REZNOR®

Revision: UDZ-TSL (04-26) REV-D

Supersedes: UDZ-TSL (10-23) REV-C

TECHNICAL SPECIFICATIONS FOR MODEL UDZ

GAS-FIRED, SEPARATED-COMBUSTION, LOW-STATIC AXIAL FAN, COMMERCIAL/INDUSTRIAL/RESIDENTIAL, 82–83% THERMAL EFFICIENT UNIT HEATER



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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 heaters are available in fourteen unit sizes based on 30,000–400,000 BTUh input.

Features

- 115/1/60 supply
- Integrated circuit board with seven-segment display
- Easily-viewed status-indicating LED
- Hinged access door panel with quarter-turn latch
- Improved cabinet design with removable front face
- Two-toned black and white glossy, scratch-resistant paint scheme
- Patented single-burner combustion system
- Natural gas or propane
- 50–60°F temperature rise
- TCORE²® titanium-stabilized aluminized-steel heat exchanger
- External terminal strip for 24V wiring
- Built in disconnect switch
- Four-point suspension standard on all unit sizes (two-point suspension available on unit sizes 030–125 when installed without downturn nozzle or stepdown transformer)

Factory-Installed Options

Option	Description
AA1	Natural gas
AA2	Propane
AC1	Aluminized-steel heat exchanger
AC2	409 SST heat exchanger
AC4	316 SST heat exchanger
AG1	Single-stage combination gas valve
AG2	Two-stage combination gas valve
AK1	115/1/60 voltage
AL1	Open drip-proof motor
AL14	Totally-enclosed motor

Field-Installed Options

Option	Description
CC2	Vertical vent terminal/combustion air kit
CC6	Horizontal vent terminal/combustion air kit
CD1	Vertical louvers, direct discharge air to provide wider throw pattern
CD2	Downturn nozzle, 25- to 65-degree variable air deflection range
CD3	Downturn nozzle, 50- to 90-degree variable air deflection range
CD4	Downturn nozzle, 25- to 65-degree variable air deflection range with vertical louvers
CE1	Manual shutoff valve, natural gas or propane
CG1	208V–115V stepdown transformer
CG2	230V–115V stepdown transformer
CG4	460V–115V stepdown transformer
CK8	Adapts 3/8-inch hangers for two-point suspension from 1-inch threaded pipe
CK10	Adapts 3/8-inch hangers for four-point suspension from 1-inch threaded pipe
CK22	Angle brackets for low ceiling mounting (does not include hanger rods)
CL1	Single-stage thermostat
CL22	Two-stage thermostat

Option	Description
CL31, CL32	Multiple fan control: option CL31 includes components for one control unit and one additional unit—option CL32 includes components for each additional non-control unit
CM1	Locking cover for CL1 thermostat
CM1B	Locking cover for CL22 thermostat
CM3	Bracket assembly for mounting thermostat on unit
DJ20	High-elevation conversion
DL2	Propane conversion

Technical Data

Parameter	Unit of Measure	Unit Size					
		030	045	060	075	100	125
Input heating capacity	BTUh	30,000	45,000	60,000	75,000	105,000	120,000
	kW	8.8	13.2	17.6	22.0	30.8	35.2
Thermal efficiency	%	82	83	83		83	
Output heating capacity*	BTUh	24,600	37,350	49,800	62,250	87,150	99,600
	kW	7.2	10.9	14.6	18.2	25.5	29.2
Gas connection, natural gas**	inch	1/2					
Gas connection, propane**							
Vent connection diameter***		4					
Combustion air inlet diameter***							
Control, 24V	amp	1.0					
Full load amps, 115V		1.9	2.4	2.4	3.7	4.3	5.6
Maximum overcurrent protection, 115V†		15					
Normal power consumption	watt	109	155	155	228	292	370
Discharge air temperature rise	°F	50	55	60		60	
Air volume	CFM	456	629	769	961	1345	1537
	meter^3/minute	12.9	17.8	21.8	27.5	36.7	45.9
Discharge air opening area	feet^2	0.96		1.25		2.01	
	meter^2	0.09		0.12		0.19	
Output velocity	FPM	475	656	616	770	668	763
	meter/minute	145	200	188	235	204	233
Open fan motor size	HP	0.02	0.03	0.03	0.06	1/30	1/20
Totally-enclosed fan motor size		0.06		0.06		1/4	
Fan motor speed	RPM	1550		1550		1050	
Fan diameter	inch	10		12		16	
Sound level @ 15 feet	dBa	40		40	49	54	55
*ETL ratings for elevations up to 2,000 feet.							
**Size shown is for gas connection to a single-stage gas valve—not supply line size.							
***Smaller and/or larger vent and combustion air pipe diameters may be permissible (refer to appropriate venting instructions).							
†MOCP = 2.25 × (largest motor FLA) + smallest motor FLA. Answer is rounded to the next lower standard circuit breaker size.							

