



**11EER W18A-W60A Series WALL-MOUNT™**  
**11EER W18L-W36L Series WALL-MOUNT™**  
**10EER W72A Series WALL-MOUNT™**

The Bard Wall-Mount Air Conditioner is an energy efficient self contained system, which is designed to offer maximum indoor comfort at a minimal cost without using valuable indoor floor space or outside ground space. This unit is the ideal product for versatile applications such as: new construction, modular offices, school modernization, telecommunication structures, portable structures, correctional facilities and many more. Factory or field installed accessories are available to meet specific job requirements for your unique application.

- Intertek ETL Listed to Standard for Safety Heating and Cooling Equipment ANSI/UL 1995/CSA 22.2 No. 236-05 Fourth Edition.
- Commercial Product - Not intended for residential applications.
- Bard is an ISO 9001:2015 Certified Manufacturer.



**BARDHVAC.COM**

FORM NO. S3581-0822



**Climate Control Solutions**

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**UNIT SERIES**  
Wall-Mount

**NOMINAL CAPACITY**

**24** - 2.0 Ton  
**30** - 2.5 Ton  
**36** - 3.0 Ton  
**42** - 3.5 Ton  
**48** - 4.0 Ton  
**60** - 5.0 Ton  
**72** - 6.0 Ton

**TYPE AND CONTROL LOCATION**

**A** - Air conditioner  
**L** - Air Conditioner with Left Side Control Panel (W18-W36 Only)

**REVISION**

**B** - Revision W24-W36  
**C** - Revision W42-W72

**PLACEHOLDER**

**VOLTAGE**

**D** - 240/220 Volt 1 Phase 50 Hz  
**E** - 220/200 Volt 3 Phase 50 Hz  
**F** - 415/380 Volt 3 Phase 50 Hz

**ELECTRIC HEAT**

**00** - OKw with Lug Connection  
**0Z** - OKw with Circuit Breaker  
**05 to 20** - Kw Heat with Circuit Breaker  
*See Electrical Specs for further details*

**ACCESSORIES AND CONTROLS OPTIONS**

**X** - Standard controls (HPS,LPS,CCM)  
**E** - Low Ambient Control (LAC)  
**F** - LAC, Alarm Relay (ALR), Filter Press. Switch (FPS)  
**J** - LAC and Alarm Relay (ALR)  
**K** - LAC and PTCR Start Kit  
**M** - LAC, ALR, and PTCR Start Kit  
**V** - DDC Control Sensor kit with 10K Discharge air sensor, indoor blower airflow sensor, compressor current sensor, filter press. switch, LAC, ALR.

**COIL & UNIT COATING OPTIONS**

**X** - Standard Copper/Aluminum coils.  
**1** - Coated Evaporator coil.  
**2** - Coated Condenser coil.  
**3** - Coated Evaporator and Condenser coils.  
**4** - Coated coils and unit condenser section coating.  
**5** - Coated coils and inside/outside of unit coating.

**SUPPLY OUTLET**

**X** - Standard

**COLOR AND CABINET FINISH**

**X** - Standard Beige baked enamel finish  
**1** - White baked enamel finish  
**4** - Buckeye Gray baked enamel finish  
**5** - Desert Brown baked enamel finish  
**8** - Dark Bronze baked enamel finish  
**S** - Stainless Steel  
**A** - Aluminum

**FILTER**

**X** - Standard 1" MERV2 Disposable Filter  
**W** - 1" MERV2 Washable Filter  
**P** - 2" MERV8 Disposable Filter  
**M** - 2" MERV11 Disposable Filter  
**N** - 2" MERV13 Disposable Filter

**VENT PACKAGE**

**X** - Standard Fresh Air Damper (Intake only)  
**A** - Fresh Air Damper w/Exhaust  
**B** - Block Off Plate  
**M** - Commercial Room Ventilator, ON/OFF  
**V** - Comm. Room Ventilator, Modulating  
**D** - Economizer, 0-10V No Controls  
**S** - Partial Flow Econ (W18-36 only)  
**Y** - Full Flow Economizer, Temperature  
**Z** - Full Flow Economizer, Enthalpy

**Nomenclature Notes:**

- W24, W30 and W36 models are available with the unit control panel located on the left or right unit side. W42, W48, W60, and W72 models have the unit control panel located in the front of the unit.
- Accessories and control options may not be available for all models. See factory installed controls options section for further details.
- All units have an external data tag with the model and serial number on the left or right side of the unit. A secondary data tag with the model and serial number is located inside the control panel area on or near the low voltage terminal box.



## ////// Engineered Features W24 Through W36 Unit Models

**NEW! EXCLUSIVE \*Non-Fiberglass Foil Faced Insulation:** Environmentally friendly high “R” value non-fiberglass insulation that is made with recycled denim and cotton materials used with a FSK foil face that is both durable and cleanable.

**Durable Cabinet Construction:** Multiple cabinet construction options are available for different outdoor conditions. Optional cabinet coatings may be ordered for extreme outdoor environments. See cabinet finish and coatings section for further details.

**Easy Filter Access:** A separate filter door is provided for ease of filter access during routine unit maintenance. 1” and 2” filters are available with a rating of up to MERV13. See filter section for further details.

**Field or Factory Installed Vents:** Multiple ventilation options are available to provide outdoor air for ventilation and/or energy savings. Ventilation options may be factory or field installed. See vent section for further details.

**Electric Strip Heat:** Reliable, comfortable heater packages feature an automatic limit and thermal cut-off safety control. Heater packages may be factory or field installed. See optional electric heat section for further details.

**Built-in Circuit Breakers:** Standard on all electric heat versions of single (208/230 volt) and three phase (208/230 volt) equipment. Toggle disconnects are standard on all electric heat versions of three phase (460 volt) equipment.

**Reliable, Easy-to-Use Controls:** Easily accessible through left or right control panel locations. A lockable hinged access cover to circuit protection is provided. Phase rotation monitor is standard on all 3 phase models. Adjustable compressor on/off delay timer (CCM) with diagnostic lights is standard on all models. Both right and left control panel locations available. Electrical entrances provided through the back and side areas.

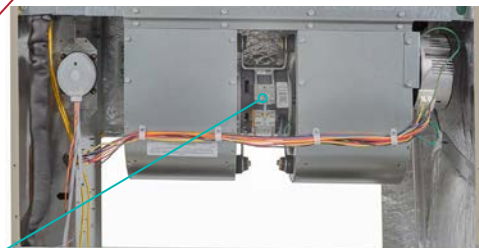
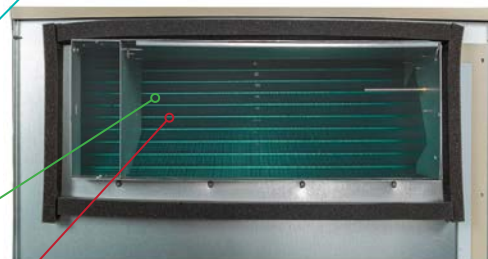
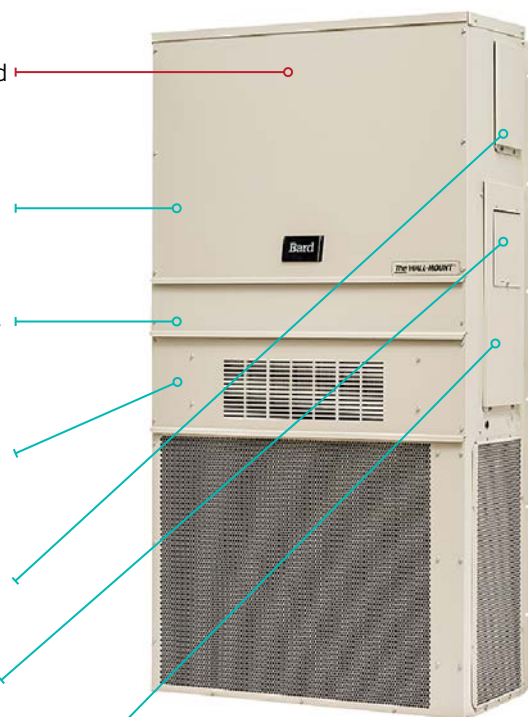
**Green Fin Hydrophilic Evaporator Coil:** Green fin stock enhances coil wettability to help prevent mold growth, aids with condensate drainage, and provides a limited amount of protection to corrosive particulates in the airstream.

**\*Balanced Climate™ Technology (patent pending):** High latent capacity humidity & sound reduction removes up to 35% more humidity than any other on the market with the use of a 2 stage thermostat or controlling device. Bard Balanced Climate™ innovation comes standard on all models.

**ECM Indoor Motor Technology:** 5 speed dual shaft motor provides quiet airflow operation when used with a twin blower assembly. Motor overload protection standard on all models.

**Enclosed Condenser Motor:** An enclosed casing condenser motor with ball bearings is used for reliable operation and extended motor life. Enclosed condenser motors are standard on all units.

**High Efficiency Cooling:** Scroll compressors for quiet, efficient cooling. Designed with R-410A (HFC) non-ozone depleting refrigerant in compliance with the Montreal protocol and 2010 EPA requirements. A liquid line filter-drier is used to protect the system from moisture, and is standard on all units.





## ////// Engineered Features - W42 Through W72 Unit

**NEW! EXCLUSIVE \*Non-Fiberglass Foil Faced Insulation:** Environmentally friendly high “R” value non-fiberglass insulation that is made with recycled denim and cotton materials used with a FSK foil face that is both durable and cleanable.

**Durable Cabinet Construction:** Multiple cabinet construction options are available for different outdoor conditions. Optional cabinet coatings may be ordered for extreme outdoor environments. See cabinet finish and coatings section for further details.

**ECM Indoor Motor Technology:** 5 speed dual shaft motor provides quiet airflow operation when used with a twin blower assembly. Motor overload protection standard on all models.

**Electric Strip Heat:** Reliable, comfortable heater packages feature an automatic limit and thermal cut-off safety control. Heater packages may be factory or field installed. See optional electric heat section for further details.

**Field or Factory Installed Vents:** Multiple ventilation options are available to provide outdoor air for ventilation and/or energy savings. Ventilation options may be factory or field installed. See vent section for further details.

**Green Fin Hydrophilic Evaporator Coil:** Green fin stock enhances coil wettability to help prevent mold growth, aids with condensate drainage, and provides a limited amount of protection to corrosive particulates in the airstream.

**Built-in Circuit Breakers:** Standard on all electric heat versions of single (208/230 volt) and three phase (208/230 volt) equipment. Toggle disconnects are standard on all electric heat versions of three phase (460 volt) equipment.

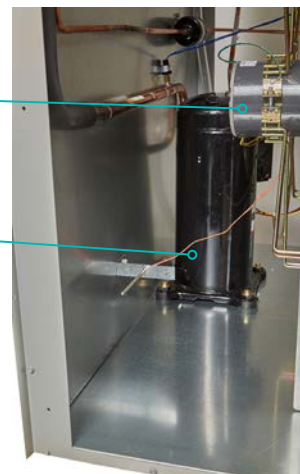
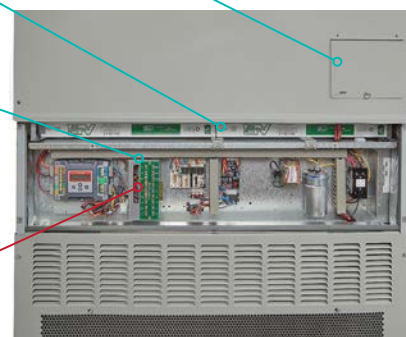
**Easy Filter Access:** A separate filter door is provided for ease of filter access during routine unit maintenance. 1” and 2” filters are available with a rating of up to MERV13. See filter section for further details.

**Reliable, Easy-to-Use Controls:** Easily accessible through left or right control panel locations. A lockable hinged access cover to circuit protection is provided. Phase rotation monitor is standard on all 3 phase models. Adjustable compressor on/off delay timer (CCM) with diagnostic lights is standard on all models. Control panel is located in the front of the unit with electrical entrances on both sides and back.

**\*Balanced Climate™ Technology (patent pending):** High latent capacity humidity & sound reduction removes up to 35% more humidity than any other on the market with the use of a 2 stage thermostat or controlling device. Bard Balanced Climate™ innovation comes standard on all models.

**Enclosed Condenser Motor:** An enclosed casing condenser motor with ball bearings is used for reliable operation and extended motor life. Enclosed condenser motors are standard on all units.

**High Efficiency Cooling:** Scroll compressors for quiet, efficient cooling. Designed with R-410A (HFC) non-ozone depleting refrigerant in compliance with the Montreal protocol and 2010 EPA requirements. A liquid line filter-drier is used to protect the system from moisture, and is standard on all units.



## ///// Unit Modes of Operation

### **Cooling Operation:**

The Bard WA Series products offer single stage compressor cooling operation using R410A refrigerant. Copper tube/Aluminum hydrophilic green fin coils are used to provide high efficiency and easy serviceability. Scroll compressor technology delivers years of quiet, reliable operation. Economizer vent options are available for increased energy efficiency during cooling operation when outdoor conditions are favorable.

### **Heating Operation:**

The Bard WA Series products offer optional single or two stage heating operation using resistance heaters. Circuit breaker disconnect protection is standard in all units equipped with electric heat.

### **Ventilation:**

The Wall-Mount product provides the perfect platform to not only cool and heat an indoor area, but also provide a means of bringing outdoor air into the building. By including ventilation in the Wall-Mount, expensive costs associated with additional outdoor air systems can be avoided. The Bard WA Series products offer optional ventilation operation that brings outdoor air into the structure, and vents can be factory or field installed. Ventilation can be used to bring in outdoor air for occupants, save energy by using outdoor air for free cooling, or positively pressurize a structure. Exhaust air options allow room air to be vented outdoors when fresh air is being brought into the structure.

### **Filtration and Indoor Air Quality:**

Providing the best air filtration solution is important to occupants and equipment inside a room or structure. Bard provides several filter options based on MERV filtration, and also other solutions to improve indoor air quality.

### **Balanced Climate™ Operation:**

Balanced Climate™ is a great feature to remove additional room humidity during cooling operation. All units include this feature as an optional method of having a separate cooling stage that uses a lower indoor blower speed. Remove the Y1/Y2 jumper, and install a two stage cooling thermostat. Once enabled, a first stage of increased humidity removal and lowered cooling capacity will extend unit runtime and increase latent (humidity removal) capacity. Second stage operation will use the standard blower speed. This is a great option where additional humidity reduction is a benefit during normal cooling operation.

**Note:** Balanced Climate is not recommended for applications where room temperatures will typically be lower than 72°F or duct static will cause airflow to be below rated CFM amounts provided in the Airflow CFM chart in this document. Low Ambient Control use is required for Balanced Climate operation. Hot Gas Reheat is recommended for high humidity environments that require moisture removal without cooling or applications that require a large amount of ventilation air for occupied areas.

### **Low Outdoor Temperature Cooling Operation:**

Equipment cooling often requires indoor areas to remain cool regardless of outdoor temperature. If your application requires operation of the compressor to provide cooling below 65° outdoor conditions, then just like any other HVAC system, a low ambient control (LAC) kit must be installed. The LAC will help maintain higher refrigerant pressure during compressor operation at lower outdoor temperatures. This is achieved by limiting outdoor fan operation based on low side system pressure. As temperatures decrease outdoors, outdoor fan use will continue to decrease. Applications that require cooling functionality from 0°F to -40°F outdoor temperatures must use economizer cooling operation.

**Note:** The LAC kit also includes a freeze stat installed on the unit indoor evaporator coil. The freeze stat helps monitor the indoor evaporator coil temperature and will cycle compressor operation when temperatures below freezing are indicated. Use of Balanced Climate or applications where indoor airflow will be reduced require the use of the LAC kit to help maintain adequate evaporator coil temperatures.

### **High Outdoor Temperature Cooling Operation:**

The Bard WA Series products are designed and tested to function when used in higher outdoor temperature areas. Wall-Mount products utilize large, efficient condenser coils with high airflow condenser fan systems to save energy and lower high side refrigerant pressures. It is always important to follow all clearance guidelines supplied in the unit dimension section of this specification, and additional information provided in the user manual. Properly cleaning the condenser coil using a regular maintenance schedule along with filter changes will help maintain unit operation during high outdoor ambient temperature use. Always follow maintenance procedures provided in the user manual and installation instructions provided with your Bard product.



## Capacity and Efficiency Ratings

| MODELS                          | W24AB<br>W24LB | W30AB<br>W30LB | W36AB<br>W36LB | W42AC       | W48AC       | W60AC       | W72AC       |
|---------------------------------|----------------|----------------|----------------|-------------|-------------|-------------|-------------|
| Cooling Capacity in BTUH $\Phi$ | 21,900 BTUH    | 26,600 BTUH    | 32,100 BTUH    | 38,300 BTUH | 43,700 BTUH | 51,900 BTUH | 66,900 BTUH |
| Cooling Capacity in KW          | 6.41 KW        | 7.79 KW        | 9.40 KW        | 11.22 KW    | 12.80 KW    | 15.21 KW    | 19.61 KW    |

## General Unit Specifications W18 (1-1/2 Ton) Through W72 (6 Ton)

| MODELS   | W24AB-D            | W24AB-F<br>W24LB-F | W30AB-D            | W30AB-F<br>W30LB-F | W36AB-D            | W36AB-E            | W36AB-F<br>W36LB-F |
|--|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Unit Voltage Rating - Phase - 50 Hz  | 240/220 - 1        | 415/380 - 3 $\Phi$ | 240/220 - 1        | 415/380 - 3 $\Phi$ | 240/220 - 1        | 220/200 - 3        | 415/380 - 3 $\Phi$ |
| Operating Voltage Range  | 198-254            | 342-456            | 198-254            | 342-456            | 198-254            | 180-242            | 342-456            |
| <b>Compressor Electrical Circuit</b>   |                    |                    |                    |                    |                    |                    |                    |
| Voltage  | 240/220            | 415/380            | 240/220            | 415/380            | 240/220            | 220/200            | 415/380            |
| Rated Load Amps  | 8.3/9.4            | 5.0/5.7            | 9.6/10.9           | 6.1/6.9            | 11.4/13.3          | 7.1/8.3            | 4.7                |
| Branch Circuit Selection Current   | 12.9               | 7.7                | 14.2               | 9.0                | 16.7               | 10.5               | 5.8                |
| Lock Rotor Amps  | 58.3/58.3          | 55.4/55.4          | 73/73              | 58/58              | 79/79              | 73/73              | 38                 |
| Compressor Type  | Scroll             | Scroll             | Scroll             | Scroll             | Scroll             | Scroll             | Scroll             |
| <b>Outdoor Fan Motor &amp; Condenser Fan</b>                                 |                    |                    |                    |                    |                    |                    |                    |
| Outdoor Fan Motor Horsepower - RPM   | 1/5 - 1090         | 1/5 - 1090         | 1/5 - 1075         | 1/5 - 1075         | 1/5 - 1075         | 1/5 - 1075         | 1/5 - 1075         |
| Outdoor Fan Motor - Amps   | 1.1                | 1.1                | 1.2                | 1.2                | 1.2                | 1.2                | 0.6                |
| Outdoor Fan -- Diameter and CFM  | 18" - 1800         | 18" - 1800         | 20" - 2400         | 20" - 2400         | 20" - 2200         | 20" - 2200         | 20" - 2200         |
| <b>Indoor Blower Motor &amp; Indoor Airflow</b>                              |                    |                    |                    |                    |                    |                    |                    |
| Indoor Blower Motor - HP - Speeds  | 1/3-5              | 1/3-5              | 1/2-5              | 1/2-5              | 1/2-5              | 1/2-5              | 1/2-5              |
| Indoor Blower Motor - Amps   | 0.7                | 0.7                | 1.4                | 1.4                | 2.3                | 2.3                | 1.0                |
| Indoor Motor Type  | ECM                | ECM                | ECM                | ECM                | ECM                | ECM                | ECM                |
| Rated indoor CFM and static pressure (ESP) with wet coil and Standard filter | 800 - .1           | 800 - .1           | 950 - .15          | 950 - .15          | 1150 - .15         | 1150 - .15         | 1150 - .15         |
| Filter Sizes inches (cm) standard filter listed, 2 required                  | 405x635x25         | 405x635x25         | 405x765x25         | 405x765x25         | 405x765x25         | 405x765x25         | 405x765x25         |
| <b>Basic Unit Weight without Vent lbs. (kg)</b>                              | <b>335 (151.9)</b> | <b>335 (151.9)</b> | <b>350 (158.7)</b> | <b>350 (158.7)</b> | <b>380 (172.3)</b> | <b>380 (172.3)</b> | <b>380 (172.3)</b> |
| X - Barometric Fresh Air Damper  | 4.0 (1.8)          | 4.0 (1.8)          | 5.0 (2.2)          | 5.0 (2.2)          | 5.0 (2.2)          | 5.0 (2.2)          | 5.0 (2.2)          |
| A - Barometric Damper w/ Exhaust   | 8.0 (3.6)          | 8.0 (3.6)          | 9.0 (4.08)         | 9.0 (4.08)         | 9.0 (4.08)         | 9.0 (4.08)         | 9.0 (4.08)         |
| B - Blank-Off Plate  | 1.0 (.45)          | 1.0 (.45)          | 1.0 (.45)          | 1.0 (.45)          | 1.0 (.45)          | 1.0 (.45)          | 1.0 (.45)          |
| M, V - Commercial Room Ventilator  | 31.0 (14.06)       | 31.0 (14.06)       | 35.0 (15.8)        | 35.0 (15.8)        | 35.0 (15.8)        | 35.0 (15.8)        | 35.0 (15.8)        |
| D, Y, Z - Economizer (D, S, Z)   | 37.0 (16.7)        | 37.0 (16.7)        | 37.0 (16.7)        | 37.0 (16.7)        | 37.0 (16.7)        | 37.0 (16.7)        | 37.0 (16.7)        |

| MODELS   | W42AC-E             | W42AC-F             | W48AC-E             | W48AC-F             | W60AC-E             | W60AC-F             | W72AC-F             |
|--|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Unit Voltage Rating - Phase - 50Hz   | 220/200-3           | 415/380-3           | 220/200-3           | 415/380-3           | 220/200-3           | 415/380-3           | 415/380-3           |
| Operating Voltage Range  | 180-242             | 342-456             | 180-242             | 342-456             | 180-242             | 342-456             | 342-440             |
| <b>Compressor Electrical Circuit</b>   |                     |                     |                     |                     |                     |                     |                     |
| Voltage  | 220/200             | 415/380             | 220/200             | 415/380             | 220/200             | 415/380             | 415/380             |
| Rated Load Amps  | 9.3/11.2            | 5.0                 | 11.8/13.3           | 5.7                 | 13.0/14.8           | 7.8                 | 8.8                 |
| Branch Circuit Selection Current   | 13.4                | 6.1                 | 14.5                | 6.3                 | 15.4                | 7.8                 | 10.6                |
| Lock Rotor Amps  | 80.7/80.7           | 43                  | 98/98               | 52                  | 110/110             | 51.5                | 74                  |
| Compressor Type  | Scroll              | Scroll              | Scroll              | Scroll              | Scroll              | Scroll              | Scroll              |
| <b>Outdoor Fan Motor &amp; Condenser Fan</b>                                 |                     |                     |                     |                     |                     |                     |                     |
| Outdoor Fan Motor Horsepower - RPM   | 1/3                 | 1/3                 | 1/3                 | 1/3                 | 1/3                 | 1/3                 | 1/2                 |
| Outdoor Fan Motor - Amps   | 1.9                 | 2.6                 | 2.6                 | 2.6                 | 1.8                 | 1.8                 | 3.2                 |
| Outdoor Fan - Diameter and CFM   | 24" - 2900          | 24" - 2900          | 24" - 3000          | 24" - 3000          | 24" - 3100          | 24" - 3100          | 24" - 4000          |
| <b>Indoor Blower Motor &amp; Indoor Airflow</b>                              |                     |                     |                     |                     |                     |                     |                     |
| Indoor Blower Motor - HP - Speeds  | 1/3 Variable        | 1/3 Variable        | 1/3 Variable        | 1/3 Variable        | 3/4 Variable        | 1/2 Variable        | 3/4 Variable        |
| Indoor Blower Motor - Amps   | 1.7                 | 2.3                 | 2.3                 | 2.3                 | 3.2                 | 3.2                 | 3.8                 |
| Indoor Motor Type  | Constant Torque ECM | Constant Torque ECM | Constant Torque ECM | Constant Torque ECM | Constant Torque ECM | Constant Torque ECM | Constant Torque ECM |
| Rated indoor CFM and static pressure (ESP) with wet coil and Standard filter | 1350-.15            | 1350-.15            | 1550-.20            | 1550-.20            | 1750-.20            | 1750-.20            | 1900-.25            |
| Filter Sizes inches (cm) standard filter listed, 2 required                  | 508x508x25          | 508x508x25          | 508x508x25          | 508x508x25          | 508x508x25          | 508x508x25          | 508x508x25          |
| <b>Basic Unit Weight without Vent lbs. (kg)</b>                              | <b>490 (222.2)</b>  | <b>490 (222.2)</b>  | <b>495 (224.5)</b>  | <b>495 (224.5)</b>  | <b>505 (229.06)</b> | <b>505 (229.06)</b> | <b>555 (251.74)</b> |
| X - Barometric Fresh Air Damper  | 13 (5.89)           | 13 (5.89)           | 13 (5.89)           | 13 (5.89)           | 13 (5.89)           | 13 (5.89)           | 13 (5.89)           |
| A - Barometric Damper w/ Exhaust   | 16 (7.25)           | 16 (7.25)           | 16 (7.25)           | 16 (7.25)           | 16 (7.25)           | 16 (7.25)           | 16 (7.25)           |
| B - Blank-Off Plate  | 14 (6.35)           | 14 (6.35)           | 14 (6.35)           | 14 (6.35)           | 14 (6.35)           | 14 (6.35)           | 14 (6.35)           |
| M, V - Commercial Room Ventilator  | 42 (19.05)          | 42 (19.05)          | 42 (19.05)          | 42 (19.05)          | 42 (19.05)          | 42 (19.05)          | 42 (19.05)          |
| D, Y, Z - Economizer   | 44 (19.95)          | 44 (19.95)          | 44 (19.95)          | 44 (19.95)          | 44 (19.95)          | 44 (19.95)          | 44 (19.95)          |

