

## I.C.E. DIRECT FIRED MAKE-UP AIR UNITS

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*This section contains product and technical information only.*  
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# I.C.E. DIRECT FIRED MAKE-UP AIR UNITS

<http://www.ice-ww.com>

## INTRODUCTION

Direct-fired units are considered 100% efficient, thus they offer the lowest operating cost solution for heating and ventilating applications. With no heat exchanger, 100% of the energy is transferred to the air stream, instead of up to 30% of the energy lost through flue or piping losses, as is the case for indirect fired units or boilers for glycol systems. Due to the simplicity of the direct-fired unit, the BMA series also offers the lowest capital investment over an indirect-fired unit or a glycol system.

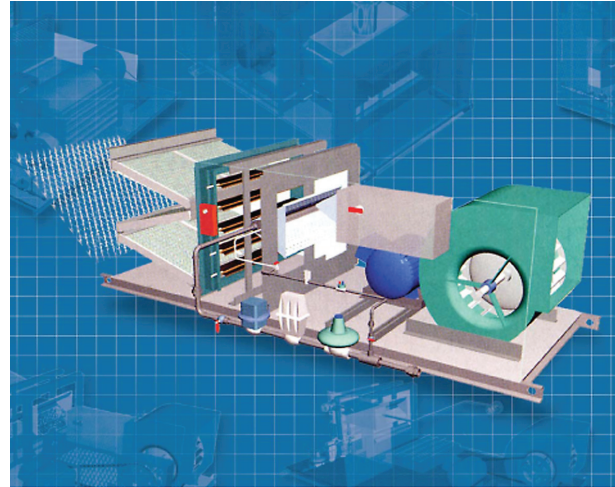


### Benefits

- Ensures your exhaust systems capacity performs correctly
- Eliminates cold building perimeters due to high infiltration
- Eliminates drafts at exterior doors
- Eliminates doors from being hard to open from the outside
- Reduces uneven temperature conditions in the building space
- Eliminates gravity vented gas appliances from back venting

### Applications

- Factory ventilation
- Kitchen ventilation
- Body shop ventilation
- Mechanics garage ventilation
- Welding shop ventilation
- And so many more applications!



### Advantages

- Fully customizable, available with almost any type of material, in any gauge
- Wide variety of configurations available
- Extensive control options, from basic discharge air control, to continuously monitored PLC systems
- Excellent turnaround time – ICE offers some of the best turnaround times in the industry
- High value – ICE engineers value into each unit through our “hands-on” engineering team, to ensure your equipment is specifically suited for your application

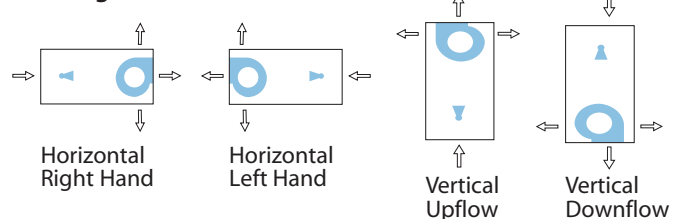
### Basic Features

- High quality precision built equipment
- High turndown (up to 30:1) stainless steel burners
- Consistent, thoroughly factory tested equipment
- Latest in control valve technology to ensure long term consistent performance
- Completely safe operation through solid state flame monitoring and high temperature limits
- Excellent access and serviceability to keep maintenance costs minimized
- ETL and C-ETL listed, conforms to ANSI Z83.4B-2002 and CSA 3.7B-2002, ANSI Z83.18a-2001
- Maximum of 120°F temperature rise and 120°F discharge temperature

### I.C.E. is a skilled manufacturer of

- Gas fire direct and indirect make-up air units
- Packaged cooling equipment
- Custom integrated heat recovery units
- Specializing in commercial and industrial retrofits

### Configurations



### Options Available

- Louvered inlet sections
- Mixbox for 80/20 applications (US applications only)
- Cooling coil sections, and packaged DX cooling
- 4-way and horizontal discharge heads
- Evaporative cooling
- FM/IRI manifolds
- Service platforms
- Variable air volume
- And so much more!

