YORK®
Heating and Air Conditioning

TECHNICAL GUIDE

AFFINITY

MODELS: PC9*DH

GAS-FIRED
CONDENSING / HIGH EFFICIENCY
DOWNFLOW / HORIZONTAL
MODULATING FURNACES
WITH ECM MOTOR

NATURAL GAS
60 - 120 MBH INPUT

ISO 9001
Certified Quality
Management System

Due to continuous product improvement, specifications are subject to change without notice.

Visit us on the web at www.york.com for the most up-to-date technical information.

Additional rating information can be found at www.gamanet.org.

DESCRIPTION

These Category IV, highly efficient, compact, condensing type furnaces are designed for residential and commercial installations in a basement, closet, alcove, recreation room or garage where the ambient temperature is above 32°F, or higher. They may be either side wall or thru-roof vented using approved plastic type combustion air and vent piping. All units are factory assembled, wired and tested to assure dependable and economical installation and operation.

WARRANTY

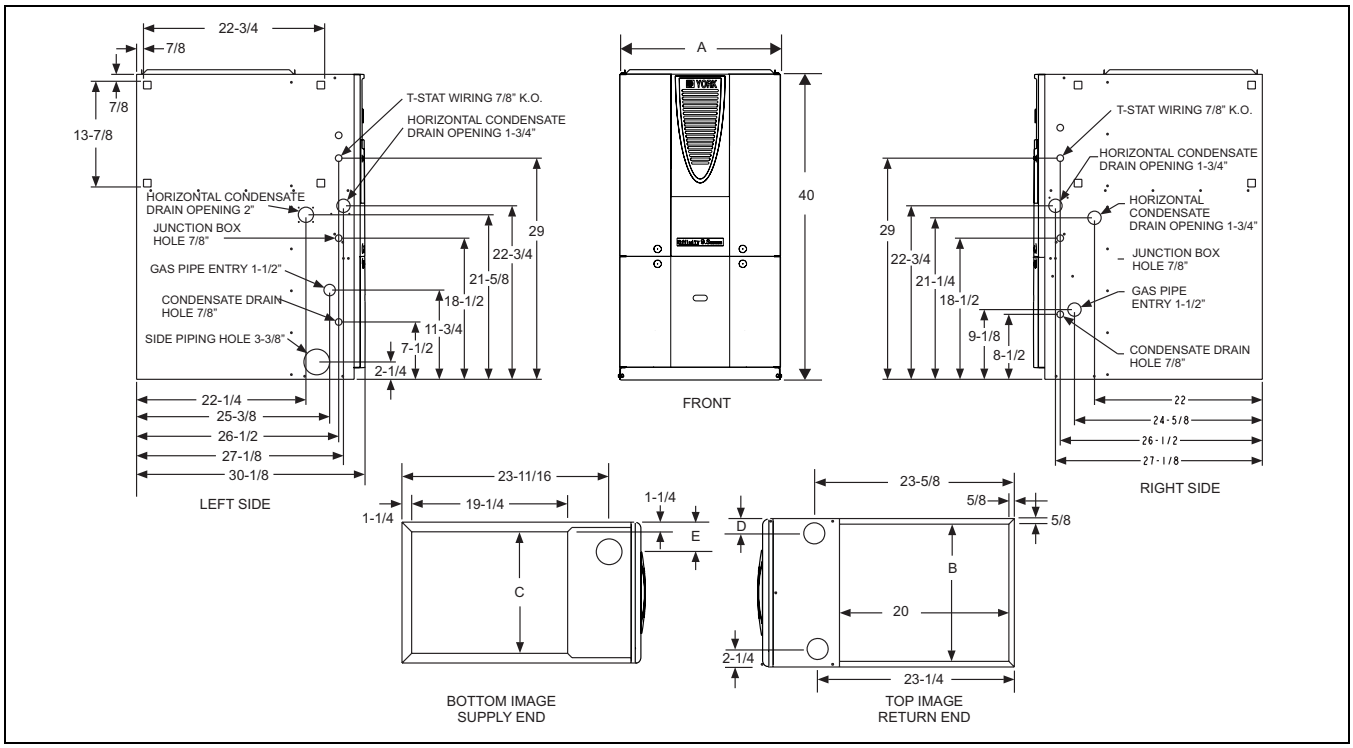
Lifetime limited warranty on both heat exchangers to the original purchaser; a 20-year limited warranty from original installation date to subsequent purchaser.

10-year warranty on the heat exchanger in commercial applications.

