BARD WALL-MOUNT™ MULTI-TEC 1.5 - 6 Ton Capacity W18A - W72A Models 208V - 460V 60hz

11EER W18A-W60A MULTI-TEC WALL-MOUNT™
11EER W18L-W36L MULTI-TEC WALL-MOUNT™
10EER W72A MULTI-TEC WALL-MOUNT™

The MULTI-TEC® Wall-Mount™ Air Conditioner utilizes PLC (Programmable Logic Control) technology to allow multiple units to operate connected to a single LC6000 controller. When installed with an optional economizer, the unit will supply full-rated airflow in free cooling mode with the ability to exhaust unconditioned indoor air without the need for additional relief openings in the structure.

- *Complies with efficiency requirements of ANSI/ASHRAE/IES 90.1-2019.*
- *Certified to ANSI/AHRI Standard 390-2021 for SPVU (Single Package Vertical Units).*
- *Intertek ETL Listed to Standard for Safety Heating and Cooling Equipment ANSI/UL 1995, Fifth Edition/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.*
- *In compliance with 40 CFR Part 84, commonly referred to as the EPA HFC Technology Transition rule, R410A products that were manufactured after 1/1/25 but before 1/1/27 are solely for data center, computer room, and ITEF applications. These units may be sold, distributed, or exported for said applications up until 12/31/29.*

/////// Interactive Table of Contents (Select topic with cursor to go to location, pick to return)

Wall-Mount Nomenclature

Digit #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	W	6	0	A	C	P	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
P - PLC Logic Board
M - PLC with Mechanical Reheat Dehumidification
E - PLC with Electric Reheat Dehumidification

VOLTAGE
A - 230 Volt 1 Phase 60 Hz
B - 230 Volt 3 Phase 60 Hz
C - 460 Volt 3 Phase 60 Hz
Q - 575 Volt 3 Phase 60 Hz

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

ACCESSORIES AND CONTROLS OPTIONS
C - Low Ambient Control (LAC) and Compressor Crankcase Heater (CCH)
E - Low Ambient Control (LAC)

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

SUPPLY OUTLET
X - Standard

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

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

VENT PACKAGE
B - Block Off Plate
5 - Full Flow Economizer, Temperature or Enthalpy

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 conttol panel area on or near the low voltage terminal box.

/////// *Engineered Features W18 Through W36 Unit Models*

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 are be factory 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 and 575 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. PLC control board used with additional advanced features.

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.

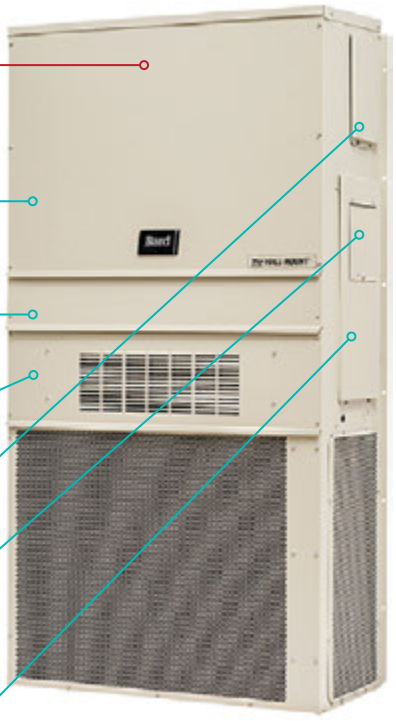
Balanced Climate Technology: High latent capacity humidity & sound reduction removes up to 35% more humidity than any other on the market with the use of a 2 stage thermostat or controlling device. Bard Balanced Climate™ innovation comes standard on all models.

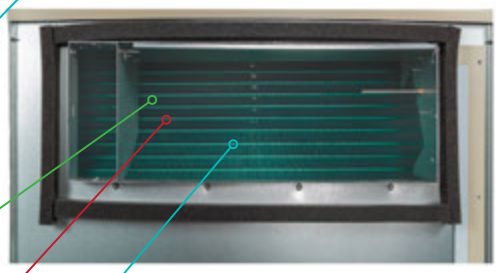
Optional Mechanical Dehumidification: Models are available with hot gas reheat dehumidification for energy efficient humidity removal. Electronic Expansion Valves are standard for all dehumidification models.

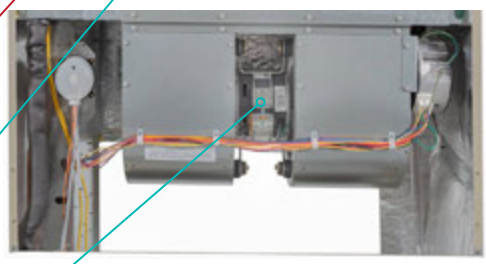
ECM Indoor Motor Technology: 5 speed dual shaft motor provides quiet airflow operation when used with a twin blower assembly. Motor overload protection standard on all models.

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.

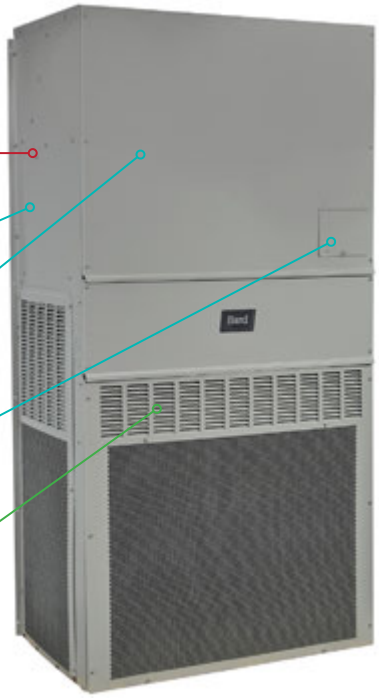
High Efficiency Cooling: Scroll compressors for quiet, efficient cooling. Designed with R-410A (HFC) non-ozone depleting refrigerant in compliance with the Montreal protocol and 2010 EPA requirements. A liquid line filter-drier is used to protect the system from moisture, and is standard on all units.







/////// *Engineered Features - W42 Through W72 Unit models*



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

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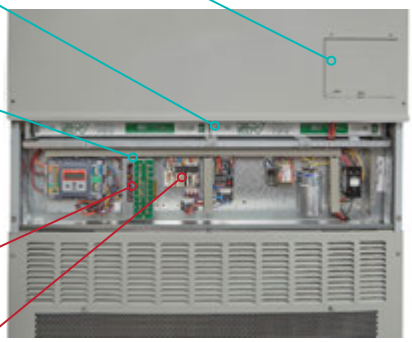
Easy Filter Access: A separate filter door is provided for ease of filter access during routine unit maintenance. 1" and 2" filters are available with a rating of up to MERV13. See filter section for further details.



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. PLC control board is used with additional advanced features.

Balanced Climate Technology: 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.

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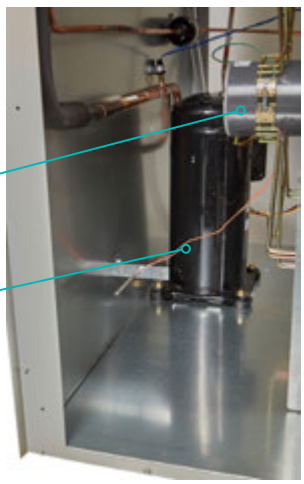


Enclosed Condenser Motor: An enclosed casing condenser motor with ball bearings is used for reliable operation and extended motor life. Enclosed condenser motors are standard on all units.

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 MULTI-TEC Series products offer single-stage compressor cooling operation using R410A refrigerant. Copper tube/Aluminum hydrophilic green fin coils 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.

Optional Heating Operation:
The Bard MULTI-TEC 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.

Optional Free Cooling Ventilation:
The Bard MULTI-TEC Series offers an optional economizer free cooling vent used when cooling is necessary, with mild outdoor conditions. Economizers use outdoor air to cool equipment and electronics inside a structure, saving energy and reducing runtime on the refrigerant system, extending unit life. An outdoor temperature and humidity sensor measures outdoor conditions, and user-adjustable settings are provided, including outdoor temperature, relative humidity, and dewpoint. Building exhaust air relief is provided through the vent assembly, providing slight building pressurization. If necessary, a minimum blade position setting is available for a constant outdoor air supply. Emergency cooling operation is available with a user-adjustable alarm to open the damper and bring outdoor air into the shelter when the outdoor temperature is cooler than the temperature indoors. The ventilation shutdown feature forces the damper to close during an external emergency alarm.

Optional Mechanical Dehumidification (Hot Gas Reheat) Operation:
Mechanical Dehumidification provides an energy-efficient way to remove humidity from the indoor air stream without overcooling or overheating the indoor space. The Bard W30 through W72 Series products offer optional dehumidification operation that removes moisture from the 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 reheating 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 additional latent capacity operation.

Optional Electrical Dehumidification (Electric Heat Reheat) Operation:
Units with a 15kw electric heat option are available that operate compressor cooling to remove moisture from the indoor airstream and operate electric heat to re-warm the leaving air temperature. Review state and local codes from a compliance standpoint before ordering this option.

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.

Increased Latent Cooling Operation (Balanced Climate Mode):
Additional moisture can be removed during cooling operation by reducing the indoor fan speed. This feature is user-selectable and is operated based on a user-adjustable indoor humidity setpoint. Using this feature, when humidity levels are higher than normal inside the building, the indoor fan can slow down to reduce moisture levels while cooling the space. When cooling is not required for equipment inside the building, but humidity reduction is required, dehumidification operation is recommended.

Increased High Sensible Cooling Operation (Hi Sensible Mode):
Increasing the indoor fan speed is possible for additional sensible cooling capacity during cooling operation. This feature is user-selectable and is operated based on a user-adjustable indoor humidity setpoint.

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) is used. 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 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 will require an economizer for cooling operation.

High Outdoor Temperature Cooling Operation:
The Bard WA Series products are designed and tested to function 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 and filter changes will help maintain unit operation during high outdoor ambient temperatures.

/////// 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	W18ABPA W18LBPA	W24ABPA W24LBPA	W24ABPB W24LBPB	W24ABPC	W30ABPA W30LBPA	W30ABPB W30LBPB	W30ABPC W30LBPC	W36ABPA W36LBPA	W36ABPB W36LBPB	W36ABPC W36LBPC
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, 1 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)
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)
5 - 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)

MODELS	W42ACPA	W42ACPB	W42ACPC	W48ACPA	W48ACPB	W48ACPC	W48ACPQ
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	575 - 3
Operating Voltage Range	197-253 V	197-253 V	414-506 V	197-253 V	197-253 V	414-506 V	520-630
Compressor Electrical Circuit							
Voltage	230/208 V	230/208 V	460 V	230/208 V	230/208 V	460 V	575 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	4.8 A
Branch Circuit Selection Current	19.9 A	13.6 A	6.1 A	21.8 A	13.8 A	6.3 A	4.9 A
Lock Rotor Amps	109/109 A	83.1/83.1 A	41 A	117/117 A	83.1/83.1 A	41 A	33 A
Compressor Type	Scroll	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	1/3 HP
Outdoor Fan Motor - Amps	2.4 A	2.4 A	1.0 A	2.4 A	2.4 A	1.0 A	2.4 A
Outdoor Fan--Diameter and CFM	24" - 2900CFM	24" - 2900CFM	24" - 2900CFM	24" - 3000CFM	24" - 3000CFM	24" - 3000CFM	24" - 2900
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	3/4 Variable
Indoor Blower Motor - Amps	1.7 A	1.7 A	1.2 A	3.2 A	3.2 A	1.7 A	5.6 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
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	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)	20" x 20" x 2"
Basic Unit Weight without Vent lbs (kg)	490 (223)	490 (223)	490 (223)	495 (225)	495 (225)	495 (225)	495 (225)
B - Blank-Off Plate	14 (6.4)	14 (6.4)	14 (6.4)	14 (6.4)	14 (6.4)	14 (6.4)	13
5 - Economizer	44 (20)	44 (20)	44 (20)	44 (20)	44 (20)	44 (20)	44

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

MODELS	W60ACPA	W60ACPB	W60ACPC	W60ACPQ	W72ACPA	W72ACPB	W72ACPC	W72ACPQ
Unit Voltage Rating - Phase - 60Hz	230/208 V - 1 PH	230/208 V - 3 PH	460 V - 3 PH	575 V - 3 PH	230/208 V - 1 PH	230/208 V - 3 PH	460 V - 3 PH	575 V - 3 PH
Operating Voltage Range	197-253 V	197-253 V	414-506 V	520-630 V	197-253 V	197-253 V	414-506 V	520-630 V
Compressor Electrical Circuit								
Voltage	230/208 V	230/208 V	460 V	575 V	230/208 V	230/208 V	460 V	575 V
Rated Load Amps	20.6/23.6 A	12.5/14.4 A	7.0 A	5.7 A	27.6/30.6 A	16.8/18.6 A	8.8 A	7.7 A
Branch Circuit Selection Current	26.5 A	16 A	7.8 A	5.8 A	37 A	22.5 A	10.6 A	7.8 A
Lock Rotor Amps	134/134 A	110/110 A	52 A	38.9 A	185/185 A	149/149 A	75 A	54 A
Compressor Type	Scroll	Scroll	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 - 825 RPM	1/2 HP - 1075RPM	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	5.3 A	4.3 A	4.3 A	1.6 A	5.3 A
Outdoor Fan--Diameter and CFM	24" - 3100CFM	24" - 3100CFM	24" - 3100CFM	24" - 3100CFM	24" - 4000CFM	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 Variable	3/4 HP - 5 Spds	3/4 HP - 5 Spds	3/4 HP - 5 Spds	3/4 Variable
Indoor Blower Motor - Amps	3.2 A	3.2 A	1.7 A	5.6 A	4.2 A	4.2 A	1.7 A	5.6 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
Rated indoor CFM and static pressure (ESP) with wet coil and Standard filter	1750CFM -.20ESP	1750CFM -.20ESP	1750CFM -.20ESP	1750CFM -.20ESP	1900CFM -.25ESP	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 2"	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 2"
Basic Unit Weight without Vent lbs. (kg)	505 (230)	505 (230)	505 (230)	505 (230)	555 (252)	555 (252)	555 (252)	555 (252)
B - Blank-Off Plate	14 (6.4)	14 (6.4)	14 (6.4)	14 (6.4)	14 (6.4)	14 (6.4)	14 (6.4)	14 (6.4)
5 - Economizer	44 (20)	44 (20)	44 (20)	44 (20)	44 (20)	44 (20)	44 (20)	44 (20)

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

/////// Optional Shipping Crates

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

CRATE NO.	UNIT MODELS	DESCRIPTION
8620-263	W18A, W18L, W24A, W24L	Standard Unit Crate, all vents except economizer.
8620-275	W18A, W18L, W24A, W24L	Units with Economizer vent (Factory Installed 7" Hood).
8620-262	W30A, W30L, W36A, W36L	Standard Unit Crate, all vents except economizer
8620-276	W30A, W30L, W36A, W36L	Units with Economizer vent (Factory Installed 7" Hood).
8620-304	W42A, W48A	Standard Unit Crate, all ventilation options
8620-305	W60A, W72A	Standard Unit Crate, all ventilation options

/////// 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)

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 or ventilation operation** is used. See airflow performance chart for CFM amount.