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# I.C.E. DIRECT FIRED MAKE-UP AIR UNITS

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## TECHNICAL DATA

### PERFORMANCE SPECIFICATIONS

Applicable to natural and propane fired units

| DESIGN AIR FLOW<br>CFM | MODEL NUMBER | BLOWER SIZE<br>INCHES | DISCHARGE VELOCITY<br>FPM | **EXTERNAL STATIC PRESSURE<br>(BURNER AND BLOWER ALREADY INCLUDED) |         |         |         |         |         | TEMPERATURE RISE |        |        |        |         |         |         | GAS CONNECTION<br>INCHES |
|------------------------|--------------|-----------------------|---------------------------|--|---------|---------|---------|---------|---------|------------------|--------|--------|--------|---------|---------|---------|--------------------------|
|                        |              |                       |                           | BRAKE HORSEPOWER   |         |         |         |         |         | MBH CAPACITY     |        |        |        |         |         |         |                          |
|                        |              |                       |                           | 0.25"WC  | 0.50"WC | 0.75"WC | 1.00"WC | 1.50"WC | 2.00"WC | 60DegF           | 70DegF | 80DegF | 90DegF | 100DegF | 110DegF | 120DegF |                          |
| 1600                   | BMA109       | 12-9                  | 1400                      | 0.62   | 0.75    | 0.89*   | 0.97*   | 1.17*   | 1.38*   | 114              | 133    | 152    | 171    | 190     | 209     | 228     | 1/2                      |
| 1800                   | BMA109       | 12-9                  | 1575                      | 0.70   | 0.83    | 0.97    | 1.18*   | 1.37*   | 1.59*   | 128              | 150    | 171    | 192    | 214     | 235     | 257     |                          |
| 2000                   | BMA109       | 12-9                  | 1750                      | 0.78   | 0.93    | 1.08    | 1.23    | 1.63*   | 1.87*   | 143              | 166    | 190    | 214    | 238     | 261     | 285     | 3/4                      |
| 2500                   | BMA109       | 12-9                  | 2187                      | 1.06   | 1.20    | 1.37    | 1.56    | 1.94    | 2.31    | 178              | 208    | 238    | 267    | 297     | 327     | 356     |                          |
|                        | BMA112       | 12-12                 | 1715                      | 0.88   | 1.03    | 1.19    | 1.36    | 1.69    | 2.09    | 178              | 208    | 238    | 267    | 297     | 327     | 356     |                          |
| 3000                   | BMA112       | 12-12                 | 2057                      | 1.16   | 1.32    | 1.49    | 1.67    | 2.04    | 2.44    | 214              | 249    | 285    | 321    | 356     | 392     | 428     |                          |
|                        | BMA115       | 15-15                 | 1492                      | 0.80   | 1.32*   | 1.49*   | 1.67*   | 2.04*   | 2.44*   | 214              | 249    | 285    | 321    | 356     | 392     | 428     |                          |
| 3500                   | BMA112       | 12-12                 | 2400                      | 1.48   | 1.68    | 1.88    | 2.07    | 2.46    | 2.87    | 249              | 291    | 333    | 374    | 416     | 457     | 499     |                          |
|                        | BMA115       | 15-15                 | 1741                      | 1.00   | 1.19    | 1.88*   | 2.07*   | 2.46*   | 2.87*   | 249              | 291    | 333    | 374    | 416     | 457     | 499     |                          |
| 4000                   | BMA112       | 12-12                 | 2743                      | 1.90   | 2.11    | 2.32    | 2.55    | 3.00    | 3.42    | 285              | 333    | 380    | 428    | 475     | 523     | 570     |                          |
|                        | BMA115       | 15-15                 | 1990                      | 1.22   | 1.43    | 1.64    | 1.87    | 3.00*   | 3.42*   | 285              | 333    | 380    | 428    | 475     | 523     | 570     |                          |
| 4500                   | BMA115       | 15-15                 | 2238                      | 1.50   | 1.73    | 1.96    | 2.19    | 2.69    | 3.78*   | 321              | 374    | 428    | 481    | 535     | 588     | 642     |                          |
|                        | BMA118       | 18-18                 | 1567                      | 1.33   | 1.59    | 1.96*   | 2.19*   | 2.69*   | 3.73*   | 321              | 374    | 428    | 481    | 535     | 588     | 642     |                          |
| 5000                   | BMA115       | 15-15                 | 2487                      | 1.83   | 2.07    | 2.32    | 2.57    | 3.10    | 3.66    | 356              | 416    | 475    | 535    | 594     | 653     | 713     |                          |
