## Performance Data

Recommended Primary Air cfm Ranges • All Terminals

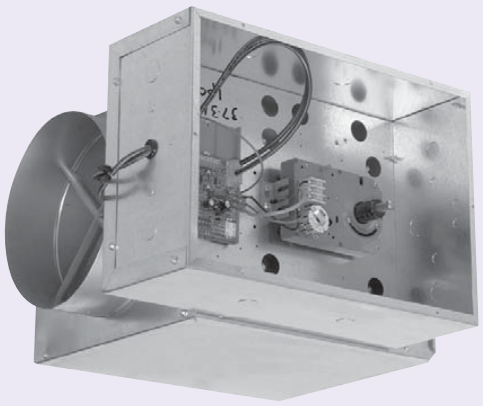
Control Types:

| | |
|---|---|
| PESV | • Pneumatic |
| AESV | • Analog electronic |
| DESV | • Digital electronic |

Quick Selection Procedure

1. Select unit inlet size based upon acoustic parameters and/or maximum pressure drop requirements, using pages Q12–Q13.
2. Check inlet size selection against cfm control limits based on control type shown on this page.
3. Select accessories (multi-outlets, attenuators) as required.
4. Select reheat coil, if required. Make your selection using the actual heating flow rate, not cooling.

**AESV**



| Inlet Size | Total cfm Range | cfm Ranges of Minimum and Maximum Settings | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | PESV - Pneumatic TITUS II Controller | | PESV - Pneumatic TITUS I Controller | | AESV - Analog Electronic TA1 Controller | | DESV - Digital Typical Controller | |
| | | Minimum | Maximum | Minimum | Maximum | Minimum | Maximum | Minimum | Maximum |
| 4 | 0-225 | 45*-170 | 80-225 | 55*-170 | 80-225 | 45*-225 | 45-225 | 45*-225 | 45-225 |
| 5 | 0-350 | 65*-270 | 120-350 | 85*-270 | 120-350 | 65*-350 | 65-350 | 65*-350 | 65-350 |
| → 6 | 0-500 | 80*-330 | 150-500 | 105*-330 | 150-500 | 80*-500 | 80-500 | 80*-500 | 80-500 |
| 7 | 0-650 | 105*-425 | 190-650 | 135*-425 | 190-650 | 105*-650 | 105-650 | 105*-650 | 105-650 |
| → 8 | 0-900 | 145*-590 | 265-900 | 190*-590 | 265-900 | 145*-900 | 145-900 | 145*-900 | 145-900 |
| 9 | 0-1050 | 175*-700 | 315-1050 | 225*-700 | 315-1050 | 175*-1050 | 175-1050 | 175*-1050 | 175-1050 |
| → 10 | 0-1400 | 230*-925 | 415-1400 | 300*-925 | 415-1400 | 230*-1400 | 230-1400 | 230*-1400 | 230-1400 |
| → 12 | 0-2000 | 325*-1330 | 600-2000 | 425*-1330 | 600-2000 | 325*-2000 | 325-2000 | 325*-2000 | 325-2000 |
| → 14 | 0-3000 | 450*-1800 | 810-3000 | 575*-1800 | 810-3000 | 450*-3000 | 450-3000 | 450*-3000 | 450-3000 |
| → 16 | 0-4000 | 580*-2350 | 1100-4000 | 750*-2350 | 1100-4000 | 580*-4000 | 580-4000 | 580*-4000 | 580-4000 |
| 24x16 | 0-8000 | 1400*-5200 | 2600-8000 | 1800*-5200 | 2600-8000 | 1400*-7500 | 1400-7500 | 1400*-7500 | 1400-7500 |

*Factory cfm settings (except zero) will not be made below this range because control accuracy is reduced.
On pressure dependent units, minimum cfm is always zero and there is no maximum.

**Note:** On controls mounted by TITUS but supplied by others (FMA or Factory Mounting Authorization), these values are guidelines only. Controls mounted on an FMA basis are calibrated in the field.

Performance Data (continued)

**PESV, AESV, DESV • Minimum Pressures**

| Inlet Size | cfm | Velocity Pressure VP | Basic Unit ΔPs | Basic + Atten. ΔPs | Basic + Multi-out. ΔPs | Basic + Round Out. ΔPs | Basic + 1 Row Coil ΔPs | Basic + 2 Row Coil ΔPs | Basic + 3 Row Coil ΔPs | Basic + 4 Row Coil ΔPs | Basic + Elec. Coil. ΔPs |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 100 | 0.080 | 0.020 | 0.021 | 0.022 | 0.023 | 0.027 | 0.034 | 0.041 | 0.048 | 0.020 |
| | 150 | 0.181 | 0.044 | 0.048 | 0.049 | 0.052 | 0.061 | 0.078 | 0.093 | 0.109 | 0.044 |
| | 200 | 0.322 | 0.078 | 0.084 | 0.088 | 0.092 | 0.108 | 0.138 | 0.165 | 0.193 | 0.078 |
| | 225 | 0.407 | 0.099 | 0.107 | 0.111 | 0.116 | 0.137 | 0.175 | 0.209 | 0.244 | 0.099 |
| 5 | 150 | 0.072 | 0.011 | 0.014 | 0.016 | 0.018 | 0.028 | 0.044 | 0.060 | 0.075 | 0.011 |
| | 200 | 0.129 | 0.019 | 0.025 | 0.029 | 0.032 | 0.049 | 0.079 | 0.106 | 0.134 | 0.019 |
