REZNOR®

Revision: CAUA-TSL (10-24) REV-F

Supersedes: CAUA-TSL (09-24) REV-E

TECHNICAL SPECIFICATIONS FOR MODEL CAUA

COMMERCIAL/INDUSTRIAL POWER-VENTED STANDARD OR POWER-VENTED SEPARATED-COMBUSTION GAS-FIRED INDOOR UPFLOW AIR HANDLER

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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 upflow heaters are available in five unit sizes based on 150,000–400,000 BTUh input.

Features

- Voltage/phase/Hz options: 208/1/60, 230/1/60, 208/3/60, 230/3/60, 460/3/60, and 575/3/60
- Natural gas or propane
- 81% thermal efficient
- Painted galvanized-steel cabinet
- Centrifugal blower with direct-drive motor
- Burner rack with inshot burners—direct ignition with 100% lockout
- Combustion air proving pressure switch and high-temperature limit switch
- Integrated circuit board with diagnostic LEDs
- Multiple inlet air configurations
- Optional outside/return air mixing box provides supply air mixture of return air and outside air
- Optional return air filter cabinet provides filtered return air

Factory-Installed Options

Option	Description
AA1	Natural gas
AA2	Propane
AB1	Installation elevation of 0–2000 feet
AB2	Installation elevation of 2001–3000 feet
AB3	Installation elevation of 3001–4000 feet
AB4	Installation elevation of 4001–5000 feet
AB5	Installation elevation of 5001–6000 feet
AB6	Installation elevation of 6001–7000 feet
AB7	Installation elevation of 7001–8000 feet
AB8	Installation elevation of 8001–9000 feet
AC1	Aluminized-steel heat exchanger
AC2	409 SST heat exchanger (required with mixed air temperature <35°F)
AD1	Aluminized-steel burner
AD4	SST burner with drain (required with mixed air temperature <35°F)
AGA	US installation rating plate
AG1	Single-stage combination gas valve
AG2	Two-stage combination gas valve
AG3	Two-stage combination gas valve with unit-mounted ductstat
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
AK8	575/3/60 voltage

Option	Description
AL3	1/3-HP open drip-proof motor
AL4	1/2-HP open drip-proof motor
AL5	3/4-HP open drip-proof motor
AL6	1-HP open drip-proof motor
AL7	1-1/2-HP open drip-proof motor
AL8	2-HP open drip-proof motor
AL9	3-HP open drip-proof motor
AL10	5-HP open drip-proof motor
AL21	1/2-HP totally-enclosed motor
AL22	3/4-HP totally-enclosed motor
AL23	1-HP totally-enclosed motor
AL24	1-1/2-HP totally-enclosed motor
AL25	2-HP totally-enclosed motor
AL26	3-HP totally-enclosed motor
AL27	5-HP totally-enclosed motor
AM1	401–450 RPM belt drive
AM2	451–500 RPM belt drive
AM3	501–550 RPM belt drive
AM4	551–600 RPM belt drive
AM5	601–650 RPM belt drive
AM6	651–700 RPM belt drive
AM7	701–750 RPM belt drive
AM8	751–800 RPM belt drive
AM9	801–850 RPM belt drive
AM10	851–900 RPM belt drive
AM11	901–950 RPM belt drive
AM12	951–1000 RPM belt drive
AM13	1001–1050 RPM belt drive
AM14	1051–1100 RPM belt drive
AM15	1101–1150 RPM belt drive
AM16	1151–1200 RPM belt drive
AM17	1201–1250 RPM belt drive
AM18	1251–1300 RPM belt drive
AM19	1301–1350 RPM belt drive
AM20	1351–1400 RPM belt drive
AM21	1401–1450 RPM belt drive
AM22	1451–1500 RPM belt drive
AM23	1501–1550 RPM belt drive
AM24	1551–1600 RPM belt drive
AN2, AN10	Motor starters
BG7A–BG7Z, BG9	Various relay options
CGA	Canadian installation rating plate
CN1A–CN3Z	Various remote switch options
DR1	Drect-drive motor (with option AK2 or AK3 only)
DR2	Belt-drive motor

