

SCD

SQUARE CONE DIFFUSER

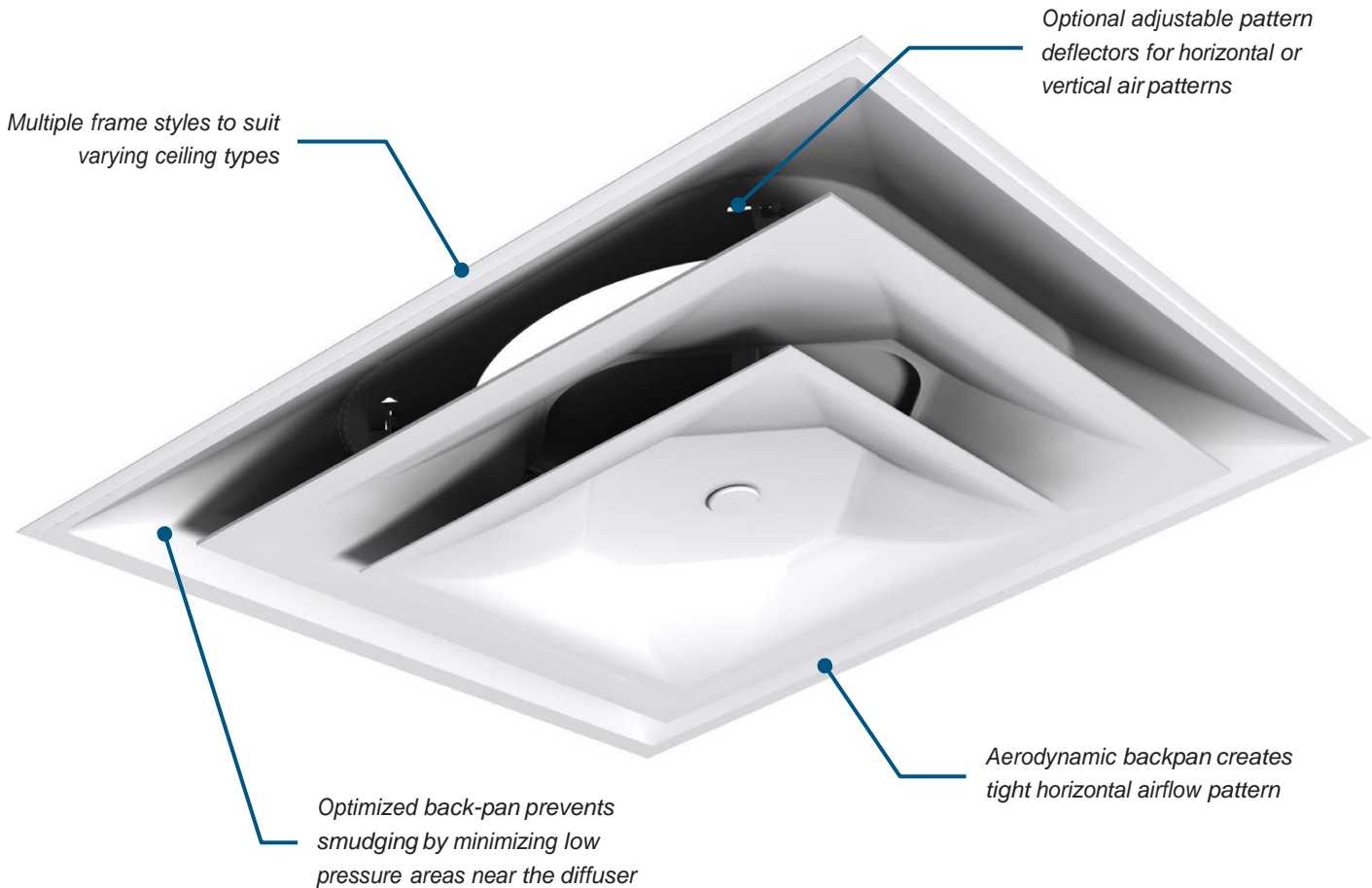


1 DIFFUSERS

SCD

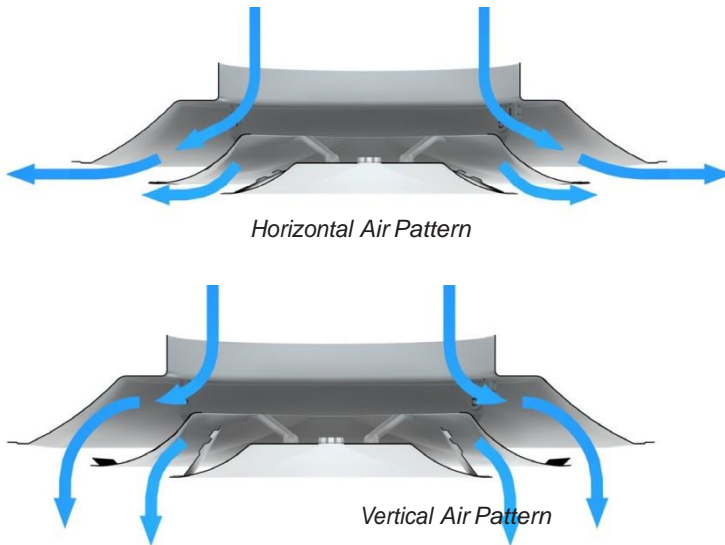
Square Cone Diffuser

The Square Cone Diffuser (SCD) features a highly engineered, aerodynamic back-pan and cone assembly that creates a horizontal 360° radial air pattern. The SCD promotes rapid mixing, temperature equalization, and velocity reduction with industry-leading low pressure drop and sound generation. Ideal for VAV applications with high turndown rates, the SCD maintains a consistent, stable air pattern even as air volume is reduced, minimizing Dumping and drafts.