Note: All units have a Short Circuit Current Protection Rating (SCCR) of 5kA RMS Symmetrical.



# //////// Cooling Application Data - Outdoor Temperature ①②

| MODEL | RETURN AIR TEMP. (DB/WB) | COOLING CAPACITY | OUTDOOR TEMPERATURE MEASURED AT CONDENSER SECTION AIR INLET |               |             |                |                |                |
|-------|--------------------------|------------------|---|---------------|-------------|----------------|----------------|----------------|
|       |                          |                  | 75°F (23.9°C)   | 85°F (29.4°C) | 95°F (35°C) | 105°F (40.6°C) | 115°F (46.1°C) | 125°F (51.7°C) |
| W24   | 75/62°F (23.9/16.7°C)    | Total Cooling    | 6.82kw  | 6.21kw        | 5.59kw      | 5.04kw         | 4.54kw         | 4.07kw         |
|       |                          | Sensible Cooling | 5.27kw  | 5.01kw        | 4.74kw      | 4.51kw         | 4.31kw         | 4.07kw         |
|       | 80/67°F (26.7/19.4°C)    | Total Cooling    | 7.29kw  | 6.85kw        | 6.41kw      | 5.95kw         | 5.45kw         | 4.95kw         |
|       |                          | Sensible Cooling | 5.1kw   | 4.95kw        | 4.77kw      | 4.63kw         | 4.45kw         | 4.28kw         |
| W30   | 85/72°F (29.4/22.2°C)    | Total Cooling    | 8.7kw   | 7.88kw        | 7.12kw      | 6.44kw         | 5.74kw         | 5.1kw          |
|       |                          | Sensible Cooling | 5.24kw  | 4.98kw        | 4.72kw      | 4.42kw         | 4.13kw         | 3.81kw         |
|       | 75/62°F (23.9/16.7°C)    | Total Cooling    | 8.23kw  | 7.47kw        | 6.82kw      | 6.21kw         | 5.62kw         | 5.04kw         |
|       |                          | Sensible Cooling | 6.27kw  | 5.97kw        | 5.71kw      | 5.45kw         | 5.18kw         | 4.98kw         |
| W36   | 80/67°F (26.7/19.4°C)    | Total Cooling    | 8.76kw  | 8.32kw        | 7.79kw      | 7.29kw         | 6.74kw         | 6.15kw         |
|       |                          | Sensible Cooling | 6.09kw  | 5.95kw        | 5.77kw      | 5.59kw         | 5.39kw         | 5.21kw         |
|       | 85/72°F (29.4/22.2°C)    | Total Cooling    | 10.43kw   | 9.52kw        | 8.67kw      | 7.88kw         | 7.09kw         | 6.33kw         |
|       |                          | Sensible Cooling | 6.24kw  | 5.95kw        | 5.65kw      | 5.33kw         | 4.98kw         | 4.63kw         |
| W42   | 75/62°F (23.9/16.7°C)    | Total Cooling    | 9.96kw  | 9.05kw        | 8.2kw       | 7.41kw         | 6.71kw         | 6.03kw         |
|       |                          | Sensible Cooling | 7.79kw  | 7.38kw        | 6.97kw      | 6.62kw         | 6.33kw         | 6.03kw         |
|       | 80/67°F (26.7/19.4°C)    | Total Cooling    | 10.63kw   | 10.05kw       | 9.4kw       | 8.76kw         | 8.05kw         | 7.35kw         |
|       |                          | Sensible Cooling | 7.56kw  | 7.32kw        | 7.09kw      | 6.82kw         | 6.59kw         | 6.35kw         |
| W48   | 85/72°F (29.4/22.2°C)    | Total Cooling    | 12.65kw   | 11.54kw       | 10.43kw     | 9.46kw         | 8.49kw         | 7.56kw         |
|       |                          | Sensible Cooling | 7.73kw  | 7.35kw        | 6.88kw      | 6.47kw         | 6.06kw         | 5.65kw         |
|       | 75/62°F (23.9/16.7°C)    | Total Cooling    | 13.01kw   | 11.86kw       | 10.72kw     | 9.70kw         | 8.67kw         | 7.67kw         |
|       |                          | Sensible Cooling | 9.93kw  | 9.46kw        | 9.02kw      | 8.58kw         | 8.11kw         | 7.64kw         |
| W60   | 80/67°F (26.7/19.4°C)    | Total Cooling    | 13.89kw   | 13.15kw       | 12.30kw     | 11.42kw        | 10.43kw        | 9.34kw         |
|       |                          | Sensible Cooling | 9.64kw  | 9.37kw        | 9.11kw      | 8.79kw         | 8.44kw         | 8.05kw         |
|       | 85/72°F (29.4/22.2°C)    | Total Cooling    | 16.55kw   | 15.12kw       | 13.68kw     | 12.33kw        | 10.96kw        | 9.61kw         |
|       |                          | Sensible Cooling | 9.87kw  | 9.43kw        | 8.93kw      | 8.38kw         | 7.76kw         | 7.15kw         |
| W72   | 75/62°F (23.9/16.7°C)    | Total Cooling    | 15.03kw   | 13.62kw       | 12.25kw     | 10.99kw        | 9.75kw         | 8.55kw         |
|       |                          | Sensible Cooling | 11.81kw   | 11.19kw       | 10.60kw     | 10.02kw        | 9.49kw         | 8.55kw         |
|       | 80/67°F (26.7/19.4°C)    | Total Cooling    | 16.03kw   | 15.12kw       | 14.06kw     | 12.95kw        | 11.72kw        | 10.40kw        |
|       |                          | Sensible Cooling | 11.45kw   | 11.07kw       | 10.69kw     | 10.28kw        | 9.87kw         | 9.46kw         |
| W72   | 85/72°F (29.4/22.2°C)    | Total Cooling    | 19.10kw   | 17.37kw       | 15.62kw     | 13.97kw        | 12.30kw        | 10.69kw        |
|       |                          | Sensible Cooling | 11.75kw   | 11.13kw       | 10.49kw     | 9.81kw         | 9.11kw         | 8.38kw         |
|       | 75/62°F (23.9/16.7°C)    | Total Cooling    | 18.05kw   | 16.29kw       | 14.68kw     | 13.27kw        | 11.98kw        | 10.81kw        |
|       |                          | Sensible Cooling | 13.83kw   | 13.01kw       | 12.27kw     | 11.66kw        | 11.13kw        | 10.69kw        |
| W72   | 80/67°F (26.7/19.4°C)    | Total Cooling    | 19.25kw   | 18.08kw       | 16.85kw     | 15.64kw        | 14.41kw        | 13.18kw        |
|       |                          | Sensible Cooling | 13.42kw   | 12.89kw       | 12.39kw     | 11.95kw        | 11.57kw        | 11.25kw        |
|       | 85/72°F (29.4/22.2°C)    | Total Cooling    | 22.94kw   | 20.77kw       | 18.72kw     | 16.88kw        | 15.15kw        | 13.56kw        |
|       |                          | Sensible Cooling | 13.74kw   | 12.95kw       | 12.16kw     | 11.40kw        | 10.66kw        | 9.96kw         |
| W72   | 75/62°F (23.9/16.7°C)    | Total Cooling    | 22.33kw   | 20.07kw       | 18.11kw     | 16.44kw        | 15.03kw        | 13.77kw        |
|       |                          | Sensible Cooling | 16.35kw   | 15.35kw       | 14.50kw     | 13.71kw        | 13.07kw        | 12.51kw        |
|       | 80/67°F (26.7/19.4°C)    | Total Cooling    | 23.82kw   | 22.30kw       | 20.80kw     | 19.40kw        | 18.08kw        | 16.79kw        |
|       |                          | Sensible Cooling | 15.85kw   | 15.21kw       | 14.62kw     | 14.06kw        | 13.59kw        | 13.15kw        |
| W72   | 85/72°F (29.4/22.2°C)    | Total Cooling    | 28.36kw   | 25.61kw       | 23.03kw     | 20.92kw        | 18.99kw        | 17.26kw        |
|       |                          | Sensible Cooling | 16.23kw   | 15.26kw       | 14.36kw     | 14.21kw        | 12.51kw        | 11.63kw        |

Low ambient control allows for compressor operation down to 0°F.

| Capacity Multiplier Factors |       |      |
|-----------------------------|-------|------|
| % of Rated Airflow          | -10   | +10  |
| Total BTUH                  | 0.975 | 1.02 |
| Sensible BTUH               | 0.950 | 1.05 |

## //////// R410A Unit Charge Rates

| WALL-MOUNT UNIT MODEL | STANDARD UNIT CHARGE RATE |
|-----------------------|---------------------------|
| W24AB AND W24LB       | 4.25 lbs. (1.92 kg)       |
| W30AB AND W30LB       | 4.125 lbs. (1.87 kg)      |
| W36AB AND W36LB       | 4.50 lbs. (2.04 kg)       |
| W42AC                 | 7.25 lbs. (3.28 kg)       |
| W48AC                 | 7.38 lbs. (3.34 kg)       |
| W60AC                 | 9.25 lbs. (4.19 kg)       |
| W72AC                 | 9.50 lbs. (4.30 kg)       |

Note: Charge rates provided on unit serial plate. Unit hi/low pressure chart for unit charging provided in unit installation manual and on inner control panel door.





## ///// Indoor EC Motor Blower Speeds

Indoor airflow is measured in Cubic Feet per Minute (CFM) and will vary based on static pressure created by supply duct work, return duct work, unit filter type, deflection of the air by the supply grille, or any other restriction of air entering or leaving the unit. The indoor fan motor of the WA series product has the capability of running at multiple speeds. Indoor blower speed is selected inside the control panel area using the speed tap terminal block.

**Blower and Vent Only Speed:** The WA series uses this speed when **fan only (G) or ventilation operation (A)** is used. See airflow performance chart for CFM amount. If cooling and heating speed is adjusted from LO to MED or HI, the Blower and Vent Only speed will not change.

**Balanced Climate Speed:** The WA series uses this speed when the **Balanced Climate option (Y1) or mechanical dehumidification option (D)** is used. The Balanced Climate speed reduces unit airflow by approximately 30% which increases moisture removal (latent capacity) during cooling operation. Units with the hot gas reheat dehumidification option also use this speed to increase moisture removal when running in dehumidification mode. Unit capacity performance when using Balanced Climate can be calculated using the -30% capacity multiplier factor provided in the Cooling Application Data.

To use Balanced Climate, remove the jumper between Y1 and Y2 on the low voltage terminal strip. A 2 stage cooling thermostat is then used to control blower airflow stages. Be sure to follow all guidelines provided in the installation manual. A controls kit that includes a low ambient control (LAC) must be used for Balanced Climate Operation if ventilation options are to be used or cooling operation will occur below a 60° outdoor temperature. Balanced Climate can be used for duct free and ducted applications below ESP total static shown in indoor airflow performance charts. Balanced Climate provides increased moisture removal during the cooling cycle.

**LO Speed (Default):** The WA series uses this speed by default when using **standard cooling (Y2) or heating operation (W1/W2)**. This speed is labeled as LO on the speed selection terminal strip inside the unit control panel. All units ship with cooling and heating operation at LO cooling and heating speed, and provides the **optimal airflow amount for normal use**. See airflow performance chart for CFM amount.

**MED Speed (User Selectable):** This speed is user selectable when using **standard cooling (Y2) or heating operation (W1/W2)**. This speed is labeled as MED on the speed selection terminal strip inside the unit control panel. The MED speed tap provides an **increase in unit airflow** per the airflow performance chart.

**HI Speed (User Selectable):** This speed is user selectable when using **standard cooling (Y2) or heating operation (W1/W2)**. This speed is labeled as HI on the speed selection terminal strip inside the unit control panel. The HI speed tap provides **maximum unit airflow** per the airflow performance chart.

## ///// Indoor Airflow Static and Unit Performance

The airflow amount that passes through the unit is very important when considering cooling capacity and proper unit operation. Restriction of the amount of air passing through the unit is called external static pressure (ESP). As the amount of air passing through the unit is restricted, the ESP value increases. This will have a direct impact on how heating and cooling equipment performs when used in an application. It is important to have a professional HVAC contractor, distributor, or technician complete a duct static calculation if supply or return ducts are used with the WA series unit. Unit filter static must also be calculated into the total ESP value.

**Supply Duct Static:** Supply duct static will include duct work connected to the unit supply opening, supply registers, filtration installed in the supply duct, or any other device in the supply airstream that will restrict airflow. All ducts must be sealed to reduce duct air leakage, and flex duct work must not include restriction due to installation. Duct static must be calculated by a HVAC professional and include all factors of the duct design.

**Return Duct Static:** Return duct static will include duct work connected to the unit return opening, return registers, filtration installed in the return duct, or any other device in the return airstream that will restrict airflow. All ducts must be sealed to reduce duct air leakage, and flex duct work must not include restriction due to installation. Duct static must be calculated by a HVAC professional and include all factors of the duct design.

**Unit Filter Static:** The WA series uses a unit filter installed before the indoor blower assembly that filters both indoor air from the room and outdoor air entering through the ventilation device. When additional filtration is required (higher MERV rating), additional static will need to be added to the total external static pressure (ESP). The following chart is to be used to estimate additional static pressure for a installed clean filter.

| FILTER CODE | FILTER MERV RATING | FILTER STATIC INCHES WC. | FILTRATION LEVEL   |
|-------------|--------------------|--------------------------|--|
| X           | MERV 2             | 0" WC                    | Low Filtration, 1" Thickness Disposable Media.                   |
| W           | MERV 2             | -.02" WC                 | Low Filtration, 1" Thickness Permanent Media.                    |
| P           | MERV 8             | .03" WC                  | Average Filtration, 2" Thickness Pleated Disposable Media.       |
| M           | MERV 11            | .05" WC                  | Above Average Filtration, 2" Thickness Pleated Disposable Media. |
| N           | MERV 13            | .08" WC                  | High Filtration, 2" Thickness Pleated Disposable Media.          |

**Calculating Total External Static Pressure:** Supply duct static, return duct static, unit filter static, and any other source of additional static pressure are added together. Once this is calculated, the actual unit airflow amount can be reviewed by using the Indoor Airflow CFM charts provided.

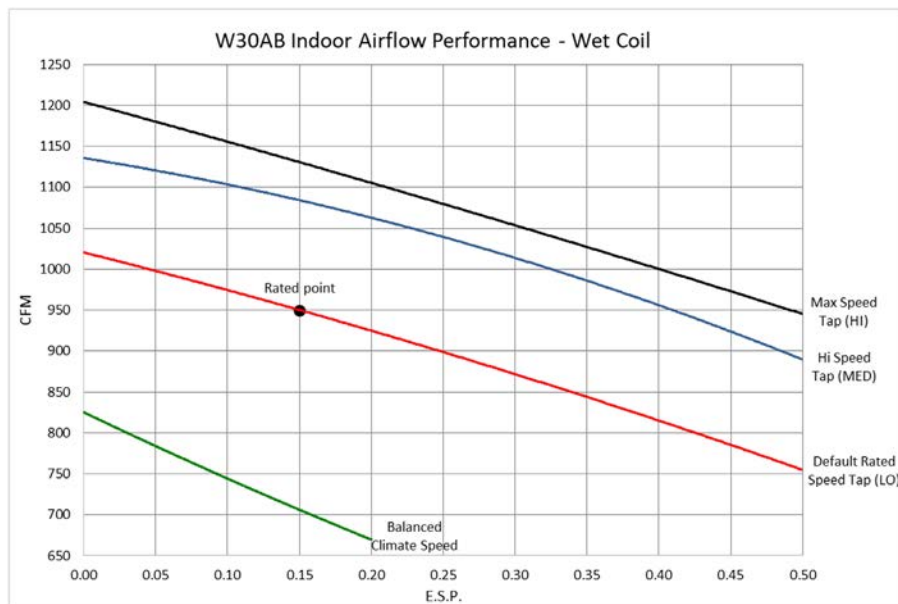
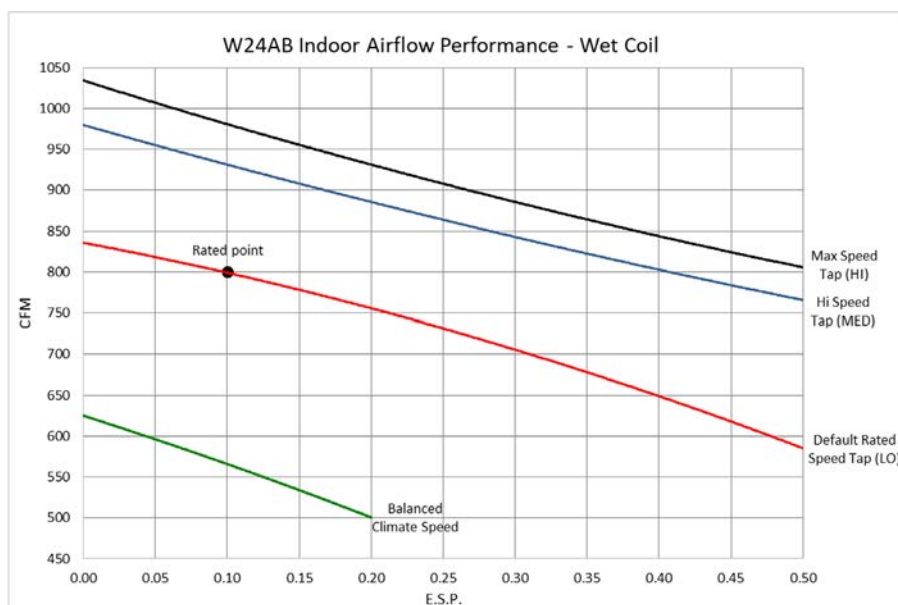
Total External Static Pressure Calculation:

**Supply Duct Static + Return Duct Static + Filter Static + Additional External Static = Total External Static Pressure (ESP)**

**Non-Ducted Applications:** Applications that do not include supply or return ducts inside the structure, use Bard supplied supply and return louvers, and do not have additional sources of external static will typically reflect rated airflow amounts shown in the Indoor Airflow CFM charts. Additional filter static must still be added as necessary to the rated airflow total external static pressure (ESP). Field supplied supply and return louvers must match Bard supplied supply and return louvers to achieve shown in the Indoor Airflow CFM charts. Adjustment of 4-way deflection supply louver may effect unit supply airflow. See louver deflection and throw characteristics provided in this document.



# Indoor Airflow CFM @ Static Pressures and Adjustable Speeds - W24, W30 Units



Total External Static Pressure Calculation:

**Supply Duct Static + Return Duct Static + Filter Static + Additional External Static = Total External Static Pressure (ESP)**

Total External Static Adjustment:

Indoor airflow data shown in the performance charts represent the unit running in cooling with a wet evaporator coil. A dry evaporator coil will provide less static. See adjustment factor in below table.

Indoor airflow data shown in the performance charts represent the unit with a 1" disposable MERV2 filter. For other filter options, external static pressure needs to be adjusted. See adjustment factor in below table.

| FILTER CODE | FILTER MERV RATING         | ADJUST STATIC |
|-------------|----------------------------|---------------|
|             | <b>DRY COIL AIRFLOW</b>    | -.04" WC      |
| <b>W</b>    | <b>MERV 2 (Washable)</b>   | -.02" WC      |
| <b>X</b>    | <b>MERV 2 (Disposable)</b> | 0" WC         |
| <b>P</b>    | <b>MERV 8</b>              | +.03" WC      |
| <b>M</b>    | <b>MERV 11</b>             | +.05" WC      |
| <b>N</b>    | <b>MERV 13</b>             | +.08" WC      |

Indoor Airflow Speeds:

**Balanced Climate Speed:** The WA series uses this speed when the **Balanced Climate option (Y1)** is used. Not recommended for static levels higher than Balanced Climate airflow data provided.

