

### PERFORMANCE DATA | 4-PIPE COOLING

| NOMINAL LENGTH<br>ft | NOZZLE SIZE | PRIMARY AIR |           |                       | SOUND<br><br>NC | COIL SENSIBLE COOLING (Btu/h) |         |         |         |         |         |         |         | INDUCTION RATIO | THROW<br>ft  |     |              |
|----------------------|-------------|-------------|-----------|-----------------------|-----------------|-------------------------------|---------|---------|---------|---------|---------|---------|---------|-----------------|--------------|-----|--------------|
|                      |             | INLET DIA.  | FLOW RATE | INLET ΔPs             |                 | 1.0 GPM                       |         | 2.0 GPM |         | 3.0 GPM |         | 4.0 GPM |         |                 |              |     |              |
|                      |             | in          | CFM       | (in H <sub>2</sub> O) |                 | TOTAL                         | ΔP COIL | TOTAL   | ΔP COIL | TOTAL   | ΔP COIL | TOTAL   | ΔP COIL |                 |              |     |              |
| 3                    | M17         | 4           | 8         | 0.21                  | 15              | 560                           | 0.70    |         | 609     |         | 621     |         | 627     | 6.0             | 1 - 2 - 8    |     |              |
|                      |             |             | 11        | 0.39                  | 15              | 733                           |         |         | 837     |         | 858     |         | 869     |                 | 2 - 4 - 12   |     |              |
|                      |             |             | 14        | 0.63                  | 20              | 889                           |         |         | 1023    |         | 1057    |         | 1073    |                 | 3 - 6 - 16   |     |              |
|                      |             |             | 17        | 0.93                  | 26              | 1090                          |         |         | 1244    |         | 1293    |         | 1317    |                 | 4 - 9 - 18   |     |              |
|                      | M23         | 4           | 15        | 0.20                  | 15              | 965                           |         |         | 1102    | 2.90    |         | 1131    | 6.60    |                 | 1146         | 4.5 | 2 - 4 - 13   |
|                      |             |             | 20        | 0.36                  | 15              | 1217                          |         |         | 1403    |         |         | 1452    |         |                 | 1475         |     | 4 - 8 - 17   |
|                      |             |             | 25        | 0.56                  | 19              | 1584                          |         |         | 1792    |         |         | 1868    |         |                 | 1906         |     | 6 - 11 - 19  |
|                      |             |             | 30        | 0.81                  | 25              | 1860                          |         |         | 2131    |         |         | 2237    |         |                 | 2292         |     | 8 - 13 - 21  |
|                      | M31         | 4           | 30        | 0.23                  | 15              | 1324                          |         |         | 1522    |         | 1571    |         | 1594    | 2.7             | 4 - 8 - 17   |     |              |
|                      |             |             | 40        | 0.40                  | 17              | 1791                          |         |         | 2033    |         | 2117    |         | 2159    |                 | 6 - 12 - 20  |     |              |
|                      |             |             | 50        | 0.63                  | 24              | 2207                          |         |         | 2529    |         | 2655    |         | 2720    |                 | 10 - 15 - 22 |     |              |
|                      |             |             | 60        | 0.91                  | 29              | 2492                          |         |         | 2916    |         | 3085    |         | 3173    |                 | 12 - 17 - 24 |     |              |
| 4                    | M17         | 4           | 11        | 0.20                  | 15              | 741                           | 1.00    |         | 819     |         | 840     |         | 851     | 6.0             | 1 - 2 - 10   |     |              |
|                      |             |             | 15        | 0.38                  | 15              | 954                           |         |         | 1113    |         | 1150    |         | 1169    |                 | 2 - 5 - 15   |     |              |
|                      |             |             | 19        | 0.61                  | 21              | 1176                          |         |         | 1349    |         | 1405    |         | 1434    |                 | 3 - 7 - 19   |     |              |
|                      |             |             | 23        | 0.89                  | 27              | 1403                          |         |         | 1611    |         | 1691    |         | 1732    |                 | 5 - 11 - 21  |     |              |
|                      | M23         | 4           | 21        | 0.21                  | 15              | 1287                          |         |         | 1500    | 3.80    |         | 1552    | 8.60    |                 | 1579         | 4.5 | 2 - 6 - 16   |
|                      |             |             | 28        | 0.37                  | 15              | 1665                          |         |         | 1894    |         |         | 1981    |         |                 | 2024         |     | 4 - 10 - 20  |
|                      |             |             | 35        | 0.58                  | 21              | 2060                          |         |         | 2401    |         |         | 2535    |         |                 | 2604         |     | 7 - 13 - 23  |
|                      |             |             | 42        | 0.84                  | 27              | 2379                          |         |         | 2838    |         |         | 3024    |         |                 | 3121         |     | 10 - 16 - 25 |
|                      | M31         | 4           | 35        | 0.18                  | 15              | 1528                          |         |         | 1780    |         | 1842    |         | 1873    | 2.7             | 3 - 7 - 18   |     |              |
|                      |             |             | 50        | 0.36                  | 15              | 2109                          |         |         | 2414    |         | 2532    |         | 2592    |                 | 6 - 13 - 22  |     |              |
