

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK



CITY OF PORTLAND BUILDING PERMIT

This is to certify that REMRAE, LLC

Located At 1707 CONGRESS ST

Job ID: 2011-11-2658-HVAC

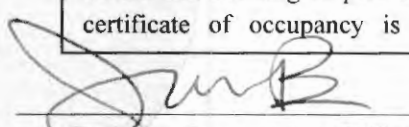
CBL: 219- A-003-001

has permission to Install 2 Carrier Gas Furnaces & 3 condensing units
provided that the person or persons, firm or corporation accepting this permit shall comply with all of the provisions of
the Statutes of Maine and of the Ordinances of the City of Portland regulating the construction, maintenance and use of
the buildings and structures, and of the application on file in the department.

Notification of inspection and written permission procured
before this building or part thereof is lathed or otherwise
closed-in. 48 HOUR NOTICE IS REQUIRED.

A final inspection must be completed by owner
before this building or part thereof is occupied. If a
certificate of occupancy is required, it must be

Fire Prevention Officer

 11/23/11

Code Enforcement Officer / Plan Reviewer

THIS CARD MUST BE POSTED ON THE STREET SIDE OF THE PROPERTY
PENALTY FOR REMOVING THIS CARD

City of Portland, Maine - Building or Use Permit Application

389 Congress Street, 04101 Tel: (207) 874-8703, FAX: (207) 8716

Job No: 2011-11-2658-HVAC	Date Applied: 11/1/2011	CBL: 219- A-003-001	
Location of Construction: 1707 CONGRESS ST (1711)	Owner Name: REMRAF, LLC	Owner Address: PO BOX 3041 PORTLAND, ME 04104	Phone:
Business Name:	Contractor Name: Avery Services	Contractor Address: 7 Thomas DR WESTBROOK ME 04092	Phone:
Lessee/Buyer's Name:	Phone:	Permit Type: HVAC - HVAC	Zone: R-P
Past Use: Professional Offices	Proposed Use: Same - Professional Offices – installing two Carrier gas furnaces & three condensing units	Cost of Work: 20000.00	CEO District:
		Fire Dept: ☒ Approved w/condition ☐ Denied ☐ N/A Signature: <i>Capt. [Signature]</i> 11/12/11	Inspection: <i>B</i> Use Group: Type: <i>HVAC</i> <i>ASHRAE 62.1</i> Signature: <i>[Signature]</i>
Proposed Project Description: Install a carrier 59MN7 Furnace		Pedestrian Activities District (P.A.D.) 11/23/11	

Permit Taken By:	Zoning Approval		
1. This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules. 2. Building Permits do not include plumbing, septic or electrical work. 3. Building permits are void if work is not started within six (6) months of the date of issuance. False information may invalidate a building permit and stop all work.	Special Zone or Reviews ☐ Shoreland ☐ Wetlands ☐ Flood Zone ☐ Subdivision ☐ Site Plan ☐ Maj ☐ Min ☐ MM Date: <i>OK w/condition</i> <i>11/10/11 [Signature]</i>	Zoning Appeal ☐ Variance ☐ Miscellaneous ☐ Conditional Use ☐ Interpretation ☐ Approved ☐ Denied Date:	Historic Preservation ☐ Not in Dist or Landmark ☐ Does not Require Review ☐ Requires Review ☒ Approved ☐ Approved w/Conditions ☐ Denied Date: <i>11/14/11</i> <i>D. Andrews</i>
	CERTIFICATION		

I hereby certify that I am the owner of record of the named property, or that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as his authorized agent and I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in the application is issued, I certify that the code official's authorized representative shall have the authority to enter all areas covered by such permit at any reasonable hour to enforce the provision of the code(s) applicable to such permit.

SIGNATURE OF APPLICANT

ADDRESS

DATE

PHONE

RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE

DATE

PHONE

BUILDING PERMIT INSPECTION PROCEDURES

Please call 874-8703 or 874-8693 (ONLY)

or email: buildinginspections@portlandmaine.gov

With the issuance of this permit, the owner, builder or their designee is required to provide adequate notice to the city of Portland Inspections Services for the following inspections. Appointments must be requested 48 to 72 hours in advance of the required inspection. The inspection date will need to be confirmed by this office.

- **Please read the conditions of approval that is attached to this permit!! Contact this office if you have any questions.**
- **Permits expire in 6 months. If the project is not started or ceases for 6 months.**
- **If the inspection requirements are not followed as stated below additional fees may be incurred due to the issuance of a "Stop Work Order" and subsequent release to continue.**

Final Inspection at completion of work

The project cannot move to the next phase prior to the required inspection and approval to continue, REGARDLESS OF THE NOTICE OF CIRCUMSTANCES.

IF THE PERMIT REQUIRES A CERTIFICATE OF OCCUPANCY, IT MUST BE PAID FOR AND ISSUED TO THE OWNER OR DESIGNEE BEFORE THE SPACE MAY BE OCCUPIED.



PORTLAND MAINE

Strengthening a Remarkable City, Building a Community for Life • www.portlandmaine.gov

Director of Planning and Urban Development
Penny St. Louis

Job ID: 2011-11-2658-HVAC

Located At: 1707 CONGRESS ST

CBL: 219- A-003-001

Conditions of Approval:

Zoning

1. This permit is being approved on the basis of plans submitted. Any deviations shall require a separate approval before starting that work.
2. This zone has maximum noise allowances. The City of Portland strictly enforces the level of sound generated on the property. Any verified noise violations shall require the owner to take mitigating measures to bring the property and the noise it generates into compliance.
3. ANY exterior work requires a separate review and approval thru Historic Preservation. This property is located within a Historic District.

Building

1. Appliance and venting shall be installed in compliance with the manufacturer's specifications and the UL listing.
2. Separate permits are required for any electrical, plumbing, sprinkler, fire alarm, HVAC systems, heating appliances, including pellet/wood stoves, commercial hood exhaust systems and fuel tanks. Separate plans may need to be submitted for approval as a part of this process.
3. The installation must comply with the State of Maine Gas Regulations and ASHRAE 62.1-2007

Fire

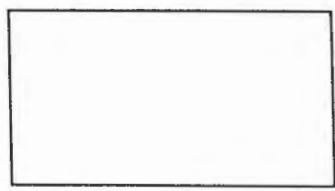
1. Installation shall comply with City Code Chapter 10.
2. Fuel-fired boilers shall be protected in accordance with NFPA 101, *Life Safety Code*.
3. Installation shall comply with NFPA 211, *Standard for Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances*;
4. NFPA 54, *National Fuel Gas Code*;
5. NFPA 90A, *Standard for the Installation of Air-Conditioning and Ventilating Systems*;
6. NFPA 91, *Standard for Exhaust Systems for Air Conveying Vapors, Gases, Mists, and Noncombustible Particulate Solids*;
7. NFPA 70, *National Electrical Code*; and the manufacturer's published instructions.

R-P, history



FILL IN AND SIGN WITH INK

APPLICATION FOR PERMIT HEATING OR POWER EQUIPMENT



To the INSPECTOR OF BUILDINGS, PORTLAND, ME.

The undersigned hereby applies for a permit to install the following heating, cooking or power equipment in accordance with the Laws of Maine, the Building Code of the City of Portland, and the following specifications:

Location / CBL ALA 1707 219 A 3 Use of Building OFFICE SPACE Date 11-1-11
Name and address of owner of appliance DECK KNEOLER PO Box 3041
PORTLAND ME 04104
Installer's name and address AVERY SERVICES, INC 7 THOMAS DRIVE WESTBROOK ME 04092
Telephone _____

Location of appliance:

- ☐ Basement
- ☒ Floor
- ☐ Attic
- ☐ Roof

Type of Fuel:

- ☒ Gas
- ☐ Oil
- ☐ Solid

Appliance Name: CARRIER CARRIER
59MN7 FURNACES & 24 ABS CONDENSER UNIT
U.L. Approved ☒ Yes ☐ No

Will appliance be installed in accordance with the manufacture's installation instructions? ☒ Yes ☐ No

IF NO Explain: _____

The Type of License of Installer:

- ☐ Master Plumber # _____
- ☐ Solid Fuel # _____
- ☐ Oil # _____
- ☒ Gas # PNT 4676
- ☐ Other _____

Type of Chimney:

- ☐ Masonry Lined
- Factory built _____

- ☐ Metal
- Factory Built U.L. Listing # _____

- ☒ Direct Vent
- Type PVC U.L. # _____

Type of Fuel Tank

- ☐ Oil
- ☐ Gas

Size of Tank _____

Number of Tanks _____

Distance from Tank to Center of Flame _____ feet.

Cost of Work: \$14,000

Permit Fee: \$220

RECEIVED
NOV 1
Dept. of Building Inspections
City of Portland, Maine

11-08-11

Approved

Fire: _____
Ele.: _____
Bldg.: _____

Approved with Conditions

- ☐ See attached letter or requirement

Signature of Installer Michael Darling VP

Inspector's Signature _____ Date Approved _____

White - Inspection Yellow - File Pink - Applicant's Gold - Assessor's Copy

AVERY SERVICES, INC.
7 Thomas Drive
WESTBROOK, MAINE 04092
(207) 772-8687

Page 1 of 2

FAX (207) 874-0933

TO: Dick Knedler
PO Box 3041
Portland ME 04104

PHONE 712-0201	DATE 11-1-11
JOB NAME/LOCATION Heat & air conditioning replacement at 1711 Congress Street, Portland, ME	
JOB NUMBER MSD	JOB PHONE

We hereby submit specifications and estimates for

Avery Services, Inc. is pleased to submit a quote to perform the following work:

3rd Floor:

Provide and install a Carrier 59MN7A060 modulating, gas fired furnace with variable speed blower motor.
Provide and install a Carrier CNPVP036 cased cooling coil.
Tie back into existing flue venting (thru the roof), power wiring and supply ductwork.
Modify existing return duct. Provide sidewall filter grille.
Provide and install a Carrier Edge thermostat.
Keep existing gas regulator, gas piping and flue venting outside.

2nd Floor:

Provide and install a Carrier 59MN7A0100 modulating, gas fired furnace with variable speed blower motor.
Provide and install a Carrier CNPVP060 cased cooling coil.
Tie back into existing power wiring and supply ductwork.
Modify existing ductwork.
Provide and install sidewall flue venting
Provide and install a Carrier Edge thermostat.
Keep existing gas regulator, gas piping.

1st Floor:

Relocate existing furnace and modify existing ductwork.

We Propose hereby to furnish material and labor - complete in accordance with the above specifications for the sum of

Cont'd dollars (\$) Cont'd

Payment to be made as follows

\$6,840.00 upon acceptance - Progress billing/net 5 days - All balances due upon substantial completion.

If payment is not made as outlined above, a service charge of 2% per month on the overdue balance plus all reasonable costs of collection including attorney's fees will be paid.

All material is guaranteed to be as specified. All work to be completed in a professional manner according to standard practices. Any alteration or deviation from above specifications involving extra costs will be executed only upon written orders, and will become an extra charge over and above the estimate. All agreements contingent upon strikes, accidents or delays beyond our control. Owner to carry fire, tornado, and other necessary insurance. Our workers are fully covered by Worker's Compensation insurance.

Acceptance of Proposal - The above prices, specifications and conditions are satisfactory and are hereby accepted. You are authorized to do the work as specified. Payment will be made as outlined above.

Date of Acceptance

1 NOV 2011

Authorized Signature

Be Jay, President
NOTE: This proposal may be withdrawn by us if not accepted within 30 days

Signature

[Signature]

Signature

PROPOSAL

983

AVERY SERVICES, INC.
7 Thomas Drive
WESTBROOK, MAINE 04092
(207) 772-8687

Page 2 of 2

FAX (207) 874-0933

TO Dick Knedler
PO Box 3041
Portland ME 04104

PHONE	DATE
712-0201	11-1-11
JOB NAME/LOCATION	
Heat & air conditioning replacement at 1711 Congress Street, Portland, ME	
JOB NUMBER	JOB PHONE
MSD	

We hereby submit specifications and estimates for:

Provide and install a Carrier cased cooling coil.
Provide and install a Carrier air cleaner.
Tie back into existing power wiring and supply ductwork.
Provide and install sidewall flue venting above the gas meter location
Provide and install a Carrier Edge thermostat.
Keep existing gas regulator and gas piping.

Demo existing condensing units and gas piping on the side of building.
Cap off existing refrigerant line and flush out with RX-11 Flush.

Provide and install a Carrier 24ABB336, 3-ton condensing unit for the 3rd floor.
Provide and install two (2) Carrier 24ABB360, 5-ton condensing units for 1st and 2nd floors.
Provide and install three (3) condensing unit covers (provided at no charge).
Start up and test units.
Condensing units - \$5,400.00 Install labor \$414.00

EXCLUSIONS: Structural modifications, carpentry, electrical upgrades, refrigerant leaks in existing piping, and adequacy of existing systems.

We propose hereby to furnish material and labor - complete in accordance with the above specifications for the sum of

Nineteen Thousand Four Hundred Forty and 00/100 Dollars

dollars \$

19,440.00

Payment to be made as follows:

\$6,840.00 upon acceptance - Progress billing/net 5 days - All balances due upon substantial completion.

If payment is not made as outlined above, a service charge of 2% per month on the overdue balance plus all reasonable costs of collection including attorney's fees will be paid.

All material is guaranteed to be as specified. All work to be completed in a professional manner according to standard practices. Any alteration or deviation from above specifications involving extra costs will be executed only upon written orders, and will become an extra charge over and above the estimate. All agreements contingent upon strikes, accidents or delays beyond our control. Owner to carry fire, tornado and other necessary insurance. Our workers are fully covered by Worker's Compensation insurance.

Acceptance of Proposal - The above prices, specifications and conditions are satisfactory and are hereby accepted. You are authorized to go the work as specified. Payment will be made as outlined above.

Date of Acceptance

1 NOV 2011

Authorized
SignatureNOTE: This proposal may be
withdrawn by us if not accepted within

30

days

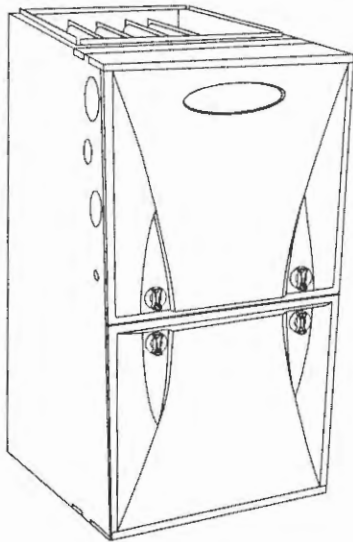
Signature

Signature

**59MN7A
Infinity® Modulating
4-Way Multipoise
Condensing Gas Furnace
Series 100**



Product Data



A11263

The 59MN7A Multipoise Variable-Capacity Condensing Gas Furnace features the modulating Infinity® System. The innovative modulating gas valve is at the heart of this furnace's quiet operation, along with the variable-speed ECM blower motor and variable-speed inducer motor. This furnace also provides 3.5 times tighter temperature control than single stage furnaces. With an Annual Fuel Utilization Efficiency (AFUE) up to 97.4%, this Infinity gas furnace provides exceptional savings over standard furnaces as well. This Infinity Gas Furnace also features 4-way multipoise installation flexibility. The 59MN7A can be vented as a direct vent/two-pipe furnace or as an optional ventilated combustion air application. A Carrier Infinity® Control and an Infinity Air Conditioner or Heat Pump can be used to form a complete Infinity System. All units meet California Air Quality Management District emission requirements. All sizes are design certified in Canada.

STANDARD FEATURES

- Our quietest furnace. Compare for yourself at HVACpartners.com
- Supports single- and multiple-zone Infinity systems
- Ideal height 35" (889 mm) cabinet: short enough for taller coils, but still allows enough room for service
- Infinity Features—match with the Infinity Control for Infinity

System benefits

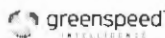
- Integral part of the Ideal Humidity System® Technology
- Silicon Nitride Power Heat™ Hot Surface Igniter
- SmartEvap™ technology helps control humidity levels in the home when used with a compatible humidity control system
- ComfortFan™ technology allows control of continuous fan speed from a compatible thermostat
- External Media Filter Cabinet included
- 4-way multipoise design for upflow, downflow or horizontal installations, with unique vent elbow and optional through-the-cabinet downflow venting capability
- Variable-Speed blower and inducer motors, modulating gas valve
- Self-diagnostics and extended diagnostic data through the Advanced Product Monitor (APM) accessory or Infinity User Interface
- Adjustable blower speed for cooling, continuous fan, and dehumidification
- Aluminized-steel primary heat exchanger
- Stainless-steel condensing secondary heat exchanger
- Propane convertible (See Accessory list).
- Factory-configured ready for upflow applications
- Fully-insulated casing including blower section
- Convenient Electronic Air Cleaner and Humidifier connections
- Direct-vent/sealed combustion or ventilated combustion air venting
- Installation flexibility: sidewall or vertical vent
- Residential installations may be eligible for consumer financing through the Retail Credit Program

LIMITED WARRANTY*

- 10 year parts and lifetime heat exchanger limited warranty to the original purchaser upon timely registration.
- Limited warranty period is five years for parts and twenty years for the heat exchanger if not registered within 90 days of installation.†

* For owner occupied, residential applications.

† Jurisdictions where warranty benefits cannot be conditioned on registration will receive registered limited warranty benefits.



Use of the AHRI Certified or Mark indicates a manufacturer's participation in the program. For verification of certification for individual products, go to www.ahridirectory.org.



SPECIFICATIONS

Heating Capacity and Efficiency			060-14	080-14	100-20	120-22
Input	Maximum Heat	(BTUH)	60,000	80,000	100,000	120,000
	Intermediate Heat	(BTUH)	39,000	52,000	65,000	78,000
	Minimum Heat	(BTUH)	24,000	32,000	40,000	48,000
Output	Maximum Heat	(BTUH)	59,000	78,000	97,000	117,000
	Intermediate Heat	(BTUH)	38,000	51,000	63,000	76,000
	Minimum Heat	(BTUH)	24,000	31,000	39,000	47,000
Efficiency	AFUE % (ICS)		97.4	97.4	97.1	97.2
Certified Temperature Rise Range °F (°C)		Maximum Heat	35 - 65 (19-36)	40 - 70 (21-38)	45 - 75 (25-41)	45 - 75 (25-41)
		Intermediate Heat	50 - 80 (27-44)	50 - 80 (27-44)	50 - 80 (27-44)	50 - 80 (27-44)
		Minimum Heat	35 - 65 (19-36)	35 - 65 (19-36)	35 - 65 (19-36)	35 - 65 (19-36)
Airflow Capacity and Blower Data			060-14	080-14	100-20	120-22
Certified External Static Pressure (in. w.c.)		Heating	0.12	0.15	0.20	0.20
		Cooling	0.5	0.5	0.5	0.5
Airflow Delivery @ Rated ESP (CFM)		Maximum Heat	1075	1510	1515	1815
		Intermediate Heat	530	750	905	1100
		Minimum Heat	415	620	725	900
		Cooling	1335	1375	2030	2185
Cooling Capacity (tons) @ 400, 350 CFM/ton		400 CFM/ton	3	3.5	5	5.5
		350 CFM/ton	3.5	4	5.5	6
Direct-Drive Motor Type			Electronically Commutated Motor (ECM)			
Direct-Drive Motor HP			1/2	1/2	1	1
Motor Full Load Amps			7.7	7.7	12.8	12.8
RPM Range			300 - 1300			
Speed Selections			Variable (Communicating)			
Blower Wheel Dia. X Width		in.	11 x 8	11 x 8	11 x 10	11 x 11
Air Filtration System			Factory Supplied Media Cabinet Field Supplied Filter			
Filter Used for Certified Watt Data			KGAWF1306UFR	KGAWF1306UFR	KGAWF1406UFR	KGAWF1506UFR
Electrical Data			060-14	080-14	100-20	120-22
Input Voltage		Volts-Hertz-Phase	115-60-1			
Operating Voltage Range		Min-Max	104-127			
Maximum Input Amps		Amps	9.7	9.7	14.8	14.8
Unit Ampacity		Amps	12.7	12.7	19.1	19.1
Minimum Wire Size		AWG	14	14	12	12
Maximum Wire Length @ Minimum Wire Size		Feet	29	29	30	30
		(M)	(8.8)	(8.8)	(9.1)	(9.1)
Maximum Fuse/Ckt Bkr (Time-Delay Type Recommended)		Amps	15	15	20	20
Transformer Capacity (24vac output)			40 VA			
External Control Power Available		Heating	27.9 VA			
		Cooling	27.9 VA			
Controls			060-14	080-14	100-20	120-22
Gas Connection Size			1/2" - NPT			
Burners (Monoport)			3	4	5	6
Gas Valve (Redundant)		Manufacturer	White Rogers™			
		Minimum Inlet Gas pressure (in. W.C.)	4.5			
		Maximum Inlet Gas pressure (in. W.C.)	13.6			
Gas Conversion Kit - Natural to Propane			KGANP5201VSP			
Gas Conversion Kit - Propane to Natural			KGAPN4401VSP			
Manufactured (Mobile) Home Kit			not approved for MH use			
Ignition Device			Silicon Nitride			
Limit Control			180	170	160	160
Heating Blower Control (Heating Off-Delay)			Adjustable: 90, 120, 150, 180 seconds			
Cooling Blower Control (Time Delay Relay)			90 seconds			
Communication System			Infinity; Infinity Zoning			
Thermostat Connections			W2, Y1, DHUM, G, COM 24V, W/W1, Y/Y2, R			
Accessory Connections			EAC (115vac); HUM (24vac); 1-stg AC (via Y/Y2)			

