

CSLM Construction Inc.
27472 Portola Pkwy #205-301
Foothill Ranch, CA 92610
Phone: (866) 764-9091



Owner Information:

City of Murrieta
Department of Municipal Services
1 Town Square
Murrieta, CA 92562
Attn: Bryce Wilson
(951) 461-6429

Project Address:

Fire Station No. 1
41825 Juniper St.
Murrieta, CA 92362

Date: February 13, 2026

Estimate No.: 9825-42 (A1002 Appliances Not Included)

Title of Bid: Fire Station No. 1 Remodel / Temporary Modular Dwelling Quarters

Bid Description:

CSLM Construction Inc. will provide and install a fully remodeled, like-new 24' x 40' modular dwelling quarters per the designated custom layout provided by the City of Murrieta. CSLM scope of work to include provision, delivery, and installation of the modular dwelling quarters along with provision of two new galvanized steel step with step attachment for both exterior doors, as identified in finish and material selections section. All work will be performed under prevailing wage requirements and delivered turnkey, excluding utilities and site prep.

Estimated Lead Times:

- 24' x 40' Modular Living Quarters: 4–6 weeks – Ready to deliver
- Delivery and Installation: 3-5 business days, from NTP.
- **Total Project Timeline including Delivery and Installation: 5–7 weeks**

*** Note, CSLM operates on a first come first serve basis and thus, lead times are subject to change in accordance with when the project moves forward. Lead time based on current schedule and order queue.

24' x 40' Modular Living Quarters – Cost Breakdown:

- Building Price (Fully Refurbished): \$159,806.66
- (Upgrade) New 4.0 Ton Bard HVAC System: \$14,062.50
- Addition (12.10.2025),
 Add Three Ceiling Fans into Bedroom and One to Living Room: \$4,800.00
- Transport to Site (Q1): \$6,000.00 – Total: \$6,000.00
- Install Modular Living Quarters Temp Foundation (Q1): \$11,020.00 – Total: \$11,020.00
 *Tiedowns not included.
- Foundation Materials (Q1): \$1,847.56 – Total: \$1,847.56
- Close-Up Materials (Q1): \$650.00 – Total: \$650.00

Modular Subtotal with New HVAC Upgrade Optioned: \$197,366.72

New Galvanized Steel Step and Ramp – Cost Breakdown:

- Deliver & Install New Galv. Step and Step Attachment (Q2): \$5,000.00

*** Note: Used and/or refurbished options can be provided upon request; subject to inventory availability. Pricing reductions to apply accordingly.

Subtotal: \$5,000.00

Administration & Logistics Coordination (Prevailing Wage Project):

Includes certified payroll processing, labor compliance, project coordination, crew scheduling, and document control.

Total: \$2,250.00

Project Summary:

- **Project Subtotal:** \$205,436.72
- **Sales Tax (7.75%) :** \$12,385.02

Total Project Estimate: \$217,821.74

Sales tax has been included in this estimate under the assumption this project does not qualify for a government exemption. If this assessment is incorrect and sales tax exemption is applicable, please advise right away.

Site must be level within 6" for optimal installation. If the site requires grading, rolling, or if high/low set conditions are present, additional charges may apply.

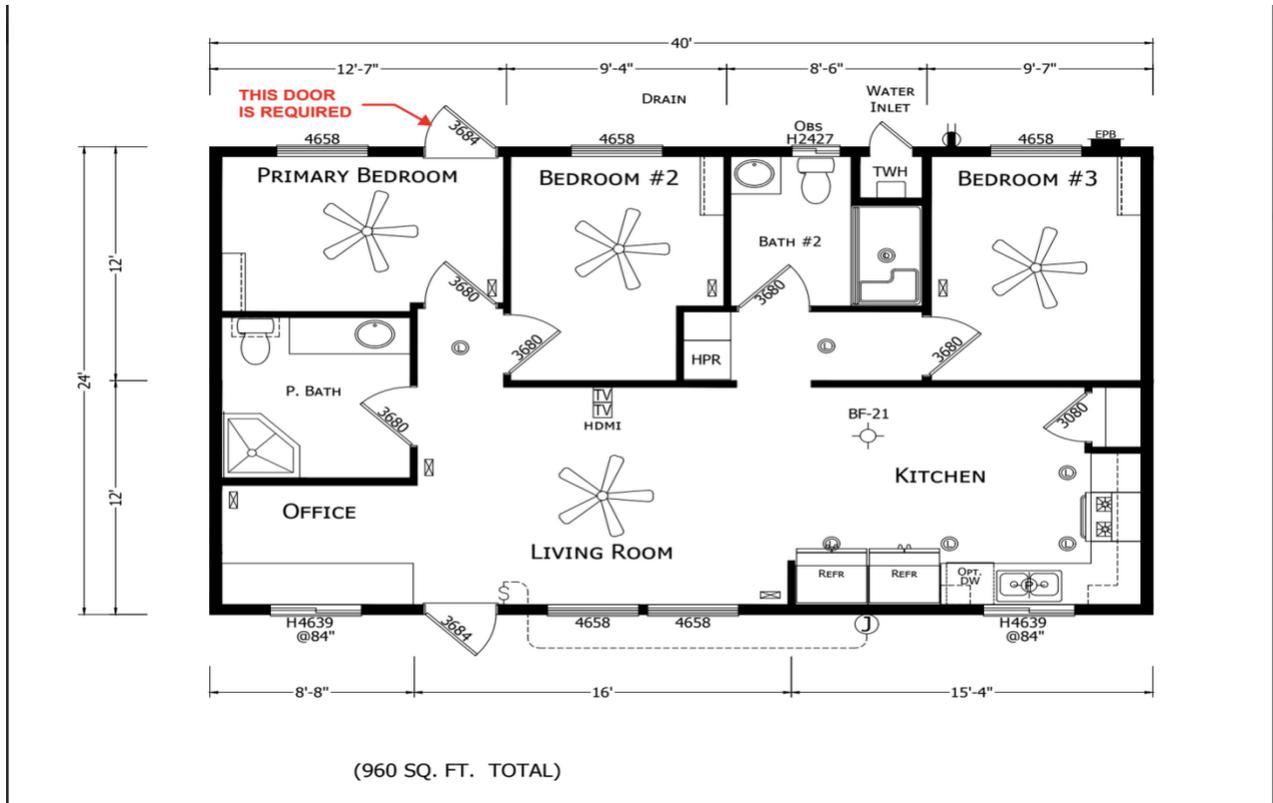
Payment Schedule

In coordination with City of Murrieta fiscal regulations and standards, all payments to be set on NET 30 payment terms from receipt of invoice and approval of work completed by an agency authorized representative. The contractor, CSLM Construction Inc, suggests the following payment schedule to be implemented:

(50%) Initial Deposit to Secure Lead Time and Initiate Fabrication: \$108,910.87

(35%) Progress Billing Due Upon Delivery: \$76,237.61

(15%) Retention/Final Billing Due Upon Notice of Completion: \$32,673.26



Exclusions & Clarifications

The following items are **expressly excluded** from CSLM Construction Inc.'s scope of work unless otherwise stated in writing:

1. Permitting & Approvals

- All city, county, or state permits, entitlement fees, plan check fees, inspections, registrations, and approvals.
- Any requirements by local jurisdictions for design changes, foundation systems, accessibility compliance, fire/life-safety, grading, drainage, or utility upgrades.
- Title 24, structural calculations, civil plans, or architectural drawings beyond the modular manufacturer's standard plans (unless contracted separately).
- Customer has opted for temporary foundation plan to enable ease of relocation. CSLM not responsible for provision of engineered foundation plan or calculations. Should this be required at a later date, applicable fees shall apply to be paid by the owner.

2. Site Preparation & Foundation Work

- Grading, leveling, compaction, demolition, clearing, or removal of existing structures or utilities.

- Foundation systems, concrete work, piers, pads, anchorage, soil engineering, or geotechnical reports unless explicitly included.
- Any site conditions requiring repairs or remediation prior to installation.

3. Utility Connections

- Electrical, sewer/septic, water, gas, fire sprinkler, low-voltage, telecom/data, or any on-site utility tie-ins or extensions.
- Trenching, conduit, piping, backfilling, or utility relocation.
- Temporary power or temporary facilities.

4. Transportation & Access Requirements

- Road improvements, traffic control, flaggers, police escorts, shutdowns, off-hour deliveries, or transportation permits.
- Access modifications such as tree trimming, widening, or removal of obstructions.

5. On-Site Construction Beyond Modular Scope

- Decks, porches, landings, ramps (unless included), steps, awnings, skirting, underpinning, or exterior finishes.
- Fences, gates, hardscape, landscape, irrigation, and site lighting.
- Interior furnishings, appliances, décor, or customer-provided equipment.

6. HVAC, Mechanical, & Specialty Systems

- HVAC start-up, ducting modifications, exhaust systems, gas lines, or specialty mechanical engineering beyond the modular unit's factory installation.
- Fire alarm systems, fire sprinklers, extinguishers, monitoring, or fire department fees.
- Security, access control, cameras, or low-voltage systems.

7. Compliance-Driven Changes After Contract Execution

- Any additional work required due to changes in code interpretation, inspector-driven revisions, unforeseen jurisdictional requirements, or new mandates imposed after contract signing.
- Relocation, reinstallation, or rework required due to owner or jurisdictional requests.

8. Unforeseen Conditions

- Latent site conditions, hazardous materials (asbestos, contaminated soil, mold, etc.), underground obstructions, or unknown utilities.
- Any delays or costs arising from conditions outside CSLM's control (weather, site access, third-party contractors, etc.).

9. Warranty Limitations

- Damage caused by improper site prep, utility failures, external contractors, misuse, vandalism, or acts of God.
 - Warranty does not cover owner-performed repairs or modifications performed without CSLM approval.
-

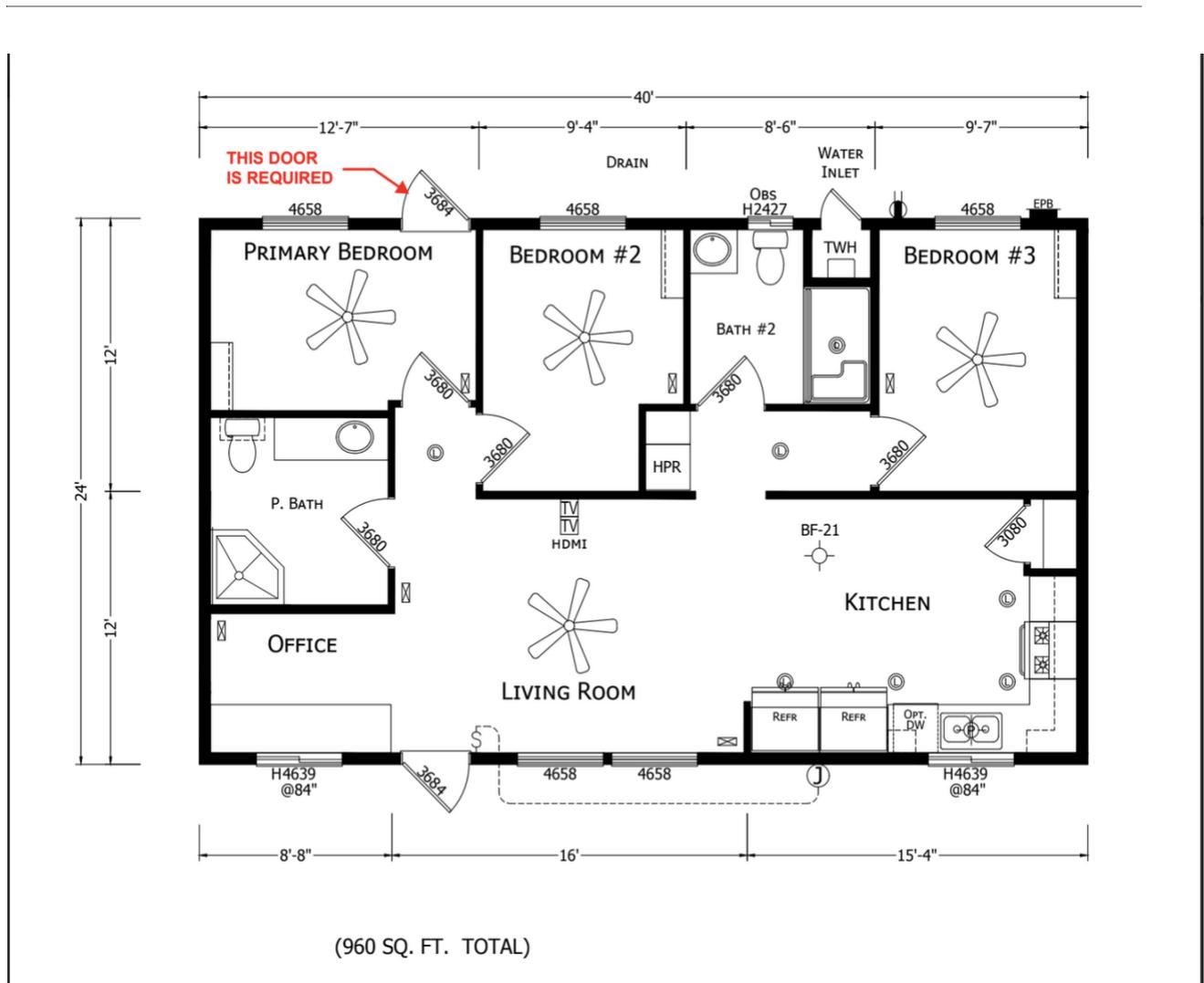
Additional Notes

- Lead time begins only after **signed proposal, signed floor plan approval, and deposit** are received. Purchase order will be required prior to fabrication start date.
- Pricing is based on information provided at the time of the bid; changes in site conditions, scope, or jurisdictional requirements may affect cost.
- Any additional work requested by the client will require a written change order.

CSLM Construction Inc.

Standard Modular Building Finishes & Selections

Purpose: This document outlines the standard finishes, materials, and selections used in CSLM modular buildings. Sections are intentionally formatted to allow insertion of photos, product cut sheets, or project-specific notes. Final selections may vary by project, jurisdiction, and client requirements.



Date: 2/6/2026

1. Exterior Construction

Exterior Wall System

- Wall Construction: T1-11 Siding, House Wrap, 2x6 Studs, R-19 Insulation, 5/8 Dry Wall
- Insulation (R-Value): R-19

Exterior Finish (Standard)



- Material: T1-11 Smart Siding
- Color: Body Color / Dunn Edwards Whisper Gray

Roof System

- Roof Type: _____
- Roofing Material: EPDM
- Insulation: R-39

Exterior Doors & Windows

- Door Type: Commercial Metal Door 36"x84" Standard
 - Window Type (dual pane, tempered, etc.): Plygem 24"x48" Vinly Cased Window
 - Finish / Color: Door (Trim Color) / Window (White)
-

2. Interior Wall & Ceiling Finishes

Interior Wall Finish (Standard)



- Wall Type: Dry Wall
- Finish (e.g., vinyl wrapped gypsum, painted drywall): 4'x8' Luan Wall Panel; Vinyl Wrapped Gypsum
- Color: Hampton Grey

Ceiling System



- Ceiling Type: 2'x4' Random Fissured Vinyl Faced Fiberglass Ceiling Tile (Insulated)
 - Height (AFF): 8' Interior Drop Ceiling
 - Finish / Color: White
-

3. Flooring

Standard Flooring



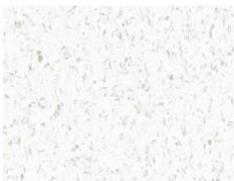
Vinyl Location: Kitchen

Carpet Tile Location: Living Room and Bedrooms

VCT Location: Bathroom/Restroom

- Material (e.g., VCT, LVT, carpet tile): Carpet Tile, VCT, and Vinyl Flooring Combination
- Size: Carpet Tile 2'x2' AND VCT 1'x1'
- Color / Pattern: Black/Grey Patterned Carpet Tile AND Stone Tan VCT

Optional Flooring Upgrades



- Notes / Cost Impact: \$0.00 Substitution



- Notes / Cost Impact: \$2,396.80
-

4. Millwork, Cabinets & Countertops

Cabinetry (Bathroom)



- Material: Plywood Cabinet
- Finish / Color: White
- Hardware: Grey or Black

Cabinetry (Kitchen)



- Material: Plywood Cabinet
- Finish / Color: Soft Grey or White Available Standard; (Additional Option: Navy and Sand)
- Hardware: Black

Countertops (Standard)



- Material (e.g., plastic laminate, solid surface): Formica Laminate Countertop
- Edge Profile: Framed, Non-Rounded

Optional Upgrades

- * Customer can choose granite or marble countertop of their choice. Additional pricing to apply.
 - Notes / Cost Impact: Pricing TBD Upon Customer Request
-

5. Electrical & Lighting

Lighting (Standard)



- Fixture Type: AT3 2'x4' Troffer Straight Floating LED Center
 - Color Temperature: 3000K
-

6. Plumbing Fixtures (If Applicable)

Standard Fixtures



- Sink Type: Kraus Loftan Kitchen Combination Sink
 - Faucet Type: Standard Widespread 2-Handle Bathroom Faucet in Chrome
 - ADA Compliance: Yes No
-

7. HVAC System

HVAC (Standard)

- System Type: Refurbished Bard 4 Ton Wall Hung R410A Air Conditioning Unit with Heat Strip Factory Installed
- Tonnage / Capacity: 4.0 Ton

Optional Upgrades Option Selected 2.12.2026

- System Type: Bard 4 Ton Wall Hung R410A Air Conditioning Unit with Heat Strip Factory Installed
 - Tonnage / Capacity: 4.0 Ton
 - Notes / Cost Impact: \$14,062.50
-

8. Appliances

Standard Included Appliances



Ceiling Fan: Clarkson 44 in. LED Indoor Bronze Ceiling Fan

Water Heater: Rheem Performance 40 Gal. Medium 4500-Watt Electric Water Heater

Other: _____

Optional / Add-On Appliances (Additional Cost) **No Additional Appliances Selected**



Refrigerator: Whirlpool 36" Full-Depth Refrigerator in Fingerprint Resistant Stainless Finish

Cost Impact: \$2,855.75



Microwave: Whirlpool 1.9 cu. Over-the-Range Microwave in Stainless Steel

Cost Impact: \$386.25



Range / Cooktop: Whirlpool 4 Burner Element Single Oven Electric Range in Stainless Finish

Cost Impact: \$2,976.12



Dishwasher: Whirlpool 24" Built-In Tall Tub Dishwasher in Fingerprint Resistant Stainless Finish

Cost Impact: \$2,306.87

Water Heater Upgrade: Rheem Performance 55 Gal. Medium 4500-Watt Electric Water Heater

Cost Impact: \$2,925.44

Other: _____

9. Notes & Project-Specific Selections

General Scope Clarification

The finishes, selections, and specifications outlined herein represent CSLM Construction Inc.'s standard modular building package unless otherwise noted. Any deviations, upgrades, or project-specific requirements shall be identified in writing and may result in adjustments to pricing, lead time, or scope.

Turnkey Definition

Unless explicitly excluded, CSLM's turnkey scope generally includes the fabrication or refurbishment of the modular building(s), delivery to site, set and installation, and completion of the modular building shell and interior per the agreed-upon scope. Site preparation, utilities, and civil work are excluded unless specifically listed.

Site Work & Utilities (Excluded Unless Noted)

Site preparation, grading, foundations, utility connections (including but not limited to electrical, plumbing, data, sewer, water, gas), and any associated trenching or civil work are by others unless specifically included in the proposal or agreement.

Code Compliance & Jurisdictional Requirements

All modular buildings are manufactured in accordance with applicable California Building Code (CBC) requirements at the time of production. Local jurisdictional requirements, agency-specific standards (including DSA where applicable), and plan check comments may require modifications that could impact cost or schedule.

Finish Availability & Substitutions

Finish materials, fixtures, and appliances are subject to availability at the time of procurement. CSLM reserves the right to substitute materials of equal or greater quality if original selections become unavailable, discontinued, or subject to extended lead times, with client notification.

Refurbished Units (If Applicable)

For refurbished modular buildings, finishes and components are selected to achieve a high-quality appearance and performance standard. Minor cosmetic variations may occur due to the nature of refurbishment, though all systems are fully inspected and brought to operational standards.

On-Site Installed Components

Certain components—such as flooring, cabinetry, countertops, appliances, or specialty finishes—may be installed on site depending on project requirements, logistics, or jurisdictional constraints. These items may not be present in factory progress photos.

Lead Times & Scheduling

Production lead times and installation durations are estimates based on current workloads, material availability, and project readiness. Final scheduling is contingent upon receipt of a signed agreement, required deposits, approved drawings, and Notice to Proceed (NTP).

Plans & Engineering

Modular drawings and engineering are prepared only upon request at additional cost for permitting and construction purposes. Not standard included.

Photos & Marketing Use

Any photos provided or taken during fabrication or installation may be used by CSLM for marketing purposes unless otherwise requested in writing by the client.

Final Scope Governs

The final executed agreement, along with its exhibits and approved plans, shall govern the complete scope of work. Verbal discussions or preliminary documents are non-binding unless incorporated into the final contract.

Disclaimer: Final finishes and selections are subject to availability, code requirements, and project-specific approvals. CSLM Construction Inc. reserves the right to substitute equal or better materials as required.

Client Acknowledgment & Approval

By signing in the spaces provided above, the undersigned acknowledges and approves the listed finish selections as indicated within this document. For any finishes noted as "pending," the client understands there is still an opportunity to finalize these selections.

All approved finishes may be revised at the client's request **up until rough electrical and rough plumbing are completed and have passed inspection.** After that point, materials will be ordered, and fabrication/installation will proceed accordingly.

Any changes requested following that stage of construction may result in additional charges for labor, materials, and/or schedule impacts.

Client Approval for Exterior and Interior Selections:

Authorized Personnel Name/Title: _____

Signature: _____ Date: _____

FOR CSLM CONSTRUCTION INC. USE ONLY

The following signature confirms that the above-listed selections have been reviewed and are approved by CSLM for use in the project, based on the customer's approval and current project status.

CSLM Representative Name: _____

Title: _____

Signature: _____

Date: _____



Front Control Electric Ranges

PRODUCT MODEL NUMBERS

WEC310S0L WEE515S0L WEE515SAL YWEE515S0L

ELECTRICAL CONNECTION

To properly install your range, you must determine the type of electrical connection you will be using and follow the instructions provided for it here.

- Range must be connected to the proper electrical voltage and frequency as specified on the model/serial/rating plate. The model/serial/rating plate is located behind the oven door on the top right-hand side of the oven frame.
- This range is manufactured with the neutral terminal connected to the cabinet. Use a 3-wire, UL listed, 40- or 50-amp power supply cord (pigtail). See the following Range Rating chart. If local codes do not permit ground through the neutral, use a 4-wire power supply cord rated at 250 volts, 40- or 50-amps and investigated for use with ranges.

Range Rating*		Specified Rating of Power Supply Cord Kit and Circuit Protection
120/240 Volts	120/208 Volts	Amps
8.8 - 16.5 KW	7.8 - 12.5 KW	40 or 50**
16.6 - 22.5 KW	12.6 - 18.5 KW	50

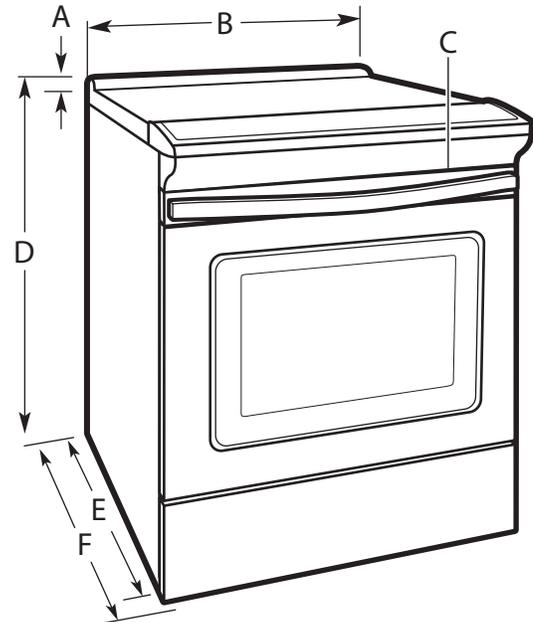
* The NEC calculated load is less than the total connected load listed on the model/serial/rating plate.

** If connecting to a 50-amp circuit, use a 50-amp rated cord with kit. For 50-amp rated cord kits, use kits that specify use with a nominal 1³/₈" (3.5 cm) diameter connection opening.

- A circuit breaker is recommended.

PRODUCT DIMENSIONS

This manual covers several models. Your model may appear different from the models depicted. Dimensions given are maximum dimensions across all models.



- A. 1³/₈" (3.0 cm) height from cooktop to top of vent
- B. 29⁷/₈" (75.9 cm)
- C. Model/serial/rating plate (located behind the oven door on the top right-hand side of the oven frame)
- D. WEE515SAL: 34" (86.4 cm) height to top of cooktop edge with leveling legs screwed all the way in*
Other models: 36" (91.4 cm) height to top of cooktop edge with leveling legs screwed all the way in*
- E. 28²⁵/₆₄" (72.1 cm) max. depth from front of console to back of range
- F. 29¹/₆₄" (73.7 cm) max. depth from handle to back of range

IMPORTANT: Range must be level after installation. Follow the instructions in the "Level Range" section of the Owner's Manual. Using the cooktop as a reference for leveling the range is not recommended.