|                      |             |             | 65        | 0.59                  | 18              | 2671                          |         |         | 3156    |         | 3350    |         | 3450    |                 | 11 - 17 - 25 |     |              |
|                      |             |             | 80        | 0.90                  | 25              | 3070                          |         |         | 3730    |         | 4004    |         | 4147    |                 | 14 - 20 - 28 |     |              |
| 5                    | M17         | 4           | 15        | 0.23                  | 15              | 960                           | 1.20    |         | 1093    |         | 1131    |         | 1150    | 6.0             | 1 - 3 - 13   |     |              |
|                      |             |             | 20        | 0.41                  | 16              | 1205                          |         |         | 1440    |         | 1502    |         | 1533    |                 | 3 - 6 - 17   |     |              |
|                      |             |             | 25        | 0.65                  | 23              | 1455                          |         |         | 1713    |         | 1805    |         | 1852    |                 | 4 - 9 - 22   |     |              |
|                      |             |             | 30        | 0.93                  | 28              | 1709                          |         |         | 2029    |         | 2157    |         | 2223    |                 | 6 - 13 - 24  |     |              |
|                      | M23         | 4           | 25        | 0.18                  | 15              | 1252                          |         |         | 1487    | 4.70    |         | 1548    | 1.30    |                 | 1579         | 4.5 | 2 - 6 - 17   |
|                      |             |             | 35        | 0.36                  | 15              | 1661                          |         |         | 1950    |         |         | 2059    |         |                 | 2115         |     | 5 - 11 - 23  |
|                      |             |             | 45        | 0.59                  | 23              | 2082                          |         |         | 2512    |         |         | 2686    |         |                 | 2777         |     | 8 - 15 - 26  |
|                      |             |             | 55        | 0.87                  | 24              | 2349                          |         |         | 2996    |         |         | 3243    |         |                 | 3374         |     | 12 - 19 - 28 |
|                      | M31         | 6 *         | 40        | 0.14                  | 15              | 1413                          |         |         | 1666    |         | 1732    |         | 1766    | 2.7             | 3 - 6 - 18   |     |              |
|                      |             |             | 60        | 0.32                  | 15              | 1984                          |         |         | 2325    |         | 2457    |         | 2525    |                 | 6 - 14 - 24  |     |              |
|                      |             |             | 80        | 0.57                  | 15              | 2549                          |         |         | 3115    |         | 3343    |         | 3462    |                 | 11 - 18 - 28 |     |              |
|                      |             |             | 100       | 0.89                  | 21              | 2850                          |         |         | 3700    |         | 4027    |         | 4226    |                 | 15 - 22 - 31 |     |              |
| 6                    | M17         | 4           | 20        | 0.28                  | 15              | 1204                          | 1.40    |         | 1423    |         | 1486    |         | 1518    | 6.0             | 2 - 4 - 16   |     |              |
|                      |             |             | 25        | 0.44                  | 18              | 1429                          |         |         | 1744    |         | 1837    |         | 1884    |                 | 3 - 7 - 20   |     |              |
|                      |             |             | 30        | 0.63                  | 23              | 1654                          |         |         | 2001    |         | 2127    |         | 2193    |                 | 4 - 10 - 24  |     |              |
|                      |             |             | 35        | 0.86                  | 28              | 1879                          |         |         | 2281    |         | 2446    |         | 2531    |                 | 6 - 13 - 26  |     |              |
|                      | M23         | 4           | 35        | 0.25                  | 15              | 1921                          |         |         | 2338    | 5.50    |         | 2469    | 1.60    |                 | 2536         | 4.5 | 4 - 8 - 22   |
|                      |             |             | 45        | 0.41                  | 17              | 2356                          |         |         | 2843    |         |         | 3040    |         |                 | 3143         |     | 6 - 14 - 26  |
|                      |             |             | 55        | 0.61                  | 23              | 2797                          |         |         | 3485    |         |         | 3774    |         |                 | 3926         |     | 9 - 17 - 28  |
|                      |             |             | 65        | 0.83                  | 23              | 3071                          |         |         | 4019    |         |         | 4402    |         |                 | 4607         |     | 13 - 20 - 31 |
|                      | M31         | 6 *         | 60        | 0.22                  | 15              | 2331                          |         |         | 2834    |         | 2997    |         | 3080    | 2.7             | 5 - 11 - 24  |     |              |
|                      |             |             | 80        | 0.40                  | 15              | 2953                          |         |         | 3602    |         | 3869    |         | 4008    |                 | 9 - 17 - 28  |     |              |
|                      |             |             | 100       | 0.62                  | 15              | 3511                          |         |         | 4471    |         | 4870    |         | 5081    |                 | 13 - 21 - 31 |     |              |
|                      |             |             | 120       | 0.90                  | 21              | 3814                          |         |         | 5132    |         | 5664    |         | 5971    |                 | 17 - 24 - 31 |     |              |