TECHNICAL SPECIFICATIONS—CONTINUED

Field-Installed Options

Option	Description
AW9	Filter rack with 2-inch permanent filters (used with mixing box)
AW11	Filter rack with 2-inch pleated disposable MERV8 filters (used with mixing box)
AW40	Filter rack with 2-inch pleated disposable MERV14 filters (used with mixing box)
CC1	Vent cap
CC2	Vertical vent terminal kit
CC6	Horizontal vent terminal kit
CL1	Single-stage thermostat
CL22	Two-stage thermostat
CL23	Two-stage thermostat, programmable
CL33	Two-stage heat/three-stage cool thermostat, programmable
CM1	Locking cover for CL1 thermostat
CM1B	Locking cover for CL22 and CL23 thermostats
CP1, CP2, CP3, CP17	Disconnect switches (US)
CP41	Disconnect switch (Canada)
CW4–CW8, CW11, CW12, CW13	Various return air filter cabinet options
GA6, GA8	Mixing boxes
GB2, GB4	Damper motors
GC3C	Two-position cooling mode damper control
GC4	Two-position damper control for warm up/cool down return air thermostat
GC3B	Cooling mode enthalpy/heating mode mixed air control (used with option GB4)
PC4	Vibration isolators

Technical Data

Parameter	Unit of Measure	Unit Size (MBTUh)				
		150	200	275	350	400
Input heating capacity	BTUh	150,000	200,000	275,000	350,000	400,000
	kW	44.0	58.6	87.9	102.6	117.2
Output heating capacity (81%)	BTUh	121,500	162,000	222,750	283,500	324,000
	kW	35.64	47.52	65.34	83.16	95.04
Temperature rise	°F	45–75				
Air volume (@1.0 IN WC)	CFM	1600–1900	1850–2200	3200–3800	3500–4100	3800–4200
	meter^3/hr	2718–3228	3143–3738	5437–6456	5946–6966	6456–7136
Maximum air volume (@1.5 IN WC)*	CFM	2465	3290	—	—	6580
	meter^3/hr	4188	5590			11,179
Maximum air volume (@2.0 IN WC)*	CFM	—		4935	5760	—
	meter^3/hr			8385	9786	
Gas connection, natural gas or propane	inch	1/2		3/4		
Vent connection diameter		5		6		
Full load amps (230V, @0.6 IN WC, 60°F rise)	amp	6.2	6.6	13.1	13.6	13.8
Unit control amps (24V)		0.9		1.0		
*With optional belt drive only.						

NOTE: If options are selected, the static pressure for those options must be added to the external static pressure to arrive at total static pressure.

Unit Size (MBTUh)	Speed	Adjusted Static Pressure (IN WC) for Standard Unit with Direct-Drive Blower				
		0.2	0.4	0.6	0.8	1.0
		CFM				
150	Low	1850	1800	1750	1700	1600
	Medium	1950	1900	1850	1800	1700
	High	—	2400	2300	2100	1900
200	Low	2150	2100	2050	2000	1850
	Medium	2300	2250	2200	2150	2000
	High	—	2800	2700	2500	2200
275	Medium	3900	3700	3600	3500	3200
	High	—	4450	4400	4100	3800
350	Low	4200	4000	3900	3700	3500
	Medium	4300	4200	4000	3900	3700
	High	—	5000	4700	4500	4100
400	Medium	4400	4300	4300	4000	3800
	High	—	5100	4800	4500	4200

