11EER C24H-C60H Series Two Stage WALL-MOUNT™ Step Capacity Heat Pump

The Bard Step Capacity Wall-Mount Heat Pump is an energy efficient self contained system, which is designed to offer maximum indoor comfort at a minimal cost without using valuable indoor floor space or outside ground space. This unit is the ideal product for versatile applications such as: new construction, modular offices, school modernization, telecommunication structures, portable structures, correctional facilities and many more. Factory or field installed accessories are available to meet specific job requirements for your unique application.

- *Complies with efficiency requirements of ANSI/ASHRAE/IES 90.1-2019.*
- *Certified to 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 Fifth Edition (C24 - 30H2).*
- *Intertek ETL Listed to Standard for Safety of Household and Similar Electrical Appliances ANSI/UL STD 60335-1 & ANSI/UL STD 60335-2-40/CSA STD C22.2 No. 60335-1 & CSA STD C22.2 No. 60335-2-40 Fourth Edition (C36-C60HY).*
- *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.*

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/////// WALL-MOUNT NOMENCLATURE

Digit #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	C	2	4	H	2	-	A	0	Z	X	P	X	X	X	X

UNIT SERIES
2 Stage Quiet **C**limate

NOMINAL CAPACITY
24 - 2.0 Ton
30 - 2.5 Ton

UNIT TYPE
H - Heat Pump

REVISION
2 - Revision C24-C30

PLACEHOLDER
- X Standard Unit

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

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

Nomenclature Notes:
- C24 and C30 control panel located on the right unit side.
- 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 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.

ACCESSORIES AND CONTROLS OPTIONS
X - Standard controls (HPS,LPS,CCM)
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.

SUPPLY OUTLET
X - Standard draw thru condenser fan

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 (Not available for ERV or Economizer vent options)

FILTER
X - Standard 1" MERV2 Disposable Filter
P - 2" MERV8 Disposable Filter
M - 2" MERV11 Disposable Filter
N - 2" MERV13 Disposable Filter
A - 2" MERV13 Filter with UVC-LED Light.
B - 2" MERV13 Filter with NPBI device.

VENT PACKAGE
B - Blank Off Plate
V - Comm. Room Ventilator, Modulating
R - Energy Recovery Ventilator
S - Partial flow Economizer, Enthalpy no hood (C24, C30 only)

/////// WALL-MOUNT NOMENCLATURE

Digit #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	C	6	0	H	Y	-	A	0	Z	X	P	X	X	X	X

UNIT SERIES
2 Stage Quiet Climate

NOMINAL CAPACITY
36 - 3.0 Ton
42 - 3.5 Ton
48 - 4.0 Ton
60 - 5.0 Ton

UNIT TYPE
H - Heat Pump

REVISION
Y - Revision C36-C60

PLACEHOLDER
- X Standard Unit

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

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

VENT PACKAGE
X - Standard Fresh Air Damper (Intake only)
A - Fresh Air Damper w/Exhaust
B - Blank Off Plate
M - Commercial Room Ventilator, ON/OFF
V - Comm. Room Ventilator, Modulating
D - Economizer, 2-10V No Controls
Y - Full Flow Economizer, Temperature
Z - Full Flow Economizer, Enthalpy
R - Energy Recovery Ventilator

ACCESSORIES AND CONTROLS OPTIONS
X - Standard controls (HPS,LPS,CCM)
E - Low Ambient Control (LAC)
Q - Standard controls and Outdoor Thermostat (ODT)
R - Standard controls, LAC, and Outdoor Thermostat (ODT)
S - Standard controls and PTCR Hard Start Kit.
T - Standard controls, LAC, ODT, and PTCR Hard Start Kit.
J - LAC and Alarm Relay (ALR)
F - LAC and Alarm Relay (ALR), Filter Switch (FS)

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.

CABINET & CONDENSER FAN
X - Standard Cabinet, blow thru cond. fan.
D - Standard Cabinet, draw thru cond. fan.
J - Recessed Cabinet, blow thru cond. fan.
N - Recessed Cabinet, draw thru cond. fan.

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

FILTER
X - Standard 1" MERV2 Disposable Filter
W - 1" MERV2 Washable Filter
P - 2" MERV8 Disposable Filter
M - 2" MERV11 Disposable Filter
N - 2" MERV13 Disposable Filter
A - 2" MERV13 Filter with UVC-LED Light.
B - 2" MERV13 Filter with NPBI device.

Nomenclature Notes:
- C36, C42, C48, C60 models have the unit control panel located in the front of the unit.
- 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 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.
- Stainless Steel and Aluminum cabinet finish not available in units with recessed cabinet top (J and N options).

/////// ENGINEERED FEATURES C24 THROUGH C30 UNIT MODELS

1. **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.

2. **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.

3. **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.

4. **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.

5. **Electric Strip Heat:** Reliable, comfortable heater packages feature an automatic limit and thermal cut-off safety control. Heater packages may be factory or field installed. See optional electric heat section for further details.

6. **Built-in Circuit Breakers:** Standard on all electric heat versions of single (208/230 volt) and three phase (208/230 volt) equipment. Toggle disconnects are standard on all electric heat versions of three phase (460 volt) equipment. Optional circuit breaker available for 0KW electric heat 460V units.

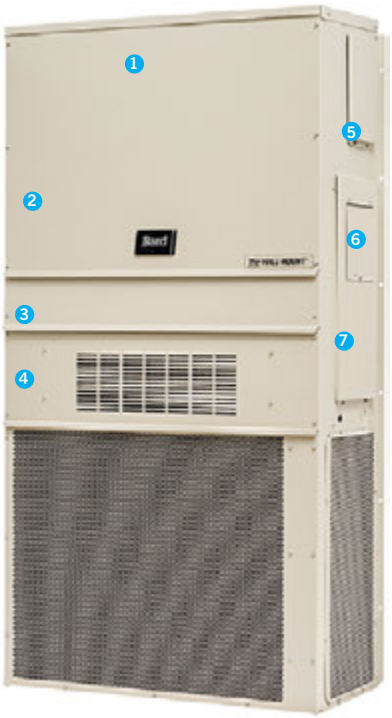
7. **Reliable, Easy-to-Use Controls:** Easily accessible right side control panel location. A lockable hinged access cover to circuit protection is provided. Phase rotation monitor is standard on all 3 phase models. Solid state heat pump operation and defrost control board with diagnostic light is standard on all models. Electrical entrances provided through the back and side areas.

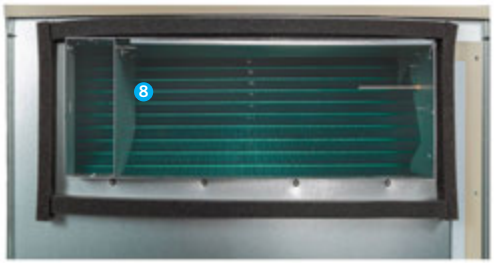
8. **Green Fin Hydrophilic Evaporator Coil:** Green fin stock enhances coil wettability to help prevent mold growth, aids with condensate drainage, and provides a limited amount of protection to corrosive particulates in the airstream.

9. **ECM Indoor Motor Technology:** ECM constant airflow dual shaft motor provides quiet airflow operation when used with a twin blower assembly. Motor overload protection standard on all models. Motor torque increases to maintain rated airflow as static pressure increases (.5" WC maximum static pressure).

10. **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.

11. **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. Compressor is installed on a floating isolation base for reduced sound and vibration levels. A discharge line muffler are also included for additional sound reduction. A liquid line filter-drier is used to protect the system from moisture, and is standard on all units.





1. **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.

2. **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.

3. **ECM Indoor Motor Technology:** ECM constant airflow dual shaft motor provides quiet airflow operation when used with a twin blower assembly. Motor overload protection standard on all models. Motor torque increases to maintain rated airflow as static pressure increases (.5" WC maximum static pressure).

4. **Electric Strip Heat:** Reliable, comfortable heater packages feature an automatic limit and thermal cut-off safety control. Heater packages may be factory or field installed. See optional electric heat section for further details.

5. **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.

6. **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.

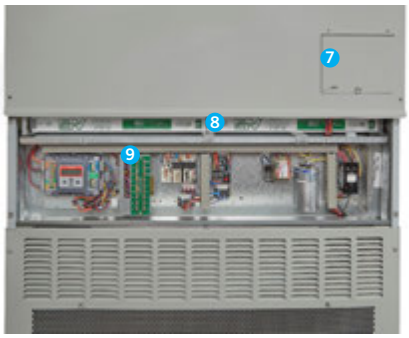
7. **Built-in Circuit Breakers:** Standard on all electric heat versions of single (208/230 volt) and three phase (208/230 volt) equipment. Toggle disconnects are standard on all electric heat versions of three phase (460 volt) equipment. Optional circuit breaker available for 0KW electric heat 460V units.

8. **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.

9. **Reliable, Easy-to-Use Controls:** Easily accessible through front control panel location. A lockable hinged access cover to circuit protection is provided. Phase rotation monitor is standard on all 3 phase models. Solid state heat pump operation and defrost control board with diagnostic light is standard on all models. Electrical entrances provided through the back and side areas.

10. **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.

11. **High Efficiency Cooling:** 2 Stage 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. Compressor is installed on a floating isolation base for reduced sound and vibration levels. A discharge line muffler are also included for additional sound reduction. 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 CH Series products offer two stage compressor cooling operation using R410A refrigerant. Copper tube/Aluminum hydrophilic green fin coils are used to provide high efficiency and easy serviceability. Scroll compressor technology delivers years of quiet, reliable operation. Economizer vent options are available for increased energy efficiency during cooling operation when outdoor conditions are favorable.

Heating Operation:
The Bard CH Series products offer efficient two stage heat pump heating and optional single or two stage electric heat operation using resistance heaters. Circuit breaker disconnect protection is standard in all 208/230V units equipped with electric heat. 460V models use a toggle disconnect.

Ventilation:
The Wall-Mount product provides the perfect platform to not only cool and heat an indoor area, but also provide a means of bringing outdoor air into the building. By including ventilation in the Wall-Mount, expensive costs associated with additional outdoor air systems can be avoided. The Bard CH Series products offer optional ventilation operation that brings outdoor air into the structure, and vents can be factory or field installed. Ventilation can be used to bring in outdoor air for occupants, save energy by using outdoor air for free cooling, or positively pressurize a structure. Exhaust air options allow room air to be vented outdoors when fresh air is being brought into the structure. Energy recovery options are also available for occupied structures to save energy when ventilation is necessary regardless of outdoor temperature.

Filtration and Indoor Air Quality:
Providing the best air filtration solution is important to occupants and equipment inside a room or structure. Bard provides several filter options based on MERV filtration, and also other solutions to improve indoor air quality.

Low Outdoor Temperature Cooling Operation:
Equipment cooling often requires indoor areas to remain cool regardless of outdoor temperature. If your application requires operation of the compressor to provide cooling below 65° outdoor conditions, then just like any other HVAC system, a low ambient control (LAC) kit must be installed. The LAC will help maintain higher refrigerant pressure during compressor operation at lower outdoor temperatures. This is achieved by limiting outdoor fan operation based on low side system pressure. As temperatures decrease outdoors, outdoor fan use will continue to decrease. Applications that require cooling functionality from 0°F to -40°F outdoor temperatures must use economizer cooling operation.

Note: The LAC kit also includes a freeze stat installed on the unit indoor evaporator coil. The freeze stat helps monitor the indoor evaporator coil temperature and will cycle compressor operation when temperatures below freezing are indicated. Use of Balanced Climate or applications where indoor airflow will be reduced require the use of the LAC kit to help maintain adequate evaporator coil temperatures.

High Outdoor Temperature Cooling Operation:
The Bard CH Series products are designed and tested to function when used in higher outdoor temperature areas. Wall-Mount products utilize large, efficient condenser coils with high airflow condenser fan systems to save energy and lower high side refrigerant pressures. It is always important to follow all clearance guidelines supplied in the unit dimension section of this specification, and additional information provided in the user manual. Properly cleaning the condenser coil using a regular maintenance schedule along with filter changes will help maintain unit operation during high outdoor ambient temperature use. Always follow maintenance procedures provided in the user manual and installation instructions provided with your Bard product.

CAPACITY AND EFFICIENCY RATINGS

MODELS	C24H2	C30H2	C36HY	C42HY	C48HY	C60HY
Cooling Capacity in BTUH, Stage 2 (Full Load)	22,400	28,000	34,000	41,000	45,500	55,500
Unit Efficiency in EER	11.00	11.00	11.00	11.20	11.50	11.00
Cooling Rated CFM (Constant Airflow)	740	900	1,100	1,300	1450	1650
IPLV (Integrated Stage 1 and Stage 2)	15.9	14.9	14.7	15.3	15.8	15.3
Hi Temp Heating (47F) BTUH, Stage 2 (Full Load)	19,400	24,400	31,000	37,400	42,000	52,500
Coefficient of Performance (COP)	3.30	3.30	3.30	3.30	3.30	3.30
Heating Rated CFM (Constant Airflow)	740	900	1,100	1,300	1450	1650

① Certified in accordance with ANSI/AHRI Standard 390-2021 for Single Package Vertical Units.
② Stage 2 Cooling Capacity and Efficiency provided at 80°F DB/67°F WB indoor, 95°F outcoor conditions.

② EER = Energy Efficiency Ratio. EER and COP are certified in accordance with ANSI/ARI Standard 390-2021. All ratings based on fresh air intake being 100% closed (no outside air introduction).

