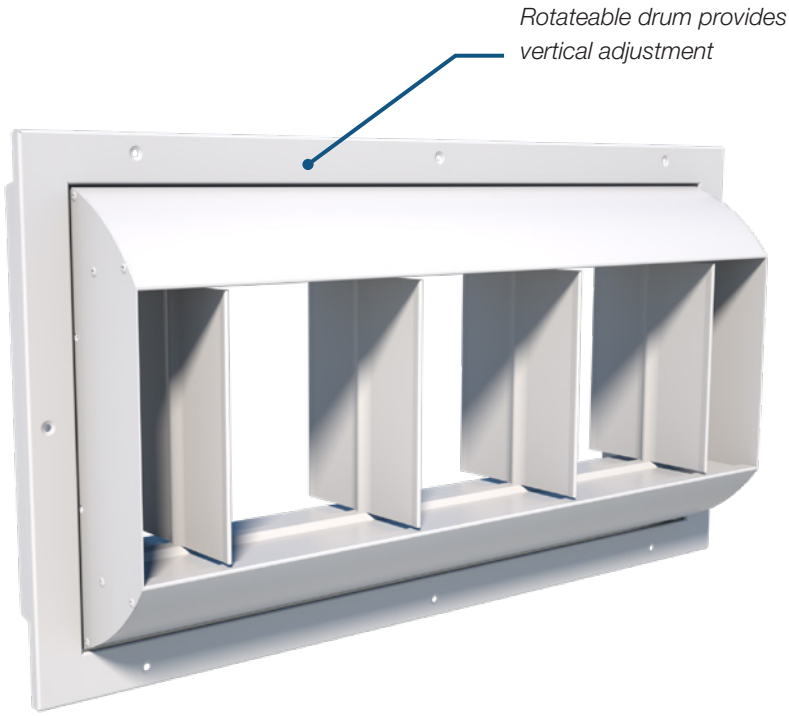
# HCD

## HIGH CAPACITY DRUM LOUVER

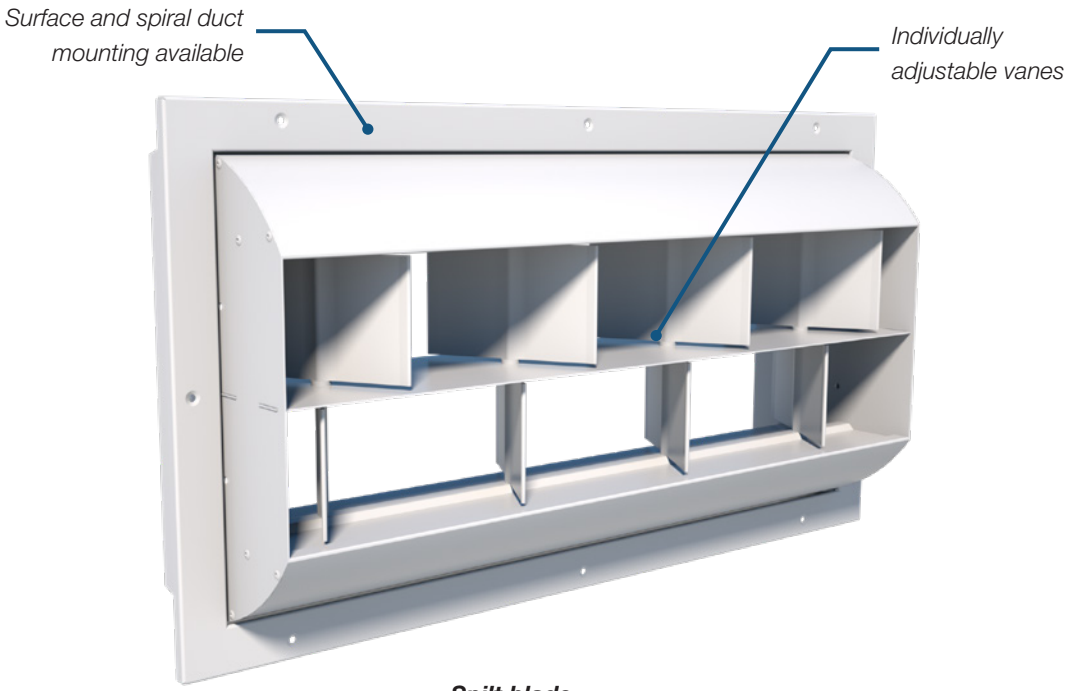
price | DIFFUSERS

# HCD
## High Capacity Drum Louver

The High Capacity Drum Louvers (HCD) consist of extruded aluminum blades mounted inside a rotatable drum to produce long air throws with a high degree of directional control.




***Single blade***

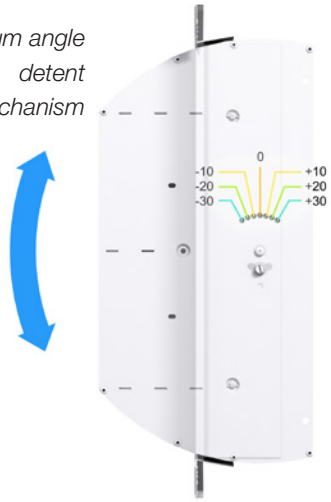



***Spilt blade***

# ADJUSTABLE AIRFLOW PATTERN

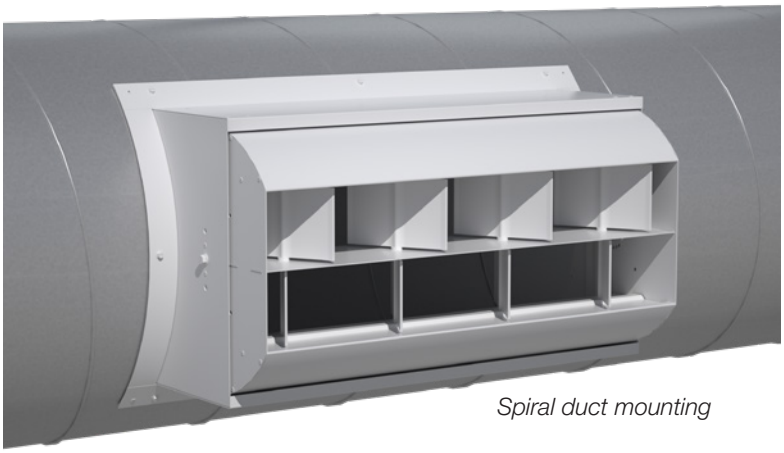
+ Featuring adjustable vanes within a rotating drum, the HCD provides exceptional air pattern control.
+ Rotation of the drum allows for 60° of vertical adjustment and a positive detent mechanism locks the drum at the desired angle.
+ Adjustable blades allow side-to-side directional control, while the split blade design allows for increased air pattern flexibility.
+ An optional pole operator bracket allows remote adjustment of the drum from floor level, for high mounted diffusers.