5-year limited parts warranty.

FEATURES

- Modulating heating operation includes:
  - Modulating gas valve
  - Modulating inducer operation
- Provides increased comfort level & very quiet unit operation
- Compact, easy to install, ideal height 40" cabinet.
- Blower-off delay for cooling SEER improvement.
- Easy to connect power/control wiring.
- Built-in, high level self diagnostics with fault code display.
- Low unit amp requirement for easy replacement application.
- Integrated control module for reliable, economical operation.
- High velocity filter available for easy field installation.
- May be installed as either two-pipe (direct vent) or single pipe vent (using indoor combustion air)
- Top intake & vent connection allows installation in narrow locations.
- Electronic Hot Surface Ignition saves fuel cost with increased dependability and reliability.
- Induced combustion system with inshot main burners for quiet, efficient operation.
- No special vent termination kit required.
- 100% shut off main gas valve for extra safety.
- ECM High-efficiency, direct drive motor with large, quiet blower.
- 24V, 40 VA control transformer and blower relay supplied for add-on cooling.
- Hi-tech tubular aluminized steel primary heat exchanger.
- Secondary (condensing) heat exchanger of 29-4C high-grade stainless steel.
- Timed on, adjustable off blower capability for maximum comfort.
- Independent door removal for greater durabilty and ease of access.
- Easy access from front of unit for cleaning, maintenance or service.
- Protection from intake, exhaust or condensate blockage.
- Insulated blower compartment for quiet operation.
- 3-way transition facilitates fresh air piping.



DIMENSIONS

Models	CFM	Cabinet Size	Cabinet Dimension				
			A (in.)	B (in.)	C (in.)	D (in.)	E (IN.)
PC9B12N060DH11	1200	B	17-1/2	16-1/4	15	1-3/4	2-3/8
PC9B12N080DH11	1200	B	17-1/2	16-1/4	15	1-3/4	2-3/8
PC9C16N080DH11	1600	C	21	19-3/4	18-1/2	2-1/8	2-3/4
PC9C16N100DH11	1600	C	21	19-3/4	18-1/2	2-1/8	2-3/4
PC9C20N100DH11	2000	C	21	19-3/4	18-1/2	2-1/8	2-3/4
PC9D20N120DH11	2000	D	24-1/2	23-1/4	22	2-1/2	3

ELECTRICAL AND PERFORMANCE DATA

Models	Input Max/Min	Output Max/Min	Nominal Airflow	Cabinet Width	AFUE	Air Temp. Rise Maximum Input	Air Temp. Rise Minimum Input
	MBH	MBH	CFM	In.	%	°F	°F
PC9B12N060DH11	60 / 21	57 / 20	1200	17-1/2	95.0	40 - 70	20 - 50
PC9B12N080DH11	80 / 28	76 / 26	1200	17-1/2	95.0	40 - 70	20 - 50
PC9C16N080DH11	80 / 28	76 / 26	1600	21	95.0	40 - 70	20 - 50
PC9C16N100DH11	100 / 35	95 / 33	1600	21	95.0	40 - 70	20 - 50
PC9C20N100DH11	100 / 35	95 / 33	2000	21	95.0	40 - 70	20 - 50
PC9D20N120DH11	120 / 42	115 / 39	2000	24-1/2	95.0	40 - 70	20 - 50

Models	Max. Outlet Air Temp.	Blower		Blower Size	Total Unit	Max. Over-current Protect	Min. Wire Size (awg) @ 75 ft. One Way	Approximate Operating Weight	Power Supply (Voltage-PH-Hz
	°F	HP	Amps	In.	Amps				
PC9B12N060DH11	170	1/2	7.7	11 x 8	9	20	14	136	115-1-60
PC9B12N080DH11	170	1/2	7.7	11 x 8	9	20	14	143	115-1-60
PC9C16N080DH11	170	3/4	9.6	11 x 10	12	20	14	159	115-1-60
PC9C16N100DH11	170	3/4	9.6	11 x 10	12	20	14	163	115-1-60
PC9C20N100DH11	170	1	12.8	11 x 11	14	20	12	165	115-1-60
PC9D20N120DH11	170	1	12.8	11 x 11	14	20	12	182	115-1-60

Annual Fuel Utilization Efficiency (AFUE) numbers are determined in accordance with DOE Test procedures.
Wire size and over current protection must comply with the National Electrical Code (NFPA-70-latest edition) and all local codes.
The furnace shall be installed so that the electrical components are protected from water.

