



**REZNOR®**

# RADIANT HEATER CATALOG

## COMMERCIAL/INDUSTRIAL RADIANT HEATERS

### FUEL

Natural Gas

Propane

### CAPACITIES

30 - 200 MBH

### STYLES

Low Intensity Tubular  
Radiant

- Single-Stage
- Two-Stage
- Harsh Environment

High Intensity Radiant



**TIME TESTED. CONTRACTOR APPROVED.**

# REZNOR® IS YOUR GLOBAL LEADER IN HVAC TECHNOLOGY

## BACKGROUND

Reznor was founded in 1888 to manufacture the “Reznor” reflector heater, which used a luminous flame gas burner developed by George Reznor. This technological breakthrough was an immediate success and hastened the expansion of gas heating in residential and commercial applications. Technological development and innovation have been the hallmarks of Reznor products through the years. As a result of this pioneering role in the heating, makeup air and ventilating equipment field, the products offered today are the most advanced in engineering design to satisfy a wide variety of applications.

## SERVICES

Product service requirements are handled through contractors and/or distributors, with backup from local representatives and factory-based service team. Replacement parts inventories for both warranty and non-warranty requirements are maintained at service centers throughout the country and at the manufacturing facilities.

## ABOUT NORTEK GLOBAL HVAC

For more than 100 years, Nortek Global HVAC has brought the latest innovations in heating, cooling and ventilation to homes, businesses and every place in between. Our vast portfolio of residential and light commercial brands offers efficient and dependable products that live up to their trusted reputation. We're always looking for the next advancement in HVAC because innovation is not only our legacy, it is our future.

In addition to Reznor product, Nortek Global HVAC and its subsidiaries build and sell HVAC systems under the Maytag®, Frigidaire®, Mammoth® and Gibson® brands, among others.

## ADVANTAGES OF HEATING WITH INFRARED

The Reznor commercial/industrial line of infrared heating equipment is designed to provide quiet, energy-efficient, comfort-level temperatures through application of radiant heat transfer. Radiant heat transfer means that heated infrared rays are radiated until those rays are absorbed by objects, such as floors, equipment, or people. Infrared heat rays do not warm the air; the air immediately surrounding the “heated” objects is warmed because of the increase in temperature of those objects. This makes infrared heating ideal for spot heating applications such as garage bays, assembly lines, loading docks, parking ramps, airplane hangars, and any other indoor location where heat is needed in only a specific area. Since the infrared rays are absorbed by the floor, infrared heating provides warmer floor-level temperatures. Quieter, more energy-efficient operation is achieved because infrared heating equipment does not require fans or blowers. Reznor provides both low-intensity, tubular radiant heaters and high-intensity, surface combustion infrared heaters.



## Why choose Reznor®?

With more than 130 years of experience in gas heating and air conditioning, Reznor manufactures a wide range of industrial and commercial HVAC solutions. Founded in 1888 in Pennsylvania, Reznor is a global leader thanks to its innovative and economical solutions for heating, cooling, ventilation and air quality.

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**NOTE:** Due to continuing design improvements, all specifications in this catalog are subject to change without notification. Reznor infrared heaters are not approved for residential use.

### WARNING

Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death. Read the installation operation and service/maintenance manual thoroughly before installing or servicing this equipment. Gas-fired appliances are not designed for hazardous atmospheres containing flammable vapors or combustible dust, or atmospheres containing chlorinated or halogenated hydrocarbons. For your safety the use and storage of gasoline or other flammable vapors and liquids in the vicinity of this appliance is hazardous.

Installations must be in accordance with enforcing authorities, the National Fuel Gas Code NFPA 54/ANSI Z223.1 (latest edition) in the United States, and the Natural Gas and Propane Installation Code CAN/CSA-B149.1 (latest edition) in Canada. In addition installations must meet NFPA 88A (latest edition) for parking structures, NFPA 88B (latest edition) for repair garages, and NFPA 409 (latest edition) for aircraft hangars.

### IMPORTANT

Specifications are subject to change without notice. This guide is intended to provide specifications and technical information only.

This guide is not intended to be an instruction manual. When installing heating and ventilating equipment, you must check and conform to all local and national building codes. Improper installation of heating and ventilating equipment could be dangerous. Consult manufacturer's installation manual for instructions and important warnings.

# VPS & VPT RADIANT HEATERS

## GAS-FIRED TUBULAR RADIANT, LOW INTENSITY HEATER FOR INDOOR COMMERCIAL-INDUSTRIAL USE

The VP series of tubular radiant heaters are available in BTUH inputs ranging from 60,000 to 200,000 and in system lengths from 20 to 80 feet (see the following pages for BTUH/system length combinations). Heaters are available for use with natural gas or optional propane gas. Tubular radiant heaters are engineered to provide quiet, reliable, energy-efficient, comfort level heating for both spot and space applications.

These radiant heaters are ready for use for elevations up to 2,000 ft. (610 M) above sea level. For installations in the U.S. above 2,000 ft., a high elevation adapter kit is available. Units can also be installed above 2,000 ft. elevation in Canada - see the installation manual for details.

The VP series is designed with a burner/control box housing a power burner that fires into a combustion chamber and heat exchanger tubes, 20 to 80 feet in length. The burner is equipped with a positive pressure blower for supplying combustion air and a multi-try direct spark ignition with soft lockout. Controls include a single-stage (Model VPS) or two-stage (Model VPT) gas valve and a pressure switch to verify combustion airflow.

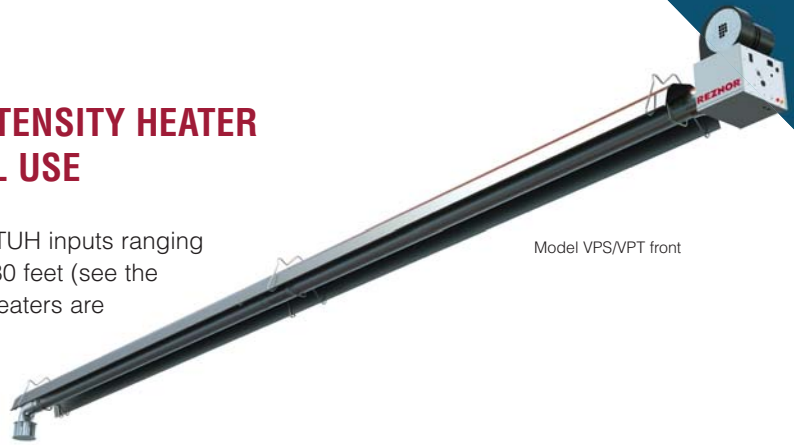
The Calcoat™ and rolled steel tubes are in 10-foot sections with each section having an aluminized steel reflector. Optional stainless steel (400 series grade) reflectors are also available. Additional “L” and “U” shaped tubes as well as 5 ft. (1.5 M) tubes are available in rolled or stainless steel. These accessories allow the radiant tube system configuration to adapt to various applications. A tubular system including an optional “U” tube provides the best balance of radiant emission over the length of any system.

Combustion air can either come from the heated space or be piped from the outside. An outside combustion air inlet kit should be used (1) if the building atmosphere has negative pressure; (2) if the building atmosphere is mildly dirty or dusty; (3) if the heater is being installed in a tightly closed room that does not provide required air for combustion. Warranty will be void for heaters installed in mildly dirty or dusty environment without outside combustion air inlet kit. (For harsh environments select Models VCS or VCT.)

Venting may be either vertical or horizontal. Some applications allow for VP series to be installed unvented.

VP Series tubular heater systems are shipped in modular packages requiring field assembly and installation. Standard features, such as wire form hangers for chain suspension, compression coupling tube connections, and terminal board thermostat connection, are designed to facilitate installation.

These heaters are approved for use in the United States and Canada by the Canadian Standards Association (CSA). A five-year limited warranty is provided on the burner and a ten-year limited warranty on all tubes.



Model VPS/VPT front

### STANDARD FEATURES

- Natural gas operation
- Full input rate for elevations up to 2,000 ft.
- 115/1/60 supply voltage
- Multi-try direct ignition with soft lockout
- Single-stage combination gas valve (Model VPS)
- Two-stage combination gas valve (Model VPT)
- Pre-purge and post-purge
- Differential air pressure switch to verify combustion airflow
- Diagnostic indicator lights (ignition circuit board)
- Operation indicator lights
  - Red light - power on
  - One amber light - burner on (Model VPS)
  - Two amber lights - burner on hi/lo (Model VPT)
- Calcoat combustion chamber and rolled steel heat exchanger tubes (10 ft. length)
- Compression coupling tube connections
- Wire form hangers
- Aluminized steel reflectors (10 ft. lengths) that overlap for continuous reflector system
- Horizontal or vertical venting
- Painted Cabinet
- 24-volt controls

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# VPS & VPT RADIANT HEATERS continued

## OPTIONAL FEATURES - FACTORY INSTALLED

- 208/1/60 supply voltage (Contact your Factory Agent for availability and lead time)
- 230/1/60 supply voltage (Contact your Factory Agent for availability and lead time)
- 220/240/1/50 supply voltage (Contact your Factory Agent for availability and lead time)
- Reflector end caps (aluminized or stainless steel [400 series grade])
- Hanger kit - chains and "S" hooks (standard or stainless steel)
- Turnbuckle kits (standard or stainless steel)
- Outdoor combustion air inlet kit
- Stainless steel flexible gas connector (U.S. only)
- High elevation conversion kit (for installations in the U.S. above 2,000 ft.)
- Propane conversion kits
- Vent Cap (standard or stainless steel)
- Manual shutoff valve & union
- Single-stage thermostat (VPS)
- Two-stage thermostat (VPT)

## OPTIONAL FEATURES - FIELD INSTALLED

- Stainless steel (400 series grade) reflectors
- "U" Heat exchanger tube with reflector (standard or stainless steel)
- "L" Heat exchanger tube(s) with reflector (standard or stainless steel)
- 5-ft. Heat exchanger tube(s) with reflector (standard or stainless steel)

## TECHNICAL DATA

Size			60	80	100	125	150	170	200	
Heating Capacity	High <sup>A</sup>	MBH	60	80	100	125	150	170	200	
		kW	18	23	29	37	44	50	59	
	Low <sup>B</sup>	MBH	45	60	65	95	100	125	150	
		kW	13	18	19	28	29	37	44	
Length Range	Model VPS	ft	20 - 40	30 - 40	30 - 50	30 - 60	40 - 70	50 - 80		
		M	6.1 - 12.1		9.1 - 15.2	9.1 - 18.3	12.1 - 21.3	15.2 - 24.4		
	Model VPT	ft	30 - 40			30 - 50	40 - 60	50 - 70		
		M	9.1 - 12.1			9.1 - 15.2	12.1 - 18.3	15.2 - 21.3		
Minimum Gas Pressure (inches w.c.)		Natural Gas <sup>C</sup>	5.0					7.0		
		Propane	11.0						-	
Maximum Supply Pressure (inches w.c.)		Natural Gas	14.0							
		Propane	14.0						-	
Ship Weight	Model VPS (Burner Box only)	lbs	29							
		kg	13.1							
	Model VPT (Burner Box only)	lbs	34							
		kg	15.3							

<sup>A</sup> High capacity heating applies to Model VPS (single-stage heater). It also applies to Model VPT (two-stage heater) when fired at high capacity.