NOTES: Reference page C3-80 for operational conditions used for performance notes.

## PERFORMANCE DATA | 4-PIPE HEATING

| NOMINAL LENGTH<br>ft | NOZZLE SIZE | Primary Air |           |                       | SOUND | COIL HEATING (Btu/h) |       |         |       |         |       |         |       | INDUCTION RATIO | THROW<br>ft  |
|----------------------|-------------|-------------|-----------|-----------------------|-------|----------------------|-------|---------|-------|---------|-------|---------|-------|-----------------|--------------|
|                      |             | INLET DIA.  | FLOW RATE | INLET ΔPs             |       | 1.0 GPM              |       | 2.0 GPM |       | 3.0 GPM |       | 4.0 GPM |       |                 |              |
|                      |             | in          | CFM       | (in H <sub>2</sub> O) |       | NC                   | TOTAL | ΔP COIL | TOTAL | ΔP COIL | TOTAL | ΔP COIL | TOTAL |                 |              |
| 3                    | M17         | 4           | 8         | 0.21                  | 15    | 1245                 | 0.12  | 1354    | 0.49  | 1381    | 1.10  | 1394    | 1.95  | 6.0             | 1 - 2 - 8    |
|                      |             |             | 11        | 0.39                  | 15    | 1629                 |       | 1860    |       | 1908    |       | 1932    |       |                 | 2 - 4 - 12   |
|                      |             |             | 14        | 0.63                  | 20    | 1975                 |       | 2273    |       | 2348    |       | 2384    |       |                 | 3 - 6 - 16   |
|                      |             |             | 17        | 0.93                  | 26    | 2423                 |       | 2764    |       | 2873    |       | 2926    |       |                 | 4 - 9 - 18   |
|                      | M23         | 4           | 15        | 0.20                  | 15    | 2144                 |       | 2450    |       | 2514    |       | 2547    |       | 4.5             | 2 - 4 - 13   |
|                      |             |             | 20        | 0.36                  | 15    | 2704                 |       | 3117    |       | 3226    |       | 3278    |       |                 | 4 - 8 - 17   |
|                      |             |             | 25        | 0.56                  | 19    | 3519                 |       | 3981    |       | 4151    |       | 4236    |       |                 | 6 - 11 - 19  |
|                      |             |             | 30        | 0.81                  | 25    | 4133                 |       | 4737    |       | 4972    |       | 5093    |       |                 | 8 - 13 - 21  |
|                      | M31         | 4           | 30        | 0.23                  | 15    | 2943                 |       | 3383    |       | 3490    |       | 3543    |       | 2.7             | 4 - 8 - 17   |
|                      |             |             | 40        | 0.40                  | 17    | 3980                 |       | 4517    |       | 4704    |       | 4797    |       |                 | 6 - 12 - 20  |
|                      |             |             | 50        | 0.63                  | 24    | 4904                 |       | 5621    |       | 5900    |       | 6044    |       |                 | 10 - 15 - 22 |
|                      |             |             | 60        | 0.91                  | 29    | 5538                 |       | 6479    |       | 6856    |       | 7052    |       |                 | 12 - 17 - 24 |
| 4                    | M17         | 4           | 11        | 0.20                  | 15    | 1648                 | 0.16  | 1820    | 0.63  | 1868    | 1.41  | 1891    | 2.51  | 6.0             | 1 - 2 - 10   |
|                      |             |             | 15        | 0.38                  | 15    | 2121                 |       | 2474    |       | 2556    |       | 2597    |       |                 | 2 - 5 - 15   |
|                      |             |             | 19        | 0.61                  | 21    | 2614                 |       | 2997    |       | 3123    |       | 3187    |       |                 | 3 - 7 - 19   |
|                      |             |             | 23        | 0.89                  | 27    | 3119                 |       | 3580    |       | 3759    |       | 3850    |       |                 | 5 - 11 - 21  |
|                      | M23         | 4           | 21        | 0.21                  | 15    | 2861                 |       | 3333    |       | 3449    |       | 3508    |       | 4.5             | 2 - 6 - 16   |
|                      |             |             | 28        | 0.37                  | 15    | 3700                 |       | 4210    |       | 4401    |       | 4498    |       |                 | 4 - 10 - 20  |
|                      |             |             | 35        | 0.58                  | 21    | 4577                 |       | 5335    |       | 5634    |       | 5787    |       |                 | 7 - 13 - 23  |
|                      |             |             | 42        | 0.84                  | 27    | 5286                 |       | 6307    |       | 6720    |       | 6935    |       |                 | 10 - 16 - 25 |
|                      | M31         | 4           | 35        | 0.18                  | 15    | 3395                 |       | 3955    |       | 4093    |       | 4163    |       | 2.7             | 3 - 7 - 18   |
|                      |             |             | 50        | 0.36                  | 15    | 4686                 |       | 5365    |       | 5627    |       | 5760    |       |                 | 6 - 13 - 22  |