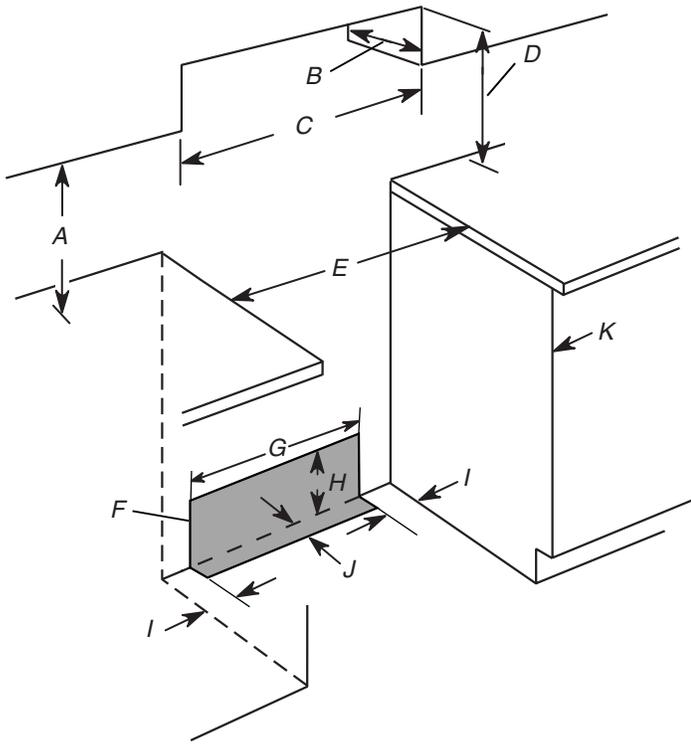
* Range can be raised approximately 1" (2.5 cm) by adjusting the leveling legs.

CABINET DIMENSIONS

Cabinet opening dimensions shown are for 25" (64.0 cm) countertop depth, 24" (61.0 cm) base cabinet depth and 36" (91.4 cm) countertop height.

IMPORTANT: If installing a range hood or microwave hood combination above the range, follow the range hood or microwave hood combination installation instructions for dimensional clearances above the cooktop surface.

Range may be installed next to combustible walls with zero clearance.



- A. 18" (45.7 cm) upper side cabinet to countertop
 - B. 13" (33 cm) max. upper cabinet depth
 - C. 30" (76.2 cm) min. opening width
 - D. For minimum clearance to top of cooktop, see NOTE*.
 - E. 30" (76.2 cm) min. opening width
 - F. The shaded area is recommended for installation of grounded outlet.
 - G. 13¹/₈" (33.3 cm)
 - H. 7¹¹/₁₆" (19.5 cm)
 - I. 4¹³/₁₆" (12.2 cm)
 - J. 3¹¹/₁₆" (9.4 cm)
 - K. Cabinet door or hinges should not extend into the cutout.
- * **NOTE:** 24" (61.0 cm) minimum when bottom of wood or metal cabinet is shielded by not less than 1/4" (0.64 cm) flame retardant millboard covered with not less than No. 28 MSG sheet steel, 0.015" (0.4 mm) stainless steel, 0.024" (0.6 mm) aluminum or 0.020" (0.5 mm) copper. 30" (76.2 cm) minimum clearance between the top of the cooking platform and the bottom of an uncovered wood or metal cabinet.

PERFORMANCE®



The new degree of comfort.®

PERFORMANCE® electric water heaters feature dual copper heating elements and a six-year warranty

Efficiency

- .90 - .93 UEF
- Isolated tank design reduces conductive heat loss
- Dual 3800W or 4500W copper heating elements depending on unit

Performance

- FHR: 33 - 61 gallons, based on gallon capacity
- Recovery: Up to 21 GPH at a 90° F rise, depending on model†

Longer Life

- Premium grade anode rod provides long-lasting tank protection

Features

- Electric junction box located above heating elements for easy installation
- Over-temperature protector cuts off power in excess temperature situations

Plus...

- Temperature and pressure relief valve included
- Models are compliant to HUD Standards for manufactured housing and modular construction
- Low lead compliant

Warranty

- 6-Year limited warranty for tank and parts, 1-year full in-home labor warranty*

*See written warranty for complete details

Units meet or exceed ANSI requirements and have been tested according to D.O.E. procedures. Units meet or exceed the energy efficiency requirements of NAECA, ASHRAE standard 90, ICC Code and all state energy efficiency performance criteria.



PERFORMANCE
20 to 50-Gallon Capacities
240 Volt AC/Single Phase
Double and Single Element Models



See specifications chart on back.



The new degree of comfort[®]

PERFORMANCE[®] Electric Specifications

Fuel Type	Description	Nominal Gallon Capacity	Rated Gallon Capacity	Model Number	Recovery in G.P.H. 90° F Rise	First Hour Rating (Gallons)	Tank Height A	Height to Water Conn. B	Diameter C	Ship Weight (LBS.)	Uniform Energy Factor (UEF)
Electric	Tall	50	45	XE50T06ST45U1	21	61	58-7/8	61-5/8	20-1/4	121	0.93
Electric	Medium	50	45	XE50M06ST45U1	21	61	48	50-1/2	23	132	0.93
Electric	Short	47	43	XE47S06ST45U1	21	54	32	34	26-1/4	148	0.93
Electric	Tall	40	36	XE40T06ST45U1	21	54	60-3/4	63-5/8	19-1/4	109	0.93
Electric	Medium	40	36	XE40M06ST45U1	21	53	48-1/4	50-1/2	20-1/4	106	0.93
Electric	Medium	40	36	XE40M06ST38U1	17	52	48-1/4	50-1/2	20-1/4	106	0.93
Electric	Short	38	35	XE38S06ST45U1*	21	51	31-1/2	34	23	108	0.92
Electric	Short	38	35	XE38S06ST38U1*	17	49	31-1/2	34	23	108	0.91
Electric	Short	36	33	XE36S06ST45U0	21	46	31-1/2	33	24-1/4	118	0.92
Electric	Short	36	33	XE36S06ST38U0	17	34	31-1/2	33	24-1/4	118	0.92
Electric	Tall	30	27	XE30T06ST45U1	21	46	47-1/2	50-3/8	19	92	0.92
Electric	Tall	30	27	XE30T06ST38U1	17	44	47-1/2	50-3/8	19	92	0.92
Electric	Medium	30	27	XE30M06ST45U1	21	45	37-1/2	40-1/2	20-1/4	92	0.90
Electric	Short	30	27	XE30S06ST45U1**	21	46	30	32	19-3/4	110	0.92
Electric	Short	30	27	XE30S06ST38U1**	17	33	30	32	19-3/4	110	0.92
Electric	Short	28	25	XE28S06ST45U0	21	45	30	31-1/8	23	95	0.92
Electric	Short	28	25	XE28S06ST38U0	17	45	30	31-1/8	23	95	0.92
Electric	Short	20	N/A	XE20S06ST38U0	17	N/A	31-1/2	31-1/2	17	62	N/A

*Insulation blanket(s) required to achieve UEF value. Water heater dimensions prior to installing insulation blanket(s). Blanket(s) will be included with water heater. The blanket(s) add 2 inches to the tank height and 4 inches to tank diameter.

**Insulation blanket(s) required to achieve UEF value. Water heater dimensions prior to installing insulation blanket(s). Blanket(s) will be included with water heater. The blanket(s) add 2-1/2 inches to the tank height and 10 inches to tank diameter.

Uniform Energy Factor and rated gallon capacity based on Department of Energy (DOE) requirements.

- Heaters furnished with standard 240 volt AC, single phase non-simultaneous wiring, and 4500 watt upper and lower heating elements.
- All models equipped with heat traps.

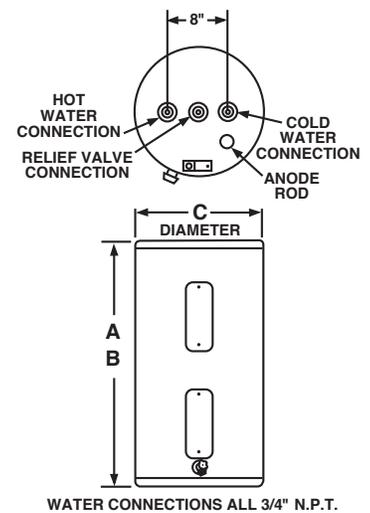
$${}^1\text{Recovery} = \frac{\text{wattage}}{2.42 \times \text{temp. rise } ^\circ\text{F.}}$$

Example: $\frac{4500\text{W}}{2.42 \times 90^\circ} = 21 \text{ GPH}$

$${}^1\text{Recovery} = \frac{\text{wattage}}{2.42 \times \text{temp. rise } ^\circ\text{F.}}$$

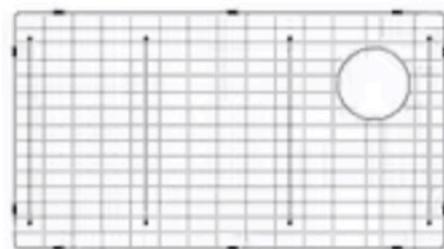
Example: $\frac{3800\text{W}}{2.42 \times 90^\circ} = 17 \text{ GPH}$

¹Recovery calculations used are based on 4500 watt elements used in non-simultaneous operation.



In keeping with its policy of continuous progress and product improvement, Rheem reserves the right to make changes without notice.

Rheem Water Heating • 1115 Northmeadow Parkway, Suite 100
Roswell, Georgia 30076 • www.rheem.com

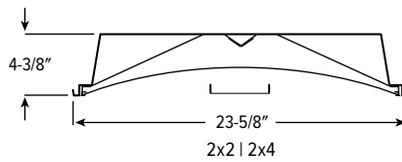


LOFTEN™ KITCHEN COMBO

Kräus®

The Loften™ kitchen combo features a high-performance stainless steel sink with easy drop-in installation, and a pull-down semi-pro faucet with an optimized 18" height. With high-quality construction and universal style, this combo is guaranteed to enhance the look and functionality of any kitchen





CATALOG #: _____

TYPE: _____

PROJECT: _____



FEATURES

- Backlit curved lens provides uniform illumination for visual comfort
- Distinct straight floating center detail creates a highly-aesthetic presence
- Sleek, extruded center complements MX4 continuous light series
- HE option delivers superior efficacies up to 146 lm/W
- Hinged door frame with optical assembly swings down to allow easy access from room side of fixture
- Diffuse or perforated lens options enhance the space
- Optional gasketed acrylic lens helps protect against contaminants
- Anti-microbial finish option suppresses the spread of dangerous microorganisms, mold, and bacterial growth
- Wireless in-fixture control solutions available
- Made Right Here® in the USA

SPECIFICATIONS

- HOUSING** – Precision die-formed 22-gauge C.R.S.
- DOOR FRAME** – Hinged, flat, extruded aluminum door frame with optical assembly.
- SHIELDING** – Diffuse molded acrylic lens with center detail.
- FINISH** – 95% reflective white polyester powder coat bonded to phosphate-free, multi-stage pretreated metal. All parts painted after fabrication to facilitate installation, increase efficiency, and inhibit corrosion.
- ELECTRICAL** – High-quality mid-power LED boards. L70 >60,000 hours per IES TM-21. L80 > 102,000 hours with HE option. 50/60 Hz constant current driver.
- MOUNTING** – NEMA Type “G” 15/16” or 1” grid standard. For NEMA Type “NFG” and “SG” 9/16” grid installations, specify EQCLIPS option. Drywall flange kit available, see options.
- LISTINGS** –
 - cCSAus certified as luminaire suitable for dry or damp locations.
 - IC-rated for direct contact with insulation.
 - City of Chicago Environmental Air approved when specified with CP option.
 - Build America, Buy America (BABA) and Buy American Act (BAA) compliant. Request certification at hew.com/buy-american
- WARRANTY** – 5-year limited warranty, see hew.com/warranty

ORDERING EXAMPLE: AT3 - 2 4 - L70/835 - D - OPTIONS - CONTROL/DIM - UNV

SERIES	WIDTH	LENGTH	LUMENS ^[1]	CRI	CCT	SHIELDING
AT3	1 1' ^[2]	2 2'	1x4	8 80	27 2700K	D Diffuse matte acrylic center
		4 4'	L30 3,000lm	9 90	30 3000K	P Perforated center ^[3]
	2 2'	L50 5,000lm		35 3500K		
		L63 6,300lm		40 4000K		
		2x2		50 5000K		
	2x2	L30 3,000lm				
		L40 4,000lm				
		L50 5,000lm				
	2x4	L40 4,000lm				
		L55 5,500lm				
		L70 7,000lm				
		L100 10,000lm				

OPTIONS

- EM/10W** 10-watt emergency battery ^[5]
- EM/10WLP** Low-profile 10-watt emergency battery ^[6]
- EM/12W** 12-watt emergency battery ^[7]
- EQCLIPS** Earthquake clips ^[8]
- (L__)** Additional lower lumen packages available ^[9]
Example: 5,000 nominal lumens = AT3-24-L55/835-D-(L50).
- HE** High efficacy lumen package ^[10]
- SS** Sani-shield acrylic cover with double gasket ^[11]
- SS/PC** Sani-shield polycarbonate cover with double gasket ^[12]
- AMW** Anti-microbial white finish
- NEMA F** Flange kit, factory installed ^[13]
- CP** Chicago Plenum (CCEA)

CONTROL ^[4]

- See page 5 for ADDITIONAL CONTROL OPTIONS.
- None
 - AVI-LVFA** Avi-on wireless fixture control ^[14]
 - AVI-LVFA-CS2-PIR** Avi-on wireless fixture control with PIR motion and daylight sensor ^[15]
 - AWN** Lutron Athena wireless node integral fixture control, RF only ^[16]
 - AWNS** Lutron Athena wireless node integral fixture control, RF with daylight and occupancy sensing ^[17]

DRIVER

See page 5 for ADDITIONAL DRIVER OPTIONS.

DRIVER	VOLTAGE
EM Driver with external 0-10V dimming wires	120 120V
DRV Driver without external dimming wires	277 277V
DA Driver with 12V auxiliary power, without external dimming wires ^[18]	UNV 120-277V
DSR Sensor-ready driver without external dimming wires (D4i DALI-2) ^[19]	347 347V ^[20]

NOTES

- Lumen output based on D Shielding, 80 CRI/3500K CCT. Actual performance may vary +/-5%, see page 2 for FIXTURE PERFORMANCE DATA. Additional lumen package available, see Options.
- 4' length only.
- Decreases lumen output by 15%
- See page 4 for AVI-ON BLUETOOTH WIRELESS CONTROL DETAILS. See page 3 for SENSOR & NODE PLACEMENT DETAILS.
- 2x2, 2x4 only.
- 1x4 only.
- 2x2, 2x4 only. Not available when CEC regulations are required.
- 4 per fixture. Optional for 1" grid installations. Required for 9/16" grid mounting. Not available with NEMA F Option.
- Specify in increments of 100 nominal lumens. Option must be specified with next higher lumen package.
- Not available with 2x4 L40 lumen package. See page 2 for FIXTURE PERFORMANCE DATA.
- Reduces lumen output by 10%. See page 3 for FIXTURE DETAILS.
- Reduces lumen output by 10%. See page 3 for FIXTURE DETAILS.
- See page 3 for CROSS SECTIONS.
- DA Driver only.
- DA Driver only.
- DA and DSR Drivers only.
- DA and DSR Drivers only.
- Avi-on and Lutron Athena Controls only.
- Lutron Vive and Athena Controls only.
- Not available with EM batteries, DA, or DSR drivers.



Braeburn®

2200NC

**Up to 2 Heat / 1 Cool
Conventional or Heat Pump
5-2 Day Programmable Thermostat**



ACTUAL SIZE



Features

- 5-2 Day Separate Weekend / Weekday Programming
- Bright Blue Display Backlight
- Adjustable Temperature Limits
- Hardwire or Battery Powered
- Permanent Memory Retains Settings
- Filter Check Monitor
- Adjustable Temperature Differentials
- Adaptive Recovery Mode (ARM™)
- F° / C° Switch
- Meets Energy Aware® Guidelines*
- Low Battery Indicator
- Separate O & B Terminals
- Auxiliary Heat Status Indicator
- ESD Guard™ Electronic Circuitry
- Compressor Short Cycle Protection
- Temporary Program Override
- Programmable Extended Hold Mode
- Front Access Reset Button
- Mounts to Horizontal Box

**BUILDER
SERIES**

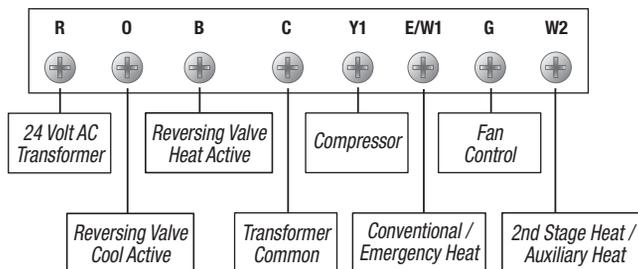
FREE Contractor Branding! Visit braeburnonline.com

*As a licensee in the Energy Aware Programmable Thermostat Program, Braeburn Systems LLC has determined that this product meets the NEMA Energy Aware efficiency specifications for programmable thermostats. Visit www.getenergyaware.com for more information.

Toll-Free 866.268.5599 (U.S.) +1.630.844.1968 (Outside the U.S.)

Braeburn®

Terminal Designations



Architectural Specifications

The digital programmable thermostat shall be a Braeburn® model number 2200NC, 3.72" high x 4.75" wide x 1.12" deep, powered independently with either 24 Volt AC or with two "AA" alkaline batteries (3.0 Volt DC). The thermostat shall be compatible with multi-stage conventional or heat pump systems with up to two stages of heating and one stage of cooling. The thermostat shall have a bright blue backlight display, front loading battery door and separate sub-base for trouble free installation. Temperature control range shall be between 45° and 90° F (7° and 32° C), accuracy of +/- 1° F (+/- .5° C), humidity range between 5% and 95% relative humidity. The thermostat shall include non-volatile memory to retain all user and program settings, adjustable temperature limits, filter check monitor, adaptive recovery mode (ARM™), separate heating and cooling set point program times and temperatures, and auxiliary heat indicator. Thermostat shall have low battery indication and a front reset button will return user settings to default values when pressed. The thermostat can be mounted to a horizontal junction box. Meets Energy Aware® Guidelines.

Product Specifications

Dimensions:	3.72" x 4.75" x 1.12"
Electric Rating:	24 Volt AC (18-30 Volt AC) 1 amp maximum load per terminal 4 amp total maximum load (all terminals)
AC Power:	18-30 Volt AC
DC Power:	3.0 Volts DC (2 "AA" Alkaline batteries included)
Compatibility:	Conventional systems with up to two stages of heating and one stage of cooling; Heat pump systems with one compressor and up to one auxiliary stage; 250mv - 750mv millivolt heating systems
Control Range:	45° to 90° F (7° to 32° C)
Display Range:	40° to 99° F (5° to 37° C)
Accuracy:	+/- 1° F (+/- .5° C)
Temperature Differential:	1st Stage - .5°, 1°, or 2° F (0.2°, 0.5°, or 1° C) 2nd Stage - 2°, 3°, 4°, 5°, or 6° F (1°, 1.5°, 2°, 2.5°, or 3° C)
Storage Temperature:	14° to 140° F (-10° to 60° C)
Operating Humidity:	5% to 95% Relative Humidity
Terminations:	R, O, B, C, Y1, E/W1, G, W2

Shipping Information

INDIVIDUAL CARTON		MASTER CARTON
Dimensions:	3.75" x 5.5" x 1.4"	Quantity: 12
Weight:	.45 lbs.	Dimensions: 9" x 4.25" x 11.5"
		Cubic Feet: .25
		Weight: 5.7 lbs.

Braeburn 2200NC Replaces*

Honeywell®	TH2210, T8011, T8024
Emerson®	1F72-151, 1F73-174

*Verify specific application requirements.
All trademarks are the property of their respective owners.

Accessories

2950	Universal Wall Plate (6.5" x 6.5" x .125")
5970	Universal Thermostat Guard

FREE Contractor Branding Available!

Visit our website (www.braeburnonline.com) for more information, contact your local distributor or call our sales department toll-free at 866.268.5599 (U.S.), +1.630.844.1968 (Outside the U.S.).

Date: _____

Job Name: _____

Location: _____

Contractor: _____

Engineer: _____

Model No.: _____

Submitted By: _____

Submitted For Approval: _____ Record: _____

Braeburn Systems LLC • 2215 Cornell Avenue • Montgomery, IL 60538 • Toll-Free 866.268.5599 (U.S.) +1.630.844.1968 (Outside the U.S.)

AT3 LED Architectural Troffer – Straight Floating Center

FIXTURE PERFORMANCE DATA

	LED PACKAGE	DELIVERED LUMENS	STANDARD		HE OPTION	
			WATTAGE	EFFICACY (lm/W)	WATTAGE	EFFICACY (lm/W)
1x4	L30	2816	29.5	95	20.6	137
	L50	4702	48.3	97	35.8	131
	L63	5876	62.4	94	42.9	137
2x2	L30	2816	29.5	95	22.0	128
	L40	3831	37.2	103	29.5	130
	L50	4701	48.3	97	39.4	119
2x4	L40	3874	34.2	113	-	-
	L55	5302	48.0	110	36.7	145
	L70	6722	63.3	106	46.8	144
	L100	9720	86.9	112	66.7	146

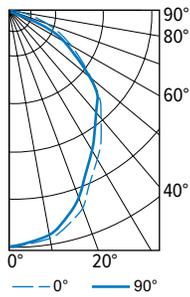
MULTIPLIER TABLE

	COLOR TEMPERATURE	
	CCT	CONVERSION FACTOR
80 CRI	2700K	0.97
	3000K	0.99
	3500K	1.00
	4000K	1.03
	5000K	1.06
90 CRI	2700K	0.80
	3000K	0.82
	3500K	0.83
	4000K	0.86
	5000K	0.89

- Photometrics tested in accordance with IESNA LM-79. Results based on D shielding, 80 CRI/3500K CCT, average wattage for 120V through 277V input, and 25°C ambient temperature. Actual performance may vary +/-5%.
- To calculate lumen output in emergency mode, multiply the battery wattage by the efficacy.
- Use multiplier table to calculate additional options.

PHOTOMETRY

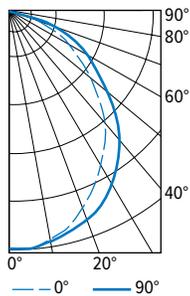
AT3-14-L63/835-D-DIM-UNV Total Luminaire Output: 5876 lumens; 62.4 Watts | Efficacy: 94.0 lm/W | 80 CRI; 3500K CCT



CANDLEPOWER DISTRIBUTION	VERTICAL ANGLE	HORIZONTAL ANGLE			ZONAL LUMENS
		0°	45°	90°	
	0	2679	2679	2679	
	5	2651	2643	2637	251
	15	2510	2475	2444	697
	25	2144	2081	2038	968
	35	1786	1718	1691	1081
	45	1450	1400	1387	1070
	55	1000	976	939	871
	65	655	635	469	582
	75	319	227	208	281
	85	88	61	45	75
	90	0	0	0	

LUMEN SUMMARY	ZONE	LUMENS	% FIXTURE
	0 - 30	1916	33
	0 - 40	2997	51
	0 - 60	4938	84
	0 - 90	5876	100
	0 - 180	5876	100

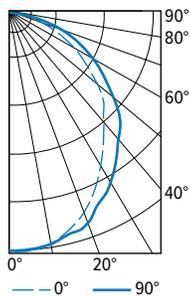
AT3-22-L50/835-D-DIM-UNV Total Luminaire Output: 4701 lumens; 48 Watts | Efficacy: 97 lm/W | 80 CRI; 3500K CCT



CANDLEPOWER DISTRIBUTION	VERTICAL ANGLE	HORIZONTAL ANGLE			ZONAL LUMENS
		0°	45°	90°	
	0	1831	1831	1831	
	5	1831	1822	1820	173
	15	1719	1735	1762	490
	25	1514	1590	1654	730
	35	1253	1359	1461	852
	45	984	1094	1191	838
	55	696	820	892	716
	65	431	546	613	532
	75	214	313	332	305
	85	48	41	30	64
	90	0	0	0	

LUMEN SUMMARY	ZONE	LUMENS	% FIXTURE
	0 - 30	1393	30
	0 - 40	2246	48
	0 - 60	3800	81
	0 - 90	4701	100
	0 - 180	4701	100

AT3-24-L70/835-D-DIM-UNV Total Luminaire Output: 6722 lumens; 63 Watts | Efficacy: 106 lm/W | 80 CRI; 3500K CCT



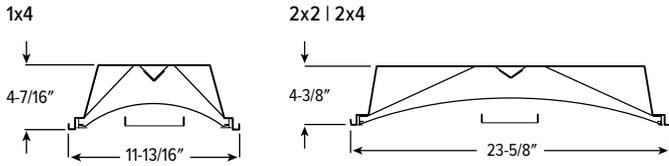
CANDLEPOWER DISTRIBUTION	VERTICAL ANGLE	HORIZONTAL ANGLE			ZONAL LUMENS
		0°	45°	90°	
	0	2678	2678	2678	
	5	2664	2665	2667	253
	15	2514	2536	2569	715
	25	2175	2246	2331	1038
	35	1762	1886	2010	1182
	45	1419	1587	1692	1192
	55	981	1137	1210	1004
	65	656	802	861	768
	75	342	467	467	457
	85	102	73	68	112
	90	0	0	0	

LUMEN SUMMARY	ZONE	LUMENS	% FIXTURE
	0 - 30	2006	30
	0 - 40	3188	47
	0 - 60	5384	80
	0 - 90	6722	100
	0 - 180	6722	100

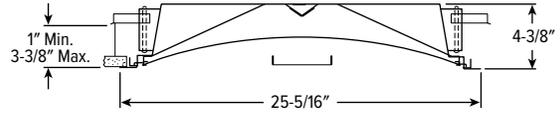


AT3 LED Architectural Troffer – Straight Floating Center

CROSS SECTIONS



FLANGE KIT INSTALLATION

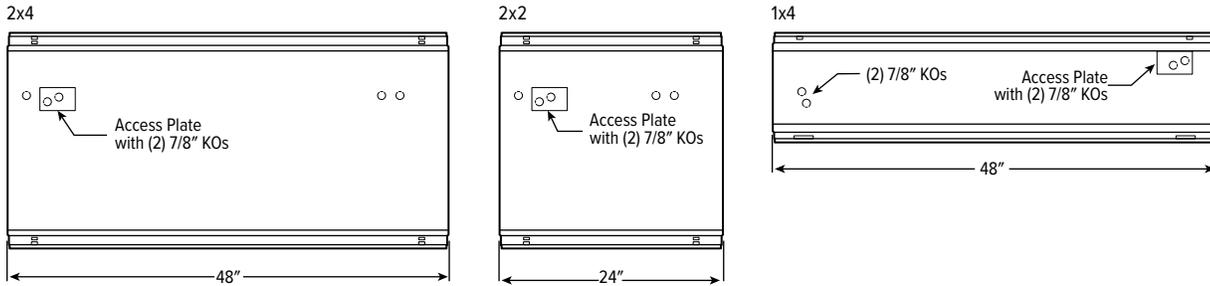


Maximum recommended ceiling opening is 24-3/8" x 24-3/8" for 2'x2' and 24-3/8" x 48-3/8" for 2'x4'. For continuous row mounting, add 49-5/16" for each additional fixture to obtain ceiling opening. 1-5/16" between end plates.

