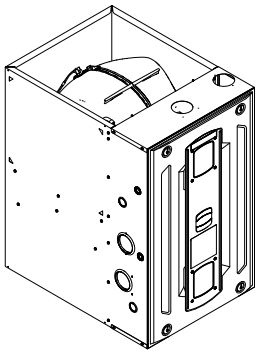
Submittal

Dedicated Downflow
Two Stage Condensing
Gas Fired Furnace
120,000 BTUH

Downflow Only
S9V2D120D5VSBB



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

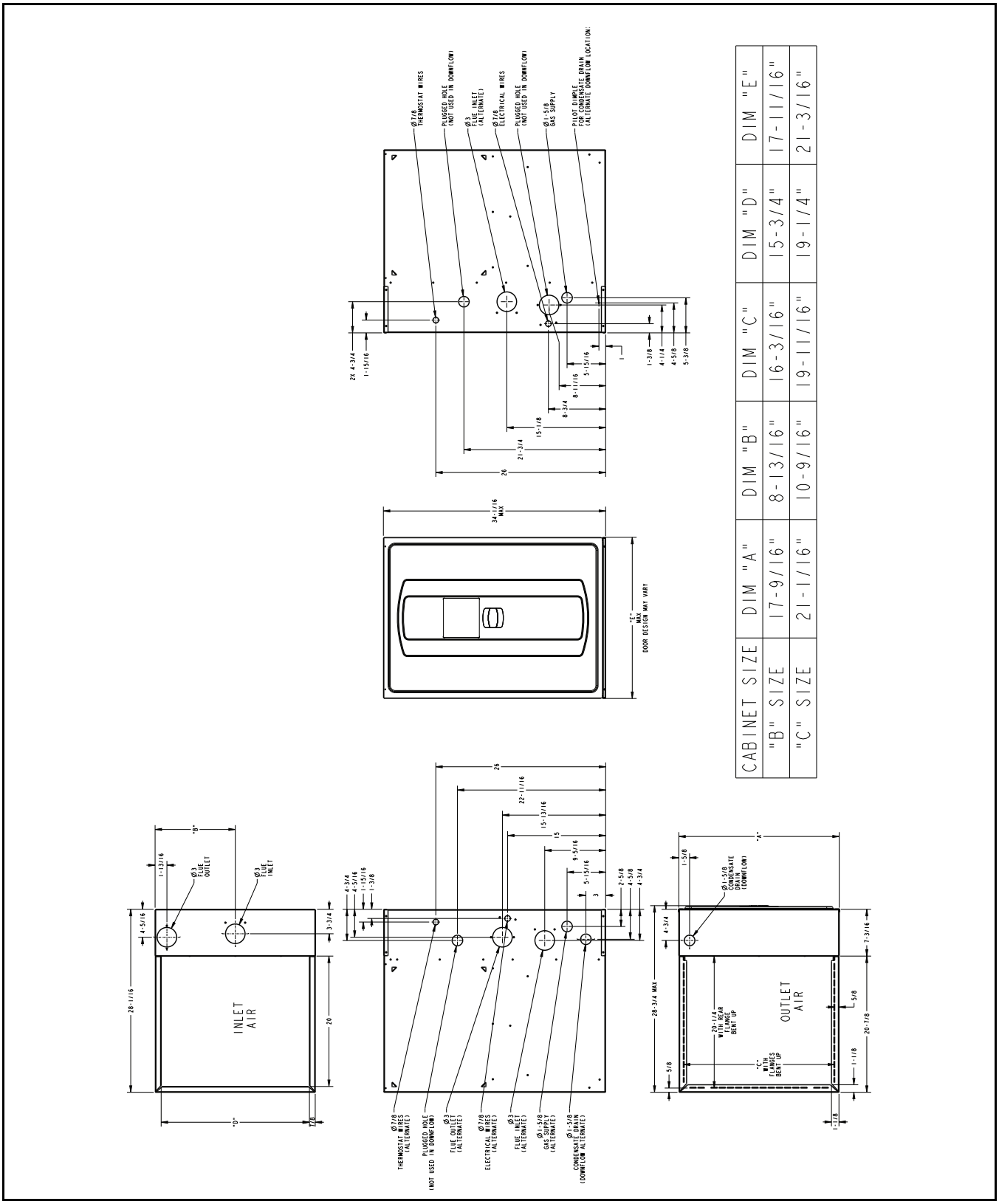
COIL REQUIREMENT!

