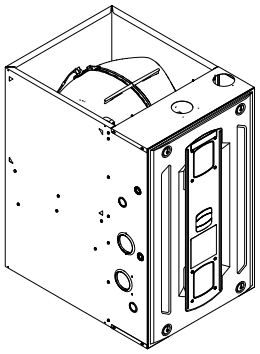
Submittal

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

Downflow Only
S9V2C100D5VSBB



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

⚠ WARNING

FIRE HAZARD!

Failure to follow this Warning could result in property damage, severe personal injury, or death.
This Warning applies to installations with a flammable refrigeration system. The furnace must be powered except for service. The furnace shall be installed and connected according to installation instructions and wiring diagrams that are provided with the evaporator coil.

⚠ CAUTION

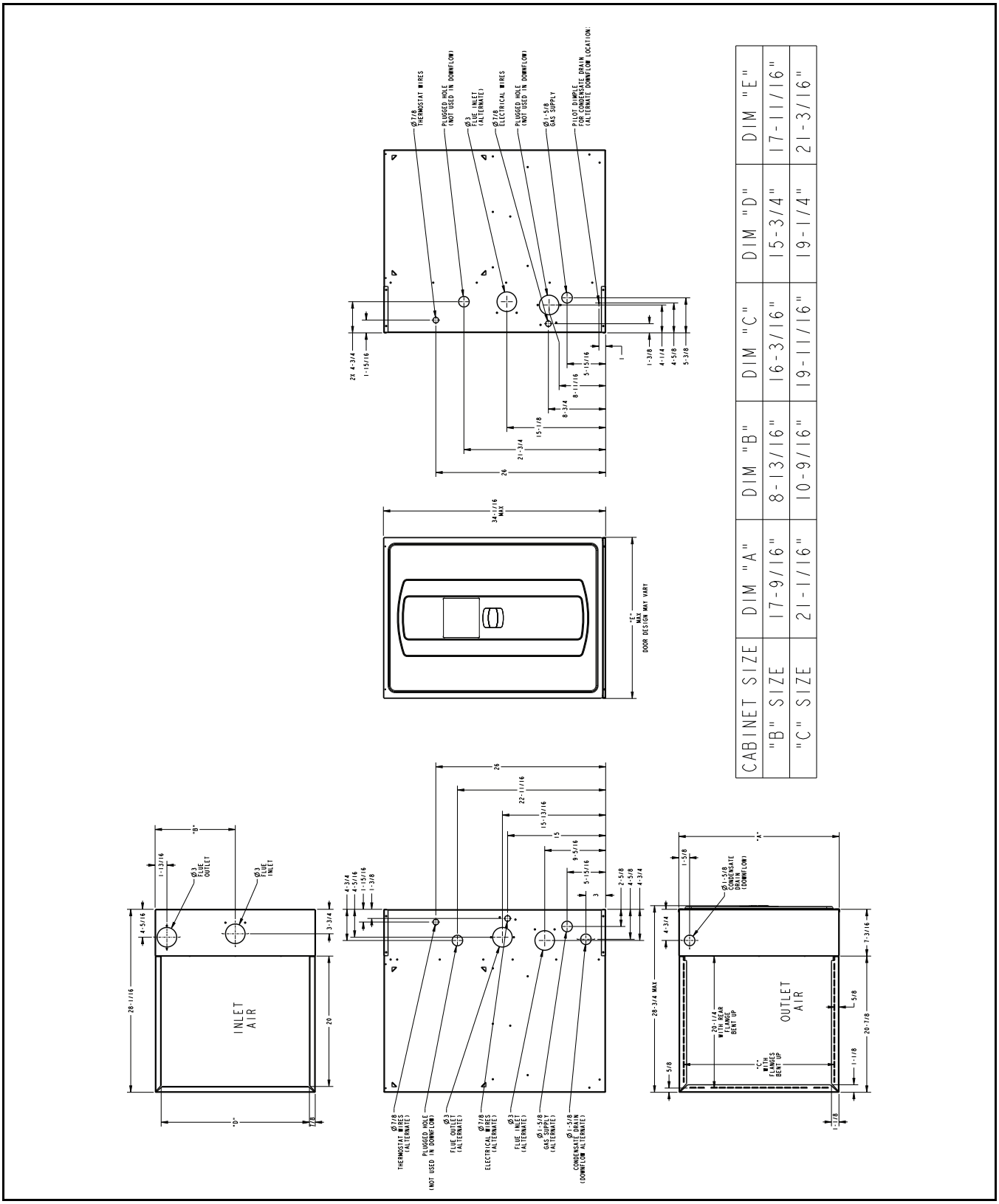
COIL REQUIREMENT!