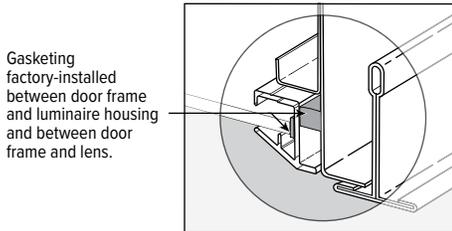
FIXTURE DETAILS

See hew.com/power-entry for power entry details.

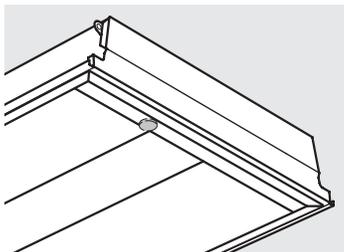
BACKVIEW



SS | SS/PC OPTIONS GASKETING DETAILS



SENSOR & NODE PLACEMENT DETAILS



SEE NEXT PAGE FOR CONTROL DETAILS.



**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.

- Complies with efficiency requirements of ANSI/ASHRAE/IES 90.1-2019.
- Certified to AHRI Standard 390-2021 for SPVU (Single Package Vertical Units).
- 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.
- The AHRI Certified® mark indicates Bard Manufacturing Company participation in the AHRI Certification program. For verification of individual certified products, go to www.ahridirectory.org.



BARDHVAC.COM

FORM NO. S3583-0723



Climate Control Solutions

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Wall-Mount Nomenclature

Digit # 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

W 6 0 A C - A 0 Z X P X X X X

UNIT SERIES

Wall-Mount

NOMINAL CAPACITY

- 18 - 1.5 Ton
- 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 W18-W36
- C - Revision W42-W72

PLACEHOLDER

- - Standard Unit
- D - Hot Gas Reheat Dehumidification
- R - Motor Isolation (460V only for High Res. Ground)

VOLTAGE

- A - 230 Volt 1 Phase 60 Hz
- B - 230 Volt 3 Phase 60 Hz
- C - 460 Volt 3 Phase 60 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

Nomenclature Notes:

- W18, 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.
- Hot Gas Reheat Dehumidification is available with W30, W36, W42, W48, W60, and W72 models.
- 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.

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
- A - 2" MERV13 Filter with UVC-LED Light.

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
- Y - Full Flow Economizer, Temperature
- Z - Full Flow Economizer, Enthalpy
- R - Energy Recovery Ventilator
- S - Partial Flow Economizer, Enthalpy no hood (W18-W36 only)



////// Engineered Features W18 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.

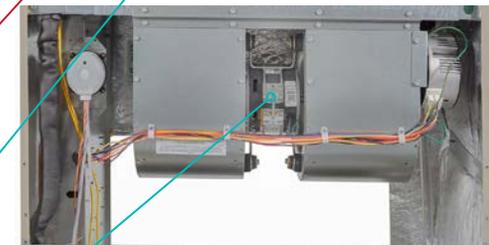
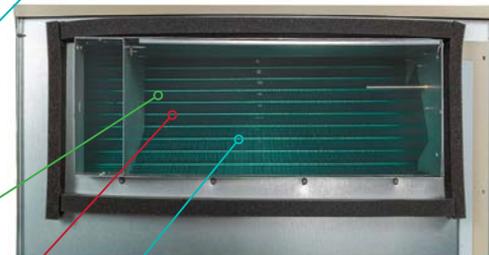
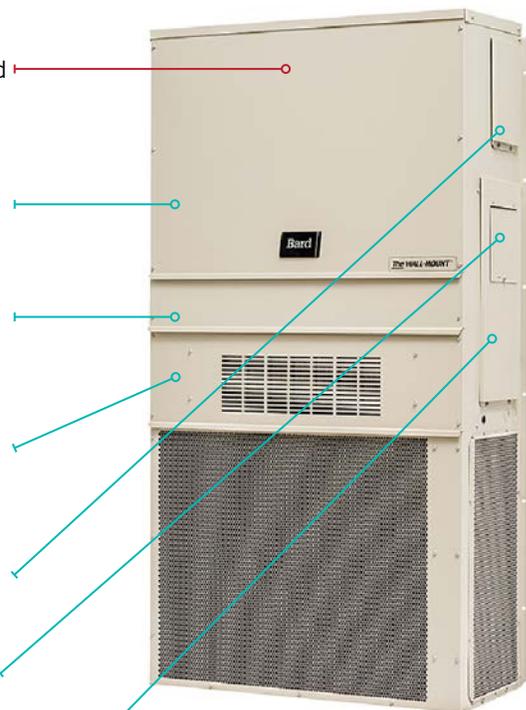
***Balanced Climate™ Technology (patent pending):** High latent capacity humidity & sound reduction removes up to 35% more humidity than any other on the market with the use of a 2 stage thermostat or controlling device. Bard Balanced Climate™ innovation comes standard on all models.

Optional Mechanical Dehumidification: Models are available with hot gas reheat dehumidification for energy efficient humidity removal. Electronic Expansion Valves are standard for all dehumidification 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.

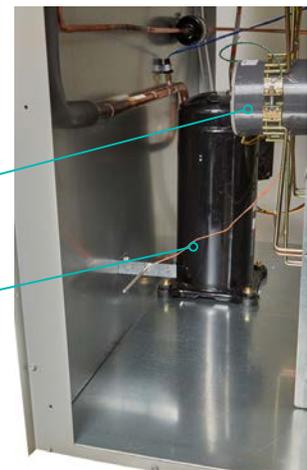
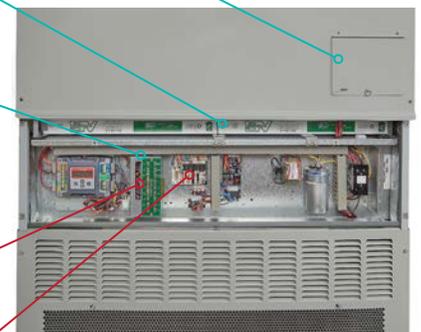
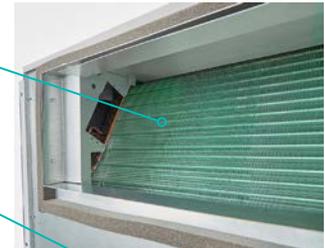
Reliable, Easy-to-Use Controls: Easily accessible through left or right control panel locations. A lockable hinged access cover to circuit protection is provided. Phase rotation monitor is standard on all 3 phase models. Adjustable compressor on/off delay timer (CCM) with diagnostic lights is standard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

Optional Mechanical Dehumidification: Models are available with hot gas reheat dehumidification for energy efficient humidity removal. Electronic Expansion Valves are standard for all dehumidification 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.

Mechanical Dehumidification (Hot Gas Reheat) Operation:

Mechanical Dehumidification provides an energy efficient way to remove humidity from the indoor air stream without over cooling or overheating the indoor space. The Bard W30 through W72 Series products offer optional dehumidification operation that removes moisture from air entering the unit. A three-way valve, reheat coil, and electronic expansion valve (EEV) are standard with all models. The dehumidification circuit incorporates an independent heat exchanger coil in the supply air stream. This coil reheats the supply air after it passes over the cooling coil without requiring the electric resistance heater to be used for reheat purposes. This results in very high mechanical dehumidification capability from the air conditioner on demand without using electric resistance reheat (electric heat is available for heating purposes). Airflow during dehumidification is reduced resulting in quiet and comfortable operation.

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. Energy recovery options are also available for occupied structures to save energy when ventilation is necessary regardless of outdoor temperature.

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	W18AB W18LB	W24AB W24LB	W30AB W30LB	W36AB W36LB	W42AC	W48AC	W60AC	W72AC
Cooling Capacity in BTUH ①	18,000 BTUH	24,000 BTUH	29,200 BTUH	35,200 BTUH	42,000 BTUH	48,000 BTUH	57,000 BTUH	71,000 BTUH
Unit efficiency in EER	11.3 EER	11.2 EER	11.0 EER	11.0 EER	11.0 EER	11.0 EER	11.0 EER	10.0 EER

① Capacity is certified in accordance with ANSI/ARI Standard 390-2003.

② EER = Energy Efficiency Ratio and is certified in accordance with ANSI/ARI Standard 390-2003.
All ratings based on fresh air intake being 100% closed (no outside air introduction).

General Unit Specifications W18 (1-1/2 Ton) Through W48 (4 Ton)

MODELS	W18AB-A W18LB-A	W24AB-A W24LB-A	W24AB-B W24LB-B	W24AB-C	W30AB-A W30LB-A	W30AB-B W30LB-B	W30AB-C W30LB-C	W36AB-A W36LB-A	W36AB-B W36LB-B	W36AB-C W36LB-C
Unit Voltage Rating - Phase - 60Hz	230/208 - 1	230/208 - 1	230/208 - 3	460 - 3	230/208 - 1	230/208 - 3	460 - 3	230/208 - 1	230/208 - 3	460 - 3
Operating Voltage Range	197-253 V	197-253 V	197-253 V	414-506 V	197-253 V	197-253 V	414-506 V	197-253 V	197-253 V	414-506 V
Compressor Electrical Circuit										
Voltage	230/208 V	230/208 V	230/208 V	460 V	230/208 V	230/208 V	460 V	230/208 V	230/208 V	460 V
Rated Load Amps	5.7/6.6 A	8.3/9.3 A	5.0/5.6 A	2.7 A	9.6/10.9 A	6.1/6.9 A	3.3 A	11.4/13.2 A	7.1/8.3 A	4.6 A
Branch Circuit Selection Current	9.0 A	12.9 A	7.7 A	3.6 A	14.2 A	9.0 A	4.2 A	16.7 A	10.5 A	5.8 A
Lock Rotor Amps	56.3/56.3 A	58.3/58.3 A	55.4/55.4 A	28 A	73/73 A	58/58 A	28 A	79/79 A	73/73 A	38 A
Compressor Type	Scroll									
Outdoor Fan Motor & Condenser Fan										
Outdoor Fan Motor Horsepower - RPM	1/5 - 1090	1/5 - 1090	1/5 - 1090	1/5 - 1075	1/5 - 1075	1/5 - 1075	1/5 - 1075	1/5 - 1075	1/5 - 1075	1/5 - 1075
Outdoor Fan Motor - Amps	1.1 A	1.1 A	1.1 A	0.6 A	1.2 A	1.2 A	0.6 A	1.2 A	1.2 A	0.6 A
Outdoor Fan--Diameter and CFM	18" - 1800	18" - 1800	18" - 1800	18" - 1800	20" - 2400	20" - 2400	20" - 2400	20" - 2200	20" - 2200	20" - 2200
Indoor Blower Motor & Indoor Airflow										
Indoor Blower Motor - HP - Speeds	1/3HP-5 sp	1/3HP-5 sp	1/3HP-5 sp	1/3HP-5 sp	1/2HP-5 sp					
Indoor Blower Motor - Amps	0.7 A	1.3 A	1.3 A	8 A	1.4 A	1.4 A	1.2 A	2.3 A	2.3 A	1.2 A
Indoor Motor Type	Constant Torque ECM									
Rated indoor CFM and static pressure (ESP) with wet coil and Standard filter	600 - .1	800 - .1	800 - .1	800 - .1	950 - .15	950 - .15	950 - .15	1150 - .15	1150 - .15	1150 - .15
Filter Size inches (cm) standard filter listed, 1 required	16x25x1 (41x64x3)	16x25x1 (41x64x3)	16x25x1 (41x64x3)	16x25x1 (41x64x3)	16x30x1 (41x77x3)					
Basic Unit Weight without Vent lbs. (kg)	325 (148)	335 (152)	335 (152)	335 (152)	350 (159)	350 (159)	350 (159)	380 (173)	380 (173)	380 (173)
X - Barometric Fresh Air Damper	4.0 (1.8)	4.0 (1.8)	4.0 (1.8)	4.0 (1.8)	5.0 (2.3)	5.0 (2.3)	5.0 (2.3)	5.0 (2.3)	5.0 (2.3)	5.0 (2.3)
A - Barometric Damper w/ Exhaust	8.0 (3.6)	8.0 (3.6)	8.0 (3.6)	8.0 (3.6)	9.0 (4.0)	9.0 (4.0)	9.0 (4.0)	9.0 (4.0)	9.0 (4.0)	9.0 (4.0)
B - Blank-Off Plate	1.0 (.5)	1.0 (.5)	1.0 (.5)	1.0 (.5)	1.0 (.5)	1.0 (.5)	1.0 (.5)	1.0 (.5)	1.0 (.5)	1.0 (.5)
M, V - Commercial Room Ventilator	31.0 (14.0)	31.0 (14.0)	31.0 (14.0)	31.0 (14.0)	35.0 (15.9)	35.0 (15.9)	35.0 (15.9)	35.0 (15.9)	35.0 (15.9)	35.0 (15.9)
D, Y, Z - Economizer	37.0 (16.8)	37.0 (16.8)	37.0 (16.8)	37.0 (16.8)	37.0 (16.8)	37.0 (16.8)	37.0 (16.8)	37.0 (16.8)	37.0 (16.8)	37.0 (16.8)
R - Energy Recovery Ventilator	54.0 (24.4)	54.0 (24.4)	54.0 (24.4)	54.0 (24.4)	54.0 (24.4)	54.0 (24.4)	54.0 (24.4)	54.0 (24.4)	54.0 (24.4)	54.0 (24.4)

MODELS	W42AC-A	W42AC-B	W42AC-C	W48AC-A	W48AC-B	W48AC-C
Unit Voltage Rating - Phase - 60Hz	230/208 V - 1 PH	230/208 V - 3 PH	460 V - 3 PH	230/208 V - 1 PH	230/208 V - 3 PH	460 V - 3 PH
Operating Voltage Range	197-253 V	197-253 V	414-506 V	197-253 V	197-253 V	414-506 V
Compressor Electrical Circuit						
Voltage	230/208 V	230/208 V	460 V	230/208 V	230/208 V	460 V
Rated Load Amps	14.9/16.5 A	10.2/11.3 A	5.1 A	16.3/18.9 A	10.3/11.9 A	5.4 A
Branch Circuit Selection Current	19.9 A	13.6 A	6.1 A	21.8 A	13.8 A	6.3 A
Lock Rotor Amps	109/109 A	83.1/83.1 A	41 A	117/117 A	83.1/83.1 A	41 A
Compressor Type	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Outdoor Fan Motor & Condenser Fan						
Outdoor Fan Motor Horsepower - RPM	1/3 HP - 825RPM					
Outdoor Fan Motor - Amps	2.4 A	2.4 A	1.0 A	2.4 A	2.4 A	1.0 A
Outdoor Fan--Diameter and CFM	24" - 2900CFM	24" - 2900CFM	24" - 2900CFM	24" - 3000CFM	24" - 3000CFM	24" - 3000CFM
Indoor Blower Motor & Indoor Airflow						
Indoor Blower Motor - HP - Speeds	1/2 HP - 5 Spd	1/2 HP - 5 Spd	1/2 HP - 5 Spd	3/4 HP - 5 Spd	3/4 HP - 5 Spd	3/4 HP - 5 Spd
Indoor Blower Motor - Amps	1.7 A	1.7 A	1.2 A	3.2 A	3.2 A	1.7 A
Indoor Motor Type	Constant Torque ECM					
Rated indoor CFM and static pressure (ESP) with wet coil and Standard filter	1350CFM-.15ESP	1350CFM-.15ESP	1350CFM-.15ESP	1550CFM-.20ESP	1550CFM-.20ESP	1550CFM-.20ESP
Filter Size inches (cm) standard filter listed, 2 required	20" x 20" x 1" (51 x 51 x 3)	20" x 20" x 1" (51 x 51 x 3)	20" x 20" x 1" (51 x 51 x 3)	20" x 20" x 1" (51 x 51 x 3)	20" x 20" x 1" (51 x 51 x 3)	20" x 20" x 1" (51 x 51 x 3)
Basic Unit Weight without Vent lbs (kg)	490 (223)	490 (223)	490 (223)	495 (225)	495 (225)	495 (225)
X - Barometric Fresh Air Damper	13 (5.9)	13 (5.9)	13 (5.9)	13 (5.9)	13 (5.9)	13 (5.9)
A - Barometric Damper w/ Exhaust	16 (7.3)	16 (7.3)	16 (7.3)	16 (7.3)	16 (7.3)	16 (7.3)
B - Blank-Off Plate	14 (6.4)	14 (6.4)	14 (6.4)	14 (6.4)	14 (6.4)	14 (6.4)
M, V - Commercial Room Ventilator	42 (19.1)	42 (19.1)	42 (19.1)	42 (19.1)	42 (19.1)	42 (19.1)
D, Y, Z - Economizer	44 (20)	44 (20)	44 (20)	44 (20)	44 (20)	44 (20)
R - Energy Recovery Ventilator	87 (39.5)	87 (39.5)	87 (39.5)	87 (39.5)	87 (39.5)	87 (39.5)



General Unit Specifications W60 (5 Ton) Through W72 (6 Ton)

MODELS	W60AC-A	W60AC-B	W60AC-C	W72AC-A	W72AC-B	W72AC-C
Unit Voltage Rating - Phase - 60Hz	230/208 V - 1 PH	230/208 V - 3 PH	460 V - 3 PH	230/208 V - 1 PH	230/208 V - 3 PH	460 V - 3 PH
Operating Voltage Range	197-253 V	197-253 V	414-506 V	197-253 V	197-253 V	414-506 V
Compressor Electrical Circuit						
Voltage	230/208 V	230/208 V	460 V	230/208 V	230/208 V	460 V
Rated Load Amps	20.6/23.6 A	12.5/14.4 A	7.0 A	27.6/30.6 A	16.8/18.6 A	8.8 A
Branch Circuit Selection Current	26.5 A	16 A	7.8 A	37 A	22.5 A	10.6 A
Lock Rotor Amps	134/134 A	110/110 A	52 A	185/185 A	149/149 A	75 A
Compressor Type	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Outdoor Fan Motor & Condenser Fan						
Outdoor Fan Motor Horsepower - RPM	1/3 HP - 825RPM	1/3 HP - 825RPM	1/3 HP - 825RPM	1/2 HP - 1075RPM	1/2 HP - 1075RPM	1/2 HP - 1075RPM
Outdoor Fan Motor - Amps	2.4 A	2.4 A	1.0 A	4.3 A	4.3 A	1.6 A
Outdoor Fan--Diameter and CFM	24" - 3100CFM	24" - 3100CFM	24" - 3100CFM	24" - 4000CFM	24" - 4000CFM	24" - 4000CFM
Indoor Blower Motor & Indoor Airflow						
Indoor Blower Motor - HP - Speeds	3/4 HP - 5 Spds					
Indoor Blower Motor - Amps	3.2 A	3.2 A	1.7 A	4.2 A	4.2 A	1.7 A
Indoor Motor Type	Constant Torque ECM					
Rated indoor CFM and static pressure (ESP) with wet coil and Standard filter	1750CFM -.20ESP	1750CFM -.20ESP	1750CFM -.20ESP	1900CFM -.25ESP	1900CFM -.25ESP	1900CFM -.25ESP
Filter Size inches (cm) standard filter listed, 2 required	20" x 20" x 1" (51 x 51 x 3)	20" x 20" x 1" (51 x 51 x 3)	20" x 20" x 1" (51 x 51 x 3)	20" x 20" x 1" (51 x 51 x 3)	20" x 20" x 1" (51 x 51 x 3)	20" x 20" x 1" (51 x 51 x 3)
Basic Unit Weight without Vent lbs. (kg)	505 (230)	505 (230)	505 (230)	555 (252)	555 (252)	555 (252)
X - Barometric Fresh Air Damper	13 (5.9)	13 (5.9)	13 (5.9)	13 (5.9)	13 (5.9)	13 (5.9)
A - Barometric Damper w/ Exhaust	16 (7.3)	16 (7.3)	16 (7.3)	16 (7.3)	16 (7.3)	16 (7.3)
B - Blank-Off Plate	14 (6.4)	14 (6.4)	14 (6.4)	14 (6.4)	14 (6.4)	14 (6.4)
M, V - Commercial Room Ventilator	42 (19.1)	42 (19.1)	42 (19.1)	42 (19.1)	42 (19.1)	42 (19.1)
D, Y, Z - Economizer	44 (20)	44 (20)	44 (20)	44 (20)	44 (20)	44 (20)
R - Energy Recovery Ventilator	87 (39.5)	87 (39.5)	87 (39.5)	87 (39.5)	87 (39.5)	87 (39.5)

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

R410A Unit Charge Rates

WALL-MOUNT UNIT MODEL	STANDARD UNIT CHARGE RATE	DEHUMIDIFICATION UNIT CHARGE RATE
W18AB AND W18LB	3.50 lbs. (1.58 kg)	N/A
W24AB AND W24LB	4.25 lbs. (1.92 kg)	N/A
W30AB AND W30LB	4.125 lbs. (1.87 kg)	4.25 lbs. (1.92 kg)
W36AB AND W36LB	4.50 lbs. (2.04 kg)	4.50 lbs. (2.04 kg)
W42AC	7.25 lbs. (3.28 kg)	7.25 lbs. (3.28 kg)
W48AC	7.38 lbs. (3.34 kg)	7.38 lbs. (3.34 kg)
W60AC	9.25 lbs. (4.19 kg)	9.50 lbs. (4.30 kg)
W72AC	9.50 lbs. (4.30 kg)	9.75 lbs. (4.42 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. Unit capacity performance for hot gas reheat dehumidification units can be found in the Dehumidification performance supplemental manual #7960-811. See airflow performance chart for CFM amount.

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, but is not a replacement for optional mechanical dehumidification. Optional mechanical dehumidification provides moisture removal without significantly cooling the space being conditioned. Mechanical dehumidification is highly recommended for applications requiring indoor humidity control for schools, public areas, agricultural, pharmaceutical, and areas with high outdoor humidity and varying indoor heat load.

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.

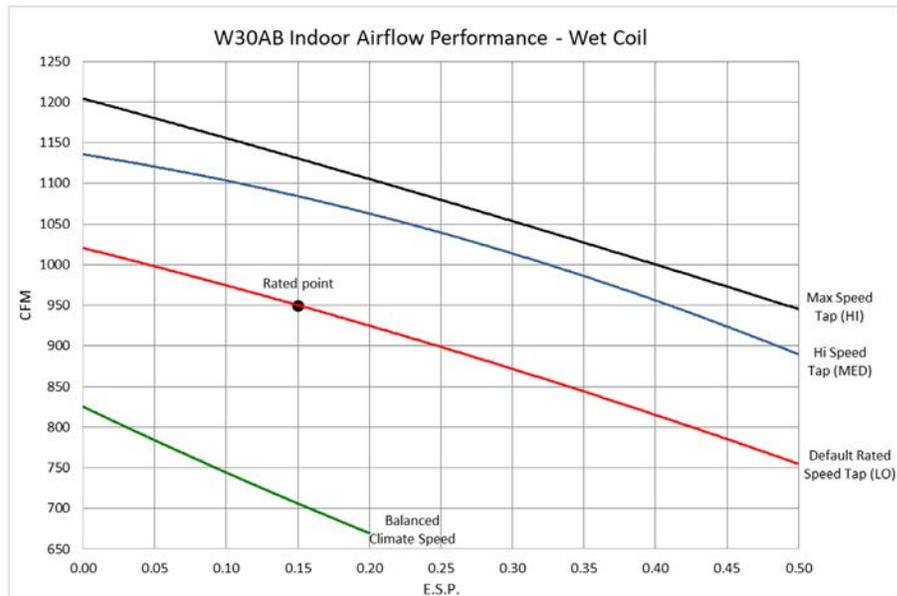
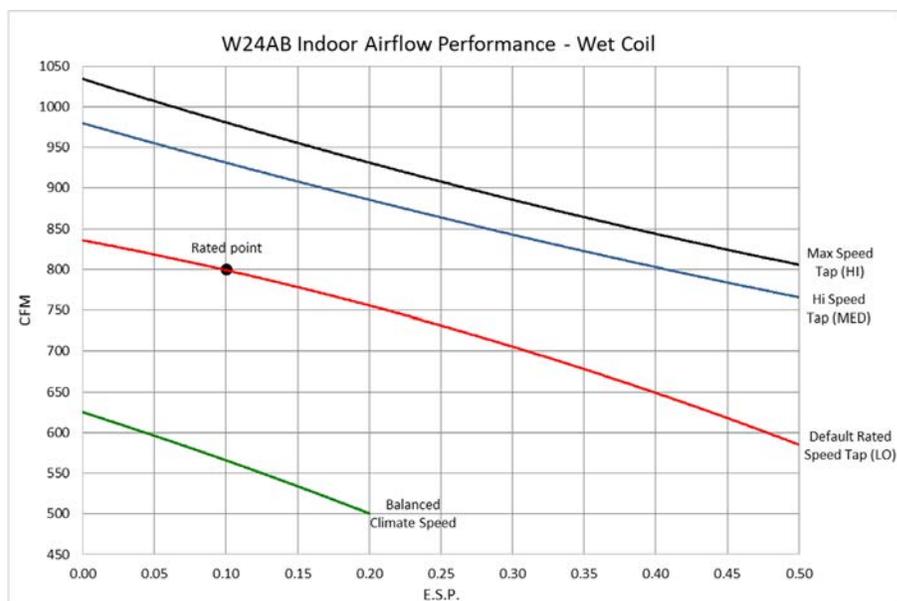
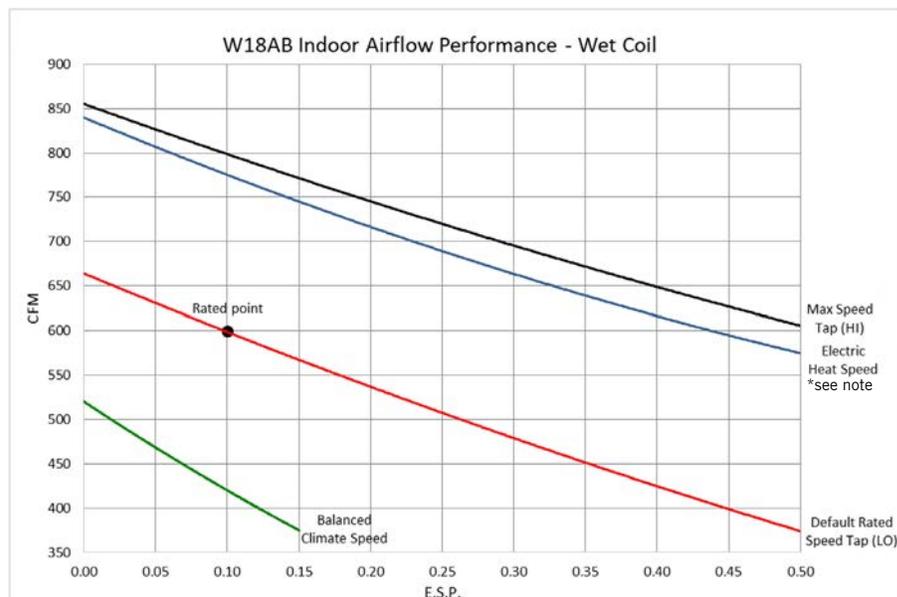
Total External Static Pressure Calculation:

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 - W18, W24, W30 Units



Total External Static Pressure Calculation:

$$\text{Supply Duct Static} + \text{Return Duct Static} + \text{Filter Static} + \text{Additional External Static} = \text{Total External Static Pressure (ESP)}$$

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
	DRY COIL AIRFLOW	-.04" WC
W	MERV 2 (Washable)	-.02" WC
X	MERV 2 (Disposable)	0" WC
P	MERV 8	+.03" WC
M	MERV 11	+.05" WC
N	MERV 13	+.08" WC

Indoor Airflow Speeds:

Balanced Climate Speed: The WA series uses this speed when the **Balanced Climate option (Y1)** or **mechanical dehumidification option (D)** 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.