|                        | BMA118       | 18-18                 | 1742                      | 1.56   | 1.85    | 2.14    | 2.45    | 3.10*   | 3.66*   | 356              | 416    | 475    | 535    | 594     | 653     | 713     |                          |
| 5500                   | BMA115       | 15-15                 | 2736                      | 2.22   | 2.48    | 2.75    | 3.02    | 3.58    | 4.16    | 392              | 457    | 523    | 588    | 653     | 719     | 784     |                          |
|                        | BMA118       | 18-18                 | 1916                      | 1.82   | 2.13    | 2.44    | 2.76    | 3.58*   | 4.16*   | 392              | 457    | 523    | 588    | 653     | 719     | 784     |                          |
| 6000                   | BMA115       | 15-15                 | 2985                      | 2.69   | 2.96    | 3.25    | 3.54    | 4.14    | 4.76    | 428              | 499    | 570    | 642    | 713     | 784     | 855     |                          |
|                        | BMA118       | 18-18                 | 2090                      | 2.11   | 2.45    | 2.78    | 3.13    | 3.83    | 4.76*   | 428              | 499    | 570    | 642    | 713     | 784     | 855     |                          |
| 6500                   | BMA120       | 20-20                 | 1428                      | 1.66   | 2.38*   | 2.72*   | 3.06*   | 3.76*   | 4.58*   | 428              | 499    | 570    | 642    | 713     | 784     | 855     |                          |
|                        | BMA115       | 15-15                 | 3233                      | 3.32   | 3.51    | 3.81    | 4.12    | 4.76    | 5.42    | 463              | 541    | 618    | 695    | 772     | 849     | 927     |                          |
|                        | BMA118       | 18-18                 | 2264                      | 2.45   | 2.80    | 3.16    | 3.53    | 4.28    | 5.05    | 463              | 541    | 618    | 695    | 772     | 849     | 927     |                          |
| 7000                   | BMA120       | 20-20                 | 1547                      | 1.86   | 2.24    | 3.09*   | 3.45*   | 4.20*   | 4.97*   | 463              | 541    | 618    | 695    | 772     | 849     | 927     |                          |
|                        | BMA115       | 15-15                 | 3482                      | 4.14   | 4.19    | 4.43    | 4.75    | 5.43    | 6.12    | 499              | 582    | 665    | 748    | 832     | 915     | 998     |                          |
|                        | BMA118       | 18-18                 | 2439                      | 2.83   | 3.21    | 3.59    | 3.98    | 4.78    | 5.59    | 499              | 582    | 665    | 748    | 832     | 915     | 998     |                          |
| 8000                   | BMA120       | 20-20                 | 1666                      | 2.08   | 2.47    | 3.48*   | 3.87*   | 4.66*   | 5.48*   | 499              | 582    | 665    | 748    | 832     | 915     | 998     |                          |
|                        | BMA118       | 18-18                 | 2787                      | 3.68   | 4.11    | 4.55    | 4.98    | 5.87    | 6.77    | 570              | 665    | 760    | 855    | 950     | 1045    | 1140    |                          |
|                        | BMA120       | 20-20                 | 1904                      | 2.58   | 3.00    | 3.44    | 3.90    | 5.71*   | 6.61*   | 570              | 665    | 760    | 855    | 950     | 1045    | 1140    |                          |
| 9000                   | BMA215       | 2-15-15               | 1990                      | 2.40   | 2.81    | 3.23    | 4.55*   | 5.39*   | 6.24*   | 570              | 665    | 760    | 855    | 950     | 1045    | 1140    |                          |
|                        | BMA118       | 18-18                 | 3135                      | 4.89   | 5.20    | 5.68    | 6.16    | 7.15    | 8.14    | 642              | 748    | 855    | 962    | 1069    | 1176    | 1283    |                          |
|                        | BMA120       | 20-20                 | 2142                      | 3.19   | 3.64    | 4.10    | 4.59    | 5.61    | 7.92*   | 642              | 748    | 855    | 962    | 1069    | 1176    | 1283    |                          |
| 10000                  | BMA215       | 2-15-15               | 2238                      | 2.95   | 3.40    | 3.86    | 4.33    | 6.56*   | 7.50*   | 642              | 748    | 855    | 962    | 1069    | 1176    | 1283    |                          |
|                        | BMA118       | 18-18                 | 3484                      | 6.71   | 6.81    | 6.96    | 7.50    | 8.57    | 9.67    | 713              | 832    | 950    | 1069   | 1188    | 1307    | 1426    |                          |
|                        | BMA120       | 20-20                 | 2380                      | 3.94   | 4.41    | 4.91    | 5.42    | 6.49    | 7.64    | 713              | 832    | 950    | 1069   | 1188    | 1307    | 1426    |                          |