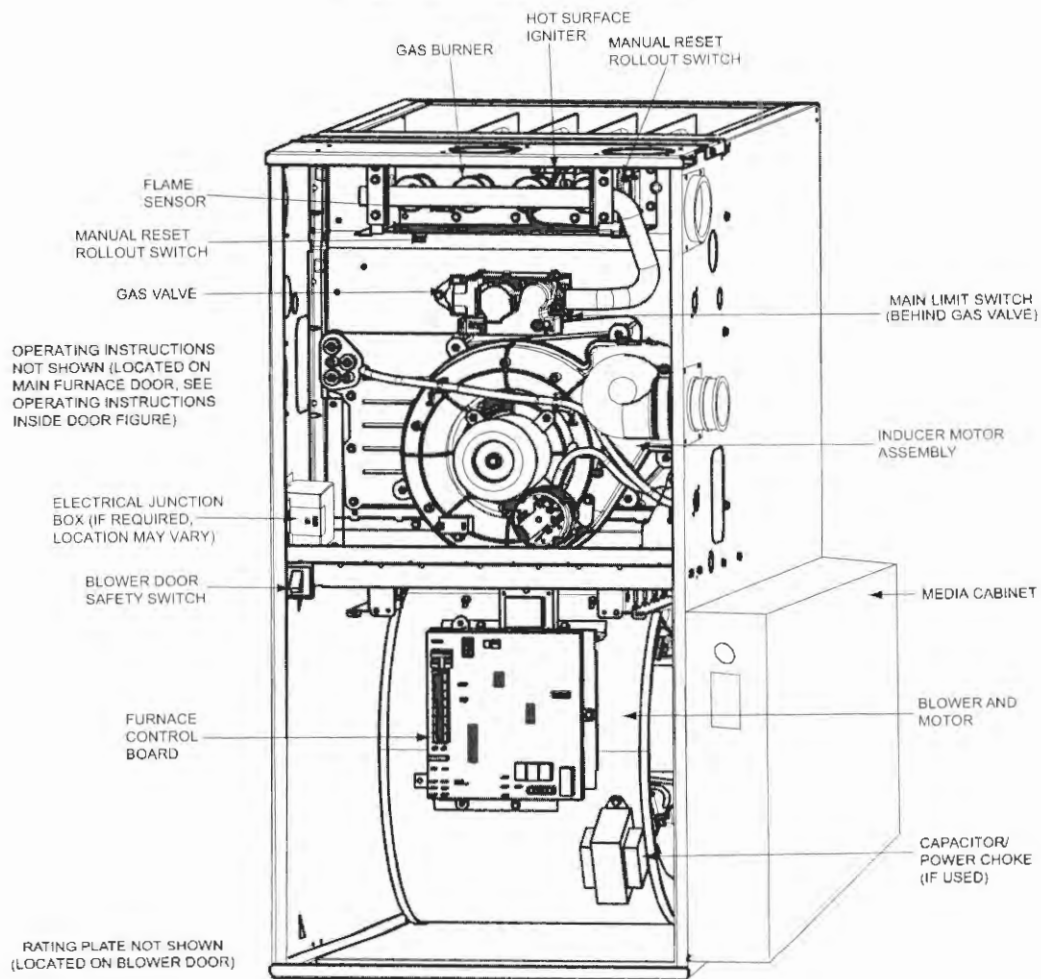
MODEL NUMBER NOMENCLATURE

1 - 2 Family	3 Htg. Stages	4 Tier	5 Effy.	6 Major Series	7 - 9 Htg. Cap.	10 Motor	11 - 12 Width	13 Voltage	14 Minor Series	15 - 16 Airflow
59	M	N	7	A	060	V	17	--	--	14
Family	S - Single Stage T - Two Stage M - Modulating	C - Comfort P - Performance N - Infinity	0 - 90 AFUE 3 - 93 AFUE 5 - 95 AFUE 6 - 96 AFUE 7 - 97 AFUE	Major Series	040=40,000 BTU 060=60,000 BTU 080=80,000 BTU 100=100,000 BTU 120=120,000 BTU	S - Standard E - Energy Efficient V - Variable Speed	14 - 14.2" 17 - 17.5" 21 - 21.0" 24 - 24.5"	Voltage	Minor Series	08 - 800 CFM 10 - 1000 CFM 12 - 1200 CFM 14 - 1400 CFM 16 - 1600 CFM 18 - 1800 CFM 20 - 2000 CFM 22 - 2200 CFM

Not all families have these models.

A11159

FURNACE COMPONENTS



REPRESENTATIVE DRAWING ONLY. SOME MODELS MAY VARY IN APPEARANCE

A11408

ACCESSORIES

DESCRIPTION	PART NUMBER	060-14	080-14	100-20	120-22
Venting, Drainage and Installation					
Vent Kit - Through the Cabinet	KGADC0101BVC	X	X	X	X
Vent Terminal - Concentric - 2" (51 mm)	KGAVT0701CVT	X	X	X	N/A
Vent Terminal - Concentric - 3" (76 mm)	KGAVT0801CVT	X	X	X	X
Vent Terminal Bracket - 2" (51 mm)	KGAVT0101BRA	X	X	X	N/A
Vent Terminal Bracket - 3" (76 mm)	KGAVT0201BRA	X	X	X	X
CPVC to PVC Drain Adapters - 1/2" CPVC to 3/4" PVC	KGAAD0110PVC	X	X	X	X
Horizontal Trap Grommet - Direct Vent	KGACK0101HCK	X	X	X	X
Freeze Protect Kit - Heat Patch for Drain Trap	KGAHT0201CFP	X	X	X	X
Freeze Protect Kit - Heat Tape	KGAHT0101CFP	X	X	X	X
Furnace Base Kit for Combustible Floors	KGASB0201ALL	X	X	X	X
Gas Conversion					
Gas Cnv Kit - Nat to LP; Var-spd Products	KGANP5201VSP	X	X	X	X
Gas Cnv Kit - LP to Nat; Var-spd Products	KGAPN4401VSP	X	X	X	X
Gas Orifice Kit - #42 (Nat Gas)	KGAHA0150N42	X	X	X	X
Gas Orifice Kit - #43 (Nat Gas)	KGAHA0250N43	X	X	X	X
Gas Orifice Kit - #44 (Nat Gas)	KGAHA0350N44	X	X	X	X
Gas Orifice Kit - #45 (Nat Gas)	KGAHA0450N45	X	X	X	X
Gas Orifice Kit - #46 (Nat Gas)	KGAHA0550N46	X	X	X	X
Gas Orifice Kit - #47 (Nat Gas)	KGAHA1550N47	X	X	X	X
Gas Orifice Kit - #48 (Nat Gas)	KGAHA1650N48	X	X	X	X
Gas Orifice Kit - #54 (LP)	KGAHA0850P54	X	X	X	X
Gas Orifice Kit - #55 (LP)	KGAHA0750P55	X	X	X	X
Gas Orifice Kit - #56 (LP)	KGAHA0850P56	X	X	X	X
Gas Orifice Kit - 1.25mm (LP)	KGAHA5750125	X	X	X	X
Gas Orifice Kit - 1.30mm (LP)	KGAHA5750130	X	X	X	X
Indoor Air Quality					
Carrier Infinity Air Purifier - 16x25 (406x635 mm)	GAPAAAXCC1625-A08	X	X	X	X
Carrier Infinity Air Purifier - 20x25 (508x635 mm)	GAPAAAXCC2025-A08	X	X	X	X
Carrier Infinity Air Purifier Repl. Filter- 16x25 (406x635 mm)	GAPACCCAR1625-A05	X	X	X	X
Carrier Infinity Air Purifier Repl. Filter- 20x25 (508x635 mm)	GAPACCCAR2025-A05	X	X	X	X
EZ Flex Cabinet 16" (406 mm)	EZXCABCC1016-A20	X	X	X	X
EZ Flex Cabinet 20" (508 mm)	EZXCABCC1020-A20	X	X	X	X
Cartridge Media Filter - 16" (406 mm)	FILXXCAR0016	X	X	X	X
Cartridge Media Filter - 20" (508 mm)	FILXXCAR0020	X	X	X	X
Cartridge Media Filter - 24" (610 mm)	FILXXCAR0024	X	X	X	X
EZ-Flex Filter - 16" (406 mm)	EXPXXFIL0016	X	X	X	X
EZ-Flex Filter - 20" (508 mm)	EXPXXFIL0020	X	X	X	X
EZ-Flex Filter - 24" (610 mm)	EXPXXFIL0024	X	X	X	X
EZ-Flex Filter with End Caps - 16" (406 mm)	EXPXXUNV0016	X	X	X	X
EZ-Flex Filter with End Caps - 20" (508 mm)	EXPXXUNV0020	X	X	X	X
EZ-Flex Filter with End Caps - 24" (610 mm)	EXPXXUNV0024	X	X	X	X
Filter Pack (6 pack) - Washable - 16x25x1 (406x635x25 mm)	KGAWF1306UFR	X	X	X	X
Filter Pack (6 pack) - Washable - 24x25x1 (610x635x25 mm)	KGAWF1506UFR	X	X	X	X
Controls					
Infinity™ Control User Interface	SYSTXCCUID01-V	X	X	X	X
Infinity™ Control Zoning User Interface	SYSTXCCUIZ01-V	X	X	X	X
Service Tools					
Advanced Product Monitor - APM (CBP, Only)	KGASD0301APM	X	X	X	X
ECM Motor Simulator Kit	KGASD0301FMS	X	X	X	X

X = Used with the model furnace

N/A = Not used with the model furnace

AIR DELIVERY - CFM (BOTTOM RETURN WITH FILTER)

(SW1-5 and SW4-3 set to OFF, except as indicated. See Notes 1 and 2.)

INPUT BTUH	Cooling Switch Settings			External Static Pressure (E.S.P.)									
	SW2-3	SW2-2	SW2-1	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
60000	OFF	OFF	OFF	1060	1070	1080	1080	1075	1065	1050	1035	1025	1010
	OFF	OFF	ON	545	530	520	525	510					
	OFF	ON	OFF	710	710	710	695	690					
	OFF	ON	ON	875	880	890	895	895	890	885	880	870	855
	ON	OFF	OFF	1060	1070	1080	1080	1075	1065	1050	1035	1025	1010
	ON	OFF	ON	1235	1240	1250	1255	1255	1250	1230	1190	1155	1115
	ON	ON	OFF	1235	1240	1250	1255	1255	1250	1230	1190	1155	1115
	ON	ON	ON	1235	1240	1250	1255	1255	1250	1230	1190	1155	1115
	Maximum Cooling Airflow ²			1425	1425	1405	1370	1335	1300	1260	1225	1190	1155
	Maximum Heat Airflow ³			1075	1085	1095	1095	1090	1080	1065	1050	1035	1020
	Intermediate Heat Airflow ³			535	515	505	515	495					
	Minimum Heat Airflow ³			420	410	415	400	380					
INPUT BTUH	Cooling Switch Settings			External Static Pressure (E.S.P.)									
	SW2-3	SW2-2	SW2-1	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
80000	OFF	OFF	OFF	1055	1065	1080	1075	1065	1050	1045	1035	1025	1005
	OFF	OFF	ON	520	505	505	495	490					
	OFF	ON	OFF	665	685	680	660	665					
	OFF	ON	ON	885	895	905	900	900	895	885	875	860	845
	ON	OFF	OFF	1055	1065	1080	1075	1065	1050	1045	1035	1025	1005
	ON	OFF	ON	1245	1245	1255	1255	1260	1255	1250	1235	1220	1185
	ON	ON	OFF	1245	1245	1255	1255	1260	1255	1250	1235	1220	1185
	ON	ON	ON	1245	1245	1255	1255	1260	1255	1250	1235	1220	1185
	Maximum Cooling Airflow ²			1520	1485	1450	1415	1375	1335	1300	1265	1225	1190
	Maximum Heat Airflow ³			1520	1485	1450	1415	1375	1335	1300	1265	1225	1190
	Intermediate Heat Airflow ³			755	745	755	755	765					
	Minimum Heat Airflow ³			620	625	630	620	610					

AIR DELIVERY - CFM (BOTTOM RETURN WITH FILTER) (CONTINUED)

(SW1-5 and SW4-3 set to OFF, except as indicated. See Notes 1 and 2.)

INPUT BTUH	Cooling Switch Settings			External Static Pressure (E.S.P.)									
	SW2-3	SW2-2	SW2-1	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
100000	OFF	OFF	OFF	1815	1810	1805	1800	1785	1765	1745	1720	1710	1685
	OFF	OFF	ON	765	775	755	730	710					
	OFF	ON	OFF	930	940	935	930	935					
	OFF	ON	ON	1095	1120	1120	1105	1095	1100	1085	1075	1055	1050
	ON	OFF	OFF	1245	1270	1275	1280	1290	1280	1285	1270	1260	1245
	ON	OFF	ON	1440	1445	1455	1445	1450	1440	1440	1425	1415	1405
	ON	ON	OFF	1815	1810	1805	1800	1785	1765	1745	1720	1710	1685
	ON	ON	ON	1815	1810	1805	1800	1785	1765	1745	1720	1710	1685
	Maximum Cooling Airflow ²			2055	2055	2050	2045	2030	2015	1995	1940	1870	1805
	Maximum Heat Airflow ³			1495	1515	1515	1520	1525	1520	1515	1505	1490	1480
	Intermediate Heat Airflow ³			900	905	900	900	890					
	Minimum Heat Airflow ³			725	725	720	690	670					
INPUT BTUH	Cooling Switch Settings			External Static Pressure (E.S.P.)									
	SW2-3	SW2-2	SW2-1	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
120000 ⁶	OFF	OFF	OFF	1850	1855	1860	1855	1850	1830	1805	1775	1750	1730
	OFF	OFF	ON	765	745	740	705	680					
	OFF	ON	OFF	930	925	915	900	885					
	OFF	ON	ON	1095	1100	1110	1105	1085					
	ON	OFF	OFF	1265	1255	1265	1280	1275	1285	1270	1260	1250	1230
	ON	OFF	ON	1465	1455	1470	1465	1465	1470	1455	1450	1435	1415
	ON	ON	OFF	1850	1855	1860	1855	1850	1830	1805	1775	1750	1730
	ON	ON	ON	2200	2200	2200	2190	2185	2170	2145	2085	1990	1890
	Maximum Cooling Airflow ²			2200	2200	2200	2190	2185	2170	2145	2085	1990	1890
	Maximum Heat Airflow ³			1815	1820	1825	1820	1815	1795	1775	1745	1720	1700
	Intermediate Heat Airflow ³			1095	1100	1110	1105	1085					
	Minimum Heat Airflow ³			905	900	890	875	855					

1. Nominal 350 CFM/ton cooling airflow is delivered with SW1-5 and SW4-2 set to OFF.

Set SW1-5 to ON for nominal 400 CFM/ton (+15% airflow).

Set SW4-3 to ON for nominal 325 CFM/ton (-7% airflow).

Set both SW1-5 and SW4-3 to ON for nominal 370 CFM/ton (+7% airflow).

2. Maximum cooling airflow is achieved when switches SW3-1, SW3-2, SW3-3 and SW1-5 are set to ON, and SW4-3 is set to OFF.

3. All heating CFM's are when minimum/intermediate heat rise adjustment switch (SW1-3) and comfort/efficiency adjustment switch (SW1-4) are both set to OFF.

4. Ductwork must be sized for maximum-heating CFM within the operational range of E.S.P. Operation within the blank areas of the chart is not recommended because maximum-heat operation will be above 1.0 E.S.P.

5. All airflows on 21" (533 mm) casing size furnaces are 5% less on side return only installations.)

6. Side returns for 24.5" (622 mm) casing sizes require two sides, or side and bottom, to allow sufficient airflow at the return of the furnace.

MAXIMUM EQUIVALENT VENT LENGTH - FT. (M)

NOTE: Maximum Equivalent Vent Length (MEVL) does NOT include elbows or terminations. Use Table 2 - Deductions from Maximum Equivalent Vent Length to determine allowable vent length for each application.

Table 1 – Maximum Equivalent Vent Length - Ft. (M)
0 to 4500 Ft. (0 to 1370 M) Altitude

Altitude FT (M)	Unit Size BTU/Hr	DIRECT VENT (2-PIPE) AND VENTILATED COMBUSTION AIR ONLY									
		Vent Pipe Diameter (in.)									
		1-1/2		2		2-1/2		3		4	
0 to 2000 (0 to 610)	60,000	55	(16.8)	135	(41.1)	235	(71.6)	265	(80.8)	NA	
	80,000	35	(10.7)	130	(39.6)	175	(53.3)	235	(71.6)	265	(80.8)
	100,000	NA		50	(15.2)	110	(33.5)	235	(71.6)	265	(80.8)
	120,000	NA		NA		15	(4.6)	100	(30.5)	250	(76.2)
2001 to 3000 (610 to 914)	60,000	45	(13.7)	127	(38.7)	222	(67.7)	250	(76.2)	NA	
	80,000	30	(9.1)	90	(27.4)	165	(50.3)	222	(67.7)	249	(75.9)
	100,000	NA		40	(12.2)	104	(31.7)	223	(68.0)	250	(76.2)
	120,000	NA		NA		11	(3.4)	93	(28.3)	237	(72.2)
3001 to 4000 (914 to 1219)	60,000	40	(12.2)	119	(36.3)	210	(64.0)	235	(71.6)	NA	
	80,000	25	(7.6)	85	(25.9)	155	(47.2)	210	(64.0)	232	(70.7)
	100,000	NA		40	(12.2)	98	(29.9)	211	(64.3)	236	(71.9)
	120,000	NA		NA		8	(2.4)	86	(26.2)	224	(68.3)
4001 to 4500 (1219 to 1370)	60,000	35	(10.7)	115	(35.1)	204	(62.2)	228	(69.5)	NA	
	80,000	23	(7.0)	85	(25.9)	150	(45.7)	202	(61.6)	224	(68.3)
	100,000	NA		40	(12.2)	94	(28.7)	205	(62.5)	229	(69.8)
	120,000	NA		NA		NA		83	(25.3)	217	(66.1)

* See notes at end of venting tables.

* See Table 3 for altitudes over 4500 ft. (1370 M)

Table 2 – Deductions from Maximum Equivalent Vent Length - Ft. (M)

Pipe Diameter (in.):	1-1/2		2		2-1/2		3*		4*	
Mitered 90° Elbow	8	(2.4)	8	(2.4)	8	(2.4)	NA	NA	NA	NA
Medium Radius 90° Elbow	5	(1.5)	5	(1.5)	5	(1.5)	NA	NA	NA	NA
Long Radius 90° Elbow	3	(0.9)	3	(0.9)	3	(0.9)	3	(0.9)	3	(0.9)
Mitered 45° Elbow	4	(1.2)	4	(1.2)	4	(1.2)	NA	NA	NA	NA
Medium Radius 45° Elbow	2.5	(0.8)	2.5	(0.8)	2.5	(0.8)	NA	NA	NA	NA
Long Radius 45° Elbow	1.5	(0.5)	1.5	(0.5)	1.5	(0.5)	1.5	(0.5)	1.5	(0.5)
Tee	16	(4.9)	16	(4.9)	16	(4.9)	16	(4.9)	16	(4.9)

* Note: 3- and 4-in. Vent pipe systems require long radius elbows.

Venting System Length Calculations

The maximum length for each vent pipe (inlet or exhaust) equals the Maximum Equivalent Vent Length (MEVL) from Table 1 or Table 3 minus the number of elbows multiplied by the deduction for each elbow in Table 2.