ADJUSTABLE PATTERN DEFLECTORS

- + The SCD series is available with adjustable pattern controllers to provide either a horizontal or vertical air pattern.
- + The pattern controllers allow for field adjustment of the diffuser to optimize comfort in the occupied zone.



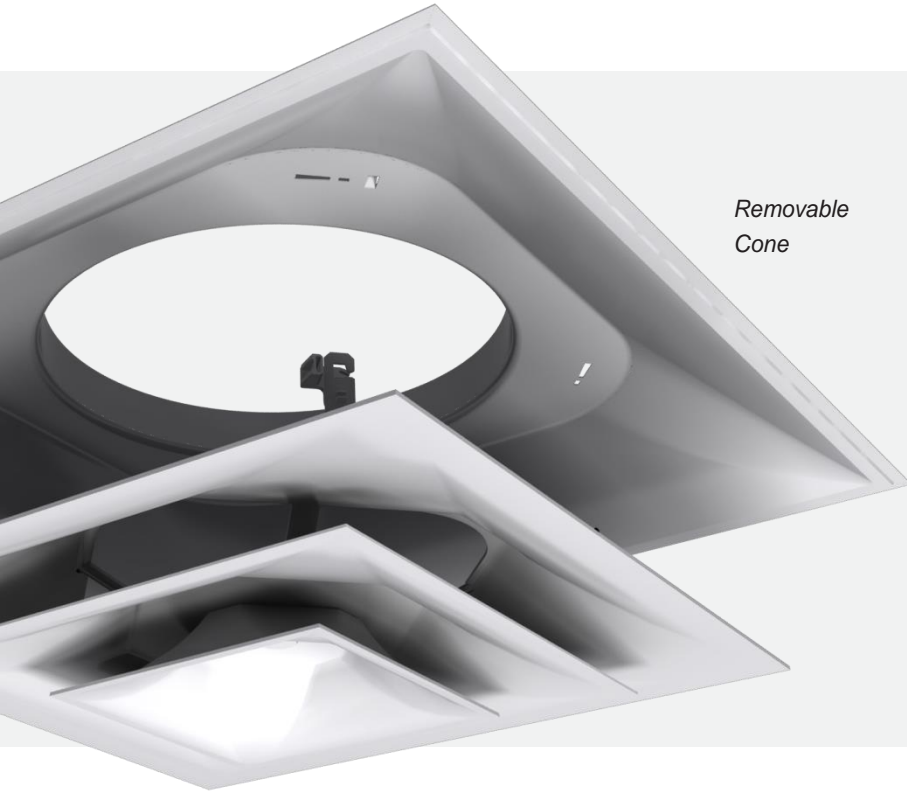
TYPICAL APPLICATIONS

The Square Cone Diffuser, or SCD, is ideal for use in ceiling applications and is compatible with most standard ceiling styles.

CONSTRUCTION

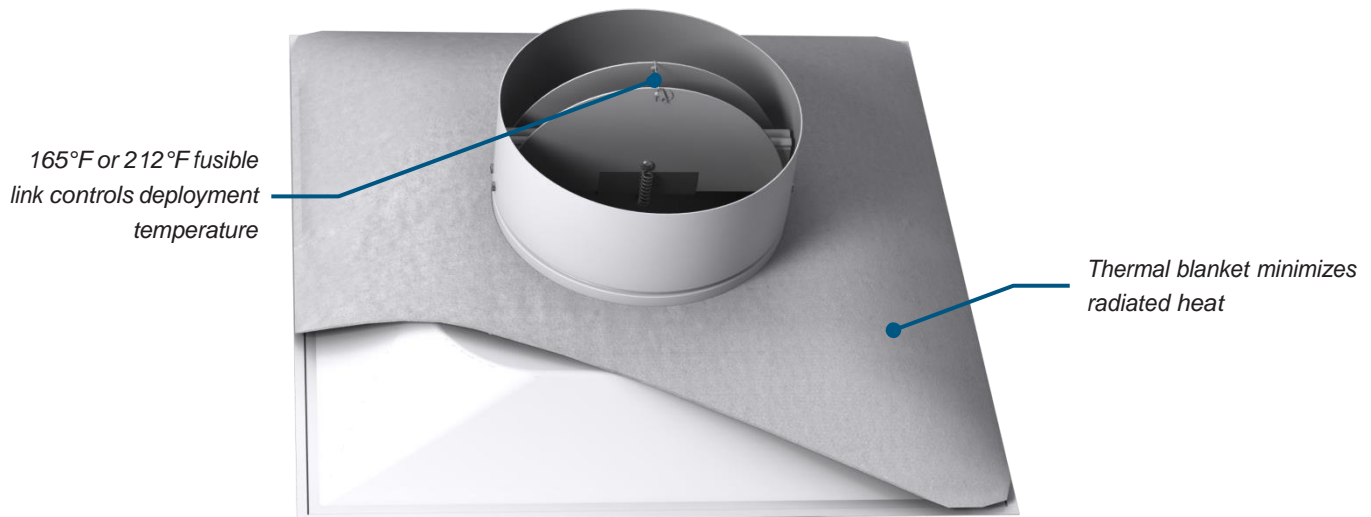
- + Material
 - Steel (SCD)
 - Aluminum (ASCD)
- + Core
 - 3 Cone
 - 4 Cone (24 in. x 24 in. face size only)
- + Options
 - Fire rated construction (SCD-FR / SCDA-FR)
 - Adjustable pattern deflectors (SCDA/ ASCDA)