**LO Speed (Default):** The WA series uses this speed by default when using **standard cooling (Y2) or heating operation (W1/W2)**. This speed is labeled as LO on the speed selection terminal strip inside the unit control panel. The WA series also uses this speed when **fan only (G) or ventilation operation (A)** is used. All units ship with cooling and heating operation at LO cooling and heating speed, and provides the **optimal airflow amount for normal use**.

**MED Speed (User Selectable):** This speed is user selectable when using **standard cooling (Y2) or heating operation (W1/W2)**. This speed is labeled as MED on the speed selection terminal strip inside the unit control panel. The MED speed tap provides an **increase in unit airflow** per the airflow performance chart. Fan only and dehumidification fan operation is not effected by using MED speed.

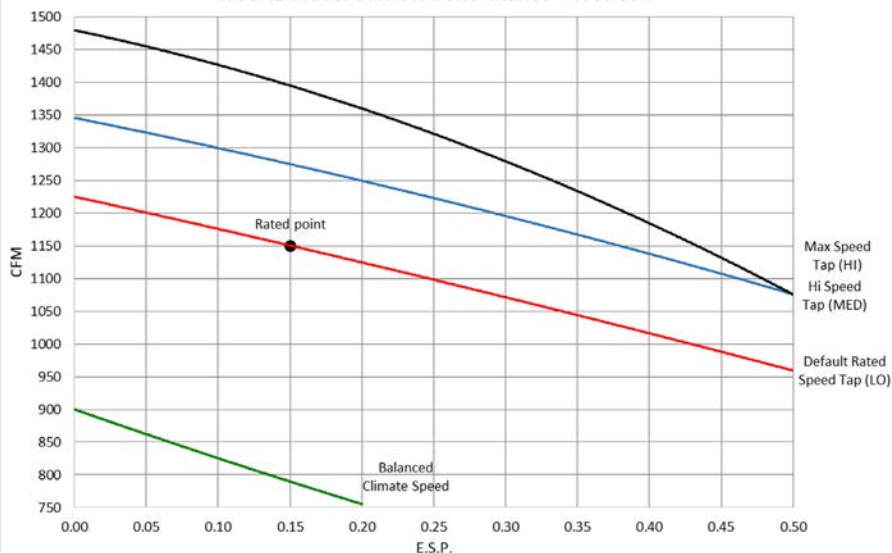
**HI Speed (User Selectable):** This speed is user selectable when using **standard cooling (Y2) or heating operation (W1/W2)**. This speed is labeled as HI on the speed selection terminal strip inside the unit control panel. The HI speed tap provides **maximum unit airflow** per the airflow performance chart. Fan only and dehumidification fan operation is not effected by using HI speed.

*\*Note: W18AB unit has a dedicated electric heat speed and does not have a user selectable MED speed for airflow adjustment. See installation manual for additional information.*

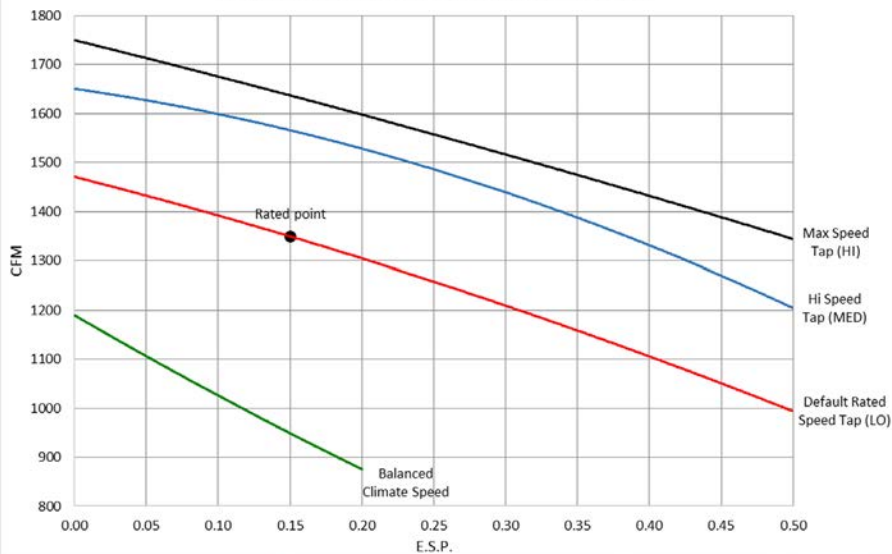


# Indoor Airflow CFM @ Static Pressures and Adjustable Speeds - W36, W42, W48 Units

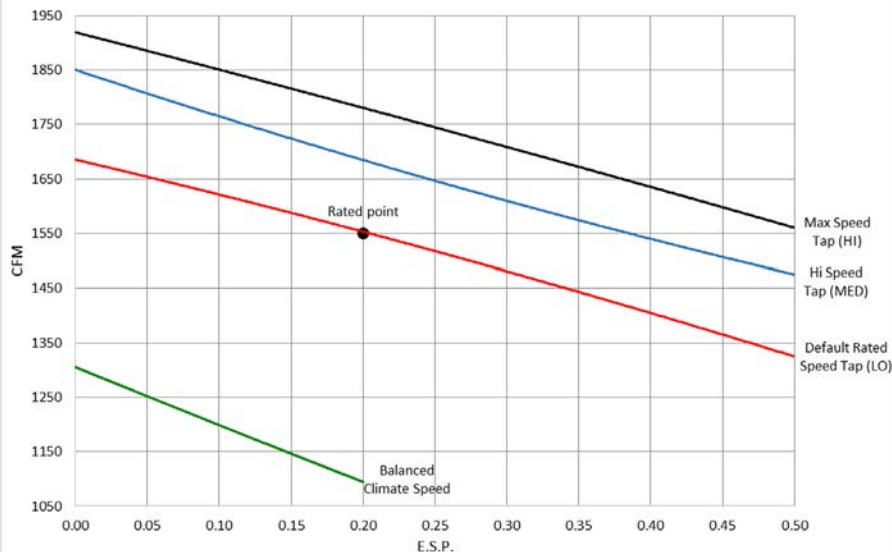
W36AB Indoor Airflow Performance - Wet Coil



W42AC Indoor Airflow Performance - Wet Coil



W48AC Indoor Airflow Performance - Wet Coil



Total External Static Pressure Calculation:

Supply Duct Static + Return Duct Static + Filter Static + Additional External Static = Total External Static Pressure (ESP)

Total External Static Adjustment:

Indoor airflow data shown in the performance charts represent the unit running in cooling with a wet evaporator coil. A dry evaporator coil will provide less static. See adjustment factor in below table.

Indoor airflow data shown in the performance charts represent the unit with a 1" disposable MERV2 filter. For other filter options, external static pressure needs to be adjusted. See adjustment factor in below table.

| FILTER CODE | FILTER MERV RATING         | ADJUST STATIC |
|-------------|----------------------------|---------------|
|             | <b>DRY COIL AIRFLOW</b>    | -.04" WC      |
| <b>W</b>    | <b>MERV 2 (Washable)</b>   | -.02" WC      |
| <b>X</b>    | <b>MERV 2 (Disposable)</b> | 0" WC         |
| <b>P</b>    | <b>MERV 8</b>              | +.03" WC      |
| <b>M</b>    | <b>MERV 11</b>             | +.05" WC      |
| <b>N</b>    | <b>MERV 13</b>             | +.08" WC      |

Indoor Airflow Speeds:

**Balanced Climate Speed:** The WA series uses this speed when the **Balanced Climate option (Y1)** is used. Not recommended for static levels higher than Balanced Climate airflow data provided.

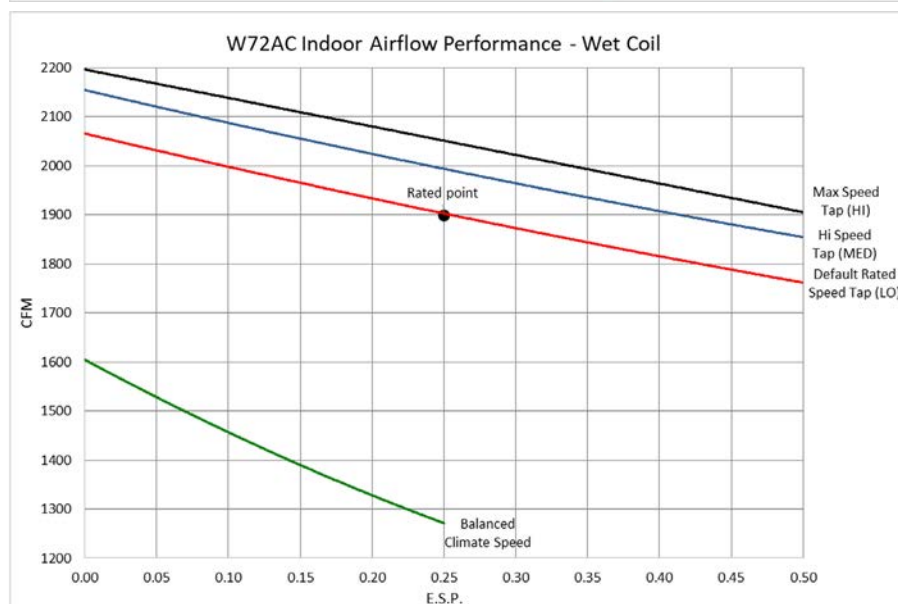
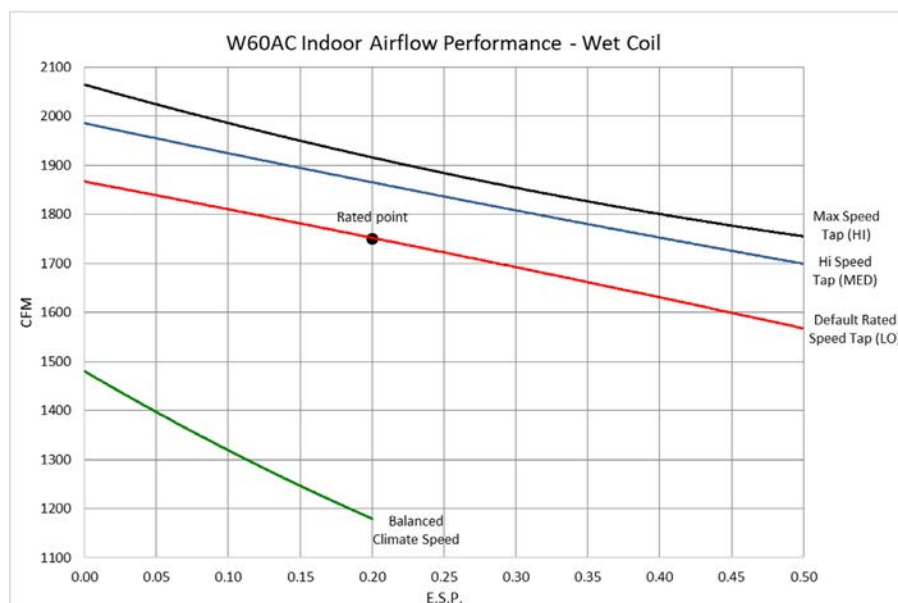
**LO Speed (Default):** The WA series uses this speed by default when using **standard cooling (Y2) or heating operation (W1/W2)**. This speed is labeled as LO on the speed selection terminal strip inside the unit control panel. The WA series also uses this speed when **fan only (G) or ventilation operation (A)** is used. All units ship with cooling and heating operation at LO cooling and heating speed, and provides the **optimal airflow amount for normal use**.

**MED Speed (User Selectable):** This speed is user selectable when using **standard cooling (Y2) or heating operation (W1/W2)**. This speed is labeled as MED on the speed selection terminal strip inside the unit control panel. The MED speed tap provides an **increase in unit airflow** per the airflow performance chart. Fan only and dehumidification fan operation is not effected by using MED speed.

**HI Speed (User Selectable):** This speed is user selectable when using **standard cooling (Y2) or heating operation (W1/W2)**. This speed is labeled as HI on the speed selection terminal strip inside the unit control panel. The HI speed tap provides **maximum unit airflow** per the airflow performance chart. Fan only and dehumidification fan operation is not effected by using HI speed.



# Indoor Airflow CFM @ Static Pressures and Adjustable Speeds - W60 and W72 Units



Total External Static Pressure Calculation:

**Supply Duct Static + Return Duct Static + Filter Static + Additional External Static = Total External Static Pressure (ESP)**

Total External Static Adjustment:

Indoor airflow data shown in the performance charts represent the unit running in cooling with a wet evaporator coil. A dry evaporator coil will provide less static. See adjustment factor in below table.

Indoor airflow data shown in the performance charts represent the unit with a 1" disposable MERV2 filter. For other filter options, external static pressure needs to be adjusted. See adjustment factor in below table.

| FILTER CODE | FILTER MERV RATING         | ADJUST STATIC |
|-------------|----------------------------|---------------|
|             | <b>DRY COIL AIRFLOW</b>    | -.04" WC      |
| <b>W</b>    | <b>MERV 2 (Washable)</b>   | -.02" WC      |
| <b>X</b>    | <b>MERV 2 (Disposable)</b> | 0" WC         |
| <b>P</b>    | <b>MERV 8</b>              | +.03" WC      |
| <b>M</b>    | <b>MERV 11</b>             | +.05" WC      |
| <b>N</b>    | <b>MERV 13</b>             | +.08" WC      |

Indoor Airflow Speeds:

**Balanced Climate Speed:** The WA series uses this speed when the **Balanced Climate option (Y1)** is used. Not recommended for static levels higher than Balanced Climate airflow data provided.

**LO Speed (Default):** The WA series uses this speed by default when using **standard cooling (Y2) or heating operation (W1/W2)**. This speed is labeled as LO on the speed selection terminal strip inside the unit control panel. The WA series also uses this speed when **fan only (G) or ventilation operation (A)** is used. All units ship with cooling and heating operation at LO cooling and heating speed, and provides the **optimal airflow amount for normal use**.

**MED Speed (User Selectable):** This speed is user selectable when using **standard cooling (Y2) or heating operation (W1/W2)**. This speed is labeled as MED on the speed selection terminal strip inside the unit control panel. The MED speed tap provides an **increase in unit airflow** per the airflow performance chart. Fan only and dehumidification fan operation is not effected by using MED speed.

**HI Speed (User Selectable):** This speed is user selectable when using **standard cooling (Y2) or heating operation (W1/W2)**. This speed is labeled as HI on the speed selection terminal strip inside the unit control panel. The HI speed tap provides **maximum unit airflow** per the airflow performance chart. Fan only and dehumidification fan operation is not effected by using HI speed.

## Indoor EC Motor Options for High Resistance Ground Applications

Today's ECM motor technology used in HVAC equipment provides a higher level of energy efficiency and more options for installers than older PSC motor designs. However, high resistance ground applications and locations where power supplied to the unit may not be clean (dirty power) require special consideration. Bard recommends ordering the motor isolation option "R" for new 460V products where high resistance grounding or dirty power may be present. A kit for 460V products can also be ordered Bard Part #8620-330 that can easily be installed to help avoid issues related to high resistance grounding or dirty power sources.





## //////// Electrical Specifications: W24 to W72 Units

| MODEL        | Rated Volts & Phase | No. Field Power Circuits | ② Minimum Circuit Amps | ① Maximum External Fuse or Circuit Breaker |
|--------------|---------------------|--------------------------|------------------------|--|
| W24AB-D0Z    | 240/220-1           | 1                        | 16                     | 20   |
| D05          |                     | 1                        | 28                     | 30   |
| D08          |                     | 1                        | 44                     | 45   |
| W24AB/LB-F0Z | 415/380-3 ③         | 1                        | 9                      | 15   |
| F05          |                     | 1                        | 11                     | 15   |
| W30AB-D0Z    | 240/220-1           | 1                        | 19                     | 30   |
| D05          |                     | 1                        | 29                     | 30   |
| D10          |                     | 1                        | 55                     | 60   |
| W30AB/LB-F0Z | 415/380-3③          | 1                        | 10                     | 15   |
| F07          |                     | 1                        | 17                     | 20   |
| F12          |                     | 1                        | 26                     | 30   |
| W36AB-D0Z    | 240/220-1           | 1                        | 24                     | 35   |
| D05          |                     | 1                        | 29                     | 35   |
| D10          |                     | 1                        | 55                     | 60   |
| W36AB-E0Z    | 220/200-3           | 1                        | 21                     | 30   |
| E06          |                     | 1                        | 21                     | 30   |
| E12          |                     | 1                        | 39                     | 40   |
| W36AB/LB-F0Z | 415/380-3③          | 1                        | 13                     | 15   |
| F07          |                     | 1                        | 17                     | 20   |
| F12          |                     | 1                        | 26                     | 30   |
| W42AC-E0Z    | 220/200-3           | 1                        | 21                     | 30   |
| E09          |                     | 1                        | 30                     | 35   |
| E15          |                     | 1                        | 48                     | 50   |
| W42AC-F0Z    | 415/380-3           | 1                        | 11                     | 15   |
| F07          |                     | 1                        | 16                     | 20   |
| F12          |                     | 1                        | 29                     | 30   |
| W48AC-E0Z    | 220/200-3           | 1                        | 24                     | 35   |
| E09          |                     | 1                        | 31                     | 35   |
| E15          |                     | 1                        | 49                     | 50   |
| W48AC-F0Z    | 415/380-3           | 1                        | 13                     | 15   |
| F07          |                     | 1                        | 17                     | 20   |
| F12          |                     | 1                        | 26                     | 30   |
| W60AC-E0Z    | 220/200-3           | 1                        | 27                     | 40   |
| E09          |                     | 1                        | 34                     | 40   |
| E15          |                     | 1                        | 54                     | 60   |
| W60AC-F0Z    | 415/380-3           | 1                        | 14                     | 20   |
| F07          |                     | 1                        | 17                     | 20   |
| F12          |                     | 1                        | 31                     | 35   |
| W72AC-F0Z    | 415/380-3           | 1                        | 17                     | 20   |
| F07          |                     | 1                        | 17                     | 20   |
| F12          |                     | 1                        | 31                     | 35   |

① Maximum size of the time delay fuse or circuit breaker for protection of field wiring conductors.

② Based on 75°C copper wire. All wiring must conform to the National Electrical Code and all local codes.

③ These "Minimum Circuit Ampacity" values are to be used for sizing the field power conductors. Refer to the National Electrical code (latest version), Article 310 for power conductor sizing.

**CAUTION:** When more than one field power circuit is run through one conduit, the conductors must be derated. Pay special attention to Note 8 of Table 310 regarding Ampacity Adjustment Factors when more than three current carrying conductors are in a raceway.

**IMPORTANT:** While this electrical data is presented as a guide, it is important to electrically connect properly sized fuses and conductor wires in accordance with the National Electrical Code and all local codes.

Note: MOCP (Maximum Overcurrent Protection) value listed is the maximum value as per UL 1995 calculations for MOCP (branch-circuit conductor sizes in this chart are based on this MOCP). The actual factory installed Overcurrent Protective Device (Circuit Breaker) in this model may be lower than the maximum UL 1995 allowable MOCP value, but still above the UL 1995 minimum calculated value or Minimum Circuit Ampacity (MCA) listed.

## //////// Electric Heat Table - Refer to Electrical Specifications for Availability by Unit Model

| NOMINAL KW | 200V       | 220V       |            | 240V       | 380V       | 415V       |
|------------|------------|------------|------------|------------|------------|------------|
|            | 3-PH WATTS | 1-PH WATTS | 3-PH WATTS | 1-PH WATTS | 3-PH WATTS | 3-PH WATTS |
| 4          |            |            |            |            |            |            |
| 5          |            | 4201       |            | 5000       | 4095       | 4883       |
| 6          | 4167       |            | 5042       |            |            |            |
| 7          |            |            |            |            | 5641       | 6728       |
| 8          |            | 6722       |            |            |            |            |
| 9          |            |            | 7562       |            |            |            |
| 10         |            |            |            | 10000      |            |            |
| 12         | 8333       |            | 10083      |            | 9401       | 11213      |
| 15         |            |            | 12604      |            |            |            |

(1) Listed electric heaters are available for 230/208V units only.

(2) Listed electric heaters are available for 480V units only.



## //////// Field Installed Heater Packages

Field installed heater packages are available to add, increase, or reduce the amount of electric heat to units that are already shipped from the factory. The kit includes the following:

- Resistance heaters that provide heating BTUH amounts shown in the heater kit chart. Heaters ship pre-installed with needed limits and thermal cutoffs.
- Heating contactor(s) that energize when a signal is sent from a thermostat or controller. Contactors are pre-mounted on a base plate for easy installation along with a plug-in connector.
- Wires, screws, wire ties and other accessories needed for installation.
- A wiring diagram, installation instructions, and labels to show electric heat is installed.

It is always important to review all instructions provided with the heater package kit and Wall-Mount unit before installation. Review all electrical specifications for the unit and building including wire and breaker sizes along with clearances to combustible materials before installation and use of the heater package kits.