Standard vent terminations and concentric vent terminations count for zero deductions.

Example

A direct-vent 60,000 Btuh furnace installed at 2100 ft. (640 m) with 2-in.(51 mm) Vent piping. Venting system includes, **FOR EACH PIPE**, (3) 90° long radius elbows, (2) 45° long radius elbows and a concentric vent kit.

Maximum Equivalent Vent Length			=	127 ft.	(From Table 1)
Deduct (3) 90 long radius	3	x	3 ft.	=	- 9 ft. (From Table 2)
Deduct (2) 45 long radius	2	x	1.5 ft.	=	- 3 ft. (From Table 2)
Maximum Vent Length			=	115 ft.	For EACH vent or inlet pipe

MAXIMUM EQUIVALENT VENT LENGTH - FT. (M)

NOTE: Maximum Equivalent Vent Length (MEVL) does NOT include elbows or terminations. Use Table 2 - Deductions from Maximum Equivalent Vent Length to determine allowable vent length for each application.

Table 3 – Maximum Equivalent Vent Length - Ft. (M)
4501 to 10,000 Ft. (0 to 1370 M) Altitude

Altitude FT (M)	Unit Size	DIRECT VENT (2-PIPE) AND VENTILATED COMBUSTION AIR ONLY									
		Vent Pipe Diameter									
		1-1/2		2		2-1/2		3		4	
4501 to 5000 (1370 to 1524)	60,000	35	(10.7)	111	(33.8)	198	(60.4)	221	(67.4)	NA	
	80,000	23	(7.0)	85	(25.9)	146	(44.5)	195	(59.4)	216	(65.8)
	100,000	NA		40	(12.2)	91	(27.7)	200	(61.0)	222	(67.7)
	120,000	NA		NA		NA		80	(24.4)	211	(64.3)
5001 to 6000 (1524 to 1829)	60,000	37	(11.3)	103	(31.4)	186	(56.7)	207	(63.1)	NA	
	80,000	22	(6.7)	76	(23.2)	137	(41.8)	183	(55.8)	200	(61.0)
	100,000	NA		33	(10.1)	85	(25.9)	188	(57.3)	208	(63.4)
	120,000	NA		NA		NA		74	(22.6)	199	(60.7)
6001 to 7000 (1829 to 2134)	60,000	35	(10.7)	96	(29.3)	174	(53.0)	194	(59.1)	NA	
	80,000	20	(6.1)	71	(21.6)	120	(36.6)	171	(52.1)	185	(56.4)
	100,000	NA		31	(9.4)	79	(24.1)	178	(54.3)	195	(59.4)
	120,000	NA		NA		NA		68	(20.7)	187	(57.0)
7001 to 8000 (2134 to 2438)	60,000	32	(9.8)	89	(27.1)	163	(49.7)	181	(55.2)	NA	
	80,000	18	(5.5)	66	(20.1)	120	(36.6)	159	(48.5)	170	(51.8)
	100,000	NA		29	(8.8)	73	(22.3)	167	(50.9)	182	(55.5)
	120,000	NA		NA		NA		62	(18.9)	175	(53.3)
8001 to 9000 (2438 to 2743)	60,000	30	(9.1)	82	(25.0)	152	(46.3)	168	(51.2)	NA	
	80,000	17	(5.2)	62	(18.9)	111	(33.8)	148	(45.1)	156	(47.5)
	100,000	NA		27	(8.2)	67	(20.4)	157	(47.9)	170	(51.8)
	120,000	NA		NA		NA		56	(17.1)	164	(50.0)
9001 to 10,000 (2743 to 3048)	60,000	27	(8.2)	76	(23.2)	142	(43.3)	156	(47.5)	NA	
	80,000	15	(4.6)	57	(17.4)	103	(31.4)	137	(41.8)	142	(43.3)
	100,000	NA		24	(7.3)	62	(18.9)	147	(44.8)	157	(47.9)
	120,000	NA		NA		NA		51	(15.5)	153	(46.6)

Notes:

- 3- and 4-in. Vent pipe systems require long radius elbows.
- Vent sizing for Canadian installations over 4500 ft. (1370 M) above sea level are subject to acceptance by the local authorities having jurisdiction.
- NA – Not allowed; pressure switch will not close, or flame disturbance may result.
- Do not use pipe size greater than those specified in table or incomplete combustion, flame disturbance, or flame sense lockout may occur.
- Size both the combustion –air and vent pipe independently, then use the larger diameter for both pipes.
- Assume the two 45° elbows equal one 90° elbow. Wide radius elbows are desirable and may be required in some cases.
- Elbows and pipe sections within the furnace casing and at the vent termination should not be included in vent length or elbow count.
- The minimum pipe length is 5 ft. (1.5 M) for all applications.
- Use 3-in. (76 mm) diameter vent termination kit for installations requiring 4-in. (102 mm) diameter pipe.

MAXIMUM ALLOWABLE EXPOSED VENT PIPE LENGTH INSULATION TABLE - FT. / M

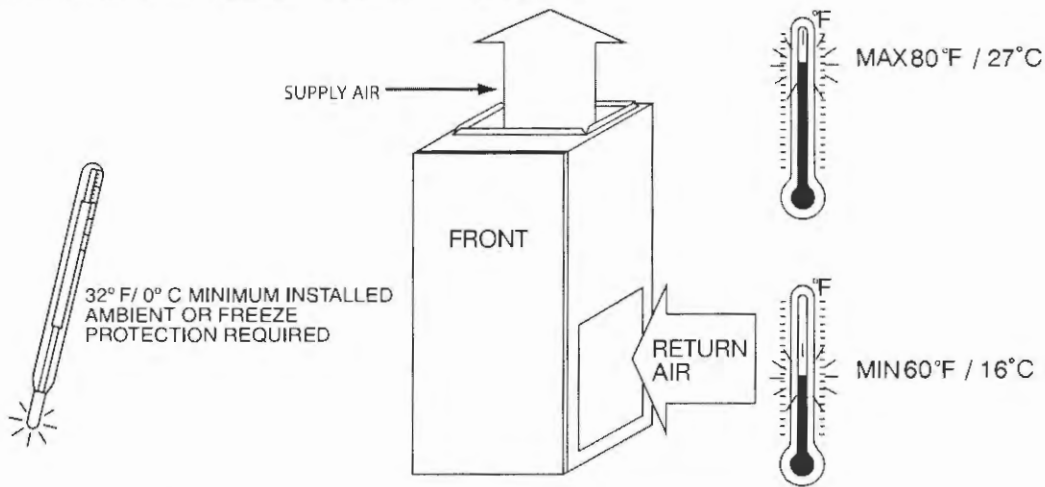
Maximum Length of Uninsulated and Insulated Vent Pipe-Ft (M)																	
Modulating Furnace High Heat Input	Winter Design Temp °F (°C)	Pipe Length in Ft. & M	No Insulation					3/8-in. (9.5 mm)					1/2-in. (12.7 mm)				
			Pipe Diameter-in. (mm)					Pipe Diameter-in. (mm)					Pipe Diameter-in. (mm)				
			1.5 (38)	2.0 (51)	2.5 (64)	3.0 (76)	4.0 (102)	1.5 (38)	2.0 (51)	2.5 (64)	3.0 (76)	4.0 (102)	1.5 (38)	2.0 (51)	2.5 (64)	3.0 (76)	4.0 (102)
60000	20 (-10)	Ft.	34.0	29.0	28.0	23.0	N/A	55.0	88.0	79.0	69.0	N/A	55.0	104.0	93.0	81.0	N/A
		M	10.4	8.8	8.5	7.0	N/A	16.8	26.8	24.1	21.0	N/A	16.8	31.7	28.3	24.7	N/A
	0 (-20)	Ft.	14.0	9.0	7.0	0.0	N/A	55.0	49.0	43.0	34.0	N/A	55.0	60.0	52.0	42.0	N/A
		M	4.3	2.7	2.1	0.0	N/A	16.8	14.9	13.1	10.4	N/A	16.8	18.3	15.8	12.8	N/A
	-20 (-30)	Ft.	5.0	0.0	0.0	0.0	N/A	41.0	32.0	26.0	18.0	N/A	50.0	40.0	33.0	24.0	N/A
		M	1.5	0.0	0.0	0.0	N/A	12.5	9.8	7.9	5.5	N/A	15.2	12.2	10.1	7.3	N/A
	-40 (-40)	Ft.	0.0	0.0	0.0	0.0	N/A	30.0	21.0	16.0	8.0	N/A	37.0	28.0	22.0	13.0	N/A
		M	0.0	0.0	0.0	0.0	N/A	9.1	6.4	4.9	2.4	N/A	11.3	8.5	6.7	4.0	N/A
80000	20 (-10)	Ft.	35.0	39.0	39.0	33.0	25.0	35.0	118.0	107.0	92.0	76.0	35.0	130.0	125.0	109.0	90.0
		M	10.7	11.9	11.9	10.1	7.6	10.7	36.0	32.6	28.0	23.2	10.7	39.6	38.1	33.2	27.4
	0 (-20)	Ft.	22.0	16.0	14.0	7.0	0.0	35.0	69.0	60.0	49.0	35.0	35.0	83.0	72.0	60.0	45.0
		M	6.7	4.9	4.3	2.1	0.0	10.7	21.0	18.3	14.9	10.7	10.7	25.3	21.9	18.3	13.7
	-20 (-30)	Ft.	11.0	5.0	2.0	0.0	0.0	35.0	46.0	39.0	29.0	16.0	35.0	57.0	48.0	37.0	23.0
		M	3.4	1.5	0.6	0.0	0.0	10.7	14.0	11.9	8.8	4.9	10.7	17.4	14.6	11.3	7.0
	-40 (-40)	Ft.	4.0	0.0	0.0	0.0	0.0	35.0	33.0	26.0	17.0	4.0	35.0	41.0	34.0	24.0	11.0
		M	1.2	0.0	0.0	0.0	0.0	10.7	10.1	7.9	5.2	1.2	10.7	12.5	10.4	7.3	3.4
100000	20 (-10)	Ft.	N/A	47.0	47.0	41.0	32.0	N/A	50.0	110.0	112.0	93.0	N/A	50.0	110.0	132.0	110.0
		M	N/A	14.3	14.3	12.5	9.8	N/A	15.2	33.5	34.1	28.3	N/A	15.2	33.5	40.2	33.5
	0 (-20)	Ft.	N/A	21.0	19.0	12.0	1.0	N/A	50.0	74.0	61.0	45.0	N/A	50.0	89.0	74.0	57.0
		M	N/A	6.4	5.8	3.7	0.3	N/A	15.2	22.6	18.6	13.7	N/A	15.2	27.1	22.6	17.4
	-20 (-30)	Ft.	N/A	8.0	6.0	0.0	0.0	N/A	50.0	49.0	38.0	23.0	N/A	50.0	60.0	48.0	32.0
		M	N/A	2.4	1.8	0.0	0.0	N/A	15.2	14.9	11.6	7.0	N/A	15.2	18.3	14.6	9.8
	-40 (-40)	Ft.	N/A	1.0	0.0	0.0	0.0	N/A	42.0	34.0	24.0	10.0	N/A	50.0	43.0	32.0	18.0
		M	N/A	0.3	0.0	0.0	0.0	N/A	12.8	10.4	7.3	3.0	N/A	15.2	13.1	9.8	5.5
120000	20 (-10)	Ft.	N/A	N/A	15.0	49.0	40.0	N/A	N/A	15.0	100.0	111.0	N/A	N/A	15.0	100.0	131.0
		M	N/A	N/A	4.6	14.9	12.2	N/A	N/A	4.6	30.5	33.8	N/A	N/A	4.6	30.5	39.9
	0 (-20)	Ft.	N/A	N/A	15.0	17.0	6.0	N/A	N/A	15.0	75.0	57.0	N/A	N/A	15.0	90.0	70.0
		M	N/A	N/A	4.6	5.2	1.8	N/A	N/A	4.6	22.9	17.4	N/A	N/A	4.6	27.4	21.3
	-20 (-30)	Ft.	N/A	N/A	10.0	2.0	0.0	N/A	N/A	15.0	48.0	32.0	N/A	N/A	15.0	59.0	42.0
		M	N/A	N/A	3.0	0.6	0.0	N/A	N/A	4.6	14.6	9.8	N/A	N/A	4.6	18.0	12.8
	-40 (-40)	Ft.	N/A	N/A	1.0	0.0	0.0	N/A	N/A	15.0	32.0	17.0	N/A	N/A	15.0	41.0	25.0
		M	N/A	N/A	0.3	0.0	0.0	N/A	N/A	4.6	9.8	5.2	N/A	N/A	4.6	12.5	7.6

* Pipe length (ft) specified for maximum pipe lengths located in unconditioned spaces. Pipes located in unconditioned space cannot exceed total allowable pipe length calculated from Table 1 or 3.

† Insulation thickness based on R value of 3.5 per in.

RETURN AIR TEMPERATURE

This furnace is designed for continuous return-air minimum temperature of 60°F (15°C) db or intermittent operation down to 55°F (13°C) db such as when used with a night setback thermometer. Return-air temperature must not exceed 80°F (27°C) db. Failure to follow these return air limits may affect reliability of heat exchangers, motors and controls.



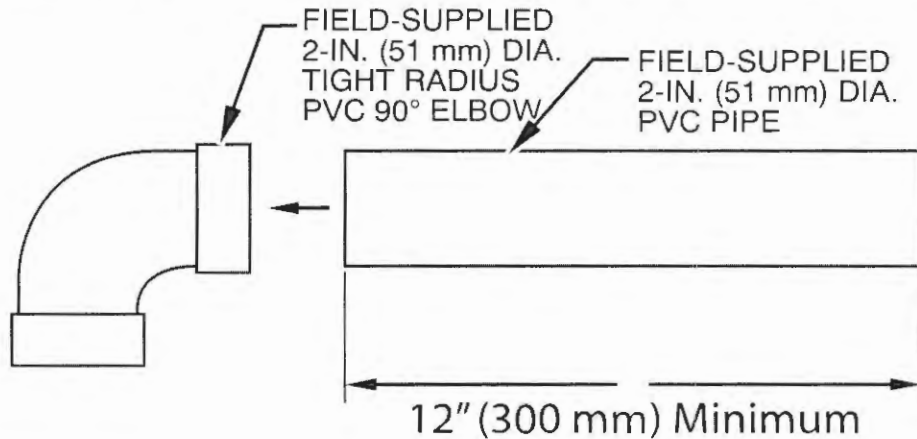
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MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS

POSITION	CLEARANCE
Rear	0 (0 mm)
Front (Combustion air openings in furnace and in structure)	1 in. (25 mm)
Required for service	*24 in. (610 mm)
All Sides of Supply Plenum	1 in. (25 mm)
Sides	0 (0 mm)
Vent	0 (0 mm)
Top of Furnace	1 in. (25 mm)

* Recommended

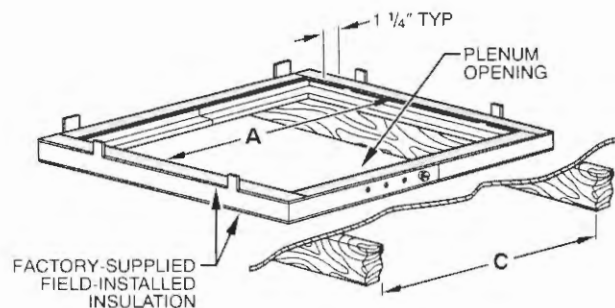
VENTILATED COMBUSTION-AIR PIPE FOR ATTIC/CRAWLSPACE APPLICATIONS



A11487

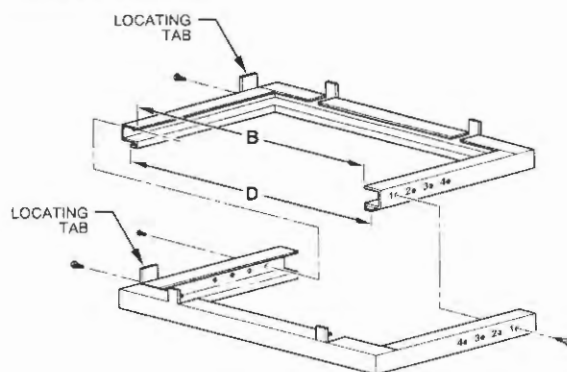
NOTE: See Installation Instructions for specific venting configurations.

DOWNFLOW SUBBASE



A97427

Assembled

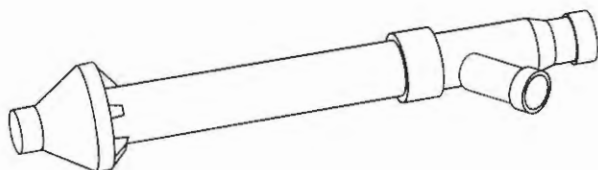


A88207

Disassembled

DIMENSIONS (IN. / MM)						
FURNACE CASING WIDTH	FURNACE IN DOWNFLOW APPLICATION	PLENUM OPENING*		FLOOR OPENING		HOLE NO. FOR WIDTH ADJUSTMENT
		A	B	C	D	
17-1/2 (444.5)	Furnace with or without Cased Coil Assembly or Coil Box	15-1/8 (384.2)	19 (482.6)	16-3/4 (425.5)	20-3/8 (517.5)	3
21 (533.4)	Furnace with or without Cased Coil Assembly or Coil Box	18-5/8 (396.4)	19 (482.6)	20-1/4 (514.4)	20-3/8 (517.5)	2
24-1/2 (622.3)	Furnace with or without Cased Coil Assembly or Coil Box	22-1/8 (562.0)	19 (482.6)	23-3/4 (603.3)	20-3/8 (517.5)	1

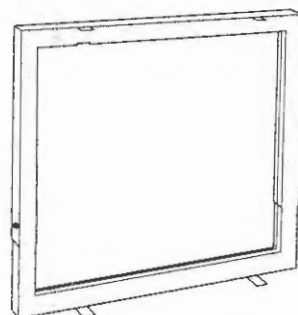
*The plenum should be constructed 1/4-in. (6 mm) smaller in width and depth than the plenum dimensions shown above.



Concentric Vent Kit

A93086

A concentric vent kit allows vent and combustion-air pipes to terminate through a single exit in a roof or side wall. One pipe runs inside the other allowing venting through the inner pipe and combustion air to be drawn in through the outer pipe.

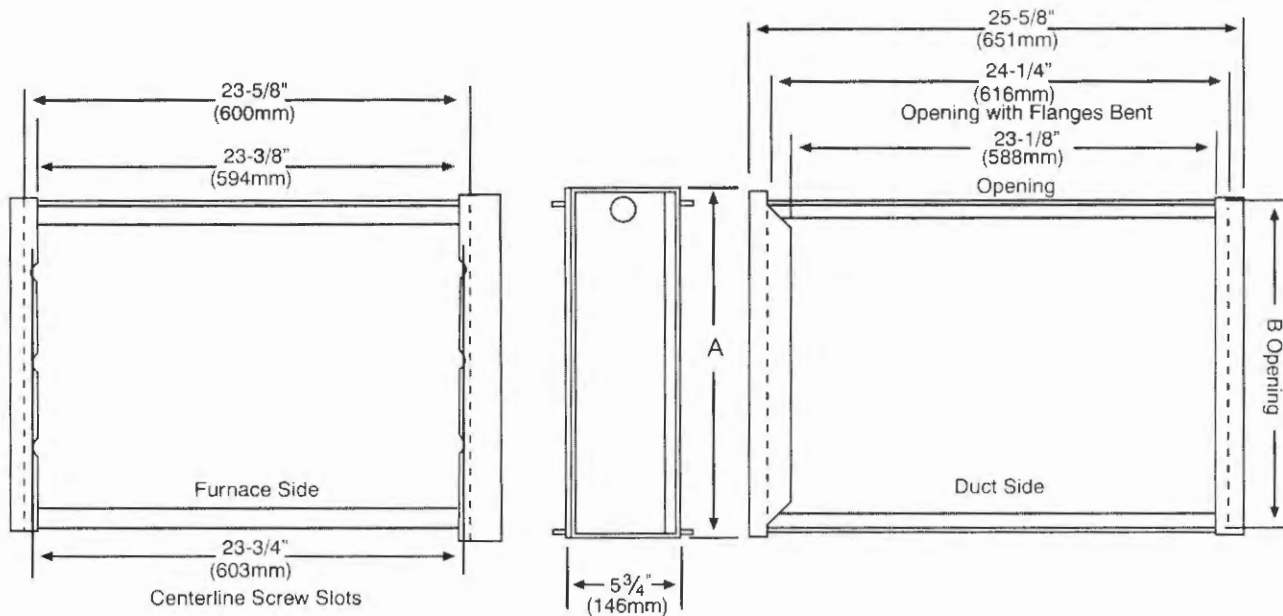


Downflow Subbase

A88202

One base fits all furnace sizes. The base is designed to be installed between the furnace and a combustible floor when no coil box is used or when a coil box other than a Carrier cased coil is used. It is CSA design certified for use with Carrier branded furnaces when installed in downflow applications.

