

TECHNICAL SPECIFICATIONS FOR MODEL SCE

**INDOOR COMMERCIAL/INDUSTRIAL SEPARATED-COMBUSTION POWER-VENTED
PACKAGED GAS-FIRED DUCT FURNACE WITH BLOWER**



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In keeping with our policy of continuous product improvement, we reserve the right to alter, at any time, the design, construction, dimensions, weights, etc., of equipment information shown here.

TECHNICAL SPECIFICATIONS—CONTINUED

Unit Sizes

These packaged duct furnace/blower units are available in nine unit sizes based on 125,000–400,000 BTUh input.

Features

- Voltage/phase/Hz options: 115/1/60, 208/1/60, 230/1/60, 208/3/60, 230/3/60, 460/3/60, and 575/3/60
- Natural gas or propane
- 80% thermal efficient
- Intermittent spark pilot
- Corrosion-resistant Galvalume® cabinet
- Four threaded suspension couplings for 1-inch pipe hangers
- Separates combustion air from air in heated space
- Aluminized-steel burner with stainless steel insert
- Aluminized-steel heat exchanger (when inlet air temperature or temperature rise is <40°F, optional stainless steel heat exchanger is recommended)
- Fan control, high limit safety control, and differential air pressure switch to verify vent flow
- Power venter discharges exhaust air and draws in combustion air from outside (horizontal discharge and combustion air inlet openings)
- Open drip-proof blower motor with adjustable belt drive and internal overloads
- 24V control transformer (designed for field-connection to 24V thermostat for automatic operation)

Factory-Installed Options

Option	Description
AA1	Natural gas
AA2	Propane
AB1	Installation elevation of 0–2000 feet
AB2, AB3, AB4	Installation elevation of 2001–5000 feet (US installations derated 4%/1000 feet, Canadian installations derated 10% of maximum input)
AB5, AB6, AB7, AB8	Installation elevation of 5001–9000 feet (US installations derated 4%/1000 feet)
AC1	Aluminized-steel heat exchanger
AC2	409 stainless steel heat exchanger
AD1	Aluminized-steel burner
AD2	409 stainless steel burner
AE1	No burner air shutters
AE2	Burner air shutters (required on propane units)
AF1	Aluminized-steel drip pan/bottom panel
AF2	409 stainless steel drip pan/bottom panel
AG1	Single-stage combination gas valve
AG2	Two-stage combination gas valve
AG3	Two-stage combination gas valve with unit-mounted ductstat
AG8	Electronic modulation with 55–90°F ductstat
AG15	Two-stage combination gas valve with ductstat and remote 0–130°F temperature selector
AG21	Electronic modulation with 2:1 turndown ratio and Maxitrol signal conditioner and gas regulator
AG39	Electronic modulation with 4:1 turndown ratio (remote 0–130°F temperature selector is shipped separate)
AG40	Electronic modulation with 4:1 turndown ratio and DDC interface (natural gas units)
AH2	Intermittent spark pilot
AH3	Intermittent spark pilot with timed lockout (required on propane units)
AJ1	Left side controls (facing airstream)
AJ2	Right side controls (facing airstream)
AK1	115/1/60 voltage
AK2	208/1/60 voltage
AK3	230/1/60 voltage
AK5	208/3/60 voltage
AK6	230/3/60 voltage
AK7	460/3/60 voltage

Option	Description
AK8	575/3/60 voltage
AL2–AL10	1/4- to 5-HP open drip-proof motors
AL21–AL26	1/2- to 3-HP totally-enclosed motors
AM2–AM24	451- to 1600-RPM belt drives
AN2	Motor contactor
AN10	Motor starter
AR5	Insulated cabinet with horizontal inlet and duct flange
AR8	100% outside air hood with motorized damper
AR15	Modulating outside air and return air mixing damper with temperature control
AR17	Alternating 100% outside air or 100% return air damper
AR18	Modulating 100% outside air and return air mixing damper with remote potentiometer
AR25	Modulating 100% outside air and return air mixing damper with DDC control
AW7, AW9, AW11, AW40	Various filter rack options
AY2	Blower cabinet insulation
BD2	Firestat, 200°F
BE2	Adjustable, automatic-reset discharge temperature low limit control with time delay relay
BG2, BG7A, BG9	Various relay options
BP4	High- and low-pressure gas pressure safety switches
BW1	Air flow pressure proving switch
BY1	US installation rating plate
CGA	Canadian installation rating plate
DR2	V-belts for belt-drive blower motor
DR4	Linked belts for belt-drive blower motor
VFD2	Variable frequency drive
VFCA, VFCA, VFCB, VFC2	Variable frequency drive controls

