
- Testing was conducted in isothermal conditions.
- Sound levels are based on a room absorption of 10db re 10^-12 watts.
- A "---" indicates that NC or RC level less than 10.
Application
Use with Models SSEA and SSDB to result in easier, lower cost, quicker and higher quality installation of round diffusers in suspended ceilings.

Features
- Diffuser sizes 14" and smaller can be set in a panel to fit 24" x 24" T-bar ceilings.
- This panel will work with 9/16", 15/16" or 1-1/2" flat face T-bar.
- Panels to fit other types and sizes of suspended ceilings are available on request.
- Panel construction is steel.

Installation Notes
- Note that the diffuser inlet is still oversized to fit the duct inside. This eliminates air leakage, but requires the use of hard duct connection to the diffuser.

Dimensional Data

<table>
<thead>
<tr>
<th>Model SSEA</th>
<th>4&quot;</th>
<th>5&quot;</th>
<th>6&quot;</th>
<th>8&quot;</th>
<th>10&quot;</th>
<th>12&quot;</th>
<th>14&quot;</th>
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<tbody>
<tr>
<td>Upward Projection (A)</td>
<td>1-15/16&quot;</td>
<td>2-9/16&quot;</td>
<td>2-3/16&quot;</td>
<td>2-3/8&quot;</td>
<td>2-3/8&quot;</td>
<td>2-3/8&quot;</td>
<td>2-1/2&quot;</td>
</tr>
<tr>
<td>Downward Projection (B)</td>
<td>3/4&quot;</td>
<td>3/4&quot;</td>
<td>3/4&quot;</td>
<td>1&quot;</td>
<td>1/2&quot;</td>
<td>7/8&quot;</td>
<td>13/16&quot;</td>
</tr>
</tbody>
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