



**SoundChek  
RECTANGULAR DISSIPATIVE SILENCER  
MODEL DM**

3900 Dr. Greaves Rd., Kansas City, MO 64030 • Phone (816) 761-7476 • FAX (816) 763-0986 • Email: info@ruskinsound.com • Website: ruskinsound.com

| NET INSERTION LOSS RATINGS (SEE NOTES 1, 2 AND 3) |                     |                           |  |     |     |     |      |      |      |      |
|---|---------------------|---------------------------|--|-----|-----|-----|------|------|------|------|
| MODEL DM  | FACE VELOCITY (FPM) | STATIC PRESSURE DROP (WG) | OCTAVE BAND NUMBER & CENTER FREQ. (Hz) |     |     |     |      |      |      |      |
|   |                     |                           | 1                                      | 2   | 3   | 4   | 5    | 6    | 7    | 8    |
|   |                     |                           | 63                                     | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| INSERTION LOSS (dB)                               |                     |                           |  |     |     |     |      |      |      |      |
| DM-36   | -4000               | 0.77                      | 3                                      | 7   | 13  | 16  | 22   | 14   | 11   | 6    |
|   | -2000               | 0.19                      | 2                                      | 6   | 12  | 16  | 22   | 15   | 11   | 6    |
|   | 0                   | -                         | 2                                      | 5   | 11  | 15  | 21   | 17   | 12   | 7    |
|   | 2000                | 0.19                      | 1                                      | 5   | 10  | 14  | 20   | 17   | 12   | 7    |
|   | 4000                | 0.77                      | 1                                      | 4   | 9   | 13  | 19   | 17   | 12   | 7    |
| DM-60   | -4000               | 0.92                      | 6                                      | 11  | 20  | 31  | 34   | 19   | 11   | 8    |
|   | -2000               | 0.23                      | 5                                      | 11  | 20  | 30  | 34   | 20   | 12   | 8    |
|   | 0                   | -                         | 3                                      | 10  | 17  | 26  | 33   | 25   | 16   | 10   |
|   | 2000                | 0.23                      | 2                                      | 9   | 16  | 25  | 32   | 25   | 16   | 10   |
|   | 4000                | 0.92                      | 2                                      | 7   | 14  | 24  | 31   | 25   | 16   | 10   |
| DM-84   | -4000               | 1.08                      | 7                                      | 17  | 29  | 43  | 41   | 24   | 15   | 12   |
|   | -2000               | 0.27                      | 6                                      | 16  | 27  | 42  | 42   | 25   | 16   | 12   |
|   | 0                   | -                         | 5                                      | 14  | 21  | 35  | 44   | 32   | 21   | 13   |
|   | 2000                | 0.27                      | 4                                      | 13  | 20  | 34  | 43   | 32   | 21   | 13   |
|   | 4000                | 1.08                      | 3                                      | 11  | 19  | 33  | 41   | 32   | 21   | 13   |
| DM-120  | -4000               | 1.28                      | 14                                     | 24  | 33  | 41  | 47   | 31   | 19   | 13   |
|   | -2000               | 0.32                      | 12                                     | 23  | 32  | 42  | 49   | 32   | 21   | 14   |
|   | 0                   | -                         | 7                                      | 20  | 28  | 48  | 61   | 42   | 27   | 17   |
|   | 2000                | 0.32                      | 6                                      | 18  | 27  | 47  | 59   | 42   | 27   | 17   |
|   | 4000                | 1.28                      | 4                                      | 16  | 25  | 45  | 57   | 42   | 27   | 17   |