## //////// Heater Packages - Field Kits for W24A to W36A Right-Hand Control Panel Units

- Designed for adding Electric Heat to 0 KW Units
- Circuit Breaker Standard on 230/208V Models
- ETL US & Canada Listed
- Toggle Disconnect Standard on 460V Models

| Air<br>Conditioner<br>Models | -D00 MODELS<br>240/220-1              |               | -E00 MODELS<br>230/200-3              |               | -F00 MODELS<br>415/380-3             |               |
|------------------------------|---------------------------------------|---------------|---------------------------------------|---------------|--------------------------------------|---------------|
|                              | Heater Model #                        | KW            | Heater Model #                        | KW            | Heater Model #                       | KW            |
| W24AB                        | WMCB-02A<br>EHW1TAB-A05<br>EHW24A-A08 | OZ<br>5<br>8  | N/A                                   | N/A           | WMPD-01C<br>EHW24B-C06               | OZ<br>5       |
| W30AB                        | WMCB-03A<br>EHW3TAB-A05<br>EHW3TA-A10 | OZ<br>5<br>10 | N/A                                   | N/A           | WMPD-01C<br>EHW3TA-C09<br>EHW3TA-C15 | OZ<br>7<br>12 |
| W36AB                        | WMCB-03A<br>EHW3TA-A05<br>EHW3TAB-A10 | OZ<br>5<br>10 | WMCB-04B<br>EHW30A-B06<br>EHW403-E12C | OZ<br>6<br>12 | WMPD-01C<br>EHW3TA-C09<br>EHW3TA-C15 | OZ<br>7<br>12 |

## //////// Heater Packages - Field Kits for W24L to W36L Left-Hand Control Panel Units

| Air<br>Conditioner<br>Models | -D00 MODELS<br>240/220-1 |     | -E00 MODELS<br>230/200-3 |     | -F00 MODELS<br>415/380-3                |               |
|------------------------------|--------------------------|-----|--------------------------|-----|---|---------------|
|                              | Heater Model #           | KW  | Heater Model #           | KW  | Heater Model #                          | KW            |
| W24LB                        | N/A                      | N/A | N/A                      | N/A | WMPD-01CL<br>EHW24B-C06L                | OZ<br>05      |
| W30LB                        | N/A                      | N/A | N/A                      | N/A | WMPD-01CL                               | OZ            |
| W36LB                        | N/A                      | N/A | N/A                      | N/A | WMPD-01CL<br>EHW3TA-C09L<br>EHW3TA-C15L | OZ<br>7<br>12 |

## //////// Heater Packages - Field Kits for W42AC to W72AC Front Control Panel Units

- Designed for adding Electric Heat to 0 KW Units
- Circuit Breaker Standard on 230/208V Models
- ETL US & Canada Listed
- Toggle Disconnect Standard on 460V Models

| Air<br>Conditioner<br>Models | -E00 MODELS<br>230/200-3                   |               | -F00 MODELS<br>415/380-3                   |               |
|------------------------------|--|---------------|--|---------------|
|                              | Heater Model #                             | KW            | Heater Model #                             | KW            |
| W42AC<br>W48AC               | WMCBC- 04B<br>EHW442C- E09<br>EHW442C- E15 | OZ<br>9<br>15 | WMPD- 01C<br>EHW442C- F07<br>EHW442C- F12  | OZ<br>7<br>12 |
| W60AC                        | WMCBC- 06B<br>EHW460C- B09<br>EHW460C- B15 | OZ<br>9<br>15 | WMCBC- 06F<br>EHW460C- F07<br>EHW460C- F12 | OZ<br>7<br>12 |
| W72AC                        | N/A  | N/A           | WMCBC- 06F<br>EHW460C- F07<br>EHW460C- F12 | OZ<br>7<br>12 |



## Field Generator Use

Generator power is often used in the field for critical cooling and heating applications. When using generator power it is important to understand the capability of the generator used. Review and follow all instructions and guidelines provided with the generator. The following must be considered when selecting a generator provide power to HVAC equipment;

- When calculating the kW size of the generator, it is important to use the MCA values of the unit models being used. This value can be found in the electrical specifications section of this document.
- When calculating inrush current that the generator will see during unit startup, use the Locked Rotor Amp values of the unit being used. This value can be found in the general specifications section in the beginning of this document.

It is important to remember to review power usage for all units that will be operating off of the generator. It is also important to consider all equipment that will consume power (not just HVAC equipment) when calculating a generator size. Bard does offer a Secure Start kit Bard part #8551-014 for units up to a 5 ton cooling capacity that is designed to reduce inrush current load during cooling mode.

## Ventilation Option Selection Chart

| VENT CODE | FIELD INSTALLED KIT PART NUMBER | UNIT MODEL NUMBER          | VENT OPERATION   | VENT USE  |
|-----------|---------------------------------|----------------------------|--|---|
| X         | <a href="#">FAD-NE2</a>         | W24AB/LB                   | Barometric Intake Damper, No Room Exhaust  | Outdoor air intake damper that may be used to provide slight building positive pressurization or bring an adjustable amount of outdoor air into a structure. The damper opens during indoor blower operation and provides intake air only.  |
|           | <a href="#">FAD-NE3</a>         | W30AB/LB, W36AB/LB         |  |   |
|           | <a href="#">FAD-NE5</a>         | W42AC, W48AC, W60AC, W72AC |  |   |
| A         | <a href="#">FAD-BE2</a>         | W18AB/LB, W24AB/LB         | Barometric Intake Damper with Room Exhaust   | Outdoor air intake damper that may be used to bring an adjustable amount of outdoor air into a structure. The damper opens during indoor blower operation and an exhaust damper provides barometric room pressure relief.   |
|           | <a href="#">FAD-BE3</a>         | W30AB/LB, W36AB/LB         |  |   |
|           | <a href="#">FAD-BE5</a>         | W42AC, W48AC, W60AC, W72AC |  |   |
| B         | <a href="#">BOP-2</a>           | W24AB/LB                   | No ventilation, provides best protection against water, dirt, and debris infiltration.   | Insulated plates are installed over the vent intake and exhaust openings. When used, the plates provide a degree of protection from splashing water and dirt/debris entry into the unit.  |
|           | <a href="#">BOP-3</a>           | W30AB/LB, W36AB/LB         |  |   |
|           | <a href="#">BOPLATE-5</a>       | W42AC, W48AC, W60AC, W72AC |  |   |
| M         | <a href="#">CRV-F2-*</a>        | W24AB/LB                   | Motorized Intake Damper with Room Exhaust. Vent opens to user adjustable open position when energized. Vent is energized when 24VAC is applied to the "A" terminal located on the unit low voltage terminal strip.   | The CRV-F provides a simple means of bringing in outdoor air when a motorized spring closed damper is required. Vent option provides up to 50% outdoor air intake. It also provides room pressure relief. Motor uses linkage to operate damper blades and springs closed when power to the damper motor is removed. No intake hood is required for all models.  |
|           | <a href="#">CRV-F3-*</a>        | W30AB/LB, W36AB/LB         |  |   |
|           | <a href="#">CRV-F5</a>          | W42AC, W48AC, W60AC, W72AC |  |   |
| V         | <a href="#">CRV-V2-*</a>        | W24AB/LB                   | Motorized Intake Damper with Room Exhaust. Vent opens to user adjustable minimum position when "A" terminal located on the unit low voltage terminal strip is energized with 24VAC. 0-10VDC modulating operation option. Room pre-purge option.  | The CRV-V provides a control board with advanced options for bringing in outdoor air when a motorized spring closed damper is required. Vent option provides up to 50% outdoor air intake. It also provides room pressure relief. Motor uses linkage to operate damper blades and springs closed when power to the damper motor is removed. Includes solid state control board for multiple ventilation settings. No intake hood is required for all models.  |
|           | <a href="#">CRV-V3-*</a>        | W30AB/LB, W36AB/LB         |  |   |
|           | <a href="#">CRV-V5</a>          | W42AC, W48AC, W60AC, W72AC |  |   |
| D         | <a href="#">ECON-NC2-*</a>      | W24AB/LB                   | Motorized Intake Damper with Room Exhaust. Vent opens to user setting based on 0-10VDC input. 10k outdoor sensor is included with vent option. This vent does not include solid state board or JADE controller to operate economizer functionality.  | The no controls economizer option is used where the controls contractor will provide a field installed logic board and indoor/outdoor sensors or other means to decide when conditions are favorable for free cooling. Vent option provides up to 100% outdoor air intake. It also provides room pressure relief. Motor uses linkage to operate damper blades and springs closed when power to the damper motor is removed. 7" intake hood (included) required for ECON-NC2 and ECON-NC3 options. No intake hood is required for ECON-NC5 option.                               |
|           | <a href="#">ECON-NC3-*</a>      | W30AB/LB, W36AB/LB         |  |   |
|           | <a href="#">ECON-NC5</a>        | W42AC, W48AC, W60AC, W72AC |  |   |
| S         | <a href="#">ECON-S2-*</a>       | W24AB/LB                   | Motorized Intake Damper with Room Exhaust. JADE economizer control uses outdoor temperature and humidity to provide free cooling operation based on enthalpy curve setting. Optional 0-10VDC input for modulating ventilation control. Optional user selected minimum position when "A" terminal located on the unit low voltage terminal strip is energized with 24VAC. | The economizer with enthalpy control is often used to provide free cooling for applications where humidity levels outdoors are relatively high, or indoor humidity levels need to be kept at a low amount. Vent option provides partial outdoor air intake based on outdoor temperature and humidity. It also provides room pressure relief. Motor uses linkage to operate damper blades and springs closed when power to the damper motor is removed. No intake hood is required.  |
|           | <a href="#">ECON-S3-*</a>       | W30AB/LB, W36AB/LB         |  |   |
| Y         | <a href="#">ECON-DB2-*</a>      | W24AB/LB                   | Motorized Intake Damper with Room Exhaust. JADE economizer control uses outdoor temperature to provide free cooling operation based on user settings. Optional 0-10VDC input for modulating ventilation control. Optional user selected minimum position when "A" terminal located on the unit low voltage terminal strip is energized with 24VAC.                       | The dry bulb economizer option is often used in areas with low outdoor humidity levels or applications where indoor humidity levels can be relatively high. Vent option provides up to 100% outdoor air intake based on outdoor temperature. It also provides room pressure relief. Motor uses linkage to operate damper blades and springs closed when power to the damper motor is removed. 7" intake hood (included) required for ECON-DB2 and ECON-DB3 options. No intake hood is required for ECON-DB5 option.   |
|           | <a href="#">ECON-DB3-*</a>      | W30AB/LB, W36AB/LB         |  |   |
|           | <a href="#">ECON-DB5</a>        | W42AC, W48AC, W60AC, W72AC |  |   |
| Z         | <a href="#">ECON-WD2-*</a>      | W24AB/LB                   | Motorized Intake Damper with Room Exhaust. JADE economizer control uses outdoor temperature and humidity to provide free cooling operation based on enthalpy curve setting. Optional 0-10VDC input for modulating ventilation control. Optional user selected minimum position when "A" terminal located on the unit low voltage terminal strip is energized with 24VAC. | The economizer with enthalpy control is often used to provide free cooling for applications where humidity levels outdoors are relatively high, or indoor humidity levels need to be kept at a low amount. Vent option provides up to 100% outdoor air intake based on outdoor temperature and humidity. It also provides room pressure relief. Motor uses linkage to operate damper blades and springs closed when power to the damper motor is removed. 7" intake hood (included) required for ECON-DB2 and ECON-DB3 options. No intake hood is required for ECON-DB5 option. |
|           | <a href="#">ECON-WD3-*</a>      | W30AB/LB, W36AB/LB         |  |   |
|           | <a href="#">ECON-WD5</a>        | W42AC, W48AC, W60AC, W72AC |  |   |



## ///// Fresh Air Damper and Commercial Ventilator Specifications

### “X” Vent Code Option – Standard Barometric Fresh Air Damper without Exhaust (FAD-NE)

The barometric fresh air damper without exhaust is a standard feature on all models, and can be ordered pre-installed from Bard or may be field installed with the FAD-NE vent kit. Fresh air dampers are typically used when a small amount of outdoor air is required in a room or structure when the indoor blower is on. The intake damper opens when the indoor blower is operational and negative pressure in the vent area of the unit pulls the blade open. When the blade is open, the damper allows outdoor air to be brought into the structure. Pins are provided that allow for airflow adjustment. See FAD-NE airflow charts provided in this specification for airflow amounts. Room air exhaust is not provided with the FAD-NE vent.

The barometric fresh air damper without exhaust includes the following options:

- The damper opens when the indoor blower is operational.
- The vent provides up to 25% of the total airflow rating of the unit.
- Adjustable blade pins allow different amounts of outside air to be introduced into the building and can be easily locked closed if required.
- The ventilation exhaust air path is sealed with an insulated block-off plate.
- Slight room pressurization is achieved during indoor blower operation.



Fresh Air Damper Intake (FAD-NE and FAD-BE)

### “A” Vent Code Option – Standard Barometric Fresh Air Damper with Barometric Exhaust (FAD-BE)

The barometric fresh air damper with exhaust is an optional feature on all models, and can be ordered pre-installed from Bard or may be field installed with the FAD-BE vent kit. Fresh air dampers are typically used when a small amount of outdoor air is required in a room or structure when the indoor blower is on. The intake damper opens when the indoor blower is operational and negative pressure in the vent area of the unit pulls the blade open. When the blade is open, the damper allows outdoor air to be brought into the structure. Blade stops are provided that allow for intake airflow adjustment. See FAD-BE airflow charts provided in this specification for airflow amounts. Room air exhaust using room air pressure is provided with a separate assembly. This allows room air to pass through the vent area and out of the unit. Blade stops allow for adjustment of exhaust air amounts. Operation of the damper is dependent on room pressurization to open the exhaust blade and allow room air to leave the structure.

The barometric fresh air damper without exhaust includes the following options:

- The damper opens when the indoor blower is operational.
- The vent provides up to 25% of the total airflow rating of the unit.
- Adjustable blade pins allow different amounts of outside air to be introduced into the building and can be easily locked closed if required.
- Adjustable room exhaust is provided through secondary exhaust damper assembly.
- Room pressurization is adjustable during indoor blower operation.



Fresh Air Damper Exhaust (FAD-BE only)

### “B” Vent Code Option – Block off Plate (BOP)

The block off plate is an optional feature on all models, and can be ordered pre-installed from Bard or may be field installed with the BOP vent kit. The block off plate option provides a way to seal the intake and exhaust air openings. This will provide the best protection from splashing water, dust and dirt entering the unit, and air infiltration reduction.

The barometric fresh air damper without exhaust includes the following options:

- Insulated plates are installed to cover vent intake and exhaust openings.
- Plate installation provides a degree of protection from air, water, dirt, and dust infiltration.

### “M” Vent Code Option – Basic Commercial Room Ventilator (CRV-F)

The basic commercial room ventilator is an optional feature on all models, and can be ordered pre-installed from Bard or may be field installed with the CRV-F vent kit. Commercial Room Ventilators are designed to provide an adjustable amount of outdoor air inside a room or structure, exhaust room air, and close when outdoor air is not needed. The intake damper opens when 24VAC power is applied to the ventilation terminal inside the unit control panel (A). The damper blade is operated by a 24VAC actuator motor and blade linkage. When the blade is open, the damper allows outdoor air to be brought into the structure. A blade stop is provided that allows for airflow adjustment. See CRV-F airflow charts provided in this specification for airflow amounts. Air exhaust is provided using room air pressure that allows room air to pass through the vent area and out of the unit. Exhaust damper linkage controls the exhaust air amount and air intake amount simultaneously.

The basic commercial room ventilator includes the following options:

- The intake and exhaust damper opens when the unit ventilation terminal (A) is energized with 24VAC.
- Spring closed motorized damper closes within 30 seconds when unit power is removed.
- The vent provides a maximum of over 50% of the total airflow rating of the unit.
- Adjustable blade stop allows adjustable amounts of outside air to be introduced into the building.
- Room exhaust is provided through the ventilation assembly reducing room pressure.



Commercial Room Ventilator-Fixed and Modulating





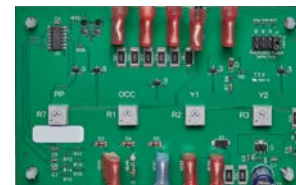
## ////// Commercial Ventilator Specifications, CRV-V

### “V” Vent Code Option – Advanced Commercial Room Ventilator (CRV-V)

The advanced commercial room ventilator is an optional feature on all models, and can be ordered pre-installed from Bard or may be field installed with the CRV-V vent kit. Commercial Room Ventilators are designed to provide an adjustable amount of outdoor air inside a room or structure, exhaust room air, and close when outdoor air is not needed. The intake damper opens when 24VAC power is applied to the ventilation terminal inside the unit control panel (A), or modulating control is possible when a 2-10VDC signal is supplied by a CO2 sensor or control device. The damper blade is operated by a 24VAC actuator motor and blade linkage. When the blade is open, the damper allows outdoor air to be brought into the structure. A solid-state board has adjustable potentiometers for blade position when ventilation is active, or 2-10VDC can be used to modulate damper position. See CRV-V airflow charts provided in this specification for airflow amounts. Air exhaust is provided that allows room air to pass through the vent area and out of the unit. Exhaust damper linkage controls the exhaust air amount and air intake amount simultaneously.

The basic commercial room ventilator includes the following options:

- The intake and exhaust damper opens when the unit ventilation terminal (A) is energized with 24VAC.
- Blade position potentiometer allows adjustment of the outside air amount entering into the building intended for occupant air quality improvement or light industrial room pressurization purposes.
- Optional 0-10VDC modulating damper control for operation with DDC system or external modulating CO2 control. When used, damper allows varying amounts of outside air to be brought into the building.
- Room pre-purge feature with 30/60/90 minute timer allows outdoor air to be brought in to room before occupants enter if ventilation is controlled by a schedule using a thermostat or room controller.
- Spring closed motorized damper closes within 30 seconds when unit power is removed.
- The vent provides a maximum of over 50% of the total airflow rating of the unit.
- Room exhaust is provided through the ventilation assembly reducing room pressure.
- Design based on requirements of ANSI/ASHRAE Standard 62.1 and other state and local ventilation codes.
- Improved damper blade seals for reduced air leakage.



“V” Vent Control Board

## ////// Economizer Specifications, ECON-NC

### “D” Vent Code Option – Economizer without Bard Supplied Controls (ECON-NC)

The Economizer without Bard supplied controls is an optional feature on all models, and can be ordered pre-installed from Bard or may be field installed with the ECON-NC vent kit. Economizers are designed to provide free cooling when outdoor conditions are acceptable, and provide a small amount of outdoor air intake if needed for a room or structure if required. The ECON-NC ventilation option is designed for customers who are using their own ventilation controls package and only need the economizer damper assembly and economizer damper motor. The intake damper opens and closes based on a 2-10VDC signal is supplied by a field supplied control device. Bard does not supply a logic board that will decide when conditions are favorable for free cooling. An outdoor temperature sensor (10k) is supplied with the economizer assembly. The damper blade is operated by a 24VAC actuator motor and blade linkage. When the blade is open, the damper allows outdoor air to be brought into the structure. See ECON-NC airflow charts provided in this specification for airflow amounts. Air exhaust is provided that allows room air to pass through the vent area and out of the unit. Room pressure forces air out the exhaust. Exhaust damper linkage controls the exhaust air amount and air intake amount simultaneously.

The economizer without Bard supplied controls includes the following options:

- The intake and exhaust damper opens when a 2-10VDC signal is received from field-supplied controls.
- A 10k dry bulb outdoor sensor is supplied with the vent option assembly.
- Spring closed motorized damper closes within 30 seconds when unit power is removed.
- When completely open, the vent provides outdoor air intake of the full airflow rating of the unit.
- Room exhaust is provided through the ventilation assembly reducing room pressure.



Economizer Assembly

## ///// **Economizer Specifications, ECON-DB, ECON-S, and ECON-WD**

### **“Y” Vent Code Option – Economizer with JADE Controls and Dry Bulb Outdoor Sensor (ECON-DB)**

The Economizer with JADE controls and dry bulb outdoor sensor is an optional feature on all models, and can be ordered pre-installed from Bard or may be field installed with the ECON-DB vent kit. Economizers are designed to provide free cooling when outdoor conditions are acceptable, and provide a small amount of outdoor air intake if required during non-economizer use. This saves energy and reduces compressor run time extending the life of the cooling equipment components. The ECON-DB ventilation option uses the JADE economizer controller and a 10k outdoor temperature sensor to decide when outdoor temperature is acceptable for free cooling operation. During free cooling economizer operation, the indoor blower will draw air through the economizer assembly mixing room air and outdoor air to provide a standard supply temperature. The damper blade is operated by a 24VAC actuator motor and blade linkage. See ECON-DB airflow charts provided in this specification for airflow amounts. Air exhaust is provided that allows room air to pass through the vent area and out of the unit. Room pressure forces air through the exhaust opening. Exhaust damper linkage controls the exhaust air amount and air intake amount simultaneously. Minimum vent position feature allows ventilation air to be brought into a room or structure when the unit ventilation terminal (A) is energized with 24VAC.

The economizer with JADE and dry bulb outdoor sensor includes the following options:

- Saves energy and reduces compressor-cooling runtime.
- The intake and exhaust damper opens to provide free cooling based on outdoor temperature. Outdoor temperature for economizer operation is user adjustable between 48°F and 80°F (8.8°C to 26.6°C). Default is 60°F (15.5°C).
- An economizer supply mixed air sensor provides a mixed air temperature of 53°F (11.6°C) by default.
- A 10k outdoor sensor is supplied with the vent option assembly to measure outdoor temperature.
- Spring closed motorized damper closes within 30 seconds when unit power is removed.
- When completely open, the vent provides outdoor air intake of the full airflow rating of the unit.
- Room exhaust is provided through the ventilation assembly reducing room pressure.
- Minimum vent position feature for outdoor air intake during non-economizer operation. Minimum position is used for meeting ANSI/ASHRAE Standard 62.1 air quality requirements or slight positive room pressurization for light industrial applications.
- 2-10VDC input for modulating ventilation when used with a CO2 sensor or other control device.
- Economizer may be used to provide cooling down to -40°F (-40°C) outdoor temperatures without compressor use.
- The JADE controller provides an easy to use LCD interface with user settings and diagnostics.
- Economizer assembly including damper seals and linkage meets 4cfm per ft2 leakage requirements.



Economizer Assembly

### **“S” and “Z” Vent Code Option – Economizer with JADE Controls and Enthalpy Outdoor Sensor (ECON-S and ECON-WD)**

The Economizer with JADE controls and enthalpy outdoor sensor is an optional feature on all models, and can be ordered pre-installed from Bard or may be field installed with a vent kit. The “S” economizer option (ECON-S) is available for the W24 thru W36 models and provides up to 75% outdoor air intake without the need for an intake hood. The “Z” economizer option (ECON-WD) is available for all unit models and provides 100% outdoor air intake. W18 thru W36 models include 7” intake hood. Economizers are designed to provide free cooling when outdoor conditions are acceptable, and provide a small amount of ventilation air if needed during non-economizer operation. This saves energy and reduces compressor run time extending the life of the cooling equipment components. The ventilation options use the JADE economizer controller and an outdoor enthalpy (temperature and humidity) sensor to decide when outdoor conditions are acceptable for free cooling operation. During free cooling economizer operation, the indoor blower will draw air through the economizer assembly mixing room air and outdoor air to provide a standard leaving supply temperature. The damper blade is operated by a 24VAC actuator motor and blade linkage. See ECON-WD airflow charts provided in this specification for airflow amounts. Air exhaust is provided that allows room air to pass through the vent area and out of the unit. Room air pressure forces air through the exhaust opening. Exhaust damper linkage controls the exhaust air amount and air intake amount simultaneously. Minimum vent position feature allows ventilation air to be brought into a room or structure if required during non-economizer use when the unit ventilation terminal (A) is energized with 24VAC.

The economizer with JADE and enthalpy outdoor sensor includes the following options:

- Saves energy and reduces compressor-cooling runtime.
- The intake and exhaust damper opens to provide free cooling based on outdoor temperature and humidity. Enthalpy curves are pre-set and user selectable to maximize free cooling runtime or minimize indoor humidity levels during free cooling.
- An economizer supply mixed air sensor provides a mixed air temperature of 53°F (11.6°C) by default.
- An enthalpy sensor is supplied with the vent option assembly to measure outdoor temperature.
- Spring closed motorized damper closes within 30 seconds when unit power is removed.
- When completely open, the vent provides outdoor air intake of the full airflow rating of the unit.
- Room exhaust is provided through the ventilation assembly reducing room pressure.
- Minimum vent position feature for outdoor air intake during non-economizer operation. Minimum position is used for meeting ANSI/ASHRAE Standard 62.1 air quality requirements or slight positive room pressurization for light industrial applications.
- 2-10VDC input for modulating ventilation when used with a CO2 sensor or other control device.
- Economizer may be used to provide cooling down to -40°F (-40°C) outdoor temperatures without compressor use.
- The JADE controller provides an easy to use LCD interface with user settings and diagnostics.
- Economizer assembly including damper seals and linkage meets 4cfm per ft2 leakage requirements.