AIR FLOW DATA

HIGH / LOW SPEED COOLING AND HEAT PUMP CFM					
PC9B12N060DH11		PC9B12N080DH11		JUMPER SETTINGS	
CFM		CFM			
High	Low	High	Low	COOL Tap	ADJ Tap
1330	900	1310	890	A	B
1130	800	1100	740	B	B
1220	850	1220	830	A	A
1040	730	1000	670	B	A
1120	770	1090	720	A	C
920	650	900	610	C	B
950	660	880	610	B	C
740	540	680	510	D	B
860	610	810	580	C	A
690	540	630	500	D	A
790	570	730	530	C	C
630	530	590	500	D	C
PC9C16N080DH11 PC9C16N100DH11		PC9C20N100DH11		JUMPER SETTINGS	
CFM		CFM			
High	Low	High	Low	COOL Tap	ADJ Tap
1660	1110	2210	1480	A	B
1550	1050	1780	1180	B	B
1610	1070	2040	1350	A	A
1440	960	1620	1050	B	A
1470	990	1840	1250	A	C
1370	920	1560	1010	C	B
1290	850	1470	940	B	C
1130	790	1370	890	D	B
1230	850	1460	930	C	A
1050	720	1250	790	D	A
1110	760	1310	810	C	C
950	660	1090	690	D	C
PC9D20N120DH11				JUMPER SETTINGS	
CFM					
High	Low			COOL Tap	ADJ Tap
2280	1510			A	B
1860	1190			B	B
2090	1370			A	A
1630	1060			B	A
1880	1250			A	C
1620	1030			C	B
1500	960			B	C
1410	880			D	B
1490	920			C	A
1290	790			D	A
1360	840			C	C
1140	690			D	C

All CFM's are shown at 0.5" w.c. external static pressure.These units have variable speed motors that automatically adjust to provide constant CFM from 0.0" to 0.6" w.c. static pressure. From 0.6" to 1.0" static pressure, CFM is reduced by 2% per 0.1" increase in static. Operation on duct systems with greater than 1.0" w.c. external static pressure is not recommended.
NOTE: At some settings, LOW COOL airflow may be lower that what is required to operate an airflow switch on certain models of electronic air cleaners. Consult the instructions for the electronic air cleaner for further details.

NOTES:
1. Airflow expressed in standard cubic feet per minute (CFM).

FILTER PERFORMANCE

The airflow capacity data published in the “Blower Performance” table listed above represents blower performance WITHOUT filters. To determine the approximate blower performance of the system, apply the filter drop value for the filter being used or select an appropriate value from the “Filter Performance” table shown.

NOTE: The filter pressure drop values in the “Filter Performance” table shown are typical values for the type of filter listed and should only be used as a guideline. Actual pressure drop ratings for each filter type vary between filter manufacturer.

FILTER SIZES

CFM	Cabinet Size	Top Return Filter in
1200	B	(2) 14 x 20
1600	C	(2) 14 x 20
2000	C	(2) 14 x 20
2000	D	(2) 14 x 20

NOTE: All filters must be high velocity cleanable type.

FILTER PERFORMANCE - PRESSURE DROP INCHES W.C. AND (KPA)

Airflow Range	Minimum Opening Size	Filter Type		
		Disposable	Washable Fiber	Pleated
CFM	in^2	In W.C.	In W.C.	In W.C.
0 - 750	230	0.01	0.01	0.15
751 - 1000	330	0.05	0.05	0.20
1001 - 1250	330	0.10	0.10	0.20
1251 - 1500	330	0.10	0.10	0.25
1501 - 1750	380	0.15	0.14	0.30
1751 - 2000	380	0.19	0.18	0.30
2001 & Above	463	0.19	0.18	0.30

APPLYING FILTER PRESSURE DROP TO DETERMINE SYSTEM AIRFLOW

To determine the approximate airflow of the unit with a filter in place, follow the steps below:

1. Select the filter type.
2. Determine the External System Static Pressure (ESP) without the filter.
3. Select a filter pressure drop from the table based upon the number of return air openings or return air opening size and add to the ESP from Step 2 to determine the total system static.

If total system static matches a ESP value in the airflow table (i.e. 0.20, 0.60, etc,) the system airflow corresponds to the intersection of the ESP column and Model/Blower Speed row.

