YORK®
Heating and Air Conditioning

TECHNICAL GUIDE

AFFINITY

MODELS: PS8

GAS-FIRED
HIGH EFFICIENCY SINGLE STAGE
DOWNFLOW FURNACES

80% AFUE

NATURAL GAS
40 - 130 MBH INPUT

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 high efficiency, dedicated downflow compact units employ induced combustion, reliable hot surface ignition and high heat transfer tubular heat exchangers.

These furnaces are designed for residential installation in a closet, attic or garage and are ideal for commercial applications. All units are factory assembled, wired and tested to assure safe dependable and economical installation and operation.

These units are Category I listed and may be common vented with another gas appliance as allowed by the National Fuel Gas Code ANSI Z223.1 (latest edition).

WARRANTY

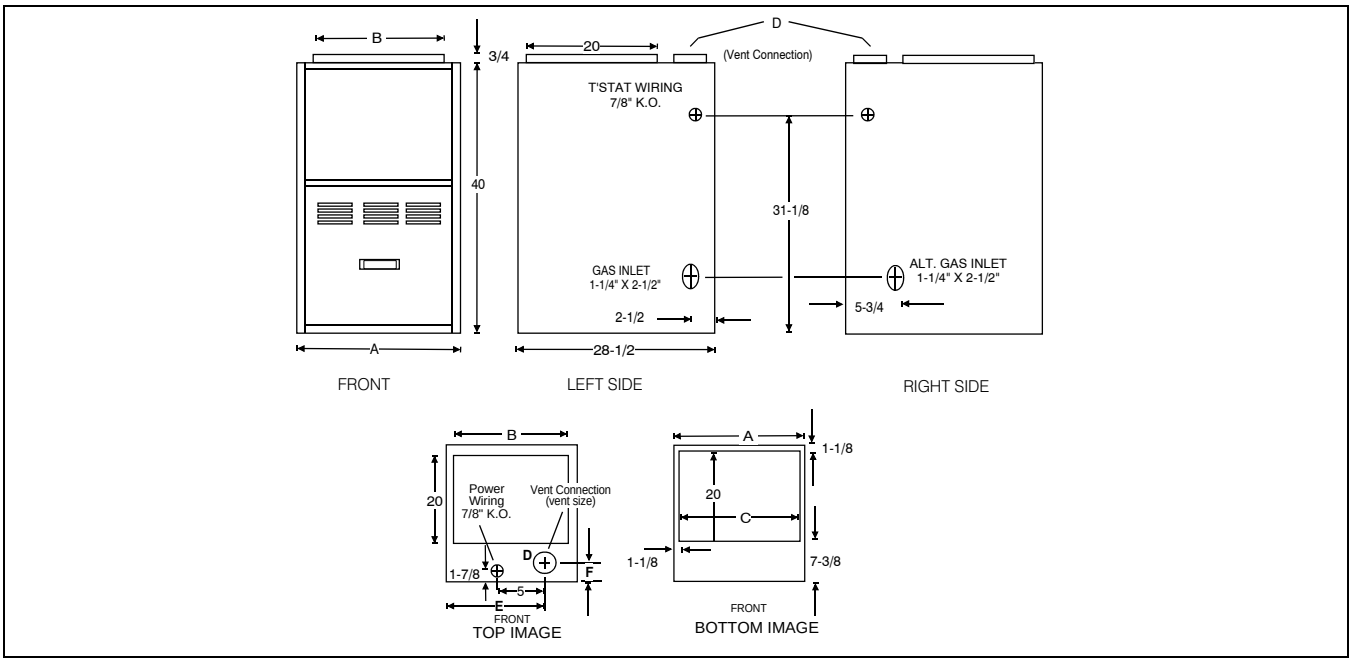
20-year limited warranty on the heat exchanger.

10-year heat exchanger warranty on commercial applications.

5-year limited parts warranty.

FEATURES

- Dedicated downflow models may be easily applied without any field conversion
- Top vent connection allows installation in narrow locations
- Electronic hot surface ignition with high reliability and dependability
- 100% shut off main gas valve for added safety
- High velocity filter provided for field installation
- "Diamond Tough" hot surface igniter
- High quality inducer motor for quiet operation
- Standard terminals for controlling humidifiers & EAC's
- 40 VA control transformer, fuse protected
- Easy to connect power and control wiring
- Efficiency ratings of 80 AFUE attained by using tubular heat exchangers
- Cooling relay standard for easy installation of add-on cooling
- Blower off-delay for cooling SEER improvement
- Multi-speed PSC, direct-drive blower motors to match cooling requirements
- Adjustable fan-off settings to eliminate "cold-blow"
- Compact 40-in height allows installation in small space confines
- All models are propane convertible