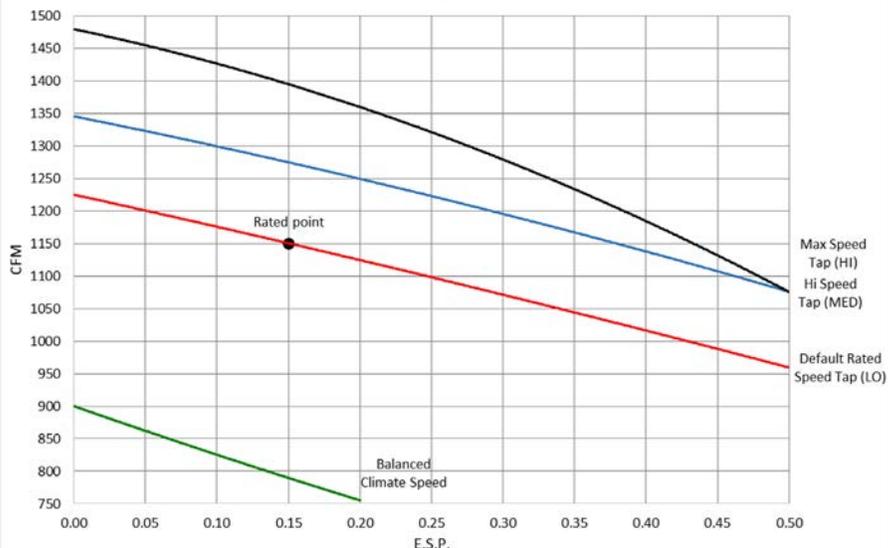
HI Speed (User Selectable): This speed is user selectable when using **standard cooling (Y2)** or **heating operation (W1/W2)**. This speed is labeled as HI on the speed selection terminal strip inside the unit control panel. The HI speed tap provides **maximum unit airflow** per the airflow performance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

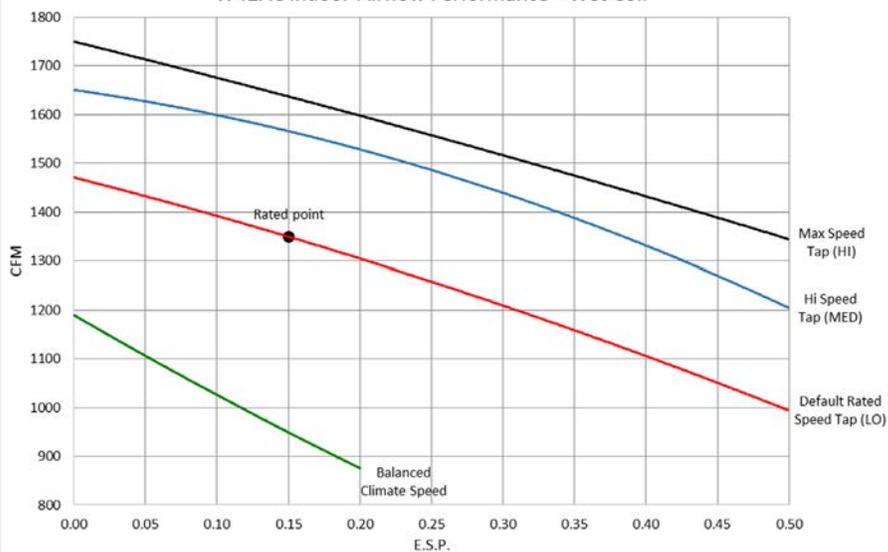


Indoor Airflow CFM @ Static Pressures and Adjustable Speeds - W36, W42, W48 Units

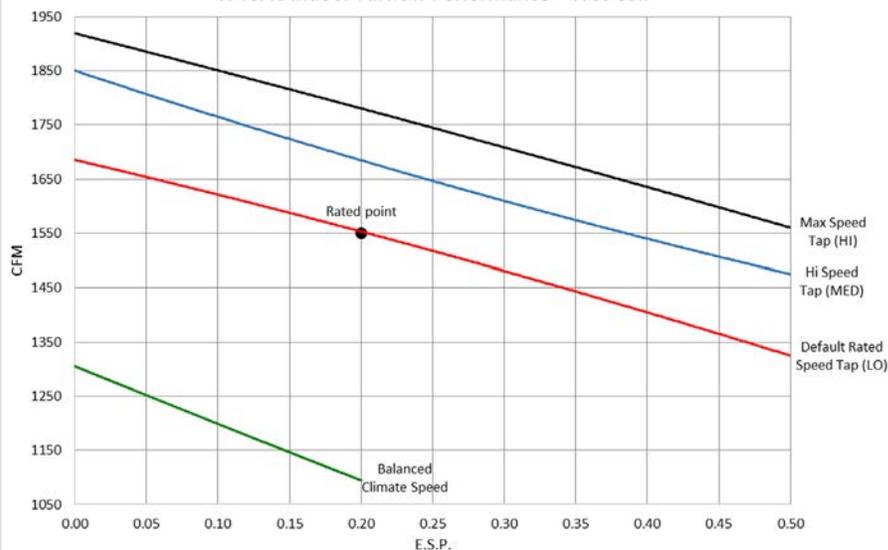
W36AB Indoor Airflow Performance - Wet Coil



W42AC Indoor Airflow Performance - Wet Coil



W48AC Indoor Airflow Performance - Wet Coil



Total External Static Pressure Calculation:

$$\text{Supply Duct Static} + \text{Return Duct Static} + \text{Filter Static} + \text{Additional External Static} = \text{Total External Static Pressure (ESP)}$$

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
	DRY COIL AIRFLOW	-.04" WC
W	MERV 2 (Washable)	-.02" WC
X	MERV 2 (Disposable)	0" WC
P	MERV 8	+.03" WC
M	MERV 11	+.05" WC
N	MERV 13	+.08" WC

Indoor Airflow Speeds:

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

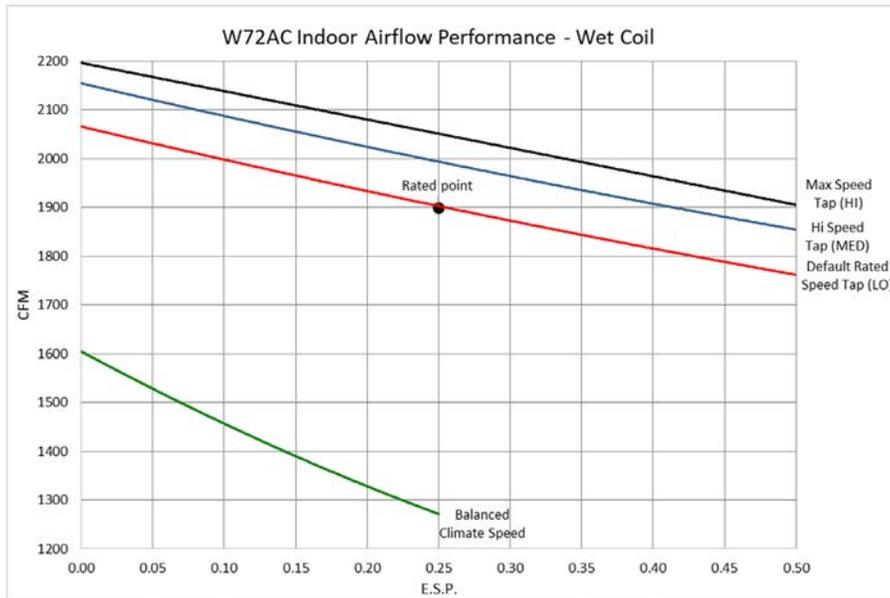
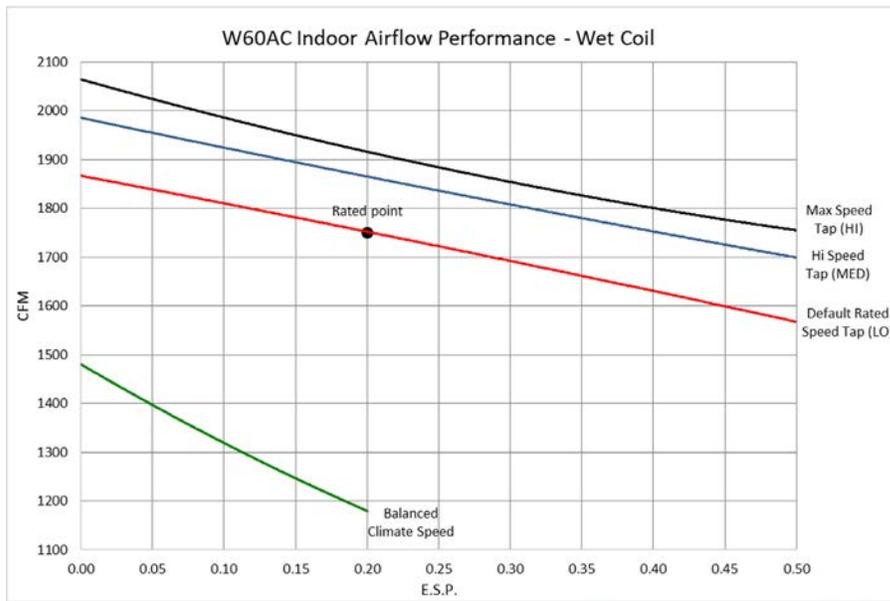
LO Speed (Default): The WA series uses this speed by default when using **standard cooling (Y2)** or **heating operation (W1/W2)**. This speed is labeled as LO on the speed selection terminal strip inside the unit control panel. The WA series also uses this speed when **fan only (G)** or **ventilation 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
	DRY COIL AIRFLOW	-.04" WC
W	MERV 2 (Washable)	-.02" WC
X	MERV 2 (Disposable)	0" WC
P	MERV 8	+.03" WC
M	MERV 11	+.05" WC
N	MERV 13	+.08" WC

Indoor Airflow Speeds:

Balanced Climate Speed: The WA series uses this speed when the **Balanced Climate option (Y1)** or **mechanical dehumidification option (D)** 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.



////// Cooling Application Data at Rated Airflow

MODEL	INDOOR RETURN AIR (DB/WB)	COOLING CAPACITY (BTUH)	DRY BULB OUTDOOR AIR TEMPERATURE ENTERING UNIT CONDENSER AREA											
			75°F 23.9°C	80°F 26.6°C	85°F 29.4°C	90°F 32.2°C	95°F 35°C	100°F 37.8°C	105°F 40.5°C	110°F 43.3°C	115°F 46.1°C	120°F 48.8°C	125°F 51.6°C	131°F 55°C
W18	75/62°F	Total Cooling	19800	18700	17600	16700	15700	15000	14200	13600	13000	12500	12000	11500
	23.8/16.6°C	Sensible Cooling	15000	14600	14200	13800	13400	13100	12800	12500	12200	12000	11700	11500
	80/67°F	Total Cooling	21100	20300	19500	18800	18000	17400	16700	16200	15600	15100	14600	14000
	26.6/19.4°C	Sensible Cooling	14500	14300	14000	13800	13500	13300	13100	12900	12700	12500	12300	12100
W24	85/72°F	Total Cooling	25200	23800	22400	21300	20000	19100	18000	17300	16400	15700	15100	14300
	29.4/22.2°C	Sensible Cooling	14900	14600	14100	13700	13300	12900	12500	12100	11700	11300	10900	10500
	75/62°F	Total Cooling	25000	24000	23000	22000	20900	20000	19000	18100	17100	16200	15200	14000
	23.8/16.6°C	Sensible Cooling	18400	18300	18200	18000	17800	17400	17100	16800	16300	15800	15200	14000
W30	80/67°F	Total Cooling	26600	26100	25500	24800	24000	23300	22400	21500	20600	19600	18500	17100
	26.6/19.4°C	Sensible Cooling	17800	17900	18000	18000	17900	17700	17500	17300	16900	16500	16000	15400
	85/72°F	Total Cooling	31700	30500	29300	28000	26700	25500	24200	22900	21700	20400	19100	17400
	29.4/22.2°C	Sensible Cooling	18300	18200	18100	17900	17600	17200	16700	16300	15600	14900	14200	13300
W36	75/62°F	Total Cooling	30800	29300	28000	26700	25500	24300	23200	22100	21000	19900	18900	17700
	23.8/16.6°C	Sensible Cooling	23500	23000	22400	21900	21400	20900	20400	20000	19400	19000	18600	17700
	80/67°F	Total Cooling	32800	31900	31100	30200	29200	28300	27300	26300	25200	24100	23000	N/A
	26.6/19.4°C	Sensible Cooling	22800	22500	22200	21900	21600	21200	20900	20600	20200	19900	19500	N/A
W42	85/72°F	Total Cooling	39100	37300	35700	34100	32500	31000	29500	28000	26500	25100	23700	N/A
	29.4/22.2°C	Sensible Cooling	23400	22900	22300	21800	21200	20500	19900	19300	18600	18000	17300	N/A
	75/62°F	Total Cooling	37300	35500	33900	32200	30700	29200	27800	26400	25100	23900	22600	21200
	23.8/16.6°C	Sensible Cooling	29200	28400	27600	26800	26100	25500	24800	24200	23700	23100	22600	21200
W48	80/67°F	Total Cooling	39800	38700	37600	36400	35200	34000	32800	31500	30200	28900	27500	25900
	26.6/19.4°C	Sensible Cooling	28300	27800	27300	26800	26300	25900	25400	25000	24600	24200	23800	23400
	85/72°F	Total Cooling	47400	45300	43200	41100	39100	37200	35400	33500	31800	30100	28300	N/A
	29.4/22.2°C	Sensible Cooling	29000	28200	27500	26600	25800	25100	24200	23500	22700	21900	21100	N/A
W60	75/62°F	Total Cooling	44400	42400	40500	38500	36600	34800	33100	31300	29600	27900	26200	24100
	23.8/16.6°C	Sensible Cooling	33900	33200	32300	31600	30800	30100	29300	28500	27700	27000	26100	24100
	80/67°F	Total Cooling	47400	46200	44900	43500	42000	40500	39000	37300	35600	33800	31900	29500
	26.6/19.4°C	Sensible Cooling	32900	32500	32000	31600	31100	30600	30000	29400	28800	28200	27500	26700
W72	85/72°F	Total Cooling	56500	54000	51600	49100	46700	44300	42100	39700	37400	35100	32800	N/A
	29.4/22.2°C	Sensible Cooling	33700	33000	32200	31400	30500	29600	28600	27600	26500	25500	24400	N/A
	75/62°F	Total Cooling	51300	48800	46500	44100	41800	39700	37500	35300	33300	31200	29200	26700
	23.8/16.6°C	Sensible Cooling	40300	39300	38200	37200	36200	35200	34200	33300	32400	31200	29200	26700
W72	80/67°F	Total Cooling	54700	53200	51600	49800	48000	46200	44200	42100	40000	37800	35500	32600
	26.6/19.4°C	Sensible Cooling	39100	38500	37800	37200	36500	35800	35100	34400	33700	33000	32300	31400
	85/72°F	Total Cooling	65200	62200	59300	56200	53300	50600	47700	44800	42000	39300	36500	N/A
	29.4/22.2°C	Sensible Cooling	40100	39100	38000	37000	35800	34700	33500	32300	31100	29800	28600	N/A
W72	75/62°F	Total Cooling	61600	58500	55600	52700	50100	47600	45300	43000	40900	38900	36900	35000
	23.8/16.6°C	Sensible Cooling	47200	45800	44400	43100	41900	40900	39800	38900	38000	37200	36500	35000
	80/67°F	Total Cooling	65700	63700	61700	59600	57500	55500	53400	51300	49200	47100	45000	42800
	26.6/19.4°C	Sensible Cooling	45800	44900	44000	43100	42300	41600	40800	40200	39500	38900	38400	37800
W72	85/72°F	Total Cooling	78300	74500	70900	67300	63900	60700	57600	54600	51700	48900	46300	N/A
	29.4/22.2°C	Sensible Cooling	46900	45600	44200	42800	41500	40300	38900	37700	36400	35200	34000	N/A
	75/62°F	Total Cooling	76200	72100	68500	65000	61800	58900	56100	53600	51300	49000	47000	44700
	23.8/16.6°C	Sensible Cooling	55800	54100	52400	50900	49500	48000	46800	45700	44600	43600	42700	41700
W72	80/67°F	Total Cooling	81300	78600	76100	73500	71000	68600	66200	63900	61700	59400	57300	54700
	26.6/19.4°C	Sensible Cooling	54100	53000	51900	50900	49900	48900	48000	47200	46400	45600	44900	44100
	85/72°F	Total Cooling	96800	91900	87400	83000	78600	75000	71400	68000	64800	61700	58900	N/A
	29.4/22.2°C	Sensible Cooling	55400	53800	52100	50600	49000	47300	45800	44300	42700	41200	39700	N/A

- Notes:
- Unit compressor cooling operation below 60°F requires a Low Ambient Control (LAC).
 - 1000 BTUH = .29307 kW
 - Outdoor air temperatures provided are an average of the condenser inlet air temperature.

Capacity Multiplier Factors							
% of Rated Airflow	-30%	-20%	-10%	Rated	+10%	+20%	+30%
Total BTUH	0.93	0.95	0.97	1	1.01	1.02	1.04
Sensible BTUH	0.90	0.93	0.95	1	1.02	1.05	1.09

Capacity Multiplier Calculation: Capacity multipliers are used to estimate unit capacity performance when airflow rates are decreased or increased compared to rated airflow. Rated airflow is the standard CFM amount used for capacity and efficiency calculations. Airflow rates may be effected by external static pressure (ESP) from supply ducts, return ducts, advanced filter options, or use of additional blower speeds. See unit airflow charts for additional information on unit airflow at different indoor blower speeds, filter static levels, and indoor airflow using Balanced Climate operation.

Example: Due to additional supply duct static, the actual supply airflow CFM for a installed W72 unit is 10% lower than the rated airflow shown in the blower performance chart. We want to know the actual BTUH amount of the unit at 85/72°F indoor and 100°F outdoor temperature for this application. The following formula will be used to calculate actual unit BTUH at the new supply airflow CFM amount:

Rated unit BTUH capacity x capacity multiplier factor = actual unit BTUH capacity.

Example: 75,000 rated Total BTUH x .97 capacity multiplier = 72,750 actual Total BTUH.

Example: 47,300 rated Sensible BTUH x .95 capacity multiplier = 44,935 actual Sensible BTUH.



///// **Electrical Specifications: W18 to W36 Units Without Dehumidification**

MODEL	Rated Volts & Phase	No. Field Power Circuits	Single Circuit				Multiple Circuits									
			③ Minimum Circuit Ampacity	① Maximum External Fuse or Ckt. Brkr.	② Field Power Wire Size	② Ground Wire Size	③ Minimum Circuit Ampacity		① Maximum External Fuse or Ckt. Breaker		② Field Power Wire Size		② Ground Wire Size			
							Ckt. A	Ckt. B	Ckt. A	Ckt. B	Ckt. A	Ckt. B	Ckt. A	Ckt. B		
W18AB-A00, A0Z A05 A08 A10	230/208-1	1 1 1 1	16 30 45 56	20 30 45 60	12 10 8 6	12 10 10 10										
W24AB-A00, A0Z A05 A08 A10	230/208-1	1 1 1 1	21 30 46 57	25 30 50 60	10 10 8 6	10 10 10 10										
W24AB-B00, B0Z B06	230/208-3	1 1	15 23	20 25	12 10	12 10										
W24AB-C00, C0Z C06	460-3	1 1	8 12	15 15	14 14	14 14										
W30AB-A00, A0Z A05 A08 A10 A15	230/208-1	1 1 1 1 1 or 2	23 31 47 57 83	35 35 50 60 90	8 8 8 6 4	10 10 10 10 8	57	26	60	30	6	10	10	10		
W30AB-B00, B0Z B06 B09 B15	230/208-3	1 1 1 1	17 23 32 50	20 25 35 50	12 10 8 8	12 10 10 10										
W30AB-C00, C0Z C06 C09 C12 C15	460-3	1 1 1 1 1	9 12 16 21 25	15 15 20 25 25	14 14 12 10 10	14 14 12 10 10										
W36AB-A00, A0Z A05 A08 A10 A15	230/208-1	1 1 1 1 1 or 2	27 32 48 58 84	35 35 50 60 90	8 8 8 6 4	10 10 10 10 8	58	26	60	30	6	10	10	10		
W36AB-B00, B0Z B06 B09 B15	230/208-3	1 1 1 1	20 24 33 51	25 25 35 60	10 10 8 6	10 10 10 10										
W36AB-C00, C0Z C06 C09 C15	460-3	1 1 1 1	11 12 17 26	15 15 20 30	14 14 12 10	14 14 12 10										

W18LB-A00, A0Z A05 A08 A10	230/208-1	1 1 1 1	16 30 46 56	20 30 50 60	12 10 8 6	12 10 10 10										
W24LB-A00, A0Z A05 A08 A10	230/208-1	1 1 1 1	21 30 46 57	25 35 50 60	10 10 8 6	10 10 10 10										
W24LB-B00, B0Z B06	230/208-3	1 1	15 23	20 25	12 10	14 10										
W30LB-A00, A0Z A05 A08 A10 A15	230/208-1	1 1 1 1 1 or 2	23 31 46 57 83	35 35 50 60 90	8 8 8 6 4	10 10 10 10 8	57	26	60	30	6	10	10	10		
W30LB-B00, B0Z B09 B15	230/208-3	1 1 1	17 32 50	20 35 50	12 8 8	12 10 10										
W30LB-C00, C0Z C09 C15	460-3	1 1 1	9 16 26	15 20 30	14 12 10	14 12 10										
W36LB-A00, A0Z A05 A10 A15	230/208-1	1 1 1 1 or 2	27 32 58 84	35 35 60 90	8 8 6 4	10 10 10 8	58	26	60	30	6	10	10	10		
W36LB-B00, B0Z B09 B15	230/208-3	1 1 1	20 33 51	25 35 60	10 8 6	10 10 10										
W36LB-C00, C0Z C09 C15	460-3	1 1 1	11 18 26	15 20 30	14 12 10	14 12 10										

SEE ALL ELECTRICAL APPLICATION NOTES ON NEXT PAGE.



