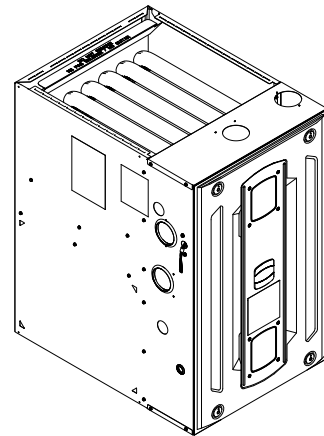


# Submittal

## Upflow/ Horizontal Left/Right Two Stage Condensing Gas Fired Furnace 120,000 BTUH

Upflow, Convertible to  
Horizontal Right or  
Horizontal Left  
S9X2D120U5PSBA



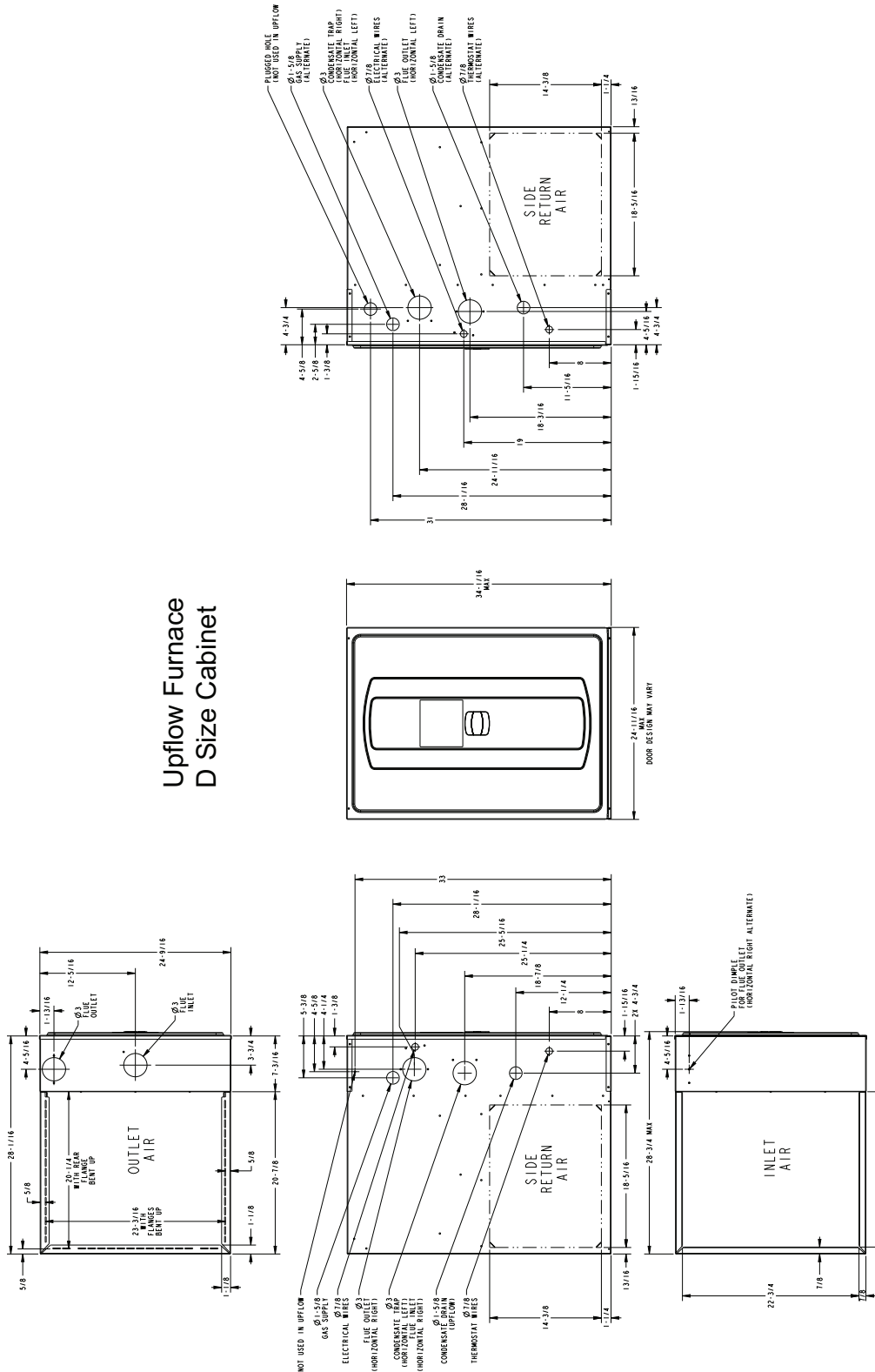
### CAUTION

#### COIL REQUIREMENT!

Failure to follow this Caution could result in property damage or personal injury. 4GXC\* and 4MXC\* 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.

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

**Table 1. 24.5" Upflow Cabinet**



# Product Specifications

| MODEL                                            | S9X2D120U5PSBA (a)        |
|--------------------------------------------------|---------------------------|
| <b>TYPE</b>                                      | Upflow/Horizontal         |
| <b>RATINGS (b)</b>                               |                           |
| 1st Stage Input BTUH (ICS)                       | 78,000                    |
| 1st Stage Capacity BTUH                          | 75,660                    |
| 2nd Stage Input BTUH                             | 120,000                   |
| 2nd Stage Capacity BTUH (ICS) (c) (d)            | 113,400                   |
| 1st Stage Temp. Rise (Min.-Max.)                 | 30 - 60                   |
| 2nd Stage Temp. Rise (Min.-Max.)                 | 40 - 70                   |
| AFUE (%)                                         | 96.0                      |
| Return Air Temp. (Min. - Max.)                   | 45°F - 80°F               |
| <b>BLOWER DRIVE</b>                              | DIRECT                    |
| Diameter — Width (In.)                           | 11 X 10                   |
| No. Used                                         | 1                         |
| Speeds (No.) (e)                                 | 9                         |
| CFM vs. in. w.g.                                 | See Fan Performance Table |
| Motor HP                                         | 1                         |
| RPM                                              | 1075                      |
| Volts/Ph/Hz                                      | 120 / 1 / 60              |
