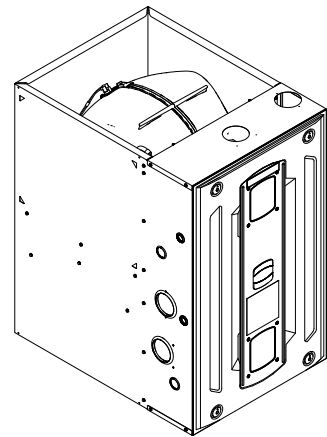


Submittal

Downflow Two Stage Condensing Gas Fired Furnace 80,000 BTUH

Downflow Only
S9V2B080D3PSBA



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.

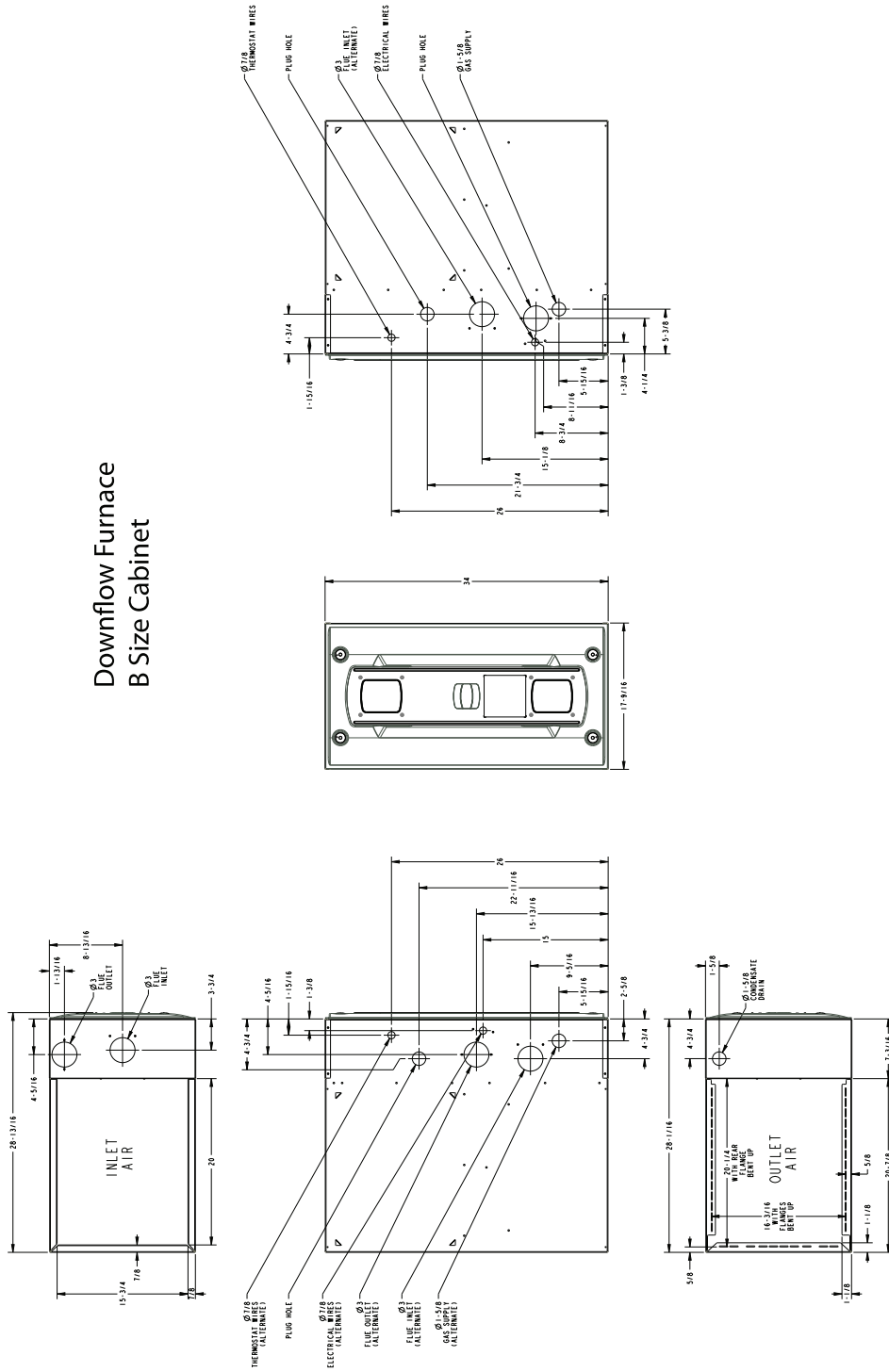
March 2017

S9V2B080D3-SUB-1A-EN

 Ingersoll Rand.

Outline Drawings

Downflow Furnace B Size Cabinet



Product Specification

MODEL	S9V2B080D3PSBA
TYPE	Downflow
RATINGS ^(a)	
1st Stage Input BTUH (ICS)	52,000
1st Stage Capacity BTUH	50,440
2nd Stage Input BTUH	80,000
2nd Stage Capacity BTUH (ICS) ^{(b)(c)}	77,600
1st Stage Temp. Rise (Min.-Max.)	30 - 60
2nd Stage Temp. Rise (Min.-Max.)	40 - 70
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	S9V2B080D3PSBA
Type — Fired	409 Stainless Steel
— Unfired	29-4C Stainless Steel
Gauge (Fired)	20
ORIFICES — Main	
Nat. Gas Qty. — Drill Size	4 - 45
LP Gas Qty. — Drill Size	4 - 56
GAS VALVE	Redundant - Two Stage
PILOT SAFETY DEVICE	
Type	120 V SiNi Igniter
BURNERS — Type	Multiport Inshot
Number	4
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.)	132/124

^(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

S9V2B080D3PSBA