EASY MAINTENANCE

The SCD is available with a fixed or removable core to accommodate a variety of maintenance requirements. The fixed core features a removable central plug button for easy damper access. The tool-free, removable core option makes installation simple by providing full access to an optional inlet damper.



FIRE RATED CONSTRUCTION

Optional Fire Rated Assembly listing in the UL Fire Resistance Directory. Fire rated models meet UL time vs. temperature test criteria and NFPA 90A requirements.

Fire rated construction incorporates a thermal blanket and fire damper for use in fire rated T-bar ceiling applications. The butterfly-type fire damper is available with either a 165°F or 212°F fusible link.

PERFORMANCE DATA

SCD – 12 in. x 12 in. Face Size

| Listed Size | Neck Velocity (fpm) | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1200 | 1400 | 1600 |
|-------------|------------------------------|-------|--------|--------|--------|--------|--------|---------|---------|----------|----------|
| | Velocity Pressure (in. w.g.) | .10 | .016 | .022 | .031 | .040 | .050 | .062 | .090 | .122 | .160 |
| 4 | Total Pressure (in. w.g.) | .013 | .021 | .030 | .041 | .054 | .068 | .084 | .121 | .165 | .215 |
| | Flow Rate (cfm) Sound (NC) | 35 | 44 | 52 | 61 | 70 | 78 | 87 | 104 | 122 | 139 |
| | Throw (ft.) | - | - | - | - | - | - | - | 20 | 25 | 29 |
| | Throw (ft.) | 1-2-4 | 1-2-4 | 2-3-5 | 2-3-6 | 2-4-6 | 3-4-7 | 3-4-7 | 4-5-8 | 4-6-9 | 5-6-9 |
| 5 | Total Pressure (in. w.g.) | .015 | .024 | .035 | .047 | .062 | .078 | .097 | .139 | .189 | .247 |
| | Flow Rate (cfm) Sound (NC) | 54 | 68 | 82 | 95 | 109 | 122 | 136 | 163 | 190 | 218 |
| | Throw (ft.) | - | - | - | - | - | 16 | 19 | 25 | 30 | 34 |
| | Throw (ft.) | 2-2-5 | 2-3-6 | 2-4-7 | 3-4-8 | 3-5-8 | 4-5-9 | 4-6-9 | 5-7-10 | 5-8-11 | 6-8-11 |
| 6 | Total Pressure (in. w.g.) | .018 | .028 | .040 | .055 | .072 | .091 | .112 | .162 | .220 | .287 |
| | Flow Rate (cfm) Sound (NC) | 78 | 98 | 118 | 137 | 157 | 176 | 196 | 235 | 274 | 314 |
| | Throw (ft.) | - | - | - | - | 16 | 20 | 23 | 29 | 34 | 38 |
| | Throw (ft.) | 2-3-6 | 2-4-7 | 3-4-8 | 3-5-9 | 4-6-10 | 4-7-10 | 5-7-11 | 6-8-12 | 7-9-13 | 8-10-14 |
| 7 | Total Pressure (in. w.g.) | .022 | .035 | .050 | .069 | .090 | .114 | .140 | .202 | .275 | .359 |
| | Flow Rate (cfm) Sound (NC) | 107 | 134 | 160 | 187 | 214 | 240 | 267 | 320 | 374 | 427 |
| | Throw (ft.) | - | - | - | 15 | 19 | 23 | 26 | 32 | 37 | 41 |
| | Throw (ft.) | 2-4-7 | 3-4-9 | 4-5-10 | 4-6-11 | 5-7-11 | 5-8-12 | 6-9-13 | 7-10-14 | 8-11-15 | 9-11-16 |
| 8 | Total Pressure (in. w.g.) | .029 | .045 | .065 | .089 | .116 | .146 | .181 | .260 | .354 | .463 |
| | Flow Rate (cfm) Sound (NC) | 140 | 175 | 209 | 244 | 279 | 314 | 349 | 419 | 489 | 558 |
| | Throw (ft.) | - | - | - | 18 | 22 | 26 | 29 | 35 | 40 | 44 |
| | Throw (ft.) | 3-4-8 | 3-5-10 | 4-6-11 | 5-7-12 | 6-8-13 | 6-9-14 | 7-10-15 | 8-11-16 | 10-12-17 | 11-13-18 |

For performance notes, see end of section.