| FLA                                              | 10.6                      |
| <b>COMBUSTION FAN — Type</b>                     | Centrifugal               |
| Drive — No. Speeds                               | Direct - 2                |
| Motor HP — RPM                                   | 3300/2600                 |
| Volts/Ph/Hz                                      | 120 / 1 / 60              |
| FLA                                              | 0.66                      |
| <b>FILTER — Furnished?</b>                       | No                        |
| Type recommended                                 | High Velocity             |
| Hi Vel. (No.-Size-Thk.)                          | 1 — 24x25 — 1 in.         |
| <b>VENT PIPE DIAMETER — Min (in.)</b><br>(f) (g) | 3 Round                   |
| <b>HEAT EXCHANGER</b>                            |                           |

| MODEL                              | S9X2D120U5PSBA (a)       |
|------------------------------------|--------------------------|
| Type — Fired                       | 409 Stainless Steel      |
| — Unfired                          | 29-4C Stainless Steel    |
| Gauge (Fired)                      | 20                       |
| <b>ORIFICES — Main</b>             |                          |
| Nat. Gas Qty. — Drill Size         | 6 - 45                   |
| LP Gas Qty. — Drill Size           | 6- 56                    |
| <b>GAS VALVE</b>                   | Redundant - Two Stage    |
| <b>PILOT SAFETY DEVICE</b>         |                          |
| Type                               | 120 V SiNi Igniter       |
| <b>BURNERS — Type</b>              | Multiport Inshot         |
| Number                             | 6                        |
| <b>POWER CONN. — V/Ph/Hz (h)</b>   | 120 / 1 / 60             |
| Ampacity (In Amps)                 | 14.1                     |
| 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 24-1/2 x 28-3/4     |
| Crated (In.)                       | 35-1/2 x 26-1/2 x 30-7/8 |
| <b>WEIGHT</b>                      |                          |
| Shipping (Lbs.)/Net (Lbs.)         | 167/156                  |

(a) Meets Energy Star

(b) 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.