Table 1. S9V2B080D3PSBA Heating Airflow

S9V2B080D3PSBA Furnace Heating Airflow (CFM) and Power (Watts) vs. External Static Pressure with Filter								
				1st Stage Capacity = 50,440 2nd Stage Capacity = 77,600				
Heating	Airflow Setting	Target Airflow		External Static Pressure				
				0.1	0.3	0.5	0.7	0.9
Heating 1st Stage	Low	948	CFM	843	836	830	823	816
			Temp. Rise	56	56	57	57	58
			Watts	106	158	209	260	312
	Medium Low	1051	CFM	949	936	924	911	898
			Temp. Rise	50	51	51	52	53
			Watts	138	195	252	309	366
	Medium ^(a)	1090	CFM	981	952	922	893	864
			Temp. Rise	48	49	51	52	54
			Watts	151	210	269	328	387
	High	1168	CFM	1043	1031	1018	1006	993
			Temp. Rise	45	45	46	47	47
			Watts	181	244	307	371	434
Heating 2nd Stage	Low	1200	CFM	1087	1076	1065	1055	1044
			Temp. Rise	66	67	68	68	68
			Watts	195	255	315	376	367
	Medium Low	1330	CFM	1211	1168	1124	1080	1036
			Temp. Rise	59	61	64	66	69
			Watts	268	310	352	322	363
	Medium ^(a)	1380	CFM	1242	1242	1204	1137	1055
			Temp. Rise	57	57	59	63	67
			Watts	214	276	321	351	373
	High	1480	CFM	1314	1260	1204	1137	1055
			Temp. Rise	54	56	59	63	67
			Watts	249	285	321	351	373

^(a) Factory Setting.

