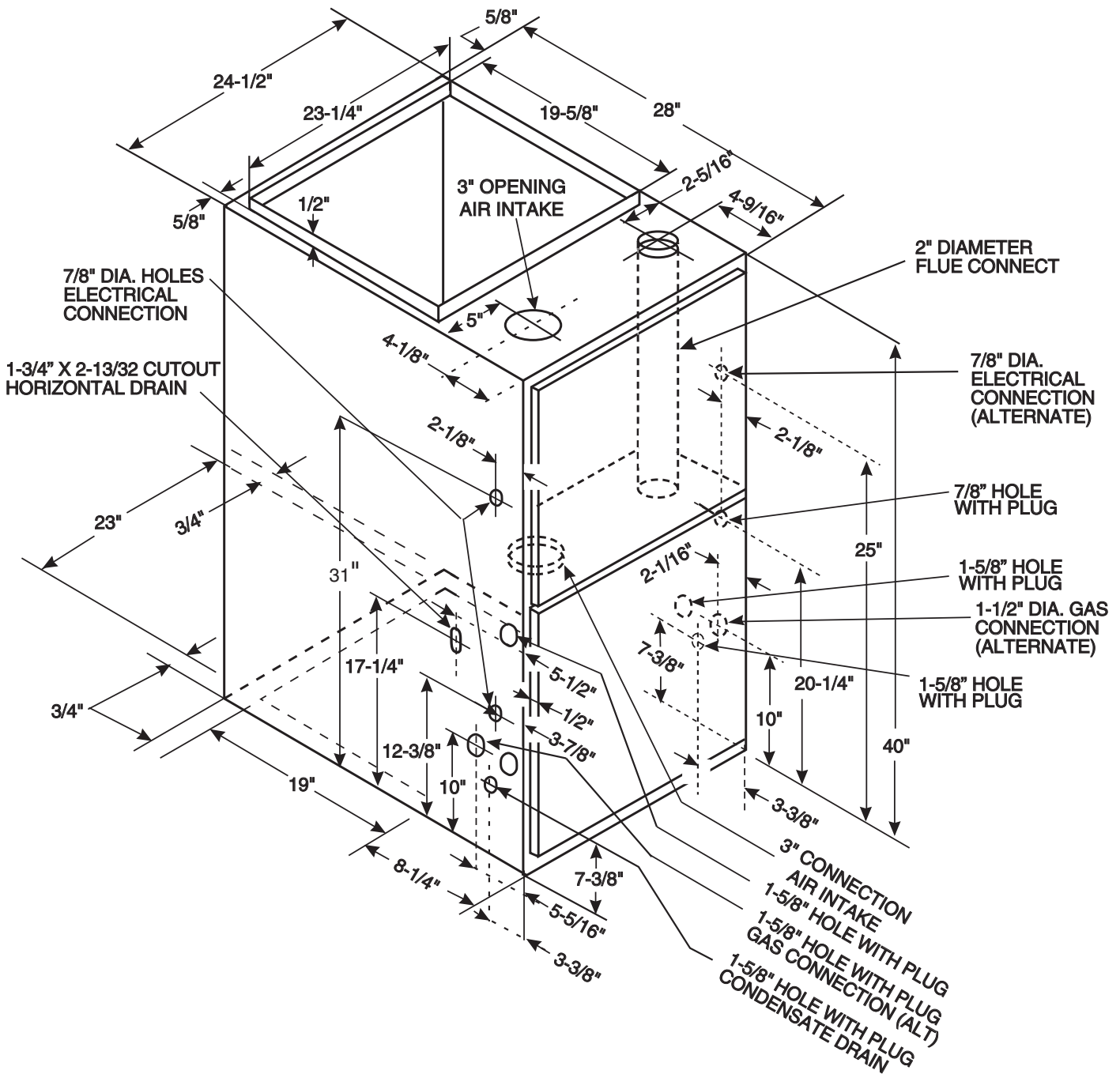


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# SUBMITTAL

**TDH2D120A9V5VB**  
**ADH2D120A9V5VB**

**Downflow/Horizontal  
 Direct Vent Gas Furnace  
 Variable Speed Inducer  
 2 Stage Heat**



<b>*DH2D120A9V5V - FURNACE HEATING AIRFLOW (CFM) AND POWER (WATTS) VS. EXTERNAL STATIC PRESSURE WITH FILTER</b>									
					1st STAGE CAPACITY = 74,880 2nd STAGE CAPACITY = 115,200				
	AIRFLOW SETTING	DIP SWITCH SETTING			EXTERNAL STATIC PRESSURE				
		SW 8	SW 7		0.1	0.3	0.5	0.7	0.9
HEATING 1ST STAGE	LOW	ON	ON	CFM TEMP. RISE WATTS	1025 65 150	1025 65 200	1000 67 240	1000 67 290	1000 67 340
	MEDIUM LOW	OFF	ON	CFM TEMP. RISE WATTS	1200 56 230	1200 56 270	1200 56 330	1200 56 390	1200 56 450
	NORMAL **	ON	OFF	CFM TEMP. RISE WATTS	1350 49 280	1350 49 340	1350 49 490	1350 49 470	1350 49 530
	HIGH	OFF	OFF	CFM TEMP. RISE WATTS	1550 43 400	1550 43 490	1550 43 560	1550 43 620	1450 46 600
HEATING 2ND STAGE	LOW	ON	ON	CFM TEMP. RISE WATTS	1550 66 380	1550 66 470	1550 66 540	1550 66 610	1450 71*** 690
	MEDIUM LOW	OFF	ON	CFM TEMP. RISE WATTS	1850 56 660	1850 56 750	1850 56 780	1700 60 720	1500 69 640
	NORMAL **	ON	OFF	CFM TEMP. RISE WATTS	2050 50 860	2000 51 880	1850 56 810	1700 60 750	1550 66 670
	HIGH	OFF	OFF	CFM TEMP. RISE WATTS	2105 49 1000	2050 50 940	1900 54 880	1775 58 820	1625 63 750

NOTES:  
 \* First letter may be "A" or "T"  
 \*\* Factory setting