SCD – 20 in. x 20 in. Face Size

| Listed Size | Neck Velocity (fpm) | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1200 | 1400 | 1600 |
|-------------|------------------------------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|
| | Velocity Pressure (in. w.g.) | .10 | .016 | .022 | .031 | .040 | .050 | .062 | .090 | .122 | .160 |
| 6 | Total Pressure (in. w.g.) | .013 | .020 | .029 | .040 | .052 | .066 | .081 | .117 | .159 | .207 |
| | Flow Rate (cfm) Sound (NC) | 78 | 98 | 118 | 137 | 157 | 176 | 196 | 235 | 274 | 314 |
| | Throw (ft.) | - | - | - | 16 | 19 | 23 | 26 | 31 | 35 | 39 |
| | Throw (ft.) | 0-1-3 | 1-2-4 | 1-2-4 | 1-3-5 | 2-3-6 | 2-3-6 | 2-4-6 | 3-4-7 | 3-5-7 | 4-6-8 |
| 8 | Total Pressure (in. w.g.) | .017 | .026 | .038 | .052 | .068 | .086 | .106 | .153 | .208 | .271 |
| | Flow Rate (cfm) Sound (NC) | 140 | 175 | 209 | 244 | 279 | 314 | 349 | 419 | 489 | 558 |
| | Throw (ft.) | - | - | - | 18 | 22 | 25 | 28 | 33 | 37 | 41 |
| | Throw (ft.) | 1-2-5 | 2-3-6 | 2-4-6 | 3-4-7 | 3-5-7 | 4-5-8 | 4-6-8 | 5-6-9 | 6-7-10 | 6-7-11 |
| 10 | Total Pressure (in. w.g.) | .022 | .034 | .049 | .067 | .088 | .111 | .137 | .198 | .269 | .351 |
| | Flow Rate (cfm) Sound (NC) | 218 | 273 | 327 | 382 | 436 | 491 | 545 | 654 | 763 | 872 |
| | Throw (ft.) | - | - | 15 | 20 | 23 | 27 | 30 | 35 | 39 | 43 |
| | Throw (ft.) | 2-3-6 | 3-4-7 | 3-5-8 | 4-6-9 | 4-6-9 | 5-7-10 | 5-7-10 | 6-8-11 | 7-9-12 | 8-9-13 |

For performance notes, see end of section.



PERFORMANCE DATA

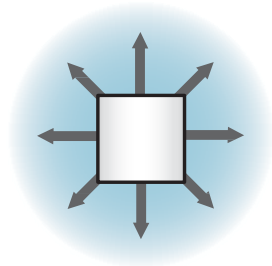
SCD – 24 in. x 24 in. Face Size

| Listed Size | Neck Velocity (fpm) | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1200 | 1400 | 1600 |
|-------------|------------------------------|--------|--------|--------|--------|---------|---------|---------|----------|----------|----------|
| | Velocity Pressure (in. w.g.) | .10 | .016 | .022 | .031 | .040 | .050 | .062 | .090 | .122 | .160 |
| 6 | Total Pressure (in. w.g.) | .015 | .023 | .034 | .046 | .060 | .076 | .094 | .135 | .183 | .239 |
| | Flow Rate (cfm) | 78 | 98 | 118 | 137 | 157 | 176 | 196 | 235 | 274 | 314 |
| | Sound (NC) | - | - | - | - | 15 | 19 | 22 | 28 | 33 | 37 |
| | Throw (ft.) | 1-2-4 | 1-2-4 | 2-3-5 | 2-3-6 | 2-4-7 | 3-4-7 | 3-4-7 | 4-5-8 | 4-6-9 | 5-7-9 |
| 8 | Total Pressure (in. w.g.) | .016 | .025 | .037 | .050 | .065 | .082 | .102 | .146 | .199 | .260 |
| | Flow Rate (cfm) | 140 | 175 | 209 | 244 | 279 | 314 | 349 | 419 | 489 | 558 |
| | Sound (NC) | - | - | - | - | 19 | 22 | 26 | 31 | 36 | 40 |
| | Throw (ft.) | 2-2-5 | 2-3-6 | 2-4-7 | 3-4-8 | 3-5-9 | 4-6-9 | 4-6-10 | 5-7-11 | 6-8-12 | 7-9-12 |
| 10 | Total Pressure (in. w.g.) | .019 | .030 | .044 | .060 | .078 | .098 | .122 | .175 | .238 | .311 |
| | Flow Rate (cfm) | 218 | 273 | 327 | 382 | 436 | 491 | 545 | 654 | 763 | 872 |
| | Sound (NC) | - | - | - | 17 | 21 | 25 | 28 | 34 | 39 | 43 |
| | Throw (ft.) | 2-3-6 | 3-4-8 | 3-5-9 | 4-6-10 | 4-6-11 | 5-7-12 | 5-8-12 | 6-9-13 | 8-10-14 | 9-11-15 |
| 12 | Total Pressure (in. w.g.) | .023 | .036 | .051 | .070 | .091 | .115 | .142 | .205 | .279 | .364 |
| | Flow Rate (cfm) | 314 | 393 | 471 | 550 | 628 | 707 | 785 | 942 | 1099 | 1256 |
| | Sound (NC) | - | - | - | 19 | 24 | 27 | 30 | 36 | 41 | 45 |
| | Throw (ft.) | 3-4-8 | 3-5-10 | 4-6-11 | 5-7-12 | 5-8-13 | 6-9-14 | 7-10-15 | 8-11-16 | 9-12-17 | 11-13-19 |
| 14 | Total Pressure (in. w.g.) | .026 | .041 | .058 | .079 | .104 | .131 | .162 | .233 | .318 | .415 |
| | Flow Rate (cfm) | 428 | 535 | 641 | 748 | 855 | 962 | 1069 | 1283 | 1497 | 1710 |
| | Sound (NC) | - | - | 16 | 21 | 25 | 29 | 32 | 38 | 43 | 47 |
| | Throw (ft.) | 3-5-10 | 4-6-12 | 5-7-13 | 6-9-14 | 6-10-15 | 7-11-16 | 8-12-17 | 10-13-19 | 11-14-20 | 12-15-22 |
| 15 | Total Pressure (in. w.g.) | .028 | .044 | .064 | .087 | .114 | .144 | .178 | .256 | .348 | .455 |
| | Flow Rate (cfm) | 491 | 614 | 736 | 859 | 982 | 1104 | 1227 | 1472 | 1718 | 1963 |
| | Sound (NC) | - | - | 17 | 22 | 26 | 30 | 33 | 39 | 43 | 47 |
| | Throw (ft.) | 4-5-11 | 4-7-13 | 5-8-14 | 6-9-15 | 7-11-16 | 8-12-17 | 9-13-18 | 11-14-20 | 12-15-22 | 13-16-23 |