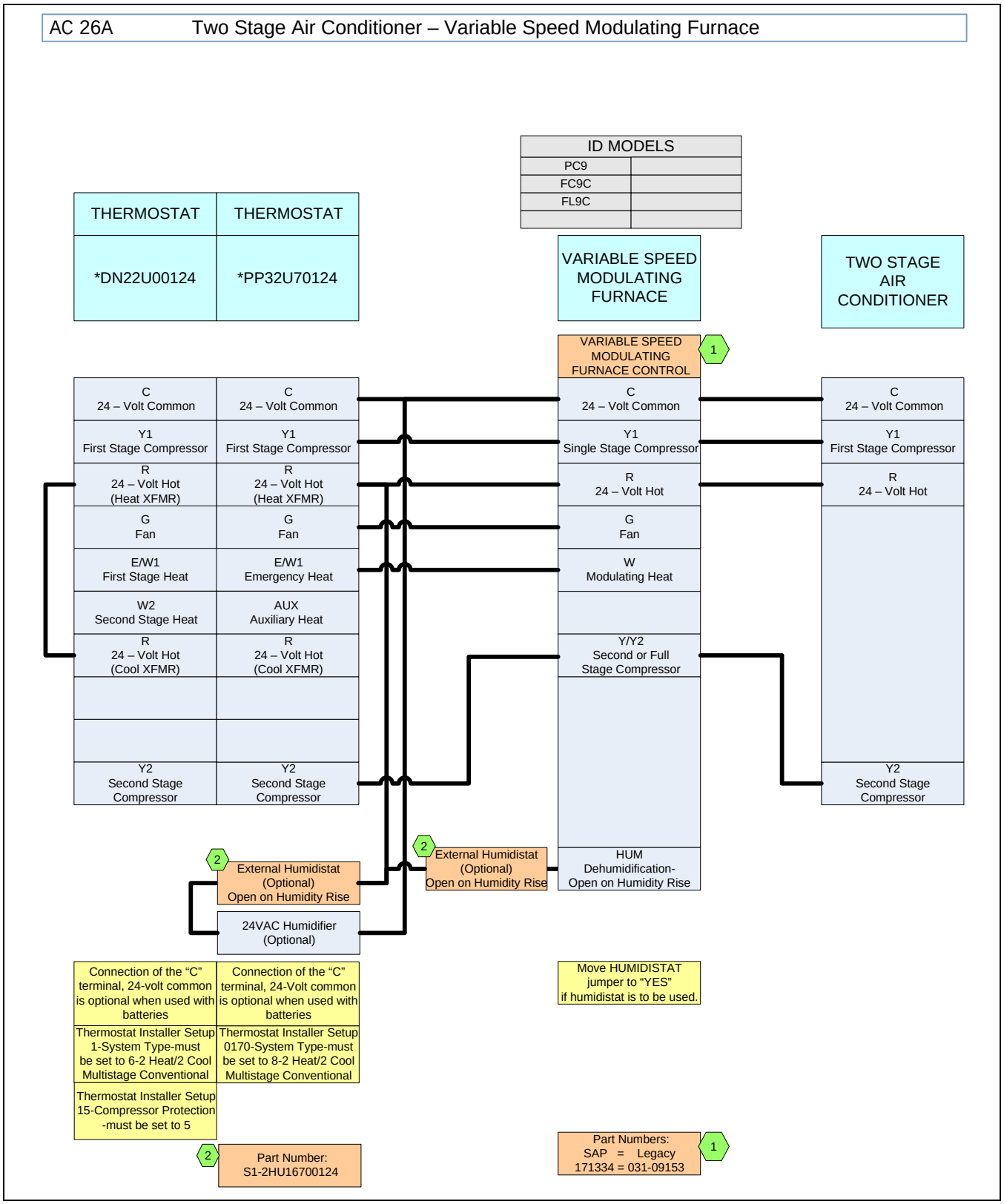
UNIT CLEARANCES TO COMBUSTIBLES

Application	Top	Front	Rear	Left Side	Right Side	Flue	Floor/Bottom	Closet	Alcove	Attic	Line Contact
	In.	In.	In.	In.	In.	In.	In.				
Downflow	1	3	0	0	0	0	1*	Yes	Yes	Yes	NA
Horizontal	0	3	0	1	1	0	0	Yes	Yes	Yes	Yes†

* Combustible floor base or air conditioning coil required for use on combustible floor.