*Drum angle detent mechanism*




# EASY INSTALLATION

+ The HCD is available with an optional spiral duct frame for easy installation directly onto ductwork, eliminating the need for field fabricated transitions.



*Spiral duct mounting*

# TYPICAL APPLICATIONS

The HCD provides long throws to supply air to spaces that cannot be served by ductwork and conventional outlets due to structural or architectural restrictions. This makes the HCD ideal for use in warehouses, factories, stadiums, or any large enclosed space. For demanding environments such as industrial plants, or areas where corrosion resistance is necessary, an all stainless steel option is available.

## CONSTRUCTION

+ Core style
  - Single blade
  - Split blade
+ Material
  - Steel
  - Aluminum
+ Mounting Style
  - Surface mount
  - Spiral duct frame
+ Options
  - All stainless steel construction (DLSS)
  - Pole operator bracket (POB)
  - Steel opposed blade damper (VCS3)
  - Heavy duty steel opposed blade damper (VCS5)

# PERFORMANCE DATA

## HCD

| Size | Duct Velocity (fpm) / Velocity Pressure (in.w.g.) | 300 / 0.01 | 400 / 0.01 | 500 / 0.02 | 600 / 0.02 | 700 / 0.03 | 800 / 0.04 | 900 / 0.05 | 1000 / 0.06 | 1200 / 0.09 |
|---|---|---|---|---|---|---|---|---|---|---|
| **6 x 9** | Total Pressure (in.w.g.) | 0.07 | 0.09 | 0.12 | 0.15 | 0.19 | 0.23 | 0.29 | 0.36 | 0.54 |
| | Flow Rate (cfm) | 113 | 150 | 188 | 225 | 263 | 300 | 338 | 375 | 450 |
| | Sound (NC) | - | - | 18 | 26 | 33 | 37 | 40 | 43 | 46 |
| | Throw (ft.) | 15-20-29 | 19-24-33 | 21-26-37 | 24-29-41 | 25-31-44 | 27-33-47 | 29-35-50 | 30-37-53 | 33-41-58 |
| **6 x 12** | Total Pressure (in.w.g.) | 0.07 | 0.09 | 0.11 | 0.14 | 0.18 | 0.23 | 0.28 | 0.35 | 0.53 |
| | Flow Rate (cfm) | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 600 |
| | Sound (NC) | - | - | 17 | 25 | 31 | 36 | 39 | 41 | 45 |
| | Throw (ft.) | 16-24-33 | 22-27-38 | 25-30-43 | 27-33-47 | 29-36-51 | 31-38-54 | 33-41-58 | 35-43-61 | 38-47-67 |
| **6 x 15** | Total Pressure (in.w.g.) | 0.07 | 0.09 | 0.11 | 0.14 | 0.18 | 0.22 | 0.28 | 0.34 | 0.53 |
| | Flow Rate (cfm) | 188 | 250 | 313 | 375 | 438 | 500 | 563 | 625 | 750 |
| | Sound (NC) | - | - | 16 | 24 | 31 | 35 | 38 | 40 | 45 |
| | Throw (ft.) | 18-26-37 | 24-30-43 | 28-34-48 | 30-37-58 | 33-40-57 | 35-43-61 | 37-46-64 | 39-48-68 | 43-53-74 |
| **6 x 18** | Total Pressure (in.w.g.) | 0.07 | 0.09 | 0.11 | 0.14 | 0.18 | 0.22 | 0.27 | 0.34 | 0.52 |
| | Flow Rate (cfm) | 225 | 300 | 375 | 450 | 525 | 600 | 675 | 750 | 900 |
| | Sound (NC) | - | - | 16 | 24 | 30 | 34 | 38 | 40 | 44 |
| | Throw (ft.) | 19-29-41 | 26-33-47 | 30-37-53 | 33-41-58 | 36-44-62 | 38-47-67 | 41-50-71 | 43-53-74 | 47-58-81 |
| **6 x 30** | Total Pressure (in.w.g.) | 0.06 | 0.08 | 0.10 | 0.13 | 0.17 | 0.21 | 0.26 | 0.33 | 0.50 |
| | Flow Rate (cfm) | 375 | 500 | 625 | 750 | 875 | 1000 | 1125 | 1250 | 1500 |
| | Sound (NC) | - | - | 16 | 24 | 30 | 34 | 37 | 39 | 43 |
| | Throw (ft.) | 23-35-53 | 31-43-61 | 39-48-68 | 45-53-74 | 46-57-80 | 50-61-86 | 53-64-91 | 55-68-96 | 61-74-105 |
| **6 x 36** | Total Pressure (in.w.g.) | 0.06 | 0.08 | 0.10 | 0.13 | 0.16 | 0.21 | 0.26 | 0.32 | 0.49 |
| | Flow Rate (cfm) | 450 | 600 | 750 | 900 | 1050 | 1200 | 1350 | 1500 | 1800 |
| | Sound (NC) | - | 11 | 16 | 24 | 30 | 34 | 37 | 40 | 43 |
| | Throw (ft.) | 25-38-58 | 34-47-67 | 42-53-74 | 47-58-81 | 51-62-88 | 54-67-94 | 58-71-100 | 61-74-105 | 67-81-115 |
| **6 x 42** | Total Pressure (in.w.g.) | 0.06 | 0.08 | 0.10 | 0.13 | 0.16 | 0.20 | 0.25 | 0.31 | 0.48 |
| | Flow Rate (cfm) | 525 | 700 | 875 | 1050 | 1225 | 1400 | 1575 | 1750 | 2100 |
| | Sound (NC) | - | 11 | 17 | 24 | 30 | 34 | 37 | 40 | 43 |
| | Throw (ft.) | 27-40-62 | 36-51-72 | 45-57-80 | 51-62-88 | 55-67-95 | 59-72-102 | 62-76-108 | 66-80-114 | 72-88-124 |
| **6 x 48** | Total Pressure (in.w.g.) | 0.06 | 0.08 | 0.10 | 0.13 | 0.16 | 0.20 | 0.25 | 0.31 | 0.47 |
| | Flow Rate (cfm) | 600 | 800 | 1000 | 1200 | 1400 | 1600 | 1800 | 2000 | 2400 |
| | Sound (NC) | - | 12 | 17 | 25 | 30 | 35 | 38 | 40 | 44 |
| | Throw (ft.) | 28-42-67 | 38-54-77 | 47-61-86 | 54-67-94 | 59-72-102 | 63-77-109 | 67-81-115 | 70-86-121 | 77-94-133 |
| **6 x 54** | Total Pressure (in.w.g.) | 0.06 | 0.07 | 0.10 | 0.12 | 0.16 | 0.20 | 0.25 | 0.30 | 0.47 |
| | Flow Rate (cfm) | 675 | 900 | 1125 | 1350 | 1575 | 1800 | 2025 | 2250 | 2700 |
| | Sound (NC) | - | 12 | 18 | 25 | 31 | 35 | 38 | 40 | 44 |
| | Throw (ft.) | 29-44-71 | 39-58-81 | 49-64-91 | 58-71-100 | 62-76-108 | 67-81-115 | 71-86-122 | 74-91-129 | 81-100-141 |
| **6 x 60** | Total Pressure (in.w.g.) | 0.06 | 0.07 | 0.09 | 0.12 | 0.15 | 0.19 | 0.24 | 0.30 | 0.46 |
| | Flow Rate (cfm) | 750 | 1000 | 1250 | 1500 | 1750 | 2000 | 2250 | 2500 | 3000 |
| | | - | 12 | 18 | 26 | 31 | 35 | 38 | 41 | 45 |
| | Throw (ft.) | 31-46-74 | 41-61-86 | 51-68-96 | 61-74-105 | 66-80-114 | 70-86-121 | 74-91-129 | 78-96-136 | 86-105-149 |

