



## **BARD MANUFACTURING COMPANY, INC. WA Series High Efficiency Air Conditioner Engineering Specification Guide**

### **1.0 GENERAL**

Furnish and install a self-contained, vertical, exterior wall mount, through-the-wall air conditioner to be manufactured by Bard Manufacturing Company. The unit shall be approved and listed by Underwriters Laboratories (UL) and Canadian Underwriters Laboratories (CUL). Unit shall be factory assembled, pre-charged, pre-wired, tested and ready to operate. Unit performance shall be certified in accordance with the Air Conditioning and Refrigeration Institute Standard 390-2003 for Single Package Vertical Units. Units shall be rated by EER.

EER must be minimum of 10.0.

Units shall be: 3, 4, 5 ton nominal capacity:

W38A1- nominal 3 ton capacity,

W49A1- nominal 4 ton capacity,

W61A1- nominal 5 ton capacity.

Manufacturers: Capacities shall be as indicated on drawings and units shall be manufactured by Bard Manufacturing Company or prior approved equal.

### **2.0 CONSTRUCTION FEATURES**

#### **2.1 CABINET**

Construction shall be a single, enclosed, weatherproof casing constructed of 20-gauge galvanized steel. Unit base is constructed of 16-gauge galvanized steel. Each exterior casing panel to be bonderized and finished with baked-on exterior polyester enamel paint prior to assembly. The baked-on cured paint finish shall pass the industry rub test with a minimum of 72 rubs MEK (Methyl Ethyl Ketone) or standard rub test of a minimum of 100 rubs using Toluene. Cooling section shall be fully insulated with 1-inch fiberglass to prevent sweating and to muffle sounds. Openings shall be provided for power connections. Access openings appropriate for outside structure to all fan motors and compressor for making repairs and for removing internal components without removing unit from its permanent installation. Fresh air intake and outdoor coil shall be protected from intrusions by a sturdy metal grating with less than 1/4 inch openings.

Separate filter service door shall provide easy access for filter change, by removing 2 screws on filter access door. No large access covers will need to be removed.

## **2.2 DRAIN PAN**

Drain pan shall be constructed of 20-gauge galvanized steel, bonderized and finished with baked-on exterior polyester enamel paint.

## **2.3 INSULATION**

Insulation shall be foil faced for ease of cleaning.

## **2.4 MOUNTING BRACKETS**

Full-length side mounting brackets shall be an integral part of the cabinet.

## **2.5 REFRIGERATION SYSTEM**

All models shall use a high efficiency scroll or compressor. The compressor shall be covered by a 5-year parts warranty. The refrigeration circuit shall be equipped with factory installed high and low pressure controls and liquid line filter dryer. Compressor shall be mounted rubber grommets. Unit shall be provided with R-410A (HFC) non-ozone depleting refrigerant.

## **2.6 CONDENSER FAN MOTOR**

The condenser fan, motor and shroud shall be of slide out configuration for easy access.

## **2.7 INDOOR BLOWER MOTOR**

The indoor blower motor shall be high efficiency ECM motor providing low sound levels with soft start capability and high efficiency operation. Motor will automatically respond to higher static ducted applications without user adjustment or wiring changes.

## **2.8 ELECTRICAL COMPONENTS**

Electrical components are easily accessible for routine inspection and maintenance through front service panels. Circuit breaker is standard on all 208/230-volt models and rotary disconnect standard on all 460-volt models. Circuit breaker/rotary disconnect access is through lockable access panel.

Phase rotation protection and phase failure protection shall be standard factory installed features on all equipment with three-phase power. If unit is wired incorrectly phase monitor will lock out compressor operation and red warning light shall energize. Once power wiring is corrected at field power wiring location, a green light will energize on phase monitor. If a phase of power is lost, the phase monitor will also lock out.

## **2.9 CONTROL CIRCUIT**

The internal control circuit shall consist of a current limiting 24VAC type 65VA transformer with 4A circuit breaker. Compressor Control Module is standard and includes: Built-in-off-delay timer, adjustable from 30 seconds to 5 minutes; 2 minute on delay- if power is interrupted; 120 second low-pressure bypass; and manual lockouts for high and low pressure controls; alarm output for alarm relay.

## **3.0 HEAT OPTIONS (Select One)**

### **3.1 None**

### **3.2 Electric Heat**

The unit shall have a factory installed electric resistance heater available that is designed specifically for application in the WA Series air conditioner. Heater shall include automatic limit safety controls.