| 12000                  | BMA215       | 2-15-15               | 2487                      | 3.61   | 4.10    | 4.60    | 5.11    | 6.16    | 8.98*   | 713              | 832    | 950    | 1069   | 1188    | 1307    | 1426    |                          |
|                        | BMA218       | 2-18-18               | 1742                      | 3.13   | 3.70    | 4.54*   | 5.05*   | 6.09*   | 8.91*   | 713              | 832    | 950    | 1069   | 1188    | 1307    | 1426    |                          |
|                        | BMA120       | 20-20                 | 2857                      | 5.99   | 6.32    | 6.88    | 7.45    | 8.63    | 9.88    | 855              | 998    | 1140   | 1283   | 1426    | 1568    | 1711    |                          |
| 14000                  | BMA122       | 22-22                 | 2352                      | 4.67   | 5.25    | 5.86    | 6.48    | 7.81    | 9.23    | 855              | 998    | 1140   | 1283   | 1426    | 1568    | 1711    |                          |
|                        | BMA215       | 2-15-15               | 2985                      | 5.29   | 5.83    | 6.40    | 6.98    | 8.18    | 9.41    | 855              | 998    | 1140   | 1283   | 1426    | 1568    | 1711    |                          |
|                        | BMA218       | 2-18-18               | 2090                      | 4.23   | 4.89    | 5.57    | 6.26    | 8.06*   | 9.29*   | 855              | 998    | 1140   | 1283   | 1426    | 1568    | 1711    |                          |
|                        | BMA120       | 20-20                 | 3333                      | 9.23   | 9.35    | 9.50    | 10.14   | 11.45   | 12.81   | 998              | 1164   | 1331   | 1497   | 1663    | 1830    | 1996    |                          |
| 17000                  | BMA122       | 22-22                 | 2745                      | 6.65   | 7.20    | 7.88    | 8.56    | 10.00   | 11.51   | 998              | 1164   | 1331   | 1497   | 1663    | 1830    | 1996    |                          |
|                        | BMA125       | 25-25                 | 2086                      | 4.39   | 5.09    | 5.83    | 6.61    | 9.85*   | 11.35*  | 998              | 1164   | 1331   | 1497   | 1663    | 1830    | 1996    |                          |
|                        | BMA215       | 2-15-15               | 3482                      | 8.29   | 8.48    | 8.85    | 9.50    | 10.85   | 12.24   | 998              | 1164   | 1331   | 1497   | 1663    | 1830    | 1996    |                          |
|                        | BMA218       | 2-18-18               | 2439                      | 5.65   | 6.42    | 7.19    | 7.97    | 9.55    | 11.96*  | 998              | 1164   | 1331   | 1497   | 1663    | 1830    | 1996    |                          |
| 19000                  | BMA122       | 22-22                 | 3333                      | 11.91  | 12.03   | 12.13   | 12.29   | 14.24   | 15.92   | 1212             | 1414   | 1616   | 1818   | 2020    | 2222    | 2424    |                          |
|                        | BMA125       | 25-25                 | 2533                      | 6.37   | 7.16    | 7.97    | 8.82    | 10.61   | 12.52   | 1212             | 1414   | 1616   | 1818   | 2020    | 2222    | 2424    |                          |
|                        | BMA218       | 2-18-18               | 2961                      | 8.32   | 9.23    | 10.14   | 11.06   | 12.93   | 14.83   | 1212             | 1414   | 1616   | 1818   | 2020    | 2222    | 2424    |                          |
| 20000                  | BMA122       | 22-22                 | 3725                      | 16.59  | 16.98   | 17.34   | 17.70   | 18.06   | 19.88   | 1354             | 1580   | 1806   | 2031   | 2257    | 2483    | 2709    |                          |
|                        | BMA125       | 25-25                 | 2980                      | 9.30   | 9.84    | 10.75   | 11.69   | 13.63   | 15.67   | 1426             | 1663   | 1901   | 2138   | 2376    | 2614    | 2851    |                          |
|                        | BMA127       | 27-27                 | 2478                      | 6.91   | 7.74    | 8.59    | 9.49    | 11.44   | 15.46*  | 1426             | 1663   | 1901   | 2138   | 2376    | 2614    | 2851    |                          |
|                        | BMA218       | 2-18-18               | 3484                      | 13.42  | 13.67   | 13.93   | 14.99   | 17.15   | 19.33   | 1426             | 1663   | 1901   | 2138   | 2376    | 2614    | 2851    |                          |
| BMA220                 | 2-20-20      | 2380                  | 8.25                      | 9.22   | 10.22   | 11.26   | 13.44   | 15.75   | 1426    | 1663             | 1901   | 2138   | 2376   | 2614    | 2851    |         |                          |

