



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 390-2003 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. S3583-0721



Climate Control Solutions

	page
Interactive Table of Contents	2
Wall-Mount Nomenclature	3
Engineered Features W18 Through W36 Unit Models	4
Engineered Features - W42 Through W72 Unit models	5
Unit Modes of Operation	6
Capacity and Efficiency Ratings	7
General Unit Specifications W18 (1-1/2 Ton) Through W48 (4 Ton)	7
General Unit Specifications W60 (5 Ton) Through W72 (6 Ton)	8
R410A Unit Charge Rates	8
Electric Heat Table - Refer to Electrical Specifications for Availability by Unit Model	8
Indoor EC Motor Blower Speeds	9
Indoor Airflow Static and Unit Performance	9
Indoor Airflow CFM @ Static Pressures and Adjustable Speeds - W18, W24, W30 Units	10
Indoor Airflow CFM @ Static Pressures and Adjustable Speeds - W36, W42, W48 Units	11
Indoor Airflow CFM @ Static Pressures and Adjustable Speeds - W60 and W72 Units	12
Indoor EC Motor Options for High Resistance Ground Applications	12
Cooling Application Data at Rated Airflow	13
Electrical Specifications: W18 to W36 Units Without Dehumidification	14
Electrical Specifications: W42 to W72 Units Without Dehumidification	15
Electrical Specifications: W30 to W72 Units With Dehumidification	16
Electrical Specifications: W36 to W72 Units With "R" Isolation Option	17
Field Installed Heater Packages	18
Heater Packages - Field Kits for W18A to W36A Right-Hand Control Panel Units	18
Heater Packages - Field Kits for W18L to W36L Left-Hand Control Panel Units	18
Heater Packages - Field Kits for W42A to W72A Units	19
Heater Packages - Field Kits for W30A to W72A Dehumidification Units	19
Field Generator Use	19
Ventilation Option Selection Chart	20
Fresh Air Damper and Commercial Ventilator Specifications	21
Commercial Ventilator Specifications, CRV-V	22
Economizer Specifications, ECON-NC	22
Economizer Specifications, ECON-DB and ECON-WD	23
Economizer Control Specifications, JADE Controller	24
Barometric Damper Airflow Charts for W18 - W36	25
Barometric Damper Airflow Charts for W42 - W72	26
Commercial Room Ventilator and Economizer Airflow Charts for W18 - W36	27
Commercial Room Ventilator and Economizer Airflow Charts for W42 - W72	28
Economizer Airflow Charts for W42 - W72 (Continued)	29
Energy Recovery Ventilator (ERV) Specifications	30
Energy Recovery Ventilator (ERV) Performance - W18 and W24	30
Energy Recovery Ventilator (ERV) Performance - W30 and W36	31
Energy Recovery Ventilator (ERV) Performance - W42 to W72	32
Unit Filter Options	33
Filter Replacement Part Number Chart	33
Cabinet Finishes and Construction	34
Evaporator Coil, Condenser Coil, and Cabinet Coatings	34
Evaporator Coil, Condenser Coil, and Cabinet Coatings (Continued)	35
Evaporator Coil and Condenser Coil Coatings Resistance List	35
Cabinet Coatings Process and Resistance	36
Controls Options Definitions Including Switches, Sensors, Relays, and Start Kits	36
Controls Options Definitions Including Switches, Sensors, Relays, and Start Kits	37
24VAC Low Voltage Connections for Unit Control and Feedback	37
Factory Controls Options Chart Including Switches, Sensors, Relays, and Start Kits	38
Field Kit Controls Options Chart Including Switches, Sensors, Relays, and Start Kits	38
Field Installed Air Quality Kits	39
Advanced Sensor Options and Kits	39
Sound Reduction Accessories	39
Optional Shipping Crates	39
Cabinet and Clearance Dimensions - W18A to W36A Right Side Control Panel Units	40
Cabinet and Clearance Dimensions - W18L to W36L Left Side Control Panel Units	41
Cabinet and Clearance Dimensions - W48A to W72A Series Units	42
Wall Curb Accessories	43
Indoor Sound Reduction Accessories	43
Non-Ducted Supply and Return Grilles	43
Non-Ducted Supply Grilles - Spread and Throw Characteristics	44
Sound Data - dBA @ 5 ft. and 10 ft.*	44
Controller, Thermostat, Humidistat and CO2 Ventilation Control Options	45



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

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 Permanent 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

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.



////// 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.