Unit Size (MBTUh)	CFM	With Return Air Filter Cabinet								
		CW4	CW5	CW7	CW8	CW9	CW12	CW13	CW14	CW15
		Static Pressure Drop (IN WC)								
150	1480	0.08	0.03	0.08	0.13	0.06	0.03	0.02	0.05	0.02
	1750	0.10	0.05	0.10	0.17	0.08	0.05	0.03	0.07	0.03
	2000	0.13	0.07	0.13	0.20	0.11	0.07	0.04	0.09	0.05
	2250	0.16	0.08	0.16	0.24	0.13	0.08	0.04	0.11	0.05
	2450	0.19	0.09	0.19	0.28	0.15	0.09	0.05	0.13	0.06
200	1975	0.13	0.06	0.13	0.20	0.09	0.06	0.03	0.09	0.04
	2250	0.16	0.08	0.16	0.24	0.13	0.08	0.04	0.11	0.05
	2750	0.22	0.11	0.22	0.33	0.19	0.11	0.06	0.15	0.07
	3000	0.27	0.13	0.27	—		0.13	0.07	0.18	0.09
	3290	0.29	0.15	0.29			0.15	0.08	0.19	0.10
275	2960	0.26	0.13	0.13	—		0.06	0.04	0.10	0.05
	3250	0.29	0.15	0.15			0.08	0.05	0.11	0.06
	3500	0.33	0.17	0.18			0.09	0.05	0.14	0.07
	4000	—	0.22	0.23			0.11	0.07	0.17	0.08
	4500		—	0.28			0.13	0.08	0.21	0.10
	4935			0.31			0.15	0.09	0.23	0.11
350	3455	0.18	0.08	0.18	—		0.08	0.03	0.09	0.04
	4000	0.23	0.11	0.23			0.11	0.04	0.12	0.06
	4500	0.28	0.13	0.28			0.13	0.05	0.14	0.07
	5000	0.30	0.16	0.30			0.16	0.06	0.15	0.08
	5500	—	0.19	—			0.19	0.08	0.19	0.10
	5760		0.21				0.21	0.08	0.22	0.11
400	3950	0.21	0.09	0.21	—		0.09	0.04	0.11	0.05
	4500	0.28	0.13	0.28			0.13	0.05	0.14	0.07
	5000	0.30	0.16	0.30			0.16	0.06	0.15	0.08
	5500	—	0.19	—			0.19	0.08	0.19	0.10
	6000		0.22				0.22	0.09	0.22	0.11
	6580		0.24				0.24	0.10	0.24	0.12

Technical Data—Continued

Unit Size (MBTUh)	CFM	With Mixing Box		
		AW9	AW11	GA4–GA9
		Static Pressure Drop (IN WC)		
150	1480	0.03	0.07	0.01
	1750	0.04	0.09	0.01
	2000	0.06	0.12	0.02
	2250	0.07	0.14	0.02
	2450	0.08	0.17	0.03
200	1975	0.05	0.12	0.02
	2250	0.07	0.14	0.02
	2750	0.10	0.20	0.04
	3000	0.12	0.24	0.05
	3290	0.13	0.26	0.06
275	2960	0.06	0.13	0.02
	3250	0.08	0.15	0.02
	3500	0.09	0.18	0.03
	4000	0.11	0.23	0.04
	4500	0.13	0.28	0.05
	4935	0.15	0.31	0.06
350	3455	0.08	0.18	0.03
	4000	0.11	0.23	0.04
	4500	0.13	0.28	0.05
	5000	0.16	0.30	0.06
	5500	0.19	—	0.07
	5760	0.21		0.08
400	3950	0.09	0.21	0.04
	4500	0.13	0.28	0.05
	5000	0.16	0.30	0.06
	5500	0.19	—	0.07
	6000	0.22		0.09
	6580	0.24		0.10

Unit Size (MBTUh)	Temp Rise (°F)	CFM	Total Adjusted Pressure Drop (IN WC) with 12 × 12 Class I Belt-Drive Blower											
			0.0		0.2		0.4		0.6		0.8		1.0	
			RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
200	75	1975	—		538	0.29	637	0.35	727	0.47	810	0.58	—	
	70	2116			561	0.35	656	0.46	743	0.54	823	0.64	898	0.73
	65	2279			591	0.41	680	0.54	763	0.62	840	0.72	912	0.84
	60	2469			625	0.52	710	0.62	788	0.73	862	0.84	931	0.96
	55	2694			666	0.63	745	0.74	819	0.87	888	0.99	955	1.12
	50	2963			720	0.81	792	0.95	861	1.07	927	1.22	990	1.35
	45	3292			784	1.09	850	1.23	913	1.38	974	1.52	1033	1.67
Unit Size (MBTUh)	Temp Rise (°F)	CFM	Total Adjusted Pressure Drop (IN WC) with 12 × 12 Class I Belt-Drive Blower											
			1.2		1.4		1.5		1.6		1.8		2.0	
			RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
200	75	1975	—		—		—		—		—		—	
	70	2116												
	65	2279												
	60	2469	997	1.09	1061	1.22								
	55	2694	1018	1.25	1079	1.39	1108	1.45	1137	1.52				
	50	2963	1050	1.49	1108	1.64	1136	1.72	1163	1.72	1217	1.93	1270	2.11
	45	3292	1089	1.83	1144	1.98	1171	2.01	1197	2.15	1248	2.29	1298	2.46