**Performance Notes:**

1. Tested in accordance with ASHRAE Standard 70-2006 "Method of Testing for Rating the Performance of Air Outlets and Inlets."
2. Air flow is in cfm.
3. All pressures are in in. w.g.
4. The NC values are based on a room absorption of 10 dB re $10^{-12}$ watts and one diffuser.
5. Blanks (-) indicate an NC level below 10.
6. Throw data is based on supply air and room air being at isothermal conditions.
7. Throw values are measured in feet for terminal velocities of 150 fpm (minimum), 100 fpm (middle) and 50 fpm (maximum).
8. The performance table above is based on units with 0° blade deflection and no dampers. Correction factors for other blade and damper configurations are listed in the following table.

**Correction Factors**

| | Blade Deflection | | | Damper | |
|---|---|---|---|---|---|
| | 0° | 15° | 30° | VCS3 | VCS5 |
| **NC** | - | +5 | +12 | +14 | 10 |
| **Throw** | - | x .85 | x.73 | - | - |
| **Total Press.** | - | x 1.35 | x 2.59 | x 1.42 | x 1.41 |

**Example:**

12 x 36 HCD
Flow Rate = 1800 cfm
Deflection = 15°
NC = 23 + 5 = 28
Throw (50 fpm) = 115 x .85 = 98 ft
Total Pressure = 0.11 x 1.35 = 0.149 in. w.g.

# PERFORMANCE DATA

## HCD

| Size | Duct Velocity (fpm) / Velocity Pressure (in.w.g.) | 300 / 0.01 | 400 / 0.01 | 500 / 0.02 | 600 / 0.02 | 700 / 0.03 | 800 / 0.04 | 900 / 0.05 | 1000 / 0.06 | 1200 / 0.09 |
|---|---|---|---|---|---|---|---|---|---|---|
| **10 x 18** | Total Pressure (in.w.g.) | 0.06 | 0.08 | 0.10 | 0.13 | 0.16 | 0.20 | 0.25 | 0.31 | 0.47 |
| | Flow Rate (cfm) | 375 | 500 | 625 | 750 | 875 | 1000 | 1125 | 1250 | 1500 |
| | Sound (NC) | - | - | 17 | 23 | 29 | 33 | 37 | 41 | 47 |
| | Throw (ft.) | 23-35-53 | 31-43-61 | 39-48-68 | 43-53-74 | 46-57-80 | 50-61-86 | 53-64-91 | 55-68-96 | 61-74-105 |
| **10 x 24** | Total Pressure (in.w.g.) | 0.06 | 0.07 | 0.09 | 0.12 | 0.15 | 0.19 | 0.24 | 0.30 | 0.46 |
| | Flow Rate (cfm) | 500 | 667 | 833 | 1000 | 1167 | 1333 | 1500 | 1667 | 2000 |
| | Sound (NC) | - | - | 12 | 19 | 24 | 29 | 33 | 37 | 43 |
| | Throw (ft.) | 26-39-61 | 35-50-70 | 44-55-78 | 50-61--86 | 54-66-93 | 57-70-99 | 61-74-105 | 64-78-111 | 70-86-121 |
| **10 x 30** | Total Pressure (in.w.g.) | 0.05 | 0.07 | 0.09 | 0.12 | 0.15 | 0.19 | 0.23 | 0.29 | 0.44 |
| | Flow Rate (cfm) | 625 | 833 | 1042 | 1250 | 1458 | 1667 | 1875 | 2083 | 2500 |
| | Sound (NC) | - | - | 12 | 19 | 24 | 29 | 33 | 36 | 43 |
| | Throw (ft.) | 29-43-68 | 38-55-78 | 48-62-88 | 55-68-96 | 60-73-104 | 64-78-111 | 68-83-118 | 72-88-124 | 78-96-136 |
| **10 x 36** | Total Pressure (in.w.g.) | 0.05 | 0.07 | 0.09 | 0.11 | 0.14 | 0.18 | 0.23 | 0.28 | 0.43 |
| | Flow Rate (cfm) | 750 | 1000 | 1250 | 1500 | 1750 | 2000 | 2250 | 2500 | 3000 |
| | Sound (NC) | - | - | 14 | 20 | 26 | 30 | 35 | 38 | 44 |
| | Throw (ft.) | 31-46-74 | 41-61-86 | 51-68-96 | 61-74-105 | 68-80-114 | 70-86-121 | 74-91-129 | 78-96-136 | 86-105-149 |
| **10 x 42** | Total Pressure (in.w.g.) | 0.05 | 0.07 | 0.09 | 0.11 | 0.14 | 0.18 | 0.22 | 0.28 | 0.42 |
| | Flow Rate (cfm) | 875 | 1167 | 1458 | 1750 | 2042 | 2333 | 2625 | 2917 | 3500 |
| | Sound (NC) | - | - | 16 | 23 | 28 | 33 | 37 | 41 | 47 |
| | Throw (ft.) | 33-49-80 | 43-65-93 | 54-73-104 | 65-80-114 | 71-87-123 | 76-93-131 | 80-98-139 | 85-104-147 | 93-114-161 |
| **10 x 48** | Total Pressure (in.w.g.) | 0.05 | 0.06 | 0.08 | 0.11 | 0.14 | 0.17 | 0.22 | 0.27 | 0.41 |
| | Flow Rate (cfm) | 1000 | 1333 | 1667 | 2000 | 2333 | 2667 | 3000 | 3333 | 4000 |
| | Sound (NC) | - | 11 | 19 | 26 | 31 | 36 | 40 | 43 | 49 |
| | Throw (ft.) | 34-52-86 | 46-69-99 | 57-78-111 | 69-86-121 | 76-93-131 | 81-99-140 | 86-105-149 | 91-111-157 | 99-121-172 |
| **10 x 54** | Total Pressure (in.w.g.) | 0.05 | 0.06 | 0.08 | 0.11 | 0.13 | 0.17 | 0.21 | 0.26 | 0.40 |
| | Flow Rate (cfm) | 1125 | 1500 | 1875 | 2250 | 2625 | 3000 | 3375 | 3750 | 4500 |
| | Sound (NC) | 10 | 14 | 22 | 28 | 34 | 39 | 43 | 46 | 52 |
| | Throw (ft.) | 36-54-91 | 48-72-105 | 60-83-118 | 72-91-129 | 80-98-139 | 86-105-149 | 91-112-158 | 96-118-166 | 105-129-182 |
| **10 x 60** | Total Pressure (in.w.g.) | 0.05 | 0.06 | 0.08 | 0.10 | 0.13 | 0.16 | 0.21 | 0.26 | 0.39 |
| | Flow Rate (cfm) | 1250 | 1667 | 2083 | 2500 | 2917 | 3333 | 3750 | 4167 | 5000 |
| | Sound (NC) | 13 | 17 | 25 | 31 | 37 | 42 | 46 | 49 | 55 |
| | Throw (ft.) | 37-56-96 | 50-75-111 | 62-88-124 | 75-96-136 | 85-104-147 | 91-111-157 | 96-118-166 | 101-124-175 | 111-136-192 |
| **10 x 66** | Total Pressure (in.w.g.) | 0.05 | 0.06 | 0.08 | 0.10 | 0.13 | 0.16 | 0.20 | 0.25 | 0.38 |
| | Flow Rate (cfm) | 1375 | 1833 | 2292 | 2750 | 3208 | 3667 | 4125 | 4583 | 5500 |
| | Sound (NC) | 16 | 20 | 28 | 34 | 40 | 44 | 48 | 52 | 58 |
| | Throw (ft.) | 39-58-101 | 52-78-116 | 65-92-130 | 78-101-142 | 89-109-154 | 95-116-164 | 101-123-174 | 106-130-184 | 116-142-201 |
| **10 x 72** | Total Pressure (in.w.g.) | 0.04 | 0.06 | 0.08 | 0.10 | 0.12 | 0.16 | 0.20 | 0.24 | 0.37 |
| | Flow Rate (cfm) | 1500 | 2000 | 2500 | 3000 | 3500 | 4000 | 4500 | 5000 | 6000 |
| | | 19 | 23 | 31 | 37 | 43 | 47 | 51 | 55 | 61 |
| | Throw (ft.) | 40-60-105 | 54-81-121 | 67-96-136 | 81-105-149 | 93-114-161 | 99-121-172 | 105-129-182 | 111-136-192 | 121-149-210 |

