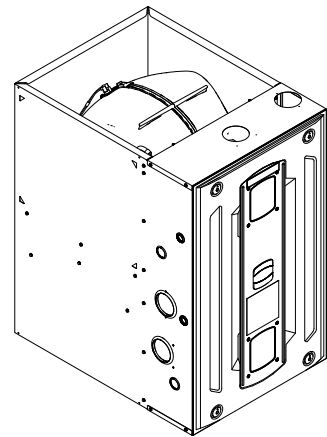


Submittal

Downflow Two Stage Condensing Gas Fired Furnace 40,000 BTUH

Downflow Only
S9V2B040D3PSBA



Note: Graphics in this document are for representation only. Actual model may differ in appearance.

TAG: _____

▲ SAFETY WARNING

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.

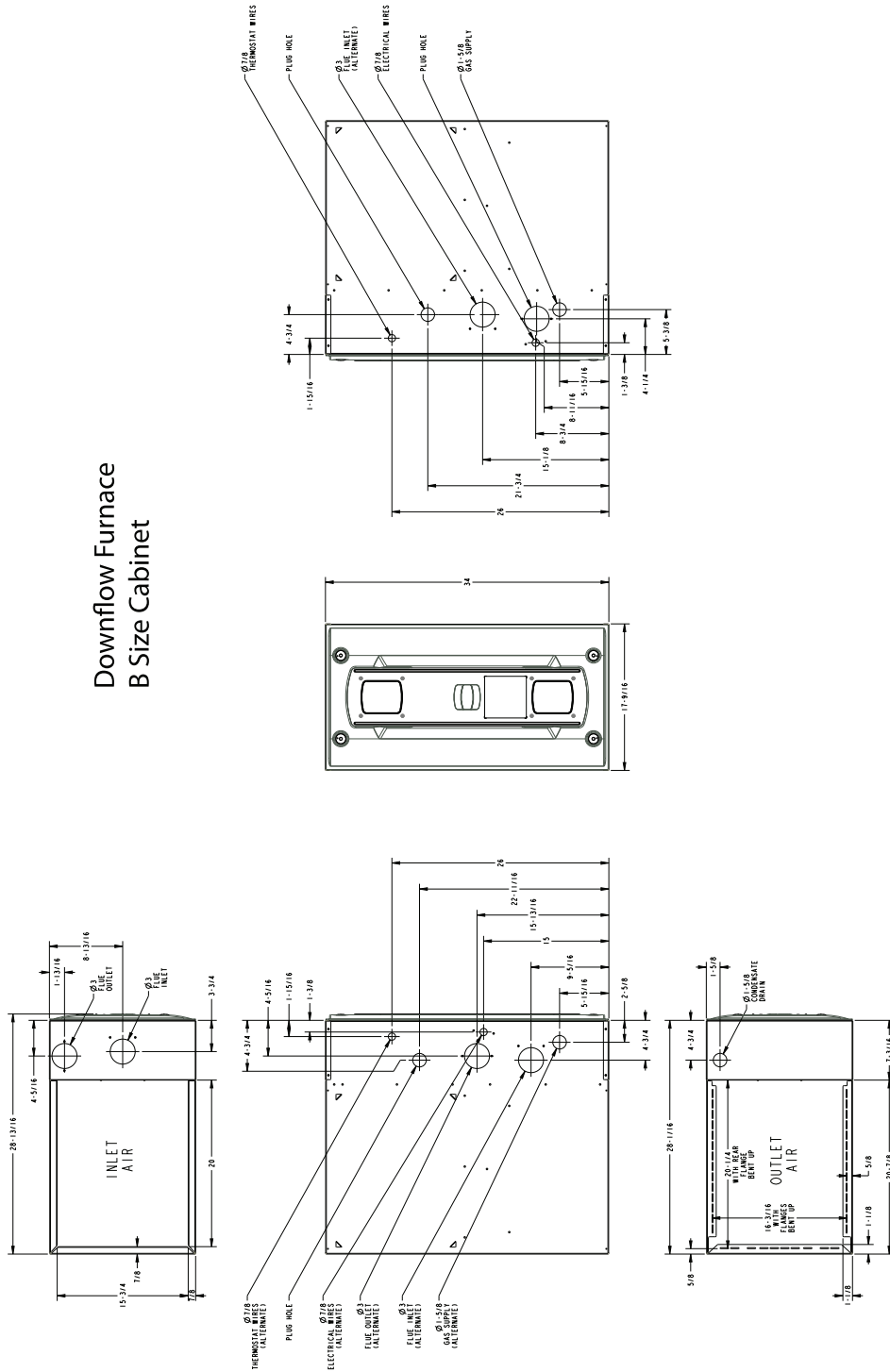
March 2017

S9V2B040D3-SUB-1A-EN

IR Ingersoll Rand.