Unit Size (MBTUh)	Temp Rise (°F)	CFM	Total Adjusted Pressure Drop (IN WC) with 10 × 10 Class I Belt-Drive Blower											
			0.0		0.2		0.4		0.6		0.8		1.0	
			RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
275	75	2963	528	0.32	654	0.45	765	0.58	871	0.73	970	0.88	—	
	70	3175	566	0.39	685	0.53	790	0.67	890	0.83	986	0.98		
	65	3419	605	0.5	718	0.64	817	0.78	911	0.95	1002	1.11	1090	1.28
	60	3704	658	0.63	764	0.79	856	0.95	944	1.11	1030	1.29	1113	1.47
	55	4040	719	0.81	816	0.99	903	1.17	985	1.34	1064	1.53	1143	1.73
	50	4444	792	1.09	881	1.29	962	1.47	1038	1.67	1111	1.87	1183	2.07
	45	4938	877	1.57	960	1.73	1034	1.94	1104	2.15	1171	2.37	1237	2.59
Unit Size (MBTUh)	Temp Rise (°F)	CFM	Total Adjusted Pressure Drop (IN WC) with 10 × 10 Class I Belt-Drive Blower											
			1.2		1.4		1.5		1.6		1.8		2.0	
			RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
275	75	2963	—		—		—		—		—		—	
	70	3175												
	65	3419												
	60	3704	1192	1.65										
	55	4040	1218	1.92	1291	2.13	1326	2.22						
	50	4444	1254	2.29	1323	2.51	1357	2.62	1390	2.73	1455	3.15		
	45	4938	1302	2.81	1366	3.05	1398	3.17	1429	3.29	1491	3.53	1551	3.78

TECHNICAL SPECIFICATIONS—CONTINUED

Technical Data—Continued

Unit Size (MBTUh)	Temp Rise (°F)	CFM	Total Adjusted Pressure Drop (IN WC) with 12 × 9 Class I Belt-Drive Blower											
			0.0		0.2		0.4		0.6		0.8		1.0	
			RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
150	75	1481	433	0.16	548	0.22	646	0.29	734	0.35	—		—	
	70	1587	465	0.2	573	0.26	667	0.33	751	0.41				
	65	1709	502	0.24	603	0.32	693	0.4	773	0.48	849	0.55		
	60	1852	543	0.31	637	0.4	723	0.48	800	0.56	872	0.64	940	0.73
	55	2020	589	0.4	676	0.48	757	0.57	830	0.67	899	0.76	964	0.85
	50	2222	648	0.53	727	0.63	802	0.73	872	0.83	936	0.92	998	1.02
	45	2469	721	0.73	793	0.84	862	0.95	927	1.06	988	1.17	1046	1.28
350	75	3457	472	0.45	575	0.61	668	0.76	751	0.91	827	1.08	—	
	70	3704	504	0.55	601	0.72	690	0.88	770	1.05	843	1.21		
	65	3989	542	0.68	632	0.86	716	1.05	793	1.22	864	1.4	931	1.59
	60	4321	589	0.87	672	1.07	751	1.27	825	1.45	893	1.65	957	1.84
	55	4714	644	1.13	720	1.34	794	1.56	864	1.77	929	1.98	990	2.19
	50	5185	707	1.57	777	1.74	845	2.01	910	2.21	971	2.44	1030	2.67
	45	5761	785	2.07	848	2.32	910	2.59	970	2.84	1027	3.1	1082	3.37
400	75	3951	536	0.66	626	0.84	711	1.04	789	1.19	861	1.36	—	
	70	4233	572	0.81	657	0.99	738	1.19	812	1.38	882	1.57	947	1.77
	65	4558	617	0.99	696	1.21	772	1.42	843	1.63	910	1.83	972	2.04
	60	4938	670	1.29	743	1.49	814	1.73	882	1.95	945	2.17	1005	2.39
	55	5387	728	1.67	795	1.9	860	2.15	924	2.39	985	2.64	1042	2.87
	50	5926	803	2.23	863	2.49	924	2.75	983	3.03	1039	3.29	1094	3.56
	45	6584	886	2.99	942	3.33	997	3.62	1051	3.92	1104	4.21	1155	4.47