|                      |             |             | 65        | 0.59                  | 18    | 5936                 |       | 7014    |       | 7445    |       | 7668    |       |                 | 11 - 17 - 25 |
|                      |             |             | 80        | 0.90                  | 25    | 6822                 |       | 8290    |       | 8897    |       | 9216    |       |                 | 14 - 20 - 28 |
| 5                    | M17         | 4           | 15        | 0.23                  | 15    | 2134                 | 0.19  | 2430    | 0.78  | 2514    | 1.75  | 2556    | 3.11  | 6.0             | 1 - 3 - 13   |
|                      |             |             | 20        | 0.41                  | 16    | 2679                 |       | 3199    |       | 3337    |       | 3407    |       |                 | 3 - 6 - 17   |
|                      |             |             | 25        | 0.65                  | 23    | 3234                 |       | 3807    |       | 4011    |       | 4115    |       |                 | 4 - 9 - 22   |
|                      |             |             | 30        | 0.93                  | 28    | 3797                 |       | 4509    |       | 4793    |       | 4940    |       |                 | 6 - 13 - 24  |
|                      | M23         | 4           | 25        | 0.18                  | 15    | 2783                 |       | 3306    |       | 3440    |       | 3509    |       | 4.5             | 2 - 6 - 17   |
|                      |             |             | 35        | 0.36                  | 15    | 3692                 |       | 4334    |       | 4575    |       | 4699    |       |                 | 5 - 11 - 23  |
|                      |             |             | 45        | 0.59                  | 23    | 4626                 |       | 5581    |       | 5969    |       | 6171    |       |                 | 8 - 15 - 26  |
|                      |             |             | 55        | 0.87                  | 24    | 5220                 |       | 6659    |       | 7208    |       | 7497    |       |                 | 12 - 19 - 28 |
|                      | M31         | 4           | 40        | 0.14                  | 15    | 3139                 |       | 3702    |       | 3849    |       | 3924    |       | 2.7             | 3 - 6 - 18   |
|                      |             |             | 60        | 0.32                  | 15    | 4409                 |       | 5167    |       | 5461    |       | 5612    |       |                 | 6 - 14 - 24  |
|                      |             |             | 80        | 0.57                  | 15    | 5664                 |       | 6922    |       | 7428    |       | 7693    |       |                 | 11 - 18 - 28 |
|                      |             |             | 100       | 0.89                  | 21    | 6334                 |       | 8222    |       | 8949    |       | 9391    |       |                 | 15 - 22 - 31 |
| 6                    | M17         | 4           | 20        | 0.28                  | 15    | 2676                 | 0.23  | 3162    | 0.92  | 3303    | 2.06  | 3374    | 3.67  | 6.0             | 2 - 4 - 16   |
|                      |             |             | 25        | 0.44                  | 18    | 3176                 |       | 3875    |       | 4081    |       | 4186    |       |                 | 3 - 7 - 20   |
|                      |             |             | 30        | 0.63                  | 23    | 3675                 |       | 4447    |       | 4727    |       | 4872    |       |                 | 4 - 10 - 24  |
|                      |             |             | 35        | 0.86                  | 28    | 4175                 |       | 5070    |       | 5435    |       | 5625    |       |                 | 6 - 13 - 26  |
|                      | M23         | 4           | 35        | 0.25                  | 15    | 4268                 |       | 5196    |       | 5486    |       | 5635    |       | 4.5             | 4 - 8 - 22   |
|                      |             |             | 45        | 0.41                  | 17    | 5236                 |       | 6318    |       | 6756    |       | 6984    |       |                 | 6 - 14 - 26  |
|                      |             |             | 55        | 0.61                  | 23    | 6215                 |       | 7745    |       | 8388    |       | 8725    |       |                 | 9 - 17 - 28  |
|                      |             |             | 65        | 0.83                  | 23    | 6825                 |       | 8930    |       | 9783    |       | 10238   |       |                 | 13 - 20 - 31 |
|                      | M31         | 4           | 60        | 0.22                  | 15    | 5180                 |       | 6297    |       | 6659    |       | 6845    |       | 2.7             | 5 - 11 - 24  |
|                      |             |             | 80        | 0.40                  | 15    | 6562                 |       | 8005    |       | 8598    |       | 8907    |       |                 | 9 - 17 - 28  |
|                      |             |             | 100       | 0.62                  | 15    | 7802                 |       | 9937    |       | 10823   |       | 11291   |       |                 | 13 - 21 - 31 |
|                      |             |             | 120       | 0.90                  | 21    | 8476                 |       | 11405   |       | 12586   |       | 13269   |       |                 | 17 - 24 - 34 |