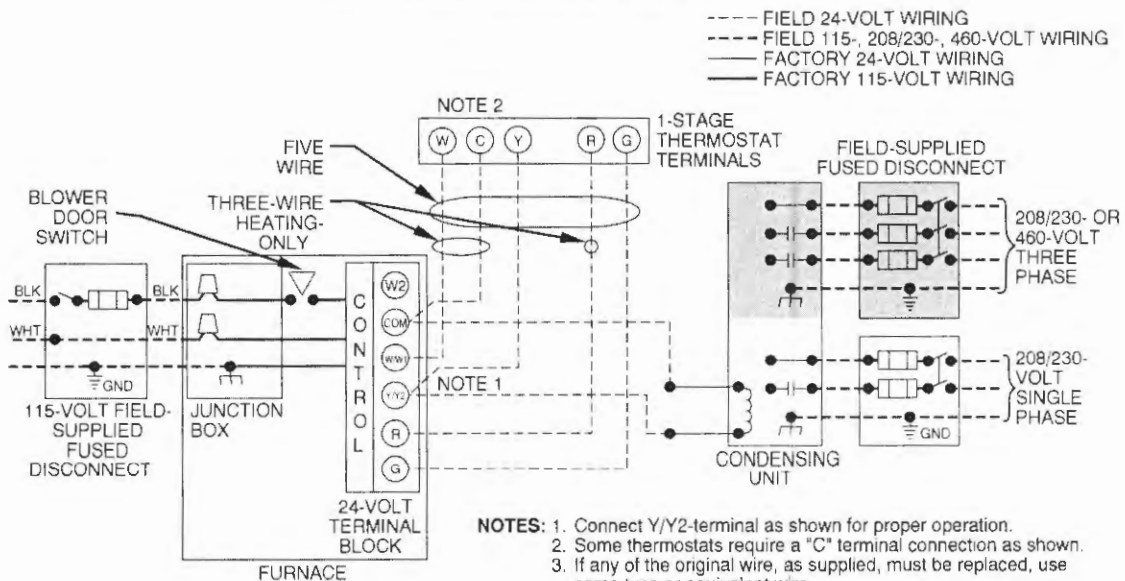
MEDIA FILTER CABINET



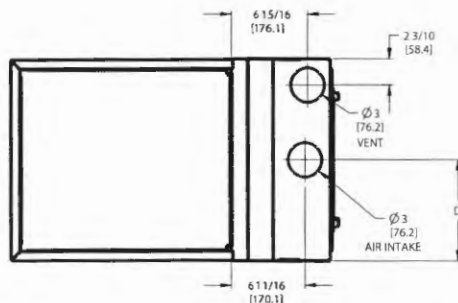
A11456A

DIMENSIONS (IN. / MM)			
MEDIA FILTER CABINET	A	B	SHIPPED WITH SIZES
16 (406.4)	17 (432.8)	16 (406.4)	040-08, 040-12, 060-08, 060-12, 080-12, 080-16
20 (508.0)	21 (533.4)	20 (508)	080-20, 100-16, 100-20
24 (609.6)	25 (635.0)	24 (609.6)	120-20, 140-20

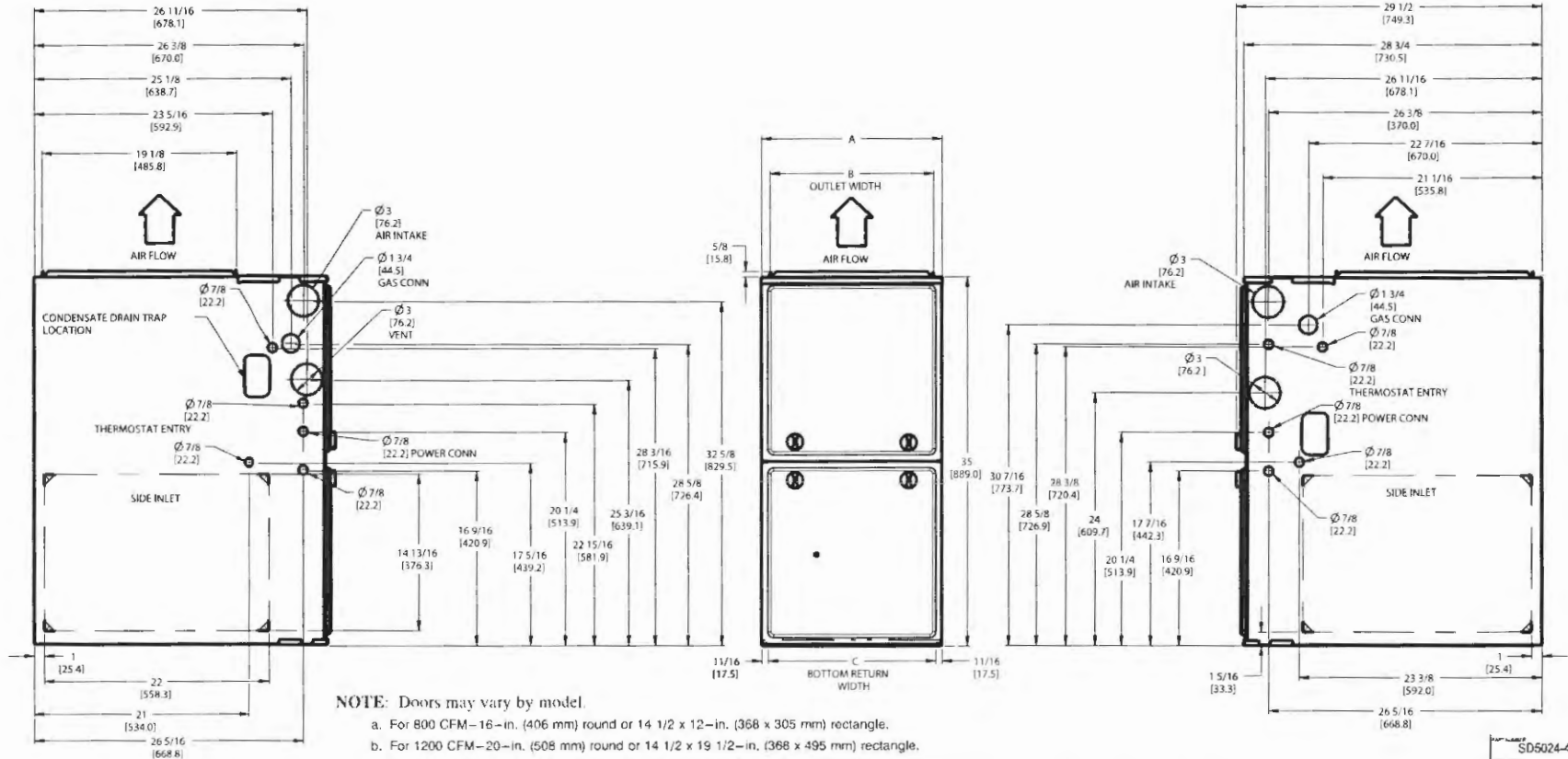
TYPICAL WIRING SCHEMATIC



A11401



FURNACE SIZE (MODELS)	A (CABINET WIDTH)		B (OUTLET WIDTH)		C (BOTTOM INLET WIDTH)		D		SHIPPING WEIGHT	
(59MN7)	Inches	mm	Inches	mm	Inches	mm	Inches	mm	LBS	KG
080-14	17 1/2	445	15 7/8	403	18	406	8 3/4	222	154.0	69.3
080-14									164.0	73.8
100-20	21	533	19 3/8	492	19 1/2	495	10 1/2	267	178.5	80.3
120-22	24 1/2	622	22 7/8	581	23	584	12 1/4	311	202.5	91.1



DIMENSIONAL DRAWING

SD5024-4
REVISED

GUIDE SPECIFICATIONS

General

System Description

Furnish a _____ 4-way multipoise gas-fired condensing furnace for use with natural gas or propane (factory-authorized conversion kit required for propane); furnish cold air return plenum; furnish external media cabinet for use with accessory media filter or standard filter.

Quality Assurance

Unit will be designed, tested and constructed to the current ANSI Z 21.47/CSA 2.3 design standard for gas-fired central furnaces.

Unit will be third party certified by CSA to the current ANSI Z 21.47/CSA 2.3 design standard for gas-fired central furnaces. Unit will carry the CSA Blue Star® and Blue Flame® labels. Unit efficiency testing will be performed per the current DOE test procedure as listed in the Federal Register.

Unit will be certified for capacity and efficiency and listed in the latest AHRI Consumer's Directory of Certified Efficiency Ratings.

Unit will carry the current Federal Trade Commission Energy Guide efficiency label.

Delivery, Storage, and Handling

Unit will be shipped as single package only and is stored and handled per unit manufacturer's recommendations.

Warranty (for inclusion by specifying engineer)

U.S. and Canada only. Warranty certificate available upon request.

Equipment

Blower Wheel and ECM Blower Motor

Galvanized blower wheel shall be centrifugal type, statically and dynamically balanced. Blower motor of ECM type shall be permanently lubricated with sealed ball bearings, of _____ hp, and have infinitely variable speed from 300-1300 RPM operating only when 24-VAC motor inputs are provided. Blower motor shall be direct drive and soft mounted to the blower scroll to reduce vibration transmission.

Filters

Furnace shall have reusable-type filters. Filter shall be _____ in. (mm) X _____ in. (mm). An accessory highly efficient Media Filter is available as an option. _____ Media Filter.

Casing

Casing shall be of .030 in. thickness minimum, pre-painted galvanized steel.

Draft Inducer Motor

Draft inducer motor shall be variable-speed design.

Primary Heat Exchangers

Primary heat exchangers shall be 3-Pass corrosion-resistant aluminized steel of fold-and-crimp sectional design and applied operating under negative pressure.

Secondary Heat Exchangers

Secondary heat exchangers shall be of a stainless steel flow-through of fin-and-tube design and applied operating under negative pressure.

Controls

Controls shall include a micro-processor-based integrated electronic control board with at least 16 service troubleshooting codes displayed via diagnostic flashing LED light on the control, a self-test feature that checks all major functions of the furnace, and a replaceable automotive-type circuit protection fuse. Multiple operational settings available, including separate blower speeds for all modulating heating capacities, low cooling, high cooling and continuous fan. Continuous fan speed may be adjusted from the thermostat. Cooling airflow will be selectable between 325 and 400 CFM per ton of air conditioning. Features will also include temporary reduced airflow in the cooling mode for improved dehumidification when an Infinity Control or TP-PRH edge® is selected as the thermostat.

Operating Characteristics

Heating capacity shall be _____ Btuh input; _____ Btuh output capacity.

Fuel Gas Efficiency shall be _____ AFUE.

Air delivery shall be _____ cfm minimum at 0.50 in. W.C. external static pressure.

Dimensions shall be: depth _____ in. (mm); width _____ in. (mm); height _____ in. (mm) (casing only). Height shall be _____ in. (mm) with A/C coil and _____ in. (mm) overall with plenum.

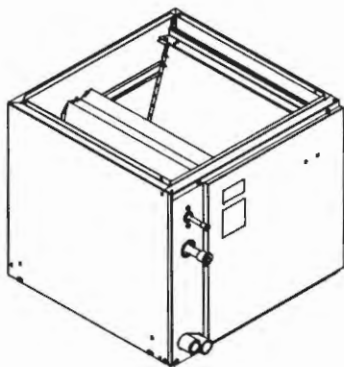
Electrical Requirements

Electrical supply shall be 115 volts, 60 Hz, single-phase (nominal). Minimum wire size shall be _____ AWG; maximum fuse size of HACR-type designated circuit breaker shall be _____ amps.

Special Features

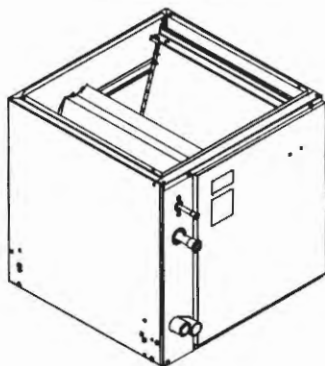
Refer to section of the product data identifying accessories and descriptions for specific features and available enhancements.

Product Data



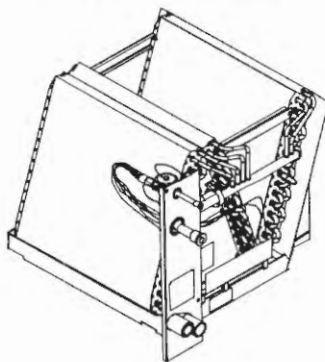
CN(P,R)VP

A06008



CN(P,R)VT (Transition)

A06007



CN(P,R)VU

A06004

This vertical design N-coil is a furnace coil designed to provide the highest standards of reliability and durability. The coils are available for use in Puron®, R-410A refrigerant and R-22 systems.

Both designs have a painted case and come with factory-installed thermostatic expansion valves (TXV). The coils are offered in different width configurations for use in multiple installation applications. Additionally, they are offered in a transition configuration, a design which simplifies making field-supplied transition duct configurations. Easy maintenance is provided as the coil slides out of the cabinet after removing the access door and service panel. The coils are available in sizes 018 through 061 (1-1/2 to 5 tons).

Transition coil models CNPVT and CNRVT are designed for use with one size smaller width furnaces without field modifications.

CN(P,R)V(P,T) and CNPVU are available in tin-plated copper coil models. These coils are built with special hairpins which are tin-plated to resist both general pitting corrosion and excessive indoor corrosion-formicary corrosion. (Formicary corrosion is an industry phenomenon.)

STANDARD FEATURES

Water Management — These coil designs do an excellent job of water management. The coils are designed to avoid water blow-off into the ducts by directing condensate away from the fins and into the drain pan.

Durable Condensate Pan — Each coil is equipped with a corrosion-resistant condensate drain pan. The condensate drain pan is designed with a slope to help ensure proper drainage, improved moisture removal, and home comfort.

Compact Design — Unique design offers as much as 2 to 4 in. (51 to 102 mm) less in height to aid in tight installations.

Brass Inserts — Every condensate pan features two 3/4 in. female threaded brass insert connections. The unique brass inserts provide for a leak-free condensate line connection to prevent water damage.

Refrigerant Connections — The coils are provided with proven sweat-connections for leak-free operation maintaining system reliability.

Burst Pressures — These coils meet or exceed burst pressure of 2100 psi which is at least three to five times the pressure they will see in actual application.

Thermostatic Expansion Valves (TXV) — All Carrier coils have refrigerant-specific factory-installed TXVs.

Teflon Ring — The ring, installed inside the liquid line connection at the TXV, is the best option for preventing refrigerant leaks and future service calls. Teflon works with both Puron, R-410A, the environmentally friendly refrigerant and R-22 refrigerants.

Protective Tube Sheets — Protect the durable copper tubing from being damaged during the manufacturing and installation process.

MODEL NUMBER NOMENCLATURE

1	2	3	4	5	6	7	8	9	10	11	12
C	N	P	V	P	1	8	1	4	A	C	A

Product
C = Coil

Type
N = N Coil

Refrigerant Type
P = Puron Refrigerant TXV
R = R-22 TXV

Coil Configuration
V = Upflow / Downflow

Cabinet Finish
P = Painted
U = Uncased
T = Transition N

Variations
A = Basic

Tubing Design
C = Copper (Puron Only)
T = Tin-Plated Copper (R-22 & Puron)

Revision Level
A = 1st

Cabinet Width
14 = 14-in. / 356mm
17 = 17-in. / 432mm
21 = 21-in. / 533mm
24 = 24-in. / 610mm

Unit Capacity

18 = 1 1/2 Ton	37 = 3 Ton
19 = 1 1/2 Ton	42 = 3 1/2 Ton
24 = 2 Ton	43 = 3 1/2 Ton
30 = 2 1/2 Ton	48 = 4 Ton
31 = 2 1/2 Ton	60 = 5 Ton
36 = 3 Ton	61 = 5 Ton

CNPV / CNRV



Use of the AHRI Certified TM Mark indicates a manufacturer's participation in the program. For verification of certification for individual products, go to www.ahridirectory.org.



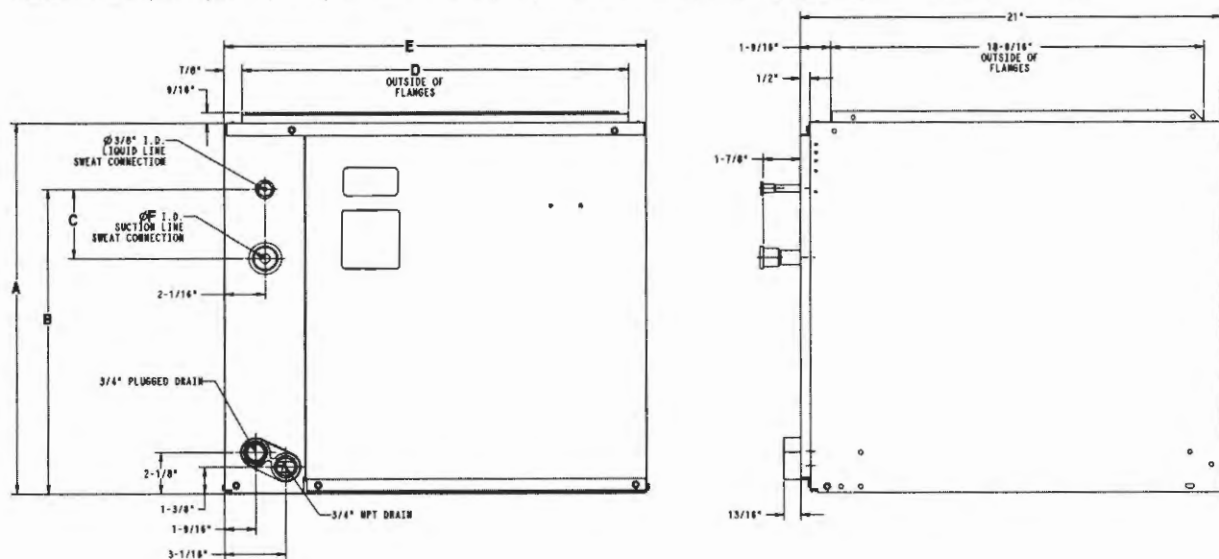
DIMENSIONS

DIMENSIONS - CN(P,R)VP - English and Metric

UNIT	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	E in. (mm)	F in. (mm)	SHIPPING WT. lbs. (kg)	
							Non-Coated Hairpins (C)	Tin-Coated Hairpins (T)
CN*VP1814A*A	12-5/8 (321)	10-1/16 (255)	5-5/16 (135)	12-1/2 (318)	14-3/16 (361)	5/8 (16)	36.0 (16)	38.5 (17)
CNPVP1917A*A	17 (432)	13-7/8 (352)	3-9/16 (90)	15-3/4 (400)	17-1/2 (445)	3/4 (19)	36.0 (16)	38.5 (17)
CN*VP2414A*A	14-5/8 (371)	12-1/16 (306)	5-5/16 (135)	12-1/2 (318)	14-3/16 (361)	5/8 (16)	39.5 (18)	40.0 (18)
CN*VP2417A*A	14-5/8 (371)	10-1/16 (255)	3-9/16 (90)	15-3/4 (400)	17-1/2 (445)	5/8 (16)	39.5 (18)	42.5 (19)
CN*VP3014A*A	17 (432)	13-5/8 (346)	5-5/16 (135)	12-1/2 (318)	14-3/16 (361)	3/4 (19)	46.5 (21)	50.0 (23)
CN*VP3017A*A	17 (432)	13-7/8 (352)	3-9/16 (90)	15-3/4 (400)	17-1/2 (445)	3/4 (19)	47.0 (21)	49.5 (22)
CNPVP3117A*A	23-1/4 (490)	17-1/2 (445)	3-9/16 (90)	15-3/4 (400)	17-1/2 (445)	3/4 (19)	47.0 (21)	49.5 (22)
CN*VP3617A*A	17 (432)	13-7/8 (352)	3-9/16 (90)	15-3/4 (400)	17-1/2 (445)	3/4 (19)	48.5 (22)	51.0 (23)
CN*VP3621A*A	17 (432)	13-9/16 (344)	3-9/16 (90)	19-1/4 (489)	21 (533)	3/4 (19)	48.0 (22)	51.0 (23)
CNPVP3717A*A	27-3/16 (691)	17-1/2 (445)	3-9/16 (90)	15-3/4 (400)	17-1/2 (445)	7/8 (22)	45.2 (21)	51.8 (24)
CNPVP4217A*A	21-1/8 (537)	13-7/8 (352)	3-9/16 (90)	15-3/4 (400)	17-1/2 (445)	7/8 (22)	52.0 (24)	55.0 (25)
CN*VP4221A*A	19 (483)	15-5/8 (397)	3-9/16 (90)	19-1/4 (489)	21 (533)	7/8 (22)	56.5 (27)	59.5 (27)
CNPVP4324A*A	26-5/16 (668)	17-5/16 (440)	3-9/16 (90)	22-3/4 (578)	24-1/2 (622)	7/8 (22)	58 (26.3)	59.5 (27)
CN*VP4821A*A	22-1/16 (560)	17-1/2 (445)	3-9/16 (90)	19-1/4 (489)	21 (533)	7/8 (22)	65.5 (30)	68.5 (31)
CN*VP4824A*A	22-1/16 (560)	17-1/4 (438)	3-9/16 (90)	22-3/4 (578)	24-1/2 (622)	7/8 (22)	62.0 (28)	65.0 (29)
CN*VP6024A*A	26-5/16 (668)	17-15/16 (456)	3-9/16 (90)	22-3/4 (578)	24-1/2 (622)	7/8 (22)	78.0 (35)	80.5 (37)
CNPVP6124A*A	32-7/16 (824)	17-15/16 (456)	3-9/16 (90)	22-3/4 (578)	24-1/2 (622)	7/8 (22)	83.5 (38)	86.5 (39)