② IPLV = Integrated Part Load Value. This is a weighted average of 25%, 50%, 75% and 100% output. IPLV is normally used to show actual energy usage during practical conditions.

GENERAL UNIT SPECIFICATIONS C24 (2 TON) THROUGH C42 (3.5 TON)

MODELS	C24H2-A	C24H2-B	C30H2-A	C30H2-B	C30H2-C
Electrical Rating--60 Hz	230/208-1	230/208-3	230/208-1	230/208-3	460-3
Operating Voltage Range	197 - 253	197 - 253	197 - 253	197 - 253	414 - 506
Compressor--Circuit A					
Voltage	203/208	230/208	230/208	230/208	460
Rated Load Amps	7.5 / 8.4	4.2 / 4.7	9.7 / 11.2	7.2 / 8.3	4.2
Branch Circuit Selection Current	11.7	6.5	13.1	8.7	4.3
Lock Rotor Amps	58.3	55.4	73	58	28
R410A Unit Refrigerant Charge	5.875 lbs.		5.500 lbs.		
Compressor Type	2-Stage Scroll Compressor				
Outdoor Fan Motor & Condenser Fan					
Fan Motor--HP-RPM-SPD	1/3HP - 1060 RPM - Variable Speed				
Fan Motor--Amps	1.7				
Fan--DIA/CFM	20" Dia. - 1900 CFM				
Indoor Blower Motor and Airflow					
Indoor Blower Motor	1/3 Variable ECM Motor with Constant Airflow				
Indoor Blower Motor - Amps	2.4		2.8		
Indoor Airflow CFM	740 CFM - .10 WC		900 CFM - .10 WC		
Filter Sizes (inches) STD.	16" x 30" x 1", 1 Required. 2" Pleated Filters Optional.				
Basic Unit Shipping Weight	380.0 lbs.				
B - Blank-Off Plate	additional 1.0 lbs.				
V - Commercial Room Ventilator	additional 35.0 lbs.				
S - Economizer	additional 45.0 lbs.				
R - Energy Recovery Ventilator	additional 64.0 lbs.				

MODELS	C36HY-A	C36HY-B	C36HY-C	C42HY-A	C42HY-B	C42HY-C
Electrical Rating--60 Hz	230/208-1	230/208-3	460-3	230/208-1	230/208-3	460-3
Operating Voltage Range	197 - 253	197 - 253	414 - 506	197 - 253	197 - 253	414 - 506
Compressor--Circuit A						
Voltage	230/208	230/208	460	230/208	230/208	460
Rated Load Amps	15.5/18.1	10.6/12.4	6.6	19.7/22.9	15.7/18.2	8
Branch Circuit Selection Current	14.1	9.6	5.1	17.9	14.2	6.2
Lock Rotor Amps	84.2	73.8	37	96	88	44
R410A Unit Refrigerant Charge	7.750 lbs.			9.875 lbs.		
Compressor Type	2-Stage Scroll Compressor					
Outdoor Fan Motor & Condenser Fan						
Fan Motor--HP-RPM-SPD	1/3HP - 825 RPM - 1 Speed					
Fan Motor--Amps	1.9		1.0	1.9		1.0
Fan--DIA/CFM	24" Dia. - 2900 CFM					
Indoor Blower Motor and Airflow						
Indoor Blower Motor	1/2 Variable ECM Motor with Constant Airflow					
Indoor Blower Motor - Amps	1.4			3.3		
Indoor Airflow CFM	1100 CFM - .15 WC			1300 CFM - .15 WC		
Filter Sizes (inches) STD.	20" x 20" x 1", 2 Required. 2" Pleated Filters Optional.					
Basic Unit Shipping Weight	490.0 lbs.					
X - Barometric Fresh Air Damper	additional 13.0 lbs.					
A - Barometric Damper w/Exhaust	additional 16.0 lbs.					
B - Blank-Off Plate	additional 14.0 lbs.					
M,V - Commercial Room Ventilator	additional 42.0 lbs.					
D, Y, Z - Economizer	additional 44.0 lbs.					
R - Energy Recovery Ventilator	additional 87.0 lbs.					

General Specifications

Electrical Ratings:
Units are available with 208/230V single or three phase 60hz electrical ratings. 460V three phase 60hz models are also available. It is important to supply the unit with a clean, consistent supply of power within the operating voltage range.

Compressor Circuit and Refrigeration System:
2-Stage scroll compressors are used with R410A refrigerant. Review all electrical data including Locked Rotor Amps when units are to be used with a generator or shore power.

Outdoor Fan Motor and Condenser Fan:
Axial outdoor fans are used for condenser airflow. Outdoor motors are enclosed with a ball bearing design. Outdoor airflow CFM is shown following all unit clearances provided.

Indoor Blower Motor and Airflow:
Dual indoor fan housings are used with a dual shaft motor. ECM blower motors are used that vary torque based on supply airflow static.

Basic Unit Shipping Weight:
Shipping weight is provided with unit attached to skid with carton posts and carton top (packaging weight varies, approximately 20 lbs). Optional ventilation packages add additional weight to the basic unit shipping weight.

GENERAL UNIT SPECIFICATIONS C48 (4 TON) THROUGH C60 (5 TON)

MODELS	C48HY-A	C48HY-B	C48HY-C	C60HY-A	C60HY-B	C60HY-C
Electrical Rating - 60 Hz	230/208-1	230/208-3	460-3	230/208-1	230/208-3	460-3
Operating Voltage Range	197 - 253	197 - 253	414 - 506	197 - 253	197 - 253	414 - 506
Compressor Circuit and Refrigeration System						
Voltage	230/208	230/208	460	230/208	230/208	460
Rated Load Amps	21.7/25.3	14.9/17.4	8	24.5/28.3	17.8/20.5	9
Branch Circuit Selection Current	20.4	14.0	6.4	22.8	16.5	7.2
Lock Rotor Amps	122.1	83.1	41	147.4	110	52
R410A Unit Refrigerant Charge	10.8125 lbs.			10.250 lbs.		
Compressor Type	2-Stage Scroll Compressor					
Outdoor Fan Motor and Condenser Fan						
Fan Motor--HP-RPM-SPD	1/3HP - 825 RPM - 1 Speed			1/2HP - 825 RPM - 1 Speed		
Fan Motor--Amps	1.9		1.0	4.3		1.25
Fan--DIA/CFM	24" Dia. - 2900 CFM					
Indoor Blower Motor and Airflow						
Indoor Blower Motor	3/4 Variable ECM Motor with Constant Airflow					
Indoor Blower Motor - Amps	3.1			3.8		
Indoor Airflow CFM	1450 CFM - .20 WC			1650 CFM - .20 WC		
Filter Sizes (inches) STD.	20" x 20" x 1", 2 Required. 2" Pleated Filters Optional.					
Basic Unit Shipping Weight	495.0 lbs.			505.0 lbs.		
X - Barometric Fresh Air Damper	additional 13.0 lbs.					
A - Barometric Damper w/Exhaust	additional 16.0 lbs.					
B - Blank-Off Plate	additional 14.0 lbs.					
M,V - Commercial Room Ventilator	additional 42.0 lbs.					
D, Y, Z - Economizer	additional 44.0 lbs.					
R - Energy Recovery Ventilator	additional 87.0 lbs.					

INDOOR AIRFLOW, STATIC PRESSURES, AND FILTER INFORMATION

INDOOR BLOWER PERFORMANCE					
Model	**Rated ESP**	**Max ESP**	**Full Load CFM (Rated)**	**Part Load CFM**	**Blower only**
C24H2	0.1	0.5	740	550	550
C30H2	0.1	0.5	900	650	650
C36HY	0.15	0.5	1100	800	800
C42HY	0.15	0.5	1300	900	800
C48HY	0.2	0.5	1450	1050	850
C60HY	0.2	0.5	1650	1150	850

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.

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 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 CH 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.

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.

COOLING AND HEATING APPLICATION DATA - 2ND STAGE FULL LOAD

MODEL	"INDOOR RETURN AIR (DB/WB)"	FULL LOAD COOLING CAPACITY (BTUH)	DRY BULB OUTDOOR AIR TEMPERATURE ENTERING UNIT CONDENSER AREA										
			75°F	80°F	85°F	90°F	95°F	100°F	105°F	110°F	115°F	120°F	125°F
C24H2	75/62°F 23.8/16.6°C	Total Cooling Sensible Cooling	26600 21100	24600 19900	22800 18900	21200 18000	19600 17200	18300 16500	17100 15800	16000 15300	14900 14200	14000 10000	14000 10000
	80/67°F 26.6/19.4°C	Total Cooling Sensible Cooling	28400 20400	26800 19500	25300 18700	23900 18000	22400 17300	21300 16800	20100 16200	19000 15800	17900 15400	16900 15000	16000 14800
	85/72°F 29.4/22.2°C	Total Cooling Sensible Cooling	33900 20900	31400 19800	29100 18800	27000 17900	25000 17000	23300 16300	21700 15500	20200 14800	18800 14200	17600 13600	16500 13100
C30H2	75/62°F 23.8/16.6°C	Total Cooling Sensible Cooling	32800 25200	30200 23700	28000 22400	26100 21300	24400 20400	23000 19800	21900 19100	21000 18800	20400 18500	19900 18400	19600 17700
	80/67°F 26.6/19.4°C	Total Cooling Sensible Cooling	35000 24400	32900 23200	31100 22200	29500 21300	28000 20600	26800 20100	25800 19600	25000 19400	24500 19200	24100 19200	23900 19400
	85/72°F 29.4/22.2°C	Total Cooling Sensible Cooling	41700 25000	38500 23600	35700 22300	33300 21200	31100 20200	29300 19500	27800 18700	26600 18200	25800 17700	25100 17400	24600 17200
C36HY	75/62°F 23.8/16.6°C	Total Cooling Sensible Cooling	38400 30400	35900 29100	33600 27900	31500 26700	29600 25700	28000 24800	26500 23900	25100 23200	23900 22500	22800 22000	21900 21500
	80/67°F 26.6/19.4°C	Total Cooling Sensible Cooling	41000 29500	39100 28500	37300 27600	35600 26700	34000 25900	32600 25200	31200 24500	29900 23900	28700 23400	27600 23000	26600 22600
	85/72°F 29.4/22.2°C	Total Cooling Sensible Cooling	48900 30200	45700 28900	42900 27800	40200 26500	37800 25400	35700 24400	33700 23400	31800 22400	30200 21600	28700 20800	27400 20000
C42HY	75/62°F 23.8/16.6°C	Total Cooling Sensible Cooling	46800 36500	43600 34400	40700 32600	38100 31000	35700 29600	33700 28400	31900 27400	30300 26600	28900 26100	27800 25600	26900 25500
	80/67°F 26.6/19.4°C	Total Cooling Sensible Cooling	49900 35400	47500 33700	45200 32300	43000 31000	41000 29800	39200 28900	37600 28100	36100 27500	34800 27100	33700 26800	32700 26800
	85/72°F 29.4/22.2°C	Total Cooling Sensible Cooling	59500 36300	55600 34200	51900 32500	48600 30800	45600 29300	42900 28000	40600 26800	38400 25800	36600 25000	35000 24200	33700 23700
C48HY	75/62°F 23.8/16.6°C	Total Cooling Sensible Cooling	51500 40800	48100 38900	45000 37200	42200 35600	39600 34200	37400 33000	35400 31900	33600 31100	31900 30300	30500 29700	29300 29200
	80/67°F 26.6/19.4°C	Total Cooling Sensible Cooling	55000 39600	52400 38100	50000 36800	47700 35600	45500 34500	43500 33600	41700 32700	40000 32100	38400 31500	37000 31100	35700 30700
	85/72°F 29.4/22.2°C	Total Cooling Sensible Cooling	65500 40600	61300 38700	57400 37000	53900 35400	50600 33900	47600 32500	45000 31200	42600 30100	40400 29000	38500 28100	36700 27200
C60HY	75/62°F 23.8/16.6°C	Total Cooling Sensible Cooling	62800 48700	58600 46100	54800 43800	51400 41800	48300 40000	45700 38500	43200 37200	41100 36300	39200 35500	37700 34900	NA
	80/67°F 26.6/19.4°C	Total Cooling Sensible Cooling	67000 47200	63800 45200	60900 43400	58100 41800	55500 40400	53200 39200	51000 38200	49000 37500	47200 36900	45700 36500	
	85/72°F 29.4/22.2°C	Total Cooling Sensible Cooling	79800 48300	74600 45900	69900 43600	65600 41500	61700 39600	58200 37900	55000 36400	52100 35200	49600 34000	47500 33000	

