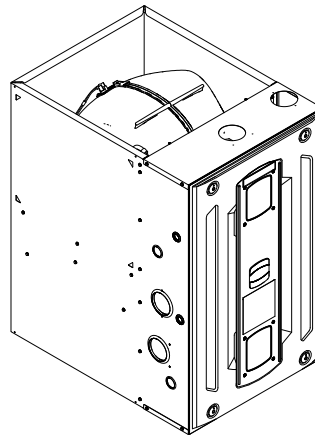


# Submittal

## Dedicated Downflow Two Stage Condensing Gas Fired Furnace 100,000 BTUH

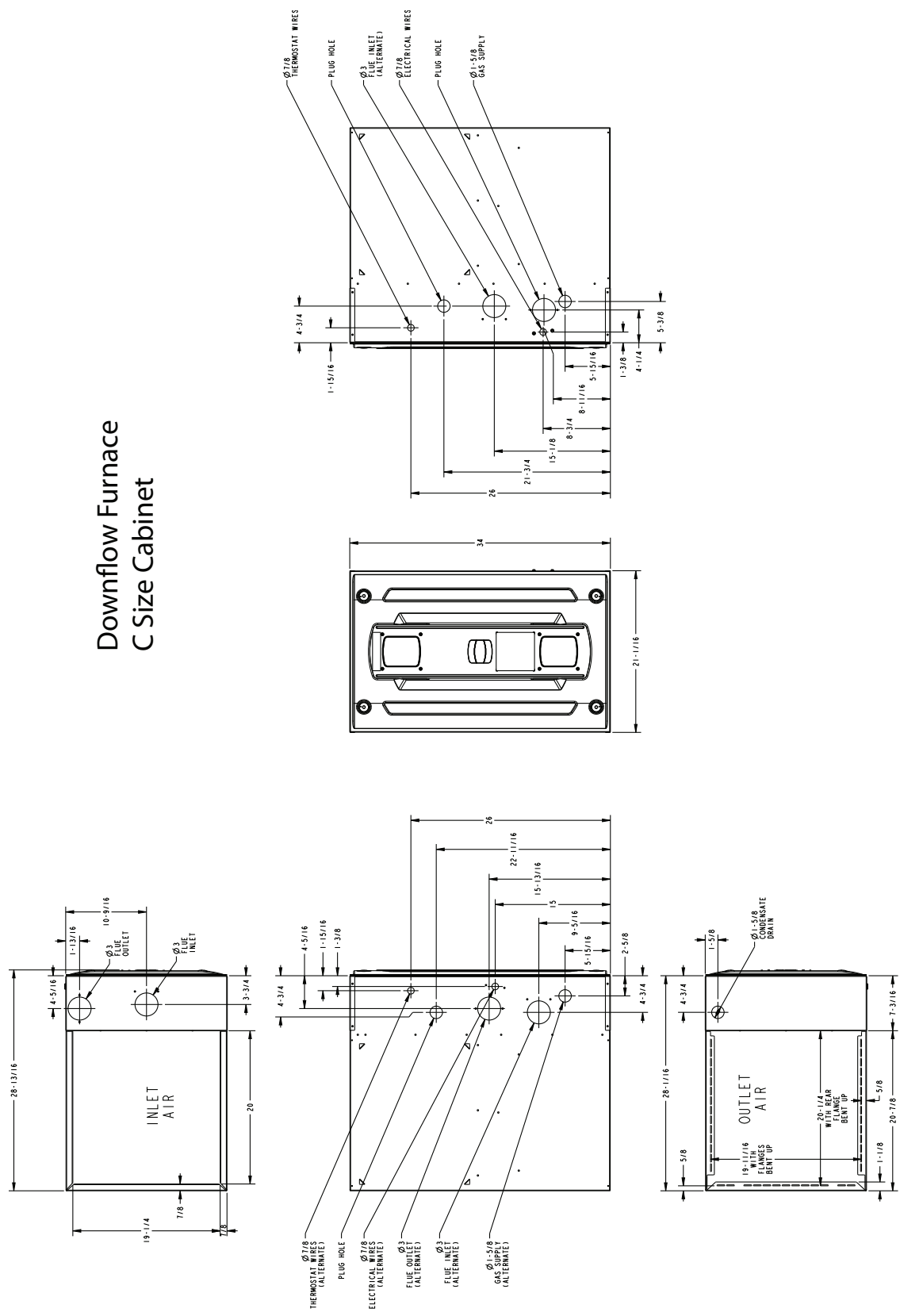
Downflow Only  
S9V2C100D5PSBC/D



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

# Outline Drawing

Downflow Furnace  
C Size Cabinet



# Product Specification

Model	S9V2C100D5PSBC/D (a), (b)
Type	Downflow
<b>RATINGS</b> (c)	
1st Stage Input BTUH	65,000
1st Stage Capacity BTUH (ICS)	63,300
2nd Stage Input BTUH	100,000
2nd Stage Capacity BTUH (ICS) (d)	97,150
1st Stage Temp. Rise (Min. - Max.) °F	30 - 60
2nd Stage Temp. Rise (Min. - Max.) °F	35 - 65
AFUE (%) (d)	96.0
Return Air Temp. (Min. - Max.) °F	45°F - 80°F
<b>BLOWER DRIVE</b>	DIRECT
Diameter - Width (in.)	11 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	120 / 1 / 60
FLA	10.5 / 10
<b>COMBUSTION FAN - Type</b>	PSC
Drive - No. Speeds	Direct - 2
Motor RPM	3300/2600
Volts/Ph/Hz	120 / 1 / 60
FLA	0.66
Inducer Orifice	1.05
<b>FILTER - Furnished?</b>	No
Type Recommended	High Velocity
Hi Vel. (No.-Size-Thk.)	1 - 20 X 25 - 1 in.
<b>VENT OUTLET DIAMETER - MIN. (in.)</b> (e)	2 Round

Model	S9V2C100D5PSBC/D (a), (b)
<b>INLET AIR DIAMETER - MIN. (in.)</b> (e)	2 Round
<b>HEAT EXCHANGER - Type</b>	
Fired	409 Stainless Steel
Unfired	29-4C Stainless Steel
Gauge (Fired)	20
<b>ORIFICES - Main</b>	
Nat. Gas (Qty. - Drill Size)	5 - 45
Propane Gas (Qty. - Drill Size)	5 - 56
<b>GAS VALVE</b>	Redundant - Two Stage
<b>PILOT SAFETY DEVICE - Type</b>	120 V SiNi Igniter
<b>BURNERS - TYPE - QTY</b>	Inshot - 5
<b>POWER CONN. - V/Ph/HZ</b> (f)	120 / 1 / 60
Ampacity (Amps)	13.9 / 13.3
Max. Overcurrent Protection (Amps)	15
<b>PIPE CONN. SIZE (IN.)</b>	1/2