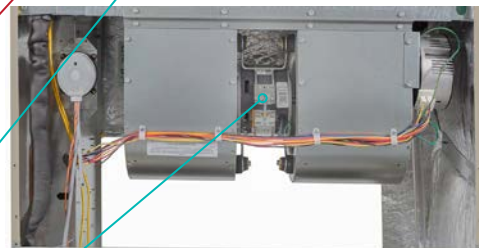
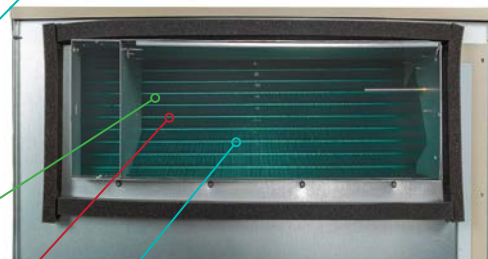
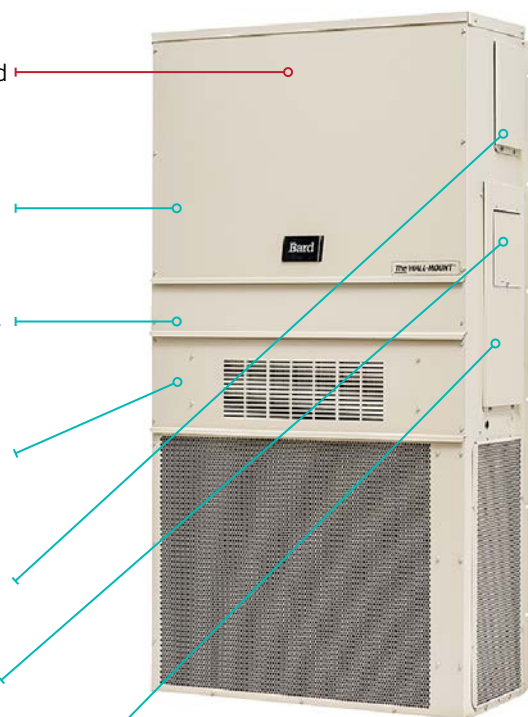
***Balanced Climate™ Technology (patent pending):** High latent capacity humidity & sound reduction removes up to 35% more humidity than any other on the market with the use of a 2 stage thermostat or controlling device. Bard Balanced Climate™ innovation comes standard on all models.

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.

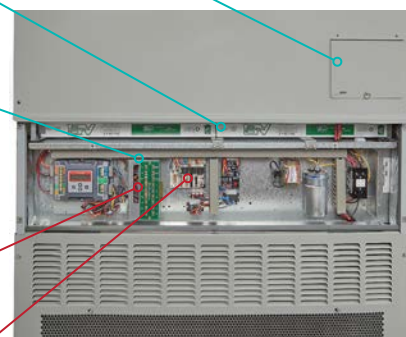
Reliable, Easy-to-Use Controls: Easily accessible through left or right control panel locations. A lockable hinged access cover to circuit protection is provided. Phase rotation monitor is standard on all 3 phase models. Adjustable compressor on/off delay timer (CCM) with diagnostic lights is standard 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	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	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	1/2HP-5 sp	1/2HP-5 sp	1/2HP-5 sp	1/2HP-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	Constant Torque ECM	Constant Torque ECM	Constant Torque ECM	Constant Torque ECM	Constant Torque ECM	Constant Torque ECM	Constant Torque ECM	Constant Torque ECM	Constant Torque ECM
Rated indoor CFM and static pressure (ESP) with wet coil and Standard filter	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, 2 required	16x25x1 (41x64x3)	16x25x1 (41x64x3)	16x25x1 (41x64x3)	16x25x1 (41x64x3)	16x30x1 (41x77x3)	16x30x1 (41x77x3)	16x30x1 (41x77x3)	16x30x1 (41x77x3)	16x30x1 (41x77x3)	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	1/3 HP - 825RPM	1/3 HP - 825RPM	1/3 HP - 825RPM	1/3 HP - 825RPM	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	Constant Torque ECM	Constant Torque ECM	Constant Torque ECM	Constant Torque ECM	Constant Torque ECM
Rated indoor CFM and static pressure (ESP) with wet coil and Standard filter	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	3/4 HP - 5 Spds	3/4 HP - 5 Spds	3/4 HP - 5 Spds	3/4 HP - 5 Spds	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	Constant Torque ECM	Constant Torque ECM	Constant Torque ECM	Constant Torque ECM	Constant Torque ECM
Rated indoor CFM and static pressure (ESP) with wet coil and Standard filter	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 insallation 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:

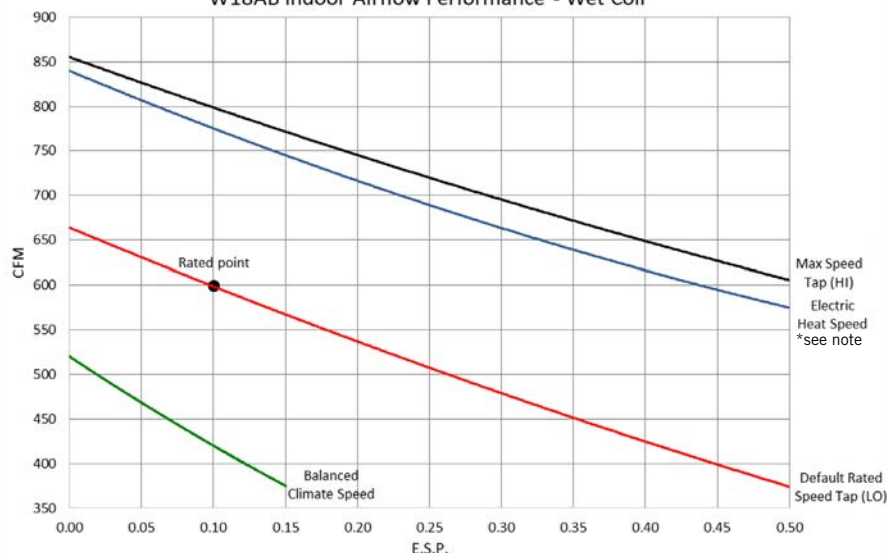
Supply Duct Static + Return Duct Static + Filter Static + Additional External Static = Total External Static Pressure (ESP)

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.