<sup>B</sup> Low capacity heating applies to Model VPT when fired at low capacity.

<sup>C</sup> Minimum natural gas pressure shown for Model VPS. Model VPT (two-stage heater) requires 7 in. w.c. minimum gas pressure for all sizes when used with natural gas.



Model VPS/VPT back

# VCS & VCT RADIANT HEATERS

## HARSH ENVIRONMENT GAS-FIRED TUBULAR RADIANT, LOW INTENSITY HEATER FOR INDOOR/OUTDOOR USE

The VC series of tubular radiant heaters are available in BTUH inputs ranging from 60,000 to 200,000 and in system lengths from 20 to 80 feet (see the following pages for BTUH/system length combinations). All sizes are available for use with natural gas or optional propane gas. Tubular radiant heaters are engineered to provide quiet, reliable, energy-efficient, comfort level heating for both spot and space applications.

These radiant heaters are ready for use for elevations up to 2,000 ft. (610 M) above sea level. For installations in the U.S. above 2,000 ft., a high elevation adapter kit is available. Units can also be installed above 2,000 ft. elevation in Canada - see the installation manual for details.

The VC series is designed with a (300 series grade) stainless steel burner/control box housing a power burner that fires into a combustion chamber and heat exchanger tubes, 20 to 80 feet in length. The burner is equipped with a positive pressure blower for supplying combustion air and a multi-try direct spark ignition with soft lockout. Controls include a single-stage (Model VCS) or two-stage (Model VCT) gas valve and a pressure switch to verify combustion airflow.

The Calcoat™ tubes are in 10-foot sections with each section having an aluminized steel reflector. Optional stainless steel (400 series grade) reflectors are also available. Optional stainless steel "L" and "U" shaped tubes as well as 5 ft. (1.5 M) tube sections are also available. These accessories allow the radiant tube system configuration to adapt to various applications. A tubular system including an optional "U" tube provides the best balance of radiant emission over the length of any system.

Combustion air can either come from the heated space or be piped from the outside. A fresh, combustion air inlet adapter is standard, and must be used (1) if the building atmosphere has negative pressure; (2) if the building atmosphere is mildly dirty or dusty; (3) if the heater is being installed in a tightly closed room that does not provide required air for combustion. Failure to use combustion air inlet kit for units installed in mildly dirty or dusty environments will void the warranty. For outdoor installation, or indoor installation in damp environments, an optional wind and rain hood must be used.

Venting may be either vertical or horizontal. Some applications allow for VC series to be installed unvented; however a rain vent hood is required on wet environments such as car washes.

VC Series tubular heater systems are shipped in modular packages requiring field assembly and installation. Standard features, such as wire form hangers for chain suspension, compression coupling tube connections, and terminal board thermostat connection, are designed to facilitate installation.

These heaters are approved for use in the United States and Canada by the Canadian Standards Association (CSA).

### STANDARD FEATURES

- Natural gas operation
- Stainless steel (300 series grade) burner box
- Full input rate for elevations up to 2,000 ft.
- 115/1/60 supply voltage
- Multi-try direct ignition with soft lockout
- Single-stage combination gas valve (Model VCS)
- Two-stage combination gas valve (Model VCT)
- Pre-purge and post-purge
- Differential air pressure switch to verify combustion airflow
- Diagnostic indicator lights (ignition circuit board)
- Operation indicator lights
  - Red light - power on
  - One amber light - burner on (Model VPS)
  - Two amber lights - burner on hi/lo (Model VPT)
- Calcoat combustion chamber and heat exchanger tubes (10 ft. length)
- Stainless steel (300 series grade) compression coupling tube connections
- Stainless steel (400 series grade) wire form hangers
- Stainless steel (400 series grade) reflectors (10 ft. lengths) that overlap for continuous reflector system
- Horizontal or vertical venting
- 24-volt controls
- Fresh, combustion air inlet adapter

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# VPS & VPT RADIANT HEATERS continued

## OPTIONAL FEATURES - FACTORY INSTALLED

- 208/1/60 supply voltage (Contact your Factory Agent for availability and lead time)
- 230/1/60 supply voltage (Contact your Factory Agent for availability and lead time)
- 220/240/1/50 supply voltage (Contact your Factory Agent for availability and lead time)
- Stainless steel flexible gas connector (U.S. only)
- High elevation conversion kit (for installations in the U.S. above 2,000 ft.)
- Propane conversion kits
- Stainless steel vent cap
- Manual shutoff valve & union
- Single-stage thermostat (VCS)
- Two-stage thermostat (VCT)

## OPTIONAL FEATURES - FIELD INSTALLED

- Stainless steel "U" heat exchanger tube with reflector
- Stainless steel "L" heat exchanger tube(s) with reflector(s)
- Stainless steel 5-ft. heat exchanger tube(s) with reflector
- Stainless steel (400 series grade) reflector end caps
- Stainless steel hanger kit - chains and "S" hooks
- Stainless steel turnbuckle kits
- Stainless steel wind and rain hood

## TECHNICAL DATA

Size			60	80	100	125	150	170	200
Heating Capacity	High <sup>A</sup>	MBH	60	80	100	125	150	170	200
		kW	18	23	29	37	44	50	59
	Low <sup>B</sup>	MBH	45	60	65	95	100	125	150
		kW	13	18	19	28	29	37	44
Length Range	Model VCS	ft	20 - 40	30 - 40	30 - 50	30 - 60	40 - 70	50 - 80	
		M	6.1 - 12.1		9.1 - 15.2	9.1 - 18.3	12.1 - 21.3	15.2 - 24.4	
	Model VCT	ft	30 - 40			30 - 50	40 - 60	50 - 70	
		M	9.1 - 12.1			9.1 - 15.2	12.1 - 18.3	15.2 - 21.3	
Minimum Gas Pressure (inches w.c.)		Natural Gas <sup>C</sup>	5.0					7.0	
		Propane	11.0						
Maximum Supply Pressure (inches w.c.)		Natural Gas	14.0						
		Propane	14.0						
Ship Weight (Burner Box only)		lbs	38						
		kg	17.3						

<sup>A</sup> High capacity heating applies to Model VCS (single-stage heater). It also applies to Model VCT (two-stage heater) when fired at high capacity.

<sup>B</sup> Low capacity heating applies to Model VCT when fired at low capacity.

<sup>C</sup> Minimum natural gas pressure shown for Model VCS. Model VCT (two-stage heater) requires 7 in. w.c. minimum gas pressure for all sizes when used with natural gas.

**NOTE:** Models VCS and VCT are known as "The Car Wash" heaters. They are waterproof and designed for harsh environments such as a car washes, outdoor patios, greenhouses, etc.

A harsh environment is defined as wet or mildly corrosive. The VC series is NOT intended for heavy chemical laden environment or areas where halogenated hydrocarbons may be present. Ducted clean, fresh air for combustion is required for mildly corrosive environments for the warranty to remain valid. For outdoor installation a wind and rain hood is required.

The VC Series has an IPX5 Rating.\*

**NOTE:** Models VCS and VCT are approved for commercial/industrial use for both indoor or outdoor installation. These heaters are also approved for residential outdoor installations such as patios, gazebos or pool areas.

\* IP is the Ingress Protection Rating or International Protection Rating. This is a standard rating intended to quantify the amount of protection. Each number following the "IP" indicates a level of protection. The first number represents the size of solid particles from which the system is protected. This does not apply to the VC series, so an "X" replaces the number value. The second number indicates the level of protection of the enclosed system from the ingress of water. A "5" level rating states the system is protected against water jets. Several websites offer more detailed description. For more information run a search for "Ingress Protection Rating."

