Application
Security Ceiling Diffusers are used in minimum security areas to provide ceiling based air distribution. They are versatile (with a wide range of neck sizes and blow patterns) and allow the use of standard air distribution design procedures.

Standard Features
• Square/rectangular steel diffuser model SKFA.
• Face plate is 12 gauge hot-rolled steel.
• Hole pattern in face plate is 1/2" square holes on 11/16" centers. Optional 13/16" square holes.
• #14 x 1-1/2” snake-eyes head security sheet metal screws are provided as standard.
• Standard finish is electrocoat acrylic baked enamel.
• Standard color is #11 bright white.

Optional Features
• When specified, square-to-round transition is shipped installed.
• When specified, opposed blade model KXKA is shipped non-installed.

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

<table>
<thead>
<tr>
<th>Size</th>
<th>CFM</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 x 6</td>
<td>(75-175)</td>
</tr>
<tr>
<td>9 x 9</td>
<td>(170-335)</td>
</tr>
<tr>
<td>12 x 12</td>
<td>(300-535)</td>
</tr>
<tr>
<td>15 x 15</td>
<td>(470-780)</td>
</tr>
<tr>
<td>18 x 18</td>
<td>(675-964)</td>
</tr>
</tbody>
</table>

Model Numbering System
S - Diffuser
SP - 1/2" Sq. Holes
SK - 13/16” Sq. Holes

DESIGN SERIES
SQUARE-TO-ROUND TRANSITION
04 - 4"  12 - 12”
05 - 5"  14 - 14”
06 - 6”  16 - 16”
07 - 7”  18 - 18”
08 - 8”  20 - 20”
09 - 9”  21 - 21”
10 - 10”

BLOW PATTERN
10 - Square 1-Way
20 - Rectangular 2-Way Opposite Long
25 - Square 2-Way Opposite
26 - Rectangular 2-Way Opposite Short
30 - Square 3-Way
27 - Rectangular 2-Way Corner Short Left
40 - Square 4-Way
31 - Rectangular 3-Way One Long Side
41 - Rectangular 4-Way
11 - Rectangular 1-Way Long
32 - Rectangular 3-Way One Short Side
12 - Rectangular 1-Way Short

FINISH
11 - Bright White (Default)

OPTIONS
04 - 4”  12 - 12”
05 - 5”  14 - 14”
06 - 6”  16 - 16”
07 - 7”  18 - 18”
08 - 8”  20 - 20”
09 - 9”  21 - 21”
10 - 10”

DAMPER
D - Damper
Notes:
- Diffuser construction is steel.
- Face plate construction is 12 gauge hot rolled steel.
- Standard finish is electrocoat acrylic baked enamel.
- Standard color is #11 bright white.
- Unit is supplied with #14 x 1-1/2" (38) snake-eyes head sheet metal security screws.
- Diffuser square inlet I.D. is duct size +1/8" (3) to fit over standard duct.
- Recommended ceiling opening is Nominal Size plus 2" (51).
- Standard nominal square and rectangular neck sizes are 6" - 24" in 3" increments.

Optional Square-to-Round Transition
- When specified this ships pre-installed.
- The round inlet connection is 1/8" (3) undersized to fit inside standard duct.
### PERFORMANCE DATA | Security Ceiling Diffuser (SSPA)

**A-352**

**CARNES®**

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<table>
<thead>
<tr>
<th>Duct Velocity</th>
<th>100</th>
<th>200</th>
<th>300</th>
<th>400</th>
<th>500</th>
<th>600</th>
<th>700</th>
</tr>
</thead>
<tbody>
<tr>
<td>Velocity Pressure</td>
<td>0.001</td>
<td>0.003</td>
<td>0.006</td>
<td>0.010</td>
<td>0.016</td>
<td>0.022</td>
<td>0.030</td>
</tr>
<tr>
<td>Static Pressure</td>
<td>0.005</td>
<td>0.020</td>
<td>0.045</td>
<td>0.080</td>
<td>0.120</td>
<td>0.174</td>
<td>0.246</td>
</tr>
<tr>
<td>Total Pressure</td>
<td>0.006</td>
<td>0.023</td>
<td>0.051</td>
<td>0.090</td>
<td>0.136</td>
<td>0.196</td>
<td>0.276</td>
</tr>
</tbody>
</table>

| 6” x 6” | Air Flow | 25 | 50 | 75 | 100 | 125 | 150 | 175 |
| Sound Level | <10 | <10 | 20 | 23 | 30 | 34 |
| Throw | 2 | 3 | 5 | 8 | 10 | 11 |

| 9” x 9” | Air Flow | 55 | 110 | 170 | 225 | 280 | 335 | 390 |
| Sound Level | <10 | <10 | 13 | 21 | 30 | 34 | 40 |
| Throw | 2 | 6 | 8 | 13 | 14 | 16 |

| 12” x 12” | Air Flow | 100 | 200 | 300 | 400 | 500 | 600 | 700 |
| Sound Level | <10 | <10 | 18 | 25 | 32 | 40 | 44 |
| Throw | 2 | 7 | 10 | 13 | 17 | 21 |

| 15” x 15” | Air Flow | 155 | 310 | 470 | 625 | 780 | 935 | 1090 |
| Sound Level | <10 | <10 | 21 | 30 | 35 | 42 | 48 |
| Throw | 5 | 8 | 13 | 14 | 22 | 26 |

| 18” x 18” | Air Flow | 225 | 450 | 675 | 900 | 1125 | 1350 | 1575 |
| Sound Level | <10 | 12 | 24 | 33 | 40 | 46 | 50 |
| Throw | 5 | 12 | 16 | 23 | 27 | 31 |

| 21” x 21” | Air Flow | 305 | 610 | 920 | 1225 | 1530 | 1835 | 2140 |
| Sound Level | <10 | 14 | 27 | 36 | 42 | 48 | 54 |
| Throw | 6 | 13 | 20 | 25 | 29 |

| 24” x 24” | Air Flow | 400 | 800 | 1200 | 1600 | 2000 | 2400 | 2800 |
| Sound Level | <10 | 16 | 29 | 37 | 45 | 51 | 55 |
| Throw | 6 | 15 | 22 | 30 | 36 | 42 |

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**Notes on Performance Data**

- Performance data is based on tests conducted in accordance with ANSI/ASHRAE Standard 70-1991.
- Actual performance in the field may vary.
- Testing was conducted in isothermal conditions.
- Sound level values are based on room absorption of 10 db re 10⁻¹² watts.
- Throws provided are for 4-way blow patterns.

**Units of Measure Used**

- Velocity is given in Feet per Minute (fpm).
- Pressure is given in Inches of Water (w.g.).
- Flows are given in Cubic Feet per Minute (CFM).
- Throw is given in feet to a terminal velocity of 50 fpm.
- Sound data is given in Noise Criteria (NC).