



THRU-THE-WALL CONDENSING UNITS

Installation / Instruction Manual

Prepared Exclusively for Architects & Engineers

***Thru-the-Wall
Cooling Comfort***



SERIES 1000
26 1/4" w x 28 5/8" h

SERIES 3000
24 1/8" w x 32" h

SERIES 4000
30" w x 23" h

National Comfort Products®

539 Dunksferry Road • Bensalem, PA 19020 • (215) 244-1400 • **1-800-523-7138** • Fax: (267) 638-1674

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Multi-family unit in Tampa, Florida using condensing units produced by National Comfort Products

Introduction

This manual is offered to Architects and Engineers designing multi-family projects interested in National Comfort Products Thru-the-Wall Condensing Units. Local building codes must be applied when using our products. All building heat gain should be determined by a qualified engineer along with the sizing of the electrical supply. This will aid in many areas of concern while designing multi-family properties.

Specification

1. PRODUCT NAME

National Comfort Products – Condensing Units – National Refrigeration and Air Conditioning

2. MANUFACTURER

National Comfort Products,
539 Dunksferry Road, Bensalem, PA 19020
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www.nationalcomfortproducts.com

3. DESCRIPTION

Our condensing units are designed for the multi-family industry. The thru-the-wall operation saves money and time with simple easy installation. No long refrigerant or electrical runs, no ground clutter, no theft or vandalism, no roof penetrations and the unit can be easily serviced from indoors.

MODELS – Offering a Standard Model and a Deluxe New Yorker Model available in 3 series.

Standard Models – Three different capacities 1.5 to 2.5 tons.

Deluxe New Yorker Models – Three different capacities 1.5 to 2.5 tons. Additional features (interior cabinet insulation, compressor crankcase heater, compressor hard start kit, solid state condenser fan motor speed control, high and low pressure switches, compressor

anti cycle time delay, condenser fan pre start timer, spring isolators for compressor, suction line vibration absorber.

MEA# – No longer needed in New York.

SERIES – **1000, 3000 & 4000** all offer different outside dimensions for multiple wall openings.

1000 Series – 26 1/4" x 28 5/8" x 18 1/2"

3000 Series – 24 1/8" x 32" x 18 1/2"

4000 Series – 30" x 23" x 18 1/2"

(depth 22 1/2" on 2 & 2 1/2" ton units)

MATERIAL – Cabinet to be constructed of Pre-Painted Galvanized Steel. Indoor and outdoor coils shall be fabricated of raised lanced aluminum fins mechanically bonded to seamless rifled copper tubes.

COLOR – Tan



VOLTAGE – Units come factory wired for 208-230V/1P/60HZ with a low voltage circuit rated for a 24V/60HZ Class 2 transformer 40VA Minimum. The operating voltage of the unit is from 197 to 253 volts. (Single pole contactor used.)

FEATURES:

COMPATIBILITY – Units are compatible with most brands of “indoor” units.

CABINET– Heavy duty pre-painted cabinet (22 gauge metal).

EASY ACCESS – Units are easily serviced from inside. Control box and condenser fan are easily accessible.

SERVICE VALVES – Brass service valves with the ability to check operating pressures with service door reattached.

4. TECHNICAL DATA

LIMITATIONS – All installations should factor a proper building heat gain, along with appropriate duct sizing and electrical supply wiring to be figured by a professional engineer familiar with local and national codes.

STANDARDS – AHRI Rated, AHRI Standard 210/240-2008 for Unitary Air-Conditioning and Air-Source Heat Pump Equipment. UL 1995 Listed for Safety.