MODEL	FULL LOAD HEATING CAPACITY (BTUH)	DRY BULB OUTDOOR AIR TEMPERATURE ENTERING UNIT CONDENSER AREA													
		0°F	5°F	10°F	15°F	20°F	25°F	30°F	35°F	40°F	45°F	50°F	55°F	60°F	65°F
		-17.7°C	-15°C	-12.2°C	-9.4°C	-6.6°C	-3.8°C	-1.1°C	1.6°C	4.4°C	7.2°C	10°C	12.7°C	15.5°C	18.3°C
C24H2	BTUH	5100	6600	8100	9600	11100	12400	13800	15200	16900	18600	20100	21600	23100	24600
	Watts	1570	1600	1620	1640	1660	1680	1690	1710	1750	1790	1820	1840	1860	1880
C30H2	BTUH	10600	12200	13800	15400	16400	16900	17400	17900	21200	24400	26600	28200	29800	31400
	Watts	2000	2030	2060	2100	2120	2120	2130	2130	2210	2290	2340	2380	2410	2440
C36HY	BTUH	11000	12900	14900	16900	19000	21100	23300	25500	27800	30100	32500	34900	37300	39800
	Watts	2230	2300	2370	2430	2490	2550	2610	2660	2710	2760	2800	2840	2880	2910
C42HY	BTUH	16200	18000	19900	21900	24000	26300	28600	31100	33700	36300	39100	42100	45100	48200
	Watts	2680	2760	2840	2920	3000	3070	3140	3210	3270	3340	3400	3460	3510	3560
C48HY	BTUH	17700	20000	22300	24700	27200	29800	32400	35200	38000	40900	43800	46900	50000	53200
	Watts	3130	3180	3230	3280	3330	3390	3450	3510	3580	3640	3710	3780	3860	3930
C60HY	BTUH	23700	26300	29000	31800	34800	37800	41000	44300	47600	51100	54700	58400	62200	66200
	Watts	3920	3970	4040	4110	4180	4260	4350	4450	4550	4660	4770	4890	5020	5150

COOLING AND HEATING APPLICATION DATA - 1ST STAGE PART LOAD

MODEL	"INDOOR RETURN AIR (DB/WB)"	PART LOAD COOLING CAPACITY (BTUH)	DRY BULB OUTDOOR AIR TEMPERATURE ENTERING UNIT CONDENSER AREA										
			75°F	80°F	85°F	90°F	95°F	100°F	105°F	110°F	115°F	120°F	125°F
C24H2	75/62°F 23.8/16.6°C	Total Cooling Sensible Cooling	19500 15600	18200 15000	16900 14500	15,600 13,900	14,500 13,300	13,400 12,800	12,400 12,200	11,400 11,000	10,500 9,900	9,600 8,900	8,700 7,800
	80/67°F 26.6/19.4°C	Total Cooling Sensible Cooling	20800 15100	19800 14700	18,700 14,300	17,600 13,900	16,600 13,400	15,600 13,000	14,600 12,500	13,600 12,100	12,600 11,600	10,600 10,600	9,500 8,100
	85/72°F 29.4/22.2°C	Total Cooling Sensible Cooling	24800 15500	23200 15000	21,500 14,400	19,900 13,800	18,500 13,200	17,100 12,600	15,800 12,000	14,500 11,400	13,300 10,700	10,900 9,400	9,700 7,000
C30H2	75/62°F 23.8/16.6°C	Total Cooling Sensible Cooling	23300 17900	22100 17400	20,900 16,900	19,900 16,400	18,800 16,000	17,800 15,500	16,900 15,000	16,000 14,600	15,100 14,200	13,400 11,900	12,500 10,400
	80/67°F 26.6/19.4°C	Total Cooling Sensible Cooling	24800 17300	24000 17000	23,200 16,700	22,400 16,400	21,600 16,100	20,700 15,700	20,700 15,700	19,000 15,100	18,100 14,700	16,300 14,000	15,200 12,700
	85/72°F 29.4/22.2°C	Total Cooling Sensible Cooling	29600 17800	28100 17300	26,700 16,800	25,300 16,300	24,000 15,800	22,700 15,200	22,700 15,200	20,200 14,200	19,100 13,600	16,800 12,400	15,500 11,000
C36HY	75/62°F 23.8/16.6°C	Total Cooling Sensible Cooling	27300 21900	25500 21000	23900 20200	22400 19400	21000 18800	19700 18100	18500 17400	17400 16800	16400 16200	15500 15500	14600 14600
	80/67°F 26.6/19.4°C	Total Cooling Sensible Cooling	29100 21200	27800 20600	26500 20000	25300 19400	24100 18900	22900 18400	21800 17800	20700 17300	19700 16800	18700 16300	17700 15800
	85/72°F 29.4/22.2°C	Total Cooling Sensible Cooling	34700 21700	32500 20900	30500 20100	28600 19300	26800 18600	25100 17800	23500 17000	22100 16300	20700 15500	19500 14800	18200 14000
C42HY	75/62°F 23.8/16.6°C	Total Cooling Sensible Cooling	33100 24100	31200 24000	29500 23700	27700 22900	26100 21900	24600 20600	23100 18900	21600 17100	20200 14800	18800 12400	17500 9500
	80/67°F 26.6/19.4°C	Total Cooling Sensible Cooling	35300 23300	34000 23500	32700 23400	31300 22900	30000 22100	28600 20900	27200 19400	25700 17600	24300 15400	22800 12900	21300 10000
	85/72°F 29.4/22.2°C	Total Cooling Sensible Cooling	42100 23900	39800 23900	37600 23500	35400 22800	33400 21700	31300 20300	29400 18500	27400 16500	25600 14200	23700 11700	21900 8900
C48HY	75/62°F 23.8/16.6°C	Total Cooling Sensible Cooling	35600 28500	34000 27800	32400 27000	30600 26100	28900 25300	27200 24500	25500 23600	23800 22800	22000 21800	20200 20200	18300 18300
	80/67°F 26.6/19.4°C	Total Cooling Sensible Cooling	38000 27600	37000 27200	35900 26700	34600 26100	33200 25500	31700 24900	30100 24200	28300 23500	26400 22700	24400 21800	22300 20900
	85/72°F 29.4/22.2°C	Total Cooling Sensible Cooling	45300 28300	43300 27600	41300 26800	39100 26000	36900 25000	34700 24100	32500 23100	30100 22100	27800 20900	25400 19700	23000 18500
C60HY	75/62°F 23.8/16.6°C	Total Cooling Sensible Cooling	43700 34300	41600 33100	39600 31900	37800 30800	35900 29700	34100 28800	32400 27900	30600 27000	28900 26200	27200 25400	
	80/67°F 26.6/19.4°C	Total Cooling Sensible Cooling	46600 33200	45300 32400	44000 31600	42700 30800	41200 30000	39700 29300	38200 28600	36500 27900	34800 27200	33000 26600	
	85/72°F 29.4/22.2°C	Total Cooling Sensible Cooling	55500 34000	53000 32900	50500 31800	48200 30600	45800 29400	43400 28400	41200 27300	38900 26200	36600 25100	34300 24100	

Notes:
- Cooling using the refrigeration system below 65°F requires a factory or field installed low ambient control.
- Supplemental electric heaters are recommended for applications requiring heating below a 15°F outdoor temperature.
- 1000 BTUH = .29307 kW
- Outdoor air temperatures provided are an average of the condenser inlet air temperature.
- Indoor temperatures provided are an average of the room return air inlet temperature.

HEATING APPLICATION DATA AT RATED AIRFLOW

MODEL	PART LOAD HEATING CAPACITY (BTUH)	DRY BULB OUTDOOR AIR TEMPERATURE ENTERING UNIT CONDENSER AREA													
		0°F	5°F	10°F	15°F	20°F	25°F	30°F	35°F	40°F	45°F	50°F	55°F	60°F	65°F
		-17.7°C	-15°C	-12.2°C	-9.4°C	-6.6°C	-3.8°C	-1.1°C	1.6°C	4.4°C	7.2°C	10°C	12.7°C	15.5°C	18.3°C
C24H2	BTUH	3,600	4,700	5,900	7,000	8,100	9,300	10,400	11,600	12,700	13,800	14,900	16,100	17,200	18,300
	Watts	1390	1400	1410	1410	1420	1420	1420	1410	1440	1460	1470	1480	1490	1500
C30H2	BTUH	6,200	7,600	8,900	10,300	11,500	12,500	13,500	14,600	16,400	18,300	19,900	21,200	22,600	24,000
	Watts	1680	1700	1720	1740	1760	1765	1770	1780	1820	1860	1890	1910	1930	1950
C36HY	BTUH	5100	6925	8719	10518	12324	14136	15954	17777	19607	21443	23284	25132	26986	28845
	Watts	1835	1873	1907	1940	1970	1998	2023	2045	2066	2083	2099	2111	2122	2130
C42HY	BTUH	7800	9689	11588	13522	15490	17494	19532	21606	23714	25857	28035	30247	32495	34777
	Watts	2867	2788	2720	2662	2613	2574	2546	2527	2518	2519	2530	2551	3582	2623
C48HY	BTUH	11900	13318	14826	16429	18127	19921	21810	23793	25873	28047	30317	32681	35141	37697
	Watts	2503	2512	2522	2535	2549	2565	2583	2603	2624	2647	2672	2699	2727	2757
C60HY	BTUH	15100	17505	19916	22335	24761	27196	29638	32089	34547	37013	39487	41969	44459	46957
	Watts	2949	3018	3083	3145	3205	3261	3315	3365	3413	3457	3499	3538	3573	3606

Notes:
(1) Full load and part load heating performance given for 70°F DB indoor return air at rated CFM. Data includes defrost operation below 45° outdoor temperature
(2) Supplemental Electric heaters are recommended for applications requiring heating below a 15°F outdoor temperature.
(3) 1000 BTUH = .29307 kW
(4) Outdoor air temperatures provided are an average of the condenser inlet air temperature.

ELECTRIC HEAT TABLE - REFER TO ELECTRICAL SPECIFICATIONS FOR AVAILABILITY BY UNIT MODEL

Electric heat is available in either single stage, or two separate stages depending on the total Kw being used. When two stages of electric heat are used (15Kw, 18Kw, or 20Kw), only the first stage operates concurrently with heat pump compressor operation. When the second stage of electric heat is energized, compressor operation is disabled. An outdoor thermostat control option installed in the unit or a wall mounted thermostat with 4 stage heat output must be used for units equipped with two stages of electric heat.

ELECTRIC HEAT NOMENCLATURE	NOMINAL KW	Total Kw and BTUH @ Field Supplied Voltage										
		AT 230V (1)				AT 208V (1)				AT 460V (2)		
		KW	1-PH AMPS	3-PH AMPS	BTUH	KW	1-PH AMPS	3-PH AMPS	BTUH	KW	3-PH AMPS	BTUH
05	5.0	4.6	20.0	11.5	15,700	3.75	18.0	10.4	12,800	4.6	5.8	15,700
09	9.0	8.3		20.8	28,300	6.75		18.7	23,000	8.3	10.4	28,300
10	10.0	9.2	40.0		31,400	7.50	36.1		25,600			
15	15.0	13.8	60.0	34.6	47,100	11.25	54.1	31.2	38,400	13.8	17.3	47,100
20	20.0	18.4	80.0		62,800	15.00	72.1		51,200			

Notes:
(1) Listed electric hesaters are available for 230/208V units only.
(2) Listed electric hesters are available for 460V units only.

ELECTRICAL SPECIFICATIONS: C24 TO C48 UNITS

"Model See notes 5 and 6"	Rated Volts, Hertz, and Phase	No. Field Power Circuits	Single Circuit. See Notes 1 and 2				Multiple Circuit. See Notes 1 and 2							
			Minimum Circuit Ampacity	Maximum External Fuse or Ckt. Brkr	Field Power Wire Size	Ground Wire	Minimum Circuit Ampacity		Maximum External Fuse or Ckt. Brkr.		"Field Power Wire Size. See Note 4"		"Ground Wire See Note 4"	
							Ckt. A	Ckt. B	Ckt. A	Ckt. B	Ckt. A	Ckt. B	Ckt. A	Ckt. B
C24H2-A0Z	208/230-60-1	1	24	30	10	10								
-A04		1	50	50	8	10								
-AS8		1 or 2	76	80	4	8	24	52	30	60	10	6	10	10
-AF8		1 or 2	83	90	4	8	31	52	35	60	8	6	10	10
C24H2-B0Z	208/230-60-3	1	18	25	12	10								
-B06		1	33	35	8	10								
-B09		1	45	45	8	10								
C30H2-A0Z	208/230-60-1	1	30	35	8	10								
-A04		1	56	60	6	10								
-AS8		1 or 2	82	90	4	8	30	52	35	60	8	6	10	10
-AF8		1 or 2	85	90	4	8	33	52	35	60	8	6	10	10
C30H2-B0Z	208/230-60-3	1	26	30	10	10								
-B06		1	41	45	8	10								
-B09		1	53	60	6	10								
C30H2-C0Z/C0C	460-60-3	1	14	15	14	14								
-C06		1	21	25	12	10								
-C09		1	27	30	10	10								
C36HY-A0Z	208/230-60-1	1	24	30	10	10								
-A05		1	50	50	8	10								
-A10		1 or 2	76	80	4	8	24	52	30	60	10	6	10	10
-A15		1 or 2	83	90	4	8	31	52	35	60	8	6	10	10
C36HY-B0Z	208/230-60-3	1	18	25	12	10								
-B05		1	33	35	8	10								
-B09		1	45	45	8	10								
-B15		1	50	50	8	10								
C36HY-C0Z/-C0C	460-60-3	1	12	15	14	14								
-C05		1	20	20	14	12								
-C09		1	26	30	10	10								
-C15		1	28	30	10	10								
C42HY-A0Z	208/230-60-1	1	30	35	8	10								
-A05		1	56	60	6	10								
-A10		1 or 2	82	90	4	8	30	52	35	60	8	6	10	10
-A15		1 or 2	85	90	4	8	33	52	35	60	8	6	10	10
C42HY-B0Z	208/230-60-3	1	26	30	10	10								
-B05		1	41	45	8	10								
-B09		1	53	60	6	10								
-B15		1	53	60	6	10								
C42HY-C0Z	460-60-3	1	14	15	14	14								
-C05		1	21	25	12	10								
-C09		1	27	30	10	10								
-C15		1	28	30	10	10								
C48HY-A0Z	208/230-60-1	1	33	40	8	10								
-A05		1	59	60	6	10								
-A10		1 or 2	85	90	4	8	33	52	40	60	8	6	10	10
-A15		1 or 2	85	90	4	8	33	52	40	60	8	6	10	10
C48HY-B0Z	208/230-60-3	1	25	30	10	10								
-B05		1	40	45	8	10								
-B09		1	52	60	6	10								
-B15		1	52	60	6	10								
C48HY-C0Z/-C0C	460-60-3	1	16	20	14	12								
-C05		1	24	25	12	10								
-C09		1	30	30	10	10								
-C15		1	31	35	8	10								

SEE ELECTRICAL NOTES ON NEXT PAGE.