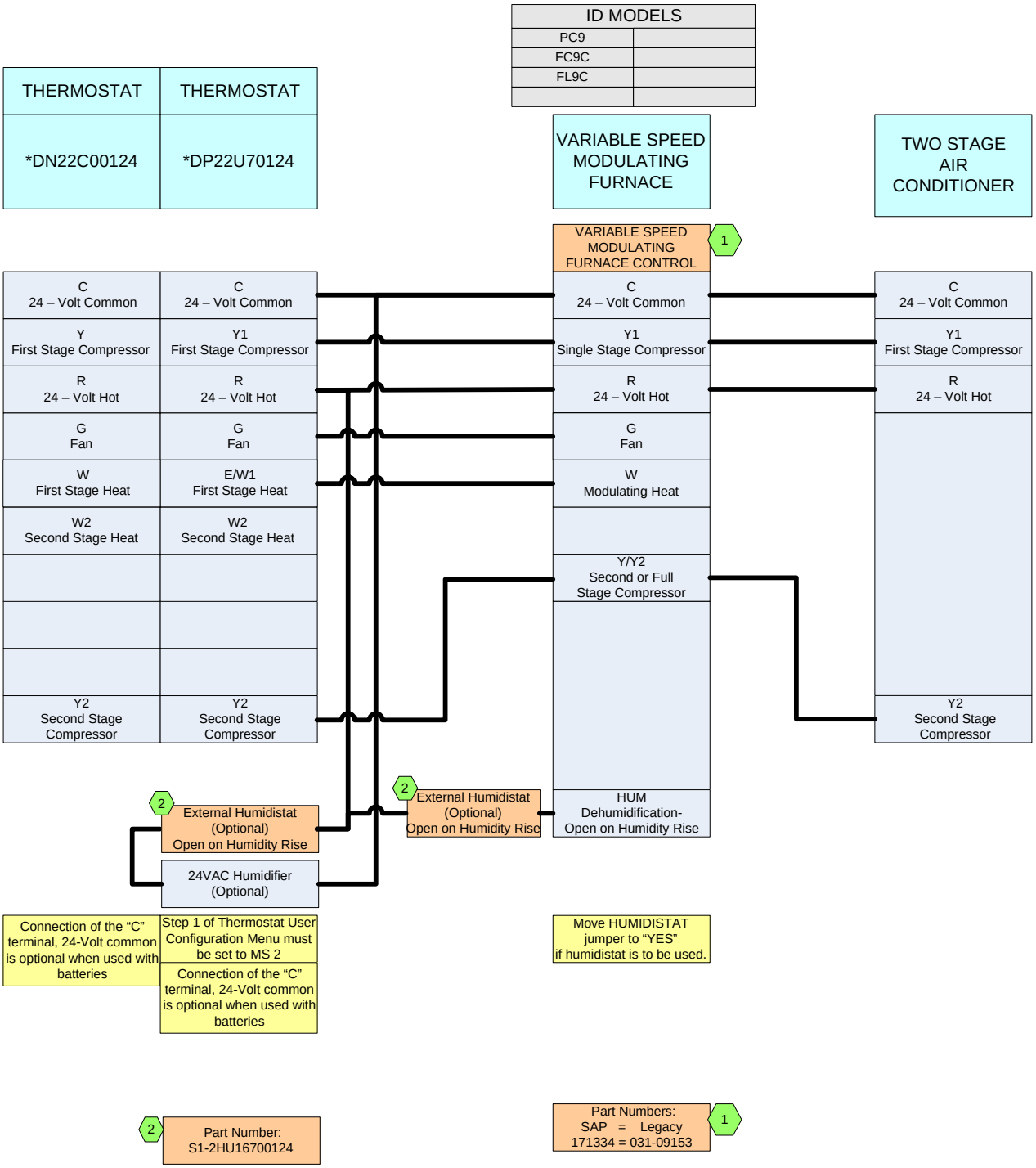
† Line contact only permitted between lines formed by the intersection of the rear panel and side panel (top in horizontal position) of the furnace jacket and building joists, studs or framing.

For additional connection diagrams for all UPG equipment refer to “Line Voltage System Wiring” document available on-line at www.upgnet.com in the Product Catalog Section.