Field-Installed Options

Option	Description
AG7	Electronic modulation (room thermostat is shipped separate)
AG9	Electronic modulation with 55–90°F ductstat (remote 0–130°F temperature selector is shipped separate)
CC2	Vertical vent terminal kit
CC6	Horizontal vent terminal kit
CE1	Manual shutoff valve, natural gas
CE2	Manual shutoff valve, propane
CL1	Single-stage thermostat
CL9	Electronic modulating room override
CL22	Two-stage thermostat
CL33	Two-stage digital thermostat
CL36	Modulating thermostat
CM1	Locking thermostat cover
CM1B	Large locking thermostat cover
CP1, CP2, CP3, CP4	Disconnect switches (US only)
CP41, CP58	Disconnect switch (Canada only)
CS1	Condensate drain kit
SA1	Photoelectric air duct smoke detector

Certification

- This unit is design-certified to ANSI and CSA standards by the Canadian Standards Association. All models are approved for installation in the United States and in Canada. All furnaces are approved for use with either natural gas or propane. The type of gas for which the furnace is equipped and the correct firing rate are shown on the rating plate attached to the unit. Electrical characteristics are shown on the unit rating plate.
- These gas-fired products are certified by ANSI Z83 family of standards governing the safe usage of heating equipment in the industrial/commercial marketplace. This includes using the heaters in makeup air applications to supply corridor pressurization in commercial buildings such as office structures and apartment complexes.
- The heaters are not certified as residential heating equipment and should not be used as such.

TECHNICAL SPECIFICATIONS—CONTINUED

Technical Data

Parameter	Unit of Measure	Unit Size (MBTUh)								
		125	150	175	200	225	250	300	350	400
Input heating capacity	BTU/h	125,000	150,000	175,000	200,000	225,000	250,000	300,000	350,000	400,000
	kW	36.6	44.0	51.3	58.6	65.9	73.3	87.9	102.6	117.2
Output heating capacity (80%)	BTU/h	100,000	120,000	140,000	160,000	180,000	200,000	240,000	280,000	320,000
	kW	29.3	35.2	41.0	46.9	52.8	58.6	70.3	82.1	93.8
Air volume	CFM	1000–3000	1230–3700	1400–4210	1640–4935	1800–5150	2050–5800	2400–6300	2800–6800	3200–7100
	meter ³ /hr	1699–5097	2090–6286	2379–7153	2786–8384	3058–8750	3483–9854	4077–10,703	4757–11,553	5437–12,063

Parameter	Unit of Measure	Unit Size (MBTUh)					
		125	150, 175	200, 225	250	300	350
1- or 2-inch filter size (quantity)	inch	20 × 20 (2)	20 × 25 (2)	16 × 20 (2)	20 × 20 (2)		20 × 20 (1)
Gas connection, natural gas				16 × 25 (2)	20 × 25 (2)		20 × 25 (3)
Gas connection, propane		1/2					3/4
Maximum vent length, 6-inch pipe	foot	50					30
Maximum vent length, 7-inch pipe		—				70	
Full load amps (115V, less motor)	amp	1.9					
Unit control amps (24V)		0.95					

Installation Codes

- These units must be installed in accordance with local building codes. In the absence of local codes, in the United States, the unit must be installed in accordance with the *National Fuel Gas Code* (NFPA 54/ANSI Z223.1, latest edition). A Canadian installation must be in accordance with the *Natural Gas and Propane Installation Code* (CSA B149, latest edition). This code is available from CSA Information Services, 1-800-463-6727. Local authorities having jurisdiction should be consulted before installation is made to verify local codes and installation procedure requirements.
- Installations in aircraft hangars should be in accordance with the *Standard for Aircraft Hangars* (ANSI/NFPA 409, latest edition). Installations in public garages should be in accordance with the *Standard for Parking Structures* (ANSI/NFPA 88A, latest edition). Installations in repair garages should be in accordance with the *Standard for Repair Garages* (NFPA 88B), which has been incorporated into the *Code for Motor Fuel Dispensing Facilities and Repair Garages* (NFPA 30A, latest edition). In Canada, installations in aircraft hangars and public garages should be in accordance with CSA B149.
- Clearances from the heater and vent to combustible construction or material in storage must conform with the *National Fuel Gas Code* (NFPA 54/ANSI Z223.1, latest edition) pertaining to gas-burning devices, and such material must not attain a temperature over 160°F (71°C) by continued operation of the heater.
- If the heater is being installed in the Commonwealth of Massachusetts, installation must be performed by a licensed plumber or licensed gas fitter.