Parameter	Unit of Measure	Unit Size							
		150	175	200	225	250	300	350	400
Input heating capacity	BTUh	150,000	175,000	200,000	225,000	250,000	300,000	350,000	400,000
	kW	44.0	51.3	58.6	65.9	73.3	87.9	102.6	117.2
Thermal efficiency	%	83							
Output heating capacity*	BTUh	124,500	145,250	166,000	186,750	207,500	249,000	290,500	332,000
	kW	36.5	42.6	48.7	54.7	60.8	73.0	85.1	97.3
Gas connection, natural gas**	inch	1/2			3/4	3/4			
Gas connection, propane**									
Vent connection diameter***		5				5	6		
Combustion air inlet diameter***		6				6			
*ETL ratings for elevations up to 2,000 feet.									
**Size shown is for gas connection to a single-stage gas valve—not supply line size.									
***Smaller and/or larger vent and combustion air pipe diameters may be permissible (refer to appropriate venting instructions).									

Technical Data—Continued

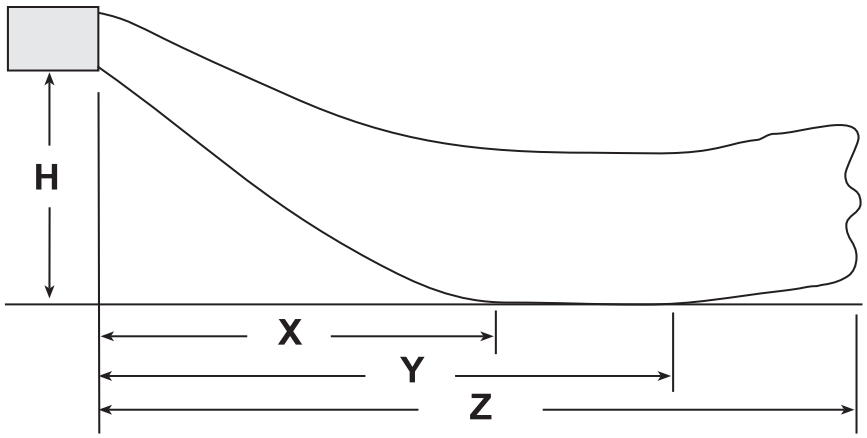
Parameter	Unit of Measure	Unit Size							
		150	175	200	225	250	300	350	400
Control, 24V	amp	1.0							
Full load amps, 115V		3.8		4.6	7.5	7.5	11.0		
Maximum overcurrent protection, 115V†		15				15	20		
Normal power consumption	watt	392		491	747	747	1086		
Discharge air temperature rise	°F	60							
Air volume	CFM	1921	2242	2562	2882	3202	3843	4483	5123
	meter^3/minute	54.4	63.5	72.5	81.6	90.7	108.8	126.9	145.1
Discharge air opening area	feet^2	2.56			3.51	3.51	4.79		
	meter^2	0.24			0.33	0.33	0.45		
Output velocity	FPM	752	877	1003	820	911	802	936	1069
	meter/minute	229	267	306	250	278	244	285	326
Open fan motor size	HP	1/6			1/4	1/4	1/2		
Totally-enclosed fan motor size		1/4							
Fan motor speed	RPM	1050							
Fan diameter	inch	18			20	20	24		
Sound level @ 15 feet	dBa	51	52	53	56	56	59	61	62
†MOCP = 2.25 × (largest motor FLA) + smallest motor FLA. Answer is rounded to the next lower standard circuit breaker size.									