<b>DIMENSIONS</b>	H x W x D
Uncrated (in.)	34 x 21 x 28-3/4
Crated (in.)	35-1/2 x 23 x 30-7/8
<b>WEIGHT</b>	
Shipping (Lbs.)/Net (Lbs.)	155/145

(a) Meets Energy Star

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

(c) 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.

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

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

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

# Heating and Cooling Airflow Tables

Table 1. S9V2C100D5PSBC/D Heating Airflow

S9V2C100D5PSBC/D Furnace Heating Airflow (CFM), Temp. Rise (°F), and Power (Watts) vs. External Static Pressure with Filter (iwc)								
				1st Stage Capacity = 63,300 2nd Stage Capacity = 97,150				
Heating	Airflow Setting	Target Airflow		External Static Pressure				
				0.1	0.3	0.5	0.7	0.9
Heating 1st Stage	Low	1094	CFM	1093	1092	1090	1089	1088
			Temp. Rise	53	53	53	52	52
			Watts	126	183	240	296	353
	Medium Low	1296	CFM	1234	1238	1242	1247	1251
			Temp. Rise	47	47	47	47	47
			Watts	186	243	299	356	413
	Medium (a)	1346	CFM	1279	1268	1256	1245	1234
			Temp. Rise	45	45	46	46	47
			Watts	214	268	321	375	428
	High	1512	CFM	1453	1429	1405	1381	1358
			Temp. Rise	40	40	41	41	42
			Watts	277	344	411	478	545
Heating 2nd Stage	Low	1520	CFM	1484	1477	1469	1461	1453
			Temp. Rise	60	60	61	61	61
			Watts	296	370	444	518	592
	Medium Low	1800	CFM	1693	1688	1684	1679	1674
			Temp. Rise	53	53	53	53	53
			Watts	449	533	618	702	786
	Medium (a)	1870	CFM	1768	1772	1775	1778	1781
			Temp. Rise	51	50	50	50	50
			Watts	505	591	678	765	852
	High	2100	CFM	1969	1956	1944	1931	1918
			Temp. Rise	45	45	46	46	46
			Watts	723	789	854	920	986