**Performance Notes:**

1. Tested in accordance with ASHRAE Standard 70-2006 "Method of Testing for Rating the Performance of Air Outlets and Inlets."
2. Air flow is in cfm.
3. All pressures are in in. w.g.
4. The NC values are based on a room absorption of 10 dB re $10^{-12}$ watts and one diffuser.
5. Blanks (-) indicate an NC level below 10.
6. Throw data is based on supply air and room air being at isothermal conditions.
7. Throw values are measured in feet for terminal velocities of 150 fpm (minimum), 100 fpm (middle) and 50 fpm (maximum).
8. The performance table above is based on units with 0° blade deflection and no dampers. Correction factors for other blade and damper configurations are listed in the following table.

**Correction Factors**

| | Blade Deflection | | | Damper | |
|---|---|---|---|---|---|
| | 0° | 15° | 30° | VCS3 | VCS5 |
| **NC** | - | +5 | +12 | +14 | 10 |
| **Throw** | - | x .85 | x.73 | - | - |
| **Total Press.** | - | x 1.35 | x 2.59 | x 1.42 | x 1.41 |

**Example:**

12 x 36 HCD
Flow Rate = 1800 cfm
Deflection = 15°
NC = 23 + 5 = 28
Throw (50 fpm) = 115 x .85 = 98 ft
Total Pressure = 0.11 x 1.35 = 0.149 in. w.g.