Balanced Climate Speed: The WA series uses this speed when the **Balanced Climate Mode is enabled or mechanical dehumidification option (M)** 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 multipler factor provided in the Cooling Application Data. Unit capacity performance for hot gas reheat dehumidification units can be found in the Dehumidification performance supplimental manual #7960-811. See airflow performance chart for CFM amount.

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 or applications with a varying indoor heat load.

LO Speed: The WA series uses this speed by default when using **standard cooling or heating operation**. Lo Speed provides the **optimal airflow amount for normal use**. See airflow performance chart for CFM amount.

HI Speed: The WA series uses this speed when the **High Sensible Mode is enabled**. See airflow performance chart for CFM amount. HI speed provides **maximum unit airflow** per the airflow performance chart.

Indoor Airflow Static and Unit Performance

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

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

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

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

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

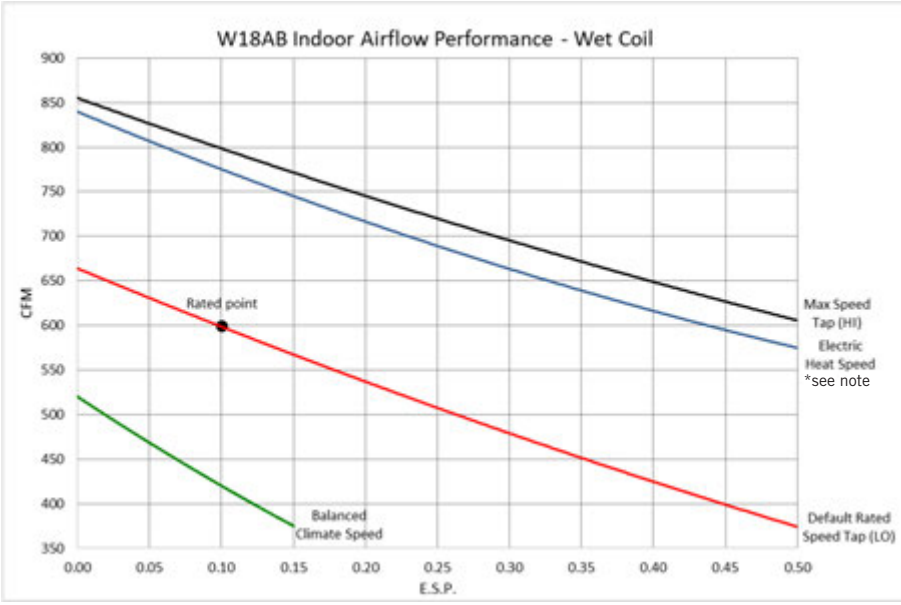
Calculating Total External Static Pressure: Supply duct static, return duct static, unit filter static, and any other source of additional static pressure are added together. Once this is calculated, the actual unit airflow amount can be reviewed by using the Indoor Airflow CFM charts provided.

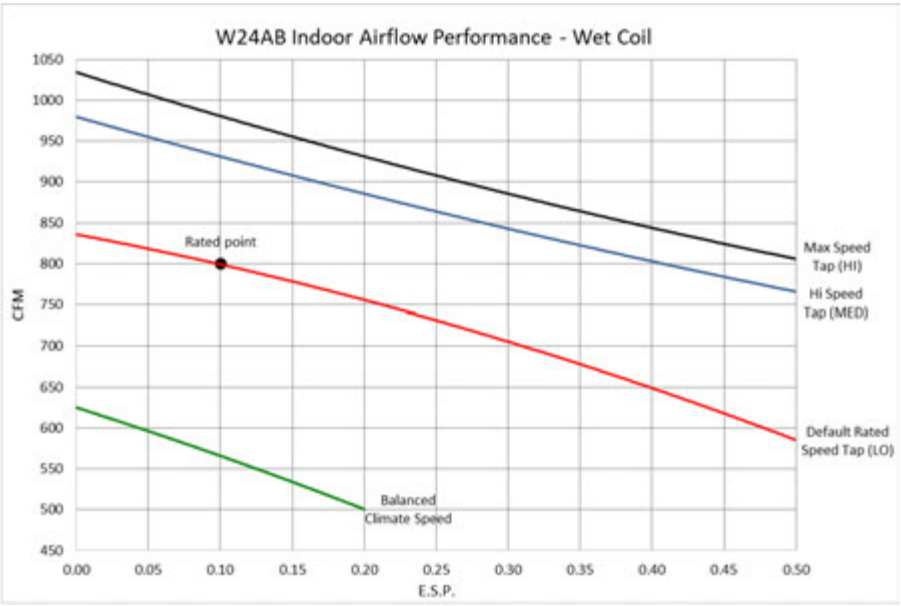
Total External Static Pressure Calculation:

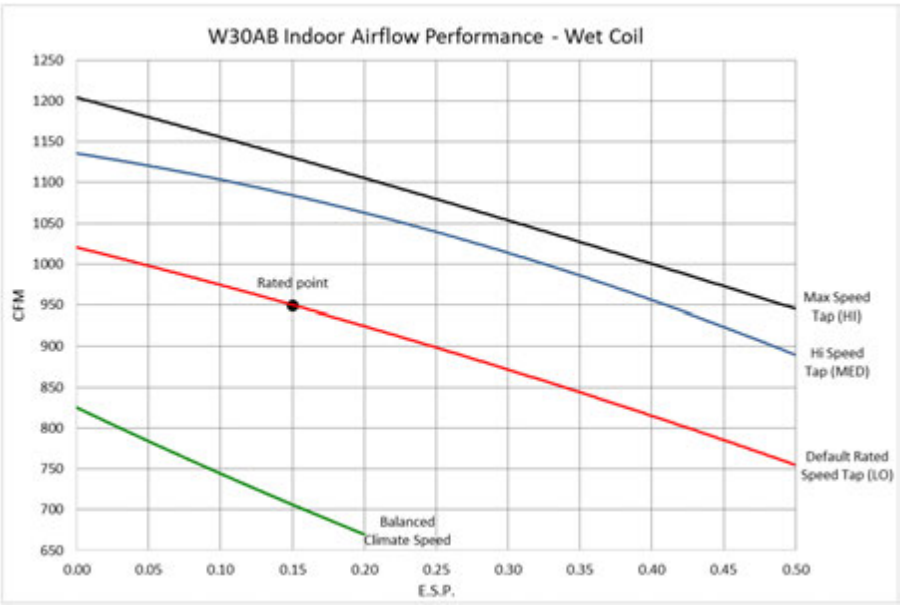
Supply Duct Static + Return Duct Static + Filter Static + Additional External Static = Total External Static Pressure (ESP)

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

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







Total External Static Pressure Calculation:

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 with 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:

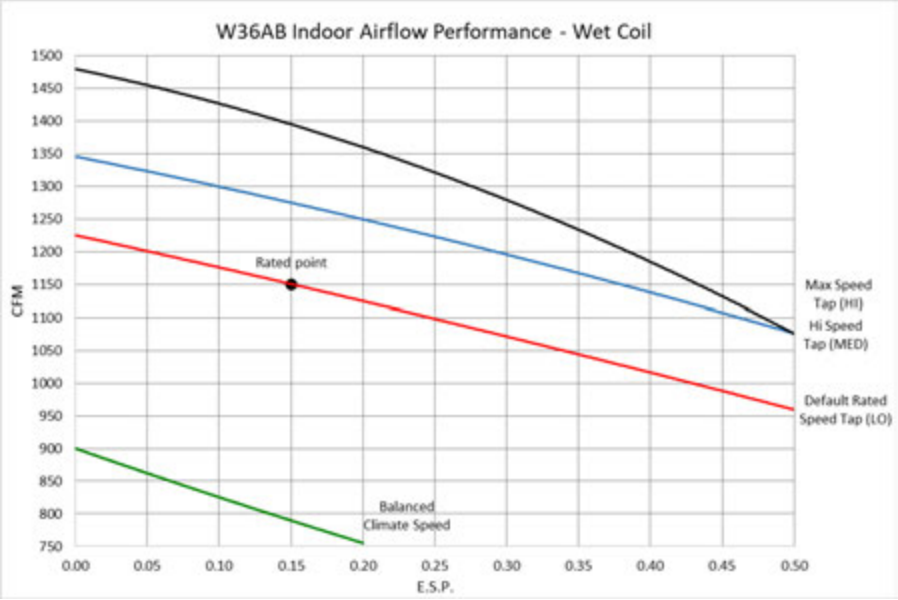
Balanced Climate Speed: The WA series uses this speed when the **Balanced Climate Mode or mechanical dehumidification option (M)** is used. Balanced Climate Mode is user selectable in the LC6000 or unit setup menu.

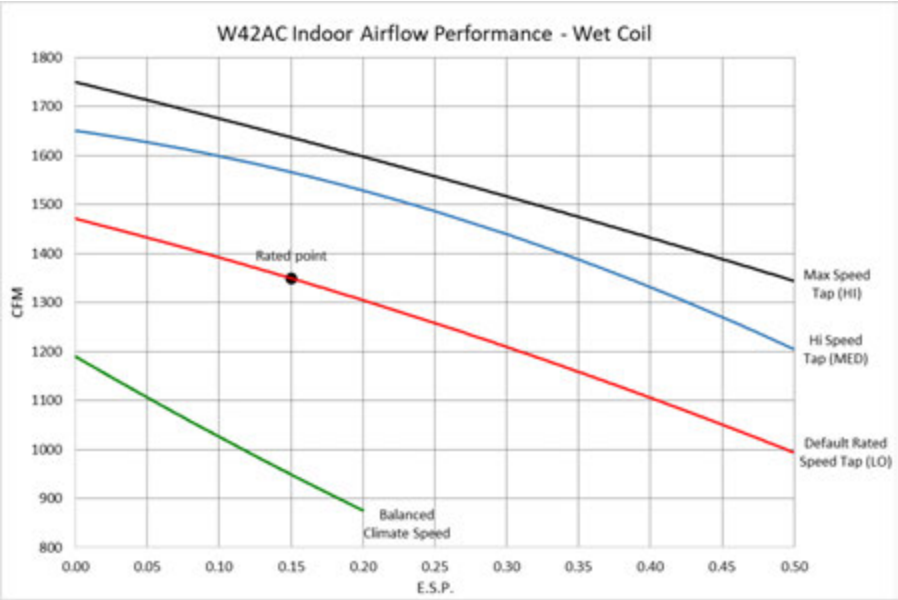
LO Speed: The WA series uses this speed by default when using **standard cooling or heating operation**. This speed is labeled as LO on the speed selection terminal strip inside the unit control panel. The WA series also uses this speed when **fan only or ventilation operation** is used.

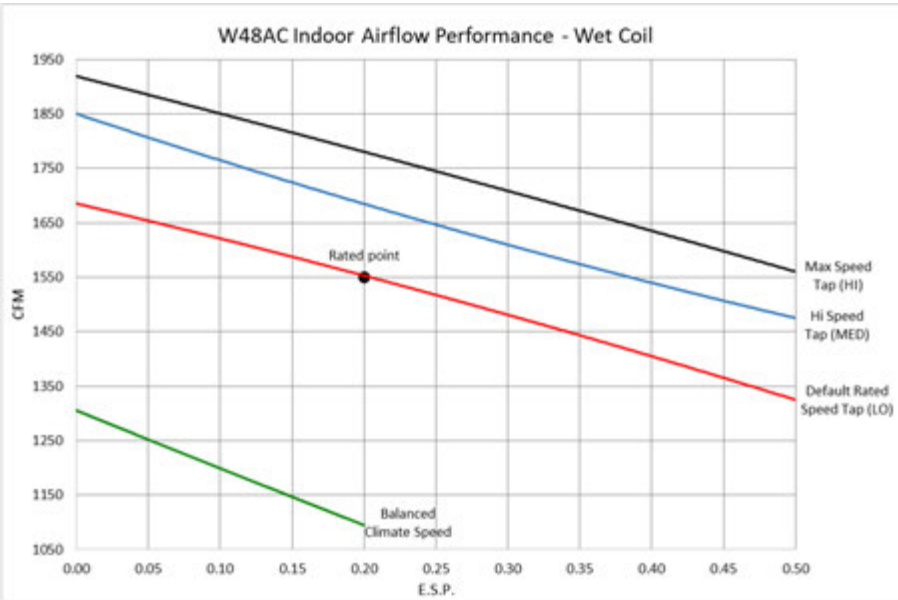
MED Speed (Not Used): Medium speed is not used with the MULTI-TEC product.