<b>*DH2D120A9V5V - FURNACE COOLING AIRFLOW (CFM) AND POWER (WATTS) VS. EXTERNAL STATIC PRESSURE WITH FILTER</b>											
OUTDOOR UNIT SIZE (TONS)	AIRFLOW SETTING	DIP SWITCH SETTING					EXTERNAL STATIC PRESSURE				
		SW 1	SW 2	SW 3	SW 4		0.1	0.3	0.5	0.7	0.9
3.5	LOW (350 CFM/TON)	OFF	ON	OFF	ON	CFM WATTS	1225 240	1225 280	1225 340	1225 400	1225 450
	NORMAL (400 CFM/TON)	OFF	ON	OFF	OFF	CFM WATTS	1400 310	1400 390	1400 470	1400 520	1400 570
	HIGH (450 CFM/TON)	OFF	ON	ON	OFF	CFM WATTS	1600 450	1600 520	1600 590	1600 640	1450 600
4.0	LOW (350 CFM/TON)	ON	OFF	OFF	ON	CFM WATTS	1400 300	1400 380	1400 450	1400 520	1400 570
	NORMAL (400 CFM/TON)	ON	OFF	OFF	OFF	CFM WATTS	1600 460	1600 530	1600 610	1600 670	1450 600
	HIGH (450 CFM/TON)	ON	OFF	ON	OFF	CFM WATTS	1800 610	1800 700	1800 760	1650 690	1500 630
5	LOW (350 CFM/TON)	OFF	OFF	OFF	ON	CFM WATTS	1750 580	1750 640	1750 720	1650 680	1450 610
	NORMAL (400 CFM/TON)	OFF	OFF	OFF	OFF	CFM WATTS	2000 830	2000 860	1850 800	1700 740	1550 660
	HIGH (450 CFM/TON)	OFF	OFF	ON	OFF	CFM WATTS	2100 970	2000 910	1900 850	1650 780	1600 710

NOTES: \* - First letter may be "A" or "T"  
 1. At continuous fan setting: Heating or Cooling airflows are approximately 50% of selected cooling value.  
 2. LOW airflow (350 cfm/ton) is COMFORT & HUMID CLIMATE setting;  
 NORMAL airflow (400 cfm/ton) is typical setting;  
 HIGH airflow (450 cfm/ton) is DRY CLIMATE setting.