| AIRFLOW-GENERATED SOUND POWER LEVELS (See Note 5) |  |     |     |     |      |      |      |      |  |
|---|--|-----|-----|-----|------|------|------|------|--|
| MODEL DM  | OCTAVE BAND NUMBER & CENTER FREQ. (Hz) |     |     |     |      |      |      |      |  |
| FACE VELOCITY                                     | 1                                      | 2   | 3   | 4   | 5    | 6    | 7    | 8    |  |
|   | 63                                     | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |  |
| -4000   | 72                                     | 68  | 60  | 59  | 56   | 59   | 62   | 59   |  |
| -3000   | 66                                     | 61  | 53  | 52  | 49   | 53   | 55   | 50   |  |
| -2500   | 62                                     | 57  | 49  | 47  | 45   | 48   | 50   | 44   |  |
| -2000   | 57                                     | 52  | 44  | 42  | 40   | 43   | 44   | 37   |  |
| -1000   | 43                                     | 35  | 28  | 26  | 24   | 26   | 27   | 15   |  |
| 1000  | 43                                     | 35  | 28  | 26  | 24   | 26   | 27   | 15   |  |
| 2000  | 57                                     | 52  | 44  | 42  | 40   | 43   | 44   | 37   |  |
| 2500  | 62                                     | 57  | 49  | 47  | 45   | 48   | 50   | 44   |  |
| 3000  | 66                                     | 61  | 53  | 52  | 49   | 53   | 55   | 50   |  |
| 4000  | 72                                     | 68  | 60  | 59  | 56   | 59   | 62   | 59   |  |

| FACE AREA ADJUSTMENT FACTORS  |     |    |    |   |    |    |    |     |     |     |     |
|---|-----|----|----|---|----|----|----|-----|-----|-----|-----|
| Self Generated Power Levels listed above require adjustment for silencer or silencer banks with face area other than 4 sq. ft. Add or subtract the following factors to all octave bands. |     |    |    |   |    |    |    |     |     |     |     |
| Face Area (sq ft)   | 0.5 | 1  | 2  | 4 | 8  | 16 | 32 | 64  | 128 | 256 | 512 |
| Adjustment Factor (decibels)  | -9  | -6 | -3 | 0 | +3 | +6 | +9 | +12 | +15 | +18 | +21 |