Outline Drawings

Downflow Furnace B Size Cabinet



Product Specification

MODEL	S9V2B040D3PSBA
TYPE	Downflow
RATINGS (a)	
1st Stage Input BTUH (ICS)	26,000
1st Stage Capacity BTUH	25,220
2nd Stage Input BTUH	40,000
2nd Stage Capacity BTUH (ICS) (b)(c)	38,800
1st Stage Temp. Rise (Min.-Max.)	25 - 55
2nd Stage Temp. Rise (Min.-Max.)	30 - 60
AFUE (%)	96.0
BLOWER DRIVE	DIRECT
Diameter — Width (In.)	11 X 8
No. Used	1
Speeds (No.)	Variable
CFM vs. in. w.g.	See Fan Performance Table
Motor HP	1/2
RPM	Variable
Volts/Ph/Hz	120 / 1 / 60
FLA	5.7
COMBUSTION FAN — Type	Centrifugal
Drive — No. Speeds	Direct - 2
Motor HP — RPM	3300/2600
Volts/Ph/Hz	120 / 1 / 60
FLA	0.66
FILTER — Furnished?	No
Type recommended	High Velocity
Hi Vel. (No.-Size-Thk.)	2 — 14x20 — 1 in.
VENT PIPE DIAMETER — Min (in.) (d) (e)	2 Round
HEAT EXCHANGER	

MODEL	S9V2B040D3PSBA
Type — Fired	409 Stainless Steel
— Unfired	29-4C Stainless Steel
Gauge (Fired)	20
ORIFICES — Main	
Nat. Gas Qty. — Drill Size	2- 45
LP Gas Qty. — Drill Size	2- 56
GAS VALVE	Redundant - Two Stage
PILOT SAFETY DEVICE	
Type	120 V SiNi Igniter
BURNERS — Type	Multiport Inshot
Number	2
POWER CONN. — V/Ph/Hz (f)	120 / 1 / 60
Ampacity (In Amps)	7.9
Max. Overcurrent Protection (Amps)	15
PIPE CONN. SIZE (in.)	1/2
DIMENSIONS	H x W x D
Uncrated (In.)	34 x 17-1/2 x 28-3/4
Crated (In.)	35-1/2 x 19-1/2 x 30-7/8
WEIGHT	
Shipping (Lbs.)/Net (Lbs.)	122/114

(a) 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.

(b) Central Furnace heating designs are certified to ANSI Z21.47 / CSA 2.3.

(c) Based on U.S. government standard tests.

(d) Refer to the Vent Length Table in the Installer's Guide.

(e) All S9V2 furnace models have a vent outlet diameter that equals 2 in.

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

Heating and Cooling Airflow Tables

S9V2B040D3PSBA

Table 1. S9V2B040D3PSBA Heating Airflow

S9V2B040D3PSBA Furnace Heating Airflow (CFM) and Power (Watts) vs. External Static Pressure with Filter								
				1st Stage Capacity = 25,220 2nd Stage Capacity = 38,800				
Heating	Airflow Setting	Target Airflow		External Static Pressure				
				0.1	0.3	0.5	0.7	0.9
Heating 1st Stage	Low	468	CFM	426	430	435	439	444
			Temp. Rise	54	54	53	53	52
			Watts	38	79	120	161	202
	Medium Low	598	CFM	543	569	595	621	647
			Temp. Rise	43	41	39	37	35
			Watts	66	125	184	243	303
	Medium ^(a)	634	CFM	611	612	614	616	618
			Temp. Rise	38	38	38	37	37
			Watts	81	139	198	256	314
	High	1008	CFM	923	918	914	909	904
			Temp. Rise	25	25	25	25	26
			Watts	198	284	369	455	540
Heating 2nd Stage	Low	650	CFM	607	612	617	622	626
			Temp. Rise	60	60	59	59	59
			Watts	78	124	170	216	261
	Medium Low	830	CFM	807	807	808	808	809
			Temp. Rise	45	45	45	45	45
			Watts	146	218	290	362	434
	Medium ^(a)	880	CFM	871	874	878	881	885
			Temp. Rise	42	42	42	41	41
			Watts	182	259	336	413	489
	High	1400	CFM	1307	1237	1167	1097	1028
			Temp. Rise	28	30	32	33	35
			Watts	492	526	560	593	627

^(a) Factory Setting.