/////// **Electrical Specifications: W42 to W72 Units Without Dehumidification**

MODEL	Rated Volts & Phase	No. Field Power Circuits	Single Circuit				Multiple Circuits								
			③ Minimum Circuit Ampacity	① Maximum External Fuse or	② Field Power Wire Size	② Ground Wire Size	③ Minimum Circuit Ampacity		① Maximum External Fuse or Ckt. Breaker		② Field Power Wire Size		② Ground Wire Size		
							Ckt. A	Ckt. B	Ckt. A	Ckt. B	Ckt. A	Ckt. B	Ckt. A	Ckt. B	
W42AC-A00, A0Z A05 A10 A15 A20	230/208-1	1	31	50	8	10									
		1	31	50	8	10									
		1	57	60	6	10									
		1 or 2	83	90	4	8	57	26	60	30	6	10	10	10	
		1 or 2	109	125	2	6	57	52	60	60	6	6	10	10	
W42AC-B00, B0Z B06 B09 B15 B18	230/208-3	1	23	35	8	10									
		1	23	35	8	10									
		1	32	35	8	10									
		1	51	60	6	10									
		1	60	60	6	10									
W42AC-C00, C0Z C09 C15	460-3	1	12	15	14	14									
		1	17	20	12	12									
		1	26	30	10	10									
W48AC-A00, A0Z A05 A10 A15 A20	230/208-1	1	35	50	8	10									
		1	35	50	8	10									
		1	59	60	6	10									
		1 or 2	85	90	4	8	59	26	60	30	6	10	10	10	
		1 or 2	111	125	2	6	59	52	60	60	6	6	10	10	
W48AC-B00, B0Z B06 B09 B15 B18	230/208-3	1	26	35	8	10									
		1	26	35	8	10									
		1	33	35	8	10									
		1	51	60	6	10									
		2	N/A	N/A	N/A	N/A	34	28	40	30	8	10	10	10	
W48AC-C00, C0Z C09 C15	460-3	1	12	15	14	14									
		1	17	20	12	12									
		1	26	30	10	10									
W60AC-A00, A0Z A05 A10 A15 A20	230/208-1	1	38	50	8	10									
		1	38	50	8	10									
		1	59	60	6	10									
		1 or 2	85	90	4	8	59	26	60	30	6	10	10	10	
		1 or 2	111	125	2	6	59	52	60	60	6	6	10	10	
W60AC-B00, B0Z B06 B09 B15 B18	230/208-3	1	28	40	8	10									
		1	28	40	8	10									
		1	34	40	8	10									
		1	52	60	6	10									
		2	N/A	N/A	N/A	N/A	34	28	40	30	8	10	10	10	
W60AC-C00, C0Z C09 C15	460-3	1	14	20	12	12									
		1	18	20	12	12									
		1	26	30	10	10									
W72AC-A00, A0Z A05 A10 A15 A20	230/208-1	1	56	60	6	10									
		1	56	60	6	10									
		1 or 2	60	70	6	8	56	26	60	30	6	10	10	10	
		1 or 2	86	90	3	8	56	52	60	60	6	6	10	10	
		1 or 2	112	125	2	6	56	52	60	60	6	6	10	10	
W72AC-B00, B0Z B06 B09 B15 B18	230/208-3	1	38	50	8	10									
		1	38	50	8	10									
		1	38	50	8	10									
		1	54	60	6	10									
		2	N/A	N/A	N/A	N/A	38	28	40	30	8	10	10	10	
W72AC-C00, C0Z C09 C15	460-3	1	18	25	10	10									
		1	18	25	10	10									
		1	27	30	10	10									

- 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.

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.



////// **Electrical Specifications: W30 to W72 Units With Dehumidification**

MODEL	Rated Volts & Phase	No. Field Power Circuits	Single Circuit				Multiple Circuits							
			③ Minimum Circuit Ampacity	① Maximum External Fuse or Ckt. Brkr.	② Field Power Wire Size	② Ground Wire Size	③ Minimum Circuit Ampacity		① Maximum External Fuse or Ckt. Breaker		② Field Power Wire Size		② Ground Wire Size	
							Ckt. A	Ckt. B	Ckt. A	Ckt. B	Ckt. A	Ckt. B	Ckt. A	Ckt. B
W30ABDA00,A0Z A05 A08 A10	230/208-1	1	23	35	8	10								
		1	31	35	8	10								
		1	47	50	8	10								
		1	57	60	6	10								
W30ABDB00,B0Z B06 B09	230/208-3	1	17	20	12	12								
		1	23	25	10	10								
		1	32	35	8	10								
W30ABDC00,C0Z C06 C09	460-3	1	9	15	14	14								
		1	13	15	14	14								
		1	17	20	12	12								
W36ABDA00,A0Z A05 A08 A10	230/208-1	1	28	35	8	10								
		1	32	35	8	10								
		1	48	50	8	10								
		1	58	60	6	10								
W36ABDB00,B0Z B06 B09	230/208-3	1	20	25	10	10								
		1	24	25	10	10								
		1	33	35	8	10								
W36ABDC00,C0Z C06 C09	460-3	1	13	15	14	14								
		1	14	15	14	14								
		1	18	20	12	12								
W42ACDA00,A0Z A05 A10 A15	230/208-1	1	31	50	8	10								
		1	31	50	8	10								
		1	57	60	6	10								
		1 or 2	83	90	4	8	57	26	60	30	6	10	10	10
		1	23	35	8	10								
W42ACDB00,B0Z B05 B09 B18	230/208-3	1	23	35	8	10								
		1	23	35	8	10								
		1	33	35	8	10								
		1	60	60	6	10								
W42ACDC00,C0Z C05 C09	460-3	1	13	15	14	14								
		1	13	15	14	14								
		1	18	20	12	12								
W48ACDA00,A0Z A05 A10 A15	230/208-1	1	34	50	8	10								
		1	34	50	8	10								
		1	59	60	6	10								
		1 or 2	85	90	4	8	59	26	60	30	6	10	10	10
		1	25	35	8	10								
W48ACDB00,B0Z B05 B09 B18	230/208-3	1	25	35	8	10								
		1	25	35	8	10								
		1	34	35	8	10								
		1	60	60	6	10								
W48ACDC00,C0Z C05 C09	460-3	1	12	15	14	14								
		1	12	15	14	14								
		1	17	20	12	12								
W60ACDA00,A0Z A05 A10	230/208-1	1	41	50	8	10								
		1	41	50	8	10								
		1	59	60	6	10								
W60ACDB00,B0Z B09 B15	230/208-3	1	28	40	8	10								
		1	35	40	8	10								
		1	53	60	6	10								
W60ACDC00,C0Z C09 C15	460-3	1	15	20	12	12								
		1	18	20	12	12								
		1	27	30	10	10								
W72ACDA00,A0Z A05 A10 A15	230/208-1	1	56	60	6	10								
		1	56	60	6	10								
		1 or 2	60	70	6	8	59	26	60	30	6	10	10	10
		1 or 2	86	90	3	8	59	52	60	60	6	6	10	10
		1	38	50	8	10								
W72ACDB00,B0Z B06 B09 B15	230/208-3	1	38	50	8	10								
		1	38	50	8	10								
		1	38	50	8	10								
		1	54	60	6	10								
W72ACDC00,C0Z C09 C15	460-3	1	19	25	10	10								
		1	19	25	10	10								
		1	27	30	10	10								

- 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.



///// **Electrical Specifications: W36 to W72 Units With "R" Isolation Option**

MODEL	Rated Volts & Phase	No. Field Power Circuits	Single Circuit				Multiple Circuits							
			③ Minimum Circuit Ampacity	① Maximum External Fuse or Ckt. Brkr.	② Field Power Wire Size	② Ground Wire Size	③ Minimum Circuit Ampacity		① Maximum External Fuse or Ckt. Breaker		② Field Power Wire Size		② Ground Wire Size	
							Ckt. A	Ckt. B	Ckt. A	Ckt. B	Ckt. A	Ckt. B	Ckt. A	Ckt. B
W36ABRC00,COZ C06 C09 C15	460-3	1	12	15	14	14								
W36LBRC0Z C09 C15	460-3	1	12	15	14	14								
W42ACRC00,COZ C09 C15	460-3	1	13	15	14	14								
W48ACRC00,COZ C09 C15	460-3	1	14	15	14	14								
W60ACRC00,COZ C09 C15	460-3	1	16	20	12	12								
W72ACRC00,COZ C09 C15	460-3	1	20	25	10	10								

- 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	AT 240V (1)				AT 208V (1)				AT 480V (2)			AT 460V (2)		
	KW	1-PH AMPS	3-PH AMPS	BTUH	KW	1-PH AMPS	3-PH AMPS	BTUH	KW	3-PH AMPS	BTUH	KW	3-PH AMPS	BTUH
4.0	4.0	16.7		13,652	3.00	14.4		10,239						
5.0	5.0	20.8	12.5	17,065	3.75	18.0	10.4	12,799						
6.0	6.0		14.4	20,478	4.50		12.5	15,359	6.0	7.2	20,478	5.52	6.9	18,840
8.0	8.0	33.3		27,304	6.00	28.8		20,478						
9.0	9.0		21.7	30,717	6.75		18.7	23,038	9.0	10.8	30,717	8.28	10.4	28,260
10.0	10.0	41.7		34,130	7.50	36.1		25,598						
15.0	15.0	62.5	36.1	51,195	11.25	54.1	31.2	38,396	15.0	18.0	51,195	13.80	17.3	47,099
18.0	18.0		43.3	61,434	13.50		37.5	46,076	18.0	21.7	61,434	16.56	20.8	56,519
20.0	20.0	83.3		68,260	15.00	72.1		51,195						

- (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 W18A to W36A Right-Hand Control Panel Units

• Designed for adding Electric Heat to 0 KW Units			• ETL US & Canada Listed			
• Circuit Breaker Standard on 230/208V Models			• Toggle Disconnect Standard on 460V Models			
Air Conditioner Models	-A00 Models 230/208-1		-B00 Models 230/208-3		-C00 Models 460-3	
	Heater Model #	KW	Heater Model #	KW	Heater Model #	KW
W18AB	WMCB-02A EHW1TAB-A05 EHW1TAB-A08 EHW2TA-A10	02 05 08 10	N/A		N/A	
W24AB	WMCB-03A EHW2TAB-A05 EHW2TAB-A08 EHW2TA-A10	02 05 08 10	WMCB-02B EHW2TA-B06	02 06	WMPD-01C EHW24B-C06	02 06
W30AB	WMCB-05A EHW3TA-A05 EHW3TA-A08 EHW3TA-A10 EHW3TAB-A15	02 05 08 10 15	WMCB-02B EHW30A-B06 EHW3TA-B09 EHW3TAB-B15	02 06 09 15	WMPD-01C EHW3TA-C06 EHW3TA-C09 EHW3TA-C12 EHW3TAB-C15	02 06 09 12 15
W36AB	WMCB-05A EHW3TA-A05 EHW3TA-A08 EHW3TAB-A10 EHW3TA-A15	02 05 08 10 15	WMCB-03B EHW3TA-B06 EHW3TAB-B09 EHW3TA-B15	02 06 09 15	WMPD-01C EHW3TA-C06 EHW3TA-C09 EHW3TA-C15	02 06 09 15

//////// Heater Packages - Field Kits for W18L to W36L Left-Hand Control Panel Units

Air Conditioner Models	-A00 Models 230/208-1		-B00 Models 230/208-3		-C00 Models 460-3	
	Heater Model #	KW	Heater Model #	KW	Heater Model #	KW
W18LB	WMCB-02AL EHW1TAB-A05L EHW1TAB-A08L EHW2TA-A10L	02 05 08 10	N/A		N/A	
W24LB	WMCB-03AL EHW2TAB-A05L EHW2TAB-A08L EHW2TA-A10L	02 05 08 10	WMCB-02BL EHW2TA-B06L	02 06	N/A	
W30LB	WMCB-05AL EHW3TA-A05L EHW3TA-A08L EHW3TA-A10L EHW3TA-A15L	02 05 08 10 15	WMCB-02BL EHW3TA-B09L EHW3TAB-B15L	02 09 15	WMPD-01CL EHW3TA-C09L EHW3TAB-C15L	02 09 15
W36LB	WMCB-05AL EHW3TA-A05L EHW3TAB-A10L EHW3TA-A15L	02 05 10 15	WMCB-03BL EHW3TAB-B09L EHW3TA-B15L	02 09 15	WMPD-01CL EHW3TA-C09L EHW3TA-C15L	02 09 15



////// Heater Packages - Field Kits for W42A to W72A Units

• Designed for adding Electric Heat to 0 KW Units			• ETL US & Canada Listed			
• Circuit Breaker Standard on 230/208V Models			• Toggle Disconnect Standard on 460V Models			
Air Conditioner Models	-A00 Models 230/208-1		-B00 Models 230/208-3		-C00 Models 460-3	
	Heater Model #	KW	Heater Model #	KW	Heater Model #	KW
W42AC	WMCBC-08A	OZ	WMCBC-05B	OZ	WMCBC-06C	OZ
	EHWA48C-A05	05	EHWA42C-B06	06	EHWA42C-C09	09
	EHWA42C-A10	10	EHWA42C-B09	09	EHWA42C-C15	15
	EHWA42C-A15	15	EHWA42C-B15	15		
	EHWA42C-A20	20	EHWA42C-B18	18		
W48AC	WMCBC-08A	OZ	WMCBC-05B	OZ	WMCBC-06C	OZ
	EHWA48C-A05	05	EHWA42C-B06	06	EHWA48C-C09	09
	EHWA42C-A10	10	EHWA42CD-B09	09	EHWA42C-C15	15
	EHWA42C-A15	15	EHWA48C-B15	15		
	EHWA42C-A20	20	EHWA48C-B18	18		
W60AC	WMCBC-08A	OZ	WMCBC-06B	OZ	WMCBC-06C	OZ
	EHWA42C-A05	05	EHWA60C-B06	06	EHWA60C-C09	09
	EHWA60C-A10	10	EHWA60C-B09	09	EHWA60C-C15	15
	EHWA60C-A15	15	EHWA60C-B15	15		
	EHWA60C-A20	20	EHWA60C-B18	18		
W72AC	WMCBC-09A	OZ	WMCBC-08B	OZ	WMCBC-06C	OZ
	EHWA72C-A05	05	EHWA72C-B06	06	EHWA60C-C09	09
	EHWA72C-A10	10	EHWA72C-B09	09	EHWA60C-C15	15
	EHWA72C-A15	15	EHWA60C-B15	15		
	EHWA42C-A20	20	EHWA48C-B18	18		

////// Heater Packages - Field Kits for W30A to W72A Dehumidification Units

• Designed for adding Electric Heat to 0 KW Units			• ETL US & Canada Listed			
• Circuit Breaker Standard on 230/208V Models			• Toggle Disconnect Standard on 460V Models			
Air Conditioner Models	-A00 Models 230/208-1		-B00 Models 230/208-3		-C00 Models 460-3	
	Heater Model #	KW	Heater Model #	KW	Heater Model #	KW
W30ABD	WMCB-05A	OZ	WMCB-02B	OZ	WMPD-01C	OZ
	EHW3TA-A05	05	EHW30A-B06	06	EHW3TA-C06	06
	EHW3TA-A08	08	EHW3TA-B09	09	EHW3TA-C09	09
	EHW3TA-A10	10				
W36ABD	WMCB-05A	OZ	WMCB-03B	OZ	WMPD-01C	OZ
	EHW3TA-A05	05	EHW3TA-B06	06	EHW3TA-C06	06
	EHW3TA-A08	08	EHW3TABD-B09	09	EHW3TA-C09	09
	EHW3TAB-A10	10				
W42ACD	WMCBC-08A	OZ	WMCBC-05B	OZ	WMCBC-06C	OZ
	EHWA48CD-A05	05	EHWA42C-B05	05	EHWA42C-C05	05
	EHWA42CD-A10	10	EHWA42CD-B09	09	EHWA42CD-C09	09
	EHWA42CD-A15	15	EHWA42CD-B18	18		
W48ACD	WMCBC-08A	OZ	WMCBC-05B	OZ	WMCBC-06C	OZ
	EHWA48CD-A05	05	EHWA42C-B05	05	EHWA42C-C05	05
	EHWA42CD-A10	10	EHWA48CD-B09	09	EHWA48C-C09	09
	EHWA42C-A15	15	EHWA48CD-B18	18		
W60ACD	WMCBC-08A	OZ	WMCBC-06B	OZ	WMCBC-06C	OZ
	EHWA42CD-A05	05	EHWA60CD-B09	09	EHWA60C-C09	09
	EHWA60CD-A10	10	EHWA60CD-B15	15	EHWA72C-C15	15
W72ACD	WMCBC-09A	OZ	WMCBC-08B	OZ	WMCBC-06C	OZ
	EHWA72CD-A05	05	EHWA72CD-B06	06	EHWA60C-C09	09
	EHWA72CD-A10	10	EHWA72CD-B09	09	EHWA72C-C15	15
	EHWA72CD-A15	15	EHWA60CD-B15	15		

////// 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	FAD-NE2	W18AB/LB, 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.
	FAD-NE3	W30AB/LB, W36AB/LB		
	FAD-NE5	W42AC, W48AC, W60AC, W72AC		
A	FAD-BE2	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.
	FAD-BE3	W30AB/LB, W36AB/LB		
	FAD-BE5	W42AC, W48AC, W60AC, W72AC		
B	BOP-2	W18AB/LB, 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.
	BOP-3	W30AB/LB, W36AB/LB		
	BOPLATE-5	W42AC, W48AC, W60AC, W72AC		
M	CRV-F2-*	W18AB/LB, 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.
	CRV-F3-*	W30AB/LB, W36AB/LB		
	CRV-F5	W42AC, W48AC, W60AC, W72AC		
V	CRV-V2-*	W18AB/LB, 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.
	CRV-V3-*	W30AB/LB, W36AB/LB		
	CRV-V5	W42AC, W48AC, W60AC, W72AC		
D	ECON-NC2-*	W18AB/LB, 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.
	ECON-NC3-*	W30AB/LB, W36AB/LB		
	ECON-NC5	W42AC, W48AC, W60AC, W72AC		
S	ECON-S2-*	W18AB/LB, 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.
	ECON-S3-*	W30AB/LB, W36AB/LB		
Y	ECON-DB2-*	W18AB/LB, 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.
	ECON-DB3-*	W30AB/LB, W36AB/LB		
	ECON-DB5	W42AC, W48AC, W60AC, W72AC		
Z	ECON-WD2-*	W18AB/LB, 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.
	ECON-WD3-*	W30AB/LB, W36AB/LB		
	ECON-WD5	W42AC, W48AC, W60AC, W72AC		
R	ERV-FA2-*	W18AB/LB, W24AB/LB - 208/230VAC voltage units	The Energy Recovery Ventilator Provides a solution to condition intake air entering the room while exhausting room air to minimize room pressurization. Heat is transferred from the entering air into the exhaust air during cooling seasons. Heat is transferred from the air being exhausted from the room into the air intake are during heating seasons. This is accomplished using energy recovery wheels, an intake blower assembly, and an exhaust blower assembly. Operation is controlled when the "A" terminal located on the unit low voltage terminal strip is energized with 24VAC.	The Energy Recovery Ventilator is often used to provide ventilation for an occupied area that requires outdoor air intake regardless of outdoor conditions. Vent option provides outdoor air intake and room pressure relief with optimal energy efficiency during warm or cool outdoor conditions. Intake and exhaust blower assemblies have 3 independent adjustable speed selections. 3" intake hood (included) required for ERV-F2 and ERV-F3 options. No intake hood is required for ERV-F5 option.
	ERV-FA3-*	W30AB/LB, W36AB/LB - 208/230VAC voltage units		
	ERV-FA5	W42AC, W48AC, W60AC, W72AC - 208/230VAC voltage units		
	ERV-FC2-*	W18AB/LB, W24AB/LB - 460VAC voltage units		
	ERV-FC3-*	W30AB/LB, W36AB/LB - 460VAC voltage units		
	ERV-FC5	W42AC, W48AC, W60AC, W72AC - 460VAC voltage units		



///// 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 W18 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

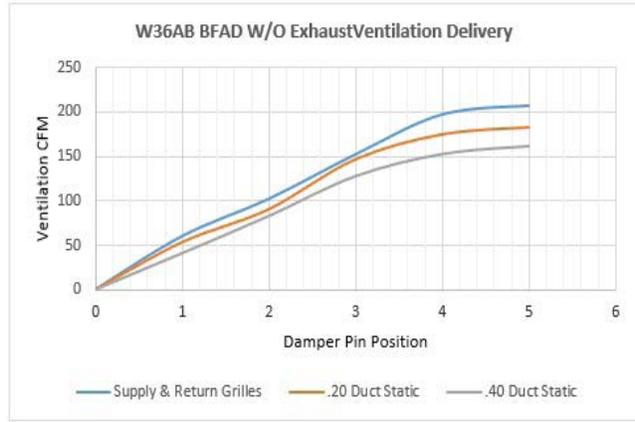
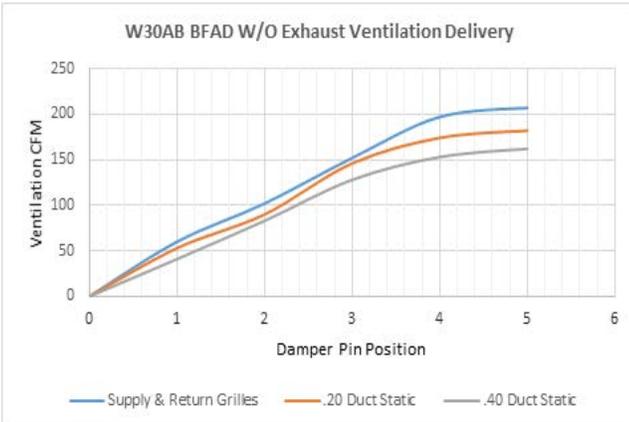
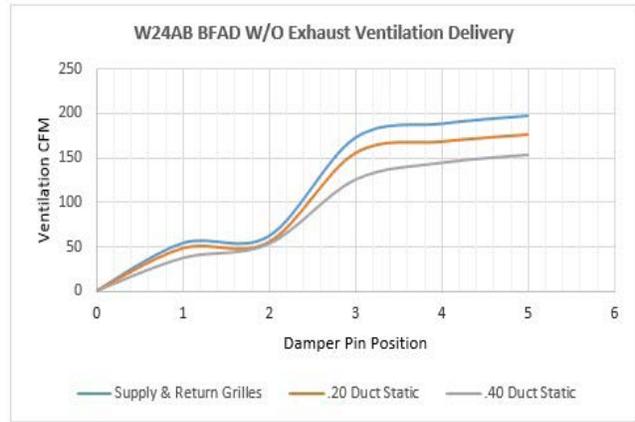
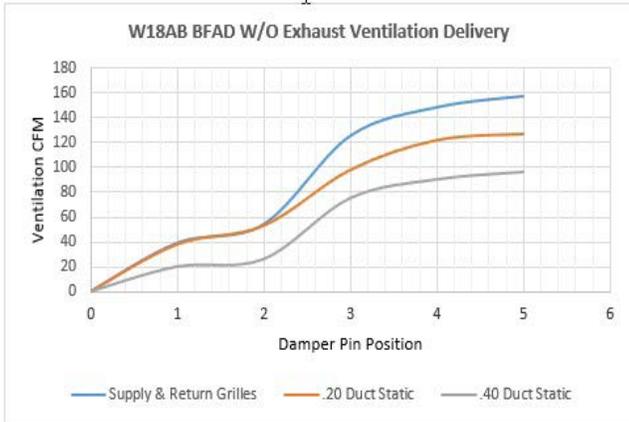
The optional return air sensor kit provides a optional sensor that is field installed in the return airstream. When installed, the JADE economizer will monitor and adjust outdoor air intake based on comparing room temperature and outdoor temperature. This kit is optional, but may be required to meet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

General Ventilation Option Guidelines

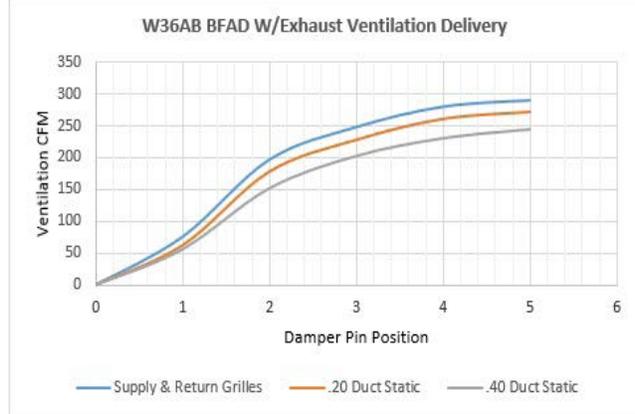
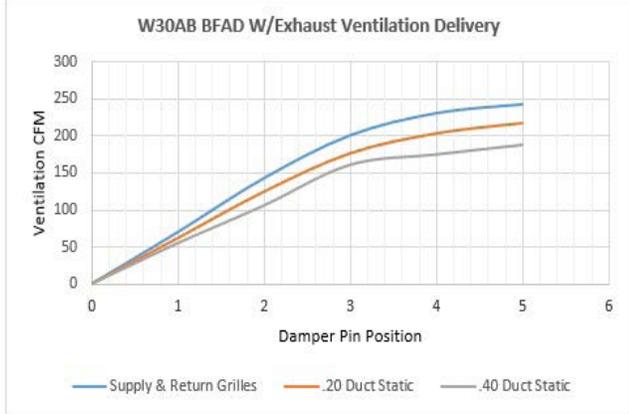
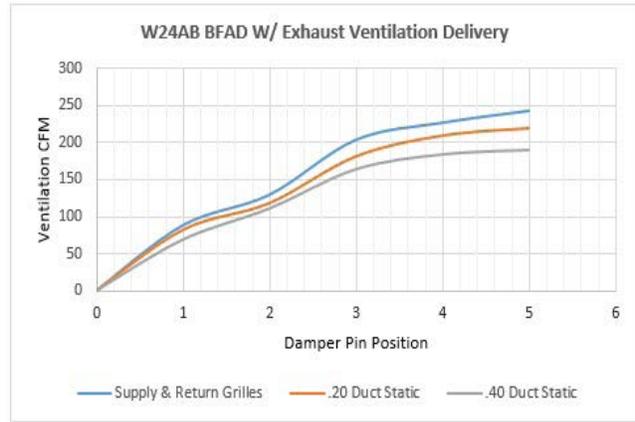
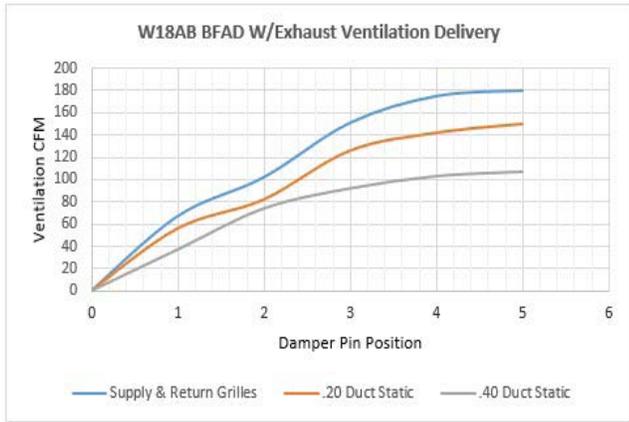
Applying heating and cooling equipment for various applications in the field requires careful planning to ensure the results provide are acceptable for occupants and heat generating equipment inside a room or structure. Products must be reviewed to meet all national, state, and local codes. When providing 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 W18 - W36**