/////// ELECTRICAL SPECIFICATIONS: C60 UNITS

Model	Rated Volts & Phase	No. Field Power Circuits	Single Circuit. See Notes 1, 2, and 3.				Dual Circuit. See Notes 1, 2, and 3.							
			Mini-mum Circuit Ampacity	Maximum External Fuse or Ckt. Brkr.	Field Power Wire Size	Ground Wire	Minimum Circuit Ampacity		Maximum External Fuse or Ckt. Breaker		Field Power Wire Size		Ground Wire Size	
							Ckt. A	Ckt. B	Ckt. A	Ckt. B	Ckt. A	Ckt. B	Ckt. A	Ckt. B
C60HY-A0Z	208/230-60-1	1	39	45	8	10								
-A05		1 or 2	65	70	6	8	39	26	45	30	8	10	10	10
-A10		1 or 2	91	100	3	8	39	52	45	60	8	6	10	10
-A15		1 or 2	91	100	3	8	39	52	45	60	8	6	10	10
-A20		1 or 2	112	125	2	6	60	52	60	60	6	6	10	10
C60HY-B0Z	208/230-60-3	1	31	40	8	10								
-B05		1	46	50	8	10								
-B09		1	59	60	6	10								
-B15		1	59	60	6	10								
C60HY-C0Z/-C0C	460-60-3	1	17	20	14	12								
-C05		1	25	25	12	10								
-C09		1	31	35	8	10								
-C15		1	31	35	8	10								

ELECTRICAL NOTES:
(1) Minimum Circuit Ampacity (MCA) 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 (3) current carrying conductors are in a raceway.
(2) Maximum External Fuse Size (MOCP) size used to provide field installed fuses or circuit breakers for protection of field wiring conductors.
(3) Based on 75°copper wire. All wiring must conform to the National Electrical Code and all local codes.
(4) -C0Z models use a disconnect switch to interrupt unit power. -C0C models contain a 460V circuit breaker. 460V circuit breakers not available for 460V units with electric heat.
(5) The actual factory-installed overcurrent protective device (circuit breaker) in this model may be lower than the maximum UL 60335 allowable MOCP value, but still above the U60335 minimum calculated value or Minimum Circuit Ampacity (MCA) listed.
(6) 12kw models and larger require 4 heating stages (2 heat pump, 2 electric heat stages). Heat pump operation is disabled for operation of both electric heat stages.

/////// FIELD INSTALLED HEATER PACKAGES

Field installed heater packages are available to add, increase, or reduce the amount of electric heat to units that are already shipped from the factory. The kit includes the following:

- Resistance heaters that provide heating BTUH amounts shown in the heater kit chart. Heaters ship pre-installed with needed limits and thermal cutoffs.
- Heating contactor(s) that energize when a signal is sent from a thermostat or controller. Contactors are pre-mounted on a base plate for easy installation along with a plug-in connector.
- Wires, screws, wire ties and other accessories needed for installation.
- A wiring diagram, installation instructions, and labels to show electric heat is installed.

It is always important to review all instructions provided with the heater package kit and Wall-Mount unit before installation. Review all electrical specifications for the unit and building including wire and breaker sizes along with clearances to combustible materials before installation and use of the heater package kits.

• Designed for adding Electric Heat to 0 KW Units			• ETL US & Canada Listed			
• Circuit Breaker Standard on 230/208V Models			• Toggle Disconnect Standard on 460V Models			
Air Conditioner Models	-A00 Models 230/208-1		-B00 Models 230/208-3		-C00 Models 460-3	
	Heater Model #	KW	Heater Model #	KW	Heater Model #	KW
C24H2	EHT03H-A04B EHT03H-AF8B EHT03H-AS8B	4 F8 S8	EHT02H-B06B EHT03H-B09B	6 9		
C30H2	EHT03H-A04B EHT03H-AF8B EHT03H-AS8B	4 F8 S8	EHT02H-B06B EHT03H-B09B	6 9	EHT03H-C06 EHT03H-C09	6 9
C36HY	WMCBC-04A EHCH036A-A05 EHCH036A-A10 EHCH036A-A15	0Z 05 10 15	WMCBC-03B EHCH036A-B05 EHCH036A-B09 EHCH036A-B15	0Z 05 09 15	WMCBC-06C EHCH036A-C05 EHCH036A-C09 EHCH036A-C15	0Z 05 09 15
C42HY	WMCBC-05A EHCH042A-A05 EHCH042A-A10 EHCH036A-A15	0Z 05 10 15	WMCBC-04B EHCH042A-B05 EHCH042A-B09 EHCH042A-B15	0Z 05 09 15	WMCBC-06C EHCH036A-C05 EHCH036A-C09 EHCH036A-C15	0Z 05 09 15
C48HY	WMCBC-06A EHCH048A-A05 EHCH048A-A10 EHCH048A-A15	0Z 05 10 15	WMCBC-04B EHCH048A-B05 EHCH048A-B09 EHCH048A-B15	0Z 05 09 15	WMCBC-06C EHCH048A-C05 EHCH048A-C09 EHCH048A-C15	0Z 05 09 15
C60HY	WMCBC-07A EHCH060A-A05 EHCH060A-A10 EHCH060A-A15 EHCH060A-A20	0Z 05 10 15 20	WMCBC-06B EHCH060A-B05 EHCH060A-B09 EHCH060A-B15	0Z 05 09 15	WMCBC-06C EHCH060A-C05 EHCH060A-C09 EHCH060A-C15	0Z 05 09 15

VENTILATION OPTION SELECTION CHART

VENT CODE	FIELD INSTALLED KIT PART NUMBER	UNIT MODEL NUMBER	VENT OPERATION	VENT USE
X	FAD-NE5	C36, C42, C48, C60	Barometric Intake Damper, No Room Exhaust	Outdoor air intake damper that may be used to provide slight building positive pressurization or bring an adjustable amount of outdoor air into a structure. The damper opens during indoor blower operation and provides intake air only.
A	FAD-BE5	C36, C42, C48, C60	Barometric Intake Damper with Room Exhaust	Outdoor air intake damper that may be used to bring an adjustable amount of outdoor air into a structure. The damper opens during indoor blower operation and an exhaust damper provides barometric room pressure relief.
B	BOP-3	C24, C30	No ventilation, provides best protection against water, dirt, and debris infiltration.	Insulated plates are installed over the vent intake and exhaust openings. When used, the plates provide a degree of protection from splashing water and dirt/debris entry into the unit.
	BOPLATE-5	C36, C42, C48, C60		
M	CRV-F5	C36, C42, C48, C60	Motorized Intake Damper with Room Exhaust. Vent opens to user adjustable open position when energized. Vent is energized when 24VAC is applied to the "A" terminal located on the unit low voltage terminal strip.	The CRV-F provides a simple means of bringing in outdoor air when a modorized spring closed damper is required. Vent option provides up to 50% outdoor air intake. It also provides room pressure relief. Motor uses linkage to operate damper blades and springs closed when power to the damper motor is removed. No intake hood is required for all models.
V	CRV-V3-*	C24, C30	Motorized Intake Damper with Room Exhaust. Vent opens to user adjustable minimum position when "A" terminal located on the unit low voltage terminal strip is energized with 24VAC. 0-10VDC modulating operation option. Room pre-purge option.	The CRV-V provides a control board with advanced options for bringing in outdoor air when a modorized spring closed damper is required. Vent option provides up to 50% outdoor air intake. It also provides room pressure relief. Motor uses linkage to operate damper blades and springs closed when power to the damper motor is removed. Includes solid state control board for multiple ventilation settings. No intake hood is required for all models.
	CRV-V5	C36, C42, C48, C60		
D	ECON-NC5	C36, C42, C48, C60	Motorized Intake Damper with Room Exhaust. Vent opens to user setting based on 0-10VDC input. 10k outdoor sensor is included with vent option. This vent does not include solid state board or JADE controller to operate economizer functionality.	The no controls economizer option is used where the controls contractor will provide a field installed logic board and indoor/outdoor sensors or other means to decide when conditions are favorable for free cooling. Vent option provides up to 100% outdoor air intake. It also provides room pressure relief. Motor uses linkage to operate damper blades and springs closed when power to the damper motor is removed. 7" intake hood (included) required for ECON-NC2 and ECON-NC3 options. No intake hood is required for ECON-NC5 option.
S	ECONS3-*	C24, C30	Motorized Intake Damper with Room Exhaust. JADE economizer control uses outdoor temperature and humidity to provide free cooling operation based on enthalpy curve setting. Optional 0-10VDC input for modulating ventilation control. Optional user selected minimum position when “A” terminal located on the unit low voltage terminal strip is energized with 24VAC.	The economizer with enthalpy control is often used to provide free cooling for applications where humidity levels outdoors are relatively high, or indoor humidity levels need to be kept at a low amount. Vent option provides partial outdoor air intake based on outdoor temperature and humidity. It also provides room pressure relief. Motor uses linkage to operate damper blades and springs closed when power to the damper motor is removed. No intake hood is required.
Y	ECON-DB5	C36, C42, C48, C60	Motorized Intake Damper with Room Exhaust. JADE economizer control uses outdoor temperature to provide free cooling operation based on user settings. Optional 0-10VDC input for modulating ventilation control. Optional user selected minimum position when "A" terminal located on the unit low voltage terminal strip is energized with 24VAC.	The dry bulb economizer option is often used in areas with low outdoor humidity levels or applications where indoor humidity levels can be relatively high. Vent option provides up to 100% outdoor air intake based on outdoor temperature. It also provides room pressure relief. Motor uses linkage to operate damper blades and springs closed when power to the damper motor is removed.
Z	ECON-WD5	C36, C42, C48, C60	Motorized Intake Damper with Room Exhaust. JADE economizer control uses outdoor temperature and humidity to provide free cooling operation based on enthalpy curve setting. Optional 0-10VDC input for modulating ventilation control. Optional user selected minimum position when "A" terminal located on the unit low voltage terminal strip is energized with 24VAC.	The economizer with enthalpy control is often used to provide free cooling for applications where humidity levels outdoors are relatively high, or indoor humidity levels need to be kept at a low amount. Vent option provides up to 100% outdoor air intake based on outdoor temperature and humidity. It also provides room pressure relief. Motor uses linkage to operate damper blades and springs closed when power to the damper motor is removed.
R	ERV-FA3-*	C24, C30	The Energy Recovery Ventilator Provides a solution to condition intake air entering the room while exhausting room air to minimize room pressurization. Heat is transferred from the entering air into the exhaust air during cooling seasons. Heat is tranferred from the air being exhausted from the room into the air intake are during heating seasons. This is accomplished using energy recovery wheels, an intake blower assembly, and and exhaust blower assembly. Operation is controlled when the "A" terminal located on the unit low voltage terminal strip is energized with 24VAC.	The Energy Recovery Ventilator is often used to provide ventilation for an occupied area that requires outdoor air intake regardless of outdoor conditions. Vent option provides outdoor air intake and room pressure relief with optimal energy efficiency during warm or cool outdoor conditions. Intake and exhaust blower assemblies have 3 independent adjustable speed selections. 3" intake hood (included) required for ERV-F2 and ERV-F3 options.
	ERV-FA5	C36, C42, C48, C60		
	ERV-FC3-*	C24, C30		
	ERV-FC5	C36, C42, C48, C60 (460V)		

"X" Vent Code Option – Standard Barometric Fresh Air Damper without Exhaust (FAD-NE)

Fresh Air Damper Intake (FAD-NE and FAD-BE)

The barometric fresh air damper without exhaust is a standard feature on all models, and can be ordered pre-installed from Bard or may be field installed with the FAD-NE vent kit. Fresh air dampers are typically used when a small amount of outdoor air is required in a room or structure when the indoor blower is on. The intake damper opens when the indoor blower is operational and negative pressure in the vent area of the unit pulls the blade open. When the blade is open, the damper allows outdoor air to be brought into the structure. Pins are provided that allow for airflow adjustment. See FAD-NE airflow charts provided in this specification for airflow amounts. Room air exhaust is not provided with the FAD-NE vent.

- The barometric fresh air damper without exhaust includes the following options:
- The damper opens when the indoor blower is operational.
- The vent provides up to 25% of the total airflow rating of the unit.
- Adjustable blade pins allow different amounts of outside air to be introduced into the building and can be easily locked closed if required.
- The ventilation exhaust air path is sealed with an insulated block-off plate.
- Slight room pressurization is achieved during indoor blower operation.