# PERFORMANCE DATA

## HCD

| Size | Duct Velocity (fpm) / Velocity Pressure (in.w.g.) | 300 / 0.01 | 400 / 0.01 | 500 / 0.02 | 600 / 0.02 | 700 / 0.03 | 800 / 0.04 | 900 / 0.05 | 1000 / 0.06 | 1200 / 0.09 |
|---|---|---|---|---|---|---|---|---|---|---|
| **12 x 18** | Total Pressure (in.w.g.) | 0.06 | 0.07 | 0.09 | 0.12 | 0.15 | 0.19 | 0.24 | 0.30 | 0.45 |
| | Flow Rate (cfm) | 450 | 600 | 750 | 900 | 1050 | 1200 | 1350 | 1500 | 1800 |
| | Sound (NC) | - | - | 21 | 27 | 33 | 37 | 41 | 45 | 51 |
| | Throw (ft.) | 25-38-58 | 34-47-67 | 42-53-74 | 47-58-81 | 51-62-88 | 54-67-94 | 58-71-100 | 61-74-105 | 67-81-115 |
| **12 x 24** | Total Pressure (in.w.g.) | 0.05 | 0.07 | 0.09 | 0.12 | 0.15 | 0.19 | 0.23 | 0.29 | 0.44 |
| | Flow Rate (cfm) | 600 | 800 | 1000 | 1200 | 1400 | 1600 | 1800 | 2000 | 2400 |
| | Sound (NC) | - | - | 15 | 22 | 27 | 32 | 36 | 40 | 46 |
| | Throw (ft.) | 28-42-67 | 38-54-77 | 47-61-86 | 54-67-94 | 59-72-102 | 63-77-109 | 67-81-115 | 70-86-121 | 77-94-133 |
| **12 x 30** | Total Pressure (in.w.g.) | 0.05 | 0.07 | 0.09 | 0.11 | 0.14 | 0.18 | 0.22 | 0.28 | 0.42 |
| | Flow Rate (cfm) | 750 | 1000 | 1250 | 1500 | 1750 | 2000 | 2250 | 2500 | 3000 |
| | Sound (NC) | - | - | 15 | 21 | 27 | 31 | 35 | 39 | 45 |
| | Throw (ft.) | 31-46-74 | 41-61-86 | 51-68-96 | 61-74-105 | 66-80-114 | 70-86-121 | 74-91-129 | 78-96-136 | 86-105-149 |
| **12 x 36** | Total Pressure (in.w.g.) | 0.05 | 0.07 | 0.08 | 0.11 | 0.14 | 0.17 | 0.22 | 0.27 | 0.41 |
| | Flow Rate (cfm) | 900 | 1200 | 1500 | 1800 | 2100 | 2400 | 2700 | 3000 | 3600 |
| | Sound (NC) | - | - | 17 | 23 | 28 | 33 | 37 | 40 | 46 |
| | Throw (ft.) | 33-49-81 | 44-66-94 | 55-74-105 | 66-81-115 | 72-88-124 | 77-94-133 | 81-100-141 | 86-105-149 | 94-115-163 |
| **12 x 42** | Total Pressure (in.w.g.) | 0.05 | 0.06 | 0.08 | 0.11 | 0.13 | 0.17 | 0.21 | 0.26 | 0.40 |
| | Flow Rate (cfm) | 1050 | 1400 | 1750 | 2100 | 2450 | 2800 | 3150 | 3500 | 4200 |
| | Sound (NC) | - | 11 | 19 | 25 | 30 | 35 | 39 | 42 | 49 |
| | Throw (ft.) | 35-53-88 | 47-70-102 | 58-80-114 | 70-88-124 | 78-95-134 | 83-102-144 | 88-108-152 | 93-114-161 | 102-124-176 |
| **12 x 48** | Total Pressure (in.w.g.) | 0.05 | 0.06 | 0.08 | 0.10 | 0.13 | 0.16 | 0.20 | 0.25 | 0.39 |
| | Flow Rate (cfm) | 1200 | 1600 | 2000 | 2400 | 2800 | 3200 | 3600 | 4000 | 4800 |
| | Sound (NC) | - | 14 | 21 | 27 | 33 | 37 | 41 | 45 | 51 |
| | Throw (ft.) | 37-55-94 | 49-74-109 | 62-86-121 | 74-94-133 | 83-102-144 | 89-109-154 | 94-115-163 | 99-121-172 | 109-133-188 |
| **12 x 54** | Total Pressure (in.w.g.) | 0.05 | 0.06 | 0.08 | 0.10 | 0.13 | 0.16 | 0.20 | 0.25 | 0.38 |
| | Flow Rate (cfm) | 1350 | 1800 | 2250 | 2700 | 3150 | 3600 | 4050 | 4500 | 5400 |
| | Sound (NC) | 11 | 16 | 24 | 30 | 35 | 40 | 44 | 48 | 54 |
| | Throw (ft.) | 39-58-100 | 52-77-115 | 64-91-129 | 77-100-141 | 88-108-152 | 94-115-163 | 100-122-173 | 105-129-182 | 115-141-200 |
| **12 x 60** | Total Pressure (in.w.g.) | 0.04 | 0.06 | 0.07 | 0.10 | 0.12 | 0.15 | 0.19 | 0.24 | 0.37 |
| | Flow Rate (cfm) | 1500 | 2000 | 2500 | 3000 | 3500 | 4000 | 4500 | 5000 | 6000 |
| | Sound (NC) | 14 | 18 | 26 | 33 | 38 | 43 | 47 | 51 | 57 |
| | Throw (ft.) | 40-60-105 | 54-81-121 | 67-96-136 | 81-105-149 | 93-114-161 | 99-121-172 | 105-129-182 | 111-136-192 | 121-149-210 |
| **12 x 66** | Total Pressure (in.w.g.) | 0.04 | 0.06 | 0.07 | 0.09 | 0.12 | 0.15 | 0.19 | 0.23 | 0.36 |
| | Flow Rate (cfm) | 1650 | 2200 | 2750 | 3300 | 3850 | 4400 | 4950 | 5500 | 6600 |
| | Sound (NC) | 17 | 21 | 29 | 36 | 41 | 46 | 50 | 53 | 59 |
| | Throw (ft.) | 42-63-110 | 56-84-127 | 70-101-142 | 84-110-156 | 97-119-168 | 104-127-180 | 110-135-191 | 116-142-201 | 127-156-221 |
| **12 x 72** | Total Pressure (in.w.g.) | 0.04 | 0.05 | 0.07 | 0.09 | 0.12 | 0.15 | 0.18 | 0.23 | 0.35 |
| | Flow Rate (cfm) | 1800 | 2400 | 3000 | 3600 | 4200 | 4800 | 5400 | 6000 | 7200 |
| | | 19 | 24 | 32 | 38 | 44 | 48 | 52 | 56 | 62 |
| | Throw (ft.) | 43-65-115 | 58-87-133 | 72-105-149 | 87-115-163 | 101-124-176 | 109-133-188 | 115-141-200 | 121-149-210 | 133-163-230 |

**Performance Notes:**

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3. All pressures are in in. w.g.
4. The NC values are based on a room absorption of 10 dB re $10^{-12}$ watts and one diffuser.
5. Blanks (-) indicate an NC level below 10.
6. Throw data is based on supply air and room air being at isothermal conditions.
7. Throw values are measured in feet for terminal velocities of 150 fpm (minimum), 100 fpm (middle) and 50 fpm (maximum).
8. The performance table above is based on units with 0° blade deflection and no dampers. Correction factors for other blade and damper configurations are listed in the following table.

**Correction Factors**

| | Blade Deflection | | | Damper | |
|---|---|---|---|---|---|
| | 0° | 15° | 30° | VCS3 | VCS5 |
| **NC** | - | +5 | +12 | +14 | 10 |
| **Throw** | - | x .85 | x.73 | - | - |
| **Total Press.** | - | x 1.35 | x 2.59 | x 1.42 | x 1.41 |

**Example:**

12 x 36 HCD
Flow Rate = 1800 cfm
Deflection = 15°
NC = 23 + 5 = 28
Throw (50 fpm) = 115 x .85 = 98 ft
Total Pressure = 0.11 x 1.35 = 0.149 in. w.g.