| | 300 | 0.289 | 0.043 | 0.057 | 0.064 | 0.073 | 0.111 | 0.177 | 0.239 | 0.301 | 0.043 |
| | 350 | 0.394 | 0.059 | 0.077 | 0.088 | 0.099 | 0.151 | 0.241 | 0.325 | 0.410 | 0.059 |
| 6 | 200 | 0.059 | 0.033 | 0.038 | 0.044 | 0.060 | 0.063 | 0.092 | 0.120 | 0.147 | 0.033 |
| | 300 | 0.133 | 0.073 | 0.085 | 0.098 | 0.134 | 0.141 | 0.207 | 0.269 | 0.331 | 0.073 |
| | 400 | 0.236 | 0.130 | 0.151 | 0.175 | 0.238 | 0.250 | 0.368 | 0.478 | 0.588 | 0.130 |
| | 500 | 0.369 | 0.203 | 0.236 | 0.273 | 0.372 | 0.391 | 0.575 | 0.747 | 0.919 | 0.203 |
| 7 | 300 | 0.070 | 0.031 | 0.036 | 0.044 | 0.055 | 0.066 | 0.098 | 0.131 | 0.163 | 0.031 |
| | 400 | 0.125 | 0.055 | 0.064 | 0.079 | 0.098 | 0.118 | 0.175 | 0.232 | 0.290 | 0.055 |
| | 600 | 0.282 | 0.124 | 0.145 | 0.177 | 0.220 | 0.265 | 0.394 | 0.523 | 0.653 | 0.124 |
| | 650 | 0.331 | 0.145 | 0.170 | 0.208 | 0.259 | 0.311 | 0.462 | 0.613 | 0.766 | 0.145 |
| 8 | 350 | 0.052 | 0.005 | 0.009 | 0.015 | 0.031 | 0.053 | 0.097 | 0.141 | 0.185 | 0.042 |
| | 500 | 0.105 | 0.011 | 0.019 | 0.030 | 0.064 | 0.109 | 0.198 | 0.288 | 0.378 | 0.086 |
| | 700 | 0.207 | 0.021 | 0.038 | 0.059 | 0.126 | 0.213 | 0.388 | 0.564 | 0.741 | 0.169 |
| | 900 | 0.342 | 0.035 | 0.062 | 0.097 | 0.208 | 0.353 | 0.642 | 0.932 | 1.225 | 0.279 |
| 9 | 500 | 0.069 | 0.015 | 0.021 | 0.031 | 0.045 | 0.063 | 0.108 | 0.152 | 0.197 | 0.141 |
| | 650 | 0.117 | 0.026 | 0.035 | 0.052 | 0.076 | 0.107 | 0.182 | 0.258 | 0.334 | 0.237 |
| | 800 | 0.177 | 0.040 | 0.053 | 0.078 | 0.115 | 0.162 | 0.276 | 0.390 | 0.505 | 0.360 |
| | 1050 | 0.306 | 0.068 | 0.092 | 0.134 | 0.198 | 0.279 | 0.476 | 0.672 | 0.871 | 0.620 |
| 10 | 600 | 0.060 | 0.001 | 0.006 | 0.012 | 0.030 | 0.069 | 0.134 | 0.198 | 0.263 | 0.090 |
| | 800 | 0.107 | 0.001 | 0.011 | 0.022 | 0.054 | 0.124 | 0.238 | 0.352 | 0.467 | 0.160 |
| | 1100 | 0.203 | 0.002 | 0.021 | 0.041 | 0.102 | 0.234 | 0.449 | 0.665 | 0.883 | 0.303 |
| | 1400 | 0.328 | 0.003 | 0.035 | 0.066 | 0.165 | 0.378 | 0.728 | 1.077 | 1.430 | 0.491 |
| 12 | 900 | 0.064 | 0.001 | 0.006 | 0.014 | 0.033 | 0.080 | 0.150 | 0.222 | 0.292 | 0.101 |
| | 1200 | 0.113 | 0.001 | 0.011 | 0.025 | 0.058 | 0.142 | 0.266 | 0.394 | 0.519 | 0.180 |
| | 1500 | 0.177 | 0.002 | 0.016 | 0.039 | 0.091 | 0.222 | 0.416 | 0.616 | 0.811 | 0.281 |
| | 2000 | 0.314 | 0.003 | 0.029 | 0.070 | 0.162 | 0.395 | 0.740 | 1.095 | 1.441 | 0.500 |
| 14 | 1200 | 0.063 | 0.013 | 0.018 | 0.029 | 0.046 | 0.077 | 0.137 | 0.195 | 0.254 | 0.094 |
| | 1600 | 0.113 | 0.023 | 0.032 | 0.052 | 0.082 | 0.138 | 0.243 | 0.347 | 0.451 | 0.166 |
| | 2000 | 0.176 | 0.036 | 0.050 | 0.082 | 0.128 | 0.215 | 0.379 | 0.543 | 0.705 | 0.260 |
| | 3000 | 0.396 | 0.080 | 0.112 | 0.184 | 0.289 | 0.484 | 0.854 | 1.221 | 1.587 | 0.584 |
| 16 | 1500 | 0.056 | 0.009 | 0.014 | 0.027 | 0.039 | 0.078 | 0.140 | 0.203 | 0.264 | 0.125 |
| | 2000 | 0.100 | 0.015 | 0.025 | 0.047 | 0.070 | 0.139 | 0.249 | 0.360 | 0.469 | 0.221 |
| | 3000 | 0.225 | 0.034 | 0.056 | 0.107 | 0.156 | 0.312 | 0.560 | 0.811 | 1.056 | 0.498 |
| | 4000 | 0.401 | 0.060 | 0.099 | 0.190 | 0.278 | 0.555 | 0.996 | 1.441 | 1.878 | 0.886 |
| 24x16 | 2500 | 0.038 | 0.013 | 0.014 | NA | NA | 0.091 | 0.161 | 0.233 | 0.303 | 0.242 |
| | 4000 | 0.096 | 0.033 | 0.035 | NA | NA | 0.233 | 0.411 | 0.595 | 0.776 | 0.619 |
| | 6000 | 0.216 | 0.073 | 0.079 | NA | NA | 0.523 | 0.925 | 1.340 | 1.746 | 1.392 |
| | 8000 | 0.384 | 0.130 | 0.140 | NA | NA | 0.931 | 1.644 | 2.382 | 3.103 | 2.475 |