HI Speed (User Selectable): This speed is used for **High Sensible Mode** operation. Hi Sensible mode is user selectable in the LC6000 or unit setup menu.

////// Indoor Airflow CFM @ Static Pressures and Adjustable Speeds - W36, W42, W48 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 with 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:

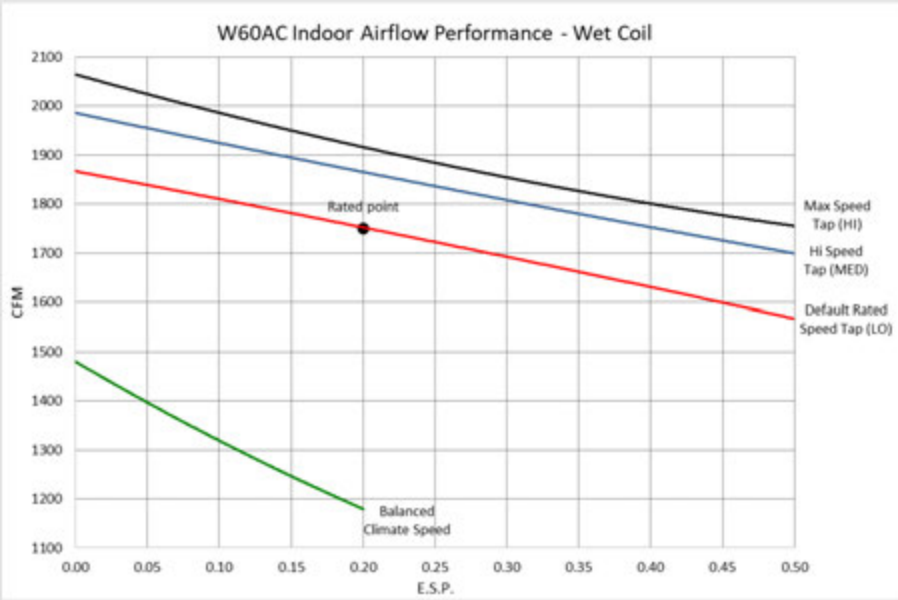
Balanced Climate Speed: The WA series uses this speed when the **Balanced Climate Mode or mechanical dehumidification option (M)** is used. Balanced Climate Mode is user selectable in the LC6000 or unit setup menu.

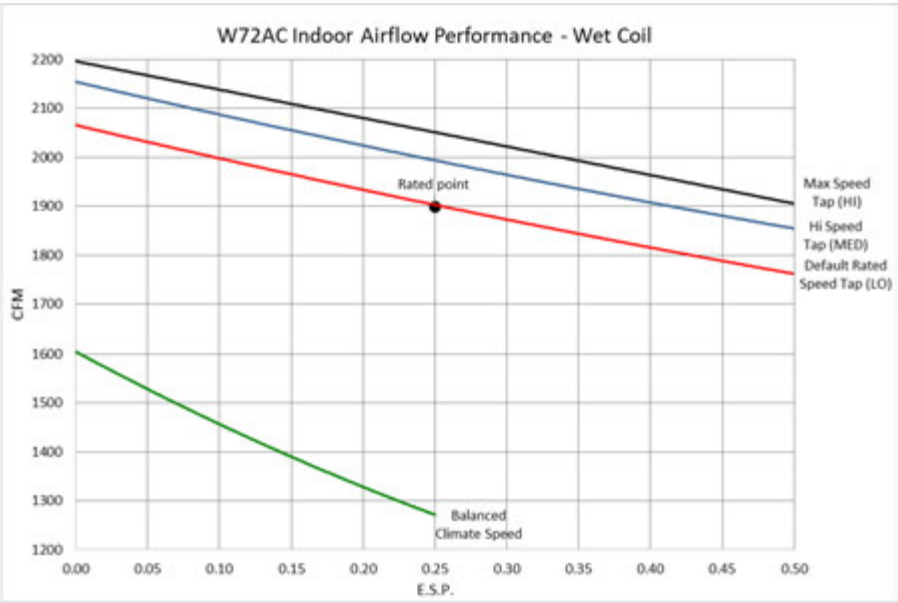
LO Speed: The WA series uses this speed by default when using **standard cooling or heating operation**. This speed is labeled as LO on the speed selection terminal strip inside the unit control panel. The WA series also uses this speed when **fan only or ventilation operation** is used.

MED Speed (Not Used): Medium speed is not used with the MULTI-TEC product.

HI Speed (User Selectable): This speed is used for **High Sensible Mode** operation. Hi Sensible mode is user selectable in the LC6000 or unit setup menu.

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 with 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 Mode or mechanical dehumidification option (M)** is used. Balanced Climate Mode is user selectable in the LC6000 or unit setup menu.

LO Speed: The WA series uses this speed by default when using **standard cooling or heating operation**. 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 or ventilation operation** is used.

MED Speed (Not Used): Medium speed is not used with the MULTI-TEC product.

HI Speed (User Selectable): This speed is used for **High Sensible Mode** operation. Hi Sensible mode is user selectable in the LC6000 or unit setup menu.

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
	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
W24	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
	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
W30	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	
	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	
W36	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
	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	
W42	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
	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	
W48	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
	85/72°F 29.4/22.2°C	Total Cooling	65200	62200	59300	56200	53300	50600	47700	44800	42000	29300	36500	N/A
		Sensible Cooling	40100	39100	38000	37000	35800	34700	33500	32300	31100	29800	28600	
W60	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
	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	
W72	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
	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	48500	44300	42700	41200	39700	

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 airlow. 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 - Right and Left Control Panel

	MODEL	Rated Volts & Phase	No. Field Power Circuits	Single Circuit		Multiple Circuits			
				③ Minimum Circuit Ampacity	① Maximum External Fuse or Ckt. Brkr.	③ Minimum Circuit Ampacity		① Maximum External Fuse or Ckt. Breaker	
						Ckt. A	Ckt. B	Ckt. A	Ckt. B
RIGHT CONTROL	W18ABPA00, A0Z	230/208-1	1	16	20				
	A05		1	30	30				
	A08		1	45	45				
	A10		1	56	60				
	W24ABPA00, A0Z	230/208-1	1	21	25				
	A05		1	30	30				
	A08		1	46	50				
	A10		1	57	60				
	W24ABPB00, B0Z	230/208-3	1	15	20				
	B06		1	23	25				
	W24ABPC00, C0Z	460-3	1	8	15				
	C06		1	12	15				
	W30ABPA00, A0Z	230/208-1	1	23	35				
	A05		1	31	35				
	A08		1	47	50				
	A10		1	57	60				
	A15		1 or 2	83	90	57	26	60	30
	W30ABPB00, B0Z	230/208-3	1	17	20				
	B06		1	23	25				
	B09		1	32	35				
	B15		1	50	50				
	W30ABPC00, C0Z	460-3	1	9	15				
	C06		1	12	15				
	C09		1	16	20				
	C12		1	21	25				
	C15		1	25	25				
	W36ABPA00, A0Z	230/208-1	1	27	35				
	A05		1	32	35				
	A08		1	48	50				
	A10		1	58	60				
	A15		1 or 2	84	90	58	26	60	30
	W36ABPB00, B0Z	230/208-3	1	20	25				
	B06		1	24	25				
	B09		1	33	35				
	B15		1	51	60				
	W36ABPC00, C0Z	460-3	1	11	15				
	C06		1	12	15				
	C09		1	17	20				
	C15		1	26	30				
LEFT CONTROL	W18LBPA00,A0Z	230/208-1	1	16	20				
	A05		1	30	30				
	A08		1	46	50				
	A10		1	56	60				
	W24LBPA00, A0Z	230/208-1	1	21	25				
	A05		1	30	35				
	A08		1	46	50				
	A10		1	57	60				
	W24LBPB00, B0Z	230/208-3	1	15	20				
	B06		1	23	25				
	W30LBPA00, A0Z	230/208-1	1	23	35				
	A05		1	31	35				
	A08		1	46	50				
	A10		1	57	60				
	A15		1 or 2	83	90	57	26	60	30
	W30LBPB00, B0Z	230/208-3	1	17	20				
	B09		1	32	35				
	B15		1	50	50				
	W30LBPC00, C0Z	460-3	1	9	15				
	C09		1	16	20				
	C15		1	26	30				
	W36LBPA00, A0Z	230/208-1	1	27	35				
	A05		1	32	35				
	A10		1	58	60				
	A15		1 or 2	84	90	58	26	60	30
	W36LBPB00, B0Z	230/208-3	1	20	25				
	B09		1	33	35				
	B15		1	51	60				
	W36LBPC00, C0Z	460-3	1	11	15				
	C09		1	18	20				
	C15		1	26	30				

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 Ckt. Brkr.	③ Minimum Circuit Ampacity		① Maximum External Fuse or Ckt. Breaker	
					Ckt. A	Ckt. B	Ckt. A	Ckt. B
W42ACPA00, A0Z	230/208-1	1	31	50				
A05		1	31	50				
A10		1	57	60				
A15		1 or 2	83	90	57	26	60	30
A20		1 or 2	109	125	57	52	60	60
W42ACPB00, B0Z	230/208-3	1	23	35				
B06		1	23	35				
B09		1	32	35				
B15		1	51	60				
B18		1	60	60				
W42ACPC00, C0Z	460-3	1	12	15				
C09		1	17	20				
C15		1	26	30				
W48ACPA00, A0Z	230/208-1	1	35	50				
A05		1	35	50				
A10		1	59	60				
A15		1 or 2	85	90	59	26	60	30
A20		1 or 2	111	125	59	52	60	60
W48ACPB00, B0Z	230/208-3	1	26	35				
B06		1	26	35				
B09		1	33	35				
B15		1	51	60				
B18		2	N/A	N/A	34	28	40	30
W48ACPC00, C0Z	460-3	1	12	15				
C09		1	17	20				
C15		1	26	30				
W48ACPQ00, Q0Z	575-3	1	8	15				
Q15		1	20	25				
W60ACPA00, A0Z	230/208-1	1	38	50				
A05		1	38	50				
A10		1	59	60				
A15		1 or 2	85	90	59	26	60	30
A20		1 or 2	111	125	59	52	60	60
W60ACPB00, B0Z	230/208-3	1	28	40				
B06		1	28	40				
B09		1	34	40				
B15		1	52	60				
B18		2	N/A	N/A	34	28	40	30
W60ACPC00, C0Z	460-3	1	14	20				
C09		1	18	20				
C15		1	26	30				
W60ACPQ00, Q0Z	575-3	1	10	15				
Q15		1	20	25				
W72ACPA00, A0Z	230/208-1	1	56	60				
A05		1	56	60				
A10		1 or 2	60	70	56	26	60	30
A15		1 or 2	86	90	56	52	60	60
A20		1 or 2	112	125	56	52	60	60
W72ACPB00, B0Z	230/208-3	1	38	50				
B06		1	38	50				
B09		1	38	50				
B15		1	54	60				
B18		2	N/A	N/A	38	28	40	30
W72ACPC00, C0Z	460-3	1	18	25				
C09		1	18	25				
C15		1	27	30				
W72ACPQ00, Q0Z	575-3	1	13	20				
Q15		1	21	25				

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: W30 to W72 Units With Hot Gas Reheat Dehumidification

MODEL	Rated Volts & Phase	No. Field Power Circuits	Single Circuit		Multiple Circuits			
			③ Minimum Circuit Ampacity	① Maximum External Fuse or Ckt. Brkr.	③ Minimum Circuit Ampacity		① Maximum External Fuse or Ckt. Breaker	
					Ckt. A	Ckt. B	Ckt. A	Ckt. B
W30ABMA00,A0Z	230/208-1	1	23	35				
A05		1	31	35				
A08		1	47	50				
A10		1	57	60				
W30ABMB00,B0Z	230/208-3	1	17	20				
B06		1	23	25				
B09		1	32	35				
W30ABMC00,C0Z	460-3	1	9	15				
C06		1	13	15				
C09		1	17	20				
W36ABMA00,A0Z	230/208-1	1	28	35				
A05		1	32	35				
A08		1	48	50				
A10		1	58	60				
W36ABMB00,B0Z	230/208-1	1	20	25				
B06		1	24	25				
B09		1	33	35				
W36ABMC00,C0Z	460-3	1	13	15				
C06		1	14	15				
C09		1	18	20				
W42ACMA00,A0Z	230/208-1	1	31	50				
A05		1	31	50				
A10		1	57	60				
A15		1 or 2	83	90	57	26	60	30
W42ACMB00,B0Z	230/208-3	1	23	35				
B05		1	23	35				
B09		1	33	35				
B18		1	60	60				
W42ACMC00,C0Z	460-3	1	13	15				
C05		1	13	15				
C09		1	18	20				
W48ACMA00,A0Z	230/208-1	1	34	50				
A05		1	34	50				
A10		1	59	60				
A15		1 or 2	85	90	59	26	60	30
W48ACMB00,B0Z	230/208-3	1	25	35				
B05		1	25	35				
B09		1	34	35				
B18		1	60	60				
W48ACMC00,C0Z	460-3	1	12	15				
C05		1	12	15				
C09		1	17	20				
W60ACMA00,A0Z	230/208-1	1	41	50				
A05		1	41	50				
A10		1	59	60				
W60ACMB00,B0Z	230/208-3	1	28	40				
B09		1	35	40				
B15		1	53	60				
W60ACMC00,C0Z	460-3	1	15	20				
C09		1	18	20				
C15		1	27	30				
W72ACMA00,A0Z	230/208-1	1	56	60				
A05		1	56	60				
A10		1 or 2	60	70	59	26	60	30
A15		1 or 2	86	90	59	52	60	60
W72ACMB00,B0Z	230/208-3	1	38	50				
B06		1	38	50				
B09		1	38	50				
B15		1	54	60				
W72ACMC00,C0Z	460-3	1	19	25				
C09		1	19	25				
C15		1	27	30				