NOTES: Reference page C3-80 for operational conditions used for performance notes.

### PERFORMANCE DATA | 2-PIPE COOLING

| NOMINAL<br>LENGTH<br>ft | NOZZLE<br>SIZE | PRIMARY AIR |           |                       | SOUND | COIL SENSIBLE COOLING (Btu/h) |       |         |       |         |       |         |       | INDUCTION<br>RATIO | THROW<br>ft  |
|-------------------------|----------------|-------------|-----------|-----------------------|-------|-------------------------------|-------|---------|-------|---------|-------|---------|-------|--------------------|--------------|
|                         |                | INLET DIA.  | FLOW RATE | INLET ΔPs             |       | 1.0 GPM                       |       | 2.0 GPM |       | 3.0 GPM |       | 4.0 GPM |       |                    |              |
|                         |                | in          | CFM       | (in H <sub>2</sub> O) |       | NC                            | TOTAL | ΔP COIL | TOTAL | ΔP COIL | TOTAL | ΔP COIL | TOTAL |                    |              |
| 3                       | M17            | 4           | 8         | 0.21                  | 15    | 598                           | 0.90  | 650     | 3.70  | 663     | 8.30  | 669     | 1.90  | 6.0                | 1 - 2 - 8    |
|                         |                |             | 11        | 0.39                  | 15    | 782                           |       | 893     |       | 916     |       | 927     |       |                    | 2 - 4 - 12   |
|                         |                |             | 14        | 0.63                  | 20    | 948                           |       | 1091    |       | 1127    |       | 1144    |       |                    | 3 - 6 - 16   |
|                         |                |             | 17        | 0.93                  | 26    | 1163                          |       | 1327    |       | 1379    |       | 1405    |       |                    | 4 - 9 - 18   |
|                         | M23            | 4           | 15        | 0.20                  | 15    | 1029                          |       | 1176    |       | 1207    |       | 1222    |       | 4.5                | 2 - 4 - 13   |
|                         |                |             | 20        | 0.36                  | 15    | 1298                          |       | 1496    |       | 1548    |       | 1574    |       |                    | 4 - 8 - 17   |
|                         |                |             | 25        | 0.56                  | 19    | 1689                          |       | 1911    |       | 1992    |       | 2033    |       |                    | 6 - 11 - 19  |
|                         |                |             | 30        | 0.81                  | 25    | 1984                          |       | 2274    |       | 2386    |       | 2445    |       |                    | 8 - 13 - 21  |
|                         | M31            | 4           | 30        | 0.23                  | 15    | 1413                          |       | 1624    |       | 1675    |       | 1701    |       | 2.7                | 4 - 8 - 17   |
|                         |                |             | 40        | 0.40                  | 17    | 1910                          |       | 2168    |       | 2258    |       | 2303    |       |                    | 6 - 12 - 20  |
|                         |                |             | 50        | 0.63                  | 24    | 2354                          |       | 2698    |       | 2832    |       | 2901    |       |                    | 10 - 15 - 22 |
|                         |                |             | 60        | 0.91                  | 29    | 2658                          |       | 3110    |       | 3291    |       | 3385    |       |                    | 12 - 17 - 24 |
| 4                       | M17            | 4           | 11        | 0.20                  | 15    | 791                           | 1.20  | 874     | 4.80  | 896     | 1.40  | 907     | 2.40  | 6.0                | 1 - 2 - 10   |
|                         |                |             | 15        | 0.38                  | 15    | 1018                          |       | 1187    |       | 1227    |       | 1247    |       |                    | 2 - 5 - 15   |
|                         |                |             | 19        | 0.61                  | 21    | 1255                          |       | 1439    |       | 1499    |       | 1530    |       |                    | 3 - 7 - 19   |
|                         |                |             | 23        | 0.89                  | 27    | 1497                          |       | 1718    |       | 1804    |       | 1848    |       |                    | 5 - 11 - 21  |
|                         | M23            | 4           | 21        | 0.21                  | 15    | 1373                          |       | 1600    |       | 1656    |       | 1684    |       | 4.5                | 2 - 6 - 16   |
|                         |                |             | 28        | 0.37                  | 15    | 1776                          |       | 2021    |       | 2113    |       | 2159    |       |                    | 4 - 10 - 20  |
|                         |                |             | 35        | 0.58                  | 21    | 2197                          |       | 2561    |       | 2704    |       | 2778    |       |                    | 7 - 13 - 23  |
|                         |                |             | 42        | 0.84                  | 27    | 2538                          |       | 3027    |       | 3226    |       | 3329    |       |                    | 10 - 16 - 25 |
|                         | M31            | 4           | 35        | 0.18                  | 15    | 1629                          |       | 1899    |       | 1965    |       | 1998    |       | 2.7                | 3 - 7 - 18   |
|                         |                |             | 50        | 0.36                  | 15    | 2249                          |       | 2575    |       | 2701    |       | 2765    |       |                    | 6 - 13 - 22  |