Separated Combustion

Separated-combustion units are designed to separate air for combustion and flue products from the environment of the building in which the unit is installed. Separated-combustion appliances are recommended for use in dust-laden and some corrosive-fume environments. As the definition states, all separated-combustion, power-vented equipment must be equipped with both combustion-air and exhaust piping to the outdoors. This separated-combustion unit is designed and manufactured in accordance with the ANSI definition of separated combustion, which reads:

Separated Combustion System Appliance: A system consisting of an appliance and a vent cap(s) supplied by the manufacturer, and (1) combustion air connections between the appliance and the outside atmosphere, and (2) flue gas connections between the appliance and vent cap, of a type(s) specified by the manufacturer but supplied by the installer, constructed so that, when installed in accordance with the manufacturer's instructions, air for combustion is obtained from the outside atmosphere and flue gases are discharged to the outside atmosphere.

Halogenated Hydrocarbons

Halogenated hydrocarbons are a family of chemical compounds characterized by the presence of halogen elements (fluorine, chlorine, bromine, etc.). These compounds are used in refrigerants, cleaning agents, and solvents and are heavier than air, a fact that should be kept in mind when determining the installation location of heaters and building exhaust systems.

WARNING

SCE separated-combustion units are not designed or approved for use in atmospheres containing flammable vapors or atmospheres highly-laden with chlorinated vapors.

CAUTION

CORROSION HAZARD: Halogenated hydrocarbons, when exposed to flame, precipitate with any condensation present in the heater to form hydrochloric acid, which readily attacks all metals, including 300 grade stainless steel. Care should be taken to separate these vapors from the combustion process. An outside air supply **MUST BE** provided to the burner whenever the presence of these compounds is suspected.

Unit Location

CAUTION

Do not locate the unit where it may be exposed to water spray, rain, or dripping water.

A duct furnace is designed for connection to an inlet and an outlet duct and depends on an external air handler. The location must comply with the [Clearances](#) section. There are a variety of factors, such as system application, building structure, dimensions, and weight, that contribute to selecting the location. Read the installation manual and select a location that complies with the requirements.

Venting/Combustion Air Requirements

WARNING

Do not use an existing venting system. This heater requires installation of the combustion air/vent system ordered with the unit (either option CC2 or CC6). Vent installation to be any listed vent system manufacturer. Do not intermix different vent system parts from different manufacturers in the same venting system.

- All separated-combustion, power-vented units **MUST BE** equipped with both combustion air and exhaust piping to the outdoors. The unique concentric adapter box designed for use with this heater allows for both combustion air and exhaust piping with only one horizontal or vertical penetration hole in the building.
- Refer to the installation, operation, and maintenance manual provided with the unit for further information on venting/combustion air requirements.