CABINET AND DUCT DIMENSIONS

Models	Cabinet Width In.	Cabinet Size	Cabinet Dimension					
			A	B	C	D	E	F
PS8A12N040DN11	14-1/2	A	14 1/2	13 1/4	10 1/8	4.0	10 1/8	3 3/4
PS8A12N060DN11	14-1/2	A	14 1/2	13 1/4	10 1/8	4.0	10 1/8	3 3/4
PS8A12N080DN11	14-1/2	A	14 1/2	13 1/4	10 1/8	4.0	10 1/8	3 3/4
PS8B16N080DN11	17 1/2	B	17 1/2	16 1/4	13 1/8	4.0	11 5/8	3 3/4
PS8B12N100DN11	17 1/2	B	17 1/2	16 1/4	13 1/8	4.0	11 5/8	3 3/4
PS8C20N100DN11	21	C	21	19 3/4	16 5/8	4.0	13 3/8	3 3/4
PS8C16N115DN11	21	C	21	19 3/4	16 5/8	4.0	13 3/8	3 3/4
PS8C20N115DN11	21	C	21	19 3/4	16 5/8	4.0	13 3/8	3 3/4
PS8D20N130DN11	24-1/2	D	24 1/2	23 1/4	20 1/8	4.0	15 1/8	3 3/4

HORIZONTAL SIDEWALL VENTING CLEARANCES - MUST USE FIELDS CONTROL MODELS SWG-4Y OR TJERENLAND MODEL GPAK-JT FIELD SUPPLIED POWER VENTING KITS

Models	Horizontal Vent Length Ft with 4 Elbows		
	Pipe Size	Min. Vent Length	Max. Vent Length
	Inches	Feet	Feet
PS8A12N040DN11	4	4.5	34.5
PS8A12N060DN11	4	4.5	34.5
PS8A12N080DN11	4	4.5	34.5
PS8B16N080DN11	4	4.5	34.5
PS8B12N100DN11	4	4.5	34.5
PS8C20N100DN11	4	4.5	34.5
PS8C16N115DN11	4	4.5	34.5
PS8C20N115DN11	4	4.5	34.5
PS8D20N130DN11	4	4.5	34.5

RATINGS & PHYSICAL / ELECTRICAL DATA

Models	Input MBH	Output MBH	Nominal CFM	AFUE	Air Temp. Rise °F
PS8A12N040DN11	40	32	1200	80.0	20-50
PS8A12N060DN11	57	48	1200	80.0	25-55
PS8A12N080DN11	80	64	1200	80.0	35-65
PS8B16N080DN11	80	64	1600	80.0	25-55
PS8B12N100DN11	100	80	1200	80.0	40-70
PS8C20N100DN11	100	80	2000	80.0	25-55
PS8C16N115DN11	115	92	1600	80.0	35-65
PS8C20N115DN11	115	92	2000	80.0	30-60
PS8D20N130DN11	130	104	2000	80.0	40-70

Models	Max. Outlet Air Temp °F	Blower		Blower Size In.	Total Unit Amps	Max Over-current protect	Min. Wire Size (awg) @ 75 ft. one way	Operation WGT. LBS
		Hp	Amps					
PS8A12N040DN11	150	1/3	6.2	10 x 8	9.0	15	14	100
PS8A12N060DN11	155	1/3	6.2	10 x 8	9.0	15	14	110
PS8A12N080DN11	165	1/3	6.2	10 x 8	9.0	15	14	120
PS8B16N080DN11	160	3/4	11.0	11 x10	12.0	15	14	130
PS8B12N100DN11	170	1/2	7.0	10 x 8	12.0	15	14	125
PS8C20N100DN11	155	1	12.2	11 x 10	14.0	20	12	140
PS8C16N115DN11	165	3/4	11.0	11 x 10	12.0	15	14	150
PS8C20N115DN11	160	1	12.2	11 x 10	14.0	20	12	150
PS8D20N130DN11	170	1	12.2	11 x 10	14.0	20	12	160

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.
Annual Fuel Utilization Efficiency (AFUE) numbers are determined in accordance with DOE Test procedures.

FILTER SIZES

Models	Cabinet Size	Top Return Filter (in)
PS8A12N040DN11	A	(2) 14 x 20
PS8A12N060DN11	A	(2) 14 x 20
PS8A12N080DN11	A	(2) 14 x 20
PS8B16N080DN11	B	(2) 14 x 20
PS8B12N100DN11	B	(2) 14 x 20
PS8C20N100DN11	C	(2) 14 x 20
PS8C16N115DN11	C	(2) 14 x 20
PS8C20N115DN11	C	(2) 14 x 20
PS8D20N130DN11	D	(2) 14 x 20

* ESP (External Static Pressure) .5" WG is at furnace outlet ahead of cooling coil.