S9V2B040U3PSBA / S9V2B040D3PSBA

Table 2. S9V2B040U3PSBA / S9V2B040D3PSBA Cooling Airflow

S9V2B040U3PSBA / S9V2B040D3PSBA Furnace Cooling Airflow (CFM) and Power (Watts) vs. External Static Pressure with Filter										
Cooling	Unit Outdoor	Airflow Setting (CFM/ton)		External Static Pressure						
				0.1	0.3	0.5	0.7	0.9		
Cooling	1.5 Ton	Cooling 450 CFM/Ton	CFM	675	675	675	675	675		
			Watts	47	81	121	166	215		
		Cooling 420 CFM/Ton	CFM	630	630	630	630	630		
			Watts	40	72	111	154	202		
		Cooling 400 CFM/Ton	CFM	600	600	600	600	600		
			Watts	36	67	105	147	193		
		Cooling 370 CFM/Ton	CFM	555	555	555	555	555		
			Watts	30	60	96	136	181		
		Cooling 350 CFM/Ton	CFM	525	525	525	525	525		
			Watts	27	56	90	130	174		
		Cooling 330 CFM/Ton	CFM	495	495	495	495	495		
			Watts	24	51	85	124	167		
		Cooling 310 CFM/Ton	CFM	465	465	465	465	465		
			Watts	21	48	80	118	161		
		Cooling 290 CFM/Ton	CFM	435	435	435	435	435		
			Watts	19	44	76	113	155		
		Cooling	2.0 Ton	Cooling 450 CFM/Ton	CFM	900	900	900	900	900
					Watts	94	137	186	240	298
Cooling 420 CFM/Ton	CFM			840	840	840	840	840		
	Watts			79	120	166	218	273		
Cooling 400 CFM/Ton	CFM			800	800	800	800	800		
	Watts			70	109	154	204	258		
Cooling 370 CFM/Ton	CFM			740	740	740	740	740		
	Watts			58	95	138	185	236		
Cooling 350 CFM/Ton	CFM			700	700	700	700	700		
	Watts			51	86	127	173	223		
Cooling 330 CFM/Ton	CFM			660	660	660	660	660		
	Watts			44	78	118	162	211		
Cooling 310 CFM/Ton	CFM			620	620	620	620	620		
	Watts			38	71	109	152	199		
Cooling 290 CFM/Ton	CFM			580	580	580	580	580		
	Watts			33	64	101	142	188		
Cooling	2.5 Ton			Cooling 450 CFM/Ton	CFM	1125	1125	1125	1125	1125
					Watts	167	219	278	341	408
		Cooling 420 CFM/Ton	CFM	1050	1050	1050	1050	1050		

Heating and Cooling Airflow Tables

Table 2. S9V2B040U3PSBA / S9V2B040D3PSBA Cooling Airflow (continued)