“X” (FAD-NE2 and FAD-NE3) Barometric Damper Without Exhaust Vent Code Options

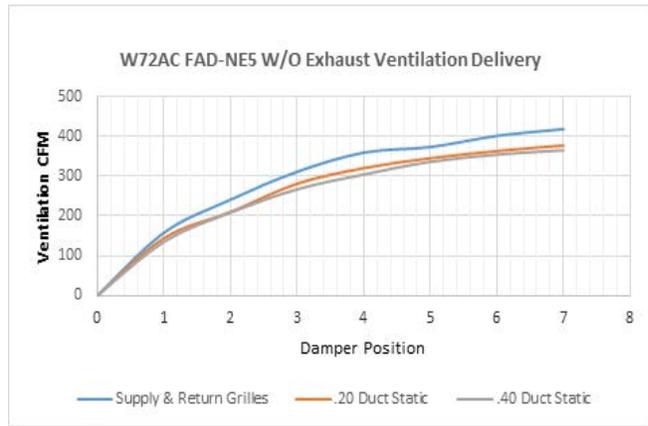
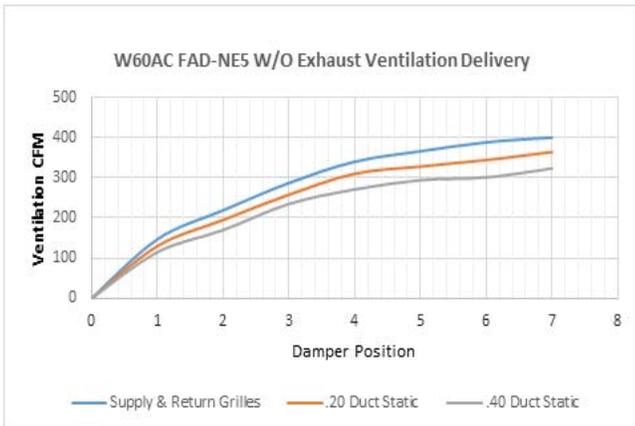
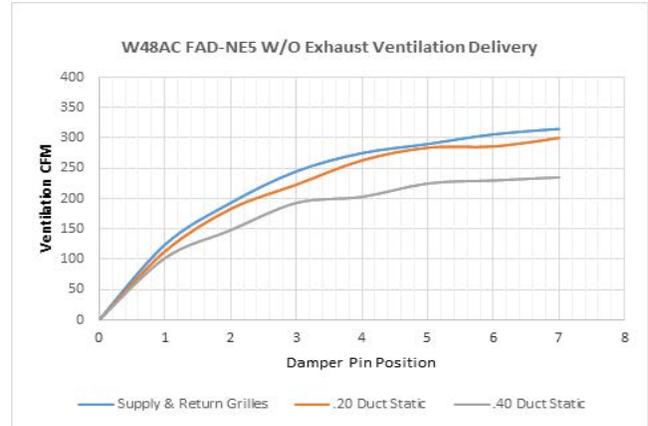
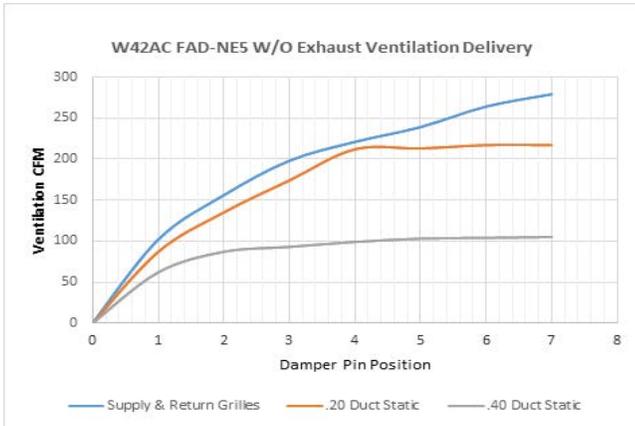


“A” (FAD-BE2 and FAD-BE3) Barometric Damper With Exhaust Vent Code Options

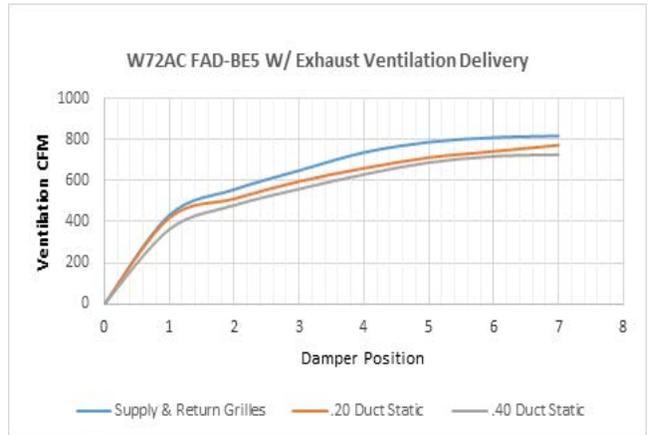
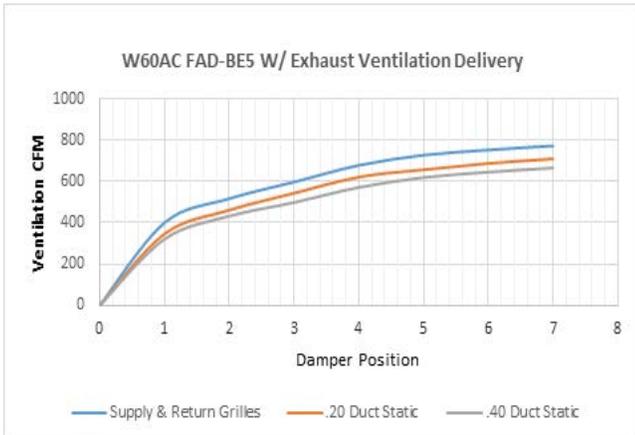
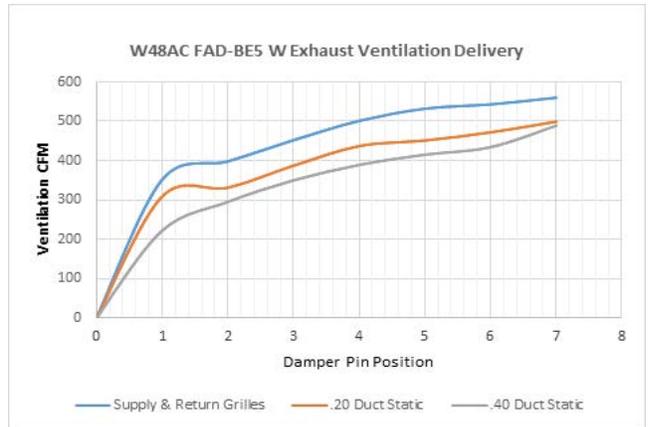
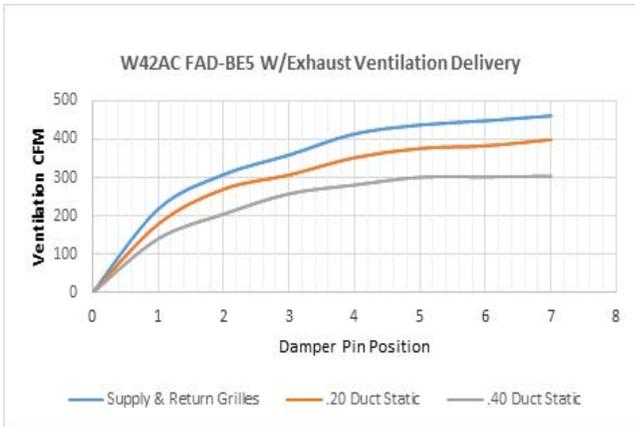


////// **Barometric Damper Airflow Charts for W42 - W72**

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

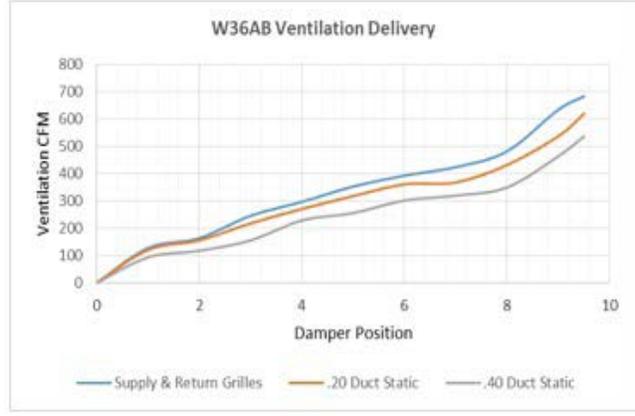
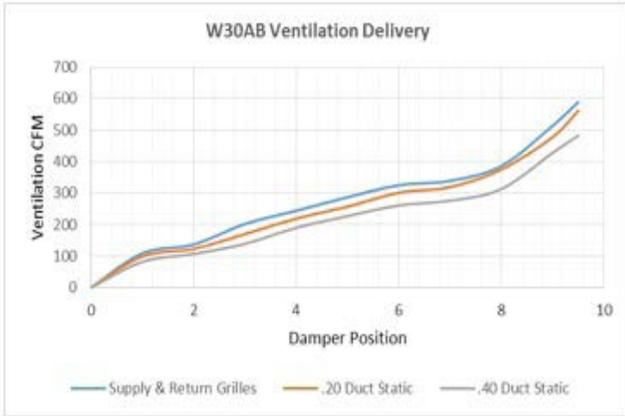
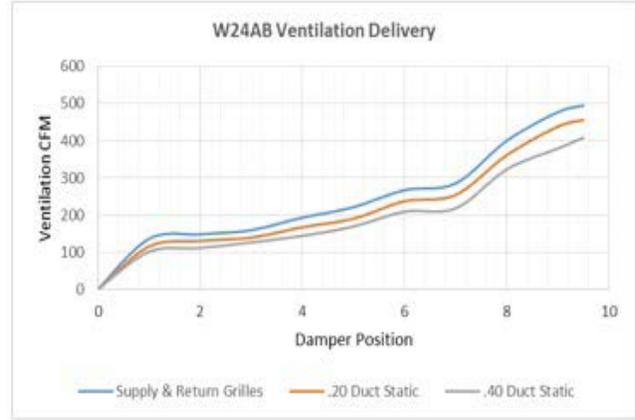
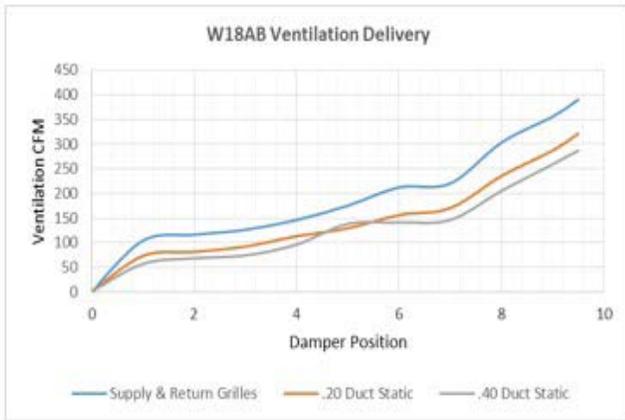


"A" (FAD-BE5) Barometric Damper With Exhaust Vent Code Options

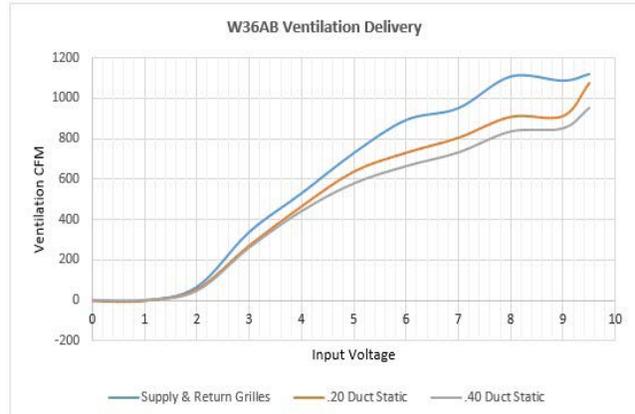
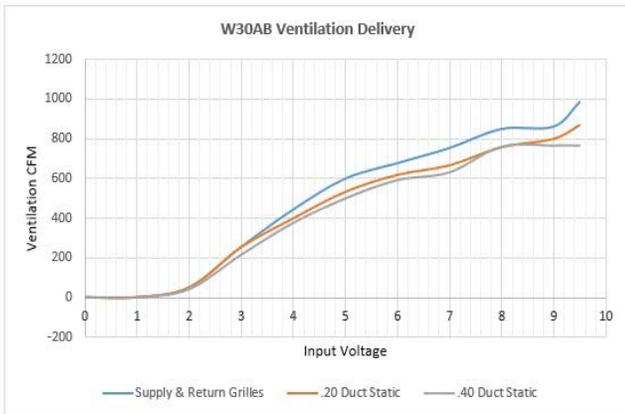
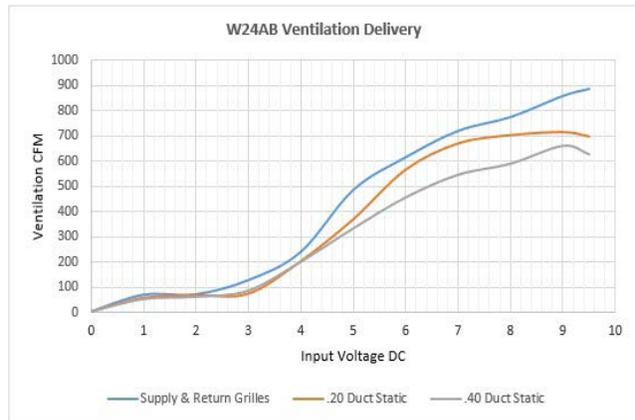
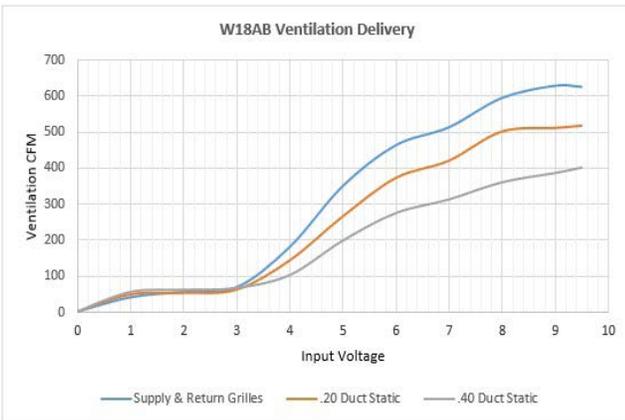


Commercial Room Ventilator and Economizer Airflow Charts for W18 - W36

“M” (CRV-F), “V” (CRV-V), “S” (ECON-S) Vent Code Options

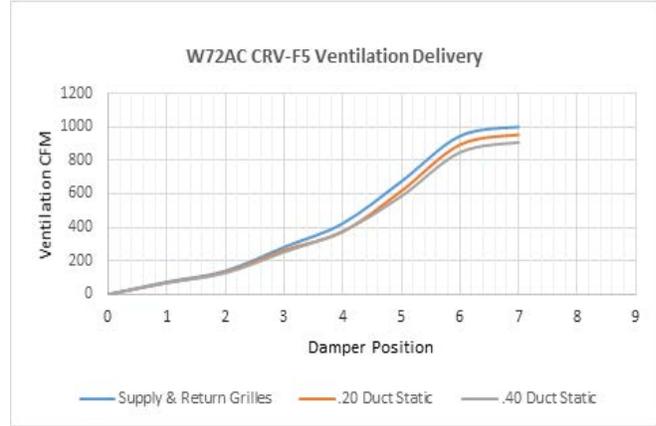
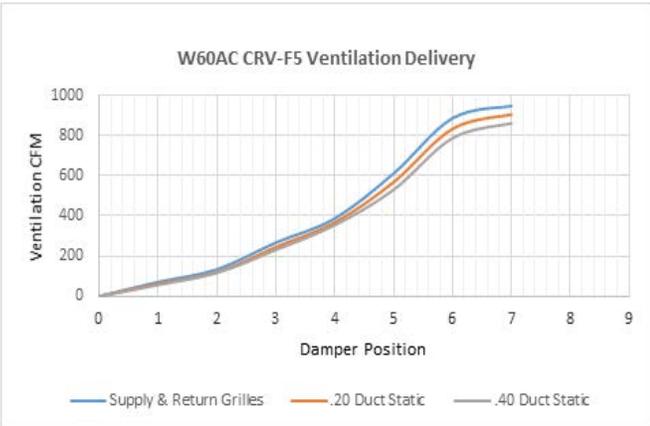
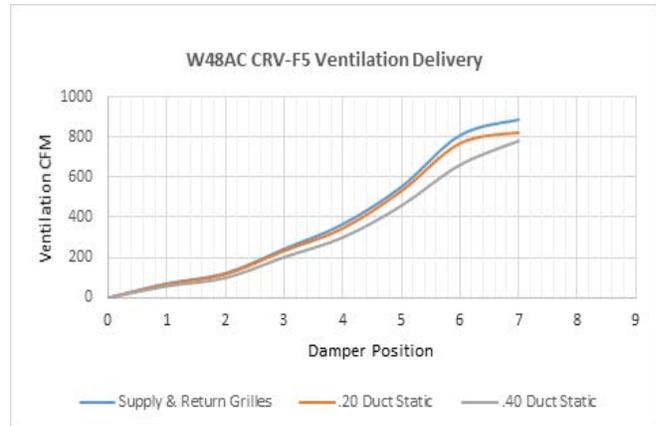
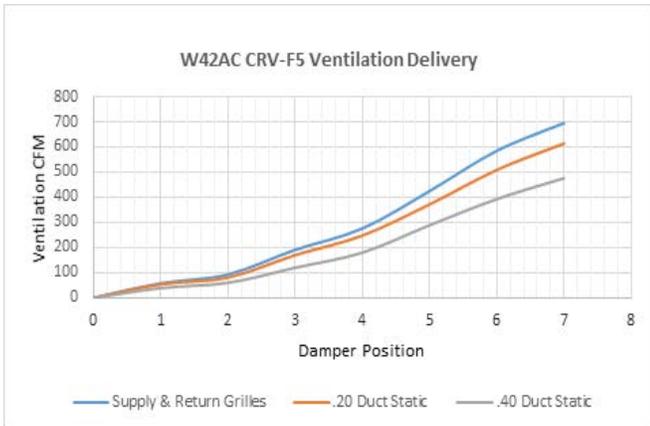


“D” (ECON-NC), “Y” (ECON-DB) and “Z” (ECON-WD) Vent Code Options

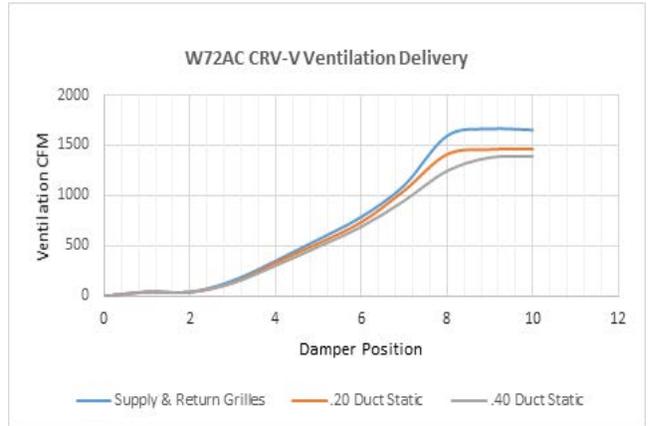
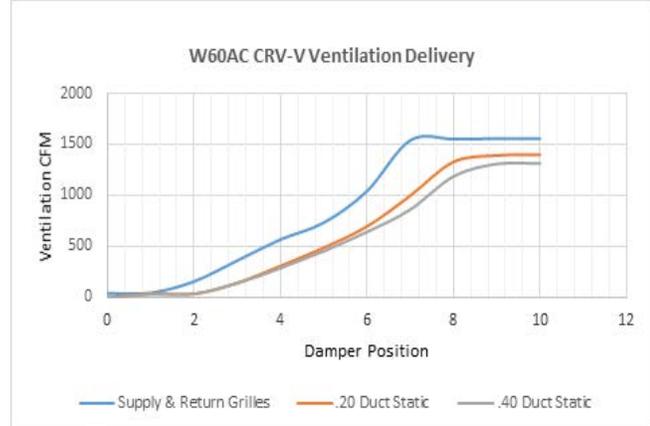
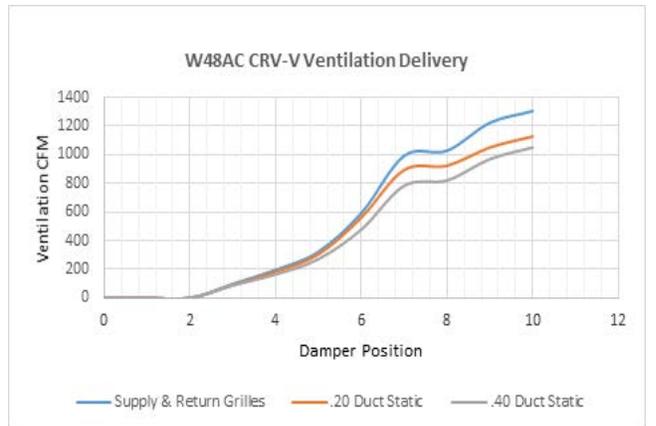
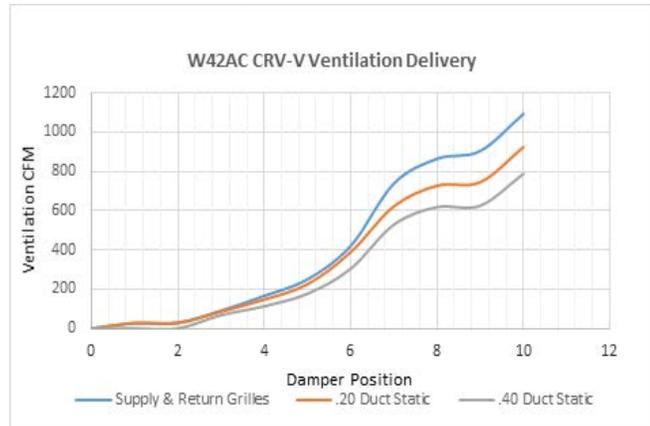


Commercial Room Ventilator and Economizer Airflow Charts for W42 - W72

“M” (CRV-F) Vent Code Options

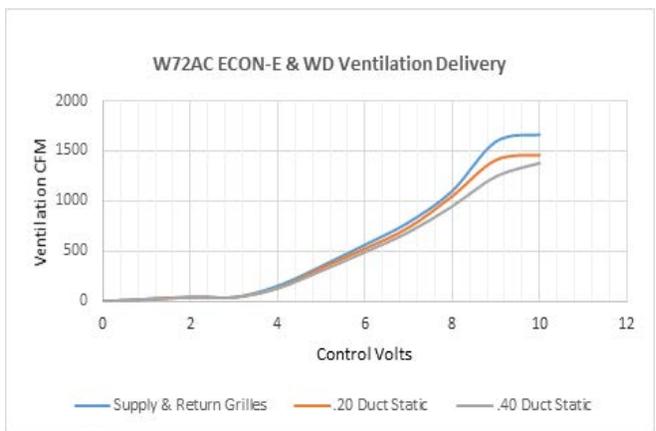
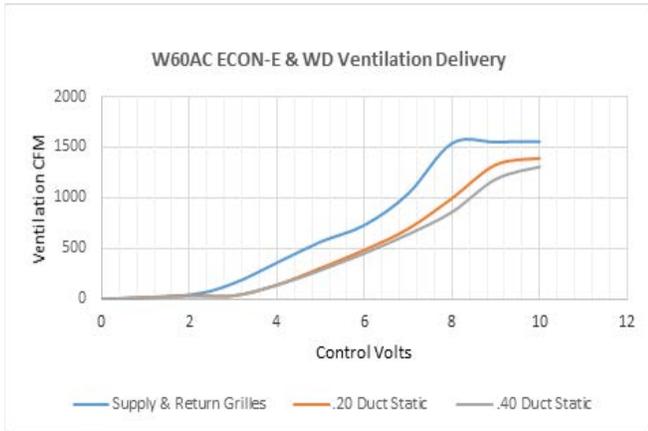
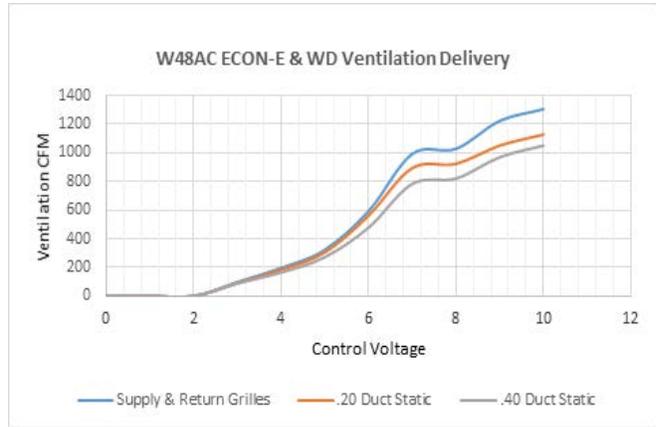
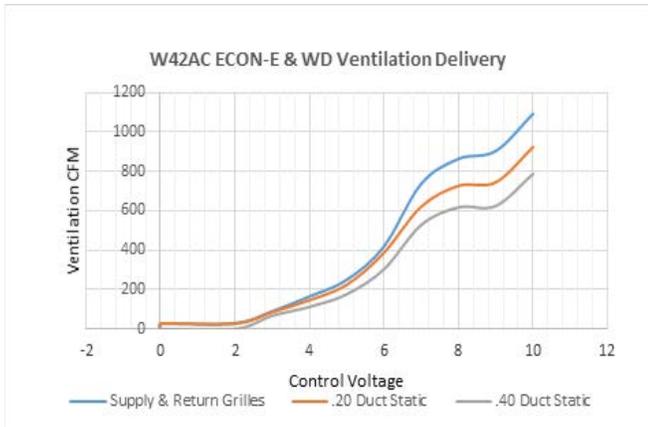


“V” (CRV-V) Vent Code Options



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

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



Energy Recovery Ventilator (ERV) Specifications

"R" Vent Code Option – Energy Recovery Ventilator (ERV-F)

The Energy Recovery Ventilator is an optional feature on all models, and can be ordered pre-installed from Bard or may be field installed with the ERV-F vent kit. Energy Recovery Ventilators are designed to improve efficiency and comfort levels in a room when it is necessary to bring in outdoor air regardless of outdoor weather conditions. This saves energy and reduces compressor run time extending the life of the cooling equipment components. The ERV-F ventilation option has an intake and an exhaust air path that uses a separate intake and exhaust fan system. Both the intake and exhaust fans draw air through a rotary energy recovery cassette. The cassette transfers heat from one air path into the other.