- ΔPs is the difference in static pressure across the assembly.
- To obtain total pressure (Pt), add the velocity pressure for a given cfm to the static pressure drop (ΔPs) of the desired ESV configuration.

Example: Pt for a Size 8 ESV Basic Unit @ 700 cfm = 0.207 + 0.021 = 0.228

Performance Data (continued)

**PESV, AESV, DESV • Sound Data • NC Values**

| Noise Criteria (NC) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Inlet Size | cfm | Discharge ΔPs | | | | Radiated ΔPs | | | |
| | | 0.5" | 1.0" | 2.0" | 3.0" | 0.5" | 1.0" | 2.0" | 3.0" |
| 4 | 75 | - | - | - | - | - | - | - | - |
| | 125 | - | - | 22 | 23 | - | 20 | 24 | 26 |
| | 175 | 22 | 25 | 28 | 30 | 23 | 27 | 30 | 32 |
| | 225 | 26 | 29 | 32 | 34 | 28 | 32 | 35 | 37 |
| 5 | 125 | - | - | - | - | - | - | - | 21 |
| | 175 | - | - | 21 | 24 | - | - | 24 | 27 |
| | 250 | - | 22 | 26 | 29 | - | 25 | 30 | 33 |
| | 300 | - | 22 | 28 | 31 | 23 | 28 | 33 | 36 |
| | 350 | 21 | 25 | 30 | 33 | 25 | 30 | 36 | 39 |
| 6 | 175 | - | - | - | 23 | - | - | 20 | 23 |
| | 225 | - | - | 23 | 27 | - | - | 24 | 28 |
| | 300 | - | 20 | 26 | 30 | - | 23 | 29 | 32 |
| | 350 | - | 22 | 29 | 32 | - | 25 | 31 | 35 |
| | 400 | - | 25 | 31 | 35 | 22 | 28 | 34 | 37 |
| | 450 | 20 | 26 | 33 | 36 | 24 | 30 | 35 | 39 |
| | 500 | 22 | 28 | 34 | 38 | 25 | 31 | 37 | 41 |
| 7 | 250 | - | - | 22 | 24 | - | - | 20 | 24 |
| | 300 | - | - | 21 | 25 | - | - | 23 | 26 |
| | 350 | - | - | 24 | 28 | - | 20 | 24 | 28 |
| | 400 | - | - | 26 | 30 | - | 22 | 26 | 29 |
| | 500 | - | 23 | 30 | 34 | 22 | 24 | 30 | 33 |
| | 600 | - | 27 | 33 | 37 | 24 | 27 | 33 | 36 |
| | 650 | 21 | 28 | 35 | 39 | 24 | 28 | 34 | 38 |
| 8 | 350 | - | - | 24 | 28 | - | - | 23 | 26 |
| | 400 | - | - | 26 | 30 | - | 20 | 24 | 27 |
| | 450 | - | 21 | 28 | 31 | - | 22 | 25 | 29 |
| | 500 | - | 22 | 29 | 33 | - | 23 | 27 | 31 |
| | 600 | - | 25 | 32 | 36 | 21 | 25 | 30 | 33 |
| | 700 | 20 | 27 | 34 | 38 | 23 | 27 | 32 | 36 |
| | 800 | - | 27 | 33 | 37 | 24 | 29 | 34 | 38 |
| 9 | 450 | - | - | 20 | 23 | - | - | 25 | 29 |
| | 500 | - | - | 22 | 25 | - | - | 26 | 30 |
| | 600 | - | - | 24 | 28 | - | 21 | 27 | 31 |
| | 700 | - | 21 | 26 | 30 | - | 22 | 29 | 33 |
| | 800 | - | 20 | 26 | 29 | - | 23 | 30 | 34 |
| | 900 | - | 22 | 28 | 31 | 21 | 24 | 31 | 35 |
| | 1000 | 20 | 24 | 29 | 33 | 22 | 26 | 32 | 36 |