# TUBULAR INFRARED SELECTION MATRIX

## BASIC MODEL SELECTION

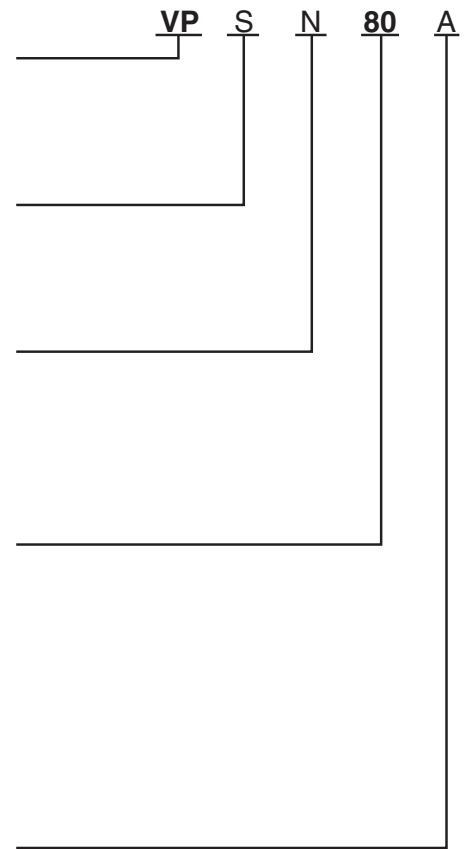
Description	Model
<b>Positive Pressure Radiant Heater</b>	<b>VP</b>
Harsh Environment Positive Pressure Radiant Heater	VC

Description	Type
<b>Single Stage</b>	<b>S</b>
Two-Stage	T

Description	Gas Type
<b>Natural Gas</b>	<b>N</b>
Propane	P

MBH Input	Size
60	60
<b>80</b>	<b>80</b>
100	100
125	125
150	150
170	170
200	200

Electrical Supply	
<b>120/24V</b>	<b>A</b>
208/24V	B
240/24V	C
120/120V	D
208/120V	E
240/120V	F

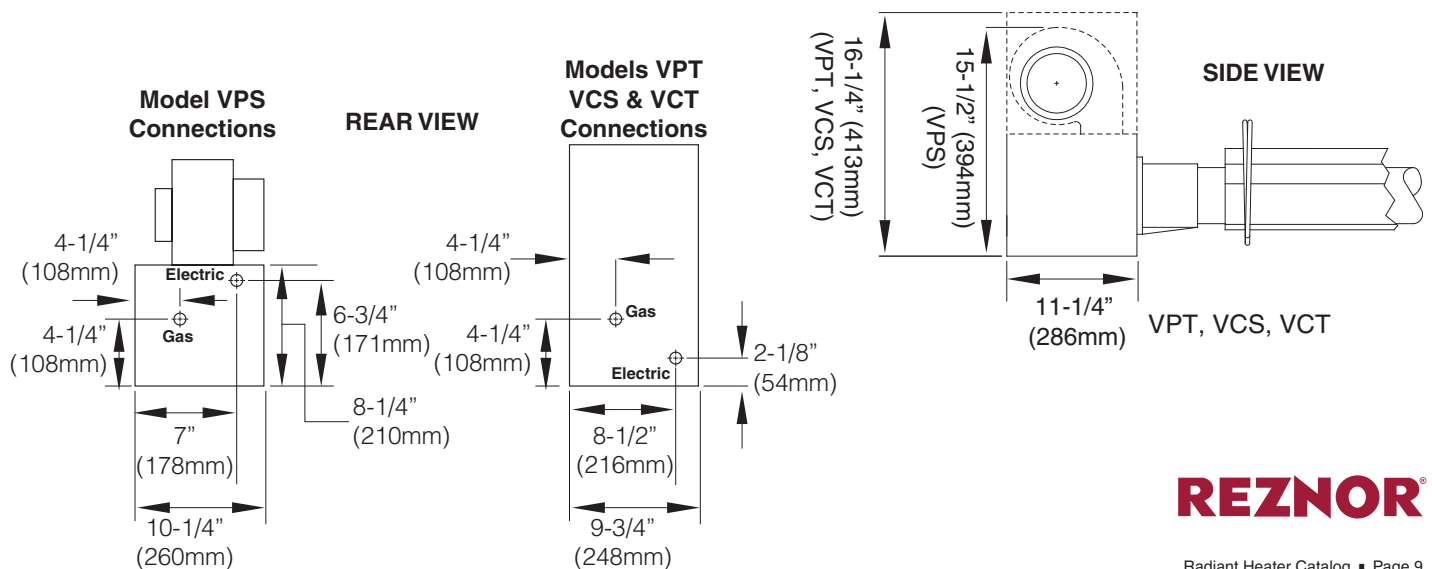
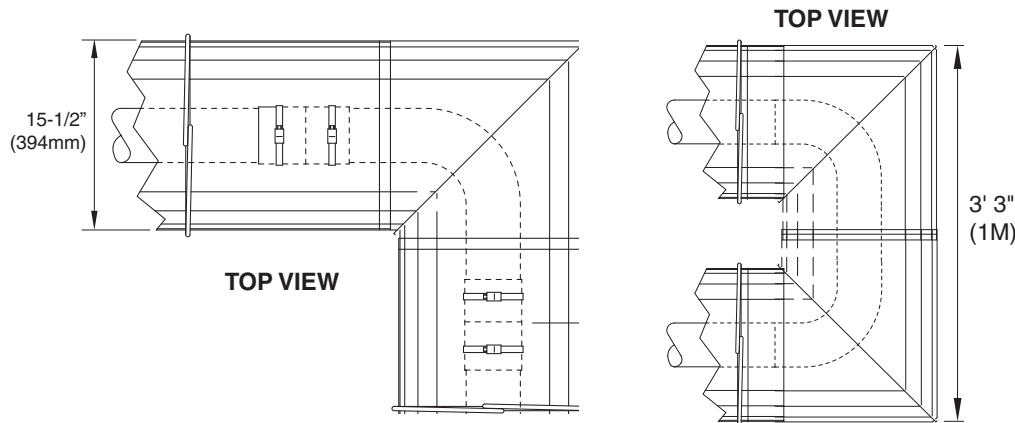
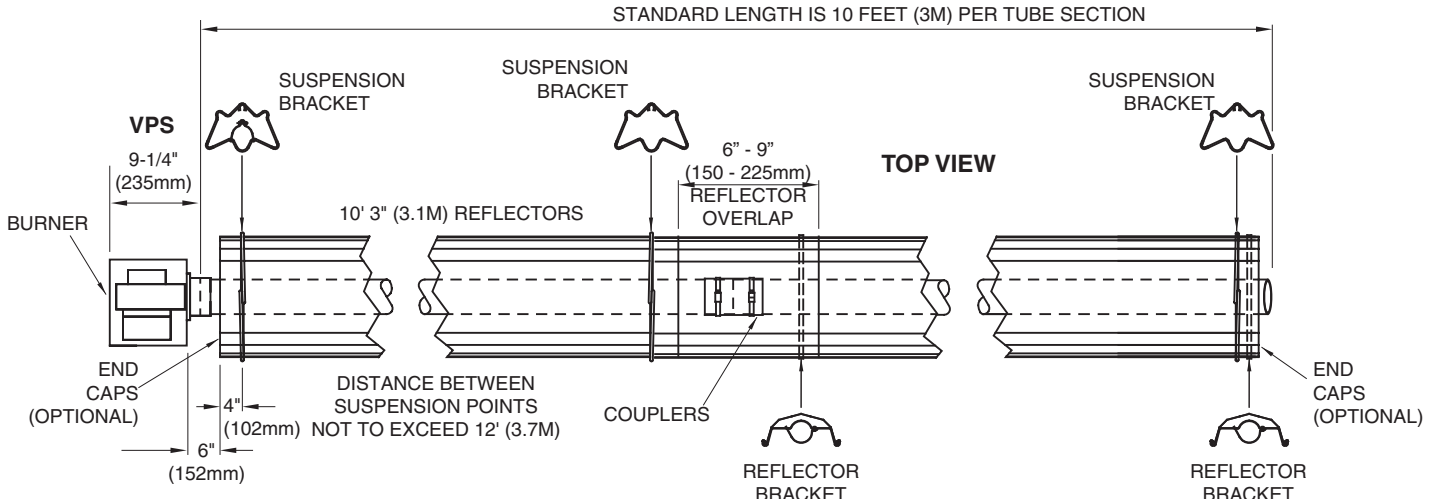




# DIMENSIONS & WEIGHTS

## DIMENSIONS

The following illustrations will help to determine the overall dimensions of a complete infrared, tube heating system. Due to overlapping reflectors, etc., some dimensions are subject to change. For more detailed layout designs and dimensions, please refer to the installation manual.



# DIMENSIONS & WEIGHTS continued

## NET WEIGHTS

Use the following tables to determine the installed weight of the radiant tube system. Simply add the weights for the different components. The formula to use is the weight of the Burner Box (B) plus the number of ten foot tube and reflector sections (we'll call it N - for a twenty foot long system use "2") times the 10 ft. tube sections (T) plus any other sections - 5 foot section (F), "U" tube section (U) plus "L" tube section (L).

The formula would be

$$\text{Installed Weight} = B + (N \times T) + F + U + L$$

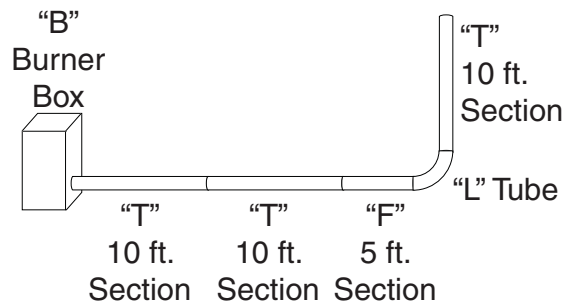
For the example installation below for a Model VCS, there would be a burner box, 3 - ten foot sections, a 5 foot section and an "L" tube. U would equal zero (0) since no "U" tube is installed.