CNPV / CNRV

* Position 3 = P (Puron), R = (R-22). Position 11 = C (Copper - Puron only), T (Tin-plated copper - R-22 and Puron)



A05429

CNPV / CNRV

CNPV / CNRV

UNIT	SERIES	A	B (COLLAR WIDTH)	C	D	E	F	G	SHIPPING WT (LBS)
CN*VU1814	A	10 7/8"	12 7/8"	10 5/8"	9 3/8"	5 5/16"	13"	5/8"	19.5
CN*VU2414	A	12 7/8"	12 7/8"	12 5/8"	11 7/16"	5 5/16"	15"	5/8"	23.5
CN*VU2417	A	12 11/16"	16 1/4"	10 5/8"	9 3/8"	3 9/16"	13"	5/8"	24.5
CN*VU3014	A	14 7/8"	12 7/8"	14 3/16"	13"	5 5/16"	16 9/16"	3/4"	25.5
CN*VU3017	A	14 11/16"	16 1/4"	14 7/16"	13 1/4"	3 9/16"	16 13/16"	3/4"	25.5
CN*VU3617	A	14 11/16"	16 1/4"	14 7/16"	13 1/4"	3 9/16"	16 13/16"	3/4"	28.5
CN*VU3621	A	14 7/16"	19 5/8"	14 7/16"	12 15/16"	3 9/16"	16 5/8"	3/4"	28.5
CN*VU4221	A	16 1/2"	19 5/8"	16 3/16"	15"	3 9/16"	18 9/16"	7/8"	31.5
CN*VU4821	A	20 9/16"	19 5/8"	18 1/16"	16 7/8"	3 9/16"	20 7/16"	7/8"	35.5
CN*VU4824	A	20 5/16"	23 1/8"	17 7/8"	16 5/8"	3 9/16"	20 1/4"	7/8"	36.5
CN*VU6024	A	24 3/8"	23 1/8"	18 1/2"	17 5/16"	3 9/16"	20 7/8"	7/8"	37.5

CNPV / CNRV

- CNPV / CNRV



CNPV / CNRV

CNPV / CNRV

CNPV / CNRV

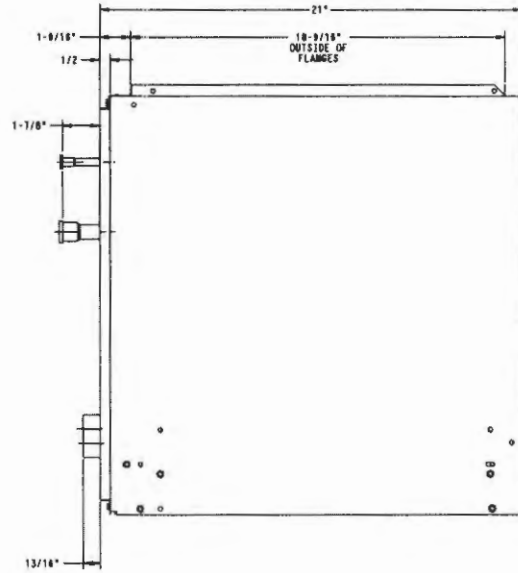
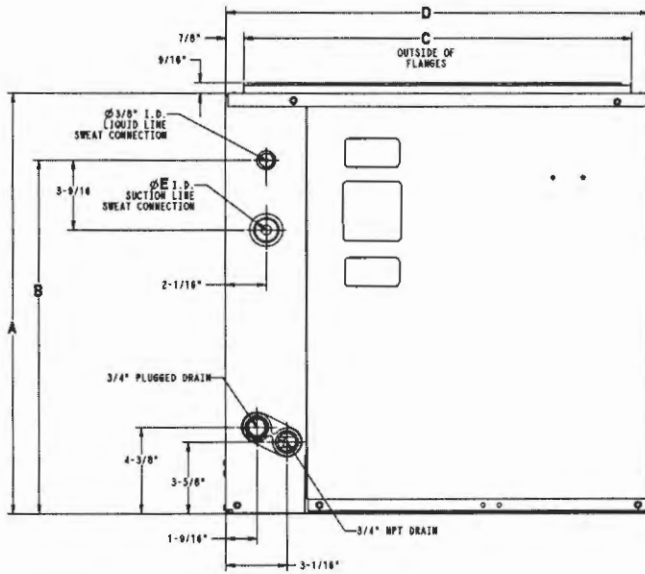
UNIT	SERIES	A	B (COLLAR WIDTH)	C	D	E	F	G	SHIPPING WT (Kgs)
CN*VU1814	A	276.2	327.0	269.9	238.1	135.0	330.2	15.88	8.8
CN*VU2414	A	327.0	327.0	12 5/8"	290.5	135.0	381.0	15.88	10.7
CN*VU2417	A	322.3	412.8	269.9	238.1	90.5	330.2	15.88	11.1
CN*VU3014	A	377.8	327.0	360.4	330.2	135.0	420.7	19.05	11.6
CN*VU3017	A	373.1	412.8	366.7	336.6	90.5	427.0	19.05	11.6
CN*VU3617	A	373.1	412.8	366.7	336.6	90.5	427.0	19.05	12.9
CN*VU3621	A	366.7	498.5	366.7	328.6	90.5	422.3	19.05	12.9
CN*VU4221	A	419.1	498.5	411.2	381.0	90.5	471.5	22.23	14.3
CN*VU4821	A	522.3	498.5	458.8	428.6	90.5	519.1	22.23	16.1
CN*VU4824	A	516.0	587.4	454.0	422.3	90.5	514.4	22.23	16.6
CN*VU6024	A	619.1	587.4	469.9	439.8	90.5	530.2	22.23	17.0

1. SERIES DESIGNATION IS THE 14TH POSITION OF UNIT MODEL NUMBER.
2. IN THE THIRD POSITION (*) THE "P" DESIGNATES R-410A AND "R" R-22 REFRIGERANT.
3. ALL DIMENSIONS ARE IN "MM" UNLESS NOTED.
4. R-22 REFRIGERANT MODELS AVAILABLE IN TIN PLATED COPPER ONLY.



5

DIMENSIONS (cont.)



A05431

DIMENSIONS - CN(P,R)VT

UNIT	A in (mm)	B in (mm)	C in (mm)	D in (mm)	E in (mm)	SHIPPING WT. lb (kg)	
						Non-Coated Hairpins (C)	Tin-Coated Hairpins (T)
CN*VT3617A*A	19-13/16 (503)	16-1/8 (410)	15-3/4 (400)	17-1/2 (445)	3/4 (19)	48.5 (22)	51.0 (23)
CN*VT4221A*A	21-13/16 (554)	17-7/8 (454)	19-1/4 (489)	21 (533)	7/8 (22)	62.0 (28)	64.5 (29)
CN*VT4821A*A	24-7/8 (632)	19-3/4 (502)	19-1/4 (489)	21 (533)	7/8 (22)	71.0 (32)	73.5 (33)
CN*VT6024A*A	29-1/8 (740)	20-3/16 (513)	22-3/4 (578)	24-1/2 (622)	7/8 (22)	78.0 (35)	80.5 (37)

NOTE: This coil suitable for use on furnace width one size down from coil casing width.

PERFORMANCE DATA

COOLING CAPACITIES (MBH) - PURON REFRIGERANT

CNPV UNIT SIZE	INDOOR COIL AIR		SATURATED TEMPERATURE LEAVING EVAPORATOR °F (°C)														
			30 (-1)			35 (2)			40 (4)			45 (7)			50 (10)		
	CFM	EWB	TC	SHC	BF	TC	SHC	BF	TC	SHC	BF	TC	SHC	BF	TC	SHC	BF
1814	450	72 (22)	31.00	15.20	0.00	28.60	13.90	0.00	25.80	12.50	0.00	22.80	11.10	0.00	19.30	9.60	0.00
		67 (19)	26.00	15.70	0.00	23.50	14.30	0.01	20.70	12.80	0.01	17.60	11.30	0.01	14.10	9.80	0.01
		62 (17)	21.50	16.00	0.01	18.90	14.50	0.01	16.10	13.00	0.01	13.00	11.50	0.01	10.10	10.10	0.03
	600	72 (22)	38.30	18.70	0.00	35.30	17.10	0.00	32.00	15.50	0.00	28.20	13.80	0.00	23.90	12.00	0.01
		67 (19)	32.30	19.50	0.01	29.20	17.80	0.02	25.70	16.10	0.02	21.80	14.30	0.02	17.50	12.40	0.02
		62 (17)	26.70	20.10	0.02	23.50	18.40	0.02	20.00	16.60	0.02	16.20	14.80	0.02	12.90	12.90	0.06
	750	72 (22)	44.30	21.50	0.00	40.90	19.90	0.00	37.00	18.10	0.00	32.70	16.10	0.02	27.70	14.00	0.02
		67 (19)	37.40	22.80	0.03	33.90	20.90	0.03	29.90	19.00	0.03	25.40	16.90	0.03	20.40	14.70	0.04
		62 (17)	31.10	23.80	0.04	27.40	21.80	0.04	23.40	19.80	0.04	19.10	17.70	0.04	15.60	15.60	0.10
1917	450	72 (22)	43.72	21.88	0.00	40.49	20.18	0.00	36.83	18.36	0.00	32.67	16.42	0.00	27.95	14.37	0.00
		67 (19)	36.66	22.46	0.00	33.32	20.65	0.00	29.55	18.73	0.00	25.28	16.69	0.00	20.45	14.55	0.00
		62 (17)	30.28	22.93	0.01	26.83	21.02	0.01	23.00	19.03	0.01	18.79	16.98	0.01	14.88	14.88	0.04
	600	72 (22)	53.61	26.56	0.00	49.70	24.60	0.00	45.23	22.48	0.00	40.13	20.19	0.01	34.31	17.72	0.01
		67 (19)	45.00	27.67	0.01	40.96	25.56	0.01	36.35	23.28	0.01	31.10	20.84	0.01	25.13	18.26	0.01
		62 (17)	37.22	28.61	0.01	33.03	26.36	0.01	28.38	24.00	0.01	23.28	21.54	0.02	19.00	19.00	0.07
	750	72 (22)	61.74	30.45	0.00	57.28	28.32	0.00	52.17	25.97	0.01	46.32	23.41	0.02	39.65	20.66	0.02
		67 (19)	51.91	32.14	0.02	47.30	29.82	0.02	42.02	27.29	0.02	35.98	24.55	0.02	29.10	21.62	0.02
		62 (17)	42.99	33.62	0.02	38.23	31.14	0.02	32.93	28.50	0.02	27.20	25.75	0.03	22.72	22.72	0.10
2414 2417	600	72 (22)	39.00	19.00	0.00	36.00	17.50	0.00	32.70	15.90	0.00	28.80	14.10	0.00	24.60	12.30	0.01
		67 (19)	32.80	19.80	0.01	29.80	18.20	0.01	26.30	16.40	0.01	22.40	14.60	0.02	18.10	12.60	0.02
		62 (17)	27.20	20.50	0.02	24.00	18.70	0.02	20.50	16.90	0.02	16.60	15.00	0.02	13.10	13.10	0.05
	800	72 (22)	47.10	22.80	0.00	43.60	21.10	0.00	39.60	19.30	0.00	35.00	17.30	0.02	29.90	15.10	0.02
		67 (19)	39.80	24.20	0.03	36.10	22.30	0.03	32.00	20.30	0.03	27.30	18.10	0.03	22.00	15.90	0.03
		62 (17)	33.10	25.40	0.03	29.30	23.40	0.03	25.10	21.20	0.03	20.50	19.00	0.04	16.70	16.70	0.09
	1000	72 (22)	53.40	25.90	0.00	49.50	24.20	0.00	45.10	22.10	0.02	40.00	19.90	0.03	34.10	17.50	0.04
		67 (19)	45.30	27.90	0.05	41.20	25.90	0.05	36.60	23.70	0.05	31.30	21.30	0.05	25.20	18.70	0.05
		62 (17)	37.80	29.60	0.05	33.60	27.40	0.05	28.80	25.10	0.05	23.80	22.70	0.06	20.00	20.00	0.13
3014 3017	750	72 (22)	48.00	23.50	0.00	44.00	21.40	0.00	39.70	19.20	0.00	34.80	17.00	0.00	29.40	14.60	0.01
		67 (19)	40.30	24.20	0.01	36.20	22.00	0.02	31.80	19.70	0.02	26.80	17.40	0.02	21.40	15.00	0.02
		62 (17)	33.20	24.80	0.02	29.10	22.50	0.02	24.60	20.20	0.02	19.90	17.90	0.02	15.60	15.60	0.05
	1000	72 (22)	58.70	28.50	0.00	53.90	26.10	0.00	48.50	23.60	0.00	42.50	20.90	0.02	35.80	18.10	0.03
		67 (19)	49.40	29.90	0.03	44.40	27.30	0.03	38.90	24.60	0.04	32.90	21.70	0.04	26.20	18.80	0.04
		62 (17)	40.80	30.90	0.04	35.80	28.20	0.04	30.30	25.40	0.04	24.60	22.60	0.05	19.90	19.90	0.10
	1250	72 (22)	67.40	32.70	0.00	61.90	30.10	0.00	55.70	27.30	0.02	48.80	24.20	0.04	41.10	21.00	0.05
		67 (19)	56.80	34.70	0.05	51.20	31.80	0.06	44.90	28.70	0.06	37.80	25.50	0.06	30.10	22.20	0.06
		62 (17)	47.10	36.30	0.06	41.30	33.20	0.06	35.00	30.10	0.06	28.60	27.00	0.07	23.70	23.70	0.14
3117	750	72 (22)	74.50	37.07	0.00	68.51	33.85	0.00	61.86	30.50	0.00	54.41	27.00	0.00	46.04	23.35	0.00
		67 (19)	62.13	37.73	0.01	56.03	34.37	0.01	49.24	30.87	0.01	41.66	27.24	0.01	32.96	23.39	0.01
		62 (17)	50.98	38.20	0.01	44.75	34.72	0.01	37.95	31.17	0.01	30.17	27.36	0.01	23.70	23.70	0.06
	1000	72 (22)	92.35	45.51	0.00	85.01	41.76	0.00	76.78	37.78	0.00	67.46	33.54	0.01	57.03	29.08	0.01
		67 (19)	77.15	46.96	0.02	69.62	42.94	0.02	61.18	38.71	0.02	51.69	34.27	0.02	41.04	29.62	0.02
		62 (17)	63.39	48.06	0.02	55.66	43.85	0.02	47.21	39.53	0.02	38.21	35.15	0.02	30.59	30.59	0.08
	1250	72 (22)	107.37	52.63	0.00	98.97	48.52	0.00	89.37	44.04	0.01	78.59	39.23	0.02	66.39	34.13	0.02
		67 (19)	89.89	54.97	0.03	81.19	50.47	0.03	71.37	45.67	0.03	60.28	40.57	0.03	47.77	35.20	0.03
		62 (17)	73.97	56.83	0.03	64.99	52.05	0.03	55.22	47.14	0.03	44.93	42.16	0.04	36.94	36.94	0.11
3617 3621 T3617	900	72 (22)	58.10	28.30	0.00	53.40	25.90	0.00	48.00	23.30	0.00	42.10	20.60	0.01	35.50	17.80	0.02
		67 (19)	48.90	29.50	0.02	44.00	26.90	0.03	38.50	24.20	0.03	32.50	21.30	0.03	25.90	18.40	0.03
		62 (17)	40.40	30.40	0.03	35.40	27.70	0.03	29.90	24.90	0.03	24.20	22.10	0.04	19.40	19.40	0.08
	1200	72 (22)	70.00	33.90	0.00	64.30	31.20	0.00	57.80	28.30	0.02	50.70	25.10	0.04	42.70	21.80	0.05
		67 (19)	58.90	35.90	0.05	53.10	32.90	0.05	46.50	29.70	0.05	39.30	26.40	0.06	31.20	22.90	0.06
		62 (17)	48.80	37.50	0.06	42.80	34.30	0.06	36.30	31.00	0.06	29.60	27.80	0.06	24.40	24.40	0.13
	1500	72 (22)	79.30	38.60	0.00	72.90	35.60	0.02	65.70	32.30	0.05	57.50	28.80	0.06	48.50	25.10	0.07
		67 (19)	67.00	41.30	0.08	60.40	38.00	0.08	53.00	34.40	0.08	44.70	30.70	0.08	35.50	26.80	0.09
		62 (17)	55.70	43.60	0.09	48.80	40.00	0.09	41.60	36.50	0.09	34.20	32.90	0.10	28.80	28.80	0.18
3717	900	72 (22)	86.45	42.79	0.00	79.79	39.28	0.00	72.26	35.55	0.00	63.72	31.59	0.00	54.22	27.47	0.00
		67 (19)	72.26	43.90	0.01	65.40	40.18	0.01	57.69	36.26	0.01	49.03	32.14	0.01	39.27	27.83	0.01
		62 (17)	59.44	44.77	0.01	52.40	40.88	0.01	44.62	36.85	0.01	36.17	32.73	0.01	28.45	28.45	0.06
	1200	72 (22)	106.02	52.03	0.00	97.94	48.01	0.00	88.72	43.65	0.00	78.38	39.00	0.01	66.68	34.06	0.01
		67 (19)	88.80	54.21	0.02	80.47	49.85	0.02	71.05	45.21	0.02	60.40	40.28	0.02	48.31	35.05	0.02
		62 (17)	73.18	55.98	0.02	64.58	51.37	0.02	55.14	46.59	0.02	44.93	41.66	0.02	36.59	36.59	0.08
	1500	72 (22)	122.09	59.72	0.00	112.86	55.34	0.00	102.29	50.48	0.02	90.55	45.34	0.02	77.08	39.79	0.03
		67 (19)	102.46	63.03	0.03	92.95	58.22	0.03	82.20	53.07	0.03	69.94	47.52	0.03	55.95	41.57	0.03
		62 (17)	84.62	65.86	0.03	74.82	60.74	0.03	64.08	55.41	0.03	52.61	49.87	0.04	43.79	43.79	0.12

Legend:

CFM – Cubic Ft. per Minute

SHC – Gross Sensible Capacity 1000 Btu/h

See notes on page 9.

EWB – Entering Wet Bulb

PERFORMANCE DATA (cont.)