| Noise Criteria (NC) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Inlet Size | cfm | Discharge ΔPs | | | | Radiated ΔPs | | | |
| | | 0.5" | 1.0" | 2.0" | 3.0" | 0.5" | 1.0" | 2.0" | 3.0" |
| 10 | 550 | - | - | 25 | 29 | - | 25 | 32 | 36 |
| | 600 | - | 20 | 26 | 30 | - | 26 | 32 | 36 |
| | 700 | - | 22 | 28 | 31 | 20 | 26 | 33 | 37 |
| | 800 | - | 21 | 27 | 30 | 21 | 27 | 33 | 37 |
| | 1000 | 20 | 23 | 29 | 33 | 23 | 28 | 34 | 38 |
| | 1200 | 22 | 25 | 31 | 35 | 25 | 29 | 36 | 40 |
| | 1400 | 24 | 27 | 33 | 36 | 26 | 31 | 37 | 42 |
| 12 | 800 | - | - | 26 | 29 | - | 22 | 29 | 32 |
| | 900 | - | 21 | 27 | 31 | - | 24 | 30 | 34 |
| | 1000 | - | 22 | 28 | 32 | - | 25 | 31 | 35 |
| | 1200 | - | 24 | 30 | 34 | 21 | 27 | 33 | 37 |
| | 1500 | 20 | 26 | 33 | 36 | 23 | 29 | 36 | 39 |
| | 1800 | 22 | 28 | 34 | 38 | 25 | 31 | 37 | 41 |
| | 2000 | 23 | 29 | 36 | 39 | 26 | 32 | 39 | 42 |
| 14 | 1000 | - | - | 25 | 31 | - | 21 | 27 | 30 |
| | 1200 | - | - | 26 | 31 | - | 22 | 28 | 32 |
| | 1500 | - | - | 26 | 32 | - | 25 | 31 | 34 |
| | 1800 | - | 20 | 27 | 32 | 21 | 27 | 32 | 36 |
| | 2100 | - | 21 | 28 | 32 | 22 | 28 | 34 | 38 |
| | 2400 | - | 22 | 29 | 33 | 24 | 30 | 35 | 39 |
| | 3000 | - | 24 | 31 | 35 | 26 | 32 | 38 | 41 |
| 16 | 1400 | - | - | - | 21 | - | - | 22 | 25 |
| | 1600 | - | - | - | 23 | - | - | 24 | 27 |
| | 2000 | - | - | 23 | 26 | - | 22 | 27 | 31 |
| | 2400 | - | 21 | 26 | 29 | - | 24 | 30 | 34 |
| | 2800 | - | 23 | 28 | 31 | 21 | 27 | 33 | 36 |
| | 3200 | 21 | 25 | 30 | 33 | 23 | 29 | 35 | 38 |
| | 4000 | 24 | 28 | 33 | 36 | 27 | 32 | 38 | 42 |
| 24x16 | 3000 | 25 | 30 | 35 | 39 | 37 | 39 | 40 | 41 |
| | 3500 | 26 | 32 | 37 | 40 | 40 | 41 | 43 | 43 |
| | 4000 | 28 | 33 | 39 | 42 | 43 | 44 | 45 | 46 |
| | 5000 | 30 | 36 | 41 | 44 | 47 | 48 | 49 | 50 |
| | 6000 | 32 | 38 | 43 | 46 | 50 | 52 | 53 | 54 |
| | 7000 | 34 | 40 | 45 | 48 | 53 | 54 | 56 | 57 |
| | 8000 | 36 | 41 | 47 | 50 | 56 | 57 | 58 | 59 |

- ΔPs is the difference in static pressure from inlet to discharge.
- Dash (-) in space denotes NC value less than 20.
- All sound data are based upon tests conducted in accordance with ARI Standard 880-98.

**Octave Band Sound Attenuation Factors:**
See the section, Engineering Guidelines for Noise Criteria (NC) value calculation.

| Radiated Sound | Octave Band | | | | | |
|---|---|---|---|---|---|---|
| | 2 | 3 | 4 | 5 | 6 | 7 |
| Environmental Effect | 2 | 1 | 0 | 0 | 0 | 0 |
| Ceiling/Space Effect | 16 | 18 | 20 | 26 | 31 | 36 |
| Total dB Reduction | 18 | 19 | 20 | 26 | 31 | 36 |

Per ARI 885-98
Mineral Fiber Tile, 5/8 inch -20lb./ cubic foot

| Discharge Sound | Octave Band | | | | | |
|---|---|---|---|---|---|---|
| | 2 | 3 | 4 | 5 | 6 | 7 |
| Environmental Effect | 2 | 1 | 0 | 0 | 0 | 0 |
| Duct Lining | 2 | 6 | 12 | 25 | 29 | 18 |
| End Reflection | 9 | 5 | 2 | 0 | 0 | 0 |
| 5 ft., 8 in. Flex Duct | 6 | 10 | 18 | 20 | 21 | 12 |
| Space Effect | 5 | 6 | 7 | 8 | 9 | 10 |
| Total dB Reduction | 24 | 28 | 39 | 53 | 59 | 40 |

Per ARI 885-98
5 foot, 1-inch Fiberglass Duct Lining
8-inch Termination to Diffuser
Vinyl Core Flex
2500 cubic foot room, 5 feet from source

The following dB adjustments are used, perARI 885-98, for the calculation of NC above 300 cfm.

| | Octave Band | | | | | |
|---|---|---|---|---|---|---|
| | 2 | 3 | 4 | 5 | 6 | 7 |
| 300-700 cfm | 2 | 1 | 1 | -2 | -5 | -1 |
| Over 700 cfm | 4 | 3 | 2 | -2 | -7 | -1 |

Performance Data (continued)

**PESV, AESV, DESV • Acoustical Adjustments**
Adjustments for Optional Attenuators

| Inlet Size | Octave Band | | | | | |
|---|---|---|---|---|---|---|
| | 2 | 3 | 4 | 5 | 6 | 7 |
| 4,5,6 | 1 | 2 | 4 | 12 | 17 | 11 |
| 7,8 | 1 | 2 | 4 | 12 | 15 | 10 |
| 9,10 | 1 | 1 | 3 | 11 | 13 | 9 |
| 12 | 1 | 1 | 3 | 10 | 11 | 8 |
| 14 | 1 | 1 | 3 | 9 | 10 | 7 |
| 16 | 1 | 1 | 3 | 8 | 9 | 7 |
| 40 | 1 | 1 | 3 | 8 | 7 | 6 |

- Select the appropriate unit size and subtract the value shown under each octave band heading from the Discharge Sound Power data shown on the following pages. Use the resultant values to calculate discharge NC.
- Data is based upon calculation procedures provided by the ASHRAE HVAC Applications Handbook.
- Use TEAMS Selection Program for specific performance data calculations.

**Adjustments for Water Coils**

The addition of a water coil to an ESV unit does not, by itself, create or attenuate sound generated by the unit to any measurable degree. The addition of a coil does; however, change the pressure drop across the unit, reducing it by the reported coil pressure drop. The sound data presented for ESV units is based on the unit's performance without a water coil. To properly determine the sound generated by an ESV with a water coil, the following steps should be taken:

1. Record the system supply static pressure.
2. Record the water coil pressure drop at the desired flow rate.
3. Subtract the water coil pressure drop from the design inlet pressure.
4. Enter the performance tables with this reduced inlet pressure to determine the sound generated by the damper in this condition.

Example: An ESV size 12 is selected for an application with a design inlet static pressure of 1 in. @ 1500 cfm. Using the application sound tables, this would be a radiated NC of 26. The water coil required, however, is a 2-row coil, therefore:

1. System Static Pressure = 1.0 (Design Pressure).
2. Water Coil Pressure = 0.56 (Water Coil Tables, 12-inch 2-row @ 1500 cfm).
3. 1.0 - 0.56 = 0.44 $\Delta$P.
4. Actual Application NC = 25.

**Note:** This effect is true for any downstream pressure application, such as a restrictive duct or diffuser, or a high pressure drop filter.