(a) Factory Setting.

Table 2. S9V2C100U5PSBC/D / S9V2C100D5PSBC/D Cooling Airflow

S9V2C100U5PSBC/D / S9V2C100D5PSBC/D Furnace Cooling Airflow (CFM) and Power (Watts) vs. External Static Pressure with Filter (iwc)								
Cooling	Unit Outdoor	Airflow Setting (CFM/ton)	External Static Pressure					
				0.1	0.3	0.5	0.7	0.9
Cooling	2.5 Ton	Cooling 450 CFM/Ton	CFM	1153	1149	1147	1145	1141
			Watts	111	159	208	260	314
		Cooling 420 CFM/Ton	CFM	1077	1073	1071	1068	1064
			Watts	94	138	185	235	287
		Cooling 400 CFM/Ton	CFM	1061	1057	1054	1044	1021
			Watts	90	134	180	227	273
		Cooling 370 CFM/Ton	CFM	950	945	942	939	935
			Watts	69	109	151	197	246
		Cooling 350 CFM/Ton	CFM	899	893	890	887	882
			Watts	60	98	140	184	232
		Cooling 330 CFM/Ton	CFM	848	841	838	835	830
			Watts	53	89	129	172	219
Cooling	3.0 Ton	Cooling 310 CFM/Ton	CFM	796	789	786	782	777
			Watts	46	80	119	161	208
		Cooling 290 CFM/Ton	CFM	745	737	733	729	724
			Watts	39	72	110	151	198
		Cooling 450 CFM/Ton	CFM	1378	1376	1374	1372	1368
			Watts	178	234	292	352	413
		Cooling 420 CFM/Ton	CFM	1289	1286	1284	1282	1277
			Watts	149	201	256	312	371
		Cooling 400 CFM/Ton	CFM	1228	1225	1223	1221	1217
			Watts	131	181	234	288	345
		Cooling 370 CFM/Ton	CFM	1138	1134	1132	1130	1125
			Watts	108	154	203	255	309
Cooling	3.5 Ton	Cooling 350 CFM/Ton	CFM	1077	1073	1071	1068	1064
			Watts	94	138	185	235	287
		Cooling 330 CFM/Ton	CFM	1016	1011	1009	1006	1002
			Watts	81	123	168	216	266
		Cooling 310 CFM/Ton	CFM	955	950	947	944	940
			Watts	70	110	153	199	248
		Cooling 290 CFM/Ton	CFM	894	888	885	882	877
			Watts	59	97	138	183	231
		Cooling 450 CFM/Ton	CFM	1601	1599	1597	1594	1590
			Watts	269	334	401	469	539
		Cooling 420 CFM/Ton	CFM	1498	1496	1494	1491	1487
			Watts	224	284	347	411	477
Cooling	4.0 Ton	Cooling 400 CFM/Ton	CFM	1428	1426	1424	1422	1417
			Watts	196	254	314	376	439
		Cooling 370 CFM/Ton	CFM	1324	1321	1319	1317	1313
			Watts	160	214	270	327	387
		Cooling 350 CFM/Ton	CFM	1253	1251	1249	1246	1242
			Watts	138	190	243	298	355
		Cooling 330 CFM/Ton	CFM	1183	1180	1178	1175	1171
			Watts	119	167	218	271	326
		Cooling 310 CFM/Ton	CFM	1112	1109	1107	1104	1100
			Watts	102	147	196	246	299
		Cooling 290 CFM/Ton	CFM	1041	1037	1035	1032	1028
			Watts	86	129	175	223	275
Cooling	4.0 Ton	Cooling 450 CFM/Ton	CFM	1820	1819	1816	1812	1807
			Watts	388	462	538	615	693
		Cooling 420 CFM/Ton	CFM	1704	1702	1700	1697	1692
			Watts	321	390	461	533	607
		Cooling 400 CFM/Ton	CFM	1626	1624	1622	1619	1614
			Watts	281	347	415	484	554
		Cooling 370 CFM/Ton	CFM	1507	1505	1504	1501	1497
			Watts	228	289	352	417	482
		Cooling 350 CFM/Ton	CFM	1428	1426	1424	1422	1417
			Watts	196	254	314	376	439
		Cooling 330 CFM/Ton	CFM	1348	1346	1344	1342	1338
			Watts	168	223	280	338	399
Cooling	4.0 Ton	Cooling 310 CFM/Ton	CFM	1268	1266	1264	1261	1257
			Watts	143	195	248	304	362
		Cooling 290 CFM/Ton	CFM	1188	1185	1183	1180	1176
			Watts	120	169	220	273	328