Unit Size (MBTUh)	Temp Rise (°F)	CFM	Total Adjusted Pressure Drop (IN WC) with 12 × 9 Class I Belt-Drive Blower											
			1.2		1.4		1.5		1.6		1.8		2.0	
			RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
150	75	1481	—		—		—		—		—		—	
	70	1587												
	65	1709												
	60	1852												
	55	2020	1026	0.95										
	50	2222	1057	1.12	1114	1.23								
	45	2469	1101	1.39	1154	1.49			1206	1.62				
350	75	3457	-	-	-	-	—		—		—		—	
	70	3704	-	-	-	-								
	65	3989	-	-	-	-								
	60	4321	1018	2.03	-	-								
	55	4714	1048	2.39	1104	2.62								
	50	5185	1085	2.91	1138	3.14	1164	3.26	1190	3.43				
	45	5761	1135	3.62	1185	3.87	1210	4.01	1234	4.14	1281	4.39	1327	4.64
400	75	3951	—		—		—		—		—		—	
	70	4233												
	65	4558	1032	2.24										
	60	4938	1062	2.61	1117	2.84								
	55	5387	1096	3.11	1149	3.36	1174	3.48	1200	3.61				
	50	5926	1146	3.83	1196	4.09	1220	4.22	1244	4.36	1290	4.62	1336	4.91
	45	6584	1204	4.72	1251	4.96	—							

Unit Size (MBTUh)	CFM	With Inlet Air Mounting Base					
		Disposable Flat Filters		Permanent Aluminum Filters		Disposable Pleated Filters	
		Open Area on Four Sides	Open Area on Three Sides	Open Area on Four Sides	Open Area on Three Sides	Open Area on Four Sides	Open Area on Three Sides
		Static Pressure Drop (IN WC)					
350	4,500	0.06	0.08	0.024	0.035	0.11	0.18
	5,000	0.07	0.09	0.027	0.040	0.13	0.20
	5,500	0.08	—	0.030	0.045	0.15	0.24
	5,760	0.08		0.032	0.049	0.17	0.27
400	5,000	0.07	0.09	0.027	0.040	0.13	0.20
	5,500	0.08	—	0.030	0.045	0.15	0.24
	6,000	0.08		0.035	0.054	0.18	0.28
	6,580	0.09		0.039	0.061	0.20	0.31
*With cased cooling coil (add cased cooling coil pressure drop).							

Voltage/Phase	HP							
	1/3	1/2	3/4	1	1-1/2	2	3	5
	Blower Motor FLA							
Open-Type Belt-Drive Motors								
208V/1PH	3.20	4.10	5.20	6.20	7.80	12.30	13.70	—
240V/1PH	3.20	4.10	5.20	6.30	7.50	12.30	12.40	
208V/3PH	1.70	1.80	2.90	3.20	4.40	6.00	9.00	13.40
240V/3PH	1.40	1.70	2.60	3.00	4.30	6.00	8.60	13.20
480V/3PH	0.70	0.90	1.30	1.50	2.20	3.00	4.30	6.60
575V/3PH	—	0.70	1.00	1.40	2.00	2.40	3.60	5.40
TEFC-Type Belt-Drive Motors								
208V/1PH	2.30	3.50	5.40	6.20	7.80	—		
240V/1PH	2.40	3.60	5.50	6.00	7.50			
208V/3PH	1.20	2.10	2.40	3.25	4.47			
240V/3PH	1.20	1.80	2.30	2.94	4.05			
480V/3PH	0.60	0.90	1.20	1.47	2.02			
575V/3PH	—	0.70	0.80	1.30	1.70			
Direct-Drive Motors								
208/230V/1PH	—			6.30	—			

Certification

These heaters are listed by Intertek for use in industrial and commercial installations in the United States and Canada. Heaters are available for use with either natural gas or propane. The type of fuel, the firing rate, and the electrical characteristics are on the unit rating plate.