"A" Vent Code Option – Standard Barometric Fresh Air Damper with Barometric Exhaust (FAD-BE)

The barometric fresh air damper with exhaust is an optional feature on all models, and can be ordered pre-installed from Bard or may be field installed with the FAD-BE vent kit. Fresh air dampers are typically used when a small amount of outdoor air is required in a room or structure when the indoor blower is on. The intake damper opens when the indoor blower is operational and negative pressure in the vent area of the unit pulls the blade open. When the blade is open, the damper allows outdoor air to be brought into the structure. Blade stops are provided that allow for intake airflow adjustment. See FAD-BE airflow charts provided in this specification for airflow amounts. Room air exhaust using room air pressure is provided with a separate assembly. This allows room air to pass through the vent area and out of the unit. Blade stops allow for adjustment of exhaust air amounts. Operation of the damper is dependent on room pressurization to open the exhaust blade and allow room air to leave the structure.

Fresh Air Damper Exhaust (FAD-BE only)

- The barometric fresh air damper without exhaust includes the following options:
- The damper opens when the indoor blower is operational.
- The vent provides up to 25% of the total airflow rating of the unit.
- Adjustable blade pins allow different amounts of outside air to be introduced into the building and can be easily locked closed if required.
- Adjustable room exhaust is provided through secondary exhaust damper assembly.
- Room pressurization is adjustable during indoor blower operation.

"B" Vent Code Option – Block off Plate (BOP)

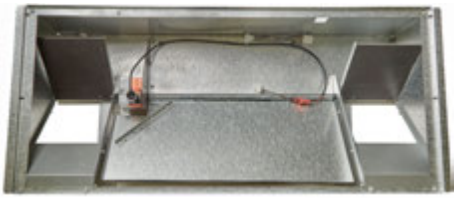
The block off plate is an optional feature on all models, and can be ordered pre-installed from Bard or may be field installed with the BOP vent kit. The block off plate option provides a way to seal the intake and exhaust air openings. This will provide the best protection from splashing water, dust and dirt entering the unit, and air infiltration reduction.

The barometric fresh air damper without exhaust includes the following options:

- Insulated plates are installed to cover vent intake and exhaust openings.
- Plate installation provides a degree of protection from air, water, dirt, and dust infiltration.

"M" Vent Code Option – Basic Commercial Room Ventilator (CRV-F)

The basic commercial room ventilator is an optional feature on all models, and can be ordered pre-installed from Bard or may be field installed with the CRV-F vent kit. Commercial Room Ventilators are designed to provide an adjustable amount of outdoor air inside a room or structure, exhaust room air, and close when outdoor air is not needed. The intake damper opens when 24VAC power is applied to the ventilation terminal inside the unit control panel (A). The damper blade is operated by a 24VAC actuator motor and blade linkage. When the blade is open, the damper allows outdoor air to be brought into the structure. A blade stop is provided that allows for airflow adjustment. See CRV-F airflow charts provided in this specification for airflow amounts. Air exhaust is provided using room air pressure that allows room air to pass through the vent area and out of the unit. Exhaust damper linkage controls the exhaust air amount and air intake amount simultaneously.



Commercial Room Ventilator-Fixed and Modulating

The basic commercial room ventilator includes the following options:

The intake and exhaust damper opens when the unit ventilation terminal (A) is energized with 24VAC.

- Spring closed motorized damper closes within 30 seconds when unit power is removed.
- The vent provides a maximum of over 50% of the total airflow rating of the unit.
- Adjustable blade stop allows adjustable amounts of outside air to be introduced into the building.
- Room exhaust is provided through the ventilation assembly reducing room pressure.

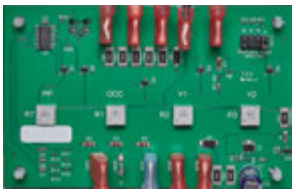
/////// COMMERCIAL VENTILATOR SPECIFICATIONS, CRV-V

"V" Vent Code Option – Advanced Commercial Room Ventilator (CRV-V)

The advanced commercial room ventilator is an optional feature on all models, and can be ordered pre-installed from Bard or may be field installed with the CRV-V vent kit. Commercial Room Ventilators are designed to provide an adjustable amount of outdoor air inside a room or structure, exhaust room air, and close when outdoor air is not needed. The intake damper opens when 24VAC power is applied to the ventilation terminal inside the unit control panel (A), or modulating control is possible when a 2-10VDC signal is supplied by a CO2 sensor or control device. The damper blade is operated by a 24VAC actuator motor and blade linkage. When the blade is open, the damper allows outdoor air to be brought into the structure. A solid-state board has adjustable potentiometers for blade position when ventilation is active, or 2-10VDC can be used to modulate damper position. See CRV-V airflow charts provided in this specification for airflow amounts. Air exhaust is provided that allows room air to pass through the vent area and out of the unit. Exhaust damper linkage controls the exhaust air amount and air intake amount simultaneously.

The basic commercial room ventilator includes the following options:

- The intake and exhaust damper opens when the unit ventilation terminal (A) is energized with 24VAC.
- Blade position potentiometer allows adjustment of the outside air amount entering into the building intended for occupant air quality improvement or light industrial room pressurization purposes.
- Optional 0-10VDC modulating damper control for operation with DDC system or external modulating CO2 control. When used, damper allows varying amounts of outside air to be brought into the building.
- Room pre-purge feature with 30/60/90 minute timer allows outdoor air to be brought in to room before occupants enter if ventilation is controlled by a schedule using a thermostat or room controller.
- Spring closed motorized damper closes within 30 seconds when unit power is removed.
- The vent provides a maximum of over 50% of the total airflow rating of the unit.
- Room exhaust is provided through the ventilation assembly reducing room pressure.
- Design based on requirements of ANSI/ASHRAE Standard 62.1 and other state and local ventilation codes.
- Improved damper blade seals for reduced air leakage.



"V" Vent Control Board

/////// ECONOMIZER SPECIFICATIONS, ECON-NC

"D" Vent Code Option – Economizer without Bard Supplied Controls (ECON-NC)

The Economizer without Bard supplied controls is an optional feature on all models, and can be ordered pre-installed from Bard or may be field installed with the ECON-NC vent kit. Economizers are designed to provide free cooling when outdoor conditions are acceptable, and provide a small amount of outdoor air intake if needed for a room or structure if required. The ECON-NC ventilation option is designed for customers who are using their own ventilation controls package and only need the economizer damper assembly and economizer damper motor. The intake damper opens and closes based on a 2-10VDC signal is supplied by a field supplied control device. Bard does not supply a logic board that will decide when conditions are favorable for free cooling. An outdoor temperature sensor (10k) is supplied with the economizer assembly. The damper blade is operated by a 24VAC actuator motor and blade linkage. When the blade is open, the damper allows outdoor air to be brought into the structure. See ECON-NC airflow charts provided in this specification for airflow amounts. Air exhaust is provided that allows room air to pass through the vent area and out of the unit. Room pressure forces air out the exhaust. Exhaust damper linkage controls the exhaust air amount and air intake amount simultaneously.

Economizer Assembly

The economizer without Bard supplied controls includes the following options:

- The intake and exhaust damper opens when a 2-10VDC signal is received from field-supplied controls.
- A 10k dry bulb outdoor sensor is supplied with the vent option assembly.
- Spring closed motorized damper closes within 30 seconds when unit power is removed.
- When completely open, the vent provides outdoor air intake of the full airflow rating of the unit.
- Room exhaust is provided through the ventilation assembly reducing room pressure.
- Economizer assembly including damper seals and linkage meets 4cfm per ft2 leakage requirements.

ECONOMIZER SPECIFICATIONS, ECON-DB, ECON-S, AND ECON-WD

"Y" Vent Code Option – Economizer with JADE Controls and Dry Bulb Outdoor Sensor (ECON-DB)

The Economizer with JADE controls and dry bulb outdoor sensor is an optional feature on all models, and can be ordered pre-installed from Bard or may be field installed with the ECON-DB vent kit. Economizers are designed to provide free cooling when outdoor conditions are acceptable, and provide a small amount of outdoor air intake if required during non-economizer use. This saves energy and reduces compressor run time extending the life of the cooling equipment components. The ECON-DB ventilation option uses the JADE economizer controller and a 10k outdoor temperature sensor to decide when outdoor temperature is acceptable for free cooling operation. During free cooling economizer operation, the indoor blower will draw air through the economizer assembly mixing room air and outdoor air to provide a standard supply temperature. The damper blade is operated by a 24VAC actuator motor and blade linkage. See ECON-DB airflow charts provided in this specification for airflow amounts. Air exhaust is provided that allows room air to pass through the vent area and out of the unit. Room pressure forces air through the exhaust opening. Exhaust damper linkage controls the exhaust air amount and air intake amount simultaneously. Minimum vent position feature allows ventilation air to be brought into a room or structure when the unit ventilation terminal (A) is energized with 24VAC.

The economizer with JADE and dry bulb outdoor sensor includes the following options:

- Saves energy and reduces compressor-cooling runtime.
- The intake and exhaust damper opens to provide free cooling based on outdoor temperature. Outdoor temperature for economizer operation is user adjustable between 48°F and 80°F (8.8°C to 26.6°C). Default is 60°F (15.5°C).
- An economizer supply mixed air sensor provides a mixed air temperature of 53°F (11.6°C) by default.
- A 10k outdoor sensor is supplied with the vent option assembly to measure outdoor temperature.
- Spring closed motorized damper closes within 30 seconds when unit power is removed.
- When completely open, the vent provides outdoor air intake of the full airflow rating of the unit.
- Room exhaust is provided through the ventilation assembly reducing room pressure.
- Minimum vent position feature for outdoor air intake during non-economizer operation. Minimum position is used for meeting ANSI/ASHRAE Standard 62.1 air quality requirements or slight positive room pressurization for light industrial applications.
- 2-10VDC input for modulating ventilation when used with a CO2 sensor or other control device.
- Economizer may be used to provide cooling down to -40°F (-40°C) outdoor temperatures without compressor use.
- The JADE controller provides an easy to use LCD interface with user settings and diagnostics.
- Economizer assembly including damper seals and linkage meets 4cfm per ft2 leakage requirements.

Economizer Assembly

"S" and "Z" Vent Code Option – Economizer with JADE Controls and Enthalpy Outdoor Sensor (ECONCHS-E3 and ECON-WD)

The Economizer with JADE controls and enthalpy outdoor sensor is an optional feature on all models, and can be ordered pre-installed from Bard or may be field installed with a vent kit. The "S" economizer option (ECON-S) is available for the C24 thru C30 models and provides up to 75% outdoor air intake without the need for an intake hood. The "Z" economizer option (ECON-WD) is available for all unit models and provides 100% outdoor air intake. W18 thru W36 models include 7" intake hood. Economizers are designed to provide free cooling when outdoor conditions are acceptable, and provide a small amount of ventilation air if needed during non-economizer operation. This saves energy and reduces compressor run time extending the life of the cooling equipment components. The ventilation options use the JADE economizer controller and an outdoor enthalpy (temperature and humidity) sensor to decide when outdoor conditions are acceptable for free cooling operation. During free cooling economizer operation, the indoor blower will draw air through the economizer assembly mixing room air and outdoor air to provide a standard leaving supply temperature. The damper blade is operated by a 24VAC actuator motor and blade linkage. See ECON-WD airflow charts provided in this specification for airflow amounts. Air exhaust is provided that allows room air to pass through the vent area and out of the unit. Room air pressure forces air through the exhaust opening. Exhaust damper linkage controls the exhaust air amount and air intake amount simultaneously. Minimum vent position feature allows ventilation air to be brought into a room or structure if required during non-economizer use when the unit ventilation terminal (A) is energized with 24VAC.

The economizer with JADE and enthalpy outdoor sensor includes the following options:

- Saves energy and reduces compressor-cooling runtime.
- The intake and exhaust damper opens to provide free cooling based on outdoor temperature and humidity. Enthalpy curves are pre-set and user selectable to maximize free cooling runtime or minimize indoor humidity levels during free cooling.
- An economizer supply mixed air sensor provides a mixed air temperature of 53°F (11.6°C) by default.
- An enthalpy sensor is supplied with the vent option assembly to measure outdoor temperature.
- Spring closed motorized damper closes within 30 seconds when unit power is removed.
- When completely open, the vent provides outdoor air intake of the full airflow rating of the unit.
- Room exhaust is provided through the ventilation assembly reducing room pressure.
- Minimum vent position feature for outdoor air intake during non-economizer operation. Minimum position is used for meeting ANSI/ASHRAE Standard 62.1 air quality requirements or slight positive room pressurization for light industrial applications.
- 2-10VDC input for modulating ventilation when used with a CO2 sensor or other control device.
- Economizer may be used to provide cooling down to -40°F (-40°C) outdoor temperatures without compressor use.
- The JADE controller provides an easy to use LCD interface with user settings and diagnostics.
- Economizer assembly including damper seals and linkage meets 4cfm per ft2 leakage requirements.

/////// ECONOMIZER CONTROL SPECIFICATIONS, JADE CONTROLLER

JADE Economizer Control Features and Benefits

The JADE control is an important component of the ECON-DB and ECON-WD economizer ventilation options. It provides the logic to control the economizer operation based on outdoor conditions and includes an easy to use interface with an LCD display screen. Bard has pre-programmed the JADE from the factory to provide standard settings that apply for common installations.