$$\text{Installed Weight} = 34 + (3 \times 14.5) + 10 + 0 + 10$$

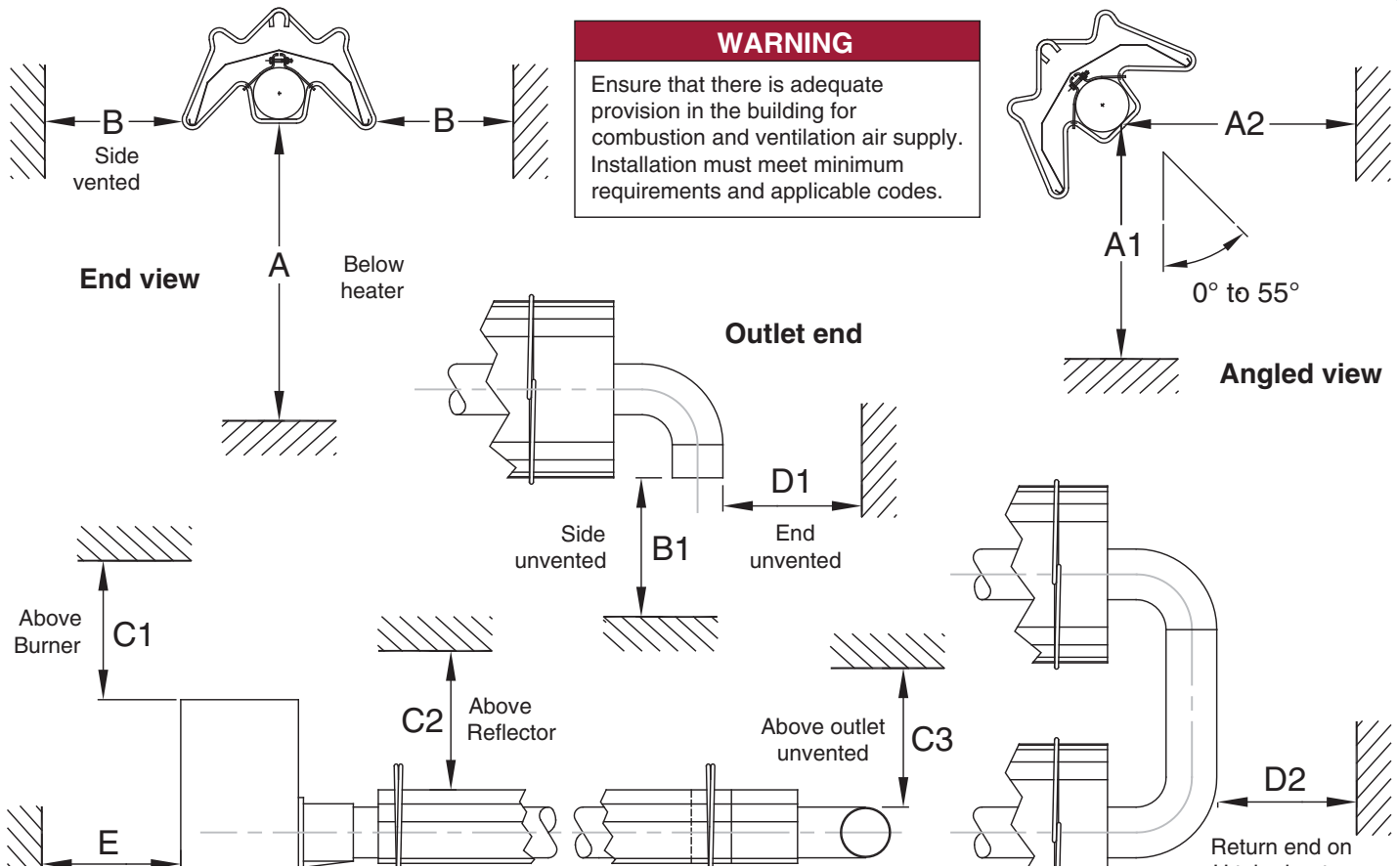
The total installed weight would be 97.5 lbs. or 44.2 kg.

Tube Material	T		F		U		L	
	10 Ft Tube and Reflectors		5 Ft Tube Section		"U" Tube Section		"L" Tube Section	
	lb	kg	lb	kg	lb	kg	lb	kg
<b>Rolled Steel and/or Calcoat</b>	13	5.9	7	3.2	13	5.9	10	4.5

Model	B	
	Burner Box	
	lb	kg
<b>VPS</b>	25	11.5
<b>VPT</b>	29	13.3
<b>VCS</b>	34	15.3
<b>VCT</b>	38	17.2



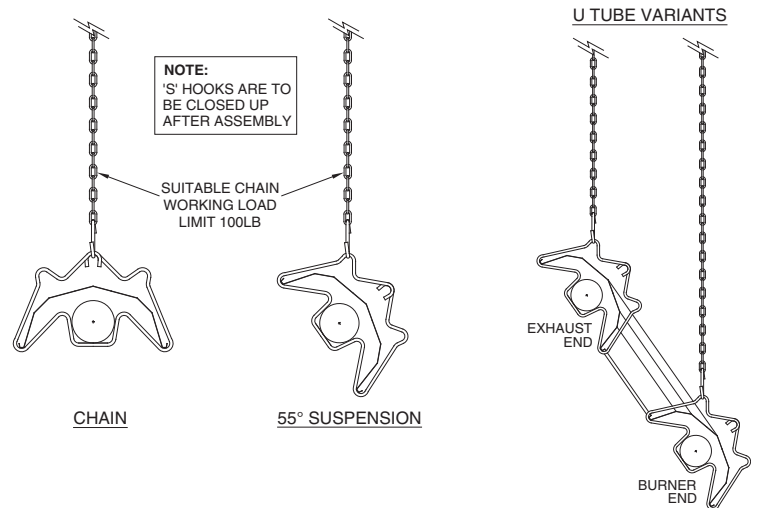
# CLEARANCES TO COMBUSTIBLES



**WARNING**  
 Ensure that there is adequate provision in the building for combustion and ventilation air supply. Installation must meet minimum requirements and applicable codes.

## MINIMUM AND RECOMMENDED MOUNTING HEIGHTS FEET (METERS)

Size	Standard		Angled	
	minimum	recommended	minimum	recommended
	ft (M)	ft (M)	ft (M)	ft (M)
60	12 (3.7)	14 (4.3)	10 (3.0)	11 (3.4)
80	12 (3.7)	14 (4.3)	10 (3.0)	11 (3.4)
100	14 (4.3)	16 (4.9)	12 (3.7)	13 (4.0)
125	14 (4.3)	16 (4.9)	12 (3.7)	13 (4.0)
150	16 (4.9)	18 (5.5)	14 (4.3)	15 (4.6)
170	16 (4.9)	18 (5.5)	14 (4.3)	15 (4.6)
200	18 (5.5)	20 (6.1)	16 (4.9)	17 (5.2)



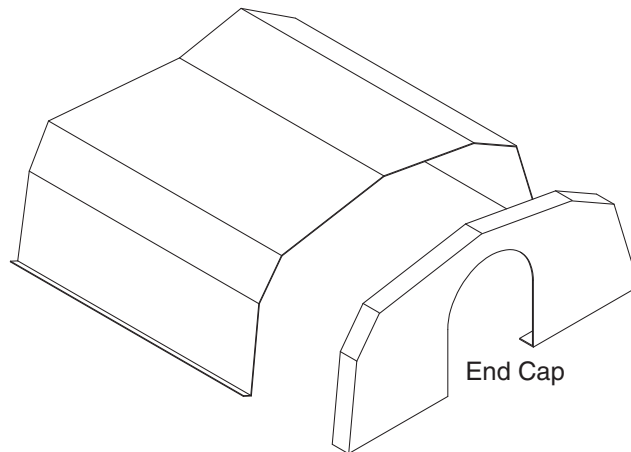
**NOTE:** The minimum clearances to combustible materials are given in the table above. These minimum distances MUST be adhered to at all times.

# CLEARANCES TO COMBUSTIBLES continued

## MINIMUM AND RECOMMENDED MOUNTING HEIGHTS INCHES (CM)

Model	A	A1/A2	B	B1	C1	C1 <sup>A</sup>	C2	C3	D1	D2	E
60	74	15° = 72 (183) 25° = 68 (173) 35° = 61 (155) 45° = 53 (135) 55° = 42 (110)	29	41	20	10	8	22	8	12	
	(188)		(74)	(105)	(51)	(26)	(21)	(56)	(21)	(31)	
80	74		29	41	20	10	8	22	8	12	
	(188)		(74)	(105)	(51)	(26)	(21)	(56)	(21)	(31)	
100	74		32	41	20	10	8	22	8	16	12
	(188)		(82)	(105)	(51)	(26)	(21)	(56)	(21)	(41)	(31)
125	74		39	47	20	10	8	22	20	18	12
	(188)		(99)	(120)	(51)	(26)	(21)	(56)	(51)	(46)	(31)
150	74		39	48	20	10	8	22	20	18	12
	(188)		(99)	(122)	(51)	(26)	(21)	(56)	(51)	(46)	(31)
170	86		48	20	10	11	22	20		12	
	(219)		(122)	(51)	(26)	(28)	(56)	(51)		(31)	
200	86	48	20	10	11	22	20		12		
	(219)	(122)	(51)	(26)	(28)	(56)	(51)		(31)		

<sup>A</sup> Clearances when system is fitted with end caps.



# HEATER CONFIGURATIONS - FOR USE WITH NATURAL GAS ONLY

## SINGLE-STAGE HEATERS

Models VPS, VCS	U Tube				Straight Tube								1 or 2 "L" Tube Kits
	U20	U40	U60	U80	S20	S30	S40	S50	S60	S70	S80		
60	✓	✓			✓	✓	✓					✓	
80		✓				✓	✓					✓	
100		✓				✓	✓	✓				✓	
125		✓	✓			✓	✓	✓	✓			✓	
150		✓	✓				✓	✓	✓	✓		✓	
170			✓	✓				✓	✓	✓	✓	✓	
200			✓	✓				✓	✓	✓	✓	✓	

## TWO-STAGE HEATERS

Models VPT, VCT	U Tube				Straight Tube								1 or 2 "L" Tube Kits
	U20	U40	U60	U80	S20	S30	S40	S50	S60	S70	S80		
60	✓	✓			✓	✓	✓					✓	
80		✓				✓	✓					✓	
100		✓				✓	✓					✓	
125		✓				✓	✓	✓				✓	
150		✓	✓				✓	✓	✓			✓	
170			✓					✓	✓	✓		✓	
200			✓					✓	✓	✓		✓	