Performance Notes:

- Comply with ASHRAE Standard 70 - 2006 Method of Testing for Rating the Performance of Air Outlets and Inlets.
- Airflow is in cubic feet per minute [cfm].
- NC, sound pressure levels, are based on a room absorption of 10 dB re 10⁻¹² Watts, and a single diffuser/grille.
- Blanks "-" indicate an NC level below 15.
- All pressures are in inches of water column [in. w.g.].
- Pressures not listed can be calculated using the following formula: $P_{total} = P_{static} + P_{velocity}$
- Throw data is based on supply air and room air being at isothermal conditions.
- Throw data is given in feet [ft] to terminal velocities of: 150 fpm (minimum) 100 fpm (middle) 50 fpm (maximum).
- Diffuser tested with a ceiling. If the diffuser is mounted on an exposed duct, multiply the throw in the performance table by 0.70
- Does not include effects of ceiling radiation damper (SCD-FR)

Throw Diagram



Plan View - Horizontal Radial Pattern



PERFORMANCE DATA

SCDA – Adjustable Pattern Controllers, 12 in. x 12 in. Face Size

| Listed Size | Neck Velocity (fpm) | | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1200 | 1400 | 1600 | |
|--------------------------|------------------------------|---|--------|--------|--------|--------|--------|---------|---------|---------|----------|----------|-----|
| | Velocity Pressure (in. w.g.) | | .10 | .016 | .022 | .031 | .040 | .050 | .062 | .090 | .122 | .160 | |
| 4 | Total Pressure (in. w.g.) | | H .016 | .026 | .037 | .050 | .066 | .083 | .103 | .148 | .202 | .263 | |
| | | | V .019 | .030 | .043 | .058 | .076 | .096 | .118 | .171 | .232 | .303 | |
| | Flow Rate (cfm) | | | 35 | 44 | 52 | 61 | 70 | 78 | 87 | 104 | 122 | 139 |
| | Sound (NC) | | H - | - | - | - | - | 16 | 19 | 24 | 29 | 33 | |
| | | | V - | - | - | - | - | 17 | 23 | 29 | 33 | | |
| Radius of Diffusion (ft) | | H | 1-2-3 | 1-2-4 | 2-3-5 | 2-3-6 | 2-3-6 | 3-4-7 | 3-4-7 | 3-5-8 | 4-6-9 | 5-6-9 | |
| Vertical Throw (ft) | | V | 3 | 4 | 5 | 5 | 6 | 6 | 6 | 7 | 7 | 8 | |
| 5 | Total Pressure (in. w.g.) | | H .021 | .034 | .048 | .066 | .086 | .109 | .134 | .193 | .263 | .343 | |
| | | | V .031 | .048 | .070 | .095 | .124 | .157 | .193 | .278 | .379 | .495 | |
| | Flow Rate (cfm) | | | 54 | 68 | 82 | 95 | 109 | 122 | 136 | 163 | 190 | 218 |
| | Sound (NC) | | H - | - | - | - | 17 | 21 | 24 | 29 | 34 | 38 | |
| | | | V - | - | - | - | 18 | 23 | 26 | 32 | 38 | 42 | |
| Radius of Diffusion (ft) | | H | 2-2-5 | 2-3-6 | 2-4-7 | 3-4-8 | 3-5-8 | 4-6-9 | 4-6-9 | 5-7-10 | 6-8-11 | 7-8-11 | |
| Vertical Throw (ft) | | V | 4 | 5 | 6 | 6 | 7 | 7 | 8 | 9 | 9 | 10 | |
| 6 | Total Pressure (in. w.g.) | | H .027 | .042 | .061 | .082 | .108 | .136 | .168 | .242 | .330 | .431 | |
| | | | V .047 | .074 | .107 | .145 | .190 | .240 | .296 | .426 | .580 | .758 | |
| | Flow Rate (cfm) | | | 78 | 98 | 118 | 137 | 157 | 176 | 196 | 235 | 274 | 314 |
| | Sound (NC) | | H - | - | - | 18 | 22 | 25 | 28 | 33 | 38 | 42 | |
| | | | V - | - | 16 | 21 | 26 | 30 | 33 | 40 | 45 | 50 | |
| Radius of Diffusion (ft) | | H | 2-3-7 | 3-4-8 | 3-5-8 | 4-6-9 | 4-7-10 | 5-7-10 | 5-8-11 | 7-8-12 | 7-9-13 | 8-10-14 | |
| Vertical Throw (ft) | | V | 6 | 7 | 7 | 8 | 8 | 9 | 9 | 10 | 11 | 12 | |
| 7 | Total Pressure (in. w.g.) | | H .032 | .050 | .073 | .099 | .129 | .164 | .202 | .291 | .396 | .517 | |
| | | | V .066 | .104 | .149 | .203 | .265 | .336 | .415 | .597 | .813 | 1.061 | |
| | Flow Rate (cfm) | | | 107 | 134 | 160 | 187 | 214 | 241 | 267 | 321 | 374 | 428 |
| | Sound (NC) | | H - | - | 17 | 21 | 25 | 28 | 32 | 37 | 42 | 45 | |
| | | | V - | 16 | 22 | 27 | 32 | 36 | 40 | 46 | 51 | 56 | |
| Radius of Diffusion (ft) | | H | 2-4-7 | 3-5-9 | 4-6-10 | 4-7-11 | 5-7-11 | 6-8-12 | 6-9-13 | 7-10-14 | 9-11-15 | 9-11-16 | |
| Vertical Throw (ft) | | V | 7 | 8 | 8 | 9 | 10 | 10 | 11 | 12 | 13 | 14 | |
| 8 | Total Pressure (in. w.g.) | | H .038 | .059 | .085 | .116 | .152 | .192 | .237 | .341 | .464 | .606 | |
| | | | V .090 | .140 | .202 | .275 | .359 | .454 | .561 | .808 | 1.100 | 1.436 | |
| | Flow Rate (cfm) | | | 140 | 175 | 209 | 244 | 279 | 314 | 349 | 419 | 489 | 558 |
| | Sound (NC) | | H - | - | 20 | 24 | 28 | 32 | 35 | 40 | 45 | 48 | |
| | | | V - | 21 | 27 | 33 | 37 | 41 | 45 | 51 | 57 | 61 | |
| Radius of Diffusion (ft) | | H | 3-5-9 | 4-6-10 | 5-7-11 | 6-9-12 | 6-9-13 | 7-10-14 | 8-10-15 | 9-11-16 | 10-12-17 | 11-13-18 | |
| Vertical Throw (ft) | | V | 8 | 9 | 9 | 10 | 11 | 12 | 12 | 13 | 14 | 15 | |