Installation Codes

- These units must be installed in accordance with local building codes. Local authorities having jurisdiction should be consulted before installation is made to verify local codes and installation procedure requirements.
- In the absence of local codes in the US, the unit must be installed in accordance with the *National Fuel Gas Code* (ANSI Z223.1a, latest edition). A Canadian installation must be in accordance with the *Natural Gas and Propane Installation Code* (CSA B149.1, latest edition). This code is available from CSA Information Services, 1-800-463-6727.
- If the heater is being installed in the Commonwealth of Massachusetts, installation must be performed by a licensed plumber or licensed gas fitter.

Unit Location

⚠ CAUTION ⚠

- **The unit must be level for proper operation.**
- **Do not locate the unit where it may be exposed to liquid spray, rain, or dripping water.**

Check the rating plate for the gas specifications including elevation and the electrical characteristics of the heater to ensure that they are compatible with the gas and electric supplies and the elevation of the installation site.

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.

⚠ 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.

Duct Connections

⚠ 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.

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

Venting/Combustion Air Connections

⚠ DANGER ⚠

- **The vent must be installed in accordance with national and local regulations. Failure to provide proper venting could result in death, serious injury and/or property damage. This unit must be installed with a vent to the outside of the building. Safe operation of any power-vented, gas-fired equipment requires a properly operating vent system, correct provision for combustion air, and regular maintenance and inspection.**
- **Units installed in multiples require individual vent pipe runs and vent caps. Manifolding of vent runs is not permitted due to possible recirculation of combustion products into the building and back pressure effects on the combustion air proving switch.**
- **Venting must be in accordance with the *National Fuel Gas Code* (Z223.1) or the *Natural Gas and Propane Installation Code* (CSA B149.1) and Installation Code for Gas Burning Appliances and Equipment (B149.2) and all local codes. Local requirements supersede national requirements. Combustion air for this heater may be either taken from the space or may be ducted from the outside using the concentric adapter combustion air/vent system. Flue products must always be vented to the outdoors.**

⚠ WARNING ⚠

Do not install a unit in a confined space without providing wall openings leading to and from the space. If the environment has a positive pressure and is such that it is not detrimental to combustion air, the power-venting system in this section may be installed.

NOTES:

- **For further details on supplying combustion air to a confined space, refer to the *National Fuel Gas Code* (ANSI Z223.1a, latest edition).**

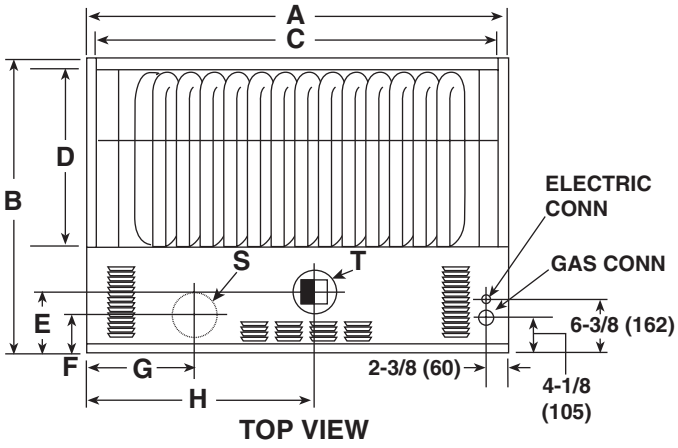
DECIDE WHICH VENTING SYSTEM TO INSTALL:

- **Power-vented: a power-vented installation uses a power venter to draw combustion air from the indoor space and exhaust flue products to the outdoors. A vent cap (option CC1 or equivalent) is required.**
- **Separated-combustion: a separated-combustion installation requires a vent/combustion air system that uses a power venter to duct combustion air from outdoors and exhaust flue products to the outdoors. A vent/combustion air kit (option CC2 or CC6) is required.**