\*Indicated that smaller blower(s) is/are required to achieve the brake horsepower listed.

\*\*Add for accessory static pressure drops as required.

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## TECHNICAL DATA (cont'd)

### PERFORMANCE SPECIFICATIONS (cont'd)

Applicable to natural and propane fired units

| DESIGN AIR FLOW | MODEL NUMBER | BLOWER SIZE | DISCHARGE VELOCITY | **EXTERNAL STATIC PRESSURE (BURNER AND BLOWER ALREADY INCLUDED) |         |         |         |         |         | TEMPERATURE RISE |        |        |        |         |         | GAS CONNECTION INCHES |         |
|-----------------|--------------|-------------|--------------------|---|---------|---------|---------|---------|---------|------------------|--------|--------|--------|---------|---------|-----------------------|---------|
|                 |              |             |                    | BRAKE HORSEPOWER  |         |         |         |         |         | MBH CAPACITY     |        |        |        |         |         |                       |         |
|                 |              |             |                    | 0.25"WC   | 0.50"WC | 0.75"WC | 1.00"WC | 1.50"WC | 2.00"WC | 60DegF           | 70DegF | 80DegF | 90DegF | 100DegF | 110DegF |                       | 120DegF |
| 22000           | BMA125       | 25-25       | 3278               | 12.36   | 12.76   | 13.16   | 14.17   | 16.23   | 18.39   | 1568             | 1830   | 2091   | 2352   | 2614    | 2875    | 3136                  | ↑       |
|                 | BMA127       | 27-27       | 2726               | 8.58  | 9.48    | 10.40   | 11.34   | 13.34   | 15.53   | 1568             | 1830   | 2091   | 2352   | 2614    | 2875    | 3136                  |         |
|                 | BMA220       | 2-20-20     | 2619               | 9.90  | 10.93   | 11.99   | 13.08   | 15.36   | 17.76   | 1568             | 1830   | 2091   | 2352   | 2614    | 2875    | 3136                  |         |
|                 | BMA222       | 2-22-22     | 2156               | 9.17  | 10.27   | 11.40   | 12.56   | 15.02   | 17.67*  | 1568             | 1830   | 2091   | 2352   | 2614    | 2875    | 3136                  |         |
| 25000           | BMA125       | 25-25       | 3725               | 17.86   | 18.09   | 18.36   | 18.72   | 21.00   | 23.35   | 1782             | 2079   | 2376   | 2673   | 2970    | 3267    | 3564                  | ↑       |
|                 | BMA127       | 27-27       | 3097               | 12.30   | 12.51   | 13.53   | 14.56   | 16.86   | 18.94   | 1782             | 2079   | 2376   | 2673   | 2970    | 3267    | 3564                  |         |
|                 | BMA130       | 30-30       | 2688               | 9.17  | 10.27   | 11.40   | 12.56   | 15.02   | 17.67   | 1782             | 2079   | 2376   | 2673   | 2970    | 3267    | 3564                  |         |
|                 | BMA222       | 2-22-22     | 2450               | 11.09   | 12.32   | 13.59   | 14.90   | 17.67   | 20.63   | 1782             | 2079   | 2376   | 2673   | 2970    | 3267    | 3564                  |         |
| 28000           | BMA127       | 27-27       | 3469               | 16.90   | 17.54   | 18.23   | 18.69   | 21.00   | 23.39   | 1996             | 2328   | 2661   | 2994   | 3326    | 3659    | 3992                  | ↑       |
|                 | BMA130       | 30-30       | 3010               | 11.88   | 12.90   | 14.13   | 15.38   | 17.98   | 20.73   | 1996             | 2328   | 2661   | 2994   | 3326    | 3659    | 3992                  |         |