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 **S9V2D120D5V-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	S9V2C120D5VSBB [a], [b]
Type	Downflow
RATINGS [c]	
1st Stage Input BTUH	78,000
1st Stage Capacity BTUH (ICS)	76,700
2nd Stage Input BTUH	120,000
2nd Stage Capacity BTUH (ICS) [d]	116,350
1st Stage Temp. Rise (Min. - Max.) °F	30 - 60
2nd Stage Temp. Rise (Min. - Max.) °F	35 - 65
AFUE (%)	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	1.19
FILTER - Furnished?	No
Type Recommended	High Velocity
Hi Vel. (No.-Size-Thk.)	1 - 20 X 25 - 1 in.

Model	S9V2C120D5VSBB [a], [b]
VENT OUTLET DIAMETER - MIN. (in.) [e]	3 Round
INLET AIR DIAMETER -MIN. (in.)	3 Round
HEAT EXCHANGER – Type	
Fired	409 Stainless Steel
Unfired	29-4C Stainless Steel
Gauge (Fired)	20
ORIFICES - Main	
Nat. Gas (Qty. - Drill Size)	6 - 45
Propane Gas (Qty. - Drill Size)	6 - 56
GAS VALVE	Redundant - Two Stage
PILOT SAFETY DEVICE – TYPE	120 V SiNi Igniter
BURNERS - TYPE - QTY	Inshot - 6
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 24-1/2 x 28-3/4
Crated (in.)	35-1/2 x 26-1/2 x 30-7/8
WEIGHT	
Shipping (Lbs.)/Net (Lbs.)	167/156

[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. S9V2D120D5VS Heating Airflow

S9V2D120D5VS Furnace Heating Airflow (CFM), Temp. Rise (°F), and Power (Watts) vs. External Static Pressure with Filter (iwc)								
				1st Stage Capacity = 76,700 2nd Stage Capacity = 116,350				
Heating	Airflow Setting	Target Airflow		External Static Pressure				
				0.1	0.3	0.5	0.7	0.9
Heating 1st Stage	Low	1260	CFM	1194	1195	1196	1197	1198
			Temp. Rise	59	59	59	59	59
			Watts	139	191	243	295	347
	Medium Low	1332	CFM	1271	1280	1289	1298	1307
			Temp. Rise	56	55	55	54	54
			Watts	160	214	268	322	376
	Medium	1404	CFM	1329	1331	1332	1334	1335
			Temp. Rise	53	53	53	53	54
			Watts	183	238	293	348	404
	High[a]	1620	CFM	1515	1560	1605	1649	1694
			Temp. Rise	46	45	45	44	43
			Watts	258	330	403	476	549
Heating 2nd Stage	Low	1750	CFM	1716	1715	1714	1714	1713
			Temp. Rise	63	63	63	63	63
			Watts	318	396	473	551	628
	Medium Low	1850	CFM	1814	1818	1823	1827	1831
			Temp. Rise	59	59	59	59	59
			Watts	374	453	533	612	691
	Medium	1950	CFM	1917	1904	1891	1877	1864
			Temp. Rise	56	57	57	57	58
			Watts	434	514	595	676	756
	High[a]	2250	CFM	2130	2140	2151	2162	2172
			Temp. Rise	51	50	50	50	49
			Watts	628	725	822	919	1016

[a] Factory Setting.