Certification

These unit heaters are listed by Intertek for use in industrial and commercial installations in the United States and Canada. In addition, unit sizes 030, 045, 060, 075, 100, and 125 are listed in the United States and Canada as utility heaters for use in non-living spaces that are attached to, adjacent to, or part of a structure that contains space for family living quarters.

Heater Throw Distances with Standard Horizontal Louvers

The graphic shows throw patterns and the table lists throw distances for heaters suspended at varying mounting heights. The louver angles listed are relative to the top of the heater.



H = Distance from bottom of heater to the floor
X = Distance from heater to start of floor coverage
Y = Distance to end of floor coverage
Z = Distance at which air velocity drops below 50 feet (15.2 meters) per minute

H* (Feet (Meters))	Distance* or Angle	Unit Size						
		030	045	060	075	100	125	150
		Feet (Meters)						
5 (1.5)	X	6 (1.8)	7 (2.1)	8 (2.4)	9 (2.7)	9 (2.7)	10 (3.0)	—
	Y	14 (4.3)	16 (4.9)	18 (5.5)	20 (6.1)	20 (6.1)	22 (6.7)	
	Z	30 (9.1)	40 (12.2)	45 (13.8)	57 (17.4)	59 (18.0)	65 (19.9)	
	Downward louver angle	21°	20°	16°	14°	18°	14°	
8 (2.4)	X	7 (2.1)	9 (2.7)	10 (3.0)	12 (3.7)	11 (3.4)	12 (3.7)	13 (4.0)
	Y	13 (4.0)	16 (4.9)	18 (5.5)	22 (6.7)	21 (6.4)	23 (7.0)	24 (7.3)
	Z	26 (7.9)	37 (11.3)	42 (12.8)	54 (16.5)	56 (17.1)	63 (19.2)	73 (22.3)
	Downward louver angle	39°	34°	29°	25°	28°	24°	26°
10 (3.0)	X	6 (1.8)	9 (2.7)	10 (3.0)	12 (3.7)	12 (3.7)	13 (4.0)	14 (4.3)
	Y	11 (3.4)	15 (4.6)	17 (5.2)	22 (6.7)	20 (6.1)	24 (7.3)	24 (7.3)
	Z	22 (6.7)	33 (10.0)	39 (11.9)	52 (15.8)	52 (15.8)	60 (18.3)	69 (21.0)
	Downward louver angle	52°	43°	37°	32°	36°	30°	32°
12 (3.7)	X	—	8 (2.4)	10 (3.0)	12 (3.7)	11 (3.4)	14 (4.3)	14 (4.3)
	Y		12 (3.7)	16 (4.9)	21 (6.4)	19 (5.8)	23 (7.0)	24 (7.3)
	Z		27 (8.2)	34 (10.4)	48 (14.6)	47 (14.3)	57 (17.4)	64 (19.5)
	Downward louver angle		55°	46°	39°	44°	36°	39°
14 (4.3)	X	—		9 (2.7)	12 (3.7)	11 (3.4)	14 (4.3)	14 (4.3)
	Y			14 (4.3)	19 (5.8)	17 (5.2)	22 (6.7)	22 (6.7)
	Z			29 (8.8)	44 (13.4)	42 (12.8)	53 (16.1)	59 (18.0)
	Downward louver angle			56°	46°	51°	43°	45°
16 (4.9)	X	—			11 (3.4)	10 (3.0)	13 (4.0)	13 (4.0)
	Y				17 (5.2)	14 (4.3)	20 (6.1)	20 (6.1)
	Z				38 (11.6)	34 (10.4)	47 (14.3)	53 (16.2)
	Downward louver angle				54°	58°	50°	51°
18 (5.5)	X	—					11 (3.4)	11 (3.4)
	Y						17 (5.2)	17 (5.2)
	Z						40 (12.2)	44 (13.4)
	Downward louver angle						57°	58°
H* (Feet (Meters))	Distance* or Angle	Unit Size						
		175	200	225	250	300	350	400
		Feet (Meters)						
8 (2.4)	X	15 (4.6)	16 (4.9)	14 (4.3)	16 (4.9)	15 (4.6)	17 (5.2)	18 (5.5)
	Y	28 (8.5)	30 (9.1)	27 (8.2)	29 (8.8)	28 (8.5)	31 (9.4)	34 (11.3)
	Z	90 (27.4)	93 (28.0)	86 (26.2)	93 28.3	94 (28.7)	105 (32.0)	113 (34.4)
	Downward louver angle	22°	20°	24°	21°	24°	20°	17°
10 (3.0)	X	17 (5.2)	17 (5.2)	15 (4.6)	17 (5.2)	16 (4.9)	18 (5.5)	20 (6.1)
	Y	29 (8.8)	31 (9.4)	27 (8.2)	30 (9.1)	28 (8.5)	32 (9.8)	35 (10.7)
	Z	87 (26.6)	91 (27.7)	82 (25.0)	90 27.4	89 (27.1)	103 (31.4)	110 (33.5)
	Downward louver angle	27°	25°	30°	26°	29°	25°	21°
12 (3.7)	X	18 (5.5)	18 (5.5)	16 (4.9)	18 (5.5)	17 (5.2)	19 (5.8)	21 (6.4)
	Y	29 (8.8)	31 (9.4)	27 (8.2)	30 (9.1)	28 (8.5)	32 (9.8)	36 (11.0)
	Z	84 (25.6)	88 (26.8)	78 (23.8)	87 26.5	85 (25.9)	98 (29.9)	108 (32.9)
	Downward louver angle	32°	30°	35°	31°	34°	30°	25°
14 (4.3)	X	18 (5.5)	19 (5.8)	16 (4.9)	18 (5.5)	17 (5.2)	20 (6.1)	23 (7.0)
	Y	28 (8.5)	30 (9.1)	26 (7.9)	30 (9.1)	27 (8.2)	32 (9.8)	35 (10.7)
	Z	79 (24.1)	84 (25.6)	73 (22.3)	83 25.3	80 (24.4)	95 (29.0)	105 (32.0)
	Downward louver angle	37°	34°	41°	36°	40°	34°	29°
16 (4.9)	X	18 (5.5)	19 (5.8)	16 (4.9)	19 (5.8)	17 (5.2)	21 (6.4)	23 (7.0)
	Y	27 (8.2)	29 (8.8)	24 (7.3)	28 (8.5)	25 (7.6)	31 (9.4)	35 (10.7)
	Z	74 (22.6)	79 (24.1)	67 (20.4)	78 23.8	74 (22.6)	90 (27.4)	101 (30.8)
	Downward louver angle	42°	39°	47°	41°	45°	38°	33°
18 (5.5)	X	17 (5.2)	19 (5.8)	14 (4.3)	18 (5.5)	16 (4.9)	20 (6.1)	23 (7.0)
	Y	26 (7.9)	28 (8.5)	22 (6.7)	27 (8.2)	24 (7.3)	30 (9.1)	35 (10.7)
	Z	68 (20.7)	74 (22.6)	60 (18.3)	72 (21.9)	66 (20.1)	85 (25.9)	97 (26.9)
	Downward louver angle	48°	44°	53°	46°	51°	43°	37°