The following basic setup menu items are available through the JADE menu settings:

- Mixed Air Temperature: This set point is used to control the air temperature that is provided by the economizer assembly. The mixed air temperature is set from the factory to provide optimal cooling performance during economizer use. Default setting is 53°F and can be adjusted between 38°F and 65°F.
- Low T Lock: This set point is used to lock out compressor operation when outdoor temperature is extremely low. Default setting is 0°F and can be adjusted between -45°F and 80°F.
- Dry bulb Set point (ECON-DB only): Provides the maximum outdoor temperature for economizer use. Default setting is 60°F and can be adjusted between 48°F and 80°F.
- Enthalpy Curve Set point (ECON-WD only): Provides the enthalpy (temperature and humidity) boundary curves for economizer use. Default setting is ES3 and can be set between ES1 and ES5.
- Minimum Position: Used to set the outdoor ventilation amount to be brought into the room or structure when the unit (A) terminal is energized. Default setting is 2VDC and can be set between 2VDC and 10VDC.
- Demand Control Vent set point (DCV): DCV is available when 2-10VDC signal is received from a CO2 sensor or other device. This is set to the maximum allowable CO2 level for the space when used with a CO2 sensor. Default setting is 1100ppm and can be adjusted between 500 to 2000ppm. Default setting is recommended, and CO2 level is normally adjustable at the CO2 sensor.
- Auxiliary output: An auxiliary output is available that will send 24VAC to terminal 6 on the unit control panel low voltage terminal strip. This feature can be easily set using the JADE interface to function as needed for certain applications. When set to EXH2, the auxiliary output can be used to control a secondary exhaust fan system during economizer operation. When set to SYS, the auxiliary output can be used to signal an issue with the economizer when the JADE has an active alarm. The alarm signal can be connected to a thermostat or controls system with the ability to signal a service alarm.

JADE Technical Specifications

- Voltage 20 to 30 VAC RMS
- Operating Temperature Range (F) -40 F to +150 F
- Operating Temperature Range (C) -40 C to +65 C
- Approvals, Federal Communications Commission Compliant
- Approvals, CE Compliant
- Complies with California Title 24
- Mixed air and Outdoor Enthalpy Sensor using Sylk Bus.
- Output 2-10 VDC to actuator, Sylk Bus.

Jade Control Module

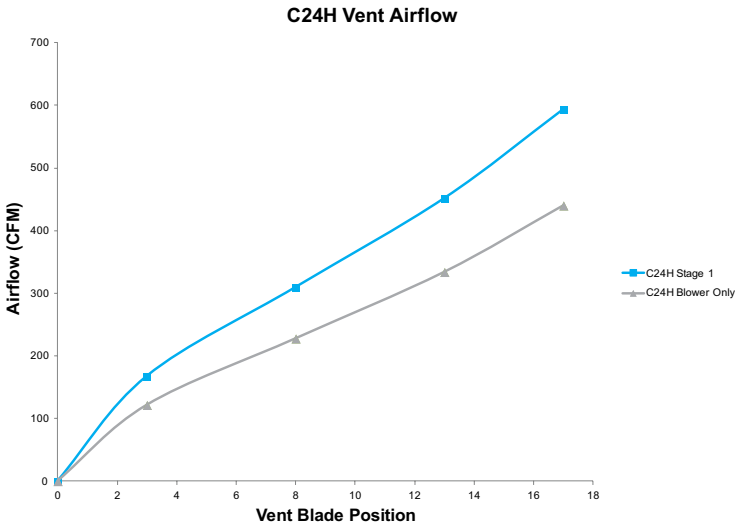
Optional Return Air Sensor Kit Bard Part #8620-340 and #8620-334

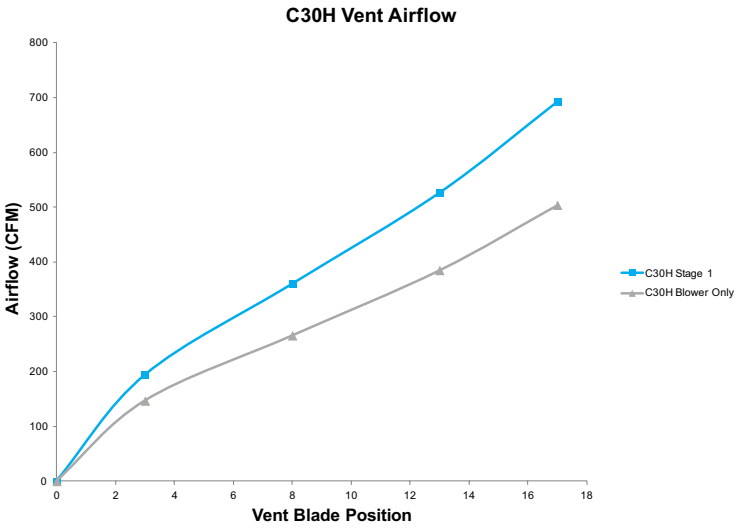
The optional return air sensor kit provides a optional sensor that is field installed in the return airstream. When installed, the JADE economizer will monitor and adjust outdoor air intake based on comparing room temperature and outdoor temperature. This kit is optional, but may be required to meet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

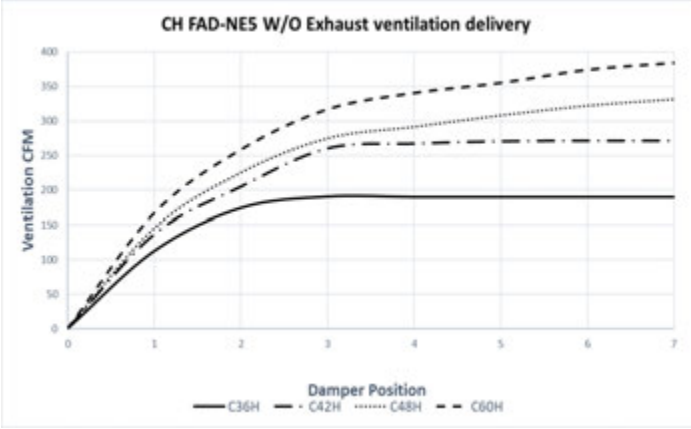
General Ventilation Option Guidelines

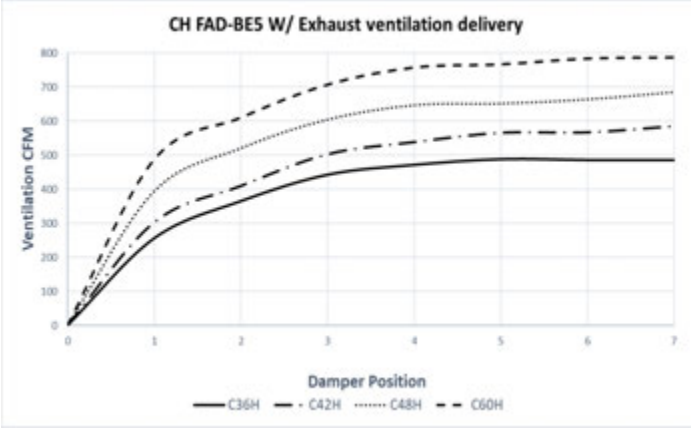
Applying heating and cooling equipment for various applications in the field requires careful planning to ensure the results provide are acceptable for occupants and heat generating equipment inside a room or structure. Products must be reviewed to meet all national, state, and local codes. When providing ventilation air to an indoor area, it is important that the equipment heating and cooling capacity be sized properly for the amount outdoor air being brought into the room or structure. Building pressurization requirements for specified pressurization amounts may require additional exhaust dampers, intake dampers, or fan pressurization systems. Avoid bringing in excessive ventilation amounts when it is not required per the application. Building codes may require special consideration regarding fire suppression systems, building pressurization, and other ventilation needs. Thermostats, CO2 sensors, and multiple unit lead/lag controllers that are used to control the equipment including ventilation must be reviewed per the application requirements. Follow all codes and standards that apply to the location where the equipment will be used, and review ASHRAE recommendations and guidelines for the application.

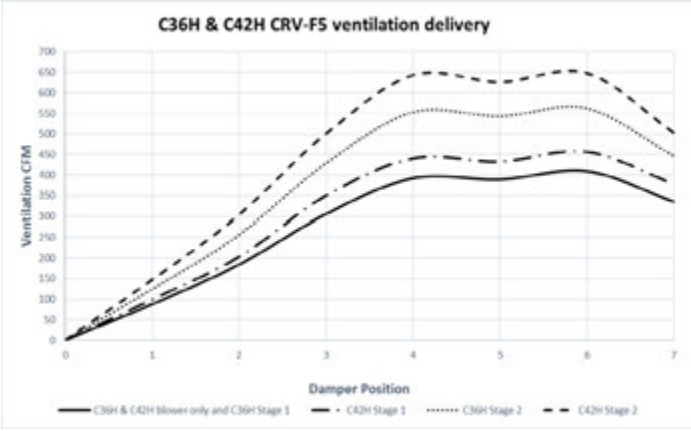
/////// AIRFLOW CHARTS FOR C24 - C60

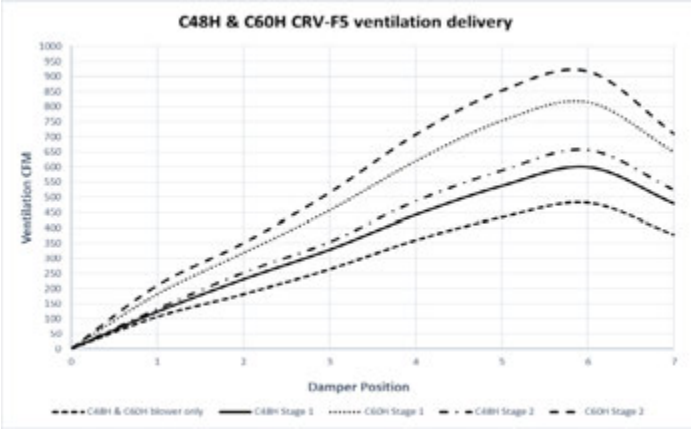




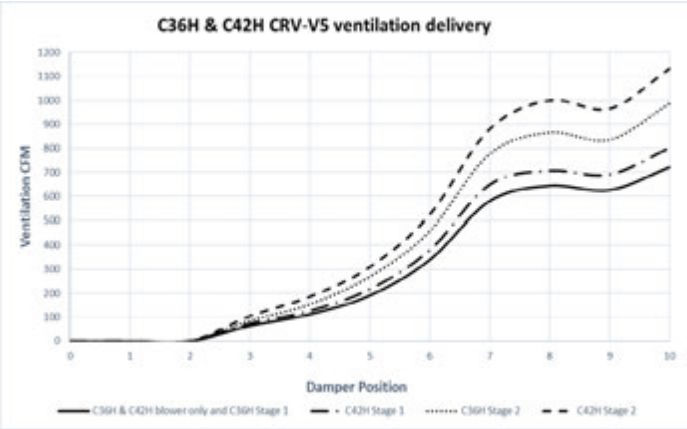


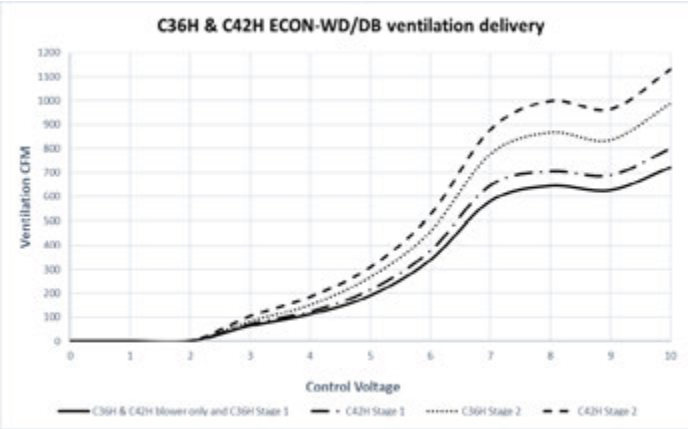


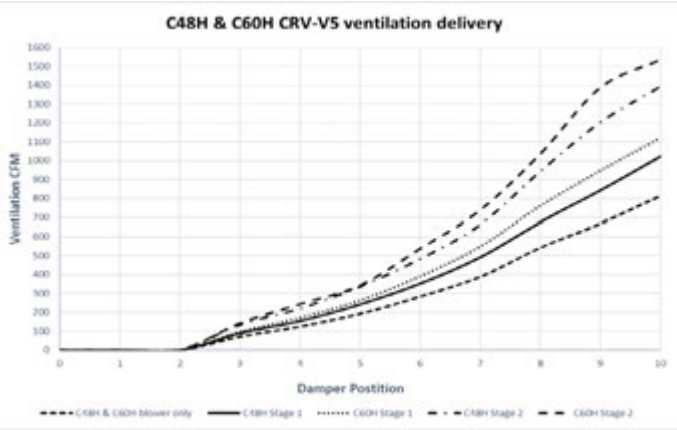


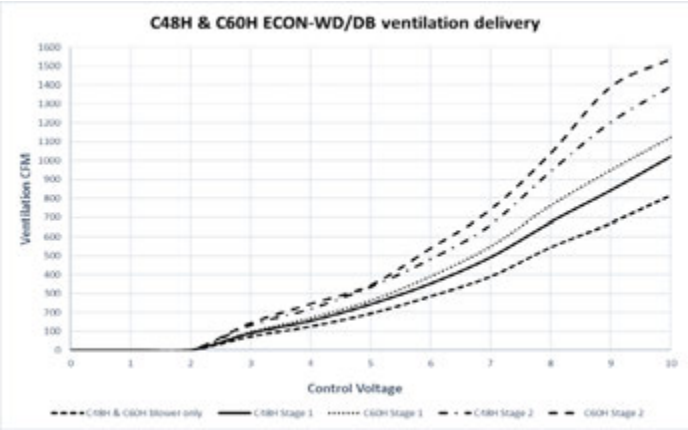


////// AIRFLOW CHARTS FOR C24 - C60









ENERGY RECOVERY VENTILATOR (ERV) PERFORMANCE - C24H AND C30H

"R" (ERV-FA3 and ERV-FC3) Vent Code Options for C24 and C30

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

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

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

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

NOTE: Sensible performance only is shown for winter application.