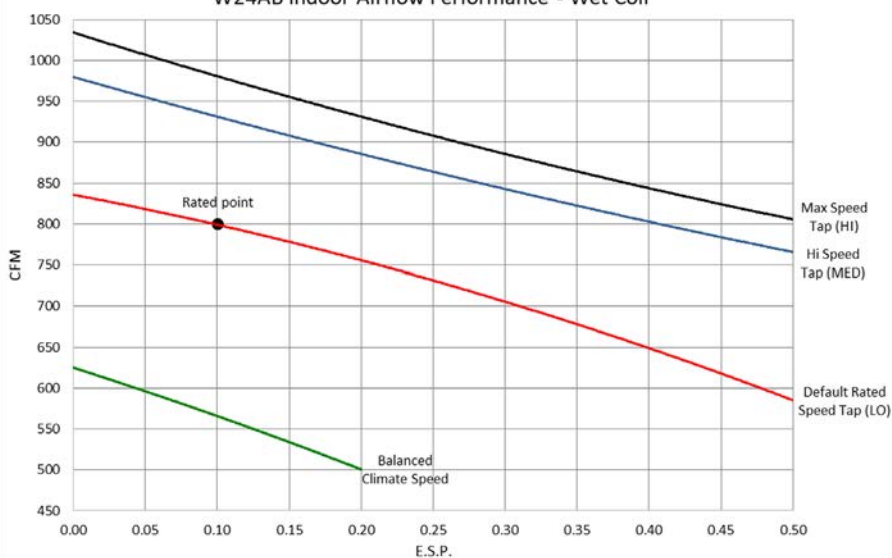


Indoor Airflow CFM @ Static Pressures and Adjustable Speeds - W18, W24, W30 Units

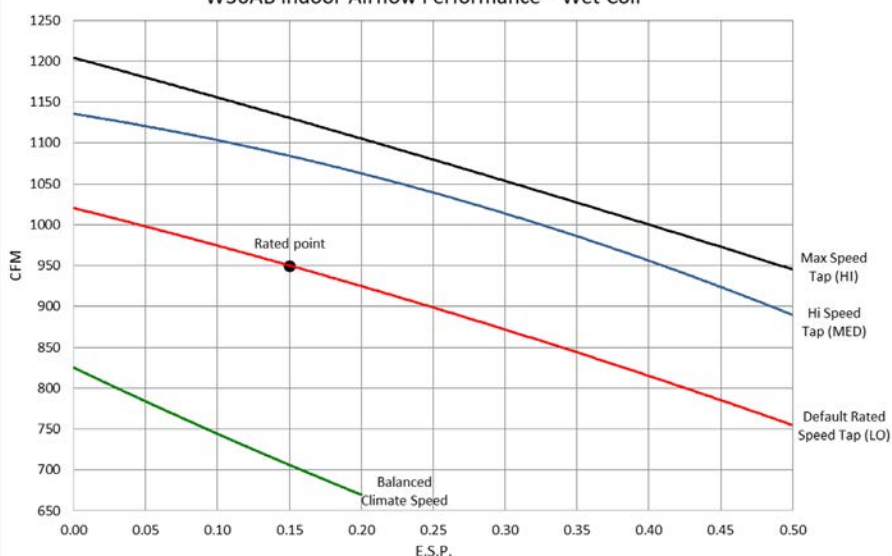
W18AB Indoor Airflow Performance - Wet Coil



W24AB Indoor Airflow Performance - Wet Coil



W30AB Indoor Airflow Performance - Wet Coil



Total External Static Pressure Calculation:

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

Total External Static Adjustment:

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

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

FILTER CODE	FILTER MERV RATING	ADJUST STATIC
	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.

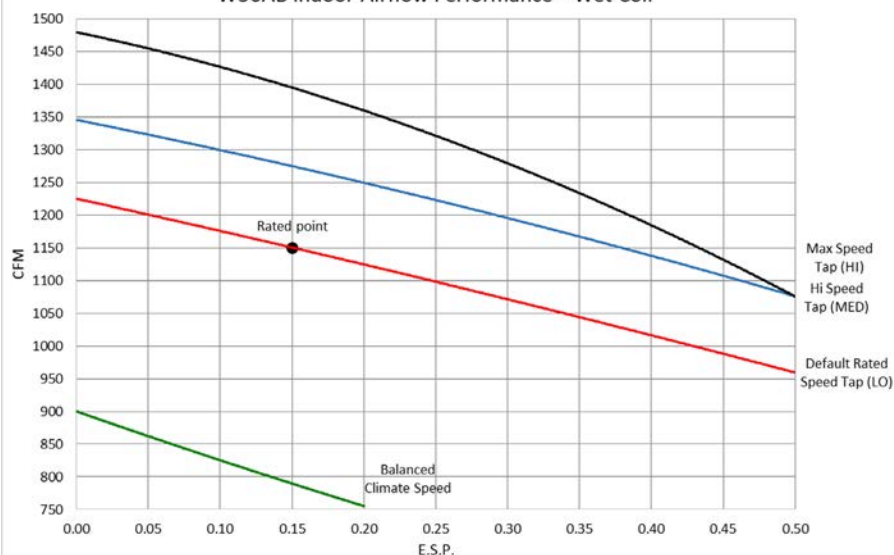
HI Speed (User Selectable): This speed is user selectable when using **standard cooling** (Y2) or **heating operation** (W1/W2). This speed is labeled as HI on the speed selection terminal strip inside the unit control panel. The HI speed tap provides **maximum unit airflow** per the airflow performance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