## **4.0 VENTILATION OPTIONS (Select One)**

WA models are designed to provide optional ventilation packages to meet all of your ventilation and indoor air quality requirements. All ventilation packages are factory or field installed, and easily removable for service.

### **4.1 BLANK OFF PLATE OPTIONAL**

A blank off plate covers the air inlet openings that restrict any outside air from entering the unit. The blank off plate should be utilized in applications where outside air is not required to be mixed with the conditioned air.

### **4.2 Economizer OPTIONAL**

The built-in economizer system shall be internally mounted and allows outside air, to be introduced through the air inlet openings. The amount of outdoor air varies in response to the system, controls and settings. The economizer module shall be factory or field installed into the ventilation section. The economizer module shall be easily removed for service, or easily added after equipment installation.

The economizer is designed to provide “free cooling” when the outside air temperature is cool and dry enough to provide needed cooling without compressor operation. Standard features of the economizer module:

- One Piece Construction - Easy to install with no mechanical linkage adjustment required.

- Exhaust Air Damper - Built in with positive closed position. Provides exhaust air capability to prevent pressurization of tight buildings.
- Actuator Motor - 24 volt, power open, spring return with built in torque limiting switch.
- Proportioning Type Control - for maximum “free cooling” economy and comfort.
- Moisture Eliminator & Prefilter - permanent, washable aluminum construction.
- Enthalpy Control - adjustable to monitor outdoor temperature and humidity.
- Minimum Position Potentiometer - adjustable to control minimum damper blade position for ventilation purposes.
- Mixed Air Sensor - to monitor outside and return air to automatically modulate damper position.

#### **4.3 COMMERCIAL ROOM VENTILATOR OPTIONAL**

The built-in commercial room ventilator is internally mounted and allows outside ventilation air, up to 50% of the total air flow rating of the unit, to be introduced through the air inlet openings. It includes a built-in exhaust air damper. The damper can be easily adjusted to control the amount of fresh air supplied into the building. Automatic control shall be provided to maintain desired ventilation rate during the different supply airflows of fan only, Stage 1 and Stage 2 modes of operation. The CRV can be controlled by indoor blower operation or field controlled based on room occupancy using CO2 controller. Unit complies with ANSI/ASHRAE Standard 62.1 Ventilation for Acceptable Air Quality.

#### **4.4 ENERGY RECOVERY VENTILATOR OPTIONAL**

The Energy Recovery Ventilator (ERV) shall consist of 1 or 2 rotary wheels in an insulated cassette frame with seals, drive motor and belt. The ERV assembly shall also include intake and exhaust blowers. The entire assembly shall easily slide in or out of the ventilation section, allowing for maintenance or replacement. The total energy wheel shall be coated with silica gel desiccant, permanently bonded without the use of binders or adhesives. The coated segments shall be washable with detergent or alkaline coil cleaner and water. Desiccant shall not dissolve or deliquesce in the presence of water or high humidity. All diameter and perimeter seals shall be provided as part of the cassette assembly and shall be factory set. Drive belts shall not require external tensioners or adjustment. Cassette wheels shall include rims to prevent belts from slipping off wheels. Intake and exhaust blowers shall have selections of high, medium or low speed and selected independently, to allow for positive pressurization if desired. The ERV cassette

including parts and media shall include 5year warranty subject to terms and conditions of Bard's warranty.

## **5.0 FILTER OPTIONS - (Select One)**

- 5.1 1" Fiberglass- MERV 2**
- 5.2 2" Fiberglass – Pleated – MERV 6**
- 5.3 2" Fiberglass - Pleated - MERV 8**
- 5.4 1" Washable**

## **6.0 UNIT CONTROL OPTIONS**

- 6.1 Low ambient control**
- 6.2 Outdoor air thermostat**

## **7.0 OPERATING CONTROLS (Field Installed)**

- 7.1 None**
- 7.2 Electronic non-programmable, manual changeover**
- 7.3 Electronic programmable, auto changeover**

## **8.0 INSTALLATION**

- 8.1 Installation shall be done in strict adherence to Bard's Installation Instructions.**

## **9.0 WARRANTY**

- 9.1 The Bard product specified shall be free from defects in materials and workmanship for a period of 5 years for compressor, and for a period of 5 years for all parts. Warranty period shall start from date of installation as stated on warranty card; or from date of shipment if no warranty card is returned to Bard Manufacturing. Equipment must be used under normal conditions and warranty is subject to Bard Manufacturing's standard limited warranty statement.**