# AIRFLOW PERFORMANCE

| RUSKIN MODEL |     |     |     |         | STATIC PRESSURE LOSS (INCHES WG) |       |                     |       |               |       |       |       |       |       |       |       |       |       |       |
|--------------|-----|-----|-----|---------|----------------------------------|-------|---------------------|-------|---------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| DM-120       |     |     |     |         | 0.065                            | 0.097 | 0.130               | 0.174 | 0.218         | 0.274 | 0.336 | 0.405 | 0.470 | 0.551 | 0.638 | 0.720 | 0.871 | 0.980 |       |
| DM-84        |     |     |     |         | 0.057                            | 0.085 | 0.114               | 0.152 | 0.191         | 0.240 | 0.294 | 0.354 | 0.412 | 0.482 | 0.559 | 0.630 | 0.762 | 0.858 |       |
| DM-60        |     |     |     |         | 0.049                            | 0.073 | 0.098               | 0.131 | 0.163         | 0.205 | 0.252 | 0.304 | 0.353 | 0.413 | 0.479 | 0.540 | 0.653 | 0.735 |       |
| DM-36        |     |     |     |         | 0.041                            | 0.061 | 0.081               | 0.109 | 0.136         | 0.171 | 0.210 | 0.253 | 0.294 | 0.345 | 0.399 | 0.450 | 0.545 | 0.613 |       |
|              |     |     |     |         | Face Velocity (fpm)              |       |                     |       | Airflow (cfm) |       |       |       |       |       |       |       |       |       |       |
|              |     |     |     |         | Size (W x H)                     |       | Face Area (Sq. Ft.) |       |               |       |       |       |       |       |       |       |       |       |       |
| 59           | 41  | 30  | 18  | 6 x 12  | 0.50                             | 450   | 550                 | 638   | 738           | 825   | 925   | 1025  | 1125  | 1213  | 1313  | 1413  | 1500  | 1650  | 1750  |
| 64           | 45  | 32  | 20  | 7½ x 12 | 0.63                             | 563   | 688                 | 797   | 922           | 1031  | 1156  | 1281  | 1406  | 1516  | 1641  | 1766  | 1875  | 2063  | 2188  |
| 69           | 49  | 35  | 22  | 9 x 12  | 0.75                             | 675   | 825                 | 956   | 1106          | 1238  | 1388  | 1538  | 1688  | 1819  | 1969  | 2119  | 2250  | 2475  | 2625  |
| 89           | 63  | 45  | 28  | 12 x 12 | 1.00                             | 900   | 1100                | 1275  | 1475          | 1650  | 1850  | 2050  | 2250  | 2425  | 2625  | 2825  | 3000  | 3300  | 3500  |
| 149          | 104 | 76  | 47  | 12 x 24 | 2.00                             | 1800  | 2200                | 2550  | 2950          | 3300  | 3700  | 4100  | 4500  | 4850  | 5250  | 5650  | 6000  | 6600  | 7000  |
| 178          | 126 | 91  | 56  | 12 x 30 | 2.50                             | 2250  | 2750                | 3188  | 3688          | 4125  | 4625  | 5125  | 5625  | 6063  | 6563  | 7063  | 7500  | 8250  | 8750  |
| 208          | 146 | 106 | 65  | 12 x 36 | 3.00                             | 2700  | 3300                | 3825  | 4425          | 4950  | 5550  | 6150  | 6750  | 7275  | 7875  | 8475  | 9000  | 9900  | 10500 |
| 94           | 66  | 48  | 29  | 15 x 12 | 1.25                             | 1125  | 1375                | 1594  | 1844          | 2063  | 2313  | 2563  | 2813  | 3031  | 3281  | 3531  | 3750  | 4125  | 4375  |
| 167          | 118 | 85  | 53  | 18 x 24 | 3.00                             | 2700  | 3300                | 3825  | 4425          | 4950  | 5550  | 6150  | 6750  | 7275  | 7875  | 8475  | 9000  | 9900  | 10500 |
| 181          | 128 | 93  | 57  | 21 x 24 | 3.50                             | 3150  | 3850                | 4463  | 5163          | 5775  | 6475  | 7175  | 7875  | 8488  | 9188  | 9888  | 10500 | 11550 | 12250 |
| 190          | 133 | 97  | 60  | 24 x 18 | 3.00                             | 2700  | 3300                | 3825  | 4425          | 4950  | 5550  | 6150  | 6750  | 7275  | 7875  | 8475  | 9000  | 9900  | 10500 |
| 234          | 165 | 119 | 73  | 24 x 24 | 4.00                             | 3600  | 4400                | 5100  | 5900          | 6600  | 7400  | 8200  | 9000  | 9700  | 10500 | 11300 | 12000 | 13200 | 14000 |
| 278          | 196 | 142 | 88  | 24 x 30 | 5.00                             | 4500  | 5500                | 6375  | 7375          | 8250  | 9250  | 10250 | 11250 | 12125 | 13125 | 14125 | 15000 | 16500 | 17500 |
| 322          | 228 | 165 | 102 | 24 x 36 | 6.00                             | 5400  | 6600                | 7650  | 8850          | 9900  | 11100 | 12300 | 13500 | 14550 | 15750 | 16950 | 18000 | 19800 | 21000 |
| 374          | 258 | 187 | 116 | 24 x 42 | 7.00                             | 6300  | 7700                | 8925  | 10325         | 11550 | 12950 | 14350 | 15750 | 16975 | 18375 | 19775 | 21000 | 23100 | 24500 |
| -            | 290 | 210 | 130 | 24 x 48 | 8.00                             | 7200  | 8800                | 10200 | 11800         | 13200 | 14800 | 16400 | 18000 | 19400 | 21000 | 22600 | 24000 | 26400 | 28000 |
| 247          | 174 | 126 | 78  | 27 x 24 | 4.50                             | 4050  | 4950                | 5738  | 6638          | 7425  | 8325  | 9225  | 10125 | 10913 | 11813 | 12713 | 13500 | 14850 | 15750 |
| 165          | 116 | 84  | 51  | 30 x 12 | 2.50                             | 2250  | 2750                | 3188  | 3688          | 4125  | 4625  | 5125  | 5625  | 6063  | 6563  | 7063  | 7500  | 8250  | 8750  |