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 Electric Reheat Dehumidification

MODEL	Rated Volts & Phase	No. Field Power Circuits	Single Circuit		Multiple Circuits					
			③ Minimum Circuit Ampacity	① Maximum External Fuse or Ckt. Brkr.	③ Minimum Circuit Ampacity			① Maximum External Fuse or Ckt. Breaker		
					Ckt. A	Ckt. B	Ckt. C	Ckt. A	Ckt. B	Ckt. C
W36ABEA15	230/208-1	1 or 2	103	110	52	51		60	60	
W36ABEB15	230/208-3	2			45	18		50	20	
W36ABEC15	460-3	1	34	35						
W42ACEA15	230/208-1	1 or 2	107	110	55	52		60	60	
W42ACEB15	230/208-3	2			39	28		40	30	
W42ACEC15	460-3	1	34	35						
W48ACEA15	230/208-1	1 or 2	111	125	58	53		60	60	
W48ACEB15	230/208-3	2			46	22		50	30	
W48ACEC15	460-3	1	33	35						
W60ACEA15	230/208-1	1	114	125	58	56		60	60	
W60ACEB15	230/208-3	2			46	22		50	30	
W60ACEC15	460-3	1	35	40						
W72ACEA15	230/208-1	3	132	150	54	52	26	60	60	30
W72ACEB15	230/208-3	2			55	26		60	30	
W72ACEC15	460-3	1	40	45						

/////// 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.

/////// MULTI-TEC Ventilation Option Selection Chart

Vent Code	Vent Type	Description
B	No Ventilation	Unit does not include intake or exhaust openings for ventilation.
5	Economizer	Free flow economizer. Enthalpy, Dew Point, or Dry Bulb economizing settings. A field installed 7" hood is required on each side of the unit. The economizer is not a field installed option.

* Note: Ventilation options are not field installable.

"B" Vent Code Option – No Vent

This unit is constructed without the economizer vent option and the air intake and exhaust openings are removed. The no vent option may be utilized when outside air intake is not desired or required by local codes.

"5" Vent Code Option – Free Cooling Economizer

The free cooling economizer uses a 2-10V High torque actuator to control the intake and exhaust damper. Intake air is pre-filtered before entering the unit. A large exhaust air path is provided to reduce room pressure to slight positive pressurization during economizer operation. All dampers include rubber seals for positive shutoff when the economizer is not being operated. All operation is controlled by the unit logic board.

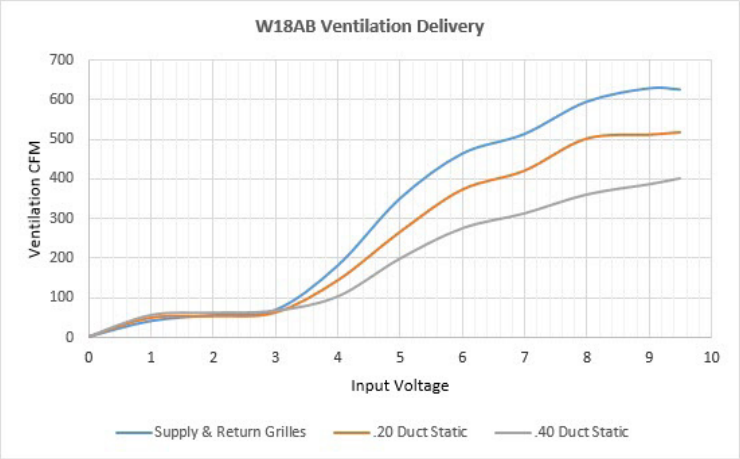
Unit Software Economizer Features:

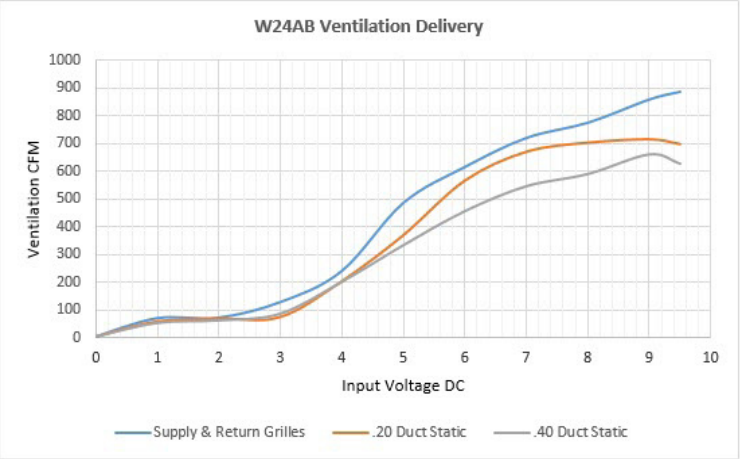
- Standard dry bulb outdoor temperature control of economizer operation.
- Optional wet bulb outdoor enthalpy control of economizer operation. Humidity is measured in either %RH or Dew point.
- Passive Dehum: Economizer operation can be disabled if humidity levels measured by the LC6000 reach the indoor maximum humidity set point. The default passive indoor humidity set point is 70%RH*.
- Emergency Vent: When NO/NC* contacts are energized in the LC6000, the economizer blades are fully opened and the evaporator Fan is activated.
- Emergency Off: When NO/NC* contacts are energized in the LC6000, the economizer blades are closed, and unit operation is disabled.
- Emergency Cool: When high temp alarm 2 is active in the LC6000 due to a High temperature event in a zone, the economizer blades are fully opened and the Evaporator Fan is activated when the return air temperature is above the outdoor air temperature.

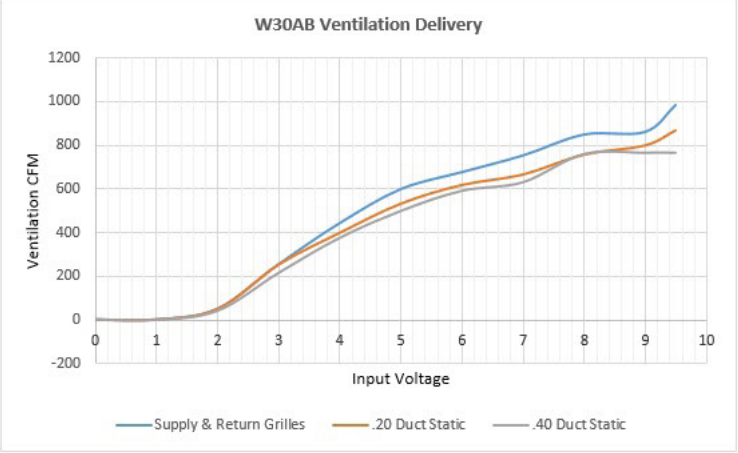
*Default setting.

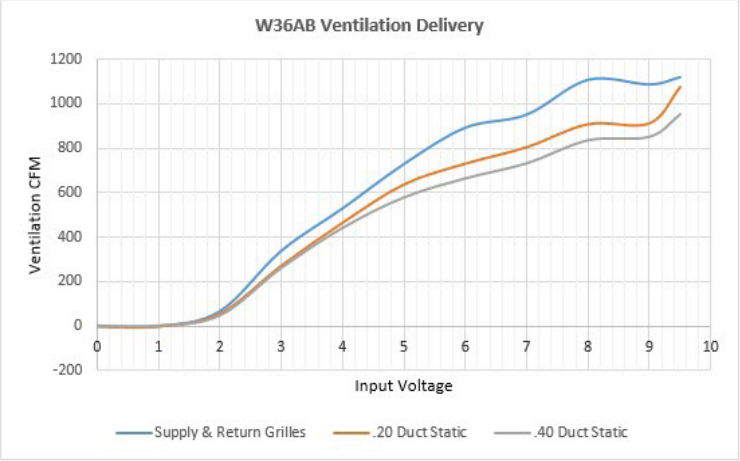
Note: Fire suppression systems that use gases to flood an area may require economizer shutdown within 30 seconds of a smoke/fire event. A signal from the LC6000 controller to close all dampers and disable unit operation can take over a minute (time will vary based on daisy chain connections). A relay must be installed to break the 24VAC power supply output from the low voltage transformer in each unit in order to shorten the blade closure time and disable unit operation.

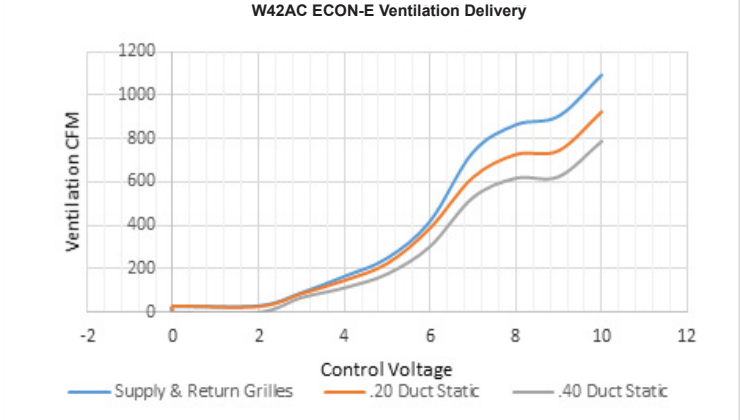
////// Economizer Airflow Charts for W18 - W72 Units