LEGEND:

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

Energy Recovery Ventilator Cassette

Typical load reductions for ERV-F3

ENERGY RECOVERY VENTILATOR (ERV) PERFORMANCE -C36, C42, C48, C60

"R" (ERV-FA5) Vent Code Options for C36, C42, C48, and C60

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

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

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

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

NOTE: Sensible performance only is shown for winter application.

LEGEND:

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

UNIT FILTER OPTIONS

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

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

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

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

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

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

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

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

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

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

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

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

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

"B" Filter Code Option – 2" Disposable MERV13 Filter with Needlepoint Bipolar Ionizer Device

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 when 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 highly important. Fiber-based media material provides high performance with an extended surface area that offers low-pressure drop. Filter replacement in 3-month or less intervals is recommended for the best filter and unit performance. A Bipolar ionization device is factory installed downstream of the MERV13 filter and operates on 24VAC power from the unit. A set of normally open contacts is also available when wired directly to the device to indicate when it is operational.

FILTER REPLACEMENT PART NUMBER CHART

UNIT MODEL	FILTER CODE	FILTER MERV RATING	NUMBER OF FILTERS USED	BARD PART NUMBER	FILTER SIZE	FILTRATION LEVEL
C24, C30	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.
	A, B, N	MERV 13	1	7004-062	16 x 30 x 2	High Filtration, 2" Thickness Pleated Disposable Media.
C36, C42, C48, C60	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.
	A, B, N	MERV 13	2	7004-063	20 x 20 x 2	High Filtration, 2" Thickness Pleated Disposable Media.

/////// CABINET FINISHES AND CONSTRUCTION

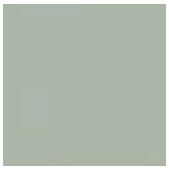
Unit cabinet finish options provide a way to have the Bard Wall-Mount blend in with existing building colors, provide additional corrosion protection, or reduce unit product weight. Unit top, structural sides, and front service panels are constructed using 20 guage materials. Base is constructed using 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. 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. 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. 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. 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 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. 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. 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 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 corrosion protection solution designed for indoor evaporator and outdoor condenser coils. Both field and lab testing results show no deterioration in harsh environments including refineries, mining operations, paper/pulp processing plants, and wastewater treatment facilities. ASTM B-117 testing includes over 10,000 hours with over 3,000 hours of SWAAT test time.

Chemical resistance includes the following:

- Alkalines including Ammonaic solution, Potassium Hydroxide, Calcium Hydroxide, and Magnesium Hydroxide.
- Alcohols including Isopropanol, Butanol, Amyl Alcohol, Benzyl Alcohol, Diaceton Alcohol, Glycerine, Propanol, and Pentanol
- Aliphatic Hydrocarbons including White Spirit, Shellsol, Bitumen, Isopar G, and Paraffin.
- Amines including Triethanolamine, Aniline Sulphate, Hexamethylenetetraamine, Phenyldiamine, Triethylamine, and Methylamine.
- Inorganic Compounds including Hydrogen Carbonate, Hydrogen Sulfide, Nitrous Acid, Sulphuric Acid, and Selenic Acid.
- Aromatic Hydrocarbons including Xylene, Toluene, Asphalt, Anthracene, Benzapherene, Gumlac, Benzine, and Naphtha.
- Fuels and Oils including Diesel, Fuel Oil, Petrol, Super Petrol, Lubricating Oils, Kerosene, Spheric Oils, LPG, and Mineral Oil.
- Ethers including Enthric Oils, Vegetable Oils, Butane, Acetylene, and Methane.
- Halogenated Hydrocarbons including Amyl Acetate, Propyl Acetate, Ethyl Oxalate, Butyl Acetate, and Butyl Propionate.
- Softeners including Palatinol C, Chloraparaffine 5XX, Dioctylphosphate, Desavin, Mesamol, and Dibutylphosphate.
- Organic Compounds including Benzoic Acid, Lactic Acid, Phenols, Fatty Acids, Malic Acid, and Picric Acid.
- Salts and water solutions including Sodium, Potassium, Calcium, Aluminum, Ammonium, Barium, Copper, Lead, and Lithium.
- Many other agents including Phosphor, Zinc, Glucose Syrup, Sulfur, Urea, Menthol, Antimony, Hydrogen, Rubber, and Shellac.

Special Properties:

- Anti-Odor
- Hydrophilic / Hydrophobic
- Anti-Corrosive

EXPOSURE CONDITIONS INCLUDE: Food Processing & Storage, Airports, Office Buildings, Hotels, Schools, Warehouses, Water Treatment, Breweries, Paper Mills, Refineries, Power Plants, Meat Processing Industries, Automotive Industries and other locations near shorelines and salt water.

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

/////// CABINET COATINGS PROCESS AND RESISTANCE

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

Advantages include the following:

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

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

/////// CONTROLS OPTIONS DEFINITIONS INCLUDING SWITCHES, SENSORS, RELAYS, AND START KITS

Unit controls include safety devices and accessories that can be used to customize the Bard Wall-Mount for uses in multiple applications. Controls can be supplied from the factor or field installed. The below listing provides a description of the controls options available for the Bard WA Series unit.

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

Low Pressure Control Switch (LPC): The low-pressure control is standard in all units, and interrupts compressor operation if low side refrigerant pressures reach an extremely low level. The switch is normally closed (NC) and opens during a low-pressure event. A typical event that can cause switch use includes loss of refrigerant in the system.

Heat Pump Control Board (HCB): The heat pump control board is standard in all heat pump units, and interrupts compressor operation if the high- or low-pressure switch circuits are open. It also controls defrost operation and uses a defrost sensor connected to the condenser coil. See unit manual for further details regarding the operation of the high and low-pressure control and defrost operation. The heat pump control board includes a diagnostic light to indicate modes of operation and status of the high- and low-pressure switches. Board logic includes a make-on-break and delay on make timer.

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

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

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

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

Outdoor Thermostat (ODT): The outdoor thermostat is an optional accessory that can be field installed in the unit control panel and condenser section. The outdoor thermostat measures outdoor temperatures and includes relay contacts (NC) breaking the compressor signal during cold outdoor conditions. This is useful when using both heat pump and electric heat operation to limit compressor heating use. The thermostat is in the control panel area and the sensor bulb is mounted to the fan shroud in the outdoor condenser section. Adjustment range is 0°F to 50°F. Default setting is 10°F.

PTCR Start Kit - Field installed option only. PTCR (Precision Temperature Coefficient Resistor) start kit includes the start device and wires needed for installation. The device is located inside the unit control panel near the compressor capacitor and provides an increase in starting torque. The PTCR Start Kit is not normally required when a clean, stable power source is available for the unit. The kit can only be used in 230 Volt single phase units.

Start Capacitor and Potential Relay Start Kit - Field installed option only. The kit includes a start capacitor and relay that is energized during startup of the compressor. The capacitor, relay, and needed wires are provided in a metal enclosure that is field installed in the outdoor section attached to the back. The Start Capacitor Kit is not normally required when a clean, stable power source is available for the unit. The kit can only be used in 230 Volt single phase units. Start capacitor kit cannot be used with the PTCR start kit installed.

FACTORY CONTROLS OPTIONS CHART INCLUDING SWITCHES, SENSORS, RELAYS, AND START KITS

Factory installed controls are provided by Bard to enhance a Wall-Mount product before it is shipped. All Wall-Mount products are shipped with a auto-reset high pressure switch and an auto-reset low pressure switch to help protect refrigeration components. A heat pump defrost control board with delay on make and break, and high/low pressure diagnostics is also standard.

CONTROL CODE FOR STANDARD AND DEHUMIDIFICATION MODELS	DESCRIPTION OF FACTORY INSTALLED COMPONENTS
X	Hi Pressure Switch, Low Pressure Switch, Defrost Board.
E	Hi Pressure Switch, Low Pressure Switch, Defrost Board, **Low Ambient Control**
F (C36 thru C60 only)	Hi Pressure Switch, Low Pressure Switch, Defrost Board, **Low Ambient Control, Dirty Filter Press. Switch**
J	Hi Pressure Switch, Low Pressure Switch, Defrost Board, **Low Ambient Control, Alarm Relay**
Q	Hi Pressure Switch, Low Pressure Switch, Defrost Board, **Outdoor Thermostat**
R	Hi Pressure Switch, Low Pressure Switch, Defrost Board, **Low Ambient Control, Outdoor Thermostat**
S	Hi Pressure Switch, Low Pressure Switch, Defrost Board, **PTCR Start Kit**
T	Hi Pressure Switch, Low Pressure Switch, Defrost Board, **Low Ambient Control, Outdoor Thermostat, PTCR Start Kit**

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	**CMH-32**	C24, C30	Low Ambient Control allows compressor cooling between 0°F and 50°F outdoor temp. - fan cycling
E	**CMH-40**	C36, C42, C48, C60	Low Ambient Control allows compressor cooling between 0°F and 50°F outdoor temp. - fan cycling
NA	**CMC-15**	C24, C30	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**	C36, C42, C48, C60	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**	All Units	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	**CMH-28**	C24, C30	Outdoor Thermostat Kit used to disable compressor cooling below 50°F outdoor temp. Adjustable between 50° and 0°F
NA	**CMH-36**	C36, C42, C48, C60	Outdoor Thermostat Kit used to disable compressor cooling below 50°F outdoor temp. Adjustable between 50° and 0°F
NA	**CMH-41**	C36, C42, C48, C60	Low Ambient Control allows compressor cooling between 0°F and 50°F out-door temp. - fan cycling & Outdoor Thermostat Kit used to disable compressor cooling below 50°F outdoor temp. Adjustable between 50°F and 0°F.
NA	**CMC-34**	C24, C30	Cooling Failure Alarm Relay Kit
NA	**CMC-35**	C36, C42, C48, C60	Cooling Failure Alarm Relay Kit
NA	**CMC-36**	C24, C30, C36	Crank case heater kit. 230V 1-PH units only.
NA	**CMC-40**	C24, C30, C36	Crank case heater kit, 230V 3-PH units only.
NA	**CMC-37**	C24, C30, C36	Crank case heater kit. 460V 3-PH units only.
NA	**CMC-38**	C42, C48, C60	Crank case heater kit. 230V 1-PH units only.
NA	**CMC-41**	C42, C48, C60	Crank case heater kit, 230V 3-PH units only.
NA	**CMC-39**	C42, C48, C60	Crank case heater kit. 460V 3-PH units only.
NA	**CMC-29**	All Units	Evaporator coil freezestat kit - Freezestat is a standard option on all units with a Low Ambient Control (LAC) or hot gas reheat dehumidification.

FIELD INSTALLED AIR QUALITY KITS

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	**CMC-31**	C24, C30	Dirty Filter Alarm Pressure Sensor Kit. Provides Normally Open Contacts to send an alarm signal to a thermostat or controller.
NA	**CMC-33**	C36, C42, C48, C60	Dirty Filter Alarm Pressure Sensor Kit. Provides Normally Open Contacts to send an alarm signal to a thermostat or controller.
NA	**8620-341**	All units	Needle Point Bipolar Ionization (NPBI) kit. Installed indoor airstream. FC-3 type.
NA	**8620-343**	All 460V Units	LED UV-C Long Life Light Kit. 460V units only. Installed in evaporator coil entering airstream along with door safety switch. Indicator light provided to monitor LED use.
NA	**8620-344**	All 230V Units	LED UV-C Long Life Light Kit. 230V units only. Installed in evaporator coil entering airstream along with door safety switch. Indicator light provided to monitor LED use.

ADVANCED SENSOR OPTIONS AND KITS

Field installed kits provide accessories that can be installed in the field. Required components, 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	**8620-340**	C24, C30	Return Air Sensor Kit for use with all economizers with the JADE controller.
NA	**8620-334**	C36, C42, C48, C60	Return Air Sensor Kit for use with all economizers with the JADE controller.