COOLING CAPACITIES (MBH) - PURON REFRIGERANT

CNPV UNIT SIZE	INDOOR COIL AIR		SATURATED TEMPERATURE LEAVING EVAPORATOR °F (°C)														
			30 (−1)			35 (2)			40 (4)			45 (7)			50 (10)		
	CFM	EWB	TC	SHC	BF	TC	SHC	BF	TC	SHC	BF	TC	SHC	BF	TC	SHC	BF
4217 4221 4224 T4221	1050	72 (22)	74.40	36.30	0.00	68.10	33.10	0.00	61.20	29.70	0.00	53.50	26.20	0.01	45.00	22.60	0.02
		67 (19)	62.30	37.60	0.02	56.00	34.20	0.03	48.90	30.60	0.03	41.20	27.00	0.03	32.80	23.30	0.03
		62 (17)	51.40	38.60	0.03	44.90	35.00	0.03	37.90	31.40	0.03	30.60	27.80	0.04	24.40	24.40	0.08
	1400	72 (22)	90.20	43.80	0.00	82.60	40.10	0.00	74.10	36.20	0.01	64.70	32.00	0.04	54.40	27.60	0.05
		67 (19)	75.80	46.00	0.05	68.00	42.00	0.05	59.40	37.70	0.06	50.00	33.40	0.06	39.60	28.90	0.06
		62 (17)	62.60	47.70	0.06	54.70	43.50	0.06	46.20	39.20	0.06	37.50	35.00	0.07	30.70	30.70	0.13
	1750	72 (22)	103.00	50.00	0.00	94.30	46.00	0.00	84.60	41.50	0.05	73.90	36.80	0.06	62.00	32.00	0.07
		67 (19)	86.70	53.10	0.08	77.80	48.60	0.08	68.00	43.90	0.08	57.10	39.00	0.08	45.20	33.90	0.09
		62 (17)	71.70	55.70	0.09	62.70	50.90	0.09	53.10	46.20	0.09	43.40	41.50	0.10	36.30	36.30	0.18
4324	1050	72 (22)	96.72	47.64	0.00	89.31	43.85	0.00	80.91	39.78	0.00	71.39	35.44	0.00	60.74	30.89	0.01
		67 (19)	80.93	49.26	0.01	73.30	45.20	0.01	64.67	40.88	0.01	54.97	36.34	0.01	43.99	31.53	0.01
		62 (17)	66.64	50.56	0.01	58.77	46.28	0.01	50.10	41.84	0.01	40.70	37.29	0.02	32.63	32.63	0.07
	1400	72 (22)	117.07	57.30	0.00	108.20	53.03	0.00	98.03	48.31	0.01	86.74	43.33	0.02	73.81	37.96	0.02
		67 (19)	98.18	60.23	0.03	89.03	55.55	0.03	78.69	50.55	0.03	66.93	45.19	0.03	53.54	39.46	0.03
		62 (17)	81.03	62.70	0.03	71.60	57.72	0.03	61.25	52.56	0.03	50.15	47.21	0.03	41.46	41.46	0.11
	1750	72 (22)	133.38	65.28	0.00	123.30	60.58	0.02	111.98	55.48	0.03	99.21	50.01	0.04	84.49	44.04	0.04
		67 (19)	112.09	69.50	0.04	101.79	64.41	0.05	90.14	58.95	0.05	76.76	52.99	0.05	61.46	46.55	0.05
		62 (17)	92.72	73.26	0.05	82.16	67.85	0.05	70.58	62.18	0.05	58.38	56.24	0.06	49.33	49.33	0.15
4821 4824 T4821	1200	72 (22)	79.30	38.70	0.00	72.90	35.40	0.00	65.70	31.90	0.00	57.70	28.20	0.00	48.80	24.40	0.01
		67 (19)	66.60	40.20	0.02	60.00	36.60	0.02	52.70	32.90	0.02	44.60	29.10	0.02	35.70	25.10	0.03
		62 (17)	55.00	41.30	0.03	48.30	37.60	0.03	40.90	33.80	0.03	33.10	30.00	0.03	26.30	26.30	0.07
	1600	72 (22)	96.00	46.60	0.00	88.30	42.90	0.00	79.60	38.90	0.00	69.90	34.50	0.03	59.10	30.00	0.04
		67 (19)	80.90	49.20	0.04	72.90	45.00	0.04	64.10	40.70	0.05	54.20	36.10	0.05	43.30	31.40	0.05
		62 (17)	67.00	51.20	0.05	58.80	46.80	0.05	49.90	42.30	0.05	40.70	37.90	0.05	33.30	33.30	0.11
	2000	72 (22)	109.40	53.10	0.00	100.70	49.10	0.00	90.90	44.60	0.03	79.90	39.80	0.05	67.50	34.70	0.06
		67 (19)	92.40	56.70	0.06	83.40	52.20	0.07	73.30	47.40	0.07	62.00	42.20	0.07	49.50	36.90	0.07
		62 (17)	76.70	59.70	0.07	67.50	54.90	0.08	57.40	49.90	0.08	47.20	44.90	0.08	39.50	39.50	0.16
6024 T6024	1600	72 (22)	103.20	50.40	0.00	94.40	45.90	0.00	84.80	41.10	0.00	74.10	36.30	0.00	62.40	31.20	0.02
		67 (19)	86.40	52.10	0.02	77.50	47.20	0.02	67.80	42.30	0.02	57.10	37.20	0.03	45.40	32.10	0.03
		62 (17)	71.20	53.30	0.03	62.20	48.30	0.03	52.40	43.30	0.03	42.30	38.30	0.03	33.50	33.50	0.07
	2000	72 (22)	120.70	58.70	0.00	110.40	53.60	0.00	99.00	48.20	0.00	86.40	42.50	0.02	72.60	36.70	0.03
		67 (19)	101.20	61.30	0.03	90.70	55.70	0.04	79.20	50.00	0.04	66.60	44.10	0.04	52.80	38.10	0.05
		62 (17)	83.40	63.20	0.05	72.80	57.40	0.05	61.40	51.60	0.05	49.70	46.00	0.05	40.30	40.30	0.11
	2400	72 (22)	135.60	65.80	0.00	124.10	60.30	0.00	111.20	54.40	0.01	97.00	48.00	0.04	81.30	41.50	0.05
		67 (19)	113.90	69.30	0.05	102.10	63.20	0.06	89.10	56.90	0.06	74.80	50.30	0.06	59.20	43.60	0.06
		62 (17)	94.10	72.10	0.06	82.10	65.70	0.06	69.30	59.30	0.06	56.40	53.00	0.07	46.50	46.50	0.14
6124 T6124	1600	72 (22)	146.13	71.69	0.00	134.50	65.77	0.00	121.56	59.54	0.00	106.83	52.86	0.00	90.32	45.83	0.01
		67 (19)	122.06	74.12	0.02	110.18	67.82	0.02	96.85	61.17	0.02	81.83	54.15	0.02	64.91	46.78	0.02
		62 (17)	100.28	76.03	0.02	88.07	69.40	0.02	74.72	62.59	0.02	60.46	55.67	0.02	48.56	48.56	0.08
	2000	72 (22)	169.63	82.84	0.00	156.39	76.39	0.00	141.33	69.41	0.01	124.36	61.86	0.02	105.10	53.83	0.02
		67 (19)	142.02	86.75	0.03	128.36	79.72	0.03	112.89	72.20	0.03	95.38	64.18	0.03	75.60	55.70	0.03
		62 (17)	116.90	89.93	0.03	102.76	82.43	0.03	87.41	74.75	0.03	71.17	66.88	0.04	58.57	58.57	0.11
	2400	72 (22)	189.44	92.42	0.00	174.81	85.58	0.00	158.22	77.98	0.02	139.30	69.76	0.03	117.75	60.94	0.04
		67 (19)	158.99	97.85	0.04	143.83	90.25	0.04	126.61	82.05	0.04	107.02	73.24	0.05	84.86	63.87	0.05
		62 (17)	131.10	102.40	0.05	115.46	94.29	0.05	98.49	85.91	0.05	80.79	77.29	0.06	67.60	67.60	0.14

Legend:

CFM – Cubic Ft. per Minute

SHC – Gross Sensible Capacity 1000 Btu/h

See notes on page 9.

EWB – Entering Wet Bulb

BF – Bypass Factor

LWB – Leaving Wet Bulb

MBH – 1000 Btu/h

TC – Gross Cooling Capacity 1000 Btu/h

NOTES:

1. Contact manufacturer for cooling capacities at conditions other than shown in table.
2. Formulas:

$$\text{Leaving db} = \text{entering db} - \frac{\text{sensible heat cap.}}{1.09 \times \text{CFM}}$$

$$\text{Leaving wb} = \text{wb corresponding to enthalpy of air leaving coil (h}_{LWB})$$

$$h_{LWB} = h_{EWB} - \frac{\text{total capacity (Btuh)}}{4.5 \times \text{CFM}}$$

Where h_{EWB} = enthalpy of air entering coil
3. SHC is based on 80°F (27°C) db temperature of air entering the evaporator coil.
 Below 80°F (27°C) db, subtract (Correction Factor x CFM) from SHC.
 Above 80°F (27°C) db, add (Correction Factor x CFM) to SHC.
4. Direct interpolation is permissible. Do not extrapolate.
5. Fan motor heat has not been deducted.
6. All data points are based on 10°F (-12°C) superheat leaving coil and use of thermostatic expansion valve (TXV) device.
7. All units have sweat suction-tube connection and a liquid-tube connection. For 1-1/8-in. system suction tube, 3/4 x 1-1/8-in. suction tube connection adapter is available as accessory.
8. The CNPVP, CNPVT and CNPVU coils can be used in any properly designed system using Puron refrigerant.
9. The CNRVP, CNRVT and CNRVU coils can be used in any properly designed system using R-22 refrigerant.
10. Before using maximum cfm shown in table, check coil static pressure drop to ensure system blower can provide necessary static pressure needed for coil and duct systems.
11. Bypass Factor = 0 indicates no psychometric solution. Use bypass factor of next lower EWB for approximation.

BYPASS FACTOR	ENTERING AIR DRY BULB TEMPERATURE °F (°C)					
	79 (26)	78 (26)	77 (25)	76 (24)	75 (24)	Under 75 (24)
	81 (27)	82 (28)	83 (28)	84 (29)	84 (29)	Above 85 (29)
	Correction Factor					
0.10	0.98	1.96	2.94	3.92	4.91	Use formula shown below
0.20	0.87	1.74	2.62	3.49	4.36	
0.30	0.76	1.53	2.29	3.05	3.82	

Interpolation is permissible.

Correction Factor = $1.09 \times (1 - \text{BF}) \times (\text{db} - 80)$

PERFORMANCE DATA (cont.)

COOLING CAPACITIES (MBH) - R-22 REFRIGERANT

CNRV UNIT SIZE	INDOOR COIL AIR		SATURATED TEMPERATURE LEAVING EVAPORATOR °F (°C)														
			30 (-1)			35 (2)			40 (4)			45 (7)			50 (10)		
			TC	SHC	BF	TC	SHC	BF	TC	SHC	BF	TC	SHC	BF	TC	SHC	BF
1814	450	72 (22)	28.60	13.90	0.00	26.60	12.90	0.00	24.20	11.80	0.00	21.60	10.60	0.00	18.60	9.40	0.00
		67 (19)	24.20	14.80	0.01	22.10	13.70	0.01	19.70	12.50	0.01	16.80	11.20	0.01	13.50	9.70	0.01
		62 (17)	20.20	15.50	0.01	18.00	14.30	0.01	15.40	13.00	0.01	12.50	11.70	0.01	10.20	10.20	0.08
	600	72 (22)	33.70	16.40	0.00	31.40	15.30	0.00	28.70	14.10	0.00	25.60	12.80	0.01	22.00	11.40	0.01
		67 (19)	28.70	17.80	0.02	26.20	16.60	0.02	23.40	15.30	0.02	20.10	13.80	0.02	16.30	12.20	0.02
		62 (17)	24.00	19.00	0.02	21.50	17.80	0.02	18.60	16.40	0.02	15.40	14.80	0.03	13.00	13.00	0.12
	750	72 (22)	37.50	18.40	0.01	35.00	17.30	0.01	32.10	16.00	0.02	28.70	14.60	0.02	24.60	13.00	0.03
		67 (19)	32.00	20.30	0.03	29.40	19.10	0.03	26.20	17.70	0.03	22.60	16.10	0.03	18.60	14.40	0.03
		62 (17)	26.90	22.10	0.03	24.20	20.80	0.04	21.10	19.30	0.04	17.90	17.70	0.05	15.40	15.40	0.16
2414 2417	600	72 (22)	34.60	16.80	0.00	32.30	15.70	0.00	29.60	14.60	0.00	26.50	13.20	0.00	22.90	11.80	0.01
		67 (19)	29.40	18.30	0.01	27.00	17.10	0.01	24.20	15.70	0.01	20.90	14.30	0.01	17.10	12.60	0.02
		62 (17)	24.70	19.50	0.02	22.20	18.30	0.02	19.30	16.80	0.02	16.00	15.30	0.02	13.40	13.40	0.10
	800	72 (22)	39.50	19.40	0.01	37.10	18.40	0.01	34.20	17.10	0.02	30.70	15.70	0.02	26.60	14.10	0.02
		67 (19)	33.90	21.60	0.03	31.20	20.40	0.03	28.00	19.00	0.03	24.30	17.40	0.03	20.10	15.60	0.03
		62 (17)	28.60	23.70	0.03	25.80	22.30	0.03	22.60	20.80	0.04	19.30	19.10	0.05	16.80	16.80	0.16
	1000	72 (22)	43.20	21.50	0.03	40.60	20.50	0.04	37.50	19.20	0.04	33.80	17.70	0.04	29.30	16.00	0.04
		67 (19)	37.10	24.50	0.05	34.30	23.20	0.05	30.90	21.80	0.05	26.80	20.10	0.05	22.20	18.20	0.05
		62 (17)	31.50	27.30	0.05	28.60	25.90	0.05	25.30	24.30	0.06	22.30	22.30	0.11	19.60	19.60	0.21
3014 3017	750	72 (22)	45.90	22.30	0.00	42.50	20.60	0.00	38.60	18.80	0.00	34.10	16.80	0.01	28.60	14.60	0.01
		67 (19)	38.90	23.70	0.02	35.30	21.90	0.02	31.00	19.80	0.02	26.00	17.50	0.02	20.30	15.10	0.02
		62 (17)	32.30	24.80	0.02	28.30	22.80	0.02	24.00	20.60	0.02	19.30	18.30	0.03	15.90	15.90	0.12
	1000	72 (22)	53.80	26.20	0.00	49.90	24.40	0.01	45.40	22.40	0.02	40.30	20.20	0.03	34.30	17.80	0.03
		67 (19)	45.70	28.40	0.03	41.60	26.40	0.04	37.00	24.20	0.04	31.20	21.70	0.04	24.40	18.80	0.04
		62 (17)	38.30	30.40	0.04	34.00	28.20	0.04	29.00	25.80	0.04	23.80	23.20	0.06	20.00	20.00	0.16
	1250	72 (22)	59.80	29.30	0.03	55.50	27.40	0.04	50.60	25.30	0.04	44.80	22.90	0.05	38.40	20.40	0.05
		67 (19)	50.90	32.30	0.06	46.40	30.20	0.06	41.30	27.80	0.06	35.40	25.30	0.06	27.90	22.20	0.06
		62 (17)	42.70	35.10	0.06	38.30	32.90	0.06	33.10	30.30	0.07	27.70	27.50	0.09	23.70	23.70	0.21
3617 3621 T3617	900	72 (22)	53.50	26.00	0.00	49.50	24.10	0.00	45.10	22.10	0.01	40.00	19.90	0.02	33.80	17.40	0.02
		67 (19)	45.40	27.90	0.03	41.30	25.90	0.03	36.60	23.70	0.03	30.70	21.10	0.03	24.00	18.30	0.03
		62 (17)	37.90	29.70	0.03	33.50	27.40	0.03	28.50	24.90	0.03	23.20	22.30	0.05	19.30	19.30	0.15
	1200	72 (22)	61.60	30.10	0.02	57.20	28.20	0.03	52.10	26.00	0.04	46.20	23.50	0.04	39.60	20.90	0.05
		67 (19)	52.40	33.10	0.05	47.80	30.90	0.05	42.50	28.50	0.05	36.30	25.80	0.06	28.60	22.60	0.06
		62 (17)	44.00	35.90	0.06	39.40	33.60	0.06	34.00	30.90	0.06	28.30	28.00	0.08	24.10	24.10	0.20
	1500	72 (22)	67.50	33.40	0.06	62.90	31.40	0.06	57.40	29.10	0.07	50.80	26.50	0.07	43.60	23.70	0.08
		67 (19)	57.70	37.40	0.08	52.70	35.10	0.08	46.90	32.60	0.08	40.30	29.80	0.08	32.20	26.50	0.09
		62 (17)	48.60	41.20	0.08	43.70	38.80	0.09	38.30	36.10	0.09	32.90	32.90	0.13	28.30	28.30	0.25
4221 4224 T4221	1050	72 (22)	67.70	32.90	0.00	62.50	30.40	0.00	56.50	27.60	0.00	49.70	24.70	0.02	42.30	21.60	0.02
		67 (19)	57.10	35.00	0.03	51.70	32.20	0.03	45.60	29.30	0.03	38.80	26.20	0.03	30.30	22.60	0.03
		62 (17)	47.40	36.80	0.03	41.90	33.90	0.03	35.70	30.80	0.03	28.90	27.50	0.04	23.80	23.80	0.13
	1400	72 (22)	79.00	38.50	0.00	73.10	35.80	0.02	66.20	32.80	0.04	58.30	29.40	0.04	49.30	25.90	0.05
		67 (19)	66.90	41.80	0.05	60.70	38.70	0.05	53.50	35.40	0.06	45.50	31.90	0.06	36.30	28.10	0.06
		62 (17)	55.70	44.70	0.06	49.40	41.50	0.06	42.60	38.10	0.06	35.40	34.50	0.08	29.90	29.90	0.18
	1750	72 (22)	87.40	42.90	0.04	81.00	40.10	0.06	73.60	37.00	0.07	64.90	33.40	0.07	54.80	29.50	0.08
		67 (19)	74.30	47.40	0.08	67.60	44.20	0.08	59.70	40.80	0.08	50.60	36.70	0.08	40.90	32.80	0.09
		62 (17)	62.20	51.40	0.09	55.30	48.10	0.09	47.90	44.50	0.09	40.70	40.70	0.11	35.20	35.20	0.23
4821 4824 T4821	1200	72 (22)	72.40	35.20	0.00	67.30	32.70	0.00	61.20	30.00	0.00	54.20	27.00	0.01	46.30	23.70	0.02
		67 (19)	61.40	37.70	0.02	55.90	35.00	0.02	49.50	32.00	0.02	42.40	28.80	0.02	34.10	25.20	0.03
		62 (17)	51.20	40.00	0.03	45.50	37.00	0.03	39.20	33.90	0.03	32.20	30.50	0.03	26.70	26.70	0.12
	1600	72 (22)	83.80	41.00	0.00	78.00	38.40	0.02	71.30	35.40	0.03	63.30	32.10	0.03	54.00	28.50	0.04
		67 (19)	71.40	44.90	0.04	65.20	42.00	0.04	58.00	38.70	0.05	49.50	35.00	0.05	40.30	31.20	0.05
		62 (17)	59.80	48.50	0.05	53.40	45.30	0.05	46.30	41.90	0.05	39.00	38.30	0.07	33.40	33.40	0.17
	2000	72 (22)	92.10	45.50	0.04	86.00	42.90	0.05	78.70	39.80	0.05	70.10	36.40	0.06	60.00	32.50	0.06
		67 (19)	78.70	50.90	0.07	72.10	47.80	0.07	64.30	44.40	0.07	55.10	40.40	0.07	44.90	36.30	0.07
		62 (17)	66.30	55.90	0.07	59.60	52.60	0.07	52.10	48.90	0.08	44.90	44.90	0.11	39.20	39.20	0.22
6024 T6024	1600	72 (22)	93.60	45.40	0.00	86.30	41.90	0.00	77.90	38.00	0.00	68.30	33.80	0.01	58.00	29.60	0.02
		67 (19)	78.90	48.10	0.02	71.20	44.20	0.02	62.70	40.10	0.02	53.20	35.70	0.03	41.70	30.80	0.03
		62 (17)	65.40	50.40	0.03	57.70	46.30	0.03	49.20	42.00	0.03	39.60	37.40	0.04	32.50	32.50	0.12
	2000	72 (22)	106.40	51.70	0.00	98.20	47.90	0.00	88.80	43.70	0.02	78.00	39.10	0.03	65.80	34.10	0.03
		67 (19)	89.90	55.50	0.04	81.30	51.30	0.04	71.50	46.70	0.04	60.60	41.80	0.04	48.30	36.60	0.04
		62 (17)	74.70	58.90	0.04	65.90	54.40	0.04	56.60	49.70	0.05	46.50	44.80	0.06	38.90	38.90	0.16
	2400	72 (22)	116.60	57.00	0.00	107.90	53.00	0.03	97.70	48.50	0.04	85.90	43.60	0.05	72.30	38.20	0.05
		67 (19)	98.90	61.90	0.06	89.60	57.50	0.06	78.90	52.50	0.06	66.60	47.20	0.06	53.70	41.80	0.06
		62 (17)	82.30	66.40	0.06	72.90	61.70	0.06	62.70	56.70	0.07	52.60	51.60	0.08	44.70	44.70	0.19

Legend:

CFM - Cubic Ft. per Minute

EWB - Entering Wet Bulb

LWB - Leaving Wet Bulb

PERFORMANCE DATA (cont.)