## INDOOR BLOWER TIMING

**Heating:** The ICM Fan Control controls the variable speed indoor blower. The blower "on" time is fixed at 45 seconds after ignition. The FAN-OFF period is field selectable by dip switches #2 and #3 on the Integrated Furnace Control at 60, 100, 140, or 180 seconds. The factory setting is 100 seconds, (See unit wiring diagram).

**Cooling:** The fan delay-off period is set by dip switches on the ICM Fan Control board connected to the Integrated Furnace Control. The options for cooling delay off is field selectable by dip switches #5 and #6. However, dip switch #1 on the Integrated Furnace Control must be set to "ON" for cooling mode to function properly.

The following table and graph explain the delay-off settings:

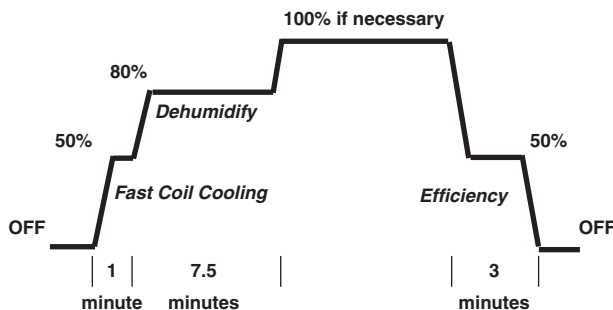
\*\* - This selection provides a ramping up and ramping down of the blower speed to provide improved comfort, quietness, and potential energy savings. The graph below shows the ramping process.

### COOLING OFF - DELAY OPTIONS

SWITCH SETTINGS		SELECTION	NOMINAL AIRFLOW
5 - OFF	6 - OFF	NONE	SAME
5 - ON	6 - OFF	1.5 MINUTES	100% *
5 - OFF	6 - ON	3 MINUTES	50%
5 - ON	6 - ON	**	50 - 100%

\* - This setting is equivalent to BAY24X045 relay benefit

\*\* - This selection provides **ENHANCED MODE**, which is a ramping up and ramping down of the blower speed to provide improved comfort, quietness, and potential energy savings. See Wiring Diagram notes on the unit or in the Service Facts for complete wiring setup for **ENHANCED MODE**. The graph which follows, shows the ramping process.



## General Data <sup>①</sup>

<b>MODEL</b>	TDH2D120A9V5VB ADH2D120A9V5VB
<b>TYPE</b>	Downflow/Horizontal
<b>RATINGS <sup>②</sup></b>	
1st Stage Input BTUH	78,000
1st Stage Capacity BTUH (ICS) <sup>③</sup>	74,880
2nd Stage Input BTUH	120,000
2nd Stage Capacity BTUH (ICS) <sup>③</sup>	115,200
AFUE	96.0
Temp. rise (Min.-Max.) °F.	40 - 70
<b>BLOWER DRIVE</b>	DIRECT
Diameter - Width (In.)	10 x 10
No. Used	1
Speeds (No.)	Variable
CFM vs. in. w.g.	See Fan Performance Table
Motor HP	1
R.P.M.	Variable
Volts/Ph/Hz	115/1/60
FLA	12.8
<b>COMBUSTION FAN - Type</b>	Centrifugal
Drive - No. Speeds	Direct - Variable
Motor HP - RPM	1/50 - 5000
Volts/Ph/Hz	33 - 110/3/60 - 180
FLA	1.0
<b>FILTER — Furnished?</b>	Yes
Type Recommended	High Velocity
Hi Vel. (No.-Size-Thk.)	2 - 16x20 - 1 in.
<b>VENT — Size (in.)</b>	3 Round
<b>HEAT EXCHANGER</b>	
Type - Fired	Aluminized Steel - Type I
-Unfired	
Gauge (Fired)	20
<b>ORIFICES — Main</b>	
Nat. Gas Qty. — Drill Size	6 — 45
L.P. Gas Qty. — Drill Size	6 — 56
<b>GAS VALVE</b>	Redundant - Two Stage
<b>PILOT SAFETY DEVICE</b>	
Type	Hot Surface Igniter
<b>BURNERS — Type</b>	Multiport Inshot
Number	6
<b>POWER CONN. — V/Ph/Hz <sup>④</sup></b>	115/1/60
Ampacity (In Amps)	17.2
Max. Overcurrent Protection (Amps)	20
<b>PIPE CONN. SIZE (IN.)</b>	1/2
<b>DIMENSIONS</b>	
Crated (In.)	H x W x D 41-3/4 x 26-1/2 x 30-1/2
<b>WEIGHT</b>	
Shipping (Lbs.)/Net (Lbs)	206 / 196

