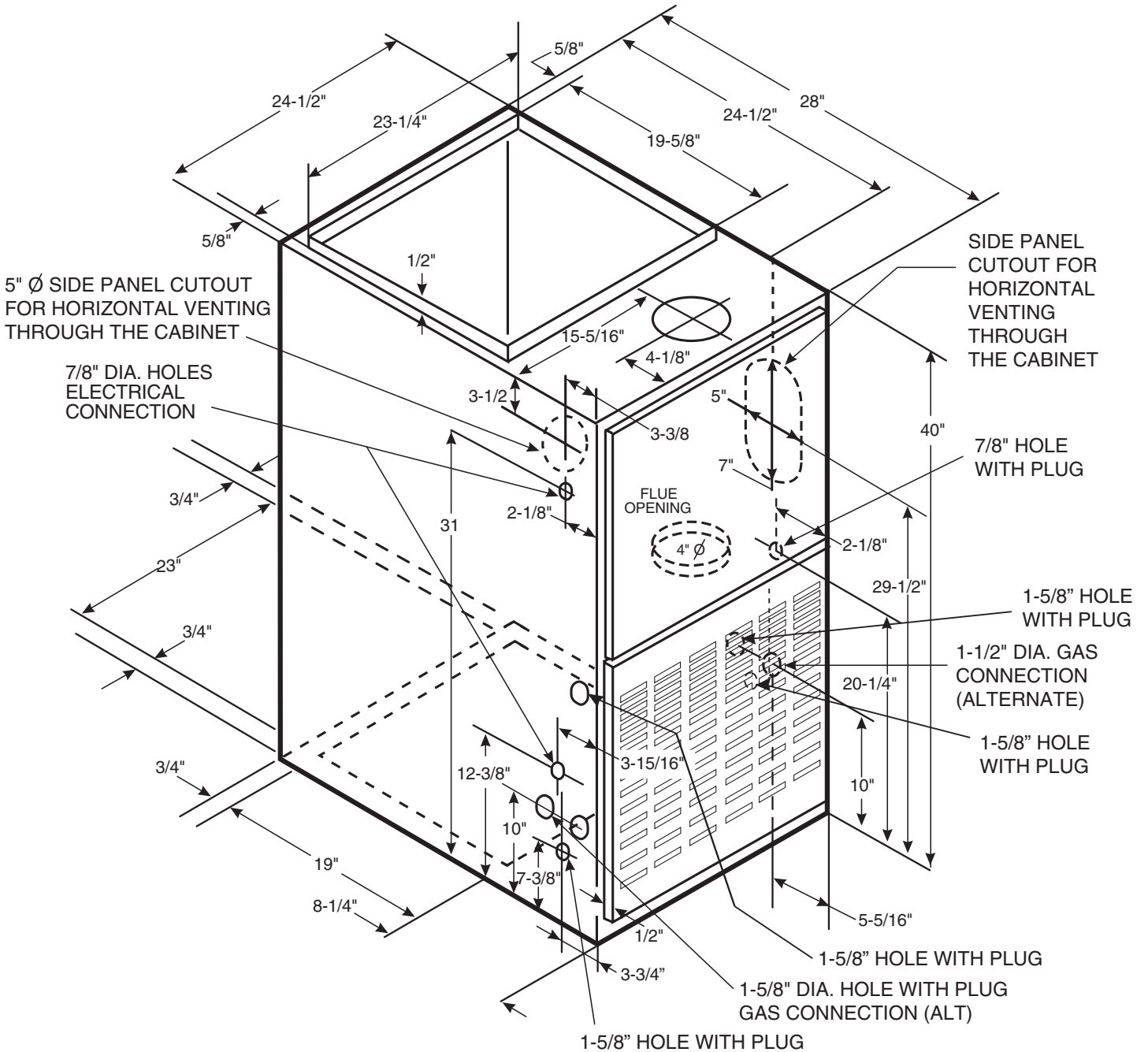


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SUBMITTAL

TDD2D120A9V5VA
ADD2D120A9V5VA

**Downflow/Horizontal
Gas Furnace - Variable
Speed - 2 Stage Heat**



DD2D120A9V5VA FURNACE HEATING AIRFLOW (CFM) AND POWER (WATTS) VS. EXTERNAL STATIC PRESSURE WITH FILTER									
	AIRFLOW SETTING	DIP SWITCH SETTING			EXTERNAL STATIC PRESSURE				
		S4-3	S4-4		0.1	0.3	0.5	0.7	0.9
HEATING 1ST STAGE	LOW	ON	ON	CFM TEMP. RISE WATTS	970 60 85	990 58 140	980 59 180	955 61 210	930 62 255
	MEDIUM **	ON	OFF	CFM TEMP. RISE WATTS	1120 52 120	1140 51 170	1115 52 215	1120 52 270	1120 52 315
	HIGH	OFF	OFF	CFM TEMP. RISE WATTS	1240 47 150	1240 47 210	1240 47 250	1240 47 300	1240 47 360
HEATING 2ND STAGE	LOW	ON	ON	CFM TEMP. RISE WATTS	1360 65 190	1380 64 250	1400 63 315	1425 62 400	1430 62 430
	MEDIUM **	ON	OFF	CFM TEMP. RISE WATTS	1570 57 275	1620 55 370	1640 54 440	1650 54 480	1635 54 560
	HIGH	OFF	OFF	CFM TEMP. RISE WATTS	1720 52 360	1735 51 425	1760 51 515	1760 51 585	1760 51 650

DD2D120A9V5VA FURNACE COOLING AIRFLOW (CFM) AND POWER (WATTS) VS. EXTERNAL STATIC PRESSURE WITH FILTER											
OUTDOOR UNIT SIZE (TONS)	AIRFLOW SETTING	DIP SWITCH SETTING					EXTERNAL STATIC PRESSURE				
		S3-1	S3-2	S3-3	S3-4		0.1	0.3	0.5	0.7	0.9
