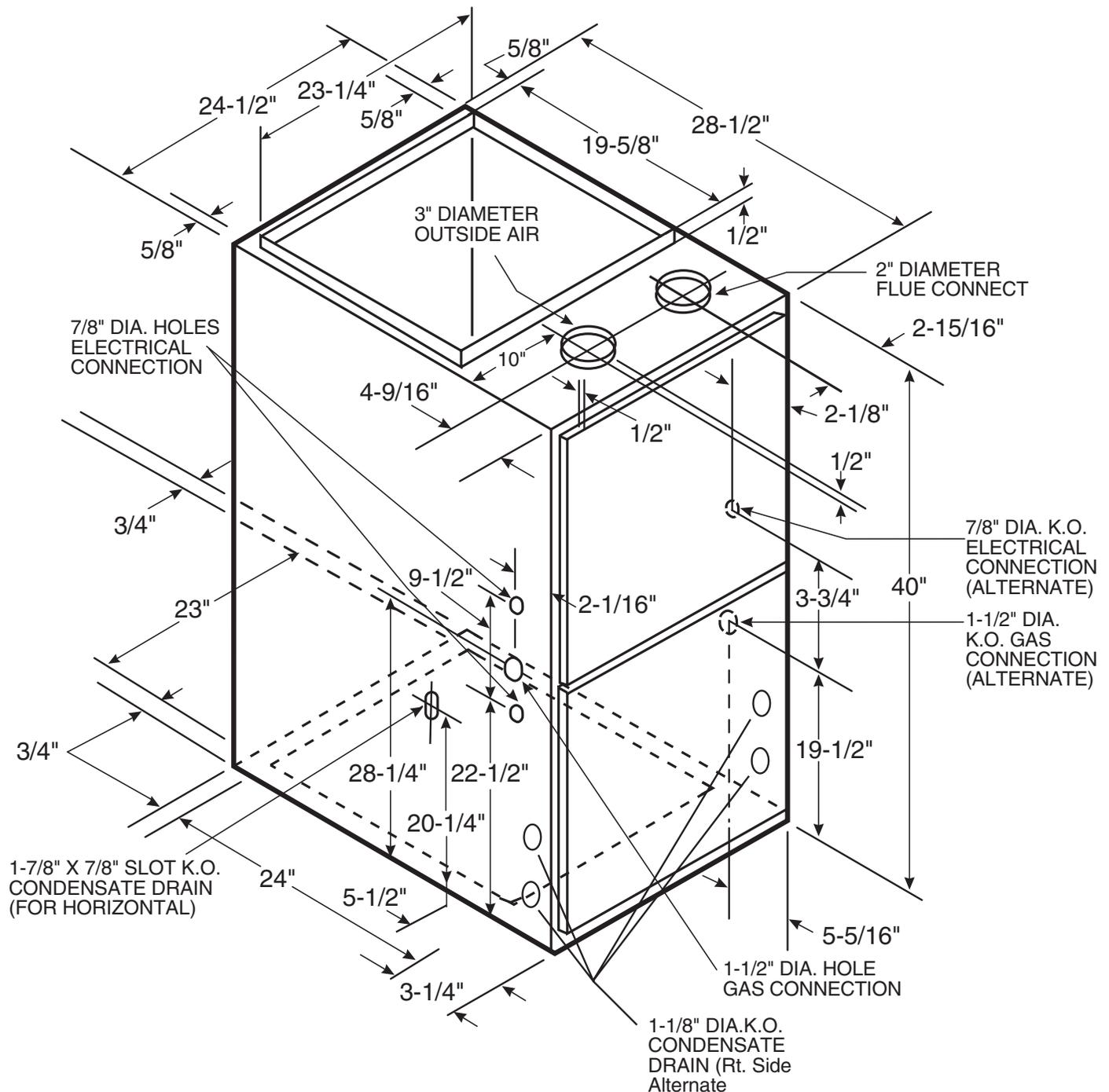


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# SPECIFICATION

## AUHMD120ACV5VB

### Communicating Upflow/Horizontal Left Direct/Non-Direct Vent Modulating Gas Furnace with Variable Speed Inducer



## AUHMD120 Airflow - Heating

## AUHMD120 Airflow - Cooling

| *UHMD120ACV5VB* Furnace Heating Airflow (CFM) and Power (Watts) vs. External Static Pressure With Filter |                 |                             |                          |      |      |      |      |      |
|--|-----------------|-----------------------------|--------------------------|------|------|------|------|------|
| Heating  | Airflow Setting | Target Airflow (See Note 5) | External Static Pressure |      |      |      |      |      |
|  |                 |                             | 0.1                      | 0.3  | 0.5  | 0.7  | 0.9  |      |
| 45% (low) Heat   | Low             | 748                         | CFM                      | 728  | 758  | 785  | 805  | 819  |
|  |                 |                             | Temp. Rise               | 62   | 59   | 57   | 56   | 55   |
|  |                 |                             | Watts                    | 119  | 107  | 102  | 94   | 108  |
|  | Medium Low      | 788                         | CFM                      | 769  | 797  | 822  | 840  | 853  |
|  |                 |                             | Temp. Rise               | 58   | 56   | 54   | 53   | 53   |
|  |                 |                             | Watts                    | 113  | 107  | 111  | 113  | 133  |
|  | Medium**        | 832                         | CFM                      | 813  | 841  | 864  | 880  | 890  |
|  |                 |                             | Temp. Rise               | 55   | 53   | 52   | 51   | 50   |
|  |                 |                             | Watts                    | 108  | 107  | 122  | 135  | 160  |
|  | High            | 880                         | CFM                      | 863  | 889  | 910  | 923  | 930  |
|  |                 |                             | Temp. Rise               | 52   | 50   | 49   | 49   | 48   |
|  |                 |                             | Watts                    | 104  | 108  | 135  | 160  | 191  |
| 65% (medium) Heat  | Low             | 1224                        | CFM                      | 1213 | 1232 | 1237 | 1232 | 1220 |
|  |                 |                             | Temp. Rise               | 60   | 60   | 59   | 60   | 60   |
|  |                 |                             | Watts                    | 131  | 160  | 253  | 345  | 405  |
|  | Medium Low      | 1289                        | CFM                      | 1279 | 1297 | 1299 | 1290 | 1274 |