Ductwork Requirements

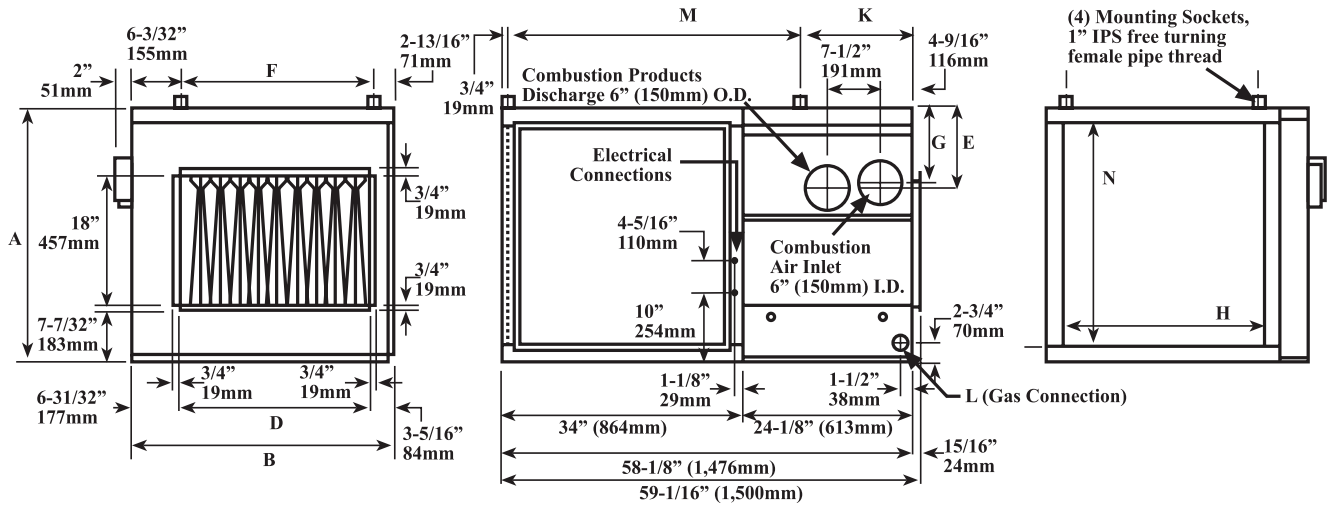
CAUTION

- **To prevent possible motor overloading, ensure that the external duct system static pressure is within the limits shown on the rating plate and that the motor pulley and belt are properly adjusted.**
- **The joint where the supply air duct attaches to the furnace must be sealed securely to prevent air leakage into draft hood or burner rack area. Leakage can cause poor combustion and pilot problems, can shorten heat exchanger life, and can cause poor performance.**

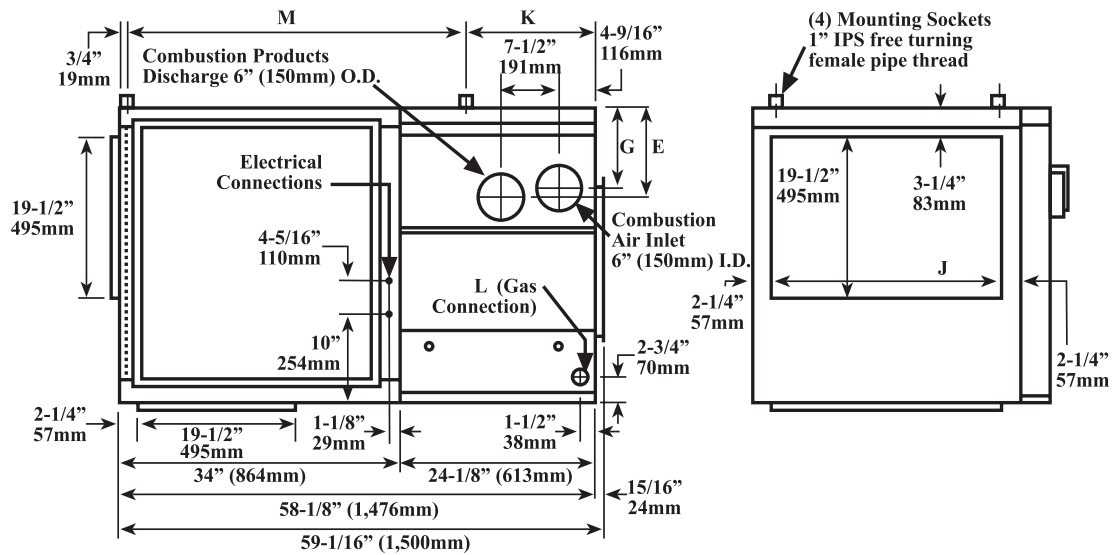
Refer to the installation, operation, and maintenance manual provided with the unit for further information on ductwork requirements.

TECHNICAL SPECIFICATIONS—CONTINUED

Dimensions



STANDARD MODEL SCE



MODEL SCE WITH OPTIONAL HORIZONTAL INLET WITH DUCT FLANGES

Dimension (See Graphic Above)	Unit Size (MBTUh)						
	125	150, 175	200, 225	250	300	350	400
	Inches (mm)						
A	32-1/4 (819)		35-1/4 (895)				
B	25-1/4 (641)	30-3/4 (781)	36-1/4 (921)	43-1/2 (1105)	44-1/2 (1130)	50 (1270)	55-1/2 (1410)
D	15-1/4 (387)	20-3/4 (527)	26-1/4 (667)	33-1/2 (851)	34-1/2 (876)	40 (1016)	45-1/2 (1156)
E	8-1/8 (206)		10-3/4 (273)	9-3/4 (248)	10-3/4 (273)		
F	16-1/4 (413)	21-3/4 (552)	27-1/4 (692)	34-1/2 (876)	35-1/2 (902)	41 (1041)	46-1/2 (1181)
G	7 (178)		10 (254)	9 (229)	10 (254)		
H	17-3/4 (451)	23-1/4 (591)	28-3/4 (730)	36 (914)	37 (940)	42-1/2 (1080)	48 (1219)
J	17-3/8 (441)	22-7/8 (581)	28-3/8 (721)	35-5/8 (905)	38-5/8 (930)	42-1/8 (1070)	47-5/8 (1210)
K	17 (432)	18-3/8 (467)	17 (432)	16 (406)	17 (432)	18-3/8 (467)	17 (432)
L	1/2 (13)				3/4 (19)		
M	40-1/4 (1022)	39 (991)	40-1/4 (1022)	39-1/4 (997)	40-1/4 (1022)	39 (991)	40-1/4 (1022)
N	27-3/4 (705)		30-3/4 (781)				