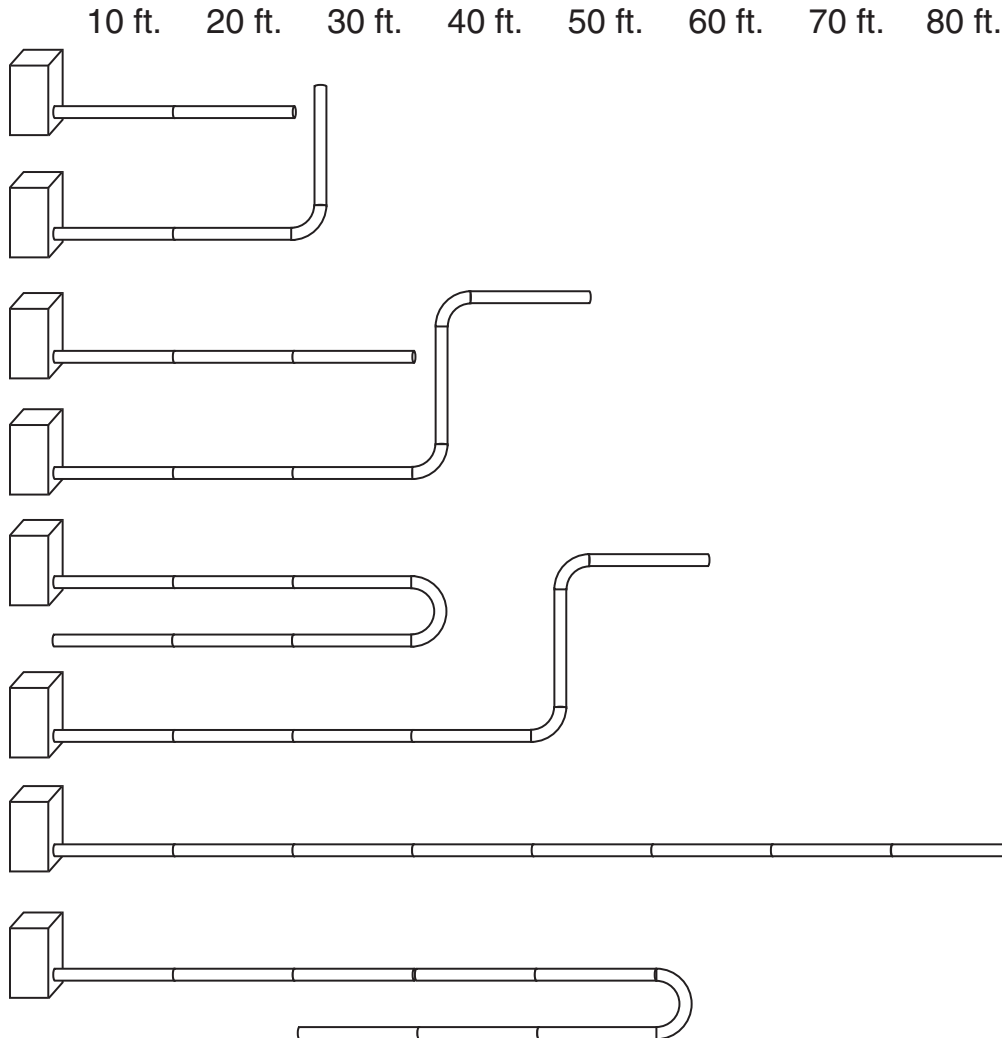
**NOTE:** The minimum and maximum length are shown for each burner box. A five foot tube section (package -HS) can be added for system lengths between the minimum and maximum length.

**Example:** VCS-30 can be used with 35 or 45 ft. tube system lengths. It can NOT be used for 25 or 55 ft. lengths.

# HEATER CONFIGURATIONS - FOR USE WITH NATURAL GAS ONLY continued

## TYPICAL HEATER CONFIGURATIONS

The following sketches are representative of various ways the tubular, radiant heaters can be configured. It is important to follow the limitations listed in the note section below and the tables on page 13. Alternate configurations are available. Some configurations are limited to single stage heaters (Models VPS or VCS) only.



### NOTE:

- The minimum length allowed is 20 ft. The maximum length allowed is 80 ft. A five foot tube section (package -H or -HS) can be added for lengths between 25 and 75 ft. Total tube system lengths of 15 ft and 85 ft. are NOT allowed.
- "U" and "L" tubes must be installed AT or AFTER the halfway length of the tube system. For example: on a 60 ft. system, the "U" or "L" tube must be installed at least 30 ft. from the burner box.
- Limited number of bends
  - Maximum two "L" tubes may be used in a single system
  - Maximum one "U" tube may be used in a single system
  - Maximum one "U" tube AND one "L" tube may be used ONLY if the "L" tube is the last section in the system

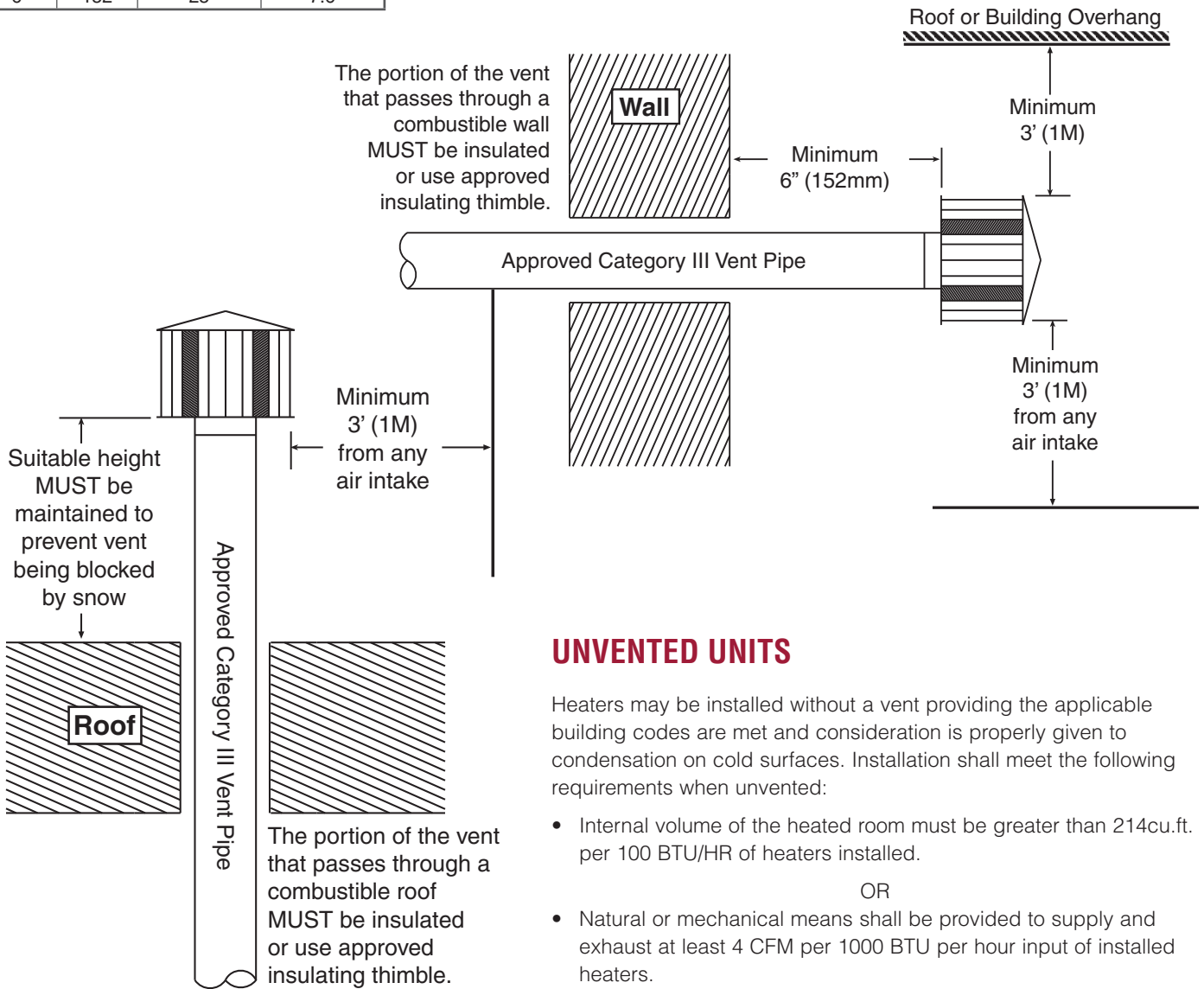
# VENTING

## HORIZONTAL OR VERTICAL VENTING

Heaters may be vented vertically or horizontally using approved category B vent cap. Distances from adjacent public walkways, adjacent buildings, openable windows and other building openings, must be consistent with the National Fuel Gas Code, ANSI Z223.1/NFPA 54 or the Natural Gas and Propane Installation Code, CSA B149.1.

See maximum vent length table (right). The exhaust vent may include up to two (2) 90° radius elbows. For complete venting instructions see the installation manual.

Vent Diameter		Maximum Vent Lengths	
inches	mm	feet	meters
4	102	12	3.7
6	152	25	7.6



## UNVENTED UNITS

Heaters may be installed without a vent providing the applicable building codes are met and consideration is properly given to condensation on cold surfaces. Installation shall meet the following requirements when unvented:

- Internal volume of the heated room must be greater than 214cu.ft. per 100 BTU/HR of heaters installed.
- OR
- Natural or mechanical means shall be provided to supply and exhaust at least 4 CFM per 1000 BTU per hour input of installed heaters.
  - Combustion gasses shall not impinge on combustible materials with a temperature in excess of 150°F.

# TUBE PACKAGES

## TUBE PACKAGE ASSEMBLY CONTENTS

When ordering a tube package for Model VPS or VPT, specify complete model: i.e. VP-A for a 20 foot long section of tubes (one Calcoat and one rolled steel). For humid environments, specify Model VC-.