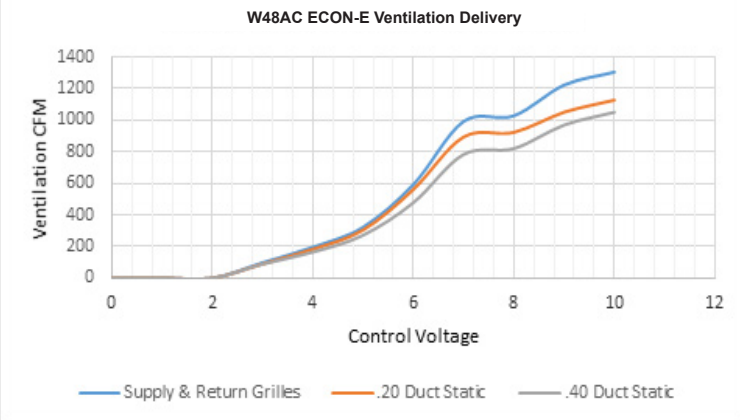


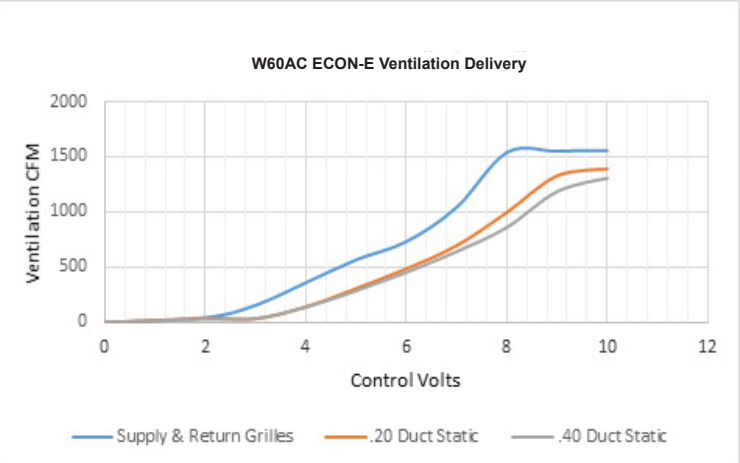


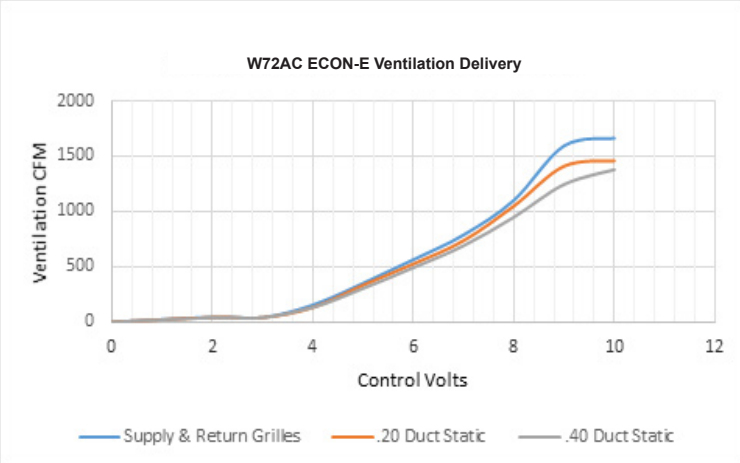












/////// Unit Filter Options

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

"X" Filter Code Option – 1" Disposable MERV2 Filter

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

"W" Filter Code Option – 1" Permanent MERV2 Filter

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

"P" Filter Code Option – 2" Disposable MERV8 Filter

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

"M" Filter Code Option – 2" Disposable MERV11 Filter

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

"N" Filter Code Option – 2" Disposable MERV13 Filter

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

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

UNIT MODEL	FILTER CODE	FILTER MERV RATING	NUMBER OF FILTERS USED	BARD PART NUMBER	FILTER SIZE	FILTRATION LEVEL
W18, W24	X	MERV 2	1	7004-011	16 x 25 x 1	Low Filtration, 1" Thickness Disposable Media.
	W	MERV 2	1	7003-032	16 x 25 x 1	Low Filtration, 1" Thickness Permanent Media.
	P	MERV 8	1	7004-025	16 x 25 x 2	Average Filtration, 2" Thickness Pleated Disposable Media.
	M	MERV 11	1	7004-059	16 x 25 x 2	Above Average Filtration, 2" Thickness Pleated Disposable Media.
	N	MERV 13	1	7004-061	16 x 25 x 2	High Filtration, 2" Thickness Pleated Disposable Media.
W30, W36	X	MERV 2	1	7004-019	16 x 30 x 1	Low Filtration, 1" Thickness Disposable Media.
	W	MERV 2	1	7003-031	16 x 30 x 1	Low Filtration, 1" Thickness Permanent Media.
	P	MERV 8	1	7004-026	16 x 30 x 2	Average Filtration, 2" Thickness Pleated Disposable Media.
	M	MERV 11	1	7004-048	16 x 30 x 2	Above Average Filtration, 2" Thickness Pleated Disposable Media.
	N	MERV 13	1	7004-062	16 x 30 x 2	High Filtration, 2" Thickness Pleated Disposable Media.
W42, W48, W60, W72	X	MERV 2	2	7004-012	20 x 20 x 1	Low Filtration, 1" Thickness Disposable Media.
	W	MERV 2	2	7003-085	20 x 20 x 1	Low Filtration, 1" Thickness Permanent Media.
	P	MERV 8	2	7004-052	20 x 20 x 2	Average Filtration, 2" Thickness Pleated Disposable Media.
	M	MERV 11	2	7004-060	20 x 20 x 2	Above Average Filtration, 2" Thickness Pleated Disposable Media.
	N	MERV 13	2	7004-063	20 x 20 x 2	High Filtration, 2" Thickness Pleated Disposable Media.

Cabinet Finishes and Construction

Unit cabinet finish options provide a way to have the Bard Wall-Mount blend in with existing building colors, provide additional corrosion protection, or reduce unit product weight. Unit top, structural sides, and front service panels are constructed using 20 guage materials. Base is constructed using 16 guage galvanized steel. Cabinet components are insulated with a non-fiberglass formaldehyde free insulation that has a high "R" value, is easy to clean with a FSK foil backing, and resists delamination.


X—Beige

1—White

Painted Steel Finish

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

The following painted steel colors are available:
"X" Cabinet Finish Option – Beige
"1" Cabinet Finish Option – White
"4" Cabinet Finish Option – Gray
"5" Cabinet Finish Option – Desert Brown
"8" Cabinet Finish Option – Dark Bronze


4—Gray


5—Desert

Stainless Steel Finish

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


8—Bronze


S—Stainless

Features of stainless steel "S" cabinet finish option:

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


A—Aluminum

Aluminum Finish

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

Evaporator Coil, Condenser Coil, and Cabinet Coatings

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

"X" Code Option – Standard Evaporator and Condenser Coils

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

"1" Code Option – Corrosion Resistance Coated Evaporator and Standard Condenser Coil

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

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

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

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

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

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

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

Option includes a Technicoat AA protective coating applied to the entire evaporator coil. Dehumidification units also include a coated hot gas reheat coil. A Technicoat AA protective coating is applied to the entire condenser coil. The interior of the lower unit condenser section is corrosion coated for additional protection including the unit base, compressor, and condenser area copper tubing, filter/drier, and condenser fan.

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

Option includes a Technicoat AA protective coating applied to the entire evaporator coil. Dehumidification units also include a coated hot gas reheat coil. A Technicoat AA protective coating is applied to the entire condenser coil. The entire exterior of the unit including the lower condenser section is coated along with all copper tubing, refrigeration, and air moving components. The interior components of the unit are also coated for the best cabinet component corrosion protection available.

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

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

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

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

Advantages include the following:

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

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

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

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

CONTROL CODE	KIT PART NO.	UNITS USING KIT	DESCRIPTION OF FIELD INSTALLED KIT
E	CMA-37 = 230V	W18A, W18L, W24A, W24L	Low Ambient Control allows compressor cooling between 0°F and 50°F outdoor temp. - modulating
E	CMA-38 = 460V	W18A, W18L,W24A, W24L	Low Ambient Control allows compressor cooling between 0°F and 50°F outdoor temp. - modulating
E	CMA-39	W30A, W30L,W36A, W36L W42A, W48A, W60A, W72A	Low Ambient Control allows compressor cooling between 0°F and 50°F outdoor temp. - fan cycling
NA	CMC-15	W18A, W18L, W24A, W24L, W30A, W30L, W36A, W36L	PTCR Start Kit. Increases starting torque by 2 to 3x. 230V-60hz-1 phase (A voltage) only. Cannot be used in combination with SK start kit
NA	CMC-32	W42A, W48A, W60A, W72A	PTCR Start Kit. Increases starting torque by 2 to 3x. 230V-60hz-1 phase (A voltage) only. Cannot be used in combination with SK start kit
NA	SK-111	W18A, W18L, W24A, W24L, W30A, W30L, W36A, W36L	Start Capacitor and Potential Relay Start Kit. Increases starting torque by 9x. 230V-60hz-1 phase (A voltage) only. Cannot be used in combination with CMC start kit
NA	CMC-36	W18A, W18L, W24A, W24L, W30A, W30L, W36A, W36L	Crank case heater kit. 230V 1-PH units only
NA	CMC-40	W18A, W18L, W24A, W24L, W30A, W30L, W36A, W36L	Crank case heater kit. 230V 3-PH units only
NA	CMC-37	W18A, W18L, W24A, W24L, W30A, W30L, W36A, W36L	Crank case heater kit. 460V 3-PH units only
NA	CMC-38	W42A, W48A, W60A, W72A	Crank case heater kit. 230V 1-PH units only
NA	CMC-41	W42A, W48A, W60A, W72A	Crank case heater kit. 230V 3-PH units only
NA	CMC-39	W42A, W48A, W60A, W72A	Crank case heater kit. 460V 3-PH units only
NA	8620-330	W24A, W30A, W36A, W36L, W42A, W48A, W60A, W72A	Power isolation kit for ECM indoor fan motor. 460V units only.

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

/////// Unit Sound Reduction Accessories

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

CONTROL CODE	KIT PART NO.	UNITS USING KIT	DESCRIPTION OF FIELD INSTALLED KIT
NA	8002-012	W18A, W18L, W24A, W24L, W30A, W30L, W36A, W36L	Compressor sound cover. Weatherized vinyl insulated cover that helps reduce compressor sound level.
NA	8002-013	W42A, W48A, W60A, W72A	Compressor sound cover. Weatherized vinyl insulated cover that helps reduce compressor sound level.

Cabinet and Clearance Dimensions - W18A to W36A Right Side Control Panel Units

CLEARANCES REQUIRED FOR SERVICE ACCESS AND ADEQUATE CONDENSER INLET AIRFLOW		
MODELS	LEFT SIDE	RIGHT SIDE
W18AB, W24AB, W30AB, W36AB	15"	20"

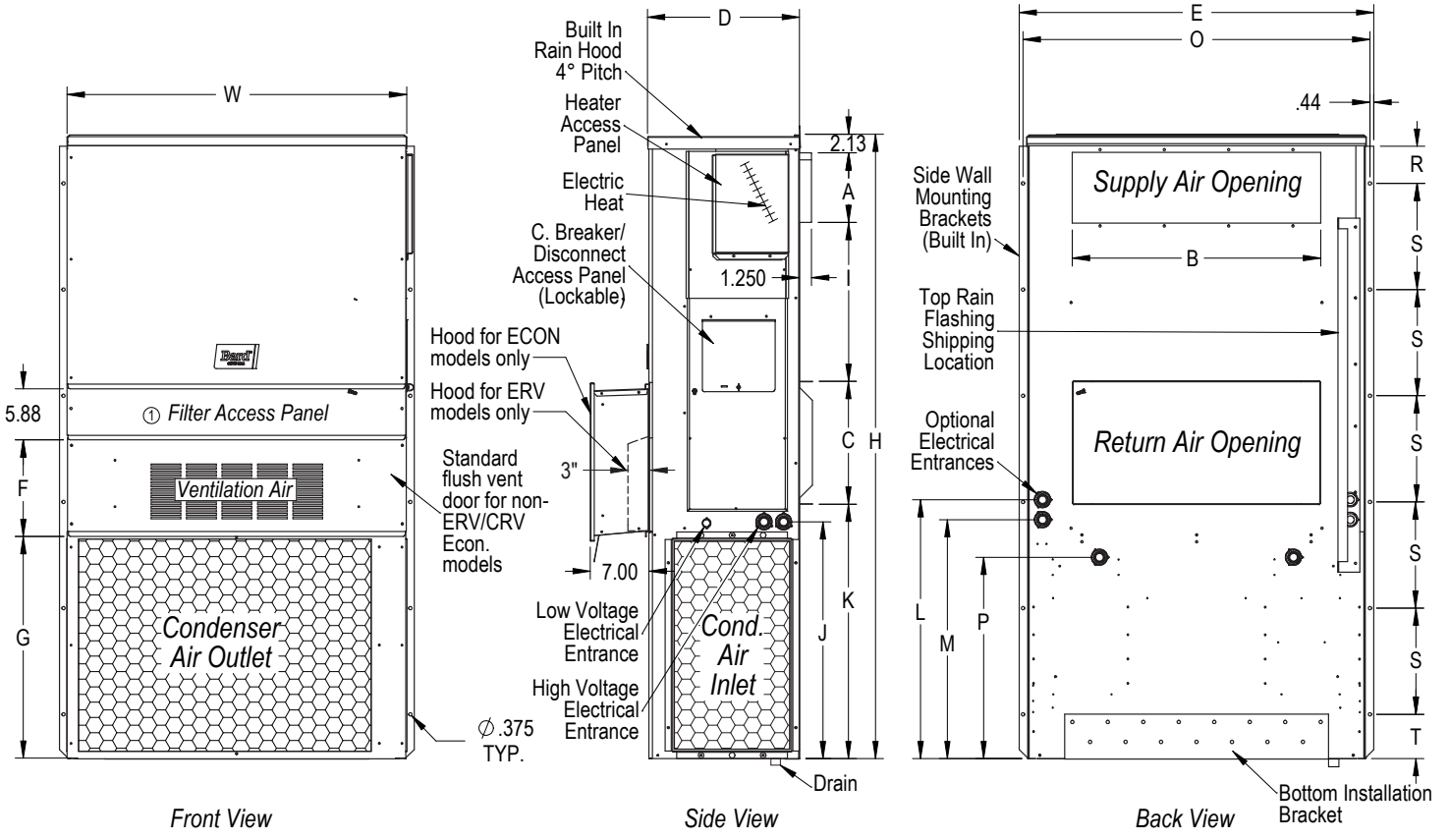
NOTE: For side-by-side installation of two (2) WA models, there must be 20" between units. This can be reduced to 15" by using a WL model (left side compressor and controls) for the left unit and WA (right side compressor and controls) for right unit.

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

MINIMUM CLEARANCES REQUIRED TO COMBUSTIBLE MATERIALS		
MODELS ①	SUPPLY AIR DUCT FIRST THREE FEET	CABINET
W18AB, W24AB	0"	0"
W30AB, W36AB	1/4"	0"

① Refer to the Installation Manual for more detailed information.