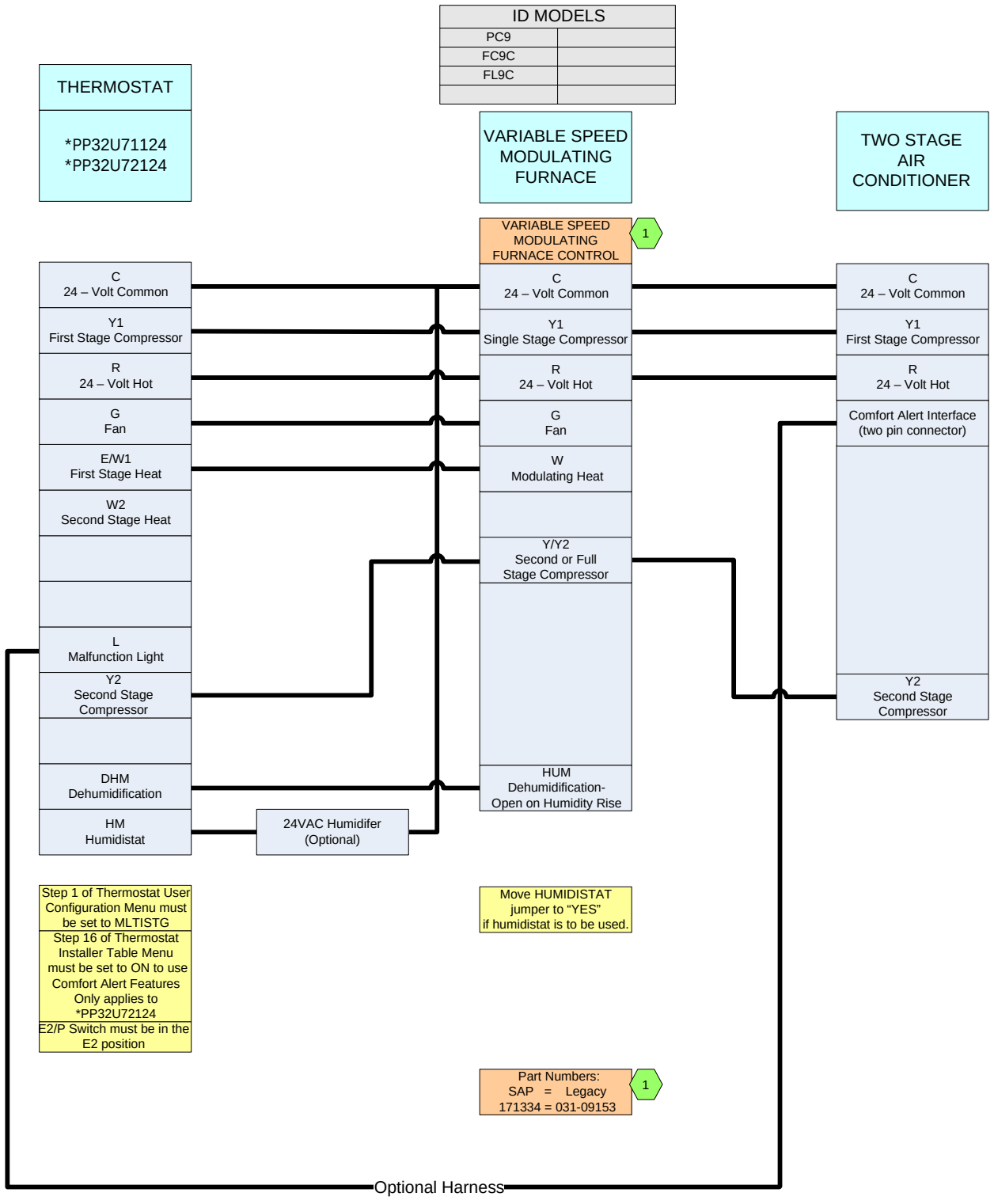
Thermostat Chart -

AC 26B Two Stage Air Conditioner – Variable Speed Modulating Furnace



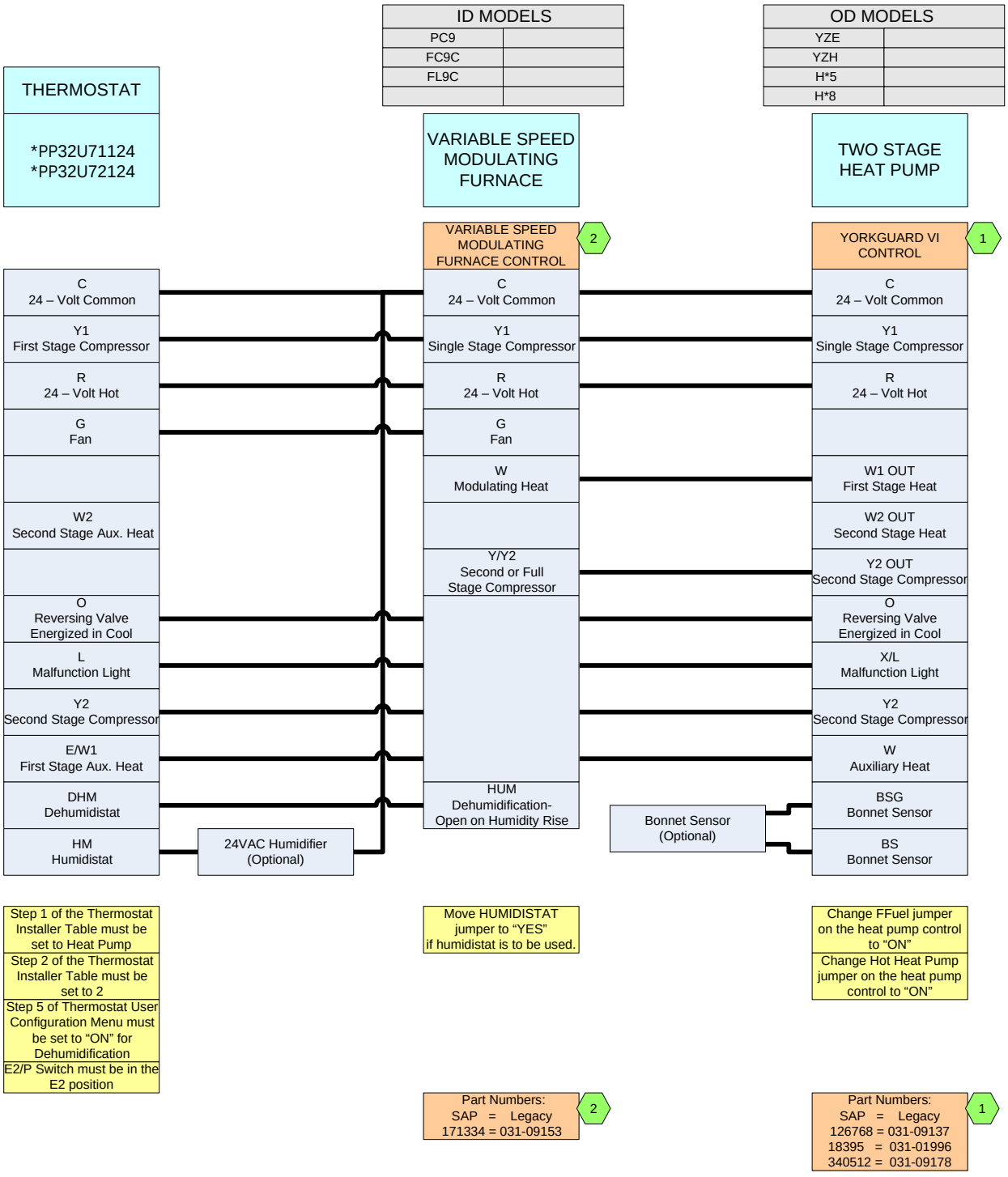
Thermostat Chart -

AC 26C Two Stage Air Conditioner – Variable Speed Modulating Furnace



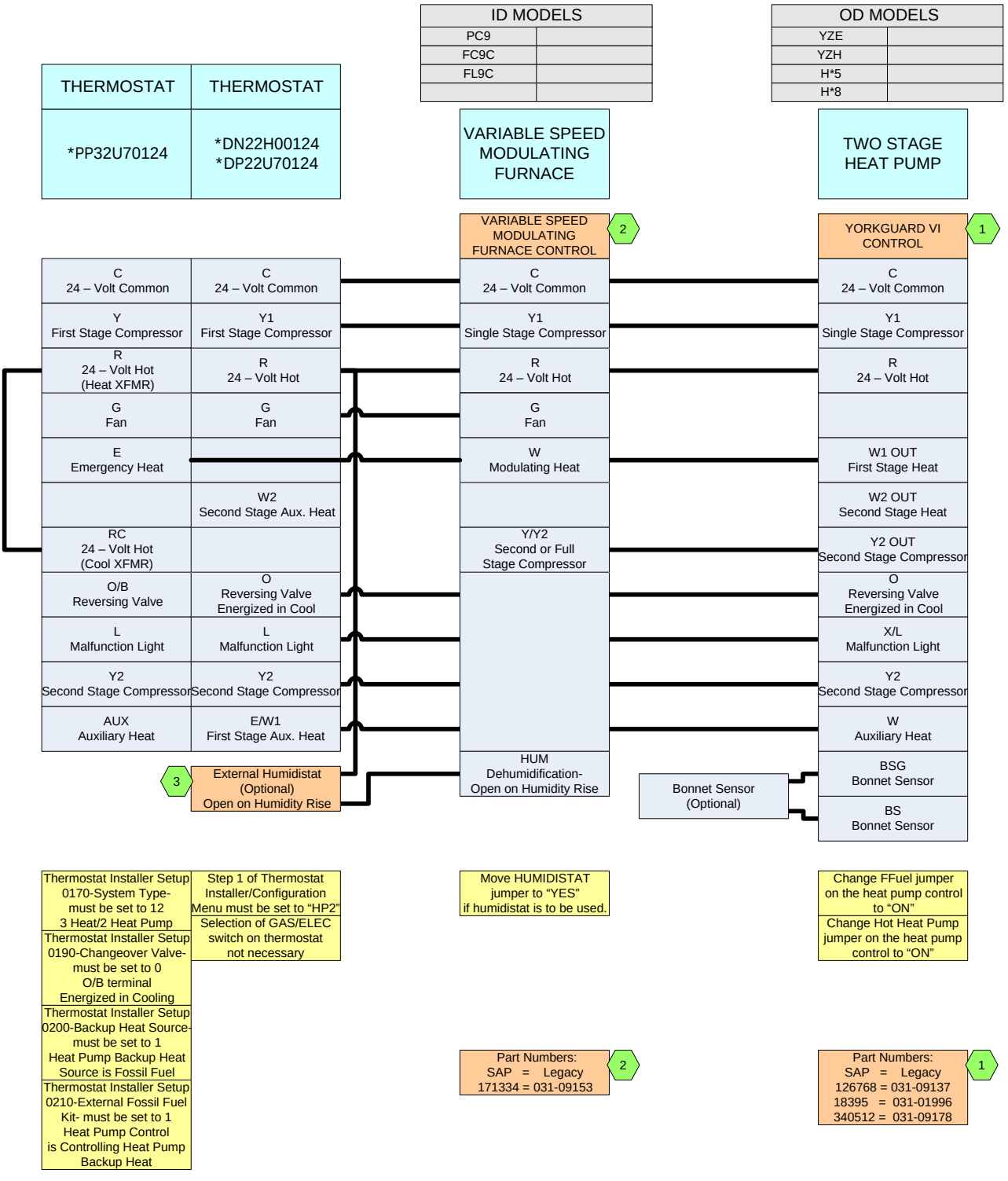
Thermostat Chart -

HP 28A Two Stage Heat Pump – Variable Speed Modulating Furnace (With Hot Heat Pump Operation)



Thermostat Chart -

HP 28C Two Stage Heat Pump – Variable Speed Modulating Furnace (With Hot Heat Pump Operation)



Thermostat Chart -

ACCESSORIES

PROPANE (LP) CONVERSION KIT -

1NP0680 - All units