|  |                 |                             | Temp. Rise               | 57   | 57   | 56   | 57   | 58   |
|  |                 |                             | Watts                    | 147  | 178  | 281  | 382  | 445  |
|  | Medium**        | 1361                        | CFM                      | 1353 | 1369 | 1367 | 1355 | 1335 |
|  |                 |                             | Temp. Rise               | 54   | 54   | 54   | 54   | 55   |
|  |                 |                             | Watts                    | 168  | 201  | 313  | 423  | 489  |
|  | High            | 1440                        | CFM                      | 1434 | 1448 | 1443 | 1426 | 1402 |
|  |                 |                             | Temp. Rise               | 51   | 51   | 51   | 51   | 52   |
|  |                 |                             | Watts                    | 197  | 229  | 352  | 469  | 538  |
| 100% (high) Heat   | Low             | 1700                        | CFM                      | 1699 | 1707 | 1690 | 1659 | 1621 |
|  |                 |                             | Temp. Rise               | 60   | 60   | 60   | 61   | 63   |
|  |                 |                             | Watts                    | 325  | 349  | 495  | 628  | 698  |
|  | Medium Low      | 1790                        | CFM                      | 1790 | 1797 | 1775 | 1740 | 1696 |
|  |                 |                             | Temp. Rise               | 57   | 57   | 57   | 59   | 60   |
|  |                 |                             | Watts                    | 382  | 400  | 551  | 685  | 752  |
|  | Medium**        | 1890                        | CFM                      | 1892 | 1896 | 1870 | 1830 | 1781 |
|  |                 |                             | Temp. Rise               | 54   | 54   | 54   | 56   | 57   |
|  |                 |                             | Watts                    | 453  | 462  | 616  | 750  | 813  |
|  | High            | 2000                        | CFM                      | 2004 | 2006 | 1975 | 1929 | 1873 |
|  |                 |                             | Temp. Rise               | 51   | 51   | 52   | 53   | 54   |
|  |                 |                             | Watts                    | 540  | 538  | 694  | 822  | 880  |

Notes:  
 1. \* First letter may be "A" or "T".  
 2. \*\* Factory setting.  
 3. Continuous Fan Setting: Heating or cooling airflow is approximately 50% of selected cooling value.  
 4. LOW 350 cfm/ton is recommended for variable speed application for COMFORT & HUMID CLIMATE setting; NORMAL is 400 cfm/ton; HIGH 450 cfm/ton is for DRY CLIMATE setting.  
 5. Target airflow is field selectable for third stage heating. Target airflow for first and second stage heating are percentages of third stage target and are not field selectable.