|                 | BMA133       | 33-33       | 2323               | 9.91  | 11.12   | 12.36   | 13.65   | 16.40   | 20.62*  | 1996             | 2328   | 2661   | 2994   | 3326    | 3659    | 3992                  |         |
|                 | BMA222       | 2-22-22     | 2740               | 13.88   | 15.21   | 16.57   | 17.97   | 20.88   | 23.96   | 1996             | 2328   | 2661   | 2994   | 3326    | 3659    | 3992                  |         |
| 30000           | BMA130       | 30-30       | 3225               | 14.64   | 15.01   | 16.31   | 17.63   | 20.34   | 23.19   | 2138             | 2495   | 2851   | 3208   | 3564    | 3920    | 4277                  | ↑       |
|                 | BMA133       | 33-33       | 2489               | 11.49   | 12.78   | 14.09   | 15.43   | 18.25   | 21.28   | 2138             | 2495   | 2851   | 3208   | 3564    | 3920    | 4277                  |         |
|                 | BMA136       | 36 - 36     | 2343               | 10.53   | 11.78   | 13.06   | 14.38   | 17.22   | 21.16*  | 2138             | 2495   | 2851   | 3208   | 3564    | 3920    | 4277                  |         |
|                 | BMA225       | 2-25-25     | 2235               | 9.92  | 11.37   | 12.89   | 14.48   | 17.88   | 25.23*  | 2138             | 2495   | 2851   | 3208   | 3564    | 3920    | 4277                  |         |
|                 | BMA227       | 2-27-27     | 1858               | 8.21  | 9.69    | 12.89*  | 14.48*  | 17.88*  | 25.23*  | 2138             | 2495   | 2851   | 3208   | 3564    | 3920    | 4277                  |         |
|                 | BMA227       | 2-27-27     | 1858               | 8.21  | 9.69    | 12.89*  | 14.48*  | 17.88*  | 25.23*  | 2138             | 2495   | 2851   | 3208   | 3564    | 3920    | 4277                  |         |
| 32000           | BMA130       | 30-30       | 3440               | 17.74   | 18.29   | 18.84   | 20.24   | 23.08   | 26.04   | 2281             | 2661   | 3041   | 3421   | 3802    | 4182    | 4562                  | ↑       |
|                 | BMA133       | 33-33       | 2655               | 13.30   | 14.67   | 16.05   | 17.46   | 20.37   | 23.48   | 2281             | 2661   | 3041   | 3421   | 3802    | 4182    | 4562                  |         |
|                 | BMA136       | 36-36       | 2499               | 12.12   | 13.44   | 14.78   | 16.16   | 19.06   | 22.21   | 2281             | 2661   | 3041   | 3421   | 3802    | 4182    | 4562                  |         |
|                 | BMA225       | 2-25-25     | 2384               | 11.46   | 12.99   | 14.57   | 16.22   | 19.73   | 29.38*  | 2281             | 2661   | 3041   | 3421   | 3802    | 4182    | 4562                  |         |
|                 | BMA227       | 2-27-27     | 1982               | 9.24  | 10.73   | 14.38*  | 16.02*  | 19.51*  | 23.24*  | 2281             | 2661   | 3041   | 3421   | 3802    | 4182    | 4562                  |         |
| 35000           | BMA130       | 30-30       | 3763               | 23.18   | 23.78   | 24.39   | 25.00   | 27.88   | 31.03   | 2495             | 2911   | 3326   | 3742   | 4158    | 4574    | 4990                  | ↑       |
|                 | BMA133       | 33-33       | 2904               | 17.24   | 17.90   | 19.41   | 20.92   | 24.01   | 27.24   | 2495             | 2911   | 3326   | 3742   | 4158    | 4574    | 4990                  |         |