# PERFORMANCE DATA

## HCD

| Size | Duct Velocity (fpm) | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1200 |
|---|---|---|---|---|---|---|---|---|---|---|
| | Velocity Pressure (in.w.g.) | 0.01 | 0.01 | 0.02 | 0.02 | 0.03 | 0.04 | 0.05 | 0.06 | 0.09 |
| 15 x 18 | Total Pressure (in.w.g.) | 0.05 | 0.07 | 0.09 | 0.12 | 0.15 | 0.18 | 0.23 | 0.29 | 0.44 |
| | Flow Rate (cfm) | 563 | 750 | 938 | 1125 | 1313 | 1500 | 1688 | 1875 | 2250 |
| | Sound (NC) | - | - | 20 | 27 | 32 | 37 | 41 | 44 | 50 |
| | Throw (ft.) | 27-41-64 | 37-53-74 | 46-59-83 | 53-64-91 | 57-70-98 | 61-74-105 | 64-79-112 | 68-83-118 | 74-91-129 |
| 15 x 24 | Total Pressure (in.w.g.) | 0.05 | 0.07 | 0.09 | 0.11 | 0.14 | 0.18 | 0.22 | 0.27 | 0.42 |
| | Flow Rate (cfm) | 750 | 1000 | 1250 | 1500 | 1750 | 2000 | 2250 | 2500 | 3000 |
| | Sound (NC) | - | - | 15 | 21 | 26 | 31 | 35 | 38 | 44 |
| | Throw (ft.) | 31-46-74 | 41-61-86 | 51-68-96 | 61-74-105 | 66-80-114 | 70-86-121 | 74-91-129 | 78-96-136 | 86-105-149 |
| 15 x 30 | Total Pressure (in.w.g.) | 0.05 | 0.06 | 0.08 | 0.11 | 0.13 | 0.17 | 0.21 | 0.26 | 0.40 |
| | Flow Rate (cfm) | 938 | 1250 | 1563 | 1875 | 2188 | 2500 | 2813 | 3125 | 3750 |
| | Sound (NC) | - | - | 15 | 21 | 26 | 30 | 34 | 37 | 43 |
| | Throw (ft.) | 34-50-83 | 45-67-96 | 56-76-107 | 67-83-118 | 73-90-127 | 78-96-136 | 83-102-144 | 88-107-152 | 96-118-166 |
| 15 x 36 | Total Pressure (in.w.g.) | 0.05 | 0.06 | 0.08 | 0.10 | 0.13 | 0.16 | 0.20 | 0.25 | 0.39 |
| | Flow Rate (cfm) | 1125 | 1500 | 1875 | 2250 | 2625 | 3000 | 3375 | 3750 | 4500 |
| | Sound (NC) | - | - | 16 | 22 | 27 | 31 | 35 | 38 | 44 |
| | Throw (ft.) | 36-54-91 | 48-72-105 | 60-83-118 | 72-91-129 | 80-98-139 | 86-105-149 | 91-112-158 | 96-118-166 | 105-129-182 |
| 15 x 42 | Total Pressure (in.w.g.) | 0.04 | 0.06 | 0.08 | 0.10 | 0.13 | 0.16 | 0.20 | 0.25 | 0.37 |
| | Flow Rate (cfm) | 1313 | 1750 | 2188 | 2625 | 3063 | 3500 | 3938 | 4375 | 5250 |
| | Sound (NC) | - | - | 17 | 24 | 29 | 33 | 37 | 40 | 45 |
| | Throw (ft.) | 38-57-98 | 51-76-114 | 64-90-127 | 76-98-139 | 87-106-150 | 93-114-161 | 98-120-170 | 104-127-180 | 114-139-197 |
| 15 x 48 | Total Pressure (in.w.g.) | 0.04 | 0.06 | 0.07 | 0.09 | 0.12 | 0.15 | 0.19 | 0.24 | 0.36 |
| | Flow Rate (cfm) | 1500 | 2000 | 2500 | 3000 | 3500 | 4000 | 4500 | 5000 | 6000 |
| | Sound (NC) | - | 12 | 20 | 26 | 31 | 35 | 39 | 42 | 48 |
| | Throw (ft.) | 40-60-105 | 54-81-121 | 67-96-136 | 81-105-149 | 93-114-161 | 99-121-172 | 105-129-182 | 111-136-192 | 121-149-210 |
| 15 x 54 | Total Pressure (in.w.g.) | 0.04 | 0.05 | 0.07 | 0.09 | 0.12 | 0.15 | 0.18 | 0.23 | 0.35 |
| | Flow Rate (cfm) | 1688 | 2250 | 2813 | 3375 | 3938 | 4500 | 5063 | 5625 | 6750 |
| | Sound (NC) | - | 14 | 22 | 28 | 33 | 38 | 41 | 44 | 50 |
| | Throw (ft.) | 42-63-112 | 56-84-129 | 70-102-144 | 84-112-158 | 98-120-170 | 105-129-182 | 112-137-193 | 118-144-204 | 129-158-223 |
| 15 x 60 | Total Pressure (in.w.g.) | 0.04 | 0.05 | 0.07 | 0.09 | 0.11 | 0.14 | 0.18 | 0.22 | 0.34 |
| | Flow Rate (cfm) | 1875 | 2500 | 3125 | 3750 | 4375 | 5000 | 5625 | 6250 | 7500 |
| | Sound (NC) | - | 17 | 24 | 30 | 36 | 40 | 44 | 47 | 53 |
| | Throw (ft.) | 44-66-118 | 59-88-136 | 73-107-152 | 88-118-166 | 103-127-180 | 111-136-192 | 118-144-204 | 124-152-215 | 136-166-235 |
| 15 x 66 | Total Pressure (in.w.g.) | 0.04 | 0.05 | 0.07 | 0.09 | 0.11 | 0.14 | 0.17 | 0.21 | 0.33 |
| | Flow Rate (cfm) | 2063 | 2750 | 3438 | 4125 | 4813 | 5500 | 6188 | 6875 | 8250 |
| | Sound (NC) | 10 | 19 | 27 | 33 | 38 | 42 | 46 | 49 | 55 |
| | Throw (ft.) | 46-68-123 | 61-91-142 | 76-113-159 | 91-123-174 | 106-133-188 | 116-142-201 | 123-151-214 | 130-159-225 | 142-174-247 |
| 15 x 72 | Total Pressure (in.w.g.) | 0.04 | 0.05 | 0.06 | 0.08 | 0.11 | 0.13 | 0.17 | 0.21 | 0.32 |
| | Flow Rate (cfm) | 2250 | 3000 | 3750 | 4500 | 5250 | 6000 | 6750 | 7500 | 9000 |
| | | 13 | 21 | 29 | 35 | 40 | 45 | 48 | 52 | 58 |
| | Throw (ft.) | 47-71-129 | 63-94-149 | 79-118-166 | 94-129-182 | 110-139-197 | 121-149-210 | 129-158-223 | 136-166-235 | 149-182-258 |

**Performance Notes:**

1. Tested in accordance with ASHRAE Standard 70-2006 "Method of Testing for Rating the Performance of Air Outlets and Inlets."
2. Air flow is in cfm.
3. All pressures are in in. w.g.
4. The NC values are based on a room absorption of 10 dB re $10^{-12}$ watts and one diffuser.
5. Blanks (-) indicate an NC level below 10.
6. Throw data is based on supply air and room air being at isothermal conditions.
7. Throw values are measured in feet for terminal velocities of 150 fpm (minimum), 100 fpm (middle) and 50 fpm (maximum).
8. The performance table above is based on units with 0° blade deflection and no dampers. Correction factors for other blade and damper configurations are listed in the following table.