## //////// Economizer Control Specifications, JADE Controller

### JADE Economizer Control Features and Benefits

The JADE control is an important component of the ECON-DB and ECON-WD economizer ventilation options. It provides the logic to control the economizer operation based on outdoor conditions and includes an easy to use interface with an LCD display screen. Bard has pre-programmed the JADE from the factory to provide standard settings that apply for common installations.

The following basic setup menu items are available through the JADE menu settings:

- **Mixed Air Temperature:** This set point is used to control the air temperature that is provided by the economizer assembly. The mixed air temperature is set from the factory to provide optimal cooling performance during economizer use. Default setting is 53°F and can be adjusted between 38°F and 65°F.
- **Low T Lock:** This set point is used to lock out compressor operation when outdoor temperature is extremely low. Default setting is 0°F and can be adjusted between -45°F and 80°F.
- **Dry bulb Set point (ECON-DB only):** Provides the maximum outdoor temperature for economizer use. Default setting is 60°F and can be adjusted between 48°F and 80°F.
- **Enthalpy Curve Set point (ECON-WD only):** Provides the enthalpy (temperature and humidity) boundary curves for economizer use. Default setting is ES3 and can be set between ES1 and ES5.
- **Minimum Position:** Used to set the outdoor ventilation amount to be brought into the room or structure when the unit (A) terminal is energized. Default setting is 2VDC and can be set between 2VDC and 10VDC.
- **Demand Control Vent set point (DCV):** DCV is available when 2-10VDC signal is received from a CO2 sensor or other device. This is set to the maximum allowable CO2 level for the space when used with a CO2 sensor. Default setting is 1100ppm and can be adjusted between 500 to 2000ppm. Default setting is recommended, and CO2 level is normally adjustable at the CO2 sensor.
- **Auxiliary output:** An auxiliary output is available that will send 24VAC to terminal 6 on the unit control panel low voltage terminal strip. This feature can be easily set using the JADE interface to function as needed for certain applications. When set to EXH2, the auxiliary output can be used to control a secondary exhaust fan system during economizer operation. When set to SYS, the auxiliary output can be used to signal an issue with the economizer when the JADE has an active alarm. The alarm signal can be connected to a thermostat or controls system with the ability to signal a service alarm.

### JADE Technical Specifications

- Voltage 20 to 30 VAC RMS
- Operating Temperature Range (F) -40 F to +150 F
- Operating Temperature Range (C) -40 C to +65 C
- Approvals, Federal Communications Commission Compliant
- Approvals, CE Compliant
- Complies with California Title 24
- Mixed air and Outdoor Enthalpy Sensor using Sylk Bus.
- Output 2-10 VDC to actuator, Sylk Bus.



Jade Control Module

### Optional Return Air Sensor Kit Bard Part #8620-340 and #8620-334

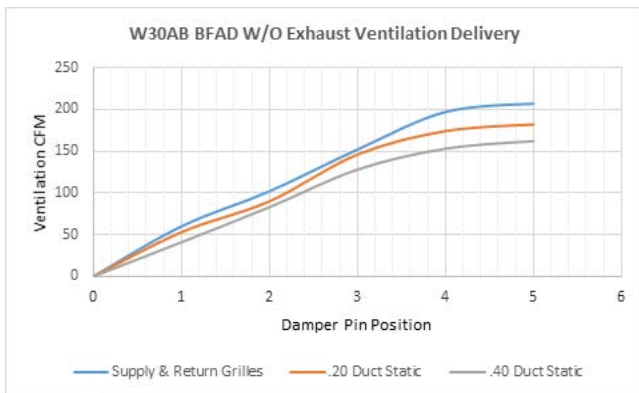
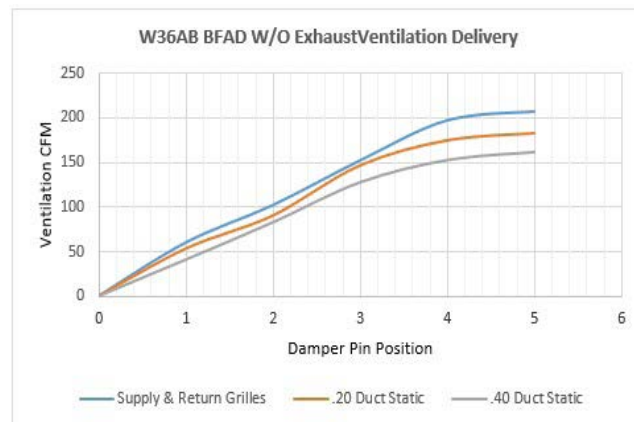
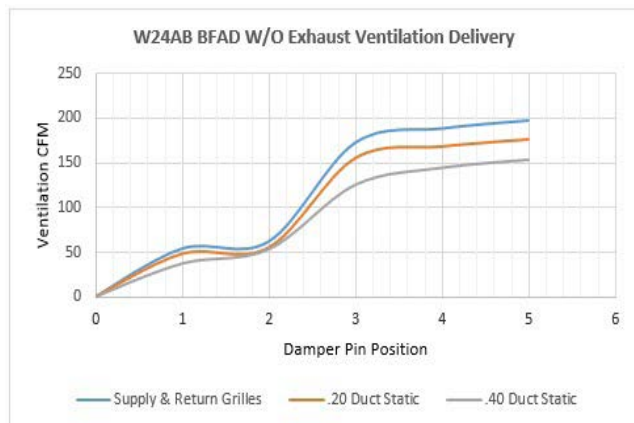
The optional return air sensor kit provides a optional sensor that is field installed in the return airstream. When installed, the JADE economizer will monitor and adjust outdoor air intake based on comparing room temperature and outdoor temperature. This kit is optional, but may be required to meet state and local building codes in certain installation areas.

### General Ventilation Option Guidelines

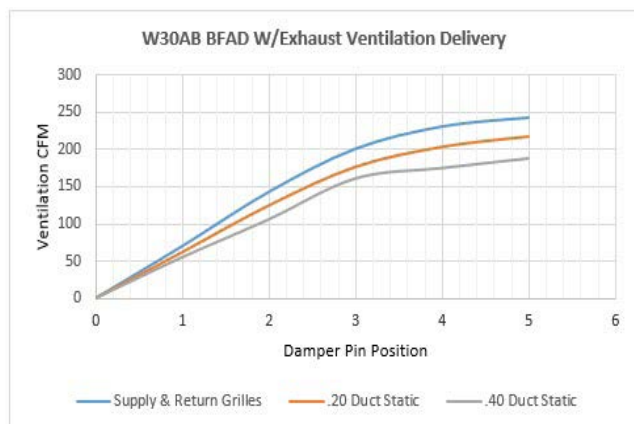
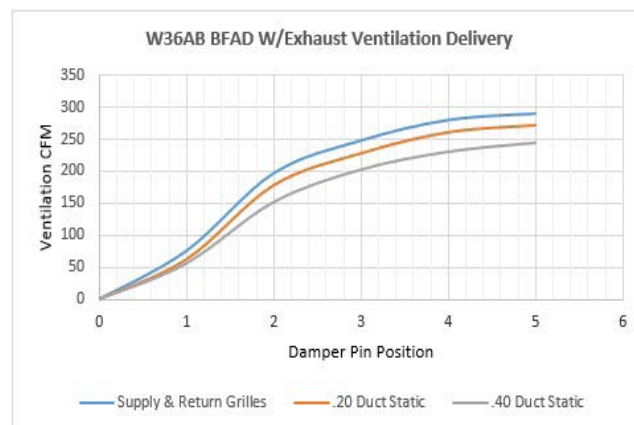
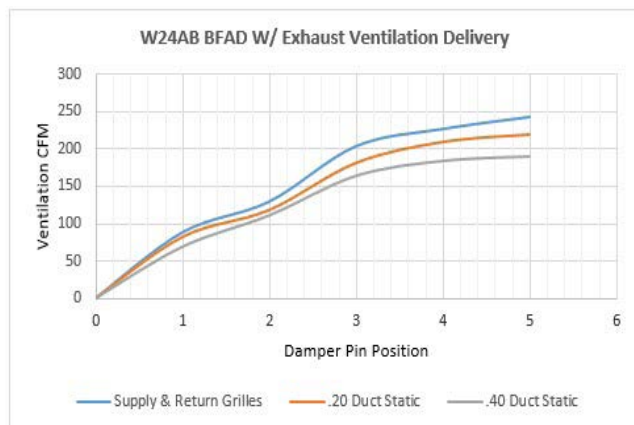
Applying heating and cooling equipment for various applications in the field requires careful planning to ensure the results provide are acceptable for occupants and heat generating equipment inside a room or structure. Products must be reviewed to meet all national, state, and local codes. When providing ventilation air to an indoor area, it is important that the equipment heating and cooling capacity be sized properly for the amount outdoor air being brought into the room or structure. Building pressurization requirements for specified pressurization amounts may require additional exhaust dampers, intake dampers, or fan pressurization systems. Avoid bringing in excessive ventilation amounts when it is not required per the application. Building codes may require special consideration regarding fire suppression systems, building pressurization, and other ventilation needs. Thermostats, CO2 sensors, and multiple unit lead/lag controllers that are used to control the equipment including ventilation must be reviewed per the application requirements. Follow all codes and standards that apply to the location where the equipment will be used, and review ASHRAE recommendations and guidelines for the application.

# Barometric Damper Airflow Charts for W24 - W36

## "X" (FAD-NE2 and FAD-NE3) Barometric Damper Without Exhaust Vent Code Options



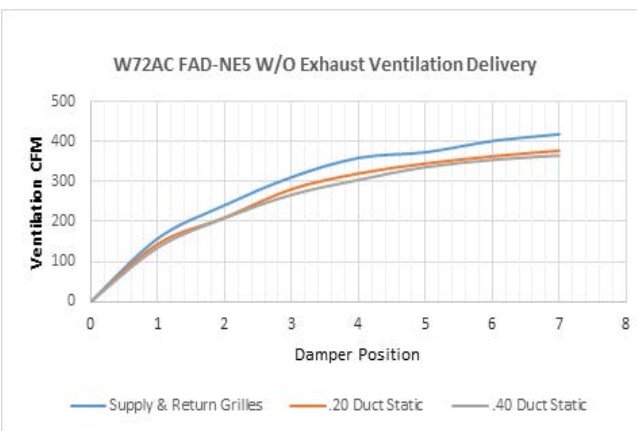
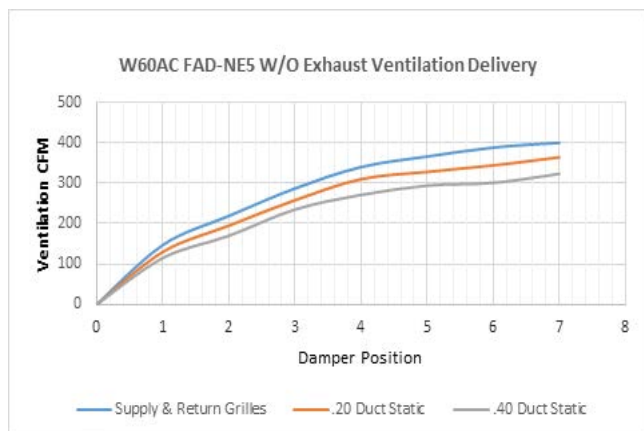
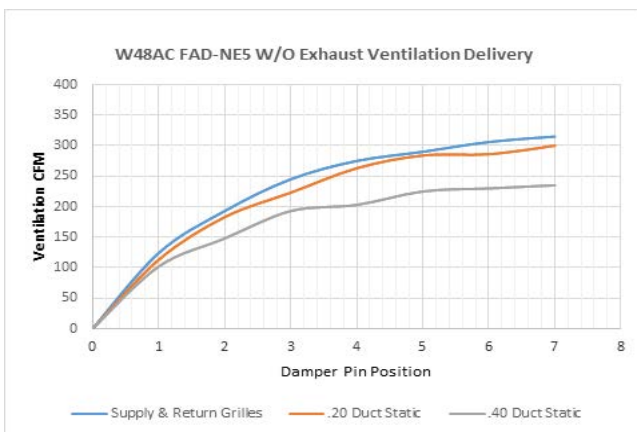
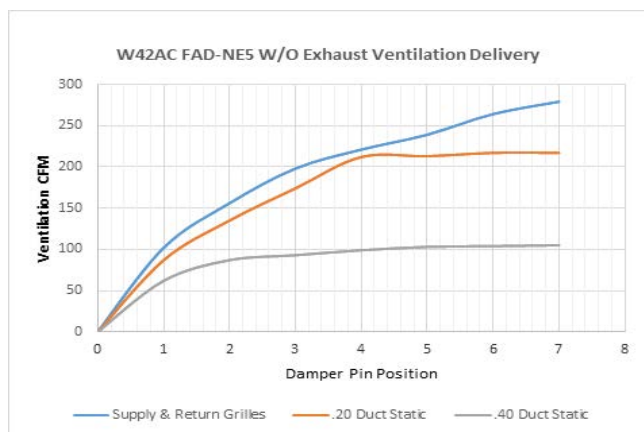
## "A" (FAD-BE2 and FAD-BE3) Barometric Damper With Exhaust Vent Code Options



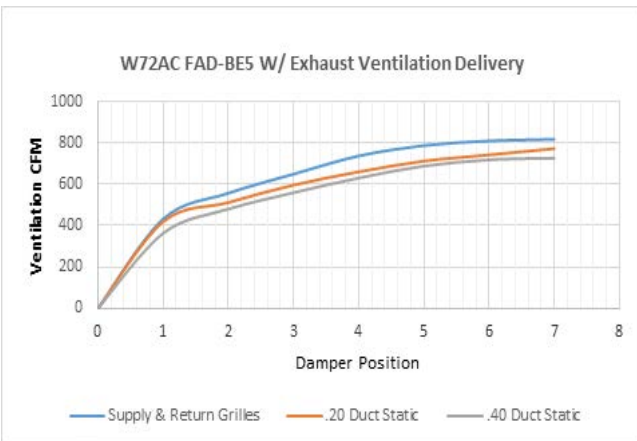
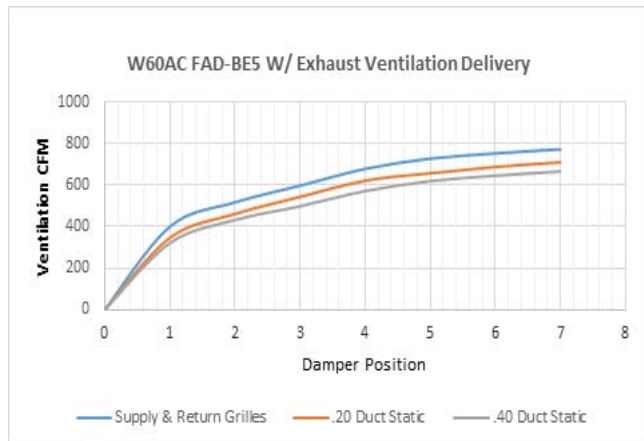
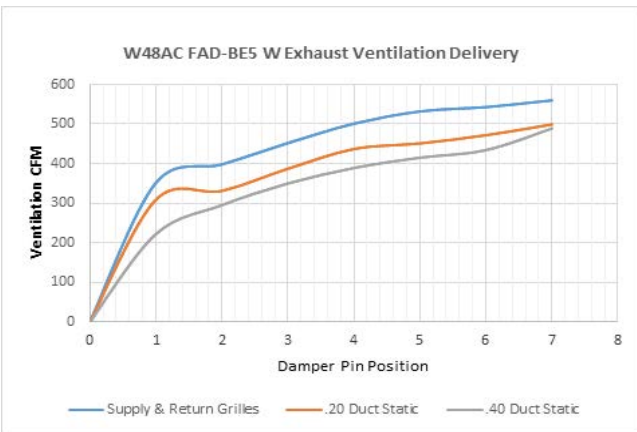
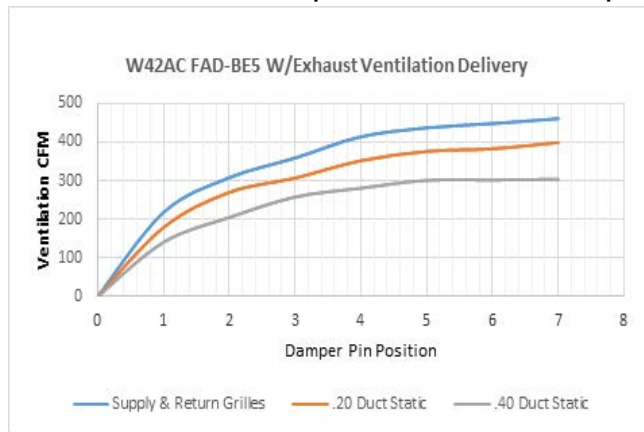


# Barometric Damper Airflow Charts for W42 - W72

## "X" (FAD-NE5) Barometric Damper Without Exhaust Vent Code Options

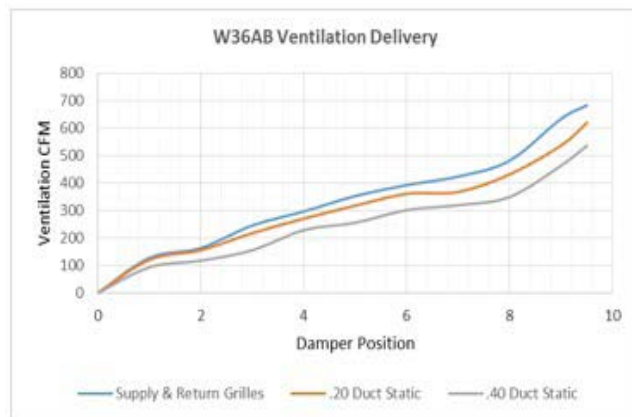
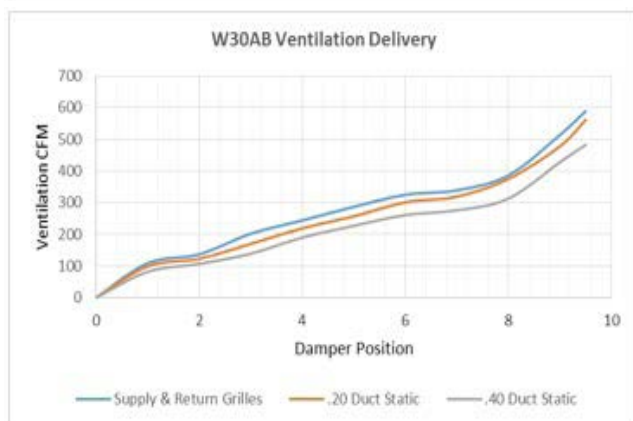
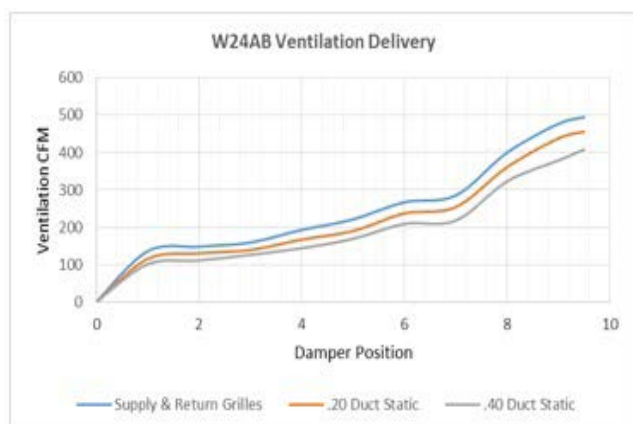


## "A" (FAD-BE5) Barometric Damper With Exhaust Vent Code Options

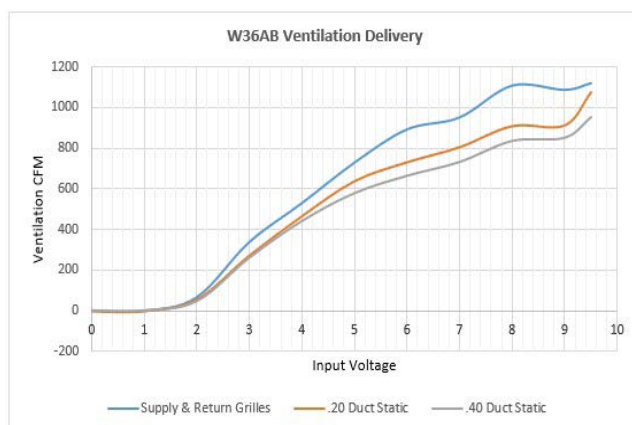
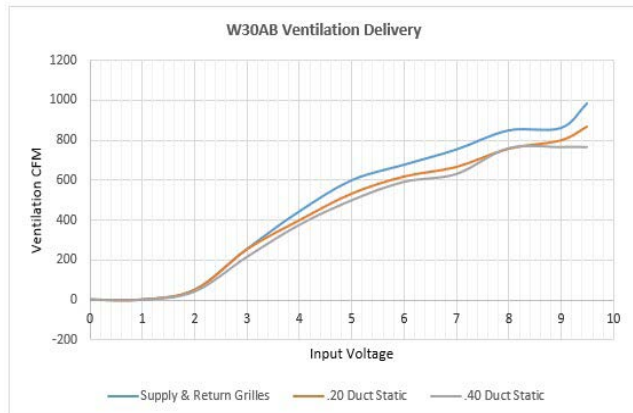
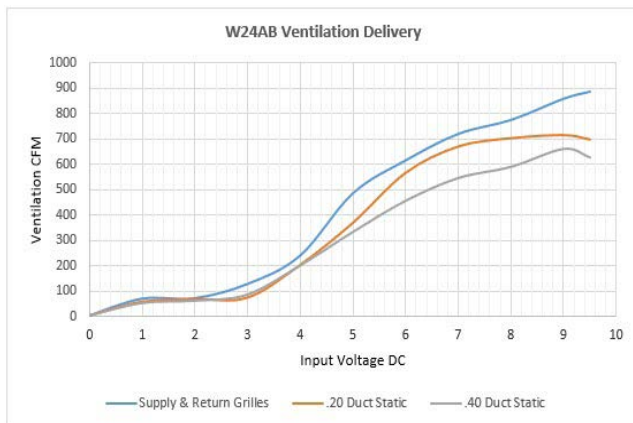