- ERV-F use during warmer outdoor weather months: Heat is transferred from the intake airstream to the exhaust airstream. This operation allows heat to be removed from the outdoor air before entering the room.
- ERV-F use during cooler outdoor weather months: Heat is transferred from the exhaust airstream to the intake airstream. This operation allows heat to be added to the outdoor air before entering the room.
- The indoor and outdoor fan systems used in the ERV-F each have three user selectable speeds of operation. The rotary energy recovery cassette is easily removed and disconnected from power for service and cleaning. The cassette wheel media is cleanable with a mild soap/cleaning agent and water.
- ERV-F intake and exhaust airflow and energy efficiency charts are provided for ERV-F models based on Wall-Mount unit size.
- Up to 25% heating or cooling load reduction during ventilation operation by pre-conditioning the outdoor air being brought into the room.

Energy Recovery Ventilator (ERV) Performance - W18 and W24

"R" (ERV-FA2 and ERV-FC2) Vent Code Options for W18 & W24

SUMMER COOLING PERFORMANCE (INDOOR DESIGN CONDITIONS 75°DB/62°WB)

AMBIENT O.D.	VENTILATION RATE -- 250 CFM 62% EFFICIENCY							VENTILATION RATE -- 225 CFM 63% EFFICIENCY							VENTILATION RATE -- 200 CFM 63% EFFICIENCY						
	DB/WB	F	VLT	VLS	VLL	HRT	HRS	HRL	VLT	VLS	VLL	HRT	HRS	HRL	VLT	VLS	VLL	HRT	HRS	HRL	
105	75	11925	8100	1325	7394	5022	822	10727	7287	3441	6758	4591	2168	9540	6480	3060	6010	4082	1928		
	70	8100	8100	0	5022	5022	0	7287	7287	0	4591	4591	0	6480	6480	0	4082	4082	0		
	65	8100	8100	0	5022	5022	0	7287	7287	0	4591	4591	0	6480	6480	0	4082	4082	0		
100	80	17550	6750	10800	10881	4185	6696	15788	6072	9716	9946	3826	6121	14040	5400	8640	8845	3402	5443		
	75	11925	6750	5175	7394	4185	3209	10727	6072	4655	6758	3826	2933	9540	5400	4140	6010	3402	2608		
	70	6863	6750	113	4255	4185	70	6173	6072	101	3889	3826	64	5490	5400	90	3458	3402	56		
	65	6750	6750	0	4185	4185	0	6072	6072	0	3826	3826	0	5400	5400	0	3402	3402	0		
95	80	17550	5400	12150	10881	3348	6696	15788	6072	9716	9946	3826	6121	14040	5400	8640	8845	3402	5443		
	75	11925	5400	6525	7394	3348	3209	10727	6072	4655	6758	3826	2933	9540	5400	4140	6010	3402	2608		
	70	6863	5400	1463	4255	3348	907	6173	6072	101	3889	3826	64	5490	5400	90	3458	3402	56		
	65	5400	5400	0	3348	3348	0	4858	4858	0	3060	3060	0	4320	4320	0	2722	2722	0		
90	80	17550	4050	13500	10881	2511	8370	15788	3643	12145	9946	2295	7651	14040	3240	10800	8845	2041	6804		
	75	11925	4050	7875	7394	2511	4883	10727	3643	7084	6758	2295	4463	9540	3240	6300	6010	2041	3969		
	70	6863	4050	2813	4255	2511	1744	6173	3643	2530	3889	2295	1594	5490	3240	2250	3458	2041	1417		
	65	4050	4050	0	2511	2511	0	3643	3643	0	2295	2295	0	3240	3240	0	2041	2041	0		
85	80	17550	2700	14850	10881	1674	9207	15788	2429	13359	9946	1530	8416	14040	2160	11880	8845	1361	7484		
	75	11925	2700	9225	7394	1674	5720	10727	2429	8298	6758	1530	5228	9540	2160	7380	6010	1361	4649		
	70	6863	2700	4163	4255	1674	2581	6173	2429	3744	3889	1530	2359	5490	2160	3300	3458	1361	2098		
	65	2700	2700	0	1674	1674	0	2429	2429	0	1530	1530	0	2160	2160	0	1361	1361	0		
80	80	17550	1350	10575	7394	837	6557	10727	1214	9513	6758	765	5993	9540	1080	8460	6010	680	5330		
	75	6863	1350	5513	4255	837	3418	6173	1214	4959	3889	765	3124	5490	1080	4410	3458	680	2778		
	65	2363	1350	1013	1465	837	628	2125	1214	911	1339	765	547	1890	1080	810	1190	680	510		
	60	1350	1350	0	837	837	0	1214	1214	0	765	765	0	1080	1080	0	680	680	0		
75	70	6863	0	6863	4255	0	4255	6173	0	6173	6889	0	3889	5490	0	5490	3458	0	3458		
	65	2363	0	2363	1465	0	1465	2125	0	2125	1339	0	1339	1890	0	1890	1190	0	1190		
	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		

WERVP-A2 WINTER HEATING PERFORMANCE (INDOOR DESIGN CONDITIONS 70°F DB)

AMBIENT O.D.	VENTILATION RATE					
	250 CFM 74% EFF.		225 CFM 75% EFF.		200 CFM 75% EFF.	
DB/F	WVL	WHR	WVL	WHR	WVL	WHR
65	1350	999	1214	911	1080	810
60	2700	1998	2429	1822	2160	1620
55	4050	2997	3643	2733	3240	2430
50	5400	3996	4858	3643	4320	3240
45	6750	4995	6072	4554	5400	4050
40	8100	5994	7287	5465	6480	4860
35	9450	6993	8501	6376	7560	5670
30	10800	7992	9716	7287	8640	6480
25	12150	8991	10930	8198	9720	7290
20	13500	9990	12145	9108	10800	8100
15	14850	10989	13359	10019	11880	8910

NOTE: Sensible performance only is shown for winter application.

LEGEND:

- VLT = Ventilation Load - Total
- VLS = Ventilation Load - Sensible
- VLL = Ventilation Load - Latent
- HRT = Heat Recovery - Total
- HRS = Heat Recovery - Sensible
- HRL = Heat Recovery - Latent
- WVL = Winter Ventilation Load
- WHR = Winter Heat Recovery



Energy Recovery Ventilator (ERV) Performance - W30 and W36

“R” (ERV-FA3 and ERV-FC3) Vent Code Options for W30 & W36
 SUMMER COOLING PERFORMANCE (INDOOR DESIGN CONDITIONS 75°DB/62°WB)

AMBIENT O.D.	VENTILATION RATE -- 400CFM 63% EFFICIENCY							VENTILATION RATE -- 325 CFM 64% EFFICIENCY							VENTILATION RATE -- 250 CFM 65% EFFICIENCY						
	DB/ WB	F	VLT	VLS	VLL	HRT	HRS	HRL	VLT	VLS	VLL	HRT	HRS	HRL	VLT	VLS	VLL	HRT	HRS	HRL	
105	75	19080	12960	6120	12020	8164	3855	15502	10530	4972	9921	6739	3182	11925	8100	3825	7751	5265	2486		
	70	12960	12960	0	8164	8164	0	10530	10530	0	6739	6739	0	8100	8100	0	5265	5265	0		
	65	12960	12960	0	8164	8164	0	10530	10530	0	6739	6739	0	8100	8100	0	5265	5265	0		
100	80	28080	10800	17280	17690	6804	10886	22815	8775	14040	14601	5616	8985	17550	6750	10800	11407	4387	7019		
	75	19080	10800	8280	12020	6804	5216	15502	8775	6727	9921	5616	4305	11925	6750	5175	7751	4387	3363		
	70	10980	10800	180	6717	6804	113	8921	8775	146	5709	5616	93	6862	6750	112	4460	4387	73		
	65	10800	10800	0	6804	6804	0	8775	8775	0	5616	5616	0	6750	6750	0	4387	4387	0		
	60	10800	10800	0	6804	6804	0	8775	8775	0	5616	5616	0	6750	6750	0	4387	4387	0		
95	80	28080	8640	19440	17690	5443	12247	22815	7020	15795	14601	4492	10108	17550	5400	12150	11407	3510	7897		
	75	19080	8640	10440	12020	5443	6577	15502	7020	8482	9921	4492	5428	11925	5400	6525	7751	3510	4241		
	70	10980	8640	2340	6917	5443	1474	8921	7020	1901	5709	4492	1216	6862	5400	1462	4460	3510	950		
	65	8640	8640	0	5443	5443	0	7020	7020	0	4492	4492	0	5400	5400	0	3510	3510	0		
	60	8640	8640	0	5443	5443	0	7020	7020	0	4492	4492	0	5400	5400	0	3510	3510	0		
90	80	28080	6480	21600	17690	4082	13608	22815	5265	17550	14601	3369	11232	17550	4050	13500	11407	2632	8774		
	75	19080	6480	12600	12020	4082	7938	15502	5265	10237	9921	3369	6552	11925	4050	7875	7751	2632	5118		
	70	10980	6480	4500	6917	4082	2835	8921	5265	3656	5709	3369	2340	6862	4050	2812	4460	2632	1828		
	65	6480	6480	0	4082	4082	0	5265	5265	0	3369	3369	0	4050	4050	0	2632	2632	0		
	60	6480	6480	0	4082	4082	0	5265	5265	0	3369	3369	0	4050	4050	0	2632	2632	0		
85	80	28080	4320	23760	17690	2721	14968	22815	3510	19305	14601	2246	12355	17550	2700	14850	11407	1755	9652		
	75	19080	4320	14760	12020	2721	9298	15502	3510	11992	9921	2246	7675	11925	2700	9225	7751	1755	5996		
	70	10980	4320	6660	6917	2721	4195	8921	3510	5411	5709	2246	3463	6862	2700	4162	4460	1755	2705		
	65	4320	4320	0	2721	2721	0	3510	3510	0	2246	2246	0	2700	2700	0	1755	1755	0		
	60	4320	4320	0	2721	2721	0	3510	3510	0	2246	2246	0	2700	2700	0	1755	1755	0		
80	75	19080	2160	16920	12020	1360	10659	15502	1755	13747	9921	1123	8798	11925	1350	10575	7751	877	6873		
	70	10980	2160	8820	6917	1360	5556	8921	1755	7166	5709	1123	4586	6862	1350	5512	4460	877	3583		
	65	3780	2160	1620	2381	1360	1020	3071	1755	1316	1965	1123	842	2362	1350	1012	1535	877	658		
	60	2160	2160	0	1360	1360	0	1755	1755	0	1123	1123	0	1350	1350	0	877	877	0		
75	70	10980	0	10980	6917	0	6917	8921	0	8921	5709	0	5709	6862	0	6862	4460	0	4460		
	65	3780	0	3780	2381	0	2380	3071	0	3071	1965	0	1965	2362	0	2362	1535	0	1535		
	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		

WERVP-*3 WINTER HEATING PERFORMANCE (INDOOR DESIGN CONDITIONS 70°F DB)

AMBIENT O.D.	VENTILATION RATE					
	400 CFM 75% EFFICIENCY		325 CFM 76% EFFICIENCY		250 CFM 77% EFFICIENCY	
	WVL	WHR	WVL	WHR	WVL	WHR
65	2160	1620	1755	1333	1350	1039
60	4320	3240	3510	2667	2700	2079
55	6480	4860	5265	4001	4050	3118
50	8640	6480	7020	5335	5400	4158
45	10800	8100	8775	6669	6750	5197
40	12960	9720	10530	8002	8100	6237
35	15120	11340	12285	9336	9450	7276
30	17280	12960	14040	10670	10800	8316
25	19440	14580	15795	12004	12150	9355
20	21600	16200	17550	13338	13500	10395
15	23760	17820	19305	14671	14850	11434

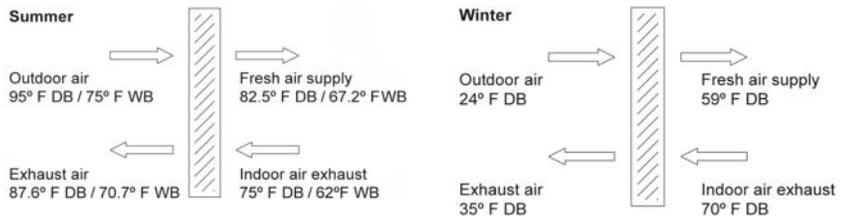
NOTE: Sensible performance only is shown for winter application.

LEGEND:

- VLT = Ventilation Load - Total
- VLS = Ventilation Load - Sensible
- VLL = Ventilation Load - Latent
- HRT = Heat Recovery - Total
- HRS = Heat Recovery - Sensible
- HRL = Heat Recovery - Latent
- WVL = Winter Ventilation Load
- WHR = Winter Heat Recovery



Energy Recovery Ventilator Cassette



Typical load reductions for ERV-F3



Energy Recovery Ventilator (ERV) Performance - W42 to W72

"R" (ERV-FA5 and ERV-FC5) Vent Code Options for W42, W48, W60, and W72
 SUMMER COOLING PERFORMANCE (INDOOR DESIGN CONDITIONS 75°DB/62°WB)

AMBIENT O.D.		VENTILATION RATE -- 450 CFM 63% EFFICIENCY						VENTILATION RATE -- 375 CFM 64% EFFICIENCY						VENTILATION RATE -- 300 CFM 65% EFFICIENCY					
DB/WB	F	VLT	VLS	VLL	HRT	HRS	HRL	VLT	VLS	VLL	HRT	HRS	HRL	VLT	VLS	VLL	HRT	HRS	HRL
105	75	21465	14580	6884	13952	9477	4475	17887	12150	5737	11805	8018	3786	14310	9720	4590	9587	6512	3075
	70	14580	14580	0	9477	9477	0	12150	12150	0	8018	8018	0	9720	9720	0	6512	6512	0
	65	14580	14580	0	9477	9477	0	12150	12150	0	8018	8018	0	9720	9720	0	6512	6512	0
100	80	31590	12150	19440	20533	7897	12635	26325	10125	16200	17374	6682	10692	21060	8100	12960	14110	5427	8683
	75	21465	12150	9314	13952	7897	6054	17997	10125	7762	11805	6682	5123	14310	8100	6210	9587	5427	4160
	70	12352	12150	202	8029	7897	131	10293	10125	168	6793	6682	111	8235	8100	135	5517	5427	90
	65	12150	12150	0	7897	7897	0	10125	10125	0	6682	6682	0	8100	8100	0	5427	5427	0
	60	12150	12150	0	7897	7897	0	10125	10125	0	6682	6682	0	8100	8100	0	5427	5427	0
95	80	31590	9720	21870	20533	6318	14215	26325	8100	18225	17374	5345	12028	21060	6480	14580	14110	4341	9768
	75	21465	9720	11744	13952	6318	7634	17887	8100	9787	11805	5345	6459	14310	6480	7830	9587	4341	5246
	70	12352	9720	2632	8029	6318	1711	10293	8100	2193	6793	5345	1447	8235	6480	1755	5517	4341	1175
	65	9720	9720	0	6318	6318	0	8100	8100	0	5345	5345	0	6480	6480	0	4341	4341	0
	60	9720	9720	0	6318	6318	0	8100	8100	0	5345	5345	0	6480	6480	0	4341	4341	0
90	80	31590	7290	24300	20533	4738	15794	26325	6075	20250	17374	4009	13365	21060	4860	16200	14110	3256	10854
	75	21465	7290	14175	13952	4738	9213	17887	6075	11812	11805	4009	7796	14310	4860	9450	9587	3256	6331
	70	12352	7290	5062	8029	4738	3290	10293	6075	4218	6793	4009	2784	8235	4860	3375	5517	3256	2261
	65	7290	7290	0	4738	4738	0	4050	6075	0	4009	4009	0	4860	4860	0	3256	3256	0
	60	7290	7290	0	4738	4738	0	4050	6075	0	4009	4009	0	4860	4860	0	3256	3256	0
85	80	31590	4860	26730	20533	3159	17374	26325	4050	22275	17374	2672	14701	21060	3240	17820	14110	2170	11939
	75	21465	4860	16605	13952	3159	10793	17887	4050	13837	11805	2672	9132	14310	3240	11070	9587	2170	7416
	70	12352	4860	7492	8029	3159	4870	10293	4050	6243	6793	2672	4120	8235	3240	4995	5517	2170	3346
	65	4860	4860	0	3159	3159	0	4050	4050	0	2672	2672	0	3240	3240	0	2170	2170	0
	60	4860	4860	0	3159	3159	0	4050	4050	0	2672	2672	0	3240	3240	0	2170	2170	0
80	75	21465	2430	19035	13952	1580	12372	17887	2025	15862	11805	1336	10469	14310	1620	12690	9587	1085	8502
	70	12352	2430	9922	8029	1580	6449	10293	2025	8268	6793	1336	5457	8235	1620	6615	5517	1085	4432
	65	4252	2430	1822	2764	1580	1184	3543	2025	1518	2338	1336	1002	2835	1620	1215	1899	1085	814
	60	2430	2430	0	1579	1580	0	2025	2025	0	1336	1336	0	1620	1620	0	1085	1085	0
75	70	12352	0	12352	8029	0	8029	10293	0	10293	6793	0	6793	8235	0	8235	5517	0	5517
	65	4252	0	4252	2764	0	2764	3543	0	3543	2338	0	2338	2835	0	2835	1899	0	1899
	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

ERV-FA5 WINTER HEATING PERFORMANCE (INDOOR DESIGN CONDITIONS 70°F DB)

AMBIENT O.D.	VENTILATION RATE					
	450 CFM 80% EFF.		375 CFM 81% EFF.		300 CFM 82% EFF.	
DB/°F	WVL	WHR	WVL	WHR	WVL	WHR
65	2430	1944	2025	1640	1620	1328
60	4860	3888	4050	3280	3240	2656
55	7290	5832	6075	4920	4860	3985
50	9720	7776	8100	6561	6480	5313
45	12150	9720	10125	8201	8100	6642
40	14580	11664	12150	9841	9720	7970
35	17010	13608	14175	11481	11340	9298
30	19440	15552	16200	13122	12960	10627
25	21870	17496	18225	14762	14580	11955
20	24300	19440	20250	16402	16200	13284
15	26730	21384	22275	18042	17820	14612

LEGEND:

- VLT = Ventilation Load - Total
- VLS = Ventilation Load - Sensible
- VLL = Ventilation Load - Latent
- HRT = Heat Recovery - Total
- HRS = Heat Recovery - Sensible
- HRL = Heat Recovery - Latent
- WVL = Winter Ventilation Load
- WHR = Winter Heat Recovery

NOTE: Sensible performance only is shown for winter application.



////// 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.

“A” Filter Code Option – 2” Disposable MERV13 Filter with UVC-LED Light

The 2” disposable pleated MERV13 filter is included with this option, and also a UVC-LED light used for disinfection. UVC-LED Light is a type of ultraviolet germicidal irradiation (UVGI) that disinfects the air through shortwavelength ultraviolet light. See UVC-LED Light specifications for further details.

////// Filter Replacement Part Number Chart

UNIT MODEL	FILTER CODE	FILTER MERV RATING	NUMBER OF FILTERS USED	BARD PART NUMBER	FILTER SIZE	FILTRATION LEVEL
W18, 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	7004-026	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 top, structural sides, and front service panels are constructed using 20 guage materials. Base is constructed using 16 guage galvanized steel. 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

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.

Aluminum Finish

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



X—Beige



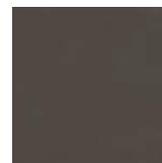
1—White



4—Gray



5—Desert



8—Bronze



S—Stainless



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

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) - The high-pressure control is standard in all units, and interrupts compressor operation if high side refrigerant pressures exceed switch settings. The switch is normally closed (NC) and opens during a high-pressure event. Events that can cause the switch to open include poor condenser coil cleaning maintenance, poor filter maintenance, condenser fan failure, or a leak/restriction in the refrigeration system.

Low Pressure Control (LPC) - The low-pressure control is standard in all units, and interrupts compressor operation if low side refrigerant pressures reach an extremely low level. The switch is normally closed (NC) and opens during a low-pressure event. Events that can cause switch use include poor filter maintenance, reduced or restricted airflow, evaporator fan failure, or a restriction in the refrigeration system.

Compressor Control Module (CCM) - The compressor control module is standard in all air conditioner units, and interrupts compressor operation if the high- or low-pressure switch circuits are opened or a low incoming voltage event (brownout) occurs. See unit manual for further details regarding the operation of the high and low-pressure control and how it interacts with the CCM to help protect the system from unit damage during a low-pressure event. The CCM includes a diagnostic light, brownout protection, and a make-on-break and delay on make timer.

Alarm Relay (ALR) - The alarm relay is an optional accessory that can be factory or field installed in the unit control panel. It consists of a relay that is energized based on a signal from the compressor control module. Once energized, the alarm relay will provide both normally open (NO) and normally closed (NC) contacts on the low voltage terminal strip to indicate an event has locked out compressor operation.

Low Ambient Control (LAC) - The low ambient control is an optional accessory that can be factory or field installed in the unit condenser section. When installed, the LAC monitors high side system pressures and helps maintain a specific pressure range during compressor operation. To maintain high side system pressures, condenser fan operation is either turned on and off in cycles, or the speed of the condenser fan modulates. Low ambient controls are recommended for applications where compressor cooling is required at lower outdoor temperatures below 60°F (15.5°C). Models with the low ambient control option also include a freeze stat attached to the coldest refrigerant circuit of the indoor evaporator coil. If freezing temperatures are sensed by the freeze stat, compressor operation is disabled momentarily to help prevent ice buildup on the indoor evaporator coil.

Crankcase Heater (CCH) - The crankcase heater is an optional accessory that can be field installed around the base of the compressor. When installed, the CCH provides heat to the compressor base when the compressor is not operational. Heating the compressor helps prevent oil migration when the unit is not running. Standard compressor functionality does not require the crankcase heater, but it is recommended for compressor operation in extremely cold environments including northern Canada.

Outdoor Thermostat (ODT) - The outdoor thermostat is an optional accessory that can be field installed in the unit control panel and condenser section. The outdoor thermostat measures outdoor temperatures and includes relay contacts (NC) breaking the compressor signal during cold outdoor conditions. The thermostat is in the control panel area and the sensor bulb is mounted to the fan shroud in the outdoor condenser section. Adjustment range is 0°F to 50°F. Default setting is 10°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.



DDC Controls Kit - The DDC controls kit is an optional accessory that can be factory or field installed. It consists of multiple sensors and switches that provide feedback to a field supplied DDC control (not included) or advanced thermostat (not included). The DDC controls kit consists of the following:

- Dirty Filter Indicator Switch. See below description.
- Discharge Air sensor. This is a temperature probe installed in the supply airstream of the product. It measures the air temperature leaving the unit and provides a 10k @ 77°F (Type 2) signal to a field supplied controller.
- Indoor Airflow Switch. This is a pressure differential device located in the entering and leaving airstream of the indoor blower. Normally open (NO) relay contacts are provided that indicate when the indoor blower is operating, and supply air is leaving the unit.
- Compressor Current Indicator Switch. This is amp sensing device located on one of the power lines leading to the compressor. Normally open (NO) relay contacts are provided that indicate when the compressor is operating during cooling mode. Amp load required to close the contacts is user adjustable.

Refer to user manual 7960-849 (W18 thru W36) and 7960-855 (W42 thru W72) for further information on components, wiring, and location of all devices in the unit.

Dirty Filter Switch Indicator (DFS) - The dirty filter indicator switch is an optional accessory that can be factory or field installed in the unit filter area. The switch measures pressure before and after the filter. During a restricted filter event, normally closed (NC) contacts will open indicating the filter requires maintenance. Once maintenance is complete, the switch is manually reset to indicate maintenance is complete. Pressure differential is adjustable to match user preference for filter replacement.



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

////// 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.

KIT PART NO.	UNITS USING KIT	DESCRIPTION OF FIELD INSTALLED KIT
CMA-37 = 230V	W18A, W18L, W24A, W24L	Low Ambient Control allows compressor cooling between 0°F and 50°F outdoor temp. - modulating
CMA-38 = 460V	W18A, W18L, W24A, W24L	Low Ambient Control allows compressor cooling between 0°F and 50°F outdoor temp. - modulating
CMA-39	W30A, W30L, W36A, W36L, W42A, W48A, W60A, W72A	Low Ambient Control allows compressor cooling between 0°F and 50°F outdoor temp. - fan cycling
CMC-15	W18A, W18L, 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
CMC-32	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
SK-111	W18A, W18L, 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
CMA-14	W18A, W18L, 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
CMA-43	W42A, W48A, W60A, W72A	Outdoor Thermostat Kit used to disable compressor cooling below 50°F outdoor temp. Adjustable between 50° and 0°F
CMC-34	W18A, W18L, W24A, W24L, W30A, W30L, W36A, W36L	Compressor Control Module Lockout Alarm Relay Kit.
CMC-35	W42A, W48A, W60A, W72A	Compressor Control Module Lockout Alarm Relay Kit.
CMC-36	W18A, W18L, W24A, W24L, W30A, W30L, W36A, W36L	Crank case heater kit. 230V 1-PH units only.
CMC-40	W18A, W18L, W24A, W24L, W30A, W30L, W36A, W36L	Crank case heater kit, 230V 3-PH units only.
CMC-37	W18A, W18L, W24A, W24L, W30A, W30L, W36A, W36L	Crank case heater kit. 460V 3-PH units only.
CMC-38	W42A, W48A, W60A, W72A	Crank case heater kit. 230V 1-PH units only.
CMC-41	W42A, W48A, W60A, W72A	Crank case heater kit, 230V 3-PH units only.
CMC-39	W42A, W48A, W60A, W72A	Crank case heater kit. 460V 3-PH units only.
CMC-29	W18A, W18L, W24A, W24L, W30A, W30L, W36A, W36L, W42A, W48A, W60A, W72A	Evaporator coil freezeestat kit - Freezeestat is a standard option on all units with a Low Ambient Control (LAC) or hot gas reheat dehumidification.
8620-330	W24A, W30A, W36A, W36L, W42A, W48A, W60A, W72A	Power isolation kit for ECM indoor fan motor. 460V units only.