Performance Data (continued)

**PESV, AESV, DESV • Discharge Sound Power**

| Inlet Size | cfm | Sound Power Octave Bands | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0.5" ΔPs | | | | | | 1.0" ΔPs | | | | | | 2.0" ΔPs | | | | | | 3.0" ΔPs | | | | | |
| | | 2 | 3 | 4 | 5 | 6 | 7 | 2 | 3 | 4 | 5 | 6 | 7 | 2 | 3 | 4 | 5 | 6 | 7 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4 | 75 | 59 | 49 | 42 | 38 | 38 | 31 | 61 | 51 | 47 | 43 | 44 | 39 | 62 | 54 | 51 | 48 | 51 | 47 | 63 | 56 | 54 | 51 | 54 | 52 |
| | 125 | 64 | 57 | 49 | 44 | 42 | 35 | 65 | 60 | 53 | 49 | 49 | 43 | 67 | 62 | 58 | 54 | 55 | 51 | 68 | 64 | 61 | 57 | 59 | 55 |
| | 175 | 67 | 62 | 53 | 48 | 45 | 37 | 68 | 65 | 58 | 53 | 51 | 45 | 70 | 68 | 62 | 58 | 58 | 53 | 71 | 69 | 65 | 61 | 62 | 58 |
| | 225 | 69 | 66 | 56 | 51 | 47 | 39 | 70 | 69 | 61 | 56 | 54 | 47 | 72 | 72 | 66 | 61 | 60 | 55 | 73 | 73 | 68 | 64 | 64 | 59 |
| 5 | 125 | 58 | 48 | 44 | 41 | 40 | 33 | 61 | 52 | 49 | 45 | 46 | 40 | 63 | 57 | 54 | 50 | 52 | 48 | 65 | 59 | 57 | 52 | 55 | 52 |
| | 175 | 61 | 52 | 48 | 44 | 42 | 35 | 64 | 57 | 53 | 49 | 48 | 43 | 66 | 61 | 58 | 54 | 54 | 50 | 68 | 64 | 61 | 56 | 58 | 55 |
| | 250 | 65 | 57 | 52 | 49 | 45 | 38 | 67 | 61 | 57 | 53 | 51 | 45 | 70 | 66 | 62 | 58 | 57 | 53 | 71 | 69 | 65 | 60 | 61 | 57 |
| | 300 | 66 | 59 | 54 | 51 | 47 | 39 | 69 | 64 | 59 | 55 | 53 | 46 | 71 | 69 | 65 | 60 | 59 | 54 | 73 | 71 | 68 | 62 | 62 | 58 |
| | 350 | 68 | 61 | 56 | 52 | 48 | 40 | 70 | 66 | 61 | 57 | 54 | 47 | 73 | 71 | 66 | 61 | 60 | 55 | 74 | 73 | 69 | 64 | 63 | 59 |
| 6 | 175 | 55 | 50 | 46 | 43 | 40 | 34 | 59 | 55 | 51 | 47 | 46 | 41 | 63 | 61 | 57 | 51 | 51 | 48 | 66 | 64 | 60 | 54 | 55 | 52 |
| | 225 | 57 | 53 | 49 | 46 | 43 | 36 | 61 | 58 | 54 | 50 | 48 | 43 | 66 | 64 | 60 | 54 | 54 | 50 | 68 | 67 | 63 | 57 | 57 | 54 |
| | 300 | 60 | 57 | 53 | 49 | 45 | 39 | 64 | 62 | 58 | 54 | 51 | 46 | 69 | 67 | 63 | 58 | 56 | 53 | 71 | 71 | 66 | 60 | 60 | 57 |
| | 350 | 61 | 59 | 54 | 51 | 47 | 40 | 66 | 64 | 60 | 56 | 52 | 47 | 70 | 69 | 65 | 60 | 58 | 54 | 73 | 73 | 68 | 62 | 61 | 58 |
| | 400 | 63 | 60 | 56 | 53 | 48 | 41 | 67 | 66 | 61 | 57 | 53 | 48 | 71 | 71 | 66 | 61 | 59 | 55 | 74 | 74 | 69 | 64 | 62 | 59 |
| | 450 | 64 | 62 | 57 | 54 | 49 | 42 | 68 | 67 | 63 | 59 | 54 | 49 | 73 | 73 | 68 | 63 | 60 | 56 | 75 | 76 | 71 | 65 | 63 | 60 |
| | 500 | 65 | 63 | 59 | 56 | 50 | 43 | 69 | 69 | 64 | 60 | 55 | 50 | 74 | 74 | 69 | 64 | 61 | 57 | 76 | 77 | 72 | 67 | 64 | 61 |
| 7 | 250 | 61 | 49 | 47 | 44 | 41 | 34 | 64 | 55 | 51 | 47 | 46 | 41 | 67 | 61 | 56 | 50 | 50 | 47 | 69 | 64 | 59 | 52 | 53 | 51 |
| | 300 | 62 | 52 | 49 | 46 | 43 | 36 | 65 | 58 | 53 | 49 | 47 | 42 | 68 | 63 | 58 | 53 | 52 | 49 | 69 | 67 | 61 | 55 | 55 | 52 |
| | 350 | 62 | 54 | 50 | 48 | 44 | 37 | 65 | 60 | 55 | 51 | 49 | 44 | 68 | 65 | 60 | 55 | 54 | 50 | 70 | 69 | 62 | 56 | 56 | 54 |
| | 400 | 63 | 56 | 52 | 50 | 45 | 38 | 66 | 62 | 56 | 53 | 50 | 45 | 69 | 67 | 61 | 56 | 55 | 51 | 71 | 71 | 64 | 58 | 58 | 55 |
| | 500 | 64 | 59 | 54 | 52 | 48 | 40 | 67 | 65 | 59 | 56 | 52 | 47 | 70 | 71 | 63 | 59 | 57 | 53 | 72 | 74 | 66 | 61 | 60 | 57 |
| | 600 | 65 | 62 | 56 | 55 | 49 | 42 | 68 | 67 | 61 | 58 | 54 | 48 | 71 | 73 | 65 | 61 | 59 | 55 | 73 | 77 | 68 | 63 | 61 | 58 |
| | 650 | 65 | 63 | 57 | 56 | 50 | 43 | 68 | 69 | 62 | 59 | 55 | 49 | 72 | 74 | 66 | 62 | 59 | 55 | 73 | 78 | 69 | 64 | 62 | 59 |
| 8 | 350 | 63 | 54 | 50 | 47 | 44 | 37 | 66 | 60 | 54 | 49 | 48 | 43 | 69 | 65 | 58 | 52 | 53 | 50 | 71 | 69 | 60 | 53 | 56 | 54 |
| | 400 | 64 | 55 | 51 | 48 | 45 | 38 | 67 | 61 | 55 | 51 | 49 | 44 | 70 | 67 | 59 | 53 | 54 | 51 | 71 | 70 | 61 | 55 | 56 | 55 |
| | 450 | 65 | 57 | 52 | 49 | 46 | 38 | 68 | 63 | 56 | 52 | 50 | 45 | 70 | 68 | 60 | 54 | 55 | 52 | 72 | 72 | 63 | 56 | 57 | 56 |
| | 500 | 65 | 58 | 53 | 50 | 46 | 39 | 68 | 64 | 57 | 53 | 51 | 46 | 71 | 70 | 61 | 55 | 55 | 53 | 73 | 73 | 64 | 57 | 58 | 56 |
| | 600 | 66 | 60 | 55 | 52 | 48 | 40 | 69 | 66 | 59 | 55 | 52 | 47 | 72 | 72 | 63 | 57 | 57 | 54 | 74 | 75 | 65 | 59 | 59 | 58 |
| | 700 | 67 | 62 | 56 | 54 | 49 | 41 | 70 | 68 | 60 | 56 | 53 | 48 | 73 | 74 | 64 | 59 | 58 | 55 | 75 | 77 | 67 | 60 | 60 | 59 |
| | 800 | 68 | 64 | 58 | 55 | 50 | 42 | 71 | 70 | 62 | 58 | 54 | 49 | 74 | 75 | 66 | 60 | 59 | 56 | 75 | 79 | 68 | 62 | 61 | 59 |
| 9 | 450 | 60 | 52 | 52 | 49 | 46 | 40 | 63 | 57 | 55 | 53 | 51 | 47 | 66 | 62 | 59 | 56 | 56 | 54 | 67 | 65 | 62 | 59 | 59 | 58 |
| | 500 | 61 | 54 | 52 | 50 | 47 | 41 | 64 | 58 | 56 | 54 | 52 | 47 | 67 | 63 | 60 | 57 | 57 | 54 | 68 | 66 | 62 | 59 | 59 | 58 |
| | 600 | 64 | 56 | 54 | 51 | 48 | 42 | 66 | 61 | 58 | 55 | 53 | 48 | 69 | 66 | 61 | 58 | 57 | 55 | 71 | 68 | 64 | 60 | 60 | 59 |
| | 700 | 65 | 58 | 55 | 52 | 49 | 42 | 68 | 63 | 59 | 56 | 53 | 49 | 71 | 67 | 63 | 59 | 58 | 56 | 72 | 70 | 65 | 61 | 61 | 60 |
| | 800 | 67 | 59 | 56 | 53 | 49 | 43 | 70 | 64 | 60 | 57 | 54 | 49 | 72 | 69 | 64 | 60 | 59 | 56 | 74 | 72 | 66 | 62 | 62 | 60 |
| | 900 | 68 | 61 | 57 | 54 | 50 | 43 | 71 | 66 | 61 | 57 | 55 | 50 | 74 | 71 | 65 | 61 | 59 | 57 | 75 | 73 | 67 | 63 | 62 | 61 |
| | 1000 | 69 | 62 | 58 | 55 | 50 | 44 | 72 | 67 | 61 | 58 | 55 | 50 | 75 | 72 | 65 | 62 | 60 | 57 | 77 | 75 | 68 | 64 | 63 | 61 |