Sound Data –

Outdoor: (79.8 dba)
Standard, AHRI 270-2008

Indoor: Without Indoor Cover (70.4 dba)
Standard, AHRI 350-2008

Indoor: **With Indoor Cover** (68.3 dba)
Standard, AHRI 350-2008

ENVIRONMENTAL – Environmentally friendly refrigerant HCFC R410A

Intertek Safety Report Number –
ETL Testing Laboratories Inc.
Inspection, Test and Evaluation
Report no. 513536

5. INSTALL

All units have an optional highly recommended, wall sleeve for a clean finish and future service accessibility. Provide clearances minimal of 30” in front of access panels for service and proper distances from all outside utilities in accordance with all local and national codes. A minimum vertical clearance of 48” between units should be maintained to minimize recirculation of condenser air.

6. SALES

National Comfort Products are dealt through a variety of wholesalers. Contact the factory to help locate a nearby distributor for price and availability.

7. WARRANTY

1 year warranty of all parts and 5 year warranty of the compressor. 90 days labor warranty.

8. SERVICE

The unit can be easily serviced from indoors and should be properly maintained in accordance of the manufacture instructions. All standard maintenance instructions are within the installation and users guides.

9. TECHNICAL SUPPORT

Factory technical assistance is available to help with any concerns or situations regarding National Comfort Products.

SUBMITTAL PACKAGE SPLIT-SYSTEM CONDENSING UNITS



R-410A

MEETS 2010 DOE REQUIREMENTS FOR ALL UNITS.

PROJECT: _____ LOCATION: _____ DATE: _____

PURCHASER: _____

ARCHITECT: _____ ENGINEER: _____

PO#: _____ FOR REFERENCE: _____

SUBMITTED BY: _____ FOR APPROVAL: _____

12.0 SEER NCPD/E Models

PLAN DESIGNATION	MODEL (circle /D for Deluxe NY)	QUANTITY	RATED COOLING/HEATING OUTPUTS (B/HR)	MINIMUM AWG WIRE	MAXIMUM FUSE
	NCPE-418-1010 /D		18,000 BTU	14	15
	NCPE-424-1010 /D		23,600 BTU	12	20
	NCPE-430-1010 /D		27,200 BTU	12	25
	NCPE-418-3010 /D		18,000 BTU	14	15
	NCPE-424-3010 /D		23,600 BTU	12	20
	NCPE-430-3010 /D		27,200 BTU	12	25
	NCPD-418-4010 /D		18,000 BTU	14	15
	NCPE-424-4010 /D		23,600 BTU	12	20
	NCPE-430-4010 /D		27,200 BTU	12	25

Accessories/Options

QUANTITY	PART NO.	DESCRIPTION
	14269035 (1000 Series)	Architectural Louver Grille (non-painted)
	14269036 (3000 Series)	Architectural Louver Grille (non-painted)
	14269037 (4000 Series)	Architectural Louver Grille (non-painted)
	14269035-P (1000 Series)	Architectural Louver Grille (painted)
	14269036-P (3000 Series)	Architectural Louver Grille (painted)
	14269037-P (4000 Series)	Architectural Louver Grille (painted)
	1000-WSD-12	Wall Sleeve
	3000-WSD-12	Wall Sleeve
	4000-WSD-12	Wall Sleeve

A Division of National Refrigeration & Air Conditioning Products, Inc.

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Installation/Instruction Manual for Architects & Engineers