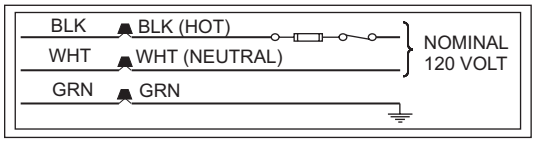
NOTES:

1. All filters must be high velocity cleanable type.

BLOWER PERFORMANCE CFM - (WITHOUT FILTER)

MODELS	Speed	Airflow Data									
		Ext. Static Pressure (in. H2O)									
		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
PS8A12N040DN11	High	1620	1590	1480	1400	1310	1240	1140	1040	910	760
	Medium High	1430	1390	1340	1280	1220	1140	1050	960	820	710
	Medium Low	1210	1210	1190	1200	1100	1020	940	850	730	620
	Low	980	980	970	950	920	870	810	720	620	520
PS8A12N060DN11	High	1500	1470	1390	1320	1240	1170	1070	960	830	700
	Medium High	1380	1340	1280	1210	1150	1060	970	870	760	610
	Medium Low	1220	1200	1160	1110	1050	990	910	820	700	600
	Low	960	950	940	920	890	840	770	710	630	530
PS8A12N080DN11	High	1550	1480	1410	1330	1250	1150	1050	940	810	700
	Medium High	1400	1360	1290	1220	1150	1060	970	860	730	590
	Medium Low	1230	1210	1170	1120	1060	990	910	810	680	560
	Low	980	970	960	930	890	830	760	680	550	450
PS8B16N080DN11	High	2070	2000	1930	1850	1770	1670	1580	1470	1360	1250
	Medium	1650	1630	1610	1560	1490	1420	1360	1270	1170	1040
	Low	1410	1400	1370	1340	1320	1270	1210	1140	1050	950
PS8B12N100DN11	High	1710	1650	1580	1510	1420	1330	1260	1160	1090	930
	Medium High	1480	1440	1380	1330	1270	1180	1090	980	790	630
	Medium Low	1240	1230	1200	1170	1110	1030	950	850	710	600
	Low	980	980	980	970	930	890	800	720	630	530
PS8C20N100DN11	High	2400	2330	2240	2130	2030	1960	1820	1710	1570	1390
	Medium High	2130	2070	2000	1940	1840	1760	1660	1540	1420	1230
	Medium Low	1800	1760	1730	1650	1580	1510	1430	1300	1200	1030
	Low	1480	1450	1390	1360	1300	1240	1180	1080	960	860
PS8C16N115DN11	High	2210	2160	2100	2030	1940	1850	1750	1640	1520	1400
	Medium	1640	1640	1620	1590	1530	1500	1430	1360	1270	1160
	Low	1410	1410	1370	1360	1300	1260	1210	1150	1090	1010
PS8C20N115DN11	High	2400	2310	2220	2120	2010	1910	1800	1660	1520	1350
	Medium High	2090	2030	1970	1880	1790	1730	1640	1520	1370	1190
	Medium Low	1720	1690	1650	1600	1550	1460	1370	1270	1150	980
	Low	1440	1430	1400	1340	1280	1220	1140	1040	930	830
PS8D20N130DN11	High	2530	2420	2340	2250	2110	2020	1920	1750	1590	1410
	Medium High	2190	2150	2070	1970	1910	1790	1680	1550	1400	1250
	Medium Low	1800	1760	1720	1680	1610	1490	1410	1300	1160	1040
	Low	1450	1440	1410	1360	1310	1250	1170	1080	980	860

NOTES:
1. Airflow expressed in standard cubic feet per minute (CFM).
2. Motor voltage at 115 V.



Line Wiring Connection

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 below.

NOTE: The filter pressure drop values in the “Filter Performance” table shown below 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 PERFORMANCE - PRESSURE DROP INCHES W.C.

Airflow Range	Minimum Opening Size	Filter Type		
		Disposable	WASHABLE FIBER*	Pleated
	1 Opening	1 Opening	1 Opening	1 Opening
CFM	In^3	inwc	inwc	inwc
0 - 750	230	0.01	0.01	0.15
751 - 1000	330	0.05	0.05	0.2
1001 - 1250	330	0.1	0.1	0.2
1251 - 1500	330	0.1	0.1	0.25
1501 - 1750	380	0.15	0.14	0.3
1751 - 2000	380	0.19	0.18	0.3
2001 & Above	463	0.19	0.18	0.3

* Washable Fiber are the type supplied with furnace (if supplied).