① Central Furnace heating designs are certified to ANSI Z21.47 / CSA 2.3.

② For U.S. applications, above input ratings (BTUH) are up to 2,000 feet, derate 4% per 1,000 feet for elevations above 2,000 feet above sea level. For Canadian applications, above input ratings (BTUH) are up to 4,500 feet, derate 4% per 1,000 feet for elevations above 4,500 feet above sea level.

③ Based on U.S. government standard tests.

④ The above wiring specifications are in accordance with National Electrical Code; however, installations must comply with local codes.

# Mechanical Specifications

## NATURAL GAS MODELS

Central Heating furnace designs are certified to ANSI Z21.47 / CSA 2.3 for both natural and L.P. gas. Limit setting and rating data were established and approved under standard rating conditions using American National Standards Institute standards.

## SAFE OPERATION

The Integrated System Control has solid state devices, which continuously monitor for presence of flame, when the system is in the heating mode of operation. Dual solenoid combination gas valve and regulator provide additional safety.

## QUICK HEATING

Durable, cycle tested, heavy gauge **aluminized steel heat exchanger** quickly transfers heat to provide warm conditioned air to the structure. **Low energy power vent blower**, to increase efficiency and provide a positive discharge of gas fumes to the outside.

## BURNERS

Multiport Inshot burners will give years of quiet and efficient service. All models can be converted to **L.P. gas** without changing burners.

## INTEGRATED SYSTEM CONTROL

Exclusively designed operational program provides total control of furnace limit sensors, blowers, gas valve, flame control and includes self diagnostics for ease of service. Also contains connection points for E.A.C./Humidifier.

## ENERGY EFFICIENT OPERATION

Furnace is certified to leak 2% or less of nominal air conditioning CFM delivered when pressurized to .5" water column with all inlets, outlets, and drains sealed.

## AIR DELIVERY

The variable speed blower motor has sufficient airflow for most heating and cooling requirements and will switch from heating to cooling speeds on demand from room thermostat. The blower door safety switch will prevent or terminate furnace operation when the blower door is removed.

## SECONDARY HEAT EXCHANGER

The furnace has a special type 29-4C™ stainless steel secondary heat exchanger to reclaim heat from flue gases which would normally be lost instead.

## STYLING

**Heavy gauge steel and "wrap-around" cabinet construction** is used in the cabinet with baked-on enamel finish for strength and beauty. The heat exchanger section of the cabinet is completely lined with foil faced fiberglass insulation. This results in quiet and efficient operation due to the excellent acoustical and insulating qualities of fiberglass. Built-in bottom pan and alternate bottom, left or right side return air connection provision.

## FEATURES AND GENERAL OPERATION

The High Efficiency Gas Furnaces utilize an Adaptive Heat Up Silicon Nitride Hot Surface Ignition system, which eliminates the waste of a constant burning pilot. The integrated system control lights the main burners upon a demand for heat from the room thermostat. Complete front service access.

- a. Low energy power venter
- b. Vent proving pressure switch.

The manufacturer has a policy of continuous product and product data improvement and reserves the right to change specifications and design without notice.

**Ingersoll Rand**  
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