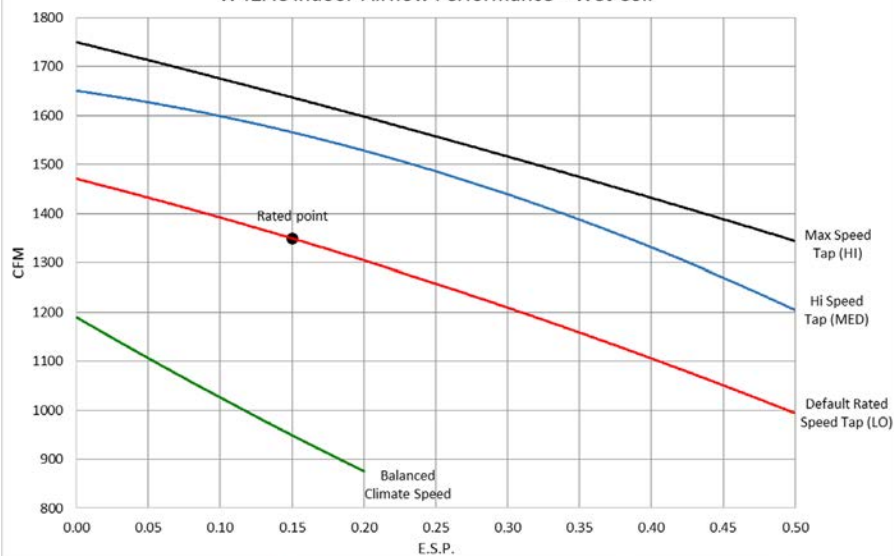


Indoor Airflow CFM @ Static Pressures and Adjustable Speeds - W36, W42, W48 Units

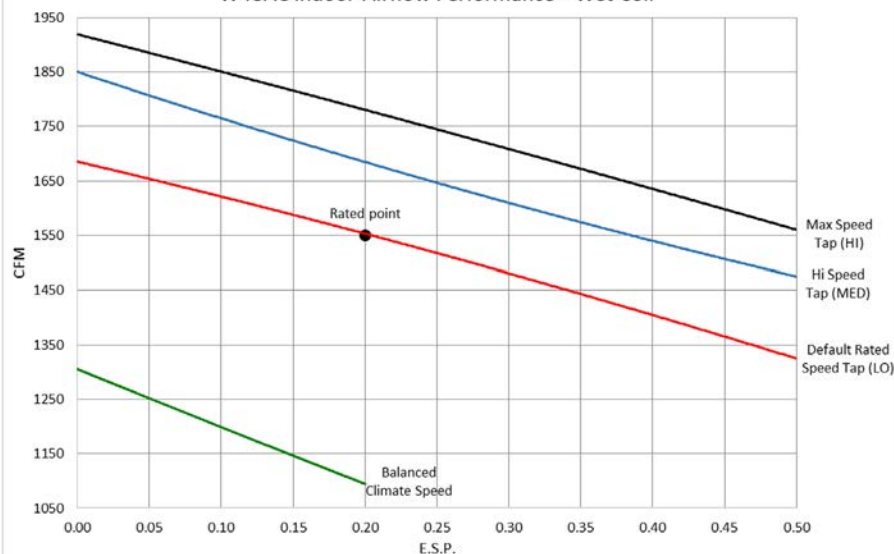
W36AB Indoor Airflow Performance - Wet Coil



W42AC Indoor Airflow Performance - Wet Coil



W48AC Indoor Airflow Performance - Wet Coil



Total External Static Pressure Calculation:

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.

