|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Duct Sizing Table | | | | | | | | | | | | |
| **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | | **11** | **12** |
| **Section** | **Length**    **(m)** | **Flow Rate**  **(m3/s)** | **Pressure drop per**  **metre**  **(Pa/m)** | **Duct**  **Size**  **(mm)** | **Velocity**  **(m/s)** | **Velocity**  **Pressure**  **(Pa)** | **Fittings**  **pressure loss**  **factor or**  ** (zeta) factor** | **Pressure Loss** | | | **Total Pressure Loss**  **(Pa)** | **Cumulative Pressure**  **Loss**  **(Pa)** |
| **Fittings**  **(Pa)** | | **Straight Duct**  **(Pa)** |
| A | 10 | 1.2 | 1.0 | 0.47 m dia.  (0.47/2)2 /  0.350 = 0.4957  500 x 350mm | 1.2 / (0.5 x 0.35)  =  6.86 | 0.5 x 1.2 x 6.862 =  28.2 | **Intake louvre** = 6.5  **Bend** = 0.67  Reduction to section B will go in downstream section (B).  TOTAL = 7.17 | 28.2 x 7.17 =202 | | 1. x 10   = 10 | 202 + 10  = 212 | **212** |
| B | 3 | 0.9 | 1.0 | 0.43 m dia.  425 x 350mm | 6.05 | 22.0 | **Branch** Index Circuit is straight through (VP1 to VP2) .  The VP ratio VP2/VP1  = 22 / 28.2  = 0.78  *The zeta* factor from EXAMPLES OF zeta FACTORS is 0.09  **Reduction**  = 0.2 for taper on one side.  TOTAL = 0.29 | 0.29 x 22 = 6 | | 3 | 9 | **221** |
| C | 6 | 0.6 | 1.0 | 0.37 m dia.  325 x 350mm | 5.28 | 16.7 | **Branch**  VP ratio = 16.7 / 22 = 0.76  zeta factor = 0.16 by interpolation  **Reduction**  = 0.2 for taper on one side.  TOTAL = 0.36 | 6 | | 6 | 12 | **233** |
| D | 8 | 0.3 | 1.0 | 0.28 m dia.  175 x 350mm | 4.90 | 14.4 | **Branch**  VP ratio = 14.4 / 16.7 = 0.86  zeta factor = 0.08 by interpolation  **Reduction**  = 0.2 for taper on one side.  **Bend** = 0.67  **Outlet diffuser** = 3.5 TOTAL = 4.45 | 64 | | 8 | 72 | 305 |