

# PERFORMANCE DATA

## HCD

| Size   | Duct Velocity (fpm)<br>Velocity Pressure (in.w.g.) | 300<br>0.006 | 400<br>0.01 | 500<br>0.016 | 600<br>0.022 | 700<br>0.031 | 800<br>0.04 | 900<br>0.05 | 1000<br>0.062 | 1200<br>0.09 |
|--------|--|--------------|-------------|--------------|--------------|--------------|-------------|-------------|---------------|--------------|
| 6 x 9  | Total Pressure (in.w.g.)                           | 0.046        | 0.077       | 0.123        | 0.169        | 0.238        | 0.308       | 0.384       | 0.477         | 0.692        |
|        | Flow Rate (cfm)                                    | 113          | 150         | 188          | 225          | 263          | 300         | 338         | 375           | 450          |
|        | Sound (NC)   | -            | -           | 18           | 24           | 29           | 34          | 38          | 42            | 48           |
|        | 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.)                           | 0.042        | 0.07        | 0.112        | 0.154        | 0.216        | 0.279       | 0.349       | 0.433         | 0.628        |
|        | Flow Rate (cfm)                                    | 150          | 200         | 250          | 300          | 350          | 400         | 450         | 500           | 600          |
|        | Sound (NC)   | -            | -           | 19           | 25           | 30           | 35          | 39          | 43            | 49           |
|        | 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.)                           | 0.039        | 0.065       | 0.104        | 0.142        | 0.201        | 0.259       | 0.324       | 0.401         | 0.582        |
|        | Flow Rate (cfm)                                    | 188          | 250         | 313          | 375          | 438          | 500         | 563         | 625           | 750          |
|        | Sound (NC)   | -            | -           | 19           | 26           | 31           | 36          | 40          | 44            | 50           |
|        | Throw (ft.)  | 18-26-37     | 24-30-43    | 28-34-48     | 30-37-53     | 33-40-57     | 35-43-61    | 37-46-64    | 39-48-68      | 43-53-74     |
| 6 x 18 | Total Pressure (in.w.g.)                           | 0.037        | 0.061       | 0.097        | 0.134        | 0.189        | 0.243       | 0.304       | 0.377         | 0.548        |
|        | Flow Rate (cfm)                                    | 225          | 300         | 375          | 450          | 525          | 600         | 675         | 750           | 900          |
|        | Sound (NC)   | -            | -           | 20           | 26           | 32           | 36          | 40          | 44            | 51           |
|        | 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.)                           | 0.031        | 0.051       | 0.082        | 0.113        | 0.159        | 0.205       | 0.256       | 0.318         | 0.461        |
|        | Flow Rate (cfm)                                    | 375          | 500         | 625          | 750          | 875          | 1000        | 1125        | 1250          | 1500         |
|        | Sound (NC)   | -            | -           | 21           | 28           | 33           | 38          | 42          | 46            | 52           |
|        | 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    |
| 6 x 36 | Total Pressure (in.w.g.)                           | 0.029        | 0.048       | 0.077        | 0.106        | 0.149        | 0.193       | 0.241       | 0.299         | 0.433        |
|        | Flow Rate (cfm)                                    | 450          | 600         | 750          | 900          | 1050         | 1200        | 1350        | 1500          | 1800         |
|        | Sound (NC)   | -            | -           | 22           | 28           | 34           | 38          | 43          | 46            | 53           |
|        | 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.)                           | 0.027        | 0.046       | 0.073        | 0.101        | 0.142        | 0.183       | 0.229       | 0.283         | 0.411        |
|        | Flow Rate (cfm)                                    | 525          | 700         | 875          | 1050         | 1225         | 1400        | 1575        | 1750          | 2100         |
|        | Sound (NC)   | -            | -           | 22           | 29           | 34           | 39          | 43          | 47            | 53           |
|        | 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.)                           | 0.026        | 0.044       | 0.07         | 0.096        | 0.135        | 0.175       | 0.218       | 0.271         | 0.393        |
|        | Flow Rate (cfm)                                    | 600          | 800         | 1000         | 1200         | 1400         | 1600        | 1800        | 2000          | 2400         |
|        | Sound (NC)   | -            | -           | 23           | 29           | 35           | 39          | 43          | 47            | 54           |
|        | 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.)                           | 0.025        | 0.042       | 0.067        | 0.092        | 0.13         | 0.168       | 0.21        | 0.26          | 0.378        |
|        | Flow Rate (cfm)                                    | 675          | 900         | 1125         | 1350         | 1575         | 1800        | 2025        | 2250          | 2700         |
|        | Sound (NC)   | -            | 15          | 23           | 29           | 35           | 40          | 44          | 47            | 54           |
|        | 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.)                           | 0.024        | 0.041       | 0.065        | 0.089        | 0.126        | 0.162       | 0.203       | 0.251         | 0.365        |
|        | Flow Rate (cfm)                                    | 750          | 1000        | 1250         | 1500         | 1750         | 2000        | 2250        | 2500          | 3000         |
|        | Sound (NC)   | -            | 16          | 23           | 30           | 35           | 40          | 44          | 48            | 54           |
|        | 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:

- Tested in accordance with ASHRAE Standard 70-2006 "Method of Testing for Rating the Performance of Air Outlets and Inlets."
- Air flow is in cfm.
- All pressures are in in. w.g.
- The NC values are based on a room absorption of 10 dB re 10<sup>-12</sup> watts and one diffuser.
- Blanks (-) indicate an NC level below 15.
- Throw data is based on supply air and room air being at isothermal conditions.
- Throw values are measured in feet for terminal velocities of 150fpm (minimum), 100fpm (middle) and 50fpm (maximum).

### Correction Factors

| Model<br>Deflection | HCD1 |       |       | HCD2  |       |       |
|---------------------|------|-------|-------|-------|-------|-------|
|                     | 0°   | 15°   | 30°   | 0°    | 15°   | 30°   |
| NC                  | -    | 4     | 9     | -     | 4     | 9     |
| Throw               | -    | x .85 | x.73  | -     | x .85 | x .73 |
| Total Press.        | -    | x 1.5 | x 1.9 | x 1.3 | x 1.7 | x 2.2 |

Based on HCD1 at 0° deflection, correction factors for other conditions as listed in table opposite.

### Example:

- 12 x 36 HCD2  
 Flow Rate = 1800 cfm  
 Deflection = 15°  
 NC = 30 + 4 = 34  
 Throw (50 fpm) = 115 x .85 = 98 ft  
 Total Pressure = .086 x 1.7 = 0.146 in. w.g.
- For units with dampers, add 7 to the NC, and multiply static pressure by 1.18.