CONDENSING UNITS NCPE 1000, NCPE 3000, and NCPD/E 4000

NCPE1000



NCPE 3000



NCPE4000



SERIES 1000 NCPE-418-1010	SERIES 1000 NCPE-424-1010	SERIES 1000 NCPE-430-1010	SERIES 3000 NCPE-418-3010	SERIES 3000 NCPE-424-3010	SERIES 3000 NCPE-430-3010	SERIES 4000 NCPE-418-4010	SERIES 4000 NCPE-424-4010	SERIES 4000 NCPE-430-4010
DIMENSIONS								
26 1/4" wide**	26 1/4" wide**	26 1/4" wide**	24 1/8" wide**	24 1/8" wide**	24 1/8" wide**	30" wide**	30" wide**	30" wide**
28 5/8" high	28 5/8" high	28 5/8" high	32" high	32" high	32" high	23" high	23" high	23" high
18 1/2" deep	18 1/2" deep	18 1/2" deep	18 1/2" deep	18 1/2" deep	18 1/2" deep	22 1/2" deep	22 1/2" deep	22 1/2" deep
180 lbs.	180 lbs.	180 lbs.	180 lbs.	180 lbs.	180 lbs.	180 lbs.	180 lbs.	180 lbs.
3/8" liquid valve	3/8" liquid valve	3/8" liquid valve	3/8" liquid valve	3/8" liquid valve	3/8" liquid valve	3/8" liquid valve	3/8" liquid valve	3/8" liquid valve
3/4" vapor valve	3/4" vapor valve	3/4" vapor valve	3/4" vapor valve	3/4" vapor valve	3/4" vapor valve	3/4" vapor valve	3/4" vapor valve	3/4" vapor valve
ARI RATING								
Nordyne B6VMAX24K-A 18,000 BTU	Nordyne B6VMAX24K-A 23,800 BTU	Nordyne B6VMAX24K-A 27,200 BTU	Nordyne B6VMAX24K-A 18,000 BTU	Nordyne B6VMAX24K-A 23,800 BTU	Nordyne B6VMAX24K-A 27,200 BTU	Nordyne B6VMAX24K-A 18,000 BTU	Nordyne B6VMAX24K-A 23,600 BTU	Nordyne B6VMAX24K-A 27,200 BTU
Thermal Zone TZhKL-2417JA 18,000 BTU	Thermal Zone TZhKL-2417JA 23,600 BTU	Thermal Zone TZhKL-2417JA 27,200 BTU	Thermal Zone TZhKL-2417JA 18,000 BTU	Thermal Zone TZhKL-2417JA 23,600 BTU	Thermal Zone TZhKL-2417JA 27,200 BTU	Thermal Zone TZhKL-3821JA 18,000 BTU	Thermal Zone TZhKL-3821JA 23,600 BTU	Thermal Zone TZhKL-3821JA 27,200 BTU
12.0 SEER	12.0 SEER	12.0 SEER	12.0 SEER	12.0 SEER	12.0 SEER	12.0 SEER	12.0 SEER	12.0 SEER
ELECTRICAL								
208/230 volts	208/230 volts	208/230 volts	208/230 volts	208/230 volts	208/230 volts	208/230 volts	208/230 volts	208/230 volts
60 hertz	60 hertz	60 hertz	60 hertz	60 hertz	60 hertz	60 hertz	60 hertz	60 hertz
1 phase	1 phase	1 phase	1 phase	1 phase	1 phase	1 phase	1 phase	1 phase
14 min. AWG wire	12 min. AWG wire	12 min. AWG wire	14 min. AWG wire	12 min. AWG wire	12 min. AWG wire	14 min. AWG wire	12 min. AWG wire	12 min. AWG wire
15 max. fuse	20 max. fuse	25 max. fuse	15 max. fuse	20 max. fuse	25 max. fuse	15 max. fuse	20 max. fuse	25 max. fuse
COMPRESSOR								
7.3 RLA (amps)	9.10 RLA (amps)	10.6 RLA (amps)	7.3 RLA (amps)	9.10 RLA (amps)	11.1 RLA (amps)	7.3 RLA (amps)	9.1 RLA (amps)	10.6 RLA (amps)
48.0 LRA	58.3 LRA	64.0 LRA	48.0 LRA	58.3 LRA	73.0 LRA	48.0 LRA	58.3 LRA	64.0 LRA
FAN MOTOR								
.25 HP	.25 HP	.25 HP	.25 HP	.25 HP	.25 HP	.25 HP	.25 HP	.25 HP
1.4 amps	1.4 amps	1.4 amps	1.4 amps	1.4 amps	1.4 amps	1.4 amps	1.4 amps	1.4 amps
COIL								
3 rows	4 rows	4 rows	3 rows	4 rows	4 rows	3 rows	4 rows	4 rows
3.61 face area	3.61 face area	3.61 face area	3.77 face area	3.77 face area	3.77 face area	3.14 face area	3.14 face area	3.14 face area
16 FPI	16 FPI	16 FPI	16 FPI	16 FPI	16 FPI	16 FPI	16 FPI	16 FPI
INDOOR UNIT								
Nordyne B6VMAX24K-A 650 CFM	Nordyne B6VMAX24K-A 810 CFM	Nordyne B6VMAX24K-A 950 CFM	Nordyne B6VMAX24K-A 650 CFM	Nordyne B6VMAX24K-A 810 CFM	Nordyne B6VMAX24K-A 950 CFM	Nordyne B6VMAX36K-B 650 CFM	Nordyne B6VMAX36K-B 810 CFM	Nordyne B6VMAX36K-B 950 CFM
Thermal Zone TZhKL-2417JA 650 CFM	Thermal Zone TZhKL-2417JA 850 CFM	Thermal Zone TZhKL-2417JA 1000 CFM	Thermal Zone TZhKL-2417JA 650 CFM	Thermal Zone TZhKL-2417JA 850 CFM	Thermal Zone TZhKL-2417JA 1000 CFM	Thermal Zone TZhKL-3821JA 650 CFM	Thermal Zone TZhKL-3821JA 850 CFM	Thermal Zone TZhKL-3821JA 1000 CFM
REPLACES								
Bryant, Carrier, Day & Night, Dunham-Bush, Lennox, Magic Chef, Meyer, Payne, First Co., U.S. A/C (BB)			Carrier, Fedders, Dunham-Bush, Lennox, Magic Chef, Meyer, Rheem, First Co., U.S. A/C (AB)			Dunham-Bush, Hydro-Therm Space Pack, Lennox, Luxaire York, First Co., U.S. A/C (CB)		