| *UHMD120ACV5VB* Furnace Cooling Airflow (CFM) and Power (Watts) vs. External Static Pressure With Filter |              |                 |                          |      |      |      |      |      |
|--|--------------|-----------------|--------------------------|------|------|------|------|------|
| Cooling  | Unit Outdoor | Airflow Setting | External Static Pressure |      |      |      |      |      |
|  |              |                 | 0.1                      | 0.3  | 0.5  | 0.7  | 0.9  |      |
| 3.5  | 290 CFM/ton  | CFM             | 1000                     | 1024 | 1028 | 1022 | 1011 |      |
|  |              | Watts           | 122                      | 168  | 209  | 251  | 300  |      |
|  | 310 CFM/ton  | CFM             | 1072                     | 1094 | 1097 | 1089 | 1076 |      |
|  |              | Watts           | 140                      | 188  | 234  | 281  | 331  |      |
|  | 330 CFM/ton  | CFM             | 1143                     | 1164 | 1165 | 1157 | 1141 |      |
|  |              | Watts           | 160                      | 211  | 261  | 313  | 364  |      |
|  | 350 CFM/ton  | CFM             | 1214                     | 1233 | 1234 | 1224 | 1207 |      |
|  |              | Watts           | 182                      | 236  | 291  | 347  | 400  |      |
|  | 370 CFM/ton  | CFM             | 1286                     | 1303 | 1302 | 1291 | 1272 |      |
|  |              | Watts           | 207                      | 264  | 323  | 384  | 438  |      |
|  | 400 CFM/ton  | CFM             | 1393                     | 1408 | 1405 | 1392 | 1370 |      |
|  |              | Watts           | 250                      | 311  | 377  | 444  | 500  |      |
|  | 430 CFM/ton  | CFM             | 1500                     | 1513 | 1508 | 1492 | 1468 |      |
|  |              | Watts           | 300                      | 365  | 437  | 509  | 565  |      |
|  | 450 CFM/ton  | CFM             | 1571                     | 1582 | 1576 | 1559 | 1533 |      |
|  |              | Watts           | 337                      | 406  | 481  | 555  | 611  |      |
|  | 4            | 290 CFM/ton     | CFM                      | 1148 | 1169 | 1170 | 1161 | 1146 |
|  |              |                 | Watts                    | 161  | 213  | 263  | 315  | 367  |
|  |              | 310 CFM/ton     | CFM                      | 1230 | 1248 | 1248 | 1238 | 1221 |
|  |              |                 | Watts                    | 187  | 242  | 297  | 355  | 408  |
|  |              | 330 CFM/ton     | CFM                      | 1311 | 1328 | 1327 | 1315 | 1295 |
|  |              |                 | Watts                    | 217  | 274  | 335  | 398  | 452  |
|  |              | 350 CFM/ton     | CFM                      | 1393 | 1408 | 1405 | 1392 | 1370 |
|  |              |                 | Watts                    | 250  | 311  | 377  | 444  | 500  |
| 370 CFM/ton  |              | CFM             | 1474                     | 1488 | 1483 | 1468 | 1445 |      |
|  |              | Watts           | 287                      | 352  | 422  | 493  | 549  |      |
| 400 CFM/ton  |              | CFM             | 1597                     | 1607 | 1601 | 1583 | 1556 |      |
|  |              | Watts           | 352                      | 421  | 497  | 572  | 628  |      |
| 430 CFM/ton  |              | CFM             | 1719                     | 1727 | 1718 | 1699 | 1668 |      |
|  |              | Watts           | 427                      | 503  | 581  | 655  | 711  |      |
| 450 CFM/ton  |              | CFM             | 1801                     | 1807 | 1797 | 1775 | 1743 |      |
|  |              | Watts           | 483                      | 563  | 642  | 712  | 768  |      |
| 5  |              | 290 CFM/ton     | CFM                      | 1444 | 1458 | 1454 | 1440 | 1417 |
|  |              |                 | Watts                    | 273  | 336  | 405  | 475  | 530  |
|  |              | 310 CFM/ton     | CFM                      | 1546 | 1557 | 1552 | 1535 | 1510 |
|  |              |                 | Watts                    | 324  | 391  | 465  | 538  | 594  |
|  |              | 330 CFM/ton     | CFM                      | 1648 | 1657 | 1650 | 1631 | 1603 |
|  |              |                 | Watts                    | 381  | 454  | 531  | 606  | 662  |
|  |              | 350 CFM/ton     | CFM                      | 1750 | 1757 | 1748 | 1727 | 1696 |
|  |              |                 | Watts                    | 447  | 525  | 603  | 676  | 732  |
|  | 370 CFM/ton  | CFM             | 1852                     | 1857 | 1845 | 1823 | 1790 |      |
|  |              | Watts           | 522                      | 604  | 682  | 749  | 804  |      |
|  | 400 CFM/ton  | CFM             | 2004                     | 2006 | 1992 | 1967 | 1947 |      |
|  |              | Watts           | 651                      | 742  | 811  | 863  | 966  |      |
|  | 430 CFM/ton  | CFM             | 2157                     | 2156 | 2140 | 2050 | 1947 |      |
|  |              | Watts           | 803                      | 902  | 966  | 966  | 966  |      |
|  | 450 CFM/ton  | CFM             | 2259                     | 2255 | 2140 | 2050 | 1947 |      |
|  |              | Watts           | 966                      | 966  | 966  | 966  | 966  |      |