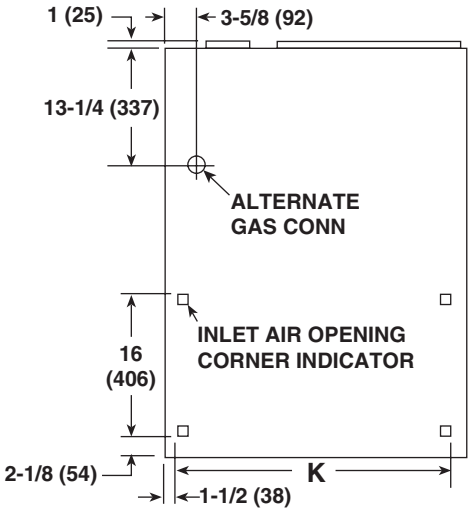
- To provide combustion air to the heater, sufficient air must enter the equipment location to replace that exhausted through the heater vent system. In the past, the infiltration of outside air assumed in heat loss calculations (one air change per hour) was assumed to be sufficient. However, current construction methods using more insulation, vapor barriers, tighter fitting and gasketed doors and windows, weather-stripping, and/or mechanical exhaust fans may now require the introduction of outside air through wall openings or ductwork to the equipment room.
- Under all conditions, enough air must be provided to ensure there will not be a negative pressure condition within the equipment room or space.
- Requirements for combustion air and ventilation air depend upon whether the unit is located in a confined or unconfined space. A ***confined*** space is defined as a space whose volume is <50 cubic feet per 1,000 BTUh of the installed appliance input rating. An ***unconfined*** space is defined as a space whose volume is ≥50 cubic feet per 1,000 BTUh of the installed appliance input rating.
- Provide openings (depending on the combustion air source) near the floor and ceiling for ventilation and air for combustion.
- Refer to the installation, operation, and maintenance manual provided with the unit for further information on venting/combustion air requirements.

Dimensions

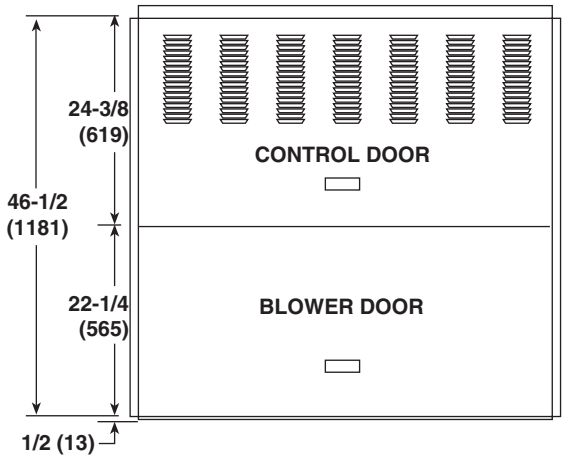
NOTE: For dimensions of optional cabinets—outside/return air mixing box or return air filter cabinet—refer to the installation instructions for that option found at www.reznorhvac.com.