|                 | BMA136       | 36 - 36     | 2734               | 15.21   | 16.26   | 17.71   | 19.18   | 22.21   | 25.44   | 2495             | 2911   | 3326   | 3742   | 4158    | 4574    | 4990                  |         |
|                 | BMA225       | 2-25-25     | 2608               | 14.57   | 16.22   | 17.92   | 19.68   | 23.38   | 27.32   | 2495             | 2911   | 3326   | 3742   | 4158    | 4574    | 4990                  |         |
|                 | BMA227       | 2-27-27     | 2168               | 10.99   | 12.53   | 14.19   | 15.98   | 22.24*  | 26.11*  | 2495             | 2911   | 3326   | 3742   | 4158    | 4574    | 4990                  |         |
| 40000           | BMA133       | 33-33       | 3319               | 25.70   | 26.39   | 27.08   | 27.09   | 31.36   | 34.87   | 2851             | 3326   | 3802   | 4277   | 4752    | 5227    | 5702                  | ↑       |
|                 | BMA136       | 36 - 36     | 3124               | 22.66   | 23.32   | 23.98   | 25.17   | 28.51   | 31.96   | 2851             | 3326   | 3802   | 4277   | 4752    | 5227    | 5702                  |         |
|                 | BMA225       | 2-25-25     | 2980               | 18.95   | 20.77   | 22.62   | 24.52   | 28.46   | 32.61   | 2851             | 3326   | 3802   | 4277   | 4752    | 5227    | 5702                  |         |
|                 | BMA227       | 2-27-27     | 2478               | 14.27   | 15.94   | 17.68   | 19.50   | 23.46   | 31.51*  | 2851             | 3326   | 3802   | 4277   | 4752    | 5227    | 5702                  |         |
| 45000           | BMA136       | 36 - 36     | 3515               | 32.31   | 33.05   | 33.80   | 34.54   | 36.18   | 39.94   | 3208             | 3742   | 4277   | 4811   | 5346    | 5881    | 6415                  | ↑       |
|                 | BMA227       | 2-27-27     | 2788               | 18.35   | 20.20   | 22.06   | 23.98   | 28.04   | 32.47   | 3208             | 3742   | 4277   | 4811   | 5346    | 5881    | 6415                  |         |
|                 | BMA230       | 2-30-30     | 2419               | 14.95   | 16.98   | 19.10   | 21.33   | 26.09   | 31.55   | 3208             | 3742   | 4277   | 4811   | 5346    | 5881    | 6415                  |         |
| 50000           | BMA136       | 36 - 36     | 3906               | 44.29   | 45.12   | 45.95   | 46.78   | 47.61   | 49.43   | 3564             | 4158   | 4752   | 5346   | 5940    | 6534    | 7128                  | ↑       |
|                 | BMA227       | 2-27-27     | 3097               | 24.03   | 25.42   | 27.47   | 29.54   | 33.80   | 38.34   | 3564             | 4158   | 4752   | 5346   | 5940    | 6534    | 7128                  |         |
|                 | BMA230       | 2-30-30     | 2688               | 18.78   | 20.98   | 23.25   | 25.60   | 30.56   | 35.90   | 3540             | 4130   | 4720   | 5310   | 5900    | 6490    | 7080                  |         |
| 55000           | BMA227       | 2-27-27     | 3407               | 31.99   | 32.90   | 33.80   | 36.05   | 40.61   | 45.34   | 3920             | 4574   | 5227   | 5881   | 6534    | 7187    | 7841                  | ↑       |
|                 | BMA230       | 2-30-30     | 2956               | 23.27   | 25.66   | 28.09   | 30.58   | 35.78   | 41.31   | 3920             | 4574   | 5227   | 5881   | 6534    | 7187    | 7841                  |         |
| 60000           | BMA230       | 2-30-30     | 3225               | 29.29   | 31.05   | 33.67   | 36.32   | 41.80   | 47.56   | 4277             | 4990   | 5702   | 6415   | 7128    | 7841    | 8554                  | ↑       |