# Commercial Room Ventilator and Economizer Airflow Charts for W24 - W36

## "M" (CRV-F), "V" (CRV-V), "S" (ECON-S) Vent Code Options

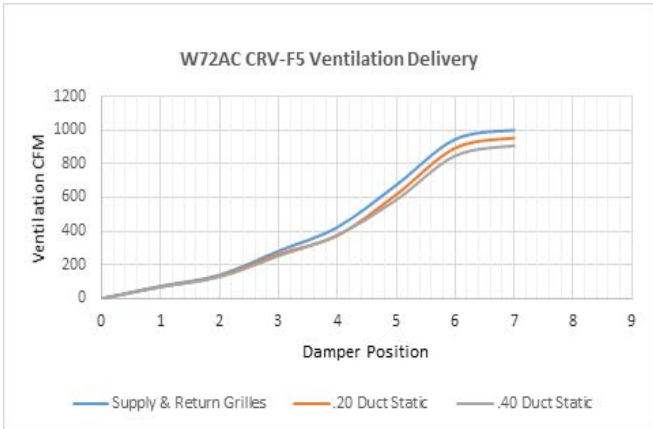
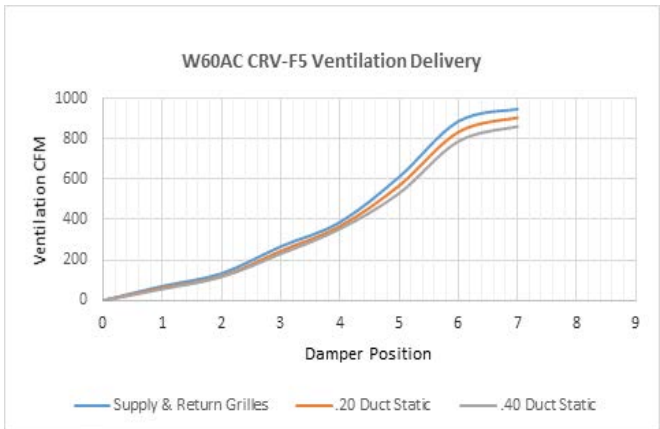
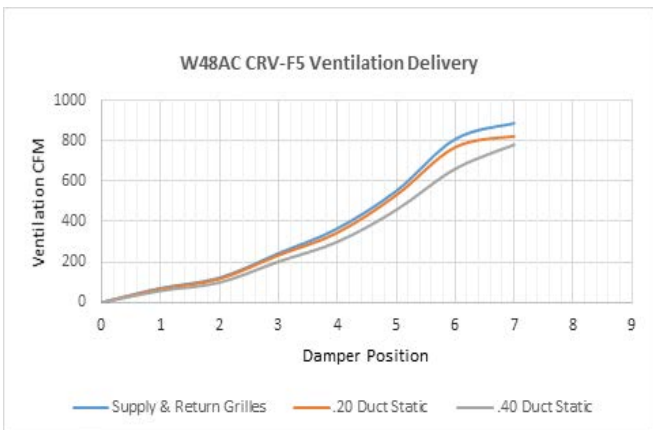
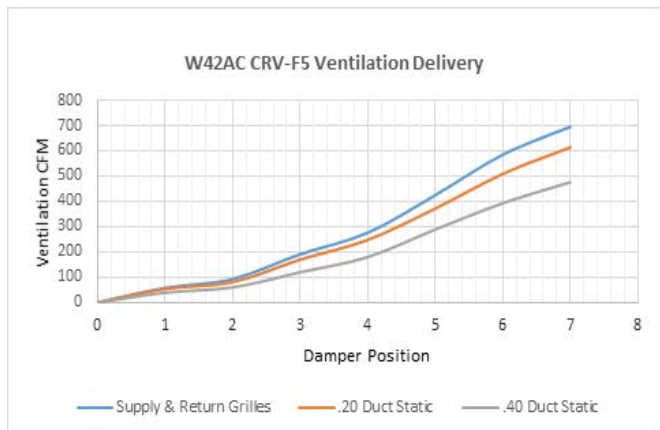


## "D" (ECON-NC), "Y" (ECON-DB) and "Z" (ECON-WD) Vent Code Options

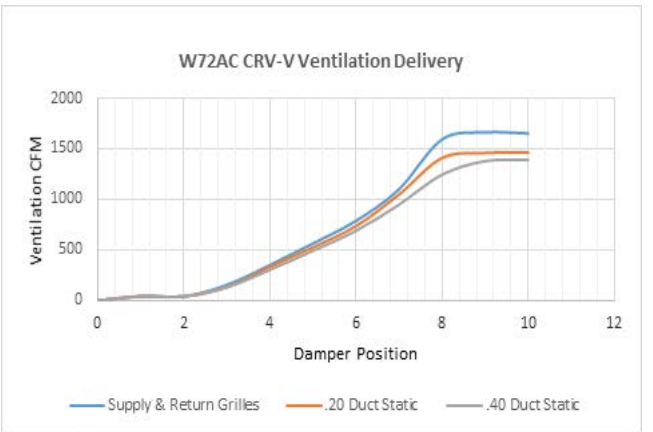
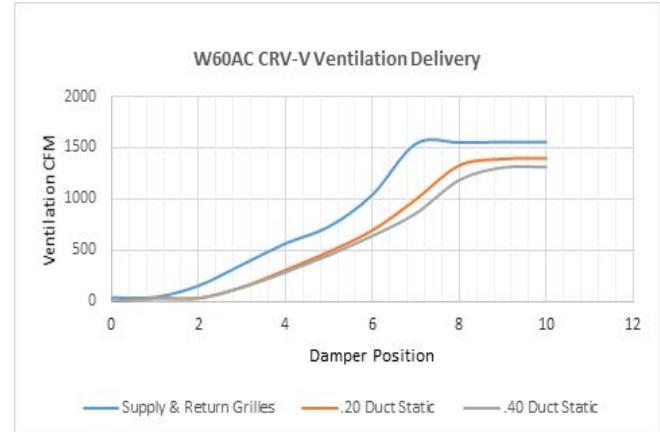
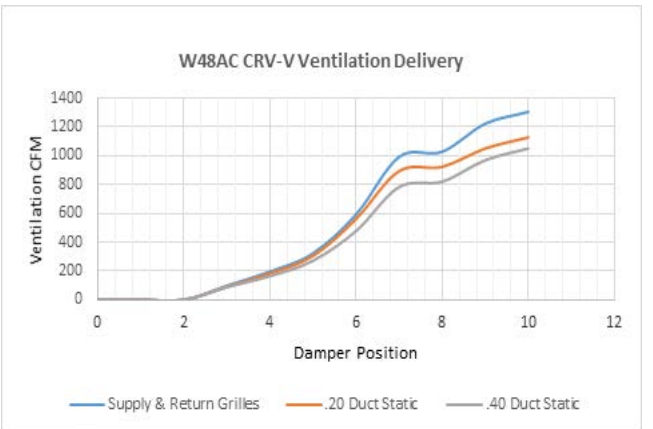
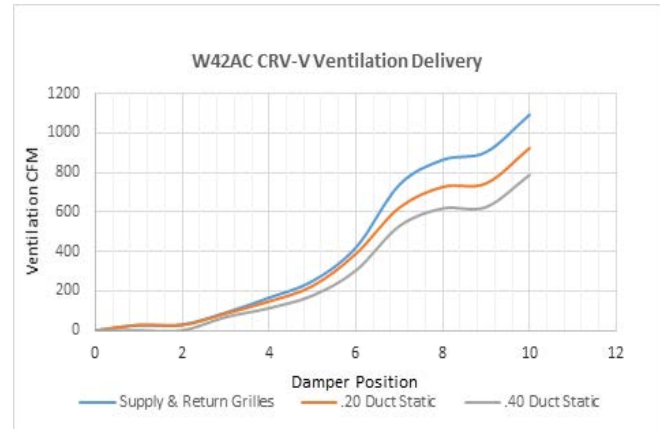


# Commercial Room Ventilator and Economizer Airflow Charts for W42 - W72

## "M" (CRV-F) Vent Code Options

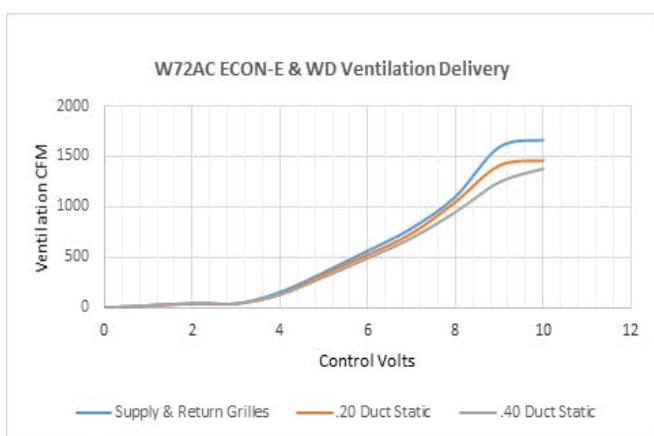
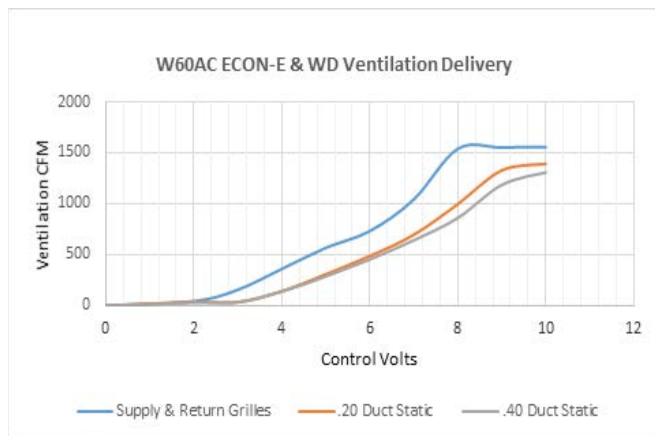
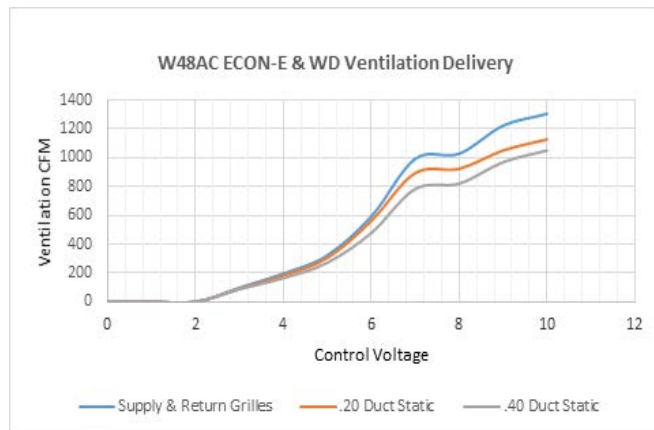
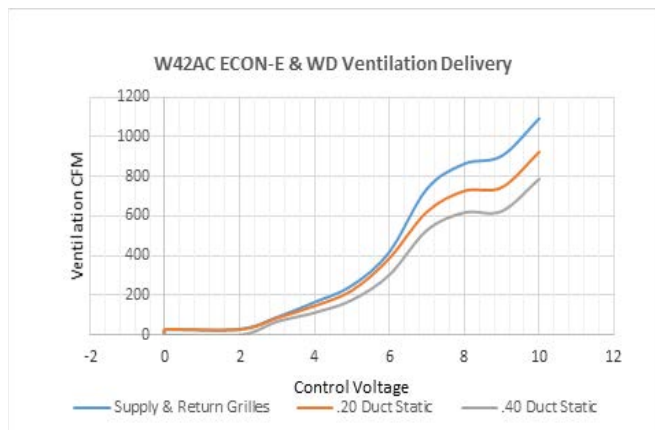


## "V" (CRV-V) Vent Code Options



# ////// Economizer Airflow Charts for W42 - W72 (Continued)

“Y” (ECON-DB), “Z” (ECON-WD), and “D” (ECON-NC) Vent Code Options





## ///// Unit Filter Options

Unit filter options for the Bard Wall-Mount provide multiple solutions for air filtration and indoor air quality improvement. Filter options allow for both room air passing through the unit and outdoor air provided by ventilation options to be cleaned before entering the indoor environment. Various filter types are available between MERV2 and MERV13 ratings. It is important to review application requirements, state and local codes, and ASHRAE recommendations to provide a clean, safe indoor area for occupants or heat generating equipment. Filter cleaning or replacement is an important part of ensuring that your Bard equipment is operating at optimal performance and indoor sound levels. A routine filter maintenance program based on room conditions is important, and higher MERV rated filters will normally require frequent filter changes. Filter trays are built into the unit with low filter bypass. Filter switch options are available that will help indicate when filter replacement or cleaning is necessary when used with a thermostat option to indicate filter change maintenance is needed.

### “X” Filter Code Option – 1” Disposable MERV2 Filter

The 1” disposable non-pleated MERV2 filter is a standard feature on all models, and is normally used for low dust level areas where minimal filtration is required. Media material is typically polyester/fiberglass with a chipboard or cardboard frame. When maintenance is required, the filter is replaced. This option offers minimal filtration, low air resistance, and low maintenance costs.

### “W” Filter Code Option – 1” Permanent MERV2 Filter

The 1” permanent non-pleated MERV2 filter is an optional feature on all models, and is normally used for low dust level areas where minimal filtration is required. Media material is typically foam with a plastic frame. When maintenance is required, the filter is cleaned and reused. If the filter media becomes damaged, the filter needs to be replaced. This option offers minimal filtration, low air resistance, and low maintenance costs.

### “P” Filter Code Option – 2” Disposable MERV8 Filter

The 2” disposable pleated MERV8 filter is an optional feature on all models, and is normally used for moderate dust level areas where standard filtration is required. Media material is fiber based, provides high performance with an extended surface area that offers low-pressure drop. When maintenance is required, the filter is replaced. This option offers standard filtration, minimal air resistance, and average maintenance costs.

### “M” Filter Code Option – 2” Disposable MERV11 Filter

The 2” disposable pleated MERV11 filter is an optional feature on all models, and is normally used for moderate to high filtration requirements. Media material is fiber based, provides high performance with an extended surface area that offers low-pressure drop. When maintenance is required, the filter is replaced. This option offers higher filtration, minimal air resistance, and average maintenance costs.

### “N” Filter Code Option – 2” Disposable MERV13 Filter

The 2” disposable pleated MERV13 filter is an optional feature on all models, and is normally used for high filtration requirements. MERV13 filters are typically used where filtration of small particulates is required to offer a high level of indoor air quality. Often these filters are used in occupied areas including classrooms, gymnasiums, cafeterias, and other areas where filtration is at a high importance level. Media material is fiber based, provides high performance with an extended surface area that offers low-pressure drop. Filter replacement in 3-month or less intervals is recommended for the best filter and unit performance.

## ///// Filter Replacement Part Number Chart

| UNIT MODEL         | FILTER CODE | FILTER MERV RATING | NUMBER OF FILTERS USED | BARD PART NUMBER | FILTER SIZE | FILTRATION LEVEL   |
|--------------------|-------------|--------------------|------------------------|------------------|-------------|--|
| W24                | X           | MERV 2             | 1                      | 7004-011         | 16 x 25 x 1 | Low Filtration, 1” Thickness Disposable Media.                   |
|                    | W           | MERV 2             | 1                      | 7003-032         | 16 x 25 x 1 | Low Filtration, 1” Thickness Permanent Media.                    |
|                    | P           | MERV 8             | 1                      | 7004-025         | 16 x 25 x 2 | Average Filtration, 2” Thickness Pleated Disposable Media.       |
|                    | M           | MERV 11            | 1                      | 7004-059         | 16 x 25 x 2 | Above Average Filtration, 2” Thickness Pleated Disposable Media. |
|                    | N           | MERV 13            | 1                      | 7004-061         | 16 x 25 x 2 | High Filtration, 2” Thickness Pleated Disposable Media.          |
| W30, W36           | X           | MERV 2             | 1                      | 7004-019         | 16 x 30 x 1 | Low Filtration, 1” Thickness Disposable Media.                   |
|                    | W           | MERV 2             | 1                      | 7003-031         | 16 x 30 x 1 | Low Filtration, 1” Thickness Permanent Media.                    |
|                    | P           | MERV 8             | 1                      | 7004-028         | 16 x 30 x 2 | Average Filtration, 2” Thickness Pleated Disposable Media.       |
|                    | M           | MERV 11            | 1                      | 7004-048         | 16 x 30 x 2 | Above Average Filtration, 2” Thickness Pleated Disposable Media. |
|                    | N           | MERV 13            | 1                      | 7004-062         | 16 x 30 x 2 | High Filtration, 2” Thickness Pleated Disposable Media.          |
| W42, W48, W60, W72 | X           | MERV 2             | 2                      | 7004-012         | 20 x 20 x 1 | Low Filtration, 1” Thickness Disposable Media.                   |
|                    | W           | MERV 2             | 2                      | 7003-085         | 20 x 20 x 1 | Low Filtration, 1” Thickness Permanent Media.                    |
|                    | P           | MERV 8             | 2                      | 7004-052         | 20 x 20 x 2 | Average Filtration, 2” Thickness Pleated Disposable Media.       |
|                    | M           | MERV 11            | 2                      | 7004-060         | 20 x 20 x 2 | Above Average Filtration, 2” Thickness Pleated Disposable Media. |
|                    | N           | MERV 13            | 2                      | 7004-063         | 20 x 20 x 2 | High Filtration, 2” Thickness Pleated Disposable Media.          |



## ///// Cabinet Finishes and Construction

Unit cabinet finish options provide a way to have the Bard Wall-Mount blend in with existing building colors, provide additional corrosion protection, or reduce unit product weight. Unit construction is comprised of a 20 gauge cabinet with 16 gauge structural components. Cabinet components are insulated with a non-fiberglass formaldehyde free insulation that has a high “R” value, is easy to clean with a FSK foil backing, and resists delamination.

### Painted Steel Finish

This cabinet option uses zinc coated steel panels that are cleaned, rinsed, sealed and dried before a polyurethane primer is applied. The cabinet paint coating is comprised of a baked on textured enamel. The resulting finish is designed to withstand over 1000 hours of salt spray tests per ASTM B117-03.

The following painted steel colors are available:

- “X” Cabinet Finish Option – Beige
- “1” Cabinet Finish Option – White
- “4” Cabinet Finish Option – Gray
- “5” Cabinet Finish Option – Desert Brown
- “8” Cabinet Finish Option – Dark Bronze



X—Beige



1—White



4—Gray



5—Desert

### Stainless Steel Finish

Exterior Stainless Steel finish cabinets are often selected for corrosion and chemical resistance. Higher grades of stainless steel are often specified to meet the requirements of harsh or corrosive environments. The Bard stainless steel unit offers a high quality stainless steel grade enclosure and fasteners for years of operation in these conditions.

#### Features of stainless steel “S” cabinet finish option:

- Sides, doors, grilles, back panels, and top are 316 grade stainless steel.
- Base, condenser partition, and fan shroud are 304 grade stainless steel.
- Stainless steel exterior cabinet screws, washers, nuts, and bolts, are used.
- Stainless steel outdoor motor mount and motor mount hardware.
- Compressor mounting hardware is stainless steel and hex no-spin rivet nuts are used in the unit base.
- Corrosion resistant coating is applied to fan blade.



8—Bronze



S—Stainless

### Aluminum Finish

Aluminum external cabinet finish option “A” units are constructed of ASTM B 209 grade .06” thickness panels with a stucco appearance.



A—Aluminum

## ///// Evaporator Coil, Condenser Coil, and Cabinet Coatings

Unit condenser and evaporator coils are designed, manufactured, and tested by Bard. A rifled copper hairpin design provides enhanced unit performance when used with a stamped aluminum fin for excellent heat transfer. End plate design includes extruded collars for hairpin tube protection. All coils are pressure tested before use and leak tested after unit construction. A copper tube and aluminum fin design coil is easy to clean and maintain through the life of the unit.

### “X” Code Option – Standard Evaporator and Condenser Coils

Standard products include a green protective coating applied to the aluminum fin stock used for the evaporator coil. The evaporator coil coating is hydrophilic (attracts water) and allows for proper condensate drainage along with mild corrosion protection. Resistance to corrosive agents include ammonia, sodium hydroxide, sodium chloride, acidic solutions and solvents. Condenser coil construction is a copper hairpin with aluminum fin design that is easy to clean and maintain. Unit coating options are also available that offer additional corrosion protection to the unit cabinet. Applications where external or internal cabinet components will be exposed to extremely harsh environments require additional protection to copper, steel, and other materials.

### “1” Code Option – Corrosion Resistance Coated Evaporator and Standard Condenser Coil

Option includes a Technicoat AA protective coating applied to the entire evaporator coil. After the evaporator coil is assembled, the entire coil is dipped in the coating process. This provides the best resistance to corrosive agents, and the coating process ensures the core of the aluminum fin pack is covered. Dehumidification units also include a dipped hot gas reheat coil. Standard condenser coil construction is a copper hairpin with aluminum fin design that is easy to clean and maintain. This option provides the best indoor coil protection when harmful chemicals or agents may be present in the indoor airstream. The exterior and interior unit cabinet is not coated with this option.

## ///// **Evaporator Coil, Condenser Coil, and Cabinet Coatings (Continued)**

### **"2" Code Option – Standard Evaporator and Corrosion Resistance Coated Condenser Coil**

Option includes a green protective coating applied to the aluminum fin stock used for the evaporator coil. The evaporator coil coating is hydrophilic (attracts water) and allows for proper condensate drainage along with mild corrosion protection. Resistance to corrosive agents include ammonia, sodium hydroxide, sodium chloride, acidic solutions and solvents. A Technicoat AA protective coating is applied to the entire condenser coil. After the condenser coil is assembled, the entire coil is dipped in the coating process. This provides the best resistance to corrosive agents, and the coating process ensures the core of the aluminum fin pack is covered. This option provides the best outdoor coil protection when harmful chemicals or agents may be present in the outdoor airstream. Also provides a level of protection when units are installed in applications near salt water. The exterior and interior unit cabinet is not coated with this option.

### **"3" Code Option – Corrosion Resistance Coated Evaporator and Corrosion Resistance Coated Condenser Coil**

Option includes a Technicoat AA protective coating applied to the entire evaporator coil. After the evaporator coil is assembled, the entire coil is dipped in the coating process. This provides the best resistance to corrosive agents, and the coating process ensures the core of the aluminum fin pack is covered. Dehumidification units also include a dipped hot gas reheat coil. A Technicoat AA protective coating is applied to the entire condenser coil. After the condenser coil is assembled, the entire coil is dipped in the coating process. This provides the best coil resistance to corrosive agents, and the coating process ensures the core of the aluminum fin pack is covered. The exterior and interior unit cabinet is not coated with this option.

### **"4" Code Option – Corrosion Resistance Coated Evaporator and Condenser Coil, Condenser Section Only Coating**

Option includes a Technicoat AA protective coating applied to the entire evaporator coil. After the evaporator coil is assembled, the entire coil is dipped in the coating process. This provides the best resistance to corrosive agents, and the coating process ensures the core of the aluminum fin pack is covered. Dehumidification units also include a dipped hot gas reheat coil. A Technicoat AA protective coating is applied to the entire condenser coil. After the condenser coil is assembled, the entire coil is dipped in the coating process. This provides the best coil resistance to corrosive agents, and the coating process ensures the core of the aluminum fin pack is covered. The interior of the lower unit condenser section is corrosion coated for additional protection including the unit base, compressor, and condenser area copper tubing, filter/drier, and condenser fan.