*See graphic above.

Hazards of Chlorine

The presence of chlorine vapors in the combustion air of gas-fired heating equipment presents a potential corrosion hazard for separated-combustion heaters with regard to the combustion air inlet. Chlorine is usually found in the form of freon or degreaser vapors. When chlorine is exposed to flame, it will precipitate from the compound and go into solution with any condensation that is present in the heat exchanger or associated parts. The result is hydrochloric acid, which readily attacks all metals including 300 grade stainless steel. Care should be taken to separate these vapors from the combustion process. This may be done by wise location of the unit vent and combustion air terminals with regard to exhausters or prevailing wind directions. Chlorine is heavier than air. Keep these facts in mind when determining installation location of the heater in relation to building exhaust systems.

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*, ANSI Z223.1. A Canadian installation must be in accordance with the CSA B149 *Natural Gas and Propane Installation Code*. 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 ANSI/NFPA No. 409 (latest edition), *Standard for Aircraft Hangars*. Installations in public garages should be in accordance with ANSI/NFPA No. 88A (latest edition), *Standard for Parking Structures*. Installations in repair garages should be in accordance with ANSI/NFPA No. 88B (latest edition), *Standard for Repair Garages*. In Canada, installations in aircraft hangars should be in accordance with the requirements of the enforcing authorities, and in public garages, in accordance with the CSA B149 code.
- If the heater is being installed in the Commonwealth of Massachusetts, installation must be performed by a licensed plumber or licensed gas fitter.