**ARI Certification Rating Points**

| Inlet Size | Rated cfm | Min ΔPs | Sound Power @ 1.5 IN SP | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 2 | 3 | 4 | 5 | 6 | 7 |
| 4 | 150 | 0.044 | 68 | 64 | 58 | 54 | 54 | 49 |
| 5 | 250 | 0.030 | 69 | 64 | 60 | 56 | 55 | 50 |
| 6 | 400 | 0.130 | 70 | 69 | 64 | 60 | 57 | 52 |
| 7 | 550 | 0.104 | 69 | 70 | 63 | 59 | 56 | 51 |
| 8 | 700 | 0.021 | 72 | 71 | 63 | 58 | 56 | 52 |
| 9 | 900 | 0.050 | 73 | 69 | 63 | 59 | 57 | 54 |
| 10 | 1100 | 0.023 | 74 | 70 | 65 | 63 | 60 | 55 |
| 12 | 1600 | 0.038 | 75 | 73 | 68 | 64 | 62 | 58 |
| 14 | 2100 | 0.039 | 72 | 68 | 66 | 63 | 63 | 59 |
| 16 | 2800 | 0.030 | 74 | 69 | 66 | 64 | 62 | 57 |
| 24x16 | 5300 | 0.057 | 84 | 80 | 79 | 75 | 74 | 70 |

ARI Standard 880
A Participating Corporation
in the ARI 880
Certification Program

Ratings in accordance with ARI Standard 880-98 and certified to ARI.

Performance Data (continued)

**PESV, AESV, DESV • Discharge Sound Power**

| Inlet Size | cfm | Sound Power Octave Bands | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0.5" ΔPs | | | | | | 1.0" ΔPs | | | | | | 2.0" ΔPs | | | | | | 3.0" ΔPs | | | | | |
| | | 2 | 3 | 4 | 5 | 6 | 7 | 2 | 3 | 4 | 5 | 6 | 7 | 2 | 3 | 4 | 5 | 6 | 7 | 2 | 3 | 4 | 5 | 6 | 7 |
| 10 | 550 | 64 | 55 | 53 | 50 | 46 | 40 | 67 | 61 | 58 | 55 | 52 | 47 | 69 | 66 | 62 | 59 | 57 | 53 | 70 | 69 | 65 | 61 | 61 | 57 |
| | 600 | 65 | 56 | 54 | 51 | 47 | 41 | 67 | 61 | 58 | 55 | 52 | 47 | 70 | 67 | 63 | 60 | 58 | 54 | 71 | 70 | 65 | 62 | 61 | 58 |
| | 700 | 66 | 57 | 55 | 53 | 48 | 42 | 69 | 63 | 59 | 57 | 53 | 48 | 71 | 68 | 64 | 61 | 59 | 55 | 72 | 72 | 67 | 63 | 62 | 59 |
| | 800 | 68 | 59 | 56 | 54 | 49 | 43 | 70 | 64 | 60 | 58 | 54 | 49 | 72 | 70 | 65 | 62 | 60 | 56 | 73 | 73 | 67 | 64 | 63 | 60 |
| | 1000 | 70 | 61 | 58 | 56 | 50 | 44 | 72 | 66 | 62 | 60 | 56 | 51 | 74 | 72 | 67 | 64 | 61 | 57 | 75 | 75 | 69 | 66 | 65 | 61 |
| | 1200 | 71 | 62 | 59 | 57 | 51 | 45 | 73 | 68 | 63 | 61 | 57 | 52 | 76 | 73 | 68 | 66 | 63 | 59 | 77 | 77 | 70 | 68 | 66 | 62 |
| | 1400 | 72 | 64 | 60 | 59 | 53 | 46 | 75 | 69 | 65 | 63 | 58 | 53 | 77 | 75 | 69 | 67 | 64 | 60 | 78 | 78 | 72 | 69 | 67 | 63 |
| 12 | 800 | 66 | 58 | 55 | 52 | 50 | 42 | 69 | 63 | 59 | 56 | 55 | 49 | 71 | 69 | 63 | 60 | 59 | 56 | 73 | 72 | 65 | 63 | 62 | 59 |
| | 900 | 66 | 59 | 56 | 52 | 51 | 43 | 69 | 64 | 60 | 57 | 55 | 50 | 72 | 70 | 64 | 61 | 60 | 56 | 74 | 73 | 66 | 64 | 63 | 60 |
| | 1000 | 67 | 60 | 57 | 53 | 51 | 44 | 70 | 65 | 61 | 58 | 56 | 51 | 73 | 71 | 65 | 62 | 61 | 57 | 74 | 74 | 67 | 65 | 64 | 61 |
| | 1200 | 68 | 62 | 59 | 55 | 53 | 46 | 71 | 67 | 63 | 59 | 57 | 52 | 74 | 72 | 67 | 64 | 62 | 59 | 76 | 76 | 69 | 66 | 65 | 63 |
| | 1500 | 70 | 64 | 61 | 57 | 54 | 48 | 72 | 69 | 65 | 61 | 59 | 54 | 75 | 75 | 69 | 66 | 64 | 61 | 77 | 78 | 72 | 68 | 67 | 64 |
| | 1800 | 71 | 66 | 63 | 58 | 55 | 49 | 74 | 71 | 67 | 63 | 60 | 56 | 76 | 76 | 71 | 67 | 65 | 62 | 78 | 79 | 74 | 70 | 68 | 66 |
| | 2000 | 71 | 67 | 64 | 59 | 56 | 50 | 74 | 72 | 68 | 64 | 61 | 56 | 77 | 77 | 72 | 68 | 66 | 63 | 79 | 80 | 75 | 70 | 69 | 67 |
| 14 | 1000 | 66 | 58 | 55 | 52 | 50 | 42 | 69 | 63 | 59 | 56 | 55 | 49 | 71 | 69 | 63 | 60 | 59 | 56 | 73 | 72 | 65 | 63 | 62 | 59 |
| | 1200 | 66 | 59 | 56 | 52 | 51 | 43 | 69 | 64 | 60 | 57 | 55 | 50 | 72 | 70 | 64 | 61 | 60 | 56 | 74 | 73 | 66 | 64 | 63 | 60 |
| | 1500 | 67 | 60 | 57 | 53 | 51 | 44 | 70 | 65 | 61 | 58 | 56 | 51 | 73 | 71 | 65 | 62 | 61 | 57 | 74 | 74 | 67 | 65 | 64 | 61 |
| | 1800 | 68 | 62 | 59 | 55 | 53 | 46 | 71 | 67 | 63 | 59 | 57 | 52 | 74 | 72 | 67 | 64 | 62 | 59 | 76 | 76 | 69 | 66 | 65 | 63 |
| | 2100 | 70 | 64 | 61 | 57 | 54 | 48 | 72 | 69 | 65 | 61 | 59 | 54 | 75 | 75 | 69 | 66 | 64 | 61 | 77 | 78 | 72 | 68 | 67 | 64 |
| | 2400 | 71 | 66 | 63 | 58 | 55 | 49 | 74 | 71 | 67 | 63 | 60 | 56 | 76 | 76 | 71 | 67 | 65 | 62 | 78 | 79 | 74 | 70 | 68 | 66 |
| | 3000 | 71 | 67 | 64 | 59 | 56 | 50 | 74 | 72 | 68 | 64 | 61 | 56 | 77 | 77 | 72 | 68 | 66 | 63 | 79 | 80 | 75 | 70 | 69 | 67 |
| 16 | 1400 | 61 | 54 | 52 | 51 | 49 | 41 | 64 | 58 | 56 | 55 | 53 | 47 | 67 | 62 | 59 | 60 | 58 | 53 | 69 | 64 | 61 | 62 | 60 | 57 |
| | 1600 | 62 | 56 | 54 | 52 | 50 | 42 | 66 | 60 | 57 | 56 | 54 | 48 | 69 | 64 | 61 | 61 | 59 | 54 | 71 | 66 | 62 | 64 | 62 | 58 |
| | 2000 | 65 | 58 | 57 | 54 | 52 | 45 | 68 | 62 | 60 | 58 | 56 | 51 | 71 | 67 | 63 | 63 | 61 | 57 | 73 | 69 | 65 | 65 | 64 | 60 |
| | 2400 | 67 | 61 | 59 | 55 | 53 | 46 | 70 | 65 | 63 | 60 | 58 | 52 | 73 | 69 | 66 | 64 | 62 | 58 | 75 | 71 | 68 | 67 | 65 | 62 |
| | 2800 | 68 | 63 | 61 | 57 | 55 | 48 | 72 | 67 | 65 | 61 | 59 | 54 | 75 | 71 | 68 | 66 | 64 | 60 | 77 | 73 | 70 | 68 | 67 | 63 |
| | 3200 | 70 | 64 | 63 | 58 | 56 | 49 | 73 | 68 | 66 | 62 | 60 | 55 | 76 | 72 | 70 | 67 | 65 | 61 | 78 | 75 | 71 | 69 | 68 | 65 |
| | 4000 | 72 | 67 | 66 | 59 | 58 | 51 | 76 | 71 | 69 | 64 | 62 | 57 | 79 | 75 | 72 | 68 | 67 | 63 | 81 | 78 | 74 | 71 | 70 | 67 |
| 24x16 | 3000 | 72 | 68 | 66 | 62 | 59 | 54 | 76 | 72 | 71 | 67 | 65 | 60 | 80 | 77 | 75 | 72 | 71 | 66 | 83 | 80 | 78 | 75 | 74 | 69 |
| | 3500 | 73 | 69 | 67 | 63 | 61 | 55 | 78 | 74 | 72 | 68 | 67 | 62 | 82 | 79 | 77 | 73 | 72 | 68 | 84 | 81 | 80 | 76 | 76 | 71 |
| | 4000 | 75 | 71 | 68 | 64 | 62 | 57 | 79 | 75 | 73 | 69 | 68 | 63 | 83 | 80 | 78 | 75 | 74 | 69 | 86 | 82 | 81 | 78 | 77 | 73 |
| | 5000 | 77 | 73 | 71 | 66 | 64 | 59 | 81 | 77 | 76 | 71 | 70 | 65 | 85 | 82 | 81 | 77 | 76 | 72 | 88 | 85 | 83 | 80 | 79 | 75 |
| | 6000 | 79 | 74 | 73 | 68 | 66 | 61 | 83 | 79 | 77 | 73 | 72 | 67 | 87 | 84 | 82 | 78 | 78 | 73 | 90 | 86 | 85 | 81 | 81 | 77 |
| | 7000 | 80 | 76 | 74 | 69 | 68 | 63 | 85 | 80 | 79 | 75 | 73 | 69 | 89 | 85 | 84 | 80 | 79 | 75 | 91 | 88 | 87 | 83 | 83 | 79 |
| | 8000 | 82 | 77 | 75 | 71 | 69 | 64 | 86 | 82 | 80 | 76 | 75 | 71 | 90 | 86 | 85 | 81 | 81 | 77 | 93 | 89 | 88 | 84 | 84 | 80 |