|                 | BMA233       | 2-33-33     | 2489               | 22.77   | 25.35   | 27.96   | 30.64   | 36.26   | 45.80*  | 4277             | 4990   | 5702   | 6415   | 7128    | 7841    | 8554                  |         |
| 70000           | BMA230       | 2-30-30     | 3763               | 46.36   | 47.57   | 48.78   | 49.63   | 55.76   | 62.05   | 4990             | 5821   | 6653   | 7484   | 8316    | 9148    | 9979                  | ↑       |
|                 | BMA233       | 2-33-33     | 2904               | 34.48   | 35.69   | 37.61   | 40.63   | 46.77   | 53.17   | 4990             | 5821   | 6653   | 7484   | 8316    | 9148    | 9979                  |         |
|                 | BMA236       | 2-36-36     | 2734               | 30.43   | 31.94   | 34.83   | 37.76   | 43.80   | 50.21   | 4990             | 5821   | 6653   | 7484   | 8316    | 9148    | 9979                  |         |
| 75000           | BMA233       | 2-33-33     | 3112               | 42.40   | 43.69   | 44.59   | 47.82   | 54.33   | 61.03   | 5346             | 6237   | 7128   | 8019   | 8910    | 9801    | 10692                 | ↑       |
|                 | BMA236       | 2-36-36     | 2929               | 37.39   | 38.63   | 40.62   | 43.73   | 50.07   | 56.70   | 5346             | 6237   | 7128   | 8019   | 8910    | 9801    | 10692                 |         |
| 80000           | BMA233       | 2-33-33     | 3319               | 51.40   | 52.78   | 54.16   | 55.81   | 62.71   | 69.75   | 5702             | 6653   | 7603   | 8554   | 9504    | 10454   | 11405                 | ↑       |
|                 | BMA236       | 2-36-36     | 3124               | 45.33   | 46.64   | 47.97   | 50.35   | 57.03   | 63.92   | 5702             | 6653   | 7603   | 8554   | 9504    | 10454   | 11405                 |         |
| 90000           | BMA236       | 2-36-36     | 3515               | 64.61   | 66.10   | 67.60   | 69.08   | 73.11   | 80.63   | 6415             | 7484   | 8554   | 9623   | 10692   | 11761   | 12830                 | ↑       |
| 105000          | BMA330       | 3-30-30     | 3763               | 69.62   | 71.76   | 73.38   | 75.06   | 80.78   | 86.18   | 7484             | 8732   | 9979   | 11227  | 12474   | 13721   | 14969                 |         |
| 140000          | BMA336       | 3-36-36     | 3645               | 100.80  | 103.59  | 106.05  | 111.78  | 115.84  | 130.05  | 9979             | 11642  | 13306  | 14969  | 16632   | 18295   | 19958                 | ↓       |

\*Indicated that smaller blower(s) is/are required to achieve the brake horsepower listed.

\*\*Add for accessory static pressure drops as required.

(cont'd on next page)

## I.C.E. DIRECT FIRED MAKE-UP AIR UNITS

<http://www.ice-ww.com>

### TECHNICAL DATA (cont'd)

### PERFORMANCE SPECIFICATIONS (cont'd)

#### NOTES:

The air volume capacities are based on a 75° room temperature at sea level.

The input capacities were based on:

$MBH = (CFM \times C \times (LAT - EAT))/1000$

MBH – BTUH/1000

CFM – Maximum air capacity (cubic feet/minute)

C – 1,188 based on an air density at 75°F

EAT – Entering Dry Bulb Temperature (°F)

LAT – Leaving Dry Bulb Temperature (°F)

Brake horsepower data is based on forward curved DWDI fans and includes drive losses.

#### Consult your local ECCO Supply™ Sales Representative for:

- Higher air capacities or special applications
- Performance data at higher static pressures than listed
- Performance data at elevations other than sea level