|                         |                |             | 65        | 0.59                  | 18    | 2849                          |       | 3367    |       | 3573    |       | 3680    |       |                    | 11 - 17 - 25 |
|                         |                |             | 80        | 0.90                  | 25    | 3275                          |       | 3979    |       | 4270    |       | 4424    |       |                    | 14 - 20 - 28 |
| 5                       | M17            | 4           | 15        | 0.23                  | 15    | 1025                          | 1.50  | 1166    | 5.80  | 1206    | 1.70  | 1227    | 3.00  | 6.0                | 1 - 3 - 13   |
|                         |                |             | 20        | 0.41                  | 16    | 1286                          |       | 1536    |       | 1602    |       | 1635    |       |                    | 3 - 6 - 17   |
|                         |                |             | 25        | 0.65                  | 23    | 1552                          |       | 1827    |       | 1925    |       | 1975    |       |                    | 4 - 9 - 22   |
|                         |                |             | 30        | 0.93                  | 28    | 1823                          |       | 2164    |       | 2301    |       | 2371    |       |                    | 6 - 13 - 24  |
|                         | M23            | 4           | 25        | 0.18                  | 15    | 1336                          |       | 1587    |       | 1651    |       | 1684    |       | 4.5                | 2 - 6 - 17   |
|                         |                |             | 35        | 0.36                  | 15    | 1772                          |       | 2080    |       | 2196    |       | 2256    |       |                    | 5 - 11 - 23  |
|                         |                |             | 45        | 0.59                  | 23    | 2220                          |       | 2679    |       | 2865    |       | 2962    |       |                    | 8 - 15 - 26  |
|                         |                |             | 55        | 0.87                  | 24    | 2506                          |       | 3196    |       | 3460    |       | 3599    |       |                    | 12 - 19 - 28 |
|                         | M31            | 6 *         | 40        | 0.14                  | 15    | 1507                          |       | 1777    |       | 1847    |       | 1883    |       | 2.7                | 3 - 6 - 18   |
|                         |                |             | 60        | 0.32                  | 15    | 2116                          |       | 2480    |       | 2621    |       | 2694    |       |                    | 6 - 14 - 24  |
|                         |                |             | 80        | 0.57                  | 15    | 2719                          |       | 3322    |       | 3566    |       | 3693    |       |                    | 11 - 18 - 28 |
|                         |                |             | 100       | 0.89                  | 21    | 3040                          |       | 3946    |       | 4296    |       | 4508    |       |                    | 15 - 22 - 31 |
| 6                       | M17            | 4           | 20        | 0.28                  | 15    | 1285                          | 1.70  | 1518    | 6.90  | 1585    | 2.00  | 1620    | 3.50  | 6.0                | 2 - 4 - 16   |
|                         |                |             | 25        | 0.44                  | 18    | 1525                          |       | 1860    |       | 1959    |       | 2009    |       |                    | 3 - 7 - 20   |
|                         |                |             | 30        | 0.63                  | 23    | 1764                          |       | 2134    |       | 2269    |       | 2339    |       |                    | 4 - 10 - 24  |
|                         |                |             | 35        | 0.86                  | 28    | 2004                          |       | 2433    |       | 2609    |       | 2700    |       |                    | 6 - 13 - 26  |
|                         | M23            | 4           | 35        | 0.25                  | 15    | 2049                          |       | 2494    |       | 2633    |       | 2705    |       | 4.5                | 4 - 8 - 22   |
|                         |                |             | 45        | 0.41                  | 17    | 2513                          |       | 3033    |       | 3243    |       | 3352    |       |                    | 6 - 14 - 26  |
|                         |                |             | 55        | 0.61                  | 23    | 2983                          |       | 3718    |       | 4026    |       | 4188    |       |                    | 9 - 17 - 28  |
|                         |                |             | 65        | 0.83                  | 23    | 3276                          |       | 4286    |       | 4696    |       | 4914    |       |                    | 13 - 20 - 31 |
|                         | M31            | 6 *         | 60        | 0.22                  | 15    | 2486                          |       | 3023    |       | 3196    |       | 3285    |       | 2.7                | 5 - 11 - 24  |
|                         |                |             | 80        | 0.40                  | 15    | 3150                          |       | 3842    |       | 4127    |       | 4275    |       |                    | 9 - 17 - 28  |
|                         |                |             | 100       | 0.62                  | 15    | 3745                          |       | 4770    |       | 5195    |       | 5420    |       |                    | 13 - 21 - 31 |
|                         |                |             | 120       | 0.90                  | 21    | 4069                          |       | 5475    |       | 6041    |       | 6369    |       |                    | 17 - 24 - 34 |