DIMENSIONS OF W18-36A BASIC UNIT FOR ARCHITECTURAL & INSTALLATION REQUIREMENTS (NOMINAL)																						
MODEL	WIDTH (W)	DEPTH (D)	HEIGHT (H)	SUPPLY		RETURN																
				A	B	C	D	E	F	G	I	J	K	L	M	N	O	P	Q	R	S	T
W18AB W24AB	33.300	17.125	74.563	7.88	19.88	11.88	19.88	35.00	10.88	29.75	20.56	30.75	32.06	33.25	31.00	2.63	34.13	26.06	10.55	3.94	12.00	9.00
W30AB W36AB	38.200	17.125	74.563	7.88	27.88	13.88	27.88	40.00	10.88	29.75	17.93	30.75	32.75	33.25	31.00	2.75	39.13	26.75	9.14	3.94	12.00	9.00



MIS-3796 B

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

CLEARANCES REQUIRED FOR SERVICE ACCESS AND ADEQUATE CONDENSER INLET AIRFLOW		
MODELS	LEFT SIDE	RIGHT SIDE
W18LB, W24LB, W30LB, W36LB	20"	15"

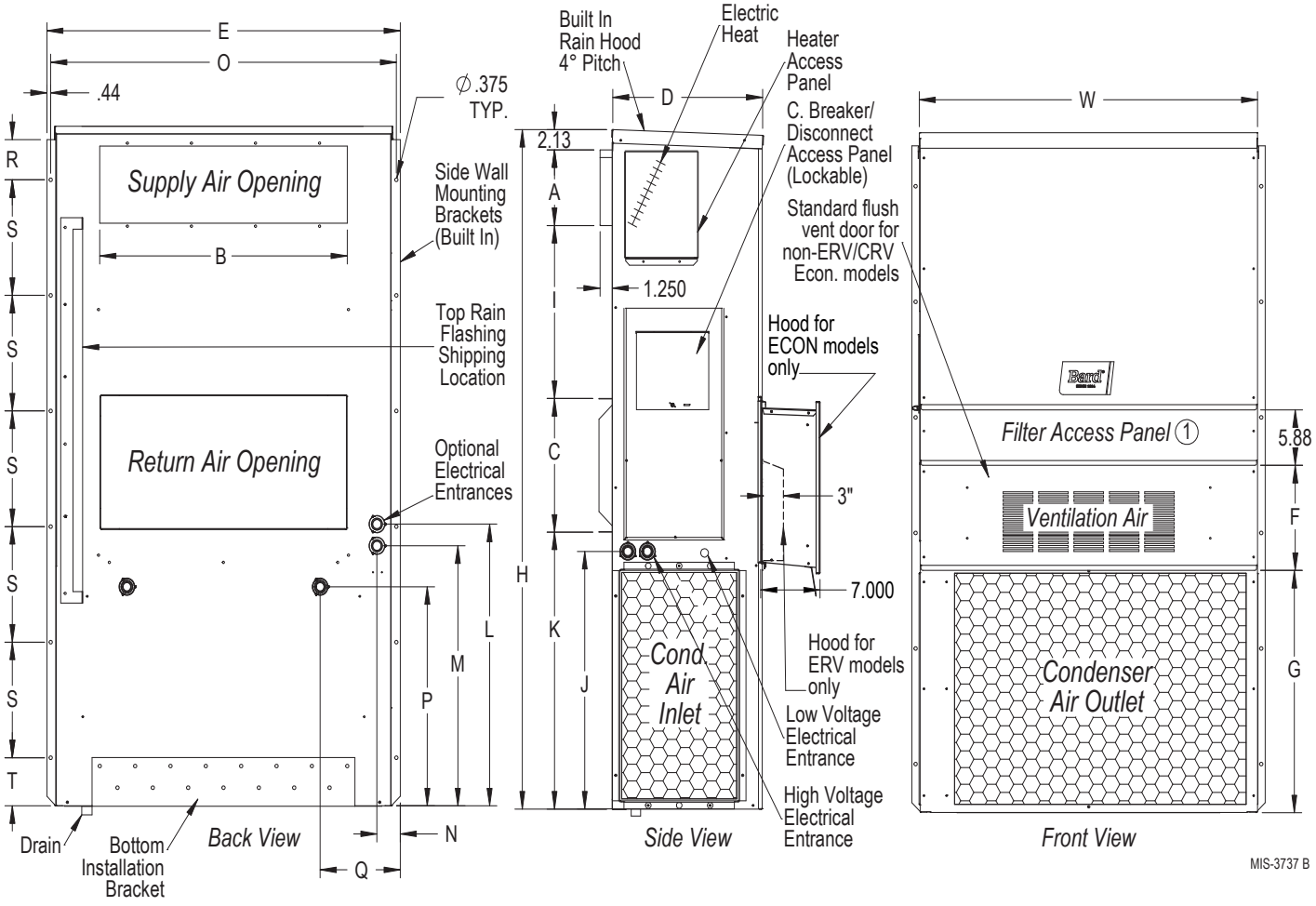
NOTE: For side-by-side installation of two (2) WL models, there must be 20" between units. This can be reduced to 15" by using a WL model (left side compressor and controls) for the left unit and WA (right side compressor and controls) for right unit.

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

MINIMUM CLEARANCES REQUIRED TO COMBUSTIBLE MATERIALS		
MODELS ①	SUPPLY AIR DUCT FIRST THREE FEET	CABINET
W18LB, W24LB	0"	0"
W30LB, W36LB	1/4"	0"

① Refer to the Installation Manual for more detailed information.

DIMENSIONS OF W18-36L BASIC UNIT FOR ARCHITECTURAL & INSTALLATION REQUIREMENTS (NOMINAL)																						
MODEL	WIDTH (W)	DEPTH (D)	HEIGHT (H)	SUPPLY		RETURN																
				A	B	C	B	E	F	G	I	J	K	L	M	N	O	P	Q	R	S	T
W18LB W24LB	33.300	17.125	74.563	7.88	19.88	11.88	19.88	35.00	10.88	29.75	20.56	30.75	32.06	33.25	31.00	2.63	34.13	26.06	10.55	3.94	12.00	9.00
W30LB W36LB	38.200	17.125	74.563	7.88	27.88	13.88	27.88	40.00	10.88	29.75	17.93	30.75	32.75	33.25	31.00	2.75	39.13	26.75	9.14	3.94	12.00	9.00



MIS-3737 B

Cabinet and Clearance Dimensions - W48A to W72A Series Units

CLEARANCES REQUIRED FOR SERVICE ACCESS AND ADEQUATE CONDENSER INLET AIRFLOW		
MODELS	LEFT SIDE	RIGHT SIDE
W42AC, W48AC, W60AC, W72AC	20"	20"

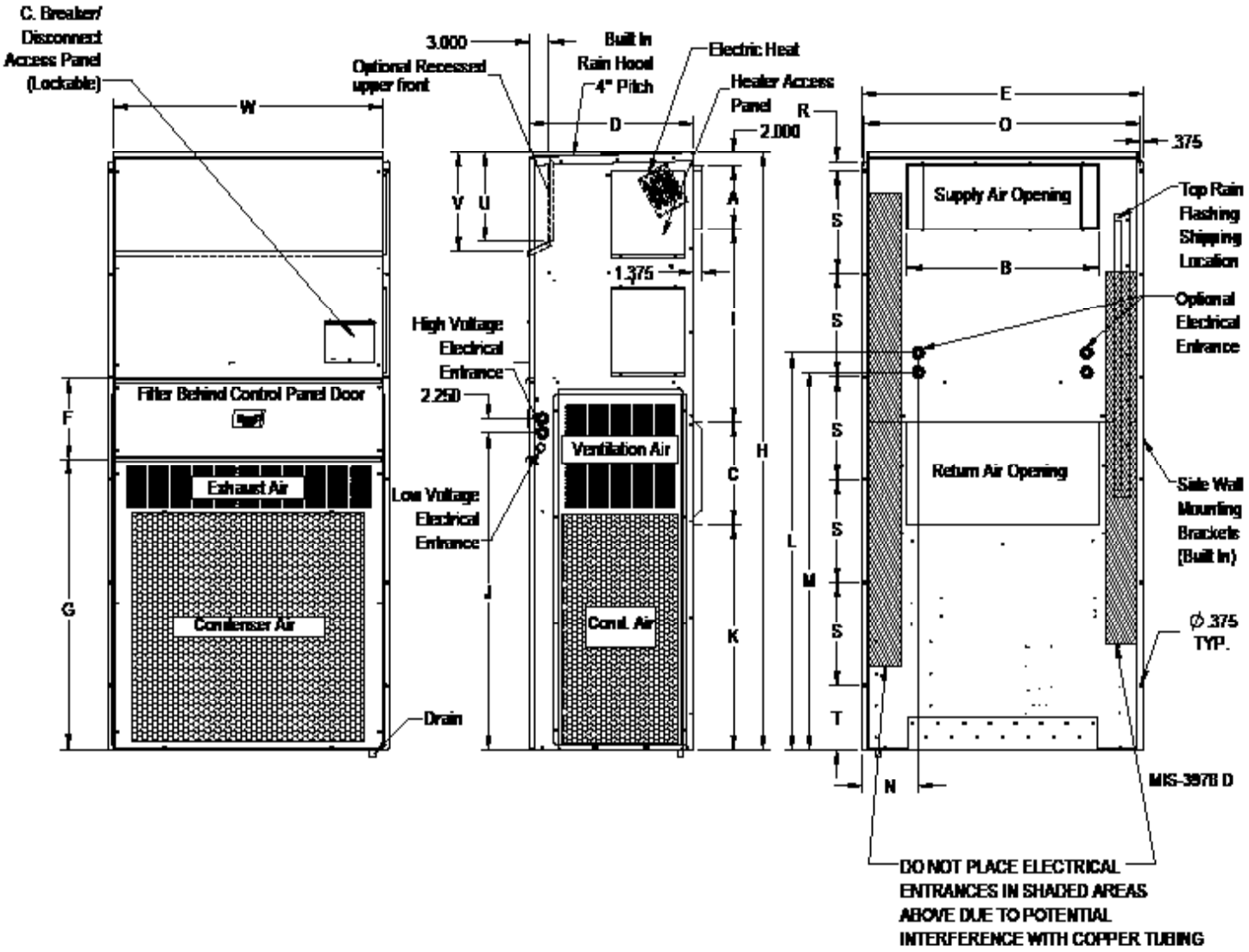
1.) Follow all national, state, and local codes and regulations regarding the installation of heating and cooling equipment regarding Single Packaged Vertical Units (SPVU) including electrical access clearances.
2.) Field ventilation installation with the unit installed requires 40" on the left or right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

MINIMUM CLEARANCES REQUIRED TO COMBUSTIBLE MATERIALS		
MODELS ①	SUPPLY AIR DUCT FIRST THREE FEET	CABINET
W42AC, W48AC, W60AC, W72AC	1/4"	0"

① Refer to the Installation Manual for more detailed information.

DIMENSIONS OF W42AC-72AC BASIC UNIT FOR ARCHITECTURAL & INSTALLATION REQUIREMENTS (NOMINAL)																				
MODEL	WIDTH (W)	DEPTH (D)	HEIGHT (H)	SUPPLY		RETURN														
				A	B	C	B	E	F	G	I	J	K	L	M	N	O	R	S	T
W42AC W48AC	42	25.52	84.88	9.88	29.88	15.88	29.88	43.88	12.63	39.06	30	53.75	26.94	55.59	52.59	8.82	43	1.438	16	1.88
W60AC W72AC	42	25.52	93.00	9.88	29.88	15.88	29.88	43.88	12.63	45	30	59.75	35.06	61.72	58.72	8.82	43	1.438	16	10.00

① Wall mounting holes in side flanges are 0.375.



Wall Curb Accessories

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

CURB	UNITS USING CURB	DESCRIPTION
WMICF2-*	W18A, W18L, W24A, W24L	Provides vibration isolation for reduced sound transmission through wall
WMICF3-*	W30A, W30L,W36A, W36L	Provides vibration isolation for reduced sound transmission through wall
WMICF5-*	W42A, W48A,W60A, W72A	Provides vibration isolation for reduced sound transmission through wall
WWC3-*	W30A, W30L, W36A, W36L	Install to use with existing 2, 3, or 5 ton wall openings. Wall openings must provide sufficient airflow. Follow all instructions in curb and unit manual including clearances to combustibles and maximum duct static pressure.
WWC5-*	W42A, W48A, W60A, W72A	Install to use with existing 3 and 5 ton wall openings. Wall openings must provide sufficient airflow. Follow all instructions in curb and unit manual including clearances to combustibles and maximum duct static pressure.

* Color Option

Indoor Sound Reduction Accessories

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

ACCESSORY	UNITS USING ACCESSORY	DESCRIPTION
WAPR11-*	W18, W24, W30, W36, W42, W48, W60, W72	Indoor acoustical return air plenum that offsets the return air path. Air intake near floor level

* Color Option

Non-Ducted Supply and Return Grilles

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

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

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

Non-Ducted Supply Grilles - Spread and Throw Characteristics

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

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

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

UNIT	DUCT FREE INDOOR COOLING OPERATION @ 5 FT.	DUCT FREE INDOOR COOLING OPERATION @ 10 FT.	DUCTED INDOOR COOLING OPERATION @ 5 FT.	DUCTED INDOOR COOLING OPERATION @ 10 FT.	OUTDOOR @ 10 FT.
W18AB/W18LB	49.6	47.3	48.6	46.2	62.8
W24AB/W24LB	52.4	50.4	51.9	48.9	62.3
W30AB/W30LB	53.9	52.9	54.5	47.3	67.1
W36AB/W36LB	53.9	52.9	54.5	47.3	67.1
W42AC	56.1	51.7	56.3	51.1	68.6
W48AC	57	52.7	57.8	52.8	69
W60AC	56.5	53.3	56	52.7	66.8
W72AC	61.2	56.6	60.8	57.1	77.1

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

Controller Overview

The MULTI-TEC® unit has many controls options to choose from. Selection of the right controls option will depend on how many units are being controlled, if remote communication via modbus or webpages is required, and how many alarms are needed to indicate building conditions or unit characteristics.

Here are a few typical MULTI-TEC controller setups:
- The **LC6000** is used to control 1 to 14 units in a building with 1 to 3 different climate zones. Both temperature and humidity are monitored. Each zone can monitor a temperature average using a wall or ceiling mounted sensors and unit return sensors. Multiple dry contact alarms are available from the LC6000 controller. Modbus and webpage remote access is available. Review wiring requirements in LC6000 specification sheet.

- The **th-Tune** is used to control 1 unit in a building with 1 climate zone. Temperature is monitored with a sensor built into the th-Tune. A single dry contact alarm is available from the MULTI-TEC to indicate a unit failure. A TEC-EYE diagnostic tool ships with the th-Tune when ordering the installation kit Bard part #8620-264. Modbus and webpage remote access are not available. 18ga. to 22ga. connection wire is field supplied. The th-Tune is wall-mounted or can be mouted to a junction box inside the zone.

- The **PGD** is used to control 1 unit in a building with 1 climate zone. Temperature is monitored by the return air sensor in the unit (PGD Kit part #8620-306), or can use a remote temperature sensor (PGD Kit part #8620-307). The PGD includes a wall-mounted enclosure. A single dry contact alarm is available from the MULTI-TEC to indicate a unit failure. Modbus and webpage remote access are not available. An RJ11 cable is provided to connect the PGD to the MEGA-TEC and the PGD must be within 20ft. of the unit location.