Notes:  
 1. \* First letter may be "A" or "T".  
 2. ^ Letter may be "A" through "Z"  
 3. \*\* Factory setting.  
 4. Continuous Fan Setting: Heating or cooling airflow is approximately 50% of selected cooling value.  
 5. LOW 350 cfm/ton is recommended for variable speed application for COMFORT & HUMID CLIMATE setting; NORMAL is 400 cfm/ton; HIGH 450 cfm/ton is for DRY CLIMATE setting.

**NOTE:**  
**CONTINUOUS** fan mode during **COOLING** operation may not be appropriate in humid climates. If the indoor air exceeds 60% relative humidity or simply feels uncomfortably humid, it is recommended that the fan only be used in the **AUTO** mode.

## Airflow Adjustment

Check inlet and outlet air temperatures to make sure they are within the range specified on the Furnace rating nameplate. If the airflow needs to be increased or decreased, see the Airflow Label on the Furnace or the unit's Service Facts for information on changing the speed of the Blower Motor for your specific model. Blower speed changes are made on the User Interface.

## INDOOR BLOWER TIMING

**Heating:** The Integrated Furnace Control module controls the Indoor Blower. The Blower start is fixed at 45 seconds after ignition. The FAN-OFF period is field selectable by the User Interface at 60, 100, 140, or 180 seconds. The factory setting is 100 seconds.

| MODEL                                  | AUHMD120ACV5VB ⑥                      |
|--|---------------------------------------|
| TYPE                                   | Upflow/Horizontal Left                |
| <b>RATINGS ②</b>                       |                                       |
| 45% (low) heat Input BTUH              | 54,000                                |
| 45% (low) heat Capacity BTUH (ICS) ③   | 52,000                                |
| 100% (high) heat Input BTUH            | 120,000                               |
| 100% (high) heat Capacity BTUH (ICS) ③ | 114,000                               |
| Temp. rise (Min.-Max.) °F.             | 40 - 70                               |
| AFUE                                   | 95.0                                  |
| <b>BLOWER DRIVE</b>                    |                                       |
| Diameter - Width (In.)                 | DIRECT<br>10 x 10                     |
| No. Used                               | 1                                     |
| Speeds (No.)                           | Variable                              |
| CFM vs. in. w.g.                       | See Fan Performance Table             |
| Motor HP                               | 1                                     |
| R.P.M.                                 | Variable                              |
| Volts/Ph/Hz                            | 115/1/60                              |
| FLA                                    | 9.9                                   |
| <b>COMBUSTION FAN - Type</b>           |                                       |
| Drive - No. Speeds                     | Centrifugal<br>Direct - Variable      |
| Motor HP - RPM                         | 1/50 - 5000                           |
| Volts/Ph/Hz                            | 115/3/60                              |
| FLA                                    | 1.0                                   |
| <b>FILTER — Furnished?</b>             |                                       |
| Type Recommended                       | Yes                                   |
| Hi Vel. (No.-Size-Thk.)                | High Velocity<br>1 - 24x25 - 1 in.    |
| <b>VENT — Size (in.)</b>               |                                       |
|  | 3 Round                               |
| <b>HEAT EXCHANGER</b>                  |                                       |
| Type -Fired                            | Aluminized Steel - Type I             |
| -Unfired                               |                                       |
| Gauge (Fired)                          | 20                                    |
| <b>ORIFICES — Main</b>                 |                                       |
| Nat. Gas Qty. — Drill Size             | 6 — 45                                |
| L.P. Gas Qty. — Drill Size ⑤           | 6 — 56                                |
| <b>GAS VALVE</b>                       |                                       |
|  | Redundant - Three Stage               |
| <b>PILOT SAFETY DEVICE</b>             |                                       |
| Type                                   | Hot Surface Igniter                   |
| <b>BURNERS — Type</b>                  |                                       |
| Number                                 | Multiport Inshot<br>6                 |
| <b>POWER CONN. — V/Ph/Hz ④</b>         |                                       |
| Ampacity (In Amps)                     | 115/1/60<br>13.5                      |
| Max. Overcurrent Protection (Amps)     | 15                                    |
| <b>PIPE CONN. SIZE (IN.)</b>           |                                       |
|  | 1/2                                   |
| <b>DIMENSIONS</b>                      |                                       |
| Crated (In.)                           | H x W x D<br>41-3/4 x 26-1/2 x 30-1/2 |
| <b>WEIGHT</b>                          |                                       |
| Shipping (Lbs.)/Net (Lbs)              | 206 / 193                             |

① Central Furnace heating designs are certified to ANSI Z21.47 / CSA 2.3.