Model VP-	A	B	C	D	E	H	U	L
Part Number	270270	270271	270272	270273	270274	270275	270276	270277
<b>Ship Weight (lbs.)</b>	<b>26</b>	<b>39</b>	<b>39</b>	<b>26</b>	<b>39</b>	<b>7</b>	<b>13</b>	<b>10</b>
10 foot Calcoat™ combustion chamber	1	1	2	-	-	-	-	-
10 foot rolled steel heat exchanger(s)	1	2	1	2	3	-	-	-
5 foot rolled steel heat exchanger	-	-	-	-	-	1	-	-
Rolled steel “u ” tube	-	-	-	-	-	-	1	-
Rolled steel “l ” tube	-	-	-	-	-	-	-	1
<b>10 foot reflectors</b>	<b>2</b>	<b>3</b>	<b>3</b>	<b>2</b>	<b>3</b>	-	-	-
<b>5 foot reflectors</b>	-	-	-	-	-	1	-	-
<b>Corner reflector(s)</b>	-	-	-	-	-	-	2	1
Tube coupler(s)	1	2	2	2	3	1	1	1
Suspension bracket(s)	2	3	3	2	3	1	1	1
<b>Reflector support bracket assembly(ies)</b>	<b>2</b>	<b>3</b>	<b>3</b>	<b>2</b>	<b>3</b>	<b>1</b>	<b>1</b>	-
Turbulators	3	5	-	4	-	-	-	-

Model VC-	AS	BS	HS	US	LS
Part Number	270280	270281	270282	270283	270284
<b>Ship Weight (lbs.)</b>	<b>29</b>	<b>44</b>	<b>10</b>	<b>17</b>	<b>10</b>
10 foot Calcoat tubes	2	3	-	-	-
5 foot stainless steel heat exchanger	-	-	1	-	-
Stainless steel “u ” tube	-	-	-	1	-
Stainless steel “l ” tube	-	-	-	-	1
<b>10 foot stainless steel reflectors</b>	<b>2</b>	<b>3</b>	-	-	-
<b>5 foot stainless steel reflector</b>	-	-	1	-	-
<b>Stainless steel corner reflector(s)</b>	-	-	-	2	1
Stainless steel tube coupler(s)	2	3	1	1	1
Stainless steel suspension bracket(s)	2	3	1	1	1
<b>Stainless steel reflector support bracket assembly(ies)</b>	<b>2</b>	<b>3</b>	<b>1</b>	<b>1</b>	-
Turbulators	3	5	-	-	-



# TUBE PACKAGES continued

## TUBE PACKAGE SELECTION MATRIX

To order modular components for easy stocking or replacement of lost/damaged components select burner boxes and tube packages individually. Tube packages can be ordered by model numbers.

The table below shows which tube packages, and burner inserts, should be ordered for various system lengths. Burner insert option codes and quantity (in parenthesis) shown on rows marked "Inserts." in the table below. Please contact your Factory Representative for assistance.

**NOTE:** When using a "U" or "L" bend tube, refer to the installation manual to determine whether a burner insert is required.

### VP SERIES TUBE PACKAGE MATRIX

		Natural Gas	60	80	100	125	150	170	200
System Length (ft)	20	Tube Pkg(s)	VP-A	•	•	•	•	•	•
		Inserts	TB1						
	30	Tube Pkg(s)	VP-b	VP-b	VP-b	VP-b	•	•	•
		Inserts	TB1	TB1	TB1	TB2			
	40	Tube Pkg(s)	VP-A, VP-d	VP-A, VP-d	VP-A, VP-d	VP-A, VP-d	VP-A, VP-d	•	•
		Inserts	TB1	TB1	TB1	TB2	-		
	50	Tube Pkg(s)	•	•	VP-A, VP-E <sup>H</sup>	VP-A, VP-E	VP-A, VP-E	VP-C, VP-d	VP-C, VP-d
		Inserts			TB1	TB2	-	-	-
	60	Tube Pkg(s)	•	•	•	VP-C, VP-E <sup>H</sup>	VP-C, VP-E	VP-C, VP-E	VP-C, VP-E
		Inserts				TB2	-	-	-
	70	Tube Pkg(s)	•	•	•	•	VP-C, (2) VP-d <sup>H</sup>	VP-C, (2) VP-d	VP-C, (2) VP-d
		Inserts					-	-	-
	80	Tube Pkg(s)	•	•	•	•	•	VP-A, (2) VP-b <sup>H</sup>	VP-A, (2) VP-b <sup>H</sup>
		Inserts						-	-

		Propane	60	80	100	125	150	170	200
System Length (ft)	20	Tube Pkg(s)	VP-A	•	•	•	•	•	•
		Inserts	-						
	30	Tube Pkg(s)	VP-b	VP-b	VP-b	VP-b	•	•	•
		Inserts	-	-	-	-			
	40	Tube Pkg(s)	VP-A, VP-d	VP-A, VP-d	VP-A, VP-d	VP-A, VP-d	VP-A, VP-d	•	•
		Inserts	-	-	-	-	-		
	50	Tube Pkg(s)	•	•	VP-A, VP-E <sup>H</sup>	VP-A, VP-E	VP-A, VP-E	VP-C, VP-d	•
		Inserts			-	-	-	-	
	60	Tube Pkg(s)	•	•	•	VP-C, VP-E <sup>H</sup>	VP-C, VP-E	VP-C, VP-E	•
		Inserts				-	-	-	
	70	Tube Pkg(s)	•	•	•	•	VP-C, (2) VP-d <sup>H</sup>	VP-C, (2) VP-d	•
		Inserts					-	-	
	80	Tube Pkg(s)	•	•	•	•	•	VP-A, (2) VP-b <sup>H</sup>	•
		Inserts						-	

<sup>H</sup> Not available in two-stage (Model VCT or VPT).

# TUBE PACKAGES continued

## VC SERIES TUBE PACKAGE MATRIX

		Natural Gas	60	80	100	125	150	170	200
System Length (ft)	20	Tube Pkg(s)	VC-AS	•	•	•	•	•	•
		Inserts	TB1						
	30	Tube Pkg(s)	VC-b S	VC-b S	VC-b S	VC-b S	•	•	•
		Inserts	TB1	TB1	TB1	TB2			
	40	Tube Pkg(s)	(2) VC-AS	(2) VC-AS	(2) VC-AS	(2) VC-AS	(2) VC-AS	•	•
		Inserts	TB1	TB1	TB1	TB2	-		
	50	Tube Pkg(s)	•	•	VC-AS, VC-b S <sup>H</sup>	VC-AS, VC-b S	VC-AS, VC-b S	VC-AS, VC-b S	VC-AS, VC-b S
		Inserts			TB1	TB2	-	-	-
	60	Tube Pkg(s)	•	•	•	(2) VC-b S <sup>H</sup>	(2) VC-b S	(2) VC-b S	(2) VC-b S
		Inserts				TB2	-	-	-
	70	Tube Pkg(s)	•	•	•	•	(2) VC-AS, VC-b S <sup>H</sup>	(2) VC-AS, VC-b S	(2) VC-AS, VC-b S
		Inserts					-	-	-
	80	Tube Pkg(s)	•	•	•	•	•	VC-AS, (2) VCS-b <sup>H</sup>	VC-AS, (2) VCS-b <sup>H</sup>
		Inserts						-	-

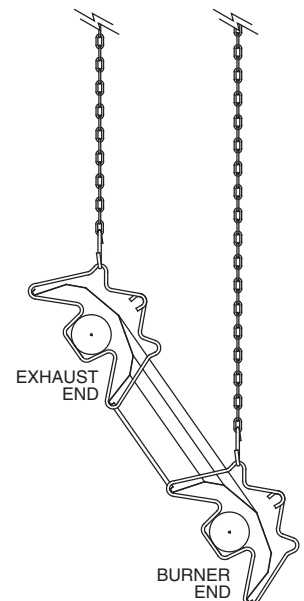
		Propane	60	80	100	125	150	170	200
System Length (ft)	20	Tube Pkg(s)	VC-AS	•	•	•	•	•	•
		Inserts	-						
	30	Tube Pkg(s)	VC-b S	VC-b S	VC-b S	VC-b S	•	•	•
		Inserts	-	-	-	-			
	40	Tube Pkg(s)	(2) VC-AS	(2) VC-AS	(2) VC-AS	(2) VC-AS	(2) VC-AS	•	•
		Inserts	-	-	-	-	-		
	50	Tube Pkg(s)	•	•	VC-AS, VC-b S <sup>H</sup>	VC-AS, VC-b S	VC-AS, VC-b S	VC-AS, VC-b S	•
		Inserts			-	-	-	-	
	60	Tube Pkg(s)	•	•	•	(2) VC-b S <sup>H</sup>	(2) VC-b S	(2) VC-b S	•
		Inserts				-	-	-	
	70	Tube Pkg(s)	•	•	•	•	(2) VC-AS, VC-b S <sup>H</sup>	(2) VC-AS, VC-b S	•
		Inserts					-	-	
	80	Tube Pkg(s)	•	•	•	•	•	VC-AS, (2) VCS-b <sup>H</sup>	•
		Inserts						-	

<sup>H</sup> Not available in two-stage (Model VCT or VPT).

**NOTE:** The minimum and maximum length are shown for each burner box. A 5-ft. tube section (package -H or -HS) can be added for system lengths between the minimum and maximum length.

**Example:** Model VPS-30 can be used with 35 or 45 ft. tube system lengths. It can NOT be used for 25 or 55 ft. lengths. When using a 5-ft. section, "U," or "L" bend tube, refer to the installation manual to determine whether a burner insert is required.

**NOTE:** On "U" tube installation when the heater is installed at an angle, it should slope UPWARDS towards the EXHAUST END.



# SAMPLE SPECIFICATION

## VP SERIES - POSITIVE PRESSURE RADIANT HEATERS

Provide Model VP\_ gas-fired tubular radiant heaters. The heaters shall be Model VPS/VPT, radiant tubular heating system with a power burner housed (on [Model VPS]) (in [Model VPT]) a burner/control box firing into a 4" diameter combustion chamber tube. The burner/control box and tubular system shall be designed for horizontal suspension.

### HEATING SPECIFICATIONS

Units shall be (60) (80) (100) (125) (150) (170) (200) MBH capacity, and shall be equipped for use with natural gas (supplied with propane conversion kit) with 115/1/60 (208/1/60) (230/1/60) (220-240/1/50) supply voltage. Units shall be approved for installation (up to 2,000 ft. above sea level [U.S.]) (over 2,000 ft. above sea level with a high elevation adapter [U.S.]) (up to 4,500 feet above sea level [Canada]).

Unit shall include a (single-stage [VPS]) (two-stage [VPT]) gas valve and a single-speed [VPS] (two-speed [VPT]) combustion fan. The burner control system shall have a 24-volt transformer; a multi-try direct spark ignition with soft lockout; (single-stage combination gas valve [Model VPS]) (two-stage gas valve [Model VPT]); LED diagnostic light; power "ON" indicator light; burner "ON" indicator light; (burner "HI/LOW" indicator light [Model VPT]); a power burner with pre-purge and post purge; and a differential air pressure switch to monitor combustion air. Gas connection to the unit must be with approved flexible connector.