| 261          | 184 | 133 | 82  | 30 x 24 | 5.00                             | 4500  | 5500                | 6375  | 7375          | 8250  | 9250  | 10250 | 11250 | 12125 | 13125 | 14125 | 15000 | 16500 | 17500 |
| 309          | 218 | 158 | 98  | 30 x 30 | 6.25                             | 5625  | 6875                | 7969  | 9219          | 10313 | 11563 | 12813 | 14063 | 15156 | 16406 | 17656 | 18750 | 20625 | 21875 |
| 356          | 252 | 183 | 113 | 30 x 36 | 7.50                             | 6750  | 8250                | 9563  | 11063         | 12375 | 13875 | 15375 | 16875 | 18188 | 19688 | 21188 | 22500 | 24750 | 26250 |
| 415          | 286 | 207 | 128 | 30 x 42 | 8.75                             | 7875  | 9625                | 11156 | 12906         | 14438 | 16188 | 17938 | 19688 | 21219 | 22969 | 24719 | 26250 | 28875 | 30625 |
| -            | 320 | 232 | 144 | 30 x 48 | 10.00                            | 9000  | 11000               | 12750 | 14750         | 16500 | 18500 | 20500 | 22500 | 24250 | 26250 | 28250 | 30000 | 33000 | 35000 |
| 324          | 229 | 166 | 103 | 33 x 30 | 6.88                             | 6188  | 7563                | 8766  | 10141         | 11344 | 12719 | 14094 | 15469 | 16672 | 18047 | 19422 | 20625 | 22688 | 24063 |
| 236          | 167 | 121 | 74  | 36 x 18 | 4.50                             | 4050  | 4950                | 5738  | 6638          | 7425  | 8325  | 9225  | 10125 | 10913 | 11813 | 12713 | 13500 | 14850 | 15750 |
| 287          | 203 | 147 | 91  | 36 x 24 | 6.00                             | 5400  | 6600                | 7650  | 8850          | 9900  | 11100 | 12300 | 13500 | 14550 | 15750 | 16950 | 18000 | 19800 | 21000 |
| 339          | 240 | 173 | 108 | 36 x 30 | 7.50                             | 6750  | 8250                | 9563  | 11063         | 12375 | 13875 | 15375 | 16875 | 18188 | 19688 | 21188 | 22500 | 24750 | 26250 |
| 390          | 276 | 201 | 124 | 36 x 36 | 9.00                             | 8100  | 9900                | 11475 | 13275         | 14850 | 16650 | 18450 | 20250 | 21825 | 23625 | 25425 | 27000 | 29700 | 31500 |
| 454          | 313 | 227 | 141 | 36 x 42 | 10.50                            | 9450  | 11550               | 13388 | 15488         | 17325 | 19425 | 21525 | 23625 | 25463 | 27563 | 29663 | 31500 | 34650 | 36750 |
| -            | 349 | 253 | 157 | 36 x 48 | 12.00                            | 10800 | 13200               | 15300 | 17700         | 19800 | 22200 | 24600 | 27000 | 29100 | 31500 | 33900 | 36000 | 39600 | 42000 |
| -            | -   | 254 | 158 | 39 x 42 | 11.38                            | 10238 | 12513               | 14503 | 16778         | 18769 | 21044 | 23319 | 25594 | 27584 | 29859 | 32134 | 34125 | 37538 | 39813 |
| -            | -   | 170 | 106 | 42 x 24 | 7.00                             | 6300  | 7700                | 8925  | 10325         | 11550 | 12950 | 14350 | 15750 | 16975 | 18375 | 19775 | 21000 | 23100 | 24500 |
| -            | -   | 202 | 125 | 42 x 30 | 8.75                             | 7875  | 9625                | 11156 | 12906         | 14438 | 16188 | 17938 | 19688 | 21219 | 22969 | 24719 | 26250 | 28875 | 30625 |
| -            | -   | 233 | 144 | 42 x 36 | 10.50                            | 9450  | 11550               | 13388 | 15488         | 17325 | 19425 | 21525 | 23625 | 25463 | 27563 | 29663 | 31500 | 34650 | 36750 |
| -            | -   | 264 | 164 | 42 x 42 | 12.25                            | 11025 | 13475               | 15619 | 18069         | 20213 | 22663 | 25113 | 27563 | 29706 | 32156 | 34606 | 36750 | 40425 | 42875 |
| -            | -   | 295 | 183 | 42 x 48 | 14.00                            | 12600 | 15400               | 17850 | 20650         | 23100 | 25900 | 28700 | 31500 | 33950 | 36750 | 39550 | 42000 | 46200 | 49000 |
| -            | -   | 305 | 190 | 45 x 48 | 15.00                            | 13500 | 16500               | 19125 | 22125         | 24750 | 27750 | 30750 | 33750 | 36375 | 39375 | 42375 | 45000 | 49500 | 52500 |
| -            | -   | 150 | 93  | 48 x 18 | 6.00                             | 5400  | 6600                | 7650  | 8850          | 9900  | 11100 | 12300 | 13500 | 14550 | 15750 | 16950 | 18000 | 19800 | 21000 |
| -            | -   | 183 | 114 | 48 x 24 | 8.00                             | 7200  | 8800                | 10200 | 11800         | 13200 | 14800 | 16400 | 18000 | 19400 | 21000 | 22600 | 24000 | 26400 | 28000 |
| -            | -   | 216 | 134 | 48 x 30 | 10.00                            | 9000  | 11000               | 12750 | 14750         | 16500 | 18500 | 20500 | 22500 | 24250 | 26250 | 28250 | 30000 | 33000 | 35000 |
| -            | -   | 249 | 155 | 48 x 36 | 12.00                            | 10800 | 13200               | 15300 | 17700         | 19800 | 22200 | 24600 | 27000 | 29100 | 31500 | 33900 | 36000 | 39600 | 42000 |
| -            | -   | 282 | 175 | 48 x 42 | 14.00                            | 12600 | 15400               | 17850 | 20650         | 23100 | 25900 | 28700 | 31500 | 33950 | 36750 | 39550 | 42000 | 46200 | 49000 |
| -            | -   | 314 | 196 | 48 x 48 | 16.00                            | 14400 | 17600               | 20400 | 23600         | 26400 | 29600 | 32800 | 36000 | 38800 | 42000 | 45200 | 48000 | 52800 | 56000 |