////// 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	W18A, W18L, 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.
NA	8620-343	W18A, W18L, W24A, W24L, W30A, W30L, W36A, W36L, W42A, W48A, W60A, W72A	LED UV-C Long Life Light Kit. 460V units only. Installed in evaporator coil entering airstream along with door safety switch. Indicator light provided to monitor LED use.
NA	8620-344	W18A, W18L, W24A, W24L, W30A, W30L, W36A, W36L, W42A, W48A, W60A, W72A	LED UV-C Long Life Light Kit. 230V units only. Installed in evaporator coil entering airstream along with door safety switch. Indicator light provided to monitor LED use.

////// 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	W18A, W18L, 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	W18A, W18L, 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.

* CMA-40 and CMA-44 kit does not include low ambient control (sold separately).

////// 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	8620-331	W60A, W72A	Kit Includes Outdoor Fan Speed Control Board and outdoor fan motor components and wire harnesses along with outdoor temperature sensor. Compressor sound cover is included.
NA	8002-012	W18A, W18L, 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	W18A, W18L, W24A, W24L	Standard Unit Crate, all vents except economizer.
8620-275	W18A, W18L, 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 - W18A to W36A Right Side Control Panel Units

CLEARANCES REQUIRED FOR SERVICE ACCESS AND ADEQUATE CONDENSER INLET AIRFLOW

MODELS	LEFT SIDE	RIGHT SIDE
W18AB, 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.

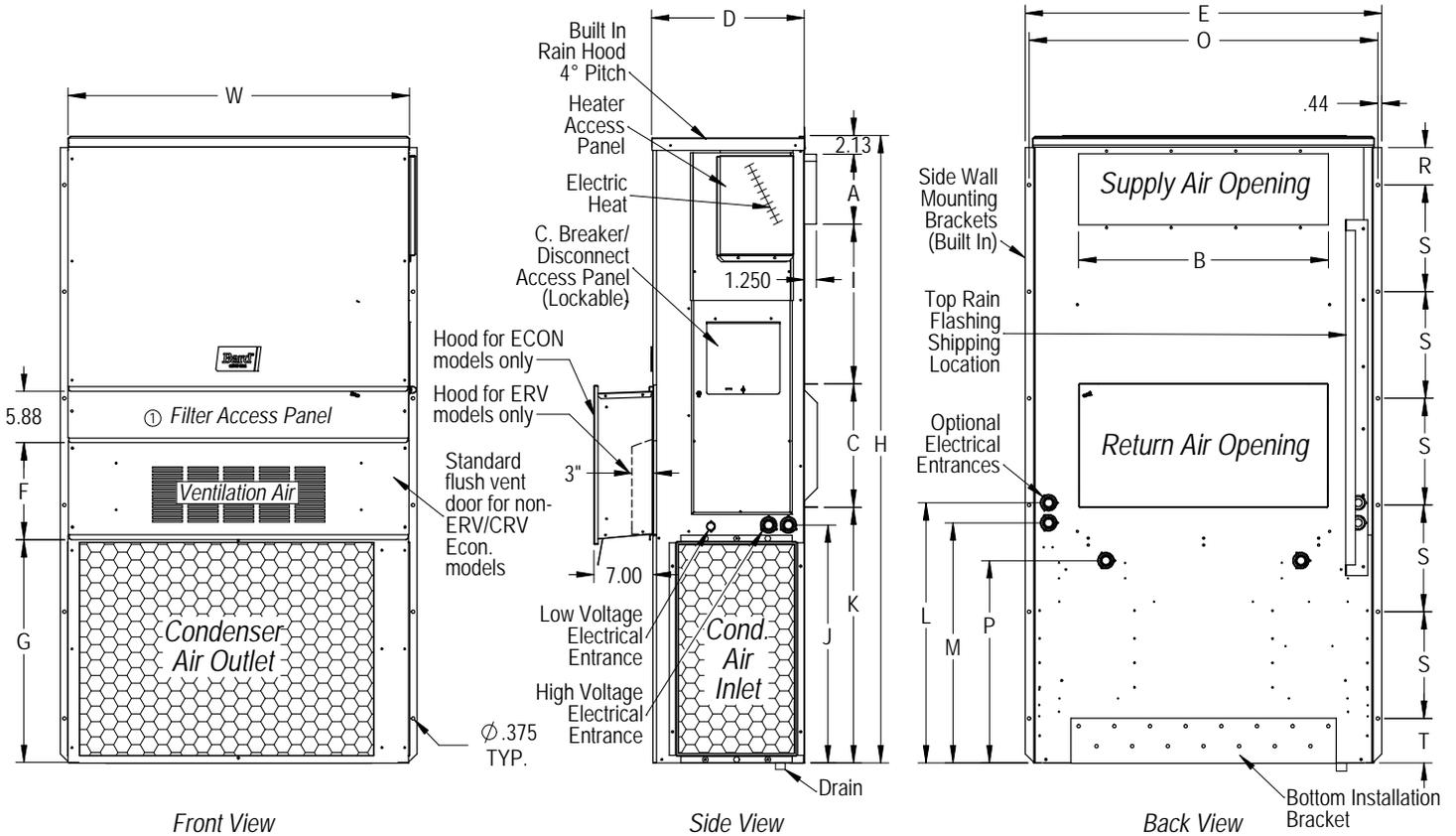
MINIMUM CLEARANCES REQUIRED TO COMBUSTIBLE MATERIALS

MODELS ①	SUPPLY AIR DUCT FIRST THREE FEET	CABINET
W18AB, 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
W18AB 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 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



Cabinet and Clearance Dimensions - W18L to W36L Left Side Control Panel Units

CLEARANCES REQUIRED FOR SERVICE ACCESS AND ADEQUATE CONDENSER INLET AIRFLOW

MODELS	LEFT SIDE	RIGHT SIDE
W18LB, W24LB, W30LB, W36LB	20"	15"

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.) 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.

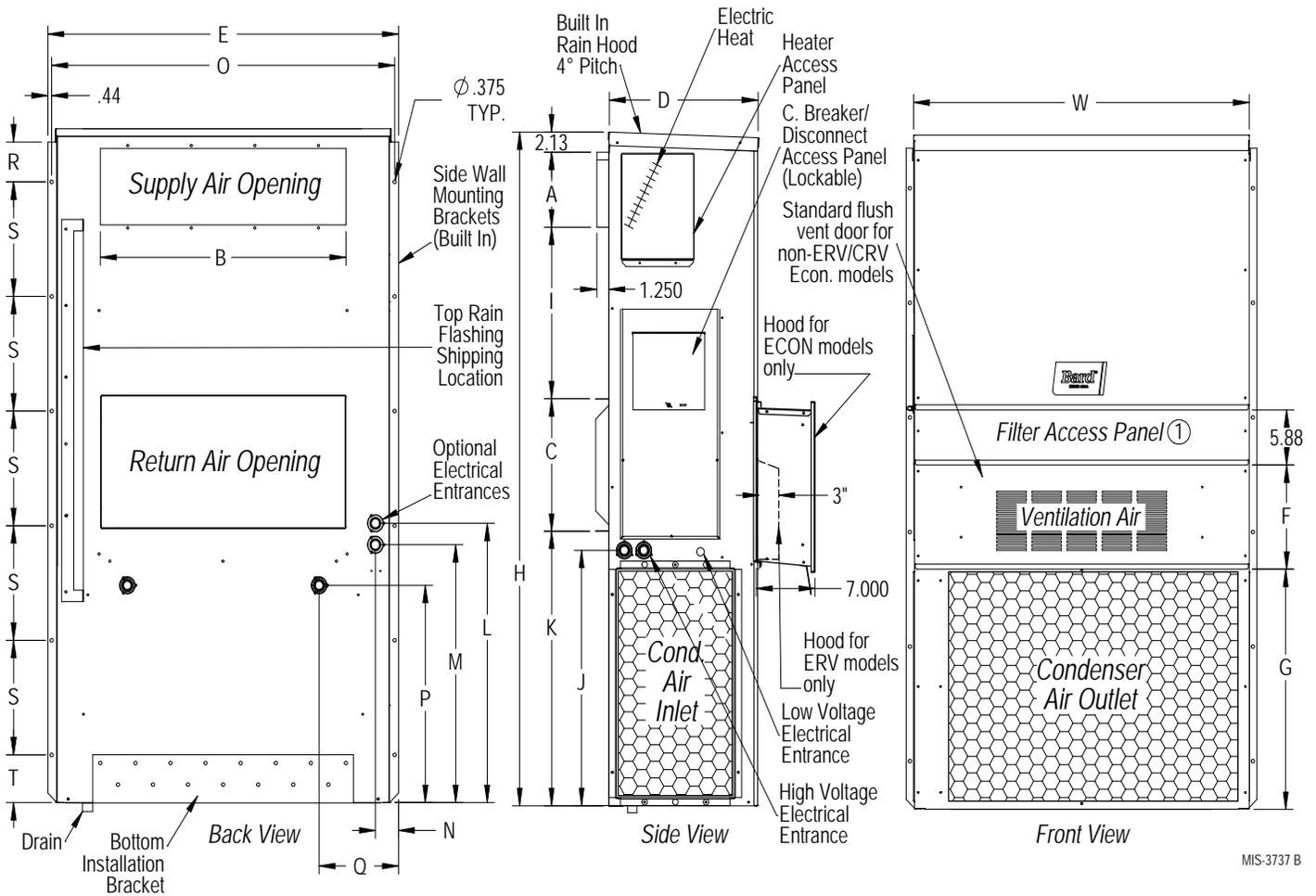
MINIMUM CLEARANCES REQUIRED TO COMBUSTIBLE MATERIALS

MODELS ①	SUPPLY AIR DUCT FIRST THREE FEET	CABINET
W18LB, W24LB	0"	0"
W30LB, W36LB	1/4"	0"

① Refer to the Installation Manual for more detailed information.

DIMENSIONS OF W18-36L BASIC UNIT FOR ARCHITECTURAL & INSTALLATION REQUIREMENTS (NOMINAL)

MODEL	WIDTH (W)	DEPTH (D)	HEIGHT (H)	SUPPLY		RETURN																
				A	B	C	B	E	F	G	I	J	K	L	M	N	O	P	Q	R	S	T
W18LB W24LB	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
W30LB W36LB	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-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.

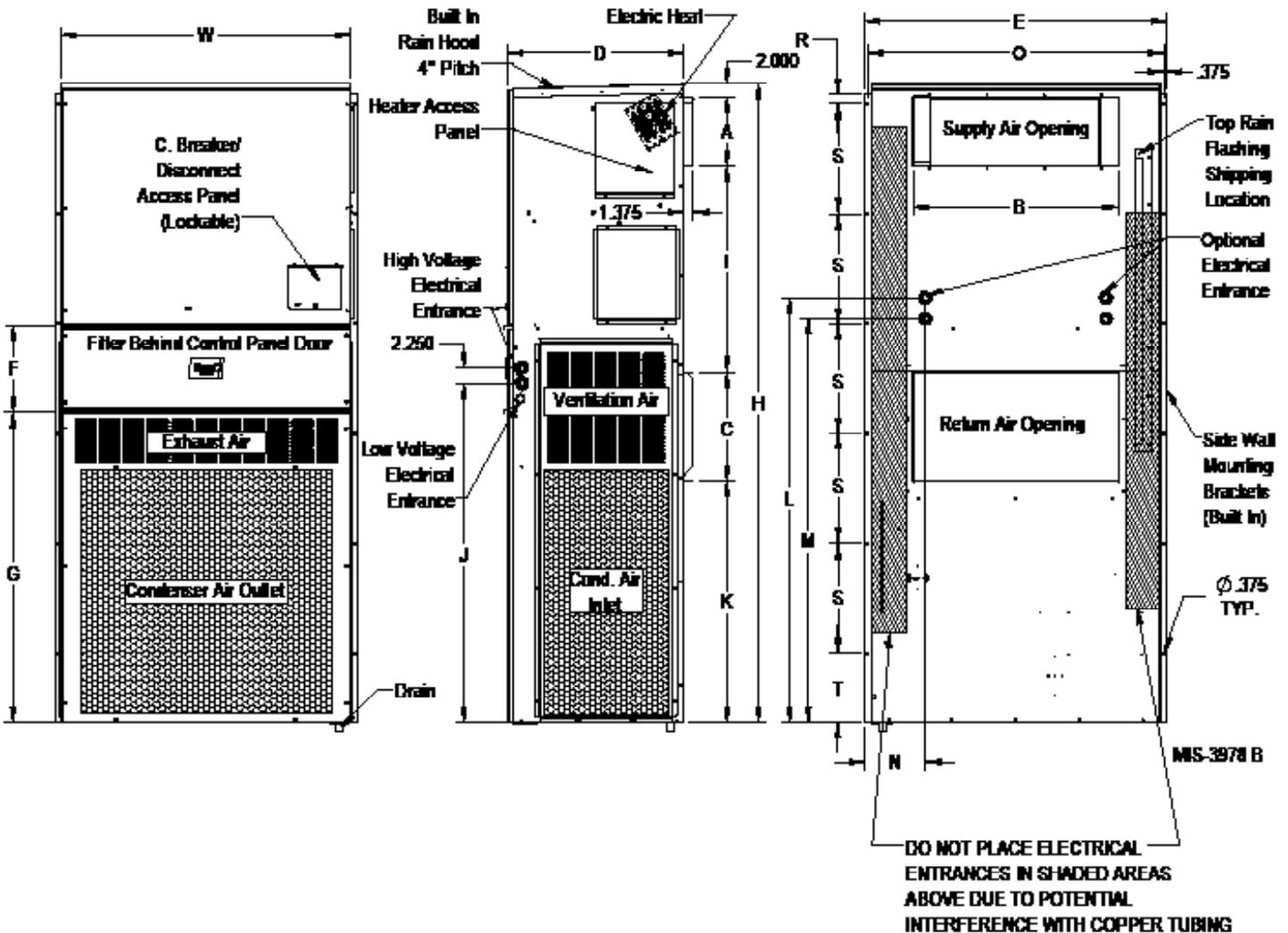
MINIMUM CLEARANCES REQUIRED TO COMBUSTIBLE MATERIALS

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 (W)	DEPTH (D)	HEIGHT (H)	SUPPLY		RETURN														
				A	B	C	B	E	F	G	I	J	K	L	M	N	O	R	S	T
W42AC 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 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
WMICF2 -*	W18A, W18L, W24A, W24L	Provides vibration isolation for reduced sound transmission through wall
WMICF3 -*	W30A, W30L, W36A, W36L	Provides vibration isolation for reduced sound transmission through wall
WMICF5 -*	W42A, W48A, W60A, W72A	Provides vibration isolation for reduced sound transmission through wall
WWC3 -*	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.
WWC5 -*	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
WAPR11 -*	W18, 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
SG-2	W18A, W18L, W24A, W24L	8" x 20" with 1" Flange 4 way deflection supply grille.
SG-3	W30A, W30L, W36A, W36L	8" x 28" with 1" Flange 4 way deflection supply grille.
SG-5	W42A, W48A, W60A, W72A	10" x 30" with 1" Flange 4 way deflection supply grille.
RG-2	W18A, W18L, W24A, W24L	12" x 20" with 1" Flange return grille.
RG-3	W30A, W30L, W36A, W36L	12" x 28" with 1" Flange return grille.
RG-5	W42A, W48A, W60A, W72A	16" x 30" with 1" Flange return grille.
SG-2W	W18A, W18L, W24A, W24L	8" x 20" with 2" Flange 4 way deflection supply grille.
SG-3W	W30A, W30L, W36A, W36L	8" x 28" with 2" Flange 4 way deflection supply grille.
SG-5W	W42A, W48A, W60A, W72A	10" x 30" with 2" Flange 4 way deflection supply grille.
RG-2W	W18A, W18L, W24A, W24L	12" x 20" with 2" Flange return grille.
RG-3W	W30A, W30L, W36A, W36L	12" x 28" with 2" Flange return grille.
RG-5W	W42A, W48A, W60A, W72A	16" x 30" with 2" Flange return grille.
RFG-2W	W18A, W18L, W24A, W24L	12" x 20" with 2" Flange return grille with filter bracket.*
RFG-3W	W30A, W30L, W36A, W36L	12" x 28" with 2" Flange return grille with filter bracket.*
RFG-5W	W42A, W48A, W60A, W72A	16" x 30" with 2" Flange return grille with filter bracket.*
RGDK-2W	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.
RGDK-3W	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.
RGDK-5W	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
SG-2 SG-2W	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.
SG-3 SG-3W	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.
SG-5 SG-5W	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.
W18AB/W18LB	49.6	47.3	48.6	46.2	62.8
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
MC4002	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.
MC5300	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.
MC5600	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
8403-060	3 Heat/3 Cool	Programmable or Nonprogrammable, ventilation output, dehumidification operation
8403-089	1 Heat/1 Cool	Temp. Settings per Day 4, 2, 1, 0 Programs per Week 7, 5-2, 5-1-1 or Nonprogrammable
8403-090	2 Heat/2 Cool	Temp. Settings per Day 4, 2, 1, 0 Programs per Week 7, 5-2, 5-1-1 or Nonprogrammable
8403-091	1 Heat/1 Cool	Easy to use, Nonprogrammable. FEMA use
8403-092	2 Heat/2 Cool	Programmable or Nonprogrammable, ventilation output, Wi-Fi
8403-095	2 Heat/1 Cool	Temp. Settings per Day 4, 2, 1, 0 Programs per Week 7, 5-2, 5-1-1 or Nonprogrammable

HUMIDISTAT	OPERATION	DESCRIPTION
8403-047	Humidity %RH	Electronic with display, EEPROM memory, lockable keypad, humidity sensor calibration

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

THERMOSTAT COVER*	SIZE	DESCRIPTION
8405-003	(Inside) 5-1/16" H x 6-1/16" W (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
8405-005	(Inside) 5-7/8" H x 8-3/8" W (Outside) 7-1/4" H x 9-3/4" W x 3-3/8" D	Clear acrylic with ventilation. Fits all thermostats.
8405-006	(Inside) 5-1/16" H x 6-1/16" W (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
8405-007	(Inside) 5-7/8" H x 8-3/8" W (Outside) 7-1/8" H x 9-5/8" W x 3-1/4" D	Beige painted steel cover with ventilation. Fits all thermostats.

* 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.



Bard Manufacturing Company, Inc.
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419-636-1194

www.bardhvac.com

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



AT3 LED Architectural Troffer – Straight Floating Center

AVI-ON BLUETOOTH WIRELESS CONTROL DETAILS

FEATURES

Simple

- Gateway-free distributed control
- Contractor friendly installation
- Occupancy/vacancy/daylight sensing

Scalable

- Virtually unlimited network size
- Spans small offices to large warehouses
- Flexible control strategies

Secure

- Optional cloud connectivity
- UL IoT platinum security rating
- DLC 5.0 compliant

COMMISSIONING & INSTALLATION TOOLS

Avi-on mobile apps provide intuitive, quick installation and commissioning. Pro tools are available to qualified installers. Live commissioning training and on-site or remote support by Avi-on must be ordered separately through Avi-on.



Commissioning Mobile App



Zone Scanner Web App



Commissioning Pro App

SYSTEM COMPONENTS



The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by Avi-on is under license. Other trademarks and trade names are those of their respective owners.

ACCESSORIES

WALL STATIONS	
AVI-B-2401AC-1	Scene controller - buttons numbered 1-4 and up/down/off, 120-277VAC
AVI-B-2402BAT-1	Scene controller - buttons numbered 1-4 and up/down/off, battery powered
AVI-B-2401AC-2	Dimmer with presets - buttons with percentages and up/down/off, 120-277VAC
AVI-B-2402BAT-2	Dimmer with presets - buttons with percentages and up/down/off, battery powered
AVI-B-2401AC-3	Two button control on/off or hold to dim up/down, 120-277VAC
AVI-B-2402BAT-3	Two button control on/off or hold to dim up/down, battery powered

NETWORK	
AVI-RAB-LTE	Remote access bridge
AVI-NTM	Network time manager with battery backup
CEILING MOUNT SENSORS	
AVI-KIT-SEN-DUCM	PIR motion and ultrasonic sensor kit
AVI-KIT-SEN-ICM	PIR motion and photocell sensor kit

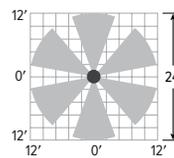
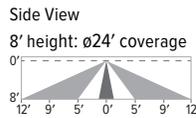
For load controllers and additional accessory info, see hew.com/avi-on

AVI-LVFA-CS2-PIR Avi-on wireless fixture control with PIR motion and daylight sensor. DA Driver only.

SPECIFICATIONS	
TYPE	PIR Motion + Daylight
MOUNTING HEIGHT	8' – 10'
DETECTION ANGLE	360°
TEMPERATURE RANGE	-30° to 50°C
RELATIVE HUMIDITY	10 to 80% non-condensing
IP RATING	IP20
MANUFACTURER	Avi-On



SENSOR COVERAGE PATTERNS



SENSOR DETAIL



Dimensions: 13/16" x 2-1/4"



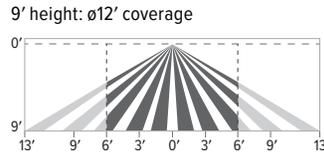
AT3 LED Architectural Troffer – Straight Floating Center

ADDITIONAL CONTROL OPTIONS

AWNS Lutron Athena wireless node integral fixture control, RF with daylight and occupancy sensing. DA and DSR Drivers only.

SPECIFICATIONS	
TYPE	Radio Frequency
MOUNTING HEIGHT	8' – 12'
DETECTION ANGLE	360°
TEMPERATURE RANGE	0° to 55°C
RELATIVE HUMIDITY	0 to 90%, non-condensing
COMMISSIONING	Clear Connect gateway – Type X with app (iOS or Android)
MANUFACTURER	Lutron

SENSOR COVERAGE PATTERNS



Motion Sensor Coverage

CEILING HEIGHT	COVERAGE AREA (SQ FT)
8'	114
9'	144
10'	178
12'	256

SENSOR DETAIL



Dimensions: ø1-1/8"

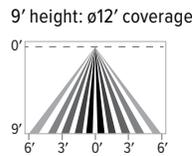
ATHENA CONTROL OPTIONS

CATALOG NUMBER	DESCRIPTION
AWNDR	Lutron Athena wireless node integral fixture control, RF only, for use with D4i DALI-2 or driver with 12V auxiliary power.
AWNS	Lutron Athena wireless node integral fixture control, RF with daylight and occupancy sensing, for use with D4i DALI-2 or driver with 12V auxiliary power.
AWNDR-BL	Lutron Athena wireless node integral fixture control, RF only, for use with D4i DALI-2 or driver with 12V auxiliary power, black finish.
AWNS-BL	Lutron Athena wireless node integral fixture control, RF with daylight and occupancy sensing, for use with D4i DALI-2 or driver with 12V auxiliary power, black finish.

VDO Lutron Vive integral fixture control, RF with daylight and occupancy sensor (DFCSJ-OEM-OCC). DSR or LDE Drivers only. LDE drivers require driver interface

SPECIFICATIONS	
TYPE	PIR Motion + Daylight
MOUNTING HEIGHT	8' – 12'
DETECTION ANGLE	360°
TEMPERATURE RANGE	0° to 55°C
RELATIVE HUMIDITY	0 to 90%, non-condensing
COMMISSIONING	App (iOS or Android)
MANUFACTURER	Lutron

SENSOR COVERAGE PATTERNS



Motion Sensor Coverage

CEILING HEIGHT	COVERAGE AREA (SQ FT)
8'	114
9'	144
10'	178
12'	256

SENSOR DETAIL



Dimensions: 2-11/16" x 1"

VIVE CONTROL OPTIONS

CATALOG NUMBER	DESCRIPTION
VRF	Lutron Vive integral fixture control, RF only (DFCSJ-OEM-RF), for use with sensor-ready driver
VDO	Lutron Vive integral fixture control, RF with daylight and occupancy sensor (DFCSJ-OEM-OCC), for use with sensor-ready driver
VRF/DBI	Lutron Vive integral fixture control, RF only (DFCSJ-OEM-RF) and digital link interface, for use with Lutron Hi-lume 1% EcoSystem dimming LED driver
VDO/DBI	Lutron Vive integral fixture control, RF with daylight and occupancy sensor (DFCSJ-OEM-OCC) and digital link interface, for use with Lutron Hi-lume 1% EcoSystem dimming LED driver

ADDITIONAL DRIVER OPTIONS

Note: Lumen restrictions apply, consult product builder at hew.com/product-builder

CATALOG NUMBER	DESCRIPTION
DRV	Driver without external dimming wires prewired for non-dimming applications
DIM	Driver with external dimming wires prewired for 0-10V low voltage applications
DIM1	1% driver with external dimming wires prewired for 0-10V low voltage applications
DIM LINE	Line voltage dimming driver (TRIAC and ELV compatible, 120V only)
DIM TRC	Line voltage dimming driver (TRIAC compatible, 120V only)
DA	Driver with 12V auxiliary power, without external dimming wires
DSR	Sensor-ready driver without external dimming wires (D4i DALI-2)
SD40	40% step-dimming driver
SD50	50% step-dimming driver
DALI	DALI dimming driver
LDE1	Lutron Hi-lume 1% EcoSystem dimming driver