COIL STATIC PRESSURE DROP (in. w.c.) PURON and R-22 REFRIGERANTS

UNIT SIZE	Standard CFM																			
	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	
1814	Dry																			
	0.078	0.114	0.156	0.198	0.253															
	Wet																			
1917	0.096	0.138	0.183	0.213	0.277															
	Dry																			
	0.042	0.060	0.080	0.102	0.128															
2414	Wet																			
	0.055	0.076	0.104	0.127	0.158															
	Dry																			
2417	0.070	0.103	0.143	0.182	0.233	0.290	0.354													
	Wet																			
	0.089	0.128	0.171	0.214	0.269	0.336	0.413													
3014	Dry																			
	0.048	0.068	0.090	0.112	0.140	0.170	0.203													
	Wet																			
3017	0.064	0.091	0.122	0.150	0.188	0.224	0.263													
	Dry																			
	0.065	0.097	0.135	0.173	0.223	0.278	0.339	0.405	0.478											
3117	Wet																			
	0.078	0.114	0.160	0.206	0.260	0.321	0.388	0.461	0.540											
	Dry																			
3617	0.042	0.060	0.080	0.102	0.128	0.157	0.188	0.222	0.259											
	Wet																			
	0.055	0.076	0.104	0.127	0.158	0.190	0.225	0.266	0.309											
3621	Dry																			
	0.031	0.046	0.063	0.083	0.105	0.130	0.156	0.193	0.230											
	Wet																			
3717	0.039	0.056	0.075	0.097	0.121	0.149	0.179	0.212	0.249											
	Dry																			
	0.043	0.061	0.082	0.103	0.128	0.157	0.189	0.221	0.259	0.299	0.341									
4217	Wet																			
	0.056	0.079	0.107	0.133	0.166	0.200	0.236	0.276	0.315	0.361	0.413									
	Dry																			
4221	0.035	0.048	0.062	0.076	0.093	0.111	0.132	0.153	0.177	0.201	0.228									
	Wet																			
	0.049	0.066	0.085	0.100	0.122	0.144	0.171	0.192	0.217	0.245	0.276									
4821	Dry																			
	0.025	0.038	0.054	0.072	0.093	0.117	0.143	0.171	0.205	0.233	0.273									
	Wet																			
4824	0.030	0.044	0.061	0.079	0.103	0.125	0.154	0.182	0.216	0.251	0.288									
	Dry																			
			0.072	0.093	0.118	0.145	0.175	0.206	0.243	0.281	0.322	0.366	0.413							
6024	Wet																			
			0.079	0.102	0.130	0.159	0.192	0.228	0.26	0.303	0.348	0.396	0.446							
	Dry																			
6124	0.030	0.041	0.054	0.066	0.082	0.099	0.118	0.137	0.158	0.180	0.205	0.231	0.259							
	Wet																			
	0.043	0.059	0.078	0.101	0.126	0.153	0.181	0.207	0.234	0.260	0.288	0.319	0.354							
T6024	Dry																			
				0.053	0.062	0.073	0.084	0.097	0.111	0.126	0.138	0.154	0.172	0.190	0.210					
	Wet																			
T6124				0.067	0.082	0.096	0.112	0.129	0.145	0.163	0.171	0.191	0.212	0.235	0.258					
	Dry																			
				0.047	0.060	0.075	0.092	0.110	0.130	0.152	0.176	0.204	0.230	0.256	0.284	0.318				
6124	Wet																			
				0.053	0.067	0.085	0.104	0.125	0.147	0.172	0.200	0.228	0.259	0.292	0.327	0.365				
	Dry																			
T6124				0.015	0.046	0.057	0.069	0.094	0.100	0.119	0.124	0.140	0.158	0.175	0.195	0.214				
	Wet																			
				0.032	0.050	0.066	0.081	0.097	0.114	0.131	0.150	0.169	0.190	0.211	0.233	0.257				
6124	Dry																			
											0.130	0.140	0.160	0.180	0.200	0.220	0.240	0.270	0.290	
	Wet																			
T6124											0.150	0.170	0.190	0.210	0.230	0.260	0.290	0.310	0.340	
	Dry																			

CNPV / CNRV

ACCESSORIES

EMPTY COIL CASING ACCESSORY FOR UNCASSED N-COIL

ACCESSORY PART NUMBER	NOMINAL COIL SIZES	DIMENSIONS in (mm)		
		H	W	D
KCAKC2612ECC	CN*VU1814, 2414, 3014,	17 (432)	14-3/16 (361)	21 (533)
KCAKC2712ECC	CN*VU2417, 3017, 3617	17 (432)	17-1/2 (445)	21 (533)
KCAKC2808ECC	CN*VU3621, 4221, 4821	22-1/16 (560)	21 (533)	21 (533)
KCAKC2904ECC	CN*VU4824, 6024	26-5/16 (668)	24-1/2 (622)	21 (533)

COUPLING KIT ACCESSORY FOR UNCASSED VERTICAL N-COIL

ACCESSORY PART NUMBER	NOMINAL COIL SIZES	DESCRIPTION
KCART0101MHA	CN*VU2417	5/8-in. Mechanical Connection Kit
KCART0101MHA	CN*VU3617, 4821	3/4-in. Mechanical Connection Kit

CNPV / CNRV

**24ABB3
Comfort™ 13 Air Conditioner
with Puron® Refrigerant
1-1/2 to 5 Nominal Tons**



Product Data



Comfort SERIES

Carrier's Air Conditioners with Puron® refrigerant provide a collection of features unmatched by any other family of equipment. The 24ABB has been designed utilizing Carrier's Puron refrigerant. The environmentally sound refrigerant allows you to make a responsible decision in the protection of the earth's ozone layer.

This product has been designed and manufactured to meet Energy Star® criteria for energy efficiency when matched with appropriate coil components. Refer to the combination ratings in the Product Data for system combinations that meet Energy Star® guidelines.

NOTE: Ratings contained in this document are subject to change at any time. Always refer to the AHRI directory (www.ahrirectory.org) for the most up-to-date ratings information.

INDUSTRY LEADING FEATURES / BENEFITS

Efficiency

- 13.0 - 13.2 SEER/10.8- 11.0 EER (based on tested combinations)
- Microtube Technology™ refrigeration system
- Indoor air quality accessories available

Sound

- Sound level as low as 75 dBA
- Sound level as low as 74 dBA with accessory sound blanket

Comfort

- System supports Edge® Thermostat™ or standard thermostat controls

Reliability

- Puron® refrigerant - environmentally sound, won't deplete the ozone layer and low lifetime service cost.
- Scroll compressor
- Internal pressure relief valve
- Internal thermal overload
- Filter drier
- Balanced refrigeration system for maximum reliability

Durability

WeatherArmor™ protection package:

- Solid, durable sheet metal construction
- Dense wire coil guard available (3-phase units come standard with dense wire coil guard)
- Baked-on, complete outer coverage, powder paint

Applications

- Long-line - up to 250 feet (76.20 m) total equivalent length, up to 200 feet (60.96 m) condenser above evaporator, or up to 80 ft. (24.38 m) evaporator above condenser (See Longline Guide for more information.)
- Low ambient (down to -20°F/-28.9°C) with accessory kit

MODEL NUMBER NOMENCLATURE

1 N	2 N	3 A	4 A	5 A/N	6 N	7 N	8 N	9 A/N	10 A/N	11 A/N	12 N	13 N
2	4	A	B	B	3	3	6	A	0	0	3	0
Product Series	Product Family	Tier	Major Series	SEER	Cooling Capacity	Variations	Open	Open	Voltage	Series		
24=AC	A=RES AC	B=Comfort	B=Puron	3=13 SEER	1,000 Btuh (nominal)	A=Dense Grille W=Wide Grille	0=Not Defined	0=Not Defined	3=208/230-1 5=208/230-3 6=460/3 1 = 575/3	0 = Original Series		



Use of the AHRI Certified
TM Mark indicates a
manufacturer's
participation in the
program. For verification
of certification for individual
products, go to
www.ahridirectory.org.



ISO 9001
QMI-SAI Global



This product has been designed and manufactured to
meet Energy Star® criteria for energy efficiency when
matched with appropriate coil components. However,
proper refrigerant charge and proper air flow are critical
to achieve rated capacity and efficiency. Installation of
this product should follow all manufacturing refrigerant
charging and air flow instructions. **Failure to confirm
proper charge and air flow may reduce energy
efficiency and shorten equipment life.**

STANDARD FEATURES

Feature	18	24	30	36	42	48	60
Puron Refrigerant	X	X	X	X	X	X	X
Maximum SEER	14.50	14.25	15.0	14.0	14.0	14.0	13.5
Scroll Compressor	X	X	X	X	X	X	X
Field Installed Filter Drier	X	X	X	X	X	X	X
Front Seating Service Valves	X	X	X	X	X	X	X
Internal Pressure Relief Valve	X	X	X	X	X	X	X
Internal Thermal Overload	X	X	X	X	X	X	X
Long Line capability	X	X	X	X	X	X	X
Low Ambient capability with Kit	X	X	X	X	X	X	X
Dense Grille (standard on 3-Phase only)			X	X	X	X	X

X = Standard

PHYSICAL DATA

UNIT SIZE SERIES	18-32	24-31	30-31,51	36-31,51, 61,11	42-30,50,6 0	48-31,51,61,1 1	60-32	60-52,62,1 2
Operating Weight lb (kg)	107 (48.5)	110 (50.0)	111 (50.3)	141 (64.0)	190 (86.2)	186 (84.4)	190 (86.2)	215 (97.5)
Shipping Weight lb (kg)	130 (60.0)	134 (60.8)	136 (61.7)	170 (77.1)	218 (98.9)	224 (101.6)	226 (102.5)	250 (113.4)
Compressor Type	Scroll							
REFRIGERANT	Puron® (R-410A)							
Control	TXV (Puron® Hard Shutoff)							
Charge lb (kg)	3.50 (1.6)	3.80 (1.7)	4.10 (1.9)	5.34 (2.4)	5.84 (2.7)	7.00 (3.2)	8.19 (3.7)	8.00 (3.6)
COND FAN	Propeller Type, Direct Drive							
Air Discharge	Vertical							
Air Qty (CFM)	1792	2218	2218	2954	3167	3365	3365	3365
Motor HP	1/12	1/10	1/10	1/4	1/5	1/4	1/4	1/4
Motor RPM	1100	1100	1100	1100	1100	1100	800	1100
COND COIL								
Face Area (Sq ft)	8.40	8.40	9.80	13.13	17.25	19.40	12.93	15.09
Fins per In.	20	25	25	25	25	25	20	20
Rows	1	1	1	1	1	1	2	2
Circuits	3	3	3	3	4	5	5	6
VALVE CONNECT. (In. ID)								
Vapor	3/4	3/4	3/4	7/8	7/8	7/8	7/8	7/8
Liquid	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8
REFRIGERANT TUBES* (In. OD)								
Rated Vapor*	3/4			7/8			1-1/8	
Max Liquid Line†	3/8							

* Units are rated with 25 ft (7.6 m) of lineset length. See Vapor Line Sizing and Cooling Capacity Loss table when using other sizes and lengths of lineset.

Note: See unit Installation Instruction for proper installation.

† See Liquid Line Sizing For Cooling Only Systems with Puron Refrigerant tables.

24ABB3

REFRIGERANT PIPING LENGTH LIMITATIONS

Liquid Line Sizing and Maximum Total Equivalent Lengths† for Cooling Only Systems with Puron® Refrigerant:

The maximum allowable length of a residential split system depends on the liquid line diameter and vertical separation between indoor and outdoor units.

See Table below for liquid line sizing and maximum lengths :

Maximum Total Equivalent Length
Outdoor Unit BELOW Indoor Unit

Size	Liquid Line Connection	Liquid Line Diam. w/ TXV	AC with Puron Refrigerant Maximum Total Equivalent Length†: Outdoor unit BELOW Indoor Vertical Separation ft (m)								
			0-5 (0-1.5)	6-10 (1.8-3.0)	11-20 (3.4-6.1)	21-30 (6.4-9.1)	31-40 (9.4-12.2)	41-50 (12.5-15.2)	51-60 (15.5-18.3)	61-70 (18.6-21.3)	71-80 (21.6-24.4)
018 AC with Puron	3/8	1/4	150	150	125	100	100	75	--	--	--
		5/16	250*	250*	250*	250*	250*	250*	250*	225*	150
		3/8	250*	250*	250*	250*	250*	250*	250*	250*	250*
024 AC with Puron	3/8	1/4	75	75	75	50	50	--	--	--	--
		5/16	250*	250*	250*	250*	250*	225*	175	125	100
		3/8	250*	250*	250*	250*	250*	250*	250*	250*	250*
030 AC with Puron	3/8	1/4	30	--	--	--	--	--	--	--	--
		5/16	175	225*	200	175	125	100	75	--	--
		3/8	250*	250*	250*	250*	250*	250*	250*	250*	250*
036 AC with Puron	3/8	5/16	175	150	150	100	100	100	75	--	--
		3/8	250*	250*	250*	250*	250*	250*	250*	250*	250*
042 AC with Puron	3/8	5/16	125	100	100	75	75	50	--	--	--
		3/8	250*	250*	250*	250*	250*	250*	250*	250*	150
048 AC with Puron	3/8	3/8	250*	250*	250*	250*	250*	250*	230	160	--
060 AC with Puron	3/8	3/8	250*	250*	250*	225*	190	150	110	--	--

* Maximum actual length not to exceed 200 ft (61 m)

† Total equivalent length accounts for losses due to elbows or fitting. See the Long Line Guideline for details.

-- = outside acceptable range

Maximum Total Equivalent Length
Outdoor Unit ABOVE Indoor Unit

Size	Liquid Line Connection	Liquid Line Diam. w/ TXV	AC with Puron Refrigerant Maximum Total Equivalent Length†: Outdoor unit ABOVE Indoor Vertical Separation ft (m)							
			25 (7.6)	26-50 (7.9-15.2)	51-75 (15.5-22.9)	76-100 (23.2-30.5)	101-125 (30.8-38.1)	126-150 (38.4-45.7)	151-175 (46.0-53.3)	176-200 (53.6-61.0)
018 AC with Puron	3/8	1/4	175	250*	250*	250*	250*	250*	250*	250*
		5/16	250*	250*	250*	250*	250*	250*	250*	250*
		3/8	250*	250*	250*	250*	250*	250*	250*	250*
024 AC with Puron	3/8	1/4	100	125	175	200	225*	250*	250*	250*
		5/16	250*	250*	250*	250*	250*	250*	250*	250*
		3/8	250*	250*	250*	250*	250*	250*	250*	250*
030 AC with Puron	3/8	1/4	30	--	--	--	--	--	--	--
		5/16	250*	250*	250*	250*	250*	250*	250*	250*
		3/8	250*	250*	250*	250*	250*	250*	250*	250*
036 AC with Puron	3/8	5/16	225*	250*	250*	250*	250*	250*	250*	250*
		3/8	250*	250*	250*	250*	250*	250*	250*	250*
042 AC with Puron	3/8	5/16	175	200	250*	250*	250*	250*	250*	250*
		3/8	250*	250*	250*	250*	250*	250*	250*	250*
048 AC with Puron	3/8	3/8	250*	250*	250*	250*	250*	250*	250*	250*
060 AC with Puron	3/8	3/8	250*	250*	250*	250*	250*	250*	250*	250*

* Maximum actual length not to exceed 200 ft (61 m)

† Total equivalent length accounts for losses due to elbows or fitting. See the Long Line Guideline for details.

-- = outside acceptable range

REFRIGERANT CHARGE ADJUSTMENTS

Liquid Line Size	Puron Charge oz/ft (g/m)
3/8	0.60 (17.74) (Factory charge for lineset = 9 oz / 266.16 g)
5/16	0.40 (11.83)
1/4	0.27 (7.98)

Units are factory charged for 15 ft (4.6 m) of 3/8" liquid line. The factory charge for 3/8" lineset 9 oz. When using other length or diameter liquid lines, charge adjustments are required per the chart above.

Charging Formula:

$[(\text{Lineset oz/ft} \times \text{total length}) - (\text{factory charge for lineset})] = \text{charge adjustment}$

Example 1: System has 15 ft of line set using existing 1/4" liquid line. What charge adjustment is required?

Formula: $(.27 \text{ oz/ft} \times 15\text{ft}) - (9 \text{ oz}) = (-4.95) \text{ oz.}$

Net result is to remove 4.95 oz of refrigerant from the system

Example 2: System has 45 ft of existing 5/16" liquid line. What is the charge adjustment?

Formula: $(.40 \text{ oz/ft.} \times 45\text{ft}) - (9 \text{ oz.}) = 9 \text{ oz.}$

Net result is to add 9 oz of refrigerant to the system

LONG LINE APPLICATIONS

An application is considered Long Line, when the refrigerant level in the system requires the use of accessories to maintain acceptable refrigerant management for systems reliability. See Accessory Usage Guideline table for required accessories. Defining a system as long line depends on the liquid line diameter, actual length of the tubing, and vertical separation between the indoor and outdoor units.

For Air Conditioner systems, the chart below shows when an application is considered Long Line.

AC WITH PURON® REFRIGERANT LONG LINE DESCRIPTION ft (m)

Beyond these lengths, long line accessories are required

Liquid Line Size	Units On Same Level	Outdoor Below Indoor	Outdoor Above Indoor
1/4	No accessories needed within allowed lengths	No accessories needed within allowed lengths	175 (53.3)
5/16	120 (36.6)	50 (15.2) vertical or 120 (36.6) total	120 (36.6)
3/8	80 (24.4)	35 (10.7) vertical or 80 (24.4) total	80 (24.4)

Note: See Long Line Guideline for details

VAPOR LINE SIZING AND COOLING CAPACITY LOSS

Acceptable vapor line diameters provide adequate oil return to the compressor while avoiding excessive capacity loss. The suction line diameters shown in the chart below are acceptable for AC systems with Puron refrigerant:

Vapor Line Sizing and Cooling Capacity Losses — Puron® Refrigerant 1-Stage Air Conditioner Applications

Unit Nominal Size (Btuh)	Maximum Liquid Line Diameters (In. OD)	Vapor Line Diameters (In. OD)	Cooling Capacity Loss (%)								
			Total Equivalent Line Length ft. (m)								
			26-50 (7.9-15.2)	51-80 (15.5-24.4)	81-100 (24.7-30.5)	101-125 (30.8-38.1)	126-150 (38.4-45.7)	151-175 (46.0-53.3)	176-200 (53.6-61.0)	201-225 (61.3-68.6)	226-250 (68.9-76.2)
018 1 Stage AC with Puron	3/8	1/2	1	2	3	5	6	7	8	9	11
		5/8	0	1	1	1	2	2	2	3	3
		3/4	0	0	0	0	1	1	1	1	1
024 1 Stage AC with Puron	3/8	5/8	0	1	2	2	3	3	4	5	5
		3/4	0	0	1	1	1	1	1	2	2
		7/8	0	0	0	0	0	1	1	1	1
030 1 Stage AC with Puron	3/8	5/8	1	2	3	3	4	5	6	7	8
		3/4	0	0	1	1	1	2	2	2	3
		7/8	0	0	0	0	1	1	1	1	1
036 1 Stage AC with Puron	3/8	5/8	1	2	4	5	6	8	9	10	12
		3/4	0	1	1	2	2	3	3	4	4
		7/8	0	0	0	1	1	1	1	2	2
042 1 Stage AC with Puron	3/8	3/4	0	1	2	2	3	4	4	5	6
		7/8	0	0	1	1	1	2	2	2	3
		1 1/8	0	0	0	0	0	0	0	0	0
048 1 Stage AC with Puron	3/8	3/4	0	1	2	3	4	5	5	6	7
		7/8	0	0	1	1	2	2	2	3	3
		1 1/8	0	0	0	0	0	0	0	1	1
060 1 Stage AC with Puron	3/8	3/4	1	2	4	5	6	7	9	10	11
		7/8	0	1	2	2	3	4	4	5	5
		1 1/8	0	0	0	1	1	1	1	1	1

Applications in this area may be long line and may have height restrictions. See the Residential Piping and Long Line Guideline.