- SoundChek silencers have been tested in accordance with ASTM E-477 standard (Standard Method of Testing Duct Liner Materials and Prefabricated Silencers for Acoustical and Airflow Performance) for 24 inch by 24 inch modular sizes.
- Product performance associated with airflow has been rated for both forward and reverse flow conditions. Forward flow occurs when air flows in the same direction as the noise (typically supply side system). Reverse flow occurs when air flows opposite the noise flow direction.
- Static Pressure Drop values have been measured in accordance with ASTM E-477 testing standard. This standard relies on specific length ductwork up and down stream of the silencer. Therefore the data presented is for laminar flow and includes static regain. If the silencer is to be used under conditions that vary from laminar flow, adjustments must be made to the system calculations. The data presented has been tested under standard conditions with air density of 0.075 pounds mass per cubic foot. Systems moving gases or air of sufficiently different density must allow for a different static pressure drop.
- Insertion Loss Data does not account for break out noise. Therefore to achieve insertion loss in excess of 50 dB duct lagging is suggested.
- Airflow Generated Sound Power Levels should be reviewed when low acoustical design goals are required. This data has been measured per the ASTM E-477 testing standard in enough detail to allow representation for a variety of airflow levels. The face area adjustment factors are

to be used by octave band on the Airflow Generated Power Levels for face areas that differ from 4 square feet.

- Weights and Modular sizes shown on the Airflow Performance chart do not represent a complete list of sizes available. It is only intended to provide the designer with enough information to accurately calculate the specifics for the projects requirements.
- Silencer sizes are defined width by height. This defines the baffle arrangement. Consult your local representative if other than up/down baffle arrangement is required.

### Useful Conversions and Formulas

| Multiply        | by       | To Obtain                                     |
|-----------------|----------|---|
| cfm             | .0004719 | cubic meters per second (m <sup>3</sup> /sec) |
| fpm             | 0.00508  | meters per second (m/s)                       |
| in              | 25.4     | millimeters (mm)                              |
| WG*             | 249.1    | Newton per square meter (n/M <sup>2</sup> )   |
| ft              | 0.3048   | meters (m)                                    |
| ft <sup>2</sup> | 0.0929   | square meters (m <sup>2</sup> )               |
| lb              | 0.4535   | kilogram (kg)                                 |

To calculate the exact static pressure for airflow not shown on the Airflow Performance Chart use the following ratio:  $\sqrt{(sp^1/sp^2)} = (cfm^1/cfm^2)$ .

Silencer Face Area is defined as the total inlet area of the silencer. This is not the same as the free area. **CFM = (Face Area sq. ft.) x (fpm)**.