3.5	LOW (350 CFM/TON)	OFF	ON	OFF	ON	CFM WATTS	1200 150	1200 185	1185 235	1210 290	1210 350
	NORMAL (400 CFM/TON)	OFF	ON	OFF	OFF	CFM WATTS	1355 190	1400 265	1420 335	1445 385	1445 440
	HIGH (450 CFM/TON)	OFF	ON	ON	OFF	CFM WATTS	1535 255	1580 345	1600 415	1620 490	1600 530
4.0	LOW (350 CFM/TON)	ON	OFF	OFF	ON	CFM WATTS	1350 190	1370 250	1400 320	1415 385	1420 445
	NORMAL (400 CFM/TON)	ON	OFF	OFF	OFF	CFM WATTS	1570 275	1600 350	1630 425	1640 500	1630 560
	HIGH (450 CFM/TON)	ON	OFF	ON	OFF	CFM WATTS	1800 400	1800 450	1815 540	1820 610	1810 670
5.0 **	LOW (350 CFM/TON)	OFF	OFF	OFF	ON	CFM WATTS	1725 350	1750 440	1770 500	1790 580	1775 650
	NORMAL ** (400 CFM/TON)	OFF	OFF	OFF	OFF	CFM WATTS	1970 515	2015 615	2035 700	2010 775	1960 800
	HIGH (450 CFM/TON)	OFF	OFF	ON	OFF	CFM WATTS	2260 730	2250 830	2215 885	2100 860	1975 810

NOTES:

1. * First Letter may be "A" or "T"

2. ** Factory setting

3. Continuous Fan Setting: Heating or Cooling airflow is approximately 50% of selected Cooling value.

4. LOW 350 cfm/ton is recommended for Variable Speed application for COMFORT & HUMID CLIMATE setting; NORMAL is 400 cfm/ton; HIGH 450 cfm/ton is for DRY CLIMATE setting

INDOOR BLOWER TIMING

Heating: The ECM 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 ECM 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:

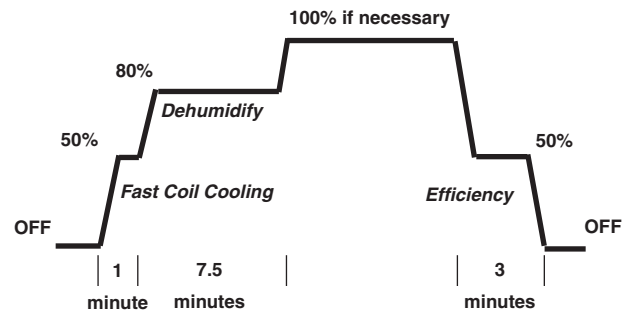
** - This selection provides a ramping up and ramping down of the blower speed to provide improved comfort, quietness, and potential energy savings. The graph below shows the ramping process.

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 ①

TYPE	Downflow/Horizontal
RATINGS 2	
1st Stage Input BTUH	78,000
1st Stage Capacity BTUH (ICS) 3	62,400
2nd Stage Input BTUH	120,000
2nd Stage Capacity BTUH (ICS) 3	95,000
Temp. rise (Min.-Max.) °F.	35 - 65
BLOWER DRIVE	
	DIRECT
Diameter-Width (In.)	11 x 10
No. Used	1
Speeds (No.)	VARIABLE SPEED
CFM vs. in. w.g.	See Fan Performance
Motor HP	1
R.P.M.	VARIABLE
Volts/Ph/Hz	115/1/60
FLA	12.8
COMBUSTION FAN - Type	
	Centrifugal
Drive - No. Speeds	Direct - 2
Motor HP PSC [Shaded Pole] - RPM	1/60 / [1/85] - 3090/2225
Volts/Ph/Hz	115/1/60
FLA PSC [Shaded pole]	1.14/0.51 / [0.25/0.21]
FILTER — Furnished?	
	Yes
Type Recommended	High Velocity
Hi Vel. (No.-Size-Thk.) Shipped	2 - 16 x 20 - 1in.

VENT COLLAR — Size (in.)	4 Round
HEAT EXCHANGER	
Type-Fired	Alum. Steel
-Unfired	
Gauge (Fired)	20
ORIFICES — Main	
Nat. Gas Qty. — Drill Size	6 — 45
L.P. Gas Qty. — Drill Size	6 — 56
GAS VALVE	
	Redundant - Two Stage
PILOT SAFETY DEVICE	
Type	Hot Surface Ignition
BURNERS — Type	
	Multiport Inshot
Number	6
POWER CONN. — V/Ph/Hz ④	
	115/1/60
Ampacity (In Amps)	15.3
Max. Overcurrent Protection (amps)	20
PIPE CONN. SIZE (IN.)	
	1/2
DIMENSIONS	
	H x W x D
Crated (In.)	41- 3/4 x 26-1/2 x 30-1/2
Uncrated (In.)	40 x 24-1/2 x 28-1/2
WEIGHT	
Shipping (Lbs.)/Net (Lbs)	197 / 185

① Central Furnace heating designs are certified by the American Gas Association Inc. Laboratories.

② Ratings shown are for elevations up to 2000 feet. For elevations above 2000 feet; Ratings should be reduced at the rate of 4% for each 1000 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 by the American Gas Association 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 extra 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 discharge of gas fumes to the outside, allows common venting with hot water heater.

BURNERS — Multi-port, in-shot 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.

AIR DELIVERY —The variable speed, direct-drive blower motor, with sufficient airflow range for most heating and cooling requirements, 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. (Fan relay and 35VA control transformer is standard).

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.

FEATURES AND GENERAL OPERATION — These High Efficiency Gas Furnaces employ a Hot Surface Ignition system, which eliminates the waste of a constantly 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 differential switch.

Since Ingersoll Rand has a policy of continuous product and product data improvement, it reserves the right to change specifications and design without notice.

Technical Literature - Printed in U.S.A.

Ingersoll Rand
6200 Troup Highway
Tyler, TX 75707



Library	-
Product Section	Furnaces
Product	Furnace
Model	TDD2-A9V
Literature Type	Submittal
Sequence	-
Date	04/15
File No.	TDD2D120A9V-SUB-1B
Supersedes	TDD2D120A9V-SUB-1A