## Heating and Cooling Airflow Tables

Table 2. S9V2C100U5PSBC/D / S9V2C100D5PSBC/D Cooling Airflow (continued)

S9V2C100U5PSBC/D / S9V2C100D5PSBC/D Furnace Cooling Airflow (CFM) and Power (Watts) vs. External Static Pressure with Filter (iwc)								
Cooling	Unit Outdoor	Airflow Setting (CFM/ton)	External Static Pressure					
				0.1	0.3	0.5	0.7	0.9
Cooling	4.5 Ton	Cooling 450 CFM/Ton	CFM	2037	2034	2031	2026	2020
			Watts	537	621	706	792	879
		Cooling 420 CFM/Ton	CFM	1907	1905	1902	1898	1893
			Watts	444	522	601	682	763
		Cooling 400 CFM/Ton	CFM	1820	1819	1816	1812	1807
			Watts	388	462	538	615	693
		Cooling 370 CFM/Ton	CFM	1689	1687	1685	1682	1677
			Watts	313	382	452	524	597
		Cooling 350 CFM/Ton	CFM	1601	1599	1597	1594	1590
			Watts	269	334	401	469	539
		Cooling 330 CFM/Ton	CFM	1512	1510	1509	1506	1501
			Watts	230	291	354	419	485
		Cooling 310 CFM/Ton	CFM	1423	1421	1419	1417	1412
			Watts	195	252	312	373	436
Cooling	5.0 Ton <sup>(a)</sup>	Cooling 290 CFM/Ton	CFM	1334	1331	1329	1327	1323
			Watts	163	217	274	332	392
		Cooling 450 CFM/Ton	CFM	2249	2246	2241	2236	2228
			Watts	722	815	909	1004	1101
		Cooling 420 CFM/Ton	CFM	2108	2105	2101	2096	2090
			Watts	595	681	770	859	949
		Cooling 400 CFM/Ton	CFM	2013	2010	2007	2003	1997
			Watts	519	602	685	771	857
		Cooling 370 CFM/Ton	CFM	1869	1867	1864	1860	1855
			Watts	418	494	572	651	731
		Cooling 350 CFM/Ton <sup>(a)</sup>	CFM	1772	1770	1768	1764	1759
			Watts	359	431	505	580	656
		Cooling 330 CFM/Ton	CFM	1675	1673	1671	1667	1663
			Watts	305	374	443	514	587
		Cooling 310 CFM/Ton	CFM	1576	1575	1573	1570	1565
			Watts	258	322	388	455	523
		Cooling 290 CFM/Ton	CFM	1478	1476	1474	1471	1467
			Watts	216	276	337	401	466

<sup>(a)</sup> 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**

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

5 SKU's — Downflow

Added application flexibility and reduction in specification errors

## **AIRFLOW**

At least 400 CFM/ton at 0.5 in. H<sub>2</sub>O 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**

Width is industry standard: 21"

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



## About Trane and American Standard Heating and Air Conditioning

Trane and American Standard create comfortable, energy efficient indoor environments for residential applications. For more information, please visit [www.trane.com](http://www.trane.com) or [www.americanstandardair.com](http://www.americanstandardair.com).



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