NOTES: Reference page C3-80 for operational conditions used for performance notes.

## PERFORMANCE DATA | 2-PIPE HEATING

| NOMINAL<br>LENGTH<br>ft | NOZZLE<br>SIZE | PRIMARY AIR |           |                       | SOUND | COIL HEATING (Btu/h) |         |         |         |         |         |         |         | INDUCTION<br>RATIO | THROW<br>ft  |
|-------------------------|----------------|-------------|-----------|-----------------------|-------|----------------------|---------|---------|---------|---------|---------|---------|---------|--------------------|--------------|
|                         |                | INLET DIA.  | FLOW RATE | Inlet ΔPS             |       | 1.0 GPM              |         | 2.0 GPM |         | 3.0 GPM |         | 4.0 GPM |         |                    |              |
|                         |                | in          | CFM       | (in H <sub>2</sub> O) |       | TOTAL                | ΔP COIL | TOTAL   | ΔP COIL | TOTAL   | ΔP COIL | TOTAL   | ΔP COIL |                    |              |
| 3                       | M17            | 4           | 8         | 0.21                  | 15    | 1660                 | 0.92    |         | 1805    |         | 1841    |         | 1859    | 6.0                | 1 - 2 - 8    |
|                         |                |             | 11        | 0.39                  | 15    | 2172                 |         |         | 2480    |         | 2544    |         | 2576    |                    | 2 - 4 - 12   |
|                         |                |             | 14        | 0.63                  | 20    | 2634                 |         |         | 3031    |         | 3131    |         | 3179    |                    | 3 - 6 - 16   |
|                         |                |             | 17        | 0.93                  | 26    | 3230                 |         |         | 3685    |         | 3830    |         | 3902    |                    | 4 - 9 - 18   |
|                         | M23            | 4           | 15        | 0.20                  | 15    | 2859                 |         |         | 3267    |         | 3352    |         | 3396    | 4.5                | 2 - 4 - 13   |
|                         |                |             | 20        | 0.36                  | 15    | 3605                 |         |         | 4157    |         | 4301    |         | 4371    |                    | 4 - 8 - 17   |
|                         |                |             | 25        | 0.56                  | 19    | 4692                 |         |         | 5309    |         | 5534    |         | 5648    |                    | 6 - 11 - 19  |
|                         |                |             | 30        | 0.81                  | 25    | 5510                 |         |         | 6315    |         | 6629    |         | 6791    |                    | 8 - 13 - 21  |
|                         | M31            | 4           | 30        | 0.23                  | 15    | 3924                 |         |         | 4510    |         | 4654    |         | 4724    | 2.7                | 4 - 8 - 17   |
|                         |                |             | 40        | 0.40                  | 17    | 5306                 |         |         | 6023    |         | 6272    |         | 6396    |                    | 6 - 12 - 20  |
|                         |                |             | 50        | 0.63                  | 24    | 6539                 |         |         | 7494    |         | 7866    |         | 8059    |                    | 10 - 15 - 22 |
|                         |                |             | 60        | 0.91                  | 29    | 7384                 |         |         | 8639    |         | 9142    |         | 9403    |                    | 12 - 17 - 24 |
| 4                       | M17            | 4           | 11        | 0.20                  | 15    | 2197                 | 1.19    |         | 2427    |         | 2490    |         | 2521    | 6.0                | 1 - 2 - 10   |
|                         |                |             | 15        | 0.38                  | 15    | 2827                 |         |         | 3298    |         | 3408    |         | 3463    |                    | 2 - 5 - 15   |
|                         |                |             | 19        | 0.61                  | 21    | 3485                 |         |         | 3996    |         | 4164    |         | 4249    |                    | 3 - 7 - 19   |
|                         |                |             | 23        | 0.89                  | 27    | 4158                 |         |         | 4774    |         | 5012    |         | 5133    |                    | 5 - 11 - 21  |
|                         | M23            | 4           | 21        | 0.21                  | 15    | 3814                 |         |         | 4444    |         | 4599    |         | 4678    | 4.5                | 2 - 6 - 16   |
|                         |                |             | 28        | 0.37                  | 15    | 4933                 |         |         | 5613    |         | 5868    |         | 5998    |                    | 4 - 10 - 20  |
|                         |                |             | 35        | 0.58                  | 21    | 6103                 |         |         | 7114    |         | 7512    |         | 7716    |                    | 7 - 13 - 23  |
|                         |                |             | 42        | 0.84                  | 27    | 7049                 |         |         | 8409    |         | 8960    |         | 9247    |                    | 10 - 16 - 25 |
|                         | M31            | 4           | 35        | 0.18                  | 15    | 4526                 |         |         | 5274    |         | 5458    |         | 5551    | 2.7                | 3 - 7 - 18   |
|                         |                |             | 50        | 0.36                  | 15    | 6248                 |         |         | 7153    |         | 7502    |         | 7680    |                    | 6 - 13 - 22  |
|                         |                |             | 65        | 0.59                  | 18    | 7915                 |         |         | 9352    |         | 9926    |         | 10224   |                    | 11 - 17 - 25 |
|                         |                |             | 80        | 0.90                  | 25    | 9096                 |         |         | 11053   |         | 11862   |         | 12288   |                    | 14 - 20 - 28 |
| 5                       | M17            | 4           | 15        | 0.23                  | 15    | 2846                 | 1.46    |         | 3240    |         | 3351    |         | 3408    | 6.0                | 1 - 3 - 13   |
|                         |                |             | 20        | 0.41                  | 16    | 3572                 |         |         | 4266    |         | 4449    |         | 4543    |                    | 3 - 6 - 17   |
|                         |                |             | 25        | 0.65                  | 23    | 4311                 |         |         | 5076    |         | 5348    |         | 5487    |                    | 4 - 9 - 22   |
|                         |                |             | 30        | 0.93                  | 28    | 5063                 |         |         | 6012    |         | 6390    |         | 6586    |                    | 6 - 13 - 24  |
|                         | M23            | 4           | 25        | 0.18                  | 15    | 3710                 |         |         | 4407    |         | 4587    |         | 4679    | 4.5                | 2 - 6 - 17   |
|                         |                |             | 35        | 0.36                  | 15    | 4923                 |         |         | 5779    |         | 6101    |         | 6266    |                    | 5 - 11 - 23  |
|                         |                |             | 45        | 0.59                  | 23    | 6168                 |         |         | 7442    |         | 7959    |         | 8228    |                    | 8 - 15 - 26  |
|                         |                |             | 55        | 0.87                  | 24    | 6960                 |         |         | 8878    |         | 9610    |         | 9996    |                    | 12 - 19 - 28 |
|                         | M31            | 4           | 40        | 0.14                  | 15    | 4185                 |         |         | 4936    |         | 5132    |         | 5232    | 2.7                | 3 - 6 - 18   |
|                         |                |             | 60        | 0.32                  | 15    | 5878                 |         |         | 6890    |         | 7281    |         | 7482    |                    | 6 - 14 - 24  |
|                         |                |             | 80        | 0.57                  | 15    | 7552                 |         |         | 9229    |         | 9904    |         | 10257   |                    | 11 - 18 - 28 |
|                         |                |             | 100       | 0.89                  | 21    | 8446                 |         |         | 10962   |         | 11932   |         | 12522   |                    | 15 - 22 - 31 |
| 6                       | M17            | 4           | 20        | 0.28                  | 15    | 3568                 | 1.72    |         | 4215    |         | 4404    |         | 4499    | 6.0                | 2 - 4 - 16   |
|                         |                |             | 25        | 0.44                  | 18    | 4235                 |         |         | 5167    |         | 5442    |         | 5581    |                    | 3 - 7 - 20   |
|                         |                |             | 30        | 0.63                  | 23    | 4900                 |         |         | 5929    |         | 6303    |         | 6496    |                    | 4 - 10 - 24  |
|                         |                |             | 35        | 0.86                  | 28    | 5567                 |         |         | 6760    |         | 7247    |         | 7500    |                    | 6 - 13 - 26  |
|                         | M23            | 4           | 35        | 0.25                  | 15    | 5691                 |         |         | 6928    |         | 7315    |         | 7513    | 4.5                | 4 - 8 - 22   |
|                         |                |             | 45        | 0.41                  | 17    | 6981                 |         |         | 8424    |         | 9008    |         | 9312    |                    | 6 - 14 - 26  |
|                         |                |             | 55        | 0.61                  | 23    | 8286                 |         |         | 10326   |         | 11184   |         | 11633   |                    | 9 - 17 - 28  |
|                         |                |             | 65        | 0.83                  | 23    | 9100                 |         |         | 11907   |         | 13044   |         | 13650   |                    | 13 - 20 - 31 |
|                         | M31            | 4           | 60        | 0.22                  | 15    | 6906                 |         |         | 8396    |         | 8879    |         | 9126    | 2.7                | 5 - 11 - 24  |
|                         |                |             | 80        | 0.40                  | 15    | 8749                 |         |         | 10674   |         | 11464   |         | 11876   |                    | 9 - 17 - 28  |
|                         |                |             | 100       | 0.62                  | 15    | 10403                |         |         | 13249   |         | 14431   |         | 15055   |                    | 13 - 21 - 31 |
|                         |                |             | 120       | 0.90                  | 21    | 11302                |         |         | 15207   |         | 16781   |         | 17692   |                    | 17 - 24 - 34 |