### **"5" Code Option – Corrosion Resistance Coated Evaporator and Condenser Coil, Interior/Exterior Unit Coating**

Option includes a Technicoat AA protective coating applied to the entire evaporator coil. After the evaporator coil is assembled, the entire coil is dipped in the coating process. This provides the best resistance to corrosive agents, and the coating process ensures the core of the aluminum fin pack is covered. Dehumidification units also include a dipped hot gas reheat coil. A Technicoat AA protective coating is applied to the entire condenser coil. After the condenser coil is assembled, the entire coil is dipped in the coating process. This provides the best coil resistance to corrosive agents, and the coating process ensures the core of the aluminum fin pack is covered. The entire exterior of the unit including the lower condenser section is coated along with all copper tubing, refrigeration, and air moving components. The interior components of the unit are also coated for the best cabinet component corrosion protection available.

## ///// **Evaporator Coil and Condenser Coil Coatings Resistance List**

The Technicoat AA coil coating provides a robust, dipped corrosion protection solution designed for indoor evaporator and outdoor condenser coils. Both field and lab testing results show no deterioration in harsh environments including refineries, mining operations, paper/pulp processing plants, and wastewater treatment facilities. ASTM B-117 testing includes over 10,000 hours with over 3,000 hours of SWAAT test time.

Chemical resistance includes the following:

- Alkalines including Ammoniac solution, Potassium Hydroxide, Calcium Hydroxide, and Magnesium Hydroxide.
- Alcohols including Isopropanol, Butanol, Amyl Alcohol, Benzyl Alcohol, Diacetone Alcohol, Glycerine, Propanol, and Pentanol
- Aliphatic Hydrocarbons including White Spirit, Shellsol, Bitumen, Isopar G, and Paraffin.
- Amines including Triethanolamine, Aniline Sulphate, Hexamethylenetetraamine, Phenylamine, Triethylamine, and Methylamine.
- Inorganic Compounds including Hydrogen Carbonate, Hydrogen Sulfide, Nitrous Acid, Sulphuric Acid, and Selenic Acid.
- Aromatic Hydrocarbons including Xylene, Toluene, Asphalt, Anthracene, Benzapherene, Gumlac, Benzene, and Naphtha.
- Fuels and Oils including Diesel, Fuel Oil, Petrol, Super Petrol, Lubricating Oils, Kerosene, Spheric Oils, LPG, and Mineral Oil.
- Ethers including Ethric Oils, Vegetable Oils, Butane, Acetylene, and Methane.
- Halogenated Hydrocarbons including Amyl Acetate, Propyl Acetate, Ethyl Oxalate, Butyl Acetate, and Butyl Propionate.
- Softeners including Palatinol C, Chloroparaffine 5XX, Dioctylphosphate, Desavin, Mesamol, and Dibutylphosphate.
- Organic Compounds including Benzoic Acid, Lactic Acid, Phenols, Fatty Acids, Malic Acid, and Picric Acid.
- Salts and water solutions including Sodium, Potassium, Calcium, Aluminum, Ammonium, Barium, Copper, Lead, and Lithium.
- Many other agents including Phosphor, Zinc, Glucose Syrup, Sulfur, Urea, Menthol, Antimony, Hydrogen, Rubber, and Shellac.

Special Properties:

- Anti-Odor
- Hydrophilic / Hydrophobic
- Anti-Corrosive

EXPOSURE CONDITIONS INCLUDE: Food Processing & Storage, Airports, Office Buildings, Hotels, Schools, Warehouses, Water Treatment, Breweries, Paper Mills, Refineries, Power Plants, Meat Processing Industries, Automotive Industries and other locations near shorelines and salt water.

Contact your local Bard distributor or representative for a list of all chemicals and additional chemical resistance information.



## ///// Cabinet Coatings Process and Resistance

Unit cabinet coatings involve a multi-step process that provides superior protection for conditions seen in harsh environments. Two different coating components are used to produce a chemically cured urethane based epoxy semi-gloss coating for industrial or architectural applications. Corrosion coating is also available for stainless steel construction units. Stainless steel components are scuffed and then coated with a gray tinted corrosion resistance coating.

Advantages include the following:

- Excellent corrosion protection.
- Suitable for salt and fresh water immersion.
- Excellent chemical and solvent resistance. Resists both splash and spillage of solvents, alkalis, salts, moisture, oils, greases, foodstuffs, and detergents.
- Low VOC, Self-priming and abrasion resistant.
- Excellent resistance to graffiti materials such as spray paint, magic markers, and lipstick.

Contact your local Bard distributor or representative for a list of all chemicals and additional chemical resistance information.

## ///// Controls Options Definitions Including Switches, Sensors, Relays, and Start Kits

Unit controls include safety devices and accessories that can be used to customize the Bard Wall-Mount for uses in multiple applications. Controls can be supplied from the factory or field installed. The below listing provides a description of the controls options available for the Bard WA Series unit.

**Hi Pressure Control (HPC)** - Factory installed in all units. The high pressure control provides a means of protecting the refrigeration circuit when high system pressures occur. It is a auto-reset device that is connected to the Compressor Control Module. When activated, the compressor is disabled until pressures reach an acceptable level. If activated twice in the same cooling call, compressor operation is locked out until the cooling call is interrupted.

**Low Pressure Control (LPC)** - Factory installed in all units. The low pressure control provides a means of protecting the refrigeration circuit when extremely low system pressures occur. It is a auto-reset device that is connected to the Compressor Control Module. When activated, the compressor is disabled until pressures reach an acceptable level.

**Compressor Control Module (CCM)** - Factory installed in all units. The compressor control module locks out compressor operation to protect the refrigeration system based on signals from the hi and low pressure switches. It provides diagnostics to indicate when a refrigerant pressure event occurs, and also sends a signal to the alarm relay. Low incoming unit power protection suspends compressor operation when incoming voltage is too low. Suspending compressor operation avoids reverse scroll operation. The low voltage feature is adjustable or can be disabled. An adjustable delay on break timer is provided. Delay on make is 2 mins. plus 10% of delay on break setting.

**Alarm Relay (ALR)** - Factory or field installed option. The alarm relay provides a set of NO and NC pilot duty contacts that operate when the compressor control module locks out compressor operation because of a high or low system refrigerant pressure event.

**Low Ambient Control (LAC)** - Factory or field installed option. The low ambient control pressure sensor is attached to the suction line of the system, and monitors low side system pressure. Operation of the LAC occurs as outdoor temperatures drop below the 60°F. On/Off or modulating controls are used. On/Off LAC operation cycles the condenser fan operation based on outdoor temperature. Modulating LAC operation is factory adjusted and slows the condenser fan speed RPM based on outdoor temperature.

**Crankcase Heater (CCH)** - Field installed option only. The heater is a belly band that is installed around the base of the compressor that applies heat when the refrigeration system is not operational. This heat is meant to prevent refrigerant oil migration when the unit is not running. Normal scroll compressor use does not require the use of the CCH, and this option is only recommended for northern areas of the US and Canada with extreme cold operation. Field Install Option Only.

**Outdoor Thermostat (ODT)** - Field installed option only. The outdoor thermostat measures outdoor temperatures and includes relay contacts (NO). The relay is located on the outer control panel and the sensor bulb is mounted to the fan shroud in the outdoor condenser section. When wired into the cooling signal inside the control panel, compressor operation can be disabled when temperatures are below the adjustable setting. Adjustment range is 0°F to 50°F.

**PTCR Start Kit** - Field installed option only. PTCR (Precision Temperature Coefficient Resistor) start kit includes the start device and wires needed for installation. The device is located inside the unit control panel near the compressor capacitor and provides an increase in starting torque. The PTCR Start Kit is not normally required when a clean, stable power source is available for the unit. The kit can only be used in 230 Volt single phase units.

**Start Capacitor and Potential Relay Start Kit** - Field installed option only. The kit includes a start capacitor and relay that is energized during startup of the compressor. The capacitor, relay, and needed wires are provided in a metal enclosure that is field installed in the outdoor section attached to the back. The Start Capacitor Kit is not normally required when a clean, stable power source is available for the unit. The kit can only be used in 230 Volt single phase units. Start capacitor kit cannot be used with the PTCR start kit installed.





## ////// Controls Options Definitions Including Switches, Sensors, Relays, and Start Kits

**DDC Controls Kit** - Factory or field installed option. Unit monitoring sensor kit for field supplied DDC controls. Includes the following components; Airflow switch, filter switch with dirty filter indicator light, compressor current sensor, discharge air sensor, additional secondary low voltage terminal board, and all wires and labels to install kit. Alarm relay kit sold separately, but can be used along with DDC controls kit.

**Dirty Filter Switch Indicator (DFS)** - Factory or field installed option. The switch is adjustable and measures pressure drop across the unit filter surface. When pressure drop is higher than the switch setting NO and NC contacts are provided to indicate the filter needs to be serviced.

**Discharge Air Sensor** - Factory or field installed as part of the DDC controls kit. The discharge air sensor provides a temperature reading of the supply air leaving the unit. The sensor is a 10K OHM @ 77°F measuring device. It is installed in the supply airstream in the heater bracket.

**Airflow Switch** - Factory or field installed as part of the DDC controls kit. The airflow switch measures the pressure differential between the blower inlet and outlet. It is located directly above the blower partition. Relay contacts (NO) are provided for V controls option that indicates the indoor blower assembly needs to be serviced. The F controls option has indicator light only.

**Compressor Current Sensor** - Factory or field installed as part of the DDC controls kit. The compressor current sensor indicates when the compressor is operational by measuring Amp draw. It is located inside the unit control panel. Relay contacts (NO) are provided to indicate the compressor is not operating.

## ////// 24VAC Low Voltage Connections for Unit Control and Feedback

Bard Wall-Mount products provide 24VAC power to controllers and thermostats. They also are able to receive 24VAC signals from a controlling device. The V controls option provides additional sensors for use with a field supplied DDC controls systems. The information below provides terminal designations and how they are used in the Wall-Mount unit. More information on low voltage connections and operational sequences is provided in the unit installation manual. Connection terminals listed below include both factory and field installed options (alarm relay, filter, and DDC kits).

| Terminal    | Unit                    | Description   |
|-------------|-------------------------|---|
| <b>R</b>    | All Units               | 24VAC low voltage output (HOT Terminal)   |
| <b>RT</b>   | All Units               | RT terminal has jumper to R terminal. When jumper is removed, R and RT can be used with normally closed contacts for fire/smoke detector for unit shutdown. |
| <b>C</b>    | All Units               | Ground/Common   |
| <b>G</b>    | All Units               | Indoor fan input  |
| <b>Y1</b>   | All Units               | 1st Stage cooling input. Economizer stage when used. Balanced Climate stage when used. Remove jumper between Y1 and Y2 for 2 stage blower operation.        |
| <b>Y2</b>   | All Units               | 2nd Stage cooling input. Compressor cooling stage when Econ or Balanced Climate is used.  |
| <b>B/W1</b> | All Units               | 1st Stage electric heat   |
| <b>W2</b>   | All Units               | 2nd State electric heat. Jumper between W1 and W2 must be removed for staged heat   |
| <b>A</b>    | Vent option units only  | Ventilation option input. Calls for occupied vent air intake for CRV, ERV, ECON   |
| <b>1</b>    | C, J, M, V Control Opt. | Alarm relay Normally Closed Contract  |
| <b>2</b>    | C, J, M, V Control Opt. | Alarm relay Normally Open Contact   |
| <b>3</b>    | C, J, M, V Control Opt. | Alarm Relay Common Contact  |
| <b>9</b>    | V Controls Option Only  | Discharge Air Sensor, 10K ohm   |
| <b>10</b>   | V Controls Option Only  | Discharge Air Sensor, 10K ohm   |
| <b>11</b>   | G, V Control Options    | Filter Switch, Normally Open Contacts   |
| <b>12</b>   | G, V Control Options    | Filter Switch, Normally Open Contacts   |
| <b>13</b>   | V Controls Option Only  | Blower Airflow Switch, Normally Open Contacts   |
| <b>14</b>   | V Controls Option Only  | Blower Airflow Switch, Normally Open Contacts   |
| <b>15</b>   | V Controls Option Only  | Compressor Current Sensor, Normally Open Contacts   |
| <b>16</b>   | V Controls Option Only  | Compressor Current Sensor, Normally Open Contacts   |



## ///// Factory Controls Options Chart Including Switches, Sensors, Relays, and Start Kits

Factory installed controls are provided by Bard to enhance a Wall-Mount product before it is shipped. All Wall-Mount products are shipped with a auto-reset high pressure switch and an auto-reset low pressure switch to help protect refrigeration components. A compressor control module with adjustable voltage protection, delay on make and break, and high/low pressure diagnostics is also standard

| CONTROL CODE | DESCRIPTION OF FACTORY INSTALLED COMPONENTS   |
|--------------|---|
| <b>X</b>     | Hi Pressure Switch, Low Pressure Switch, Compressor Control Module.   |
| <b>E</b>     | Hi Pressure Switch, Low Pressure Switch, Compressor Control Module, <b>Low Ambient Control</b>  |
| <b>F</b>     | Hi Pressure Switch, Low Pressure Switch, Compressor Control Module, <b>Low Ambient Control, Dirty Filter Press. Switch</b>  |
| <b>J</b>     | Hi Pressure Switch, Low Pressure Switch, Compressor Control Module, <b>Low Ambient Control, Alarm Relay</b>   |
| <b>K</b>     | Hi Pressure Switch, Low Pressure Switch, Compressor Control Module, <b>Low Ambient Control, PTCR Start Kit</b>  |
| <b>M</b>     | Hi Pressure Switch, Low Pressure Switch, Compressor Control Module, <b>Low Ambient Control, Alarm Relay, PTCR Start Kit</b>   |
| <b>V</b>     | Hi Pressure Switch, Low Pressure Switch, Compressor Control Module, <b>Low Ambient Control, Alarm Relay, Discharge temperature sensor, Indoor Blower Airflow Press. Switch, Compressor Current Sensor, Dirty Filter Pressure Switch</b> |

## ///// Field Kit Controls Options Chart Including Switches, Sensors, Relays, and Start Kits

Field installed kits provide accessories that can be installed in the field. Required components, wires, enclosures, screws, and instructions that are needed are provided within the kit.

| CONTROL CODE | KIT PART NO.  | UNITS USING KIT  | DESCRIPTION OF FIELD INSTALLED KIT   |
|--------------|---------------|--|--|
| <b>E</b>     | <b>CMA-37</b> | W24A, W24L   | Low Ambient Control allows compressor cooling between 0°F and 50°F outdoor temp. - modulating  |
| <b>E</b>     | <b>CMA-39</b> | W30A, W30L, W36A, W36L, W42A, W48A, W60A, W72A             | Low Ambient Control allows compressor cooling between 0°F and 50°F outdoor temp. - fan cycling   |
| <b>NA</b>    | <b>CMC-15</b> | W24A, W24L, W30A, W30L, W36A, W36L                         | PTCR Start Kit. Increases starting torque by 2 to 3x. 230V-60hz-1 phase (A voltage) only. Cannot be used in combination with SK start kit                            |
| <b>NA</b>    | <b>CMC-32</b> | W42A, W48A, W60A, W72A                                     | PTCR Start Kit. Increases starting torque by 2 to 3x. 230V-60hz-1 phase (A voltage) only. Cannot be used in combination with SK start kit                            |
| <b>NA</b>    | <b>SK-111</b> | W24A, W24L, W30A, W30L, W36A, W36L                         | Start Capacitor and Potential Relay Start Kit. Increases starting torque by 9x. 230V-60hz-1 phase (A voltage) only. Cannot be used in combination with CMC start kit |
| <b>NA</b>    | <b>CMA-14</b> | W24A, W24L, W30A, W30L, W36A, W36L                         | Outdoor Thermostat Kit used to disable compressor cooling below 50°F outdoor temp. Adjustable between 50° and 0°F  |
| <b>NA</b>    | <b>CMA-43</b> | W42A, W48A, W60A, W72A                                     | Outdoor Thermostat Kit used to disable compressor cooling below 50°F outdoor temp. Adjustable between 50° and 0°F  |
| <b>NA</b>    | <b>CMC-34</b> | W24A, W24L, W30A, W30L, W36A, W36L                         | Cooling Failure Alarm Relay Kit  |
| <b>NA</b>    | <b>CMC-35</b> | W42A, W48A, W60A, W72A                                     | Cooling Failure Alarm Relay Kit  |
| <b>NA</b>    | <b>CMC-29</b> | W24A, W24L, W30A, W30L, W36A, W36L, W42A, W48A, W60A, W72A | Evaporator coil freezestat kit - Freezestat is a standard option on all units with a Low Ambient Control (LAC)   |

\* CMA-40 and CMA-44 Kit does not include low ambient control. Low ambient control can be ordered separately either as field kit/factory installed.



## Field Installed Air Quality Kits

Field installed kits provide accessories that can be installed in the field. Required components, wires, enclosures, screws, and instructions that are needed are provided within the kit.

| CONTROL CODE | KIT PART NO. | UNITS USING KIT                    | DESCRIPTION OF FIELD INSTALLED KIT   |
|--------------|--------------|------------------------------------|--|
| NA           | CMC-31       | W24A, W24L, W30A, W30L, W36A, W36L | Dirty Filter Alarm Pressure Sensor Kit. Provides Normally Open Contacts to send an alarm signal to a thermostat or controller. |
| NA           | CMC-33       | W42A, W48A, W60A, W72A             | Dirty Filter Alarm Pressure Sensor Kit. Provides Normally Open Contacts to send an alarm signal to a thermostat or controller. |

## Advanced Sensor Options and Kits

Field installed kits provide accessories that can be installed in the field. Required components, wires, enclosures, screws, and instructions that are needed are provided within the kit.

| CONTROL CODE | KIT PART NO. | UNITS USING KIT                    | DESCRIPTION OF FIELD INSTALLED KIT   |
|--------------|--------------|------------------------------------|--|
| V            | CMA-40       | W24A, W24L, W30A, W30L, W36A, W36L | Kit Includes Discharge temperature sensor, Indoor Blower Airflow Press. Switch, Compressor Current Sensor, Dirty Filter Alarm Pressure Sensor. |
| V            | CMA-44       | W42A, W48A, W60A, W72A             | Kit Includes Discharge temperature sensor, Indoor Blower Airflow Press. Switch, Compressor Current Sensor, Dirty Filter Alarm Pressure Sensor. |
| NA           | 8620-340     | W24A, W24L, W30A, W30L, W36A, W36L | Return Air Sensor Kit for use with all economizers with the JADE controller.   |
| NA           | 8620-334     | W42A, W48A, W60A, W72A             | Return Air Sensor Kit for use with all economizers with the JADE controller.   |

## Sound Reduction Accessories

Field installed kits provide accessories that can be installed in the field. Required components, wires, enclosures, screws, and instructions that are needed are provided within the kit.

| CONTROL CODE | KIT PART NO. | UNITS USING KIT                    | DESCRIPTION OF FIELD INSTALLED KIT  |
|--------------|--------------|------------------------------------|---|
| NA           | 8002-012     | W24A, W24L, W30A, W30L, W36A, W36L | Compressor sound cover. Weatherized vinyl insulated cover that helps reduce compressor sound level. |
| NA           | 8002-013     | W42A, W48A, W60A, W72A             | Compressor sound cover. Weatherized vinyl insulated cover that helps reduce compressor sound level. |

## Optional Shipping Crates

Optional crates are available to help protect your valuable Wall-Mount investment during shipping. Constructed from OSB sheathing with steel corner posts, and sized for standard truck transportation. Treated for pests in accordance with the International Plant Protection Convention, Publication 15, Annex 1. Packaging is acceptable for international shipments.

| CRATE NO. | UNIT MODELS            | DESCRIPTION   |
|-----------|------------------------|---|
| 8620-263  | W24A, W24L             | Standard Unit Crate, all vents except economizer.       |
| 8620-275  | W24A, W24L             | Units with Economizer vent (Factory Installed 7" Hood). |
| 8620-262  | W30A, W30L, W36A, W36L | Standard Unit Crate, all vents except economizer        |
| 8620-276  | W30A, W30L, W36A, W36L | Units with Economizer vent (Factory Installed 7" Hood). |
| 8620-304  | W42A, W48A             | Standard Unit Crate, all ventilation options            |
| 8620-305  | W60A, W72A             | Standard Unit Crate, all ventilation options            |





Cabinet and Clearance Dimensions - W24A to W36A Right Side Control Panel Units

| CLEARANCES REQUIRED FOR SERVICE ACCESS AND ADEQUATE CONDENSER INLET AIRFLOW |           |            |
|---|-----------|------------|
| MODELS  | LEFT SIDE | RIGHT SIDE |
| W24AB, W30AB, W36AB   | 15"       | 20"        |

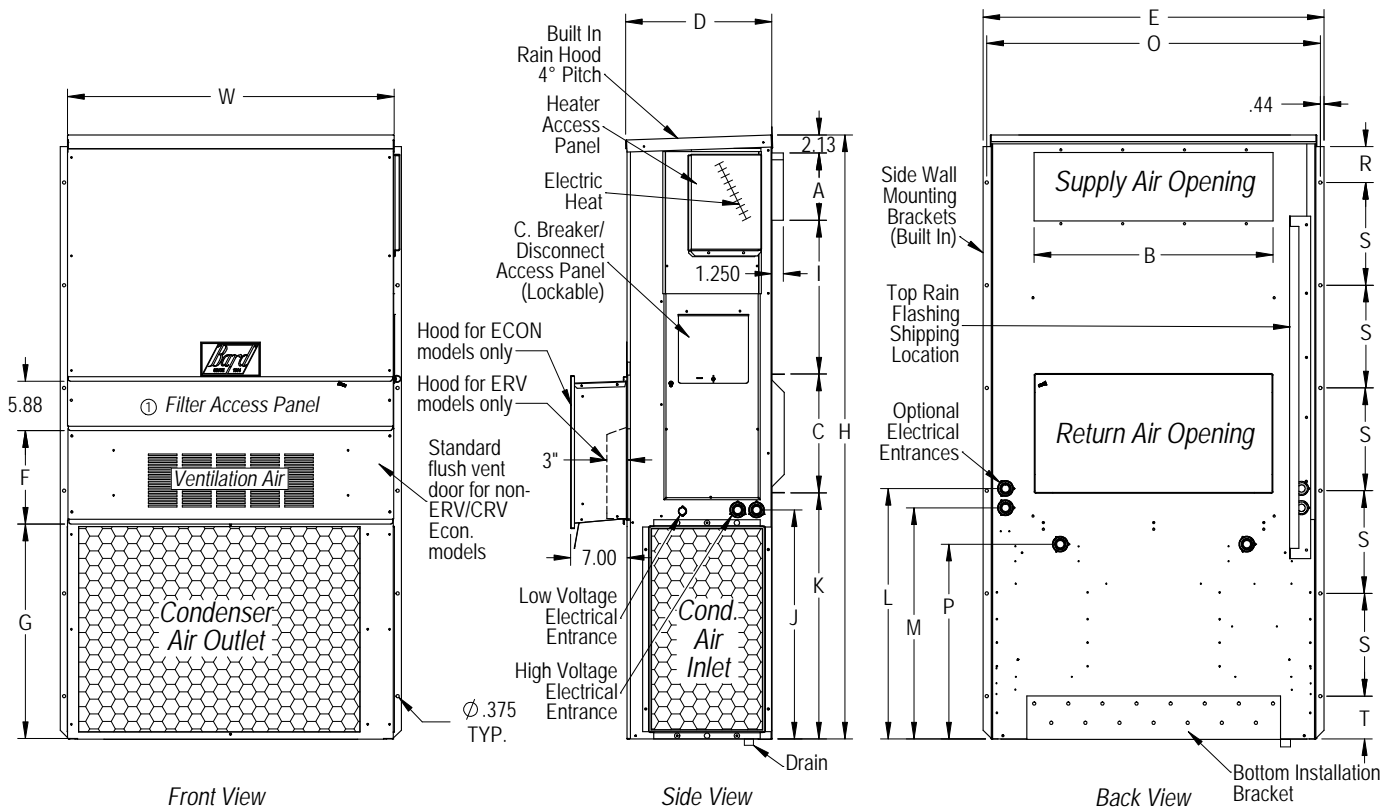
**NOTE:** For side-by-side installation of two (2) WA models, there must be 20" between units. This can be reduced to 15" by using a WL model (left side compressor and controls) for the left unit and WA (right side compressor and controls) for right unit.