# PERFORMANCE DATA

## HCD

| Size    | Duct Velocity (fpm)<br>Velocity Pressure (in.w.g.) | 300       | 400       | 500       | 600        | 700        | 800        | 900         | 1000        | 1200        |
|---------|--|-----------|-----------|-----------|------------|------------|------------|-------------|-------------|-------------|
|         |  | 0.006     | 0.010     | 0.016     | 0.022      | 0.031      | 0.040      | 0.05        | 0.062       | 0.09        |
| 10 x 18 | Total Pressure (in.w.g.)                           | 0.031     | 0.051     | 0.082     | 0.113      | 0.159      | 0.205      | 0.256       | 0.318       | 0.461       |
|         | Flow Rate (cfm)                                    | 375       | 500       | 625       | 750        | 875        | 1000       | 1125        | 1250        | 1500        |
|         | Sound (NC)   | -         | -         | 21        | 28         | 33         | 38         | 42          | 46          | 52          |
|         | 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.)                           | 0.028     | 0.046     | 0.074     | 0.102      | 0.144      | 0.186      | 0.232       | 0.288       | 0.418       |
|         | Flow Rate (cfm)                                    | 500       | 667       | 833       | 1000       | 1167       | 1333       | 1500        | 1667        | 2000        |
|         | Sound (NC)   | -         | -         | 22        | 29         | 34         | 39         | 43          | 47          | 53          |
|         | 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.)                           | 0.026     | 0.043     | 0.069     | 0.095      | 0.134      | 0.172      | 0.216       | 0.267       | 0.388       |
|         | Flow Rate (cfm)                                    | 625       | 833       | 1042      | 1250       | 1458       | 1667       | 1875        | 2083        | 2500        |
|         | Sound (NC)   | -         | -         | 23        | 29         | 35         | 39         | 44          | 47          | 54          |
|         | 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.)                           | 0.024     | 0.041     | 0.065     | 0.089      | 0.126      | 0.162      | 0.203       | 0.251       | 0.365       |
|         | Flow Rate (cfm)                                    | 750       | 1000      | 1250      | 1500       | 1750       | 2000       | 2250        | 2500        | 3000        |
|         | Sound (NC)   | -         | 16        | 23        | 30         | 35         | 40         | 44          | 48          | 54          |
|         | 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  |
| 10 x 42 | Total Pressure (in.w.g.)                           | 0.023     | 0.038     | 0.062     | 0.085      | 0.119      | 0.154      | 0.192       | 0.239       | 0.346       |
|         | Flow Rate (cfm)                                    | 875       | 1167      | 1458      | 1750       | 2042       | 2333       | 2625        | 2917        | 3500        |
|         | Sound (NC)   | -         | 16        | 24        | 30         | 36         | 40         | 45          | 48          | 55          |
|         | 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.)                           | 0.022     | 0.037     | 0.059     | 0.081      | 0.114      | 0.147      | 0.184       | 0.228       | 0.331       |
|         | Flow Rate (cfm)                                    | 1000      | 1333      | 1667      | 2000       | 2333       | 2667       | 3000        | 3333        | 4000        |
|         | Sound (NC)   | -         | 16        | 24        | 31         | 36         | 41         | 45          | 49          | 55          |
|         | 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.)                           | 0.021     | 0.035     | 0.057     | 0.078      | 0.110      | 0.141      | 0.177       | 0.219       | 0.318       |
|         | Flow Rate (cfm)                                    | 1125      | 1500      | 1875      | 2250       | 2625       | 3000       | 3375        | 3750        | 4500        |
|         | Sound (NC)   | -         | 17        | 25        | 31         | 36         | 41         | 45          | 49          | 55          |
|         | 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.)                           | 0.020     | 0.034     | 0.055     | 0.075      | 0.106      | 0.136      | 0.171       | 0.211       | 0.307       |
|         | Flow Rate (cfm)                                    | 1250      | 1667      | 2083      | 2500       | 2917       | 3333       | 3750        | 4167        | 5000        |
|         | Sound (NC)   | -         | 17        | 25        | 31         | 37         | 41         | 46          | 49          | 56          |
|         | 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.)                           | 0.020     | 0.033     | 0.053     | 0.073      | 0.102      | 0.132      | 0.165       | 0.205       | 0.297       |
|         | Flow Rate (cfm)                                    | 1375      | 1833      | 2292      | 2750       | 3208       | 3667       | 4125        | 4583        | 5500        |
|         | Sound (NC)   | -         | 17        | 25        | 32         | 37         | 42         | 46          | 50          | 56          |
|         | 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.)                           | 0.019     | 0.032     | 0.051     | 0.071      | 0.099      | 0.128      | 0.160       | 0.199       | 0.289       |
|         | Flow Rate (cfm)                                    | 1500      | 2000      | 2500      | 3000       | 3500       | 4000       | 4500        | 5000        | 6000        |
|         | Sound (NC)   | -         | 18        | 26        | 32         | 37         | 42         | 46          | 50          | 56          |
|         | 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 |

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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<sup>-12</sup> watts and one diffuser.
5. Blanks (-) indicate an NC level below 15.
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 150fpm (minimum), 100fpm (middle) and 50fpm (maximum).

### Correction Factors

| Model<br>Deflection | HCD1 |       |       | HCD2  |       |       |
|---------------------|------|-------|-------|-------|-------|-------|
|                     | 0°   | 15°   | 30°   | 0°    | 15°   | 30°   |
| NC                  | -    | 4     | 9     | -     | 4     | 9     |
| Throw               | -    | x .85 | x.73  | -     | x .85 | x .73 |
| Total Press.        | -    | x 1.5 | x 1.9 | x 1.3 | x 1.7 | x 2.2 |

Based on HCD1 at 0° deflection, correction factors for other conditions as listed in table opposite.

### Example:

- 12 x 36 HCD2  
 Flow Rate = 1800 cfm  
 Deflection = 15°  
 NC = 30 + 4 = 34  
 Throw (50 fpm) = 115 x .85 = 98 ft  
 Total Pressure = .086 x 1.7 = 0.146 in. w.g.
8. For units with dampers, add 7 to the NC, and multiply static pressure by 1.18.