For performance notes, see end of section.



PERFORMANCE DATA

SCDA – Adjustable Pattern Controllers, 20 in. x 20 in. Face Size

| Listed Size | Neck Velocity (fpm) | | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1200 | 1400 | 1600 | |
|---------------------|------------------------------|-----|---------|-------|-------|--------|--------|--------|--------|--------|---------|---------|-----|
| | Velocity Pressure (in. w.g.) | | .10 | .016 | .022 | .031 | .040 | .050 | .062 | .090 | .122 | .160 | |
| 6 | Total Pressure (in. w.g.) | | H .015 | .024 | .035 | .047 | .062 | .078 | .097 | .139 | .189 | .247 | |
| | | | V .018 | .028 | .040 | .055 | .072 | .091 | .112 | .162 | .220 | .287 | |
| | Flow Rate (cfm) | | | 78 | 98 | 118 | 137 | 157 | 176 | 196 | 235 | 274 | 314 |
| | Sound (NC) | | H - | - | - | - | - | 18 | 22 | 27 | 32 | 36 | |
| | | | V - | - | - | - | - | 28 | 33 | 37 | 40 | | |
| | Radius of Diffusion (ft) | | H 1-2-4 | 2-2-5 | 2-3-6 | 2-3-6 | 3-4-7 | 3-4-7 | 3-5-7 | 4-6-8 | 4-6-9 | 5-7-9 | |
| Vertical Throw (ft) | | V 4 | 6 | 7 | 8 | 8 | 9 | 9 | 10 | 11 | 11 | | |
| 8 | Total Pressure (in. w.g.) | | H .019 | .030 | .043 | .058 | .076 | .096 | .118 | .171 | .232 | .303 | |
| | | | V .027 | .042 | .061 | .082 | .108 | .136 | .168 | .242 | .330 | .431 | |
| | Flow Rate (cfm) | | | 140 | 175 | 209 | 244 | 279 | 314 | 349 | 419 | 489 | 558 |
| | Sound (NC) | | H - | - | - | - | 18 | 21 | 25 | 30 | 35 | 39 | |
| | | | V - | - | 19 | 23 | 26 | 29 | 32 | 37 | 41 | 45 | |
| | Radius of Diffusion (ft) | | H 2-3-5 | 2-3-7 | 3-4-8 | 3-5-8 | 3-5-9 | 4-6-9 | 4-7-10 | 5-8-11 | 6-8-12 | 7-9-12 | |
| Vertical Throw (ft) | | V 6 | 7 | 9 | 9 | 10 | 11 | 11 | 12 | 13 | 14 | | |
| 10 | Total Pressure (in. w.g.) | | H .022 | .035 | .050 | .069 | .090 | .114 | .140 | .202 | .275 | .359 | |
| | | | V .038 | .059 | .085 | .116 | .152 | .192 | .237 | .341 | .464 | .606 | |
| | Flow Rate (cfm) | | | 218 | 273 | 327 | 382 | 436 | 491 | 545 | 654 | 763 | 872 |
| | Sound (NC) | | H - | - | - | 16 | 20 | 24 | 27 | 33 | 37 | 42 | |
| | | | V - | 17 | 22 | 26 | 30 | 33 | 36 | 41 | 45 | 48 | |
| | Radius of Diffusion (ft) | | H 2-3-7 | 3-4-8 | 3-5-9 | 4-6-10 | 4-7-11 | 5-8-12 | 6-8-12 | 7-9-13 | 8-10-14 | 9-11-15 | |
| Vertical Throw (ft) | | V 7 | 9 | 10 | 11 | 12 | 12 | 13 | 14 | 15 | 16 | | |