CONTROLLER	FEATURES										
	# OF UNITS	# OF ZONES	ZONE MONITORING	HI SENSIBLE	BALANCED CLIMATE	ELECTRIC REHEAT	HOT GAS REHEAT	MODBUS	WEBPAGES	LOCAL ALARMS	WIRED ALARMS
LC6000	1 TO 14	1 TO 3	Temp. and Humidity	YES	YES	YES	YES	YES	YES	YES	YES
th-Tune	1	1	Temperature Only	YES	NO	NO	NO	NO	NO	YES	NO
PGD	1	1	Temperature Only	YES	NO	NO	NO	NO	NO	YES	NO

LC6000

th-Tune

PGD Display

LC6000 Controller Optional Accessories

PART NUMBER	PART NAME	DESCRIPTION
8403-079	Zone Temperature/ Humidity Sensor	A temperature/humidity sensor is required for each zone of operation. (1) temperature/humidity sensor is included with the LC6000. The remote temperature/humidity sensor requires 18ga. 5-wire shielded cable with drain.
8301-058	Zone Temperature Sensor	A an additional temperature sensor is optional for zone 1 temperature monitoring. Remote temperature sensors may be used in zones 2 and 3 instead of remote temperature/humidity sensors if humidity monitoring is not required in the zone. The remote temperature sensor is sold separately and requires 18ga. 2-wire shielded cable with drain.
8301-059	TEC-EYE™ Service Tool	The TEC-EYE™ service tool with 5 ft. communication cable is used to access software functions in the unit PLC board. The TEC-EYE™ is required for unit setup. (1) TEC-EYE™ service tool with 5 ft. communication cable is included with the LC6000 controller.
8301-053	Large Backlit Service Tool	The large backlit service tool is used to access software functions in the unit PLC board. Operation of the service tool is identical to the TEC-EYE™, but provides a large display area (2.8"x1.4") and mechanical entry keys. The large backlit service tool is sold separately.
8301-055	EMI Ferrite Filter	(1) EMI Ferrite filter is required on each end of the daisy chain connection between the units and the LC6000 controller. (2) EMI Ferrite filters are included with the LC6000 controller.
2151-021	EEV manual adjustment tool	The EEV manual adjustment tool allows for adjustment of the EEV (Electronic Expansion Valve) without the use of the unit logic board. EEV is only used in hot gas reheat dehumidification units only.

/////// LC6000 Multi-Unit Multi-Zone Temperature and Humidity Controller

The LC6000 controller allows for control of up to 14 units with 3 zones of operation. Special features including emergency vent, continuous ventilation, generator monitoring, and emergency off are standard features. Alarming, remote monitoring, and Modbus control give the technician piece of mind that units are operating efficiently and the air is conditioned inside the building.

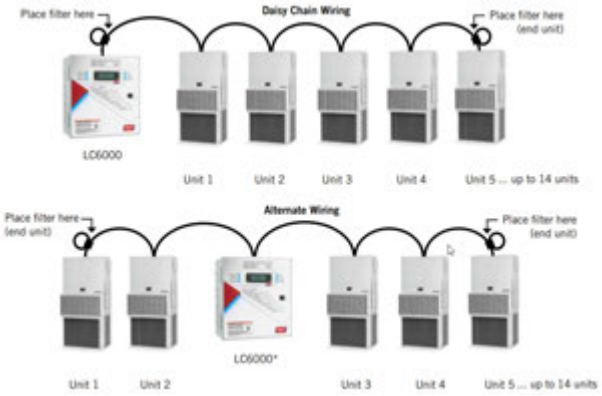
Features of the LC6000:
- Temperature and humidity control of 1 to 3 zones.
- Controls 1 to 14 units.
- Webpages for remote system monitoring.
- Modbus remote alarming, monitoring, and control functionality.
- Wired alarming to a NOC or remote monitoring system.
- Comfort mode allows for temporary temperature settings while technicians are in the building.
- Emergency ventilation, emergency cooling, and emergency off features.
- Ships with the following accessories:

- (2) EMI filters.
- (1) remote mounted temperature/humidity sensor.
- 35ft of 5-wire cable to connect temperature/humidity sensor to LC6000.
- TEC-EYE diagnostic tool.
- USB cable for updating unit and controller software.

/////// Daisy Chain LC6000 and Multi-Tec Connection

The MULTI-TEC uses modbus control to communicate between the logic board in the units and the logic board in the LC6000. Units and controller are connected using a 2-wire daisy chain connection with a drain. Wires are polarity sensitive. The drain is connected to the LC6000 terminal block.

The LC6000 can be connected anywhere in the daisy chain. EMI line filters are used on the ends of the daisy chain. Only (2) EMI filters are required for the daisy chain, and are supplied with the LC6000 controller.



/////// Necessary Field Supplied Communication Wiring - Sold Separately

When installing the MULTI-TEC in a building, various supplies are required for proper installation. Wiring the units and the LC6000 controller are a critical part of the installation process. Specifications are provided for wiring, and maximum recommended wire lengths are given to help with component placement and equipment layout.

	WIRE USE	MAXIMUM LENGTH	DESCRIPTION
	Communication wiring between Units and LC6000 Controller	1640ft (500m)	18ga. 2-Wire Shielded Cable with Drain. This is required to communicate between each MULTI-TEC unit and the LC controller in the daisy chain. When calculating wire length that is needed, be sure to include routing distance to each unit, conduit requirements and a loop for an EMI ferrite filter inside each unit control panel.
	Communication wiring between remote temp/humidity sensor and LC6000 Controller	100ft (30m)	18ga. 5-Wire Shielded Cable with Drain. 35ft wire is provided with LC6000 controller, but additional wire may be necessary. This is required to communicate between each zone temperature/humidity sensor and the LC6000 controller. Color or numbered wiring is recommended. 6-Wire may be used if 5-Wire is unavailable.
	Communication wiring between remote temperature sensor and LC6000 Controller	100ft (30m)	18ga. 2-Wire Shielded Cable with Drain. This is required to communicate between each zone temperature/humidity sensor and the LC6000 controller. Color or numbered wiring is recommended.

/////// LC6000 Wired Inputs for Site Equipment

FEATURE	DESCRIPTION
Emergency Off Input	Wired NO/NC* contact inputs are provided for connection to field supplied equipment. During an emergency off input event, a Modbus command to shut off unit operation is sent to units connected and communicating through the daisy chain. A emergency off event can be monitored remotely through a wired output and Ethernet connection. **It is important to follow all guidelines, codes, and requirements of smoke/fire suppression systems including the need to break power to the unit and close economizer dampers within a certain time period.** Additional relays, wiring, or field supplied accessories may need to be added to the units and equipment to achieve all requirements for the use of a smoke/fire suppression system.
Emergency Vent Input	Wired NO/NC* contact inputs are provided for connection to field supplied equipment. During an emergency vent input event, a Modbus command to open all unit economizer dampers is sent to units connected and communicating through the daisy chain. A emergency vent event can be monitored remotely through a wired output and Ethernet connection. **It is important to follow all guidelines, codes, and requirements of hydrogen monitoring systems including the use of a separate ventilation fan system when necessary.**
Generator Run Input	Wired NO/NC* contact inputs are provided for connection to a field supplied generator. During an generator input event, a Modbus command to limit the number of units that can be operated is sent to units connected and communicating through the daisy chain. A generator event can be monitored remotely through a wired output and Ethernet connection. **It is important to set the limitation of how many units can run during a generator event when using the generator run input (defaults to 0 units).** Individual unit operation is selectable for a generator event.

/////// LC6000 Wired Alarm Outputs

FEATURE	DESCRIPTION
Emergency Off Alarm	Wired NO*/NC contact outputs are provided. During an emergency off input event, the alarm contacts will change state.
Emergency Vent Alarm	Wired NO*/NC contact outputs are provided. During an emergency vent input event, the alarm contacts will change state.
Generator Run Alarm	Wired NO*/NC contact outputs are provided. During an generator run input event, the alarm contacts will change state.
Bard Guard Alarm	Wired NO*/NC contact outputs are provided. During an Bard Guard input event, the alarm contacts will change state.
Indoor Humidity Alarm	Wired NO*/NC contact outputs are provided. During a high humidity event where humidity levels have exceeded the maximum humidity alarm setting in any zone of operation, the alarm contacts will change state. The default low humidity alarm setting is 20%. The default High humidity alarm setting is 85%.
High Indoor Temperature Alarm	Wired NO*/NC contact outputs are provided. During a high temperature event where indoor temperature has exceeded the High temperature alarm setting in any zone of operation, the alarm contacts will change state. The high temperature 2 alarm is set to 90°F by default.
Low Indoor Temperature Alarm	Wired NO*/NC contact outputs are provided. During a low temperature event where indoor temperature is below the low temperature alarm setting in any zone of operation, the alarm contacts will change state. The low temperature alarm is set to 45°F by default.
Zone 1 Unit Alarm	Wired NO*/NC contact outputs are provided. This feature allows the user to configure what unit alarm conditions are going to be sent to the alarm contacts for Zone 1. A zone unit alarm can contain any of the following unit alarms: Blower Failure, Dirty Condenser Coil, Economizer Dust Alarm, Economizer Fail, EEV Failure, Dirty Filter Alarm, Freezestat Active, High Refrigerant Pressure, Low Refrigerant Pressure, Return Air High/Low Alarm, Sensor Fail Alarm, Supply Air High/Low Alarm, and Unit Power Loss Alarm. The default configuration is to alarm on a unit high or low pressure event.
Zone 2 Unit Alarm	Wired NO*/NC contact outputs are provided. This feature allows the user to configure what unit alarm conditions are going to be sent to the alarm contacts for Zone 2. A zone unit alarm can contain any of the following unit alarms: Blower Failure, Dirty Condenser Coil, Economizer Dust Alarm, Economizer Fail, EEV Failure, Dirty Filter Alarm, Freezestat Active, High Refrigerant Pressure, Low Refrigerant Pressure, Return Air High/Low Alarm, Sensor Fail Alarm, Supply Air High/Low Alarm, and Unit Power Loss Alarm. The default configuration is to alarm on a unit high or low pressure event.
Zone 3 Unit Alarm	Wired NO*/NC contact outputs are provided. This feature allows the user to configure what unit alarm conditions are going to be sent to the alarm contacts for Zone 3. A zone unit alarm can contain any of the following unit alarms: Blower Failure, Dirty Condenser Coil, Economizer Dust Alarm, Economizer Fail, EEV Failure, Dirty Filter Alarm, Freezestat Active, High Refrigerant Pressure, Low Refrigerant Pressure, Return Air High/Low Alarm, Sensor Fail Alarm, Supply Air High/Low Alarm, and Unit Power Loss Alarm. The default configuration is to alarm on a unit high or low pressure event.

/////// LC6000 Remote Connectivity Options

FEATURE	DESCRIPTION
Ethernet Connection	Ethernet access to all connected equipment is available through the LC6000 controller. A integrated Ethernet port is located on the programmable logic board located inside the LC6000. When connected to a network, the connection allows for remote monitoring using software from a remote location. The Ethernet connection uses Internet Protocol Version 4 (IPV4). When using the Ethernet connection, it is important for the user to provide appropriate Ethernet network security measures.
Modbus Remote Access	By using the ethernet connection, the controller will respond to Modbus commands allowing access to set points, alarms, temperature measurements and humidity measurements for each zone. The measurement units (English/Metric) retrieved during communication are determined by the controller unit of measure setting. This is configured on-site and cannot be changed remotely. For more information about setting measurement units, please refer to the latest version of the 2100-669 LC6000 Service Instructions manual. Modbus addressing instructions and register points are available in the latest version of the Modbus Supplemental Manual 7960-791.
Webpage Remote Access	Webpages allow controller access with a computer using a standard web browser. The web browser graphighcal interface provides a visual look at unit operation, viewing and adjustment of zone indoor conditions, alarm events, data trending, and a virtual interface of the display/buttons used on the LC6000 controller. By using the Ethernet connection, the controller can be accessed through webpages.
Optional BACnet and SNMP Gateway Kit Bard part #8620-350	The Optional BACnet/SNMP gateway kit contains the DIN rail mounted gateway with both RS485 connections and an ethernet port along with a wire harness to connect power from the LC6000 to the gateway. Once installed, the gateway is inside the LC6000 enclosure. See installation instructions 7960-791 for features and installation procedures.

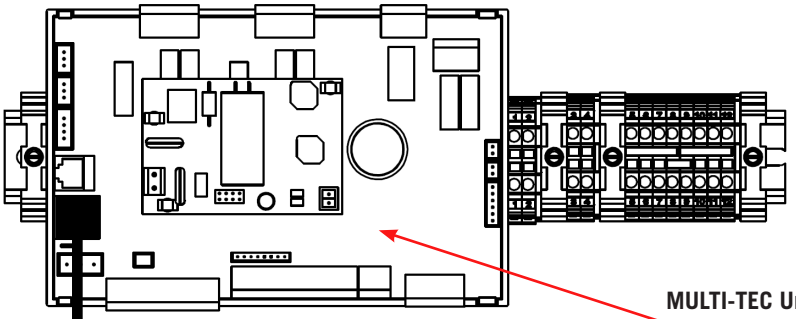
/////// MULTI-TEC Unit with TEC-EYE Interface

Main TEC-EYE Interface and Display When Connected to Unit

The TEC-EYE service tool is used to interface with the unit PLC board. When connected, it provides unit information along with a way to set the unit up for operation with the LC6000 or th-Tune.