S9V2B040U3PSBA / S9V2B040D3PSBA Furnace Cooling Airflow (CFM) and Power (Watts) vs. External Static Pressure with Filter								
Cooling	Unit Outdoor	Airflow Setting (CFM/ton)		External Static Pressure				
				0.1	0.3	0.5	0.7	0.9
			Watts	139	188	244	304	368
		Cooling 400 CFM/Ton	CFM	1000	1000	1000	1000	1000
			Watts	123	170	223	281	343
		Cooling 370 CFM/Ton	CFM	925	925	925	925	925
			Watts	100	145	195	250	308
		Cooling 350 CFM/Ton	CFM	875	875	875	875	875
			Watts	87	129	178	230	287
		Cooling 330 CFM/Ton	CFM	825	825	825	825	825
			Watts	121	160	205	254	308
		Cooling 310 CFM/Ton	CFM	775	775	775	775	775
			Watts	101	139	182	229	281
		Cooling 290 CFM/Ton	CFM	725	725	725	725	725
			Watts	88	123	164	210	260
		Cooling	3.0 Ton ^(a)	Cooling 450 CFM/Ton	CFM	1350	1350	1350
Watts	272				334	402	440	450
Cooling 420 CFM/Ton	CFM			1260	1260	1260	1260	1198
	Watts			226	284	348	417	450
Cooling 400 CFM/Ton	CFM			1200	1200	1200	1200	1198
	Watts			198	254	315	381	450
Cooling 370 CFM/Ton	CFM			1110	1110	1110	1110	1110
	Watts			161	213	271	333	399
Cooling 350 CFM/Ton ^(a)	CFM			1050	1050	1050	1050	1050
	Watts			139	188	244	304	368
Cooling 330 CFM/Ton	CFM			990	990	990	990	990
	Watts			119	166	219	277	338
Cooling 310 CFM/Ton	CFM			930	930	930	930	930
	Watts			102	146	197	252	311
Cooling 290 CFM/Ton	CFM	870	870	870	870	870		
	Watts	86	128	176	229	285		

^(a) Factory Setting

General Features

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 is a solid state device which continuously monitors 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 **tubular stainless steel primary 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** with LP conversion kit.

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 dry contacts for EAC and HUM.

ENERGY EFFICIENT OPERATION

Furnace is certified by the manufacturer to leak 1% 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.

SECONDARY HEAT EXCHANGER

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

STYLING

Heavy gauge steel and "wrap-around" cabinet construction is used in the cabinet with baked-on enamel finish for strength and beauty. Every orientation has at least two venting options. There are no knockouts on cabinet.

FEATURES AND GENERAL OPERATION

The S-Series furnace utilizes a 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 switches.

Features and Benefits

96.0% AFUE ACROSS ALL MODELS

Meets utility rebates

Lowers utility bills

ELECTRICALLY EFFICIENT

Efficient airflow design reduces electrical energy use

34 INCH TALL

Lighter, easier to move and fit into tight spaces like short basements or tight closets

Works great with larger, high-efficiency coils

No knockouts

3-WAY MULTI-POISE / DEDICATED DOWNFLOW

9 SKU's — Upflow / Horizontal Left / Horizontal Right

7 SKU's — Downflow

Added application flexibility and reduction in specification errors

AIRFLOW

At least 400 CFM/ton at 0.5 in. H₂O external static pressure; setup airflow options down to 290 CFM/ton

REGULATORY

All models are air tight; 1% or less air leakage as per ASHRAE 193

Open vestibule design provides a full 34" high open vestibule

DIMENSIONS

Widths are industry standard: 17.5", 21", and 24.5"

Depth remains approximately 28"

Cabinet will be compatible with industry standard coils, as well as, other accessories

INTEGRATED FURNACE CONTROL

Setup / Status / Diagnostics / Digital Display

No dip switches

Last six errors stored

Dry contact EAC and HUM connections

All Molex connections; no spade terminals

Low voltage labeled above and below

Rain shield over IFC keeps condensate off the control

TUBULAR STAINLESS STEEL PRIMARY HEAT EXCHANGER

29-4C STAINLESS STEEL SECONDARY HEAT EXCHANGER

Stainless steel is a more durable, corrosive-resistant material than aluminized steel

Integrated rail system for easy access if required

Reduces or eliminates need for baffles

VORTICA II BLOWER, DESIGNED EXCLUSIVELY FOR THE S-SERIES FURNACE

Improved airflow efficiency

Durable, easy to clean, two piece housing

Single piece belly band/ motor arm assembly

Blower deck has full-length rails for easy removal and replacement, regardless of poise

THREE-WAY MULTI-POISE (UPFLOW, HORIZONTAL LEFT AND RIGHT) PLUS DEDICATED DOWNFLOW

Easier to specify

Shipped ready to install (no kits required)

Every model has at least two venting options

When in horizontal, trap extends only about 2"

Barbed fitting on trap at hose connection and on cabinet transition for hose has barbed fitting and clamps at both ends for leak resistance.

Vent table improvements including longer vent lengths; 2" pipe can be used up to 100K



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