Table 3. S9V2D120D5VS Cooling Airflow

S9V2D120D5VS 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	1336 / 163	1346 / 221	1354 / 281	1360 / 341	1363 / 402
	420	CFM / WATTS	1248 / 137	1258 / 191	1265 / 247	1271 / 304	1274 / 361
	400	CFM / WATTS	1189 / 121	1199 / 173	1206 / 227	1211 / 281	1214 / 336
	370	CFM / WATTS	1102 / 100	1110 / 148	1116 / 198	1121 / 249	1123 / 301
	350	CFM / WATTS	1043 / 87	1051 / 133	1057 / 181	1060 / 230	1062 / 279
	330	CFM / WATTS	985 / 76	991 / 119	996 / 165	999 / 211	1000 / 259
	310	CFM / WATTS	927 / 65	932 / 107	936 / 150	937 / 195	938 / 241
	290	CFM / WATTS	869 / 56	872 / 95	874 / 136	875 / 179	875 / 223
3.5	450	CFM / WATTS	1559 / 244	1567 / 312	1574 / 381	1579 / 450	1583 / 519
	420	CFM / WATTS	1455 / 204	1464 / 267	1472 / 331	1477 / 396	1481 / 462
	400	CFM / WATTS	1386 / 179	1395 / 240	1403 / 301	1409 / 363	1413 / 426
	370	CFM / WATTS	1282 / 147	1292 / 203	1300 / 260	1305 / 318	1309 / 376
	350	CFM / WATTS	1214 / 127	1223 / 181	1231 / 235	1236 / 290	1239 / 346
	330	CFM / WATTS	1145 / 110	1154 / 160	1161 / 212	1166 / 265	1169 / 318
	310	CFM / WATTS	1077 / 94	1085 / 142	1092 / 191	1096 / 241	1098 / 292
	290	CFM / WATTS	1009 / 80	1016 / 125	1021 / 171	1025 / 219	1026 / 267
4.0	450	CFM / WATTS	1783 / 350	1789 / 427	1793 / 505	1796 / 584	1798 / 663
	420	CFM / WATTS	1663 / 290	1671 / 362	1677 / 436	1681 / 509	1683 / 583
	400	CFM / WATTS	1584 / 255	1592 / 324	1599 / 393	1603 / 464	1607 / 534
	370	CFM / WATTS	1465 / 207	1474 / 271	1481 / 336	1487 / 401	1491 / 467
	350	CFM / WATTS	1386 / 179	1395 / 240	1403 / 301	1409 / 363	1413 / 426
	330	CFM / WATTS	1307 / 154	1317 / 211	1324 / 269	1330 / 328	1334 / 388
	310	CFM / WATTS	1228 / 131	1238 / 185	1246 / 240	1251 / 296	1254 / 352
	290	CFM / WATTS	1150 / 111	1159 / 162	1166 / 214	1171 / 266	1174 / 320

Table 3. S9V2D120D5VS Cooling Airflow (continued)

S9V2D120D5VS 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	2238 / 646	2235 / 742	2230 / 840	2226 / 938	2220 / 1036
	420	CFM / WATTS	2086 / 533	2086 / 623	2085 / 714	2083 / 806	2080 / 897
	400	CFM / WATTS	1985 / 466	1987 / 552	1988 / 639	1988 / 726	1986 / 813
	370	CFM / WATTS	1834 / 377	1838 / 456	1842 / 536	1844 / 617	1845 / 698
	350 [a]	CFM / WATTS	1733 / 324	1740 / 399	1745 / 475	1748 / 552	1750 / 628
	330	CFM / WATTS	1633 / 277	1641 / 347	1647 / 419	1652 / 492	1655 / 564
	310	CFM / WATTS	1534 / 234	1543 / 301	1550 / 369	1555 / 437	1558 / 505
	290	CFM / WATTS	1435 / 196	1444 / 259	1452 / 322	1458 / 387	1461 / 451

[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: 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 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.

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Supersedes (New)