### TUBE SECTION

The tubular system shall include (Calcoat™ and rolled steel) (Calcoat™) tubes. Tube length shall be (20 ft.) (25 ft.) (30 ft.) (35 ft.) (40 ft.) (45 ft.) (50 ft.) (55 ft.) (60 ft.) (65 ft.) (70 ft.) (75 ft.) (80 ft.) and include (a "U" shaped tube) ([one] [two] "L" shaped tubes) (with a [burner insert] [turbulator strip]). Tubes will be connected to each other with (rolled steel) (stainless steel) couplings.

System shall also include aluminized steel (400 series stainless steel) overlapping reflectors with reflector retainers, (and end covers).

The entire system will be suspended with (aluminized steel) (stainless steel) suspension hangers, (standard [stainless steel] chain and "S" hooks). (System will be leveled by use of standard [stainless steel] turnbuckle kits.)

Heater may be vented horizontally or vertically and may operate on (inside) (outside) combustion air. Reflectors may be positioned from horizontal to 55° angle.

(Additional optional features to include flexible gas connector.)

### CERTIFICATIONS

These units must be approved for use in the United States and Canada by the Canadian Standards Association (CSA). The manufacturer shall provide a 5-year limited warranty on the burner and all electrical and mechanical operating components and a 10-year limited warranty on the tubes.

(Capacities, lengths, illustrations, and additional field-installed options as described in catalog.).

## VC SERIES - HARSH ENVIRONMENT RADIANT HEATERS

Provide Model VC\_ gas-fired tubular radiant heaters. The heaters shall be Model VCS/VCT, radiant tubular heating system with a power burner housed in a stainless steel burner/control box firing into a 4" diameter combustion chamber tube. The burner/control box and tubular system shall be designed for horizontal suspension.

### HEATING SPECIFICATIONS

Units shall be (60) (80) (100) (125) (150) (170) (200) MBH capacity, and shall be equipped for use with natural gas (supplied with propane conversion kit) with 115/1/60 (208/1/60) (230/1/60) (220-240/1/50) supply voltage. Units shall be approved for installation (up to 2,000 ft. above sea level [U.S.]) (over 2,000 ft. above sea level with a high elevation adapter [U.S.]) (up to 4,500 feet above sea level [Canada]).

Unit shall include a (single-stage [VCS]) (two-stage [VCT]) gas valve and a single-speed [VCS] (two-speed [VCT]) combustion fan. The burner control system shall have a 24-volt transformer; a multi-try direct spark ignition with soft lockout; (single-stage combination gas valve [Model VCS]) (two-stage gas valve [Model VCT]); LED diagnostic light; power "ON" indicator light; burner "ON" indicator light; (burner "HI/LOW" indicator light [Model VCT]); a power burner with pre-purge and post purge; and a differential air pressure switch to monitor combustion air. Gas connection to the unit must be with approved flexible connector.

### TUBE SECTION

The tubular system shall include (Calcoat™ and rolled steel) (Calcoat™) tubes. Tube length shall be (20 ft.) (25 ft.) (30 ft.) (35 ft.) (40 ft.) (45 ft.) (50 ft.) (55 ft.) (60 ft.) (65 ft.) (70 ft.) (75 ft.) (80 ft.) and include (a "U" shaped tube) ([one] [two] "L" shaped tubes) (with a [burner insert] [turbulator strip]). Tubes will be connected to each other with stainless steel couplings.

System shall also include 400 series stainless steel overlapping reflectors with reflector retainers, (and end covers).

(The entire system will be suspended with stainless steel suspension hangers, stainless steel chain and "S" hooks). (System will be leveled by use of stainless steel turnbuckle kits.)

Heater may be vented horizontally or vertically and may operate on (inside) (outside) combustion air. Reflectors may be positioned from horizontal to 55° angle.

(Additional optional features to include wind and rain hood, flexible gas connector.)

**REZNOR**®

# **SAMPLE SPECIFICATION** *continued*

## **VC SERIES - HARSH ENVIRONMENT RADIANT HEATERS** *continued*

### **CERTIFICATIONS**

These units must be approved for use in the United States and Canada by the Canadian Standards Association (CSA). Unit shall have an IPX5 rating.

Units shall be approved for (indoor/outdoor commercial/industrial) (outdoor residential) applications.

(Capacities, lengths, illustrations, and additional field-installed options as described in catalog.)

# RIH INFRARED HEATERS

## GAS-FIRED HIGH INTENSITY INFRARED HEATERS FOR INDOOR COMMERCIAL-INDUSTRIAL USE

High Intensity Infrared Models RIH, RIHV are designed to provide personal comfort heating with reduced energy cost. Units are available in sizes from 30,000 through 200,000 BTUH gas input for use with natural gas and sizes from 50,000 through 120,000 BTUH gas input for use with propane.

Infrared heaters can best be compared to the sun in how they heat. On a bright sunny day, you can feel the infrared rays of the sun heating your skin surface. The same infrared rays are also heating the concrete sidewalks and buildings. Infrared heating equipment works the same way - it warms people, heats floors, walls, machinery and other surfaces, without heating the air between. The "infrared heated" objects in turn warm the surrounding air. Eliminated are the costly ceiling heat losses and discomforts of cold air stratification that are so familiar with conventional forced air heating systems. Infrared heat assures floor level comfort with fuel savings up to 50%. Electrical energy is also saved because there is no need for a fan or blower.

In addition to the gas and electric energy savings, infrared heaters have other economical installation and operational features. Model RIH, RIHV heaters can be suspended by chains from a joist or mounted to a wall, making them well suited for space or spot heating. Direct venting is not required. Operational service and maintenance requirements are minimal due to the absence of moving parts.

Some sizes can be ordered with optional 2-stage heating. The first stage will fire at 1/2 or 2/3 of total capacity. If more heat is required second stage will fire for full capacity. A 2-stage thermostat must be used with 2-stage heaters. Two-stage operation provides fewer on/off cycles for improved comfort and longer life.

Model RIH, RIHV high intensity infrared units are design certified for use in The United States and Canada by the Canadian Standards Association (CSA).

### STANDARD FEATURES

- 115 volt operation for single-stage models, 24 volt operation for 2-stage models
- Direct spark ignition, 100% safety shut-off
- Solenoid gas valve, 1/2" NPT inlet
- Ceramic combustion surface temperature up to 1850°F, capable of reaching full intensity temperature in less than 30 seconds
- Seamless aluminized steel plenum chamber with stainless steel ceramic tile retainer clips
- Venturi mixer of spun metal construction for precision metering of air/gas mixture
- Highly polished aluminum reflector
- Balanced suspension holes, 3/8" diameter

### OPTIONAL FEATURES

- Limited lifetime warranty available on burner
- Parabolic reflector
- Wire grid for increased radiant efficiency
- Protective screens for standard reflector or parabolic reflector
- Heat deflector shield (to reduce required clearance above the heater) only available on 60 and 100 sizes
- 120/24V Thermostat (50° - 90°F)
- 2-Stage heating on sizes 90, 100, 120, 150
- 2-Stage 24V thermostat for use with 2-stage heaters only.
- Stainless steel flexible connector (24") with manual valve
- Chain (50 ft.) with 14 "S" hooks
- Chain mounting kit (pre-assembled for one heater) for mounting heater at a 30° angle

**NOTE:** Not approved for outdoor use.



# RIH INFRARED HEATERS continued

## TECHNICAL DATA

Models		Natural Gas						Propane Gas			
		RIHN 30 <sup>A</sup>	RIHN 60 <sup>B</sup>	RIHVN 100 <sup>C</sup>	RIHVN 150 <sup>C</sup>	RIHVN 160	RIHVN 200 <sup>C</sup>	RIHL 50	RIHVL 90 <sup>C</sup>	RIHVL 120 <sup>C</sup>	
Heating Input	MBH	30	60	100	150	160	200	50	90	120	
	kW	8.8	17.6	29.3	44.0	46.9	58.6	14.7	26.4	35.2	
Inlet Gas Pressure	Minimum	w.c.	7	7	7	7	7	7	11	11	11
		mbar	17	17	17	17	17	17	27	27	27
	Maximum	w.c.	14	14	14	14	14	14	14	14	14
		mbar	35	35	35	35	35	35	35	35	35
Allowable Mounting Angle (in degrees)		0 - 30 deg.	0 - 30 deg.	5 - 30 deg.	0 - 30 deg.	5 - 30 deg.	5 - 30 deg.	10 - 30 deg.	10 - 30 deg.	30 deg.	
Gas Connection	inches	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	
	mm	13	13	13	13	13	13	13	13	13	
Shipping Weight <sup>D</sup>	lbs	30	30	36	49	62	62	30	36	49	
	kg	14	14	16	22	28	28	14	16	22	

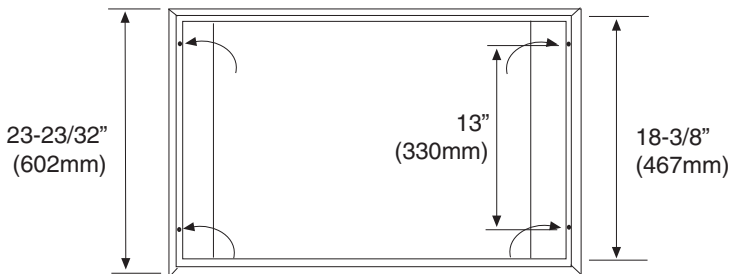
<sup>A</sup> MODEL RIHN30 is not available in Canada.

<sup>B</sup> MODEL RIHN60 in Canada requires addition of a wire grid, Option DN2.

<sup>C</sup> These sizes are available in two-stage operation see explanation below.