Note: All specifications are subject to change without notice. * Condensing units are compatible with most manufacturers of indoor air handlers and coils.

** Dimensions including screw heads on both sides of the cabinet.

The Thru-the-Wall Condenser

AHRI / DOE

National Comfort Products is rated thru AHRI Standard 210/240-2008 for Unitary Air-Conditioning and Air-Source Heat Pump Equipment, website: (<http://www.ahridirectory.org/ahridirectory/pages/ac/defaultSearch.aspx>) and recognized by the Department of Energy, website: (<http://www.regulations.doe.gov/certification-data/CCMS-79222816513.html>). All units are rated at 12 SEER.



U.S. DEPARTMENT OF
ENERGY



(You can also check our website for DOE & AHRI matched air handlers)

<http://www.nationalcomfortproducts.com/info5.php#ahri>

Why Thru-The-Wall

Units are easily serviced in any weather condition. They are less expensive to install and eliminate ground clutter. There is less risk of theft or vandalism, no roof penetrations, shorter line sets, and less refrigerant charge. They also offer the ability for separate electrical meter savings and have a better overall appearance. (See *Architectural Grille Section on page 19*)

SERIES 3000

24 1/8" w x 32" h



SERIES 1000

26 1/4" w x 28 5/8" h

SERIES 4000

30" w x 23" h

Locating the Unit

Clearance Awareness

The unit must not be mounted in dead-end hallways or areas where there is no fresh outside air circulation. Cool fresh outside air must be provided for best operation. Units should not be located where hot exhausts from clothes dryer vents, kitchen vents, steam vents or where corrosive fumes could come in contact with the coil side of the unit.

Important: If one or more units is installed in vertical array a **minimum of 48"** is required and must be maintained to minimize recirculation of condenser exhaust air.



“Vertical Array” Installation



Service Access

30" of clearance is required for service accessibility on the inside. All units are serviceable from the inside.