ACCESSORIES

KIT NUMBER	DESCRIPTION	Size – Voltage, Series																		
		18–32	24–31	30–31	30–51	36–31	36–51	36–61	36–11	42–30	42–50	42–60	48–31	48–51	48–61	48–11	60–32	60–52	60–62	60–12
HC32GE234	MOTOR FAN	X																		
HC34GE239	MOTOR FAN		X	X	X															
HC38GE219	MOTOR FAN									X	X									
HC38GE461	MOTOR FAN											X								
HC40GE225	MOTOR FAN																X	X		
HC40GE226	MOTOR FAN					X	X						X	X						
HC40GE466	MOTOR FAN							X							X				X	
KAACH1201AAA	KIT CRKC HTR									X	X		X	X			X	X		
KAACH1401AAA	KIT CRKC HTR	X	X	X	X	X	X													
KAACH1501AAA	KIT CRKC HTR							X												
KAACH1801AAA	KIT CRKC HTR								X											
KAACH1901AAA	KIT CRKC HTR											X			X				X	
KAACH2001AAA	KIT CRKC HTR															X				X
KAACS0201PTC	KIT PTC	X	X	X		X				X			X				X			
KAFT0101AAA	KIT FRZ THERM	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
KAAHI0501PUR	KIT PRESSURE SW	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
KAALP0401PUR	KIT PRESSURE SW	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
KAALS0201LLS	KIT SOL VALVE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
KAATD0101TDR	KIT TIME DELAY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
KAAWS0101AAA	KIT WINTER ST	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
KSACY0101AAA	KIT CYCLE PROTR	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
KSAHS1701AAA	KIT HARD START	X	X	X		X				X			X				X			
KSALA0301410	KIT LOW AMBIENT	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
KSALA0601AAA	KIT MOTOR MASTER	X	X	X	X	X	X			X	X		X	X			X	X		
KSALA0701AAA	KIT MOTOR MASTER							X				X			X				X	
KSASF0101AAA	KIT SPRT FEET	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
KSASH0601COP	KIT SOUND BLKT	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
KSASH2101COP	KIT SOUND BLKT																X	X	X	X
KSATX0201PUR	KIT TXV	X	X	X	X															
KSATX0301PUR	KIT TXV					X	X	X	X	X	X	X								
KSATX0401PUR	KIT TXV												X	X	X	X				
KSATX0501PUR	KIT TXV																X	X	X	X

X = Accessory

ELECTRICAL DATA

UNIT SIZE – VOLTAGE, SERIES	V/PH	OPER VOLTS*		COMPR		FAN	MCA	MIN WIRE SIZE†	MIN WIRE SIZE†	MAX LENGTH ft. (m)‡	MAX LENGTH ft. (m)‡	MAX FUSE** or CKT BRK AMPS
		MAX	MIN	LRA	RLA	FLA		60° C	75° C	60° C	75° C	
18–32	208/230/1	253	197	48.0	9.0	0.5	11.8	14	14	67 (20.4)	63 (19.2)	20
24–31				58.3	13.5	0.77	17.6	14	14	45 (13.7)	43 (13.1)	25
30–31				64.0	12.8	0.77	16.8	14	14	47 (14.3)	45 (13.7)	25
36–31				77.0	15.3	1.4	21.5	12	12	58 (17.7)	55 (16.8)	30
42–30				112.0	17.9	1.1	23.5	12	12	53 (16.2)	51 (15.5)	40
48–31				109.0	19.9	1.4	26.2	10	10	76 (23.2)	73 (22.3)	40
60–32				134.0	26.4	1.2	34.2	8	10	91 (27.7)	56 (17.1)	50
30–51	208/230–3	253	197	58.0	8.3	0.77	11.2	14	14	81 (24.7)	77 (23.5)	20
36–51				71.0	10.5	1.4	14.5	14	14	63 (19.2)	60 (18.3)	20
42–50				88.0	13.5	1.1	18.0	14	14	51 (15.5)	48 (14.6)	30
48–51				83.1	13.1	1.4	17.8	10	10	130 (39.6)	123 (37.5)	30
60–52				110.0	16.0	1.4	21.4	12	12	67 (20.4)	64 (16.5)	30
36–61	460–3	506	414	38.0	5.6	0.7	7.7	14	14	236 (71.9)	225 (68.5)	15
42–60				44.0	6.0	0.6	8.1	14	14	225 (68.5)	214 (65.2)	15
48–61				41.0	6.1	0.7	8.3	14	14	219 (66.8)	208 (63.4)	15
60–62				52.0	7.8	0.7	10.5	14	14	173 (52.7)	165 (50.3)	15
36–11	575–3	532	518	36.5	3.8	0.5	5.3	14	14	343 (104.5)	326 (99.4)	15
48–11				33.0	4.4	0.5	6.0	14	14	303 (92.4)	288 (87.8)	15
60–12				38.9	5.7	0.5	7.6	14	14	239 (72.8)	228 (69.5)	15

* Permissible limits of the voltage range at which the unit will operate satisfactorily

† If wire is applied at ambient greater than 30°C, consult table 310-16 of the NEC (NFPA 70). The ampacity of non-metallic-sheathed cable (NM), trade name ROMEX, shall be that of 60°C conditions, per the NEC (NFPA 70) Article 336-26. If other than uncoated (no-plated), 60 or 75°C insulation, copper wire (solid wire for 10 AWG or smaller, stranded wire for larger than 10 AWG) is used, consult applicable tables of the NEC (NFPA 70).

‡ Length shown is as measured one way along wire path between unit and service panel for voltage drop not to exceed 2%.

** Time-Delay fuse.

FLA - Full Load Amps

LRA - Locked Rotor Amps

MCA - Minimum Circuit Amps

RLA - Rated Load Amps

NOTE: Control circuit is 24-V on all units and requires external power source. Copper wire must be used from service disconnect to unit.

All motors/compressors contain internal overload protection.

Complies with 2007 requirements of ASHRAE Standards 90.1

A-WEIGHTED SOUND POWER LEVEL

UNIT SIZE	STANDARD RATING dBA	TYPICAL OCTAVE BAND SPECTRUM (dBA, without tone adjustment)						
		125	250	500	1000	2000	4000	8000
18-32	72	53.5	59.5	63.5	67.0	63.5	59.0	52.5
24-31	76	55.0	61.5	67.0	71.5	69.0	61.0	55.0
30-31, 51	74	55.0	63.5	68.5	68.5	65.5	61.0	54.0
36-31, 51, 61, 11	75	59.5	63.0	68.5	70.0	65.5	61.5	53.5
42-30, 50, 60	78	57.5	65.0	71.0	73.0	70.5	67.5	62.5
48-31, 51, 61, 11	80	58.5	67.5	73.5	75.0	70.5	67.5	64.5
60-32	78	59.0	67.5	71.5	73.5	69.0	66.0	63.5
60-52, 62, 12	79	59.5	69.5	72.5	73.5	71.0	68.0	63.5

NOTE: Tested in accordance with AHRI Standard 270-2008 (not listed in AHRI).

A-WEIGHTED SOUND POWER LEVEL WITH SOUND SHIELD

UNIT SIZE	STANDARD RATING dBA	TYPICAL OCTAVE BAND SPECTRUM (dBA, without tone adjustment)						
		125	250	500	1000	2000	4000	8000
18-32	71	55.5	60.5	64.0	66.0	63.0	58.5	52.0
24-31	74	55.5	60.5	66.5	70.0	67.0	61.0	53.5
30-31, 51	73	55.5	64.0	68.0	67.0	64.0	60.0	52.5
36-31, 51, 61, 11	74	59.5	63.0	68.0	69.5	65.0	60.5	50.5
42-30, 50, 60	77	57.5	65.0	70.5	72.0	70.0	67.0	62.0
48-31, 51, 61, 11	79	60.5	67.5	73.5	74.5	71.0	68.0	63.5
60-32	78	59.0	68.0	70.5	72.5	68.0	67.0	63.0
60-52, 62, 12	78	60.5	69.5	72.5	73.0	71.0	67.5	61.5

NOTE: Tested in accordance with AHRI Standard 270-2008 (not listed in AHRI).

CHARGING SUBCOOLING (TXV-TYPE EXPANSION DEVICE)

UNIT SIZE- VOLTAGE & SERIES	REQUIRED SUBCOOLING °F (°C)
18-32	10 (5.6)
24-31	10 (5.6)
30-31, 51	10 (5.6)
36-31, 51, 61, 11	14 (7.8)
42-30, 50, 60	10 (5.6)
48-31, 51, 61, 11	15 (8.3)
60-32	13 (7.2)
60-52, 62, 12	10 (5.6)

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DIMENSIONS - ENGLISH

UNIT	SERIES	ELECTRICAL CHARACTERISTICS				A	B	C	D	E	F	G	K	L	M	N	P	OPERATING WEIGHT (lbs)	SHIPPING WEIGHT (lbs)	SHIPPING DIMENSIONS (L x W x H)	
24ABB318	2	X	O	O	O	23 1/8"	25 5/16"	3 3/4"	3/4"	4 7/16"	18 1/16"	7 13/16"	2 13/16"	1/2"	16 1/2"	15"	12"	107	130	24 1/4" x 27 3/8" x 33 1/2"	
24ABB324	1	X	O	O	O	23 1/8"	25 5/16"	3 3/4"	3/4"	4 7/16"	18 1/16"	7 13/16"	2 13/16"	1/2"	16 1/2"	15"	12"	110	134	24 1/4" x 27 3/8" x 33 1/2"	
24ABB330	1	X	O	X	O	23 1/8"	28 11/16"	3 3/4"	3/4"	4 7/16"	18 1/16"	7 13/16"	2 13/16"	1/2"	16 1/2"	15"	14"	111	136	24 1/4" x 27 3/8" x 33 1/2"	
24ABB336	1	X	X	X	X	25 3/4"	32 5/16"	3 7/8"	7/8"	4 7/16"	21 1/4"	8 1/8"	2 15/16"	5/8"	14 1/4"	10 1/2"	16"	141	170	26 1/8" x 30 1/16" x 35 15/16"	
24ABB342	0	X	O	X	X	31 8/16"	32 5/16"	3 7/8"	7/8"	6 9/16"	24 11/16"	9 1/8"	2 15/16"	5/8"	15 3/4"	16 1/4"	13 3/4"	190	216	32 3/8" x 35 1/2" x 35 15/16"	
24ABB348	1	X	X	X	X	31 3/16"	35 3/4"	3 7/8"	7/8"	6 9/16"	24 11/16"	9 1/8"	2 15/16"	5/8"	16 3/8"	15 3/8"	15 1/4"	186	224	32 3/8" x 35 1/2" x 39 3/8"	
24ABB360	2	X	O	O	O	31 3/16"	25 1/2"	3 7/8"	7/8"	6 9/16"	24 11/16"	9 1/8"	2 15/16"	5/8"	14 1/8"	15 3/8"	11 3/8"	190	226	32 3/8" x 35 1/2" x 32 9/16"	
24ABB360	2	O	X	X	X	31 3/16"	28 15/16"	3 7/8"	7/8"	6 9/16"	24 11/16"	9 1/8"	2 15/16"	5/8"	16"	15 1/2"	12 3/4"	198	230	32 3/8" x 35 1/2" x 32 9/16"	

208-230-160

575

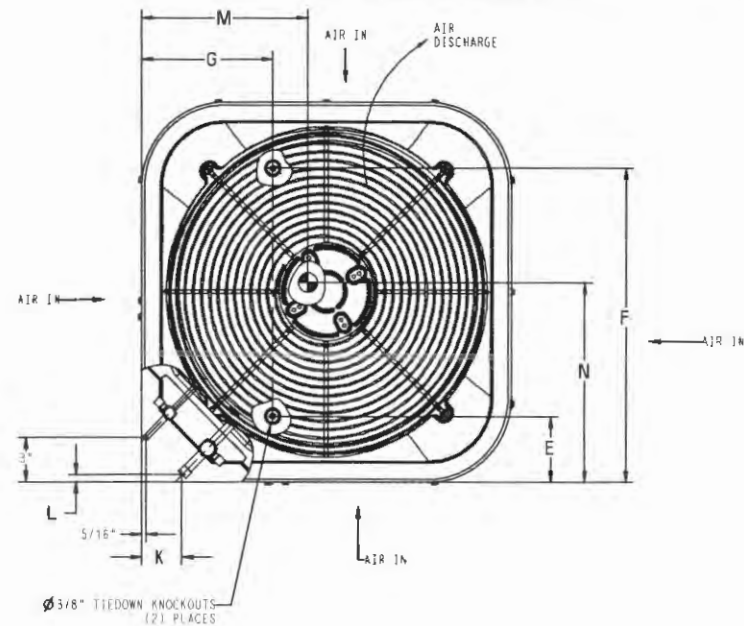
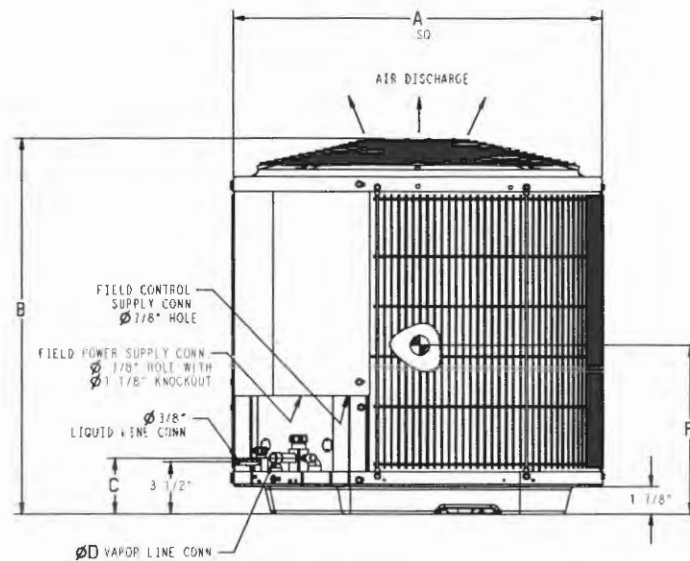
208/230-3-60

460-3-60

X = YES
O = NO

NOTES

1. ALLOW 24" CLEARANCE TO SERVICE END OF UNIT. 46" ABOVE UNIT. 6" ON ONE SIDE. 12" ON REMAINING SIDE AND 18" BETWEEN UNITS FOR PROPER AIRFLOW.
2. MINIMUM OUTDOOR OPERATING AMBIENT IN COOLING MODE IS 55 F. MAX. 125 F.
3. SERIES DESIGNATION IS THE 13TH POSITION OF THE UNIT MODEL NUMBER.
4. CENTER OF GRAVITY 
5. ALL DIMENSIONS ARE IN INCHES UNLESS NOTED.



UNIT SIZE	MINIMUM MOUNTING PAD DIMENSIONS
18, 24, 30	23 1/2" x 23 1/2"
36	26" x 26"
48, 60	31 1/2" x 35 1/2"
-	35" x 35"

DIMENSIONS - SI

UNIT	SERIES	ELECTRICAL CHARACTERISTICS					A	B	C	D	E	F	G	K	L	M	N	P	OPERATING WEIGHT (Kgs)	SHIPPING WEIGHT (Kgs)	SHIPPING DIMENSIONS (L x W x H)		
24ABB318	2	X	O	O	O		581.3	643.0	95.2	19.0	112.7	458.8	198.4	71.4	12.7	419.1	381.0	304.8	48.5	59.0	616.0 x 695.3 x 850.9		
24ABB324	1	X	O	O	O		581.3	643.0	95.2	19.0	112.7	458.8	198.4	71.4	12.7	419.1	381.0	304.8	49.9	60.8	616.0 x 695.3 x 850.9		
24ABB330	1	X	O	X	O		581.3	726.7	95.2	19.0	112.7	458.8	198.4	71.4	12.7	419.1	381.0	355.6	50.3	61.7	616.0 x 695.3 x 850.9		
24ABB336	1	X	X	X	X		654.0	820.8	98.4	22.2	112.7	539.8	231.8	74.6	15.9	387.0	266.7	406.4	64.0	77.1	682.6 x 763.6 x 912.8		
24ABB342	0	X	O	X	X		792.2	870.8	98.4	22.2	166.7	627.1	231.8	74.6	15.9	400.0	412.8	349.2	86.2	98.9	822.3 x 901.7 x 912.8		
24ABB348	1	X	X	X	X		792.2	908.0	98.4	22.2	166.7	627.1	231.8	74.6	15.9	415.9	390.5	387.4	84.4	101.6	822.3 x 901.7 x 1000.1		
24ABB360	2	X	O	O	O		192.2	647.7	98.4	22.2	166.7	627.1	231.8	74.6	15.9	358.8	390.5	288.9	86.2	102.5	822.3 x 901.7 x 827.1		
24ABB360	2	O	X	X	X		192.2	735.0	98.4	22.2	166.7	627.1	231.8	74.6	15.9	406.4	393.7	325.9	89.8	104.3	822.3 x 901.7 x 827.1		

208-230-160

575

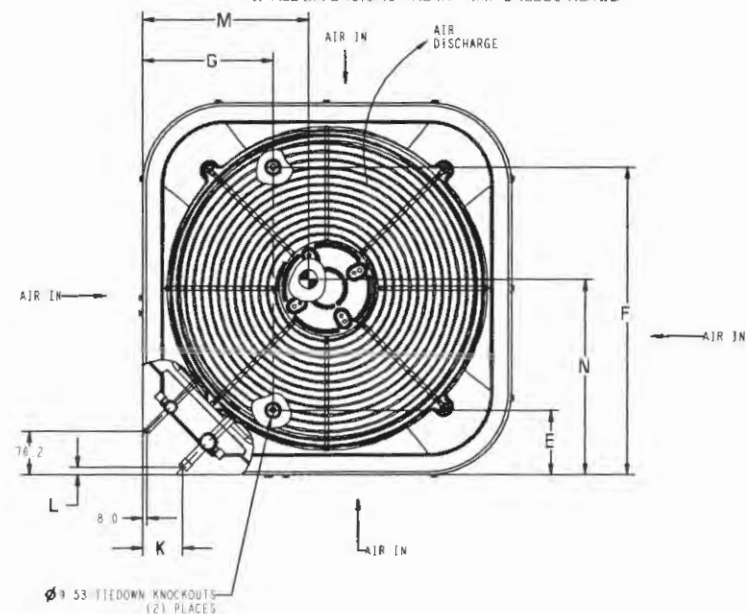
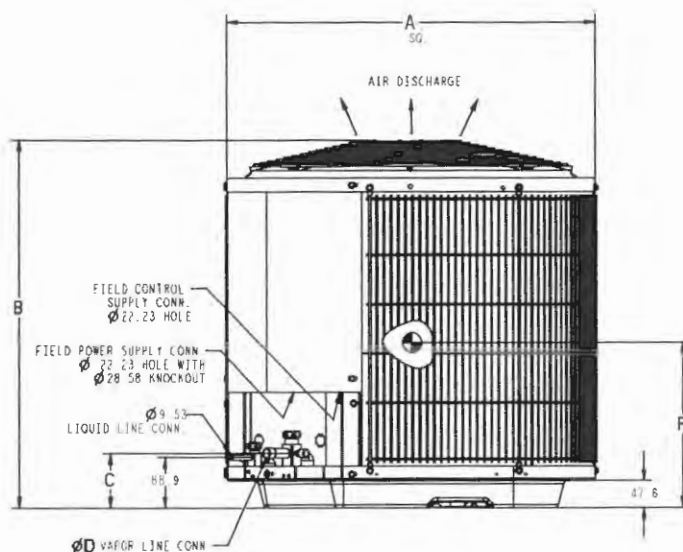
208/230-3-60

460-3-60

X = YES
O = NO

NOTES:

1. ALLOW 609.6 CLEARANCE TO SERVICE END OF UNIT.
1219.2 ABOVE UNIT 152.4 ON ONE SIDE 304.8 ON REMAINING SIDE
AND 609.6 BETWEEN UNITS FOR PROPER AIRFLOW
2. MINIMUM OUTDOOR OPERATING AMBIENT (1) COOLING
MODE IS 13 C MAX 52 C
3. SERIES DESIGNATION IS THE 13TH POSITION OF THE
UNIT MODEL NUMBER
4. CENTER OF GRAVITY *
5. ALL DIMENSIONS ARE IN MM UNLESS NOTED



UNIT SIZE	MINIMUM MOUNTING PAD DIMENSIONS
18, 24, 30	536.9 x 590.9
36	660.4 x 860.4
48, 60	800.1 x 900.1
-	889.0 x 889.0

24ABB3