One TEC-EYE tool is supplied with the LC6000 or th-Tune. The PGD controller displays the same information as the TEC-EYE and uses the RJ11 connection. The optional large display service tool Bard part #8301-053 provides a larger display and larger non-membrane keypad buttons for easier data entry and is recommended for setting up larger quantites of units.

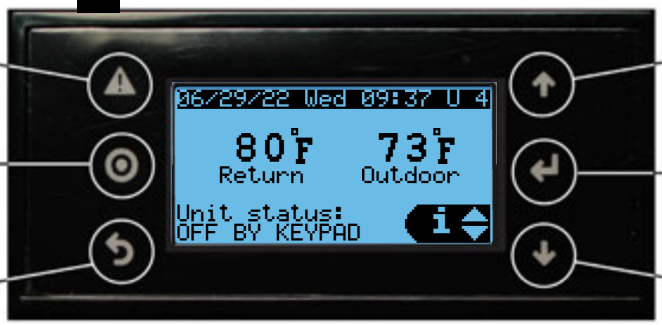
Unit Control Panel



MULTI-TEC Unit PLC Board
The unit PLC board is located inside the unit control panel area.

Connection Cable
Cable with RJ11 connectors on each end that plugs into the port located on the PLC board and into the back of the TEC-EYE tool.

TEC-EYE Service and Setup Tool



Alarms Key
Push botton to view any alarms currently stored in the unit software.

Configuration Menu Key
Push button to enter configuration and setup menus.

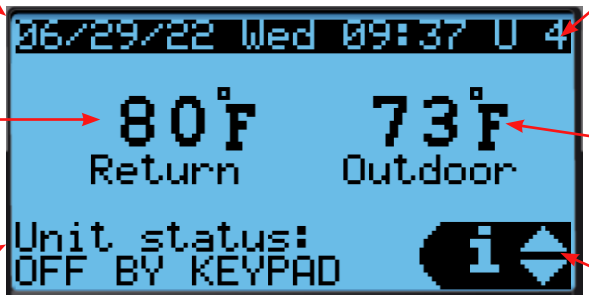
Back/Escape Key
Push button to backup in menu or escpe to main display screen.

Up Key
Push button to move up in the menu structure.

Enter Key
Push button to select or confirm choices in the menu structure.

Down Key
Push button to move down in the menu structure.

TEC-EYE Main Display Screen



Date and Time
Displays the date and time that is set up by the user in the settings configuration menu or provided by the LC6000.

Return Air Temperature
Displays the temperature of the return airstream entering the unit.

Unit Status
Displays the unit mode of operation occuring currently.

Unit Address
Shows the unit address of the unit. With multiple units, each one is given a number (address) that will be referenced by the LC6000 lead/lag controller.

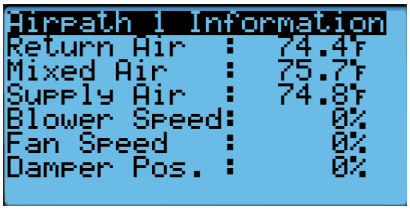
Outdoor Temperature
Displays the unit outdoor temperature sensor reading.

Main Screen Display Options
Used to review unit operation and stand alone temperature settings.

/////// TEC-EYE Accessible Software and Unit Information Features

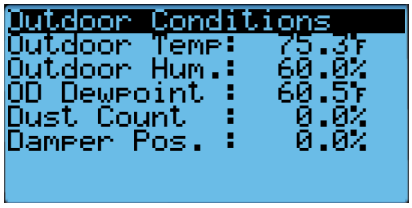
TEC-EYE Main Screen Informational Menu

The information screen provides various information regarding unit operation for the unit. To access the information screen, the technician will press the up/down arrows on the main screen, then Enter at the "i" displayed in the lower right corner.



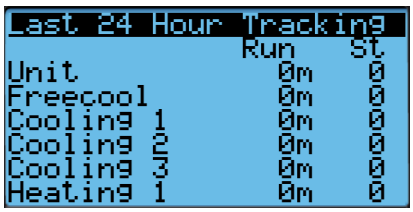
Airpath Information

This screen provides data on the indoor unit airpath including air temperatures, indoor fan speed, outdoor fan speed and economizer damper position.



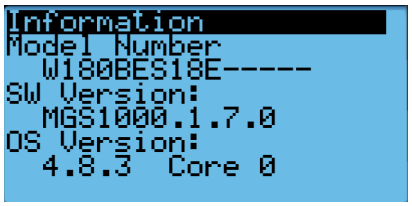
Outdoor Conditions

This screen provides information on outdoor conditions based on readings from the outdoor sensor mounter to the right side of the unit.



Last 24 Hour Tracking

This screen provides unit run information for the past 24 hours. Information includes runtime for heating and cooling stages along with economizer free cooling.

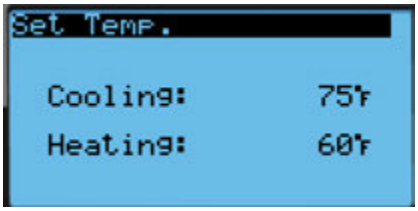


Information

This screen reflects the unit model number, software version, and operating system version being used.

TEC-EYE Main Setpoint Menu

The setpoint screen allows for a temperature setpoint to be adjusted and used without using the LC6000 or th-Tune controller. When the MULTI-TEC unit is connected to the LC6000 or th-Tune, the temperature setpoints in the controller will override the setpoints in the unit setpoint menu. If the PGD is used, these will be the setpoints for unit operation.

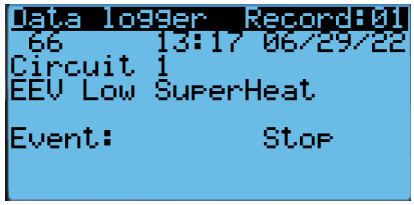


Set Temp.

A cooling and heating setpoint can be entered in this menu. Once entered, the unit will operate using the setpoints based on the return air temperature sensor. When a LC6000 or th-Tune is connected to the MULTI-TEC unit, these settings will no longer apply. If the MULTI-TEC loses communication with the LC6000 or th-Tune, the last setpoints recieved from the controller will be used when running in orphan mode until communication with the controller is restored.

Data Log Menu

The data event log screen records and displays any active or recorded alarms or events that have occured since the alarms were cleared.



Data Logger

Data loggger events are displayed including a date and time stamp. A brief description describes the event. Start indicates when the event started, and an indicator also will show when the event stopped. To clear events, go into the alarm log screen by pressing the triangle with excamation mark symbol in the upper left corner of the TEC-EYE and follow the directions provided on the screen.

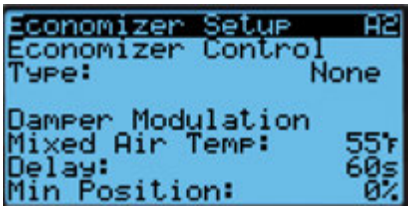
/////// TEC-EYE Configuration Menu Features

TEC-EYE Configuration Menu

The configuration menu is where certain functions and features of the MULTI-TEC can be accessed and set up for use. Accessing these features requires a password, and the menu structure consists of the following:

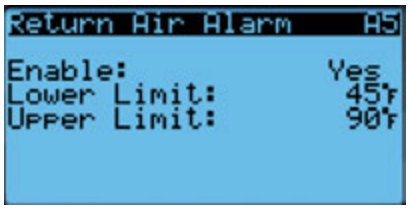
- *System Configuration:* This menu provides the standard setup features of the unit, and must be reviewed during unit installation. See below for full list of options.
- *Advanced System Configuration:* This menu provides advanced settings that are not normally required for standard unit operation. See below for full list of options.
- *I/O Configuration:* I/O configuration is not normally required for standard unit setup.
- *ON/OFF:* Allows the unit operation to be disabled using the TEC-EYE.
- *Alarm Logs:* Shows a full list of alarms logged. Clearing the alarm logs will remove the alarms that are not currently active.
- *Settings:* Date/Time, Passwords, and initialization (factory reset) are all commands available from the settings menu. Daylight savings time zone configuration, passwords for USER, SERVICE, and MANUFACTURER can all be setup from the settings menu.
- *Log Out:* Logs out the current user and requires password for entry into the configuration menu.

Unit Setup
Each unit when used with the LC6000 is assigned a different address (1-14) and a zone (1-3). Units of measure can be selected (USA, SI, Lon, CAN, UK).



Economizer Setup
Allows setup of economizer features (none, temp/hum, enthalpy, dry bulb) and setpoints. **Economizer settings in the LC6000 will override these settings when connected.**

Dust Configuration
This feature is not used with the MULTI-TEC unit.

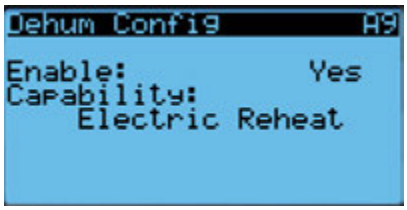


Return Air Alarm
This feature will allow the software to send an alarm when the return air temperature is outside the upper and lower limit.

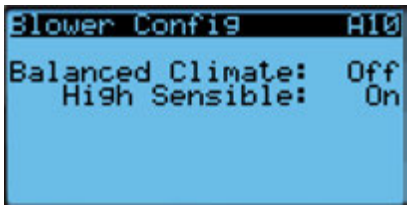
Damper Fail
This feature will allow the software to send an alarm when one of the economizer damper switches indicates the dampers have failed to closed.

Freeze Alarm
This feature will allow the software to send an alarm when the supply air temperature is below the lower limit.

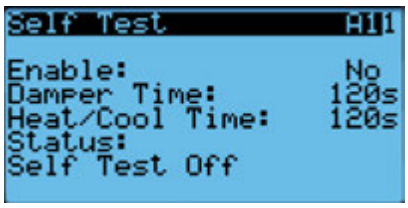
Mixed Air Alarm
This feature will allow the software to send an alarm when the return air temperature is outside the upper and lower differential when using the economizer.



Dehum Config
This feature will allow the user to enable or disable electric reheat if the unit is equipped (capability) with the optional feature.



Blower Config
This menu allows the user to enable Balanced Climate mode (enhanced moisture removal) and High Sensible (increased senible cooling capacity). **Balanced Climate is off by default.**

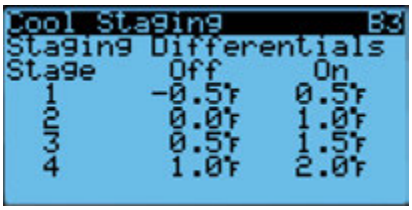


Self Test
This feature will allow the user to verify indoor/outdoor fan, compressor, ventilation, and electric heat operation.

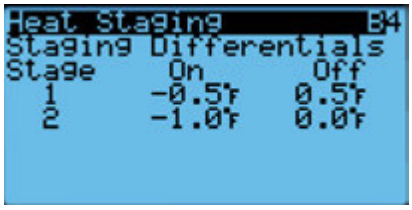
Advanced System Configuration Menu

Unit Setup
Provides the model and serial number of the unit. This will be pre-set from the factory to match the unit.

Compressor Safety Settings
Adjusts minimum run time and off time between cooling cycles. This command is used to avoid compressor short cycling, and for standard operation no adjustment is required.

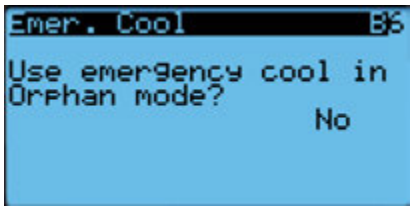


Cooling Staging
Adjusts cooling staging temperature differentials for single unit operation. If unit is connected to the LC6000, these settings will not be used.

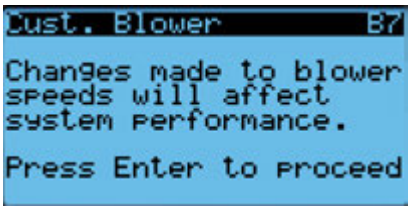


Heating Staging
Adjusts heating staging temperature differentials for single unit operation. If unit is connected to the LC6000, these settings will not be used.

PGDx Setup
This command is not used with the MULTI-TEC unit.



Emergency Cool
Allows emergency cooling (open ventilation to 100%) to operate if a return air alarm is active and the unit is disconnected from the LC6000.



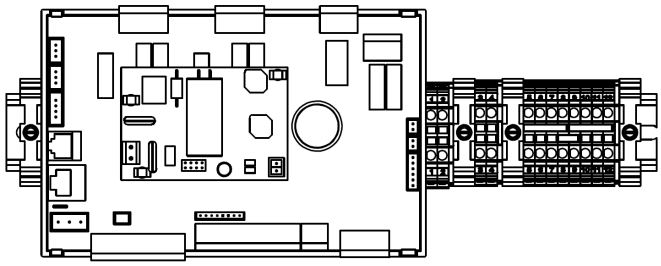
Custom Blower Speeds
This feature will allow manual adjustment of the unit indoor airflow for cooling and economizer operation. See unit manual for additional details.

I/O Configuration Menu

Digital Inputs
Unit disable and other inputs can be enabled through the I/O input menu and contacts can be either normally open (NO) or normally closed (NC).

Unit Field Communication Connections in MULTI-TEC Control Panel

The MULTI-TEC unit control panel provides field connections for communication between units and the LC6000 controller using Modbus.



Terminal	Description
1	+ Connection for Unit Daisy Chain Modbus
2	- Connection for Unit Daisy Chain Modbus
3	th-Tune Unit Display Power Connection +24VAC
4	th-Tune Unit Display Power Connection -24VAC

Bard Manufacturing Company, Inc.
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419-636-1194
www.bardhvac.com

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