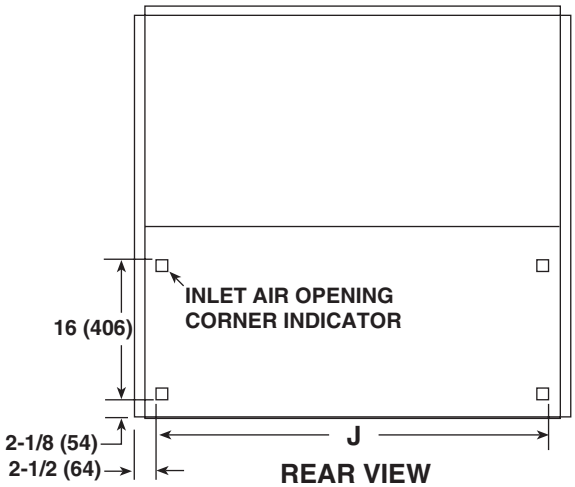
TOP VIEW



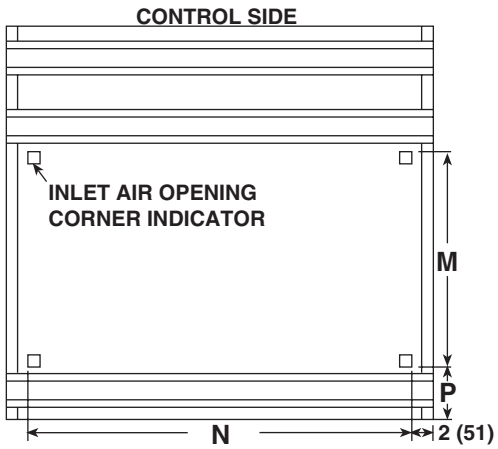
RIGHT SIDE VIEW



FRONT VIEW



REAR VIEW



BOTTOM VIEW

NOTE: Inches (mm)

Unit Size (MBTUh)	Dimension (See Graphic Above)														
	A	B	C	D	E	F	G	H	J	K	M	N	P	S	T
	Inches (mm)														
150, 200	38 (965)	34-3/4 (883)	36 (914)	21 (533)	7-1/4 (184)	3-3/4 (95)	12-1/2 (318)	24 (610)	33 (838)	31 (787)	19 (483)	34 (864)	4-5/8 (117)	5 (127)	5 (127)
275	50 (1270)	34-3/4 (883)	48 (1219)	21 (533)	7-1/4 (184)	4-3/8 (111)	12-3/4 (324)	27-1/4 (692)	45 (1143)	31 (787)	16 (406)	46 (1168)	4-3/4 (121)	6 (152)	6 (152)
350, 400	50 (1270)	50 (1270)	48 (1219)	34 (864)	7 (178)	4-3/8 (111)	14-1/8 (359)	26-3/4 (679)	45 (1143)	44 (1118)	32 (813)	46 (1168)	4-7/8 (124)	6 (152)	6 (152)

Air Opening (See Graphic Above)	Inches (mm)
Supply air (discharge with duct flange)	C × D
Inlet air opening, right side or left side (location selected by installer)	16 (406) × K
Inlet air opening, rear (location selected by installer)	16 (406) × J
Bottom	M × N

Weights

NOTE: For weights of optional cabinets—outside/return air mixing box or return air filter cabinet—refer to the installation instructions for that option found at www.reznorhvac.com.

Type	Unit Size (MBTUh)				
	150	200	275	350	400
	Pounds (kg)				
Unit	288 (131)	300 (136)	394 (179)	445 (202)	464 (210)
Shipping	355 (161)	366 (166)	477 (216)	560 (254)	575 (261)

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. The unit must be installed so that the following clearances are provided for service and inspection and for proper spacing from combustible construction.

Unit Surface	Minimum Clearance (Inches (mm))
Right side, left side, rear, and bottom	0 (0)
Front (service side)	36 (914)
Flue connector	6 (152)
Top	1 (25)

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 is 5 IN WC 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

Electrical Connections

⚠ CAUTION ⚠

- **If any of the original wire as supplied with the appliance must be replaced, it must be replaced with wiring material having a temperature rating of at least 220°F (105°C), except for the sensor lead wires, which must be rated at 302°F (150°C).**
- **All external wiring must be within approved conduit and have a minimum temperature rise rating of 140°F (60°C). Conduit from the disconnect switch must be run so as not to interfere with the service panels of the heater.**
- **Ensure that all wiring is in accordance with the wiring diagram provided with the unit. Refer to separate instruction sheets for any optional equipment provided.**
- **All electrical wiring and connections, including electrical grounding, MUST BE completed in accordance with local, state and national codes and regulations and with the *National Electric Code* (ANSI/NFPA No. 70) or in Canada, the *Canadian Electrical Code* (Part 1, CSA C.22.1). In addition, the installer should be aware of and comply with any local ordinances or gas company requirements.**

A separate line voltage supply with fused disconnect switch should be run directly from the main electrical panel to the heater.

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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Specifications and illustrations subject to change without notice or incurring obligations.
Latest version of this document is available at **www.reznorhvac.com**.

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