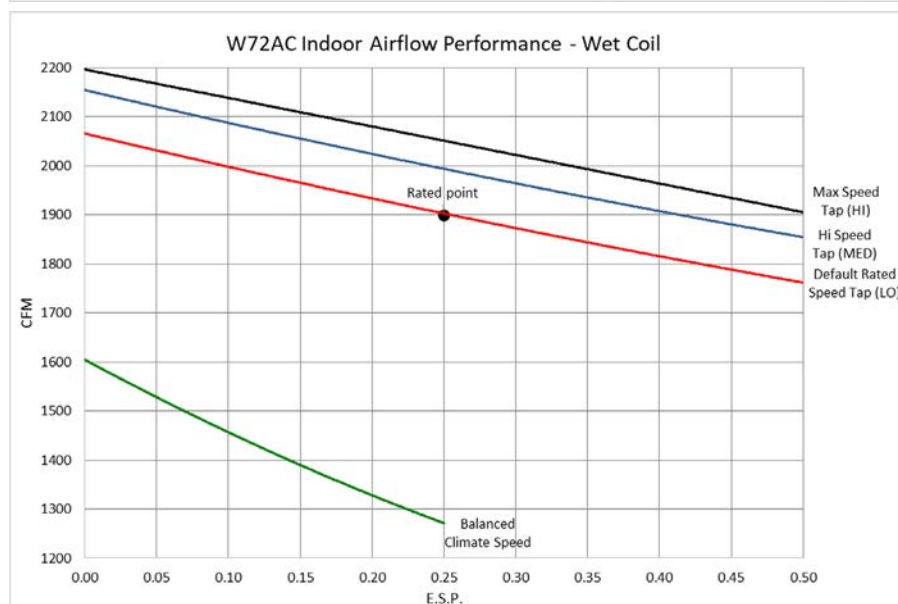
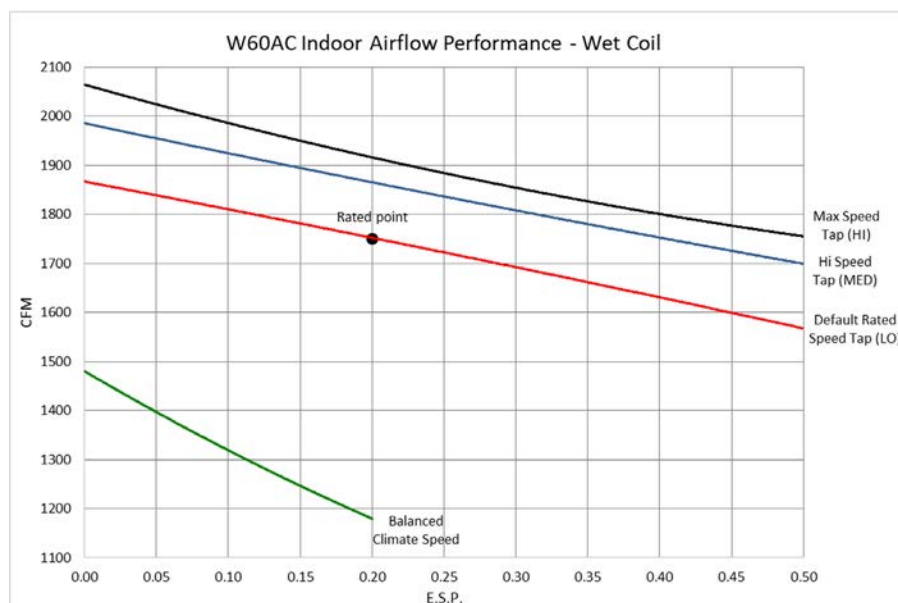
LO Speed (Default): The WA series uses this speed by default when using **standard cooling (Y2)** or **heating operation (W1/W2)**. This speed is labeled as LO on the speed selection terminal strip inside the unit control panel. The WA series also uses this speed when **fan only (G)** or **ventilation 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 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 23.8/16.6°C	Total Cooling	19800	18700	17600	16700	15700	15000	14200	13600	13000	12500	12000	11500
		Sensible Cooling	15000	14600	14200	13800	13400	13100	12800	12500	12200	12000	11700	11500
	80/67°F 26.6/19.4°C	Total Cooling	21100	20300	19500	18800	18000	17400	16700	16200	15600	15100	14600	14000
		Sensible Cooling	14500	14300	14000	13800	13500	13300	13100	12900	12700	12500	12300	12100
W24	85/72°F 29.4/22.2°C	Total Cooling	25200	23800	22400	21300	20000	19100	18000	17300	16400	15700	15100	14300
		Sensible Cooling	14900	14600	14100	13700	13300	12900	12500	12100	11700	11300	10900	10500
	75/62°F 23.8/16.6°C	Total Cooling	25000	24000	23000	22000	20900	20000	19000	18100	17100	16200	15200	14000
		Sensible Cooling	18400	18300	18200	18000	17800	17400	17100	16800	16300	15800	15200	14000
W30	80/67°F 26.6/19.4°C	Total Cooling	26600	26100	25500	24800	24000	23300	22400	21500	20600	19600	18500	17100
		Sensible Cooling	17800	17900	18000	18000	17900	17700	17500	17300	16900	16500	16000	15400
	85/72°F 29.4/22.2°C	Total Cooling	31700	30500	29300	28000	26700	25500	24200	22900	21700	20400	19100	17400
		Sensible Cooling	18300	18200	18100	17900	17600	17200	16700	16300	15600	14900	14200	13300
W36	75/62°F 23.8/16.6°C	Total Cooling	30800	29300	28000	26700	25500	24300	23200	22100	21000	19900	18900	17700
		Sensible Cooling	23500	23000	22400	21900	21400	20900	20400	20000	19400	19000	18600	17700
	80/67°F 26.6/19.4°C	Total Cooling	32800	31900	31100	30200	29200	28300	27300	26300	25200	24100	23000	N/A
		Sensible Cooling	22800	22500	22200	21900	21600	21200	20900	20600	20200	19900	19500	N/A
W42	85/72°F 29.4/22.2°C	Total Cooling	39100	37300	35700	34100	32500	31000	29500	28000	26500	25100	23700	N/A
		Sensible Cooling	23400	22900	22300	21800	21200	20500	19900	19300	18600	18000	17300	N/A
W48	75/62°F 23.8/16.6°C	Total Cooling	37300	35500	33900	32200	30700	29200	27800	26400	25100	23900	22600	21200
		Sensible Cooling	29200	28400	27600	26800	26100	25500	24800	24200	23700	23100	22600	21200
	80/67°F 26.6/19.4°C	Total Cooling	39800	38700	37600	36400	35200	34000	32800	31500	30200	28900	27500	25900
		Sensible Cooling	28300	27800	27300	26800	26300	25900	25400	25000	24600	24200	23800	23400
W60	85/72°F 29.4/22.2°C	Total Cooling	47400	45300	43200	41100	39100	37200	35400	33500	31800	30100	28300	N/A
		Sensible Cooling	29000	28200	27500	26600	25800	25100	24200	23500	22700	21900	21100	N/A
W72	75/62°F 23.8/16.6°C	Total Cooling	44400	42400	40500	38500	36600	34800	33100	31300	29600	27900	26200	24100
		Sensible Cooling	33900	33200	32300	31600	30800	30100	29300	28500	27700	27000	26100	24100
	80/67°F 26.6/19.4°C	Total Cooling	47400	46200	44900	43500	42000	40500	39000	37300	35600	33800	31900	29500
		Sensible Cooling	32900	32500	32000	31600	31100	30600	30000	29400	28800	28200	27500	26700
W84	85/72°F 29.4/22.2°C	Total Cooling	56500	54000	51600	49100	46700	44300	42100	39700	37400	35100	32800	N/A
		Sensible Cooling	33700	33000	32200	31400	30500	29600	28600	27600	26500	25500	24400	N/A