Clearances

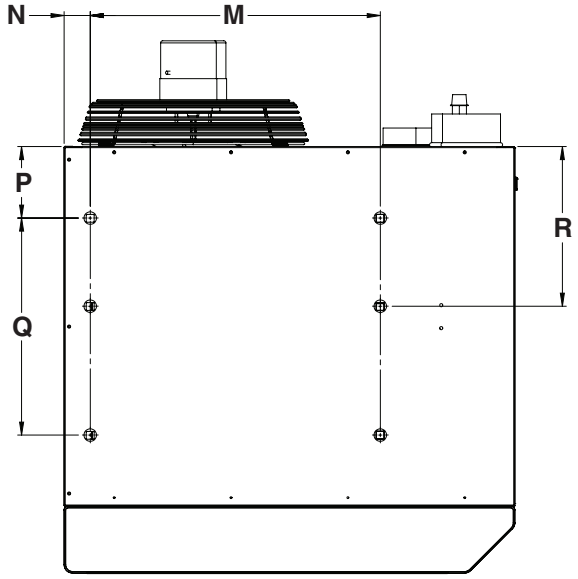
Units must be located so that clearances are provided for with regards to combustion air space, inspection, and service and for proper spacing from combustible construction. Clearance to combustibles is defined as the minimum distance from the heater to a surface or object for which it is necessary to ensure that a surface temperature of 90°F (50°C) above the surrounding ambient temperature is not exceeded.

Heater Surface	Unit Size	
	030–125	150–400
	Minimum Clearance (Inches (mm))	
Top	1 (25)	4 (102)
Flue connector	6 (152)	6 (152)
Access panel	18 (457)	18 (457)
Non-access side	1 (25)	2 (51)
Bottom*	1 (25)	1 (25)
Rear**	18 (457)	18 (457)
Front	Refer to values for variable X (distance from heater to start of floor coverage) in **Heater Throw Distances with Standard Horizontal Louvers** section	
*Suspend the heater so that the bottom is a minimum of 5 feet (1.5 meters) above the floor.		
**Measure rear clearance from the fan motor.		

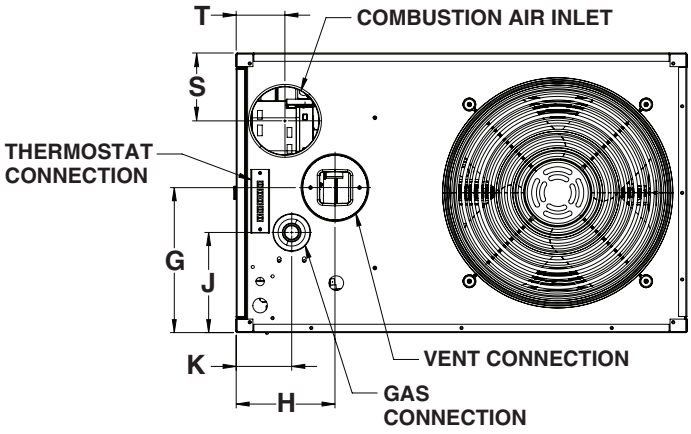
Weights

Type	Unit Size												
	030	045	060	075	100	125	150	175, 200	225	250	300	350	400
	Pounds (kg)												
Unit	58 (26)	63 (29)	71 (32)	77 (35)	102 (46)	107 (49)	179 (81)	194 (88)	212 (96)	224 (102)	278 (126)	304 (138)	317 (144)
Shipping	66 (30)	71 (32)	79 (36)	85 (39)	125 (57)	130 (59)	212 (96)	227 (103)	255 (116)	267 (121)	331 (150)	357 (162)	370 (168)