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## HCD

| Size    | Duct Velocity (fpm)<br>Velocity Pressure (in.w.g.) | 300<br>0.006 | 400<br>0.010 | 500<br>0.016 | 600<br>0.022 | 700<br>0.031 | 800<br>0.040 | 900<br>0.050 | 1000<br>0.062 | 1200<br>0.090 |
|---------|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------|---------------|
| 12 x 18 | Total Pressure (in.w.g.)                           | 0.029        | 0.048        | 0.077        | 0.106        | 0.149        | 0.193        | 0.241        | 0.299         | 0.433         |
|         | Flow Rate (cfm)                                    | 450          | 600          | 750          | 900          | 1050         | 1200         | 1350         | 1500          | 1800          |
|         | Sound (NC)   | -            | -            | 22           | 28           | 34           | 38           | 43           | 46            | 53            |
|         | 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.)                           | 0.026        | 0.044        | 0.070        | 0.096        | 0.135        | 0.175        | 0.218        | 0.271         | 0.393         |
|         | Flow Rate (cfm)                                    | 600          | 800          | 1000         | 1200         | 1400         | 1600         | 1800         | 2000          | 2400          |
|         | Sound (NC)   | -            | -            | 23           | 29           | 35           | 39           | 43           | 47            | 54            |
|         | 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.)                           | 0.024        | 0.041        | 0.065        | 0.089        | 0.126        | 0.162        | 0.203        | 0.251         | 0.365         |
|         | Flow Rate (cfm)                                    | 750          | 1000         | 1250         | 1500         | 1750         | 2000         | 2250         | 2500          | 3000          |
|         | Sound (NC)   | -            | 16           | 23           | 30           | 35           | 40           | 44           | 48            | 54            |
|         | 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.)                           | 0.023        | 0.038        | 0.061        | 0.084        | 0.118        | 0.152        | 0.191        | 0.236         | 0.343         |
|         | Flow Rate (cfm)                                    | 900          | 1200         | 1500         | 1800         | 2100         | 2400         | 2700         | 3000          | 3600          |
|         | Sound (NC)   | -            | 16           | 24           | 30           | 36           | 40           | 45           | 48            | 55            |
|         | 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.)                           | 0.022        | 0.036        | 0.058        | 0.08         | 0.112        | 0.145        | 0.181        | 0.224         | 0.326         |
|         | Flow Rate (cfm)                                    | 1050         | 1400         | 1750         | 2100         | 2450         | 2800         | 3150         | 3500          | 4200          |
|         | Sound (NC)   | -            | 17           | 24           | 31           | 36           | 41           | 45           | 49            | 55            |
|         | 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.)                           | 0.021        | 0.035        | 0.055        | 0.076        | 0.107        | 0.138        | 0.173        | 0.214         | 0.311         |
|         | Flow Rate (cfm)                                    | 1200         | 1600         | 2000         | 2400         | 2800         | 3200         | 3600         | 4000          | 4800          |
|         | Sound (NC)   | -            | 17           | 25           | 31           | 37           | 41           | 46           | 49            | 56            |
|         | 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.)                           | 0.020        | 0.033        | 0.053        | 0.073        | 0.103        | 0.133        | 0.166        | 0.206         | 0.299         |
|         | Flow Rate (cfm)                                    | 1350         | 1800         | 2250         | 2700         | 3150         | 3600         | 4050         | 4500          | 5400          |
|         | Sound (NC)   | -            | 17           | 25           | 32           | 37           | 42           | 46           | 50            | 56            |
|         | 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.)                           | 0.019        | 0.032        | 0.051        | 0.071        | 0.099        | 0.128        | 0.160        | 0.199         | 0.289         |
|         | Flow Rate (cfm)                                    | 1500         | 2000         | 2500         | 3000         | 3500         | 4000         | 4500         | 5000          | 6000          |
|         | Sound (NC)   | -            | 18           | 26           | 32           | 37           | 42           | 46           | 50            | 56            |
|         | 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.)                           | 0.019        | 0.031        | 0.050        | 0.068        | 0.096        | 0.124        | 0.155        | 0.193         | 0.28          |
|         | Flow Rate (cfm)                                    | 1650         | 2200         | 2750         | 3300         | 3850         | 4400         | 4950         | 5500          | 6600          |
|         | Sound (NC)   | -            | 18           | 26           | 32           | 38           | 42           | 46           | 50            | 57            |
|         | 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.)                           | 0.018        | 0.030        | 0.048        | 0.066        | 0.093        | 0.121        | 0.151        | 0.187         | 0.271         |
|         | Flow Rate (cfm)                                    | 1800         | 2400         | 3000         | 3600         | 4200         | 4800         | 5400         | 6000          | 7200          |
|         | Sound (NC)   | -            | 18           | 26           | 32           | 38           | 43           | 47           | 50            | 57            |
|         | 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   |