W96	75/62°F 23.8/16.6°C	Total Cooling	51300	48800	46500	44100	41800	39700	37500	35300	33300	31200	29200	26700
		Sensible Cooling	40300	39300	38200	37200	36200	35200	34200	33300	32400	31200	29200	26700
	80/67°F 26.6/19.4°C	Total Cooling	54700	53200	51600	49800	48000	46200	44200	42100	40000	37800	35500	32600
		Sensible Cooling	39100	38500	37800	37200	36500	35800	35100	34400	33700	33000	32300	31400
W120	85/72°F 29.4/22.2°C	Total Cooling	65200	62200	59300	56200	53300	50600	47700	44800	42000	39300	36500	N/A
		Sensible Cooling	40100	39100	38000	37000	35800	34700	33500	32300	31100	29800	28600	N/A
W144	75/62°F 23.8/16.6°C	Total Cooling	61600	58500	55600	52700	50100	47600	45300	43000	40900	38900	36900	35000
		Sensible Cooling	47200	45800	44400	43100	41900	40900	39800	38900	38000	37200	36500	35000
	80/67°F 26.6/19.4°C	Total Cooling	65700	63700	61700	59600	57500	55500	53400	51300	49200	47100	45000	42800
		Sensible Cooling	45800	44900	44000	43100	42300	41600	40800	40200	39500	38900	38400	37800
W168	85/72°F 29.4/22.2°C	Total Cooling	78300	74500	70900	67300	63900	60700	57600	54600	51700	48900	46300	N/A
		Sensible Cooling	46900	45600	44200	42800	41500	40300	38900	37700	36400	35200	34000	N/A
W192	75/62°F 23.8/16.6°C	Total Cooling	76200	72100	68500	65000	61800	58900	56100	53600	51300	49000	47000	44700
		Sensible Cooling	55800	54100	52400	50900	49500	48000	46800	45700	44600	43600	42700	41700
	80/67°F 26.6/19.4°C	Total Cooling	81300	78600	76100	73500	71000	68600	66200	63900	61700	59400	57300	54700
		Sensible Cooling	54100	53000	51900	50900	49900	48900	48000	47200	46400	45600	44900	44100
W216	85/72°F 29.4/22.2°C	Total Cooling	96800	91900	87400	83000	78600	75000	71400	68000	64800	61700	58900	N/A
		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 8 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								
		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								
		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								
		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	61	90	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	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 1 1 1	23 31 47 57	35 35 50 60	8 8 8 6	10 10 10 10								
W30ABDB00,B0Z B06 B09	230/208-3	1 1 1	17 23 32	20 25 35	12 10 8	12 10 10								
W30ABDC00,C0Z C06 C09	460-3	1 1 1	9 13 17	15 15 20	14 14 12	14 14 12								
W36ABDA00,A0Z A05 A08 A10	230/208-1	1 1 1 1	28 32 48 58	35 35 50 60	8 8 8 6	10 10 10 10								
W36ABDB00,B0Z B06 B09	230/208-1	1 1 1	20 24 33	25 25 35	10 10 8	10 10 10								
W36ABDC00,C0Z C06 C09	460-3	1 1 1	13 14 18	15 15 20	14 14 12	14 14 12								
W42ACDA00,A0Z A05 A10 A15	230/208-1	1 1 1 1 or 2	31 31 57 83	50 50 60 90	8 8 6 4	10 10 10 8	57	26	60	30	6	10	10	10
W42ACDB00,B0Z B05 B09 B18	230/208-3	1 1 1 1	23 23 33 60	35 35 35 60	8 8 8 6	10 10 10 10								
W42ACDC00,C0Z C05 C09	460-3	1 1 1	13 13 18	15 15 20	14 14 12	14 14 12								
W48ACDA00,A0Z A05 A10 A15	230/208-1	1 1 1 1 or 2	34 34 59 85	50 50 60 90	8 8 6 4	10 10 10 8	59	26	60	30	6	10	10	10
W48ACDB00,B0Z B05 B09 B18	230/208-3	1 1 1 1	25 25 34 60	35 35 35 60	8 8 8 6	10 10 10 10								
W48ACDC00,C0Z C05 C09	460-3	1 1 1	12 12 17	15 15 20	14 14 12	14 14 12								
W60ACDA00,A0Z A05 A10	230/208-1	1 1 1	41 41 59	50 50 60	8 8 6	10 10 10								
W60ACDB00,B0Z B09 B15	230/208-3	1 1 1	28 35 53	40 40 60	8 8 6	10 10 10								
W60ACDC00,C0Z C09 C15	460-3	1 1 1	15 18 27	20 20 30	12 12 10	12 12 10								
W72ACDA00,A0Z A05 A10 A15	230/208-1	1 1 1 or 2 1 or 2	56 56 60 86	60 60 70 90	6 6 6 3	10 10 8 8	59 59	26 52	60 60	30 60	6 6	10 6	10 10	10 10