Noise

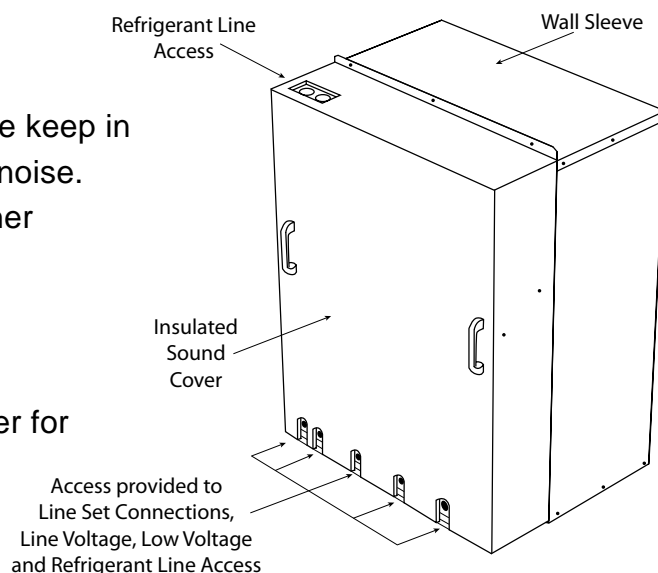
We design our unit as quiet as possible; please keep in mind when locating the unit that it does make noise. Use common precautions as you would for other mechanical appliances pertaining to noise.

Outdoor Sound: (79.8 dba)
Standard, AHRI 270-2008

As an option, we offer an insulated sound cover for installation over the inside cover of the unit.

Sound: Without Indoor Cover (70.4 dba)
Standard, AHRI 350-2008

Sound: **With Indoor Cover (68.3 dba)**
Standard, AHRI 350-2008



1000 I.D. Cover

3000 I.D. Cover

4000 I.D. Cover



Insulated Indoor Cover shown in place over the inside of the unit.



The Insulated Sound Cover will be supplied insulated, handles installed and assembled. To install onto the unit, either the top or bottom will need to be removed, depending on the exit point of the tubing. (4 screws)

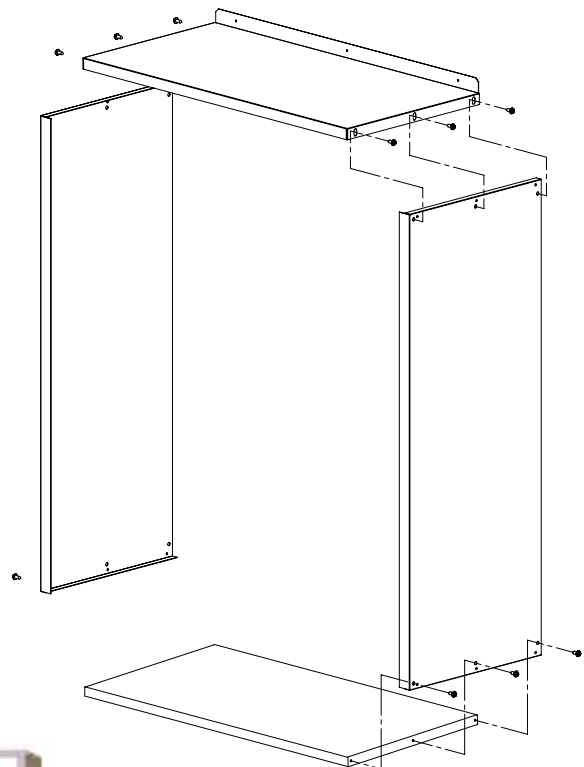
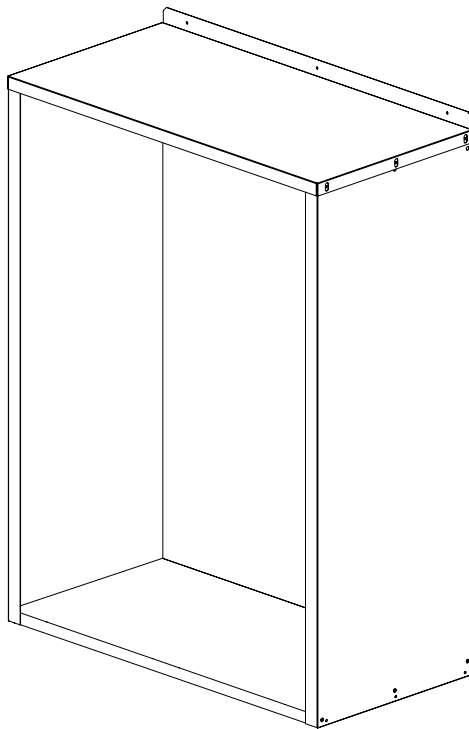
Walls