Failure to follow this Caution could result in property damage or personal injury. *GXC* and *MXC* coils installed on upflow furnaces in vertical, horizontal left, or horizontal right orientations without a factory installed metal drain pan shield must use a MAY*FERCOLKITAA kit. Coils installed on upflow furnaces must have drain pans that are suitable for 400° F (205°C) or have a metal drain pan shield. Downflow furnaces do not require a metal drain pan shield or the use of the MAY*FERCOLKITAA kit. See Installer's Guide for more information.

September 2024 **S9V2C100D5V-SUB-2A-EN**

Outline Drawings

Table 1. 17.5″ and 21″ Downflow Cabinets



CABINET SIZE	DIM "A"	DIM "B"	DIM "C"	DIM "D"	DIM "E"
"B" SIZE	17-9/16"	8-13/16"	16-3/16"	15-3/4"	17-11/16"
"C" SIZE	21-1/16"	10-9/16"	19-11/16"	19-1/4"	21-3/16"

Product Specification

Model	S9V2C100D5VSBB [a], [b]
Type	Downflow
RATINGS [c]	
1st Stage Input BTUH	65,000
1st Stage Capacity BTUH (ICS)	64,000
2nd Stage Input BTUH	100,000
2nd Stage Capacity BTUH (ICS) [d]	97,350
1st Stage Temp. Rise (Min. - Max.) °F	30 - 60
2nd Stage Temp. Rise (Min. - Max.) °F	35 - 65
AFUE (%) [d]	97.0
Return Air Temp. (Min. - Max.) °F	45°F - 80°F
BLOWER DRIVE	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
COMBUSTION FAN - Type	Variable Speed
Drive - No. Speeds	Direct - Variable
Motor RPM	1/50 - 5000
Volts/Ph/Hz	33 - 110 / 3 / 60 - 180
FLA	0.77
Inducer Orifice	1.05
FILTER - Furnished?	No
Type Recommended	High Velocity
Hi Vel. (No.-Size-Thk.)	1 - 20 X 25 - 1 in.

Model	S9V2C100D5VSBB [a], [b]
VENT OUTLET DIAMETER - MIN. (in.) [e]	2 Round
INLET AIR DIAMETER -MIN. (in.) [e]	2 Round
HEAT EXCHANGER – Type	
Fired	409 Stainless Steel
Unfired	29-4C Stainless Steel
Gauge (Fired)	20
ORIFICES - Main	
Nat. Gas (Qty. - Drill Size)	5 - 45
Propane Gas (Qty. - Drill Size)	5 - 56
GAS VALVE	Redundant - Two Stage
PILOT SAFETY DEVICE – TYPE	120 V SiNi Igniter
BURNERS - TYPE - QTY	Inshot - 5
POWER CONN. - V/Ph/HZ [f]	120 / 1 / 60
Ampacity (Amps)	13.4
Max. Overcurrent Protection (Amps)	15
PIPE CONN. SIZE (IN.)	1/2
DIMENSIONS	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
WEIGHT	
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 2. S9V2C100D5VS Heating Airflow

S9V2C100D5VS Furnace Heating Airflow (CFM), Temp. Rise (°F), and Power (Watts) vs. External Static Pressure with Filter (iwc)								
				1st Stage Capacity = 64,000 2nd Stage Capacity = 97,350				
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 3. S9V2C100D5VS Cooling Airflow