S9V2B080U3PSBA / S9V2B080D3PSBA

Table 2. S9V2B080U3PSBA / S9V2B080D3PSBA Cooling Airflow

S9V2B080U3PSBA / S9V2B080D3PSBA 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	2.0 Ton	Cooling 450 CFM/Ton	CFM	900	900	900	900	900		
			Watts	95	141	191	245	301		
		Cooling 420 CFM/Ton	CFM	840	840	840	840	840		
			Watts	80	124	172	223	277		
		Cooling 400 CFM/Ton	CFM	800	800	800	800	800		
			Watts	71	114	160	210	262		
		Cooling 370 CFM/Ton	CFM	740	740	740	740	740		
			Watts	59	99	143	191	242		
		Cooling 350 CFM/Ton	CFM	700	700	700	700	700		
			Watts	52	91	133	180	229		
		Cooling 330 CFM/Ton	CFM	660	660	660	660	660		
			Watts	46	83	124	169	218		
		Cooling 310 CFM/Ton	CFM	620	620	620	620	620		
			Watts	40	75	115	159	207		
		Cooling 290 CFM/Ton	CFM	580	580	580	580	580		
			Watts	35	68	107	150	197		
		Cooling	2.5 Ton	Cooling 450 CFM/Ton	CFM	1125	1125	1125	1125	1125
					Watts	166	222	282	345	410
Cooling 420 CFM/Ton	CFM			1050	1050	1050	1050	1050		
	Watts			139	192	248	308	370		
Cooling 400 CFM/Ton	CFM			1000	1000	1000	1000	1000		
	Watts			123	173	228	286	346		
Cooling 370 CFM/Ton	CFM			925	925	925	925	925		
	Watts			101	149	200	255	312		
Cooling 350 CFM/Ton	CFM			875	875	875	875	875		
	Watts			88	134	183	236	291		
Cooling 330 CFM/Ton	CFM			825	825	825	825	825		
	Watts			77	120	167	218	272		
Cooling 310 CFM/Ton	CFM			775	775	775	775	775		
	Watts			66	107	153	202	254		
Cooling 290 CFM/Ton	CFM			725	725	725	725	725		
	Watts			57	96	139	187	237		
Cooling	3.0 Ton ^(a)			Cooling 450 CFM/Ton	CFM	1350	1350	1338	1263	1172
					Watts	267	333	396	421	436
		Cooling 420 CFM/Ton	CFM	1260	1260	1260	1260	1172		

Heating and Cooling Airflow Tables

Table 2. S9V2B080U3PSBA / S9V2B080D3PSBA Cooling Airflow (continued)

S9V2B080U3PSBA / S9V2B080D3PSBA 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 400 CFM/Ton	Watts	223	285	350	419	436		
			CFM	1200	1200	1200	1200	1172		
		Cooling 370 CFM/Ton	Watts	196	255	318	385	436		
			CFM	1110	1110	1110	1110	1110		
		Cooling 350 CFM/Ton ^(a)	Watts	160	216	275	337	402		
			CFM	1050	1050	1050	1050	1050		
		Cooling 330 CFM/Ton	Watts	139	192	248	308	370		
			CFM	990	990	990	990	990		
		Cooling 310 CFM/Ton	Watts	120	170	224	281	341		
			CFM	930	930	930	930	930		
		Cooling 290 CFM/Ton	Watts	103	150	202	257	314		
			CFM	870	870	870	870	870		
		Cooling	3.5 Ton	Cooling 450 CFM/Ton	Watts	87	132	181	234	289
					CFM	1460	1400	1338	1263	1172
Cooling 420 CFM/Ton	Watts			329	363	396	421	436		
	CFM			1460	1400	1338	1263	1172		
Cooling 400 CFM/Ton	Watts			329	363	396	421	436		
	CFM			1400	1400	1338	1263	1172		
Cooling 370 CFM/Ton	Watts			294	363	396	421	436		
	CFM			1295	1295	1295	1263	1172		
Cooling 350 CFM/Ton	Watts			239	303	370	421	436		
	CFM			1225	1225	1225	1225	1172		
Cooling 330 CFM/Ton	Watts			207	267	332	399	436		
	CFM			1155	1155	1155	1155	1155		
Cooling 310 CFM/Ton	Watts			177	235	296	360	427		
	CFM			1085	1085	1085	1085	1085		
Cooling 290 CFM/Ton	Watts	151	205	264	325	388				
	CFM	1015	1015	1015	1015	1015				
		Cooling 290 CFM/Ton	Watts	128	179	234	292	353		
			CFM	1015	1015	1015	1015	1015		

^(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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