Weights

Type	Unit Size (MBTUh)					
	125	150, 175	200, 225	250, 300	350	400
	Pounds (kg)					
Unit	313 (142)	358 (162)	382 (173)	482 (219)	498 (226)	560 (254)
Shipping	375 (170)	440 (200)	520 (236)	645 (293)	695 (315)	716 (325)

Clearances

Clearance to combustibles is defined as the minimum distance—from the heater to a surface or object—that is necessary to ensure that a surface temperature of 90°F (50°C) above the surrounding ambient temperature is not exceeded. For safety, adequate combustion air, and convenient installation and service, ensure that clearances are as follows:

Unit Surface	Minimum Clearance (Inches (mm))
Top	6 (152)
Control side	6 (152) + width of unit
Side opposite controls	6 (152)
Bottom, to combustibles	6 (152)
Bottom, to noncombustibles	0 (0)

Gas Supply Pressure

- The unit is equipped for a maximum gas supply pressure of 1/2 psi, 3.5 kPa, or 14 IN WC for natural gas or propane. The minimum supply pressure, as measured while the unit is operating at full fire, is 5 IN WC (6 IN WC for unit sizes 350 and 400 with electronic modulation) for natural gas or 11 IN WC for propane.
- Supply pressure higher than 1/2 psi requires the installation of an additional service regulator external to the unit.
- Pressure testing supply piping:** For test pressures **above** 1/2 psi, disconnect the heater and manual valve from the gas supply line to be tested and cap or plug the supply line. For test pressures **below** 1/2 psi, before testing, close the manual valve on the heater.

Gas Supply Piping

- The heater is orificed for operation with natural gas having a heating value of 1,000 (±50) BTU per cubic foot or with propane gas having a heating value of 2,550 (±100) BTU per cubic foot. Sizing of gas supply lines depends on piping capacity and is based on cubic feet per hour based on a 0.3 IN WC pressure drop, a 0.6 specific gravity for natural gas at 1,000 BTU per cubic feet, and a 1.6 specific gravity for propane at 2,550 BTU per cubic feet. If the gas at the installation does not meet this specification, consult the factory for proper orificing.
- Variables for sizing gas supply lines are listed below. When sizing supply lines, consider the possibility of future expansion and increased requirements. Refer to the *National Fuel Gas Code* for additional information on line sizing.

Pipe Length (Feet)	Natural Gas						Propane					
	Pipe Diameter (Inches)											
	1/2	3/4	1	1-1/4	1-1/2	2	1/2	3/4	1	1-1/4	1-1/2	2
	Cubic Feet per Hour											
20	92	190	350	730	1100	2100	56	116	214	445	671	1281
30	73	152	285	590	890	1650	45	93	174	360	543	1007
40	63	130	245	500	760	1450	38	79	149	305	464	885
50	56	115	215	440	670	1270	34	70	131	268	409	775
60	50	105	195	400	610	1105	31	64	119	244	372	674
70	46	96	180	370	560	1050	28	59	110	226	342	641
80	43	90	170	350	530	990	26	55	104	214	323	604
90	40	84	160	320	490	930	24	51	98	195	299	567
100	38	79	150	305	460	870	23	48	92	186	281	531
125	34	72	130	275	410	780	21	44	79	168	250	476
150	31	64	120	250	380	710	19	39	73	153	232	433
175	28	59	110	225	350	650	17	36	67	137	214	397
200	26	55	100	210	320	610	16	34	61	128	195	372

⚠ DANGER ⚠

FIRE OR EXPLOSION HAZARD

- Failure to follow safety warnings exactly could result in serious injury, death, or property damage.
- Improper installation, adjustment, alteration, service, or maintenance can cause serious injury, death, or property damage.
- Installation and service must be performed by a qualified installer, service agency, or the gas supplier.
- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

WHAT TO DO IF YOU SMELL GAS

- Do not try to light any appliance.
- Do not touch any electrical switch; do not use any phone in your building.
- Leave the building immediately.
- Immediately call your gas supplier from a phone remote from the building. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

For more information on Reznor HVAC products:

- **Contact your local Reznor representative at 1-800-695-1901**
- **Refer to the manuals and additional consumer materials found at www.reznorhvac.com**