For performance notes, see end of section.



PERFORMANCE DATA

SCDA – Adjustable Pattern Controllers, 24 in. x 24 in. Face Size

| Listed Size | Neck Velocity (fpm) | | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1200 | 1400 | 1600 |
|----------------|------------------------------|---|--------|--------|--------|--------|---------|---------|---------|----------|----------|----------|
| | Velocity Pressure (in. w.g.) | | .10 | .016 | .022 | .031 | .040 | .050 | .062 | .090 | .120 | .160 |
| 6 | Total Pressure (in. w.g.) | H | .016 | .026 | .037 | .050 | .066 | .083 | .103 | .148 | .202 | .263 |
| | | V | .027 | .043 | .062 | .084 | .110 | .139 | .171 | .247 | .336 | .439 |
| | Flow Rate (cfm) | | 78 | 98 | 118 | 137 | 157 | 176 | 196 | 235 | 274 | 314 |
| | Sound (NC) | H | - | - | - | - | 19 | 23 | 27 | 33 | 38 | 43 |
| | | V | - | 16 | 21 | 25 | 28 | 31 | 34 | 39 | 43 | 46 |
| | Radius of Diffusion | H | 1-2-4 | 2-2-5 | 2-3-6 | 2-3-6 | 3-4-7 | 3-4-7 | 3-5-7 | 4-6-8 | 4-6-9 | 5-7-9 |
| Vertical Throw | V | 4 | 6 | 7 | 8 | 8 | 9 | 9 | 10 | 11 | 11 | |
| 8 | Total Pressure (in. w.g.) | H | .020 | .032 | .046 | .063 | .082 | .104 | .128 | .184 | .250 | .327 |
| | | V | .034 | .053 | .076 | .104 | .136 | .172 | .212 | .305 | .415 | .543 |
| | Flow Rate (cfm) | | 140 | 175 | 209 | 244 | 279 | 314 | 349 | 419 | 489 | 558 |
| | Sound (NC) | H | - | - | - | 17 | 22 | 26 | 30 | 36 | 41 | 46 |
| | | V | - | 18 | 23 | 27 | 31 | 34 | 36 | 41 | 45 | 49 |
| | Radius of Diffusion | H | 2-3-5 | 2-3-7 | 3-4-8 | 3-5-8 | 3-5-9 | 4-6-9 | 4-7-10 | 5-8-11 | 6-8-12 | 7-9-12 |
| Vertical Throw | V | 6 | 7 | 9 | 9 | 10 | 11 | 11 | 12 | 13 | 14 | |
| 10 | Total Pressure (in. w.g.) | H | .024 | .038 | .055 | .075 | .098 | .124 | .153 | .220 | .299 | .391 |
| | | V | .040 | .062 | .090 | .122 | .160 | .202 | .249 | .359 | .489 | .638 |
| | Flow Rate (cfm) | | 218 | 273 | 327 | 382 | 436 | 491 | 545 | 654 | 763 | 872 |
| | Sound (NC) | H | - | - | - | 20 | 24 | 28 | 32 | 38 | 43 | 48 |
| | | V | - | 20 | 25 | 29 | 33 | 36 | 38 | 43 | 47 | 51 |
| | Radius of Diffusion | H | 2-3-7 | 3-4-8 | 3-5-9 | 4-6-10 | 4-7-11 | 5-8-12 | 6-8-12 | 7-9-13 | 8-10-14 | 9-11-15 |
| Vertical Throw | V | 7 | 9 | 10 | 11 | 12 | 12 | 13 | 14 | 15 | 16 | |
| 12 | Total Pressure (in. w.g.) | H | .028 | .044 | .063 | .086 | .112 | .141 | .175 | .251 | .342 | .447 |
| | | V | .046 | .072 | .103 | .141 | .184 | .232 | .287 | .413 | .562 | .734 |
| | Flow Rate (cfm) | | 314 | 393 | 471 | 550 | 628 | 707 | 785 | 942 | 1099 | 1256 |
| | Sound (NC) | H | - | - | 16 | 22 | 26 | 30 | 34 | 40 | 45 | 50 |
| | | V | 16 | 22 | 27 | 31 | 34 | 37 | 40 | 45 | 49 | 52 |
| | Radius of Diffusion | H | 3-4-8 | 3-5-10 | 4-6-11 | 5-7-12 | 5-8-13 | 6-9-14 | 7-10-15 | 8-11-16 | 10-12-17 | 11-13-19 |
| Vertical Throw | V | 9 | 10 | 11 | 12 | 12 | 13 | 14 | 15 | 16 | 17 | |
| 14 | Total Pressure (in. w.g.) | H | .032 | .050 | .072 | .098 | .128 | .162 | .200 | .287 | .391 | .511 |
| | | V | .052 | .082 | .118 | .160 | .209 | .265 | .327 | .471 | .642 | .838 |
| | Flow Rate (cfm) | | 428 | 535 | 641 | 748 | 855 | 962 | 1069 | 1283 | 1497 | 1710 |
| | Sound (NC) | H | - | - | 18 | 23 | 28 | 32 | 35 | 42 | 47 | 51 |
| | | V | 17 | 23 | 28 | 32 | 35 | 39 | 41 | 46 | 50 | 54 |
| | Radius of Diffusion | H | 3-5-10 | 4-6-12 | 5-7-13 | 6-9-14 | 6-10-15 | 7-11-16 | 8-12-17 | 10-13-19 | 11-14-20 | 12-15-22 |
| Vertical Throw | V | 9 | 10 | 11 | 12 | 12 | 13 | 14 | 15 | 16 | 17 | |
| 15 | Total Pressure (in. w.g.) | H | .034 | .053 | .076 | .104 | .136 | .172 | .212 | .305 | .415 | .543 |
| | | V | .069 | .108 | .155 | .211 | .275 | .348 | .430 | .619 | .843 | 1.101 |
| | Flow Rate (cfm) | | 491 | 614 | 736 | 859 | 982 | 1104 | 1227 | 1472 | 1718 | 1963 |
| | Sound (NC) | H | - | - | 19 | 24 | 28 | 32 | 36 | 42 | 48 | 52 |
| | | V | 18 | 24 | 29 | 33 | 36 | 39 | 42 | 47 | 51 | 54 |
| | Radius of Diffusion | H | 4-5-11 | 4-7-13 | 5-8-14 | 6-9-15 | 7-11-16 | 8-12-17 | 9-13-18 | 11-14-20 | 12-15-22 | 13-16-23 |
| Vertical Throw | V | 8 | 9 | 10 | 11 | 12 | 13 | 13 | 14 | 16 | 17 | |