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**Correction Factors**

| Model<br>Deflection | HCD1 |       |       | HCD2  |       |       |
|---------------------|------|-------|-------|-------|-------|-------|
|                     | 0°   | 15°   | 30°   | 0°    | 15°   | 30°   |
| NC                  | -    | 4     | 9     | -     | 4     | 9     |
| Throw               | -    | x .85 | x .73 | -     | x .85 | x .73 |
| Total Press.        | -    | x 1.5 | x 1.9 | x 1.3 | x 1.7 | x 2.2 |

Based on HCD1 at 0° deflection, correction factors for other conditions as listed in table opposite.

**Example:**

- 12 x 36 HCD2  
 Flow Rate = 1800 cfm  
 Deflection = 15°  
 NC = 30 + 4 = 34  
 Throw (50 fpm) = 115 x .85 = 98 ft  
 Total Pressure = .086 x 1.7 = 0.146 in. w.g.
- For units with dampers, add 7 to the NC, and multiply static pressure by 1.18.

# PERFORMANCE DATA

## HCD

| Size    | Duct Velocity (fpm)<br>Velocity Pressure (in.w.g.) | 300<br>0.006 | 400<br>0.010 | 500<br>0.016 | 600<br>0.022 | 700<br>0.031 | 800<br>0.040 | 900<br>0.050 | 1000<br>0.062 | 1200<br>0.09 |
|---------|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------|--------------|
| 15 x 18 | Total Pressure (in.w.g.)                           | 0.027        | 0.045        | 0.071        | 0.098        | 0.138        | 0.179        | 0.223        | 0.277         | 0.402        |
|         | Flow Rate (cfm)                                    | 563          | 750          | 938          | 1125         | 1313         | 1500         | 1688         | 1875          | 2250         |
|         | Sound (NC)   | -            | -            | 23           | 29           | 34           | 39           | 43           | 47            | 53           |
|         | 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.)                           | 0.024        | 0.041        | 0.065        | 0.089        | 0.126        | 0.162        | 0.203        | 0.251         | 0.365        |
|         | Flow Rate (cfm)                                    | 750          | 1000         | 1250         | 1500         | 1750         | 2000         | 2250         | 2500          | 3000         |
|         | Sound (NC)   | -            | 16           | 23           | 30           | 35           | 40           | 44           | 48            | 54           |
|         | 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.)                           | 0.023        | 0.038        | 0.06         | 0.083        | 0.117        | 0.150        | 0.188        | 0.233         | 0.338        |
|         | Flow Rate (cfm)                                    | 938          | 1250         | 1563         | 1875         | 2188         | 2500         | 2813         | 3125          | 3750         |
|         | Sound (NC)   | -            | 16           | 24           | 30           | 36           | 41           | 45           | 48            | 55           |
|         | 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.)                           | 0.021        | 0.035        | 0.057        | 0.078        | 0.110        | 0.141        | 0.177        | 0.219         | 0.318        |
|         | Flow Rate (cfm)                                    | 1125         | 1500         | 1875         | 2250         | 2625         | 3000         | 3375         | 3750          | 4500         |
|         | Sound (NC)   | -            | 17           | 25           | 31           | 36           | 41           | 45           | 49            | 55           |
|         | 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.)                           | 0.020        | 0.034        | 0.054        | 0.074        | 0.104        | 0.134        | 0.168        | 0.208         | 0.302        |
|         | Flow Rate (cfm)                                    | 1313         | 1750         | 2188         | 2625         | 3063         | 3500         | 3938         | 4375          | 5250         |
|         | Sound (NC)   | -            | 17           | 25           | 32           | 37           | 42           | 46           | 49            | 56           |
|         | 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.)                           | 0.019        | 0.032        | 0.051        | 0.071        | 0.099        | 0.128        | 0.160        | 0.199         | 0.289        |
|         | Flow Rate (cfm)                                    | 1500         | 2000         | 2500         | 3000         | 3500         | 4000         | 4500         | 5000          | 6000         |
|         | Sound (NC)   | -            | 18           | 26           | 32           | 37           | 42           | 46           | 50            | 56           |
|         | 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.)                           | 0.018        | 0.031        | 0.049        | 0.068        | 0.096        | 0.123        | 0.154        | 0.191         | 0.277        |
|         | Flow Rate (cfm)                                    | 1688         | 2250         | 2813         | 3375         | 3938         | 4500         | 5063         | 5625          | 6750         |
|         | Sound (NC)   | -            | 18           | 26           | 32           | 38           | 42           | 47           | 50            | 57           |
|         | 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.)                           | 0.018        | 0.030        | 0.048        | 0.065        | 0.092        | 0.119        | 0.149        | 0.184         | 0.268        |
|         | Flow Rate (cfm)                                    | 1875         | 2500         | 3125         | 3750         | 4375         | 5000         | 5625         | 6250          | 7500         |
|         | Sound (NC)   | -            | 18           | 26           | 33           | 38           | 43           | 47           | 51            | 57           |
|         | 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.)                           | 0.017        | 0.029        | 0.046        | 0.063        | 0.089        | 0.115        | 0.144        | 0.179         | 0.259        |
|         | Flow Rate (cfm)                                    | 2063         | 2750         | 3438         | 4125         | 4813         | 5500         | 6188         | 6875          | 8250         |
|         | Sound (NC)   | -            | 19           | 26           | 33           | 38           | 43           | 47           | 51            | 57           |
|         | 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.)                           | 0.017        | 0.028        | 0.045        | 0.062        | 0.087        | 0.112        | 0.140        | 0.173         | 0.252        |
|         | Flow Rate (cfm)                                    | 2250         | 3000         | 3750         | 4500         | 5250         | 6000         | 6750         | 7500          | 9000         |
|         | Sound (NC)   | -            | 19           | 27           | 33           | 39           | 43           | 47           | 51            | 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:

- Tested in accordance with ASHRAE Standard 70-2006 "Method of Testing for Rating the Performance of Air Outlets and Inlets."
- Air flow is in cfm.
- All pressures are in in. w.g.
- The NC values are based on a room absorption of 10 dB re 10<sup>-12</sup> watts and one diffuser.
- Blanks (-) indicate an NC level below 15.
- Throw data is based on supply air and room air being at isothermal conditions.
- Throw values are measured in feet for terminal velocities of 150fpm (minimum), 100fpm (middle) and 50fpm (maximum).

### Correction Factors

| Model<br>Deflection | HCD1 |       |       | HCD2  |       |       |
|---------------------|------|-------|-------|-------|-------|-------|
|                     | 0°   | 15°   | 30°   | 0°    | 15°   | 30°   |
| NC                  | -    | 4     | 9     | -     | 4     | 9     |
| Throw               | -    | x .85 | x .73 | -     | x .85 | x .73 |
| Total Press.        | -    | x 1.5 | x 1.9 | x 1.3 | x 1.7 | x 2.2 |

Based on HCD1 at 0° deflection, correction factors for other conditions as listed in table opposite.

### Example:

- 12 x 36 HCD2  
 Flow Rate = 1800 cfm  
 Deflection = 15°  
 NC = 30 + 4 = 34  
 Throw (50 fpm) = 115 x .85 = 98 ft  
 Total Pressure = .086 x 1.7 = 0.146 in. w.g.
- For units with dampers, add 7 to the NC, and multiply static pressure by 1.18.

# PERFORMANCE DATA

## DLSS

| Size           | Discharge Velocity (fpm)  | 750      | 1000      | 1250      | 1500      | 1750       | 2000       |
|----------------|---------------------------|----------|-----------|-----------|-----------|------------|------------|
| <b>06 x 12</b> | 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   |
| <b>06 x 24</b> | 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   |
| <b>06 x 36</b> | 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   |
| <b>06 x 60</b> | 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  |
| <b>10 x 20</b> | 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   |
| <b>10 x 30</b> | 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  |
| <b>10 x 40</b> | 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  |
| <b>10 x 60</b> | 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 |
| <b>10 x 70</b> | 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<sup>-12</sup> 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       | 6702        |
|         | 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<sup>-12</sup> watts.
4. Projection: Projection distance [THROW] in feet from the Louver discharge at which the maximum velocity has been reduced to specified terminal velocity [V].
5. Discharge Velocity: Discharge Velocity in feet per minute [fpm].
6. Terminal Velocity: Maximum velocity [V] 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  |