- 1.) Follow all national, state, and local codes and regulations regarding the installation of heating and cooling equipment regarding Single Packaged Vertical Units (SPVU) including electrical access clearances.
- 2.) Field ventilation installation with the unit installed requires 40" on the left or right side of the unit.
- 3.) Bard recommends a minimum of 10 ft. between the unit front condenser air outlet and solid objects including fences, walls, bushes, and other airflow obstructions.
- 4.) Bard recommends a minimum of 15 ft. between the condenser air outlets of 2 units that are facing each other.
- 5.) Bard recommends a minimum clearance of 4" under the unit cabinet for condenser defrost drain age during heat pump operation.

| MINIMUM CLEARANCES REQUIRED TO COMBUSTIBLE MATERIALS |                                  |         |
|--|----------------------------------|---------|
| MODELS ①   | SUPPLY AIR DUCT FIRST THREE FEET | CABINET |
| W24AB  | 0"                               | 0"      |
| W30AB, W36AB   | 1/4"                             | 0"      |

① Refer to the Installation Manual for more detailed information.

| DIMENSIONS OF W18-36A BASIC UNIT FOR ARCHITECTURAL & INSTALLATION REQUIREMENTS (NOMINAL) |           |           |            |        |       |        |       |       |       |       |       |       |       |       |       |      |       |       |       |      |       |      |
|--|-----------|-----------|------------|--------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|-------|-------|------|-------|------|
| MODEL  | WIDTH (W) | DEPTH (D) | HEIGHT (H) | SUPPLY |       | RETURN |       |       |       |       |       |       |       |       |       |      |       |       |       |      |       |      |
|  |           |           |            | A      | B     | C      | D     | E     | F     | G     | I     | J     | K     | L     | M     | N    | O     | P     | Q     | R    | S     | T    |
| W24AB  | 33.300    | 17.125    | 74.563     | 7.88   | 19.88 | 11.88  | 19.88 | 35.00 | 10.88 | 29.75 | 20.56 | 30.75 | 32.06 | 33.25 | 31.00 | 2.63 | 34.13 | 26.06 | 10.55 | 3.94 | 12.00 | 9.00 |
| W30AB<br>W36AB   | 38.200    | 17.125    | 74.563     | 7.88   | 27.88 | 13.88  | 27.88 | 40.00 | 10.88 | 29.75 | 17.93 | 30.75 | 32.75 | 33.25 | 31.00 | 2.75 | 39.13 | 26.75 | 9.14  | 3.94 | 12.00 | 9.00 |



MIS-3796 B





**NOTE:** For side-by-side installation of two (2) WL models, there must be 20" between units. This can be reduced to 15" by using a WL model (left side compressor and controls) for the left unit and WA (right side compressor and controls) for right unit.

- ① Refer to the Installation Manual for more detailed information.

## MIS-3737 B

# ////// Cabinet and Clearance Dimensions - W48A to W72A Series Units

## CLEARANCES REQUIRED FOR SERVICE ACCESS AND ADEQUATE CONDENSER INLET AIRFLOW

| MODELS                     | LEFT SIDE | RIGHT SIDE |
|----------------------------|-----------|------------|
| W42AC, W48AC, W60AC, W72AC | 20"       | 20"        |

- 1.) Follow all national, state, and local codes and regulations regarding the installation of heating and cooling equipment regarding Single Packaged Vertical Units (SPVU) including electrical access clearances.
- 2.) Field ventilation installation with the unit installed requires 40" on the left or right side of the unit.
- 3.) Bard recommends a minimum of 10 ft. between the unit front condenser air outlet and solid objects including fences, walls, bushes, and other airflow obstructions.
- 4.) Bard recommends a minimum of 15 ft. between the condenser air outlets of 2 units that are facing each other.
- 5.) Bard recommends a minimum clearance of 4" under the unit cabinet for condenser defrost drainage during heat pump operation.

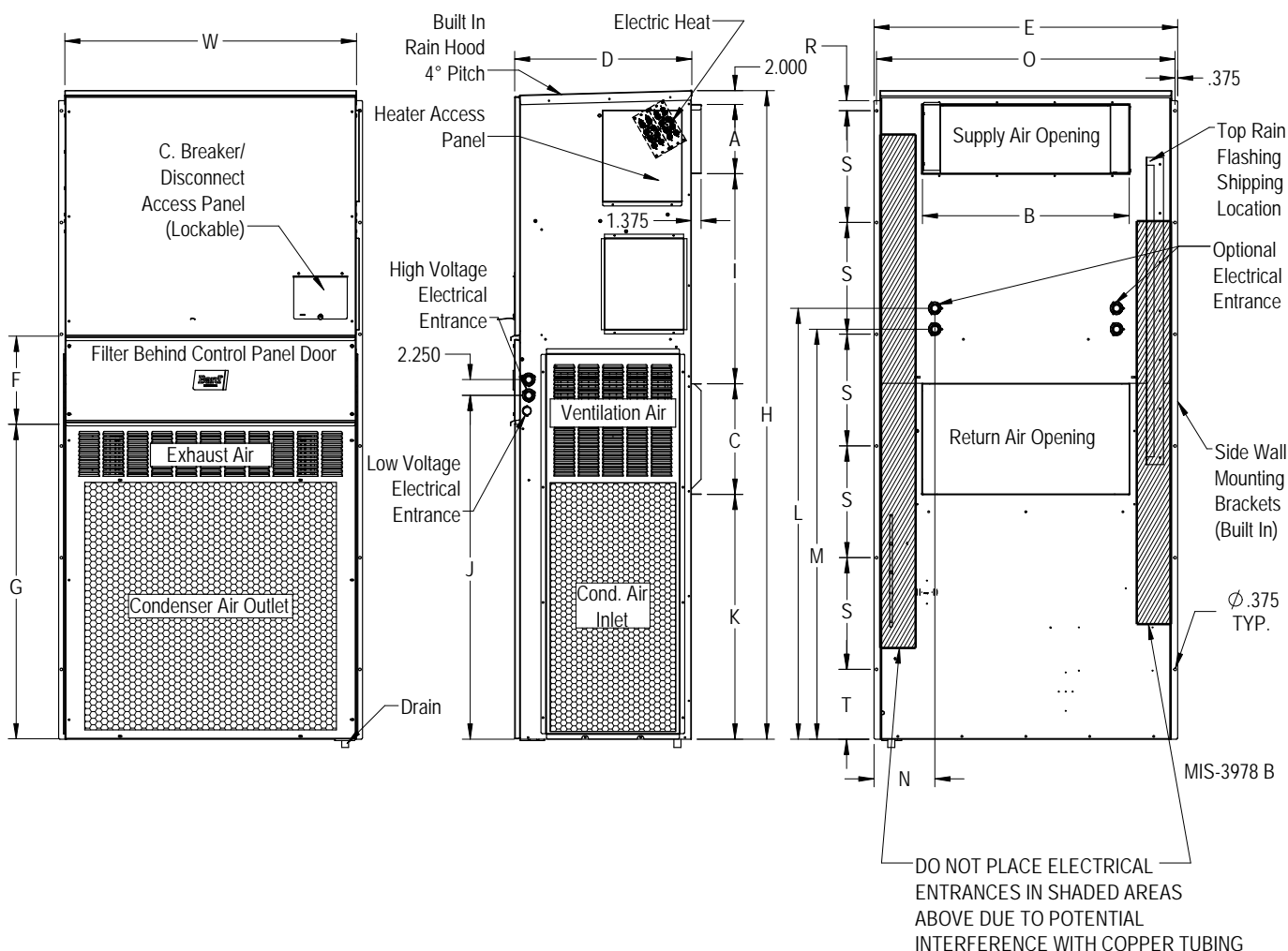
## MINIMUM CLEARANCES REQUIRED TO COMBUSTIBLE MATERIALS

| MODELS ①                   | SUPPLY AIR DUCT FIRST THREE FEET | CABINET |
|----------------------------|----------------------------------|---------|
| W42AC, W48AC, W60AC, W72AC | 1/4"                             | 0"      |

## DIMENSIONS OF W42AC-72AC BASIC UNIT FOR ARCHITECTURAL & INSTALLATION REQUIREMENTS (NOMINAL)

| MODEL          | WIDTH<br>(W) | DEPTH<br>(D) | HEIGHT<br>(H) | SUPPLY |       | RETURN |       |       |       |       |    |       |       |       |       |      |    |       |    |       |
|----------------|--------------|--------------|---------------|--------|-------|--------|-------|-------|-------|-------|----|-------|-------|-------|-------|------|----|-------|----|-------|
|                |              |              |               | A      | B     | C      | B     | E     | F     | G     | I  | J     | K     | L     | M     | N    | O  | R     | S  | T     |
| W42AC<br>W48AC | 42           | 25.52        | 84.88         | 9.88   | 29.88 | 15.88  | 29.88 | 43.88 | 12.63 | 39.06 | 30 | 53.75 | 26.94 | 55.59 | 52.59 | 8.82 | 43 | 1.438 | 16 | 1.88  |
| W60AC<br>W72AC | 42           | 25.52        | 93.00         | 9.88   | 29.88 | 15.88  | 29.88 | 43.88 | 12.63 | 45    | 30 | 59.75 | 35.06 | 61.72 | 58.72 | 8.82 | 43 | 1.438 | 16 | 10.00 |

① Wall mounting holes in side flanges are 0.375.





## Wall Curb Accessories

Optional wall curb accessories are available to help reduce vibration through the outer wall surface or to use existing wall openings when replacing equipment. Follow all static pressure airflow requirements, safety and installation guidelines in the instructions provided with the curb and Wall-Mount products.

| CURB             | UNITS USING CURB       | DESCRIPTION  |
|------------------|------------------------|--|
| <b>WMICF2</b> .* | W24A, W24L             | Provides vibration isolation for reduced sound transmission through wall   |
| <b>WMICF3</b> .* | W30A, W30L, W36A, W36L | Provides vibration isolation for reduced sound transmission through wall   |
| <b>WMICF5</b> .* | W42A, W48A, W60A, W72A | Provides vibration isolation for reduced sound transmission through wall   |
| <b>WWC3</b> .*   | W30A, W30L, W36A, W36L | Install to use with existing 2, 3, or 5 ton wall openings. Wall openings must provide sufficient airflow. Follow all instructions in curb and unit manual including clearances to combustibles and maximum duct static pressure. |
| <b>WWC5</b> .*   | W42A, W48A, W60A, W72A | Install to use with existing 3 and 5 ton wall openings. Wall openings must provide sufficient airflow. Follow all instructions in curb and unit manual including clearances to combustibles and maximum duct static pressure.    |

\* Color Option



## Indoor Sound Reduction Accessories

Optional sound accessories are available to help reduce sound transmission from the supply and return openings inside the indoor area. Follow all static pressure airflow requirements, safety and installation guidelines in the instructions provided with the accessories and Wall-Mount products.

| ACCESSORY        | UNITS USING ACCESSORY             | DESCRIPTION   |
|------------------|-----------------------------------|---|
| <b>WAPR11</b> .* | W24, W30, W36, W42, W48, W60, W72 | Indoor acoustical return air plenum that offsets the return air path. Air intake near floor level |

\* Color Option



## Non-Ducted Supply and Return Grilles

Supply and return louver grilles are of a brushed aluminum finish. 2" flange versions are recommended for standard installations to allow grille attachment when large wall openings are present. Return filter grilles are available for filter access from an indoor area. Filter grilles do not include a filter, and are not recommended for unit with ventilation due to filter location. A manual damper return grille is available for W42 and W72 models. The manual damper is adjustable, and is only recommended for installations where increased return duct static pressure is required.

| GRILLE NO.     | UNITS USING GRILLE     | DESCRIPTION OF LOUVER GRILLE  |
|----------------|------------------------|---|
| <b>SG-2</b>    | W18A, W18L, W24A, W24L | 8" x 20" with 1" Flange 4 way deflection supply grille.   |
| <b>SG-3</b>    | W30A, W30L, W36A, W36L | 8" x 28" with 1" Flange 4 way deflection supply grille.   |
| <b>SG-5</b>    | W42A, W48A, W60A, W72A | 10" x 30" with 1" Flange 4 way deflection supply grille.  |
| <b>RG-2</b>    | W18A, W18L, W24A, W24L | 12" x 20" with 1" Flange return grille.   |
| <b>RG-3</b>    | W30A, W30L, W36A, W36L | 12" x 28" with 1" Flange return grille.   |
| <b>RG-5</b>    | W42A, W48A, W60A, W72A | 16" x 30" with 1" Flange return grille.   |
| <b>SG-2W</b>   | W18A, W18L, W24A, W24L | 8" x 20" with 2" Flange 4 way deflection supply grille.   |
| <b>SG-3W</b>   | W30A, W30L, W36A, W36L | 8" x 28" with 2" Flange 4 way deflection supply grille.   |
| <b>SG-5W</b>   | W42A, W48A, W60A, W72A | 10" x 30" with 2" Flange 4 way deflection supply grille.  |
| <b>RG-2W</b>   | W18A, W18L, W24A, W24L | 12" x 20" with 2" Flange return grille.   |
| <b>RG-3W</b>   | W30A, W30L, W36A, W36L | 12" x 28" with 2" Flange return grille.   |
| <b>RG-5W</b>   | W42A, W48A, W60A, W72A | 16" x 30" with 2" Flange return grille.   |
| <b>RFG-2W</b>  | W18A, W18L, W24A, W24L | 12" x 20" with 2" Flange return grille with filter bracket.*  |
| <b>RFG-3W</b>  | W30A, W30L, W36A, W36L | 12" x 28" with 2" Flange return grille with filter bracket.*  |
| <b>RFG-5W</b>  | W42A, W48A, W60A, W72A | 16" x 30" with 2" Flange return grille with filter bracket.*  |
| <b>RGDK-2W</b> | W18A, W24A, W24L       | 12" x 20" with 2" manual shutter style damper that is mounted in the return duct behind the return grille (sold separately). Adjustable to restrict return air from room. |
| <b>RGDK-3W</b> | W30A, W30L, W36A, W36L | 12" x 28" with 2" manual shutter style damper that is mounted in the return duct behind the return grille (sold separately). Adjustable to restrict return air from room. |
| <b>RGDK-5W</b> | W42A, W48A, W60A, W72A | 16" x 30" manual shutter style damper that is mounted in the return duct behind the return grille (sold separately). Adjustable to restrict return air from room.         |

\* Not recommended to provide primary filtration with units that will bring in outdoor air.



## Non-Ducted Supply Grilles - Spread and Throw Characteristics

One of the most important setup procedures for non-ducted supply applications is to adjust the 4 way supply grille blade positions. Placement of equipment, occupants, the thermostat, and room size can all play an important role in deciding how the conditioned supply air must be directed in an indoor area. The chart below may be used as a reference tool to help with this process.

| SUPPLY GRILLE         | AIRFLOW CFM | DEFLECTION | VELOCITY | TOTAL PRESSURE | THROW     |
|-----------------------|-------------|------------|----------|----------------|-----------|
| <b>SG-2<br/>SG-2W</b> | 800 CFM     | 0°         | 1053     | .076" WC       | 37-52 ft. |
|                       |             | 22.5°      | 1143     | .1" WC         | 28-40 ft. |
|                       |             | 45°        | 1428     | .162" WC       | 20-29 ft. |
|                       | 865 CFM     | 0°         | 1138     | .054" WC       | 40-55 ft. |
|                       |             | 22.5°      | 1236     | .075" WC       | 31-42 ft. |
|                       |             | 45°        | 1544     | .113" WC       | 21-30 ft. |
| <b>SG-3<br/>SG-3W</b> | 885 CFM     | 0°         | 852      | .054" WC       | 37-54 ft. |
|                       |             | 22.5°      | 1075     | .075" WC       | 35-49 ft. |
|                       |             | 45°        | 1162     | .113" WC       | 21-30 ft. |
|                       | 1285 CFM    | 0°         | 1237     | .108" WC       | 42-66 ft. |
|                       |             | 22.5°      | 1359     | .147" WC       | 35-50 ft. |
|                       |             | 45°        | 1687     | .249" WC       | 25-37 ft. |
| <b>SG-5<br/>SG-5W</b> | 1450 CFM    | 0°         | 968      | .073" WC       | 51-73 ft. |
|                       |             | 22.5°      | 1071     | .103" WC       | 39-56 ft. |
|                       |             | 45°        | 1331     | .169" WC       | 28-40 ft. |
|                       | 2000 CFM    | 0°         | 1336     | .130" WC       | 61-86 ft. |
|                       |             | 22.5°      | 1477     | .188" WC       | 54-65 ft. |
|                       |             | 45°        | 1835     | .335" WC       | 33-46 ft. |

## Sound Data - dBA @ 5 ft. and 10 ft.\*

| UNIT        | DUCT FREE IN-DOOR COOLING OPERATION @ 5 FT. | DUCT FREE INDOOR COOLING OPERATION @ 10 FT. | DUCTED INDOOR COOLING OPERATION @ 5 FT. | DUCTED INDOOR COOLING OPERATION @ 10 FT. | OUTDOOR @ 10 FT. |
|-------------|---|---|---|--|------------------|
| W24AB/W24LB | 52.4  | 50.4  | 51.9                                    | 48.9                                     | 62.3             |
| W30AB/W30LB | 53.9  | 52.9  | 54.5                                    | 47.3                                     | 67.1             |
| W36AB/W36LB | 53.9  | 52.9  | 54.5                                    | 47.3                                     | 67.1             |
| W42AC       | 56.1  | 51.7  | 56.3                                    | 51.1                                     | 68.6             |
| W48AC       | 57  | 52.7  | 57.8                                    | 52.8                                     | 69               |
| W60AC       | 56.5  | 53.3  | 56                                      | 52.7                                     | 66.8             |
| W72AC       | 61.2  | 56.6  | 60.8                                    | 57.1                                     | 77.1             |

Integrated values calculated per ANSI/ASA S12.60-2009/Part 2, Section 5.2.2.1.





## Controller, Thermostat, Humidistat and CO2 Ventilation Control Options

Bard provides a wide variety of controllers for equipment cooling, thermostats, for equipment and comfort cooling, humidistats for dehumidification units, and CO2 sensors for ventilation control. Lockable thermostat covers are available for applications where security or supervisory control is desired.

| CONTROLLER    | OPERATION                       | DESCRIPTION   |
|---------------|---------------------------------|---|
| <b>MC4002</b> | 1 to 2 Unit Lead/Lag Controller | Standard unit Lead/Lag Controller with remote alarming capability. Optional alarm board and SNMP or web page communication board. On board temperature sensor that can be remote mounted. Can use up to (2) remote temperature sensors.   |
| <b>MC5300</b> | 1 to 3 Unit Lead/Lag Controller | Advanced multi-unit Lead/Lag Controller with remote alarming capability. All models have Modbus communication and web pages. Optional alarm board with NO/NC contacts. On board temperature and humidity sensor that can be remote mounted. Can use up to (2) remote temperature sensors. |
| <b>MC5600</b> | 1 to 6 Unit Lead Lag Controller | Advanced multi-unit Lead/Lag Controller with remote alarming capability. All models have Modbus communication and web pages. Optional alarm board with NO/NC contacts. On board temperature and humidity sensor that can be remote mounted. Can use up to (2) remote temperature sensors. |

| THERMOSTAT      | OPERATION     | DESCRIPTION  |
|-----------------|---------------|--|
| <b>8403-060</b> | 3 Heat/3 Cool | Programmable or Nonprogrammable, ventilation output, dehumidification operation      |
| <b>8403-089</b> | 1 Heat/1 Cool | Temp. Settings per Day 4, 2, 1, 0 Programs per Week 7, 5-2, 5-1-1 or Nonprogrammable |
| <b>8403-090</b> | 2 Heat/2 Cool | Temp. Settings per Day 4, 2, 1, 0 Programs per Week 7, 5-2, 5-1-1 or Nonprogrammable |
| <b>8403-091</b> | 1 Heat/1 Cool | Easy to use, Nonprogrammable. FEMA use   |
| <b>8403-092</b> | 2 Heat/2 Cool | Programmable or Nonprogrammable, ventilation output, Wi-Fi                           |
| <b>8403-095</b> | 2 Heat/1 Cool | Temp. Settings per Day 4, 2, 1, 0 Programs per Week 7, 5-2, 5-1-1 or Nonprogrammable |

| CO2 CONTROL      | OPERATION | DESCRIPTION  |
|------------------|-----------|--|
| <b>S8403-096</b> | CO2 PPM   | CO2 ventilation control with digital display. On/Off or modulating ventilation operation |

| THERMOSTAT COVER* | SIZE   | DESCRIPTION  |
|-------------------|--|--|
| <b>8405-003</b>   | (Inside) 5-1/16" H x 6-1/16" W<br>(Outside) 6-1/2" H x 7-1/2" W x 2-15/16" D | Clear acrylic with ventilation. Fits all thermostats except 8403-060 |
| <b>8405-005</b>   | (Inside) 5-7/8" H x 8-3/8" W<br>(Outside) 7-1/4" H x 9-3/4" W x 3-3/8" D     | Clear acrylic with ventilation. Fits all thermostats.                |
| <b>8405-006</b>   | (Inside) 5-1/16" H x 6-1/16" W<br>(Outside) 6-3/8" H x 7-3/8" W x 2-7/8" D   | Clear acrylic with ventilation. Fits all thermostats except 8403-060 |

\* Thermostat covers include ventilation, but may effect temperature control reaction time. If security control lockout is needed, the 8403-060 thermostat provides input control lockout features.



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Due to our continuous product improvement policy,  
all specifications subject to change without notice.