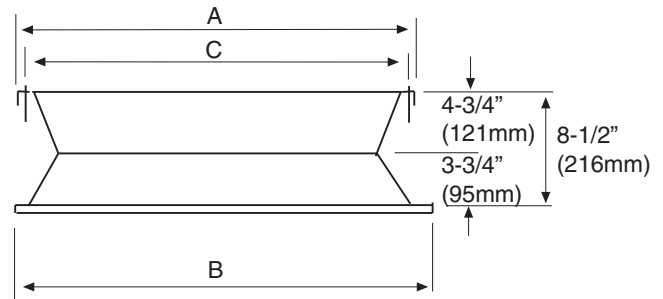
<sup>D</sup> Weights are for single stage units; add 6 lbs (3 kg) for two-stage units.

## DIMENSIONS (+ OR - 1/8" OR 3MM)



3/4" (19mm) DIA. MOUNTING HOLES -  
Four (4) for balanced suspension -  
Dimension "C" x 13" (330mm)

TOP VIEW



FRONT VIEW

Size	A		B		C	
	inches	mm	inches	mm	inches	mm
30, 50, 60	15 5/16	389	16 5/8	422	14 5/8	371
90, 100	23 15/16	608	25 1/4	641	23 1/4	591
120, 150, 160	32 9/16	827	33 7/8	860	31 7/8	810
200	41 13/16	1,062	42 1/2	1,080	40 1/2	1,029

## 2-STAGE OPERATION

Model Size	Fuel	MBH	
		First Stage	Full Capacity
RIHVL 90	Propane	45	90
RIHVN 100	Natural Gas	50	100
RIHVL 120	Propane	80	120
RIHVN 150	Natural Gas	100	150
RIHVN 200	Natural Gas	100	200

## RIH INFRARED HEATERS *continued*

### VENTILATION REQUIREMENTS

Every direct gas-fired heater installation requires sufficient fresh air to provide adequate combustion air and removal of products of combustion. In the U.S. the minimum intake and exhaust air opening shall provide for not less than 4 CFM per 1,000 BTUH (0.38 m<sup>3</sup>/minute per kW). Canada requires 3 CFM per 1,000 BTUH (0.29 m<sup>3</sup>/minute per kW) for natural gas, and 4 CFM per 1,000 BTUH (0.38 m<sup>3</sup>/minute per kW) for LP/propane. In the U.S., this may be accomplished by either gravity or mechanical means. In Canada, the Natural Gas and Propane Installation Code CAN/CSA B149.1 (latest edition) requires the use of mechanical ventilation. This may be accomplished by the use of exhaust fans and fresh air intake openings. Both exhaust fans and inlet air openings are required in tight buildings. Exhaust openings for removing flue products shall be above the level of the heater.

When mechanical means are provided to supply and exhaust, a positive interlock with the heater thermostat must be provided by the installer so that the heater cannot operate unless the supply and exhaust system is operating.

# LOCATION/INSTALLATION

## CLEARANCE FROM COMBUSTIBLES (SEE DIAGRAM BELOW)

Model		Natural Gas						Propane Gas		
		RIHN		RIHVN				RIHL	RIHVL	
Size		30 <sup>A</sup>	60 <sup>B</sup>	100 <sup>C</sup>	150	160 <sup>C</sup>	200	50 <sup>C</sup>	90 <sup>C</sup>	120 <sup>C</sup>
Side Clearance	inches	30	36	46	46	48		30	36	46
	mm	762	914	1,168	1,168	1,219		762	914	1,168
Back Clearance	inches	30		33				30		33
	mm	762		838				762		838

### Top Clearance

Mounted 0 - 29° (no heat deflector)	inches	60	62	64	68	60	62
	mm	1,524	1,575	1,626	1,727	1,524	1,575
Mounted 30° only (no heat deflector)	inches	48	50	58	68	48	50
	mm	1,219	1,270	1,473	1,727	1,219	1,270
Mounted 0 - 30° with heat deflector, option DO2 or DN4	inches	34	38	N/A		28	38
	mm	864	965	N/A		711	965

### Below Clearance

Standard Reflector	inches	80	105	125	140	80	105	125
	mm	2,032	2,667	3,175	3,556	2,032	2,667	3,175
With Parabolic Reflector, option DM2 or DN4	inches	110	135	165	180	110	135	165
	mm	2,794	3,429	4,191	4,572	2,794	3,429	4,191

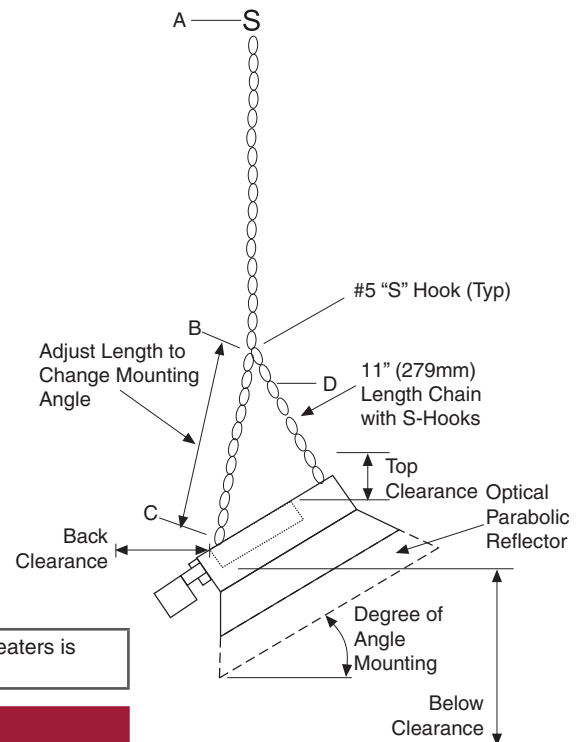
<sup>A</sup> Model RIHN 30 is not available in Canada.

<sup>B</sup> Model RIHN60 in Canada requires addition of wire grid, Option DN2.

<sup>C</sup> See allowable mounting angles on previous page.

## INSTRUCTIONS

1. Hang full length chains at desired height and attach to back of heater (C) with S-hooks.
2. Attach one end of the 11" (279mm) length chain with S-hooks to front of heater (D).
3. Place other end of chain with S-hooks in loop (B) on the full length chain.
4. Check degree of angle mounting. Adjust degree of mounting angle by moving "S" hooks at point B.
5. Check to be sure unit is level. Crimp all "S" hooks closed.



**COVERAGE** - For complete space heating coverage, maximum distance between heaters is two times the mounting height.

### Recommended Distances for Units Mounted HORIZONTALLY

Model	Distance from the Wall		Maximum Distance Between Heater Rows
	With Standard Reflector	With Parabolic Reflector, Option DM2 or DN4	
RIHN 30	8 ft (2.4M)	5 ft (1.5M)	90 ft (27.4M)
RIHL 50 & RIHN 60	12 ft (3.7M)	9 ft (2.7M)	100 ft (30.5M)
RIHVL 90 & RIVN 100	16 ft (4.9M)	12 ft (3.7M)	110 ft (33.5M)
RIHVL 120	18 ft (5.5M)	14 ft (4.3M)	115 ft (35.1M)
RIHVN 150	20 ft (6.1M)	15 ft (4.6M)	12 ft (36.6M)
RIHVN 160 & RIHVN 200	24 ft (7.3M)	20 ft (6.1M)	130 ft (39.6M)



# LOCATION/INSTALLATION continued

## MOUNTING ANGLE MUST BE WITHIN THE TOLERANCE ALLOWED

Model	Allowable Mounting Angle Range	Important
RIHN 30	HORIZONTAL to 30 degree	<p>When angle mounted, all RIHV Models must be installed with the gas manifold on the lower end.</p> <p>When angle mounted, RIH Models must be installed with the gas valve on the high side.</p> <p>Do not angle heaters more than 30°.</p>
RIHL 50	HORIZONTAL to 30 degree	
RIHN 60	HORIZONTAL to 30 degree	
RIHVL 90	5 to 29 degree	
RIVN 100	5 to 29 degree	
RIHVL 120	HORIZONTAL to 30 degree	
RIHVN 150	HORIZONTAL to 30 degree	
RIHVN 160	5 to 29 degree	
RIHVN 200	HORIZONTAL to 30 degree	

## MINIMUM MOUNTING HEIGHT

Model	Allowable Mounting Angle Range				Important			
	Horizontal		30°		Horizontal		30°	
	ft	M	ft	M	ft	M	ft	M
RIHN 30	11.0 - 13.0	3.4 - 4	10.0 -12.0	3 - 3.7	N/A			
RIHL 50 <sup>D</sup>	13.5 - 15.5	4.1 - 4.7	12.5 -14.5	3.8 - 4.4	15.5 - 18.5	4.7 - 5.6	14.0 - 17.0	4.3 - 5.2
RIHN 60	14.5 - 16.5	4.4 - 5	13.0 -15.0	4 - 4.6	16.0 - 20.0	4.9 - 6.1	15.0 - 18.0	4.6 - 5.5
RIHVL 90 <sup>D</sup>	16.0 - 18.5	4.9 - 5.6	14.5 -17.0	4.4 - 5.2	19.5 - 22.5	5.9 - 6.9	17.5 - 20.5	5.2 - 6.2
RIVN 100 <sup>D</sup>	17.0 - 19.5	5.2 - 5.9	15.0 -17.5	4.6 - 5.3	20.5 - 23.5	6.2 - 7.2	18.5 - 21.5	5.6 - 6.6
RIHVL 120 <sup>D</sup>	17.5 - 21.0	5.3 - 6.4	15.5 - 18.5	4.7 - 5.6	21.5 - 25.0	6.6 - 7.6	20.0 - 23.0	6.1 - 7
RIHVN 150	18.5 - 22.5	5.6 - 6.9	16.5 -20.0	5.0 - 6.1	24.0 - 27.5	7.3 - 8.4	21.5 - 24.5	6.6 - 7.5
RIHVN 160 <sup>D</sup>	19.0 - 23.0	5.8 - 7.0	17.0 -20.5	5.2 - 6.2	25.0 - 28.5	7.6 - 8.7	22.5 - 25.5	6.9 - 7.8
RIHVN 200	20.5 - 25.0	6.2 - 7.6	18.5 -22.5	5.6 - 6.9	27.0 - 31.0	8.2 - 9.4	24.5 - 28.0	7.5 - 8.5