This accessory conversion kit may be used to convert natural gas (N) units for propane (LP) operation. Conversions must be made by qualified distributor or dealer personnel.

CONCENTRIC VENT TERMINATION -

1CT0302 (2")

1CT0303 (3")

CONDENSATE NEUTRALIZER KIT - 1HT0901

Neutralizer cartidge has a 1/2" plastic tube fittings for installation in the drain line. Calcium carbonate refill media is also avaiable from the Source 1 Parts (p/n 026-30228-000).

SIDEWALL VENT TERMINATION -

1HT0901 (3")
1HT0902 (2")

For use on sidewall, two-pipe installations only. Provide a more attractive termination for locations where the terminal is visable on the side of the home.

COMBUSTIBLE FLOOR BASE -

1CB0317 - 17 1/2” Cabinet
1CB0321 - 21” Cabinet
1CB0324 - 24-1/2” Cabinet

COIL TRANSITION -

1TK0917 - 17 1/2” Cabinet
1TK0921 - 21” Cabinet
1TK0924 - 24-1/2” Cabinet
Required in downflow applications when using G*FD series coils.

ROOM THERMOSTATS - A wide selection of compatible thermosets are available to provide optimum performance and features for any installation.

1H/1C, manual change-over electronic non-programmable thermostat.

1H/1C, auto/manual changeover, electronic programmable, deluxe 7-day, thermostat.

1H/1C, auto/manual changeover, electronic programmable.

* For the most current accessory information, refer to the price book or consult factory.

NOTES

NOTES

246815-YTG-D-0108
Supersedes: 246815-YTG-C-0606

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