**Correction Factors**

| | Blade Deflection | | | Damper | |
|---|---|---|---|---|---|
| | 0° | 15° | 30° | VCS3 | VCS5 |
| NC | - | +5 | +12 | +14 | 10 |
| Throw | - | x .85 | x.73 | - | - |
| Total Press. | - | x 1.35 | x 2.59 | x 1.42 | x 1.41 |

**Example:**

12 x 36 HCD
Flow Rate = 1800 cfm
Deflection = 15°
NC = 23 + 5 = 28
Throw (50 fpm) = 115 x .85 = 98 ft
Total Pressure = 0.11 x 1.35 = 0.149 in. w.g.

# PERFORMANCE DATA

## DLSS

| Size | Discharge Velocity (fpm) | 750 | 1000 | 1250 | 1500 | 1750 | 2000 |
|---|---|---|---|---|---|---|---|
| **06 x 12** | Flow Rate (cfm) | 161 | 215 | 269 | 323 | 376 | 430 |
| | Total Pressure (in. w.g.) | 0.04 | 0.07 | 0.12 | 0.17 | 0.23 | 0.3 |
| | Sound (NC) | <15 | <15 | 15 | 22 | 27 | 32 |
| | Throw (ft.) | 5-10-23 | 8-16-31 | 10-19-35 | 11-23-38 | 13-27-41 | 16-31-44 |
| **06 x 24** | Flow Rate (cfm) | 425 | 566 | 708 | 849 | 991 | 1132 |
| | Total Pressure (in. w.g.) | 0.08 | 0.13 | 0.21 | 0.3 | 0.41 | 0.54 |
| | Sound (NC) | <15 | 21 | 29 | 35 | 41 | 45 |
| | Throw (ft.) | 15-31-43 | 20-35-50 | 26-40-56 | 31-43-61 | 33-47-66 | 35-50-71 |
| **06 x 36** | Flow Rate (cfm) | 636 | 848 | 1060 | 1272 | 1484 | 1696 |
| | Total Pressure (in. w.g.) | 0.08 | 0.14 | 0.21 | 0.3 | 0.41 | 0.54 |
| | Sound (NC) | <15 | 23 | 31 | 37 | 43 | 47 |
| | Throw (ft.) | 23-38-53 | 31-43-61 | 34-48-69 | 38-53-75 | 41-57-81 | 43-61-87 |
| **06 x 60** | Flow Rate (cfm) | 1058 | 1410 | 1763 | 2115 | 2468 | 2820 |
| | Total Pressure (in. w.g.) | 0.08 | 0.14 | 0.21 | 0.31 | 0.42 | 0.55 |
| | Sound (NC) | 15 | 25 | 33 | 39 | 45 | 50 |
| | Throw (ft.) | 34-48-68 | 40-56-79 | 44-62-88 | 48-68-97 | 52-74-105 | 56-79-112 |
| **10 x 20** | Flow Rate (cfm) | 617 | 823 | 1029 | 1235 | 1440 | 1646 |
| | Total Pressure (in. w.g.) | 0.06 | 0.11 | 0.17 | 0.24 | 0.33 | 0.43 |
| | Sound (NC) | <15 | 25 | 33 | 39 | 45 | 49 |
| | Throw (ft.) | 22-37-52 | 30-43-60 | 34-48-68 | 37-52-74 | 40-56-80 | 43-60-85 |
| **10 x 30** | Flow Rate (cfm) | 924 | 1231 | 1539 | 1847 | 2154 | 2462 |
| | Total Pressure (in. w.g.) | 0.06 | 0.11 | 0.17 | 0.25 | 0.34 | 0.44 |
| | Sound (NC) | 16 | 27 | 35 | 41 | 46 | 51 |
| | Throw (ft.) | 32-45-64 | 37-52-74 | 41-58-83 | 45-64-90 | 49-69-98 | 52-74-104 |
| **10 x 40** | Flow Rate (cfm) | 1229 | 1639 | 2049 | 2459 | 2868 | 3278 |
| | Total Pressure (in. w.g.) | 0.07 | 0.12 | 0.18 | 0.26 | 0.35 | 0.45 |
| | Sound (NC) | 18 | 28 | 36 | 42 | 48 | 53 |
| | Throw (ft.) | 37-52-74 | 43-60-85 | 48-67-95 | 52-74-104 | 56-80-113 | 60-85-120 |
| **10 x 60** | Flow Rate (cfm) | 1841 | 2455 | 3069 | 3683 | 4296 | 4910 |
| | Total Pressure (in. w.g.) | 0.07 | 0.12 | 0.18 | 0.26 | 0.35 | 0.45 |
| | Sound (NC) | 20 | 30 | 38 | 44 | 50 | 54 |
| | Throw (ft.) | 45-64-90 | 52-74-104 | 58-82-117 | 64-90-128 | 69-98-138 | 74-104-147 |
| **10 x 70** | Flow Rate (cfm) | 2147 | 2863 | 3579 | 4294 | 5010 | 5726 |
| | Total Pressure (in. w.g.) | 0.07 | 0.12 | 0.18 | 0.26 | 0.35 | 0.45 |
| | Sound (NC) | 20 | 31 | 38 | 45 | 50 | 55 |
| | Throw (ft.) | 49-69-98 | 56-80-113 | 63-89-126 | 69-98-138 | 74-105-149 | 80-113-159 |

**Performance Notes:**

1. Tested in accordance with ASHRAE Standard 70-2006 "Method of Testing for Rating the Performance of Air Outlets and Inlets."
2. Air flow cfm: Based on standard air density and isothermal conditions.
3. Noise Criteria: Noise criteria [NC] curve which is not exceeded with a Room Attenuation of 10db and based on Sound Power Level Re: $10^{-12}$ watts.
4. Projection: Projection distance [THROW] in feet from the Louver discharge at which the maximum velocity has been reduced to specified terminal velocity [Vt].
5. Discharge Velocity: Discharge Velocity in feet per minute [fpm].
6. Terminal Velocity: Maximum velocity [Vt] in feet per minute at the specified distance from the outlet face [THROW] 200 fpm, 100 fpm, and 50 fpm respectively.