W72ACDB00,B0Z B06 B09 B15	230/208-3	1 1 1 1	38 38 38 54	50 50 50 60	8 8 8 6	10 10 10 10								
W72ACDC00,C0Z C09 C15	460-3	1 1 1	19 19 27	25 25 30	10 10 10	10 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 1 1 1	12 12 18 27	15 15 20 30	14 14 12 10	14 14 12 10								
W36LBRC00,COZ C09 C15	460-3	1 1 1	12 18 27	15 20 30	14 12 10	14 12 10								
W42ACRC00,COZ C09 C15	460-3	1 1 1	13 18 27	15 20 30	14 12 10	14 12 10								
W48ACRC00,COZ C09 C15	460-3	1 1 1	14 20 29	15 20 30	14 12 10	14 12 10								
W60ACRC00,COZ C09 C15	460-3	1 1 1	16 20 29	20 20 30	12 12 10	12 12 10								
W72ACRC00,COZ C09 C15	460-3	1 1 1	20 20 29	25 25 30	10 10 10	10 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	0Z 5 8 10	N/A		N/A	
W24AB	WMCB-03A EHW2TAB-A05 EHW2TAB-A08 EHW2TA-A10	0Z 5 8 10	WMCB-02B EHW2TA-B06	0Z 6	WMPD-01C EHW24B-C06	0Z 6
W30AB	WMCB-05A EHW3TA-A05 EHW3TA-A08 EHW3TA-A10 EHW3TAB-A15	0Z 5 8 10 15	WMCB-02B EHW30A-B06 EHW3TA-B09 EHW3TAB-B15	0Z 6 9 15	WMPD-01C EHW3TA-C06 EHW3TA-C09 EHW3TA-C12 EHW3TAB-C15	0Z 6 9 12 15
W36AB	WMCB-05A EHW3TA-A05 EHW3TA-A08 EHW3TAB-A10 EHW3TA-A15	0Z 5 8 10 15	WMCB-03B EHW3TA-B06 EHW3TAB-B09 EHW3TA-B15	0Z 6 9 15	WMPD-01C EHW3TA-C06 EHW3TA-C09 EHW3TA-C15	0Z 6 9 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	0Z 05 08 10	N/A		N/A	
W24LB	WMCB-03AL EHW2TAB-A05L EHW2TAB-A08L EHW2TA-A10L	0Z 05 08 10	WMCB-02BL EHW2TA-B06L	0Z 06	N/A	
W30LB	WMCB-05AL EHW3TA-A05L EHW3TA-A08L EHW3TA-A10L EHW3TA-A15L	0Z 05 08 10 15	WMCB-02BL EHW3TA-B09L EHW3TAB-B15L	0Z 09 15	WMPD-01CL EHW3TA-C09L EHW3TAB-C15L	0Z 09 15
W36LB	WMCB-05AL EHW3TA-A05L EHW3TAB-A10L EHW3TA-A15L	0Z 05 10 15	WMCB-03BL EHW3TAB-B09L EHW3TA-B15L	0Z 09 15	WMPD-01CL EHW3TA-C09L EHW3TA-C15L	0Z 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	5	EHWA42C-B06	6		
	EHWA42C-A10	10	EHWA42C-B09	9	EHWA42C-C09	9
	EHWA42C-A15	15	EHWA42C-B15	15	EHWA42C-C15	15
	EHWA42C-A20	20	EHWA42C-B18	18		
W48AC	WMCBC-08A	OZ	WMCBC-05B	OZ	WMCBC-06C	OZ
	EHWA48C-A05	5	EHWA42C-B06	6		
	EHWA42C-A10	10	EHWA42C-B09	9	EHWA48C-C09	9
	EHWA42C-A15	15	EHWA48C-B15	15	EHWA42C-C15	15
	EHWA42C-A20	20	EHWA48C-B18	18		
W60AC	WMCBC-08A	OZ	WMCBC-06B	OZ	WMCBC-06C	OZ
	EHWA42C-A05	05	EHWA60C-B06	6		
	EHWA60C-A10	10	EHWA60C-B09	9	EHWA60C-C09	9
	EHWA60C-A15	15	EHWA60C-B15	15	EHWA60C-C15	15
	EHWA60C-A20	20	EHWA60C-B18	18		
W72AC	WMCBC-09A	OZ	WMCBC-08B	OZ	WMCBC-06C	OZ
	EHWA72C-A05	5	EHWA72C-B06	6		
	EHWA72C-A10	10	EHWA72C-B09	9	EHWA60C-C09	9
	EHWA72C-A15	15	EHWA60C-B15	15	EHWA60C-C15	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	5	EHW30A-B06	6	EHW3TA-C06	6
	EHW3TA-A08	8	EHW3TA-B09	9	EHW3TA-C09	9
	EHW3TA-A10	10				
W36ABD	WMCB-05A	OZ	WMCB-03B	OZ	WMPD-01C	OZ
	EHW3TA-A05	5	EHW3TA-B06	6	EHW3TA-C06	6
	EHW3TA-A08	8	EHW3TABD-B09	9	EHW3TA-C09	9
	EHW3TAB-A10	10				
W42ACD	WMCBC-08A	OZ	WMCBC-05B	OZ	WMCBC-06C	OZ
	EHWA48CD-A05	5	EHWA42C-B05	5	EHWA42C-C05	5
	EHWA42CD-A10	10	EHWA42CD-B09	9	EHWA42CD-C09	9
	EHWA42CD-A15	15	EHWA42CD-B18	18		
W48ACD	WMCBC-08A	OZ	WMCBC-05B	OZ	WMCBC-06C	OZ
	EHWA48CD-A05	5	EHWA42C-B05	5	EHWA42C-C05	5
	EHWA42CD-A10	10	EHWA48CD-B09	9	EHWA48C-C09	9
	EHWA42C-A15	15	EHWA48CD-B18	18		
W60ACD	WMCBC-08A	OZ	WMCBC-06B	OZ	WMCBC-06C	OZ
	EHWA42CD-A05	05	EHWA60CD-B09	9	EHWA60C-C09	9
	EHWA60CD-A10	10	EHWA60CD-B15	15	EHWA72C-C15	15
W72ACD	WMCBC-09A	OZ	WMCBC-08B	OZ	WMCBC-06C	OZ
	EHWA72CD-A05	5	EHWA72CD-B06	6	EHWA60C-C09	9
	EHWA72CD-A10	10	EHWA72CD-B09	9	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		
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 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