NOTES: Reference page C3-80 for operational conditions used for performance notes.

### PERFORMANCE DATA

#### NOTES:

1. All performance data based on tests performed in accordance with ASHRAE Standard 200-2018.
2.  $\Delta P_s$  values are measured in inches of water.
3. NC values are based on room absorption of 10 dB. A dash (-) indicates an NC value less than 15.
4. Throw values are based on isothermal supply air and represent throw distances at terminal velocities of 150, 100 and 50 fpm, respectively.
5.  $\Delta P_{Coil}$  values are measured in inches of water.  $\Delta P_{Coil}$  values in shaded cells indicate use of a two circuit coil. All other values represent a single circuit coil.
6. Induction ratio is multiplied by the volume flow rate of primary air to estimate the volume flow rate of room air entrained through the coil.
7. \* denotes oval inlet air connection.

#### COOLING PERFORMANCE:

- Cooling capacity listed (TOTAL) is the total sensible heat removal by the beam's integral coil. It does not include any contribution or offset by the primary air.
- Capacity is based on 18°F  $\Delta T$  between the induced air and the chilled water supply. Table 1 provides correction factors for other temperature differentials.
- Primary air sensible cooling contribution can be calculated by the following equation:

$$q_{SENSPA} = 1.085 \times CFM_{PA} \times (T_{ROOM} - T_{PA})$$

- Primary air latent cooling can be calculated by the following equation:

$$q_{LATENT} = 0.69 \times CFM_{PA} \times (W_{ROOM} - W_{PA})$$

where  $W_{ROOM}$  and  $W_{PA}$  are the humidity ratio of the room and primary air respectively expressed in Grains of moisture per pound dry air.

**TABLE 4: CORRECTION FOR ( $\Delta T$ ) BETWEEN ENTERING AIR AND ENTERING CHILLED WATER**

| ACTUAL $\Delta T$        | 10   | 12   | 14   | 16   | 18   | 20   | 22   | 24   |
|--------------------------|------|------|------|------|------|------|------|------|
| MULTIPLY TABLE VALUE BY: | 0.56 | 0.67 | 0.78 | 0.89 | 1.00 | 1.11 | 1.22 | 1.33 |

#### HEATING PERFORMANCE:

- Heating capacity listed (TOTAL) is the sensible heat added by the beam's integral coil. It does not include any contribution or offset by the primary air.
- Capacity is based on 50°F  $\Delta T$  between the induced air and the chilled water supply. Table 2 provides correction factors for other temperature differentials.
- Primary air sensible heating offset (or contribution) can be calculated by the following equation:

$$q_{SENSPA} = 1.085 \times CFM_{PA} \times (T_{PA} - T_{ROOM})$$

- If the primary air temperature is lower than that of the room, it will offset the coil's heating.
- If the primary air temperature is higher than that of the room, it will contribute to the coil's heating.

**TABLE 2: CORRECTION FOR ( $\Delta T$ ) BETWEEN ENTERING AIR AND ENTERING CHILLED WATER**

| ACTUAL $\Delta T$        | 20   | 30   | 40   | 50   | 60   | 70   | 80   | 90   | 100  | 110  | 120  |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|
| MULTIPLY TABLE VALUE BY: | 0.40 | 0.60 | 0.80 | 1.00 | 1.20 | 1.40 | 1.60 | 1.80 | 2.00 | 2.20 | 2.40 |

#### LEGEND:

$\Delta P_s$  = Unit Inlet Pressure [in wg]

$q_{Coil}$  = Sensible Capacity, Coil [Btu/h]

$\Delta P_{Coil}$  = Water coil pressure drop [ft wg]

$q_{SENSPA}$  = Sensible Capacity, Primary Air [Btu/h]

$W_{ROOM}$  = Humidity Ratio of the Room

$CFM_{PA}$  = Air Flowrate, Primary Air [CFM]

$T_{PA}$  = Temperature Primary Air [°F]

$T_{ROOM}$  = Temperature Room Air [°F]

$q_{LATENT}$  = Latent Capacity, Primary Air [Btu/h]

$W_{PA}$  = Humidity Ratio of the Primary Air