S9V2C100D5VS Furnace Cooling Airflow (CFM) and Power (Watts) vs. External Static Pressure with Filter (iwc)							
Outdoor Tonnage - "Odt" (tons)	Airflow Setting - (CFM/ton)		EXTERNAL STATIC PRESSURE (IN. W. C.)				
			0.1	0.3	0.5	0.7	0.9
3.0	450	CFM / WATTS	1378 / 178	1376 / 234	1374 / 292	1372 / 352	1368 / 413
	420	CFM / WATTS	1289 / 149	1286 / 201	1284 / 256	1282 / 312	1277 / 371
	400	CFM / WATTS	1228 / 131	1225 / 181	1223 / 234	1221 / 288	1217 / 345
	370	CFM / WATTS	1138 / 108	1134 / 154	1132 / 203	1130 / 255	1125 / 309
	350	CFM / WATTS	1077 / 94	1073 / 138	1071 / 185	1068 / 235	1064 / 287
	330	CFM / WATTS	1016 / 81	1011 / 123	1009 / 168	1006 / 216	1002 / 266
	310	CFM / WATTS	955 / 70	950 / 110	947 / 153	944 / 199	940 / 248
	290	CFM / WATTS	894 / 59	888 / 97	885 / 138	882 / 183	877 / 231
3.5	450	CFM / WATTS	1601 / 269	1599 / 334	1597 / 401	1594 / 469	1590 / 539
	420	CFM / WATTS	1498 / 224	1496 / 284	1494 / 347	1491 / 411	1487 / 477
	400	CFM / WATTS	1428 / 196	1426 / 254	1424 / 314	1422 / 376	1417 / 439
	370	CFM / WATTS	1324 / 160	1321 / 214	1319 / 270	1317 / 327	1313 / 387
	350	CFM / WATTS	1253 / 138	1251 / 190	1249 / 243	1246 / 298	1242 / 355
	330	CFM / WATTS	1183 / 119	1180 / 167	1178 / 218	1175 / 271	1171 / 326
	310	CFM / WATTS	1112 / 102	1109 / 147	1107 / 196	1104 / 246	1100 / 299
	290	CFM / WATTS	1041 / 86	1037 / 129	1035 / 175	1032 / 223	1028 / 275
4.0	450	CFM / WATTS	1820 / 388	1819 / 462	1816 / 538	1812 / 615	1807 / 693
	420	CFM / WATTS	1704 / 321	1702 / 390	1700 / 461	1697 / 533	1692 / 607
	400	CFM / WATTS	1626 / 281	1624 / 347	1622 / 415	1619 / 484	1614 / 554
	370	CFM / WATTS	1507 / 228	1505 / 289	1504 / 352	1501 / 417	1497 / 482
	350	CFM / WATTS	1428 / 196	1426 / 254	1424 / 314	1422 / 376	1417 / 439
	330	CFM / WATTS	1348 / 168	1346 / 223	1344 / 280	1342 / 338	1338 / 399
	310	CFM / WATTS	1268 / 143	1266 / 195	1264 / 248	1261 / 304	1257 / 362
	290	CFM / WATTS	1188 / 120	1185 / 169	1183 / 220	1180 / 273	1176 / 328

Table 3. S9V2C100D5VS Cooling Airflow (continued)

S9V2C100D5VS Furnace Cooling Airflow (CFM) and Power (Watts) vs. External Static Pressure with Filter (iwc)							
Outdoor Tonnage - "Odt" (tons)	**Airflow Setting - (CFM/ton)**		**EXTERNAL STATIC PRESSURE (IN. W. C.)**				
			0.1	**0.3**	**0.5**	**0.7**	**0.9**
5.0 [a]	450	CFM / WATTS	2249 / 722	2246 / 815	2241 / 909	2236 / 1004	2228 / 1101
	420	CFM / WATTS	2108 / 595	2105 / 681	2101 / 770	2096 / 859	2090 / 949
	400	CFM / WATTS	2013 / 519	2010 / 602	2007 / 685	2003 / 771	1997 / 857
	370	CFM / WATTS	1869 / 418	1867 / 494	1864 / 572	1860 / 651	1855 / 731
	350[a]	CFM / WATTS	1772 / 359	1770 / 431	1768 / 505	1764 / 580	1759 / 656
	330	CFM / WATTS	1675 / 305	1673 / 374	1671 / 443	1667 / 514	1663 / 587
	310	CFM / WATTS	1576 / 258	1575 / 322	1573 / 388	1570 / 455	1565 / 523
	290	CFM / WATTS	1478 / 216	1476 / 276	1474 / 337	1471 / 401	1467 / 466

[a] Factory Setting.

General Features

NATURAL GAS MODELS

Central Heating furnace designs are certified by the Intertek/ETL for both natural and propane gas. Limit setting and rating data were established and approved under standard rating conditions using American National Standards Institute standards.

SAFE OPERATION

The Integrated Furnace 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 **Propane** with propane conversion kit.

INTEGRATED FURNACE 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 0.5 inch 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 furnace 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

97.0% 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 inch water column 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

VARIABLE SPEED DRAFT INDUCER MOTOR

Increased efficiency

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 multi-pin polarized terminals connections; no spade terminals

Low voltage labeled above and below

TUBULAR STAINLESS STEEL PRIMARY HEAT EXCHANGER
29–4C STAINLESS STEEL SECONDARY HEAT EXCHANGER

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

Integrated rail system for easy access if required

Reduces or eliminates need for baffles

VORTICA 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

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 or www.americanstandardair.com.

The manufacturer has a policy of continuous data improvement and it reserves the right to change design and specifications without notice. We are committed to using environmentally conscious print practices.

S9V2C100D5V-SUB-2A-EN 30 Sep 2024
Supersedes (New)