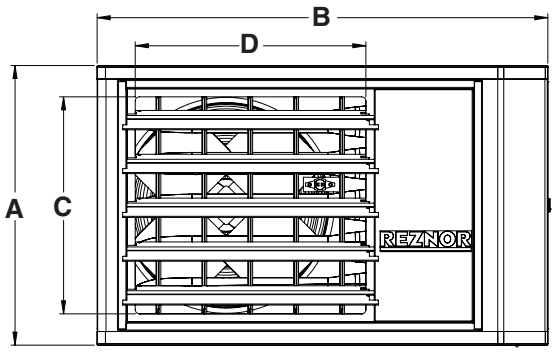
Dimensions



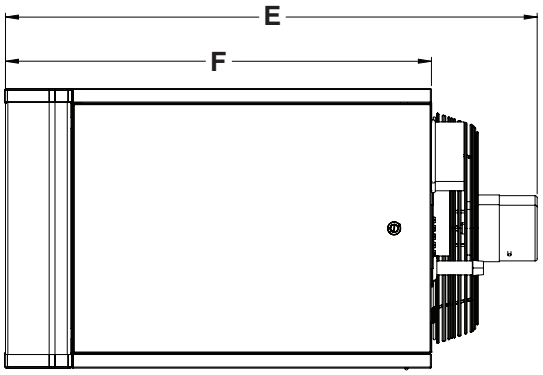
TOP VIEW



REAR VIEW



FRONT VIEW



SIDE VIEW

Dimension (See Graphic Above)	Unit Size							
	030, 045	060	075	100	125	150, 175, 200	225, 250	300, 350, 400
	Inches (mm)							
A	13-3/4 (349)	16-3/4 (425)		24-3/4 (629)		20-1/8 (511)	26-1/8 (664)	34-1/8 (867)
B	27 (686)					38-3/16 (970)		41 (1041)
C	10 (254)	13 (330)		21 (533)		16 (406)	22 (559)	30 (762)
D	13-13/16 (351)					23 (584)		
E	29-3/4 (756)	32-23/32 (831)	31-29/32 (810)	34-9/32 (871)	34-9/32 (871)	48-7/16 (1230)		48-29/32 (1243)
F	25-9/16 (649)					40 (1016)		
G	6 (152)	8-11/16 (221)		15-5/16 (389)		9-5/8 (244)	13-1/16 (332)	17-1/16 (433)
H	5-15/16 (151)					8-5/16 (211)		8-1/2 (216)
J	3-1/2 (89)	6 (152)		8-29/32 (226)		5-3/8 (137)	9 (229)	11-13/16 (300)
K	3-11/32 (85)					6-1/2 (165)		7-5/16 (186)
M*	17-3/8 (441)					25-11/16 (652)		27-11/16 (703)
N*	1-9/16 (40)					1-13/32 (36)		
P*	4-9/32 (109)					8-1/8 (206)		
Q*	13 (330)					22-3/16 (564)		
R**	11-9/16 (294)					16-3/8 (416)	15-5/8 (397)	16-1/4 (413)
S	3-3/4 (95)	4-1/16 (103)		5-15/32 (139)		5-1/2 (140)	8-1/16 (205)	11-9/16 (294)
T	2-15/16 (75)					4-1/4 (108)	4-5/16 (110)	4-1/2 (114)
*Heater suspension points for four-point suspension (3/8-16 FEM).								
**Heater suspension points for two-point suspension (3/8-16 FEM).								

TECHNICAL SPECIFICATIONS—CONTINUED

Gas Supply Pressure

The unit is equipped for a maximum gas supply pressure of 1/2 psi, 3.5 kPa, or 14 IN WC.

NOTES:

Supply pressure higher than 1/2 psi requires the installation of an additional service regulator external to the unit.

PRESSURE TESTING SUPPLY PIPING

- **Test pressures above 1/2 psi—disconnect the heater and manual valve from the gas supply line to be tested. Cap or plug the supply line.**
- **Test pressures below 1/2 psi—before testing, close the manual valve on the heater.**

Gas Supply Piping

- All piping must be in accordance with requirements outlined in the *National Fuel Gas Code* (ANSI/Z223.1, latest edition) or the *Natural Gas and Propane Installation Code* (CSA-B149.1).
- The heater is orificed for operation with natural gas having a heating value of 1,050 (±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 1,050 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 in the table below. When sizing supply lines, consider possibilities of future expansion and increased requirements. Refer to the *National Fuel Gas Code* for additional information on line sizing.

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

NOTES

⚠ 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**

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