“Z” Vent Code Option – Economizer with JADE Controls and Enthalpy Outdoor Sensor (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 the ECON-WD vent kit. 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 ECON-WD ventilation option uses 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

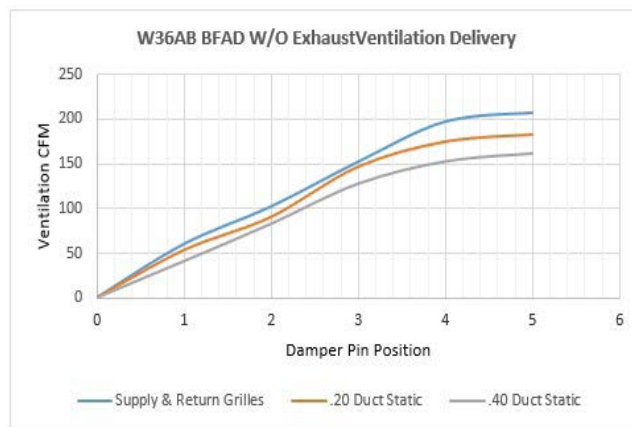
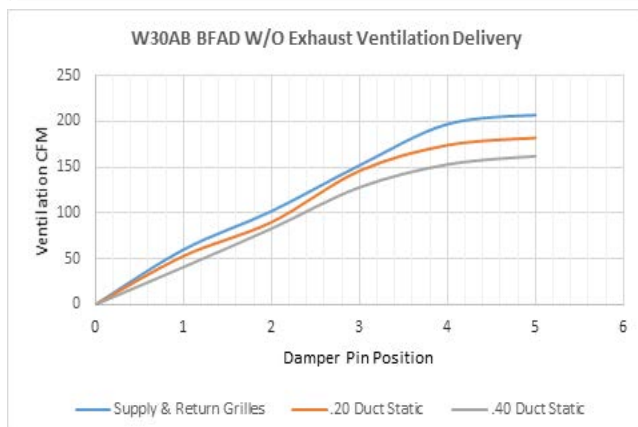
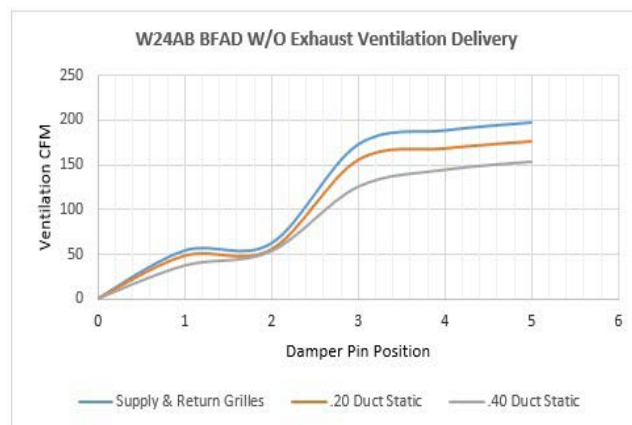
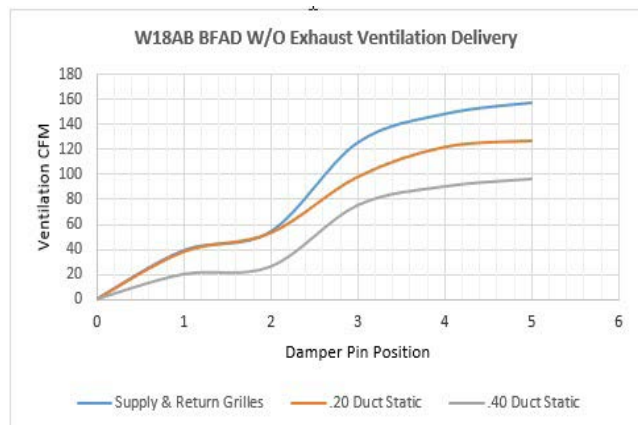
The optional return air sensor kit provides a optional sensor that is field installed in the return airstream. When installed, the JADE economizer will monitor and adjust outdoor air intake based on comparing room temperature and outdoor temperature. This kit is optional, but may be required to meet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