Wall Sleeve

Available for 1000, 3000 & 4000 Series

Our wall sleeve must be field assembled and easily forms a box with mounting brackets, guides, and seals. It should be installed with a non-hardening caulk into the opening of the wall. The sleeve should be installed 3/4" past the exterior wall for proper weather sealing.

In different builds, the sleeve must be fastened to the supporting wall and not the finished wall.



1000-WSD-12
H x W
29⁵/₈" x 26⁷/₈"
(Rough in at: 30¹/₈" x 27³/₈")



3000-WSD-12
H x W
33" x 24⁷/₈"
(Rough in at: 33¹/₂" x 25³/₈")



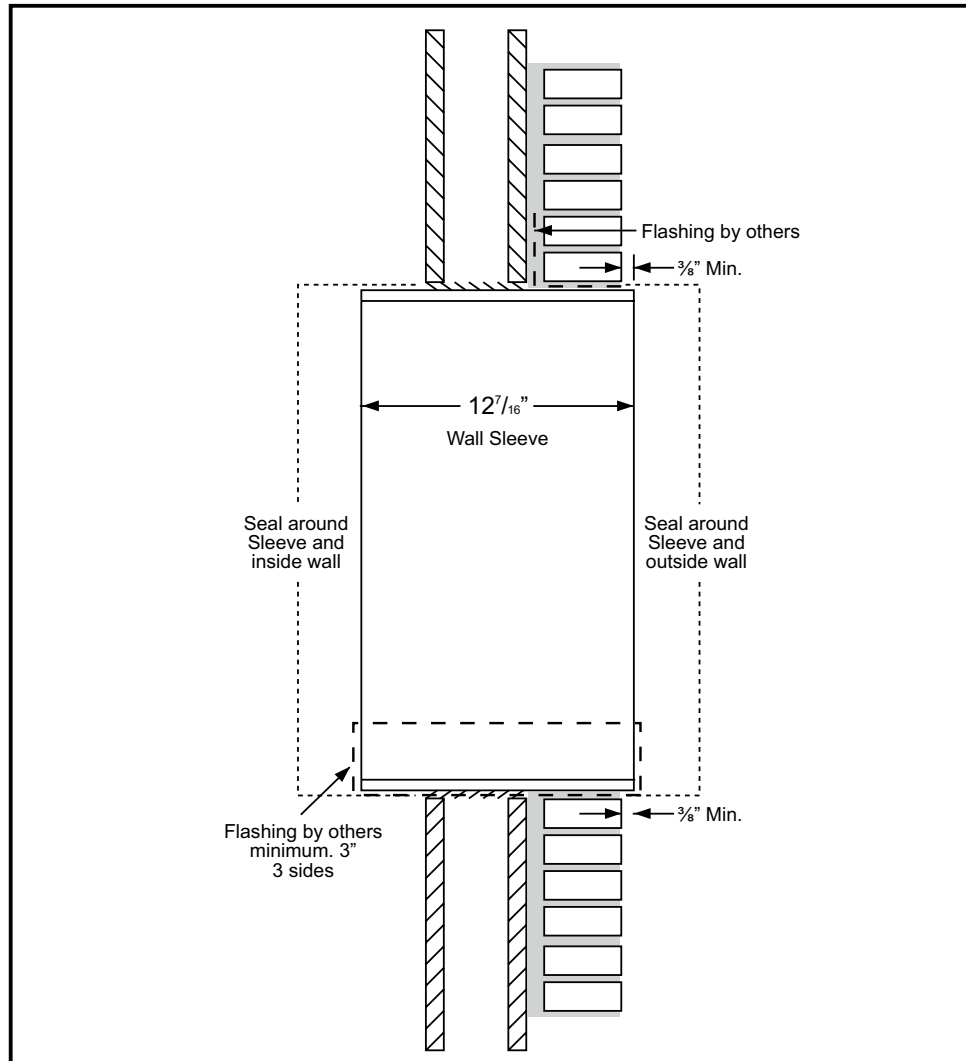
4000-WSD-12*
H x W
24" x 30⁵/₈"
(Rough in at: 24¹/₂" x 31¹/₈")