**Performance values for various deflection angles**

| Deflection Angle | 0° | 10° | 30° |
|---|---|---|---|
| Static Pressure [times] | 1.0 | 1.2 | 1.8 |
| Throw-Projection [times] | 1.0 | 0.8 | 0.7 |
| Noise Criteria – NC [add] | +0 | +3 | +7 |

# PERFORMANCE DATA

## DLSS

| Size | Discharge Velocity (fpm) | 750 | 1000 | 1250 | 1500 | 1750 | 2000 |
|---|---|---|---|---|---|---|---|
| **12 x 20** | Flow Rate (cfm) | 723 | 963 | 1204 | 1445 | 1685 | 1926 |
| | Total Pressure (in. w.g.) | 0.05 | 0.10 | 0.15 | 0.22 | 0.30 | 0.39 |
| | Sound (NC) | <15 | 25 | 33 | 39 | 45 | 49 |
| | Throw (ft.) | 26-40-57 | 33-46-65 | 37-52-73 | 40-57-80 | 43-61-86 | 46-65-92 |
| **12 x 40** | Flow Rate (cfm) | 1439 | 1918 | 2398 | 2877 | 3357 | 3836 |
| | Total Pressure (in. w.g.) | 0.06 | 0.10 | 0.15 | 0.22 | 0.30 | 0.40 |
| | Sound (NC) | 18 | 28 | 36 | 42 | 48 | 53 |
| | Throw (ft.) | 40-56-80 | 46-65-92 | 52-73-103 | 56-80-113 | 61-86-122 | 65-92-130 |
| **12 x 60** | Flow Rate (cfm) | 2155 | 2873 | 3591 | 4309 | 5028 | 5746 |
| | Total Pressure (in. w.g.) | 0.06 | 0.10 | 0.16 | 0.22 | 0.31 | 0.40 |
| | Sound (NC) | 20 | 30 | 38 | 44 | 50 | 55 |
| | Throw (ft.) | 49-69-98 | 56-80-113 | 63-89-126 | 69-98-138 | 75-106-149 | 80-113-160 |
| **12 x 70** | Flow Rate (cfm) | 2513 | 3351 | 4189 | 5027 | 5864 | 6 702 |
| | Total Pressure (in. w.g.) | 0.06 | 0.10 | 0.16 | 0.23 | 0.31 | 0.40 |
| | Sound (NC) | 20 | 31 | 39 | 45 | 51 | 55 |
| | Throw (ft.) | 53-75-105 | 61-86-122 | 68-96-136 | 75-106-149 | 81-114-161 | 86-122-172 |
| **15 x 20** | Flow Rate (cfm) | 1032 | 1375 | 1719 | 2063 | 2406 | 2750 |
| | Total Pressure (in. w.g.) | 0.06 | 0.11 | 0.17 | 0.24 | 0.33 | 0.43 |
| | Sound (NC) | 20 | 30 | 38 | 44 | 50 | 55 |
| | Throw (ft.) | 34-48-68 | 39-55-78 | 44-62-87 | 48-68-96 | 52-73-103 | 55-78-110 |
| **15 x 40** | Flow Rate (cfm) | 2053 | 2738 | 3423 | 4107 | 4791 | 5476 |
| | Total Pressure (in. w.g.) | 0.06 | 0.11 | 0.17 | 0.25 | 0.34 | 0.44 |
| | Sound (NC) | 23 | 33 | 41 | 48 | 53 | 58 |
| | Throw (ft.) | 48-67-95 | 55-78-110 | 62-87-123 | 67-95-135 | 73-103-146 | 78-110-156 |
| **15 x 50** | Flow Rate (cfm) | 2565 | 3419 | 4274 | 5129 | 5983 | 6838 |
| | Total Pressure (in. w.g.) | 0.06 | 0.11 | 0.17 | 0.25 | 0.34 | 0.44 |
| | Sound (NC) | 24 | 34 | 42 | 49 | 54 | 59 |
| | Throw (ft.) | 53-75-107 | 62-87-123 | 69-97-138 | 75-107-151 | 81-115-163 | 87-123-174 |
| **15 x 60** | Flow Rate (cfm) | 3076 | 4101 | 5126 | 6151 | 7177 | 8202 |
| | Total Pressure (in. w.g.) | 0.06 | 0.11 | 0.17 | 0.25 | 0.34 | 0.44 |
| | Sound (NC) | 25 | 35 | 43 | 50 | 55 | 60 |
| | Throw (ft.) | 58-83-117 | 67-95-135 | 75-107-151 | 83-117-165 | 89-126-178 | 95-135-191 |
| **15 x 70** | Flow Rate (cfm) | 3587 | 4783 | 5979 | 7175 | 8370 | 9566 |
| | Total Pressure (in. w.g.) | 0.06 | 0.11 | 0.17 | 0.25 | 0.34 | 0.44 |
| | Sound (NC) | 26 | 36 | 44 | 50 | 56 | 60 |
| | Throw (ft.) | 63-89-126 | 73-103-146 | 81-115-163 | 89-126-178 | 96-136-193 | 105-146-206 |

**Performance Notes:**

1. Tested in accordance with ASHRAE Standard 70-2006 "Method of Testing for Rating the Performance of Air Outlets and Inlets."
2. Air flow cfm: Based on standard air density and isothermal conditions.
3. Noise Criteria: Noise criteria [NC] curve which is not exceeded with a Room Attenuation of 10db and based on Sound Power Level Re: $10^{-12}$ watts.
4. Projection: Projection distance [THROW] in feet from the Louver discharge at which the maximum velocity has been reduced to specified terminal velocity [Vt].
5. Discharge Velocity: Discharge Velocity in feet per minute [fpm].
6. Terminal Velocity: Maximum velocity [Vt] in feet per minute at the specified distance from the outlet face [THROW] 200 fpm, 100 fpm, and 50 fpm respectively.

**Performance values for various deflection angles**

| Deflection Angle | 0° | 10° | 30° |
|---|---|---|---|
| Static Pressure [times] | 1.0 | 1.2 | 1.8 |
| Throw-Projection [times] | 1.0 | 0.8 | 0.7 |
| Noise Criteria – NC [add] | +0 | +3 | +7 |

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