- ΔPs is the difference in static pressure from inlet to discharge.
- Sound power levels are in decibels, re $10^{-12}$ watts.
- Discharge sound power is the noise emitted from the unit discharge into the downstream duct.
- All sound data based upon tests conducted in accordance with ARI Standard 880-98.

Performance Data (continued)

**PESV, AESV, DESV • Radiated Sound Power**

| Inlet Size | cfm | Sound Power Octave Bands | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0.5" ΔPs | | | | | | 1.0" ΔPs | | | | | | 2.0" ΔPs | | | | | | 3.0" ΔPs | | | | | |
| | | 2 | 3 | 4 | 5 | 6 | 7 | 2 | 3 | 4 | 5 | 6 | 7 | 2 | 3 | 4 | 5 | 6 | 7 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4 | 75 | 44 | 40 | 33 | 31 | 30 | 24 | 47 | 43 | 36 | 33 | 33 | 29 | 50 | 46 | 39 | 36 | 37 | 35 | 52 | 48 | 41 | 37 | 40 | 38 |
| | 125 | 52 | 49 | 39 | 36 | 33 | 27 | 55 | 52 | 42 | 38 | 37 | 32 | 58 | 55 | 45 | 41 | 41 | 38 | 60 | 57 | 47 | 42 | 44 | 41 |
| | 175 | 58 | 55 | 42 | 39 | 36 | 29 | 61 | 58 | 46 | 42 | 40 | 34 | 64 | 61 | 49 | 44 | 44 | 40 | 66 | 63 | 51 | 46 | 46 | 43 |
| | 225 | 62 | 59 | 45 | 42 | 38 | 31 | 65 | 62 | 49 | 44 | 42 | 36 | 68 | 65 | 52 | 47 | 46 | 41 | 70 | 67 | 54 | 48 | 48 | 45 |
| 5 | 125 | 47 | 42 | 34 | 31 | 30 | 24 | 51 | 46 | 39 | 34 | 34 | 29 | 55 | 51 | 43 | 38 | 38 | 34 | 57 | 53 | 46 | 40 | 40 | 37 |
| | 175 | 51 | 46 | 38 | 34 | 33 | 26 | 55 | 51 | 42 | 37 | 36 | 31 | 59 | 55 | 47 | 41 | 40 | 36 | 61 | 58 | 50 | 43 | 42 | 39 |
| | 250 | 55 | 52 | 41 | 37 | 35 | 29 | 59 | 56 | 46 | 40 | 39 | 34 | 63 | 60 | 51 | 44 | 43 | 39 | 65 | 63 | 53 | 46 | 45 | 42 |
| | 300 | 58 | 54 | 43 | 39 | 37 | 30 | 62 | 59 | 48 | 42 | 41 | 35 | 65 | 63 | 52 | 45 | 44 | 40 | 68 | 66 | 55 | 47 | 47 | 43 |
| | 350 | 60 | 56 | 45 | 40 | 38 | 31 | 63 | 61 | 49 | 43 | 42 | 36 | 67 | 65 | 54 | 47 | 45 | 41 | 70 | 68 | 57 | 49 | 48 | 44 |
| 6 | 175 | 51 | 42 | 34 | 28 | 27 | 23 | 54 | 47 | 39 | 32 | 31 | 28 | 58 | 52 | 43 | 35 | 35 | 33 | 60 | 55 | 46 | 37 | 38 | 36 |
| | 225 | 53 | 45 | 37 | 31 | 30 | 25 | 57 | 50 | 42 | 35 | 34 | 30 | 60 | 55 | 46 | 38 | 38 | 35 | 62 | 58 | 49 | 41 | 40 | 38 |
| | 300 | 55 | 49 | 40 | 35 | 32 | 28 | 59 | 54 | 45 | 39 | 37 | 33 | 63 | 59 | 50 | 42 | 41 | 38 | 65 | 62 | 53 | 44 | 43 | 40 |
| | 350 | 57 | 52 | 42 | 37 | 34 | 29 | 60 | 57 | 47 | 41 | 38 | 34 | 64 | 62 | 52 | 44 | 42 | 39 | 66 | 65 | 55 | 46 | 44 | 42 |
| | 400 | 58 | 53 | 44 | 39 | 35 | 30 | 61 | 58 | 49 | 42 | 39 | 35 | 65 | 63 | 53 | 46 | 43 | 40 | 67 | 66 | 56 | 48 | 46 | 43 |
| | 450 | 59 | 55 | 45 | 40 | 36 | 31 | 62 | 60 | 50 | 44 | 40 | 36 | 66 | 65 | 55 | 47 | 45 | 41 | 68 | 68 | 58 | 50 | 47 | 44 |
| | 500 | 60 | 56 | 47 | 42 | 37 | 32 | 63 | 62 | 51 | 45 | 41 | 37 | 67 | 67 | 56 | 49 | 46 | 42 | 69 | 69 | 59 | 51 | 48 | 45 |
| 7 | 250 | 54 | 40 | 36 | 31 | 28 | 20 | 56 | 45 | 41 | 35 | 33 | 26 | 58 | 50 | 47 | 39 | 38 | 32 | 59 | 53 | 50 | 41 | 41 | 35 |
| | 300 | 55 | 42 | 38 | 33 | 30 | 21 | 57 | 47 | 43 | 37 | 35 | 27 | 60 | 53 | 49 | 41 | 40 | 33 | 61 | 56 | 52 | 44 | 43 | 36 |
| | 350 | 56 | 45 | 39 | 35 | 31 | 22 | 59 | 50 | 45 | 39 | 36 | 28 | 61 | 55 | 50 | 43 | 41 | 34 | 62 | 58 | 53 | 46 | 44 | 37 |
| | 400 | 58 | 47 | 41 | 36 | 32 | 23 | 60 | 52 | 46 | 41 | 37 | 29 | 62 | 57 | 52 | 45 | 42 | 35 | 63 | 60 | 55 | 47 | 45 | 38 |
| | 500 | 60 | 50 | 43 | 39 | 34 | 24 | 62 | 55 | 49 | 43 | 39 | 30 | 64 | 60 | 54 | 48 | 44 | 36 | 65 | 63 | 57 | 50 | 47 | 40 |
| | 600 | 61 | 53 | 45 | 42 | 35 | 25 | 63 | 58 | 51 | 46 | 41 | 31 | 66 | 63 | 56 | 50 | 46 | 37 | 67 | 66 | 59 | 52 | 49 | 41 |
| | 650 | 62 | 54 | 46 | 43 | 36 | 26 | 64 | 59 | 52 | 47 | 41 | 32 | 66 | 64 | 57 | 51 | 46 | 38 | 68 | 67 | 60 | 53 | 49 | 41 |
| 8 | 350 | 54 | 43 | 38 | 33 | 33 | 26 | 57 | 48 | 43 | 37 | 37 | 34 | 60 | 53 | 48 | 41 | 42 | 42 | 62 | 56 | 51 | 43 | 44 | 46 |
| | 400 | 55 | 45 | 39 | 35 | 34 | 28 | 58 | 50 | 44 | 39 | 39 | 35 | 61 | 55 | 50 | 42 | 43 | 43 | 63 | 58 | 53 | 44 | 46 | 47 |
| | 450 | 56 | 47 | 40 | 36 | 35 | 29 | 59 | 52 | 46 | 40 | 40 | 36 | 63 | 57 | 51 | 44 | 44 | 44 | 64 | 60 | 54 | 46 | 47 | 49 |
| | 500 | 57 | 48 | 42 | 38 | 36 | 30 | 60 | 53 | 47 | 41 | 41 | 37 | 63 | 58 | 52 | 45 | 45 | 45 | 65 | 61 | 55 | 47 | 48 | 50 |
| | 600 | 59 | 50 | 44 | 40 | 38 | 32 | 62 | 55 | 49 | 43 | 43 | 39 | 65 | 60 | 54 | 47 | 47 | 47 | 67 | 63 | 57 | 49 | 50 | 51 |
| | 700 | 60 | 52 | 45 | 42 | 40 | 33 | 63 | 57 | 50 | 45 | 44 | 41 | 67 | 62 | 56 | 49 | 49 | 48 | 68 | 65 | 59 | 51 | 51 | 53 |
| | 800 | 62 | 54 | 47 | 43 | 41 | 34 | 65 | 59 | 52 | 47 | 46 | 42 | 68 | 64 | 57 | 51 | 50 | 50 | 69 | 67 | 60 | 53 | 53 | 54 |
| 9 | 450 | 51 | 40 | 39 | 34 | 30 | 28 | 54 | 46 | 45 | 40 | 36 | 33 | 57 | 52 | 51 | 46 | 43 | 37 | 59 | 56 | 55 | 49 | 46 | 40 |
| | 500 | 53 | 42 | 39 | 34 | 31 | 28 | 55 | 48 | 46 | 40 | 37 | 33 | 58 | 54 | 52 | 46 | 43 | 38 | 60 | 57 | 55 | 50 | 47 | 40 |
| | 600 | 54 | 44 | 41 | 35 | 32 | 29 | 57 | 50 | 47 | 41 | 38 | 34 | 60 | 56 | 53 | 47 | 45 | 38 | 62 | 59 | 57 | 51 | 48 | 41 |
| | 700 | 56 | 46 | 42 | 36 | 33 | 30 | 59 | 52 | 48 | 42 | 39 | 34 | 62 | 58 | 54 | 48 | 46 | 39 | 64 | 61 | 58 | 52 | 50 | 42 |
| | 800 | 58 | 47 | 43 | 37 | 34 | 30 | 61 | 53 | 49 | 43 | 40 | 35 | 63 | 59 | 55 | 49 | 47 | 40 | 65 | 63 | 59 | 52 | 50 | 42 |
| | 900 | 59 | 49 | 44 | 38 | 35 | 31 | 62 | 55 | 50 | 44 | 41 | 35 | 65 | 61 | 56 | 50 | 48 | 40 | 66 | 64 | 59 | 53 | 51 | 43 |
| | 1000 | 60 | 50 | 44 | 38 | 36 | 31 | 63 | 56 | 50 | 44 | 42 | 36 | 66 | 62 | 57 | 50 | 48 | 40 | 68 | 66 | 60 | 54 | 52 | 43 |

**ARI Certification Rating Points**

| Inlet Size | Rated cfm | Min ΔPs | Sound Power @ 1.5 IN SP | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 2 | 3 | 4 | 5 | 6 | 7 |
| 4 | 150 | 0.044 | 60 | 57 | 46 | 41 | 41 | 37 |
| 5 | 250 | 0.030 | 62 | 59 | 49 | 42 | 41 | 37 |
| 6 | 400 | 0.130 | 63 | 61 | 52 | 44 | 42 | 38 |
| 7 | 550 | 0.104 | 64 | 59 | 53 | 47 | 43 | 34 |
| 8 | 700 | 0.021 | 65 | 60 | 53 | 47 | 47 | 45 |
| 9 | 900 | 0.050 | 64 | 58 | 53 | 47 | 45 | 38 |
| 10 | 1100 | 0.023 | 67 | 62 | 57 | 55 | 54 | 43 |
| 12 | 1600 | 0.038 | 66 | 62 | 59 | 53 | 50 | 44 |
| 14 | 2100 | 0.039 | 66 | 62 | 55 | 53 | 50 | 46 |
| 16 | 2800 | 0.030 | 66 | 61 | 54 | 50 | 50 | 45 |
| 24x16 | 5300 | 0.057 | 76 | 73 | 74 | 68 | 63 | 58 |

ARI Standard 880
A Participating Corporation
in the ARI 880
Certification Program

Ratings in accordance with ARI Standard 880-98 and certified to ARI.

Performance Data (continued)