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. Calculate the return opening size in square inches to determine the proper filter pressure drop.
3. Determine the External System Static Pressure (ESP) without the filter.
4. Select a filter pressure drop from the table based upon return air opening size and add to the ESP from Step 3 to determine the total system static.
5. 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.
6. If the total system static falls between ESP values in the table (i.e. 0.58, 0.75, etc.), the static pressure may be rounded to the nearest value in the table determining the airflow using Step 5 or calculate the airflow by using the following example.

Example: For a 130,000 Btuh furnace with operating on high speed blower, it is found that total system static is 0.58" w.c. To determine the system airflow, complete the following steps:

1. Obtain the airflow values at 0.50" & 0.60" ESP.
   Airflow @ 0.50": 2110 CFM
   Airflow @ 0.60": 2020 CFM
2. Subtract the airflow @ 0.60" from the airflow @ 0.5" to obtain airflow difference.
   2020 - 2110 = -90 CFM
3. Subtract the total system static from 0.50" and divide this difference by the difference in ESP values in the table, 0.60" - 0.50", to obtain a percentage.
   (0.58 - 0.50) / (0.60 - 0.50) = 0.8
4. Multiply percentage by airflow difference to obtain airflow reduction.
   (0.8)x(-90) = -72
5. Subract airflow reduction value to airflow @ 0.50" to obtain actual airflow @ 0.58" ESP.
   2110 - 72 = 2038

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.					
DOWNFLOW	1	6	0	0	3	6	1[1]	YES	YES	YES	NO
DOWNFLOW B-VENT	1	3	0	0	0	1	1[1]	YES	YES	YES	NO

1 Special floor base or air conditioning coil required for use on combustible floor.

ACCESSORIES

PROPANE
CONVERSION KIT -- 1NP0347 (32, 64 & 80 MBH)
1NP0348 (48, 92,& 104 MBH)

This accessory conversion kit may be used to convert natural gas units for propane (LP) operation at altitudes up to 2,000 ft. Conversion should be made by qualified distributor or dealer personnel.

COMBUSTIBLE FLOOR BASE

1CB0314 = For 14-1/4" cabinet models
1CB0317 = For 17-1/2" cabinet models
1CB0321 = For 21" cabinet models
1CB0324 = For 24-1/2" cabinet models

HIGH ALTITUDE PRESSURE SWITCH

These accessory kits may be used to convert units for high altitude operation. Conversion must be made by qualified distributor or dealer personnel.

HIGH PRESSURE SWITCH			
Input (MBH)	**Output (MBH)**	**2,000 to 5,500 Ft.**	**>5,500 to 10,000 Ft.**
40	32	1PS0301	1PS0301
57	48	1PS0301	1PS0301
80	64	1PS0302	1PS0302
100	80	1PS0312	1PS0311
115	92	1PS0312	1PS0311
130	104	1PS0312	1PS0311

FIELD INSTALLED ACCESSORIES - ELECTRICAL		
MODEL NO.	**DESCRIPTION**	**USED WITH**
2TB17700424	SUBBASE (24V) -One-stage Heat / Cool. Manual changeover. System Switch: Cool-Off-Heat. Fan Switch: Auto-On.	ALL MODELS
2TH13700424	THERMOSTAT-One-stage Heat. Deluxe 24V with heat only subbase, does not include fan switch. NOTE: For one-stage cool or one-stage heat/cool, must be used with subbase 2TB17700424.	ALL MODELS
2ET03700324	THERMOSTAT- Hardwired, 1 Heat / 1 Cool. Manual changeover, System Switch: Cool-Off-Heat. Fan Switch: Auto-On.	ALL MODELS
2ET03701224	THERMOSTAT-Power Stealing, 1 Heat / 1 Cool. Manual changeover, System Switch: Cool-Off-Heat. Fan Switch: Auto-On.	ALL MODELS
2ET03700124	THERMOSTAT-Hardwired, 1 Heat / 1Cool. Programmable, Auto changeover. System Switch: Cool-Off-Heat. Fan Switch: Auto-On.	ALL MODELS
2ET03701024	THERMOSTAT-Power Stealing, 1 Heat / 1 Cool. Programmable, Auto changeover. System Switch:Cool-Off-Heat. Fan Switch: Auto-On.	ALL MODELS
6TT03701124	TALKING THERMOSTAT 1Heat/1Cool	ALL MODELS

NOTES

NOTES

036-21610-002 Rev. A (1104)
Supersedes: 036-21610-001 Rev. A (0804)

Unitary Products Group
5005 York Drive
Norman OK 73069