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

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

(e) 9 Speed constant torque ECM blower motor

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

(g) All S9X2 furnace models have a vent outlet diameter that equals 2 in.

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

# Airflow tables

| Furnace Airflow (CFM) Vs. External Static Pressure (in. W.C.) |     |       |      |      |      |      |      |
|---------------------------------------------------------------|-----|-------|------|------|------|------|------|
| Model                                                         | Tap |       | 0.1  | 0.3  | 0.5  | 0.7  | 0.9  |
| S9X2D120U5PSBA                                                | 1   | SCFM  | 707  | 443  | 179  | -    | -    |
|                                                               |     | Watts | 46   | 55   | 64   | -    | -    |
|                                                               | 2   | SCFM  | 1344 | 1218 | 1092 | 966  | 840  |
|                                                               |     | Watts | 163  | 183  | 202  | 222  | 241  |
|                                                               | 3   | SCFM  | 1532 | 1419 | 1307 | 1195 | 1083 |
|                                                               |     | Watts | 225  | 247  | 268  | 290  | 312  |
|                                                               | 4   | SCFM  | 1584 | 1477 | 1370 | 1263 | 1156 |
|                                                               |     | Watts | 247  | 270  | 292  | 315  | 338  |
|                                                               | 5   | SCFM  | 1915 | 1818 | 1722 | 1625 | 1529 |
|                                                               |     | Watts | 401  | 428  | 454  | 480  | 506  |
|                                                               | 6   | SCFM  | 2104 | 2016 | 1927 | 1839 | 1750 |
|                                                               |     | Watts | 525  | 553  | 582  | 610  | 639  |
|                                                               | 7   | SCFM  | 2132 | 2045 | 1958 | 1870 | 1783 |
|                                                               |     | Watts | 546  | 575  | 604  | 633  | 662  |
|                                                               | 8   | SCFM  | 2410 | 2328 | 2247 | 2165 | 2084 |
|                                                               |     | Watts | 833  | 868  | 903  | 937  | 972  |
|                                                               | 9   | SCFM  | 2472 | 2401 | 2329 | 2257 | 2186 |
|                                                               |     | Watts | 909  | 944  | 979  | 1013 | 1048 |

# CFM Versus Temperature Rise

**Table 2. 2nd Stage Heating Table — Upflow**

| CFM VS. 2ND STAGE TEMPERATURE RISE |                             |      |      |      |      |      |      |      |      |      |      |      |
|------------------------------------|-----------------------------|------|------|------|------|------|------|------|------|------|------|------|
| MODEL                              | CFM (CUBIC FEET PER MINUTE) |      |      |      |      |      |      |      |      |      |      |      |
|                                    | 1200                        | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 |
| S9X2D120U5PSBA                     |                             |      |      |      | 67   | 63   | 60   | 57   | 54   | 51   | 49   | 47   |

**Table 3. 1st Stage Heating Table — Upflow**

| CFM VS. 1ST STAGE TEMPERATURE RISE |                             |     |     |     |     |     |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------------------------|-----------------------------|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|------|------|
| MODEL                              | CFM (CUBIC FEET PER MINUTE) |     |     |     |     |     |      |      |      |      |      |      |      |      |      |      |      |      |
|                                    | 400                         | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 |
| S9X2D120U5PSBA                     |                             |     |     |     |     |     |      |      | 58   | 54   | 50   | 47   | 44   | 41   | 39   | 37   | 35   | 33   |

# 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 9 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

## **UP TO 96.0% AFUE ON S9X2 FURNACE 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

## **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 conversion 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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