Vertical Throw Factors

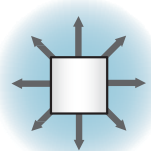
| Ceiling Module | Listed Size | Cooling ΔT | | Heating ΔT | |
|-------------------------|-------------|------------|------|------------|-------|
| | | -10 °F | 0 °F | 20 °F | 40 °F |
| 12" x 12" /300 x 300 | 4 | 1.6 | 1.3 | 1.0 | 0.7 |
| | 5 | 1.6 | 1.3 | 1.0 | 0.7 |
| | 6 | 1.6 | 1.3 | 1.0 | 0.7 |
| | 7 | 1.6 | 1.3 | 1.0 | 0.7 |
| 20" x 20" /500 x 500 | 8 | 1.7 | 1.3 | 1.0 | 0.7 |
| | 8 | 1.7 | 1.3 | 1.0 | 0.7 |
| | 10 | 1.7 | 1.3 | 1.0 | 0.6 |
| 24" x 24" /600 x 600 | 6 | 1.7 | 1.3 | 1.0 | 0.7 |
| | 8 | 1.7 | 1.3 | 1.0 | 0.7 |
| | 10 | 1.7 | 1.4 | 1.0 | 0.6 |
| | 12 | 1.8 | 1.4 | 1.0 | 0.6 |
| | 15 | 2.1 | 1.5 | 1.0 | 0.5 |

The table lists throw factors to be applied to the vertical projections listed in the performance tables for temperature differentials other than 20 °F heating differential.

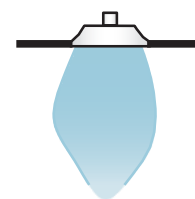
Performance Notes:

- Comply with accordance to ASHRAE Standard 70 - 2006 "Method of Testing for Rating the Performance of Air Outlets and Inlets."
- Airflow is in cubic feet per minute [cfm].
- NC, sound pressure levels, are based on a room absorption of 10 dB re 10⁻¹² Watts, and a single diffuser/grille.
- Blanks "-" indicate an NC level below 15.
- All pressures are in inches of water column [in. w.g.].
- Pressures not listed can be calculated using the following formula: $P_{total} = P_{static} + P_{velocity}$
- Horizontal throw data is based on supply air and room air being at isothermal conditions.
- Vertical throws are based on 20°F heating differential and 50 fpm terminal velocity.
- Throw data is given in feet [ft] to terminal velocities of:
 - 150 fpm (minimum)
 - 100 fpm (middle)
 - 50 fpm (maximum).
- Diffuser tested with a ceiling. If the diffuser is mounted on an exposed duct, multiply the throw in the performance table by 0.70.
- Does not include effects of ceiling radiation damper (SCDA-FR)

Throw Diagram



Plan View - Horizontal Radial Pattern



Elevation View - Vertical Pattern



DIFFUSERS

Product Improvement is a continuing endeavor at BADRY. Therefore, specifications are subject to change without notice. Consult your BADRY Sales Representative for current specifications or more detailed information. Not all products may be available in all geographic areas. All goods described in this document are warranted as described in the Limited Warranty shown at www.badrygroup.com/Air.Ducts. Our complete product catalog can be viewed online.

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