② For U.S. applications, above input ratings (BTUH) are up to 2,000 feet, derate 4% per 1,000 feet for elevations above 2,000 feet above sea level.

For Canadian applications, above input ratings (BTUH) are up to 4,500 feet, derate 4% per 1,000 feet for elevations above 4,500 feet above sea level.

③ Based on U.S. government standard tests.

④ The above wiring specifications are in accordance with National Electrical Code; however, installations must comply with local codes.

⑤ Furnace ships in natural gas configuration. The LP conversion kit used with the modulating furnace is BAYLPSS220B or BAYLPKT220B.

⑥ Energy Star

# Mechanical Specifications

## MODULATING OPERATION

The modulating gas valve provides longer heating cycles for more consistent heating comfort. Modulates from 45% to 100% of the normal firing rates in less than 1% increments of the furnace's heating capacity saving energy, while at the same time providing maximum homeowner comfort.

## COMMUNICATING MODE

Furnace is shipped ready to be connected in communicating mode using three wire hook-up using ACONT900 comfort control.

## ALTERNATE 24V MODE

Furnace is field configurable to 24V non-communicating mode.

## COMFORT CONTROL

Acculink II™ Communicating furnace design, offers plug and play – walk away installation. Assures the entire heating and air conditioning system is set up in the proper modes to optimize the engineered performance of the matched system installed. The furnace can also be connected in 24V mode.

## NATURAL GAS MODELS

Central Heating furnace designs are certified by the American Gas Association for both natural and L.P. gas. Limit setting and rating data were established and approved under standard rating conditions using American National Standards Institute standards.

## ENERGY EFFICIENT OPERATION

Furnace is certified to leak 2% or less of nominal air conditioning CFM delivered when pressurized to .5" water column with all inlets, outlets, and drains sealed.

## SAFE OPERATION

The Integrated System Control has solid state devices, which continuously monitor for presence of flame, when the system is in the heating mode of operation. Dual solenoid combination gas valve and regulator provide additional safety.

## QUICK HEATING

Durable, cycle tested, heavy gauge aluminized steel heat exchanger quickly transfers heat to provide warm conditioned air to the structure. Low energy power vent blower, to increase efficiency and provide a positive discharge of gas fumes to the outside.

## BURNERS

Multi-port In-shot burners will give years of quiet and efficient service. All models can be converted to L.P. gas without changing burners.

## INTEGRATED SYSTEM CONTROL

Exclusively designed operational program provides total control of furnace limit sensors, blowers, gas valve, flame control and includes self diagnostics for ease of service. Also contains connection points for EAC and Humidifier.

## AIR DELIVERY

The variable speed blower motor has sufficient airflow for most heating and cooling requirements and will switch from heating to cooling speeds on demand from room thermostat. The blower door safety switch will prevent or terminate furnace operation when the blower door is removed.

## SECONDARY HEAT EXCHANGER

The FREEDOM 95 has a special type 29-4C™ stainless steel secondary heat exchanger to reclaim heat from flue gases which would normally be lost.

## STYLING

Heavy gauge steel and "wrap-around" cabinet construction is used in the cabinet with baked-on enamel finish for strength and beauty. The heat exchanger section of the cabinet is completely lined with foil faced fiberglass insulation. This results in quiet and efficient operation due to the excellent acoustical and insulating qualities of fiberglass. Built-in bottom pan and alternate bottom, left or right side return air connection provision.

## FEATURES AND GENERAL OPERATION

The FREEDOM 95 High Efficiency Gas Furnaces utilize an Adaptive Heat Up Silicon Nitride Hot Surface Ignition system, which eliminates the waste of a constant burning pilot. The integrated system control lights the main burners upon a demand for heat from the room thermostat. Complete front service access.

- a. Low energy power venter
- b. Vent proving pressure switch.

American Standard Heating & Air Conditioning has a policy of continuous product and product data improvement and reserves the right to change specifications and design without notice.

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