Wall Construction

The wall sleeve is designed to support the unit but the wall itself must be adequate to support the unit. When this is an issue a support is needed at the base of the unit.

For wood frame walls the sleeve can be adequately fastened with lag screws into doubled two by six and should be pressed against only solid wood material. Vibration pads can be used in light weight framing designs. Must be adequate to support 280 lbs.

For masonry wall applications, a proper lintel should be installed to support the wall.



Sealing of the Unit

Water

The wall opening across the top and bottom must be flashed. Bottom flashing to cover the full foot print of the unit and extend up 2" on 3 sides. All openings around the top, sides and bottom must be caulked and sealed. **It is very important not to plug the weephole openings in the front section of the unit base pan... these are critical for drainage of moisture or rain.** If a wall sleeve is used, caulk the spaces between the sleeve and the wall. Completely fill the clearance between the unit and the wall sleeve with a polyurethane foam sealant.

During periods of rain and wind the primary drainage path may not be adequate to handle the load. Secondary drainage precautions may also be required but not limited to the following:

- a. Seal flashing to unit
- b. Floor drain
- c. Additional field sealing of sheet metal joints
- d. Sealing of unused access opening

Air

Clearance to air inlets and outlets must be adequate to ensure no air flow obstructions or recirculation of condenser air flow.

Obstructed Air Flow



Electrical

High Voltage

The unit is factory wired for 208/230 Volts AC Single Phase 60 Hertz. The operating voltage is from 197 VAC to 253 VAC. A single pole contactor is used for connection.

Low Voltage

The unit is rated for a 24 Volt 60 Hertz Class 2 transformer with a 40 VA minimum to supply the low voltage to the control.



Condensing Unit Control Box

Refrigeration

Evaporator

All units are approved with indoor evaporator coils utilizing a Thermal Expansion Valve (TXV). Self-equalizing components are required to reduce compressor starting problems. If self-equalizing components are not used, field installed hard start kits will be required. Units are compatible with most brands of “indoor” units.

(Check our website for DOE & AHRI matched air handlers)

<http://www.nationalcomfortproducts.com/info5.php#ahri>

Line set

When replacing R22 units it is highly recommend that the line sets be replaced. If that option is not feasible it is necessary to flush the line set with a commercial flushing agent. The unit has internally mounted service valves. Field tubing may be routed through the locations provided in either the top or rear flange. Care should be taken not to block access to internal components. Seal all unused knockouts and use provided gaskets for liquid and suction lines.

All units are designed set for 3/8” Liquid Line and 3/4” Vapor Line. When line set may exceed 50’ please consult the factory.

When installing the condenser below the evaporator, the suction line must be trapped with an inverted trap the height of the evaporator coil.

A minimum of 1/2” foam rubber insulation is required for the suction line.

All field connections should be brazed while purging system with Dry Nitrogen. System should be pressure tested at approximately. 100 psi dry nitrogen and then evacuated to 300 microns (held for 10 minutes) before opening service valves. Be sure that all service valves are protected during brazing.