**PESV, AESV, DESV • Radiated Sound Power**

| Inlet Size | cfm | Sound Power Octave Bands | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0.5" ΔPs | | | | | | 1.0" ΔPs | | | | | | 2.0" ΔPs | | | | | | 3.0" ΔPs | | | | | |
| | | 2 | 3 | 4 | 5 | 6 | 7 | 2 | 3 | 4 | 5 | 6 | 7 | 2 | 3 | 4 | 5 | 6 | 7 | 2 | 3 | 4 | 5 | 6 | 7 |
| 10 | 550 | 56 | 46 | 45 | 41 | 36 | 24 | 59 | 52 | 51 | 47 | 43 | 31 | 63 | 58 | 57 | 52 | 49 | 38 | 65 | 62 | 60 | 55 | 53 | 43 |
| | 600 | 56 | 47 | 46 | 42 | 37 | 25 | 60 | 53 | 51 | 47 | 44 | 32 | 63 | 59 | 57 | 53 | 50 | 39 | 65 | 63 | 61 | 56 | 54 | 44 |
| | 700 | 58 | 48 | 46 | 43 | 39 | 27 | 61 | 54 | 52 | 48 | 45 | 34 | 65 | 60 | 58 | 54 | 52 | 41 | 67 | 64 | 61 | 57 | 55 | 45 |
| | 800 | 59 | 49 | 47 | 44 | 40 | 28 | 62 | 56 | 53 | 49 | 47 | 35 | 66 | 62 | 59 | 55 | 53 | 42 | 68 | 65 | 62 | 58 | 57 | 47 |
| | 1000 | 60 | 51 | 48 | 46 | 43 | 30 | 64 | 58 | 54 | 51 | 49 | 38 | 67 | 64 | 59 | 56 | 55 | 45 | 69 | 67 | 63 | 59 | 59 | 49 |
| | 1200 | 62 | 53 | 48 | 47 | 45 | 32 | 65 | 59 | 54 | 53 | 51 | 40 | 69 | 65 | 60 | 58 | 57 | 47 | 71 | 69 | 64 | 61 | 61 | 51 |
| | 1400 | 63 | 54 | 49 | 48 | 46 | 34 | 67 | 60 | 55 | 54 | 53 | 41 | 70 | 67 | 61 | 59 | 59 | 49 | 72 | 70 | 64 | 62 | 63 | 53 |
| 12 | 800 | 56 | 46 | 43 | 37 | 32 | 25 | 59 | 51 | 48 | 43 | 38 | 32 | 63 | 57 | 54 | 50 | 44 | 39 | 65 | 60 | 58 | 53 | 48 | 42 |
| | 900 | 56 | 47 | 44 | 38 | 33 | 27 | 60 | 52 | 50 | 44 | 39 | 33 | 64 | 58 | 55 | 51 | 45 | 40 | 66 | 61 | 59 | 54 | 49 | 44 |
| | 1000 | 57 | 48 | 45 | 39 | 34 | 28 | 61 | 54 | 51 | 45 | 40 | 35 | 64 | 59 | 56 | 51 | 47 | 41 | 67 | 62 | 60 | 55 | 50 | 45 |
| | 1200 | 58 | 50 | 47 | 41 | 37 | 30 | 62 | 56 | 52 | 47 | 43 | 37 | 66 | 61 | 58 | 53 | 49 | 43 | 68 | 64 | 62 | 57 | 52 | 47 |
| | 1500 | 60 | 53 | 49 | 43 | 39 | 33 | 64 | 58 | 55 | 49 | 45 | 39 | 67 | 63 | 60 | 55 | 52 | 46 | 69 | 67 | 64 | 58 | 55 | 50 |
| | 1800 | 61 | 55 | 51 | 44 | 41 | 35 | 65 | 60 | 56 | 50 | 48 | 41 | 69 | 65 | 62 | 56 | 54 | 48 | 71 | 69 | 66 | 60 | 57 | 52 |
| | 2000 | 62 | 56 | 52 | 45 | 43 | 36 | 66 | 61 | 57 | 51 | 49 | 43 | 69 | 67 | 63 | 57 | 55 | 49 | 71 | 70 | 67 | 61 | 59 | 53 |
| 14 | 1000 | 52 | 47 | 42 | 41 | 37 | 34 | 56 | 52 | 47 | 46 | 42 | 40 | 60 | 57 | 52 | 51 | 47 | 45 | 62 | 60 | 55 | 54 | 50 | 49 |
| | 1200 | 54 | 49 | 43 | 42 | 39 | 35 | 58 | 54 | 48 | 47 | 44 | 40 | 62 | 59 | 54 | 52 | 48 | 46 | 64 | 62 | 57 | 55 | 51 | 49 |
| | 1500 | 56 | 51 | 45 | 43 | 40 | 36 | 60 | 56 | 50 | 48 | 45 | 41 | 64 | 61 | 55 | 53 | 50 | 47 | 66 | 64 | 58 | 56 | 53 | 50 |
| | 1800 | 58 | 52 | 46 | 44 | 41 | 36 | 62 | 57 | 51 | 49 | 46 | 42 | 66 | 63 | 56 | 54 | 51 | 48 | 68 | 65 | 59 | 57 | 54 | 51 |
| | 2100 | 59 | 54 | 47 | 45 | 42 | 37 | 63 | 59 | 52 | 50 | 47 | 43 | 67 | 64 | 57 | 55 | 52 | 48 | 70 | 67 | 60 | 58 | 55 | 52 |
| | 2400 | 60 | 55 | 48 | 46 | 43 | 38 | 64 | 60 | 53 | 51 | 48 | 43 | 69 | 65 | 58 | 56 | 53 | 49 | 71 | 68 | 61 | 59 | 56 | 52 |
| | 3000 | 63 | 57 | 50 | 47 | 44 | 39 | 67 | 62 | 55 | 52 | 49 | 44 | 71 | 67 | 60 | 57 | 54 | 50 | 73 | 70 | 63 | 60 | 57 | 53 |
| 16 | 1400 | 50 | 44 | 39 | 38 | 35 | 27 | 54 | 49 | 44 | 41 | 40 | 34 | 58 | 54 | 48 | 45 | 45 | 41 | 61 | 56 | 51 | 48 | 48 | 44 |
| | 1600 | 52 | 46 | 40 | 39 | 37 | 28 | 56 | 50 | 45 | 43 | 42 | 35 | 60 | 55 | 50 | 47 | 46 | 42 | 63 | 58 | 52 | 49 | 49 | 46 |
| | 2000 | 55 | 48 | 43 | 41 | 39 | 31 | 59 | 53 | 47 | 45 | 44 | 38 | 63 | 58 | 52 | 49 | 49 | 44 | 65 | 61 | 55 | 51 | 52 | 48 |
| | 2400 | 57 | 51 | 45 | 43 | 41 | 33 | 61 | 56 | 49 | 47 | 46 | 39 | 65 | 61 | 54 | 51 | 51 | 46 | 68 | 64 | 57 | 53 | 53 | 50 |
| | 2800 | 59 | 53 | 46 | 44 | 42 | 34 | 63 | 58 | 51 | 48 | 47 | 41 | 67 | 63 | 56 | 52 | 52 | 48 | 70 | 66 | 58 | 54 | 55 | 52 |
| | 3200 | 61 | 55 | 48 | 46 | 44 | 36 | 65 | 60 | 52 | 50 | 49 | 42 | 69 | 64 | 57 | 53 | 54 | 49 | 71 | 67 | 60 | 56 | 56 | 53 |
| | 4000 | 63 | 58 | 50 | 48 | 46 | 38 | 68 | 62 | 55 | 52 | 51 | 45 | 72 | 67 | 59 | 56 | 56 | 52 | 74 | 70 | 62 | 58 | 59 | 55 |
| 24x16 | 3000 | 65 | 63 | 62 | 56 | 54 | 50 | 68 | 64 | 63 | 58 | 56 | 53 | 70 | 66 | 64 | 59 | 58 | 56 | 71 | 67 | 65 | 60 | 59 | 58 |
| | 3500 | 67 | 65 | 65 | 59 | 56 | 51 | 69 | 66 | 66 | 60 | 58 | 54 | 72 | 68 | 67 | 61 | 60 | 57 | 73 | 69 | 68 | 62 | 61 | 59 |
| | 4000 | 69 | 67 | 67 | 61 | 57 | 52 | 71 | 68 | 68 | 62 | 59 | 55 | 73 | 70 | 69 | 64 | 61 | 58 | 75 | 71 | 70 | 64 | 62 | 60 |
| | 5000 | 72 | 70 | 71 | 65 | 59 | 53 | 74 | 71 | 72 | 66 | 61 | 56 | 76 | 73 | 73 | 67 | 63 | 59 | 77 | 74 | 74 | 68 | 64 | 61 |
| | 6000 | 74 | 72 | 74 | 68 | 61 | 54 | 76 | 74 | 75 | 69 | 63 | 57 | 78 | 75 | 76 | 70 | 65 | 60 | 80 | 76 | 77 | 71 | 66 | 62 |
| | 7000 | 76 | 74 | 77 | 70 | 63 | 55 | 78 | 76 | 78 | 72 | 65 | 58 | 80 | 77 | 79 | 73 | 67 | 61 | 81 | 78 | 80 | 74 | 68 | 62 |
| | 8000 | 78 | 76 | 79 | 73 | 64 | 55 | 80 | 77 | 80 | 74 | 66 | 58 | 82 | 79 | 81 | 75 | 68 | 61 | 83 | 80 | 82 | 76 | 69 | 63 |

- ΔPs is the difference in static pressure from inlet to discharge.
- Sound power levels are in decibels, re $10^{-12}$ watts.
- Radiated sound power is the noise transmitted through casing walls.
- All sound data based upon tests conducted in accordance with ARI Standard 880-98.