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
8620-262	C24, C30	Standard Unit Crate, all vents
8620-304	C36, C42	Standard Unit Crate
8620-305	C48, C60	Standard Unit Crate

CABINET AND CLEARANCE DIMENSIONS - C24H TO C30H UNITS

CLEARANCES REQUIRED FOR SERVICE ACCESS AND ADEQUATE CONDENSER INLET AIRFLOW		
MODELS	**LEFT SIDE**	**RIGHT SIDE**
C24, C30	36"	36"

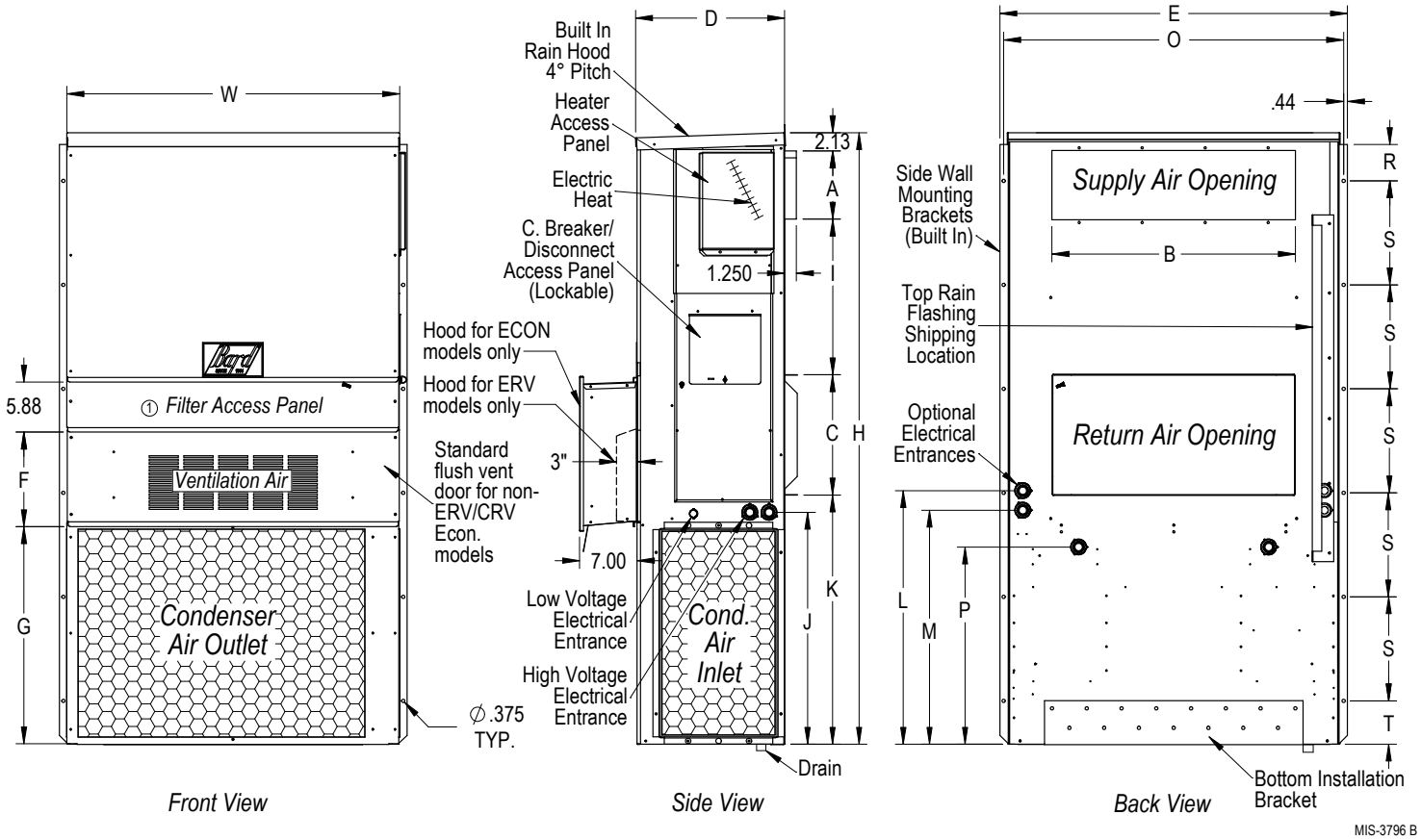
NOTE: For side-by-side installation of two (2) CH models, there must be 20" between units.

MINIMUM CLEARANCES REQUIRED TO COMBUSTIBLE MATERIALS		
MODELS ①	**SUPPLY AIR DUCT FIRST THREE FEET**	**CABINET**
C24, C30	1/4"	0"

① Refer to the Installation Manual for more detailed information.

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.) 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.
3.) Bard recommends a minimum of 15 ft. between the condenser air outlets of 2 units that are facing each other.
4.) Bard recommends a minimum clearance of 4" under the unit cabinet for condenser defrost drain age during heat pump operation.

DIMENSIONS OF C24-30H 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
C24H2 C30H2	38.200	17.125	70.563	7.88	27.88	13.88	27.88	40.00	10.88	25.75	17.93	26.75	28.75	29.25	27.00	2.63	39.13	22.75	9.14	5.00	12.00	5.00



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CABINET AND CLEARANCE DIMENSIONS - C36, C42, C48, C60 SERIES UNITS

CLEARANCES REQUIRED FOR SERVICE ACCESS AND ADEQUATE CONDENSER INLET AIRFLOW		
MODELS	**LEFT SIDE**	**RIGHT SIDE**
C36, C42, C48, C60	36"	36"

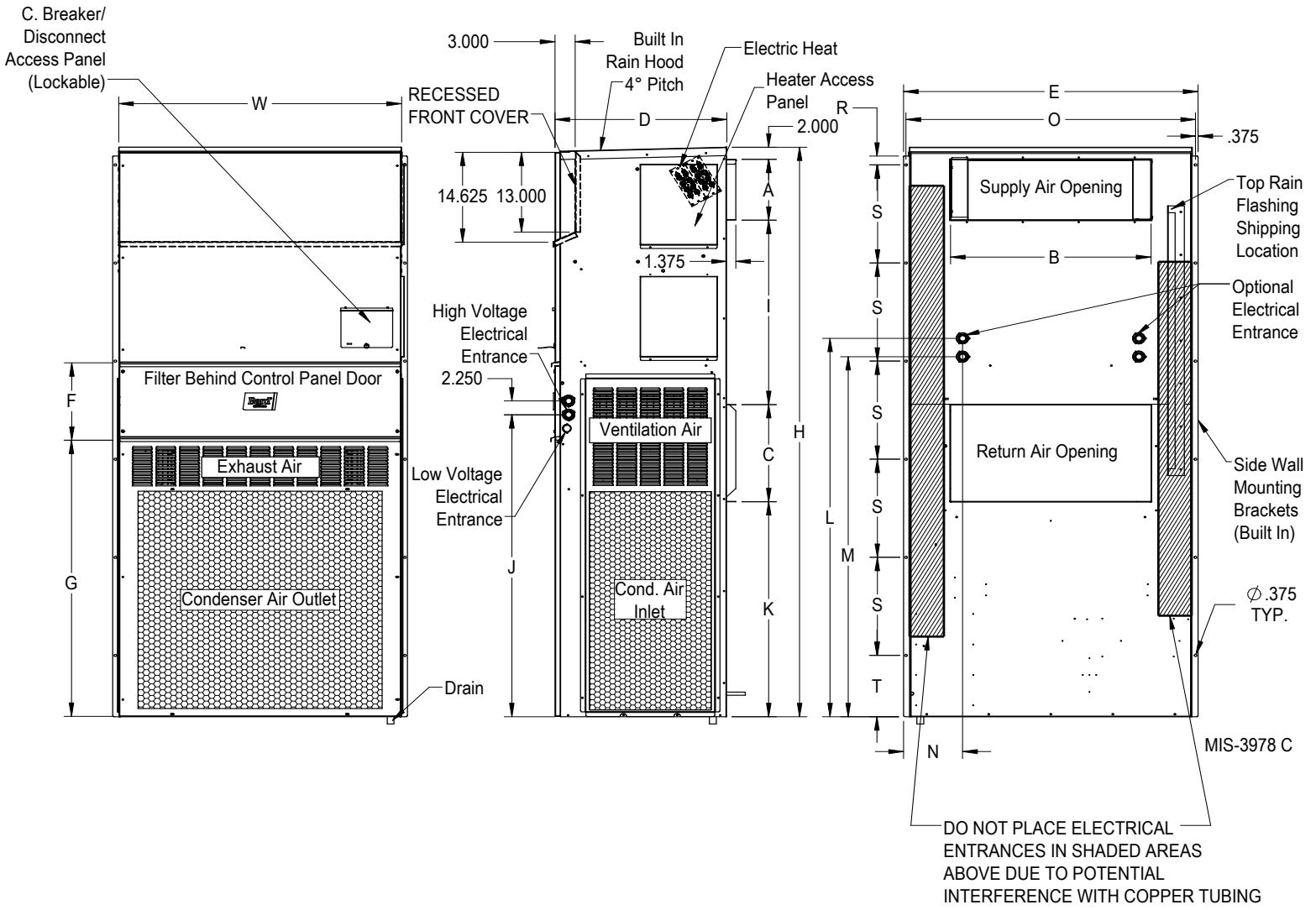
1.) Follow all national, state, and local codes and regulations regarding the installation of heating and cooling equipment regarding Single Packaged Vertical Units (SPVU) including electrical access clearances.
2.) Field ventilation installation with the unit installed requires 40" on the left or right 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**
C36, C42, C48, C60	1/4"	0"

① Refer to the Installation Manual for more detailed information.

DIMENSIONS OF C36HY-60HY 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	U	V
C36 C42	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	10.00	11.62
C48 C60	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	13.00	14.62

① Wall mounting holes in side flanges are 0.375.



INDOOR SOUND REDUCTION ACCESSORIES - SEE S3633

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
WAPR11A-*	C24, C30, C36, C42, C48, C60	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 thru W60 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-3	C24, C30	8" x 28" with 1" Flange 4 way deflection supply grille.
SG-5	C36, C42, C48, C60	10" x 30" with 1" Flange 4 way deflection supply grille.
RG-3	C24, C30	12" x 28" with 1" Flange return grille.
RG-5	C36, C42, C48, C60	16" x 30" with 1" Flange return grille.
SG-3W	C24, C30	8" x 28" with 2" Flange 4 way deflection supply grille.
SG-5W	C36, C42, C48, C60	10" x 30" with 2" Flange 4 way deflection supply grille.
RG-3W	C24, C30	12" x 28" with 2" Flange return grille.
RG-5W	C36, C42, C48, C60	16" x 30" with 2" Flange return grille.
RFG-3W	C24, C30	12" x 28" with 2" Flange return grille with filter bracket.*
RFG-5W	C36, C42, C48, C60	16" x 30" with 2" Flange return grille with filter bracket.*
RGDK-3W	C24, C30	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	C36, C42, C48, C60	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-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.

/////// CONTROLLER, THERMOSTAT, HUMIDISTAT AND CO2 VENTILATION CONTROL OPTIONS

Bard provides a wide variety of controllers for equipment cooling, thermostats, for equipment and comfort cooling, humidistats for dehumidification units, and CO2 sensors for ventilation control. Lockable thermostat covers are available for applications where security or supervisory control is desired.

CONTROLLER	OPERATION	DESCRIPTION
MC4002	1 to 2 Unit Lead/Lag Controller	Standard unit Lead/Lag Controller with remote alarming capability. Optional alarm board and SNMP or web page communication board. On board temperature sensor that can be remote mounted. Can use up to (2) remote temperature sensors.
MC5300	1 to 3 Unit Lead/Lag Controller	Advanced multi-unit Lead/Lag Controller with remote alarming capability. All models have Modbus communication and web pages. Optional alarm board with NO/NC contacts. On board temperature and humidity sensor that can be remote mounted. Can use up to (2) remote temperature sensors.
MC5600	1 to 6 Unit Lead Lag Controller	Advanced multi-unit Lead/Lag Controller with remote alarming capability. All models have Modbus communication and web pages. Optional alarm board with NO/NC contacts. On board temperature and humidity sensor that can be remote mounted. Can use up to (2) remote temperature sensors.

THERMOSTAT	OPERATION	DESCRIPTION
8403-060	3 Heat/3 Cool	Programmable or Nonprogrammable, ventilation output, dehumidification operation
8403-081	3 Heat/2 Cool	BrightStat, Advanced Programmable, ventilation output, dehumidification operation, Motion *(units up to 12KW Electric Heat only)*
8403-083	3 Heat/2 Cool	BrightStat, Advanced Programmable, ventilation output, dehumidification operation *(units up to 12KW Electric Heat only)*
8403-090	2 Heat/2 Cool	Temp. Settings per Day 4, 2, 1, 0 Programs per Week 7, 5-2, 5-1-1 or Nonprogrammable
8403-092	2 Heat/2 Cool	Programmable or Nonprogrammable, ventilation output, Wi-Fi

HUMIDISTAT	OPERATION	DESCRIPTION
8403-047	Humidity %RH	Electronic with display, EEPROM memory, lockable keypad, humidity sensor calibration
8403-100	Humidity %RH	Electronic with display, EEPROM memory, lockable keypad, humidity sensor calibration

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

THERMOSTAT COVER*	SIZE	DESCRIPTION
8405-003	(Inside) 5-1/16" H x 6-1/16" W (Outside) 6-1/2" H x 7-1/2" W x 2-15/16" D	Clear acrylic with ventilation. Fits all thermostats except 8403-060
8405-005	(Inside) 5-7/8" H x 8-3/8" W (Outside) 7-1/4" H x 9-3/4" W x 3-3/8" D	Clear acrylic with ventilation. Fits all thermostats.
8405-006	(Inside) 5-1/16" H x 6-1/16" W (Outside) 6-3/8" H x 7-3/8" W x 2-7/8" D	Clear acrylic with ventilation. Fits all thermostats except 8403-060
8405-007	(Inside) 5-7/8" H x 8-3/8" W (Outside) 7-1/8" H x 9-5/8" W x 3-1/4" D	Beige painted steel cover with ventilation. Fits all thermostats.

* Thermostat covers include ventilation, but may effect temperature control reaction time. If security control lockout is needed, the 8403-060 thermostat provides input control lockout features.

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