



## **BARD MANUFACTURING COMPANY, INC. QW2S-QW5S Water-to-Air H/P Engineering Specification Guide**

### **1.0 GENERAL**

Furnish and install a self-contained, vertical, floor standing, heat pump to be manufactured by Bard Manufacturing Company, Inc. The unit shall be approved and Listed by Intertek ETL Listed (ETL US/C). Unit shall be factory assembled, pre-charged, pre-wired, tested and ready to operate. Unit performance shall be AHRI Certified in accordance with ISO Standard 13256-1:1998 "Water to Air and Brine to Air Heat Pumps", which includes watt allowance for water pumping. Unit shall include 5 year parts warranty covering compressor, parts, and heat exchange coils, subject to terms and conditions of Bard Limited Warranty Agreement. Unit efficiency shall be specified in terms of EER and COP.

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

### **2.0 CONSTRUCTION FEATURES**

#### **2.1 CABINET**

Constructed of 20 gauge pre-painted or vinyl laminated galvanized steel. Choices available are either two-tone (vinyl) finish with "slate" front panels and "platinum" cabinet for designer appearance, (gray) or (beige) painted steel (select one). Vinyl finish is very resistant to scratching and marring and is easy to clean. Tamper resistant fasteners are provided for access panels. Unit includes built-in rollers for each installation into wall sleeve and removal for service, if necessary. Front panel is hinged and lockable for filter service and access to primary functional electrical controls.

#### **2.2 INSULATION**

Cabinet is fully insulated with foil covered, high-density fiberglass insulation with sealed edge treatment and special sound deadening insulation material in the compressor section. All insulation is designed to resist mold and mildew growth and facilitate ease of cleaning.

## **2.3 COMPRESSOR**

All models shall use a high efficiency scroll compressor with step capacity providing 2 stages of control. 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. The refrigeration control shall be a factory installed TXV. Compressor shall be mounted on isolation rails with double grommets. Unit shall be provided with R-410A (HFC) non-ozone depleting refrigerant. Unit shall be provided with liquid line filter/drier.

Current sensing relay shall be used to detect high amps caused by high ambient and/or low voltage and to shift compressor to 1<sup>st</sup>-stage operation until conditions corrected

## **2.4 COAXIAL WATER COIL**

All models shall have either cupronickel or copper (SELECT ONE); water coil, fully insulated, with double o-ring connections. Copper coils should not be used on open wells.

## **2.6 INDOOR BLOWER MOTOR**

The indoor blower motor shall be a variable speed (ECM) type to produce the same rated airflow from 0 to .8 inch WC of external static pressure (.5 on Q24W model) at low sound levels. The motor is to be self-adjusting to provide proper rated airflow at high static pressures without user adjustment or wiring changes by the user. The motor shall be programmed for 20-second ramp up and 60-second down rate for quiet, smooth starting and stopping. ECM motor shall include preprogrammed speeds for ventilation mode, first stage operation, second stage operation, ducted operation, and non-ducted operation.

## **2.7 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. Lock and key are provided as standard equipment. Unit shall have single point entry for line voltage.

## **2.8 CONTROL CIRCUIT**

The internal control circuit shall consist of a current limiting 24VAC type 65VA transformer with circuit breaker. To prevent rapid compressor short cycling, a five-minute time delay circuit shall be factory installed. Two low-pressure controls shall be included as



The built-in commercial room ventilator (CRV) 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. The CRV shall be modular and easily added or removed from the unit cabinet. 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. The CRV can be controlled by indoor blower operation or field controlled based on room occupancy. Unit complies with ANSI/ASHRAE Standard 62.1 Ventilation for Acceptable Air Quality.

Two Models Available: Spring Return on Power Loss or Deactivation - Vent Option V  
Power Return (will not close on power loss)  
– Vent Option P

#### **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 unit cabinet, 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.

The ERV thermal performance shall be certified by the manufacturer in accordance with ASHRAE Standard 84, Method of Testing Air-to-Air Heat Exchangers and ARI Standard 1060, Rating for Air-to-Air Energy Recovery Ventilation Equipment Cassettes, and shall be listed in the ARI Certified Products. Unit complies with ANSI/ASHRAE Standard 62.1 Ventilation for Acceptable Air Quality.

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

**5.1 2" Fiberglass – Pleated – MERV 8**

**6.0 HOT GAS REHEAT- (Factory installed option)**

**6.1** The dehumidification circuit incorporates an independent heat exchanger coil in the supply air stream in addition to the standard evaporator coil. This coil reheats the supply air after it passes over the cooling coil, and is sized to nominally match the sensible cooling capacity of the evaporator coil. Extended run times in dehumidification mode can be achieved using waste heat from the refrigeration cycle to achieve the reheat process, while at the same time large amounts of moisture can be extracted from the passing air stream.

**7.0 CABINET COLOR – (Select One)**

**7.1** Washable Vinyl- Two-Tone Finish with Slate front and platinum sides

**7.2** Slate Gray

**7.3** Beige

**9.0 CONTROLS – (Select one of the following factory mounted control options)**

**9.1** None

**9.2** Electronic non-programmable, manual changeover

**9.3** Electronic programmable, auto changeover

**9.4** Electronic programmable, auto changeover, with dehumidistat

**9.5** Electronic non-programmable, auto changeover, with humidistat

**10.0 ACCESSORIES**

**10.1 WALL SLEEVE**

Wall sleeve shall be factory supplied and must be constructed of 16 gauge-galvanized steel, coated with an epoxy primer and baked-on polyester enamel paint. It shall be designed to withstand a minimum of 1000 hours of salt spray protection when tested per ASTM B117-03 standard. One sleeve size fits all models. Sleeve only required when a ventilation option is selected.

**10.2 Exterior Louver**

Furnish factory louver designed for condenser air and outside air

intake and exhaust. Louver shall have a powder coat finish. See our color chart for color selections. Louver required with sleeve with the use of any ventilation option.

#### **10.4 AIR DISTRIBUTION – (Select 1)**

- 10.3.1 The Q-Tec shall have a discharge air plenum with double deflection register mounted on front.
- 10.3.2 The Q-Tec shall have a discharge air plenum with double deflection supply register on the front and both sides.
- 10.3.3 The Q-Tec shall be ducted with a cabinet extension to cover ductwork

#### **11.0 WARRANTY**

- 11.1 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.

#### **12.0 INSTALLATION**

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

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